



**RECEIVED**

March 29, 1996

APR 01 1996

BUREAU OF  
AIR REGULATION

Mr. A.A. Linero, P.E., Administrator  
New Source Review Section  
Bureau of Air Regulations  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

Re: Cypress Cogeneration Company  
Combustion Turbine - 0250470-001-AC

Dear Mr. Linero:

KBN Engineering and Applied Sciences, Inc. (KBN), has reviewed the letter submitted to Mr. Leonard Shapiro, Cypress Cogeneration Company dated February 29, 1996, and has the following comments:

**Technical Evaluation**

**Page 2, Section I-C, Process and Controls**

- a. In the first sentence as follows, the proposed GE LM 2500 CT combustion turbine will operate in simple-cycle mode and use water injection to control NO<sub>x</sub> emissions.
- b. In the fifth sentence, the word "normal" should be "nominal" and the maximum heat input should be "174.7" MMBtu/hr.
- c. In the last sentence, the turbine is a minor emission source of sulfur dioxide, particulate matter, nitrogen oxides, carbon monoxide, and volatile organic compounds. (Eliminate beryllium and inorganic arsenic because they do not exist in natural gas.)

**Page 2, Section II**

- a. The second paragraph should read, "the application was received on December 4, 1995, and deemed complete on January 6, 1996."

**Page 3, Section II, Forth Paragraph**

- a. In the first sentence, remove the words "except ozone."
- b. In the second sentence, change the words "moderate nonattainment" to "maintenance" and "62-275.410" to "62-275.600."

KBN ENGINEERING AND APPLIED SCIENCES, INC.

6241 Northwest 23rd Street  
Suite 500  
Gainesville, Florida 32609-1500  
352-336-5600 FAX 352-336-6602

5402 West Cypress Street  
Suite 215  
Tampa, Florida 33607  
813-257-1717 FAX 813-267-1716

1301 Dim Moore Road, Suite 105  
Boca Raton, Florida 33487  
407-994-9910  
FAX 407-994-9993

1755 Baymeadows Way,  
Suite 101  
Jacksonville, Florida 32216  
904-739-6600 FAX 904-739-7777

1810 171 Street NW, Suite 310  
Washington DC 20036  
202-462-1100  
FAX 202-462-0270



The previous changes are necessary because, EPA redesignated this area (Dade County) in the Federal Register on February 14, 1995, effective on April 25, 1995.

Page 3. Section II. Seventh Paragraph

- a. Insert the following sentence at the end of this paragraph:

The project NO<sub>x</sub> emission rate is 0.155 lb/MMBtu and, therefore, complies with the RACT rule.

Page 4. Section III. Table

PM Visible emissions should be changed from "10%" to "20%."

CO The lbs/hr should be "57.4" to "57.7."

SO<sub>2</sub> Add a note under standard as follows:

Emissions are based on 1 grain/100 cf of natural gas.

PM<sub>10</sub> Visible emissions should be changed from "10%" to "20%."

In the note below the table, the maximum heat input should be changed from "174.1" to "174.7."

Draft Permit

Page 1. Second Paragraph

The word "county" should be capitalized "County," and the maximum heat input should be changed from "174.1" to "174.7."

Page 5. Specific Conditions

Propose changes as follows:

SC No 1.

The combustion turbine shall operate no more than 7,000 hours per year at the maximum heat input of 174.7 MMBtu/hr (184,672 cf/hr).

SC No 3.

The heat input to the combustion turbine shall not exceed 174.7 million Btu/hr (LHV).

SC No 4 through 14, renumber to 5 - 15.

SC No 5. Table

SO<sub>2</sub> Change the standard to "0.015% by volume sulfur in fuel (Natural Gas)."

CO Change the lb/hr from "57.4" to "57.7."

Mr. A.A. Linero  
March 29, 1996  
Page 3



SC No 6

The EPA method for CO is not specified. Specify as Method 10.

In addition, I have enclosed a marked-up copy showing where the above comments should be inserted.

If, in your review of the above items, you need further clarification, please call me at the Tampa KBN office at (813) 287-1717.

Sincerely,

Albert W. Morneault, P.E.  
Staff Engineer

AWM/vdp.1(1)

Attachments

xc: Mr. Leonard Shapiro, Cypress Cogeneration Company  
Mr. Edward Svec, FDEP  
Mr. Christopher Bodin, Dade County DERM  
15272-0300(2.1)

CC: I. Goldman, SED

## ATTACHMENTS



# Department of Environmental Protection

Lawton Chiles  
Governor

Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400  
February 29, 1996

Intent  
Permit  
3/1/96  
Virginia B. Wetherell  
Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Leonard Shapiro  
Project Manager  
Cypress Cogeneration Company  
2707 North Loop, 8th Floor  
Houston, Texas 77251

Re: Cypress Cogeneration Company  
Combustion Turbine - 0250470-001-AC

Dear Mr. Shapiro:

Enclosed is one copy of the Preliminary Determination and draft Air Construction Permit for the Dade County Government Center Cogeneration Facility Combustion Turbine located at Dade County Downtown Government Center, Miami, Florida 33128, Dade County is enclosed. The Department's Notice of Intent to Issue Air Construction Permit and the "Public Notice" are also included. The "Public Notice" must be published within 30 days of receipt of this letter.

