STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF PERMIT

In the Matter of an
Application for Permit by:

Mr. William Mack, Sr., Managing Director
El Paso Merchant Energy Company
1001 Louisiana Street
Houston, Texas 77002

DEP File No. 0112545-001-AC (PSD-316)
Broward Energy Center
Broward County

/

Enclosed is the Final Permit Number 0112545-001-AC (PSD-FL-316) to construct a 775 MW Power Plant called the Broward Energy Center in Broward County. This permit is issued pursuant to Chapter 403, Florida Statutes, the Stipulation of Settlement and Notice of Voluntary Dismissal filed with the Department of Administrative Hearings (DOAH) dated May 1, 2002 and the Order Closing Files issued by Administrative Judge J. Lawrence Johnston on May 6, 2002.

Any party to this order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, F.S., by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Legal Office; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 (thirty) days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

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

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF FINAL PERMIT (including the FINAL permit, the Stipulation of Settlement and Notice of Voluntary Dismissal and the Order Closing Files) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 5/15/02 to the person(s) listed:

William Mack, El Paso*
Gregg Worley, EPA
John Bunyak, NPS
Tom Davis, P.E.., ECT
Melissa Meeker, DEP SED
Daniella Banu Broward County DPEP*
Chair, Broward County BCC*
Jason Hand, DEP
Eugene Steinfeld, City of Margate*
Mayor, Pompano Beach*
Mayor, Deerfield Beach*
John Hearn, City of Coral Springs*
Kerry L. Ezrol, Goren, Cherof, Doody & Ezrol, P.A.
Lawrence E. Sellers, Jr, Esquire,
Mayor, Parkland*
Paul S. Stuart, City of Coconut Creek*

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.

Victoria Gibson May 15, 2002
(Clerk) (Date)

7001 0320 0001 3692 8864

U.S. Postal Service

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City, State, ZIP+4 Coral Springs, FL 33065

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1. Article Addressed to:

Paul S. Stuart, Esquire
City Attorney
City of Coconut Creek
4800 W. Copans Road
Coconut Creek, FL 33063

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)*: D. McGOVERN
B. Date of Delivery: 5/17/02

C. Signature: X D. McGovern ☒ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

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Street, Apt. No.; or PO Box No.: 4800 W. Copans Road
City, State, ZIP+4: Coconut Creek, FL 33063

7001 0320 0001 3692 8796

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1. Article Addressed to:

Eugene Steinfeld, Esquire
City Attorney
City of Margate
5790 Margate Boulevard
Margate, FL 33063-3699

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)*: PGrossman

B. Date of Delivery: 5/17/02

C. Signature: X PGrossman ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

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4. Restricted Delivery? *(Extra Fee)* ☐ Yes

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Sent To
Eugene Steinfeld, Esquire
Street, Apt. No.; or PO Box No.
5790 Margate Blvd.
City, State, ZIP+4
Margate, FL 33063-3699

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1. Article Addressed to:

Lori Nance Parrish, Chair
Broward County Commissioners
Broward County Governmental Center
115 S. Andrews Avenue
Ft. Lauderdale, FL 33301

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* | B. Date of Delivery 5/17/02

C. Signature
X [signature] ☑ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Certified Mail ☐ Express Mail
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4. Restricted Delivery? *(Extra Fee)* ☐ Yes

7001 0320 0001 3692 8826

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Sent To
Lori Nance Parrish
Street, Apt. No.; or PO Box No.
115 S. Andrews Avenue
City, State, ZIP+4
Ft. Lauderdale, FL 33301

7001 0320 0001 3692 8826

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1. Article Addressed to:

The Honorable Sal
Pagliera
Mayor of Parkland
6500 Parkside Drive
Parkland, FL 33067-5040

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* RACHEL WEXSER B. Date of Delivery 05/17

C. Signature

☐ Agent
☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

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4. Restricted Delivery? *(Extra Fee)* ☐ Yes

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Sent To
Sal Pagliera
Street, Apt. No.; or PO Box No. 6500 Parkside Drive
City, State, ZIP+4
Parkland, FL 33067-5040

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1. Article Addressed to:

Mr. William Mack, Sr.
Managing Director
El Paso Merchant Energy Company
1001 Louisiana Street
Houston, TX 77002

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* | B. Date of Delivery: MAY 21 2002

C. Signature: X 5/21 ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
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4. Restricted Delivery? *(Extra Fee)* ☐ Yes

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Sent To: William Mack, Sr.
Street, Apt. No.; or PO Box No.: 1001 Louisiana St.
City, State, ZIP+4: Houston, TX 77002

7001 0320 0001 3692 8895

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1. Article Addressed to:

The Honorable William Griffin
Mayor of Pompano Beach
100 W. Atlantic Blvd.
Pompano Beach, FL 33060

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)*: Michele Brewer
B. Date of Delivery: 5/10

C. Signature
X Michele Brewer ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
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4. Restricted Delivery? *(Extra Fee)* ☐ Yes

7001 0320 0001 3692 8857

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Total Postage & Fees	$

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Sent To: William Griffin
Street, Apt. No., or PO Box No.: 100 W. Atlantic Blvd.
City, State, ZIP+4: Pompano Beach, FL 33060

7001 0320 0001 3692 8857

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1. Article Addressed to:

The Honorable Albert R. Capellini
Mayor of Deerfield
City Hall
150 NE 2nd Avenue
Deerfield Beach, FL 33441

COMPLETE THIS SECTION ON DELIVERY

A. Received by (Please Print Clearly) Lynn Barnes
B. Date of Delivery 5/11/01

C. Signature
X Lynn Barnes
☐ Agent
☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
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4. Restricted Delivery? (Extra Fee) ☐ Yes

7001 0320 0001 3692 8840

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Sent To
Albert R. Capellini
Street, Apt. No.; or PO Box No.
City Hall, 150 NE 2nd Ave.
City, State, ZIP+4
Deerfield Beach, FL 33441

7001 0320 0001 3692 8840

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1. Article Addressed to:

MS DANIELA BANU
BROWARD CO. DEPARTMENT OF
NATURAL RESOURCE PROTECTION
218 SW FIRST AVE
FORT LAUDERDALE FL 33301

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* | B. Date of Delivery: 5-17-02

C. Signature: X D. Kingsley ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
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4. Restricted Delivery? *(Extra Fee)* ☐ Yes

7001 0320 0001 3692 8888

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Total Postage

Sent To: MS DANIELA BANU
BROWARD CO. DEPARTMENT OF
NATURAL RESOURCE PROTECTION

Street, Apt. No. or PO Box No: 218 SW FIRST AVE

City, State, ZIP: FORT LAUDERDALE FL 33301

7001 0320 0001 3692 8888

PS Form 3800, January 2001 See Reverse for Instructions

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

PERMITTEE:

El Paso Merchant Energy Company
1001 Louisiana Street
Houston, TX 77002

Authorized Representative:
William Mack, Sr., Managing Director

Facility Name: Broward Energy Center
Project No. 0112545-001-AC
Air Permit No. PSD-FL-316
Facility ID No. 0112545
SIC No. 4911
Expires: December 1, 2005

PROJECT AND LOCATION

This permit authorizes the construction of a new nominal 775-megawatt electrical generating plant, the Broward Energy Center, to be located west of the intersection of North Powerline Road and Northwest 48th Street and east of the Florida Turnpike in Deerfield Beach, Broward County. UTM coordinates are: Zone 17; 583.3 km East; 2908.0 km North. The plant will consist of one combined cycle gas turbine, three simple cycle gas turbines, and associated equipment.

STATEMENT OF BASIS

This PSD air pollution construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.) and Title 40, Part 52, Section 21 of the Code of Federal Regulations. Specifically, this permit is issued pursuant to the requirements for the Prevention of Significant Deterioration (PSD) of Air Quality, Rule 62-212.400, 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.

CONTENTS

Howard L. Rhodes, Director
Division of Air Resources Management

5/14/02
(Date)

FACILITY DESCRIPTION

The proposed project is for a new electrical power plant, the Broward Energy Center, which will generate a nominal 775 MW of electricity. The plant will consist of one combined cycle gas turbine unit (250 MW, total) and three simple cycle gas turbine units (175 MW, each).

NEW EMISSIONS UNITS

This permit authorizes construction and installation of the following new emissions units.

ID	Emission Unit Description
001	**Combined Cycle Unit No. CC-1** consists of a natural gas fired 175 MW General Electric Model PG7241FA gas turbine-electrical generator set, an unfired heat recovery steam generator, and a separate steam turbine-electrical generator.
002	**Simple Cycle Unit No. SC-1** consists of a natural gas fired General Electric Model PG7241FA gas turbine-electrical generator set with a nominal capacity of 175 MW.
003	**Simple Cycle Unit No. SC-2** consists of a natural gas fired General Electric Model PG7241FA gas turbine-electrical generator set with a nominal capacity of 175 MW.
004	**Simple Cycle Unit No. SC-3** consists of a natural gas fired General Electric Model PG7241FA gas turbine-electrical generator set with a nominal capacity of 175 MW.
005	**Cooling Tower** consisting of one 5-cell freshwater mechanical draft freshwater cooling tower.
006	**Other Emissions Units** include one 2600-hp diesel generator, one 250-hp diesel fire pump, a 12.8 MMBtu/hr (HHV) gas-fired fuel heater, an aqueous ammonia storage tank, and small diesel storage tanks.

REGULATORY CLASSIFICATION

Title III: Based on available data, the new facility is not a major source of hazardous air pollutants (HAP).

Title IV: The new gas turbines are subject to the acid rain provisions of the Clean Air Act.

Title V: Because potential emissions of at least one regulated pollutant exceed 100 tons per year, the new facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C. Regulated pollutants include pollutants such as carbon monoxide (CO), nitrogen oxides (NOx), particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), and volatile organic compounds (VOC).

PSD: The project is located in an area designated as "attainment" or "unclassifiable" for each pollutant subject to a National Ambient Air Quality Standard. The facility is considered a "fossil fuel fired steam electric plant of more than 250 million BTU per hour of heat input", which is one of the 28 PSD source categories with the lower PSD applicability threshold of 100 tons per year. Potential emissions of at least one regulated pollutant exceed 100 tons per year. Therefore, the facility is classified as 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.

NSPS: The new gas turbines are subject to the New Source Performance Standards of 40 CFR 60, Subpart GG. The gas fired fuel heater is subject to the New Source Performance Standards of 40 CFR 60, Subpart Dc.

NESHAP: No emission units are identified as being subject to a National Emissions Standards for Hazardous Air Pollutants (NESHAP).

SITING: The project is not subject to Section 403.501-518, F.S., Florida Electrical Power Plant Siting Act, based on information regarding gross electrical power generated from the steam (Rankine) cycle submitted by the applicant and reviewed by the Department.

PERMITTING AUTHORITY

All documents related to applications for permits to construct, operate or modify an emissions unit shall be submitted to the Bureau of Air Regulation of the Florida Department of Environmental Protection (DEP) at 2600 Blair Stone Road (MS #5505), Tallahassee, Florida 32399-2400.

COMPLIANCE AUTHORITIES

All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Air Quality Division of the Broward County Department of Planning and Environmental, 218 Southwest 1st Avenue, Fort Lauderdale, Florida 33301. Copies of all such documents shall be submitted to the Air Resources Section of the Southeast District Office, Florida Department of Environmental Protection, Post Office Box 15425, West Palm Beach, Florida 33416-5425.

APPENDICES

The following Appendices are attached as part of this permit.

Appendix BD. Final BACT Determinations and Emissions Standards

Appendix GC. General Conditions

Appendix GG. NSPS Subpart GG Requirements for Gas Turbines

Appendix SC. Standard Conditions

Appendix XS. Continuous Monitor Systems Semi-Annually Report

RELEVANT DOCUMENTS

The documents listed below are not a part of this permit; however, they are specifically related to this permitting action and are on file with the Department.

- Stipulation of Settlement and Notice of Voluntary Dismissal dated May 1, 2002.
- Order of Closing File issued May 6, 2002.
- Permit application received on 03/28/01 and all related completeness correspondence.
- Draft permit package issued on 8/17/01.
- Comments received from the public, the applicant, the EPA Region 4 Office, and the National Park Service.

SECTION II. ADMINISTRATIVE REQUIREMENTS

1. 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.]

2. Applicable Regulations, Forms and Application Procedures: Unless otherwise indicated in this permit, the construction and operation of the subject emissions unit 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.); and the Title 40, Parts 51, 52, 60, 72, 73, and 75 of the Code of Federal Regulations (CFR), adopted by reference in Rule 62-204.800, F.A.C. The terms used in this permit have specific meanings as defined in the applicable chapters of the Florida Administrative Code. 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 permittee 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.]

3. PSD Expiration: Approval to construct shall become invalid if construction is not commenced within 18 months after receipt of such approval, or if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. The Department may extend the 18-month period upon a satisfactory showing that an extension is justified. [40 CFR 52.21(r)(2)]

4. Completion of Construction: The permit expiration date is December 1, 2005. Physical construction shall be completed by September 1, 2005. The additional time provides for testing, submittal of results, and submittal of the Title V permit application to the Department.

5. Permit Expiration: For good cause, the permittee may request that this PSD 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]

6. BACT Determination: In conjunction with an extension of the 18-month period to commence or continue construction, phasing of the project, or an extension of the permit expiration date, the permittee may be required to demonstrate the adequacy of any previous determination of Best Available Control Technology (BACT) for the source. [Rule 62-212.400(6)(b), F.A.C. and 40 CFR 51.166(j)(4)]

7. 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.]

8. 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.]

9. Application for Title IV Permit: At least 24 months before the date on which the new unit begins serving an electrical generator greater than 25 MW, the permittee shall submit an application for a Title IV Acid Rain Permit to the Department's Bureau of Air Regulation in Tallahassee and a copy to the Region 4 Office of the U.S. Environmental Protection Agency in Atlanta, Georgia. [40 CFR 72]

10. Title V Permit: This permit authorizes construction of the permitted emissions units and initial operation to determine compliance with Department rules. A Title V operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after commencing operation. 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, and copies to each Compliance Authority.
[Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

This section of the permit addresses the following new emissions unit.

Emissions Unit 001: Combined Cycle Gas Turbine No. CC-1
Description: The combined cycle unit consists of a General Electric Model PG7241FA gas turbine-electrical generator set with a nominal capacity of 175 MW, an unfired heat recovery steam generator (HRSG), and a separate steam turbine-electrical generator set. Ancillary equipment includes an automated gas turbine control system, an inlet air filtration system, and an evaporative inlet air-cooling system.
Fuel: The combined cycle unit is fired exclusively with pipeline-quality natural gas.
Capacity: At a compressor inlet air temperature of 35° F, the combined cycle gas turbine produces approximately 180 MW when firing approximately 1700 MMBtu (LHV) per hour of natural gas.
Controls: The efficient combustion of pipeline-quality natural gas at high temperatures minimizes emissions of CO, PM/PM_{10}, SAM, SO_2, and VOC. A selective catalytic reduction (SCR) system combined with Dry Low-NOx (DLN) combustion technology reduces NOx emissions. An oxidation catalyst system combined with DLN combustion technology reduces CO and VOC.
Stack Parameters: When operating at 100% load and at an inlet temperature of 35° F, exhaust gases exit a 135 feet tall stack that is 19.0 feet in diameter with a flow rate of approximately 1,040,000 acfm at 187° F.

APPLICABLE STANDARDS AND REGULATIONS

1. BACT Determinations: The emissions standards specified for this unit represent Best Available Control Technology (BACT) determinations for carbon monoxide (CO), nitrogen oxides (NOx), particulate matter (PM/PM_{10}), sulfuric acid mist (SAM), and sulfur dioxide (SO_2). See Appendix BD of this permit for a summary of the final BACT determinations. [Rule 62-212.400(BACT), F.A.C.]

EQUIPMENT

2. Combined Cycle Gas Turbine: The permittee is authorized to install, tune, maintain and operate a new combined cycle unit consisting of a General Electric Model PG7241FA gas turbine-electrical generator set, an unfired heat recovery steam generator (HRSG), and a steam turbine-electrical generator set. The combined cycle unit shall be designed as a system to generate a nominal 175 MW of shaft-driven electrical power and less than 75 MW of steam-generated electrical power. Ancillary equipment includes an automated gas turbine control system, an inlet air filtration system, an evaporative inlet air cooling system, a single exhaust stack that is 135 feet tall and 19.0 feet in diameter, and associated support equipment. [Applicant Request; Design]

3. DLN Combustion Technology: The permittee shall tune, maintain and operate the General Electric DLN-2.6 combustion system to control NOx emissions from the combined cycle gas turbine. Prior to the initial emissions performance tests for each gas turbine, the DLN combustors and automated gas turbine control system shall be tuned to reduce NOx emissions. Thereafter, each system shall be maintained and tuned in accordance with the manufacturer's recommendations.
[Design; Rule 62-212.400(BACT), F.A.C.]

4. SCR System: The permittee shall install, tune, maintain and operate a selective catalytic reduction (SCR) system to control NOx emissions from the combined cycle gas turbine. The SCR system consists of an ammonia injection grid, catalyst, aqueous ammonia storage, monitoring and control system, electrical, piping and other auxiliary equipment. The SCR system shall be designed to reduce NOx emissions and ammonia slip below the permitted levels. [Rule 62-212.400(BACT), F.A.C.]

PERFORMANCE RESTRICTIONS

5. Permitted Capacity: The maximum heat input rate to the combined cycle gas turbine shall not exceed 1742 MMBtu per hour based on a compressor inlet air temperature of 35° F, the lower heating value (LHV) of natural gas, and 100% load. Heat input rates will vary depending upon gas turbine characteristics, ambient conditions, alternate methods of operation, and evaporative cooling. The permittee shall provide manufacturer's performance curves (or equations) that correct for site conditions to the Permitting and Compliance Authorities within 45 days of completing the initial compliance testing. Operating data may be adjusted for the appropriate site conditions in accordance with the performance curves and/or equations on file with the Department. [Rule 62-210.200(PTE), F.A.C.]

6. Authorized Fuel: The combined cycle gas turbine shall fire only pipeline-quality natural gas with a maximum of 1.5 grains of sulfur per 100 standard cubic feet of natural gas. [Applicant Request; Rules 62-210.200(PTE) and 62-212.400(BACT), F.A.C.]

7. Restricted Operation: The hours of operation for the combined cycle gas turbine are not limited (8760 hours per year). [Rules 62-210.200(PTE) and 62-212.400(BACT), F.A.C.]

8. Power Augmentation: As an alternate method of operation, the permittee may inject steam into the combined cycle gas turbine for power augmentation. [Rule 62-212.400 (BACT), F.A.C.]

9. Power Generated Limitation: Electrical power from the steam-electrical generator shall be limited to 74.9 MW (gross) on an hourly basis. The owner or operator shall be capable of demonstrating to the Department, continuous compliance with the 74.9 MW limit by the stored information in the power plant's electronic data system. [Applicant Request]

EMISSIONS STANDARDS

{Permitting Note: The following standards apply to the combined cycle gas turbine. Unless otherwise noted, the mass emission limits are based a compressor inlet temperature of 35° F and 100% load. For comparison to the standard, actual measured concentrations shall be corrected to this compressor inlet temperature with manufacturer's data on file with the Department. Emissions standards with continuous monitoring requirements apply at all loads. Appendix BD provides a summary of the emissions standards of this permit.}

10. Ammonia Slip: Ammonia slip shall not exceed 5 ppmvd corrected to 15% oxygen based on a 3-hour test average as determined by EPA Method CTM-027. [Rule 62-4.070(3), F.A.C.]

11. Carbon Monoxide (CO)

    a. *Initial Test, Standard Operation*: When not operating in the power augmentation mode, CO emissions shall not exceed 9.7 pounds per hour nor 2.5 ppmvd corrected to 15% oxygen based on a 3-hour test average as determined by an initial performance test conducted in accordance with EPA Method 10.

    b. *Continuous Compliance, Standard Operation*: When not operating in the power augmentation mode, CO emissions shall not exceed 2.5 ppmvd corrected to 15% oxygen based on a 3-hour block average as determined by valid data collected from the certified CEM system.

    c. *Initial Test, Power Augmentation*: When injecting steam for power augmentation and a compressor inlet temperature of 59° F, CO emissions shall not exceed 16.1 pounds per hour nor 4 ppmvd corrected to 15% oxygen based on a 3-hour test average as determined by an initial performance test conducted in accordance with EPA Method 10.

d. *Continuous Compliance, Power Augmentation*: When injecting steam for power augmentation, CO emissions shall not exceed 4 ppmvd corrected to 15% oxygen based on a 3-hour block average as determined by valid data collected from the certified CEM system. [Rule 62-212.400(BACT), F.A.C.]

12. Nitrogen Oxides (NOx)

a. *Initial Test*: NOx emissions shall not exceed 17.0 pounds per hour nor 2.5 ppmvd corrected to 15% oxygen based on a 3-hour test average as determined by EPA Method 7E.

b. *Continuous Compliance*: NOx emissions shall not exceed 2.5 ppmvd corrected to 15% oxygen based on a 24-hour block average as determined by valid data collected from the certified CEM system.

NOx emissions are defined as oxides of nitrogen expressed as NO_2. [Rule 62-212.400(BACT), F.A.C.]

13. Particulate Matter (PM/PM_{10}): The fuel specifications established in Condition No. 6 of this section combined with the efficient combustion design and operation of the combined cycle gas turbine represent the Best Available Control Technology (BACT) requirements for PM/PM_{10} emissions. Compliance with the fuel specifications, CO standards, and visible emissions standards shall serve as indicators of good combustion. {Permitting Note: Particulate matter emissions are expected to be less than 11 pounds per hour as determined by EPA Method 5, front-half catch only.} [Rule 62-212.400(BACT), F.A.C.]

14. Sulfuric Acid Mist (SAM) and Sulfur Dioxide (SO_2): The fuel sulfur specification established in Condition No. 6 of this section effectively limits the potential emissions of SAM and SO_2 from the combined cycle gas turbine. Compliance with the fuel sulfur specification shall be demonstrated by the sampling, analysis, record keeping and reporting requirements established in Section III.C of this permit. [Rule 62-212.400(BACT), F.A.C.]

15. Visible Emissions: As determined by EPA Method 9, visible emissions shall not exceed 10% opacity based on a 6-minute average. Except as allowed by Condition No. 17 of this section, this standard applies to all loads. [Rule 62-212.400(BACT), F.A.C.]

16. Volatile Organic Compounds (VOC): The efficient combustion of clean fuels and good operating practices for the combined cycle gas turbine represent the Best Available Control Technology (BACT) requirements for VOC emissions. Compliance with the fuel specification and CO standards shall serve as indicators of good combustion. {Permitting Note: VOC emissions are expected to be less than 2.4 pounds per hour and 1.1 ppmvd corrected to 15% oxygen as determined by EPA Method 25A measured and reported as methane.} [Design; Rule 62-4.070(3), F.A.C.]

