

Larry

1977 DATA
Crystal River Unit 2 Coal

AVERAGE MONTHLY EMISSIONS OF SO₂

<u>Month</u>	<u>lbs/mmBTU</u>
January	No Data
February	3.81
March	4.26
April	4.13
May	4.48
June	4.00
July	4.17
August	5.23
September	4.79
October	5.09
November	-0-
December	-0-

INTER-OFFICE CORRESPONDENCE

Production C-4

(Office - Location)

Subject:

Date: March 3, 1977
~~February 14, 1977~~

To: Mr. D. Rowland
Fuel and Special Projects

Attention Of:

The following are the weighted "as burned" coal analyses for Crystal River #2
for the month of Feb year 1977.

<u>TONS</u>	<u>% MOISTURE</u>	<u>% SULFUR</u>	<u>% ASH</u>	<u>BTU</u>
<u>88,803</u>	<u>12.4</u>	<u>2.1</u>	<u>10.3</u>	<u>11,028</u>

3.81 #/s SO₂/10⁶ BTU

R. W. Schooley

R. Schooley
Crystal River Plant Manager

RS/mcml/10

cc: Mr. G. W. Marshall

INTER-OFFICE CORRESPONDENCE

CR-1 & 2

(Office - Location)

Subject:

Date. MAR. 31, 1977

To: Mr. D. J. Rowland
Fuel and Special Projects

Attention Of

The following are the weighted averages of "As Burned" coal analysis for
Crystal River #2 for the month of MARCH Year 1977:

<u>Tons</u> <u>Burned</u>	<u>**Tons</u> <u>Analyzed</u>	<u>% Moisture</u>	<u>% Ash</u>	<u>% Sulfur</u>	<u>BTU/LB AR</u>
39,301	78610	13.0	10.3	2.3	10794

4.26/100
50/100

* Feb 25 - March 24
** March 1 - March 31

Roy E. Carr
R. E. Carr, Plant Chemist

R. W. Schooley
R. W. Schooley, Plant Manager

gv

cc: Manager of Production Services

JBC

BEST AVAILABLE COPY

FLORIDA POWER CORPORATION

INTER-OFFICE CORRESPONDENCE

CR-1 & 2
(Office - Location)2-0-3b

Subject: Monthly Coal Analysis Report

Date:

Mr. D. J. Rowland
Fuel & Special Projects

Attention Of:

The following are the weighted averages of "As Burned" coal analysis
for Crystal River #2 for the Month of April Year 1977:

<u>Tons Burned*</u>	<u>Tons Analyzed**</u>	<u>% Moisture</u>	<u>% Ash</u>	<u>% Sulfur</u>	<u>BTU/Lb AR</u>
<u>67,992</u>	<u>94,395</u>	<u>12.4</u>	<u>9.6</u>	<u>2.3</u>	<u>11,132</u>

4/1/10⁶ J
4-13

* First of month to 31st

** 25th of previous month to 25th

Melanie S. Adams
M. S. Adams, Plant ChemistR. W. Schooley
R. W. Schooley, Plant Manager

9V

cc: Manager of Production Services

FLORIDA POWER CORPORATION
INTER-OFFICE CORRESPONDENCE

CR-1 & 2
(Office - Location)

2-0-3b

Subject: Monthly Coal Analysis Report

Date:

To: Mr. D. J. Rowland
Fuel & Special Projects

Attention Of:

The following are the weighted averages of "As Burned" coal analysis for Crystal River #2 for the Month of May, Year 1977:

<u>Tons Burned*</u>	<u>Tons Analyzed**</u>	<u>% Moisture</u>	<u>% Ash</u>	<u>% Sulfur</u>	<u>BTU/Lb AR</u>
<u>69,213</u>	<u>49,870</u>	<u>10.4</u>	<u>10.8</u>	<u>2.5</u>	<u>11,164</u>

4.47/10⁶ BTU
4.48

* First of month to 31st

** 25th of previous month to 25th

Melanie S. Adams
M. S. Adams, Plant Chemist

R. W. Schooley
R. W. Schooley, Plant Manager

gv

cc: Manager of Production Services

INTER-OFFICE CORRESPONDENCE

CR-1 & 2

(Office - Location)

2-0-3b

Subject: Monthly Coal Analysis Report

Date:

To: Mr. D. J. Rowland
Fuel & Special Projects

Attention Of:

The following are the weighted averages of "As Burned" coal analysis for Crystal River #2 for the Month of June, Year 1977:

<u>Tons Burned*</u>	<u>Tons Analyzed**</u>	<u>% Moisture</u>	<u>% Ash</u>	<u>% Sulfur</u>	<u>BTU/Lb AR</u>
<u>85,186</u>	<u>72056</u>	<u>11.4</u>	<u>10.9</u>	<u>2.2</u>	<u>11,013</u>

3.9/10⁶ BTU
4.00

* First of month to 31st

** 25th of previous month to 25th

Ray E. Carr
M. S. Adams, Plant Chemist

R. W. Schooley
R. W. Schooley, Plant Manager

gv

cc: Manager of Production Services

FLORIDA POWER CORPORATION

INTER-OFFICE CORRESPONDENCE

CR-1 & 2

(Office - Location)

2-0-3b

Subject: Monthly Coal Analysis Report

Date:

To: Mr. D. J. Rowland
Fuel & Special Projects

Attention Of:

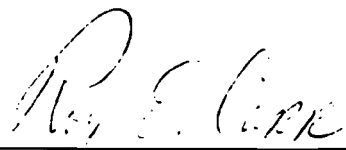
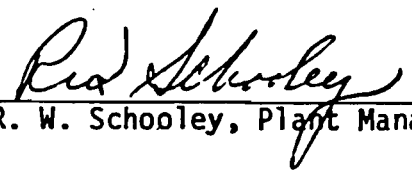
The following are the weighted averages of "As Burned" coal analysis for Crystal River #2 for the Month of July, Year 1977:

<u>Tons Burned*</u>	<u>Tons Analyzed**</u>	<u>% Moisture</u>	<u>% Ash</u>	<u>% Sulfur</u>	<u>BTU/Lb AR</u>
<u>92,323</u>	<u>90,352</u>	<u>11.4</u>	<u>8</u>	<u>2.3</u>	<u>11,025</u>

4-17

* First of month to 31st

** 25th of previous month to 25th


R. E. Carr, Plant Chemist
R. W. Schooley, Plant Manager

gv

cc: Manager of Production Services

INTER-OFFICE CORRESPONDENCE

CR-1 & 2

(Office - Location)

2-0-3b

Subject: Monthly Coal Analysis Report

Date: September 6, 1977

To: Mr. D. J. Rowland
Fuel & Special Projects

Attention Of:

The following are the weighted averages of "As Burned" coal analysis for Crystal River #2 for the Month of AUG., Year 1977:

<u>Tons Burned*</u>	<u>Tons Analyzed**</u>	<u>% Moisture</u>	<u>% Ash</u>	<u>% Sulfur</u>	<u>BTU/Lb AR</u>
<u>101,211</u>	<u>83,876</u>	<u>12.3</u>	<u>11.9</u>	<u>2.8</u>	<u>10,709</u>

11.0
24.2

5.2/106 BTU
H 10 5.23

* First of month to 31st

** 25th of previous month to 25th

Roy E. Carr

R. E. Carr, Plant Chemist

R. W. Schooley

R. W. Schooley, Plant Manager

gv

cc: Manager of Production Services

INTER-OFFICE CORRESPONDENCE

CR-1 & 2
(Office - Location)

2-0-3b

Subject: Monthly Coal Analysis Report

Date:

To: Mr. D. J. Rowland
Fuel & Special Projects

Attention Of:

FLORIDA POWER CORPORATION
FUEL DEPARTMENT

OCT 31 1977

RECEIVED

The following are the weighted averages of "As Burned" coal analysis for Crystal River #2 for the Month of SEPT., Year 1977:

<u>Tons Burned*</u>	<u>Tons Analyzed**</u>	<u>% Moisture</u>	<u>% Ash</u>	<u>% Sulfur</u>	<u>BTU/Lb AR</u>
<u>106,754</u>	<u>101,724</u>	<u>12.2</u>	<u>11.3</u>	<u>2.6</u>	<u>10,862</u>

479

* First of month to 31st

** 25th of previous month to 25th

Roy Carr
R. E. Carr, Plant Chemist.

R. W. Schooley
R. W. Schooley, Plant Manager

gv

cc: Manager of Production Services

FLORIDA POWER CORPORATION
INTER-OFFICE CORRESPONDENCE

CR-1 & 2
(Office - Location)

2-0-3b

Subject: Monthly Coal Analysis Report

Date:

To: Mr. D. J. Rowland
Fuel & Special Projects

Attention Of:

The following are the weighted averages of "As Burned" coal analysis for Crystal River #2 for the Month of Oct., Year 1977:

<u>Tons Burned*</u>	<u>Tons Analyzed**</u>	<u>% Moisture</u>	<u>% Ash</u>	<u>% Sulfur</u>	<u>BTU/Lb AR</u>
<u>23,374</u>	<u>16,099</u>	<u>12.9</u>	<u>12.0</u>	<u>2.7</u>	<u>10,613</u>
					5.09

* First of month to 31st

** 25th of previous month to 25th


R. E. Carr, Plant Chemist


R. W. Schooley, Plant Manager

gv

cc: Manager of Production Services

INTER-OFFICE CORRESPONDENCE

CR-1 & 2

(Office - Location)

2-0-3b

Subject: Monthly Coal Analysis Report

Date:

To: Mr. D. J. Rowland
Fuel & Special Projects

Attention Of:

*Corrected Copy!
Sorry!*FLORIDA POWER CORPORATION
FUEL DEPARTMENT

DEC 12 1977

RECEIVED

The following are the weighted averages of "As Burned" coal analysis for Crystal River #2 for the Month of Nov, Year 1977:

<u>Tons Burned*</u>	<u>Tons Analyzed**</u>	<u>% Moisture</u>	<u>% Ash</u>	<u>% Sulfur</u>	<u>BTU/Lb AR</u>
<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>

* First of month to 31st

** 25th of previous month to 25th

Roy E. Carr

R. E. Carr, Plant Chemist

R. W. Schooley

R. W. Schooley, Plant Manager

gv

cc: Manager of Production Services

INTER-OFFICE CORRESPONDENCE

CR-1 & 2

(Office - Location)

2-0-3b

Subject: Monthly Coal Analysis Report

Date:

FLORIDA POWER CORPORATION
FUEL DEPARTMENT

To: Mr. D. J. Rowland
Fuel & Special Projects

Attention Of:

FEB 9 1978

RECEIVED

The following are the weighted averages of "As Burned" coal analysis for Crystal River #2 for the Month of Dec, Year 1977:

<u>Tons Burned*</u>	<u>Tons Analyzed**</u>	<u>% Moisture</u>	<u>% Ash</u>	<u>% Sulfur</u>	<u>BTU/Lb AR</u>
<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>

* First of month to 31st

** 25th of previous month to 25th

Roy E. Carr
R. E. Carr, Plant Chemist

R. W. Schooley
R. W. Schooley, Plant Manager

gv

cc: Manager of Production Services



Florida Department of Environmental Regulation

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

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary

October 24, 1988

Mr. Bruce P. Miller, Chief
Air Programs Branch
Air, Pesticides, and Toxics
Management Division
U.S. EPA, Region IV
345 Courtland Street
Atlanta, Georgia 30365

Dear Mr. Miller:

Thank you for the opportunity to review your draft preliminary determination and permit conditions for the amended PSD permit (No. PSD-FL-007) for the Florida Power Corporation Crystal River Plant. We concur with your assessment of the BACT and air quality impacts associated with the No.'s 4 and 5 cooling towers. We have no other comments.

Sincerely,

Clair Fandy, Deputy Chief
Bureau of Air Quality Management

cc: Dr. J.P. Subramani



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

NOV 30 1988

4APT-APB

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. J. A. Hancock
Vice President
Fossil Operation
Florida Power Corporation
P.O. Box 14042
St. Petersburg, Florida 33733

RECEIVED

DEC 5 1988

DER-BAQM

RE: Florida Power Corporation Crystal River Plant - Permit Modification
(PSD-FL-007)

Dear Mr. Hancock:

Review of your November 24, 1987, and April 19, 1988, dispersion modelling analyses submitted in support of your May 11, 1988, request to remove the salt drift limit from NPDES permit FL0036366 and modify the above referenced permit to include cooling towers emissions has been completed. The incorporation of the cooling towers emissions into the above referenced Prevention of Significant Deterioration (PSD) permit issued on February 27, 1980, is subject to the rules for PSD contained in 40 CFR §52.51 and will constitute a permit modification. On October 5, 1988, EPA Region IV made a preliminary determination to issue the above permit modification and published a request for public comment on October 6, 1988. Public comment letters were received from Florida Power Corporation, Hollins Corporation, and the Florida Department of Environmental Regulation (DER). Subsequent to the public comment period, Florida Power Corporation and Hollins Corporation withdrew their comments regarding the preliminary determination and draft permit conditions. The Florida DER letter indicated they had no comments on the preliminary determination and draft permit conditions. Copies of these comment letters are contained in the final determination. The final determination recommends issuance of the modified PSD permit by EPA.

EPA has determined that the modified PSD permit, as described in the application, meets all the applicable requirements of 40 CFR §52.51. The Regional Administrator has made a final decision to issue the enclosed Permit Modification (PSD-FL-007): Part I. - Specific Conditions and Part II. - General Conditions. This authority is granted as of the date of issuance of the modified permit and is based solely on the requirement of 40 CFR §52.21, Prevention of significant deterioration of air quality. It does not apply to other permits issued by this Agency or by other agencies.

- b. Not less than once every three months, the drift eliminators of both towers shall be inspected from the concrete walkways by FPC staff or representatives to assure that the drift eliminators are clean and in good working order. Not less than annually, a complete inspection of the towers shall be conducted by a manufacturer of drift eliminators or by a consultant with recognized expertise in the field.
- c. An inspection protocol shall be submitted prior to the first field inspection. Certification that the drift eliminators are properly installed and in good working order shall be made at the time of submission of the reports noted below.

4. Reporting

- a. Reports on tower testing and inspection shall be submitted according to the following timeframe:
 - (1) Within 30 days after sealing of unit 5 tower (See item VII.I.3.a., above);
 - (2) Within 30 days after all visual inspections of the drift eliminators; and
 - (3) Within 45 days after the compliance testing of either the unit 4 or unit 5 tower.
- b. Should either tower emission rate exceed 175 lb/hr, the permittee shall do the following:
 - (1) Notify EPA and the Florida Department of Environmental Regulation (FDER) of the occurrence within 10 days of becoming aware of the situation.
 - (2) Provide an assessment of necessary corrective actions and a proposed schedule of implementation within an additional 20 days.
 - (3) Expeditiously complete corrective actions.
 - (4) Retest the tower within three months after the correction is completed.
 - (5) Submit the testing report within 45 days after completion of said tests.

5. Ambient Monitoring

- a. The permittee shall continue the salt drift monitoring program approved by EPA and the FDER on January 6, 1981, and January 28, 1981, respectively. Reports shall be submitted quarterly to EPA and FDER.

- b. FPC shall submit to EPA Region IV and FDER, by no later than November 30, 1988, a plan to expand and modify the existing monitoring program. This expanded monitoring program must be approved by FDER and EPA and shall include the following:

- (1) An increase in the number of deposition monitors and monthly vegetation monitoring locations to include a representative number of freshwater marshes and coastal hammock and coastal hydric hammock communities.
- (2) Initiation of a soil salt sampling program which includes obtaining baseline soil salt concentration data by sampling soil at representative locations.
- (3) Initiation of a surface water salt sampling program which includes obtaining baseline surface water salt concentration data by sampling water in a representative number of fresh water marshes.
- (4) Inclusion of deposition, soil, fresh water, and vegetation monitoring stations on appropriate portions of Hollins Corporation land.
- (5) Collection of data to more accurately determine the natural background deposition at Crystal River.

Upon approval, the revised plan shall be expeditiously implemented.

- c. If, as determined by EPA, FDER, or the permittee, the monitoring data indicate that significant impacts are occurring to the surrounding area, the permittee shall consult with EPA and FDER to mitigate these impacts. Within 60 days thereafter, FPC shall submit to EPA and FDER an assessment of the damage, options to reduce the impact, and a proposed course of action to correct the damage. Upon the direction of the EPA or FDER, FPC shall implement corrective action. Should the data indicate that no significant impacts are occurring to the surrounding area, the permittee, after consultation with and approval by the Director of the EPA Region IV Air, Pesticides, and Toxics Management Division and FDER, may reduce or eliminate the monitoring program.

6. Addresses for submitting reports are:

EPA Region IV

Chief, Air Compliance Branch
U.S. Environmental Protection Agency
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Florida Department of Environmental Regulation (FDER)

Deputy Chief, Compliance and Ambient Monitoring
Bureau of Air Quality Management
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

PART II. - General Conditions

1. The permittee shall provide EPA and FDER with 30 days notice prior to conducting any compliance testing required under specific condition 2.a.
2. The permittee shall retain records of all information resulting from monitoring activities and information indicating operation parameters as specified in the specific conditions of this permit for a minimum of two (2) years from the date of recording.
3. 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 EPA and FDER with the following information in writing within 10 days of such condition:

- (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; and
- (d) steps taken by the permittee to reduce and eliminate the noncomplying emission.

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

4. Any proposed change in the information contained in the final determination regarding facility emissions or changes in the quantity or quality of materials processed that would result in new or increased emissions or ambient air quality impact must be reported to EPA and FDER. If appropriate, modifications to the permit may then be made by EPA or FDER

to reflect 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.

5. In the event of any changes in control of ownership of the source described in the permit, the permittee shall notify the succeeding owner of the existence of this permit and both EPA and FDER of the change in control of ownership within 30 days.
6. The permittee shall allow representatives of the FDER or representatives of the EPA, upon 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 this 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 Clean Air Act;
 - (c) to inspect at reasonable times any monitoring equipment or monitoring method required in this permit;
 - (d) to sample at reasonable times any emissions of pollutants; and
 - (e) to perform at reasonable times an operation and maintenance inspection of the permitted source.
7. The conditions of this modified permit are severable, and if any provision of this modified permit or the application of any provisions of this modified permit to any circumstances is held invalid, the application of such provision to other circumstances and the remainder of this modified permit shall not be affected.

PERMIT MODIFICATION
(PSD-FL-007)

Part I. - Specific Conditions

1. Emission Limitations

- a. Cooling tower emissions from each unit individually shall not exceed the following:

Total Suspended Particulate: 175 lb/hr

2. Compliance Tests

- a. Unit 4 tower shall be tested after October 1, 1988, but no later than February 17, 1989. The first compliance test for unit 5 tower shall be conducted after January 1, 1992, but not later than May 1, 1992. Additionally, units 4 and 5 shall be tested no less than once every five years thereafter; unit 4 is to be tested during the October 1 to December 31 period of the respective calendar year and Unit 5 is to be tested during the January 1 to May 1 period of the respective calendar year.
- b. The following test methods and procedures shall be used for compliance testing:
- (1) Particulate emissions shall be measured by the sensitive paper (SP) method for each cooling tower.
 - (2) Testing shall be done at either the drift eliminator level within the tower or at the tower exit plane.
 - (3) For demonstrating compliance with the applicable emission limit, not less than three tests shall be conducted. All valid data from each of these tests shall be averaged in demonstrating compliance. No individual test result shall determine compliance or noncompliance. The emissions rate reported as a percent of the circulating water as well as lb/hr and total dissolved solids in the cooling tower basin(s) and intake water shall be reported for each test.

3. Air Pollution Control Equipment

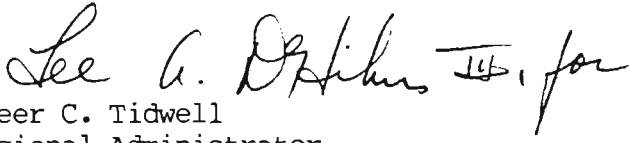
- a. Within three months after permit issuance, all areas adjacent to concrete structures within the unit 5 tower shall be properly sealed to assure that the drift eliminators are not bypassed.

Approval to make modification to the cooling towers serving units four and five is granted as of the date of this letter, pursuant to §124.15(b)(3) of the Consolidated Permit Regulations (May 19, 1980). Please be advised that a violation of any existing or modified permit conditions, as well as any construction which proceeds in material variance with information contained in your May 11, 1988, request and EPA's final determination (enclosed), will be subject to enforcement action. Therefore, based on our recommendations, the modification to incorporate the cooling towers emissions into PSD permit PSD-FL-007 is approved.

Please be advised that this permit modification becomes a binding part of the PSD permit issued on February 27, 1980. All conditions contained therein remain in full force and effect.

Any questions concerning this approval may be directed to Mr. Bruce Miller, Chief, Air Programs Branch at (404) 347-2864.

Sincerely yours,


Greer C. Tidwell
Regional Administrator

Enclosures

cc: Mr. Steve Smallwood, P.E., Chief
Bureau of Air Quality Management
Florida Department of Environmental Regulation

Final Determination
and Permit Conditions
Florida Power Corporation Crystal River Plant
Citrus County, Florida

Modification to
PSD Permit
(PSD-FL-007)
Prevention of Significant Deterioration
(40 CFR 52.21)

NOV 30 1988

I. INTRODUCTION

Pursuant to 40 CFR §52.21 of the Prevention of Significant Deterioration (PSD) Rules and Regulations, Federal PSD permit (PSD-FL-007) is hereby modified. On February 27, 1980, EPA Region IV issued PSD permit PSD-FL-007 to Florida Power Corporation (FPC) for the construction and operation of coal fired boilers 4 and 5 at their Crystal River Plant. In addition to these new units, FPC also constructed two natural draft cooling towers to serve boilers 4 and 5. At the time PSD permit PSD-FL-007 was issued, EPA Region IV did not incorporate the natural draft cooling towers into the PSD permit. Salt drift rates for these two cooling towers were included in the National Pollutant Discharge Elimination System (NPDES) permit No. FL 0036366 issued on April 3, 1981, and reissued on June 26, 1986.

On May 11, 1988, FPC requested that EPA remove the salt drift rates for these two cooling towers and modify the existing PSD permit to include emissions from the cooling towers serving units 4 and 5. The purpose of this modified PSD permit is to add the two natural draft cooling towers (4 and 5) to the PSD permit and to remove from the NPDES permit the emission limits on the drift eliminators for the cooling towers. To support this change FPC has made additional drift measurements at natural draft cooling tower 5 and has prepared dispersion modeling to support a revision to the PSD permit. The revision will effectively remove the drift rate limit on each tower from the NPDES permit and replace the limit with a lb/hr emission rate in the PSD permit. The PSD permit also requires salt deposition monitoring and environmental assessment.

The only pollutant that must be addressed is particulate matter. Both total suspended particulate (TSP) and PM-10 (particulate less than 10 microns in size) need to be addressed in this analysis. At the present time the PSD increments are measured as TSP and the National Ambient Air Quality Standards (NAAQS) are measured as PM-10. In order to assure a worst case analysis, all particulates were assumed to be emitted as PM-10. Natural draft cooling towers do not have significant emission rates for any other pollutant.

II. RULE APPLICABILITY

The Crystal River site is located in Citrus County, Florida. This County is attaining the NAAQS for all criteria pollutants. In attainment areas, all fossil fuel steam electric plants of more than 250 mmBtu/hr which would emit greater than 100 tons per year (TPY) of any regulated pollutant must submit a best available control technology (BACT) determination, an ambient air quality analysis, a source impact analysis, and an additional impact analysis (covering soils, vegetation, and visibility) for each pollutant emitted in significant amounts. In addition, a Class I impact analysis is required because the source is located within 100 kilometers of the Chassahowitzka National Wilderness Area. These analyses were provided with the original application for PSD permit PSD-FL-007. However, this

application did not include an analysis of the natural draft cooling towers.

III. PSD APPLICABILITY DETERMINATION

Title 40 of the Code of Federal Regulations, Section 52.21, requires that each pollutant subject to PSD review undergo a PSD analysis. Only those emissions increases equal to or greater than the PSD significant emissions rate need to undergo this analysis. The pollutants subject to review for this modified permit are TSP and PM₁₀ which will have emissions increases above the significant emissions rates.

Based upon the emission calculations, the total annual tonnage of the regulated air pollutant emitted from each tower to the atmosphere is listed as follows:

<u>Pollutant</u>	<u>Maximum Annual Emissions (Tons/year)</u>	<u>PSD Significant Emission Rate (Tons/year)</u>
Total Suspended Particulate	766.5	25
PM ₁₀	766.5	15

IV. BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

New source performance standards for natural draft cooling towers have not been established. However, for salt water natural draft cooling towers, the amount of salt water drift is controlled by drift eliminators. Drift eliminators consist of a fill made of static plastic inserts which allow for the removal of small particulate by centrifugal force. Drift eliminators are the only effective type of emission controls for natural draft cooling towers. Therefore, BACT for these natural draft cooling towers is drift eliminators (Thermotec Spectra - C).

Although the design of drift eliminators has changed and has been improved since the installation of the Crystal River drift eliminators, EPA has determined that for this modified permit, BACT is the technology that was available at the time the original PSD application was determined complete (December 28, 1977).