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 address. If you have any other questions, please contact Edward Svec at (904)488-1344.

Sincerely,

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

CHF/ES/t

Enclosures

cc: I. Goldman, SED  
P. Wong, DERM

NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

In the Matter of an  
Application for Permit by:

Mr. Leonard Shapiro  
Project Manager  
Cypress Cogeneration Company  
2707 North Loop, 8th Floor  
Houston, Texas 77251

DRAFT Permit No.: 0250470-001-AC  
Dade County

---

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit (copy of DRAFT Permit enclosed) for the source detailed in the application specified above, for the reasons stated below.

The applicant, Cypress Cogeneration Company, applied on December 4, 1995 to the Department for a permit to construct for a combustion turbine located at the Dade County Downtown Government Center, Miami, Dade County, Florida 33128.

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 source is not exempt from permitting procedures. The Department has determined that an air construction permit is required at the described facility.

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

Pursuant to Sections 403.815 and 403.0872, F.S., and Rules 62-103.150 and 62-210.350(3), F.A.C., you (the applicant) are required to publish at your own expense the enclosed "Public Notice." The notice shall be published one time only within 30 (thirty) days in the legal advertisement section of a newspaper of general circulation in the area affected. 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. Where there is more than one newspaper of general circulation in the county, the newspaper used must be one with significant circulation in the area that may be affected by the permit. 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 2400 Blair Stone Road, Tallahassee, Florida 32399-2400 within 7 (seven) days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

The Department will issue the FINAL Permit, in accordance with the conditions of the enclosed DRAFT Permit 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 30 (thirty) days from the date of publication of the "Public Notice." Written comments should be provided to the Department's Bureau of Air Regulation at 2400 Blair Stone Road, Tallahassee, Florida 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in this DRAFT Permit, the Department shall issue a Revised DRAFT Permit and require, if applicable, another Public Notice.

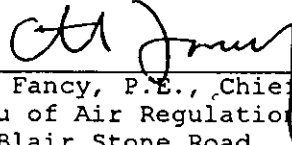
In addition, any persons whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000. Petitions filed by the permit applicant and the parties listed below must be filed within 14 (fourteen) days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of the receipt of this intent, whichever first occurs. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

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

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this DRAFT Permit. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above, and be filed (received) within 14 days of receipt of this intent in the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL PROTECTION

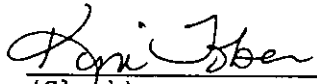


C. H. Fancy, P.E., Chief  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400  
(904)488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF INTENT TO ISSUE PERMIT and all copies were mailed before the close of business on 3-1-96 to the listed persons.

Clerk Stamp  
FILING AND ACKNOWLEDGMENT FILED, on  
this date, pursuant to Section 120.  
§52(11), F.S., with the designated  
Department Clerk, receipt of which is  
hereby acknowledged.

 3-1-96  
(Clerk) (Date)

Copies furnished to:  
I. Goldman, SED  
P. Wong, DERM



STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

DRAFT Permit No.: 0250470-001-AC  
Dade County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to Cypress Cogeneration Company for the construction of a combustion turbine located at the Dade County Government Center, Miami, Dade County, Florida 33128. A Best Achievable Control Technology (BACT) determination was not required. The applicant's name and address are: Mr. Leonard Shapiro, Project Manager, Cypress Cogeneration Company, 2707 North Loop, 8th Floor, Houston, Texas 77251.

The Department will issue the FINAL Permit, in accordance with the conditions of the enclosed DRAFT Permit 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 DRAFT Permit issuance action for a period of 30 (thirty) days from the date of publication of this Notice. Written comments should be provided to Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in this DRAFT Permit, the Department shall issue a Revised DRAFT Permit and require, if applicable, another Public Notice.

In addition, any person whose substantial interests are affected by this proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes (FS). The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000 within 14 (fourteen) days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

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

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this DRAFT Permit. Persons whose

substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this notice, in the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000. Failure to petition within the allotted time frame constitutes a waiver of any rights such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, Florida Administrative Code.

A 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 Dade County Department of Environmental Resources Management, 33 Southwest Second Avenue, Suite 900, Miami, Florida 33130-1540 and the Department of Environmental Protection, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. The complete project file includes the Draft Permit, the application, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact Edward J. Svec at the Department's address and at (904)488-1344 for additional information.

