Department of
Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

December 23, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Gregory M.Nelson, P.E., Manager – Environmental Planning
Tampa Electric Company
6499 U.S. Highway 41 North
Apollo Beach, FL 33572-9200

Re: Request for Additional Information
DEP File No. 0570039-006-AC
Project: Add Inlet Air Foggers to Existing Gas Turbines (CT-2 and CT-3)

Dear Mr. Nelson:

On December 7, 1999, the Department received your application and sufficient fee to add inlet air foggers to the existing combustion turbines CT-2 and CT-3 (Emissions Units 005 and 006) at the Big Bend Plant. The application is incomplete and additional information is needed in order to continue processing your application. Should your response to any of the below items require new calculations, please submit the new calculations, assumptions, reference material and appropriate revised pages of the application form.

1. Please submit page 3 of the application signed by the authorized representative.
2. The application includes a request to remove the limit on operation of 10 hours per day and 365 days per year for CT-2 and replace with a limit of 3650 hours during any consecutive 12 months. Please submit an appropriate modeling analysis that assures the Department this change would not violate the ambient air quality standards or any Department rules. Because these units were both installed in 1974, doesn't CT-3 have a similar restriction on the hours of operation?
3. The Department's files reflect a maximum heat input of 780 mmBTU per hour at base load conditions. Please provide supporting documentation that the maximum heat input is 837.8 mmBTU per hour.
4. The application included an analysis of the potential increase in actual emissions based on AP-42 emission factors, 1600 hours of total operation (both units), a calculated heat input change per °F, and an average temperature change of 10°F. The conclusion is that the project would not trigger the PSD significant emissions rates for the requested 1600 hours of inlet air fogging.

   The Department has some concerns with this analysis and the request. First, the PSD applicability review requires a comparison of *past actual emissions* with *future actual emissions*. The analysis presented in the application does not consider the past actual emissions of the gas turbine. Also, as the application implies, inlet air fogging provides a benefit only on hot, dry days. Although the request for 1600 hours of fogging from both units appears reasonable, a review of the gas turbine operating history based on Annual Operating Reports submitted for the past five years indicates the following:

Unit/Year	Annual Operating Hours				
	1994	1995	1996	1997	1998
CT-2	45	10	24	141	894
CT-3	62	14	11	190	400

In addition, the reports indicate the majority of operation over the last three years occurs during the summer months. Based on this review, it appears that this unit has primarily operated as a peaking unit in recent years. The last two years of operating data indicates an average operation of 813 hours/year between the two units. The last year of operation was 1294 for the two units. The attached table summarizes the Department's analysis, which bases past actual emissions on 1294 hours/year of operation and the emission factors presented in the original application.

Based on the analysis presented, the Department intends to limit total inlet air fogging from both units to 1365 hours during any consecutive 12 months. The intent is to ensure that the fogger project will not increase the utilization of the gas turbines and to prevent the triggering of PSD. This limit allows fogging for 19% of the permitted operation (3650 hours/year/gas turbine) and more than 100% of the highest actual operation reported during the last five years. Please provide any comments you would like to have considered.

The Department will resume processing your application after receipt of the requested information. Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. A new certification statement by the authorized representative or responsible official must accompany any material changes to the application. Rule 62-4.055(1), F.A.C. now requires applicants to respond to requests for information within 90 days. If there are any questions, please call me at 850/414-7268.

Sincerely,

Jeffery F. Koerner, P.E.
New Source Review Section

JFK/jfk

cc: Mr. Jamie Hunter, TECO
Mr. Thomas Davis, Environmental Consulting and Technology, Inc.
Mr. Jerry Campbell, HEPC
Mr. Jerry Kissel, Southwest District DEP
Mr. Gregg Worley, EPA
Mr. John Bunyak, NPS

ATTACHMENT A

DEP File N0. 0570039-006-AC
TECO Big Bend Plant - Inlet Air Fogger Project

Department's Analysis

		Per Unit	(2 Units) Foggers ONLY	(2 Units) Past Actuals	(2 Units) Future Actuals	(2 Units) Net Increase
	mmBTU/hr	780	64.3	780	837.8	
	hr/yr	NA	1365	1294	1365	
Pollutant	lb/hr*	lb/mmBTU	TPY	TPY	TPY	TPY
CO	102	0.13	5.74	65.99	74.77	8.78
NOx	447	0.57	25.15	289.21	327.68	38.48
PM10	33	0.04	1.86	21.35	24.19	2.84
SO2	277	0.36	15.58	179.22	203.06	23.84
VOC	37	0.05	2.08	23.94	27.12	3.18

* Based on initial application.

Applicant's Analysis

Pollutant	lb/mmBTU*	Applicant TPY
CO	0.048	1.24
NOx	0.698	18.10
PM10	0.038	0.99
SO2	0.51	13.23
VOC	0.017	0.44

1600 = hours/year
3.21 = Heat Input Change, mmBTU/hr/°F increase, applicant
10.1 = Average Temp. Change, °F

* Emissions factors for units 1 and 2 based on AP-42 as provided by the applicant.
** Fuel oil with 0.5% sulfur by weight.

The use of an "average" temperature change may be inappropriate for determining a "net emissions change".

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

AIR MANAGEMENT DIVISION
TELEPHONE (813) 272-5530

WASTE MANAGEMENT DIVISION
TELEPHONE (813) 272-5788

WETLANDS MANAGEMENT DIVISION
TELEPHONE (813) 272-7104

ENVIRONMENTAL PROTECTION COMMISSION of Hillsborough County

FAX Transmittal Sheet

DATE: 12-31-99

TO: Jeffery F. Koerner, P.E. DEP

FAX Phone: _____ **Voice Phone:** _____

TOTAL NUMBER OF PAGES INCLUDING THIS COVER PAGE: 1

EPC FAX Transmission Line: (813) 272-5605
For retransmission or any FAX problems, call: (813) 272-5530

FROM: GABRIEL CASTANO

(Circle applicable section below)

Air Division

-Compliance -Enforcement/Analysis

-Monitoring/Toxics -Permitting

SPECIAL INSTRUCTIONS: _____

ENVIRONMENTAL PROTECTION COMMISSION
HILLSBOROUGH COUNTY

ADMINISTRATIVE OFFICES, LEGAL & WATER MANAGEMENT DIVISION
1900 - 9TH AVENUE
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TELEPHONE (813) 272-5788
WETLANDS MANAGEMENT DIVISION
TELEPHONE (813) 272-7104

MEMORANDUM

DATE: December 31, 1999

TO: Mr. Jeffery F. Koerner, P.E.

FROM: Gabriel Castaño G.C THRU: Rick Kirby, P.E. RK

SUBJECT: Request for Additional Information – DEP File No. 0570039-006- AC
Project: Add Inlet Air Foggers to Existing Gas Turbines (CT-2 and CT-3)

On December 7, 1999 the HEPC received a copy of application to add inlet air foggers to the existing combustion turbines CT-2 and CT-3 (Emission Units 005 and 006) at the Big Bend Plant, from TECO engineer Mr. Patrick L. Shell. The Department of Environmental Protection sent a request for additional information to Gregory M. Nelson, P.E., on December 28, 1999. The EPC is in agreement with the Department of Environment Protection. The application is incomplete and additional information is needed in order to continue processing. The Commission has concerns with this analysis and the request. Although air foggers are effective in suppressing NOx emissions and increasing power output, CO and HC emissions are increased by large water to fuel ratios (AP42, 3.1.4.1, 10/96). TECO should provide the water to fuel ratio and analyze it's impact on emissions. Your December 28th request included all of our other concerns.

Thank you for the opportunity to provide comments on this project.

Cc: Jaime Hunter, TECO

TAMPA ELECTRIC

January 5, 2000

Mr. Jeffery F. Koerner, P.E.
New Source Review Section
Florida Department of Environmental Protection
111 South Magnolia Dr., Ste. 4
Tallahassee, Florida 32301

Via FedEx
Airbill No. 7910 2906 1689

Re: Tampa Electric Company (TEC) – Big Bend Station
Inlet Air Fogging Addition to Existing Combustion Turbines (CT-2 and CT-3)
DEP File No. 0570039-006-AC

Dear Mr. Koerner:

On December 28, 1999, TEC received your request for additional information with respect to the addition of inlet air foggers to two existing combustion turbines at Big Bend Station. After reviewing the Department's request, TEC offers the following additional information:

FDEP Comment 1:
Please submit page 3 of the application signed by the authorized representative.

TEC Response:
Page 3 of the application has been signed by the authorized representative and is enclosed with this correspondence.

FDEP Comment 2:
The application includes a request to remove the limit on operation of 10 hours per day and 365 days per year for CT-2 and replace with a limit of 3650 hours during any consecutive 12 months. Please submit an appropriate modeling analysis that assures the Department this change would not violate the ambient air quality standards or any Department rules. Because these units were both installed in 1974, doesn't CT-3 have a similar restriction on the hours of operation?

TEC Response:
Dispersion modeling was performed in conjunction with the Big Bend Title V permit application. This modeling assumed that the CT-2 was operated 8,760 hours per year; substantially above the 3,650 hours per year limit requested for this project. Since no ambient air exceedances were

TAMPA ELECTRIC COMPANY
P. O. BOX 111 TAMPA, FL 33601-0111

AN EQUAL OPPORTUNITY COMPANY
HTTP://WWW.TAMPAELECTRIC.COM

(813) 228-4111

CUSTOMER SERVICE:
HILLSBOROUGH COUNTY (813) 223-0800
OUTSIDE HILLSBOROUGH COUNTY 1 (888) 223-0800

shown in the Title V modeling, TEC feels that this modeling is sufficient in demonstrating that the proposed fogging project will not adversely impact ambient air quality.

TEC agrees that both CT-2 and CT-3 were installed in 1974. However, unlike CT-2, there is no evidence that suggests that CT-3 may be operated for any amount of time less than 8,760 hours per year.

FDEP Comment 3:
The Department's files reflect a maximum heat input of 780 mmBTU per hour at base load conditions. Please provide supporting documentation that the maximum heat input is 837.8 mmBTU per hour.

TEC Response:
The maximum heat input was calculated by multiplying the average expected power by the average Heat Rate as measured during a June 22, 1975 performance test on CT-3 at a compressor inlet average temperature of 75.01°F. (see enclosed). The specific calculation is as follows:

$$71{,}800kW \times 11{,}668\frac{Btu}{kW-hr} \times \frac{1}{1{,}000{,}000}\frac{MMBtu}{Btu} = 837.8\frac{MMBtu}{hr}$$

FDEP Comment 4:
The application included an analysis of the potential increase in actual emissions based on AP-42 emission factors, 1600 hours of total operation (both units), a calculated heat input change per °F, and an average temperature change of 10°F. The conclusion is that the project would not trigger the PSD significant emissions rates for the requested 1600 hours of inlet air fogging.

The Department has some concerns with this analysis and the request . . . the Department intends to limit total inlet air fogging from both units to 1365 hours during any consecutive 12 months. The intent is to ensure that the fogger project will not increase the utilization of the gas turbines and to prevent the triggering of PSD . . .

TEC Response:
TEC will comply with the new limit of 1,365 fogging hours on both units per 12 consecutive months.

Finally, the Environmental Protection Commission of Hillsborough County has expressed concern that the implementation of this project will increase emissions of CO and HC due to 'large water to fuel ratios' as defined by AP-42, Tables 3.1-1 through 3.1-4. These water to fuel ratios vary from 0.8 to 1.2 for the purpose of calculating emissions released in conjunction with water injection. The proposed fogging system, however, uses significantly less water to suppress the inlet air temperature. The water to fuel ratio associated with this project seen by the combustion turbine is approximately 0.27 (see enclosed CT performance test and fogging system specification), which is significantly less than the ratios contained in AP-42. Therefore, TEC

feels that the emission factors contained in AP-42 addressing water injection do not apply to this project and the existing emissions analysis is sufficient to proceed with permit processing.

Please let me know if you have any questions. You can contact me at (813) 641-5016.

Sincerely,

Gregory M. Nelson, P.E.
Manager
Environmental Planning

EP\gm\SKT132

Enclosures

c/enc: Mr. Tom Davis - ECT
Mr. Greg Worley - EPA
Mr. Jerry Kissel - FDEP SW
Mr. Jerry Campbell – EPCHC
Mr. John Bunyak - NPS

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official:
   Gregory M. Nelson, P.E., Manager – Environmental Planning

2. Application Contact Mailing Address:
   Organization/Firm: **Tampa Electric Company**
   Street Address: **6499 U.S. Highway 41 North**
   City: **Apollo Beach** State: **FL** Zip Code: **33572-9200**

3. Owner/Authorized Representative or Responsible Official Telephone Numbers:
   Telephone: **(813) 641-5016** Fax: **(813) 641-5081**

4. Owner/Authorized Representative or Responsible Official Statement:

   I, the undersigned, am the owner or authorized representative(check here [✓], if so) or the responsible official (check here [ ], if so) of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.*

   Gregory M. Nelson — 12/30/99

   Signature Date

* Attach letter of authorization if not currently on file.