V. AIR QUALITY ANALYSIS

The air quality impact of the natural draft cooling towers 4 and 5 has been completed and used in conjunction with (1) an analysis of all permitted PSD particulate sources, and with (2) an analysis of the NAAQS. Based on these analyses, EPA has reasonable assurance that the particulate sources at the Crystal River Plant will not cause or contribute to a violation of any PSD increment or ambient air quality standard.

A. Modeling Methodology

The EPA-approved Industrial Source Complex Short-Term (ISCST) dispersion model was used in the air quality impact analysis (UNAMAP version 6, change 3). This model determines ground-level concentrations of gaseous and solid pollutants emitted into the atmosphere by point, area, and volume sources. The model incorporates pollutant removal mechanisms such as deposition or transformation. The ISCST model also allows for the separation of sources, building wake downwash, and various other input and output features. Both screening and refined analyses were completed using this model. The source parameters and sources modeled are given below.

Part 1. FPC CRYSTAL RIVER PLANT MODELED PSD SOURCES

Source	UTM-E (km)	UTM-N (km)	Stack Height (M)	Exit Temp. (K)	Exit Velo- city (M/S)	Dia- meter (M)	Emission Rate (gm/sec)
FPC Blr. 4 100% Load	334.649	3205.373	183.0*	396	21.03	7.77	78.2
FPC Blr. 5 100% Load	334.648	3205.272	183.0	396	21.03	7.77	79.4
FPC Blr. 4 75% Load	-	-	-	390	18.14	-	58.7
FPC Blr. 5 75% Load	-	-	-	390	18.14	-	59.6
FPC Blr. 4 50% Load	-	-	-	385	15.24	-	39.1
FPC Blr. 5 50% Load	-	-	-	385	15.24	-	39.7
FPC Twr. 4	334.298	3205.431	-	311	3.3	65.2	22.05
FPC Twr. 5	34.295	3205.185	-	311	3.3	65.2	22.05

* This source was modeled at a height of 178.2 meters.

Part 2. OTHER MODELED PSD SOURCES

Source	UTM-E (km)	UTM-N (km)	Stack Height (M)	Exit Temp. (K)	Exit Velo- city (M/S)	Dia- meter (M)	Emission Rate (gm/sec)
Florida Mining and Materials (FMM)							
Source Number 1	21700	-35400	27.43	470	7.48	4.88	2.72
Source Number 2	21700	-35400	15.24	477	21.85	2.29	2.36
Florida Crushed Stone (FCS)							
Source Number 1	25700	-42900	97.60	381	13.71	4.88	14.82

Part 3. OTHER MODELED FPC NAAQS SOURCES

Source	UTM-E (km)	UTM-N (km)	Stack Height (M)	Exit Temp. (K)	Exit Velo- city (M/S)	Dia- meter (M)	Emission Rate (gm/sec)
FPC Blr. 1 100% Load	334.306	3204.210	152.0	417	40.54	4.57	45.9
FPC Blr. 2 100% Load	334.245	3204.211	153.0	422	48.77	4.88	58.3
FPC Blr. 1 75% Load	-	-	-	406	30.48	-	34.4
FPC Blr. 2 75% Load	-	-	-	411	36.88	-	23.0
FPC Blr. 1 50% Load	-	-	-	395	20.42	-	43.7
FPC Blr. 2 50% Load	-	-	-	400	24.99	-	29.2

Part 4. OTHER MODELED NAAQS SOURCES

Source	UTM-E (km)	UTM-N (km)	Stack Height (M)	Exit Temp. (K)	Exit Velo- city (M/S)	Dia- meter (M)	Emission Rate (gm/sec)
FMM Number 3	21700	-35400	9.15	302	10.70	0.91	4.69
FMM Number 4	21700	-35400	22.90	302	7.01	0.91	4.69
FMM Number 5	21700	-35400	21.00	440	38.40	0.61	4.29
FMM Number 6	21700	-35400	15.20	444	8.84	3.05	1.27
FMM Number 7	21700	-35400	25.30	364	15.80	0.91	4.55
FMM Number 8	21700	-35400	44.20	299	48.50	0.61	4.29
FMM Number 9	21700	-35400	65.38	302	24.10	0.61	4.69
FMM Number 10	21700	-35400	43.00	302	10.70	0.91	4.32

Five years of sequential hourly meteorological data were used in the modeling analysis. Both surface and upper air data from the National Weather Service in Tampa, Florida (1981-1985) were used. Since five years of data were used, the highest, second-high, short-term predicted concentrations are compared with the appropriate short-term ambient standard or PSD increment. The highest predicted concentrations were used for comparison with the long-term standards (annual).

All EPA regulatory options in the ISCST model were used. The rural option of the model was chosen. Downwash (building wake effects) was not used since all sources were at their GEP stack height.

The initial set of screening model runs determined the approximate location of the highest, second high concentrations for the Class II PSD increments and NAAQS analysis. A polar coordinate receptor grid with 36 radials ten degrees apart and ten downward distances from 0.5 km to 7.5 km was used. A Class I analysis included receptors spaced every 200 meters from 21.3 to 23.9 kilometers between 153° and 181°. In this initial screening analysis several sources were colocated and particle deposition was not included.

A second analysis for the Class II PSD area was done which included all sources at their exact locations. Particle deposition factors were included as follows in the analysis.

PARTICLE SIZE DISTRIBUTION DATA USED IN THE ISCST MODEL

Particle Size				Mass Distri- bution Percent	Settling Velocity		Reflec- tion Coef- ficient
Diameter (um)	Radius (um)	Average (um)	Average (cm)		(cm/s)	(m/s)	
Range	Average						
0-30	15	7.5	0.00075	0.0	0.7	0.007	0.80
30-70	50	25	0.00250	11.9	7.4	0.074	0.55
70-90	80	40	0.00400	11.7	19.0	0.190	0.28
90-110	100	50	0.00500	15.1	29.8	0.298	0.0
110-130	120	60	0.00600	13.4	42.8	0.428	0.0
130-150	140	70	0.00700	11.6	58.3	0.583	0.0
150-180	165	82.5	0.00825	13.1	81.0	0.810	0.0
180-240	210	105	0.01050	14.2	131.0	1.310	0.0
240-400	320	160	0.01600	9.0	304.0	3.040	0.0

This analysis included 252 receptors in a radial grid at distances of 0.8 km to 4.0 km centered on cooling tower 4. A refined analysis was then done with receptors every 100 meters and at crosswind intervals of 2 degrees.

For the PSD Class I refined increment analysis, receptors were also defined to the nearest 100 meters and at crosswind intervals of 2 degrees.

B. Modeling Results

Summaries of the maximum TSP concentrations for comparison to the PSD Classes I and II increments and the NAAQS are as follows:

MAXIMUM TSP SCREENING CONCENTRATIONS FOR COMPARISON TO THE PSD CLASS I, CLASS II, AND AAQS ANALYSIS (ug/m³)

<u>Year</u>	<u>PSD Class I</u>			<u>PSD Class II</u>			<u>NAAQS</u>				
	<u>Con- cen- tra- tion</u>	<u>Di- rect- tion (°)</u>	<u>Dis- tance (km)</u>	<u>Con- cen- tra- tion</u>	<u>Di- rect- tion (°)</u>	<u>Dis- tance (km)</u>	<u>Mod- eled Sour- ces</u>	<u>Back- ground+</u>	<u>To- tal</u>	<u>Di- rect- tion (°)</u>	<u>Dis- tance (km)</u>
<u>24-Hour</u>											
1981	1.2	181	21.3	11.0	270	2.4	11.0	88	99.0	270	2.4
1982	0.98	181	21.3	9.8	230	1.5	9.8	88	97.8	230	1.5
1983	1.2	173	21.5	10.0	220	1.5	10.0	88	98.0	220	1.5
1984	1.0	175	21.4	10.6	260	1.5	10.6	88	98.6	260	1.5
1985	0.98	173	21.5	10.2	250	1.5	10.2	88	98.2	250	1.5
<u>Annual</u>											
1981	0.16	153	23.9	1.92	260	1.1	1.95	42	44.0	260	1.1
1982	0.11	178	21.3	1.53	240	1.1	1.54	42	43.5	240	1.1
1983	0.12	170	21.6	1.43	240	1.1	1.48	42	43.5	240	1.1
1984	0.13	181	21.3	1.84	240	1.1	1.86	42	43.9	240	1.1
1985	0.10	178	21.3	1.76	240	1.1	1.79	42	43.8	240	1.1

Note: PSD Class I increments are 10 ug/m³ 24-hour average, and 5 ug/m³ annual average;
 PSD Class II increments are 37 ug/m³ 24-hour average, and 19 ug/m³ annual average;
 PSD significance levels are 5 ug/m³ 24-hour average, and 1 ug/m³ annual average.

+ Based on FPC monitoring data collected from July 1986 to June 1987, second highest 24-hour and highest annual average concentrations.

MAXIMUM REFINED PREDICTED TSP CONCENTRATIONS FOR COMPARISON
TO PSD INCREMENTS AND AAQS

<u>Source Air Quality Requirement</u>	<u>24-hour</u>	<u>Annual</u>
<u>PSD Class I Analysis</u>		
PSD Increment-Consuming Sources	1.2	0.16
Class II Allowable Increment	10	5
<u>PSD Class II Analysis</u>		
PSD Increment-Consuming Sources	11.2	1.9
Class II Allowable Increment	37	19
<u>AAQS Analysis</u>		
Existing and PSD Increment- Consuming Sources, Background	99.2	44.0
Florida TSP AAQS	150	60

As shown in these tables, the maximum predicted concentrations are below the applicable maximum allowable PSD increments and NAAQS.

C. Analysis of Existing Air Quality

Preconstruction ambient air quality monitoring data are required for all pollutants subject to PSD review. In general, one year of quality assured data using EPA reference methods, or equivalent methods, must be submitted. Sometimes less than one year of data, but not less than four months, may be accepted when EPA approval is given. An exemption to the monitoring requirement can be obtained if the maximum air quality impact, as determined through air quality modeling, is less than a pollutant-specific de minimis concentration. In addition, if current monitoring data already exist and these data are representative of the proposed source area, then these data may be used at the discretion of the reviewing authority. For TSP the de minimis ambient impact level is 10 ug/m^3 . A PM_{10} de minimis ambient impact level has not been established. At the time of the original PSD application, air quality impacts for TSP were less than the de minimis value and preconstruction monitoring was not required. However, FPC does maintain a TSP monitor near the Crystal River site, and the most recent year of monitoring data was used to determine TSP ambient background levels.

VI. ADDITIONAL IMPACTS ANALYSIS

A. Impacts on Soils and Vegetation

Cooling towers will lose a portion of the circulating water due to evaporation and to entrainment of water droplets in the air used to achieve the cooling. The water droplets contain salt concentrations similar to the circulating water. These salt water droplets, known as salt drift, are deposited on the land as salt deposition. The salt deposition contains sodium and chloride ions which can cause long-term damage to soils and vegetation. The amount of salt deposited on the surrounding land and plant leaf surfaces determines if damage may occur. Salt drift models exist which use environmental, meteorological, and operational variables to predict the amount of salt deposited on areas surrounding cooling towers.

A natural salt drift exists near large bodies of salt water. The natural salt deposition from the Gulf of Mexico on the land near the Crystal River Power Complex has been measured to range from 3.4 to 6.7 $\text{g}/(\text{m}^2\text{-yr})$.¹ The biotic communities in the Crystal River area contain a majority of plant species that have adapted to the salt deposition.²

A salt drift model has been developed for the cooling towers operating at the Crystal River Power Complex and salt deposition rates have been

¹KBN Engineering and Applied Sciences, Inc., Environmental Assessment of Salt Drift Impacts from Florida Power Corporation Crystal River Plant, June 1988.

²Ibid.

predicted for the areas surrounding the cooling towers.³ EPA has developed a worst case operating scenario augmenting the salt deposition rates predicted by the model and a worst case analysis of the natural salt deposition.⁴ These worst case salt deposition rates were used to assess the potential damage to the soil and indigenous vegetation of Crystal River. The maximum worst case salt deposition (including worst case background deposition) is 16.2 g/(m²-yr) for off site areas. There should be no impacts to the soil. The species that have low tolerance to salt may be adversely impacted by the salt deposition. However, those species that have low resistance to salt are primarily found at the low-lying vegetation level, and the taller plants, which are predominantly salt tolerant species, reduce the amount of salt deposited on the sensitive species. Therefore, the damage to sensitive species will be reduced.

There are approximately five acres of off-site freshwater marshes that may be impacted by the salt drift. These marshes contain about one-third low resistance species and do not contain tall vegetation. The potential impacts to the freshwater marshes may cause a species shift where more salt tolerant species will gradually become more predominant in the freshwater marshes.

B. Impact on Visibility

A Level I visibility screening analysis was performed to determine if any adverse visibility impacts may occur in the Class I area. The analysis showed that there was no potential for an adverse impact on visibility in this area. The potential visibility impact due to cooling towers 4 and 5 may be found in Appendix B to this report.

C. Growth-Related Air Quality Impacts

The proposed facility is not expected to significantly change employment, population, housing, or commercial/industrial development in the area to the extent that a significant air quality impact will result.

D. Noncriteria and Unregulated Pollutants

Natural draft cooling towers do not emit significant amounts (as defined in the PSD regulation) of any noncriteria pollutant or unregulated pollutants.

E. GEP Stack Height Determination

Natural draft cooling towers are not subject to the Good Engineering Practice (GEP) stack height regulations.

³ KBN Engineering and Applied Sciences, Inc., Environmental Assessment of Salt Drift Impacts from Florida Power Corporation Crystal River Plant, June 1988.

⁴ U.S. Environmental Protection Agency, Office of Policy and Management, Region IV, Assessment of Salt Deposition Impacts at Crystal River, August 31, 1988.

VII. FINAL PERMIT

Part I. - Specific Conditions

1. Emission Limitations

- a. Cooling tower emissions from each unit individually shall not exceed the following:

Total Suspended Particulate: 175 lb/hr

2. Compliance Tests

- a. Unit 4 tower shall be tested after October 1, 1988, but no later than February 17, 1989. The first compliance test for unit 5 tower shall be conducted after January 1, 1992, but not later than May 1, 1992. Additionally, units 4 and 5 shall be tested no less than once every five years thereafter; unit 4 is to be tested during the October 1 to December 31 period of the respective calendar year and Unit 5 is to be tested during the January 1 to May 1 period of the respective calendar year.
- b. The following test methods and procedures shall be used for compliance testing:
 - (1) Particulate emissions shall be measured by the sensitive paper (SP) method for each cooling tower.
 - (2) Testing shall be done at either the drift eliminator level within the tower or at the tower exit plane.
 - (3) For demonstrating compliance with the applicable emission limit, not less than three tests shall be conducted. All valid data from each of these tests shall be averaged in demonstrating compliance. No individual test result shall determine compliance or noncompliance. The emissions rate reported as a percent of the circulating water as well as lb/hr and total dissolved solids in the cooling tower basin(s) and intake water shall be reported for each test.

3. Air Pollution Control Equipment

- a. Within three months after permit issuance, all areas adjacent to concrete structures within the unit 5 tower shall be properly sealed to assure that the drift eliminators are not bypassed.

- b. Not less than once every three months, the drift eliminators of both towers shall be inspected from the concrete walkways by FPC staff or representatives to assure that the drift eliminators are clean and in good working order. Not less than annually, a complete inspection of the towers shall be conducted by a manufacturer of drift eliminators or by a consultant with recognized expertise in the field.
- c. An inspection protocol shall be submitted prior to the first field inspection. Certification that the drift eliminators are properly installed and in good working order shall be made at the time of submission of the reports noted below.

4. Reporting

- a. Reports on tower testing and inspection shall be submitted according to the following timeframe:
 - (1) Within 30 days after sealing of unit 5 tower (See item VII.I.3.a., above);
 - (2) Within 30 days after all visual inspections of the drift eliminators; and
 - (3) Within 45 days after the compliance testing of either the unit 4 or unit 5 tower.
- b. Should either tower emission rate exceed 175 lb/hr, the permittee shall do the following:
 - (1) Notify EPA and the Florida Department of Environmental Regulation (FDER) of the occurrence within 10 days of becoming aware of the situation.
 - (2) Provide an assessment of necessary corrective actions and a proposed schedule of implementation within an additional 20 days.
 - (3) Expeditiously complete corrective actions.
 - (4) Retest the tower within three months after the correction is completed.
 - (5) Submit the testing report within 45 days after completion of said tests.

5. Ambient Monitoring

- a. The permittee shall continue the salt drift monitoring program approved by EPA and the FDER on January 6, 1981, and January 28, 1981, respectively. Reports shall be submitted quarterly to EPA and FDER.

- b. FPC shall submit to EPA Region IV and FDER, by no later than November 30, 1988, a plan to expand and modify the existing monitoring program. This expanded monitoring program must be approved by FDER and EPA and shall include the following:

- (1) An increase in the number of deposition monitors and monthly vegetation monitoring locations to include a representative number of freshwater marshes and coastal hammock and coastal hydric hammock communities.
- (2) Initiation of a soil salt sampling program which includes obtaining baseline soil salt concentration data by sampling soil at representative locations.
- (3) Initiation of a surface water salt sampling program which includes obtaining baseline surface water salt concentration data by sampling water in a representative number of fresh water marshes.
- (4) Inclusion of deposition, soil, fresh water, and vegetation monitoring stations on appropriate portions of Hollins Corporation land.
- (5) Collection of data to more accurately determine the natural background deposition at Crystal River. ✓

Upon approval, the revised plan shall be expeditiously implemented.

- c. If, as determined by EPA, FDER, or the permittee, the monitoring data indicate that significant impacts are occurring to the surrounding area, the permittee shall consult with EPA and FDER to mitigate these impacts. Within 60 days thereafter, FPC shall submit to EPA and FDER an assessment of the damage, options to reduce the impact, and a proposed course of action to correct the damage. Upon the direction of the EPA or FDER, FPC shall implement corrective action. Should the data indicate that no significant impacts are occurring to the surrounding area, the permittee, after consultation with and approval by the Director of the EPA Region IV Air, Pesticides, and Toxics Management Division and FDER, may reduce or eliminate the monitoring program.

6. Addresses for submitting reports are:

EPA Region IV

Chief, Air Compliance Branch
U.S. Environmental Protection Agency
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Florida Department of Environmental Regulation (FDER)

Deputy Chief, Compliance and Ambient Monitoring
Bureau of Air Quality Management
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

PART II. - General Conditions

1. The permittee shall provide EPA and FDER with 30 days notice prior to conducting any compliance testing required under specific condition 2.a.
2. The permittee shall retain records of all information resulting from monitoring activities and information indicating operation parameters as specified in the specific conditions of this permit for a minimum of two (2) years from the date of recording.
3. 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 EPA and FDER with the following information in writing within 10 days of such condition:
 - (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; and
 - (d) steps taken by the permittee to reduce and eliminate the noncomplying emission.

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

4. Any proposed change in the information contained in the final determination regarding facility emissions or changes in the quantity or quality of materials processed that would result in new or increased emissions or ambient air quality impact must be reported to EPA and FDER. If appropriate, modifications to the permit may then be made by EPA or FDER

to reflect 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.

5. In the event of any changes in control of ownership of the source described in the permit, the permittee shall notify the succeeding owner of the existence of this permit and both EPA and FDER of the change in control of ownership within 30 days.
6. The permittee shall allow representatives of the FDER or representatives of the EPA, upon 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 this 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 Clean Air Act;
 - (c) to inspect at reasonable times any monitoring equipment or monitoring method required in this permit;
 - (d) to sample at reasonable times any emissions of pollutants; and
 - (e) to perform at reasonable times an operation and maintenance inspection of the permitted source.
7. The conditions of this modified permit are severable, and if any provision of this modified permit or the application of any provisions of this modified permit to any circumstances is held invalid, the application of such provision to other circumstances and the remainder of this modified permit shall not be affected.

VIII. Public Comments/Notice

Pursuant to Public Notice No. 88FL149 dated October 6, 1988, public comment letters were received during the 30 day comment period from Florida Power Corporation, Hollins Corporation, and the Florida Department of Environmental Regulation (DER). Subsequent to the public comment period, Florida Power Corporation and Hollins Corporation withdrew their comments submitted regarding Public Notice No. 88FL149. The Florida DER letter dated October 31, 1988, indicated that they had no comments regarding the preliminary determination and draft permit conditions. The public comment notice and letters may be found in Appendix A of this report.

APPENDIX A

U.S. Environmental Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365
404/347-3004

Public Notice No. 88FL149

DATE: October 6, 1988

NOTICE OF PROPOSED MODIFICATIONS OF
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT
AND PREVENTION OF SIGNIFICANT DETERIORATION PERMIT

The U.S. Environmental Protection Agency (EPA) proposes to modify the National Pollutant Discharge Elimination System (NPDES) Permit No. FL0036366 to the Florida Power Corporation (FPC); P.O. Box 14042, St. Petersburg, FL 33733; for its Crystal River Power Plant, Units 4 and 5; Crystal River, Citrus County, Florida. EPA also proposes to modify the Prevention of Significant Deterioration Permit (PSD) No. PSD-FL-007. The proposed permit modifications will remove limitations and monitoring requirements related to salt drift from the Unit 4 and 5 cooling towers from the NPDES permit and place them in the PSD permit. The PSD modification would also allow an increase in drift rate and would require an increase in environmental monitoring requirements. The proposed NPDES permit modification does not change any limitations on the amounts of pollutants allowed to be discharged in wastewaters from the facility. The facility generates and transmits electricity (SIC Code 4911).

EPA has conducted an evaluation of the potential environmental impacts to plants, animals, groundwater, and soils in surrounding areas and has concluded that there will be no significant long term unacceptable environmental impacts from the modification of these permits. EPA also has required the FPC to conduct an air quality demonstration to show that the particulate PSD increments and ambient air quality standards are protected. The preliminary determination has concluded that:

- ° Best Available Control Technology (BACT) is represented by drift eliminators (Thermotec Spectra - C) for the control of total suspended particulates (TSP).
- ° The additional TSP Class II increment consumption incurred by the addition of Unit 4 and 5 cooling towers to the PSD permit is 10 percent of the annual mean TSP increment and 29 percent of the 24-hour TSP increment. The maximum degree of TSP Class II consumption for the entire FPC plant including other increment consuming sources within the area is 10 percent

of the annual mean TSP increment and 30 percent of the 24-hour TSP increment. The maximum Class II increment concentration occurs at a distance of less than 1/4 of a mile from the center of the FPC plant.

- ° For the Class I Chassahowitsika Wilderness Area, the additional degree of TSP increment is less than one percent of the annual increment and three percent of the 24-hour increment. The maximum Class I increment consumption from all PSD sources within the area is three percent of the annual increment and 12 percent of the annual increment and 12 percent of the 24-hour increment.
- ° The maximum combined pollutant concentration from all TSP sources at the FPC plant and other sources in the area will be less than the National Ambient Air Quality Standards (NAAQS). The NAAQS are levels set by EPA which identify the ambient concentrations necessary to protect human health and welfare with an adequate margin of safety.

Persons wishing to comment upon or object to any aspects of permit modifications, or wishing to request a public hearing, are invited to submit same in writing within thirty (30) days of the date of this notice to the Office of Congressional and External Affairs, Environmental Protection Agency, 345 Courtland Street, N.E., Atlanta, Georgia 30365, ATTN: Public Notice Coordinator. The public notice number, NPDES number and PSD number should be included in the first page of comments.

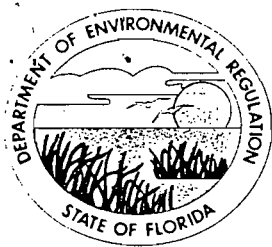
All comments received within the 30-day period will be considered in the formulation of final determinations regarding the permits. Any interested person may, within the 30-day period, request a public hearing. Where there is a significant degree of public interest in the proposed permit modifications, the EPA Regional Administrator or designated agent will hold a public hearing.

After consideration of all timely written comments and the requirements and policies in the Act and appropriate regulations, the EPA Regional Administrator will make determinations regarding the permit modification. If the determinations are substantially unchanged from those announced by this notice, the EPA Regional Administrator will so notify all persons submitting written comments. If the determinations are substantially changed, the EPA Regional Administrator will issue a public notice indicating the revised determinations. Requests for an evidentiary hearing may be filed after the Regional Administrator makes the above-described determinations. Additional information regarding an evidentiary hearing is available in 40 CFR 124, Subpart E (48 FR 14278 - April 1, 1983), or by contacting the Office of the Regional Counsel at the above address or at telephone number 404/347-2335.

The application is available for public inspection during normal business hours, 8:30 a.m. to 5:00 p.m., Monday through Friday, except legal holidays.