**Technical Evaluation  
and  
Preliminary Determination**

**Cypress Cogeneration Company  
Dade County  
Miami, Florida**

**Construction Permit Number  
0250470-001-AC**

**Department of Environmental Protection  
Division of Air Resources Management  
Bureau of Air Regulation**

**March 1, 1996**

I. Application

A. Applicant and Address

Cypress Cogeneration Company  
2707 North Loop, 8th Floor  
Houston, Texas 77251

B. Project and Location

The applicant intends to install and operate a combustion turbine at the Dade County Downtown Government Center in Miami, Dade County, Florida. The combustion turbine, a GE LM 2500 CT unit, will be capable of generating approximately 17.1 megawatts of electricity. The power generated will be used to comply with the requirements of existing power purchase agreements with Florida Power & Light Company and Dade County. The UTM coordinates of the project are Zone 17, 580.5 km East and 2850.9 km North.

C. Process and Controls

*to control NOx emissions*

The proposed GE LM 2500 CT combustion turbine will operate in simple-cycle mode and ~~will be an advanced dry low NOx unit~~. The other components of the unit are a compressed gas skid, a water injection skid and step-up transformers. The unit will burn <sup>nominal</sup> natural gas as the primary fuel. No backup fuel has been proposed. The proposed unit will have a <sup>nominal</sup> electrical output of 17.1 MW and a maximum heat input of <sup>174.7</sup> MMBtu/hr at average ambient conditions. The turbine is a minor emission source of sulfur dioxide, particulate matter, nitrogen oxides, carbon monoxide, volatile organic compounds, ~~beryllium, and inorganic arsenic~~. <sup>use water injection</sup> <sup>and</sup>

D. SIC and SCC

1. The Standard Industrial Code is:

o 4911: Electric Services

2. The Source Classification Code is:

o Internal Combustion - Electric Generation 2-01-002-01 10<sup>6</sup> cubic feet natural gas burned (turbine)

II. Rule Applicability

The proposed project is subject to preconstruction review in accordance with Chapter 403, Florida Statutes, Florida Administrative Code (F.A.C.) Chapters 62-210, 62-212, and 62-296 and 40 CFR (July 1994 version).

The application package was deemed complete on <sup>received on December 4, 1995 and</sup> ~~December 4, 1995~~ <sup>January 6, 1996.</sup>

The existing facility is a major facility (emits 100 tons per year or more of any pollutant) for nitrogen oxides and carbon monoxide pursuant to F.A.C. Rule 62-296.200 (106) Definitions.

The facility is located in Dade County which is an area designated as attainment for all pollutants ~~except ozone~~ pursuant to F.A.C. Rule 62-275.400. Dade County is designated as a ~~moderate nonattainment~~ area for the air pollutant ozone pursuant to F.A.C. Rule 62-275.410-  
*maintenance* *.600*

The following table exhibits the net potential / allowable pollutant emissions from the proposed project in tons per year (TPY):

Table 1

Source	Net Potential / Allowable Pollutant Emissions (TPY)					
	PM	NO <sub>x</sub>	CO	VOC	SO <sub>2</sub>	PM <sub>10</sub>
Turbine:	10.5	104.7	202.1	25.6	1.8	10.5

Note: Potential Annual Allowable Emissions are based on an actual annual use limit of 7,000 hours per year at maximum capacity as proposed by the applicant.

Since the facility category is not listed in Table 212.400-1 Major Facility Categories, the current permitted allowable emissions for any pollutant are less than 250 TPY and the potential emissions of any pollutant are less than 250 TPY, the proposed project is considered a minor modification to a minor facility and is exempted from the preconstruction review requirements of F.A.C. Rule 62-212. However the proposed project is subject to the requirements of F.A.C. Rule 62-296 Stationary Sources - Emission Standards and the Federal Standards of Performance for New Stationary Sources (NSPS) 40 CFR 60 Subpart GG Standards of Performance for Stationary Gas Turbines.

F.A.C. Rule 62-296.500(1)(b) requires that major NO<sub>x</sub> (greater than or equal to 100 TPY) in Dade County are subject to the Reasonably Available Control Technology (RACT) rules in F.A.C. Rule 62-296-570. This rule requires annual emissions tests for units not equipped with a continuous emission monitoring system and limits the NO<sub>x</sub> emissions from any gas turbine to 0.50 pounds per million Btu while firing natural gas. *The project NO<sub>x</sub> emission rate is 0.155 lb/MMBtu and, therefore, complies with the RACT rule.*

40 CFR 60.330 Subpart GG Standards of Performance for Stationary Gas Turbines, adopted by reference in F.A.C. Rule 62-296.800, applies to the proposed gas turbine because its heat input exceeds 10 million Btu and greater than one third of the electric output will be sold to a utility power distribution system. The NSPS limits the emissions of NO<sub>x</sub> from the proposed gas turbine to 100.3 PPM dry basis corrected to 15% oxygen, SO<sub>2</sub> to 0.015% by volume dry basis at 15% oxygen and the sulfur content of the fuel to no more than 0.8% by weight. Additionally, since water injection is proposed to control NO<sub>x</sub>, the fuel consumption and water to fuel ratio must be continuously monitored.