Professional Engineer Certification

1. Professional Engineer Name: **Thomas W. Davis**
   Registration Number: **36777**

2. Professional Engineer Mailing Address:
   Organization/Firm: **Environmental Consulting & Technology, Inc.**
   Street Address: **3701 Northwest 98th Street**
   City: **Gainesville** State: **FL** Zip Code: **32606**

3. Professional Engineer Telephone Numbers:
   Telephone: **(352) 332-0444** Fax: **(352) 332-6722**

TABLE 11b

TAMPA ELECTRIC COMPANY - BIG BEND STATION

PERFORMANCE TEST ON _____ UNIT 3

DATE OF TEST JUN 22 1975

PERFORMANCE CALCULATIONS

Line	Parameter		1824	1829	1834	1839	1844	1849	1854	AVE
1.	Time of Day									
2.	Load Condition		←			BASE				→
3.	Baro Pressure	In. HG	30.12	30.12	30.12	30.15	30.15	30.15	30.15	30.14
4a.	Temp at Baro	°F	78	78	78	76	76	76	76	
b.	Baro Correction Multiplier	In. HG	.995375	.995375	.995375	.995575	.995575	.995575	.995575	
c.	Baro Corrected for Temp.	In. HG	29.981	29.981	29.981	30.017	30.017	30.017	30.017	30.002
5.	Absolute Baro Press (4c) x .491154	PSIA	14.725	14.725	14.725	14.743	14.743	14.743	14.743	14.735
6.	Baro Press. Corr. δ = (5) ÷ 14.696		1.0020	1.0020	1.0020	1.0032	1.0032	1.0032	1.0032	1.00265
7.	Comp Inlet Temp (Ave 16 TC's)	°F	75.8	75.7	75.6	75.1	76.0	74.8	72.1	75.01
8.	Comp Discharge Press	PSIG	138.1	138.1	138.0	138.4	138.3	137.9	137.9	138.1
9.	Turb Exh Temp (Ave of Stack TC's)	°F	919	920	919	917	918	921	920	919.1
10.	Control Set-Exh Temp (From TT-23-W501B2)	°F	919	919	919	920	920.5	920.7	920.5	919.8
11.	Gross Gen Output - Corrected	KW	72006	71769	71886	71886	71886	71769	71769	71853
12.	Auxiliary Load	KW	54	55	54	55	55	55	55	55
13.	Net Power Output (11) - (12)	KW	71952						71714	71798
14.	Net Power Reduced (13) ÷ (6)	KW	71808						71486	71608
15.	Expected Power (TT 23-W501B2)	KW	71700						72800	71800
16.	Margin	KW	+108						-1314	-192
17.	Margin	%	+.15						-1.8	-.27
18.	Corr. for Exh Temp	%	—						—	—
	Total Margin	%	+.15						-1.8	-.27
	Allowed Margin	%	-1.09						-1.09	-1.09

19.	Fuel Meter Freq (BARTON 2202)	CPS	426.4	426.1	425.9	425.7	425.5	425.4	425.0	425.7
20.	Fuel Flow (19 x 60) ÷ 232.37	GPM								109.9
21.	Fuel Meter Freq (BARTON 2200)	CPS	422.2	421.9	421.7	421.4	421.1	421.0	420.7	421.4
22.	Fuel Flow (21 x 60) ÷ 230.6	GPM								109.6
23.	Average Fuel Flow (22 + 20) ÷ 2	GPM								109.8
24.	Fuel Temp (Spool TC)	°F	92	92	92	92	92	92	92	92
25.	Average SP GR at 60 °F				(.846 + .8348 + .8467) ÷ 3					.8425
26.	Vol Correction (ASTM-1P24)									.9855
27.	Fuel Flow Corr (23) x (26)	GPM								108.2
28.	Fuel Sp. WT. @ 60°F (25) x 8.339	#/gal								7.026
29.	Fuel Flow Corr (27) x (45) x 60	#/hr								456128
30.	Heating Value Ratio PTC 22 Fig 40									1.04653
31.	Avg. HHV @ °F (Sources)				(19550 + 19497 + 19650) ÷ 3					195657
32.	LHV @ 60°F (31) ÷ (30)									18366.4
33.	Heat Rate (LHV) (32) x (29) ÷ (13)	BTU/KWHR								11668
34.	Expected Heat Rate (TT 22-W501B2)									11725
35.	Margin	BTU/KWHR								-57
36.	Margin	%								-.5%
	ALLOWED FOR TEST									+1.14%

Mee Industries Inc.
204 West Pomona Ave. • Monrovia, CA 91016-4526
tel. 800-732-5364, 626-359-4550 • fax 626-359-4660

October 20, 1999

MEE FOG SYSTEM PROPOSAL

GAS TURBINE INLET AIR COOLING

NINE STAGE FOG COOLING SYSTEMS
FOR
TWO W 501-BS

1.0 DESIGN CONDITIONS.

Design Condition dry bulb: 92°F
Design Condition wet bulb 77°F
Inlet air flow: 2,448,000 lb/hr

2.0 FOG SYSTEM SPECIFICATIONS

Operating pressure: 2000 psi
Fog droplet size: 14 microns (Mass Median Dia.)
Number of nozzles: 648
Nozzle flow rate: 0.045 gpm per nozzle
Maximum Water Use: 29.2 gpm
Pump skid power requirement: 4 x 5hp + 1 x 3hp = 23 hp total
Cooling capacity: 23°F
Cooling stages: 9 stages (2.6°F per stage).

3.0 SCOPE OF SUPPLY.

Mee Industries will supply:

A. The Fog Pump Skids complete with controller and software.

B. The stainless steel feedlines and mounting hardware.

C. The Fog Nozzle Manifolds and mounting hardware.

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

FACSIMILE TRANSMISSION SHEET

DATE 1/13/00

TO: Jeff Koerner

Department BAR - New Source Review

Phone _____ Fax _____

FROM: Eric Peterson

DEP Southwest District Office - Air Program
Phone: (813) 744-6100 (SunCom 512-1042) Ext. 112

OPERATOR: _____

SUBJECT: TECO Permits

Total Number of Pages, Including Cover Page: 2

DEP SWD AIR PROGRAM FAX NUMBERS: (813) 744-6458
(Suncom) 512-1073

TO: Al Linero
Scott Sheplak

FROM: Jerry Kissel

DATE: September 27, 1999

SUBJECT: Transmittal Memo

1/13/00 - Jeff, We don't have the permit. From below, it doesn't look like we had it in our files, when we sent up the permit files for TECO. Eric

Do Not Remove from file

Our office will be moving to a different building about September 30, 1999. Thus, this is a good time to send some permit files to you, for facilities for which you are taking over permitting.

Enclosed are our permit files for the following facilities:

P.S. The EPC (Hillsborough County) may have it.

ID Number	Facility Name	Title V Permit Status
AO29-174611	Tampa Elec Co (BB Trubine #3) Also Permits AC29-2210, AO29-5915, AO29-28376 Peaking Unit #2, AO29-100795 Gas Turbine #3 e.u. 06	
AO29-179912	Tampa Elec Co (BB Boiler #2) Also Permits AO29-2487, AO29-6498, AO29-66329 e.u. 02	
AO29-66329	Tampa Elec Co (BB Unit #2) Also Permit AO29-6498	
AO29-219924	Tampa Elec Co (BB Units 1 & 2) Also Permits AO29-2092, AO29-2491, AO29-6196, AO29-63296, AO29-140721	
AO29-161082	Tampa Elec Co (BB, FA Silo Unit 3) Also Permit AO29-90128 e.u.09	
AO29-160255	Tampa Elec Co (BB, FA Silo Steam Boilers 1&2, e.u. 08, 18,) Also Permit AO29-90129	
AO29-163788	Tampa Elec CO (BB, Coal Bunkers-Roto Cones e.u. 15,16,17-Units 1-3)	
AO29-160257	Tampa Elec Co (BB Turbine #1) Also Permits AO29-19056 e.u. 07, AO29-85100	
AO29-174596	Tampa Elec Co (BB Turbine #2) Also Permits AC29-2209, AO29-2209, AO29-5914, AO29-28366, AO29-28376, AO29-100797	
AO29-179911 / 0570039-001AC	Tampa Elec Co (BB Boiler #3, e.u. 03) Also Permits AO29-2499, AO29-25431, AO29-93937	

TECO
TAMPA ELECTRIC

FACSIMILE TRANSMITTAL SHEET

ENVIRONMENTAL PLANNING
813/641-5036
813/641-5081 FAX

DATE: January 20, 2000 ___ **FOR IMMEDIATE DELIVERY**

TO: Mr. Jeffery F. Koerner, P.E.

COMPANY: Florida Department of Environmental Protection

NUMBER OF PAGES (Including cover page): 5

FROM: Shannon K. dd

Jeff,

Attached is the original Big Bend Title V Modeling as requested. If you have any further questions, please contact me at (813) 641-5125.

Regards,

Shannon K. Todd
Engineer
Environmental Planning

BIG BEND STATION

TITLE V SO_2 AIR DISPERSION MODELING

December 1998

Table 1-1. Big Bend Station SO_2 Emission Rates for ISCST3 Dispersion Modeling

Emissions Unit	SO_2 Emission Rate					
	3-hr		24-hr		Annual	
	(lb/hr)	(g/sec)	(lb/hr)	(g/sec)	(lb/hr)	(g/sec)
Boiler 1*	21,000	2,646	16,468	2,075	16,468	2,075
Boiler 2*	21,000	2,646	16,468	2,075	16,468	2,075
Boiler 3*	21,000	2,646	17,064	2,150	17,064	2,150
Boiler 4	3,551	447.4	3,551	447.4	3,551	447.4
Combustion Turbine 1	87.3	11.0	87.3	11.0	87.3	11.0
Combustion Turbine 2	479.8	60.5	479.8	60.5	479.8	60.5
Combustion Turbine 3	479.8	60.5	479.8	60.5	479.8	60.5

*Three hour average emission based on cap of 31.5 tons per hour (tph) for Units 1, 2, and 3 combined, divided equally among the 3 units.
Twenty-four hour and annual average emission based on cap of 25 tph for Units 1, 2, and 3 combined.

Table 1-2. Big Bend Station Stack Parameters for ISCST3 Dispersion Modeling

Emissions Unit	Stack Height**		Stack Gas Temperature		Stack Gas Velocity		Stack Diameter	
	(ft)	(m)	(°F)	(K)	(ft/min)	(m/sec)	(ft)	(m)
Boiler 1*	490	149.4	294	419	6,955	35.34	24	7.3
Boiler 2*	490	149.4	294	419	6,955	35.34	24	7.3
Boiler 3	490	149.4	308	426	3,072	15.61	24	7.3
Boiler 4	490	149.4	127	326	4,698	23.87	24	7.3
Combustion Turbine 1	35	10.7	1011	817	5,510	28.00	11	3.4
Combustion Turbine 2	75	22.9	928	771	6,967	35.40	17	5.1
Combustion Turbine 3	75	22.9	928	771	6,967	35.40	17	5.1

*Units 1 and 2 share one stack. Stack data represents both units at maximum capacity.
**Height above grade.

Table 1-6. Big Bend Station SO_2 Dispersion Modeling Results

Averaging Period	Modeled Ambient Impact ($\mu g/m^3$)					Ambient Air Quality Standard ($\mu g/m^3$)	
	1992	1993	1994	1995	1996	National	Florida
Annual	13.2	15.3	13.7	11.3	13.2	80	60
Highest 24-Hr	274.0	258.0	298.3	205.0	382.6	None	None
Highest 2nd-Highest 24-Hr	223.8	194.7	224.9	204.7	245.6	365	260
Highest 3-Hr	914.7	772.6	807.4	805.1	1,007.8	None	None
Highest 2nd-Highest 3-Hr	662.8	715.8	654.0	740.4	807.6	1,300	1,300

TAMPA ELECTRIC

RECEIVED
JAN 28 2000
BUREAU OF AIR REGULATION

January 27, 2000

Mr. Jeffery F. Koerner, P.E.
New Source Review Section
Florida Department of Environmental Protection
111 South Magnolia Dr., Suite 4
Tallahassee, Florida 32301

Via FedEx
Airbill No. 7910 3735 4374

Re: Tampa Electric Company (TEC) – Big Bend Station
Inlet Air Fogging Addition to Existing Combustion Turbines (CT-2 and CT-3)
DEP File No. 0570039-006-AC

Dear Mr. Koerner:

Upon reviewing your proposed scenario regarding the hours of operation of CT-2 and CT-3 at Big Bend Station, TEC agrees that it is appropriate to limit each unit to 3,650 hours of operation during any 12-month period. This resolves all concerns that the Department had with the original application and should allow the Department to resume processing the permit application. The cooperation of the Department in this matter has been greatly appreciated, and TEC looks forward to reviewing the Draft Construction Permit soon.

Please let me know if you have any further questions or concerns. You may contact Shannon Todd or me at (813) 641-5016.

Sincerely,

Gregory M. Nelson

Gregory M. Nelson, P.E.
Manager
Environmental Planning

EP\gm\SKT140

c: Mr. Tom Davis - ECT
Mr. Greg Worley - EPA
Mr. Jerry Kissel - FDEP SW
Mr. Jerry Campbell – EPCHC
Mr. Rick Kirby - EPCHC
Mr. John Bunyak - NPS

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

January 28, 2000

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Gregory M. Nelson, P.E., Manager
Environmental Planning
Tampa Electric Company
6499 U.S. Highway 41 North
Apollo Beach, FL 33572-9200

Re: DEP File No. 0570039-006-AC
Inlet Air Foggers for Existing Combustion Turbines (CT-2 and CT-3) at Big Bend Station
Emission Unit ID Nos. 0570039-005/006

Dear Mr. Nelson:

Enclosed is one copy of the Draft air construction permit for TECO's Big Bend Station located on Big Bend Road in North Ruskin, Hillsborough County, Florida. The Technical Evaluation and Preliminary Determination, the Department's Intent to Issue Air Construction Permit and the Public Notice of Intent to Issue Air Construction Permit are also included.

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

Please submit any written comments you wish to have considered concerning the Department's proposed action to A. A. Linero, P.E., Administrator, New Source Review Section at the above letterhead address. If you have any other questions, please contact Jeff Koerner at 850/414-7268 or Mr. Linero at 850/488-0114.