Copies of the modeling demonstration and revised preliminary determination are available for review at the following locations:

1. EPA Region IV
Air Programs Branch
345 Courtland Street, N.E.
Atlanta, Georgia 30365
2. Florida Department of Environmental Regulation
Bureau of Air Quality Management
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301



Florida Department of Environmental Regulation

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

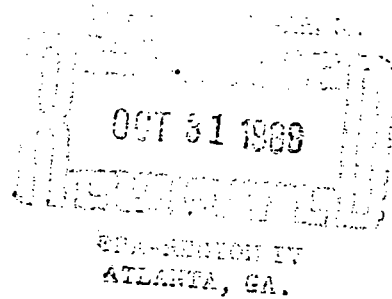
Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary

October 24, 1988

Mr. Bruce P. Miller, Chief
Air Programs Branch
Air, Pesticides, and Toxics
Management Division
U.S. EPA, Region IV
345 Courtland Street
Atlanta, Georgia 30365



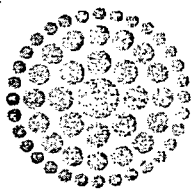
Dear Mr. Miller:

Thank you for the opportunity to review your draft preliminary determination and permit conditions for the amended PSD permit (No. PSD-FL-007) for the Florida Power Corporation Crystal River Plant. We concur with your assessment of the BACT and air quality impacts associated with the No.'s 4 and 5 cooling towers. We have no other comments.

Sincerely,


Clair Fancy, Deputy Chief
Bureau of Air Quality Management

cc: Dr. J.P. Subramani



**Florida
Power**

CORPORATION

October 31, 1988

Mr. Bruce P. Miller, Chief
Air Programs Branch
United States Environmental Protection Agency
345 Courtland Street
Atlanta, Georgia 30365

Dear Mr. Miller:

Subject: Amendment to Crystal River Plant PSD Permit (PSD FL-007)

The following comments are offered concerning the Amendment to PSD Permit (PSD-FL-007) dated October 5, 1988:

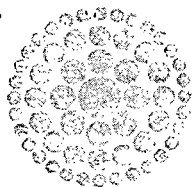
1. Page 3, modeling methodology, the stack height for FPC boiler 4, is in error. It should be 183.0M which is the same as for FPC boiler 5.
2. Page 12, Specific Conditions, 2.a. Compliance Tests. Unit 4 tower shall be tested after October 1, 1988 but no later than February 17, 1989. Note: this date must be contingent upon an expeditious approval of the Amendment. If the Amendment is not finalized by November 26, 1988, the February 17, 1989 date should be moved a day for every day after November 26, 1988 that the Amendment approval is delayed.
3. Page 14, Ambient Monitoring, b. Florida Power Corporation shall submit to EPA Region IV and FDER no later than November 30, 1988, a plan to expand and modify the existing monitoring program. Note: This November 30, 1988 date must be moved a day for every day after November 26, 1988 that the Amendment approval is delayed.

Should you have questions concerning these comments, please contact me at (813)866-4544.

Sincerely,

R. E. Parnelle, P.E.
Supervisor, Air Programs

cc: Bruce R. Barrett, Director, Water Management Division
Charles H. Kaplan, Facilities Performance Program
Wayne Aaronson, Air Programs Branch
Lou Nagler, Air Programs Branch



**Florida
Power**
CORPORATION

November 22, 1988

Office of Congressional and External Affairs
Environmental Protection Agency
845 Courtland Street, N.E.
Atlanta, Georgia 30365

Attention: Public Notice Coordinator

Gentlemen:

Subject: Public Notice No. 88FL149

On October 4, 1988 and October 31, 1988, Florida Power Corporation (FPC) submitted comments to the Environmental Protection Agency (EPA) regarding Public Notice No. 88FL149. On November 2, 1988, Hollins Corporation also submitted comments to EPA on Public Notice No. 88FL149. Since that time, FPC and Hollins Corporation have met and resolved all outstanding issues.

As part of this resolution, FPC is agreeable to providing Hollins Corporation with copies of any and all reports (including monitoring data) required by EPA or the Florida Department of Environmental Regulation (FDER) pursuant to PSD Permit No. PSD-FL-007. Should any revisions to the salt drift plan of study be necessary, FPC will meet with Hollins Corporation to discuss the purpose and need for the revisions and to receive comments from Hollins Corporation. The revised plan of study will then be submitted to EPA for approval.

Based on the above commitments, Florida Power Corporation hereby withdraws comments submitted regarding Public Notice No. 88FL149 and request that EPA proceed immediately to issue PSD Permit No. PSD-FL-007 with an effective date on the date of permit issuance.

J. A. Hancock
Vice President
Fossil Operations

JAH/bm

BEST AVAILABLE COPY



John A. Hancock
Vice President
Fossil Operations

November 22, 1988

Louis N. Adcock, Jr.
Fisher and Sauls, P.A.
P.O. Box 387
St. Petersburg, Florida 33731

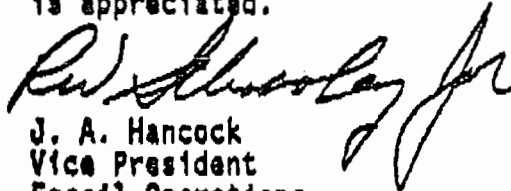
Attention: Public Notice Coordinator

Dear Mr. Adcock:

Subject: Crystal River - Salt Drift Monitoring

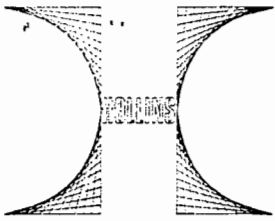
Florida Power Corporation (FPC) appreciates the concerns expressed by Hollins Corporation with respect to salt drift from cooling towers at the Crystal River Energy Complex. In order to keep Hollins Corporation informed, FPC is agreeable to providing Hollins Corporation with copies of any and all reports (including monitoring data) required by EPA or the Florida Department of Environmental Regulation (FDER) pursuant to PSD Permit No. PSD-FL-007. Should any revisions to the salt drift plan of study be necessary, FPC will meet with Hollins Corporation to discuss the purpose and need for the revisions and to receive comments from Hollins Corporation. The revised plan of study will then be submitted to EPA for approval.

Florida Power Corporation is committed to continuing to work with Hollins Corporation to ensure that both corporation's interests are adequately protected. Your assistance in this recent issue regarding the PSD permit is appreciated.


J. A. Hancock
Vice President
Fossil Operations

JAH/bm

3201-34th Street So./P. O. Box 14042/St. Petersburg, FL 33733/Telephone (813) 835-4524



HOLLINS CORPORATION • POST OFFICE BOX 206 • ST. PETERSBURG, FLORIDA 33731 • (813) 821-6412

November 22, 1988

Office of Congressional and External Affairs
Environmental Protection Agency
845 Courtland Street, N.E.
Atlanta, GA 30365

Attention: Public Notice Coordinator

Subject: Public Notice No. 88FL149

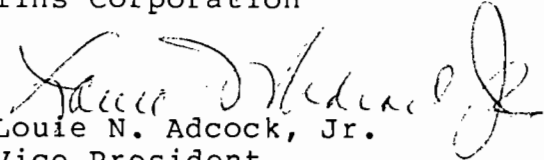
Gentlemen:

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As part of this resolution, FPC has agreed to provide Hollins Corporation with copies of any and all reports (including monitoring data) required by EPA or the Florida Department of Environmental Regulation (FDER) pursuant to PSD Permit No. PSD-FL-007. Should any revisions to the salt drift plan of study be necessary, FPC will meet with Hollins Corporation to discuss the purpose and need for the revisions and to receive comments from Hollins Corporation. The revised plan of study will then be submitted to EPA for approval.

Based on the above commitments, Florida Power Corporation and Hollins Corporation hereby withdraw comments submitted regarding Public Notice No. 88FL149 and request that EPA proceed immediately to issue PSD Permit No. PSD-FL-007 with an effective date of permit issuance.

Hollins Corporation

By: 
Louie N. Adcock, Jr.
Vice President

cc: J. A. Hancock, V.P., Fossil Operations
Florida Department of Environmental Regulation
Dr. Patsy Baynard
Dixie M. Hollins
Maurice L. Hollins
Fisher & Sauls, P.A.

RESPONSE

OF

HOLLINS CORPORATION
P. O. Box 277
Crystal River, Florida 32629

November 2, 1988

TO

NOTICE OF PROPOSED MODIFICATIONS OF NATIONAL POLLUTANT
DISCHARGE ELIMINATION SYSTEM PERMIT AND PREVENTION OF
SIGNIFICANT DETERIORATION PERMIT

PUBLIC NOTICE NO. 88FL149

Copies Furnished To:

Submitted By:

Dr. Patsy Y. Baynard
Florida Power Corporation
3203 34th Street South
St. Petersburg, Florida

Dixie M. Hollins
Executive Vice President
of
Hollins Corporation

and

Louie N. Adcock, Jr.,
of
Fisher & Sauls, P.A.
P. O. Box 387
St. Petersburg, FL 33731
(813) 822-2033

November 3, 1988

Office of Congressional and External Affairs
Environmental Protection Agency
845 Courtland Street, N.E.
Atlanta, GA 30365

Attention: Public Notice Coordinator

and

Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

Re: Notice of Proposed Modifications of National Pollutant
Discharge Elimination Permit No. FL0036366 and the
Prevention of Significant Deterioration
Permit No. PSD-FL-007.

Public Notice No. 88FL149

Gentlemen:

Hollins Corporation, a Florida corporation, is the owner of approximately 16,000 acres of land in Citrus County, Florida. The lands in Citrus County owned by Hollins Corporation are adjacent to Florida Power Corporation's plant site at Crystal River on the North, South and East. Hollins Corporation is the largest and closest single landowner whose lands will be directly impacted by the proposed modifications to the NPDES and PSD Permits.

On the property directly adjacent to the Florida Power Corporation Crystal River plant site, Hollins Corporation operates Hollinswood Ranch. Hollinswood Ranch has been owned and operated by the Hollins family since 1942, and is primarily a cattle ranch and timber pine plantation.

Substantial portions of the ranch, in close proximity to Florida Power's plant, are either planted in pine trees or remain in natural forestation containing hardwood trees, such as oak, gum and magnolia. Other portions of the ranch contain pastures, hayfields and range grasses.

Hollins Corporation submitted comments to the Environmental Protection Agency in connection with NPDES Permit No. FL0000159, on February 17, 1987, and June 30, 1988, and incorporate those comments into this response to the extent they pertain to the modification of the NPDES and PSD permits addressed by this public notice.

The notice of the proposed modification to PSD Permit No. PSD-FL-007 requires a response from interested parties within thirty days of the issuance of the public notice. The proposed modification also requires Florida Power Corporation to submit a revised monitoring plan to EPA for approval in connection with the modified NPDES and PSD Permits by November 30, 1988.

Hollins Corporation objects to the issuance of the proposed modified permits prior to receipt of a monitoring plan for review by Hollins Corporation and EPA. Items of concern to Hollins Corporation may be addressed by Florida Corporation's monitoring program, however, timing requires our response now.

Hollins Corporation continues to advocate the position that the submerged lands, possibly damaged in part by the heated water discharge, will not be rehabilitated by the proposals contained in NPDES Permit No. FL0000159. Since it is our position that rehabilitation of the gulf floor is unlikely, and if recovery is not identified by the monitoring and replanting program required by NPDES Permit No. FL0000159, within the three through six year time period provided in that permit, we advocate that the use of all cooling towers be discontinued in order to avoid even minimal damage to the surrounding areas by salt drift.

Due to the size and proximity of Hollinswood Ranch, we are the one whose lands are most likely to be affected by salt drift and request that Hollins Corporation become a part of any proposed program which may affect Hollins' property. Minimally, Hollins Corporation should have the opportunity to review and consult with Florida Power Corporation, EPA and FDER regarding the purpose, number, location, size, installation details of and testing methods used in any data collection or data transmission stations located on Hollins' property. Hollins Corporation should be notified of the purpose for collecting any samples of any sort from Hollins Corporation's property and should be given the results of any and all tests performed on those samples.

Attached to this response are proposed Pages 13, 14 and 15 of the proposed PDS Permit No. PSD-FL-007. The requested changes to these pages have been inserted and the changes would ensure that Hollins Corporation is advised of all monitoring results and reports carried out under this permit.

In addition to the information obtained in connection with this PSD Permit, Hollins Corporation should be furnished with copies of all reports filed in connection with the monitoring requirements of the rehabilitation of the sea beds. This requirement should be made part of this PDS Permit modification due to our position that the use of the cooling towers should be discontinued if the use does not adequately rehabilitate the surrounding gulf floor.

Although EPA and FDER have required their approval of the monitoring program submitted by Florida Power Corporation, the proposed permit modification does not contain a provision which would require EPA and FDER to supervise Florida Power Corporation in the implementing and carrying out of the monitoring program. Hollins Corporation believes the responsibility to see that the monitoring program is being conducted as planned is that of EPA and FDER and should be directly specified as such in the modified permit.

Since we have not had an opportunity to review Florida Power Corporation's proposed monitoring program, we object to the issuance of the proposed modified NPDES and PSD Permits until this review is possible. If the issuance of these permits is not delayed, Hollins Corporation requests that EPA and FDER require that, prior to the approval of Florida Power Corporation's monitoring program, we have an opportunity to review the plan and file further comments on this matter.

Respectfully Submitted,

HOLLINS CORPORATION

By: 

Louie N. Adcock, Jr.

Fisher & Sauls, P.A.

P. O. Box 387

St. Petersburg, FL 33731

The following are the proposed changes to Pages 13, 14 and 15 of the Modified PSD Permit No. PDS-FL-007.

4. Reporting

- a. Reports on tower testing and inspection shall be submitted according to the following timeframe:
 - (1) Within 30 days after sealing of Unit 9 Tower (See item VII.1.3.a., above),
 - (2) Within 30 days after all visual inspections of the drift eliminators, and
 - (3) Within 45 days after the compliance testing of either the unit 4 or unit 5 tower.
- b. Should either tower emission rate exceed 175 lb/hr, the permittee shall do the following:
 - (1) Notify EPA and the Florida Department of Environmental Regulation (FDER), and Hollins Corporation of the occurrence within 10 days of becoming aware of the situation.
 - (2) Provide an assessment of necessary corrective actions and a proposed schedule of implementation within an additional 20 days.
 - (3) Expeditiously complete corrective actions.
 - (4) Retest the tower within three months after the correction is completed.
 - (5) Submit the testing report within 45 days after completion of said tests.

5. Ambient Monitoring

- a. The permittee shall continue the salt drift monitoring program approved by EPA and the FDER on January 6, 1981, and January 28, 1981, respectively. Reports shall be submitted quarterly to EPA, FDER and Hollins Corporation.
- b. Florida Power Corporation shall submit to EPA Region IV and FDER, by no later than November 30, 1988, a plan to expand and modify the existing monitoring program. This expanded monitoring program must be approved by FDER and EPA and shall include the following:
 - (1) An increase in the number of deposition monitors and monthly vegetation monitoring locations to include a representative number of freshwater

marshes and coastal hammock and coastal hydric hammock communities.

- (2) Initiation of a soil salt sampling program which includes obtaining baseline soil salt concentration data by sampling soil at representative locations.
- (3) Initiation of a surface water salt sampling program which includes obtaining baseline surface water salt concentration data by sampling water in a representative number of fresh water marshes.
- (4) Inclusion of deposition, soil, fresh water and vegetation monitoring stations on appropriate portions of Hollins Corporation land.
- (5) Collection of data to more accurately determine the natural background deposition at Crystal River.
- (6) FPC shall obtain approval from Hollins Corporation for the purpose, number and location of all sampling stations to be located on Hollins Corporation property and shall incorporate into the design of such stations all reasonable design enhancements requested by Hollins Corporation. In the event FPC and Hollins Corporation cannot agree on a matter concerning number, location or design enhancement, FPC shall submit their plan with those areas in dispute highlighted.

Upon approval, the revised plan shall be expeditiously implemented.

- c. If, as determined by EPA, FDER, the permittee or Hollins Corporation, the monitoring data indicate that significant impacts are occurring to the surrounding area, the permittee shall consult with EPA and FDER and Hollins Corporation to mitigate these impacts. Within 60 days thereafter, FPC shall submit to EPA, FDER and Hollins Corporation an assessment of the damage, options to reduce the impact and a proposed course of action to correct the damage. Upon the direction of the EPA or FDER, FPC shall implement corrective action. Should the data indicate that no significant impacts are occurring to the surrounding area, the permittee, after consultation with and approval by the Director of the EPA Region IV Air, Pesticides and Toxics Management Division and FDER, may reduce or eliminate the monitoring program.

..6. Addresses for submitting reports are:

EPA Region IV

U.S. Environmental Protection Agency
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Florida Department of Environmental Regulation (DER)

Deputy Chief, Compliance and Environmental Regulation (DER)
Bureau of Air Quality Management
Florida Department of Environmental Regulation (DER)
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

Hollins Corporation

c/o Fisher & Sauls, P.A.
100 Second Avenue South
St. Petersburg, FL 33701

PART II - General Conditions

1. The permittee shall provide EPA, FDER and Hollins Corporation with 30 days notice prior to conducting any compliance testing required under specific condition 2.a.
2. The permittee shall retain records of all information resulting from monitoring activities and information indicating operation parameters as specified in the specific conditions of this permit for a minimum of two (2) years from the date of recording.
3. 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 EPA, FDER and Hollins Corporation with the following information in writing within 10 days of such condition:
 - (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, and
 - (d) steps taken by the permittee to reduce and eliminate 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 the aforementioned information does not constitute a waiver of the emission limitations contained within this permit.

4. Any proposed change in the information contained in the final determination regarding facility emissions or changes in the quantity or quality of material processed that would not result in new or increased emissions or ambient air quality impact must be reported to EPA, FDER and Hollins Corporation. If appropriate, modifications to the permit may then be made by EPA or FDER.

APPENDIX B

POTENTIAL VISIBILITY IMPACTS DUE TO COOLING TOWERS 4 AND 5

AT FLORIDA POWER CORPORATION'S CRYSTAL

RIVER FACILITY

The Clean Air Act Amendments of 1977 provide for implementation of guidelines to prevent visibility impairment in mandatory Class I areas. The guidelines are intended to protect the aesthetic quality of these pristine areas from reduction in visual range and atmospheric discoloration due to various pollutants. The nearest Class I area to the Crystal River facility is the Chassahowitzka National Wilderness Area located about 20 km from the facility. A level-1 visibility screening analysis was performed to determine the potential adverse visibility effects using the approach suggested in the Workbook for Estimating Visibility Impairment (US EPA, 1980). Three plume and sky contrast parameters are estimated using the particular matter (PM), sulfur dioxide SO_2 , and nitrogen dioxide (NO_2) emissions from the source under evaluation. If the absolute values of these parameters are greater than 0.10, the emission source fails the Level-1 visibility screening test, and further analysis is required to assess potential visibility impairment. If the absolute values of the contrast parameters are all less than 0.10, the emission source would probably not cause adverse visibility impairment in Class I areas; therefore, further analysis of potential visibility impacts would be unnecessary.

The approach and assumptions used to calculate the contrast parameters are described in the following steps.

Approach

Step 1--

Compute plume dispersion parameter, p , at the minimum distance from the emission source and Class I area.

$$p = \frac{2.0 \times 10^8}{O_z X}$$

where: O_z = Pasquill-Gifford vertical dispersion parameter, meters (m), for very stable stability, Class F at downwind distance, X , kilometers (km)

Step 2--

Compute optical thickness, t , based on emissions of PM and Nitrogen Oxides (NO_x) as NO_2 :

$$t_{PM} = 10 \times 10^{-7} p Q_{PM}$$

$$t_{NO_x} = 1.7 \times 10^{-7} p Q_{NO_x}$$

where: t_{PM} = PM optical thickness,
 t_{NO_x} = NO_x optical thickness,
 Q_{PM} = PM emissions (metric tons per day (TPD)), and
 Q_{NO_x} = NO_x emissions (metric TPD).

Step 3--

Determine background visual range value (r_{v0}), km, at the location of the emission source and Class I area. If the emission source and Class I area are in different visibility regions, use the larger value of r_{v0} in subsequent calculations [see figure 13 in US EPA (1980)].

Step 4--

Calculate the optical thickness parameter for primary and secondary aerosol,

t_A :

$$t_A = (1.06 \times 10^{-5}) (r_{VO}) (Q_{PM} + 1.31 Q_{SO_2})$$

where: Q_{SO_2} = SO_2 emissions (metric TPD).

Step 5--

Calculate the contrast parameters:

$$C_1 = \frac{t_{NO_2}}{t_{PM} + t_{NO_2}} [1 - \exp(-t_{PM} - t_{NO_2})] \left[\frac{\exp(-0.78x)}{r_{VO}} \right]$$

$$C_2 = \left[1 - \left(\frac{1}{C_1 + 1} \right) \exp(-t_{PM} - t_{NO_2}) \right] \left[\frac{\exp(-1.56x)}{r_{VO}} \right]$$

$$C_3 = 0.368 [1 - \exp(-t_A)]$$

where: C_1 = plume contrast against the sky,

C_2 = plume contrast against terrain, and

C_3 = change in sky/terrain contrast caused by primary and secondary aerosol.

Project Specific Assumptions

For the Cooling Towers 4 and 5:

x = 20 km (minimum distance to Chassahowitzka National
Wilderness Area, a Class I Area),

O_z = 60.3 m (for stability class F at 20 km),

Q_{PM} = 350 lb/hr or 4.20 TPD or 3.81 metric TPD

Q_{NO_x} = 0 lb/hr, and

Q_{SO_2} = 0 lb/hr

Calculations

Step 1--

$$p = \frac{2.0 \times 10^8}{(60.3)(20)}$$

$$p = 1.66 \times 10^5$$

Step 2--

$$t_{PM} = 10 \times 10^{-7} (1.6 \times 10^5) 3.81$$

$$t_{PM} = 0.632$$

$$t_{NO_x} = 1.7 \times 10^{-7} (1.66 \times 10^5) 0.0$$

$$t_{NO_x} = 0$$

Step 3--

r_{V0} = 40 km along Florida's east coast extending to center of state.

r_{V0} = 25 km, remainder of state, including FPC Crystal River Facility site area and Chassahowitzka National Wilderness Area.

Use r_{V0} = 25 km for subsequent calculations.

Step 4--

$$t_A = (1.06 \times 10^5) (25) [3.81 + 1.31 (0)]$$

$$t_A = 0.00101$$

Step 5--

$$C_1 = \frac{0}{3.81} [1 - \exp (3.81 - 0.0)] [\exp (\frac{-0.78 (20)}{25})]$$

$$C_1 = 0$$

$$C_2 = [1 - (\frac{1}{0 + 1}) \exp (-3.81 - 0)] [\exp (\frac{-1.56 (20)}{25})]$$

$$C_2 = 0.13$$

$$C_3 = 0.368 [1 - \exp (-0.00101)]$$

$$C_3 = 0.00037$$

Conclusion

The absolute values of $C_1 = 0$, and $C_3 = 0.00037$ are less than 0.10. The absolute value of $C_2 = 0.13$, which is slightly higher than 0.10, represents the plume contrast against terrain. Because the terrain surrounding the Chassahowitzka National Wilderness Area is flat, with terrain elevations less than 10 feet above mean sea level, there would be no plume contrast against any terrain features. As a result, this parameter is not an important factor in evaluating potential visibility impacts. Based on these results, the emission source is highly unlikely to cause visibility impairment in the Class I area.

PSD-FL-0007
CRYSTAL RIVER #4 & #5
CITRUS CO.

Pre-Construction Review and Final
Determination for Florida Power Corporation's
Crystal River Power Plant-Units #4 & #5
to be Constructed in Citrus County, Florida

This review was performed by the
U.S. Environmental Protection Agency
in accordance with EPA regulations for
Prevention of Significant Air Quality
Deterioration.

February 25, 1978

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INTRODUCTION AND FINAL DETERMINATION

On December 5, 1974, the Environmental Protection Agency promulgated regulations for Prevention of Significant Air Quality Deterioration (PSD). These regulations were amended on June 12, 1975 and September 10, 1975. On August 7, 1977, the Clean Air Act Amendments of 1977 became law setting forth new PSD requirements. A November 3, 1977 final rulemaking further amended the PSD regulations to incorporate immediately effective changes required by the 1977 Amendments. Specifically, these changes are:

- 1) Mandatory Class I areas, 2) More restrictive ambient increments for sulfur dioxide and particulate matter, and 3) Restrictions on Class III reclassifications.

Also, a new section of the Act on tall stacks limits the credit for stack height to good engineering practice. Under these regulations, a source that is included in one of 19 source categories must be reviewed with regard to significant deterioration prior to construction. Authority for implementing these regulations in the State of Florida presently rests with the EPA. Therefore, sources wishing to construct in Florida must obtain approval from both EPA and the State.

Under the PSD regulations a source must pass two criteria in order to be approved. The first criteria is that Best Available Control Technology (BACT) must be applied to all emission points of sulfur oxides (SO_2) and particulate matter (TSP) within the facility. The second criteria is that increases in ambient concentrations of SO_2 and particulates resulting from emissions from this source must not exceed certain increments. All areas are presently classified as either Class I or Class II (see Attachment I).

Allowable increments in ambient concentrations are as follows:

Pollutant	Class I ug/m3	Class II ug/m3
Particulate matter		
Annual Geometric Mean	5	19
24-hour Maximum	10	37
Sulfur Dioxide		
Annual Arithmetic Mean	2	20
24-hour Maximum	5	91
3-hour Maximum	25	512

The increments caused by the source are evaluated using air quality models developed by EPA.