Initial and annual nitrogen oxides, sulfur dioxide and oxygen concentrations compliance tests shall be conducted using EPA Method 20 pursuant to F.A.C. Rule 62-297 and 40 CFR 60, Appendix A.

Initial and annual carbon monoxide emissions compliance tests shall be conducted using EPA Method 10 as requested by the applicant and pursuant to F.A.C. Rule 62-297 and 40 CFR 60, Appendix A.

Visible emissions shall be less than 20% opacity, pursuant to F.A.C. Rule 62-296.310(2)(a). Initial and annual compliance tests shall be conducted using EPA Method 9 pursuant to F.A.C. Rule 62-297 and 40 CFR 60, Appendix A.

The proposed project is subject to the provisions of F.A.C. Rules 62-210.650: Circumvention and 62-210.700: Excess Emissions.

### III. Summary of Emissions

The proposed project will have allowable emission limits and standards for the pollutants PM, NO<sub>x</sub>, CO, VOC, SO<sub>2</sub>, and PM<sub>10</sub>. The maximum allowable emissions from the proposed gas turbine shall not exceed the following limits except during periods of startup, shutdown and malfunction pursuant to F.A.C. Rule 62-210.700. The emission limits are based on the applicant's request and vendor specifications provided to the Department.

#### MAXIMUM ALLOWABLE EMISSION LIMITS

<u>Pollutant</u>	<u>Standard</u>	<u>Lbs/Hr</u>	<u>TPY</u>
PM	Good combustion; visible emissions shall not exceed <del>10%</del> opacity <i>20%</i>	3.0	10.5
NO <sub>x</sub>	42 ppmvd @ 15% Oxygen	29.9	104.7
CO	Good Combustion	57.4 <sup>7</sup>	202.1
VOC	Good Combustion and not exceed CO limits	7.31	25.6
SO <sub>2</sub>	0.015% by volume dry basis @ 15% Oxygen <i>Based on 1 gram / 100 cf natural gas.</i>	0.53	1.8
PM <sub>10</sub>	Good combustion; visible emissions shall not exceed <del>10%</del> opacity <i>20%</i>	3.0	10.5

These values are calculated using 7,000 hours of operation, a maximum heat input of 174.7<sup>7</sup> MMBtu/hr, and a flow of 99,978 dscfm.

### B. Ambient Air Quality Analysis

Based on a review of the proposed project, an air quality analysis was not required.

### IV. Conclusion

Based on the information provided by Cypress Cogeneration Company, The Department has reasonable assurance that the modification of the facility by installing the proposed gas turbine, as described in this evaluation, and subject to the conditions proposed herein, will not cause or contribute to a violation of any air quality standard, PSD increment, or any other technical provision of Chapter 62-212 of the Florida Administrative Code.



# Department of Environmental Protection

Lawton Chiles  
Governor

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

Not signed  
Virginia B. Wetherell  
Secretary

**Permittee:**  
Cypress Cogeneration Company  
2702 North Loop, 8th Floor  
Houston, Texas 77251

**Permit Number:** 0250470-001-AC  
**Expiration Date:** 12/31/96  
**County:** Dade  
**Latitude/Longitude:** 25°46'32"  
80°11'50"  
**Project:** GE LM 2500 CT  
Combustion Turbine

This permit is issued under the provision of Chapter 403, Florida Statutes (F.S.), and Chapters 62-4 and 62-212, Florida Administrative Code (F.A.C.). The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto and specifically described as follows:

For modification of the existing facility by installing a GE LM 2500 CT combustion turbine located at the Dade County Downtown Government Center in Miami, Dade County, Florida. The UTM coordinates of the site are Zone 17, 580.5 km E and 2850.9 km N. The combustion turbine will burn only natural gas, have a maximum heat input of 174.2 million Btu per hour and be capable of generating 17.1 megawatts of electric power.

174.7  
The emission units shall be constructed (modified) in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachment listed below:

1. Application received December 4, 1995.

**PERMITTEE:**  
Cypress Cogeneration Company

**PERMIT NUMBER: 0250470-001-AC**

**GENERAL CONDITIONS:**

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, F.S. 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.
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, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in Subsections 403.087(6) and 403.722(5), F.S., the issuance of this permit does not convey any 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 of 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.
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.
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 F.S. and Department rules, unless specifically authorized by an order from the Department.
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.



**PERMITTEE:**  
Cypress Cogeneration Company

**PERMIT NUMBER: 0250470-001-AC**

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 any 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.

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.

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

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

PERMITTEE:  
Cypress Cogeneration Company

PERMIT NUMBER: 0250470-001-AC

11. This permit is transferable only upon Department approval in accordance with Rules 62-4.120 and 62-30.300, 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.