EXCESS EMISSIONS

17. Excess Emissions Defined: The following permit conditions allow excess emissions or the exclusion of monitoring data for specifically defined periods of startup, shutdown, and malfunction of the combined cycle gas turbine. These conditions apply only if operators employ the best operational practices to minimize the amount and duration of excess emissions during such episodes.

a. *Visible Emissions*: For startups and shutdowns in a calendar day, visible emissions shall not exceed 10% opacity except for up to ten, 6-minute averaging periods, which shall not exceed 20% opacity.

b. *Work Practice BACT:* A damper shall be installed on the HRSG stack to minimize the frequency of cold and warm starts. An oxidation catalyst control system shall be installed to reduce excess emissions occurring during startups, shutdowns, and malfunctions. A Best Operating Practice procedure for minimizing emissions during startup and shutdown shall be submitted to the Department within 60 days following procurement of the HRSG.

c. *Low-Load Restriction*: Except for startup and shutdown, operation below 50 percent is prohibited.

c. *Low-Load Restriction*: Except for startup and shutdown, operation below 50 percent is prohibited.

d. *CEM System Data Exclusion*: Except for combined cycle cold startups, no more than two hourly average emission rate values in a calendar day shall be excluded from the continuous NOx and CO compliance demonstrations due to startup, shutdown, or documented unavoidable malfunction. No more than four hourly average emission rate values in a calendar day shall be excluded from the continuous NOx and CO compliance demonstrations due to combined cycle cold startups. No more than a total of four hourly average emission rate values shall be excluded from the continuous NOx and CO compliance demonstrations for all such episodes in any calendar day. A *"combined cycle cold startup"* is defined as startup after the combined cycle gas turbine has been shutdown for 48 hours or more. A *"documented unavoidable malfunction"* is a malfunction beyond the control of the operator that is documented within 24 hours of occurrence by contacting each Compliance Authority by telephone or facsimile transmittal.

[Design; Rules 62-4.070(3), 62-4.130, 62-210.700, and 62-212.400 (BACT), F.A.C.]

EMISSIONS PERFORMANCE TESTING

{Permitting Note: Performance test methods are specified in Gas Turbine Common Conditions, Section III.C.}

18. Initial Compliance Tests: The combined cycle gas turbine shall be tested initially and upon permit renewal to demonstrate compliance with the emission standards for PM/PM_{10}, VOC, CO, NOx, visible emissions and ammonia slip. The tests shall be conducted within 60 days after achieving at least 90% of the maximum permitted capacity, but not later than 180 days after initial operation of the combined cycle gas turbine. With appropriate flow measurements, certified CEM system data may be used to demonstrate compliance with the CO and NOx standards. NOx emissions recorded by the CEM system shall be reported for each ammonia slip test run.
[Rule 62-297.310(7)(a)1., F.A.C.]

19. Annual Compliance Tests: During each federal fiscal year (October 1st to September 30th), the combined cycle gas turbine shall be tested to demonstrate compliance with the emission standards for NOx, CO, ammonia slip and visible emissions. NOx emissions recorded by the CEM system shall be reported for each ammonia slip test run. Annual compliance with the applicable NOx and CO emissions standards can also be demonstrated with valid data collected by the required annual RATA at permitted capacity. {Permitting Note: Continuous compliance with the CO and NOx standards shall be demonstrated with certified CEMS system data.} [Rules 62-212.400 (BACT) and 62-297.310(7)(a)4., F.A.C.]

CONTINUOUS MONITORING REQUIREMENTS

20. CEM Systems: The permittee shall install, calibrate, maintain, and operate continuous emission monitoring (CEM) systems to measure and record the emissions of CO and NOx from the combined cycle gas turbine in a manner sufficient to demonstrate continuous compliance with the emission standards of this section. The CEM systems shall comply with the general monitoring requirements specified under "Gas Turbine Common Conditions" in Section III.C.

    a. Compliance with the continuous CO emissions standards shall be based on a 3-hour block average starting at midnight of each operating day. The 3-hour block average shall be calculated from 3 consecutive hourly average emission rate values. If a unit operates less than 3 hours during the block, the 3-hour block average shall be the average of available valid hourly average emission rate values for the 3-hour block. The CO monitor shall have a span of no more than 25 ppmvd corrected to 15% oxygen. For purposes of determining compliance with the CEM emission standards of this permit, missing or excluded data shall not be substituted. Instead, the next valid hourly emission rate value (within the same period of operation) shall be used to complete the 3-hour block average for CO. Each monitoring system shall be installed, calibrated, and properly functioning prior to the initial performance tests and shall be used to demonstrate continuous

compliance with the corresponding CO emissions standards specified in this section. [Rule 62-212.400(BACT), F.A.C.]

b. The NOx monitor shall have a span of no more than 10 ppmvd corrected to 15% oxygen. Compliance with the continuous NOx emissions standards shall be based on a 24-hour block average starting at midnight of each operating day. The 24-hour block average shall be calculated from 24 consecutive hourly average emission rate values. If a unit operates less than 24 hours during the block, the 24-hour block average shall be the average of available valid hourly average emission rate values for the 24-hour block. For purposes of determining compliance with the CEM emission standards of this permit, missing (or excluded) data shall not be substituted. Instead the block average shall be determined using the remaining hourly data in the 24-hour block. Each monitoring system shall be installed, calibrated, and properly functioning prior to the initial performance tests and shall be used to demonstrate continuous compliance with the corresponding NOx emissions standards specified in this section.
[Rule 62-212.400(BACT), F.A.C.]

21. Ammonia Monitoring Requirements: In accordance with the manufacturer's specifications, the permittee shall install, calibrate, maintain and operate an ammonia flow meter to measure and record the ammonia injection rate to the SCR system. The permittee shall document the general range of ammonia flow rates required to meet permitted emissions levels over the range of load conditions allowed by this permit by comparing NOx emissions recorded by the CEM system with ammonia flow rates recorded using the ammonia flow meter. During NOx monitor downtimes or malfunctions, the permittee shall operate at the ammonia flow rate that is consistent with the documented flow rate for the combustion turbine load. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

OTHER REQUIREMENTS

The combined cycle gas turbine is also subject to the "Gas Turbine Common Conditions" specified in Section III.C as well as the "Standard Conditions" included as Appendix SC in Section IV.

B. SIMPLE CYCLE GAS TURBINE

This section of the permit addresses the following new emissions units.

Emissions Units 002, 003 and 004: Simple Cycle Gas Turbine Nos. SC-1, SC-2 and SC-3
Description: Each simple cycle unit consists of a General Electric Model PG7241FA gas turbine-electrical generator set with a nominal capacity of 175 MW. Ancillary equipment includes an automated gas turbine control system, an inlet air filtration system, and an evaporative inlet air-cooling system. *Fuel*: Each simple cycle unit is fired exclusively with pipeline-quality natural gas. *Capacity*: At a compressor inlet air temperature of 35° F and firing approximately 1700 MMBtu (LHV) per hour of natural gas, each unit produces approximately 180 MW. *Controls*: Emissions of CO, PM/PM_{10}, SAM, SO_2, and VOC are minimized by the efficient combustion of pipeline-quality natural gas at high temperatures. NOx emissions are reduced by Dry Low-NOx (DLN) combustion technology. *Stack Parameters*: When operating at 100% load and at an inlet temperature of 35° F, exhaust gases exit a 135 feet tall stack that is 19.0 feet in diameter with a flow rate of approximately 2,500,000 acfm at 1092° F.

APPLICABLE STANDARDS AND REGULATIONS

1. BACT Determinations: The emissions standards specified for these emissions units represent Best Available Control Technology (BACT) determinations for carbon monoxide (CO), nitrogen oxides (NOx), particulate matter (PM/PM_{10}), sulfuric acid mist (SAM), and sulfur dioxide (SO_2). See Appendix BD of this permit for a summary of the final BACT determinations. [Rule 62-212.400(BACT), F.A.C.]

EQUIPMENT

2. Simple Cycle Gas Turbines: The permittee is authorized to install, tune, maintain and operate three new General Electric Model PG7241(FA) gas turbine-electrical generator sets. Each simple cycle unit shall be designed and operated to generate a nominal 175 MW of shaft-driven electrical power. Ancillary equipment includes an automated gas turbine control system, an inlet air filtration system, a compressor inlet air evaporative cooling system, a single exhaust stack that is 135 feet tall and 19.0 feet in diameter, and associated support equipment. [Applicant Request; Design]

3. DLN Combustion Technology: The permittee shall tune, maintain and operate the General Electric DLN 2.6 combustion system to control NOx emissions from each simple cycle gas turbine. Prior to the initial emissions performance tests for each gas turbine, the DLN combustors and automated gas turbine control system shall be tuned to reduce NOx emissions. Thereafter, each system shall be maintained and tuned in accordance with the manufacturer's recommendations.
[Design; Rule 62-212.400(BACT), F.A.C.]

PERFORMANCE REQUIREMENTS

4. Simple Cycle Operation Only: Each gas turbine shall operate only in simple cycle mode. This restriction is based on the permittee's request, which formed the basis of the CO and NOx BACT determinations and resulted in the emission standards specified in this permit. Specifically, the CO and NOx BACT determinations eliminated several control alternatives based on technical considerations due to the elevated temperatures of the exhaust gas as well as costs related to restricted operation. Any request to convert these units to combined cycle operation or increase the allowable hours of operation shall be accompanied by a revised CO and NOx BACT analysis (as if never constructed) and the approval of the Department through a permit modification in accordance with Chapters 62-210 and 62-212, F.A.C. The results of this analysis may validate the initial BACT determinations or result in the submittal of a full PSD permit application,

new control equipment, and new emissions standards.
[Applicant Request; Rules 62-210.300 and 62-212.400, F.A.C.]

5. Permitted Capacity: The maximum heat input rate to each simple cycle gas turbine shall not exceed 1743 MMBtu per hour based on a compressor inlet air temperature of 35° F, the lower heating value (LHV) of natural gas, and 100% load. Heat input rates will vary depending upon gas turbine characteristics, ambient conditions, and evaporative cooling. The permittee shall provide manufacturer's performance curves (or equations) that correct for site conditions to the Permitting and Compliance Authorities within 45 days of completing the initial compliance testing. Operating data may be adjusted for the appropriate site conditions in accordance with the performance curves and/or equations on file with the Department. [Design; Rule 62-210.200(PTE), F.A.C.]

6. Fuel Specifications: Each simple cycle gas turbine shall fire only pipeline-quality natural gas with a maximum of 1.5 grains of sulfur per 100 standard cubic feet of natural gas.
[Applicant Request; Rules 62-210.200(PTE) and 62-212.400(BACT), F.A.C.]

7. Restricted Operation: The three combustion turbines shall operate no more than an average of 5,000 hours per installed unit during any consecutive 12-month period. Each simple cycle gas turbine shall fire no more than 8,500,000 MMBtu of natural gas (LHV) during any consecutive 12-month period. {Permitting Note: This is approximately equivalent to 5000 hours of operation at 100% load.}
[Applicant Request; Rules 62-212.400(BACT) and 62-210.200(PTE), F.A.C.]

EMISSIONS STANDARDS

{Permitting Note: The following standards apply to each simple cycle gas turbine. Unless otherwise noted, the mass emission limits are based a compressor inlet temperature of 35° F and 100% load. For comparison to the standard, actual measured concentration shall be corrected to this compressor inlet temperature with manufacturer's data on file with the Department. Emissions standards with continuous monitoring requirements apply at all loads. Appendix BD provides a summary of the emissions standards of this permit.}

8. Carbon Monoxide (CO):

   a. *Initial Performance Test*: CO emissions from each simple cycle gas turbine shall not exceed 31.0 pounds per hour nor 8.0 ppmvd corrected to 15% oxygen based on a 3-hour test average as determined by EPA Method 10. [Rule 62-212.400(BACT), F.A.C.]

   b. *CEM System (one turbine only)*: CO emissions shall not exceed 8.0 ppmvd corrected to 15% oxygen based on a 3-hour block average as determined by valid data collected from the certified CO CEM system.

9. Nitrogen Oxides (NOx)

   a. *Initial Performance Test*: NOx emissions from each simple cycle gas turbine shall not exceed 61.0 pounds per hour nor 9.0 ppmvd corrected to 15% oxygen based on a 3-hour test average conducted at base load as determined by EPA Method 7E.

   b. *CEM System*: NOx emissions shall not exceed 9.0 ppmvd corrected to 15% oxygen based on a 24-hour block average as determined by valid data collected from the certified NOx CEM system.

   NOx emissions are defined as oxides of nitrogen expressed as NO_2. [Rule 62-212.400(BACT), F.A.C.]

10. Particulate Matter (PM/PM_{10}): The fuel specifications established in Condition No. 6 of this section combined with the efficient combustion design and operation of the combined cycle gas turbine represent the Best Available Control Technology (BACT) requirements for particulate matter emissions. Compliance

with the fuel specifications, CO standards, and visible emissions standards shall serve as indicators of good combustion. Particulate matter emissions are expected to be less than 9 pounds per hour as determined by EPA Method 5, front-half catch only. [Rule 62-212.400(BACT), F.A.C.]

11. Sulfuric Acid Mist (SAM) and Sulfur Dioxide (SO_2): The fuel sulfur specification established in Condition No. 6 of this section effectively limits the potential emissions of SAM and SO_2 from each simple cycle gas turbine. Compliance with the fuel sulfur specification shall be demonstrated by the sampling, analysis, record keeping and reporting requirements established in Section III.C of this permit.
[Rule 62-212.400(BACT), F.A.C.]

12. Volatile Organic Compounds (VOC)

    a. *Initial Performance Test*: VOC emissions from each simple cycle gas turbine shall not exceed 3.0 pounds per hour nor 1.3 ppmvd corrected to 15% oxygen based on a 3-hour test average at base load as determined by EPA Method 25A, measured and reported in terms of methane. Optionally, EPA Method 18 may be used concurrently with EPA Method 25A to deduct emissions of methane and ethane from the measured VOC emissions.
    [Rule 62-4.070, F.A.C.; To Avoid Rule 62-212.400(BACT), F.A.C.]

    b. *After Initial Performance Test*: The efficient combustion of a clean fuel and good operating practices minimize VOC emissions from each simple cycle gas turbine. Compliance with the fuel specifications and CO standards of this section shall serve as indicators of good combustion. Subsequent VOC emissions performance tests shall only be required when the Department has good reason to believe that a VOC emission standard is being violated pursuant to Rule 62-297.310(7)(b), F.A.C.
    [Rule 62-4.070, F.A.C.]

EXCESS EMISSIONS

13. Excess Emissions Defined: The following permit conditions allow excess emissions or the exclusion of monitoring data for specifically defined periods of startup, shutdown, and malfunction of each simple cycle gas turbine. These conditions apply only if operators employ the best operational practices to minimize the amount and duration of excess emissions during such episodes.

    a. *Visible Emissions*: For startups and shutdowns in a calendar day, visible emissions shall not exceed 10% opacity except for up to ten, 6-minute averaging periods, which shall not exceed 20% opacity.

    b. *Work Practice BACT*: The unit(s) will reach Mode 5Q (i.e. five burners plus quaternary pegs in operation) within 15 minutes following gas turbine ignition and crossfire.

    c. *Low-Load Restriction*: Except for startup and shutdown, operation below 50 percent is prohibited.

    d. *CEM System Data Exclusion*: No more than two hourly average emission rate values shall be excluded from the continuous NOx and CO compliance demonstrations due to startup, shutdown, or documented unavoidable malfunction. No more than a total of two hourly average emission rate values shall be excluded from the continuous NOx and CO compliance demonstrations for such periods in any calendar day. A "documented unavoidable malfunction" is a malfunction beyond the control of the operator that is documented within 24 hours of occurrence by contacting each Compliance Authority by telephone or facsimile transmittal.

    [Design; Rules 62-210.700, 62-4.130, and 62-212.400 (BACT), F.A.C.]

EMISSIONS PERFORMANCE TESTING

{Permitting Note: Performance test methods are specified in Gas Turbine Common Conditions, Section III.C.}

EMISSIONS PERFORMANCE TESTING

{Permitting Note: Performance test methods are specified in Gas Turbine Common Conditions, Section III.C.}

14. Initial Tests Required: Each simple cycle gas turbine shall be tested initially and upon permit renewal to demonstrate compliance with the emission standards for PM/PM_{10}, CO, NOx, VOC and visible emissions. The initial tests shall be conducted within 60 days after achieving at least 90% of the maximum permitted capacity, but not later than 180 days after initial operation of each unit. With appropriate flow measurements, certified CEM system data may be used to demonstrate compliance with the NOx standards. Tests for CO and VOC emissions shall be conducted concurrently. [Rule 62-297.310(7)(a)1., F.A.C.]

15. Annual Performance Tests: During each federal fiscal year (October 1st to September 30th), each simple cycle gas turbine shall be tested to demonstrate compliance with the emission standards for NOx, CO and visible emissions. Annual compliance with the applicable NOx and CO emissions standards can also be demonstrated with valid data collected by the required annual RATA at permitted capacity. NOx emissions recorded by the CEM system shall be reported for each CO test run. {Permitting Note: Continuous compliance with the NOx standard shall be demonstrated with certified CEMS system data.} [Rule 62-297.310(7)(a)4., F.A.C.]

CONTINUOUS MONITORING REQUIREMENTS

16. CEM Systems: The permittee shall install, calibrate, maintain, and operate continuous emission monitoring (CEM) systems to measure and record the emissions of CO (one turbine only) and NOx from a simple cycle gas turbine in a manner sufficient to demonstrate continuous compliance with the emission standards of this section. The CEM systems shall comply with the general monitoring requirements specified under "Gas Turbine Common Conditions" in Section III.C.

    a. The CO monitor shall have a span of no more than 25 ppmvd corrected to 15% oxygen. Compliance with the continuous CO emissions standards shall be based on a 3-hour block average starting at midnight of each operating day. The 3-hour block average shall be calculated from 3 consecutive hourly average emission rate values. If a unit operates less than 3 hours during the block, the 3-hour block average shall be the average of available valid hourly average emission rate values for the 3-hour block. For purposes of determining compliance with the CEM emission standards of this permit, missing or excluded data shall not be substituted. Instead, the next valid hourly emission rate value (within the same period of operation) shall be used to complete the 3-hour block average for CO. Each monitoring system shall be installed, calibrated, and properly functioning prior to the initial performance tests and shall be used to demonstrate continuous compliance with the corresponding CO emissions standards specified in this section. [Rule 62-212.400(BACT), F.A.C.]

    b. The NOx monitor shall have a span of no more than 25 ppmvd corrected to 15% oxygen. Compliance with the continuous NOx emissions standards shall be based on a 24-hour block average starting at midnight of each operating day. The 24-hour block average shall be calculated from 24 consecutive hourly average emission rate values. If a unit operates less than 24 hours during the block, the 24-hour block average shall be the average of available valid hourly average emission rate values for the 24-hour block. For purposes of determining compliance with the CEM emission standards of this permit, missing (or excluded) data shall not be substituted. Instead the block average shall be determined using the remaining hourly data in the 24-hour block. Each monitoring system shall be installed, calibrated, and properly functioning prior to the initial performance tests and shall be used to demonstrate continuous compliance with the corresponding NOx emissions standards specified in this section. [Rule 62-212.400(BACT), F.A.C.]

OTHER REQUIREMENTS

Each simple cycle gas turbine is also subject to the "Gas Turbine Common Conditions" specified in Section III.C as well as the "Standard Conditions" included as Appendix SC in Section IV.

C. GAS TURBINE COMMON CONDITIONS

This section of the permit addresses the following new emissions units.

ID	Emission Unit Description
001	**Combined Cycle Unit No. CC-1** consists of a natural gas fired General Electric Model PG7241FA 175 MW gas turbine-electrical generator set, an unfired heat recovery steam generator, and a separate turbine-electrical generator.
002	**Simple Cycle Unit No. SC-1** consists of a natural gas fired General Electric Model PG7241FA gas turbine-electrical generator set with a nominal capacity of 175 MW.
003	**Simple Cycle Unit No. SC-2** consists of a natural gas fired General Electric Model PG7241FA gas turbine-electrical generator set with a nominal capacity of 175 MW.
004	**Simple Cycle Unit No. SC-3** consists of a natural gas fired General Electric Model PG7241FA gas turbine-electrical generator set with a nominal capacity of 175 MW.

NEW SOURCE PERFORMANCE STANDARDS, SUBPART GG

1. NSPS Requirements: The Department determines that compliance with the emissions performance and monitoring requirements of Sections III.A and B also demonstrates compliance with the New Source Performance Standards for gas turbines in 40 CFR 60, Subpart GG. For completeness, the applicable Subpart GG requirements are included in Appendix GG of this permit. [Rule 62-4.070(3), F.A.C.]

PERFORMANCE REQUIREMENTS

2. Operating Procedures: The Best Available Control Technology (BACT) determinations established by this permit rely on "good operating practices" to reduce emissions. Therefore, all operators and supervisors shall be properly trained to operate and maintain the combined cycle gas turbine and pollution control systems in accordance with the guidelines and procedures established by each manufacturer. The training shall include good operating practices as well as methods of minimizing excess emissions. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

EXCESS EMISSIONS

3. 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. All such emissions shall be included in any compliance demonstration based on continuous monitoring data. [Rule 62-210.700(4), F.A.C.]