Florida Power Corporation (FPC) intends to construct 2 coal-fired steam electrical generating units in Northeastern Citrus County, Florida. On November 30, 1977, FPC submitted an application (see Attachment II) to EPA for approval to construct these proposed new sources of air pollutant emissions pursuant to Federal PSD requirements. Additional information was submitted to EPA on December 28, 1977 to supplement the original application.

EPA has reviewed Florida Power Corporation's application including air quality modeling results submitted by engineering consultants for Florida Power Corporation and has made a final determination that in accordance with 40 CFR 52.21 (d) (2) (ii), this construction can be approved with conditions. These conditions are necessary for the following reasons:

1. An emission limit for each source is required as a condition of approval under 40 CFR 52.21 (d) (2) (ii) unless technological or economic limitations of measurement technology make it infeasible.
2. From the data submitted in the application, the company indicated that best available control technology (BACT) for control of particulate and sulfur dioxide emissions will be applied to the source. The following general statements can be made concerning BACT for power plants:

- a. BACT for particulates would consist of a high efficiency particulate removal device, usually an electrostatic precipitator (ESP).
 - b. BACT for sulfur dioxide would consist of either low sulfur coal or a flue gas desulfurization (FGD) system.
 - c. The maximum emissions of particulate and SO_2 which will be allowed are 0.1 lb/million BTU heat input and 1.2 lb/million BTU heat input, respectively. These values are fixed by the emission limitations specified in 40 CFR 60, New Source Performance Standards. Although the application states that a 99.6% efficient ESP and 0.49% sulfur coal are to be used (both are acceptable), EPA must determine, from specific plant and control device design data, and coal contracts, whether the boiler will in fact meet the stated emission rates. Since no design data is available at the present time for the control device, EPA cannot make this determination. One condition for approval to construct this plant, therefore, requires the applicant to submit design and vendor guarantee information to EPA before purchase of any particulate removal devices. In addition the company is required to submit a copy of contracts for delivery of coal which will comply with applicable SO_2 emission limits.
3. Prevention of violations of the emission standards is doubtful during malfunctions of control equipment. The source's approach to controlling emissions must include procedures for returning malfunctioning control equipment to proper operation. This is essential to minimize the possibility of violations of the allowable PSD increments and the ambient air quality standards. Attention should be given to an adequate supply of spare parts for the ESP (replaceable

items which cannot be obtained from local sources). Procedures for monitoring control equipment efficiency and returning equipment to proper operation are to be considered as part of the overall control system.

4. The Florida Power Corporation, under orders OFU-064 and OFU-065 from The Federal Energy Administration (FEA), is prohibited from burning oil at both existing Crystal River Units 1 and 2. EPA is required to allow violations of any applicable PSD increment in an area where a conversion to coal has been ordered under section 2(a) of the Energy Supply and Environmental Coordination Act of 1974 or any amendment thereto. However, violation of SO₂ increments caused by this coal conversion prohibits EPA from allowing any new sources of SO₂ emissions to construct in that affected area if the new source would exacerbate the existing SO₂ increment violations or cause a violation of any Federal Ambient Air Quality Standard.
- It is therefore necessary for the company to reduce SO₂ emissions from existing units (Units #1 and #2) when the proposed units (Units #4 and #5) are put into operation.

CONDITIONS TO APPROVAL

1. Related to particulate emissions from the boilers:

- a. The applicant must submit to EPA, within five working days after it becomes available, copies of all technical data pertaining to the selected control device(s), including formal bids from the vendors awarded the contracts, guaranteed efficiency or emission rate(s), and all design parameters. A list of any additional required information will be sent to the applicant upon receipt of this submittal. Although the type of control device which is described in general in the application has been determined by EPA to be adequate, EPA must review the specific specifications for the control device selected by the company to verify the selected control equipment will enable applicable emission limits to be met by the new units. EPA may, upon review of these data, disapprove the application if EPA determines the selected control device is inadequate to meet the emission limits specified in this conditional approval. EPA shall notify the applicant of EPA's determination under this condition within twenty working days after receipt of all necessary information from the applicant. In the event EPA disapproves the application pursuant to this condition, EPA will state its reasons in writing, identifying the criteria applied and the factors considered.
- b. The source must meet an emission limit, as measured under part 3 (below) as follows:
 - i. Particulate matter emitted to the atmosphere from the boiler shall not exceed 0.18 gram per million calories heat input (0.10 pound per million BTU heat input).

- ii. Opacity of emissions from the boilers shall not exceed 20 percent except for one six minute period per hour during which the opacity may not exceed 27 percent. (Use Reference Method 9, Appendix A in 40 CFR 60.)

These emission limitations are identical to those required by Federal New Source Performance Standards, 40 CFR 60.

2. Related to sulfur dioxide emissions from the boilers:

The source must meet an emission limit, as measured under part 3 (below) as follows:

Sulfur dioxide emitted to the atmosphere from each boiler shall not exceed 2.2 grams per million calories heat input (1.2 pounds per million BTU heat input).

This emission limitation is identical to that required by Federal New Source Performance Standards, 40 CFR 60.

3. Stack Testing:

- a. Within 60 days after achieving the maximum capacity at which the facility will be operated, but no later than 180 days after initial startup, the owner or operator shall conduct performance tests and furnish EPA a written report of the results of such performance tests.
- b. Performance tests shall be conducted and data reduced in accordance with methods and procedures specified by EPA. Reference Methods 1-5 as published in Appendix A of 40 CFR 60 will be used for particulate tests. Reference Method 6 will be used for SO₂ tests.
- c. Performance tests shall be conducted under such conditions as EPA shall specify based on representative performance of the facility. The owner or operator shall make available to EPA such records as may be necessary to determine the conditions of the performance tests.
- d. The owner or operator shall provide 30 days prior notice of the performance tests to afford EPA the opportunity to have an observer present.

- e. The owner or operator shall provide or cause to be provided, performance testing facilities as follows:
 - i. Sampling ports adequate for test methods applicable to the facility.
 - ii. Safe sampling platform(s).
 - iii. Safe access to sampling platform(s).
 - iv. Utilities for sampling and testing equipment.
- f. Each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified by EPA. For the purpose of determining compliance with an emission limitation, the arithmetic mean of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the owner or operator's control, compliance may, upon the approval of EPA, be determined using the arithmetic mean of the other two runs.

4. Coal Characteristics and Contracts

Before approval can be granted by EPA for purchase of a control device under condition 1.a. above, characteristics of the coal to be fired must be known. Therefore, before these approvals are granted, the applicant must submit to EPA copies of coal contracts which should include the expected sulfur content, ash content, and heat content of the coal to be fired. These data will be used by EPA in its evaluation of the adequacy of the control devices. Also, the applicant must demonstrate the ability to acquire a low sulfur coal supply of sufficient length to enable the installation of sulfur removal equipment if the supplies of low sulfur coal should not become available or be discontinued. Therefore, the coal

contracts must be for a period of at least three (3) years from the date of start-up of the boiler.

5. As an alternative to the submittal of contracts for purchase of coal under condition 4 above, the applicant may submit the following information:

- (a) The name of the coal supplier;
- (b) The sulfur content, ash content, and heat content of the coal as specified in the purchase contract;
- (c) The location of the coal deposits covered by the contract (including mine name and seam);
- (d) The date by which the first delivery of coal will be made;
- (e) The duration of the contract; and
- (f) An opinion of counsel for the applicant that the contract(s) are legally binding.

6. Reporting:

Beginning one month after final conditional construction approval from EPA and ending when submittals required under parts 1.a. and 4. have been evaluated and approved by EPA, the applicant shall submit to EPA 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 part of the PSD review and approval shall be submitted to Mr. Asa B. Foster, Director, Air and Hazardous Materials Division, EPA Region IV, 345 Courtland Street, N.E., Atlanta, Georgia 30308.

7. Emission Control Systems:

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

8. Stack Parameters:

This approval is based on the stack parameters submitted by the Florida Power Corporation on November 30, 1977, Section VI, - Stack and Pollutant Emissions Data, EPA Air Pollutant Emissions Report.

9. Related to particulate emissions from the coal handling facilities:

a. The applicant 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 exhibit 20 percent opacity.

b. The applicant must submit to EPA, within five (5) working days after it becomes available, copies of technical data pertaining to the selected particulate emissions control device for the coal handling facility.

These data should include, but not be limited to, a copy of the formal bid from the successful bidder, guaranteed efficiency and emission rates, and major design parameters such as air/cloth ratio and flow rate. EPA may, upon review of these data, disapprove the application if EPA determines the selected control device to be inadequate to meet the visible emission limit specified in 9(a) above.

10. On the date of issuance of EPA's approval to construct Units #4 and #5, the allowable SO₂ emission limits for Units #1 and #2 shall be restricted to no more than 5.00 lb per million BTU heat input on a daily basis, and 4.5 lb/10⁶ BTU on a monthly. Forty-five days after the issuance of this approval, and in the future, as may be requested by EPA, the Company shall certify to the Regional Administration, compliance with these emission limits. Chemical fuel analysis shall be deemed appropriate for this certification.

11. Six months prior to start-up of Unit #4, both Units #1 and #2 will meet the emission limit of 2.9 lb SO₂/mm Btu. This emission limit will be demonstrated by the owner or operator by conducting performance tests and furnishing EPA a written report of the results of such performance tests. Conditions 3.b through f. apply to stack tests required under this part.
12. Six months prior to start-up of Unit #5, both Units #1 and #2 will meet the emission limit of 2.1 lb SO₂/mm Btu. This emission limit will be demonstrated by the owner or operator by conducting performance tests and furnishing EPA a written report of the results of such performance tests. Conditions 3.b. through f. also apply to stack tests required under this part.
13. The company will maintain and operate existing Units #1 and #2 with the applicable particulate emission limit of 0.1 lb/mmBtu heat input during the SO₂ emission reduction program established under conditions 11 and 12 above. Failure to maintain compliance during this period and thereafter will subject the company to appropriate enforcement action.

AIR QUALITY ANALYSIS

The purpose of this section is to present the results of a diffusion analysis, using EPA's air quality models, to predict the maximum concentrations for suspended particulates (TSP) and sulfur dioxide (SO₂) for various averaging periods. The initial modeling analysis was conducted by an environmental consulting firm and submitted to EPA for review. The results of EPA's review are presented below. Based on these results the following conclusions may be drawn for the proposed construction of the Florida Power Corporation Units #4 and #5:

1. The proposed units will be in compliance with EPA's regulations for the Prevention of Significant Deterioration as promulgated in the Federal Register on December 5, 1974, and as amended on June 12 and September 10, 1975, and November 3, 1977. Specifically, the impact of the proposed units will not cause a violation of the applicable PSD increments allowed for the Class I or Class II areas affected.
2. The ground level concentrations of TSP and SO₂ due solely to the operations of the proposed units will not contravene any applicable Federal ambient air quality standards.

Results

The impact of the proposed new electric generating units upon local ambient contaminant levels was evaluated by means of mathematical dispersion models which simulate the processes of transport and diffusion of stack effluents in the atmosphere. The models employed for this purpose are Gaussian plume models developed by the Meteorological Laboratory of the Environmental Protection Agency. Inputs include physical dimensions and emission characteristics of the source, as well as hourly values of those meteorological parameters affecting plume behavior.

The emission rates used for modeling the proposed facility were emissions which represent best available control technology (see Table 1). Ground-level concentrations of TSP and SO₂ attributable to operation of the proposed facility were computed for one hour, 24-hour, and annual averaging periods. The output obtained from application of the models consists of hourly, daily, and annual average concentrations at each designated "receptor" location.

The models used and brief summaries of each model are given below:

PTMAX - A single source model which calculates the maximum 10 minute concentration and downwind distance to point of maximum concentration as a function of stability class and a given set of wind speed categories.

CRSTER- A single source model which is designed to calculate maximum one-hour, 24-hour, and annual average concentrations at a specified set of receptors for a full year of actual hourly meteorological data.

PTMTPW- A multiple source model which calculates hourly concentrations and the average concentration for several hours as a function of specified meteorological conditions at specified receptors.

AQDM - A multiple source model which calculates the annual arithmetic average concentration from regional source emissions and meteorological data.

The distance from the proposed source to the Chassahowitzka National Wilderness Area (Class I) boundary is approximately 20 kilometers in a general direction of 160 degrees to 190 degrees from North (see Figure 1). The maximum ground level concentrations of TSP and SO₂ for this Class I area occurred in this general direction at that distance as modeled with CRSTER & PTMTPW and these values are shown in Table 2A. The maximum impacts in the Class II area

where the facility is located (see Figure 2) are presented in Table 2B. The concentrations presented in Tables 2A and 2B are worst case values obtained by adding the maximum incremental impact from the proposed new units and the maximum impact in the area from the two (2) existing units at the emission rates specified in Conditions 11 and 12 above. The air quality modeling analysis predicted the impact of the proposed source to be in compliance with PSD regulations. As can be seen from Tables 2A and 2B, the annual and short-term PSD increments are not violated. Therefore, the construction is approved with conditions as outlined above to ensure compliance with BACT.

TABLE 1

Operating and Emission Parameters During Normal Operations

<u>PARAMETER</u>	<u>SOURCE</u>	
	Unit #4 Boiler	Unit #5 Boiler
Sulfur (%)	0.49	0.49
SO ₂ Emission Rate (g/sec)	1008.8	1008.8
TSP Emission Rate (g/sec)	84.1	84.1
Stack Height (meters)	182.9	182.9
Stack Diameter (meters)	6.9	6.9
Exit Temperature (degrees kelvin)	398.0	398.0
Exit Velocity (m/sec)	21.0	21.0

TABLE 2A
Summary of the Air Quality Impact in the Vicinity of
Florida Power Corporation's Proposed Units #4 and #5 in the Class I Area

Pollutant	Allowable Class I Increments (ug/m3)	1974 Baseline (ug/m3)	1982 with Unit #4 (ug/m3)	Class I Increment Consumed in 1982 (ug/m3)	1984 with Units 4 & 5 (ug/m3)	Class I Increment Consumed in 1984 (ug/m3)
Particulate Matter(TSP)						
Annual Geometric Mean**	5	30	30	<<1	30	<<1
24-hour Maximum*	10	1	1.5	<1	2.0	1
Sulfur Dioxide						
Annual Arithmetic Mean	2	1	≤1	<1	≤1	<1
24-hour Maximum*	5	30	32	2	31	1
3-hour Maximum*	25	95	≤120	≤25	≤120	≤25

* Not to be exceeded more than once per year

** Annual Geometric Mean for TSP is 30 ug/m3 as background. No major sources of TSP emissions are present in this area.

TABLE 2B
Summary of the Air Quality Impact in the Vicinity of
Florida Power Corporation's Proposed Units #4 and #5 in the Class II Area

	Allowable Class II Increments (ug/m3)	1974 Baseline (ug/m3)	1982 with Unit #4 (ug/m3)	Class II Increment Consumed in 1982 (ug/m3)	1984 with Units 4 & 5 (ug/m3)	Class II Increment Consumed in 1984 (ug/m3)
Particulate Matter (TSP)						
Annual Geometric Mean**	19	36	36	<<1	36	1
24-hour Maximum*	37	3	5	2	7	4
Sulfur Dioxide						
Annual Arithmetic Mean	20	6	6	<<1	6	<<1
24-hour Maximum*	91	<92	<88	-4	<110	<18
3-hour Maximum*	512	<555	<599	<44	<780	<225

* Not to be exceeded more than once per year

** Annual Geometric Mean for TSP is 30 ug/m3 as background. No major sources of TSP emissions are present in this area.

Proposed Units

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CLASS II AREA

CLASS II AREA

CLASS I AREA

CHASSAHOVITZKA
NATIONAL
WILDLIFE REFUGE

Figure 1

M A R I O N

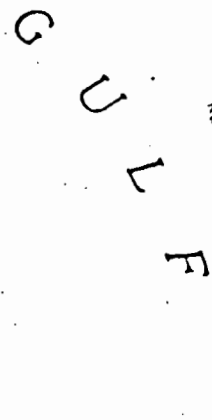
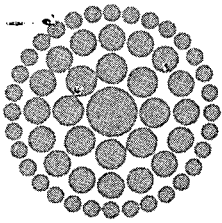


Figure 2



**Florida
Power**
CORPORATION

December 17, 1981

Ms. Victoria J. Tschinkel
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

RECEIVED
DEC 21 1981

Office of the Secretary

Dear Ms. Tschinkel:

Subject: Crystal River Units 4 and 5
PSD Permit

On September 9, 1981, Florida Power Corporation requested that EPA review the units included in the baseline in the subject permit. A meeting was held with EPA on October 14, 1981, and on October 19, 1981, a letter was received from EPA granting our request and asking for certain information. Enclosed for your convenience are the letters of September 9 and October 19.

We have completed the modeling requested by EPA and are at this time submitting the results along with a formal request that EPA modify the subject permit's conditions for Units 1 and 2. Enclosed for your information is a copy of our submittal with supporting data. It is our understanding that EPA personnel have discussed this matter with Mr. Larry George of your staff.

After EPA has reviewed the data and indicated its intent to modify the PSD permit, we would like to arrange a meeting with you and/or the appropriate members of your staff to discuss similar modifications to the conditions in the Site Certification for Units 4 and 5.

Should you have any questions concerning this matter, please contact me in St. Petersburg at (813) 866-4410.

Sincerely,

William S. O'Brien

William S. O'Brien

Director

Environmental and Licensing Affairs

WSO/kd

Enclosures

cc Mr. Thomas W. Devine, EPA



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

4E-LB

OCT 30 1981

Mr. William S. O'Brien
Director
Environmental and Licensing Affairs
Florida Power Corporation
3201 Thirty-fourth Street, South
P. O. Box 14042
St. Petersburg, Florida 33733



Dear Mr. O'Brien:

Please be advised that the second and third paragraphs of the October 19, 1981, letter to you regarding Florida Power Corporation's PSD permit for Crystal River Units 4 and 5 erroneously referred to the "particulate emissions" from Unit 2 and the "particulate emission limitations" for Units 1 and 2, respectively.

As you know, the October 14, 1981, meeting involved a discussion of sulfur dioxide rather than particulate emissions from these units and Units 4 and 5. Accordingly, the references in paragraphs 2 and 3 should be to "sulfur dioxide emissions" from Unit 2 and "sulfur dioxide emission limitations" for Units 1 and 2, respectively.

Please notify me if the October 19, 1981, letter, as modified herein, does not accurately reflect your understanding of the agreements reached at the meeting.

Sincerely,

Howard D. Zeller
Acting Director
Enforcement Division



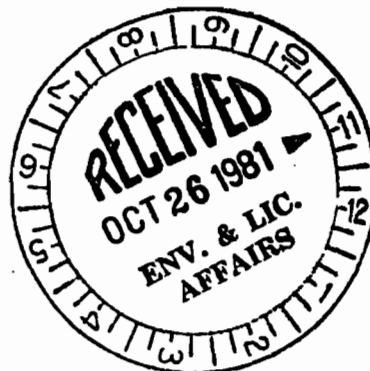
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

4E-LB

OCT 19 1981



Mr. William S. O'Brien
Director
Environmental and Licensing Affairs
Florida Power Corporation
3201 Thirty-fourth Street South
P. O. Box 14042
St. Petersburg, Florida 33733

Re: PSD Permit to Construct Crystal River Units 4 and 5

Dear Mr. O'Brien:

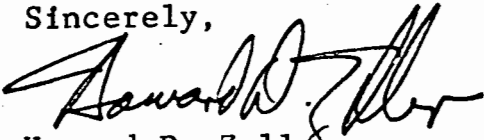
The purpose of this letter is to confirm the results of the October 14, 1981, meeting in Atlanta between representatives of the Florida Power Corporation and EPA, Region IV, regarding the conditions of the above-referenced PSD permit for Crystal River Units 4 and 5.

Based upon EPA's review of written submissions made by Florida Power prior to the October 14, 1981, meeting and our discussions during the meeting, Region IV agrees that, under the equities of this specific case, the actual particulate emissions from Crystal River Unit 2 as such existed on December 27, 1977, should be included in the baseline for purposes of determining PSD increment consumption for Units 4 and 5.

As discussed at the meeting, Florida Power should accordingly proceed to conduct the requisite air quality modeling to ascertain to what extent the particulate emission limitations for Units 1 and 2 can be revised while still ensuring that the applicable increments will not be exceeded. Contemporaneously, Region IV will determine the appropriate procedure for revising the current emission limitations and provisions relating thereto contained in Florida Power's PSD permit for Units 4 and 5.

Please notify me as soon as possible if the foregoing does not accurately reflect your understanding of the agreements reached. Also, please feel free to contact me if you have any questions concerning this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Howard D. Zeller", written over the typed name.

Howard D. Zeller
Acting Director
Enforcement Division



**Florida
Power**
CORPORATION

CERTIFIED MAIL/RETURN RECEIPT

September 9, 1981

Mr. Howard D. Zeller, Acting Director
Enforcement Division
Environmental Protection Agency
345 Courtland Street NE
Atlanta, GA 30365

Dear Mr. Zeller:

Subject: Crystal River Units 4 and 5
PSD Permit
Baseline Determination

In November 1977, Florida Power Corporation applied for a PSD permit to construct Crystal River Units 4 and 5. EPA deemed the application complete as of January 2, 1978, and issued the PSD permit on March 30, 1978. In projecting the air quality impacts of Units 4 and 5, EPA assumed that emission increases resulting from the conversions of Units 1 and 2 from oil to coal consumed increment and determined that increases from Units 1, 2, 4, and 5 would lead to potential SO₂ increment violations in the Chassahowitzka National Wilderness Area, a Class I area located 13 miles to the south of the power plant site. As a result, the PSD permit requires that Florida Power Corporation effect reductions in SO₂ emissions from Units 1 and 2 on a timetable keyed to the operational dates of Units 4 and 5.

As a matter of policy, EPA utilized 1974 as the baseline date in its determination that the increases in emissions from the coal conversion of Units 1 and 2 consumed increment. We did not agree with that determination and so stated at the time of application processing. Florida Power Corporation believes that the baseline date should be that defined in the 1977 Clean Air Act Amendment, which in the State of Florida has been established as December 27, 1977. Since Unit 2 had been burning coal since December 19, 1976, it is our position that Unit 2 is clearly in the baseline and, therefore, its conversion to coal did not consume any of the available increment.

Florida Power Corporation respectfully requests a review of the baseline determination for Unit 2 and the SO₂ emission reductions required in the PSD permit. Since this matter is of great importance to us, we would like to meet with you at your earliest convenience.

Sincerely,

William S. O'Brien

William S. O'Brien

Director

Environmental and Licensing Affairs

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO.

ACTION DUE DATE

KAHEL		FANCY		STARNES	
BLOMMEL		THOMAS		MARTY HALL	
BARKER		GEORGE		MARSHALL MOTT-SMITH	
J. ROGERS		PALAGYI			

REMARKS

INFORMATION

☐ REVIEW & RETURN☒ REVIEW & FILE☐ INITIAL & FORWARD

DISPOSITION

☒ REVIEW & RESPOND *as needed*☐ PREPARE RESPONSE☐ FOR MY SIGNATURE☐ FOR YOUR SIGNATURE☒ LET'S DISCUSS *in Jan*☐ SET UP MEETING☒ INVESTIGATE & RESP *in Jan*☐ INITIAL & FORWARD☐ DISSEMINATE☐ CONCURRENCE☐ FOR PROCESSING☐ INITIAL & RETURN*Crystal River
4*

FROM:

STEVE SMALLWOOD

DATE

12-22-81

PHONE

RECEIVED

MAY 7 1982

Dept. of Environmental Regulation
Office of General Counsel

**Florida
Power**
CORPORATION

May 5, 1982

Mr. John C. Bottcher
648 Twin Towers Office Bldg.
2600 Blairstone Road
Tallahassee, FL 32301

Mr. Thomas E. Cone
Post Office Box 399
Tampa, FL 33610

Mr. Paul Sexton
209 Fletcher Building
101 East Gaines Street
Tallahassee, FL 32304

Mr. David Gluckman
Route 5, Box 3965
Tallahassee, FL 32301

Mr. C. Laurence Keesey
Howard Building
2571 Executive Cntr., Cir E
Tallahassee, FL 32304

Re: Crystal River 4 & 5 Conditions of Certification
Modification of SO₂ Limits

Gentlemen:

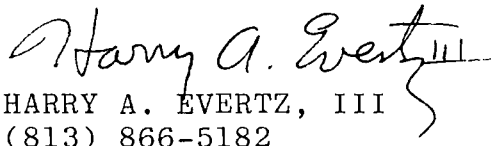
Enclosed herewith is a copy of a Stipulation of Parties Modifying Conditions of Certification. The purpose of this Petition is to make the SO₂ limits imposed upon Crystal River Units 1 and 2 in the State Certification consistent with the revised SO₂ limits set by EPA in its PSD permit for Crystal River Units 4 and 5.

Upon the request by Florida Power, EPA revised the Federal PSD permit SO₂ limits because it misapplied the 1977 Clean Air Act Amendments pertaining to the "baseline" date applicable to the State of Florida. The Court of Appeals for the District of Columbia held in Alabama Power Co. v. Costle, 606 F.2d 1068, 1088, that baseline concentrations of pollutants should be calculated as of the date the first application for a PSD permit is filed with EPA. For Florida, this date has been established as December 27, 1977. Because Crystal River Unit 2 had already been converted to coal on that date, EPA incorrectly treated this unit as an oil plant in calculating baseline concentrations of SO₂ in the area. The SO₂ reductions for Crystal River 1 and 2 in the original PSD permit have been found to be overly stringent by EPA, hence, the revised SO₂ limits for Crystal River 1 and 2.