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

13. This permit also constitutes:

- ( ) Determination of Best Available Control Technology (BACT)
- ( ) Determination of Prevention of Significant Deterioration (PSD)
- (X) Compliance with New Source Performance Standards (NSPS)

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 for 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:

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

PERMITTEE:  
Cypress Cogeneration Company

PERMIT NUMBER: 0250470-001-AC

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.

**SPECIFIC CONDITIONS:**

1. The combustion turbine shall operate no more than 7,000 hours per year, as requested by the permittee.

2. The combustion turbine shall burn only natural gas. <sup>at the maximum heat input rate of 174.7 MM Btu/hr (184,672 cf/hr).</sup>

3. The heat input to the combustion turbine shall not exceed 174.1 million Btu per hour (LHV).

4. The permittee shall comply with all applicable requirements in 40 CFR 60, Subpart GG- Standards of Performance for Stationary Gas Turbines.

5. Maximum emissions from the combustion turbine shall not exceed any of the following:

Pollutant	Emission Standard	lbs/hr	TPY
SO <sub>2</sub>	<del>0.8% by weight sulfur in fuel</del> <sup>0.015% by volume</sup> sulfur in fuel (Natural Gas)	0.53	1.8
NO <sub>x</sub>	42 ppmvd @ 15% O <sub>2</sub>	29.9	104.7
CO	Good combustion	57.47	202.1
VOC	Good combustion and not exceed the CO limits	7.31	25.6

Visible emissions shall not exceed 20 percent opacity, F.A.C. Rule 62-296.310(2)(a).

6. Initial and annual compliance tests for NO<sub>x</sub> shall be conducted using EPA Method 20 in accordance with F.A.C. Rule 62-297 and 40 CFR 60 Appendix A.

7. Initial and annual compliance tests for CO shall be conducted using EPA Method <sup>10</sup> in accordance with F.A.C. Rule 62-297 and 40 CFR 60 Appendix A.

8. Initial and annual compliance tests for visible emissions shall be conducted using EPA Method 9 in accordance with F.A.C. Rule 62-297 and 40 CFR 60 Appendix A.

PERMITTEE:  
Cypress Cogeneration Company

PERMIT NUMBER: 0250470-001-AC

- 9 8. Initial and annual compliance with the SO<sub>2</sub> limits and the fuel sulfur content will be determined through fuel analysis in accordance with 40 CFR 60.335.
- 10 9. The unit will be assumed to be in compliance with the VOC standard provided the CO emissions are met.
- 11 10. The compliance test reports shall be submitted to the Department's Southeast District office and Dade County Department of Environmental Management within 45 days of completion of the last test run.
- 12 11. The Department's Southeast District office and Dade County Department of Environmental Management shall be notified in writing at least 15 days in advance of any emission test required by this permit. Testing of emissions shall be conducted with the source operating at capacity. Capacity is defined as 95-100 percent of the manufacturer's rated heat input achievable for the average ambient (or conditioned) air temperature during the test. If it is impracticable to test at capacity, then sources may be tested at less than capacity. In such cases, the entire heat input vs. inlet temperature curve will be adjusted by the increment equal to the difference between the design heat input value and 105 percent of the value reached during the test. Data, curves, and calculations necessary to demonstrate the heat input rate correction at both design and test conditions shall be submitted to the Department with the compliance test report.
- 13 12. An annual operation report shall be submitted to the Department's Southeast District office and Dade County Department of Environmental Management by March 1 of each year pursuant to Rule 62-210.370(2), F.A.C.
- 14 13. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Department's Bureau of Air Regulation prior to 60 days before the expiration of the permit (Rule 62-4.090, F.A.C.).
- 15 14. An Application for an operation permit must be submitted to the Department's Southeast District office and Dade County Department of Environmental Management at least 90 days prior to the expiration date of this construction permit. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed while noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

**PERMITTEE:**  
**Cypress Cogeneration Company**

**PERMIT NUMBER: 0250470-001-AC**

**STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL PROTECTION**

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Howard L. Rhodes, Director  
Division of Air Resources  
Management



RECEIVED

MAR 14 1996

STORAGE TANK  
REGULATION

March 11, 1996

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

Re: Application for Permit to Construct an Air Pollution Source  
Project No. 0250470, DERM No. P-1348  
Cypress Energy Cogeneration Plant  
Dade County Government Center

Dear Mr. Svec:

In regard to the concerns of the Dade County Department of Environmental Resources Management (DERM) in its letter dated January 22, 1996, KBN Engineering and Applied Sciences, Inc (KBN), has performed an air dispersion model of the proposed stack for the LM 2500 combustion turbine unit.

The analysis was performed for a new stack height of 60 feet (ft) in lieu of the 40 ft height originally proposed. In the attached report, the model study shows that the maximum concentrations due to the project, with a 60 ft stack both by itself and together with other sources, are predicted to comply with all applicable AAQS and PSD increments.