Sincerely,

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

CHF/AL/jfk

Enclosures

In the Matter of an
Application for Permit by:

Mr. Gregory M. Nelson, P.E., Manager
Environmental Planning
Tampa Electric Company
6499 U.S. Highway 41 North
Apollo Beach, FL 33572-9200

DEP File No. 0570039-006-AC
Big Bend Station
Hillsborough County
CT Inlet Air Foggers
EU ID Nos. 0570039-005/006

INTENT TO ISSUE AIR CONSTRUCTION PERMIT

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit (copy of Draft permit attached) for the proposed project, detailed in the application specified above and the enclosed Technical Evaluation and Preliminary Determination, for the reasons stated below.

The applicant, Tampa Electric Company, applied on December 6, 1999, to the Department for an air construction permit for its Big Bend Station located on Big Bend Road in North Ruskin, Hillsborough County, Florida. The application requested authorization to install an inlet air fogging system to provide evaporative cooling with a corresponding boost in power production. The applicant specifically requested restrictions on operation to avoid PSD applicability. The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above actions are not exempt from permitting procedures. The Department has determined that an air construction permit is required to install the proposed equipment.

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

Pursuant to Section 403.815, F.S., and Rule 62-110.106(7)(a)1., F.A.C., you (the applicant) are required to publish at your own expense the enclosed Public Notice of Intent to Issue Air Construction Permit. The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. Rule 62-110.106(7)(b), F.A.C., requires that the applicant cause the notice to be published as soon as possible after notification by the Department of its intended action. For the purpose of these rules, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114; Fax 850/ 922-6979). You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in section 50.051, F.S. to the office of the Department issuing the permit. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) & (11), F.A.C.

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

The Department will accept written comments concerning the proposed permit issuance action for a period of 14(fourteen) days from the date of publication of Public Notice of Intent to Issue Air Permit. Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

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

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation is not available in this proceeding.

In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542 F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number of the petitioner; (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any; (c) Each rule or portion of a rule from which a variance or waiver is requested; (d) The citation to the statute underlying (implemented by) the rule identified in (c) above; (e) The type of action requested; (f) The specific facts that would justify a variance or waiver for the petitioner; (g) The reason why the variance or waiver would serve the purposes of the underlying statute (implemented by the rule); and (h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

The Department will grant a variance or waiver when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of those terms is defined in Section 120.542(2) F.S., and that the purpose of the underlying statute will be or has been achieved by other means by the petitioner.

Persons subject to regulation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully enforceable by the Administrator of the EPA and by any person under the Clean Air Act unless and until the Administrator separately approves any variance or waiver in accordance with the procedures of the federal program.

Executed in Tallahassee, Florida.

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

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Intent to Issue Air Construction Permit (including the Public Notice of Intent to Issue Air Construction Permit, Technical Evaluation and Preliminary Determination, and the Draft permit) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 1-31-00 to the person(s) listed:

Mr. Gregory M. Nelson, TECO*
Mr. Tom Davis, ECT
Jerry Kissell, SWD
Mr. Jerry Campbell, HEPC
Mr. Gregg Worley, EPA Region 4
Mr. John Bunyak, NPS

Clerk Stamp

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

Kim Tobin (Clerk) 1-31-00 (Date)

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 057039-006-AC

Tampa Electric Company
Big Bend Station
Hillsborough County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to the Tampa Electric Company for Big Bend Station located on Big Bend Road in North Ruskin, Hillsborough County, Florida. The applicant proposes to install an inlet air fogging system for the existing combustion turbines to provide evaporative cooling with a corresponding boost in power production. A Best Available Control Technology (BACT) determination was not required pursuant to the Rule 62-212.400, F.A.C. The applicant's mailing address is 6499 U.S. Highway 41 North, Apollo Beach, FL 33572-9200.

The applicant specifically requests limits on the operation of the fogging system that would establish this project as a minor modification in accordance with the Prevention of Significant Deterioration (PSD) of Air Quality program. Based on operation of the air fogging system limited to 1365 hours during any consecutive 12 months, the total net potential pollutant emissions increases are summarized in the following table.

Pollutant	Net Emissions Increase Tons/Year	Significant Emissions Rate Tons/Year	PSD Applies?
CO	9	100	No
NOx	38	40	No
PM/PM10	3/3	25/15	No
SO2	24	40	No
VOC	3	40	No

Based on the proposed Draft Permit, the Department determines that PSD does not apply to this modification. Because the project will not result in increased maximum power production, no increase in maximum hourly emissions is expected. Therefore, the project does not trigger NSPS applicability. The permit also restricts operation of each gas turbine to 3650 hours during any consecutive 12 months. The previous limit for CT-2 was 10 hours per day and CT-3, although identical, appeared to have no similar limit. The new restriction on operation establishes each gas turbine as a peaking unit and is not likely, by itself, to increase future actual operation. An air quality impact analysis was not conducted. Emissions from the project will not consume PSD increment and will not significantly contribute to or cause a violation of any state or federal ambient air quality standards. The proposed project will not change any previous modeling demonstrations.

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

The Department will accept written comments concerning the proposed permit issuance action for a period of 14 (fourteen) days from the date of publication of this Public Notice of Intent to Issue Air Construction Permit. Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

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

Mediation is not available in this proceeding.

NOTICE TO BE PUBLISHED IN THE NEWSPAPER

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by rule 28-106.301

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

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

Dept. of Environmental Protection Bureau of Air Regulation Suite 4, 111 S. Magnolia Drive Tallahassee, Florida, 32301 Telephone: 850/488-0114	Dept. of Environmental Protection Southwest District Office 3804 Coconut Palm Drive Tampa, Florida 33619-8318 Phone: 813/744-6100	Air Quality Division - Hillsborough Environmental Protection Commission 1900 – 9th Avenue Tampa, FL 33605 Phone: 813/272-5530

The complete project file includes the application, technical evaluations, Draft permit, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, New Source Review Section, or the Department's reviewing engineer for this project, Jeff Koerner, at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

NOTICE TO BE PUBLISHED IN THE NEWSPAPER

TECHNICAL EVALUATION
AND
PRELIMINARY DETERMINATION

TAMPA ELECTRIC COMPANY
BIG BEND STATION

Hillsborough County, Florida

Combustion Turbine Nos. 2 and 3
ARMS Emissions Units 005 and 006

Facility I.D. No. 0570039

Draft Permit No. 0570039-006-AC

Department of Environmental Protection
Division of Air Resources Management
Bureau of Air Regulation
New Source Review Section

January 27, 2000

1.0 APPLICATION INFORMATION

1.1 Applicant Name and Address

Tampa Electric Company
6499 U.S. Highway 41 North
Apollo Beach, FL 33572-9200
Authorized Representative:
Gregory M Nelson, P.E., Manager – Environmental Planning

1.2 Reviewing and Processing Schedule

12/06/99 Department received the permit application for a modification.
12/23/99 Department requested additional information.
12/31/99: Department received comments from the Environmental Protection Commission of Hillsborough County.
01/06/00 Department received additional information from the applicant.
01/20/00 Department received additional information from the applicant; application complete.

2.0 EXISTING FACILITY INFORMATION

2.1 Existing Facility Description

This facility consists of: four steam boilers with four steam turbines; three simple-cycle combustion turbines; solid fuels, fly ash, limestone, gypsum, slag, and bottom ash storage and handling facilities; a ship surface coating operation; several miscellaneous unregulated emissions units and insignificant emissions units and/or activities.

2.2 Facility Location

Big Bend Station
Big Bend Road, North Ruskin
Hillsborough County, Florida 33572

UTM Coordinates: Zone 17, 361.9 km East and 3075.0 km North
Latitude: 27° 47' 36" North and Longitude: 82° 24' 11" West

2.3 Standard Industrial Classification Codes (SIC)

Industry Group No.	-	49	-	Electric, Gas, and Sanitary Services
Industry No.	-	4911	-	Electric Services

2.4 Regulatory Categories

Power Plant Siting: Applies to the fossil fuel-fired steam generators at the facility.

Title III – HAP: The facility is a major source of hazardous air pollutants.

Title IV - Acid Rain: The facility operates several units subject to the Federal Acid Rain Program.

Title V – Major Source: The facility is classified as a "major" source of air pollution with respect to Title V of the Clean Air Act because emissions of at least one regulated air pollutant, such as carbon monoxide (CO), nitrogen oxides (NOx), particulate matter (PM/PM10), sulfur dioxide (SO_2), or volatile organic compounds (VOC) exceeds 100 tons per year (TPY).

PSD Major Source: Facility is a "major facility" with respect to the Prevention of Significant Deterioration (PSD) of Air Quality program because emissions of at least one criteria pollutant are greater

than 250 tons per year. In addition, this facility belongs to one of the industries listed in Table 212-400-1 with a lower threshold of 100 tons per year. Pursuant to Rule 62-212.400, F.A.C., each modification to a PSD major source requires a PSD review and determination of the Best Available Control Technology (BACT) if the resulting emissions increases are greater than the Significant Emissions Rates specified in Table 62-212.400-2, F.A.C.

NSPS: The facility operates units subject to the federal New Source Performance Standards (NSPS). However, the existing combustion turbines that are part of this project were constructed prior to the applicability date and are not subject to 40 CFR 60, Subpart GG, the NSPS for stationary gas turbines.

3.0 PROPOSED PROJECT

3.1 Project Description

The applicant requests a permit to authorize the installation of direct water spray foggers on two existing combustion turbines (CT-2 and CT-3) at Big Bend Station. Each turbine can generate a nominal 77 MW per hour of power. Typically, the maximum heat input to a combustion turbine is established on the coldest day of operation because it requires more fuel combustion to achieve the same firing temperatures for the denser air. Denser air means increased mass per unit volume, which results in higher throughput in the rotor or expansion section of the combustion turbine and increased power production. Conversely, the maximum heat input is much lower on hot days because of the lower compressor inlet density. The proposed foggers will provide evaporative cooling of the compressor inlet air to increase power output approximately 2 to 8 MW per unit depending on the initial ambient conditions. In addition, the applicant also requests that the hours of operation for combustion turbine CT-2 be revised from 10 hours per day to an equivalent 3650 hours per year.

The facility is a PSD major source of air pollution. The proposed project *could* potentially result in significant increases in pollutant emissions of CO, NOx, PM/PM10, SO_2, or VOC. This is based on increased fuel consumption when fogging, past actual emissions of the gas turbines, future potential emissions when fogging, and maximum emissions rates. Therefore, the project is subject to an applicability review for the Prevention of Significant Deterioration (PSD) of Air Quality. The applicant has requested a limit on operation of the foggers to avoid triggering the significant emissions rates specified in Table 62-212.400-2, F.A.C. and a corresponding determination of the Best Available Control Technology (BACT).

3.2 Applicant's Estimated Project Emissions

The applicant estimated the net emissions increases by using the additional heat input associated with a 20° F decrease in compressor inlet temperature. Using the heat input curve, a 20° F temperature decrease results in an increase in heat input of 64.3 mmBtu per hour or a factor of 3.21 mmBTU/hour/°F. The applicant analyzed meteorological data for the Tampa area to determine that the average temperature decrease for the warmest six months (April through September) was 10.1° F. Combining these estimates with AP-42 pollutant emission factors provides hourly emissions rates. The following table summarizes the applicant's predicted net emissions increase for the project based on this analysis and a requested limit of 1600 hours of combined operation to avoid triggering PSD.

Table A. Applicant's Estimated Net Emissions Increases and Resulting PSD Applicability

Pollutant	Net Emissions Increase (TPY)	Significant Emissions Rate (Tons Per Year)	Significant? (Table 212.400-2)	Subject To BACT?
CO	1.3	100	No	No
NOx	18.2	40	No	No
PM/PM10	1.0	25/15	No	No

SAM	1.0	7	No	No
SO2	13.2	40	No	No
VOC	0.4	40	No	No

Note: Based on AP-42.

The calculated emissions increases reflect only those increases directly related to the addition of inlet fogging. Essential to the applicant's analysis is the *assumption* that utilization of the combustion turbines will not increase as a result of the ability to achieve greater power output due to the project. The applicant predicts no net increase in emissions with regard to the request for changing the restriction on hours of operation from 10 hours per day to 3650 hours per year.

4.0 DEPARTMENT'S ANALYSIS – INLET AIR FOGGERS

4.1 Project Discussion

With inlet air fogging, a series of high-pressure spray nozzles add a fine mist to the combustion turbine inlet air. The fine water droplets evaporate absorbing heat from the air molecules during the liquid-to-vapor phase change. The inlet air is cooled and made denser allowing for slightly higher throughput and increased power generation. The maximum heat input continues to be defined by the coldest day, because evaporative cooling provides little or no benefit on such days. Therefore, this project does not increase permitted capacity, but attempts to shift operation on warm days up the power output performance curve, but within the original design range of these units. Inlet foggers are routinely included in new combustion turbine projects and have not affected the Department's decisions regarding Best Available Control Technology.

4.2 Department's Estimated Project Emissions

The project proposes installation of an inlet air fogging system that will alter the conditions of the compressor inlet air. This change in the method of operation will result in higher fuel consumption rates and increased actual pollutant emissions rates during periods of fogging. The Department believes that it is reasonable to evaluate the increase in emissions directly resulting from the use of air foggers. This is consistent with the Department's previous determinations for similar fogger projects. However, critical to this analysis is the assumption that the fogger project will not increase the availability or utilization of the existing gas turbines over that of recent years. To establish the recent operating history for the combustion turbines, the Department reviewed Annual Operating Reports submitted by the applicant over the last five as summarized in the following table.

Table B. Operating History for Past 5-Years

Unit/Year	Annual Operating Hours				
	1994	1995	1996	1997	1998
CT-2	45	10	24	141	894
CT-3	62	14	11	190	400
Totals	107	24	35	331	1294

As shown, these units have operated very little over the last five years, although operation did increase appreciably in 1998. Based on the latest reported year, the units were operated for a total of 1294 hours during the year. The Department disagreed with the applicant's use of AP-42 emissions factors as representing the best available emissions data for these units. Based on the latest actual operation and the maximum emissions rates provided in the original permit application, the Department estimates the following net potential emissions increase from inlet air fogging.

