

BEFORE THE GOVERNOR AND CABINET
OF THE STATE OF FLORIDA

IN RE: TAMPA ELECTRIC COMPANY
BIG BEND STATION UNIT-4
POWER PLANT SITING CERTIFICATION
APPLICATION PA 79-12
REQUEST FOR MODIFICATION

CASE NO. 80-1723

FINAL ORDER

BY THE GOVERNOR AND CABINET

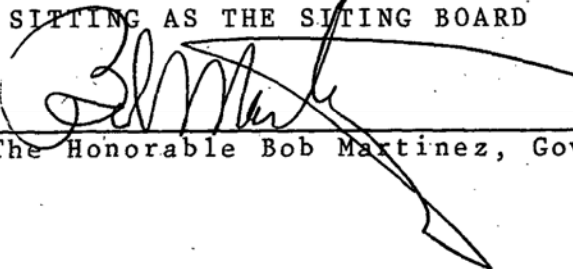
The Governor and Cabinet, sitting as the Siting Board, having reviewed the Stipulation and Agreement which is attached hereto as Exhibit 1, and otherwise being fully advised herein, issue this Final Order and, therefore, it is
ORDERED:

1. The Stipulation and Agreement executed by the Florida Department of Environmental Regulation, Southwest Florida Water Management District, Department of Community Affairs, Public Service Commission and Tampa Electric Company is approved and adopted. The conditions of certification for the Tampa Electric Company Big Bend Station Unit 4 shall be and hereby are modified in the manner shown in the Stipulation and Agreement, pursuant to Section 403.516(2), Florida Statutes.

DONE AND ORDERED this 6th day of October, 1987 in Tallahassee, Florida, pursuant to the vote of the Governor and Cabinet, sitting as the Siting Board, at a duly noticed and constituted Cabinet meeting on October 6, 1987.

FOR THE GOVERNOR AND CABINET
SITTING AS THE SITING BOARD

By:


The Honorable Bob Martinez, Governor

The action of the Siting Board is based on the following vote:

	<u>For</u>	<u>Against:</u>	<u>Absent</u>
Honorable Bob Butterworth	X		
Honorable Betty Castor	X		
Honorable Doyle Conner			X
Honorable Bill Gunter	X		
Honorable Gerald A. Lewis	X		
Honorable Bob Martinez	X		
Honorable Jim Smith	X		

FILING AND ACKNOWLEDGEMENT

Filed on this date, pursuant to
Section 120.52(10), Florida Statutes
(1985), with the designated Department
Clerk, receipt of which is hereby
acknowledged.

C. Hutchins
Clerk

Date 10-12-87

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Honorable Bob Martinez
The Governor
The Capitol
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Honorable Jim Smith
Secretary of State
The Capitol
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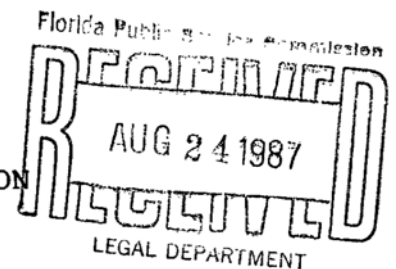
Honorable Bob Butterworth
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Honorable Bill Gunter
Treasurer and Insurance
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Honorable Gerald Lewis
Comptroller
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Honorable Doyle Conner
Commissioner of Agriculture
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BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION



IN THE MATTER OF:

TAMPA ELECTRIC COMPANY
POWER PLANT SITING APPLICATION
BIG BEND STATION UNIT NO. 4,
PA 79-12

CASE NO. 80-1723

AGREEMENT OF PARTIES
MODIFYING CONDITIONS OF CERTIFICATION

Pursuant to the provisions of Section 403.516(2), Florida Statutes, and Rule 17-17.211(4), Florida Administrative Code, the parties entering appearances at and appearing in the certification proceedings, by and through their undersigned representatives, hereby agree as follows:

1. The signatories to this agreement include representatives of all the parties entering appearances at and participating in the above referenced certification proceedings.

2. On August 17, 1981, the Final Order Adopting Hearing Officer's Recommendation of Certification Subject to Conditions was entered in DOAH Case No. 80-1723, reflecting action taken by the Governor and Cabinet at the duly constituted Cabinet meeting of August 4, 1981. The Final Order constitutes approval of certification for the construction and operation of Tampa Electric Company's Big Bend Unit No. 4 subject to the Conditions of Certification attached thereto.