KBN is requesting that a new stack height of 60 ft be evaluated instead of the original stack height.

If you have any questions, please contact me or Mr. Richard Zwolak in the KBN Tampa office at (813) 287-1717.

Sincerely,

Albert W. Morneault, P.E.  
Staff Engineer

*for*

Richard A. Zwolak, AICP  
Principal Environmental Planner

RAZ:AWM/vdp.1(1)

Attachment

cc: Mr. Kennard Kosky, P.E.  
Mr. Christopher Bodin, Dade County DERM  
15272-0300(2.4)

KBN ENGINEERING AND APPLIED SCIENCES, INC.

*CO - 57.4#/hr  
202.1 tpy  
operating capacity  
comment  
A - minimum heat*

6241 Northwest 23rd Street  
Suite 500  
Gainesville, Florida 32653-1500  
352-336-5600 FAX 352-336-6603

5405 West Cypress Street  
Suite 215  
Tampa, Florida 33607  
813-287-1717 FAX 813-287-1716

1801 Clint Moore Road, Suite 105  
Boca Raton, Florida 33487  
407-994-9910  
FAX 407-994-9393

7785 Baymeadows Way  
Suite 105  
Jacksonville, Florida 32256  
904-739-5600 FAX 904-739-7777

1616 'P' Street NW, Suite 350  
Washington, DC 20036  
202-462-1100  
FAX 202-462-2270

**Dade County Cogeneration Project  
LM 2500 Combustion Turbine  
Air Quality Impact Analyses**

**OBJECTIVES**

Air quality impact analyses have been performed for the Dade County Cogeneration Project to assure the Florida Department of Environmental Protection (FDEP) that the project's impacts will comply with ambient air quality standards (AAQS) and Prevention of Significant Deterioration (PSD) increments. A complete description of the project is presented in the "Application to Construct an Air Pollution Source, Dade County Government Center, Miami, Florida," November 1995. As noted in the air construction permit application, Cypress Energy Company is proposing to install a temporary combustion turbine, GE LM 2500 CT, to provide 17.1 MW of supplemental power to the network prior to removal and reconstruction of the existing Rolls-Royce CT unit. Based on maximum potential emissions, the project is considered a minor modification of a facility that is classified as minor source and does not require PSD review. However, the FDEP shall not permit the construction or modification of any emission unit or facility that would cause or contribute to a violation of any ambient air quality standard [Rule 62-212.300(1), Florida Administrative Code (F.A.C.)]. Because the proposed stack height is lower than nearby buildings, air quality impact analyses were conducted to address the project's impacts for comparison to ambient air quality standards.

**ASSUMPTIONS**

The air quality modeling analyses were based on the following assumptions and methods that are recommended for use by FDEP and applicable to this project:

1. Concentrations were predicted following the technical air modeling assumptions and methods recommendations by FDEP as provided by EPA in "Guideline to Air Quality Models (Revised)," 1995. These concentrations were predicted using the latest version of the Industrial Source Complex Short-Term Model (ISCST3), Version 95250, approved for use by FDEP to address impacts from sources such as combustion turbines.
2. Maximum concentrations for each pollutant and applicable averaging time were predicted using 5 years of meteorological data from the National Weather Service (NWS) station in Miami. The data from this station are recommended for use by FDEP to address impacts from sources located in Dade County.
3. Land use around project site can be classified as urban since there is significant commercial, industrial, and residential development within 3 km of the project site. As a result, the urban mode option in the model was selected to predict impacts.
4. Emission, operating, and stack data used in the modeling analysis are presented in the air construction permit application;
5. Stack height for the proposed combustion turbine was modeled at a height of 60 ft (a slight change from the height presented in the air construction permit application).
6. Building downwash effects were included; the existing turbine building is the main building to affect downwash calculation with building height, length, and width of 120, 114, and 80 ft, respectively.
7. Annual impacts were based on 7,000 hours of operation in a year (maximum hours of operation in permit application).
8. Maximum NO<sub>2</sub> concentrations were based on the assumption that 75 percent of predicted NO<sub>x</sub> concentrations in the modeling analyses are NO<sub>2</sub> concentrations since the AAQS is established for NO<sub>2</sub> [following recommended procedures in EPA's "Guideline to Air Quality Models (Revised)", 1995].
9. Total air quality impacts were estimated by adding the project's impacts to a background concentration obtained from monitoring data.

## SUMMARY OF IMPACTS

A summary of the maximum impacts due to the project alone is presented in Tables 1 and 2. The results in Table 1 compare the project's impacts to significant impact levels. The results presented in this table are the highest concentrations predicted for all averaging periods. If a project's impacts are less than significant, no additional analyses are required and a source is presumed to comply with ambient standards. If a project's impacts are greater than significant impact levels, then additional analyses may be needed to determine if the project will interfere with compliance with the ambient standards.