Table C. Department 's Estimated Net Emissions Increases

		Per Unit	(2 Units) Foggers ONLY	(2 Units) Past Actuals	(2 Units) Future Actuals	(2 Units) Net Increase	Significant Emissions Rate
	mmBTU/hr	780	64.3	780	837.8		
	hr/yr	NA	1365	1294	1365		
Pollutant	lb/hr*	lb/mmBTU	TPY	TPY	TPY	TPY	TPY
CO	102	0.13	5.74	65.99	74.77	8.78	100
NOx	447	0.57	25.15	289.21	327.68	38.48	40
PM10	33	0.04	1.86	21.35	24.19	2.84	15
SO2	277	0.36	15.58	179.22	203.06	23.84	40
VOC	37	0.05	2.08	23.94	27.12	3.18	40

* Based on initial application.

Based on the Department's analysis, inlet air fogging for no more than 1365 combined hours of operation per year for both combustion turbines would not trigger PSD for the proposed project. Additional information provided by the applicant on January 6, 2000 indicated that a permit limit of 1365 hours during any consecutive 12 months was acceptable.

4.3 PSD Review

As a PSD major source, a modification or change in method of operation of the existing combustion turbines resulting in **significant net emissions increases** is subject to PSD review. A significant net emissions increase is defined in Rule 62-212.400, F.A.C as follows:

"Significant Net Emissions Increase" – A significant net emissions increase of a pollutant regulated under the Act is a ***net emissions increase*** *equal to or greater than the applicable significant emission rate listed in Table 212.400-2, Regulated Air Pollutants – Significant Emission Rates.*

The significant emission rates are included Tables A and B above. The meaning of a net emissions increase is given in Rule 62-212.400, F.A.C. as follows:

"Net Emissions Increase" - A modification to a facility results in a net emissions increase when, for a pollutant regulated under the Act, the sum of all of the contemporaneous creditable increases and decreases in the ***actual emissions*** *of the facility, including the increase in emissions of the modification itself and any increases and decreases in quantifiable fugitive emissions, is greater than zero.*

The definition of actual emissions is given in Rule 62-210.200, F.A.C. (definitions) as follows:

"Actual Emissions" - The actual rate of emission of a pollutant from an emissions unit as determined in accordance with the following provisions:

(a) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during a two year period which precedes the particular date and which is representative of the normal operation of the emissions unit. The Department may allow the use of a different time period upon a determination that it is more representative of the normal operation of the emissions unit. Actual emissions shall be calculated using the emissions unit's actual operating hours, production rates and types of materials processed, stored, or combusted during the selected time period.

(b) The Department may presume that unit-specific allowable emissions for an emissions unit are equivalent to the actual emissions of the emissions unit provided that, for any regulated air pollutant, such unit-specific allowable emissions limits are federally enforceable.

(c) For any emissions unit (other than an electric utility steam-generating unit specified in subparagraph (d) of this definition) which has not begun ***normal operations*** *on a particular date, actual emissions shall equal the* ***potential emissions*** *of the emissions unit on that date.*

The term "normal operations" appears to be undefined and subject to some interpretation. Potential emissions are defined in Rule 62-210.200, F.A.C. (definitions) as follows:

"Potential Emissions or Potential to Emit" - The maximum capacity of an emission unit or facility to emit a pollutant under its physical and operational design. Any enforceable physical or operational limitation on the capacity of the emission unit or facility to emit a pollutant, including any air pollution control equipment and any restrictions on hours of operation or on the type or amount of material combusted, stored, or processed shall be treated as part of its design provided that, for any regulated air pollutant, such physical or operational limitation is federally enforceable.

As shown in the operating history presented above, these combustion turbines have begun normal operations and serve as peaking units. Therefore, a comparison of future to past actual emissions would be based on potential emissions after installation of the foggers to past actual emissions before the project. If larger units were replacing the existing units, such a comparison would undoubtedly result in a determination that PSD is applicable, unless the company took an extreme limitation in hours of operation. If a like-kind replacement were being made, the same comparison would also result in a determination that PSD is applicable. For purposes of comparison with the proposed project, this last case was addressed in the Puerto Rican Cement Decision. This is the watershed decision made by the Federal Circuit Court of Appeals that upheld the past actual to future potential emission comparison for modernization projects. The following excerpt from this decision is of interest with regard to the present project:

"One can imagine circumstances that might test the reasonableness of EPA's regulation. An electricity company, for example, might wish to replace a peak load generator -- one that operates only a few days per year -- with a new peak load generator that the firm could, but almost certainly will not, operate every day. And, uncertainties about the precise shape of future electricity peak demand might make the firm hesitate to promise EPA it will never increase actual emissions (particularly since EPA insists, as a condition of accepting the promise and issuing the NAD, that the firm also promise not to apply for permission for an actual increase under the PSD review process). Whatever the arguments about the "irrationality" of EPA's interpretation in such circumstances, however, those circumstances are not present here. The Company is not interested in peak load capacity; it operated its old kilns at low levels in the past; its new, more efficient kiln might give it the economic ability to increase production; consequently, EPA could plausibly fear an increase in actual emissions were it to provide the NAD. Thus, this seems the very type of case for which the regulations quoted above were written. We can find nothing arbitrary or irrational about EPA applying those regulations to the Company's proposal."

The current fogger project is yet another step removed from the modernization project described in the above like-kind replacement example. The combustion turbines will not be replaced at all. The modification and its effects can be isolated and directly estimated. The combustion turbines have begun normal operation and emissions prior to the project should be based on past actual emissions. However, air inlet fogging has not yet begun normal operation and future actual emissions should be based on potential emissions including any restrictions on the operation of the foggers.

The applicant specifically requested a permit restriction to avoid triggering PSD applicability and a corresponding BACT determination. The Department's analysis also considered net emissions increases directly related to the foggers and a permit limitation to achieve this objective. The Draft Permit includes a condition limiting inlet air fogging to 1365 hours during any consecutive 12 months for the combined operation of both units. The Department believes this limit provides a realistic operating scenario for the

use of fogging equipment and prevents the project from triggering PSD. Therefore, this project is considered a minor modification with respect to PSD.

4.4 Applicability Review for NSPS Subpart GG

The proposed project affects two existing combustion turbines that pre-date the New Source Performance Standards for stationary gas turbines, Subpart GG. Pursuant to the 40 CFR 60.14, a modification is defined as, "... *any physical or operational change to an existing facility which results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies shall be considered a modification within the meaning of section 111 of the Act. Upon modification, an existing facility shall become an affected facility for each pollutant to which a standard applies and for which there is an increase in the emission rate to the atmosphere.*" The regulation continues by defining "emission rate" as an hourly mass emission rate for any pollutant to which a standard applies. NSPS Subpart GG establishes NOx and SO2 emissions standards for new and modified stationary gas turbines. Therefore, it is important to determine whether or not a modification, as defined by the NSPS, has occurred that would subject these existing units to NSPS Subpart GG for stationary gas turbines.

After reviewing the available information, the Department concludes that installation of the foggers will not change the maximum short-term emissions rates because these are achieved under natural conditions of very low ambient temperatures. Inlet air fogging under this conditions would provide little, if any, evaporative cooling and could potentially damage the gas turbines due to icing. Inlet air fogging during warm, dry weather does not increase the maximum capacity of the gas turbine, but allows a shift in performance towards 100%. In a letter dated June 22, 1999 for a similar "fogger" project, EPA Region 4 states the following with regard to NSPS Subpart GG for gas turbines, "... *We do, however, concur with your conclusion that the addition of the foggers will not constitute a modification if the maximum operating capacity of these turbines does not increase as a result of the fogger installation.*" Therefore, this project does not trigger NSPS applicability.

4.5 Air Quality Impact Analysis

Because this project is permitted to avoid PSD, no air quality impact analysis was conducted. However, it is important to review the proposed project for any resulting changes to parameters that could affect previous air quality analyses. Because the proposed air inlet foggers should not result in an increase in the maximum hourly emission rates, there would be no change in the modeled emissions rates or the corresponding predicted ambient impacts. Also, inlet air fogging would have a negligible impact on the combustion turbine exhaust temperature. The Department concludes that this project will not adversely affect the results of the most recent modeling analysis for this facility.

5.0 DEPARTMENT'S ANALYSIS – CHANGE IN HOURS OF OPERATION

The second part of this project concerns revising the permit limit for CT-2 from 10 hours per day to 3650 hours per year. The applicant asserts that these limits are equivalent, resulting in no net emissions increase. The Department conducted a review of the permitting history for these units and discovered the following items:

- The original air construction permit (AC29-2210) for CT-2 was issued on August 27, 1973 and limited operation of this unit to no more than 10 hours per day for 365 days per year.
- Like the applicant, the Department was unable to locate the original construction permit for CT-3.
- Previous operation permits identify these units as identical Westinghouse gas turbines intended to operate for "intermittent peaking and emergency services only". In other words, they were both planned and installed as peaking units to operate for parts of a day during portions of the year. The applicant describes operation in this manner in every application for an operation permit over the last 25 years.

- The 5-year average for CT-2 is 223 hours per year and for CT-3 is 136 hours per year. However, TECO has indicated that these units may be needed (at least the availability of the units) in the near future, particularly during the next two years before newly constructed power generating units come on line.

The Department was reluctant to revise the hours limitation for CT-2 without a similar limit for CT-3. Such a change could be perceived as less stringent. Combined with the applicant's belief that operation of CT-3 was unlimited, the Department reasoned that this modification could be intended to substantially increase the actual operation of both units. However, the applicant later agreed to assume limits for each gas turbine of 3650 hours during any consecutive 12 months of operation. The Department considers such a limit to firmly establish each gas turbine as a peaking unit. Due to the nature of peaking units, the determination of an increase in actual operation is difficult. Peaking units are typically less efficient, more costly to operate, and operated only when other units are not available or in response to an unusually high demand.

As discussed for the fogger portion of this project, the maximum hourly emissions rates will not increase as a result of this change. The revised hours limitation could affect any previous long-term modeling analyses for this facility. However, the most recent analysis was conducted in December of 1998 and conservatively assumed continuous operation (8760 hours per year) of the combustion turbines at maximum capacity. This modeling analysis indicated satisfactory compliance with the Ambient Air Quality Standards. Therefore, any previous modeled impacts should remain unchanged. The Department concludes that a revised hours limitation is not likely to increase actual operation of the peaking units in the future. Operation remains dependent on availability of other power producing units and periods of unusually high demand.

6.0 COMMENTS

On December 31, 1999, the Department received comments from the Air Management Division of the Environmental Protection Commission (EPC) of Hillsborough County. The EPC expressed concerns regarding increased emissions of carbon monoxide and volatile organic compounds from water injection, citing Section 3.1.4.1 of AP-42 (10/96) as a reference. However, this section refers to the injection of water (or steam) in or near the combustor as a mechanism to retard the flame temperature for the prevention of NOx emissions. Inlet air fogging introduces a fine mist into the compressor inlet air by injecting water from high-pressure spray nozzles. The fine water droplets evaporate absorbing heat from the air molecules during the liquid-to-vapor phase change. The purpose is to cool the inlet air making it denser in order to provide a higher mass flow rate with a corresponding boost in power production. Due to the low injection rates (< 15 gpm of water), inlet fogging should not significantly change the characteristics of the combustion process. It "conditions" the ambient inlet air and shifts operation on warm days up the power performance curve towards 100% capacity. Emissions rates are expected to remain within the original design range for these units.

7.0 CONCLUSION

Based on a technical review of the complete application, reasonable assurances provided by the applicant, and the conditions specified in the Draft Permit, the Department makes the following preliminary determinations:

- The addition of inlet air fogging to both gas turbines and operation up to 1365 total combined hours during any consecutive 12 months will not trigger the Significant Emissions Rates in Table 62-212.400-2, F.A.C. Therefore, this project is a minor modification to which PSD does not apply.
- Because inlet air fogging does not result in an increase in the maximum operating capacity of the existing gas turbines, the project will not result in an increase in the maximum short-term emissions rates. Therefore, 40 CFR 60, Subpart GG, the NSPS for stationary gas turbines does not apply.
- A revision of the daily operation limit for CT-2 to a 12-month rolling total is not likely to increase future operation of the gas turbine, in and of itself. In fact, limiting operation of each simple cycle gas turbine to

no more than 3650 hours during any consecutive 12 months effectively establishes each as a peaking unit. Future operation as peaking units remain a function of a combination of factors, including the availability of older power generating units, the startup of newly constructed power generating units, and periods of unusually high demand.

The proposed changes will not cause a significant impact or cause or contribute to a violation of any ambient air quality standard or PSD increment. The Department's conclusion is specific to this project and the unique characteristics presented. It does not set a precedent for other projects, which must be reviewed on a case-by-case basis. It does not set precedents related to any physical changes within the compressors, combustors, rotors, or other key components of such units. The application and determination of the Department's rules does not constitute an interpretation of the federal rules under 40 CFR 52.21, Prevention of Significant Deterioration or 40 CFR 60, Subpart GG, the New Source Performance Standards for stationary gas turbines. Jeff Koerner, P.E., is the permitting engineer responsible for reviewing the application and drafting the permit.