Mr. John C. Bottcher
Mr. Paul Sexton
Mr. C. Laurence Keeseey
Mr. Thomas E. Cone
Mr. David Gluckman
Page Two
May 5, 1982

Time is of the essence in getting the Stipulation executed by all parties. Please call me if you have any questions. It would be appreciated if each of you will execute the enclosed copy of the Petition and return it to me by Friday, May 21, 1982. Also, please send me a cover letter authorizing me to execute the original document for you. I will then mail a conformed copy of page 3 to each of you.

Sincerely yours,


HARRY A. EVERTZ, III
(813) 866-5182

HAE:BR
enclosure

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

RECEIVED

MAY 7 1982

Dept. of Environmental Regulation
Office of General Counsel

IN RE:)
FLORIDA POWER CORPORATION,)
CRYSTAL RIVER UNITS 4 AND 5)
MODIFICATION OF CONDITIONS)
OF CERTIFICATION NO. PA-77-09)
CITRUS COUNTY, FLORIDA,)
Permittee.)

Proposed — never executed

STIPULATION OF PARTIES MODIFYING
CONDITIONS OF CERTIFICATION

The following parties who entered appearances at and/or participated in the original site certification proceedings for the above-referenced generating facility hereby STIPULATE AND AGREE, pursuant to Section 403.516(2), Florida Statutes 1982, Chapter 17-17.17, Florida Administrative Code (FAC), Section 120.57(3), Florida Statutes 1982, and Condition 12 of the General Conditions of Certification, as follows:

1. The signatories to this Stipulation include all of the parties of the above-mentioned certification proceedings.

2. On November 21, 1978, Florida Power Corporation was issued site certification by the Governor and Cabinet authorizing the construction and operation of Crystal River Units 4 & 5 subject to certain conditions of certification. (Special Conditions of Certification attached as Exhibit "A".)

3. One of the Special Conditions of Certification (Special Condition I.A.2) requires that the Stack SO₂ emissions from Crystal River Units 1 and 2 shall not exceed the following when coal is burned:

- a. Starting six months prior to the operation of Unit 4 - 2.9 lb per million BTU heat input.
- b. Starting six months prior to the operation of Unit 5 - 2.1 lb per million BTU heat input.

The Environmental Protection Agency (EPA) issued a Prevention of Significant Deterioration (PSD) permit for Units 4 & 5 on March 30, 1978. EPA utilized 1974 as the baseline date in its PSD determination. The Florida Department of Environmental Regulation (FDER) incorporated the entire PSD permit conditions into the Special

Conditions of Certification for Units 4 and 5, as approved by the Governor and Cabinet. Subsequently, on February 9, 1982, EPA has revised the PSD permit consistent with the baseline date defined in the 1977 Clean Air Act Amendments. (PSD revision attached as Exhibit "B")

The baseline date has been established as December 27, 1977, for the State of Florida.

In order to be consistent with the revised federal PSD permit, the Special Conditions of Certification for Units 4 and 5 should be adjusted to the following sulfur dioxide limits.

- a. Six months prior to start-up of Unit 4, both Units 1 and 2 should meet the emission limit of 4.25 lb per million BTU heat input, calculated as a monthly average.
- b. Six months prior to start-up of Unit 5, both Units 1 and 2 should meet the emission limit of 3.35 lb per million BTU heat input, calculated on a monthly average.

4. The parties to this proceeding are authorized by Section 403.516(2), Florida Statutes 1981, to modify the terms and conditions of certification by mutual written agreement.

5. Pursuant to Section 403.516(2), Florida Statutes 1981, the parties hereby stipulate to amend and modify Special Condition I.A.2. to read as follows:

"I.A.2. Stack SO₂ emissions from Units 1 and 2 shall not exceed the following when coal is burned:

- a. Starting six months prior to the operation of Unit 4 - ^{7.0}4.25 lb per million BTU heat input, calculated as a monthly average.
- b. Starting six months prior to the operation of Unit 5 - ^{3.35}3.35 lb per million BTU heat input, calculated as a monthly average.

6. The Governor and Cabinet may take all actions necessary to ratify, confirm, and implement this Stipulation pursuant to the authority delegated to the Governor and Cabinet in General Condition 1 pursuant to Section 403.516, Florida Statutes, 1982.

WITNESS Our hands and seals as of this _____ day of _____, 1982.

FLORIDA POWER CORPORATION

By: H. A. Evertz, III

H. A. Evertz, III.
Senior Counsel
Post Office Box 14042
St. Petersburg, FL 33733
813-231-5182

SOUTHWEST FLORIDA WATER
MANAGEMENT DISTRICT

By: L.M. Blain, Esquire and Thomas E. Cone, Esquire

L.M. Blain, Esquire and
Thomas E. Cone, Esquire
Post Office Box 399
Tampa, FL 33610
813-223-3888

DEPARTMENT OF ENVIRONMENTAL
REGULATION

By: John C. Bottcher, Esquire

John C. Bottcher, Esquire
Deputy General Counsel
648 Twin Towers Office Bldg.
2600 Blairstone Road
Tallahassee, FL 32301
904-488-9730

DEPARTMENT OF VETERAN AND
COMMUNITY AFFAIRS

By: C. Laurence Keesey, Esquire

C. Laurence Keesey, Esquire
Howard Building
2571 Executive Cntr., Cir E
Tallahassee, FL 32304
904-488-4925

PUBLIC SERVICE COMMISSION

By: Paul Sexton, Esquire

Paul Sexton, Esquire
209 Fletcher Building
101 East Gaines Street
Tallahassee, FL 32304
904-487-2740

FLORIDA LUNG ASSOCIATION
AND FLORIDA AUDUBON SOCIETY

By: David Gluckman, Esquire

David Gluckman, Esquire
Route 5, Box 3965
Tallahassee, FL 32301
904-421-0152

State of Florida Department of Environmental Regulation
Florida Power Corporation
Crystal River Units No. 4 & 5
Case No. PA 77-09
CONDITIONS OF CERTIFICATION

RECEIVED
MAR 30 1982

DIV. ENVIRONMENTAL
PERMITTING

SPECIAL

I. Air

The Construction and operation of Units No. 4 and 5 at the Crystal River steam electric power plant site shall be in accordance with all applicable provisions of Chapters 17-2, 17-5 and 17-7, Florida Administrative Code. In addition to the foregoing, the permittee shall comply with the following specific conditions of certification:

A. Emission Limitations

1. Stack emissions from Units 4 and 5 shall not exceed the following when burning coal:
 - a. SO₂ - 1.2 lb. per million BTU heat input, maximum two hour average.
 - b. No_x - 0.70 lb. per million BTU heat input.
2. Stack SO₂ emissions from Units 1 & 2 shall not exceed the following when coal is burned.
 - a. Starting six months prior to the operation of Unit 4 - 2.9 lb per Million BTU heat input.
 - b. Starting six months prior to the operation of Unit 5 - 2.1 lb per million BTU heat input.
3. The permittee shall not burn a fuel oil containing more than 0.73% sulfur. However, the applicant may petition the Department to revise this condition by (a) demonstrating compliance with Section 17-2.05(6)(e)1, FAC, or (b) installing a flue gas desulfurization unit that will insure compliance with the above emission limitation. The boiler shall not be operated unless this condition is complied with.
4. The height of the boiler exhaust stacks for Units No. 4 & 5 shall not be less than 600 ft. above grade.
5. The permittee shall provide a plot plan of equipment prior to the start of construction, showing the proposed tentative location of flue gas desulfurization (FGD) equipment

so that such equipment can be added at a later date, if installation of such equipment should subsequently become necessary. Prior to installation of any FGD equipment, plans and specifications for such equipment shall be submitted to the Department for review and approval.

6. Particulate emissions from the coal handling facilities:

- a. The applicant 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.
- b. The applicant must submit to the Department within five (5) 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 visible emission limit specified in 6(a) above.

B. Air Monitoring Program

1. The permittee shall install and operate continuously monitoring devices for the Units No. 4 & 5 boiler exhaust for sulfur dioxide, nitrogen dioxide and opacity. The monitoring devices shall meet the applicable requirements of Section 17-2.08, FAC.
2. The permittee shall operate the existing ambient monitoring devices for sulfur dioxide as shown on Attachment 1. in accordance with EPA reference methods in 40 CFR, Part 53 and the existing ambient monitoring devices for suspended particulates as shown on Attachment 1. New or existing monitoring devices shall be located as designated by the Department. The frequency of operation shall be every six days 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 to facilitate calculations of emissions.
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 annually beginning two years after start-up of Unit No. 5 by the Department and the permittee.
6. Prior to operation of the source, the applicant shall submit to the Department a standardized plan or procedure that will allow the applicant to monitor emission control equipment efficiency and enable the applicant to return malfunctioning equipment to proper operation as expeditiously as possible.
7. Salt drift deposition, accumulation, vegetative effects and effects on equipment shall be monitored and reported to the department in a manner and frequency approved by the department prior to the operation of the first cooling tower.

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 startup, the owner or operator shall conduct performance tests for particulates and SO₂ and furnish the Department a written report of the results of such performance tests.
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.
3. Performance tests shall be conducted under such conditions as the Department shall specify based on representative performance of the facility. The owner or operator shall make available to the Department such records as may be necessary to determine the conditions of the performance tests.
4. The owner or operator shall provide 30 days prior notice of the performance tests to afford 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 each Unit, stack monitoring, fuel usage and fuel analysis data shall be reported to the Department 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. Ambient air monitoring data shall be reported to the Department quarterly commencing on the date of certification by the last day of the month following the quarterly reporting period utilizing the SAROAD or other format approved by the Department in writing.

E. Coal Characteristics and Contracts

Before approval can be granted by the Department for use of control devices, characteristics of the coal to be fired must be known. Therefore, before these approvals are granted, the applicant must submit to the Department copies of coal contracts which should include the expected sulfur content, ash content, and heat content of the coal to be fired. These data will be used by the Department in its evaluation of the adequacy of the control devices. Also, the applicant must demonstrate the ability to acquire a low sulfur coal supply of sufficient length to enable the installation of sulfur removal equipment if the supplies of low sulfur coal should not become available or be discontinued. Therefore, the coal contracts must be for a period of at least five (5) years from the date of start-up of the boiler.

F. Coal Information

As an alternative to the submittal of contracts for purchase of coal under condition E above, the applicant may submit the following information:

1. The name of the coal supplier;
2. The sulfur content, ash content, and heat content of the coal as specified in the purchase contracts;
3. The location of the coal deposits covered by the contract (including mine name and seam);
4. The date by which the first delivery of coal will be made;
5. The duration of the contract; and
6. An opinion of counsel for the applicant that the contracts are legally binding.

G. Reporting:

Beginning one month after certification the applicant 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, 2500 Blair Stone Road, Tallahassee, Florida 32301.

II. Water Discharges

Any discharges into any waters of the State during construction and operation of Units No. 4 & 5 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. 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 would apply.

1. Receiving Body of Water (RBW)

The receiving body of water will be determined by the Department to be those waters affected which are considered to be waters of the State within the definition of Chapter 403, Florida Statutes.

2. Point of Discharge (P.O.D.)

The point of discharge will be determined by the Department to be where the effluent physically enters the waters of the State.

3. Thermal Mixing Zone

The zone of thermal mixing for cooling tower blowdown shall not extend beyond the western end of the north bank of the existing discharge canal. During discharge, the blowdown from the cooling tower for Units No. 4 and 5 shall be withdrawn at the point of lowest temperature of the recirculating cooling water prior to the addition of makeup water. The temperature at the point of discharge into the discharge canal shall not be greater than 96 degrees F., maximum two (2) hour average. The temperature of the water at the end of the discharge canal shall not exceed the limitations of Paragraph 17-3.05(1)(d) when only Units 4 and 5 are operating and one or more of the circulating water pumps from the existing units are operating.

4. Chemical Wastes and Boiler Blowdown

All discharges of low volume wastes (demineralizer regeneration, cooling tower basin cleaning wastes, floor drainage, sample drains and similar wastes), metal cleaning wastes (including

preheater and fireside wash) and boiler blowdown shall comply with Chapter 17-3. If violations of Chapter 17-3 occur, corrective action shall be taken. These wastewaters shall be discharged to an adequately sized and constructed percolation pond.

5. Coal Pile and Ash Landfill Runoff

Coal pile runoff and ash landfill runoff from less than 10-year 24-hour rainfall shall be treated if required by Special Condition III. H. and discharged to an adequately sized and constructed percolation ditch system.

6. Cooling Tower Blowdown

The cooling tower blowdown shall contain no detectable amounts of materials added for corrosion inhibition, including but not limited to zinc and chromium.

7. Chlorine

The quantity of free available chlorine discharged in the blowdown from the cooling tower shall not exceed 0.5 mg/l at any one time and shall not exceed 0.2 mg/l as an average. Neither free available chlorine nor total residual chlorine may be discharged from either unit for more than two hours in any one day and Units 4 or 5 may not discharge chlorine while any other unit is discharging chlorine.

8. pH

The pH of all discharges shall be such that the pH of water in the discharge canal shall be within the range of 6.0 to 8.5, at a distance of 150 meters from the POD into the canal.

9. Polychlorinated Biphenyl Compounds

There shall be no discharge of polychlorinated biphenyl compounds.

B. Water Monitoring Programs

The permittee shall monitor and report to the Department the listed parameters on the basis specified herein. The methods and procedures utilized shall receive written approval by the Department. The monitoring program may be reviewed annually by the Department, and a determination may be made as to the necessity and extent of continuation, and may be modified in accordance with condition No. 12 of the General Conditions of Certification.

1. Chemical Monitoring

The following parameters shall be monitored as shown during discharge commencing with the start of commercial operation of the first unit and reported quarterly to the Department:

<u>Parameter</u>	<u>Location</u>	<u>Sample Type</u>	<u>Frequency</u>
Flow, Groundwater	Wellfield pipeline	Recorder	Totalizer
Flow, Discharge	C.T. Outfall*	Recorder	Totalizer
Conductivity	C.T. Outfall	Recorder	Continuous
pH	C.T. Outfall	Multiple Grab**	Daily
Temperature	C.T. Outfall	Recorder	Continuous
TDS	C.T. Outfall	Grab	Weekly
Chlorine, Free Residual	C.T. Outfall	Multiple Grab**	During Discharge
Chlorine, Total	C.T. Outfall	Recorder	During Discharge
Oil and Grease	C.T. Outfall	Grab	During Discharge

2. Groundwater Monitoring

- a. The groundwater levels shall be monitored continuously at wells as approved by Southwest Florida Water Management District. Chemical analyses shall be made on samples from all monitored wells identified in Condition III. F. below. The location, frequency and selected chemical analyses shall be as given in Condition III. F.
- b. The groundwater monitoring program shall be implemented at least one year prior to operation of Crystal River No. 4. The chemical analyses shall be in accord with the latest edition of Standard Methods for the Analysis of Water and Wastewater. The data shall be submitted within 30 days of collection/analysis to the Southwest Florida Water Management District and to the DER Southwest District Office.
- c. Conductivity and heavy metals shall be monitored in wells around all ash disposal sites and coal piles.

III. Groundwater

A. General

The use of groundwater from a linear wellfield for plant service water for Units 4 and 5 shall be minimized to the greatest extent practicable, but in no case shall exceed 3 mgd on a maximum daily basis from any new wells or 1.0 mgd on an average annual basis.

B. Well Criteria

The submission of well logs and test results and location, design and construction of wells to provide plant service water shall be in accordance with applicable rules of the Department of Environmental Regulation and the Southwest Florida Water Management District (SWFWMD). Total water use per month shall be reported quarterly to SWFWMD commencing with the start of construction.

* Cooling Tower Outfall Pipe.

** Representative sample.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

FEB 9 1982

REF: 4AW-AF

William S. O'Brien, Director
Licensing and Environmental Affairs
Florida Power Corporation
3201 34th Street S
St. Petersburg, Florida 33711

Re: PSD-FL-007 - PSD Permit for Florida Power Corporation (FPC) Crystal
River 4 and 5, Crystal River, Florida

Dear Mr. O'Brien:

This is in reference to your December 17, 1981 letter requesting modification of the Federal PSD Permit PSD-FL-007 FPC Crystal River Units 4 and 5. As agreed in our October 14, 1981 meeting, you have submitted the requested air quality modeling that determine the appropriate sulfur dioxide emission limitations for Units 1 and 2. This revised modeling has been performed with Unit 2 included in the baseline. EPA has reviewed the modeling and found it acceptable. The sulfur dioxide emissions limits are adjusted accordingly.

Permit Special Conditions #11 and #12 are amended to read:

11. Six months prior to start-up of Unit #4, both Units #1 and #2 will meet the emission limit of 4.25 lb SO₂/MMBTU. This emission limit will be demonstrated by the owner or operator by conducting performance tests and furnishing EPA a written report of the results of such performance tests. Conditions 3.b through 3.f apply to stack tests required under this part.
12. Six months prior to start-up of Unit #5, both Units #1 and #2 will meet the emission limit of 3.35 lb SO₂/MMBTU. This emission limit will be demonstrated by the owner or operator by conducting performance tests and furnishing EPA a written report of the results of such performance tests. Conditions 3.b through 3.f apply to stack tests required under this part.

EXHIBIT "B"

The amended conditions will not constitute a significant increase in the SO₂ impact from the original permit. These admendments became effective on the date of this letter.

If you have any questions, please contact Dr. Kent Williams of my staff at (404) 881-4552.

Sincerely yours,

for. John A. Little, Deputy
Charles R. Jeter
Regional Administrator

cc: Florida DER

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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



BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

RECEIVED

AUG 4 1982

August 4, 1982

Dept. of Environmental Regulation
Office of General Counsel

Mr. W. W. Vierday
Florida Power Corporation
Post Office Box 14042
St. Petersburg, Florida 33733

Dear Mr. Vierday:

Department staff have reviewed the fuel analysis data and the air quality modeling for the Crystal River plant that you presented to Clair Fancy on July 26, 1982. Based on this information, it appears that monthly average sulfur dioxide emission limitations for Crystal River Units 1 and 2 of 4.00 lb/10⁶ Btu, starting 60 days prior to the operation of Unit 4, and 3.10 lb/10⁶ Btu, starting 60 days prior to the operation of Unit 5, will prevent the PSD Class I increments from being violated in the Chassahowitzka National Wilderness Area.

You have the right, pursuant to Chapter 120, Florida Statutes, and Chapters 28-5 and 17-1, Florida Administrative Code, to request a hearing on this determination by filing a petition pursuant to Department rule 17-1.62, F.A.C. within 14 days of receipt of this letter or by filing a petition for hearing pursuant to section 403.516(3), F.S.

Sincerely,

Hamilton S. Owen, Jr.

Hamilton S. Owen, Jr., P.E.
Administrator
Power Plant Siting Section

HSO/sb

cc: Clair Fancy
→ John Bottcher

XC Dave Glickman
8/5

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP		ACTION NO.	
		ACTION DUE DATE	

1. TO: (NAME, OFFICE, LOCATION)	INITIAL
<i>Larry George, Bur. A. Q. M.</i>	DATE <i>8/17/82</i>
2.	INITIAL
	DATE
3.	INITIAL
	DATE
4.	INITIAL
	DATE

REMARKS:	INFORMATION	
	<input type="checkbox"/> REVIEW & RETURN	
	<input type="checkbox"/> REVIEW & FILE	
	<input type="checkbox"/> INITIAL & FORWARD	
	DISPOSITION	
	<input type="checkbox"/> REVIEW & RESPOND	
	<input type="checkbox"/> PREPARE RESPONSE	
	<input type="checkbox"/> FOR MY SIGNATURE	
	<input type="checkbox"/> FOR YOUR SIGNATURE	
	<input type="checkbox"/> LET'S DISCUSS	
	<input type="checkbox"/> SET UP MEETING	
	<input type="checkbox"/> INVESTIGATE & REPT	
	<input type="checkbox"/> INITIAL & FORWARD	
	<input type="checkbox"/> DISTRIBUTE	
	<input type="checkbox"/> CONCURRENCE	
	<input type="checkbox"/> FOR PROCESSING	
	<input type="checkbox"/> INITIAL & RETURN	

FROM: <i>John C. Bottcher</i>	DATE <i>8/17/82</i>
	PHONE

INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee		
To: _____	Locn.: _____	
To: _____	Locn.: _____	
To: _____	Locn.: _____	
From: _____	Date: _____	
Reply Optional <input type="checkbox"/>	Reply Required <input type="checkbox"/>	Info. Only <input type="checkbox"/>
Date Due: _____	Date Due: _____	

May 21, 1982

TO: Buck Oven
THRU: Clair Fancy *CTJ*
FROM: Larry George *LG*
SUBJ: Modification of SO₂ Limits - Crystal River
Units 4 and 5 Conditions of Certification

We have reviewed the proposed stipulation modifying the Conditions of Certification for Crystal River Units 4 and 5 and find it acceptable only if Florida Power Corporation (FPC) demonstrates that normal maximum SO₂ emissions from Units 1 and 2 as of the December 27, 1977, baseline date were 2.74 lb/million Btu, monthly average, for Unit 1 and 5.72 lb/million Btu, monthly average, for Unit 2.

We believe that the above emission rates for Units 1 and 2, which were used to establish the baseline concentrations, are probably maximum hourly or daily averages. If so, the proposed stipulation would improperly give FPC credit for a larger emissions reduction than that which would actually occur -- the reason being that the reduction would be computed as the difference between a previous peak value and a future monthly average value.

We do not have monthly averaged fuel quality data for the Crystal River plant in this office; however, according to reports submitted by FPC to the U. S. Department of Energy, the sulfur content of coal burned at the plant during 1977 and 1978 averaged 2.58 percent and 1.96 percent, respectively. This implies that, on an annual average, the Unit 2 emissions as of the baseline date were approximately 3.6 lb/million Btu.

LG/bjm

cc: John Bottcher



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

JAN 26 1983

4AW-AE

Mr. G.W. Shaefer
Licensing Administrator
Florida Power Corporation, General Office
3201 Thirty Fourth Street South
P.O. Box 14042
St. Petersburg, Florida 33733

DER
JAN 31 1983
BAQM

RE: PSD-FL-007 - Crystal River Plant

Dear Mr. Shaefer:

My staff has completed its review of your December 22, 1982, submittal concerning a particulate emissions monitoring plan for the Florida Power Corporation Crystal River Plant, Units 4 and 5. This proposed monitoring plan was in response to condition number 7, Emission Control Systems, of your February 27, 1978, federally issued PSD permit. Our comments are as follows:

1. The monitoring plan should be expanded to include such areas as: the monitoring equipment manufacturer, model type, reliability guarantees, quality assurance procedures, re-calibration procedures, etc.
2. Standard procedures, including regular visual readings, and proposed schedule for readings should be presented to address periods when the monitoring equipment becomes inoperable.
3. In addition to the federal PSD monitoring requirements, Florida Power Corporation's Crystal River Plant Units 4 and 5 are also subject to all applicable NSPS requirements (40 CFR 60, Subpart D - Standards of Performance for Fossil Fired Steam Generators). Specifically 40 CFR §60.45 Emission and Fuel Monitoring requires monitoring for SO₂, NO_x, and CO₂ in addition to opacity monitoring for particulates. The monitoring of these emissions should be addressed as part of your monitoring plan.

For your information, Mr. Thomas W. Devine is now the Director of the Air and Waste Management Division. Please direct future correspondence of this nature to his attention.

If you have any questions regarding these comments, please contact
Mr. Richard S. DuBose, Chief, Air Engineering Section at 404-881-7654.

Sincerely,



James T. Wilburn, Chief
Air Management Branch
Air and Waste Management Division

cc: Steve Smallwood, Chief
Bureau of Air Quality Management
Florida Department of Environmental Regulations

2-16-83

CC: BUCK OVEN

SW DISTRICT



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

FEB 18 1983

REF: 4AW-AM

Mr. G. W. Schaefer
Licensing Administrator
Florida Power Corporation
3201 Thirty-fourth Street, South
P.O. Box 14042
St. Petersburg, Florida 33733

DER

FEB 21 1983

BAQM

Dear Mr. Schaefer:

This is in response to your January 28, 1983, submittal concerning Florida Power Corporation's Quarterly Status Report for its Crystal River facility, Units 4 and 5. Review of this submittal partially satisfies condition number 7 of your February 27, 1978, PSD permit with regard to purchases of major equipment. In addition to this requirement, condition number 7 also requested the submittal of engineering data, especially that which relates to the proposed control equipment.

We will therefore, withhold any final judgements on this issue until my staff has had an opportunity to review the specified design data. Please submit this required information within 5 days after it becomes available to you.

If you have any questions concerning this matter, please contact Mr. Richard S. DuBose, Chief, Air Engineering Section at 404/881-7654.