EMISSIONS PERFORMANCE TESTING

4. Test Methods: Required tests shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
CTM-027	Procedure for Collection and Analysis of Ammonia in Stationary Source {Notes: This is an EPA conditional test method. The minimum detection limit shall be 1 ppm.}
5, 5B, or 17	Determination of Particulate Matter Emissions from Stationary Sources {Note: For gas firing, the minimum sampling time shall be two hours per run and the minimum sampling volume shall be 60 dscf per run.}
7E	Determination of Nitrogen Oxide Emissions from Stationary Sources
9	Visual Determination of the Opacity of Emissions from Stationary Sources

Test Methods, Continued

Method	Description of Method and Comments
10	Determination of Carbon Monoxide Emissions from Stationary Sources {Notes: The method shall be based on a continuous sampling train. The ascarite trap may be omitted or the interference trap of section 10.1 may be used in lieu of the silica gel and ascarite traps.}
18	Measurement of Gaseous Organic Compound Emissions by Gas Chromatography {Note: EPA Method 18 may be used (optional) concurrently with EPA Method 25A to deduct emissions of methane and ethane from the measured VOC emissions.}
20	Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines
25A	Determination of Volatile Organic Concentrations

Except for Method CTM-027, the above methods are described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. Method CTM-027 is published on EPA's Technology Transfer Network Web Site at "http://www.epa.gov/ttn/emc/ctm.html". No other methods may be used for compliance testing unless prior written approval is received from the Department.
[Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

CONTINUOUS MONITORING REQUIREMENTS

5. CEM Systems: Each continuous emissions monitoring (CEM) system shall comply with the following requirements:

   a. *CO Monitors.* The CO monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 4. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, and the Data Assessment Report of Section 7 shall be made each calendar quarter, and reported semi-annually to each Compliance Authority. The RATA tests required for the CO monitor shall be performed using EPA Method 10, of Appendix A of 40 CFR 60. The Method 10 analysis shall be based on a continuous sampling train, and the ascarite trap may be omitted or the interference trap of section 10.1 may be used in lieu of the silica gel and ascarite traps.

   b. *NOx Monitors.* Each NOx monitor shall be certified pursuant to 40 CFR Part 75 and shall be operated and maintained in accordance with the applicable requirements of 40 CFR Part 75, Subparts B and C. Record keeping and reporting shall be conducted pursuant to 40 CFR Part 75, Subparts F and G. The RATA tests required for the NOx monitor shall be performed using EPA Method 20 or 7E, of Appendix A of 40 CFR 60.

   c. *O_2 or CO_2 Monitors.* The oxygen (O_2) content or carbon dioxide (CO_2) content of the flue gas shall also be monitored at the location where CO and/or NOx are monitored to correct the measured emissions rates to 15% oxygen. If a CO_2 monitor is installed, the oxygen content of the flue gas shall be calculated by the CEM system using F-factors that are appropriate for the fuel fired. Each O_2 and CO_2 monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 3. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, and the Data Assessment Report of Section 7 shall be made each calendar quarter, and reported quarterly to each Compliance Authority. The RATA tests required for the O_2 or CO_2 monitors shall be performed using EPA Method 3B, of Appendix A of 40 CFR 60.

d. *Data Collection.* Each hourly average value shall be computed using at least one data point in each fifteen-minute quadrant of an hour, where the unit combusted fuel during that quadrant of an hour. Notwithstanding this requirement, an hourly value shall be computed from at least two data points separated by a minimum of 15 minutes (where the unit operates for more than one quadrant of an hour). The permittee shall use all valid measurements or data points collected during an hour to calculate the hourly averages. The CEM system shall be designed and operated to sample, analyze, and record data evenly spaced over an hour. If the CEM system measures concentration on a wet basis, the CEM system shall include provisions to determine the moisture content of the exhaust gas and an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Alternatively, the owner or operator may develop through manual stack test measurements a curve of moisture contents in the exhaust gas versus load for each allowable fuel, and use these typical values in an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Final results of the CEM system shall be expressed as ppmvd, corrected to 15% oxygen. The CEM system shall be used to demonstrate compliance with the CEM emission standards for CO and NOx as specified in this permit. Upon request by the Department, the CEM systems emission rates shall be corrected to ISO conditions to demonstrate compliance with the applicable standards of 40 CFR 60.332.

e. *Data Exclusion.* All required emissions data shall be recorded by the CEM systems during episodes of startup, shutdown and malfunction. CO and NOx emissions data recorded during such episodes may be excluded from the corresponding compliance-averaging period subject to the conditions specified in Sections III.A and B of this permit. All periods of data excluded for any startup, shutdown or malfunction episode shall be consecutive for each episode. The permittee shall minimize the duration of data excluded for startup, shutdown and malfunctions, to the extent practicable. Data recorded during startup, shutdown or malfunction events shall not be excluded if the startup, shutdown or malfunction episode was caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure, which may reasonably be prevented. Best operational practices shall be used to minimize hourly emissions that occur during episodes of startup, shutdown and malfunction. Emissions of any quantity or duration that occur entirely or in part from poor maintenance, poor operation, or any other equipment or process failure, which may reasonably be prevented, shall be prohibited.

f. *Data Exclusion Reports.* A summary report of the duration of data excluded from each compliance average calculation, and all instances of missing data from monitor downtime, shall be reported quarterly to each Compliance Authority. This report shall be consolidated with the report required pursuant to 40 CFR 60.7. For purposes of reporting "excess emissions" pursuant to the requirements of 40 CFR 60.7, excess emissions shall be defined to include the hourly emissions which are recorded by the CEM system during periods of data excluded for episodes of startup, shutdown and malfunction, as allowed above. The duration of excess emissions shall include the duration of the periods of data excluded for such episodes. Reports required by this paragraph and by 40 CFR 60.7 shall be submitted no less than quarterly, including periods in which no data is excluded or no instances of missing data occur.

g. *Notification*: If a CEM system reports CO or NOx emissions in excess of an emissions standard, the permittee shall notify each Compliance Authority within one working day with a preliminary report 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.

h. *Availability.* Monitor availability for CO and NOx CEM systems shall be 95% or greater in any calendar quarter. The report required in Appendix XS of this permit shall be used to demonstrate monitor availability. In the event 95% availability is not achieved, the permittee shall provide the Department with a report identifying the problems in achieving 95% availability and a plan of corrective actions that will be taken to achieve 95% availability. The permittee shall implement the reported corrective actions within the next calendar quarter. Failure to take corrective actions or continued failure to achieve the minimum monitor availability shall be violations of this permit.

{Permitting Note: Compliance with these requirements will ensure compliance with the other applicable CEM system requirements such as: NSPS Subpart GG; Rule 62-297.520, F.A.C.; 40 CFR 60.7(a)(5) and 40 CFR 60.13; 40 CFR Part 51, Appendix P; 40 CFR 60, Appendix B - Performance Specifications; and 40 CFR 60, Appendix F - Quality Assurance Procedures.}

[Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

RECORDS

6. Fuel Sulfur Records: The permittee shall demonstrate compliance with the fuel sulfur specification of this permit by maintaining records of the sulfur content of the natural gas being supplied based on the vendor's analysis for each month of operation. Methods for determining the sulfur content of the natural gas shall be ASTM reference methods D4084-82, D3246-81 (or more recent versions) in conjunction with the provisions of 40 CFR 75 Appendix D. [Rules 62-4.070(3) and 62-4.160(15), F.A.C.]

7. Monitoring of Operations: To demonstrate compliance with the fuel consumption limits, the permittee shall monitor and record the rates of fuel consumption for each gas turbine in accordance with the provisions of 40 CFR 75 Appendix D. To demonstrate compliance with the turbine capacity requirements, the permittee shall monitor and record the operating rate of each combined cycle gas turbine on a daily average basis, considering the number of hours of operation during each day (including the times of startup, shutdown and malfunction). Such monitoring shall be made using a monitoring component of the CEM system required above, or by monitoring daily rates of consumption and heat content of each allowable fuel in accordance with the provisions of 40 CFR 75 Appendix D. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

8. Monthly Operations Summary: By the fifth calendar day of each month, the permittee shall record the monthly fuel consumption (million cubic feet of natural gas per month), heat input rates (million BTU per month), and hours of operation for each gas turbine. The information shall be recorded in a written (or electronic log) and shall summarize the previous month of operation and the previous 12 months of operation. Information recorded and stored as an electronic file shall be available for inspection and printing within at least three days of a request by the Department. [Rule 62-4.070(3), F.A.C.]

REPORTS

9. Semi-Annually Excess Emissions Reports: Following the NSPS format provided in Appendix XS of this permit, emissions shall be reported as "excess emissions" when emission levels exceed the standards specified in this permit (including periods of startup, shutdown and malfunction). Within 30 days following the end of the six month period, the permittee shall submit a report to the Compliance Authority summarizing periods of excess emissions, periods of data exclusion, and CEMS systems monitor availability for the previous six month period.
[Rules 62-4.130, 62-204.800, 62-210.700(6), F.A.C.; and 40 CFR 60.7]

D. OTHER EMISSIONS UNITS

This permit authorizes installation of the following emissions units.

ID	Emission Unit Description
005	**Cooling Tower** : One 5-cell mechanical draft fresh water cooling tower.
006	**Other Emissions Units:** One 2600 hp diesel generator, one 250 hp diesel fire pump, aqueous ammonia storage tank, a 12.8 MMBtu/hr (HHV) gas-fired fuel heater and two diesel fuel storage tanks (each less than 1000 gallons).

1. Cooling Tower: BACT for the Cooling Tower was determined to be the use of fresh water and drift eliminators designed and maintained to reduce drift to 0.0005 percent of the circulating water flow rate. A not to exceed limit of 4200 mg/l total dissolved solids shall be maintained within the cooling tower. {Permitting Note: Potential emissions in tons per year are expected to be less than 1.64 for PM and 0.99 for PM_{10}}. [Rule 62-212.400 (5) (c) F.A.C., BACT determination].
2. 2600 HP Diesel Generator: The unit will be fired with No. 2 diesel fuel with a maximum sulfur content of 0.05%. {Permitting Note: Potential emissions in tons per year are expected to be less than 0.12 for PM, 3.26 for NOx, 0.73 for CO, 0.07 for SO_2 and 0.18 for TOC (total organic carbons)}. [Rule 62-212.400 (5) (c) F.A.C., BACT determination].
3. 12.8 MMBtu/hr Gas-fired Natural Gas Fuel Heater: This unit is subject to applicable provisions of 40 CFR 60, Subpart Dc. New Source Performance Standards for Small Industrial-Commercial-Institutional Steam Generating Units. [Rule 62-212.400 (5) (c) F.A.C., BACT determination].
4. 250 HP Diesel Fire Pump: The unit will be fired with No. 2 diesel fuel with a maximum sulfur content of 0.05%. {Permitting Note: Potential emissions in tons per year are expected to be less than 0.013 for PM, 0.74 for NOx, 0.18 for CO, 0.014 for SO_2 and 0.08 for TOC (total organic carbons)}. [Rule 62-212.400 (5) (c) F.A.C., BACT determination].
5. Aqueous Ammonia Storage Tank: This unit will contain less than a 20 percent concentration of aqueous ammonia by volume and therefore is not subject to applicable provisions of 40 CFR 68, Chemical Accident Provisions. [Rule 62-4.070 (3) F.A.C.]
6. Two Diesel Fuel Storage Tanks (each less than 1000 gallons): This unit shall store 0.05% or less sulfur diesel fuel (by weight). [Rule 62-212.400 (5) (c) F.A.C., BACT determination].

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

El Paso Broward Energy Center
PSD-FL-316 and 0112545-001-AC
Broward County, Florida

BACKGROUND

The applicant, El Paso Merchant Energy Company (El Paso), proposes to install four nominal 175-megawatt (MW) General Electric PG 7241FA (GE 7FA) combustion turbine-electrical generators at the planned Broward Energy Center in Broward County. The proposed project will constitute a New Major Facility per Rule 62-212.400(d)2.b., Florida Administrative Code (F.A.C.). It is therefore subject to review for the Prevention of Significant Deterioration (PSD) and a determination of Best Available Control Technology (BACT) per Rule 62-212.400, F.A.C. Emissions of particulate matter (PM and PM_{10}), carbon monoxide (CO), nitrogen oxides (NO_X), sulfur dioxide (SO_2), and sulfuric acid mist (SAM) will exceed the "Significant Emission Rates" with respect to Table 212.400-2, (F.A.C.). PSD and BACT reviews are required for each of these pollutants.

Three of the units will operate in simple cycle mode and intermittent duty while the fourth will operate in combined cycle mode and continuous duty. The units will exhaust through separate 135-foot stacks. The units will be fired exclusively with pipeline natural gas. El Paso proposes to operate the simple cycle units up to 5,000 hours per year per unit. Descriptions of the process, project, air quality effects, and rule applicability are given in the Technical Evaluation and Preliminary Determination, accompanying the Department's Intent to Issue.

DATE OF RECEIPT OF A BACT APPLICATION:

The application was received on March 28, 2001 (complete June 27) and included a BACT proposal prepared by the applicant's consultant, ECT. A draft BACT determination was distributed on August 17, 2001. The Department's permitting decision was challenged. The final limits reflect the agreement between the petitioners and El Paso signed on May 1, 2002.

PREPARED BY:

A. A. Linero, P.E.

BACT DETERMINATION REQUESTED BY THE APPLICANT:

POLLUTANT	CONTROL TECHNOLOGY	PROPOSED BACT LIMIT
Nitrogen Oxides	Dry Low NO_X Combustors Selective Catalytic Reduction	9 ppmvd @ 15% O_2 (simple cycle units) 3.5 ppmvd @ 15% O_2 (combined cycle)
Particulate Matter	Pipeline Natural Gas Combustion Controls	18.3 pounds per hour (Front + Back Half, Simple) 20 pounds per hour (Front + Back Half, Combined)
Carbon Monoxide	As Above	7.4 ppmvd (Full load, Simple or Combined) 12 ppmvd (Combined Cycle Steam Augmentation)
Sulfur Oxides	As Above	1.5 grains sulfur/100 std cubic feet

BACT DETERMINATION PROCEDURE:

In accordance with Rule 62-212.400, F.A.C., this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department of Environmental Protection (Department), on a case by case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques. In addition, the regulations state that, in making the BACT determination, the Department shall give consideration to:

- Any Environmental Protection Agency determination of BACT pursuant to Section 169, and any emission limitation contained in 40 CFR Part 60 - Standards of Performance for New Stationary Sources or 40 CFR Part 61 - National Emission Standards for Hazardous Air Pollutants.
- All scientific, engineering, and technical material and other information available to the Department.
- The emission limiting standards or BACT determination of any other state.
- The social and economic impact of the application of such technology.

The EPA currently stresses that BACT should be determined using the "Top-Down" approach, particularly when permits are issued by states acting on behalf of EPA. The Department considers Top-Down to be a useful tool, though not a unique or required approach to achieve a BACT under the State regulations. The first step in this approach is to determine, for the emission unit in question, the most stringent control available for a similar or identical emission unit or emission unit category. If it is shown that this level of control is technically or economically unfeasible for the emission unit in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections.

STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES:

The minimum basis for a BACT determination is 40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines (NSPS). The Department adopted subpart GG by reference in Rule 62-204.800, F.A.C. The key emission limits required by Subpart GG are 75 ppmvd NO_X @ 15% O_2 (assuming 25 percent efficiency) and 150 ppmvd SO_2 @ 15% O_2 (or <0.8% sulfur in fuel). The BACT proposed by El Paso is well within the NSPS limit, which allows NO_X emissions in the range of 100 - 110 ppmvd for the high efficiency units to be purchased for the El Paso project.

A National Emission Standard for Hazardous Air Pollutants (NESHAP) under development exists for stationary gas turbines. However this facility will not be subject to the NESHAP or to a requirement for a case-by-case determination of maximum achievable control technology because HAP emissions will be less than 10 TPY.

DETERMINATIONS BY EPA AND STATES:

The following tables include some recently permitted simple and combined cycle turbines. The proposed El Paso project is included to facilitate comparison.

TABLE 1

RECENT NO_X EMISSION LIMIT PROPOSALS AND DETERMINATIONS FOR "F-CLASS" SIMPLE CYCLE PROJECTS IN THE SOUTHEAST

Project Location	Power Output (MW)	NO_X Limit ppmvd @ 15% O_2 and Fuel	Technology	Comments
El Paso Deerfield, FL	525	9 - NG	DLN	3x175 MW GE 7FA CTs Gas Only
Enron Deerfield, FL	510	9 - NG 36 - No. 2 FO	DLN WI	3x170 MW GE 7FA CTs Draft. 500 hrs on oil
Pompano Beach, FL	510	9 - NG 36- No. 2 FO	DLN WI	3x170 MW GE 7FA CTs Draft. 500 hrs on oil
Midway St. Lucie, FL	510	9 - NG 42 - No. 2 FO	DLN WI	3x170 MW GE 7FA CTs Issued 2/01. 1000 hrs on oil
DeSoto County, FL	510	9 - NG 42 - No. 2 FO	DLN WI	3x170 MW GE 7FA CTs Issued 7/00. 1000 hrs on oil
Shady Hills Pasco, FL	510	9 - NG 42 - No. 2 FO	DLN WI	3x170 MW GE 7FA CTs Issued 1/00. 1000 hrs on oil
Vandolah Hardee, FL	680	9 - NG 42 - No. 2 FO	DLN WI	4x170 MW GE 7FA CTs Issued 11/99. 1000 hrs on oil
Oleander Brevard, FL	850	9 - NG 42 - No. 2 FO	DLN WI	5x170 MW GE 7FA CTs Issued 11/99. 1000 hrs on oil
JEA Baldwin, FL	510	10.5 - NG 42 - No. 2 FO	DLN WI	3x170 MW GE 7FA CTs Issued 10/99. 750 hrs on oil
Reliant Osceola, FL	510	10.5 - NG 42 - No. 2 FO	DLN WI	3x170 MW GE 7FA CTs Issued. 750 hrs on oil
TEC Polk Power, FL	330	10.5 – NG 42 – No. 2 F.O.	DLN WI	2x165 MW GE 7FA CTs Issued 10/99. 750 hrs on oil
Dynegy, FL	510	15 – NG	DLN	3x170 MW WH 501F CTs Issued. Gas only
Dynegy Heard, GA	510	15 – NG	DLN	3x170 MW WH 501F CTs Issued. Gas only
Thomaston, GA	680	15 - NG 42 - No. 2 FO	DLN WI	4x170 MW GE 7FA CTs Issued. 1687 hrs on oil
Dynegy Reidsville, NC	900	15 – NG (by 2002) 42 – No. 2 FO	DLN WI	5x180 MW WH 501F CTs Initially 25 ppm NO_X limit on gas Issued. 1000 hrs on oil.
Lyondell Harris, TX	160	25 – NG	DLN	1x160 MW WH 501F CTs Issued 11/99. Gas only
Southern Energy, WI	525	15/12 – NG 42 - No. 2 FO	DLN WI	3x175 MW GE 7FA CTs 15/12 ppm are on 1/24 hr basis Issued 1/99. 800 hrs on oil
Carson Energy, CA	42	5 – NG (LAER)	Hot SCR	42 MW LM6000PA. Startup 1995. Ammonia limit is 20 ppmvd
McClelland AFB, CA	85	5 – NG (LAER)	Hot SCR	85 MW GE 7EA. Applied 1999 Ammonia proposal 10 ppmvd
Lakeland, FL	250 CON	9/9 – NG (by 2002) 42/15 - No. 2 FO	DLN/HSCR WI/HSCR	250 MW WH 501G CT Initially 25 ppm NO_X limit on gas Issued 7/98. 250 hrs on oil.
PREPA, PR	248 CON	10 - No. 2 FO	WI & HSCR	3x83 MW ABB GT11N CTs Issued 12/95.

CON = Continuous
SC = Simple Cycle
INT = Intermittent

DLN = Dry Low NO_X Combustion
SCR = Selective Catalytic Reduction
HSCR = Hot SCR

FO = Fuel Oil
NG = Natural Gas
WI = Water or Steam Injection

GE = General Electric
WH = Westinghouse
ABB = Asea Brown Bovari

TABLE 2

RECENT CO, VOC, AND PM EMISSION LIMIT PROPOSALS AND DETERMINATIONS FOR "F-CLASS" SIMPLE CYCLE PROJECTS

Project Location	CO - ppm (or as indicated)	VOC - ppm (or as indicated)	PM - lb/hr (or as indicated)	Technology and Comments
El Paso Deerfield, FL	9 (7.4@15% O_2) - NG	1.4 (1.3@15% O2)	18 lb/hr (Front & Back)	Clean Fuels Good Combustion
Enron Deerfield, FL	9 - NG 30 - FO	1.4 – NG 1.4– FO	18 lb/hr - NG 34 lb/hr - FO	Clean Fuels Good Combustion
Pompano Beach, FL	9 - NG 30 - FO	1.4 – NG 1.4– FO	10 lb/hr - NG 17 lb/hr - FO	Clean Fuels Good Combustion
Midway St. Lucie, FL	9 - NG 30 - FO	1.4 – NG 1.4– FO	10 lb/hr - NG 17 lb/hr - FO	Clean Fuels Good Combustion
DeSoto County, FL	12 - NG 20 - FO	1.4 – NG 7 – FO	10 lb/hr - NG 17 lb/hr - FO	Clean Fuels Good Combustion
Shady Hills Pasco, FL	12 - NG 20 - FO	1.4 – NG 7 – FO	10 lb/hr - NG 17 lb/hr - FO	Clean Fuels Good Combustion
Vandolah Hardee, FL	12 - NG 20 - FO	1.4 – NG 7 – FO	10 lb/hr - NG 17 lb/hr - FO	Clean Fuels Good Combustion
Oleander Brevard, FL	12 - NG 20 - FO	3 – NG 6 – FO	10% Opacity	Clean Fuels Good Combustion
JEA Baldwin, FL	12 - NG 20 - FO	1.4 – NG/FO Not PSD	9/17 lb/hr – NG/FO 10% Opacity	Clean Fuels Good Combustion
Reliant Osceola, FL	10.5 - NG 20 - FO	2.8 lb/hr – NG 7.5 lb/hr – FO	9 lb/hr - NG 17 lb/hr - FO	Clean Fuels Good Combustion
TEC Polk Power, FL	15 - NG 33 - FO	7 – NG 7 – FO	10% Opacity	Clean Fuels Good Combustion
Dynegy, FL	25 - NG	? – NG	? - NG	Clean Fuels Good Combustion
Dynegy Heard Co., GA	25 - NG	? – NG	? - NG	Clean Fuels Good Combustion
Tenaska Heard Co., GA	15 - NG 20 - FO	? – NG ? – FO	? - NG ? lb/hr - FO	Clean Fuels Good Combustion
Dynegy Reidsville, NC	25 - NG 50 - FO	6 lb/hr – NG 8 lb/hr – FO	6 lb/hr - NG 23 lb/hr - FO	Clean Fuels Good Combustion
Lyondell Harris, TX	25 - NG			Clean Fuels Good Combustion
Southern Energy, WI	12@>50% load – NG 15@>75% 24@<75% - FO	2 - NG 5 - FO	18 lb/hr – NG 44 lb/hr - FO	Clean Fuels Good Combustion
RockGen Cristiana, WI	12@>50% load – NG 15@>75% 24@<75% - FO	2 - NG 5 - FO	18 lb/hr – NG 44 lb/hr - FO	Clean Fuels Good Combustion
Carson Energy, CA	6 – NG			Oxidation Catalyst
McClelland AFB, CA	23 – NG	3.9 - NG	7 lb/hr	Clean Fuels Good Combustion
Lakeland, FL	25 - NG or 10 by Ox Cat 75 - FO @ 15% O_2	4 – NG 10 – FO	10% Opacity	Clean Fuels Good Combustion
PREPA, PR	9 – FO @15% O_2	11 – FO @15% O_2	0.0171 gr/dscf	Clean Fuels Good Combustion

TABLE 3

RECENT NO_X EMISSION LIMIT PROPOSALS AND DETERMINATIONS FOR "F-CLASS" COMBINED CYCLE PROJECTS IN THE SOUTHEAST

Project Location	Capacity Megawatts	NO_X Limit ppmvd @ 15% O_2 and Fuel	Technology	Comments
El Paso Deerfield, FL	250	2.5 – NG	SCR	175 MW GE 7FA
CPV Pierce, FL	245	2.5 – NG 10 – FO	SCR	170 MW GE 7FA CT 7/2001
Metcalf Energy, CA	600	2.5 – NG	SCR	2x170 MW WH501F & Duct Burners
Enron/Ft. Pierce, FL	~250	3.5 – NG 10 - FO	SCR	170 MW MHI501F CT Repowering
CPV Atlantic, FL	245	3.5 – NG 10 – FO	SCR	170 MW GE 7FA CT
CPV Gulfcoast, FL	245	3.5 – NG 10 – FO	SCR	170 MW GE 7FA CT
TECO Bayside, FL	1750	3.5 – NG 12 - FO	SCR	7x170 MW GE 7FA CTs Repowering
FPC Hines II, FL	530	3.5 - NG 12 - FO	SCR	2x170 MW WH501F
Calpine Osprey, FL	527	3.5 – NG	SCR	2x170 MW WH501F Draft 5/00
Calpine Blue Heron, FL	1080	3.5 – NG	SCR	4x170 MW WH501F Draft 2/00
Santee Cooper, SC	~500	9 – NG	DLN	2x170 MW GE 7FA CTs ~ 4/00
Mobile Energy, AL	~250	~3.5 - NG ~11 – FO	SCR	178 MW GE 7FA CT 1/99
Alabama Power Barry	800	3.5 - NG	SCR	3x170 MW GE 7FA CTs 11/98
Alabama Power Theo	210	3.5 – NG	SCR	4x170 MW GE 7FA CTs 11/98
KUA Cane Island 3, FL	250	3.5 – NG (12 – simple cycle) 15 - FO	SCR	170 MW GE 7FA. 11/99 DLN on simple cycle
Lake Worth LLC, FL	250	9 or 3.5 – NG 9.4 or 3.5 – NG (CT&DB) 42 or 16.4 - FO	DLN or SCR DLN or SCR WI or SCR	170 MW GE 7FA. 11/99 Increase allowed for DB under DLN.
Miss Power Daniel	1000	3.5 – NG	SCR	4x170 MW GE 7FA CTs 11/98

DB = Duct Burner
NG = Natural Gas
FO = Fuel Oil
DLN = Dry Low NO_X Combustion
SCR = Selective Catalytic Reduction
WI = Water or Steam Injection
GE = General Electric
WH = Westinghouse
CT = Combustion Turbine