DRAFT PERMIT

PERMITTEE:

Tampa Electric Company
6499 U.S. Highway 41 North
Apollo Beach, FL 33572-9200

ARMS Permit No.	057-0039-006-AC
Facility ID No.	057-0039
SIC No.	4911
Expires:	(DRAFT)

Authorized Representative:
Mr. Gregory M. Nelson, P.E.
Manager – Environmental Planning

PROJECT

This permit is issued pursuant to the preconstruction review requirements of Chapter 62-212, F.A.C. The facility is an electric power generating plant that is a major source of air pollution with respect to Rule 62-212.400, F.A.C., the Prevention of Significant Deterioration (PSD) of Air Quality program. The proposed project will increase actual emissions of two existing combustion turbines. However, restrictions in this permit limit the net emissions increases to less than the significant emission rates in Table 62-212.400-2, F.A.C. Therefore, PSD does not apply and a determination of Best Available Control Technology was not required.

LOCATION

The existing combustion turbines, CT-2 and CT-3, are located at the Big Bend Station on Big Bend Road in North Ruskin, Hillsborough County, Florida. The map coordinates are: UTM Zone 17, 361.9 km East, 3075.0 km North; and Latitude: 27° 47' 36" North and Longitude: 82° 24' 11" West.

STATEMENT OF BASIS

This air pollution construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.). The permittee is authorized to install the proposed equipment in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department. This permit does not alter any requirements from previously issued air permits for the subject emissions units.

APPENDICES

The following Appendices are attached as part of this permit.

Appendix A - Terminology
Appendix B - Summary of the PSD Applicability Determination
Appendix GC - Construction Permit General Conditions

(DRAFT)

Howard L. Rhodes, Director
Division of Air Resources Management

FACILITY DESCRIPTION

This facility consists of: four steam boilers with four steam turbines; three simple-cycle combustion turbines; solid fuels, fly ash, limestone, gypsum, slag, and bottom ash storage and handling facilities; a ship surface coating operation; several miscellaneous unregulated and/or insignificant activities.

PROJECT

The proposed project will add inlet air fogging equipment to the following existing emissions units.

ARMS ID NO.	EMISSION UNIT DESCRIPTION
005	**Combustion Turbine No. 2 (CT-2)**
006	**Combustion Turbine No. 3 (CT-3)**

REGULATORY CLASSIFICATION

Power Plant Siting (PPS): The facilty's fossil fuel-fired steam generators are subject to a PPS certification.

Title III – HAP: The facility is a major source of hazardous air pollutants.

Title IV - Acid Rain: The facility has emisisons units subject to Phase I and Phase II.

Title V – Major Source: Facility is classified as a "major" source of air pollution with respect to Title V of the Clean Air Act because emissions of at least one regulated criteria air pollutant exceeds 100 tons per year.

PSD Major Source: The facility is a fossil fuel steam generating plant, one of the industries listed in Table 212-400-1, F.A.C. Because facility emissions of at least one criteria pollutant are greater than 100 tons per year, the facility is "major facility" with respect to the Prevention of Significant Deterioration (PSD) of Air Quality. Pursuant to Rule 62-212.400, F.A.C., each modification to a PSD major source requires a PSD applicability determination. The Department determined that PSD did not apply to the project as permitted.

NSPS: The existing simple cycle combustion turbines were constructed prior to the applicability deadline for 40 CFR 60, Subpart GG, the New Source Performance Standards (NSPS) for stationary gas turbines. This modification does not trigger a modification with respect to NSPS.

RELEVANT DOCUMENTS

12/07/99 Department received permit application.

12/31/99 Department received comments from the Environmental Protection Commission of Hillsborough County.

01/06/00 Department received additional information from the applicant.

01/20/00 Department received additional information from the applicant; application complete.

GENERAL AND ADMINISTRATIVE REQUIREMENTS

1. Permitting Authority: All documents related to applications for permits to construct, operate or modify an emissions unit should be submitted to the Bureau of Air Regulation (BAR), Florida Department of Environmental Protection (DEP), at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400 and phone number 850/488-0114. Copies of these documents shall be submitted to each Compliance Authority.

2. Compliance Authorities: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Department's Southwest District Office at 3804 Coconut Palm Drive in Tampa, Florida 33619-8318. Copies shall also be submitted to the Air Quality Division of the Hillsborough Environmental Protection Commission at 1900 – 9th Avenue, Tampa, Florida 33605.

3. Terminology: The terms used in this permit have specific meanings as defined in the applicable chapters of the Florida Administrative Code. *Appendix A* lists frequently used abbreviations and explains the format used to cite rules and regulations in this permit.

4. PSD Applicability Determination: *Appendix B* summarizes the Department's determination of PSD applicability for this project.

5. General Conditions: The owner and operator are subject to, and shall operate under, the attached General Conditions listed in *Appendix GC* of this permit. General Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. [Rule 62-4.160, F.A.C.]

6. Applicable Regulations, Forms and Application Procedures: Unless otherwise indicated in this permit, the construction and operation of this project shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403 of the Florida Statutes (F.S.); Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.). The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting or regulations. [Rules 62-204.800, 62-210.300 and 62-210.900, F.A.C.]

7. Permit Expiration: For good cause, the permittee may request that this air construction permit be extended. Such a request shall be submitted to the Department's Bureau of Air Regulation at least sixty (60) days prior to the expiration of this permit. [Rules 62-4.070(4), 62-4.080, and 62-210.300(1), F.A.C]

8. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]

9. Modifications: No emissions unit or facility subject to this permit shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]

10. Title V Permit: This permit authorizes construction of the proposed project and initial operation to determine compliance with Department rules. Upon completion of construction of this project, a Title V operation permit revision is required for regular operation of the new equipment. The permittee shall apply for and receive a revised Title V operation permit prior to expiration of this permit. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the Department's Bureau of Air Regulation with copies to the Compliance Authorities. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

The proposed project will add inlet air fogging equipment to the following existing emissions units.

ARMS ID NO.	EMISSION UNIT DESCRIPTION
005	**Combustion Turbine No. 2 (CT-2)** is a self-contained Westinghouse combustion turbine with electrical generator set. The unit is a predesigned integrated simple-cycle, single-shaft, three-bearing machine with the load connected at the exhaust end of the unit. The turbine is fired on No. 2 distillate fuel oil and operated for intermittent peaking and emergency services only. The generator nameplate capacity is 78 MW. Unit No. 2 began commercial operation in 1974. The unit includes high-pressure water spray foggers to provide evaporative cooling of the compressor inlet air.
006	**Combustion Turbine No. 3 (CT-3)** is a self-contained Westinghouse combustion turbine with electrical generator set. The unit is a predesigned integrated simple-cycle, single-shaft, multi-bearing machine with the load connected at the exhaust end of the unit. The turbine is fired on No. 2 distillate fuel oil and operated for intermittent peaking and emergency services only. The generator nameplate capacity is 78 MW. Unit No. 3 began commercial operation in 1974. The unit includes high-pressure water spray foggers to provide evaporative cooling of the compressor inlet air.

Permitting Note: Although the inlet fogging equipment does not directly emit pollutants, this equipment alters the compressor inlet air conditions for the combustion turbines. Fogging decreases the inlet air temperature allowing a higher mass flow rate and slight increase in power production of approximately 2 to 5 MW. The increased power production is realized by increasing the fuel consumption of the combustion turbine, which results in increased actual emissions. Therefore, installation of this equipment requires a construction permit.

ADMINISTRATIVE REQUIREMENTS

1. Previous Permit Conditions: Other than revising the allowable hours of operation, issuance of this permit *does not* alter any requirements from previously issued air construction or Title V operation permits.

INSTALLATION OF EQUIPMENT

2. Inlet Air Foggers: The permittee is authorized to install a high pressure, direct water spray fogging system to provide evaporative cooling of the compressor inlet air. [Applicant Request]

PERFORMANCE RESTRICTIONS

3. Gas Turbine Operation: Operation of each gas turbine shall not exceed 3650 hours of operation during any consecutive 12 months. [Design; Rule 62-210.200, F.A.C. (Definitions - PTE)]

4. Inlet Fogger Operation: Combined operation of the inlet air foggers for both gas turbines shall not exceed 1365 total hours during any consecutive 12 months. [Design; Rule 62-212.400, F.A.C. (BACT); Rule 62-210.200, F.A.C. (Definitions - PTE)]

5. Plant Operation - Problems: If temporarily unable to comply with any of the conditions of this permit due to breakdown of equipment or destruction by fire, wind or other cause, the owner or operator shall notify the Compliance Authority as soon as possible, but at least within one working day, excluding weekends and holidays. The notification shall include pertinent information as to the cause of the problem, the steps being taken to correct the problem and prevent future recurrence, and the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit and the regulations. [Rule 62-4.130, F.A.C.]

EMISSIONS CONTROLS

6. Circumvention: The permittee shall not circumvent any air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rule 62-210.650, F.A.C.]

7. Unconfined Particulate Emissions: During the construction period, unconfined particulate matter emissions shall be minimized by covering, enclosing, applying water or chemicals to the affected areas, or any other combination of dust-suppressing techniques, as necessary. [Rule 62-296.320(4)(c), F.A.C.]

EXCESS EMISSIONS

8. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction, shall be prohibited. [Rule 62-210.700, F.A.C.]

EMISSIONS PERFORMANCE TESTING

9. Special Compliance Tests: The existing combustion turbines remain subject to all performance testing provisions specified in any previously issued air construction and Title V operation permits. No additional testing requirements are specified as the result of this project. However, when the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in a Department rule or in a permit issued pursuant to those rules is being violated, it shall require the owner or operator of the emissions unit to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions unit and to provide a report on the results of said tests to the Department. [Rule 62-297.310(7)(b), F.A.C.]

COMPLIANCE DEMONSTRATIONS

10. Records: All measurements, records, and other data required by this permit shall be documented in a permanent, legible format and retained for at least five (5) years following the date on which such measurements, records, or data are recorded. Records shall be made available to DEP representatives upon request. [Rules 62-4.160(14) and 62-213.440(1)(b)2., F.A.C.]

11. Monthly Operations Summary: By the fifth calendar day of each month, the permittee shall record the following information in a written log for the previous month of operation and for the previous 12 months of operation: the number of operational hours for each gas turbine; the number of hours of inlet air fogging for each gas turbine; and the total combined number of hours of inlet air fogging for both gas turbines. The Monthly Operations Summary shall be maintained on site in a legible format available for inspection at the Department's request. [Rule 62-4.160(15), F.A.C.]

REPORTS

12. Excess Emissions Reporting: If excess emissions occur due to malfunction, the permittee shall notify the Compliance Authority within (1) working day of: the nature, extent, and duration of the excess emissions; the cause of the excess emissions; and the actions taken to correct the problem. In addition, the Department may request a written summary report of the incident. [Rules 62-4.130 and 62-210.700(6), F.A.C.]

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

SECTION IV.

APPENDIX A - TERMINOLOGY

ABBREVIATIONS AND ACRONYMS

°F	-	Degrees Fahrenheit
DEP	-	State of Florida, Department of Environmental Protection
DARM	-	Division of Air Resource Management
EPA	-	United States Environmental Protection Agency
F.A.C.	-	Florida Administrative Code
F.S.	-	Florida Statute
SOA	-	Specific Operating Agreement
UTM	-	Universal Transverse Mercator
CT	-	Combustion Turbine
DB	-	Duct Burner
HRSG	-	Heat Recovery Steam Generator
DLN	-	Dry Low-NOx Combustion Technology
SCR	-	Selective Catalytic Reduction
OC	-	Oxidation Catalyst Technology for CO Control

RULE CITATIONS

The following examples illustrate the methods used in this permit to abbreviate and cite the references of rules, regulations, permit numbers, and identification numbers.

Florida Administrative Code (F.A.C.) Rules:

Example:	**[Rule 62-213.205, F.A.C.]**		
Where:	62	-	refers to Title 62 of the Florida Administrative Code (F.A.C.)
	62-213	-	refers to Chapter 62-213, F.A.C.
	62-213.205	-	refers to Rule 62-213.205, F.A.C.

Facility Identification (ID) Number:

Example:	Facility ID No. 099-0001		
Where:	099	-	3 digit number indicates that the facility is located in Palm Beach County
	0221	-	4 digit number assigned by state database identifies specific facility

New Permit Numbers:

Example:	Permit No. 099-2222-001-AC or 099-2222-001-AV		
Where:	AC	-	identifies permit as an Air Construction Permit
	AV	-	identifies permit as a Title V Major Source Air Operation Permit
	099	-	3 digit number indicates that the facility is located in Palm Beach County
	2222	-	4 digit number identifies a specific facility
	001	-	3 digit sequential number identifies a specific permit project

Old Permit Numbers:

Example:	Permit No. AC50-123456 or AO50-123456		
Where:	AC	-	identifies permit as an Air Construction Permit
	AO	-	identifies permit as an Air Operation Permit
	123456	-	6 digit sequential number identifies a specific permit project

SECTION IV.

APPENDIX B - SUMMARY OF THE PSD APPLICABILITY DETERMINATION

Project Description: The applicant requested a permit to authorize the installation of direct water spray foggers for existing combustion turbines (CT-2 and CT-3) at TECO's Big Bend Station, which would provide an increased power output of approximately 2 to 5 MW depending on the initial ambient conditions. With inlet air fogging, a series of high-pressure spray nozzles add a fine mist to the combustion turbine inlet air. The fine water droplets evaporate absorbing heat from the air molecules during the liquid-to-vapor phase change. The inlet air is cooled and made denser allowing for slightly higher throughput and increased power generation. The maximum heat input continues to be defined by the coldest day, because evaporative cooling provides little or no benefit on such days. Therefore, this project does not increase permitted capacity, but attempts to shift operation on warm days up the power output performance curve, but within the original design range of these units. Inlet foggers are routinely included in new gas turbine projects and have not affected the Department's BACT determinations. The applicant also requested a revision of the hours limit for CT-2 from 10 hours per day to 3650 hours per year. There appears to be no similar restriction on the hours of operation for CT-3.