Sincerely yours,

James T. Wilburn, Chief
Air Management Branch
Air and Waste Management Division

cc: ✓ Steve Smallwood
Florida D.E.R.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

NOV 2 1983

DER
NOV 07 1983
BAQM

REF: 4AW-AM

Mr. G. W. Schaefer
Licensing Administrator
Florida Power Corporation
General Office
Thirty-fourth Street, South
P. O. Box 14042
St. Petersburg, Florida 33733

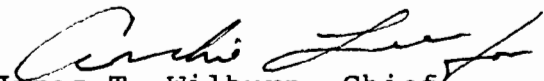
RE: PSD-FL-007 - Crystal River Units 4 and 5

Dear Mr. Schaefer:

This is to acknowledge receipt of your September 30, 1983, transmittal of the third quarters' engineering status report for the construction of Unit 5 at the Florida Power Crystal River facility. This submittal satisfies this quarters' reporting requirement of paragraph 6 of the Conditions of Approval for the above referenced PSD permit.

In the future, please direct all reporting requirements for the above permit to Thomas W. Devine, Director of the Air and Waste Management Division. If you have any questions concerning this matter, please feel free to contact Michael Brandon of my staff at 404/881-7654.

Sincerely yours,


James T. Wilburn, Chief
Air Management Branch
Air and Waste Management Division

cc. Mr. Steve Smallwood, Chief ✓
Bureau of Air Quality Management



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

MAY 18 1981

REF: 4AH-AF

Mr. G. W. Schaefer
Licensing Administrator
Florida Power Corporation
3201 Thirty-fourth Street South
P. O. Box 14042
St. Petersburg, Florida 33733

Dear Mr. Schaefer:

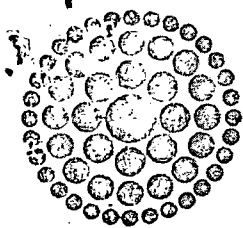
This is in response to your April 27, 1981 submittal concerning the particulate emissions control specifications for the coal handling facility to be located at Crystal River Units 4 and 5. We have reviewed the material and concur that it will satisfy paragraph 9.b of the Conditions of Approval.

If you have any questions regarding this matter, please contact Mr. William R. Wagner of my staff at (404) 881-4552.

Sincerely yours,

Tommie A. Gibbs

Tommie A. Gibbs, Chief
Air Facilities Branch



**Florida
Power**
CORPORATION

December 17, 1981

Mr. Thomas W. Devine, Director
Air and Hazardous Materials Division
U.S. Environmental Protection Agency
345 Courtland Street NE
Atlanta, GA 30308

Dear Mr. Devine:

Subject: Crystal River Units 4 and 5 PSD Permit

On October 14, 1981, we met with members of your staff, along with others at EPA, to discuss a modification to the subject permit. At that time it was agreed that Florida Power Corporation would conduct air quality modeling. This requirement was confirmed in Mr. Zeller's October 19, 1981, letter. We have completed air quality modeling to determine the extent to which sulfur dioxide emission limitations for Units 1 and 2 can be revised with Unit 2 being included in the baseline.

The modeling was done with Unit 2 on coal with an emission rate of 5.72 lbs/10⁶ Btu. Unit 1 was modeled on oil with an emission rate of 2.74 lbs/10⁶ Btu. Based upon these conditions, the modeling indicates that Units 1 and 2 can emit sulfur dioxide at the following rates without exceeding any air quality standard or allowable increments:

1. 4.25 lbs/10⁶ Btu with Unit 4 only operating at 1.2 lbs/10⁶ Btu
2. 3.35 lbs/10⁶ Btu with Units 4 and 5 operating at 1.2 lbs/10⁶ Btu

The attached table summarizes the maximum sulfur dioxide air quality impacts on Class I and Class II increments and AAQS based upon the above emission limits. Also enclosed for your information are a statement of methodology, the actual computer model runs, and increment consumption tables.

We hereby request modification of the March 30, 1978, Prevention of Significant Deterioration (PSD) permit for Crystal River Units 4 and 5 to reflect these newly calculated allowable emissions from Crystal River Units 1 and 2. Specifically, we ask that the emission limit for Units 1 and 2 in Item 11 of the PSD permit be changed from 2.9 lbs. SO₂/10⁶ Btu to 4.25 lbs. SO₂/10⁶ Btu and that the emission limit for Units 1 and 2 in Item 12 be changed from 2.1 lbs. SO₂/10⁶ Btu to 3.35 lbs. SO₂/10⁶ Btu.

Mr. Thomas W. Devine

Page 2

December 17, 1981

At the present time, Unit 4 is scheduled to burn coal for the first time in September, 1982. Therefore, in order to comply with the "six months prior to startup" requirement, we ask your expeditious processing of this change.

If there are questions concerning the modeling, please call Mr. David Buff of Environmental Science and Engineering at (904) 372-3318. If you have other questions, please contact me at (813) 866-4410.

Sincerely,

William S. O'Brien

William S. O'Brien

Director

Environmental and Licensing Affairs

THW/WSO/kd

Enclosures

cc Ms. Victoria Tschinkel, FDER W/Attachment   THIS COPY FOR

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

Methodology

The EPA approved Industrial Source Complex Short-Term (ISCST) model was used to estimate annual, 24-hour and 3-hour SO₂ impacts due to the Crystal River plant. A five-year meteorological data base (1970-1974) from Tampa International Airport was used in conjunction with the ISCST. Several 5-year model executions were performed, consisting of the following scenarios:

- Baseline - Unit 1 on oil, Unit 2 on coal
- Projected - Units 1, 2, and 4 on coal
- Projected - Units 1, 2, 4, and 5 on coal.

All scenarios were evaluated for Class I impacts at the Chassahowitzka Class I area, approximately 26 km to the south of Crystal River, and for near-plant impacts for evaluation of Class II increment consumption and compliance with AAQS.

For Class I impacts, seven receptors were placed along the northern boundary of the Class I area, spaced at five (5) degree radial increments based upon the Crystal River plant location. Increment consumption was determined by subtracting baseline concentrations from projected concentrations on a receptor by receptor basis. For short-term averaging times, highest, second-highest concentrations at each receptor were utilized.

Class II increment consumption was determined by executing the baseline and projected scenarios with a radial receptor grid placed around the Crystal River plant. Receptors ranged from 1.0 km to 5.2 km outward, with a 0.4 km radial grid spacing. Class II increment consumption was determined by subtracting baseline concentrations from projected concentrations on a receptor-by-receptor basis. Highest, second-highest predicted concentrations were utilized for short term averaging times.

Compliance with AAQS were determined by further refining the identified worst-case meteorological periods for the projected scenarios. The ISCST model was used with a 0.1 km receptor spacing to refine the highest, second-highest short-term predicted concentrations.

Summary of Maximum Sulfur Dioxide Impacts With Unit 2 on Coal in the
Baseline

Scenario	Maximum Concentration (ug/m ³)		
	Annual	24-Hour	3-Hour
<u>Unit 4 @ 1.2* and Units 1 and 2 @ 4.25</u>			
Class I Increment Consumption	0.2	4.0	24.4
Allowable Class I Increments	2	5	25
Class II Increment Consumption	1.4	22.1	143
Allowable Class II Increments	20	91	512
Maximum Air Quality Impact	12.2	118	687
Florida Air Quality Standards	60	260	1300
<u>Units 4 and 5 @ 1.2 and Units 1 and 2 @ 3.35</u>			
Class I Increment Consumption	0.1 ✓	3.1 ✓	24.2 ✓
Allowable Class I Increments	2	5	25
Class II Increment Consumption	1.7	24.8	198
Allowable Class II Increment	20	91	512
Maximum Air Quality Impact	10.8	103	568
Florida Air Quality Standards	60	260	1300

* Numbers represent SO₂ emissions in lb/10⁶ Btu.

INCREMENT CONSUMPTION TABLES

CRYSTAL RIVER PLANT

FLORIDA POWER CORPORATION

December, 1981

Unit 4 @ 1.2 lb and Units 1 and 2 @ 4.25 lb

1TITLE= BASELINE FROM PROJECTED 2 -- 3-HR SECOND HIGHEST

1TITLE= BASELINE FROM PROJECTED 2 -- 3-HR SECOND HIGHEST
RECEPTOR NO.

	1.0	1.4	1.8	2.2	2.6
0					
1	-26.2	-17.0	-13.5	-10.1	-2.2
2	-24.4	-14.5	-10.1	54.2	-24.4
3	38.2	143.2	102.5	64.1	-7.3
4	-24.2	-14.7	-10.9	-13.1	65.9
5	-22.3	-6.2	13.9	2.2	26.7
6	-21.1	-16.3	-14.6	-10.0	-0.9
7	-25.1	-21.1	-16.5	-7.5	7.3
8	-24.8	-18.5	-18.3	-10.2	-28.7
9	-24.5	-21.2	-11.1	-27.8	-18.0
10	-24.8	-20.7	-17.1	4.5	-20.8
11	-14.7	-6.3	-11.0	-17.1	-5.5
12	-21.9	-10.2	26.4	34.0	20.9
13	16.1	25.9	31.8	15.3	-7.7
14	-4.2	21.3	26.0	28.2	28.8
15	31.7	10.0	8.5	9.8	34.8
16	18.1	27.9	29.1	27.1	44.1
17	21.1	22.9	22.5	20.3	28.9
18	-6.9	1.8	6.4	15.1	11.8
19	-39.2	-3.5	0.8	2.5	5.9
20	-15.5	3.4	10.7	13.8	15.5
21	9.8	-8.9	-1.4	2.4	5.1
22	7.6	41.3	51.8	54.7	-10.4
23	33.6	8.6	6.2	-12.6	-11.4
24	66.8	20.8	37.1	-7.2	-11.6
25	-13.7	-10.8	-8.3	-6.5	-23.3
26	28.9	-19.4	-14.5	-12.1	-10.4
27	-22.5	-22.5	-14.8	-7.8	1.7
28	-24.6	-18.7	-14.2	-27.7	-20.5
29	-16.1	-14.7	-14.7	-7.5	-22.1
30	-25.7	-15.6	-12.0	-9.9	-24.2
31	-26.5	-19.0	-15.2	-11.0	-12.5
32	-24.6	-21.6	-20.2	-15.5	8.9
33	-26.0	-14.4	-10.1	81.7	100.6
34	-17.3	-12.8	-9.7	30.4	19.7
35	-16.9	-17.9	-13.5	1.5	46.1
36	73.4	-15.3	-11.8	44.0	124.3

1TITLE= BASELINE FROM PROJECTED 2 -- 3-HR SECOND HIGHEST

1TITLE= BASELINE FROM PROJECTED 2 -- 3-HR SECOND HIGHEST

RECEPTOR NO.	3.0	3.4	3.8	4.2	4.8
0					
1	-2.6	24.0	50.0	69.8	86.2
2	-20.0	-12.5	-2.8	6.6	17.2
3	18.9	5.5	8.3	10.9	10.1
4	-17.0	-7.7	8.2	21.1	2.1
5	-1.2	-22.4	-3.1	22.7	-2.2
6	27.2	27.4	27.6	26.5	30.4
7	26.2	45.8	62.8	67.5	47.5
8	-25.7	-21.7	-10.4	-3.3	-1.8
9	-13.8	-9.8	-6.2	-3.1	15.3
10	12.5	21.5	28.5	28.2	37.9
11	-5.7	-6.6	-3.6	21.0	39.4
12	-3.0	1.6	5.4	8.6	27.9
13	35.9	26.5	15.4	17.8	-7.4
14	28.9	26.8	13.9	12.8	24.6
15	55.8	42.3	44.0	44.8	44.8
16	45.1	45.1	49.0	44.9	44.2
17	40.9	42.6	42.8	42.1	39.9
18	31.7	35.1	36.9	37.3	32.4
19	11.6	38.9	45.8	49.4	41.5
20	16.4	37.9	45.3	46.4	38.0
21	6.0	10.7	0.0	2.1	3.0
22	3.5	-6.6	-6.4	-10.7	8.2
23	-4.6	5.2	2.1	-0.7	9.6
24	-9.1	-5.0	-16.7	-15.7	-9.2
25	-18.0	1.5	5.2	8.3	11.8
26	-9.0	-7.8	-3.2	-0.8	-10.4
27	-4.2	-20.8	-17.4	-15.4	-8.6
28	-25.6	-24.4	-13.0	1.0	22.6
29	-15.7	-14.5	22.1	11.7	-2.8
30	11.1	29.4	14.0	13.9	12.3
31	-16.2	-3.9	-2.6	14.6	43.3
32	37.4	59.6	64.8	64.2	55.3
33	38.4	23.3	10.5	19.8	18.7
34	-13.1	8.9	32.8	50.1	43.2
35	47.1	41.3	41.5	45.5	45.2
36	20.9	10.4	37.4	43.0	29.7

1TITLE= BASELINE FROM PROJECTED 2 -- 3-HR SECOND HIGHEST

1TITLE= BASELINE FROM PROJECTED 2 -- 3-HR SECOND HIGHEST
RECEPTOR NO. 5.2

0

1	90.6
2	21.7
3	12.5
4	42.1
5	-2.8
6	21.4
7	2.4
8	-2.3
9	20.4
10	18.0
11	34.8
12	27.4
13	-3.4
14	34.5
15	44.1
16	36.3
17	34.9
18	33.7
19	35.9
20	43.3
21	14.8
22	6.5
23	1.6
24	11.7
25	5.0
26	-7.3
27	-9.2
28	26.1
29	-1.6
30	10.1
31	58.1
32	55.4
33	45.9
34	27.9
35	46.3
36	16.3

1
1

1TITLE= BASELINE FROM PROJECTED 2 -- 24-HR SECOND HIGHEST

1TITLE= BASELINE FROM PROJECTED 2 -- 24-HR SECOND HIGHEST

RECEPTOR NO.	1.0	1.4	1.8	2.2	2.6
0					
1	-3.2	-2.2	-1.7	-1.3	-1.2
2	-3.1	-1.8	-1.5	3.6	-3.4
3	4.8	17.9	12.8	4.7	-8.3
4	-3.1	-1.9	-1.4	-2.8	-4.7
5	-2.8	-0.7	-0.2	-1.1	-3.7
6	-2.6	-2.0	-1.8	-15.0	3.1
7	-3.1	-2.6	-2.1	-1.7	1.0
8	-3.1	-2.3	-2.2	-6.5	-3.6
9	-3.1	-2.6	-1.3	7.6	-2.2
10	-3.0	-2.6	-2.1	0.5	2.8
11	-2.7	2.7	5.0	2.0	-1.6
12	-2.8	5.0	6.4	7.0	7.6
13	2.0	3.3	3.3	0.2	5.0
14	-0.5	2.6	3.3	3.5	3.6
15	4.0	1.3	10.5	2.3	0.6
16	3.2	3.5	3.6	2.8	8.3
17	2.6	2.9	2.8	6.3	6.9
18	-0.9	0.3	1.0	8.0	5.6
19	-2.5	2.6	3.2	3.2	3.7
20	-2.0	4.0	1.9	1.5	1.1
21	-2.9	-1.1	-0.2	0.3	-1.5
22	3.7	1.4	1.9	2.6	-1.3
23	4.4	3.8	2.7	-1.1	-2.7
24	12.6	2.4	3.9	-3.8	-1.0
25	5.1	-1.4	-1.2	-4.3	-0.9
26	6.8	-1.4	-2.0	-0.6	1.3
27	-2.8	1.9	-1.8	-1.0	-2.3
28	-3.0	-2.4	-1.8	-4.4	-5.6
29	-2.0	-2.1	-1.8	-4.9	-1.0
30	-3.2	-2.0	-1.8	-4.9	-4.0
31	-3.3	-2.8	-2.9	-2.9	-2.3
32	-2.9	-2.4	-3.0	-0.5	3.4
33	-2.4	-2.5	-2.0	0.5	7.7
34	-2.1	-1.6	-1.2	5.8	-5.7
35	-2.1	-2.2	-2.0	-0.3	-0.3
36	9.1	-1.9	-1.4	5.5	15.6

1TITLE= BASELINE FROM PROJECTED 2 -- 24-HR SECOND HIGHEST

1TITLE= BASELINE FROM PROJECTED 2 -- 24-HR SECOND HIGHEST
RECEPTOR NO.

0

	3.0	3.4	3.8	4.2	4.8
1	-2.6	3.1	6.7	9.3	11.5
2	-3.1	-2.1	-0.6	1.1	0.6
3	4.0	1.5	2.1	4.6	1.0
4	-3.1	-2.3	0.1	1.9	3.3
5	-3.3	-2.5	-1.8	-3.1	-2.0
6	3.3	1.4	2.2	2.9	2.7
7	2.3	3.4	-0.9	-1.3	1.5
8	-3.2	-2.8	-1.2	-0.2	0.4
9	0.6	3.6	5.5	8.6	8.3
10	6.3	7.8	8.6	5.5	1.0
11	1.0	2.8	5.2	6.4	7.8
12	0.6	3.7	2.9	0.0	-0.8
13	3.4	3.9	-0.2	-0.1	1.9
14	4.1	4.6	6.3	6.4	4.8
15	1.7	7.9	8.4	8.5	8.5
16	8.7	8.8	8.9	9.6	8.8
17	7.0	6.9	6.7	6.4	5.9
18	5.6	5.8	6.2	6.4	5.2
19	1.7	5.6	7.8	8.0	8.1
20	0.3	-0.7	-0.2	0.3	3.3
21	1.7	3.3	3.5	1.0	1.9
22	0.4	0.0	5.8	6.4	3.5
23	2.9	1.5	-2.1	-1.9	-1.3
24	3.9	4.3	0.8	-0.1	1.1
25	-0.4	0.2	-1.3	-0.5	-0.6
26	1.6	-1.7	1.4	1.2	1.8
27	-3.4	-3.4	-3.2	-2.8	-0.8
28	-5.9	-1.3	1.1	3.7	5.8
29	0.8	0.2	2.4	4.6	6.0
30	0.4	-3.2	1.5	4.3	5.9
31	-0.3	0.1	5.1	17.0	2.1
32	4.6	5.3	6.0	6.7	9.4
33	7.2	2.7	3.4	5.0	5.7
34	-4.7	-0.4	4.9	9.9	13.8
35	-10.1	-11.6	-10.3	-7.2	-3.4
36	2.6	2.9	8.3	-1.4	0.6

1

1

1TITLE= BASELINE FROM PROJECTED 2 -- 24-HR SECOND HIGHEST

1TITLE= BASELINE FROM PROJECTED 2 -- 24-HR SECOND HIGHEST
RECEPTOR NO. 5.2

0

1	12.1
2	1.4
3	0.9
4	3.7
5	-1.0
6	2.5
7	2.1
8	-0.9
9	9.1
10	0.8
11	0.8
12	-0.3
13	8.4
14	7.0
15	8.1
16	7.6
17	5.1
18	5.2
19	7.4
20	3.3
21	-0.7
22	4.8
23	-0.8
24	2.0
25	0.0
26	3.3
27	0.3
28	4.1
29	2.8
30	6.4
31	0.0
32	11.6
33	2.6
34	14.1
35	-1.7
36	1.7

1
1

Units 4 and 5 @ 1.2 lb and Units 1 and 2 @ 3.35 lb

1TITLE= BASELINE FROM PROJECTED 1 -- 3-HR SECOND HIGHEST

1TITLE= BASELINE FROM PROJECTED 1 -- 3-HR SECOND HIGHEST

RECEPTOR NO.	1.0	1.4	1.8	2.2	2.6
0					
1	-81.5	-140.6	-112.3	-90.9	-63.9
2	-73.9	-104.0	-83.8	2.9	-105.3
3	-18.9	54.8	45.9	79.9	-30.5
4	-97.0	-110.8	-91.9	-64.9	21.9
5	-88.2	-91.1	-61.0	-56.3	34.4
6	-84.6	-118.9	-104.4	-85.0	-65.1
7	-90.1	-166.3	-134.9	-102.6	-65.1
8	-100.2	-144.2	-129.5	-108.4	-133.7
9	-100.6	-147.3	-123.8	-137.9	-132.0
10	-106.3	-151.1	-129.9	-76.7	-97.3
11	-73.0	-88.8	-61.6	-80.5	-43.3
12	-23.8	-76.6	-16.7	8.1	-2.4
13	-17.6	-82.9	-43.4	-25.9	-28.2
14	-93.8	-69.4	-41.1	-21.8	-9.8
15	27.6	-20.2	5.9	18.8	31.7
16	-4.5	-17.8	6.2	18.6	54.7
17	6.5	-5.2	10.0	17.4	45.6
18	-53.3	-51.1	-17.1	24.3	9.8
19	-83.4	-58.8	-39.8	-15.1	44.9
20	-10.8	-68.4	-40.3	-24.2	-13.8
21	-12.4	-92.9	-63.5	-46.1	-33.7
22	-10.5	39.6	25.9	42.2	-13.3
23	67.4	83.9	51.4	-1.4	-45.7
24	158.0	51.7	55.4	23.4	-34.8
25	72.5	-84.9	-68.9	-55.2	-89.3
26	108.8	-117.0	-119.9	-100.5	-86.0
27	-90.6	-137.4	-129.9	-99.1	-68.2
28	-100.4	-135.7	-118.8	-119.8	-77.4
29	-64.3	-96.0	-66.3	-66.5	-110.5
30	-105.7	-120.9	-100.4	-71.4	-105.6
31	-112.9	-154.3	-126.6	-81.7	-74.0
32	-101.7	-145.5	-129.8	-90.6	-59.9
33	-80.4	-95.9	-78.4	75.9	119.4
34	-67.5	-95.2	-81.5	10.0	84.7
35	-65.5	-102.9	-93.1	-51.2	40.8
36	15.2	-115.5	-98.5	26.2	-198.1

1TITLE= BASELINE FROM PROJECTED 1 -- 3-HR SECOND HIGHEST

1TITLE= BASELINE FROM PROJECTED 1 -- 3-HR SECOND HIGHEST

RECEPTOR NO.	3.0	3.4	3.8	4.2	4.8
0					
1	-53.9	-11.1	35.8	73.4	107.0
2	-108.4	-96.5	-75.5	-52.5	-15.8
3	-28.0	-21.2	-35.6	-20.1	-38.6
4	-36.4	-31.9	-35.0	-22.5	-28.1
5	63.6	15.5	-43.2	-54.5	-75.9
6	-68.6	-44.9	-29.8	-21.5	-1.2
7	-22.1	21.6	59.9	81.3	77.7
8	-145.4	-145.7	-132.1	-118.6	-104.3
9	-117.2	-101.7	-87.1	-73.9	-24.0
10	-54.8	-31.3	-12.1	-2.5	18.0
11	-58.2	-49.6	-1.4	-7.8	-18.7
12	-39.7	-42.7	-43.9	-40.2	-18.5
13	18.1	-12.5	-19.3	-19.0	-22.0
14	-1.8	49.9	32.2	15.0	14.2
15	45.9	20.0	20.0	21.5	24.1
16	42.0	33.8	36.3	35.7	35.3
17	50.9	46.6	42.5	38.8	34.4
18	31.8	31.1	30.2	29.0	28.2
19	20.3	47.9	51.5	36.5	15.8
20	4.6	52.1	57.4	57.4	40.2
21	-18.5	9.7	-14.5	-15.1	-32.1
22	-38.4	-30.6	-16.9	-26.9	-15.9
23	-45.9	-18.3	-12.0	-8.3	12.0
24	-38.5	-49.0	-58.2	-70.5	-68.3
25	-95.6	-59.1	-46.0	-35.2	-16.6
26	-71.8	-46.5	-62.1	-52.6	-59.0
27	-68.5	-89.3	-103.6	-104.8	-95.9
28	-124.4	-136.2	-128.8	-110.3	-104.3
29	-62.8	-96.4	-53.2	-13.7	-20.8
30	-79.2	-21.3	29.2	0.4	14.4
31	-87.2	-24.5	-50.0	-32.8	-4.6
32	-19.4	23.3	57.3	66.6	63.1
33	61.6	7.9	-31.2	-24.5	-21.8
34	-31.6	-45.1	0.5	36.0	45.2
35	40.2	25.4	23.9	31.4	39.2
36	86.6	25.6	32.8	40.8	7.2

1TITLE= BASELINE FROM PROJECTED 1 -- 3-HR SECOND HIGHEST

1TITLE= BASELINE FROM PROJECTED 1 -- 3-HR SECOND HIGHEST
RECEPTOR NO. 5.2

0

1	117.5
2	1.9
3	-41.8
4	-8.4
5	-73.2
6	-6.3
7	38.7
8	-96.0
9	-14.0
10	3.2
11	-1.4
12	-7.2
13	-23.1
14	31.6
15	25.4
16	25.2
17	27.8
18	27.3
19	9.5
20	43.7
21	-15.3
22	-22.6
23	6.5
24	-47.5
25	-17.8
26	-56.3
27	-93.3
28	-95.3
29	-27.8
30	11.9
31	7.2
32	72.6
33	15.1
34	19.9
35	44.7
36	-14.6