TABLE 4

RECENT CO, VOC, AND PM NO_X EMISSION LIMIT PROPOSALS AND DETERMINATIONS FOR "F-CLASS" COMBINED CYCLE PROJECTS

Project Location	CO - ppmvd (or lb/mmBtu)	VOC - ppmv (or lb/mmBtu)	PM - lb/mmBtu (or gr/dscf or lb/hr)	Technology and Comments
El Paso Deerfield, FL	9 (7.4 @15% O_2) 15 (12 @15% O_2) (PA)	1.4 - NG	20 lb/hr – (Front & Back) 5 ppmvd Ammonia Slip	Clean Fuels Good Combustion
CPV Pierce, FL	9 - NG (50 - 100% load) 15 - NG (PA) 20 – FO	1.4 – NG 3.5 FO	11 lb/hr – NG (front) 36 lb/hr – FO (front) 5 ppmvd Ammonia Slip	Clean Fuels Good Combustion
Metcalf Energy, CA	6 - NG (100% load)	.00126 lb/mmBtu-NG	12 lb/hr – NG (w DB) 5 ppmvd Ammonia Slip	Clean Fuels Good Combustion
Enron Ft. Pierce, FL	3.5 - NG 10 - Low Load 8 - FO	2.2 - NG 16 – Low Load 10 - FO	10% Opacity	Oxidation Catalyst Clean Fuels Good Combustion
CPV Atlantic, FL	9 - NG (50 - 100% load) 15 - NG (PA) 20 – FO	1.4 – NG 3.5 FO	11 lb/hr – NG (front) 36 lb/hr – FO (front) 5 ppmvd Ammonia Slip	Clean Fuels Good Combustion
CPV Gulfcoast, FL	9 - NG (50 - 100% load) 15 - NG (PA) 20 – FO	1.4 – NG 3.5 FO	11 lb/hr – NG (front) 36 lb/hr – FO (front) 5 ppmvd Ammonia Slip	Clean Fuels Good Combustion
TECO Bayside, FL	9 – NG (24-hr CEMS) 20 – FO (24-hr CEMS)	1.3 – NG 3 - FO	12 lb/hr – NG 30 lb/hr - FO	Clean Fuels Good Combustion
FPC Hines II, FL	16 - NG (24-hr CEMS) 30 – FO (24-hr CEMS)	2 – NG 10 – FO	10% Opacity – NG 5/9 ammonia – NG/FO	Clean Fuels Good Combustion
Calpine Osprey, FL	10 – NG 17 – NG (DB&PA)	2.3 – NG 4.6 – NG (DB&PA)	24 lb/hr – NG (DB&PA) 10 percent Opacity 9 ppmvd Ammonia Slip	Clean Fuels Good Combustion
Calpine Blue Heron, FL	10 – NG (24-hr CEMS) 17 – NG (DB&PA)	1.2 – NG 6.6 – NG (DB&PA)	31.9 lb/hr – NG (DB&PA) 10 percent Opacity 5 ppmvd Ammonia Slip	Clean Fuels Good Combustion
Mobile Energy, AL	~18 – NG ~26 – FO	~5 – NG ~6 - FO	10% Opacity	Clean Fuels Good Combustion
Alabama Power Barry	~15 – NG(CT) ~25 – NG(DB & CT)	~8 - NG(CT) ~12 – NG(CT & DB)	0.010 lb/mmBtu – (CT) 0.011 lb/mmBtu -(CT/DB) 10% Opacity	Clean Fuels Good Combustion
Alabama Power Theo	~36 – CT & DB	~12.5 CT & DB		Clean Fuels Good Combustion
KUA Cane Island	10 - NG (CT) 20 - NG (CT&DB) 30 - FO	1.4 - NG (CT) 4 - NG (CT&DB) 10 - FO	10% Opacity	Clean Fuels Good Combustion
Lake Worth LLC, FL	9 - NG (CT) 15 – NG (CT & DB) 20 - F.O. (3-hr)	1.4 - NG (CT) 1.8 - NG (CT & DB) 3.5 – F.O.	10% Opacity	Clean Fuels Good Combustion
Miss Power Daniel	~15 - NG(CT) ~25 – NG(DB & CT	~8 - NG(CT) ~12 – NG(CT & DB)	0.010 lb/mmBtu – (CT) 0.011 lb/mmBtu -(CT/DB) 10% Opacity	Clean Fuels Good Combustion

All of the projects listed above control SO_2 and sulfuric acid mist by limiting the sulfur content of the fuel. In every case, pipeline quality natural gas is used and has a sulfur content less than 2 grains per 100 cubic feet. In some cases, the limits are even lower or are expressed in different terms. However all ultimately rely on a fairly uniform gas distribution network and have very little flexibility in actually controlling sulfur content. Similarly, emissions of these two pollutants are controlled by using 0.05 percent sulfur distillate fuel oil.

Some of the projects listed above include front and back half catch for PM limits. Therefore comparison is not simple.

REVIEW OF NITROGEN OXIDES CONTROL TECHNOLOGIES:

Some of the discussion in this section is based on a 1993 EPA document on Alternative Control Techniques for NO_X Emissions from Stationary Gas Turbines. Project-specific information is included where applicable.

Nitrogen Oxides Formation

Nitrogen oxides form in the gas turbine combustion process as a result of the dissociation of molecular nitrogen and oxygen to their atomic forms and subsequent recombination into seven different oxides of nitrogen. Thermal NO_X forms in the high temperature area of the gas turbine combustor. Thermal NO_X increases exponentially with increases in flame temperature and linearly with increases in residence time. Flame temperature is dependent upon the ratio of fuel burned in a flame to the amount of fuel that consumes all of the available oxygen.

By maintaining a low fuel ratio (lean combustion), the flame temperature will be lower, thus reducing the potential for NO_X formation. Prompt NO_X is formed in the proximity of the flame front as intermediate combustion products. The contribution of Prompt to overall NO_X is relatively small in near-stoichiometric combustors and increases for leaner fuel mixtures. This provides a practical limit for NO_X control by lean combustion.

In all but the most recent gas turbine combustor designs, the high temperature combustion gases are cooled to an acceptable temperature with dilution air prior to entering the turbine (expansion) section. The sooner this cooling occurs, the lower the thermal NO_X formation. Cooling is also required to protect the first stage nozzle. When this is accomplished by air cooling, the air is injected into the component and is ejected into the combustion gas stream, causing a further drop in combustion gas temperature. This, in turn, lowers achievable thermal efficiency for the unit.

The relationship between flame temperature, firing temperature, unit efficiency, and NO_X formation can be appreciated from Figure 1 which is from a General Electric discussion on these principles.

Fuel NO_X is formed when fuels containing bound nitrogen are burned. This phenomenon is not important for natural gas-fired projects such as the El Paso Broward Energy Center.

Uncontrolled emissions range from about 100 to over 600 parts per million by volume, dry, corrected to 15 percent oxygen (ppmvd @15% O_2). The Department estimates uncontrolled emissions at approximately 200 ppmvd @15% O_2 for each turbine of the El Paso project. The proposed NO_X controls will reduce these emissions significantly.

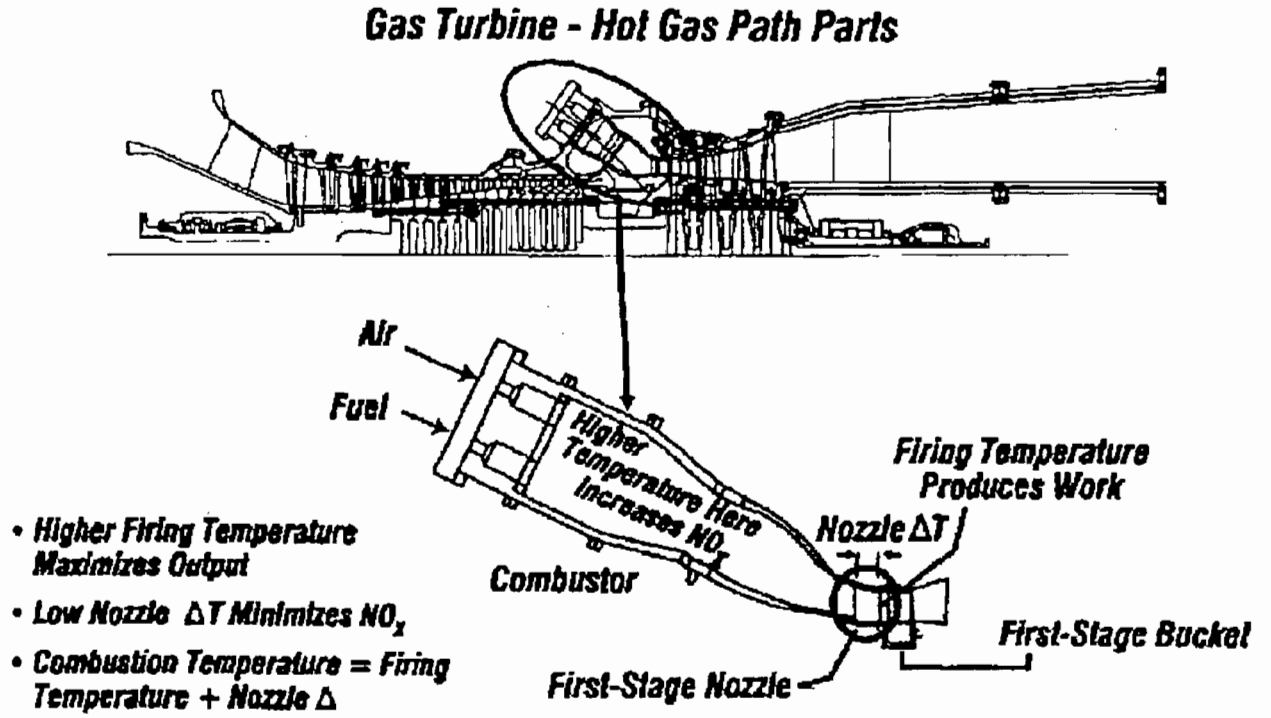

Figure 1 – Relation Between Flame Temperature and Firing Temperature

NO_X Control Techniques

Wet Injection

Injection of either water or steam directly into the combustor lowers the flame temperature and thereby reduces thermal NO_X formation. Typical emissions achieved by wet injection are in the range of 15–25 ppmvd when firing gas and 42 ppmvd when firing fuel oil in large combustion turbines. These values often form the basis, particularly in combined cycle turbines, for further reduction to BACT limits by other techniques. Carbon monoxide (CO) and hydrocarbon (HC) emissions are relatively low for most gas turbines. However steam and (more so) water injection may increase emissions of both of these pollutants.

Combustion Controls: Dry Low NO_X (DLN)

The excess air in lean combustion cools the flame and reduces the rate of thermal NO_X formation. Lean premixing of fuel and air prior to combustion can further reduce NO_X emissions. This is accomplished by minimizing localized fuel-rich pockets (and high temperatures) that can occur when trying to achieve lean mixing within the combustion zones.

The above principle is incorporated into the General Electric DLN-2.6 can-annular combustor shown in Figure 2. Each combustor includes six nozzles within which fuel and air have been fully pre-mixed. There are 16 small fuel passages around the circumference of each combustor can known as quarternary fuel pegs.

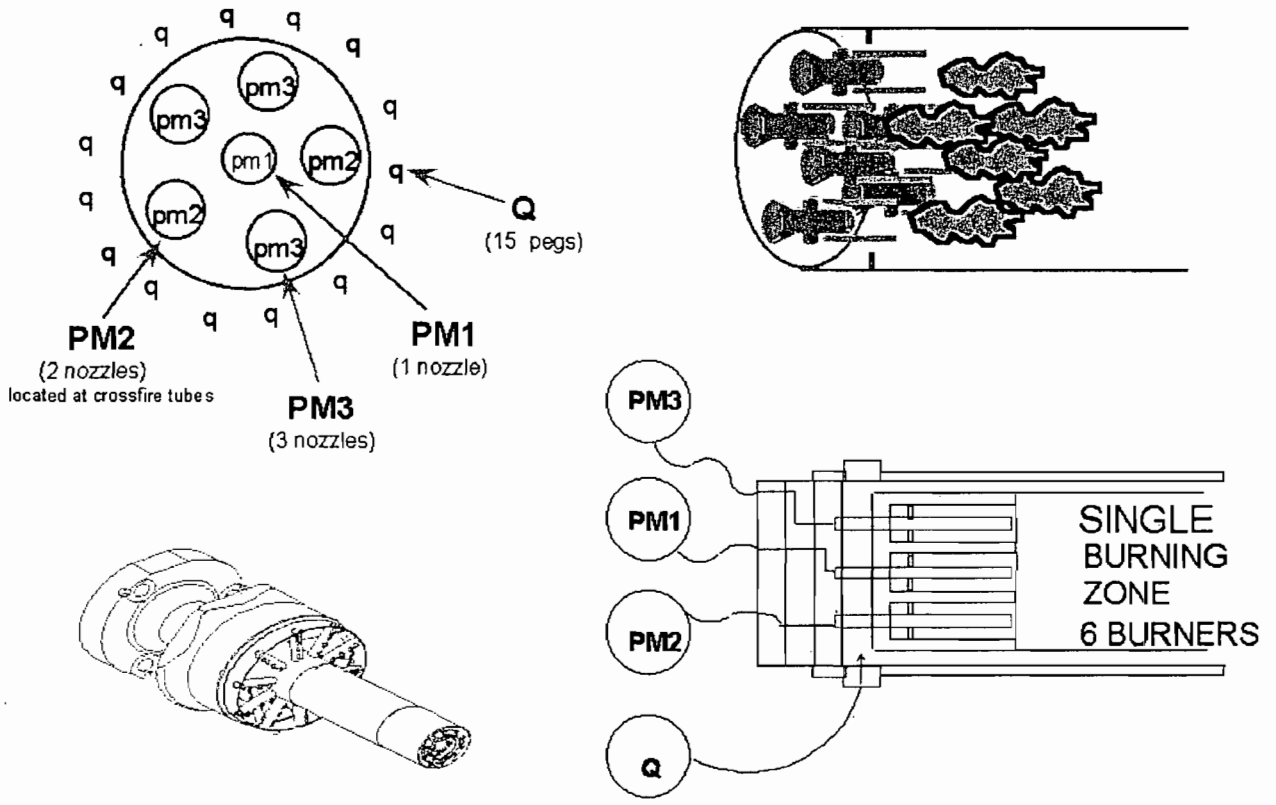

Figure 2 - DLN2.6 Fuel Nozzle Arrangement

The six nozzles are sequentially ignited as load increases in a manner that maintains lean pre-mixed combustion and flame stability.

Design emission characteristics of the DLN-2.6 combustor while firing natural gas are given in Figure 3 for a unit tuned to meet a 15 ppmvd NO_X limit (by volume, dry corrected to at 15 percent oxygen) at JEA's Kennedy Station. The combustor can be tuned differently to achieve emissions as low as 9 ppm of NO_X.

The combustor emits NO_X at concentrations of 15 ppmvd at loads between 50 and 100 percent of capacity, but concentrations as high as 100 ppmvd may occur at less than 50 percent of capacity. Note that VOC comprises a very small amount of the "unburned hydrocarbons" which in turn is mostly non-VOC methane.

Following are the results of the new and clean tests conducted on a dual-fuel GE 7FA combustion turbine operating in combined cycle mode and burning natural gas at the City of Tallahassee Purdom Station Unit 8.[1] The DLN-2.6 combustors for this project were guaranteed to achieve 9 ppmvd of NO_X while burning natural gas although the permit limit is 12 ppmvd. The results are all superior to the emission characteristics given in Figure 3.

Percent of Full Load	NO_X (ppmvd @15% O_2)	CO (ppmvd)
70	7.2	
80	6.1	
90	6.6	
100	8.7	0.85
Limit	12	25

Following are the results of the new and clean tests conducted on a dual-fuel GE 7FA combustion turbine operating in simple cycle mode and burning natural gas at the Tampa Electric Polk Power Station.[2] The DLN 2-6 combustors for this project were guaranteed to achieve 9 ppmvd of NO_X while burning natural gas although the permit limit is 10.5 ppmvd. Again, the results are all superior to the emission characteristics given in Figure 3.

Percent of Full Load	NO_X (ppmvd @15% O_2)	CO (ppmvd)	VOC (ppmvd)
50	5.3	1.6	0.5
70	6.3	0.5	0.4
85	6.2	0.4	0.2
100	7.6	0.3	0.1
Limit	10.5	15	7

Recent conversations with other operators indicate that the "Dry Low NO_X" characteristics extend to operations less than 50 percent of full load, though such operation is not (yet) guaranteed by GE.[3]

An important consideration is that power and efficiency are sacrificed in the effort to achieve low NO_X by combustion technology. This limitation is seen in Figure 4 from an EPRI report.[4] Developments such as single crystal blading, aircraft compressor design, high technology blade cooling have helped to greatly increase efficiency and lower capital costs. Further improvements are more difficult in large part because of the competing demands for air to support lean premix combustion and to provide blade cooling. New concepts are under development by GE and the other turbine manufacturers to meet the challenges implicit in Figure 4.

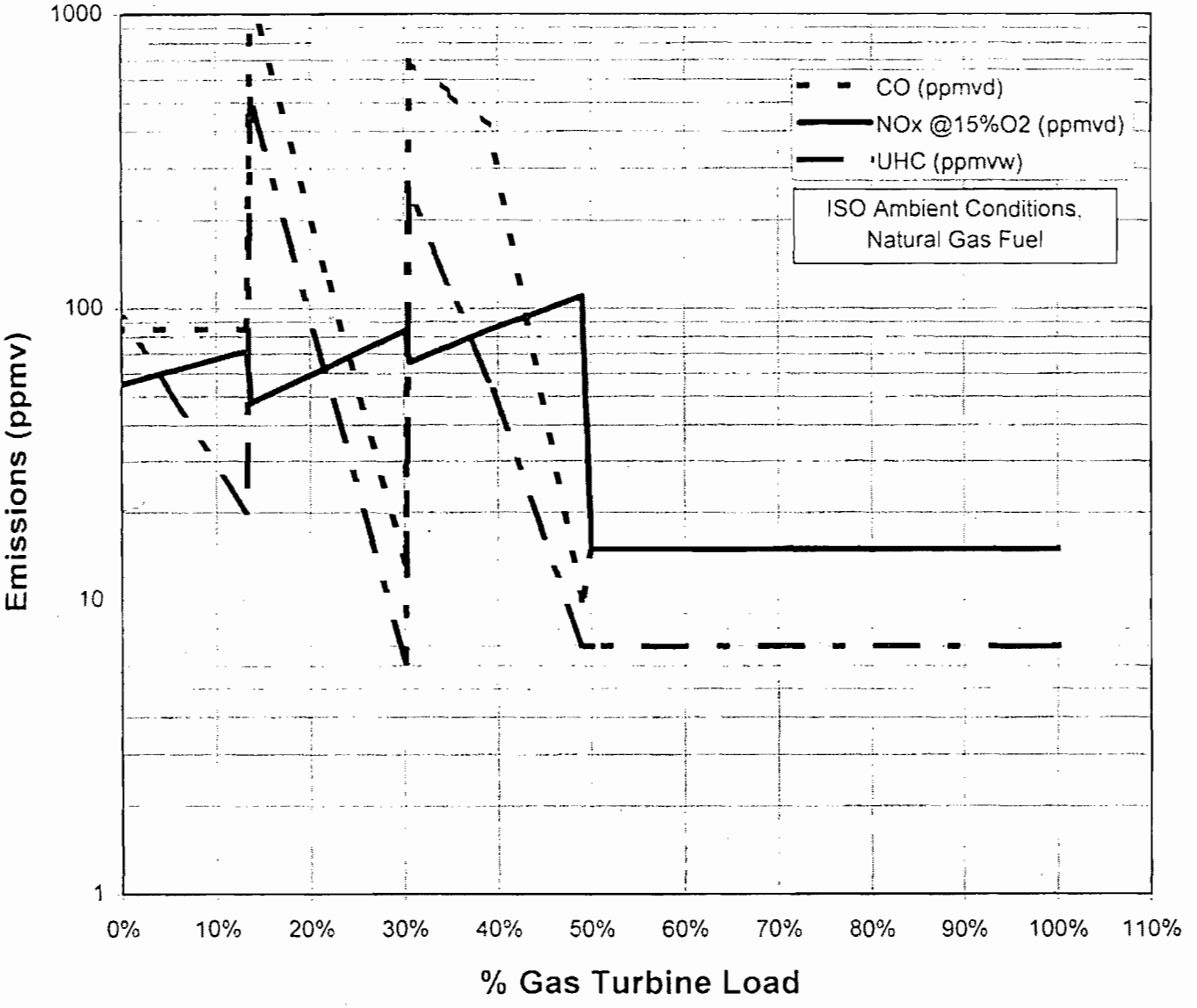

Figure 3 – Emissions Performance Curves for GE DLN-2.6 Combustor Firing Natural Gas in a Dual Fuel GE 7FA Combustion Turbine

(Simple Cycle Intermittent Duty – If Tuned to 15 ppmvd NO_X)

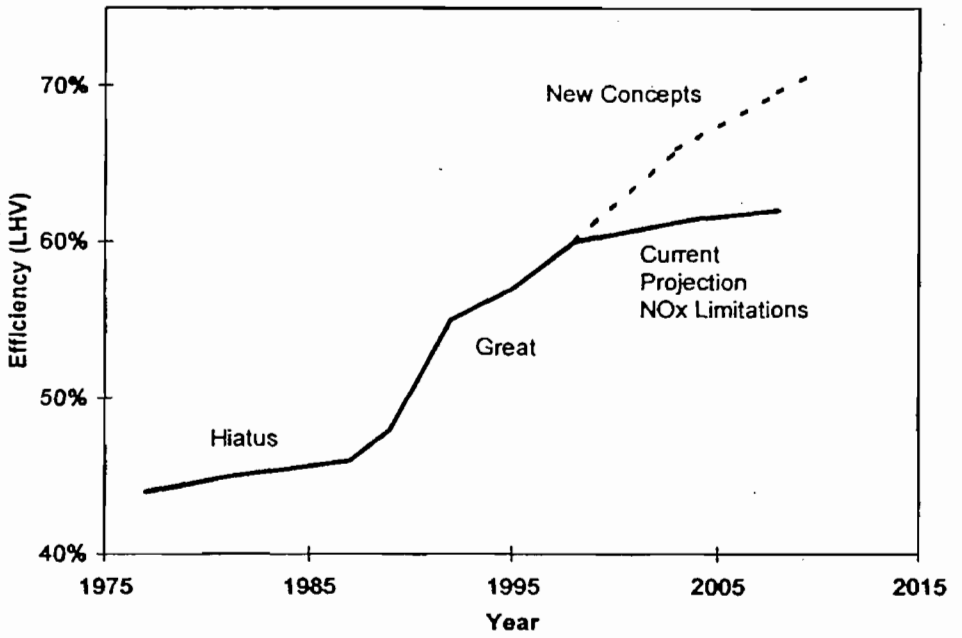

Figure 4 – Efficiency Increases in Combustion Turbines

Further NO_X reductions related to flame temperature control are possible such as closed loop steam cooling. This feature is available only in larger units (G or H Class technology) than the units planned by El Paso. It is more feasible for a combined cycle unit with a heat recovery steam generator (HRSG). In simple cycle, a once-through steam generator would be required. Steam is circulated through the internal portion of the nozzle component, the transition piece between the combustor and the nozzle, or certain turbine blades. The difference between flame temperature and firing temperature into the first stage is minimized and higher efficiency is attained. Flame temperatures and NO_X emissions can therefore be maintained at comparatively low levels even at high firing temperatures (refer back to figure 1). At the same time, thermal efficiency should be greater when employing steam cooling instead of air cooling.