The facility is a PSD major source of air pollution and the proposed project could potentially result in significant increases in pollutant emissions of CO, NOx, PM/PM10, SO_2, and/or VOC. This is based on increased fuel consumption as a result of installing foggers, past actual emissions, future potential emissions, and maximum emissions rates. Therefore, the project is subject to review for the Prevention of Significant Deterioration (PSD) of Air Quality. The applicant has requested a limit on operation of the foggers to avoid triggering the significant emissions rates specified in Table 62-212.400-2, F.A.C. and a corresponding determination of the Best Available Control Technology (BACT).

Summary of the PSD Applicability Review: Installation of an air fogging system will alter the conditions of the inlet air to the combustion turbine. This change in the method of operation will result in higher fuel consumption rates and corresponding air pollutant emissions during periods of fogging. The Department believes that it is reasonable to evaluate the increase in emissions directly resulting from the use of air foggers, consistent with previous determinations for similar fogger projects. However, critical to this analysis is the assumption that the fogger project will not increase the availability or utilization of the existing combustion turbine over that of recent years. After a review of the operating histories, the Department established a limit for inlet air fogging of 1365 hours per year that would avoid triggering PSD for the proposed project. The Department believes the permit limit provides a realistic operating scenario for the use of fogging equipment and prevents the project from triggering PSD. Also, the applicant agreed to limit the operation of each gas turbine to no more than 3650 hours during any consecutive 12 months. The Department believes that this restriction firmly establishes each gas turbine as a peaking unit, and the revised operational limit, in and of itself, is not likely to increase future actual operation. The Department concludes that this project is a minor modification and PSD does not apply. See the Technical Evaluation and Preliminary Determination for complete details of this determination.

NSPS Applicability: The existing simple cycle combustion turbines were constructed prior to the applicability deadline for 40 CFR 60, Subpart GG, the New Source Performance Standards (NSPS) for stationary gas turbines. The Department concludes that because the project will not increase the maximum hourly power generation of these units, there will be no increase in hourly emissions. Therefore, this project does not trigger a modification with respect to NSPS.

Air Quality Impact Analysis: Because this project is permitted to avoid PSD, no air quality impact analysis was conducted. The Department concluded that, because the proposed air inlet foggers should not result in an increase in the maximum hourly emission rates, there would be no change in the maximum emissions rates or corresponding predicted ambient impacts. Also, inlet air fogging would have a negligible impact on the combustion turbine exhaust temperature. Therefore, issuance of this permit would not adversely affect the results of any previous modeling scenarios.

SECTION IV.

APPENDIX GC - CONSTRUCTION PERMIT GENERAL CONDITIONS

G.1 The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

G.2 This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings or exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

G.3 As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

G.4 This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

G.5 This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

G.6 The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

G.7 The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

(a) Have access to and copy and records that must be kept under the conditions of the permit;
(b) Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
(c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

G.8 If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

(a) A description of and cause of non-compliance; and
(b) The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages, which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

G.9 In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted

source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extend it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

G.10 The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

G.11 This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

G.12 This permit or a copy thereof shall be kept at the work site of the permitted activity.

G.13 This permit also constitutes:

(a) Determination of Best Available Control Technology (not applicable to project);

(b) Determination of Prevention of Significant Deterioration (not applicable to project); and

(c) Compliance with New Source Performance Standards (not applicable to project).

G.14 The permittee shall comply with the following:

(a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

(b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

(c) Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements;
2. The person responsible for performing the sampling or measurements;
3. The dates analyses were performed;
4. The person responsible for performing the analyses;
5. The analytical techniques or methods used; and
6. The results of such analyses.

G.15 When requested by the Department, the permittee shall within a reasonable time furnish any information required by law, which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

Memorandum

Florida Department of
Environmental Protection

TO: ~~Clair Fancy, Chief – Bureau of Air Regulation~~

THROUGH Al Linero, Administrator – New Source Review Section

FROM: Jeff Koerner, Project Engineer - New Source Review Section

DATE: January 28, 2000

SUBJECT: TECO Big Bend Station
Inlet Air Fogging for Existing Combustion Turbines (CT-2 and CT-3)
ARMS Emissions Unit ID Nos. 0570039-005/006

Attached is the public notice package for the installation of a compressor inlet air fogging system for the existing combustion turbines at TECO's Big Bend Station. To ensure that the project remained minor with respect to PSD, the applicant agreed to a limit of 1365 hours of inlet fogging during any consecutive 12 months. Because the project will not result in increased maximum power production, no increase in maximum hourly emissions is expected. Therefore, the project does not trigger NSPS applicability.

For CT-2, the applicant also requested revision of a 10 hour per day limit (established in 1974) to 3650 hours per year. Although CT-3 is an identical unit permitted at about the same time, no similar limit could be found. However, the applicant later agreed to restrict maximum operation of each gas turbine to no more than 3650 hours during any consecutive 12 months. This establishes each gas turbine as a peaking unit and the change, by itself, is not expected to result in increased future operation of these simple cycle peaking units. The Draft Permit authorizes installation of the equipment and establishes these limits on operation. Requirements of all other air construction and Title V operation permits remain unchanged.

Day #74 is 03/19/2000. I recommend your approval of the attached Intent to Issue package for this project.

JFK

Attachments

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

P.E. CERTIFICATION STATEMENT

PERMITTEE

Tampa Electric Company – Big Bend Station
6499 U.S. Highway 41 North
Apollo Beach, FL 33572-9200

ARMS Permit No.	057-0039-006-AC
Facility ID No.	057-0039
SIC No.	4911

PROJECT DESCRIPTION

The applicant requested authorization to install a compressor inlet air fogging system for the existing combustion turbines at TECO's Big Bend Station. This equipment will provide evaporative cooling with a corresponding increase in actual power production. To ensure that the project remained minor with respect to PSD, the applicant agreed to a limit of 1365 hours of combined inlet fogging for both gas turbines during any consecutive 12 months. Because the project will not result in increased maximum power production, no increase in maximum hourly emissions is expected. Therefore, the project does not trigger NSPS applicability. The permit also restricts operation of each gas turbine to 3650 hours during any consecutive 12 months. The previous limit for CT-2 was 10 hours per day and CT-3, although identical, appeared to have no similar limit. The new restriction on operation establishes each gas turbine as a peaking unit and is not likely, by itself, to increase future actual operation. The Draft Permit authorizes installation of the equipment and establishes the limits on operation. Requirements of all other air construction and Title V operation permits remain unchanged.

CERTIFICATION

I hereby certify that the engineering features described in the above referenced application and subject to the proposed permit conditions provide reasonable assurance of compliance with applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-4 and 62-204 through 62-297. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including but not limited to the electrical, mechanical, structural, hydrological, and geological features).

Jeffery J. Koerner, P.E. — Date
Registration Number: 49441

Department of Environmental Protection
Bureau of Air Regulation, New Source Review Section
111 South Magnolia Drive, Suite 4
Tallahassee, Florida 32301
Phone (850) 414-7268

TAMPA ELECTRIC

RECEIVED

FEB 21 2000

BUREAU OF AIR REGULATION

February 18, 2000

Mr. Jeffery F. Koerner, P.E.
New Source Review Section
Florida Department of Environmental Protection
111 South Magnolia Avenue, Suite 4
Tallahassee, Florida 32301

Via FedEx
Airbill No. 7925 5072 4174

Re: Tampa Electric Company (TEC) – Big Bend Station
Inlet Air Fogging Addition to Existing Combustion Turbines (CT-2 and CT-3)
DEP File No. 0570039-006-AC

Dear Mr. Koerner:

As per our conversation, I have enclosed one copy of the original construction permit for Combustion Turbine 3 at Big Bend Station. TEC understands that this will not affect the conditions or operational limits as they exist in the current Draft Inlet Air Fogging Construction Permit. Please note that when these units were originally permitted, CT-3 was referred to as Big Bend Gas Turbine-Unit 1 and CT-2 was referred to as Big Bend Gas Turbine-Unit 2. If you have any questions, please do not hesitate to contact me at (813) 641-5125.

Sincerely,

Shannon K. Todd
Engineer
Environmental Planning

EP\gm\SKT146

Enclosure

c/enc: Mr. Tom Davis - ECT
Mr. Gregg Worley - EPA
Mr. Jerry Kissel - FDEP SW
Mr. Rick Kirby - EPCHC
Mr. John Bunyak - NPS

TAMPA ELECTRIC COMPANY
P. O. BOX 111 TAMPA, FL 33601-0111

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(813) 228-4111

CUSTOMER SERVICE:
HILLSBOROUGH COUNTY (813) 223-0800
OUTSIDE HILLSBOROUGH COUNTY 1 (888) 223-0800

Const. Permit

STATE OF FLORIDA
DEPARTMENT OF POLLUTION CONTROL

WEST CENTRAL REGION
Post Office Box 944
Winter Haven, Florida 33880

November 29, 1973
Hillsborough County - AP
TECO-Big Ben Gas Turbine, Unit 1

Mr. Alex Kaiser, Director
Tampa Electric Company
P. O. Box 111
Tampa, Florida 33601

Dear Mr. Kaiser:

Pursuant to your recent application, please find enclosed a Permit (No. AC-29-2209) dated 8-27-73 to construct/ ~~operate~~ the subject pollution source.

This permit will expire on 6-27-74 , and will be subject to the conditions, requirements and restrictions checked or indicated otherwise in the attached sheet "Construction/~~Operation~~ Permit Conditions".

This permit is issued under the authority of Florida Statutes 403.061(16). The time limits imposed herein are a condition to this permit and are enforceable under Florida Statute 403.161. You are hereby placed on notice that the Department will review this permit before the scheduled date of expiry and will seek court action for violation of the conditions and requirements of this permit.

You have ten days from the date of receipt hereof within which to seek a review of the conditions and requirements contained in this permit.

Your continued cooperation in this matter is appreciated and in future communication please refer to your permit number.

Sincerely,

T. E. Hunnicutt

T. E. Hunnicutt
P. E. III

STATE OF FLORIDA

DEPARTMENT OF POLLUTION CONTROL

CONSTRUCTION PERMIT

FOR Tampa Electric Company
P. O. Box 111
Tampa, Florida 33601

PERMIT NO. AC-29-2209 DATE 8-27-73

PURSUANT TO THE PROVISION OF SECTION 403.061(16) OF CHAPTER 403, FLORIDA STATUTES, AND CHAPTER 17-4, FLORIDA ADMINISTRATIVE CODE, THIS PERMIT IS ISSUED TO:
Mr. Alex Kaiser, Director

FOR THE CONSTRUCTION OF:
Gas turbine, not to be operated more than 10 hrs/day, 365 days/yr.

LOCATED AT: Big Bend Road, North Ruskin

UTM: 17-690.50 E, 3097.00 N.

IN ACCORDANCE WITH THE APPLICATION DATED August 16, 1973

AND IN CONFORMITY WITH THE STATEMENTS AND SUPPORTING DATA ENTERED THEREIN, ALL OF WHICH ARE FILED WITH THE DEPARTMENT AND ARE CONSIDERED A PART OF THIS PERMIT.

THIS PERMIT SHALL BE EFFECTIVE FROM THE DATE OF ITS ISSUANCE UNTIL 6-27-74 AND SHALL BE SUBJECT TO ALL APPLICABLE LAWS OF THE STATE AND THE RULES AND REGULATIONS OF THE DEPARTMENT.

Thomas E. Hunnicutt
Thomas E. Hunnicutt
P. E. III

EXECUTIVE DIRECTOR
Roger P. Stewart
Environmental Protection Commission

FORM 1-J

STATE OF FLORIDA

DEPARTMENT OF POLLUTION CONTROL

CONSTRUCTION PERMIT PROVISOS

AIR POLLUTION SOURCES

Permit No. AC-29-2209 Date: 8-27-73

[X] 1. Construction of this installation shall be completed by April, 1974.

[X] 2. This installation shall be operated by a competent and qualified person. Operations shall be conducted according to the best accepted practices and the recommendations of the Department of Pollution Control.

[X] 3. This construction permit is issued with the understanding that the owner may need to comply with county, municipal, or other local regulations prior to construction.

[X] 4. The applicant shall continue the retention of the engineer of record for the inspection of the construction of this project. Upon completion the engineer shall inspect for conformity to construction permit applications and associated documents. A report of such inspection shall be submitted by the engineer to the Department of Pollution Control for consideration toward the issuance of an operation permit. Notification of the pending completion of this project shall be transmitted in writing to the Department by the engineer approximately two weeks before the completion of construction.

[X] 5. This construction permit expires on June 27, 1974 following an initial period of operation for appropriate testing to determine compliance with the Rules of the Florida Pollution Control Board.

[X] 6. Detailed plans and specifications for this report shall be available upon request by the Department of Pollution Control.

[ ] 7. This _____ shall to tested for _____ within _____ days after it is placed in operation. These test results are required prior to our issuance of an operation permit and shall be submitted in duplicate to the DPC _____ Florida Regional

Tampa Electric Company
TECO
P. O. BOX 111, TAMPA, FLORIDA 33601

August 17, 1973

Mr. David Forehan
West Central Region
Florida Department of Pollution Control
P. O. Box 944
Winter Haven, FL 33880

Dear Mr. Forehan:

Enclosed are signed copies of page 5 of our construction permit applications to build two gas turbine peaking units at our Big Bend site. Please attach these signed copies to the applications which were left with you yesterday.

If you have any questions, please don't hesitate to contact us.