3. Pursuant to Florida Administrative Code Rule 17-17.211(4), Tampa Electric Company seeks a modification of Conditions II.A.10., II.B.1., II.B.2.b., III.D., III.E., XXVIII. and XXX., which provide as follows:

II.A.10. Boiler and Bottom Ash Sluice System Blowdown

Blowdown from the boiler and from the bottom ash sluice system shall be treated as appropriate prior to discharge to the cooling water system. The following effluent limitations shall apply:

Effluent	Daily Maximum	Maximum 30-Day Daily Average
TSS	100 mg/l	30 mg/l
Oil and Grease	20 mg/l	15 mg/l
pH	6-9	

TECO shall provide the dimensions of the bottom ash system settling pond and provide calculations demonstrating that sufficient residence time will be provided to achieve the above limitations.

II.B.1. Chemical Monitoring

The following parameters shall be monitored during discharge as shown, discharge commencing with the start of commercial operation of Unit 4 and reported quarterly to the Department's Southwest District Office:

<u>Parameter</u>	<u>Location</u>	<u>Sample Type</u>	<u>Frequency</u>
Flow, Cooling	Intake	Pump Log	Continuous
Flow, Bottom Ash	Prior to CWS	Recorder	Continuous
Flow, Boiler Blowdown	Prior to CWS	Daily Log	Daily
Flow, FGD Bleed	Prior to CWS	Recorder	Continuous
pH	CWS and prior to CWS on FGD Bleed	Grab	Two per Week
Temperature	Boiler & Bottom Ash Blowdown		
TSS	CWS Outfall	Recorder	Continuous
	Bottom Ash Blowdown, FGD Bleed, & Boiler Blowdown	Grab	Two per Week
Chlorine, Total Residual	Outfall	Multiple Grab	Two per Month Weekly
Oil and Grease	Boiler Blowdown	Grab	Two per Month
	Bottom Ash Blowdown and FGD bleed		
Metals	Intake, Outfall	Two-Grab composite, not less than two hours between samples	Two per Month for the first year, then monthly thereafter
	FGD Bleed Stream		
	Bottom Ash Blowdown & Boiler Blowdown Prior to discharge to CWS		
Arsenic	"		"
Cadmium	"		"
Iron	"		"
Lead	"		"
Mercury	"		"
Selenium	"		"
Zinc	"		"
Copper	"		"
Chromium	"		"
Nickel	"		"

II.B.2.b. Entrainment

1. In order to evaluate the entrainment mortality at the Big Bend Station, TECO shall conduct a Fine Mesh Screen Survivability Study (similar to the 1980 Prototype FMS study) for one full spawning period (March through September). Sampling for the study will be conducted at three locations pertaining to Unit 4:

Station 1: Front of screen after organisms are impinged and washed to the screen return system.

Station 2: Behind the screen.

Station 3: At the discharge point in the Organism Return Canal (ORC).

Stations 1 and 2 will be sampled simultaneously to estimate the total number of organisms entrained at the plant. Initial and latent mortality tests will be conducted on organisms collected at locations 1 and 3 only. A detailed scope of study

shall be submitted by TECO at least twelve months prior to the commencement of commercial operation of Unit 4.

III.D. Monitoring and Reporting

Tampa Electric Company shall implement the following groundwater monitoring program:

1. The groundwater levels shall be monitored at wells as approved by DER and the Southwest Water Management District. Chemical analyses shall be made on samples from all monitored wells identified in this Condition. The location, frequency, water levels and selected chemical analyses shall be as given in Condition III.D.3.
2. The groundwater monitoring program shall be implemented at least one year prior to operation of Big Bend Unit 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 Power Plant Siting Section.
3. After consultation with the DER and SWFWMD, TECO shall install a monitoring well system, as generally shown on Figure 3, to monitor groundwater quality in the top 40 feet of the surficial aquifer. One well shall be installed to a depth greater than 40 feet but less than 100 to monitor vertical dispersion or groundwater contaminants. Monitoring well locations and designs shall be submitted to the Department and SWFWMD for review. Approval or disapproval of the locations and design shall be granted within 60 days. The water samples collected from each of the monitor wells shall be collected immediately after removal by pumping of a quantity of water equal to two casing volumes. The water quality analyses shall be performed monthly during the year prior to commercial operation and for two years after operation and quarterly thereafter. Results shall be submitted to the Department and the SWFWMD by the fifteenth (15th) day of the month following the month during which such analyses were performed. Testing for the following constituents is required:

Conductance	Nickel
pH	Selenium
Chloride	Chromium
Iron	Arsenic
Cadmium	Beryllium
Zinc	Mercury
Copper	Lead
Sulfate	Gross Alpha
Silver	Barium

4. After the second year of monitoring and periodically thereafter, the Department and the permittee shall review the results of the monitoring program and determine the necessity for modifying or continuing the program.