Catalytic Combustion: XONON™

Catalytic combustion involves using a catalytic bed to oxidize a lean air and fuel mixture within a combustor instead of burning with a flame as described above. In a catalytic combustor the air and fuel mixture oxidizes at lower temperatures, producing less NO_X.[5] In the past, the technology was not reliable because the catalyst would not last long enough to make the combustor economical.

There has been increased interest in catalytic combustion as a result of technological improvements and incentives to reduce NO_X emissions without the use of add-on control equipment and reagents. Westinghouse, for example, is working to replace the central pilot in its DLN technology with a catalytic pilot in a project with Precision Combustion Inc.

Catalytica has developed a system know as XONON™, which works by partially burning fuel in a low temperature pre-combustor and completing the combustion in a catalytic combustor. The overall result is low temperature partial combustion (and thus lower NO_X production) followed by flameless catalytic combustion to further attenuate NO_X formation.

In 1998, Catalytica announced the startup of a 1.5 MW Kawasaki gas turbine equipped with XONON™.[6] The turbine is owned by Catalytica and is located at the Gianera Generating Station of Silicon Valley Power, a municipally owned utility serving the City of Santa Clara, California. Previously, this turbine and XONON™ system had successfully completed over 1,200 hours of extensive full-scale tests at a project development facility in Oklahoma that documented XONON's ability to limit emissions of NO_X to less than 3 ppmvd.

Recently, Catalytica and GE announced that the XONON™ combustion system has been specified as the *preferred* emissions control system with GE 7FA turbines that have been ordered for Enron's proposed 750 MW Pastoria Energy Facility.[7] The project will enter commercial operation by the summer of 2001. However actual installation of XONON™ is doubtful.

In principle, XONON™ will work on a simple cycle project. However, the Department does not have information regarding the status of the technology for fuel oil firing and cycling operations.

Selective Catalytic Combustion: SCR

Selective catalytic reduction (SCR) is an add-on NO_X control technology that is employed in the exhaust stream following the gas turbine. SCR reduces NO_X emissions by injecting ammonia into the flue gas in the presence of a catalyst. Ammonia reacts with NO_X in the presence of a catalyst and excess oxygen yielding molecular nitrogen and water. The catalysts used in combined cycle, low temperature applications (conventional SCR), are usually vanadium or titanium oxide and account for almost all installations. For high temperature applications (Hot SCR up to 1100 °F), such as simple cycle turbines, zeolite catalysts are available but used in few applications to-date. SCR units are typically used in combination with wet injection or DLN combustion controls.

In the past, sulfur was found to poison the catalyst material. Sulfur-resistant catalyst materials are now becoming more available. Catalyst formulation improvements have proven effective in resisting sulfur-induced performance degradation with fuel oil in Europe and Japan, where conventional SCR catalyst life in excess of 4 to 6 years has been achieved, while 8 to 10 years catalyst life has been reported with natural gas.

Excessive ammonia use tends to increase emissions of CO, ammonia (slip) and particulate matter (when sulfur-bearing fuels are used).

Kissimmee Utilities Authority (KUA) will install SCR at the Cane Island Unit 3 project. The KUA project will meet a limit of 3.5 ppmvd with a combination of DLN and SCR. Permits were issued recently to Competitive Power Ventures (CPV), Calpine, Florida Power Corporation, and Tampa Electric to achieve 3.5 ppmvd. More recently a permit was issued to CPV for its Pierce, Polk County project with a limit of 2.5 ppmvd @15% O_2 by SCR.

Figure 5 below is a diagram of a HRSG including an SCR reactor with honeycomb catalyst and the ammonia injection grid. The SCR system lies between low and high-pressure steam systems where the temperature requirements for conventional SCR can be met. Figure 6 is a photograph of FPC Hines Energy Complex. The external lines to the ammonia injection grid are easily visible. The magnitude of the installation can be appreciated from the relative size compared with nearby individuals and vehicles.

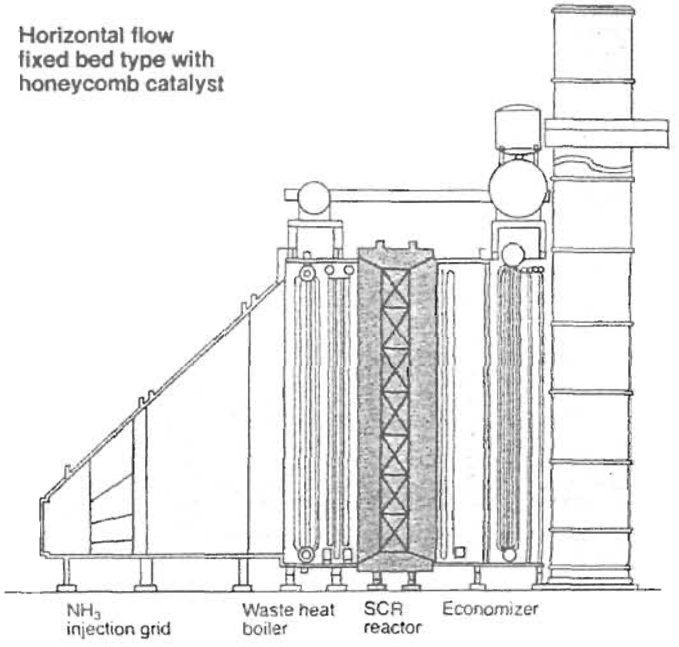

Figure 5 – SCR System within HRSG

Figure 6 – FPC Hines Power Block I

Selective Non-Catalytic Combustion

Selective non-catalytic reduction (SNCR) works on the same principle as SCR. The differences are that it is applicable to hotter streams than conventional or hot SCR, no catalyst is required, and urea can be used as a source of ammonia. No applications have been identified wherein SNCR was applied to a gas turbine because the exhaust temperature of 1100 °F is too low to support the NO_X removal mechanism.

The Department did, however, specify SNCR as one of the available options for the combined cycle Santa Rosa Energy Center. The project will incorporate a large 600 MMBtu/hr duct burner in the heat recovery steam generator (HRSG) and can provide the acceptable temperatures (between 1400 and 2000 °F) and residence times to support the reactions.

$SCONO_X$™

$SCONO_X$™ is a catalytic add-on technology that achieves NO_X control by oxidizing and then absorbing the pollutant onto a honeycomb structure coated with potassium carbonate. The pollutant is then released as molecular nitrogen during a regeneration cycle that requires dilute hydrogen gas. The technology has been demonstrated on small units in California and has been purchased for a small source in Massachusetts.[8]

California regulators and industry sources stated that the first 250 MW block to install $SCONO_X$™ will be at PG&E's La Paloma Plant near Bakersfield.[9] The overall project includes several more 250 MW blocks with SCR for control.[10] USEPA has identified an "achieved in practice" BACT value of 2.0 ppmvd over a three-hour rolling average based upon the recent performance of a Vernon, California natural gas-fired 32 MW combined cycle turbine equipped with $SCONO_X$™.

$SCONO_X$™ technology (at 2.0 ppmvd) is considered to represent LAER in non-attainment areas where cost is not a factor in setting an emission limit. It competes with less-expensive SCR in those areas, but has the advantages that it does not cause ammonia emissions in exchange for NO_X reduction. Advantages of the $SCONO_X$ ™ process include in addition to the reduction of NO_X, the elimination of ammonia and the control of VOC and CO emissions. $SCONO_X$™ has not been applied on any major sources in ozone attainment areas.

Recently EPA Region IX acknowledged that $SCONO_X$™ was demonstrated in practice to achieve 2.0 ppmv NO_X. [11] Permitting authorities planning to issue permits for future combined cycle gas turbine systems firing exclusively on natural gas, and subject to LAER must recognize this limit which, in most cases, would result in a LAER determination of 2.0 ppmvd. More recently, Goal Line announced that $SCONO_X$™ has in practice achieved emissions of 1.3 ppmvd.[12]

According to a recent press release, the Environmental Segment of ABB Alstom Power offers the technology (with performance guarantees) to "all owners and operators of natural gas-fired combined cycle combustion turbines, regardless of size."[13]

$SCONO_X$ requires a much lower temperature regime that is not available in simple cycle units and is therefore not feasible for the simple cycle units proposed in this application.

REVIEW OF SULFUR DIOXIDE (SO_2) AND SULFURIC ACID MIST (SAM)

SO_2 control processes can be classified into five categories: fuel/material sulfur content limitation, absorption by a solution, adsorption on a solid bed, direct conversion to sulfur, or direct conversion to sulfuric acid. A review of the BACT determinations for combustion turbines contained in the BACT Clearinghouse shows that the exclusive use of low sulfur fuels constitutes the top control option for SO_2 from natural gas and fuel oil-fired combustion turbines.

For this project, the applicant has proposed as BACT the use of pipeline natural gas. The applicant estimated total emissions for the project at 87 TPY of SO_2 and 13 TPY of SAM. The Department expects the emissions to be lower because the typical natural gas in Florida contains less than the 1.5 grains of sulfur per 100 standard cubic feet (gr S/100scf) specification proposed by El Paso. This value is well below the "default" maximum value of 20 gr S/100 scf characteristic of natural gas, but is still high enough to require a BACT determination.

REVIEW OF PARTICULATE MATTER (PM/PM_{10}) CONTROL TECHNOLOGIES:

Particulate matter is generated by various physical and chemical processes during combustion and will be affected by the design and operation of the NO_X controls. The particulate matter emitted from this unit will mainly be less than 10 microns in diameter (PM_{10}).

Natural gas will be the only fuel fired and is efficiently combusted in gas turbines. Clean fuels are necessary to avoid damaging turbine blades and other components already exposed to very high temperature and pressure. Natural gas is an inherently clean fuel and contains no ash.

A technology review indicated that the top control option for PM/PM_{10} is a combination of good combustion practices, fuel quality, and filtration of inlet air. Total annual emissions of PM_{10} for the project are expected to be approximately 227 tons per year (including filterable and condensable particulate fractions).

Drift eliminators will be installed on the freshwater mechanical draft cooling tower to reduce PM/PM_{10}. The drift eliminators proposed by El Paso will reduce drift to 0.0005 percent of the

circulating water flow rate. This is equivalent to approximately 1 and 1.6 tons per year of PM_{10} and PM respectively.

REVIEW OF CARBON MONOXIDE (CO) CONTROL TECHNOLOGIES

CO is emitted from combustion turbines due to incomplete fuel combustion. Combustion design and catalytic oxidation are the control alternatives that are viable for the project. The most stringent control technology for CO emissions is the use of an oxidation catalyst.

CO is emitted from combustion turbines due to incomplete fuel combustion. Most combustion turbines incorporate good combustion to minimize emissions of CO. There is a great deal of uncertainty regarding actual CO emissions from installed units. Despite the relatively high BACT limits typically proposed when using combustion controls, much lower emissions have actually been reported from several facilities without use of oxidation catalyst. For example, although Westinghouse does not offer a single digit CO guarantee on the 501F, the units installed at the FPC Hines Energy Complex achieved CO emissions in the range of 1-3 ppmvd on both gas and fuel oil at full load.[14] As previously discussed, GE 7FA units achieved similar results when firing gas at the City of Tallahassee Purdom Unit 8 and the TECO Polk Power Station Unit 2 at loads between 50 and 100 percent.

CO emissions *should* be low (at least at full load) because of the very high combustion temperatures characteristic of "F-Class" turbines. It appears that contract writing has not yet "caught up" with the field experience to consistently guarantee low CO emissions for F-Class units, at least at high loads.

One alternative is to complete the combustion by installation of an oxidation catalyst. Among the most recently permitted projects with oxidation catalyst requirements are the 500 MW Wyandotte Energy project in Michigan, the El Dorado project in Nevada, Ironwood in Pennsylvania, Millennium in Massachusetts, and Sutter Calpine in California. The permitted CO values of these units are between 3 and 5 ppmvd.

A recent permit was issued by the Bay Area AQMD in California for the Metcalf Energy Center. The limit for CO from a Siemens-Westinghouse 501F gas turbine is 6 ppmvd (at full load). No Catalyst is required. However it is doubtful that performance can be maintained at low load.

A recent draft permit was issued by the Department that limits CO to 3.5 ppmvd on a Mitsubishi 501F combustion turbine.[15] Enron will install an oxidation catalyst at Ft. Pierce in order to avoid high CO emissions at low load (<70 percent of full load). This results in the ability to obtain a guarantee for the low permitted level at full load. This would not have been a concern if the units were GE7FAs for the reasons discussed above.

The limit proposed by El Paso for the Broward Energy Center under normal operation is 7.4 ppmvd @15% O_2 at full load. This is consistent with the description of the DLN-2.6 technology. The expected results are 1-2 ppmvd and are actually better than what the Enron and Metcalf projects will likely achieve across the 50-100 percent operating range.

A higher limit of 12 ppmvd @15% O_2 was originally proposed during power augmentation for the combined cycle unit. Under this mode, steam from the HRSG is re-injected into the combustors to boost power production. One consequence is that CO emissions can increase.

Since the original review, El Paso proposed oxidation catalyst on the combined cycle unit in order to resolve a petition filed by the Cities of Margate, Coconut Creek, and Coral Springs. Total annual emissions of CO for the project are now expected to be little more than 100 tons per year based on the new proposed limits of 2.5 ppmvd under normal modes and 4 ppmvd during power

augmentation. Actual emissions will probably be much lower. Startup emissions will also be minimized.

REVIEW OF VOLATILE ORGANIC COMPOUND (VOC) CONTROL TECHNOLOGIES

Volatile organic compound (VOC) emissions, like CO emissions, are formed due to incomplete combustion of fuel. The high flame temperature is very efficient at destroying VOC. The applicant has proposed good combustion practices to control VOC. The limit proposed by El Paso for this project is 1.4 ppmvd @ 15% O_2 for all modes of operation. According to GE (and Department data), VOC emissions less than 1.4 ppm were achieved during recent tests of the DLN-2.6 technology when firing natural gas.[16]

Based on the chosen equipment, the Department believes that annual VOC emissions will be less than 40 TPY. Therefore a BACT determination is not required.

BACKGROUND ON PROPOSED GAS TURBINE

El Paso plans to install four nominal 175-MW General Electric 7FA gas turbines, one of which will operate in combined cycle mode. Per the discussion above, such units are capable of achieving and have achieved (with DLN and SCR technology) all of the emission limits proposed by El Paso as BACT.

The GE Speedtronic™ Mark VI Gas Control System will be used. This control system is designed to fulfill all gas turbine control requirements. These include fuel control in accordance with the requirements of the speed, load control under part-load conditions, temperature control under maximum capability conditions, or during start-up conditions. The Mark VI also monitors the DLN process and controls fuel staging and combustion modes to maintain the programmed NO_X values.[17]

STARTUP AND SHUTDOWN EMISSIONS

The Department defines "Startup" as follows[18]:

"Startup" - The commencement of operation of any emissions unit which has shut down or ceased operation for a period of time sufficient to cause temperature, pressure, chemical or pollution control device imbalances, which result in excess emissions.

The Department permits excess emissions during startup and shut down as follows:[19]

Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration.

The Department defines "Excess Emissions" as follows:[20]

"Excess Emissions" - Emissions of pollutants in excess of those allowed by any applicable air pollution rule of the Department, or by a permit issued pursuant to any such rule or Chapter 62-4, F.A.C. The term applies only to conditions which occur during startup, shutdown, sootblowing, load changing or malfunction.

The U.S. EPA Region IV office recently recommended that the Department consider "establishment of startup and shutdown BACT for CO and NO_X such as mass emission limits (e.g., pounds of emissions in any 24-hour period) that include startup and shutdown emissions, or future emission limits derived from monitoring results during the first few months of commercial operation."[21]

The Department reviewed a number of emission estimates and permit conditions addressing startup and shutdowns for projects in California, Georgia, Washington, and Mississippi and has determined that much of the information is based on estimates that are very difficult to verify.

A review of published General Electric information indicates that features are incorporated into the design of the DLN-2.6 technology specifically aimed at minimizing emissions. One of the key elements was to incorporate lean pre-mixed burning while operating the unit in low load and startup.[22] This is in contrast with the previous DLN-2.0 technology that relied on diffusion mode combustion at four of the burners in each combustor during startup and low load operation.

During startup of a GE 7FA simple cycle unit, NO_X concentrations in the exhaust are greater than during full-load operation. The concentrations are estimated at 20 to 80 ppmvd @15% O_2 during the first 10 minutes or so after the unit is actually firing fuel. This occurs while only one to four of the six nozzles shown in Figure 2 are in operation on each combustor.

Within the following 5 minutes, the unit switches to Mode 5 (or 5 Q), during which NO_X concentrations are typically less than 10 ppmvd even though the unit is not yet at full load.[23] The Low-NO_X modes occurs when at least the five outer nozzles are in operation.

Given the short duration and the relatively low exhaust rate (and load) during the high pollutant concentration phases of simple cycle startup, the Department believes that the NO_X emissions during the first hour of startup and operation will be approximately equal to emissions during an hour of full load steady-state operation. Arguments covering shutdown are similar and the time is more compressed so that the Department believes the conclusion is the same for startup as for shutdown.

NO_X concentrations in the exhaust during startup and shutdown will be less than the New Source Performance Standard limit of approximately 110 ppmvd @15% O_2 applicable to F-Class turbines. A simple cycle unit will typically have one startup and shutdown every day that it is used.

For a combined cycle cold unit startup, the gas turbine will operate at a very low load (less than 10 percent) while the heat recovery steam generator and the steam turbine-electrical generator are heated up. During a period of approximately 2 hours emissions will be roughly 60 to 80 ppmvd NO_X @15% O_2. Once the HRSG is heated sufficiently, the ammonia system is turned on to abate emissions.

The startup scenarios for a GE 7FA combined cycle unit are as follows:

Hot Start: One hour following a shutdown less than or equal to 8 hours.
Warm Start: Two hours following a shutdown between 8 and 48 hours.
Cold Start: Four hours following a shutdown greater than or equal to 48 hours.

During a combined cycle cold unit startup, the gas turbine will operate at a very low load (less than 10 percent) while the heat recovery steam generator and the steam turbine-electrical generator are

heated up. During a portion of the 4 hour startup, emissions will be roughly 60 to 80 ppmvd NO_X @15% O_2. Once the HRSG is heated sufficiently, the ammonia system is turned on to abate emissions.

While NO_X emissions during the initial phase (low load and no ammonia injection) are greater than during full load steady state operation, such startups are infrequent. Also, it is noted that such a cold startup would be preceded by a shutdown of at least 48 hours. Therefore the startup emissions would not cause annual emissions greater than the potential-to-emit under continuous operation. Similar analyses can be performed for warm startups and hot startups.

The combined cycle startup scenario described above can (at least in theory) be modified by use of a bypass stack and damper.[24] Under this scenario, the steam cycle can be slowly brought up to load while the gas turbine reaches full load as fast as it would under simple cycle mode. The exhaust gas can be modulated in such a fashion that the HRSG and steam turbine are ramped up slowly in accordance with their respective specifications. At the same time, the gas turbine will quickly accelerate to the DLN modes (5Q or 6Q) thus minimizing emissions. In this manner the startup NO_X and CO concentrations are reduced to the values observed during simple cycle startup. Thereafter the unit will exhibit the same characteristics as a simple cycle unit in steady-state operation until the ammonia system is actuated.

Implementation of bypass modulation requires an additional stack and design features to minimize stratification and uneven heating of boiler tube bundles in the HRSG. The initial response from GE is that such a configuration at a project in Hungary resulted in equipment damage and leakage of exhaust gas to the atmosphere resulting in a significant loss in performance.[25]

The Department is gathering information from recently commissioned 7FA units to more accurately estimate startup emissions for NO_X and address carbon monoxide too.

DEPARTMENT BACT DETERMINATION

Following are the BACT limits determined for the El Paso project assuming full load. Values for NO_X and CO are corrected to 15% O_2 on a dry volume basis. These emission limits or their equivalents in terms of pounds per hour and NSPS units, as well as the applicable averaging times, are specified in the permit.

POLLUTANT	CONTROL TECHNOLOGY	DEPARTMENT'S BACT LIMIT
Nitrogen Oxides	Dry Low NO_X Combustors Selective Catalytic Reduction	9 ppmvd @ 15% O_2 (simple cycle units) 2.5 ppmvd @ 15% O_2 (combined cycle) 5 ppm ammonia slip from combined cycle unit
Particulate Matter	Pipeline Natural Gas Combustion Controls	20 pounds per hour (filterable plus condensable) 0.0005 % drift of circulating rate – cooling tower
Visible Emissions	As Above	10 Percent (surrogate for PM_{10})
Carbon Monoxide	As Above	7.4 ppmvd @15% O_2 (full load, simple or combined) 12 ppmvd @15% O_2 (combined-steam augmentation)
Sulfur Oxides	As Above	1.5 grain sulfur/100 std cubic feet

In addition, the following limits apply in accordance with the agreement between El Paso and petitioners dated May 1, 2002.

POLLUTANT	CONTROL TECHNOLOGY	PERMITTED EMISSION LIMIT
Carbon Monoxide	Oxidation Catalyst	2.5 ppmvd @15% O_2 (full load, combined cycle) 4.0 ppmvd @15% O_2 (combined-steam augmentation)

RATIONALE FOR DEPARTMENT'S DETERMINATION

- Certain control options are feasible only for combined cycle units are not applicable to simple cycle operation. This rules out Low Temperature (conventional) SCR, and SCONO$_X$. XONON is claimed to be available for F Class gas-fired projects.
- The Top technology and Lowest Achievable Emission Rate (LAER) for simple cycle combustion turbines are high temperature (Hot) SCR and an emission limit of 5 ppmvd NO_X.
- It is conceivable that catalytic combustion technology such as XONON^{TM} can be applied to this project. Theoretically XONON can achieve the 5-ppmvd NO_X value and would equate to the top technology.
- An example of the top technology is the Carson Plant in Sacramento, California where there is a Hot SCR system on a simple cycle LM6000PA combustion turbine with a limit of 5 ppmvd.
- Hot SCR is proposed as LAER for the Sacramento Municipal Utilities District simple cycle GE 7EA project at McClelland Air Force Base to achieve 5 ppmvd.
- The levelized costs of NO_X removal by Hot SCR for the El Paso project were estimated by El Paso at $22,052 per ton assuming 5,000 hours of operation. The estimates are based on reducing NO_X emissions from 9 to 3.5 ppmvd @15% O_2.
- The Department does not accept the precise Hot SCR cost calculations presented by El Paso and considers them on the high end. But even at half the cost estimated by El Paso, the Department would agree that Hot SCR is not be cost-effective for this project.
- XONON is rejected because it has not yet been demonstrated in large combustion turbines and is likely to be even less cost-effective than Hot SCR.
- The Department accepts El Paso's BACT proposal of 9 ppmvd NO_X @15% O_2 for the simple cycle units and exclusive use of natural gas. The Department notes that data from the City of Tallahassee and TECO demonstrate that the GE 7FA units actually achieve 6 to 8 ppmvd @15% O_2.
- The proposed BACT limit of 9 ppmvd for the simple cycle units is less than one-tenth of the applicable NSPS limit per 40 CFR 60, Subpart GG for units as efficient as the 7FA.
- The Department's overall BACT determination for the simple cycle units is equivalent to approximately 0.35 lb of NO_X per megawatt-hour (lb/MWH) by Dry Low NO_X. For reference, the new NSPS promulgated on September 3, 1998 requires that new conventional power plants (based on boilers, etc.) meet a (fuel independent) limit of 1.6 lb/MW-hr.