Yours very truly,

Jeff Rankin

Jeff Rankin

BEST AVAILABLE COPY

WC-29-236.
TECO
BIG BEND STATION
GAS TURBINE
Unit 2 (

60th D.
10-16-73

STATE OF FLORIDA
DEPARTMENT OF POLLUTION CONTROL

APPLICATION TO OPERATE/CONSTRUCT POLLUTION SOURCES

AUG 16 1973
WEST CENTRAL REGION

SECTION I – GENERAL INFORMATION FOR ALL POLLUTION SOURCES

I TO BE FILLED IN BY APPLICANT

Source Type: Air Pollution
Type application: [ ] Operation [ ] Temporary Operation [X] Construction
Status Source: [X] New [ ] Existing [ ] Modification

Source Name: Big Bend Gas Turbine, Unit 2 / County: Hillsborough

Source Location: Street: Big Bend Road City: North Ruskin
(Water Source Only) Lat: ____° ____' ____" Long: ____° ____' ____"
(Air Source Only) UTM: East 69050 361.4 North ~~59700~~ 3027.5

Appl. Name and Title: Tampa Electric Company
Appl. Address: P. O. Box 111, Tampa, Florida 33601

II TO BE FILLED IN BY REGION (*BY BUREAU OF PERMITTING)

Control No: Region ____ County ____ Type ____ *Project ____

Type Permit	Date Rec'd	*Permit No.	*Issue Date	*Compl. Date	*Exp. Date

Source Description:
Control Equipment:

Water Permits

Receiving Body Code: Surface Water Code:
Station No.: Influent: Effluent:

Effluent:	Average	Design	% Reduction
Flow rate, MGD			
BOD, lbs/day			
Susp. Sol., lbs/day			
Other:			

Air Permits

Operating Time: [ ] Continuous [ ] Intermittent
Fuel: Type M-BTU/hr. In Put
Incinerator: Capacity, tons/day Type Waste
Mfg. & Model

Pollutant Emissions, lbs/day	Actual	Design	Allowable
Particulate			
Sulfur Oxides			
Other:			

Implementation: Estimated Appl. Filing Date
Estimated Start of Const. Estimated Compliance Date

DESCRIPTION OF PROPOSED PROJECT

A. Describe the nature and extent of the proposed project. Refer to existing pollution control facilities, DPC permits, conditions, orders and notices, expected improvement in performance of the facilities and state whether the proposed project will result in full compliance of the source. Attach additional sheet if necessary.

The project consists of one self-contained combustion gas turbine generating unit. The unit is a predesigned, integrated simple-cycle, single-shaft, three-bearing machine with the load connected at the exhaust end of the unit. As shown in the accompanying flow diagram, the only inputs for the turbine are air and No. 2 distillate fuel oil. Since this is a new source in the preconstruction stage, there are presently no DPC permits, conditions, orders, or notices relating to this project. The proposed project will comply with all applicable State emission regulations.

See Figure 3-C1 for the Flow Diagram, see Figure 3-C2 for the Gas Turbine Arrangement, and see Figure 3-C3 for the Area Map.

It is intended to operate this unit for intermittent peaking and emergency service only.

B. Schedule of Project Covered in this Application (Construction Permit Application Only).

Federally or State Financed Projects only:

Planning Complete _____

Financing Program Complete _____

Indicate other local, state and/or federal agency approvals and dates _____

All projects:

Start of Construction September, 1973 (scheduled)

Completion of Construction April, 1974

C. Costs of Construction (Show a breakdown of costs for individual components/units of the proposed project serving pollution control purpose only). Information on actual costs shall be furnished with the application for operation permit.

Cost of gas turbine: $8,000,000 (installed cost)

D. Indicate any previous DPC permits, issuance dates, and expiration dates.

(none)

AIR POLLUTION SOURCES & CONTROL DEVICES

A. Identification of Air Contaminants

1) [X] Particulates
   a) [ ] Dust b) [X] Fly Ash c) [ ] Smoke d) [ ] Other (Identify)

2) [X] Sulfur Compounds
   a) [X] SO_x as SO_2 b) [ ] Reduced Sulfur as H_2S c) [ ] Other (Identify)

3) [X] Nitrogen Compounds
   a) [X] NO_x as NO_2 b) [ ] NH_3 c) [ ] Other (Identify)

4) [ ] Flourides 5) [ ] Acid Mist 6) [ ] Odor

7) [ ] Hydrocarbons 8) [ ] Volatile Organic Compounds

9) [ ] Other (Specify): _____

B. Raw Materials and Chemicals Used (Be Specific)

Description	Utilization Tons/day, lbs./day, etc.	Approximate Contaminant Content		Relate to Flow Diagram
		Type	% Wt.	
None				

C. Process Weight:

1) Total Process Weight Rate N/A lbs./hr. [See Sec. 17-2.04(2)]
2) Product Weight Electricity ~~lb./hr.~~ expressed as 130 Mw-hr/day
3) Normal Operating Time 2 hr/day; 7 days/wk, if seasonal describe: 365 days/yr
   Anticipated Peak operation - 10 hrs/day

D. Airborne Contaminants Discharged:

Name of Contaminant	Actual Discharge lb/MMBtu	Actual Discharge lb/day	Discharge Criteria*	Allowable Discharge*	Relate Location to Flow Diagram Fig. 3-C1
Sulfur Dioxide[1]	0.330	514	None	None	(2)
Fly Ash[2]	0.0110	17.1	None	None	(2)
Nitrogen Oxide[3]	1.67	2,960	None	None	(2)

* Refer to Chapter 17-2 Florida Administrative Code
(Discharge Criteria: Process Weight Rate, #/tonP_2O_5, #/M BTU/hr etc.)

1 - Based on total conversion of S (0.3%) in fuel to SO_2
2 - Consists of ash (.01%) from fuel plus an equal amount of unburnt carbon
3 - Based on an estimated maximum 350 ppm NO_x in exhaust gas

E. Control Devices:

Name	Eff.	Conditions of Operation, Particle Size Range, etc.	Relate to Flow Diagram
None			

F. Fuels:

Type (Be specific)	Daily Consumption	Heat Input BTU/hr.	Relate to Flow Diagram
No. 2 Fuel Oil (0.3% Sulfur)	8.56×10^4 lb/day (average)	7.8×10^8	(1)
No. 2 Fuel Oil (0.3% Sulfur)	4.28×10^5 lb/day*	7.8×10^8*	(1)

*Peak Conditions based on 10 hr operation at 65 Mw/hr

G. Describe briefly, without revealing trade secrets, the unit processes/operations generating the airborne emissions identified in this application:

Gas turbine (see flow sheet) utilizing No. 2 distillate fuel oil

H. Indicate liquid or solid wastes generated and method of disposal.

None

Additional Data Requested for Gas Turbines

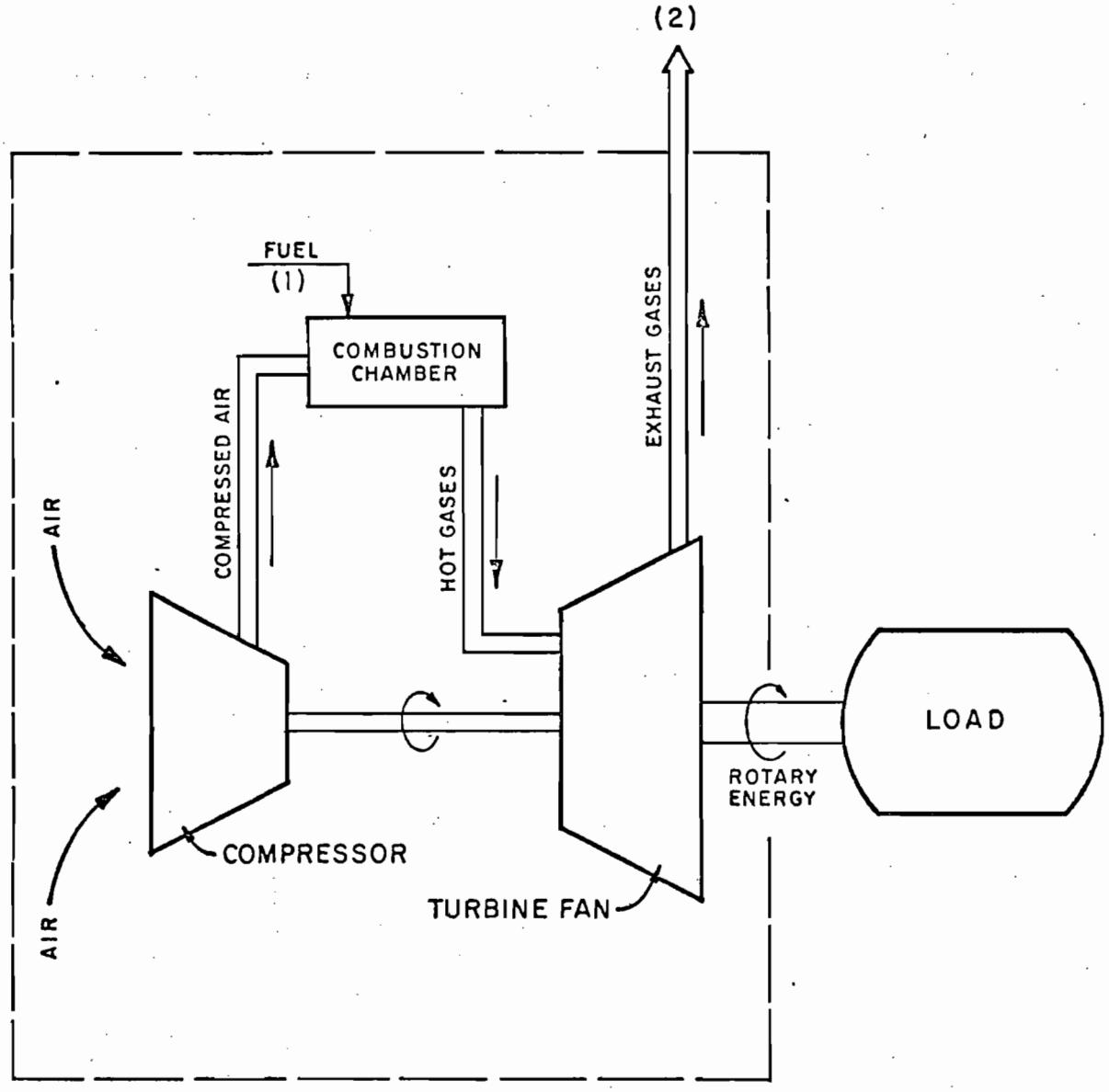
Stack Data:

1. Stack Height - 75 ft.
2. Stack Exit Area - 215.6 ft^2
3. Flue Gas Exit Temperature - 928 F
4. Flue Gas Volume - 1,503,000 cfm at 928 F
5. Flue Gas Exit Velocity - 116 fps

D. Airborne Contaminants Discharged: (continued)

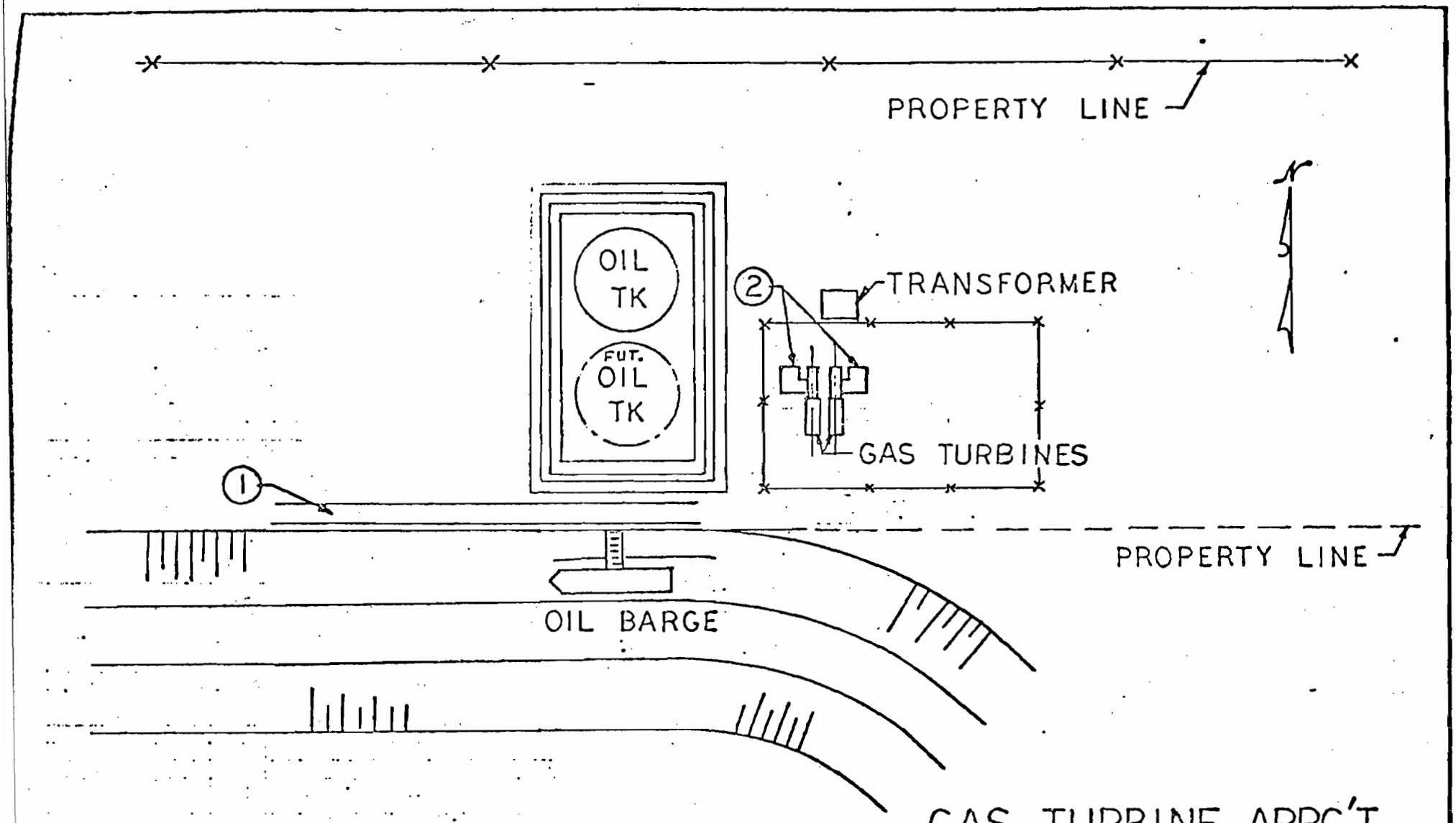
	Peak Discharge[4]	
	lb/MMBtu	lb/day
Sulfur Dioxide[1]	0.330	2570
Fly Ash[2]	0.0110	85.5
Nitrogen Oxide[3]	1.67	14800