1
1

1TITLE= BASELINE FROM PROJECTED 1 -- 24-HR SECOND HIGHEST

1TITLE= BASELINE FROM PROJECTED 1 -- 24-HR SECOND HIGHEST

RECEPTOR NO.	1.0	1.4	1.8	2.2	2.6
0					
1	-10.2	-17.6	-14.0	-10.6	-10.7
2	-9.3	-12.9	-10.7	-6.3	-13.9
3	-2.3	6.8	5.7	2.5	-9.4
4	-12.2	-13.9	-11.5	-9.7	-14.3
5	-1.9	-11.4	-9.5	-8.6	-14.1
6	-3.6	-14.8	-13.1	-24.4	-8.5
7	-6.2	-20.8	-16.9	-13.5	-8.1
8	-12.5	-18.0	-16.1	-18.8	-16.5
9	-12.6	-18.4	-15.4	-5.2	-16.4
10	-13.2	-18.9	-16.2	-9.6	-4.3
11	-11.9	-5.6	0.0	-0.7	-3.9
12	-11.4	-2.4	2.4	5.4	7.5
13	-2.2	-10.4	-6.1	-5.0	4.3
14	-11.7	-8.7	-5.1	-2.8	2.2
15	5.0	5.3	13.7	-1.8	-2.7
16	1.2	-2.2	0.8	9.0	11.6
17	0.8	-0.6	1.3	11.4	9.6
18	-6.7	-6.3	4.6	12.1	7.2
19	-9.7	-4.5	-0.9	0.3	5.6
20	-1.4	3.6	2.8	2.7	0.6
21	-12.3	-11.6	-7.9	-5.8	-5.3
22	5.3	-5.5	-2.2	0.2	-6.4
23	8.4	10.5	6.8	-0.1	-6.4
24	20.5	20.0	9.5	-7.2	-4.1
25	24.5	-10.6	-8.9	-12.8	-11.6
26	11.7	-14.9	-17.7	-13.8	-10.1
27	-11.3	-7.9	-16.2	-12.4	-13.7
28	-12.5	-17.0	-14.9	-15.9	-20.0
29	-8.0	-12.4	-11.5	-13.6	-16.6
30	-13.2	-15.2	-13.2	-15.2	-18.6
31	-14.1	-21.1	-18.5	-5.1	-7.6
32	-12.9	-18.2	-17.2	-11.6	-3.9
33	-9.6	-19.0	-16.5	-4.8	10.9
34	-8.4	-12.0	-10.2	-4.6	-4.8
35	-8.2	-12.8	-12.1	-7.7	0.2
36	1.9	-14.4	-12.3	3.3	24.8

1TITLE= BASELINE FROM PROJECTED 1 -- 24-HR SECOND HIGHEST

1TITLE= BASELINE FROM PROJECTED 1 -- 24-HR SECOND HIGHEST

RECEPTOR NO.	3.0	3.4	3.8	4.2	4.8
0					
1	-16.0	-4.9	2.0	7.3	12.2
2	-14.9	-13.7	-10.9	-7.3	-5.4
3	0.3	2.7	2.7	3.0	0.2
4	-16.8	-13.6	-9.9	-7.1	-3.0
5	-15.0	-14.8	-12.8	-12.6	-14.5
6	3.1	6.3	8.3	3.2	-4.3
7	-5.5	-3.6	-7.7	-7.9	-9.2
8	-18.2	-18.2	-16.4	-12.6	-9.7
9	-7.8	-4.2	-1.4	2.7	6.7
10	-1.8	0.0	0.9	-2.3	-6.9
11	-5.9	-4.6	-1.3	1.4	4.9
12	-4.7	-6.0	-7.9	-9.2	-1.3
13	-2.8	-1.5	-7.0	-7.2	-7.3
14	-3.7	3.0	4.6	2.7	0.9
15	1.7	7.3	6.9	6.5	6.4
16	9.3	7.6	6.5	7.2	7.3
17	7.7	6.4	5.5	4.8	4.4
18	6.7	7.2	7.4	6.6	4.3
19	5.6	8.6	9.8	9.0	7.2
20	2.9	0.6	-4.1	-6.2	-0.6
21	-0.1	2.3	1.8	-2.0	2.2
22	0.1	0.6	4.6	7.4	3.3
23	0.3	1.4	1.1	1.3	1.4
24	3.6	3.0	-1.1	-4.4	-3.2
25	-9.4	-7.2	-8.6	-7.9	-7.3
26	-8.5	-3.9	-6.6	-5.8	-4.0
27	-15.8	-17.1	-18.1	-18.0	-12.8
28	-24.8	-20.6	-16.1	-12.2	-9.0
29	-9.8	-9.6	-4.5	2.0	2.1
30	-13.8	-9.1	-5.7	1.3	6.1
31	-10.9	-4.6	-4.7	2.0	15.8
32	-1.9	-0.9	0.0	1.0	4.3
33	7.2	1.1	-0.9	4.1	9.1
34	-16.7	-10.9	-3.0	4.4	12.4
35	-8.7	-19.0	-16.7	-13.5	-7.6
36	10.8	-1.1	7.4	1.4	-6.8

BEST AVAILABLE COPY

1 TITLE= BASELINE FROM PROJECTED 1 -- 24-HR SECOND HIGHEST

1 TITLE= BASELINE FROM PROJECTED 1 -- 24-HR SECOND HIGHEST
RECEPTOR NO. 5.2

0

1	13.9
2	-4.5
3	0.5
4	-1.9
5	-13.1
6	-5.3
7	-7.7
8	-12.3
9	8.1
10	-9.4
11	-0.9
12	1.6
13	1.7
14	5.7
15	6.2
16	4.8
17	3.8
18	3.8
19	5.8
20	-0.4
21	-4.5
22	3.6
23	1.0
24	-2.2
25	-6.7
26	-1.4
27	-10.3
28	-10.3
29	-2.7
30	7.0
31	21.9
32	7.6
33	6.2
34	15.8
35	-4.9
36	-3.9

1
1

APR 13 1983

P P S


**Florida
Power**
CORPORATION

April 11, 1983

Mr. James T. Wilburn
Air Management Branch
Air and Waste Management Division
U. S. Environmental Protection Agency
Region IV
345 Courtland Street NE
Atlanta, Georgia 30365

DER
APR 21 1983
BAQM

Dear Mr. Wilburn:

Subject: PSD Permit FPC
Crystal River Units 4 & 5
Condition 7

This letter is in response to correspondence received from you dated January 26, 1983 and February 18, 1983. Our plan to monitor Emission Control Equipment Efficiency has been expanded to include the additional information you suggested in comments 1 and 2 of your January 26, 1983 letter. (Copy attached) We do, however, disagree with Comment 3 of your January 26, 1983, letter that emission monitors for SO₂, NO_x, and CO₂ should be addressed as part of our plan.

The plan we are submitting is in response to PSD Condition 7, which states

" . . . the owner or operator shall submit to the EPA a standardized plan or procedure that will allow the company to monitor emission control equipment efficiency and enable the company to return malfunctioning equipment to proper operation as expeditiously as possible."

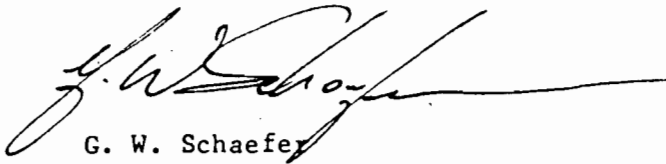
Emission control equipment for Crystal River 4&5 includes the electrostatic precipitator and various bag filters associated with the coal and ash handling system. While the SO₂, NO_x, and CO₂ monitors perform a necessary function in compliance with 40CFR60.45, they in no way assist in monitoring the efficiency of the emission control equipment described above. Accordingly, these monitors are not included in our plan.

Mr. James T. Wilburn
April 11, 1983
Page 2

In response to your February 18, 1983 letter, emission control equipment design data was forwarded to the EPA as required under PSD Condition 1.a and 9.b and subsequently approved on March 2, 1979, and May 18, 1981, respectively. Copies of this correspondence is also attached for your further use.

We feel that the attached information will adequately address your concerns regarding Condition 7.

Sincerely,

A handwritten signature in dark ink, appearing to read 'G. W. Schaefer', with a long horizontal flourish extending to the right.

G. W. Schaefer

GWS/gr

Attachments

cc: H. S. Owen, FDER, w/attachments

CRYSTAL RIVER FOSSIL PLANT

UNITS 4 AND 5

Plan to Monitor Emission Control Equipment Efficiency and to Return Malfunctioning Emission Control Equipment to Proper Operation (RE I.B.6 Special Conditions of Certification, FDER, and Paragraph 7, Conditions for Approval, PSD Permit)

Emission control equipment covered by this plan includes the electrostatic precipitator and various bag filters associated with the coal and ash handling system.

Electrostatic Precipitator:

Particulate matter generated during combustion will be removed from flue gases in the electrostatic precipitator.

Precipitator efficiency is monitored by stack opacity monitoring equipment. The opacity monitor is a Contraves model 400. This monitor carries guarantees as indicated on Contraves specification sheet. (See attachment I) Calibration will be performed in accordance with plant preventive maintenance instruction SSA-1. (See Attachment II.) A program is included in the plant status computer system to monitor and log data reflecting the performance of the opacity monitor, and to alarm malfunctions. If the opacity monitoring equipment becomes inoperable, and until such time repair or replacement can be made, daily visual surveillance of stack opacity will be performed.

Bag Filters:

Particulate emissions from the coal and ash handling systems are controlled by the use of bag filters. This is accomplished by removal of dust laden air from various transfer points into a duct system which terminates in a bag filter unit.

The bag filter system was manufactured by Buell and is guaranteed as per Black & Veatch specification 7645.61.4240. (See attachment III)

Bag filter source points will be visually monitored periodically by engineering and operating personnel to assure opacity requirements are being met.

All emission control equipment malfunctions will require internal reporting. If the equipment cannot be returned to satisfactory service, a maintenance work request will be generated, and a high priority will be assigned the repair activities associated with returning this equipment to service.

Contraves

IM-2342A

PAGE 16

Contraves Goerz Corporation

DIMENSIONS

Optical Head Assembly	16" L x 9.5" W x 9.5" D
Retroreflector Assembly	8.375" dia. x 8" L

WEIGHT

Optical Head	31 pounds
Retroreflector	6 pounds

ELECTRICAL REQUIREMENTS

Standard System	115/230 V, 50/60 Hz, 1Ø, 35 W
Optional Blower (ea.)	115 V (230 V special order), 1Ø, 700 W

OPACITY RANGE	0 to 100%
---------------	-----------

CALIBRATION ERROR	≤3% opacity*
-------------------	--------------

ZERO DRIFT (24 Hours)	≤1% opacity*
-----------------------	--------------

CALIBRATION DRIFT (24 Hours)	≤1% opacity*
---------------------------------	--------------

SPECTRAL RESPONSE	500-600 nm peak**
-------------------	-------------------

ANGLE OF PROJECTION	2 degrees, maximum
---------------------	--------------------

ANGLE OF VIEW	2 degrees, maximum
---------------	--------------------

OPTICAL SYSTEM APERTURE	1.5" diameter
----------------------------	---------------

ALLOWABLE ALIGNMENT DRIFT	+/-0.5 degree
------------------------------	---------------

ALLOWABLE LINE VOLTAGE VARIATION	105-130/210-260 VAC
-------------------------------------	---------------------

* Expressed as sum of absolute mean value and the 95% confidence interval of a series of tests. Double-Pass.

**Responses below 400 nm or above 700 nm shall be less than 10% of the peak response. The mean spectral response is 500 nm - 600 nm.

The information contained herein is being made available as the property of, and for the purposes of CONTRAVES GOERZ CORPORATION, a member of the OERLIKON-BÜHLE GROUP. It cannot be lawfully reproduced in any form nor divulged to any third party, nor used for any purpose other than that for which it has been made available to you, without the specific written consent of CONTRAVES GOERZ CORPORATION.

Contraves Goerz Corporation

RESPONSE TIMES

Normal	5 seconds (factory set)
Maximum	10 seconds
Minimum	1 second

AMBIENT LIGHT SENSITIVITY None

AUTOMATIC CALIBRATION CYCLES

Internal Calibration Data	0.1 second
External Output "Zero" and "Span" Value	every 2 hours standard (other values by adjustment)

AMBIENT TEMPERATURE RANGE -22 degrees to +140 degrees F
(-30 degrees C to + 60 degrees C)

OPERATIONAL DISTANCE 0 to 50 feet (flange to flange)

OUTPUT (as $1 - t^2$) 0 to 10 ma at head or remote location or
4 to 20 ma from Remote Control Unit
(t = transmittance)

OUTPUT FORM 0 to 100% opacity
(other expanded ranges available from
special Remote Control Unit)

LAMP LIFE EXPECTANCE 30,000 + hours

ALIGNMENT External, threaded with positive
locking. Built-in optical alignment
check included.

LOSS OF TRANSMISSION
DETECTION Window status detector is adjustable
between 3 to 12% loss. Typically
set at the Federal Register specified
value of 4%.

FLORIDA POWER CORPORATION
CRYSTAL RIVER PLANT
UNITS 4 & 5
PREVENTIVE MAINTENANCE INSTRUCTION
TRANSMISSIOMETER OPACITY MONITOR
SSA-1

<u>Revision</u>	<u>Approved by Operations Supt.</u>	<u>Approved by Plant Manager</u>	<u>Date</u>	<u>Distribution</u>
0	_____	_____	_____	Plant Manager Maintenance Supt.

PREVENTIVE MAINTENANCE OF
TRANSMISSIOMETER OPACITY MONITOR

SSA-1

1.0 PURPOSE

- 1.1 Establish and maintain a Preventive Maintenance Program for efficient operation.

2.0 DESCRIPTION

- 2.1 Model 400 Transmissiometer Opacity Monitor.

3.0 REFERENCES

- 3.1 FPC Manual #147, Chimney Emissions Monitors Instruction Manual, Contravel Goerz Corp.
- 3.2 In Plant Switching and Tagging OI-3
- 3.3 Lubrication Chart

4.0 ENCLOSURES

- 4.1 Check off list SSA-1.
- 4.2 Data Sheet

5.0 LIMITS AND PRECAUTIONS

- 5.1 Beware of moving chopper and high voltage.

6.0 EQUIPMENT AND PERSONNEL REQUIREMENTS

- 6.1 Standard Hand Tools.
- 6.2 Calibration Test Kit.
- 6.3 Dessicators, FPC # Later.
- 6.4 Purge Filters, FPC # Later.

6.5 Cleaning Solution - 50% alcohol and 50% water.

7.0 REQUIRED INITIAL CONDITIONS

7.1 All equipment upon which maintenance is to be performed should be cleared and tagged as required according to OI-3.

8.0 PROCEDURE

8.1 Remove equipment from service as required.

8.2 Service equipment as per check list and data sheet.

9.0 POST MAINTENANCE TESTING AND SYSTEM RESTORATION

9.1 Release any clearances.

9.2 Restore equipment to proper operating condition.

9.3 Clean tools and equipment.

9.4 Clean area of any unsightly trash.

SSA-1
TRANSMISSION METER OPACITY MONITOR
TRANSMISSION METER MAINTENANCE CHECKLIST
(MODEL 400, 500)

_____ Date _____
_____ P.O.# _____
_____ Inst. Serial # _____
Location: _____ Stack No. _____
_____ Tech _____

A. Optical Head, Retro and Purge

1. ☐ Change Purge Filters
2. ☐ Change Dessicators
3. ☐ Install Cal Kit and record the following before cleaning:
 - a. Span Value _____
 - b. Zero Cal Value _____

	ZERO	LOW	MID	HI	FULL SCALE
Cal Filter	0.0				100.0
Inst. Reading					

4. ☐ Clean Retro
5. ☐ Clean Chopper
6. ☐ Clean Window

MAINTENANCE CHECKLIST Page 2

7. ☐ Install Cal Kit and record the following before adjustment:

ZERO	LOW	MID	HI	FULL SCALE

8. ☐ Take the difference in the low filter readings before and after cleaning (Paragraphs 3 and 7).

PARAGRAPH 3 LOW	PARAGRAPH 7 LOW		SHOULD BE LESS THAN 4%
			___ OK ___ OTHER

9. ☐ Adjust zero and full scale and record the following:

ZERO	LOW	MID	HI	FULL SCALE

a. Span Value _____

b. Zero Cal Value _____

10. ☐ Check + and - 15 volt supply _____ V _____ V

11. ☐ Check instrument response time (< 10 sec.)

head retro

12. ☐ Check mounting tubes and air valves for obstructions

13. ☐ Check optical alignment and adjust if necessary

14. ☐ General inspection of hinges, covers, latches, hoses, etc.

Comments: _____

Emission Control Division
200 North Seventh Street
Lebanon, Pennsylvania 17042
Telephone 717/272-2001
Telex 842-332



April 9, 1981

Florida Power Corporation
Crystal River Units 4 and 5
P. O. Drawer 1057
Crystal River, FL 32629

Attention: Mr. R. Monard

Subject: Florida Power Corporation
Crystal River No. 4
B & V Spec. No.: 7645.61.4240
ECD Ref. No.: 80MB-28732/SO 9061

Gentlemen:

All dust collection system flow rates and air to cloth ratios for FPC, Crystal River Units 4 & 5 are as per Black & Veatch specification 7645.61.4240, with the exception of systems 3,23,24 and 404. The latter three are in compliance with Black & Veatch letter of October 7, 1980. The former is in compliance with Black & Veatch letter of June 5, 1980.

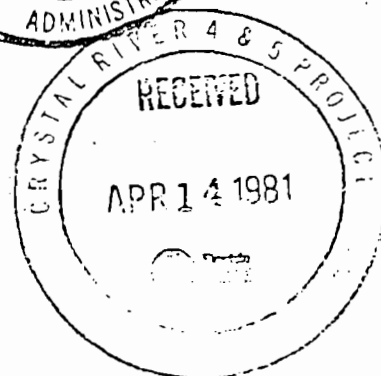
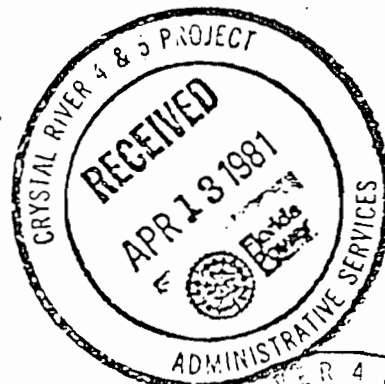
Very truly yours,

BUELL EMISSION CONTROL DIVISION
ENVIROTECH CORPORATION

Douglass R. Wagner
Project Manager

DRW/skm/267

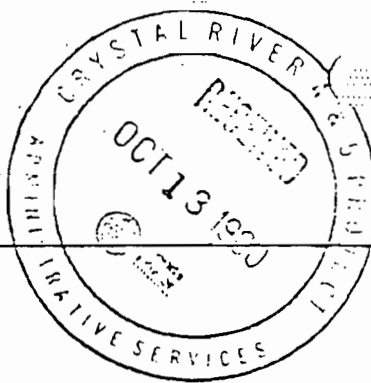
RVS	_____
FJT	_____
WEZ	_____
TLB	_____
HS	_____
DVP	_____
CHT	_____
HED	_____
FILE	<u>2</u>



FJT	_____
LJA	_____
DGB	_____
GJC	_____
LWD	_____
JUF	_____
GVH	_____
TWL	_____
RLM	_____
HER	_____
ALS	_____
JCS	_____
WAS	_____
DEH	_____

Best Available Copy

BLACK & VEATCH
CONSULTING ENGINEERS



TEL. (913) 967-2000
TELEX 42-6263

1500 MEADOW LAKE PARKWAY
MAILING ADDRESS: P.O. BOX NO. 8405
KANSAS CITY, MISSOURI 64114

Florida Power Corporation
Crystal River Plant, Unit 4
Dust Collection Equipment

B&V Project 7645
B&V File 6174240.44
October 7, 1980

Buell Emission Control Division
Envirotech Corporation
200 North Seventh Street
Lebanon, Pennsylvania 17042

RCB	1
JHL	3
WRE	1
TLP	
HS	1
DWF	
CHI	
FILE	2

Attention: Mr. D. R. Wagner
Project Manager

Gentlemen:

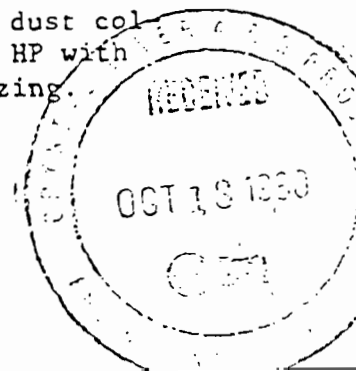
Preliminary calculations submitted by Buell during the September 10, 1980 meeting at Black & Veatch offices are in general agreement with dust collection system requirements. The air flow rates indicated by the calculations require an increase in size of Dust Collector 404, Dust Collector 23A and Dust Collector 24A to satisfy the specified filter surface requirements.

The specified minimum air flow rate "A" for Dust Collector 404 increases from 21,700 cfm to 25,000 cfm to include Unit 5 Conveyor 501 and 502 loading skirts and tail ends. The number of bags shall be increased to retain the specified 7:1 air/cloth ratio resulting in the dust collector shell increasing from size 210 to size 266. The fan motor increases from 100 HP to 125 HP with no change in fan size, which allows the use of 1.15A for fan sizing.

The specified minimum air flow rate "A" for Dust Collector 23A increases from 10,400 cfm to 12,700 cfm to include Conveyor 12 loading skirt and tail end. The number of bags shall be increased to retain the specified 7:1 air/cloth ratio resulting in the dust collector shell increasing from size 98 to size 126. The fan motor increases from 50 HP to 60 HP with no change in fan size, which allows the use of 1.15A for fan sizing.

The specified minimum air flow rate "A" for Dust Collector 24A increases from 8,300 cfm to 10,000 cfm to include Conveyor 30 loading skirt and Conveyor 29 discharge chute. The number of bags shall be increased to retain the specified 7:1 air/cloth ratio within the capacity of dust collector shell size 98. The fan motor increases from 40 HP to 50 HP with no change in fan size, which allows the use of 1.15A for fan sizing.

ENTER CITY
NOT FOR FILING



Buell Emission Control Division
Mr. D. R. Wagner

2

B&V Project 7645
October 7, 1980

The above information is submitted for your use in preparing a proposal to furnish and install a complete dust collection system in accordance with the conditions and specifications as defined in Specification 7645.61.4240 and Florida Power Corporation Contract CR4-00040. Preparation of the proposal shall include verification that the equipment supplied will fulfill performance guarantees required by the specifications.

Please submit the requested proposal within ten (10) days to Mr. H. Simon, Controls and Materials Manager, Florida Power Corporation, with a copy to Mr. J. H. Lander, Florida Power Corporation, and Mr. R. G. Ruisch, Black & Veatch.

If you require any additional information, please contact us.

Very truly yours,

BLACK & VEATCH


James W. Fitzwater

11h

cc: Mr. J. H. Lander, (3)
Florida Power Corporation

Mr. R. C. Bonner
Florida Power Corporation

BLACK & VEATCH
CONSULTING ENGINEERS

TEL. (913) 967-2000
TELEX 42-6263

1500 MEADOW LAKE PARKWAY
MAILING ADDRESS: P.O. BOX NO. 8403
KANSAS CITY, MISSOURI 64114

Florida Power Corporation
Crystal River Plant, Unit 4
Dust Collection Equipment

B&V Project 7645
B&V File 61.4240.44
FPC File EQUIP 1-6-5
June 5, 1980

Buell Emission Control Division
Envirotech Corporation
200 North Seventh Street
Lebanon, Pennsylvania 10742

Attention: Mr. Doug Wagner
Project Manager

Gentlemen:

Enclosed for your use in preparing a proposal to furnish and install Dust Collection Equipment at Coal Transfer Building No. 3 is one (1) set of the Black & Veatch drawings listed on the attached Drawing List.

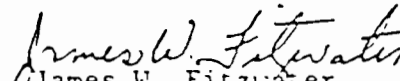
Dust Collector No. 3 will collect dust from the head end of Conveyor No.'s 3-A, 3-B, and 9, and the tail end of Conveyor No.'s 4 and 29. Dust will be returned to Conveyor No.'s 4 and 29. Dust Collector No. 3 shall be designed to operate at the minimum airflow rate of 21,000 scfm. The dust collection equipment shall include all equipment and materials required for a complete dust collection system in accordance with the conditions and specifications as defined in Specification 7645.61.4240 and Florida Power Corporation Contract CR4-00040.

The proposal shall include outline drawings of the coal dust collector including fans, ducts and piping, and auxiliary equipment. The outline drawings shall indicate overall dimensions, hopper outlet locations and required service clearances.

Please submit the requested proposal within ten (10) days to Mr. H. Simon, Controls and Materials Manager, Florida Power Corporation, with a copy to Mr. R. G. Ruisch, Black & Veatch.

Very truly yours,

BLACK & VEATCH


James W. Fitzwater

JWF:lg

cc: Mr. J. H. Lander, (3)
Florida Power Corporation
Mr. R. C. Bonner, (1)
Florida Power Corporation

bcc: RGR, RLH, JWF, RFS

Section 2A - DESIGN CRITERIA

2A.1 GENERAL. This section covers the design, construction, and functional criteria for the coal conveying system dust collectors to be furnished under these specifications.