- The Department will limit operation of the three units to an average of 5,000 hours per year per simple cycle unit. The Department will further limit the operation of each and every individual unit to the fuel-equivalent of 5,000 full load hours of operation. The purpose is to maintain the conclusion regarding cost-effectiveness under intermittent duty operation.
- Although startup and shutdown emissions are generally exempt, emissions during startup and shutdown are less than the NSPS limit of 110 ppmvd @15% O_2 (that applies during steady-state operation).
- The Department does not yet have sufficient information from field experience to set start-up and shutdown emissions limits. However, the modes that give rise to high NO_X concentration have been identified. The Department will therefore set a work practices standard as BACT.
- The Work Practice BACT for simple cycle startup is that the unit(s) will reach Mode 5Q (i.e. five burners plus quaternary pegs in operation) within 15 minutes following gas turbine ignition and crossfire. The shutdown case is trivial.
- The Lowest Achievable Emission Rate (LAER) for a combined cycle unit is approximately 2 ppmvd NO_X at 15 percent oxygen (@15% O_2) while firing natural gas. It has been achieved at the 32 MW Federal Merchant Plant in Los Angeles. The owner, Goal Line, has requested recognition of a 1.3 ppmvd NO_X value as *achieved in practice.*
- There are several projects for large turbines in Massachusetts, Connecticut, New York, and California requiring SCR with a NO_X emission limit of 2 ppmvd @15% O_2.
- The "Top" technology in a top/down analysis for a combined cycle unit will achieve approximately 2 ppmvd @15% O_2 by either SCONO$_X$ or SCR.
- El Paso estimated the cost effectiveness of SCONO$_X$ at $24,187 per ton of NO_X removed. The Department does not necessarily accept the precise SCONO$_X$ cost calculations presented by El Paso. However, even at half the cost estimated by El Paso, the Department agrees that SCONO$_X$ would not be cost-effective for this project.
- El Paso estimated the cost-effectiveness of conventional (cold temperature) SCR at $3,535 per ton of NO_X while reducing emissions from 9 to 3.5 ppmvd @15% O_2. The Department accepts El Paso's estimate and believes this cost-effectiveness can be maintained while achieving an NO_X emission rate of 2.5 ppmvd @15% O_2.
- The National Park Service advised in its review of the application that BACT determinations of 2.5 ppmvd NO_X @15% O_2 have recently been issued for combined cycle projects in Maine and Washington. The Park Service also agreed that 9 ppmvd represents BACT for simple cycle units.[26]
- The Department concludes that 2.5 ppmvd NO_X @15% O_2 (with 5 ppmvd ammonia slip) while firing natural gas in a combined cycle unit constitutes BACT. This value for the conventional SCR option takes into consideration the measurement uncertainties at low emission rates and minimizes particulate emissions due to ammonia emissions.
- The effects of aqueous ammonia use and ammonia slip are not unacceptable. The North Broward Resource Recovery Facility across the street from the proposed site also uses aqueous ammonia for NO_X control.

- The Department's overall BACT determination for the combined cycle unit is less than 0.07 lb of NO_X per megawatt-hour (lb/MWH) by Dry Low NO_X.
- The Work Practice BACT for combined cycle startup is that the combustion turbine will start up and operate as a simple cycle unit and modulate exhaust to the HRSG. This requires installation of a bypass stack and damper. The unit shall reach Mode 5Q (i.e. five burners plus quaternary pegs in operation) within 15 minutes following gas turbine ignition and crossfire. Ammonia injection will be practiced within three hours after gas turbine ignition and crossfire.
- The Department does not have a cost estimate for the additional stack and design requirements, but believes the additional power and flexibility offered by full load simple cycle operation during the cold startup of the steam cycle more than compensates for the additional costs.
- The applicant estimates VOC emissions of 1.4 ppmvd @15% O_2 (or less) for all firing modes. These levels will not trigger PSD or a requirement for a BACT determination.
- El Paso estimated levelized costs at $9,000 per ton to reduce emissions at the simple cycle units from about 7.4 to 0.7 ppmvd CO @15% O_2. The Department does not adopt this estimate, but would agree that even much lower estimates would not be cost-effective for removal of CO.
- In view of the performance of GE 7FA units without add-on control (~ 0 - 4 ppmvd), it is obvious that oxidation catalyst is definitely not cost-effective for the simple cycle units based on *actual* emissions and appears to not be cost-effective based on permitted emissions.
- The Department will set a BACT limit for CO of 7.4 ppmvd @15% for simple cycle operation.
- The Department will set combined cycle CO limits reflecting the agreement dated May 1, 2002 between El Paso and the petitioners. The agreement requires installation of oxidation catalyst to achieve 2.5 and 4.0 ppmvd @15% O_2 under normal and power augmentation modes respectively.
- BACT for sulfur oxides is the exclusive use of natural gas with a specification of 1.5 grains per 100 standard cubic feet. Pipeline quality natural gas in Florida contains less than this value.
- BACT for PM_{10} was determined to be good combustion practices consisting of: inlet air filtering, exclusive use of pipeline natural gas, and operation of the unit in accordance with the manufacturer-provided manuals. The emission limit for PM_{10} will be set at 11 pounds per hour. This value is based on filterable fraction only per the Department's definition of PM/PM_{10}. Expected particulate emissions based on filterable plus condensable particulate matter are 20 pounds per hour.
- PM_{10} emissions will be very low and difficult to measure. Therefore, the Department will set a Visible Emission standard of 10 percent opacity as BACT.
- BACT for the Cooling Tower was determined to be use of fresh water and drift eliminators designed and maintained to reduce drift to 0.0005 percent of the circulating water flow rate. A lower drift rate would be reasonable for project where reused wastewater is the cooling medium.

POLLUTANT	COMPLIANCE PROCEDURE
Visible Emissions (initial, annual)	Method 9
PM/PM_{10} (initial)	Method 5 (Front-half catch)
VOC	Method 25A corrected by methane from Method 18
CTM-027(initial, quarterly, annual)	Procedure for Collection and Analysis of Ammonia in Stationary Sources
SO_2/SAM	Record keeping for the sulfur content of fuels delivered to the site
CO (initial, annual, CEMS)	Method 10; CO-CEMS (continuous 24-hr on one simple cycle unit)
NO_X (continuous 24-hr)	NO_X CEMS, O_2 or CO_2 diluent monitor, and flow device as needed
NO_X (initial and annual)	Annual Method 20 (can use RATA if at capacity); Method 7E

DETAILS OF THE ANALYSIS MAY BE OBTAINED BY CONTACTING:

A. A. Linero, P.E. Administrator Syed Arif for AAL
New Source Review Section
Department of Environmental Protection
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended By:

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

5/14/02
Date

Approved By:

Howard L. Rhodes, Director
Division of Air Resources Management

5/14/02
Date

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SECTION IV. APPENDIX GC
GENERAL PERMIT CONDITIONS [F.A.C. 62-4.160]

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 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 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 (X)
b) Determination of Prevention of Significant Deterioration (X); and
c) Compliance with New Source Performance Standards (X).

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.

NSPS SUBPART GG REQUIREMENTS

[Note: Inapplicable provisions have been deleted in the following conditions, but the numbering of the original rules has been preserved for ease of reference to the original rules. The term "Administrator" when used in 40 CFR 60 shall mean the Department's Secretary or the Secretary's designee. Department notes and requirements related to the Subpart GG requirements are shown in **bold** immediately following the section to which they refer. The rule basis for the Department requirements specified below is Rule 62-4.070(3), F.A.C.]

11. Pursuant to 40 CFR 60.332 Standard for Nitrogen Oxides:

(a) On and after the date of the performance test required by § 60.8 is completed, every owner or operator subject to the provisions of this subpart as specified in paragraph (b) section shall comply with:

(1) No owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any stationary gas turbine, any gases which contain nitrogen oxides in excess of:

$$STD = 0.0075 \frac{(14.4)}{Y} + F$$

where:

STD = allowable NOx emissions (percent by volume at 15 percent oxygen and on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt-hour.

F = NOx emission allowance for fuel-bound nitrogen as defined in paragraph (a)(3) of this section.

(3) F shall be defined according to the nitrogen content of the fuel as follows:

Fuel-bound nitrogen (percent by weight)	F (NOx percent by volume)
$N \leq 0.015$	0
$0.015 < N \leq 0.1$	0.04(N)
$0.1 < N \leq 0.25$	0.004+0.0067(N–0.1)
$N > 0.25$	0.005

Where, N = the nitrogen content of the fuel (percent by weight).

Department requirement: While firing gas, the "F" value shall be assumed to be 0.

[Note: This is required by EPA's March 12, 1993 determination regarding the use of NOx CEMS. The "Y" value for this unit is approximately 10 for natural gas. The equivalent emission standard is 108 ppmvd at 15% oxygen. The emissions standards of this permit is more stringent than this requirement.]

(b) Electric utility stationary gas turbines with a heat input at peak load greater than 107.2 gigajoules per hour (100 million Btu/hour) based on the lower heating value of the fuel fired shall comply with the provisions of paragraph (a)(1) of this section.

12. Pursuant to 40 CFR 60.333 Standard for Sulfur Dioxide:

On and after the date on which the performance test required to be conducted by 40 CFR 60.8 is completed, every owner or operator subject to the provision of this subpart shall comply with:

(b) No owner or operator subject to the provisions of this subpart shall burn in any stationary gas turbine any fuel which contains sulfur in excess of 0.8 percent by weight.

13. Pursuant to 40 CFR 60.334 Monitoring of Operations:

(b) The owner or operator of any stationary gas turbine subject to the provisions of this subpart shall monitor sulfur content and nitrogen content of the fuel being fired in the turbine. The frequency of determination of these values shall be as follows:

(2) If the turbine is supplied its fuel without intermediate bulk storage the values shall be determined and recorded daily. Owners, operators or fuel vendors may develop custom schedules for determination of the values based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom schedules shall be substantiated with data and must be approved by the Administrator before they can be used to comply with paragraph (b) of this section.

Department requirement: The requirement to monitor the nitrogen content of pipeline quality natural gas fired is waived. For purposes of complying with the sulfur content monitoring requirements of this rule, the owner or operator shall obtain a monthly report from the vendor indicating the sulfur content of the natural gas being supplied from the pipeline for each month of operation.

[Note: This is consistent with EPA's custom fuel monitoring policy and guidance from EPA Region 4.]

(c) For the purpose of reports required under 40 CFR 60.7(c), periods of excess emissions that shall be reported are defined as follows:

(1) *Nitrogen oxides.* Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate compliance with 40 CFR 60.332 by the performance test required in § 60.8 or any period during which the fuel-bound nitrogen of the fuel is greater than the maximum nitrogen content allowed by the fuel-bound nitrogen allowance used during the performance test required in § 60.8. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, gas turbine load, and nitrogen content of the fuel during the period of excess emissions, and the graphs or figures developed under 40 CFR 60.335(a).

Department requirement: NOx emissions monitoring by CEM system shall substitute for the requirements of paragraph (c)(1) because a NOx monitor is required to demonstrate compliance with the standards of this permit. Data from the NOx monitor shall be used to determine "excess emissions" for purposes of 40 CFR 60.7 subject to the conditions of the permit.

[Note: As required by EPA's March 12, 1993 determination, the NOx monitor shall meet the applicable requirements of 40 CFR 60.13, Appendix B and Appendix F for certifying, maintaining, operating and assuring the quality of the system; shall be capable of calculating NOx emissions concentrations corrected to 15% oxygen; shall have no less than 95% monitor availability in any given calendar quarter; and shall provide a minimum of four data points for each hour and calculate an hourly average. The requirements for the CEMS specified by the specific conditions of this permit satisfy these requirements.]

(2) *Sulfur dioxide.* Any daily period during which the sulfur content of the fuel being fired in the gas turbine exceeds 0.8 percent.

14. Pursuant to 40 CFR 60.335 Test Methods and Procedures:

(a) To compute the nitrogen oxides emissions, the owner or operator shall use analytical methods and procedures that are accurate to within 5 percent and are approved by the Administrator to determine the nitrogen content of the fuel being fired.

(b) In conducting the performance tests required in 40 CFR 60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided for in 40 CFR 60.8(b). Acceptable alternative methods and procedures are given in paragraph (f) of this section.

(c) The owner or operator shall determine compliance with the nitrogen oxides and sulfur dioxide standards in 40 CFR 60.332 and 60.333(a) as follows:

(1) The nitrogen oxides emission rate (NOx) shall be computed for each run using the following equation:

$$NOx = (NOxo)\,(Pr/Po)^{0.5}\, e^{19(Ho-0.00633)}\,(288°K/Ta)^{1.53}$$

where:

NOx = emission rate of NOx at 15 percent O_2 and ISO standard ambient conditions, volume percent.

NOxo = observed NOx concentration, ppm by volume.

Pr = reference combustor inlet absolute pressure at 101.3 kilopascals ambient pressure, mm Hg.

Po = observed combustor inlet absolute pressure at test, mm Hg.

Ho = observed humidity of ambient air, g H_2O/g air.

e = transcendental constant, 2.718.

Ta = ambient temperature, °K.

Department requirement: The owner or operator is not required to have the NOx monitor required by this permit continuously calculate NOx emissions concentrations corrected to ISO conditions. However, the owner or operator shall keep records of the data needed to make the correction, and shall make the correction when required by the Department or Administrator.

[Note: This is consistent with guidance from EPA Region 4.]

(2) The monitoring device of 40 CFR 60.334(a) shall be used to determine the fuel consumption and the water-to-fuel ratio necessary to comply with 40 CFR 60.332 at 30, 50, 75, and 100 percent of peak load or at four points in the normal operating range of the gas turbine, including the minimum point in the range and peak load. All loads shall be corrected to ISO conditions using the appropriate equations supplied by the manufacturer.

Department requirement: The owner or operator is allowed to conduct initial performance tests at a single load because a NOx monitor shall be used to demonstrate compliance with the BACT NOx limits of this permit.

[Note: This is consistent with guidance from EPA Region 4.]

(3) Method 20 shall be used to determine the nitrogen oxides, sulfur dioxide, and oxygen concentrations. The span values shall be 300 ppm of nitrogen oxide and 21 percent oxygen. The NOx emissions shall be determined at each of the load conditions specified in paragraph (c)(2) of this section.

Department requirement: The owner or operator is allowed to make the initial compliance demonstration for NOx emissions using certified CEM system data, provided that compliance be based on a minimum of three test runs representing a total of at least three hours of data, and that the CEMS be calibrated in accordance with the procedure in section 6.2.3 of Method 20 following each run. Alternatively, initial compliance may be demonstrated using data collected during the initial relative accuracy test audit (RATA) performed on the NOx monitor. The span value specified in the permit shall be used instead of that specified in paragraph (c)(3) above.

[Note: These initial compliance demonstration requirements are consistent with guidance from EPA Region 4. The span value is changed pursuant to Department authority and is consistent with guidance from EPA Region 4.]

(d) The owner or operator shall determine compliance with the sulfur content standard in 40 CFR 60.333(b) as follows: ASTM D 2880-71 shall be used to determine the sulfur content of liquid fuels and ASTM D 1072-80, D 3031-81, D 4084-82, or D 3246-81 shall be used for the sulfur content of gaseous fuels (incorporated by reference – see 40 CFR 60.17). The applicable ranges of some ASTM methods mentioned above are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the approval of the Administrator.

Department requirement: The permit specifies sulfur testing methods.

[Note: This requirement establishes different methods than provided by paragraph (d) above, but the requirements are equally stringent and will ensure compliance with this rule.]

(e) To meet the requirements of 40 CFR 60.334(b), the owner or operator shall use the methods specified in paragraphs (a) and (d) of this section to determine the nitrogen and sulfur contents of the fuel being burned. The analysis may be performed by the owner or operator, a service contractor retained by the owner or operator, the fuel vendor, or any other qualified agency.

[Note: The fuel analysis requirements of the permit meet or exceed the requirements of this rule and will ensure compliance with this rule.]

SECTION IV. APPENDIX XS

CONTINUOUS MONITOR SYSTEMS SEMI-ANNUAL REPORT

{Note: This form is referenced in 40 CFR 60.7, Subpart A, General Provisions.}

Pollutant *(Circle One)*: Nitrogen Oxides (NOx) Carbon Monoxide (CO)

Reporting period dates: From _____ to _____

Company: _____

Emission Limitation: _____

Address: _____

Monitor Manufacturer and Model No.: _____

Date of Latest CMS Certification or Audit: _____

Process Unit(s) Description: _____

Total source operating time in reporting period [a]: _____

Emission data summary [a]		CMS performance summary [a]	
1. Duration of Excess Emissions In Reporting Period Due To:		1. CMS downtime in reporting period due to:	
a. Startup/Shutdown		a. Monitor Equipment Malfunctions	
b. Control Equipment Problems		b. Non-Monitor Equipment Malfunctions	
c. Process Problems		c. Quality Assurance Calibration	
d. Other Known Causes		d. Other Known Causes	
e. Unknown Causes		e. Unknown Causes	
2. Total Duration of Excess Emissions		2. Total CMS Downtime	
3. [Total Duration of Excess Emissions] x (100%) [Total Source Operating Time] [b]		3. [Total CMS Downtime] x (100%) [Total source operating time]	

[a] For opacity, record all times in minutes. For gases, record all times in hours.

[b] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in 40 CFR 60.7(c) shall be submitted.

Note: On a separate page, describe any changes to CMS, process or controls during last 6 months.

I certify that the information contained in this report is true, accurate, and complete.

_____
Name

_____
Title

_____ _____
Signature *Date*

SECTION IV. APPENDIX SC
STANDARD CONDITIONS

{Permitting Note: The following conditions apply to all emissions units and activities at this facility.}

EMISSIONS AND CONTROLS

1. Plant Operation - Problems: If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the permittee shall notify each 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; steps being taken to correct the problem and prevent future recurrence; and, where applicable, 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 or the regulations. [Rule 62-4.130, F.A.C.]

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

3. 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(4), F.A.C.]

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

TESTING REQUIREMENTS

5. Operating Rate During Testing: Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the maximum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test rate until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. [Rule 62-297.310(2), F.A.C.]

6. Calculation of Emission Rate: For each emissions performance test, the indicated emission rate or concentration shall be the arithmetic average of the emission rate or concentration determined by each of the three separate test runs unless otherwise specified in a particular test method or applicable rule. [Rule 62-297.310(3), F.A.C.]

7. Test Procedures: Tests shall be conducted in accordance with all applicable requirements of Chapter 62-297, F.A.C.

a. *Required Sampling Time.* Unless otherwise specified in the applicable rule, the required sampling time for each test run shall be no less than one hour and no greater than four hours, and the sampling time at each sampling point shall be of equal intervals of at least two minutes. The minimum observation period for a visible emissions compliance test shall be thirty (30) minutes. The observation period shall include the period during which the highest opacity can reasonably be expected to occur.

b. *Minimum Sample Volume.* Unless otherwise specified in the applicable rule or test method, the minimum sample volume per run shall be 25 dry standard cubic feet.

c. *Calibration of Sampling Equipment.* Calibration of the sampling train equipment shall be conducted in accordance with the schedule shown in Table 297.310-1, F.A.C.

[Rule 62-297.310(4), F.A.C.]

8. Determination of Process Variables

a. *Required Equipment.* The owner or operator of an emissions unit for which compliance tests are required shall install, operate, and maintain equipment or instruments necessary to

determine process variables, such as process weight input or heat input, when such data are needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.

b. *Accuracy of Equipment.* Equipment or instruments used to directly or indirectly determine process variables, including devices such as belt scales, weight hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value.

[Rule 62-297.310(5), F.A.C.]

9. Sampling Facilities: The permittee shall provide stack testing facilities and sampling locations in accordance with Rule 62-297.310(6), F.A.C.

10. Test Notification: The permittee shall notify the Compliance Authority in writing at least 30 days prior to any initial NSPS performance tests and at least 15 days prior to any other required tests. [Rule 62-297.310(7)(a)9., F.A.C. and 40 CFR 60.7, 60.8]

11. Special Compliance Tests: 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.]

RECORDS AND REPORTS

12. Records Retention: 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 the Department upon request. [Rules 62-4.160(14) and 62-213.440(1)(b)2., 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.]

14. Emissions Performance Test Reports: A report indicating the results of any required emissions performance test shall be submitted to each Compliance Authority no later than 45 days after completion of the last test run. The test report shall provide sufficient detail on the tested emission unit and the procedures used to allow the Department to determine if the test was properly conducted and if the test results were properly computed. At a minimum, the test report shall provide the applicable information listed in Rule 62-297.310(8)(c), F.A.C. [Rule 62-297.310(8), F.A.C.].

STATE OF FLORIDA
DIVISION OF ADMINISTRATIVE HEARINGS

FILED
02 MAY -1 PM 4:41
DIVISION OF ADMINISTRATIVE HEARINGS

CITY OF COCONUT CREEK,

Petitioner,

vs.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION and EL PASO MERCHANT ENERGY COMPANY,

Respondents.

DOAH Case No. 01-4337
OGC Case No. 01-1461

CITY OF CORAL SPRINGS,

Petitioner,

vs.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION and EL PASO MERCHANT ENERGY COMPANY,

Respondents.

DOAH Case No. 01-4338
OGC Case No. 01-1463

CITY OF MARGATE,

Petitioner,

vs.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION and EL PASO MERCHANT ENERGY COMPANY,

Respondents.

DOAH Case No. 01-4339
OGC Case No. 01-1477

STIPULATION OF SETTLEMENT
AND NOTICE OF VOLUNTARY DISMISSAL

The parties hereby stipulate to the settlement of this matter in accordance with the terms and conditions set forth below, and the Cities of Coral Springs, Coconut Creek and Margate ("Petitioners") hereby give notice of the voluntary dismissal of their petitions in this matter and consent to and request the entry of an order closing the files.

1. El Paso Merchant Energy Company ("Applicant") consents to the issuance of, and the Department agrees to issue, the final permit in the form and subject to the terms and conditions set out as Attachment A. This final permit reflects certain changes to the original draft permit, and these are generally described in Attachment B.

2. If the Applicant constructs and initiates operation of the project at the site described in the subject application, then the Applicant agrees that it will not seek approvals to construct an electrical generating plant at the Enron/Pompano Beach site, which is near the intersection of the proposed Blount Rd (existing NW 33rd Street) and NW 34th Place in Pompano Beach, Florida.

3. The Applicant agrees to use the combined cycle gas turbine as a first priority (i.e., prior to the initiation of operation of the simple cycle gas turbines), unless the Applicant determines in its discretion that it is more reasonable to use one or more of the simple cycle gas turbines.

4. By executing this Stipulation, the Petitioners hereby give notice of the voluntary dismissal of their petitions in this matter, with prejudice.

5. The Petitioners agree not to challenge the application for or issuance of any license, permit or approval for the project as described in the application that is the subject of this DOAH proceeding, Application No. 0112545-001-AC (PSD-FL-316). Notwithstanding the aforementioned, the Petitioners shall not be prevented from enforcing compliance with the permit or the provisions of this Stipulation. The parties agree that money damages would be an inadequate remedy at law for any violation of this Stipulation and therefore this Stipulation may be enforced by injunction.

6. The parties respectfully request the entry of an order closing the files.

7. Upon the Division of Administrative Hearings entering an order closing the associated files, the Department shall issue the final permit and shall issue an Order Closing Files for OGC Case Nos. 01-1461, 01-1463, and 01-1477.