1 - Based on total conversion of S (0.3%) in fuel to SO_2
2 - Consists of ash (.01%) from fuel plus an equal amount of unburnt carbon
3 - Based on an estimated maximum 350 ppm NO_x in exhaust gas
4 - Based on a peak condition of 10 hr/day, 65 Mw



SIMPLE CYCLE STATIONARY GAS TURBINE

FLOW DIAGRAM
EMISSION SOURCES
BIG BEND STATION - GAS TURBINES
TAMPA ELECTRIC COMPANY
STONE & WEBSTER ENGINEERING CORPORATION



LEGEND

NO. 1 — FUEL LINE AREA

NO. 2 — STACK

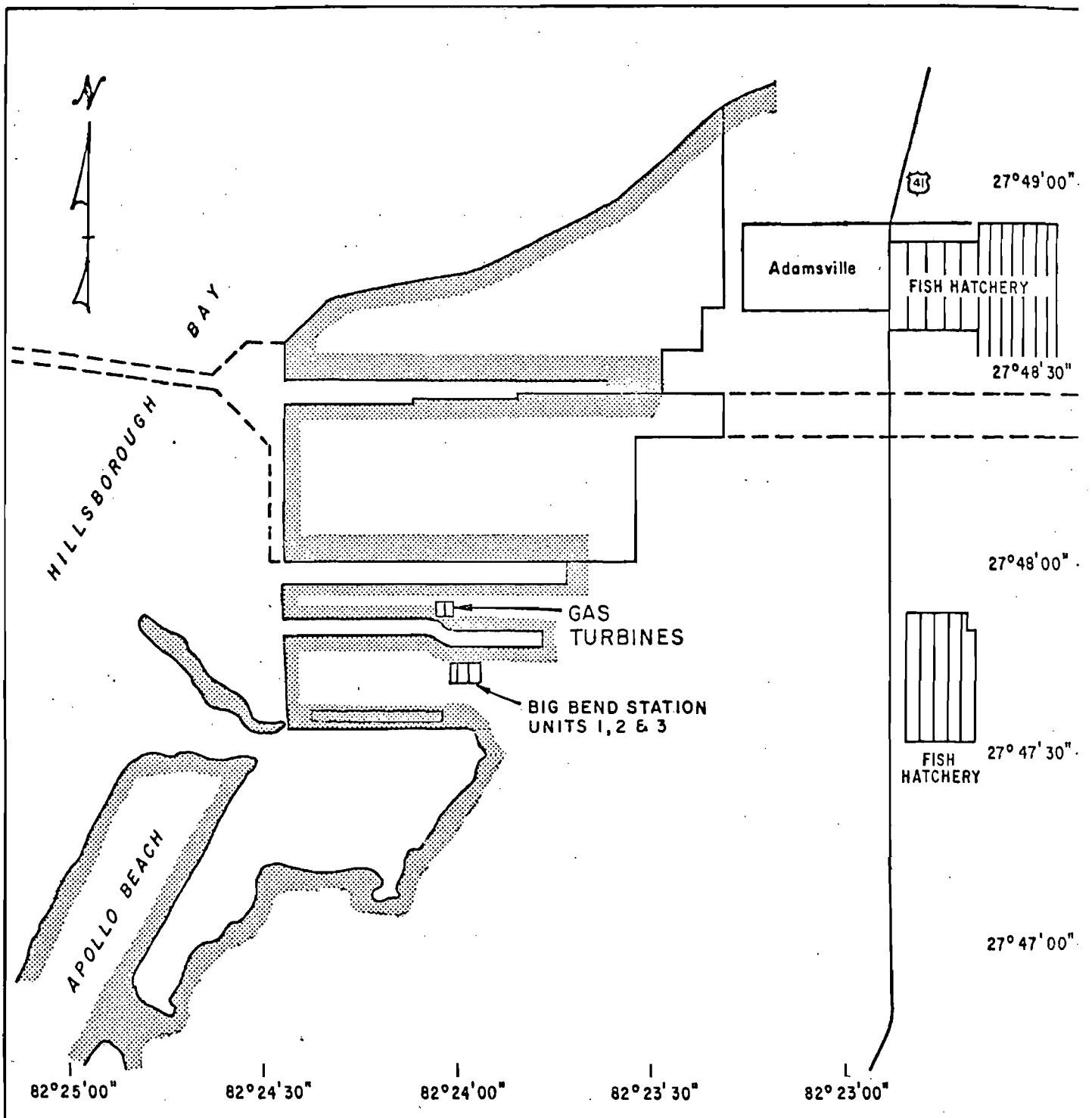
GAS TURBINE ARRG'T

BIG BEND STATION

TAMPA ELEC CO.

STONE & WEBSTER ENG CORP

3C-2



AREA MAP

STATION IN RELATION TO SURROUNDING AREA

BIG BEND STATION - GAS TURBINES

TAMPA ELECTRIC COMPANY

STONE & WEBSTER ENGINEERING CORPORATION

STATEMENTS BY APPLICANT AND ENGINEER

A. Applicant

The undersigned owner or authorized representative of * Tampa Electric Company is fully aware that the statements made in this application for a Constr. of Air Pollution Sources permit are true, correct and complete to the best of his knowledge and belief. Further, the undersigned agrees to maintain and operate the pollution source and pollution control facilities in such a manner as to comply with the provisions of Chapter 403 Florida Statutes and all the rules and regulations of the Department or revisions thereof. He also understands that a permit, if granted by the Department, will be non-transferable and he will promptly notify the Department upon sale or legal transfer of the permitted establishment.

Signature of the Owner or Authorized Representative

Alex Kaiser, Director, Power Plant Engr. & Envir. Planning

Name and Title (Please Type)

Date: August 16, 1973 Telephone No.: (813) 876-4111

* Attach a letter of authorization

B. Professional Engineer Registered in Florida:

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the control and discharge of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that the pollution source(s) with appropriate control facilities, when properly maintained and operated, will comply with all applicable statutes of the State of Florida and the rules and regulations of the Department. It is also agreed that the undersigned will furnish the applicant a set of instructions for the proper maintenance and operation of the installation covered in this application.

Signature William E. Hopkins

Name: William E. Hopkins
(please type)

Florida Registration Number 5831
(Please affix seal)

Mailing Address: Stone & Webster Engr. Corp.
P.O. Box 2325
Boston, Mass. 02107

Telephone No.: (617) 434-5449

Date: August 16, 1973

If applicant is a corporation, a Certificate of Good Standing must be submitted with application.

This may be obtained, for a $5.00 charge, from the Secretary of State, Bureau of Corporate Records, Tallahassee, Florida 32304.

TAMPA ELECTRIC

February 17, 2000

Mr. Jeffery F. Koerner, P.E.
New Source Review Section
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: Tampa Electric Company (TEC) – Big Bend Station
Inlet Air Fogging Addition to Existing Combustion Turbines (CT-2 and CT-3)
DEP File No. 0570039-006-AC

Dear Mr. Koerner:

Please find enclosed the original Affidavit of Publication from The Tampa Tribune, as required by 62-110.106(5), F.A.C. This public notice was published in the legal section of the Tampa Tribune on Saturday, February 5, 2000. If you have any questions, please feel free to telephone Shannon Todd or me at (813) 641-5125.

Sincerely,

Gregory M. Nelson, P.E.
Manager
Environmental Planning

EP\gm\SKT145

Enclosure

c: Mr. Tom Davis - ECT
Mr. Gregg Worley - EPA
Mr. Jerry Kissel - FDEP SW
Mr. Jerry Campbell – EPCHC
Mr. John Bunyak - NPS

TAMPA ELECTRIC COMPANY
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OUTSIDE HILLSBOROUGH COUNTY 1 (888) 223-0800

THE TAMPA TRIBUNE
Published Daily
Tampa, Hillsborough County, Florida

State of Florida }
County of Hillsborough } ss.

Before the undersigned authority personally appeared J. Rosenthal, who on oath says that she is Classified Billing Manager of The Tampa Tribune, a daily newspaper published at Tampa in Hillsborough County, Florida; that the attached copy of advertisement being a

LEGAL NOTICE

in the matter of

PUBLIC NOTICE OF INTENT

was published in said newspaper in the issues of

FEBRUARY 5, 2000

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

J. Rosenthal

Sworn to and subscribed be me, this 8 day

of FEBRUARY, A.D. 20 00

Personally Known ____ or Product Identification _____

Type of Identification Produced _____

(SEAL)

Susie Lee Slaton

OFFICIAL NOTARY SEAL
SUSIE LEE SLATON
COMMISSION NUMBER
CC639424
MY COMMISSION EXP.
APRIL 16, 2001

NOTARY PUBLIC ☆ STATE OF FLORIDA ☆

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT
STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP File No. 057039-006-AC

Tampa Electric Company
Big Bend Station
Hillsborough County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to the Tampa Electric Company for Big Bend Station located on Big Bend Road in North Ruskin, Hillsborough County, Florida. The applicant proposes to install an inlet air fogging system for the exsisting combustion turbines to provide evaporative cooling with a corresponding boost in power production. A Best Available Control Technology (BACT) determination was not required pursuant to the Rule 62-212.400, F.A.C. The applicant's mailing address is 6499 U.S. Highway 41 North, Apollo Beach, FL 33572-9200.

The applicant specifically requests limits on the operation of the fogging system that would establish this project as a minor modification in accordance with the Prevention of Significant Deterioration (PSD) of Air Quality program. Based on operation of the air fogging system limited to1365 hours during any consecutive 12 months, the total net potential pollutant emissions increases are summarized in the following table

Pollutant	Net Emissions Increase Tons/year	Significant Emissions Rate Tons/year	PSD Applies?
CO	9	100	No
NOx	38	40	No
PM/PM10	3/3	25/15	No
SO2	24	40	No
VOC	3	40	No

Based on the proposed Draft Permit, the Department determines that PSD does not apply to this modification. Because the project will not result in increased maximum power production, no increase in maximum hourly emissions is expected. Therefore, the project does not trigger NSPS applicability. The permit also restricts operation of each gas turbine to3650 hours during any consecutive 12 months. The previous limit for CT-2 was 10 hours per day and CT-3, although identical, appeared to have no similar limit. The new restriction on operation establishes each gas turbine as a peaking unit and is not likely, by itself, to increase future actual operation. An air quality impact analysis was not conducted. Emissions from the project will not consume PSD increment and will not significantly contribute to or cause a violation of any state or federal ambient air quality standards. The proposed project will not change any previous modeling demonstrations.

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

The Department will accept written comments concerning the proposed permit issuance action for a period of 14 (fourteen) days from the date of publication of this Public Notice of Intent to Issue Air Construction Permit. Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

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

Meditation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statues. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, FL 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any persons to file that petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by rule 28-106.301

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

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

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

Dept. of Environmental Protection
Southwest District Office
3804 Coconut Palm Drive
Tampa, Florida 33619-8318
Phone: 813/744-6100

Air Quality Division - Hillsborough
Environmental Protection Commission
1900 - 9th Avenue
Tampa, FL 33605
Phone: 813/272-5530

The complete project file includes the application, technical evaluations, Draft permit, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, New Source Review Section, or the Department's reviewing engineer for this project, Jeff Koerner, at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

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TAMPA ELECTRIC

February 4, 2000

Mr. Jeffery F. Koerner, P.E.
New Source Review Section
Florida Department of Environmental Protection
111 South Magnolia Dr., Ste. 4
Tallahassee, Florida 32301

Via FedEx
Airbill No. 7925 4404 0990

Re: Tampa Electric Company (TEC) – Big Bend Station
Inlet Air Fogging Addition to Existing Combustion Turbines (CT-2 and CT-3)
DEP File No. 0570039-006-AC

Dear Mr. Koerner:

On February 3, 2000, Tampa Electric Company received the Draft Air Construction Permit for the Big Bend Station inlet air fogging system addition to CT-2 and CT-3. After reviewing the Draft Permit, TEC offers the following comment:

TEC Comment:

In the permitting note on page four of the Draft Permit as well as paragraph one on page B-1 of Appendix B – Summary of the PSD Applicability Determination, the project is described as providing an increase in power production of approximately "2 to 5 MW." However, on Page TE-3 of the Technical Evaluation and Preliminary Determination, the project is described as providing an increase in power output of approximately "2 to 8 MW." Based on the permit application submitted by TEC, the correct description is the one found in the Technical Evaluation and Preliminary Determination. Therefore, TEC requests that the above referenced descriptions in the Draft Permit and Appendix B – Summary of the PSD Applicability Determination be changed to indicate a power increase of 2 to 8 MW.

Please let me know if you have any questions. You can contact Shannon Todd or me at (813) 641-5016.

Sincerely,

Gregory M. Nelson, P.E.
Manager
Environmental Planning

EP\gm\SKT141

c: Mr. Tom Davis - ECT
Mr. Greg Worley - EPA
Mr. Jerry Kissel - FDEP SW
Mr. Jerry Campbell – EPCHC
Mr. John Bunyak - NPS

TAMPA ELECTRIC COMPANY
P. O. BOX 111 TAMPA, FL 33601-0111

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