Based on the results presented in Table 1, the project's impacts are predicted to be:

1. Less than significant impact levels for SO<sub>2</sub> and CO (1-hour average);
2. Greater than the significant impact levels for NO<sub>2</sub>, PM, and CO (8-hour average).

As a result, more analyses were performed for all pollutants to determine compliance with ambient standards, even though the project's impacts were less than significant for SO<sub>2</sub> and CO (1-hour average).

From the results presented in Table 2, the predicted impacts from the project alone are predicted to be lower than PSD Class II increments and AAQS. The results presented in this table are the highest concentrations predicted for the annual averaging period and highest, second-highest concentrations for a 24-hour averaging period or less. Because there are a limited number of PSD sources that could interact with the project and the proposed source will be temporary (i.e., 7,000 hours or less), no additional analyses were performed since the project's impacts with those from other sources are expected to comply with PSD Class II increments.

To address compliance with AAQS, total air quality impacts were estimated by adding the project's impacts to a background concentration that was estimated from ambient air quality data. The data were obtained from FDEP and are based on the highest observed concentrations from about five monitors in Dade County (for SO<sub>2</sub>, one monitor in Broward County was used since there are no monitors in Dade County that measure SO<sub>2</sub> concentrations). These results, which are summarized in Table 3, show that the project will comply with AAQS.

Based on these results, the maximum concentrations due to the project by itself and together with other sources are predicted to comply with all applicable AAQS and PSD increments.



Table 1. Summary of Maximum Air Quality Impacts Due to the Dade County Cogeneration Project Alone (60 ft stack, urban), LM 2500 Combustion Turbine—comparison to PSD Class II Significant Impact Levels

Pollutant	Emission Rate (lb/hr) <sup>a</sup>	Averaging Period	Maximum Predicted Concentration (ug/m <sup>3</sup> ) <sup>b</sup>	Significant Impact Level (ug/m <sup>3</sup> )
Generic	7.94	1-hour	110.5	NA
		3-hour	103.3	NA
		8-hour	79.3	NA
		24-hour	58.2	NA
		Annual	6.88	NA
Carbon Monoxide	57.7	1-hour	803	2,000
		8-hour	577	500
Nitrogen Dioxide	29.9	Annual	19.4 <sup>c</sup>	1
Sulfur Dioxide	0.53	3-hour	6.9	25
		24-hour	3.89	5
		Annual	0.46	1
Particulate Matter (PM10)	3.0	24-hour	22.0	5
		Annual	2.60	1

<sup>a</sup> For short-term and annual average periods, maximum emissions are based on firing natural gas for base-load operating conditions. For annual average, maximum emissions are based on the short-term average emissions and 7,000 hours of operation per year.

<sup>b</sup> Highest concentration predicted for all averaging periods.

<sup>c</sup> Includes NO<sub>2</sub>/NO<sub>x</sub> ratio of 0.75 based on recommendations from EPA's Guideline on Air Quality Models (1995).

Table 2. Summary of Maximum Air Quality Impacts Due to the Dade County Cogeneration Project Alone (60 ft stack, urban), LM 2500 Combustion Turbine—comparison to PSD Class II Increments and Ambient Air Quality Standards

Pollutant	Emission Rate (lb/hr) <sup>a</sup>	Averaging Period	Maximum Predicted Concentration (ug/m <sup>3</sup> ) <sup>b</sup>	PSD Class II Increment (ug/m <sup>3</sup> )	Ambient Air Quality Standard (ug/m <sup>3</sup> )
Generic	7.94	1-hour	110.5	NA	NA
		3-hour	98.6	NA	NA
		8-hour	74.7	NA	NA
		24-hour	51.0	NA	NA
		Annual	6.88	NA	NA
Carbon Monoxide	57.7	1-hour	803	NA	40,000
		8-hour	543	NA	10,000
Nitrogen Dioxide	29.9	Annual	19.4 <sup>c</sup>	25	100
Sulfur Dioxide	0.53	3-hour	6.58	512	1,300
		24-hour	3.41	91	260
		Annual	0.46	20	60
Particulate Matter (PM10)	3.0	24-hour	19.3	30	150
		Annual	2.60	15	50

<sup>a</sup> For short-term and annual average periods, maximum emissions are based on firing natural gas for base-load operating conditions. For annual average, maximum emissions are based on the short-term average emissions and 7,000 hours of operation per year.

<sup>b</sup> Highest concentration predicted for the annual averaging period; highest, second-highest concentration for the short-term (24 hours or less) averaging periods.

<sup>c</sup> Includes NO<sub>2</sub>/NO<sub>x</sub> ratio of 0.75 based on recommendations from EPA's Guideline on Air Quality Models (1995).