[FIGURE 3]

III.E. Leachate

1. Zone of Discharge

Leachate from the FGD/gypsum landfill, coal storage pile, bottom ash pond, wastewater treatment ponds, ash disposal cells, and spray irrigation field shall not

contaminate waters of the State (including both surface and groundwaters) in excess of the limitations of Chapter 17-3, FAC., beyond the boundary of the site.

2. Corrective Action

When the groundwater monitoring system shows a violation of the groundwater water quality standards of Chapter 17-3, FAC., the appropriate ponds, FGD landfill, or coal pile shall be sealed, relocated or closed, or the operation of the affected facility shall be altered in such a manner as to assure the Department that no violation of the groundwater standards will occur beyond the boundary of the site.

XXVIII. Fine Mesh Screens

Fine mesh screens, similar to those tested and described by TECO in the 316 Demonstration, shall be installed on the intakes of Units 3 and 4 with the appropriate sprays and screen wash sluice return system to minimize entrainment. The screen wash sluice return system shall discharge to the east end of the canal north of the intake canal or to a location acceptable to the Department and EPA. TECO shall submit a plan to DER to explore the possibility of re-entrainment of ORC--returned organism.

XXX. Variances

TECO is granted variances for discharges of FGD system blowdown and bottom ash pond blowdown pursuant to Sections 403.201 and 403.511(2) F.S., for a period of two years after the start of commercial operation for the following parameters:

- a. Arsenic - 17-3.061(2)(a)
- b. Cadmium - 17-3.121(9)
- c. Chromium - 17-3.061(2)(d)
- d. Copper - 17-3.121(11)
- e. Iron - 17-3.121(16)
- f. Mercury - 17-3.121(18)
- g. Nickel - 17-3.121(19)
- h. Selenium - 17-3.121(26)

During the period that the variance is in effect, TECO shall (1) determine the concentrations of the above metals as well as lead in the two discharge streams; (2) operate the FGD blowdown treatment system so as to minimize the metal content of the discharge from the system; and (3) submit reports of the above studies and analyses after the first year and at least twenty months after the start of commercial operation of Unit 4.

Upon receipt of the aforementioned reports, the Secretary shall determine whether the variances should be renewed and may impose appropriate conditions to minimize the discharges and their impacts.

4. Tampa Electric Company seeks to modify Condition II.A.10. by deleting the references to the bottom ash sluice system from the condition. The purpose of the deletion is to reflect the fact that this sytem no longer discharges.

5. Tampa Electric Company seeks to modify Condition II.B.1. concerning chemical monitoring to (1) delete all references to monitoring requirements for discharges of blowdown from the bottom ash sluice system since that system no longer discharges;

and (2) delete monitoring requirements for heavy metals for both the circulating water system and boiler blowdown since Hillsborough Bay has been shown to be in compliance with Class III water quality standards.

6. Tampa Electric Company seeks to modify Condition II.B.2.b. by adding language that addresses the implementation of the fine mesh screens inspection and maintenance program as described by the Company to DER in its letter of July 21, 1987.

7. Tampa Electric Company seeks to modify Condition III.D. and E. by deleting all references to the Big Bend Unit 4 groundwater monitoring program and referencing the existing statewide DER approved groundwater monitoring plan pursuant to 17-4.245, FAC.

8. Tampa Electric Company seeks to modify Condition XXVIII. by designating the time period for which the fine mesh screens shall be in operation as agreed upon by DER in their meeting with Tampa Electric Company of July 17, 1987.