8. This Stipulation may be executed in counterparts.

9. Each party shall bear its own costs and attorneys fees.

CITY OF CORAL SPRINGS

Date: 5/1/02

John J. Hearn
Fla. Bar No. 825832
Deputy City Attorney
City of Coral Springs
9551 W. Sample Road
Coral Springs, FL 33065
954/344-1011
954/344-5930 (facsimile)

CITY OF COCONUT CREEK

Date: 5/1/02

Paul S. Stuart
Florida Bar No. 109340
City Attorney
City of Coconut Creek
4800 W. Copans Road
Coconut Creek, FL 33063
954/973-6797
954/973-6790 (facsimile)

CITY OF MARGATE

Date: 5/6/02

Eugene M. Steinfeld
Florida Bar No. 184567
City Attorney
City of Margate
5790 Margate Blvd.
Margate, FL 33063
954/972-6454
954/935-5304 (facsimile)

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Date: April 30, 2002

Jason M. Hand
Florida Bar No. 172502
Assistant General Counsel
3900 Commonwealth Blvd.
Mail Station 35
Tallahassee, FL 32399-3000
850/488-9314
850/921-3000 (facsimile)

EL PASO MERCHANT ENERGY COMPANY

Date: May 1, 2002

Lawrence E. Sellers, Jr.
Florida Bar No. 300241
HOLLAND & KNIGHT LLP
P. O. Drawer 810
315 S. Calhoun St., Suite 600
Tallahassee, FL 32301
850/425-5671
850/222-8185 (facsimile)

El Paso Broward Energy Center, Draft FDEP PSD Permit PSD-FL-316
Summary of Changes between 8/17/01 and 4/10/02 FDEP Draft PSD Permits

1. Permit expiration date changed from December 1, 2004 to December 1, 2005.

2. Oxidation catalyst control system added to the combined-cycle unit to reduce CO and VOC emissions.

3. Combined-cycle unit annual operating hour restriction on use of power augmentation mode deleted due to the addition of the oxidation catalyst control system.

4. Combined-cycle unit allowable CO emissions reduced from 31.0 to 9.7 pounds per hour (lb/hr) and from 8.0 to 2.5 parts per million by volume, dry (ppmvd) - non-power augmentation mode.

5. Combined-cycle unit allowable CO emissions reduced from 48.0 to 16.1 lb/hr and from 12.0 to 4.0 ppmvd - power augmentation mode.

6. Combined-cycle unit expected VOC emissions reduced from 3.0 to 2.4 lb/hr and from 1.3 to 1.1 ppmvd.

7. Stack damper added to combined-cycle unit to minimize the frequency of cold and warm starts. A Best Operating Practice procedure for minimizing startup emissions required to be submitted to the FDEP.

8. Operation below 50% load is prohibited for both the combined- and simple-cycle units.

9. For the combined-cycle unit, scope of initial performance testing was expanded to include testing for PM/PM_{10} and VOC consistent with simple-cycle unit testing requirements.

10. A CO continuous emissions monitoring system (CEMS) is required for one of the three simple-cycle units.

11. For the simple-cycle units, the number of hourly average emission rate values that may be excluded from the continuous NO_x and CO compliance demonstrations in any calendar day was reduced from three to two.

12. A limit on the total dissolved solids (TDS) content of the combined-cycle unit cooling tower recirculation water was added.

13. Small, ancillary emission units (emergency diesel generator, fuel gas heater, diesel fire water pump, and diesel storage tanks) no longer exempted from permitting – BACT limits included for each emission unit.

ATTACHMENT B

STATE OF FLORIDA
DIVISION OF ADMINISTRATIVE HEARINGS

CITY OF COCONUT CREEK, CITY OF CORAL SPRINGS, and CITY OF MARGATE,	)	
Petitioners,	)	
vs.	)	Case Nos. 01-4337
	)	01-4338
EL PASO MERCHANT ENERGY COMPANY and DEPARTMENT OF ENVIRONMENTAL PROTECTION,	)	01-4339
Respondents.	)	

ORDER CLOSING FILES

This cause having come before the undersigned on the Stipulation of Settlement and Notice of Voluntary Dismissal, filed May 1, 2002, and the undersigned being fully advised, it is, therefore,

ORDERED that:

1. The final hearing in this cause scheduled for May 7 through 10, 2002, is hereby cancelled.

2. The files of the Division of Administrative Hearings in the above-captioned matter are hereby closed.

DONE AND ORDERED this 6th day of May, 2002, in Tallahassee, Leon County, Florida.

J. LAWRENCE JOHNSTON
Administrative Law Judge
Division of Administrative Hearings
The DeSoto Building
1230 Apalachee Parkway
Tallahassee, Florida 32399-3060
(850) 488-9675 SUNCOM 278-9675
Fax Filing (850) 921-6847
www.doah.state.fl.us

Filed with the Clerk of the
Division of Administrative Hearings
this 6th day of May, 2002.

COPIES FURNISHED:

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Tallahassee, Florida 32399-3000

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City of Coral Springs
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Coral Springs, Florida 33065

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Eugene Steinfeld, Esquire
City of Margate
5790 Margate Boulevard
Margate, Florida 33063-3699

Paul S. Stuart, Esquire
City of Coconut Creek
4800 West Copans Road
Coconut Creek, Florida 33063

C POWER COMPANY
9 GREENWAY PLAZA
HOUSTON, TX 77046

CHECK DATE	CHECK NUMBER
03/16/2001	70000404

FLORIDA DEPARTMENT OF

ENVIRONMENTAL PROTECTION
TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FL 32399-2400

REMITTANCE ADVICE **RETAIN FOR YOUR RECORDS**

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			TOTAL	$0.00	$7,500.00

Florida Department of Environmental Protection

Memorandum

TO: Howard L. Rhodes

THRU: Clair H. Fancy

Al Linero/Syed Arif

FROM: Teresa M. Heron

DATE: May 9, 2002

SUBJECT: El Paso Broward Energy Center
One 250 MW Combined Cycle and Three 175 MW Simple Cycle Combustion Turbines
DEP File No. 0112545-001-AC (PSD-FL-316)

Attached is the final package for construction of a 775 MW power plant in Deerfield Beach including the Stipulation of Settlement and Notice of Voluntary Dismissal (with attachments) filed with the Department of Administrative Hearings (DOAH) dated May 1, 2002 and the Order Closing Files issued by Administrative Judge J. Lawrence Johnston on May 6, 2002.

The plant will consist of a 250 MW combined cycle and three intermittent duty, simple cycle, 175 MW GE 7FA combustion turbines. Ancillary facilities include inlet air chillers, one 5-cell freshwater mechanical draft cooling tower, a gas-fired heater, one 2600-hp diesel generator, one 250-hp diesel fire pump, aqueous ammonia storage tank, two 500 gallons diesel storage tanks, and four (possibly 5) 135-foot stacks.

Nitrogen Oxides (NO_X) emissions from the gas turbine will be controlled by Dry Low NO_X (DLN-2.6) combustion. The applicant proposed a NO_X emission limit of 3.5 (combined cycle) and 9 ppmvd (simple cycle) @15% O_2. The NO_X BACT standard has been determined to be 2.5 ppmvd @15% O_2 in a 24-hr average time. The simple cycle units are limited to 5,000 hour per year per unit. The turbines will burn natural gas only. Emissions of carbon monoxide, volatile organic compounds, sulfur dioxide, sulfuric acid mist, and particulate matter (PM/PM_{10}) will be very low because of the inherently clean pipeline quality natural gas and the design of the GE unit.

Maximum predicted air quality impacts due to emissions from the El Paso project are less than the applicable PSD Class II significant impact levels, with the exception of 24-hour average PM_{10}. Therefore, multi-source modeling was required for PM_{10}.

The National Park Service reviewed the refined modeling performed by the applicant, including regional haze in the Class I Everglades National Park. They anticipate no adverse impacts on air quality related values.

We recommend your approval of the attached final package.

AAL/th

Attachments

SUN-SENTINEL
PUBLISHED DAILY
FORT LAUDERDALE, BROWARD COUNTY, FLORIDA
BOCA RATON, PALM BEACH COUNTY, FLORIDA
MIAMI, MIAMI DADE COUNTY, FLORIDA

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STATE OF FLORIDA
COUNTY OF BROWARD/PALM BEACH/MIAMI DADE
BEFORE THE UNDERSIGNED AUTHORITY, PERSONALLY APPEARED

Patricia Ray WHO, ON OATH, SAYS THAT HE/SHE IS A DULY AUTHORIZED REPRESENTATIVE OF THE CLASSIFIED DEPARTMENT OF THE SUN-SENTINEL, DAILY NEWSPAPER PUBLISHED IN BROWARD/PALM BEACH/MIAMI DADE COUNTY, FLORIDA, THAT THE ATTACHED COPY OF ADVERTISEMENT, BEING A:

NOTICE OF PUBLIC MEETING

IN THE MATTER OF:

EL PASO BROWARD (Deerfield) POWER PROJECT

IN THE CIRCUIT COURT, WAS PUBLISHED IN SAID NEWSPAPER IN THE ISSUES OF:

c,10/30,1x

AFFIANT FURTHER SAYS THAT THE SAID SUN-SENTINEL IS A NEWSPAPER PUBLISHED IN SAID BROWARD/PALM BEACH/MIAMI DADE COUNTY, FLORIDA, AND THAT THE SAID NEWSPAPER HAS HERETOFORE BEEN CONTINUOUSLY PUBLISHED IN SAID BROWARD/PALM BEACH/MIAMI DADE COUNTY, FLORIDA, EACH DAY, AND HAS BEEN ENTERED AS SECOND CLASS MATTER AT THE POST OFFICE IN FORT LAUDERDALE, IN SAID BROWARD COUNTY, FLORIDA, FOR A PERIOD OF ONE YEAR NEXT PRECEDING THE FIRST PUBLICATION OF ATTACHED COPY OF ADVERTISEMENT; AND AFFIANT FURTHER SAYS THAT HE/SHE HAS NEITHER PAID, NOR PROMISED, ANY PERSON, FIRM, OR CORPORATION, ANY DISCOUNT, REBATE, COMMISSION, OR REFUND, FOR THE PURPOSE OF SECURING THIS ADVERTISEMENT FOR PUBLICATION IN SAID NEWSPAPER.

Patricia Ray
(SIGNATURE OF AFFIANT)

SWORN TO AND SUBSCRIBED BEFORE ME
ON: October 30 A.D. 2001

Barbara Strickland
(SIGNATURE OF NOTARY PUBLIC)

NOTARY PUBLIC STATE OF FLORIDA
Barbara Strickland
Commission # CC 944074
Expires July 24, 2004
Bonded Thru
Atlantic Bonding Co., Inc.
(NAME OF NOTARY, TYPED, PRINTED, OR STAMPED)

PERSONALLY KNOWN ✓ OR
PRODUCED IDENTIFICATION _____

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF PUBLIC MEETING
EL PASO BROWARD (DEERFIELD) POWER PROJECT

The Department of Environmental Protection gives notice that a public meeting will be held regarding the Department's intent to issue an air construction permit pursuant to the rules for the Prevention of Significant Deterioration of Air Quality (PSD) to El Paso Merchant Energy Company for construction of a 775 megawatt natural gas-fueled power plant East of the Turnpike and North of Northwest 48th Street in Deerfield Beach, Broward County.

The meeting will be held from 4:00 to 6:00 p.m. on Wednesday, November 7, 2001 at the City of Coconut Creek Government Center, City Commission Chambers, 4800 West Copans Road, Coconut Creek, Florida 33063.

The Department's Public Notice of Intent to Issue an Air Construction Permit was published in the Sun-Sentinel on August 24, 2001. This public meeting was requested pursuant to the procedures described in that Public Notice. The application, Meeting Agenda, Public Notices, Technical Evaluation, Draft Best Available Control, Technology (BACT), Draft Permit, and file are available for review 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
111 S. Magnolia Drive, Suite 4
Tallahassee, FL 32301
Telephone: 850/488-0114
Fax: 850/922-6979

Dept. of Environmental Protection
Southeast District Office
400 North Congress Avenue
West Palm Beach, FL 33416
Telephone: 561/681-6600
Fax: 561/681-6755

Broward County Department of Planning & Environmental Protection
218 Southwest 1st Avenue
Ft. Lauderdale, FL 33301
Telephone 954/519-1220
Fax: 954/519-1495

The Public Notice of Intent to Issue an Air Construction Permit, Technical Evaluation, Draft Permit, and Draft BACT may be accessed at www.dep.state.fl.us/air/permitting/construction.htm by clicking on the Southeast part of the map.

A separate Notice of this public meeting was published in the Florida Administrative Weekly dated October 26, 2001 and can be viewed at faw.dos.state.fl.us/index.html

Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this meeting is asked to advise the agency at least 48 hours before the meeting by contacting the Personnel Service Specialist in the Bureau of Personnel at (850)488-2996. If you are hearing or speech impaired, please contact the agency by calling (800)955-8771 (TDD).

October 30, 2001

elpaso

FAX COVER SHEET

P.O. Box 2511
Houston, Texas 77252-2511
Fax: 713-420-2483

DATE: October 31, 2001

TO: Al Linero

COMPANY: Florida DEP

FAX: 850 922 6979

FROM: Nick Skelton

PHONE: 713-420- 2867

NUMBER OF PAGES INCLUDING COVER SHEET: 2

If transmission is not received in good order, please call 713-420-3924 or 713-420-2858.

Message:
As per our telephone conference yesterday, please find the attached letter from GE dated September 21, 2001.
Thanks

Nick Skelton

CC Krish Ravishankar

Tom Davis ECT 352 332 6722

NOTICE OF PUBLIC MEETING

The Department of Environmental Protection announces a public meeting to which all persons are invited:

DATE AND TIME: Wednesday, November 7, 2001 from 4:00 p.m. until 6:00 p.m.

PLACE: City of Coconut Creek Government Center, City Commission Chambers, 4800 West Copans Road, Coconut Creek, Florida 33063.

PURPOSE: To accept public comments and provide status of Department's Intent to Issue an Air Construction Permit to El Paso Merchant Energy Company to construct a nominal 775 megawatt gas-fueled power plant East of the Florida Turnpike, West of Powerline Road, and immediately North of Northwest 48th Street (Hilton Road) in Deerfield Beach, Broward County. The location is between the Lakeview/Waterways Community to the North and the Waste Management Landfill to the South. The permitting action is subject to the Department's rules for the Prevention of Significant Deterioration of Air Quality (PSD) and Best Available Control Technology (BACT).

A copy of the agenda and the Department's proposed permit and supporting documents can be obtained by contacting: Debbie Galbraith, Department of Environmental Protection at 2600 Blair Stone Road, MS 5505, Tallahassee, Florida 32399, phone (850) 921-9537, or by phoning the Bureau of Air Regulation's New Source Review Section at (850) 921-9505.

Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this meeting is asked to advise the agency at least 48 hours before the meeting by contacting the Personnel Service Specialist in the Bureau of Personnel at (850) 488-2996. If you are hearing or speech impaired, please contact the agency by calling (800) 955-8771 (TDD).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

SEP 2 4 2001

4APT-APB

Mr. A. A. Linero, P.E.
Florida Department of Environmental Protection
Mail Station 5500
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Linero:

Thank you for sending the prevention of significant deterioration preliminary determination (PSD) and draft permit for the combustion turbine facility proposed by El Paso Merchant Energy Company (El Paso) in Broward County (Air Permit No. PSD-FL-316). The project is referred to as the Broward Energy Center and consists of one General Electric (GE) 7FA combined cycle combustion turbine with an unfired heat recovery steam generator and three GE 7FA simple cycle combustion turbines. Based on the Florida Department of Environmental Protection's (FDEP's) estimated emission rates, the project is subject to PSD review for nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter (PM/PM_{10}), and sulfuric acid mist.

We have reviewed FDEP's preliminary determination and draft permit and El Paso's permit application and have the following comments:

1. The permit application package includes a draft permit with appendices including Appendix BD, the best available control technology (BACT) determination. We understand that the draft permit takes precedence over Appendix BD and that any items in Appendix BD that appear to be a requirement must be incorporated in the permit to be enforceable. This understanding lies at the base of some of the comments below.

2. We understood the reason for El Paso proposing to configure only one of the combustion turbines as part of a combined cycle system (that is, to avoid the requirements of Florida's Power Plant Siting Act). But at the same time, we were concerned that El Paso might sequentially convert the simple cycle combustion turbines to combined cycle operation without going through the same level of control technology assessment that would have been required had combined cycle operation been proposed from the start. Therefore, we were pleased to see the permit condition requiring a revised CO and NO_x BACT analysis should El Paso propose to convert a simple cycle combustion turbine to combined cycle service and further requiring that this analysis be performed as though the turbine had never been built (thus precluding any "equity in the ground" advantage).

3. The 2.5 ppmvd NO_x emission limit determined to represent BACT for the combined cycle combustion turbine is equal to the lowest BACT emission rate that has been established in Region 4 to date and is similar to many of the lowest BACT emission rates that have been established in other regions as well. On the other hand, the 24-hour compliance averaging period associated with the 2.5 ppmvd limit is longer than many of the combustion turbine NO_x compliance averaging periods for similar projects. (Compliance averaging periods of 1 to 3 hours appear in many permits.) However, we consider 24 hours to be an acceptable averaging period in light of the low emission limit.

4. Regarding the CO BACT determination and associated emissions limits, we have the following comments:

   a. The draft permit CO emission limit of 8 ppmvd for the simple cycle combustion turbines and for the combined cycle combustion turbine when not operating in power augmentation mode is among the lower BACT limits established in Region 4 for combustion turbines. We further understand FDEP's expectation that the turbines will in fact typically operate with even lower emissions based on inherent combustor design and good combustion practices alone. However, please note that the specification of catalytic oxidation for further control of combustion turbine CO emissions, especially for combined cycle combustion turbines, has become much more common as part of BACT determinations for combustion turbine projects. Catalytic oxidation has the added advantage of controlling volatile organic compound emissions including volatile organic hazardous air pollutants.

   b. Further related to the CO draft permit emission limit of 8 ppmvd, we note that Appendix BD (the BACT determination) indicates an emission rate of 7.4 ppmvd at full load for either combined cycle or simple cycle combustion turbines. Based on our understanding that the draft permit has precedence over Appendix BD, we presume that 8 ppmvd will be the enforceable limit.

   c. Emissions of CO from combustion turbines increase sharply below a certain load level (unless an add-on control device is in use). For GE 7FA combustion turbines, this sharp increase occurs with operation below about a 50-percent load level. It is not clear to us that the draft permit restricts normal operation (that is, operation other than during startup and shutdown) to load levels of 50 percent and higher. Condition A.17.c. prohibits operation of the combined cycle combustion turbine at "DLN Modes 1, 2, 3, and 4" (except during startup and shutdown), and Condition B.13.c. specifies a similar restriction for the simple cycle combustion turbines. Since the load levels equivalent to these modes are not specifically stated, however, we are not certain what load levels are prohibited. Furthermore, we would appreciate your identifying which monitoring requirements in the draft permit serve to track compliance with the low-load restrictions.

5. We have the following comments concerning the startup and shutdown provisions of the permit package:

   a. As we have often commented, startup and shutdown are part of normal combustion turbine operation and need to be addressed in PSD permits. FDEP has done so for this project by establishing a work practice standard and by limiting the number of hours of emissions that can be excluded from NO_x and CO compliance demonstrations for the combined cycle combustion turbine and from NO_x compliance demonstration for the simple cycle combustion turbines. Other permit options that could be considered include limitations on the number of startups and shutdowns in any 12-month period; mass emission limits for NO_x and CO emissions during any 24-hour period to include emissions during startup and shutdown; and future establishment of startup and shutdown BACT emission limits for NO_x and CO derived from test results during the first few months of commercial operation. In addition, compliance with any explicit or implicit annual emissions limits should be assessed with startup and shutdown emissions included. Regarding the option of mass emission limits, we acknowledge FDEP's comments that such limits may be difficult to quantify.

   b. The only definition of startup that we find is in Appendix BD of the package. As mentioned previously, we understand that the provisions of Appendix BD are not necessarily enforceable. Furthermore, the definition in Appendix BD denotes when startup commences but does not state the operating level or other characteristic marking the end of startup and the beginning of normal operation. We recommend that a more complete definition be developed so that the emission measurements eligible for exclusion under the excess emissions provisions can be confirmed easily.

6. Draft permit Condition 14 pertaining to simple cycle combustion turbines requires testing initially and at permit renewal for PM/PM_{10}, CO, NO_x, and volatile organic compounds (VOC). The draft permit conditions for the combined cycle combustion turbine do not require PM/PM_{10} and VOC initial and renewal testing. We have agreed with FDEP in the past that PM/PM_{10} and VOC testing is not required for combined cycle combustion turbines with continuous emission monitoring systems (CEMS) for CO. However, a permit for a project with both combined cycle and simple cycle combustion turbines that has different initial and renewal testing requirements for the two types of turbines may be perceived as inconsistent. On a related point, we recommend that FDEP give consideration to requiring CO CEMS for the simple cycle combustion turbines as well as for the combined cycle combustion turbine in view of the fact that the simple cycle combustion turbines will be allowed to operate up 5,000 hours per year at full load (and even more hours at a combination of full and partial loads).

7. The term "pipeline-quality natural gas" appears several times in the draft permit. We have sought in the past for a government agency or industry trade group definition of "pipeline-quality" and have never succeeded in finding such a definition. We presume that the term

"pipeline-quality natural gas" means natural gas obtained from an intrastate or interstate commercial natural gas pipeline.

8. The draft permit contains an emission limit for ammonia of 5 ppmvd. Ammonia is not regulated under the PSD program, and we do not have a definitive policy on ammonia emissions. However, we can comment that the limit in the draft permit is consistent with (although not equal to the lowest) ammonia limits we are aware of from projects outside Region 4.

9. In the air quality impact evaluations prepared for this project, we see no acknowledgment that NO_x emissions are precursors to ground-level ozone formation. Such acknowledgment would help demonstrate why control of NO_x emissions from combustion turbines is important.

If you have any questions concerning the comments in this letter, please call Jim Little at (404) 562-9118.

Sincerely,

Kay T. Prince
Chief
Air Planning Branch

cc: D. Galbraith
C. Holladay
D. Banu, Broward Co.
L. Goldman, SED
Q. Bunepal, WPS
K. Ramshankar, El Paso

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

FACSIMILE TRANSMITTAL SHEET

To	Al Linero - FDEP
Fax Number	(850) 922-6979
From	Jim Little Air and Radiation Technology Branch, Air Permits Section Phone: (404) 562-9118 Fax: (404) 562-9019 E-mail: little.james@epa.gov
Subject	Broward Energy Center
Date	September 24, 2001
Pages	5 (including this sheet)

We will mail the original letter.

BEST AVAILABLE COPY

FedEx USA Airbill

FedEx Tracking Number: 806095050760

Form I.D. No.: 0210

SOR13 Sender's Copy

From (please print and press hard)

7/26/01 Sender's FedEx Account Number 1043-1506-2

Al Linero Phone (850-921-9523

DEPT OF ENVIR PROTECTION-MS 5505

2600 BLAIR STONE RD Dept/Floor/Suite/Room

TALLAHASSEE State FL ZIP 32399

Your Internal Billing Reference Information (optional) (First 24 characters will appear on invoice) 37550204000

To (please print and press hard)

Reuben Glickman Phone (954) 978-9083

[X] Check here if residence (Extra charge applies for FedEx Express Saver)

3000 Palm Aire Drive Apt. 103

(We Cannot Deliver to P.O. Boxes or P.O. ZIP Codes) Dept/Floor/Suite/Room

Pompano Beach State FL ZIP 33069

For HOLD at FedEx Location check here

[ ] Hold Weekday (Not available with FedEx First Overnight)
[ ] Hold Saturday (Not available at all locations) (Available for FedEx Priority Overnight and FedEx 2Day only)

For WEEKEND Delivery check here (Extra Charge, Not available to all locations)

[ ] Saturday Delivery (Available for FedEx Priority Overnight and FedEx 2Day only)
[ ] NEW Sunday Delivery (Available for FedEx Priority Overnight only)

4a Express Package Service *Packages under 150 lbs.* Delivery commitment may be later in some areas.