Table 3. Summary of Maximum Total Air Quality Impacts Due to the Dade County Cogeneration Project (60 ft stack, urban) and Background Concentrations—comparison to Ambient Air Quality Standards

Pollutant	Emission Rate (lb/hr) <sup>a</sup>	Averaging Period	Concentration (ug/m <sup>3</sup> )			Ambient Air Quality Standard (ug/m <sup>3</sup> )
			Maximum Predicted due to Project <sup>b</sup> (a)	Back-ground <sup>d</sup> (b)	Total (a + b)	
Generic	7.94	1-hour	110.5	NA	NA	NA
		3-hour	98.6	NA	NA	NA
		8-hour	74.7	NA	NA	NA
		24-hour	51.0	NA	NA	NA
		Annual	6.88	NA	NA	NA
Carbon Monoxide	57.7	1-hour	803	14,950	15,753	40,000
		8-hour	543	8,050	8,593	10,000
Nitrogen Dioxide	29.9	Annual	19.4 <sup>c</sup>	27	46.4	100
Sulfur Dioxide	0.53	3-hour	6.58	159	166	1,300
		24-hour	3.41	39	42.4	260
		Annual	0.46	5	5.5	60
Particulate Matter (PM10)	3	24-hour	19.3	79	98.3	150
		Annual	2.60	27	29.6	50

<sup>a</sup> For short-term and annual average periods, maximum emissions are based on firing natural gas for base-load operating conditions. For annual average, maximum emissions are based on the short-term average emissions and 7,000 hours of operation per year.

<sup>b</sup> Highest concentration predicted for the annual averaging period; highest, second-highest concentration for the short-term (24 hours or less) averaging periods.

<sup>c</sup> Includes NO<sub>2</sub>/NO<sub>x</sub> ratio of 0.75 based on recommendations from EPA's Guideline on Air Quality Models (1995).

<sup>d</sup> Based on the highest concentrations measured at ambient monitoring stations in Dade County (except SO<sub>2</sub> data from Broward County) as reported by FDEP, 1994.

METROPOLITAN DADE COUNTY, FLORIDA



ENVIRONMENTAL RESOURCES MANAGEMENT  
ENVIRONMENTAL MONITORING DIVISION  
SUITE 900  
33 S.W. 2nd AVENUE  
MIAMI, FLORIDA 33130-1540  
(305) 372-6925

January 22, 1996

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

RE: Application for Permit to Construct an Air Pollution Source  
Project # 0250470, DERM P-1348

Applicant: Cypress Cogeneration Company

Location: Dade Cnty. Gov. Cntr. Cogen. Plant  
Downtown Miami; NW 3rd Ave & NW 2nd ST  
Miami, Florida 33128


Pollution Source: Gas Fired, Combustion Turbine, LM2500

Pollution Control Device: None

Dear Mr. Svec

The referenced application has reviewed and has been disapproved for the following reason.

- The proposed stack height of 40' and location of the emission unit will preclude diffusion of exhaust pollutants. Exhaust stacks are required to be a minimum 3' above any roof elevation within a 25' radius.

Sincerely,  
  
Christopher Bodin, Engineer  
Air Section, DERM

cc: Kennard F. Kosky P.E.

**RECEIVED**  
JAN 26 1996  
BUREAU OF  
AIR REGULATION

FAC 62-296.570 Reasonably Available Control  
Technology Requirements for Major VOC and  
NO<sub>x</sub> Emitting Facilities

- 1.) Without CEM, annual compliance test  
required, with CEM - 30 day rolling average
- 2.) NO<sub>x</sub> from gas turbine shall not exceed  
0.50 lb/MM Btu while firing natural gas  
62-296.200 Definitions
- 3.) Major Facility emits 100 Tpy any pollutant  
62-256.200 (106)

62-256.500 RACT VOC & NO<sub>x</sub> emitting Facilities

H.) Major NO<sub>x</sub> source in Dade County is subject to  
RACT rules in 62-296.570

62-212.300 General Preconstruction Review Requirements

62-210.370 (3)(a) 3. requires annual operating reports

Guidance document DARM-EM-05 on Testing Conditions

## 40 CFR 60.330 Subpart GG Standards of Performance for Stationary Gas Turbines

- 1.) Applies to g.t.  $\geq 10$  MM Btu input
- 2.) Electric utility stationary gas turbine -  $> 1/3$  electric output for sale to utility power distribution system.
- 3.) If heat input  $> 100$  MM Btu/hr & electric utility stationary gas turbine,  $STD = 0.0075 \frac{14.4}{F} + F$  for  $NO_x$
- 4.)  $SO_2$  emissions not exceed 0.015% by volume @ 15%  $O_2$  and on a dry basis & no fuel excess of 0.8% by weight sulfur
- 5.) If using water injection to control  $NO_x$  must monitor fuel consumption and water to fuel ratio continuously
- 6.) monitor sulfur and nitrogen content of fuel