9. Tampa Electric Company seeks to modify Condition XXX. by deleting the reference to a two-year limitation for the variance for discharges from the FGD system blowdown and the bottom ash pond blowdown. It is requested that the variance be extended for an additional two years. As stated above, bottom ash blowdown is no longer discharged. Big Bend Unit No. 4 has not discharged FGD blowdown since beginning commercial operation. The FGD blowdown system is still being adjusted in an effort to produce wallboard quality gypsum. Tampa Electric Company estimates that the situation will continue through June of 1988, when it is expected that the discharge of FGD blowdown will be initiated. An additional 12 months from the commencement of the discharge would then be required to characterize the volume and quality of FGD blowdown. During this period of time, it is necessary that the variance remain in effect.

10. Wherefore, the parties hereby concur, and do not object to amending and modifying Conditions II.A.10., II.B.1., II.B.2.b., III.D., III.E., XXVIII., and XXX., to read as follows:

I.A.10. Boiler and Bottom Ash Sluice System Blowdown

Blowdown from the boiler and from the bottom ash sluice system shall be treated as appropriate prior to discharge to the cooling water system. The following effluent limitations shall apply:

Effluent	Daily Maximum	Maximum 30-Day Daily Average
TSS	100 mg/l	30 mg/l
Oil and Grease	20 mg/l	15 mg/l
pH	6-9	

TECO shall provide the dimensions of the bottom ash system settling pond and provide calculations demonstrating that sufficient residence time will be provided to achieve the above limitations.

II.B.1. Chemical Monitoring

The following parameters shall be monitored during discharge as shown, discharge commencing with the start of commercial operation of Unit 4 and reported ~~quarterly~~ monthly to the Department's Southwest District Office:

<u>Parameter</u>	<u>Location</u>	<u>Sample Type</u>	<u>Frequency</u>
Flow, Cooling	Intake	Pump Log	Continuous
Flow, Bottom Ash	Prior to CWS	Recorder	Continuous
Flow, Boiler Blowdown	Prior to CWS	Daily Log	Daily
Flow, FGD Bleed	Prior to CWS	Recorder	Continuous
pH	CWS and prior to CWS on FGD Bleed & Boiler & Bottom Ash Blowdown	Grab	Two per Week
Temperature	CWS Outfall	Recorder	Continuous
TSS	Bottom Ash Blowdown, FGD Bleed, & Boiler Blowdown	Grab	Two per Week
Chlorine, Total Residual	Outfall of CWS	Multiple Grab	Two per Month Weekly
Oil and Grease	Boiler Blowdown Bottom Ash Blowdown and FGD bleed	Grab	Two per Month
Metals	Intake, Outfall FGD Bleed Stream Bottom Ash Blowdown & Boiler Blowdown prior to discharge to CWS	Two-Grab composite, not less than two hours between samples	Two One per Month for the first year, then monthly thereafter
Arsenic	"		"
Cadmium	"		"
Iron	"		"
Lead	"		"
Mercury	"		"
Selenium	"		"
Zinc	"		"
Copper	"		"
Chromium	"		"
Nickel	"		"

II.B.2.b. Entrainment

1. In order to evaluate the entrainment mortality at the Big Bend Station, TECO shall conduct a Fine Mesh Screen Survivability Study (similar to the 1980 Prototype FMS study) for one full spawning period (March through September). Sampling for the study will be conducted at three locations pertaining to Unit 4:

Station 1: Front of screen after organisms are impinged and washed to the screen return system.

Station 2: Behind the screen.

Station 3: At the discharge point in the Organism Return Canal (ORC).

Stations 1 and 2 will be sampled simultaneously to estimate the total number of organisms entrained at the plant. Initial and latent mortality tests will be conducted on organisms collected at locations 1 and 3 only. A detailed scope of study shall be submitted by TECO at least twelve months prior to the commencement of commercial operation of Unit 4.

The applicant shall implement the fine mesh screens inspection and maintenance program submitted to the Department on July 21, 1987, to assure that the screens are properly maintained and operated. The applicant shall maintain logs of inspections, maintenance, and repairs. The logs shall include the date of inspection, item(s) inspected, repairs needed, and date maintenance job request submitted.