2A.2 CODE REQUIREMENTS. All equipment and materials furnished under these specifications shall be designed and constructed in accordance with the latest applicable requirements of the standard specifications and codes of ANSI, NFPA, ASME, ASTM, NEMA, IEEE, EEL, AISC, AWS, SAE, NAAMM, NEC, AGMA, CEMA, AMCA, IGCI, ACGIH, and other such regular published and acceptable standards, except where modified or supplemented by these specifications; and in accordance with the applicable requirements of the Federal "Occupational Safety and Health Standards." Any conflicts between standards shall be referred to the Engineer who will determine which standard shall govern.

2A.3 TYPE. Coal conveying system dust collectors shall be induced draft, filter bag units, enclosed in stiffened plate housings and supported on wide flange column legs, complete with drilled baseplates and sway bracing. Baseplates shall rest on foundations or structures furnished under separate specifications.

Dust laden air shall be directed to the Contractor's inlet plenum at the dust collector units through ductwork furnished under these specifications. After passing through the filter bags, the filtered air shall be drawn from the units by fans. Fan discharge ducts shall be furnished under these specifications.

Dust collected by the filter bags, as well as dust precipitated within the unit, shall fall into hoppers which shall form the unit housing bottoms. The final discharge area shall be sufficiently sized to accommodate the maximum dust volume discharged during the unit purge cycle. A screw conveyor for each hopper, or row of hoppers, shall convey the dust from the hopper bottoms. A rotary vane type air lock valve shall be furnished at each point where hopper-collected dust is to be transferred from the vacuum condition in the collectors to a higher pressure region.

Baghouse inlet and discharge points shall be arranged to allow a minimum of coal dust entrainment. Discharge points shall be located to prevent turbulence of the collected dust beyond the area of collection of the collectors.

2A.4 ARRANGEMENT. Arrangement of the coal handling system dust collectors shall be as indicated on the Engineer's drawings listed herein.

The dimensions indicated on the drawings indicate the maximum available space for each dust collector. No additional space is available for bag removal.

2A.5 DRAWINGS. Arrangement of the coal conveying system dust collectors shall be as indicated on the following drawings included with these specifications.

<u>Drawing No.</u>	<u>Rev</u>	<u>Title</u>
S-7645-081678-1.0	0	COAL CONVEYING SYSTEM FLOW DIAGRAM - BASE BID
S-7645-081678-1.1	0	COAL CONVEYING SYSTEM FLOW DIAGRAM - OPTION 1
S-7645-081678-1.2	1	COAL CONVEYING SYSTEM FLOW DIAGRAM - OPTION 2
S-7645-081678-2.0	0	COAL CONVEYING SYSTEM PLOT PLAN - BASE BID
S-7645-081678-2.1	0	COAL CONVEYING SYSTEM PLOT PLAN - OPTION 1
S-7645-081678-2.2	0	COAL CONVEYING SYSTEM PLOT PLAN - OPTION 2
S-7645-081678-4	0	COAL CONVEYING SYSTEM TRANSFER POINT NO. 1, AND CONVEYOR NO.'S 2 & 1 EXTENDED
S-7645-081678-5	0	COAL CONVEYING SYSTEM TRANSFER POINT NO. 2
S-7645-081678-8	0	COAL CONVEYING SYSTEM TRANSFER POINT NO. 23
S-7645-081678-10	0	COAL CONVEYING SYSTEM TRANSFER POINT NO. 24
S-7645-081678-13	0	COAL CONVEYING SYSTEM TRANSFER POINT NO. 25
S-7645-081678-15	0	COAL CONVEYING SYSTEM TRANSFER POINT NO. 26
S-7645-081678-18	0	COAL CONVEYING SYSTEM TRANSFER POINT NO. 27
S-7645-081678-20	1	COAL CONVEYING SYSTEM COAL CRUSHER BUILDING NO. 2, ELEVATIONS
S-7645-081678-21	0	COAL CONVEYING SYSTEM COAL CRUSHER BUILDING NO. 2, FLOOR PLANS

<u>Drawing No.</u>	<u>Rev</u>	<u>Title</u>
S-7645-081678-23	0	COAL CONVEYING SYSTEM PLAN SILO FILL SYSTEM
S-7645-081678-24	0	COAL CONVEYING SYSTEM PLANT SURGE HOPPER NO. 2
S-7645-081678-26	0	COAL CONVEYING SYSTEM CASCADE CONVEYOR NO. 403
S-7645-081678-27	0	COAL CONVEYING SYSTEM CASCADE CONVEYOR NO. 404
S-7645-081678-28	0	COAL CONVEYING SYSTEM CASCADE CONVEYOR NO. 503
S-7645-081678-29	0	COAL CONVEYING SYSTEM CASCADE CONVEYOR NO. 504
S-7645-081678-30	0	COAL CONVEYING SYSTEM TYPICAL CONVEYING EQUIPMENT DETAILS
S-7645-081678-31	0	COAL CONVEYING SYSTEM TYPICAL CONVEYING EQUIPMENT DETAILS
A1009	F	PLANT ARRANGEMENT SOOT BLOWER PLATFORM EL 233'-9"
A1010	E	PLANT ARRANGEMENT SOOT BLOWER PLATFORM EL 244'-0"
A1011	E	PLANT ARRANGEMENT SOOT BLOWER PLATFORM EL 253'-6"
A1012	E	PLANT ARRANGEMENT SOOT BLOWER PLATFORM EL 265'-0"
A1013	E	PLANT ARRANGEMENT SOOT BLOWER PLATFORM EL 274'-6"
A1014	E	PLANT ARRANGEMENT SOOT BLOWER PLATFORM EL 276'-6", EL 278'-0", & EL 283'-6"
S5060	1	STEEL FRAMING - STEAM GENERATOR AREA SOOT BLOWER PLATFORM EL 253'-6"
S5061	1	STEEL FRAMING - STEAM GENERATOR AREA SOOT BLOWER PLATFORM EL 265'-0"

<u>Drawing No.</u>	<u>Rev</u>	<u>Title</u>
S5062	1	STEEL FRAMING - STEAM GENERATOR AREA SOOT BLOWER PLATFORM EL 274'-6"
S5063	1	STEEL FRAMING - STEAM GENERATOR AREA SOOT BLOWER PLATFORM EL 276'-6"
S5120	2	STEEL FRAMING - STEAM GENERATOR AREA GIRTS AND COLUMN BRACING - COLUMN ROW 401
S5125	3	STEEL FRAMING - STEAM GENERATOR AREA GIRTS AND COLUMN BRACING - COLUMN ROW 408

2A.6 OPERATIONAL REQUIREMENTS. Dust collectors shall be designed to operate at an efficiency of not less than 99.9 per cent by weight with the conditions specified herein and while operating at the following specified minimum airflow rates. The pressure drop allowances specified below are for bidding purposes only. Actual pressure drops shall be determined by the Contractor based on his final ductwork design.

	<u>Collector Flow Rate</u> <u>("A" Value for Exhaust</u> <u>Fan Sizing)</u>	<u>Pressure Drop Allowance</u> <u>for Collection Duct and</u> <u>Fan Discharge ("F" Value</u> <u>for Exhaust Fan Sizing)</u>	<u>Option</u> <u>Number</u>
	scfm	in. of water	
Dust Collector No. 1	7,525	4.0	Base
Dust Collector No. 2	13,800	4.0	Base
Dust Collector No. 23-1	14,325	5.2	1
Dust Collector No. 23-2	8,300	5.1	Base
Dust Collector No. 24-1	10,400	4.8	Base
Dust Collector No. 24-2	15,075	4.3	1
Dust Collector No. 25-1	8,225	3.3	Base
Dust Collector No. 25-2	8,225	3.3	2

	Collector Flow Rate ("A" Value for Exhaust Fan Sizing)	Pressure Drop Allowance for Collection Duct and Fan Discharge ("F" Value for Exhaust Fan Sizing)	Option Number
	scfm	in. of water	
Dust Collector No. 26-1	16,825	4.8	Base
Dust Collector No. 26-2	9,450	4.2	2
Dust Collector No. 27-1	12,600	5.2	Base
Dust Collector No. 27-2	4,975	3.9	2
Coal Crusher Building Dust Collector	12,550	6.0	Base
Dust Collector No. 403	16,250	5.4	Base
Dust Collector No. 404	21,700	5.2	Base
Dust Collector No. 503	16,250	5.4	Unit 5
Dust Collector No. 504	16,250	5.4	Unit 5

All dust collectors shall be interlocked with the belts from which dust is collected. Accumulated dust shall be conveyed to an appropriate belt moving out from each transfer point, head chute, or bucket elevator generally as indicated on the various drawings. Dust collection at Transfer Point No. 3 will be under a future contract.

Dust Collector No. 1 will collect dust from the head end of Conveyor No. 1, the tail end of Conveyor No. 2 and the front loading skirt of Conveyor No. 2. Dust will be returned to the head chute of Conveyor No. 1.

Dust Collector No. 2 will collect dust from the head end of Conveyor No. 2, the tail ends of Conveyor No.'s 3-1 and 3-2, and the front loading skirts of Conveyor No.'s 3-1 and 3-2. Dust will be returned to the head chute of Conveyor No. 2.

Dust Collector No. 23-1 will collect dust from the head ends of Conveyor No.'s 24 and 28, the tail ends of Conveyor No.'s 30 (or 30-1 and 30-2 if Option 2 is accepted) and 23, and the front loading skirt of Conveyor No. 23. Dust will be returned to the head chute of Conveyor No. 28.

Dust Collector No. 23-2 will collect dust from the head chute of Conveyor No. 29 and the front load skirt of Conveyor No. 30 (or 30-1 and 30-2 if Option 2 is accepted). Dust will be returned to the head chute of Conveyor No. 29.

Dust Collector No. 24-1 will collect dust from the head end of Conveyor No. 27, the tail end and front loading skirt of Conveyor No. 29, and the Sample Reject Bucket Elevator. Dust will be returned to the Sample Reject Bucket Elevator.

Dust Collector No. 24-2 will collect dust from the head ends of Conveyor No.'s 25 and 27, the tail ends of Conveyor No.'s 26 and 28, and the front loading skirt of Conveyor No. 28. Dust will be returned to head chute of Conveyor No. 28. The ductwork outside the dust hood at the head end of Conveyor No. 27 shall be arranged with remote controlled dampers such that either Dust Collector No. 24-1 or 24-2 can collect dust through it.

Dust collector No. 25-1 will collect dust from the head end of Conveyor No. 30 (30-1), and the tail end and front load skirt of Conveyor No. 31 (31-1). The dust will be returned to the head chute of Conveyor No. 30 (30-1).

Dust Collector No. 25-2 will collect dust from the head end of Conveyor No. 30-2, and tail end and front load skirt of Conveyor No. 31-2. Dust will be returned to the head chute of Conveyor No. 31-2.

Dust Collector No. 26-1 will collect dust from the head end of Conveyor No. 31 (31-1), the tail end and front load skirt of Conveyor No. 33 (33-1) and the head end of Conveyor No. 32. Dust will be returned to head chute of Conveyor No. 31 (31-1). Flexible ducting shall be provided on Conveyor No. 32 to enable the retractable loading skirt to function.

Dust Collector No. 26-2 will collect dust from the head end of Conveyor No. 31-2, and the tail end and front load skirt of Conveyor No. 33-2. The dust will be returned to the head chute of Conveyor No. 31-2.

Dust Collector No. 27-1 will collect dust from the head end of Conveyor No. 33 (33-1), the tail end and front load skirt of Conveyor No. 35-1 (or 35-1 and 35-2 if Option 2 is not accepted) and the head end of Conveyor No. 34. Dust will be returned to the head chute of Conveyor No. 33 (33-1). Flexible ducting shall be provided on Conveyor No. 34 to enable the retractable loading skirt to function.

Dust Collector No. 27-2 will collect dust from the head end of Conveyor No. 33-2, and the tail end and front loading skirt of Conveyor No. 35-2. Dust will be returned to the head chute of Conveyor No. 33-2.

The Crusher Building Dust Collector will collect dust from the head ends of Conveyor No.'s 35-1 and 35-2, the tail ends and front loading skirts of Conveyor No.'s 36-1 and 36-2, the Coal Crusher Hopper No. 2, and Crusher Feeder No.'s 3 and 4. Dust will be returned to Coal Crusher Hopper No. 2.

Dust Collector No. 403 will collect dust from the head ends of Conveyor No. 401; the tail end, all head chutes, and all loading skirts of Conveyor No. 403; and Silo No.'s 402, 403, and 404. Dust will be returned to either Silo No. 402 or 403.

Dust Collector No. 404 will collect dust from the head ends of Conveyor No.'s 36-1 and 36-2; Plant Surge Hopper No. 2; Plant Surge Hopper Feeder No.'s 401, 402 and optional Plant Surge Feeder No.'s 501 and 502; Silo No.'s 405, 406 and 407; the tail end, all head chutes, and all loading skirts of Conveyor No. 404; the tail end and load skirts of Conveyor No. 401; and Unit 5 Option Conveyor No.'s 501 and 502. Dust will be returned to either Silo No. 405 or 406.

Dust Collector No. 503 will collect dust from Silo No.'s 502, 503, and 504; the head end of Conveyor No. 501; and the tail end, all head chutes, and all loading skirts of Conveyor No. 503. Dust will be returned to either Silo No. 502 or 503.

Dust Collector No. 504 will collect dust from Silo No.'s 505, 506, 507; the head end of Conveyor No. 502; and the tail end, all head chutes, and all loading skirts of Conveyor No. 504. Dust will be returned to either Silo No. 505 or 506.

2A.7 DESIGN CONDITIONS. Dust collectors shall be designed for the operating conditions specified herein.

2A.7.1 Plant Elevation. The plant site is approximately 11 feet above mean sea level.

2A.7.2 Design Pressure. Inlet plenum, housing, outlet duct to exhaust fan, and any other components subjected to the operating pressures of the dust collecting units shall be designed for an operating differential pressure of plus or minus 20 inches of water.

2A.7.3 Ambient Conditions. Consideration shall be given to the range of ambient temperature and relative humidity. Particular attention shall be given to design for salt air atmosphere.

The dust collectors will be located in unenclosed structures and will be subjected to inclement weather conditions, except for dust collectors located within the Generation Building. The unenclosed dust collectors may in the future be located in enclosed areas.

All equipment shall be designed to operate in, and shall be sized for, the following ambient conditions.

<u>Location</u>	<u>Temperature, F</u>
Transfer Point No.'s 1, 2, 23, 24, 25, 26, and 27	+15 to +105
Coal Crusher Building No. 2	+15 to +105
Coal silos	+35 to +120

2A.7.4 Coal Data. The coal received by the coal conveying equipment will be Eastern bituminous coal or Western subbituminous coal. The coal can be saturated with surface moisture, and will be normally 3" x 0" size up to the crusher building and 1-1/2" x 0" size thereafter.

Coal downstream of Transfer Point No. 27 will be a blend of coals.

A tabulation of eight coal sources and eight blends, on a 50/50 weight basis, has been included at the end of this Section 2A.

Coal dust shall be considered to weigh 50 pounds per cubic foot for calculation of capacities, and 70 pounds per cubic foot for structural load calculations.

2A.7.5 Exhaust Air and Dust Conditions. Equipment and materials furnished shall be designed to operate under the dust conditions and levels specified herein.

Each dust collector shall be designed to handle air laden with coal dust of the following average concentration and properties.

Dust concentration in air, grains per acfm	13
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Approximate percentage by weight of particles 10 microns and smaller	90
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2A.8 STRUCTURAL DESIGN CRITERIA. Structural design conditions for the dust collection system shall be as specified herein.

2A.8.1 Wind Loads. Wind loads shall be based on ANSI Standard A58.1-1972. Basic wind speed shall be 110 miles per hour as determined from Figure 2 of the standard entitled "Annual Extreme Fastest-Mile Speed 30 Feet Above Ground, 100 Year Mean Recurrence Interval," and interpolated from Table 5, Exposure C. A step function of pressure with height may be used. A minimum loading of 25 psf shall be used.

2A.8.2 Seismic Loads. Effects of seismic loads on the design of all structures shall be given full consideration.

These design considerations shall be submitted to, and shall be acceptable to, the Engineer and the Company.

Seismic analysis and design shall be in accordance with the requirements for construction of equipment located in ANSI Standard A58.1-1972 Risk Zone 1.

2A.9 MECHANICAL DESIGN CRITERIA. Mechanical design criteria for the dust collection system shall be as specified herein.

2A.9.1 Exhaust Fan Sizing. Fans shall be sized to provide the specified airflow under normal continuous operation of the dust collectors with dust laden air as specified herein. Fan sizing shall not be less than that determined by use of values for volume and static pressure calculated by the following equations.

$$\text{Volume} = 1.15 \times A$$

$$\text{Static pressure} = B+C+D+E+F$$

Symbols in the above equations represent the following.

A = Specified collector airflow rate

B = Entrance loss at Contractor's plenum with volume equal to 1.15A

C = Pressure drop from inlet plenum to exhaust fan inlet with volume equal to 1.15A under normal filter bag conditions

D = Fan discharge velocity head

E = Allowance for inlet vane control flexibility (use 1.5 inches of water)

F = Allowance for inlet collection duct and fan discharge. Values for "F" shall be as specified herein under OPERATIONAL REQUIREMENTS.

Ambient air conditions used for fan sizing shall be as specified herein under DESIGN CONDITIONS.

Values of factors and terms used in the calculations of minimum required fan sizes in accordance with the above criteria shall be listed in the spaces provided in Equipment Data in Section C.

2A.9.2 Fan Motor Sizing. Each exhaust fan motor shall be sized in accordance with Article 1D.4. Maximum load horsepower shall be taken as the fan horsepower corresponding to a volume of 1.15A, at a pressure comprised of the sum of Items B, C, D, E, and F as defined herein under Exhaust Fan Sizing, while handling air at the temperatures specified herein under DESIGN CONDITIONS.

2A.9.3 Filter Surface Requirements. Units shall be equipped with filter bags of sufficient number and size to provide the following net air-to-cloth ratios.

Net air-to-cloth ratio will be defined as the actual air flow rates divided by the cloth area actually collecting dust at any time during collector operation; particularly during the filter cleaning process.

<u>Filter Cleaning Mechanism</u>	<u>Air/Cloth Ratio</u> <u>scfm/ft²</u>
Impulse air jet reverse airflow	7:1
Low pressure reverse airflow	6:1

2A.9.4 Air Compressor Sizing. Each air compressor, air receiver, and control arrangement shall be sized to provide air at the quantity and pressure required.

2A.10 GUARANTEES. Coal handling system dust collectors and accessories shall be guaranteed to perform as specified with the materials and under the conditions specified heretofore.

Coal handling system dust collectors and accessories shall additionally be guaranteed to be in compliance with all applicable regulatory requirements in force at the time of start-up.

2A.11 TEST PORTS. Test ports shall be provided in the inlet and outlet ductwork of all dust collectors. These ports shall be suitable for the performance of tests as outlined in the latest revisions of the EPA "Test Procedures for Determining Compliance with New Source Performance Standards, Method 5 - Determination of Particulate Emissions from Stationary Sources" as contained in Volume 43, Federal Register.

2A.12 TESTS. The Company will make operational acceptance tests after installation of the equipment. Tests will be conducted at approximately the design conditions specified herein, and proper corrections will be made in the calculation of results to account for any variations from the specified design conditions.

If the equipment fails to meet the guarantees, the Contractor shall initiate action to remedy such defects in accordance with the procedures stated in GENERAL CONDITIONS.



MAR 2 1979

REF: 4AH-AP



Mr. W. W. Vierday
Manager, License Affairs
Florida Power Corporation
3201 34th Street South
P.O. Box 14042
St. Petersburg, Florida 33733

Dear Mr. Vierday:

This is in response to your letters of December 15, 1978, January 2, 1979 and February 16, 1979, concerning approval of the electrostatic precipitator for Crystal River Units 4 and 5.

This is to inform you that those submittals satisfy Conditions 1.a. and 4. of the Authority to Construct issued to you February 27, 1978. The selected precipitator appears to be adequate to meet the emission limitation in condition 1.b.i. of the Authority to Construct, and is hereby approved. This approval in no way relieves you of the requirement to meet the stated emission rate. The engineering review conducted by EPA under Condition 1.a. serves only as a screening technique to ensure that the control device is not obviously inadequate. It will still be your responsibility to ensure final compliance with the stated emission rate.

Sincerely yours,

W. R. Cunningham
Winston A. Smith (for)
Chief
Air Programs Branch

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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



BOB GRAHAM
GOVERNOR
VICTORIA J. TSCHINKEL
SECRETARY

May 25, 1982

Mr. W. W. Vierday
Florida Power Corporation
Post Office Box 14042
St. Petersburg, Florida 33733

Dear Mr. Vierday:

The Department of Environmental Regulation has reviewed your petition for modification of the conditions of Certification for Crystal River Units 4 and 5. The department may find your petition acceptable if you can demonstrate that normal maximum SO₂ emissions from units 1 and 2 as of the December 27, 1977, baseline date were 2.74 lb/million Btu, monthly average, for Unit 1 and 5.72 lb/million Btu, monthly average, for Unit 2.

The department believes that the above emission rates for Units 1 and 2, which were used to establish the baseline concentrations, are probably maximum hourly or daily averages. If so, the proposed stipulation would improperly give FPC credit for a larger emissions reduction than that which would actually occur -- the reason being that the reduction would be computed as the difference between a previous peak value and a future monthly average value.

The department does not have monthly averaged fuel quality data for the Crystal River plant in this office; however, according to reports submitted by FPC to the U. S. Department of Energy, the sulfur content of coal burned at the plant during 1977 and 1978 averaged 2.58 percent and 1.96 percent, respectively. This implies that, on an annual average, the Unit 2 emissions as of the baseline date were approximately 3.6 lb/million Btu.

Please provide data substantiating the monthly average sulfur content of the fuel burned in 1977 through January 1978.

Sincerely,

Hamilton S. Oven, Jr.

Hamilton S. Oven, Jr., P.E.
Administrator
Power Plant Siting Section

HSOjr:my

cc: Clair Fancy
John Bottcher

BEST AVAILABLE COPY

DER

FEB 9 1982

FEB 12 1982

BAQM

REF: 44W-AP

William S. O'Brien, Director
Licensing and Environmental Affairs
Florida Power Corporation
3201 34th Street S
St. Petersburg, Florida 33711

Re: PSD-FL-007 - PSD Permit for Florida Power Corporation (FPC) Crystal
River 4 and 5, Crystal River, Florida

Dear Mr. O'Brien:

This is in reference to your December 17, 1981 letter requesting modification of the Federal PSD Permit PSD-FL-007 FPC Crystal River Units 4 and 5. As agreed in our October 14, 1981 meeting, you have submitted the requested air quality modeling that determine the appropriate sulfur dioxide emission limitations for Units 1 and 2. This revised modeling has been performed with Unit 2 included in the baseline. EPA has reviewed the modeling and found it acceptable. The sulfur dioxide emissions limits are adjusted accordingly.

Permit Special Conditions #11 and #12 are amended to read:

11. Six months prior to start-up of Unit #4, both Units #1 and #2 will meet the emission limit of 4.25 lb SO₂/MMBTU. This emission limit will be demonstrated by the owner or operator by conducting performance tests and furnishing EPA a written report of the results of such performance tests. Conditions 3.b through 3.f apply to stack tests required under this part.
12. Six months prior to start-up of Unit #5, both Units #1 and #2 will meet the emission limit of 3.35 lb SO₂/MMBTU. This emission limit will be demonstrated by the owner or operator by conducting performance tests and furnishing EPA a written report of the results of such performance tests. Conditions 3.b through 3.f apply to stack tests required under this part.

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO

ACTION DUE DATE

KAHEL		<u>FANCY</u>		STARNES	
BLOMMEL		THOMAS		MARTY HALL	
BARKER		<u>GEORGE</u>		MARSHALL MOTT-SMITH	
J. ROGERS		PALAGYI		<u>Becky</u>	

REMARKS

INFORMATION

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REVIEW & FILE

INITIAL & FORWARD

DISPOSITION

REVIEW & RESPOND

PREPARE RESPONSE

FOR MY SIGNATURE

FOR YOUR SIGNATURE

LET'S DISCUSS

SET UP MEETING

INVESTIGATE & REPT

INITIAL & FORWARD

DISTRIBUTE

CONCURRENCE

FOR PROCESSING

INITIAL & RETURN

EPA PSD

File PSD-FL-007

FROM:

STEVE SMALLWOOD

JK

DATE

3-2-82

PHONE

BEST AVAILABLE COPY

The amended conditions will not constitute a significant increase in the SO₂ impact from the original permit. These amendments became effective on the date of this letter.

If you have any questions, please contact Dr. Kent Williams of my staff at (404) 881-4552.

Sincerely yours,

/s/ John A. Little
Deputy Regional Administrator

Charles R. Jeter
Regional Administrator

cc: Florida DER

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Holroyd

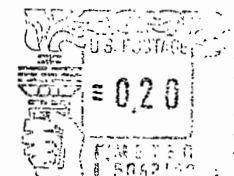
4AW-AF
Williams

4AW-AF
Gibbs

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30365

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

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MR. STEVE SMALLWOOD, CHIEF
BUREAU OF AIR QUALITY MANAGEMENT
FL DEPT. OF ENVIRONMENTAL REGULA
2600 BLAIR STONE ROAD
TALLAHASSEE, FL 32301