III.D. Monitoring and Reporting

Tampa Electric Company shall implement the following groundwater monitoring program:

- 1- The groundwater levels shall be monitored at wells as approved by DER and the Southwest Water Management District. Chemical analyses shall be made on samples from all monitored wells identified in this Condition. The location, frequency, water levels and selected chemical analyses shall be as given in Condition III-D-3.
- 2- The groundwater monitoring program shall be implemented at least one year prior to operation of Big Bend Unit 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 Power Plant Siting Section.
- 3- After consultation with the DER and SWFWMD, TECO shall install a monitoring well system, as generally shown on Figure 3, to monitor groundwater quality in the top 40 feet of the surficial aquifer. One well shall be installed to a depth greater than 40 feet but less than 100 to monitor vertical dispersion or groundwater contaminants. Monitoring well locations and designs shall be submitted to the Department and SWFWMD for review. Approval or disapproval of the locations and design shall be granted within 60 days. The water samples collected from each of the monitor wells shall be collected immediately after removal by pumping of a quantity of water equal to two casing volumes. The water quality analyses shall be performed monthly during the year prior to commercial operation and for two years after operation and quarterly thereafter. Results shall be submitted to the Department and the SWFWMD by the fifteenth (15th) day of the month following the month during which such analyses were performed. Testing for the following constituents is required:

Conductance
pH
Chloride
Iron
Cadmium

Nickel
Selenium
Chromium
Arsenic
Beryllium

Zinc
Copper
Sulfate
Silver

Mercury
Lead
Gross Alpha
Barium

- 4- After the second year of monitoring and periodically thereafter, the Department and the permittee shall review the results of the monitoring program and determine the necessity for modifying or continuing the program.

[FIGURE 3] (DELETE FIGURE 3)

III-E. Beachate

1- Zone of Discharge

Beachate from the FGD/gypsum landfill, coal storage pile, bottom ash pond, wastewater treatment ponds, ash disposal cells, and spray irrigation field shall not contaminate waters of the State (including both surface and groundwaters) in excess of the limitations of Chapter 17-3, FAC, beyond the boundary of the site.

2- Corrective Action

When the groundwater monitoring system shows a violation of the groundwater water quality standards of Chapter 17-3, FAC, the appropriate ponds, FGD landfill, or coal pile shall be sealed, relocated or closed, or the operation of the affected facility shall be altered in such a manner as to assure the Department that no violation of the groundwater standards will occur beyond the boundary of the site.

Tampa Electric Company shall monitor the groundwater at Big Bend Station in accordance with the approved groundwater monitoring plan.

XXVIII. Fine Mesh Screens

Fine mesh screens, similar to those tested and described by TECO in the 316 Demonstration, shall be installed on the intakes of Units 3 and 4 with the appropriate sprays and screen wash sluice return system to minimize entrainment. The screen wash sluice return system shall discharge to the east end of the canal north of the intake canal or to a location acceptable to the Department and EPA. TECO shall submit a plan to DER to explore the possibility of re-entrainment of ORC--returned organism. The applicant shall operate the fine mesh screens for Units 3 and 4 intake structures and the organism return mechanism from March 15 through October 15 of each year.

XXX. Variances

TECO is granted variances for discharges of FGD system blowdown and bottom ash pond blowdown pursuant to Sections 403.201 and 403.511(2) F.S., for a period of two years from the date of the final order granting this modification after the start of commercial operation for the following parameters:

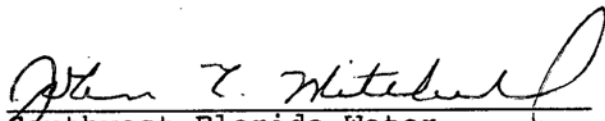
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During the period that the variance is in effect, TECO shall (1) determine the concentrations of the above metals as well as lead in the two discharge streams; (2) operate the FGD blowdown treatment system so as to minimize the metal content of the discharge from the system; and (3) submit a reports of the above studies and analyses after the first year and at least twenty months after the start of commercial operation of Unit 4: no later than 15 months after the start of normal operational discharge.

Upon receipt of the aforementioned reports, the Secretary shall determine whether the variances should be renewed and may impose appropriate conditions to minimize the discharges and their impacts.



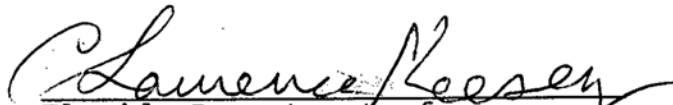
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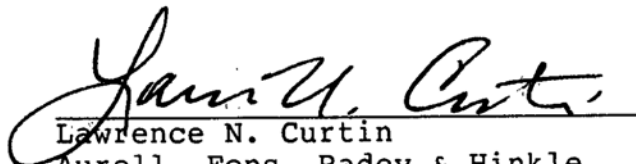
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