[X] FedEx Priority Overnight (Next business morning)
[ ] FedEx Standard Overnight (Next business afternoon)
[ ] FedEx First Overnight (Earliest next business morning delivery to select locations) (Higher rates apply)
[ ] FedEx 2Day (Second business day)
[ ] FedEx Express Saver (Third business day)
FedEx Letter Rate not available. Minimum charge: One pound rate.

4b Express Freight Service *Packages over 150 lbs.* Delivery commitment may be later in some areas.

[ ] FedEx Overnight Freight (Next business day)
[ ] FedEx 2Day Freight (Second business day)
[ ] FedEx Express Saver Freight (Up to 3 business days)

(Call for delivery schedule. See back for detailed descriptions of freight services.)

5 Packaging [ ] FedEx Letter [ ] FedEx Pak [ ] FedEx Box [ ] FedEx Tube [ ] Other Pkg.
Declared value limit $500.

6 Special Handling (One box must be checked)

Does this shipment contain dangerous goods?* [ ] No [ ] Yes (As per attached Shipper's Declaration) [ ] Yes (Shipper's Declaration not required)

[ ] Dry Ice Dry Ice, 9, UN 1845 ____ x ____ kg.
[ ] Cargo Aircraft Only

*Dangerous Goods cannot be shipped in FedEx packaging.

7 Payment

Bill to: [X] Sender (Account No. in Section 1 will be billed) [ ] Recipient [ ] Third Party [ ] Credit Card [ ] Cash/Check (Enter FedEx Account No. or Credit Card No. below)

FedEx Account No. ____

Credit Card No. ____ Exp. Date ____

Total Packages	Total Weight	Total Declared Value*	Total Charges
		$ .00	$

* When declaring a value higher than $100 per shipment, you pay an additional charge. See SERVICE CONDITIONS, DECLARED VALUE, AND LIMIT OF LIABILITY section for further information.

8 Release Signature *Sign to authorize delivery without obtaining signature.*

Your signature authorizes Federal Express to deliver this shipment without obtaining a signature and agrees to indemnify and hold harmless Federal Express from any resulting claims.

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RETAIN THIS COPY FOR YOUR RECORDS

Conditions, Declared Value, and Limit of Liability – By using this Airbill, you agree to the service conditions in our current Service Guide or U.S. Government Service Guide. Both are available on request. SEE BACK OF THIS COPY OF THIS AIRBILL FOR INFORMATION AND ADDITIONAL TERMS. FedEx will not be responsible for any claim in excess of $100 per package whether the result of loss, damage, or delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, and document your actual loss in a timely manner. Your right to recover from us for any loss includes intrinsic value of the package, loss of sales, interest, profit, attorney's fees, costs, and other forms of damage, whether direct, incidental, consequential, or special, and is limited to the greater of $100 or the declared value but cannot exceed actual documented loss. The maximum declared value for any FedEx Letter and FedEx Pak is $500. Federal Express may, upon your request, and with some limitations, refund all transportation charges paid. See the FedEx Service Guide for further details.

Questions? 1·800·Go·FedEx® (800)463-3339

The World On Time®

005500864 0

SENDER:
1. Complete items 1 and/or 2 for additional services.
2. Complete items 3, 4a, and 4b.
3. Print your name and address on the reverse of this form so that we can return this card to you.
4. Attach this form to the front of the mailpiece, or on the back if space does not permit.
5. Write *"Return Receipt Requested"* on the mailpiece below the article number.
6. The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. [ ] Addressee's Address
2. [ ] Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Mr. William Mack
El Paso Merchant Energy Co.
Coastal Tower, 9 Greenway Plaza
Suite 1682A
Houston, TX 77046-0995

4a. Article Number: 7099 3400 0000 1450 2552

4b. Service Type
[ ] Registered [X] Certified
[ ] Express Mail [ ] Insured
[ ] Return Receipt for Merchandise [ ] COD

7. Date of Delivery: 5.2.01

Received By: (Print Name)

8. Addressee's Address (Only if requested and fee is paid)

Signature: (Addressee or Agent)
X

Form 3811, December 1994 102595-98-B-0229 Domestic Return Receipt

Thank you for using Return Receipt Service.

7099 3400 0000 1450 2552

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Article Sent To:
Mr. William Mack

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Name (Please Print Clearly) (to be completed by mailer)
El Paso Energy Center
Street, Apt. No., or PO Box No.
Coastal Tower, 9 Greenway Plaza
City, State, ZIP+4
Houston, TX 77046-0995

PS Form 3800, July 1999 See Reverse for Instructions

BEST AVAILABLE COPY

FedEx Express, USA Airbill

FedEx Tracking Number 8287 0919 8643

Form I.D. No. 0215

SOR11

Sender's Copy

From Please print and press hard.

Date 8/20/01

Sender's FedEx Account Number 1043-1506-2

Sender's Name AL LINERO

Phone (850) 487-3922

Company DEPT OF ENVIR PROTECTION-MS 5505

Address 2600 BLAIRSTONE RD

Dept./Floor/Suite/Room

City TALLAHASSEE State FL ZIP 32399

Your Internal Billing Reference MC 5515 (First 24 characters will appear on invoice.) OPTIONAL

To Recipient's Name MS. Judy K. Queen Phone (954) 975-6444

Company

Address 3310 CAPAMBOLA CIRCLE SOUTH

If "HOLD" at FedEx location, print FedEx address. We cannot deliver to P.O. boxes or P.O. ZIP codes.

Dept./Floor/Suite/Room

City COCONUT CREEK State FL ZIP 33066-2147

Declared Value Limit $500 FedEx USA Airbill

See back for application instructions.

Questions? Visit our Web site at fedex.com

or call 1-800-Go-FedEx® (800)463-3339.

By using this Airbill you agree to the service conditions on the back of this Airbill and in our current Service Guide, including terms that limit our liability.

0181869647

4a Express Package Service — Packages up to 150 lbs. Delivery commitment may be later in some areas.

- [ ] FedEx Priority Overnight — Next business morning
- [X] FedEx Standard Overnight — Next business afternoon
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations
- [ ] FedEx 2Day — Second business day
- [ ] FedEx Express Saver — Third business day
- [ ] NEW FedEx Extra Hours — Later drop-off with next business afternoon delivery for select locations

FedEx Envelope rate not available. Minimum charge: One-pound rate

4b Express Freight Service — Packages over 150 lbs. Delivery commitment may be later in some areas.

- [ ] FedEx 1Day Freight* — Next business day
- [ ] FedEx 2Day Freight — Second business day
- [ ] FedEx 3Day Freight — Third business day

* Call for Confirmation:

5 Packaging — * Declared value limit $500

- [ ] FedEx Envelope*
- [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak
- [ ] Other Pkg. — Includes FedEx Box, FedEx Tube, and customer pkg.

6 Special Handling — Include FedEx address in Section 3.

- [ ] SATURDAY Delivery — Available only for FedEx Priority Overnight and FedEx 2Day to select ZIP codes
- [ ] SUNDAY Delivery — Available only for FedEx Priority Overnight to select ZIP codes
- [ ] HOLD Weekday at FedEx Location — Not available with FedEx First Overnight
- [ ] HOLD Saturday at FedEx Location — Available only for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

- [ ] No
- [ ] Yes — As per attached Shipper's Declaration
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg
- [ ] Cargo Aircraft Only

Dangerous Goods (incl. Dry Ice) cannot be shipped in FedEx packaging or with FedEx Extra Hours service.

7 Payment Bill to: Enter FedEx Acct. No. or Credit Card No. below.

- [X] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

FedEx Acct. No. / Credit Card No. Exp. Date

Total Packages	Total Weight	Total Declared Value†	FedEx Use Only
		$ .00	

†Our liability is limited to $100 unless you declare a higher value. See back for details.

8 Release Signature Sign to authorize delivery without obtaining signature.

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.

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FedEx Express, USA Airbill

FedEx Tracking Number 8287 0919 8665

Form I.D. No. 0215

SOR11

Sender's Copy

From Please print and press hard.

Date 8/20/01

Sender's FedEx Account Number 1043-1506-2

Sender's Name AL LINERO

Phone (850) 487-3922

Company DEPT OF ENVIR PROTECTION-MS

Address 2600 BLAIRSTONE RD MS 5505

Dept./Floor/Suite/Room

City TALLAHASSEE State FL ZIP 32399

Your Internal Billing Reference MC 5515 (First 24 characters will appear on invoice.) OPTIONAL

To Recipient's Name MC Robin Alickman Phone (954) 978-9083

Company

Address 3800 Palm Place

If "HOLD" at FedEx location, print FedEx address. We cannot deliver to P.O. boxes or P.O. ZIP codes.

Building 4, Apt 103

Dept./Floor/Suite/Room

City Pompano Beach State FL ZIP 33069-7039

Declared Value Limit $500 FedEx USA Airbill

See back for application instructions.

Questions? Visit our Web site at fedex.com

or call 1-800-Go-FedEx® (800)463-3339.

By using this Airbill you agree to the service conditions on the back of this Airbill and in our current Service Guide, including terms that limit our liability.

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- [ ] FedEx Priority Overnight — Next business morning
- [X] FedEx Standard Overnight — Next business afternoon
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations
- [ ] FedEx 2Day — Second business day
- [ ] FedEx Express Saver — Third business day
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FedEx Envelope rate not available. Minimum charge: One-pound rate

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- [ ] FedEx 1Day Freight* — Next business day
- [ ] FedEx 2Day Freight — Second business day
- [ ] FedEx 3Day Freight — Third business day

* Call for Confirmation:

5 Packaging — * Declared value limit $500

- [ ] FedEx Envelope*
- [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak
- [ ] Other Pkg. — Includes FedEx Box, FedEx Tube, and customer pkg.

6 Special Handling — Include FedEx address in Section 3.

- [ ] SATURDAY Delivery — Available only for FedEx Priority Overnight and FedEx 2Day to select ZIP codes
- [ ] SUNDAY Delivery — Available only for FedEx Priority Overnight to select ZIP codes
- [ ] HOLD Weekday at FedEx Location — Not available with FedEx First Overnight
- [ ] HOLD Saturday at FedEx Location — Available only for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

- [ ] No
- [ ] Yes — As per attached Shipper's Declaration
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg
- [ ] Cargo Aircraft Only

Dangerous Goods (incl. Dry Ice) cannot be shipped in FedEx packaging or with FedEx Extra Hours service.

7 Payment Bill to: Enter FedEx Acct. No. or Credit Card No. below.

- [X] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

FedEx Acct. No. / Credit Card No. Exp. Date

Total Packages	Total Weight	Total Declared Value†	FedEx Use Only
		$ .00	

†Our liability is limited to $100 unless you declare a higher value. See back for details.

8 Release Signature Sign to authorize delivery without obtaining signature.

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.

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ECT

Environmental Consulting & Technology, Inc.

September 20, 2001

SENT VIA OVERNIGHT MAIL ON SEPTEMBER 20, 2001

RECEIVED
SEP 21 2001
BUREAU OF AIR REGULATION

Mr. A.A. Linero, P.E.
Administrator, New Source Review Section
Florida Department of Environmental Protection
Division of Air Resources Management
2600 Blair Stone Road, MS #5505
Tallahassee, FL 32399-2400

Re: El Paso Merchant Energy Company
DEP File No. 0112545-001-AC (PSD-FL-316)
Broward Energy Center
Comments on Draft Permit

Dear Mr. Linero:

On behalf of El Paso Merchant Energy Company (EPMEC), comments on the Department's draft Prevention of Significant Deterioration (PSD) permit for the Broward Energy Center are attached for your consideration. To facilitate your review, a marked up electronic version of the Department's draft PSD permit showing the requested revisions are also being sent to you via electronic mail. As previously arranged, a meeting to discuss these comments is scheduled with the Department for 9:00 AM next Wednesday, September 26th.

Your review of these comments and continued processing of the EPMEC Broward Energy Center PSD permit application is appreciated. Please contact Mr. Krish Ravishankar at (713) 420-5563 or the undersigned at (352) 332-6230, Ext. 351 if there are any questions regarding these comments.

ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.

Thomas W. Davis

Thomas W. Davis, P.E.
Principal Engineer

Attachments

cc: Mr. Krish Ravishankar
D. Galbraith
D. Banu, Broward Co.
L. Goldman, SED
C. Holladay
G. Worley, EPA
J. Bunyak, NPS

3701 Northwest 98th Street
Gainesville, FL 32606

(352) 332-0444

FAX (352) 332-6722

GE Energy Services

David R. Horstman
Sales Manager
Mid-America Region

GE Energy Services Sales
General Electric International, Inc.
2025 W. Beltline Rd., Carrollton, Texas 75006, U.S.A.
*Tel: 972.389.7780, Dial Comm: 8*389.7780*
Fx: 972.245.2918, Mobil: 972.672.4203
Email: David.Horstman@ps.ge.com

September 21, 2001

Mr. Nicholas Skelton
Project Engineer
El Paso Energy Company
1001 Louisiana Street, Suite N828B
Houston, TX

Re: Engineering Review

Dear Mr. Skelton:

As requested, I have asked our Application Engineering group to evaluate the feasibility of the Florida DEP recommendation paraphrased below:

> "The Florida DEP has decreed that the start up times for combined cycle plants is too long and have proposed that the turbine be in DLN mode within 18 minutes of ignition. To allow this they are suggesting running the turbine up to more than 50% load up a bypass stack and then warming the HRSG by using the stack bypass damper as a modulating valve".

GEPS Application Engineering's position on this issue is as follows:

> "Operating the damper door as a modulating valve is not recommended. We are aware of a similar application on a project at KEPCO. Because of the turbulent flows, damage to the damper door and its seal allowed leakage to the atmosphere after the damper was closed resulting in a significant loss in performance."

I hope this helps. Please don't hesitate to call if you need any additional assistance.

Very truly yours,

David R. Horstman

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CITY OF COCONUT CREEK,

Petitioners,

vs.

OGC Case No. 01-1461
FDEP File No. 0112545-001-AC
(PSD-FL-316)

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

and

BROWARD BEACH ENERGY CENTER, L.L.C. (AN AFFILIATE OF EL PASO MERCHANT ENERGY COMPANY),

Respondents.
_____/

NOTICE OF APPEARANCE

Please take notice that the undersigned law firm will appear as counsel for Respondent Broward Beach Energy Center, L.L.C. (an affiliate of El Paso Merchant Energy Company). Counsel requests that copies of pleadings and other correspondence be provided to the undersigned at the indicated address.

Respectfully submitted this 18th day of September, 2001.

Lawrence E. Sellers, Jr.
Florida Bar No. 300241
HOLLAND & KNIGHT LLP
Post Office Drawer 810
315 S. Calhoun Street, Suite 600
Tallahassee, Florida 32301
(850) 425-5671
Fax: (850) 222-8185

Attorneys for
Broward Beach Energy Center, L.L.C.
(an affiliate of El Paso Merchant Energy Company)

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished by U. S. Mail, postage prepaid, to Nancy A. Cousins, Assistant City Attorney, City of Coconut Creek, 4800 West Copans Road, Coconut Creek, Florida 33063; and to Martha Nebelsiek, Florida Department of Environmental Protection, Office of the General Counsel, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000; all on this 18th day of September, 2001.

Lawrence E. Sellers, Jr.

TAL1 #210669 v1

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CITY OF CORAL SPRINGS,

Petitioners,

vs.

OGC Case No. 01-1463
FDEP File No. 0112545-001-AC
(PSD-FL-316)

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

and

BROWARD BEACH ENERGY CENTER, L.L.C. (AN AFFILIATE OF EL PASO MERCHANT ENERGY COMPANY),

Respondents.
_____/

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Respectfully submitted this 18th day of September, 2001.

Lawrence E. Sellers, Jr.
Florida Bar No. 300241
HOLLAND & KNIGHT LLP
Post Office Drawer 810
315 S. Calhoun Street, Suite 600
Tallahassee, Florida 32301
(850) 425-5671
Fax: (850) 222-8185

Attorneys for
Broward Beach Energy Center, L.L.C.
(an affiliate of El Paso Merchant Energy Company)

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished by U. S. Mail, postage prepaid, to Samuel S. Goren, City Attorney, and John J. Hearn, Assistant City Attorney, City of Coral Springs, 9551 West Sample Road, Coral Springs, Florida 33065; and to Martha Nebelsiek, Florida Department of Environmental Protection, Office of the General Counsel, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000; all on this 18th day of September, 2001.

Lawrence E. Sellers, Jr.

TAL1 #240670 v1

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CITY OF MARGATE,

Petitioners,

vs.

OGC Case No. 01-1477
FDEP File No. 0112545-001-AC
(PSD-FL-316)

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

and

BROWARD BEACH ENERGY CENTER, L.L.C. (AN AFFILIATE OF EL PASO MERCHANT ENERGY COMPANY),

Respondents.

NOTICE OF APPEARANCE

Please take notice that the undersigned law firm will appear as counsel for Respondent Broward Beach Energy Center, L.L.C. (an affiliate of El Paso Merchant Energy Company). Counsel requests that copies of pleadings and other correspondence be provided to the undersigned at the indicated address.

Respectfully submitted this 18th day of September, 2001.

Lawrence E. Sellers, Jr.
Florida Bar No. 300241
HOLLAND & KNIGHT LLP
Post Office Drawer 810
315 S. Calhoun Street, Suite 600
Tallahassee, Florida 32301
(850) 425-5671
Fax: (850) 222-8185

Attorneys for
Broward Beach Energy Center, L.L.C.
(an affiliate of El Paso Merchant Energy Company)

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished by U. S. Mail, postage prepaid, to Eugene M. Steinfeld, City Attorney, City of Margate, 5790 Margate Boulevard, Margate, Florida 33063; and to Martha Nebelsiek, Florida Department of Environmental Protection, Office of the General Counsel, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000; all on this 18th day of September, 2001.

Lawrence E. Sellers, Jr.

TAL1 #240665 v1

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CITY OF COCONUT CREEK

Petitioner,

v.

DEP File No. 00112545-001-AC
(PSD-FL-316)

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

and

BROWARD BEACH ENERGY
(AN AFFILIATE OF EL PASO MERCHANT
ENERGY COMPANY)

Respondents.

_____/

CITY OF COCONUT CREEK'S REQUEST FOR EXTENSION OF TIME TO FILE A PETITION FOR FORMAL ADMINISTRATIVE HEARING

Petitioner, City of Coconut Creek, ("City"), hereby requests an extension of time to file a petition for formal administrative hearing, pursuant to Section 120.569, Florida Statutes, and Rule 28-106.111, Florida Administrative Code, and states the following:

1. Petitioner is a municipal corporation that is vested with the authority and duty to protect the public health, safety, and welfare of the citizens of Coconut Creek, which is immediately adjacent to the electrical generating plant proposed by Broward Beach Energy, an affiliate of El Paso Merchant Energy Company. The City is a substantially affected party with standing to challenge the proposed issuance of the Draft Air Construction Permit, DEP File No. 0112545-001-AC (PSD-FL-316), particularly on account of the capacity of the subject installation to discharge such types and quantities of pollutants as to jeopardize or compromise the health, safety, and welfare of the City's citizens.

2. The City received a copy of the Intent to Issue the draft permit by certified mail on August 20, 2001, and needs additional time to review the draft permit, which is quite lengthy and detailed.

3. The City's City Commission next regularly scheduled meeting is September 13, 2001, which is past the City's deadline for filing a petition for formal administrative hearing. The City Commission lacks the necessary time to make an informed decision. Additional time is needed so that the City Commissioners have the benefit of a thorough presentation of objective facts and analysis by its staff before making a thoughtful decision of whether to contest, defend, submit comments, or take no action with respect to the draft permit.

4. The City's expert witnesses have not had sufficient time to review the draft permit.

5. Therefore, the City requests a thirty (30) day extension of time, up to and including September 30, 2001, for which to file a petition for formal administrative hearing.

6. The undersigned attorney for the City has consulted with the attorney for the State of Florida Department of Environmental Protection, who has no objection to the extension. The undersigned attorney unsuccessfully attempted to contact the attorney for Broward Beach Energy, an affiliate of El Paso Merchant Energy Company prior to filing this request, and does not know if he would consent to the granting of this extension request.

WHEREFORE, Petitioner, City of Coconut Creek, pursuant to Rule 28-106.111, Florida Administrative Code, requests an extension of time up through September 30, 2001, to file a petition for formal administrative hearing with respect to the Notice of Intent to Issue Air Construction Permit.

Respectfully submitted this 31st day of August, 2001.

Nancy A. Cousins
Assistant City Attorney

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CITY OF CORAL SPRINGS,

Petitioner,

v.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

And

BROWARD BEACH ENERGY CENTER, L.L.C. (AN AFFILIATE OF EL PASO MERCHANT ENERGY COMPANY),

Respondents.
_____/

Case No.:
FDEP File No. 0112545-001-AC
(PSD-FL-316)

CITY OF CORAL SPRINGS' PETITION FOR ADMINISTRATIVE HEARING

Petitioner, City of Coral Springs, a Florida municipal corporation ("City"), hereby files this Petition for Administrative Hearing challenging the Department of Environmental Protection's ("DEP") Intent to Issue Air Construction Permit for Permit No. 0112545-001-AC (PSD-FL-316) ("Permit") to Broward Beach Energy Center, L.L.C., an affiliate of El Paso Merchant Energy Company ("EL PASO") which would allow the construction of a seven hundred seventy five (775) megawatt natural gas-fired combustion turbine power plant immediately east of the Turnpike and north of Hilton Road (Northwest 48 Street) in Deerfield Beach, Broward County, Florida. As grounds for this Administrative Hearing, City states:

1. City is a Florida municipality comprising approximately 22.7 square miles in the northern end of Broward County.

2. The DEP is the permitting authority in this proceeding and has its offices located at 400 North Congress Avenue, West Palm Beach, Florida 33416 and 111 S. Magnolia Drive, Suite 4, Tallahassee, Florida 32301.

3. Broward Beach Energy Center, L.L.C., through its applicant, EL PASO, has its offices located at 1001 Louisiana Street, Houston, Texas 77002.

SUBSTANTIAL INTEREST

4. CITY is a Florida municipality with over 117,000 residents located within the immediate area which will be affected by the building of a power plant. As a result, City has a substantial interest in this proceeding.

5. As a Florida municipality, the City enjoys the powers expressly granted to it by Article 8 of the Constitution of the State of Florida. Specifically, Article 8, Section 2(b), entitled, "Powers," expressly enables municipalities to conduct municipal government, perform municipal functions and render municipal services, except as otherwise provided by law.

6. The City, as a Florida municipality, has the obligation to use its police power to regulate and provide for the public health, safety and welfare of its citizens, including the opportunity to afford its citizens light, air and opportunity for recreation.

7. As confirmed on Page TE-8 of EL PASO's Technical Evaluation and Preliminary Determination Review and on Page TE-8 of ENRON's Deerfield Plant Application which proposed plant is located less than two miles from the proposed Pompano Plant (FDEP File No. 00112515-001-AC (PSD-FL-304)), the prevailing wind at the location of the proposed plant is predominantly from the east. The City is located

directly to the west of the proposed location of the Broward Energy Center Plant ("Plant").

8. The City has a total of 735 acres of parks and has in excess of three hundred fifty (350) acres of Environmentally Sensitive Land as designated by the City's Comprehensive Plan and approved and adopted by the Department of Community Affairs.

9. There can be no dispute that known carcinogens and irritants will be released from the proposed Plant. Due to the City's location and the fact that air quality will be undermined by the Plant, the City's parks, wetlands, species of plants and animals, and its citizens will be directly injured by the degradation of the environment.

10. The emissions from the proposed Plant will degrade regional air quality, including air quality in the City. The air in a region has limited carrying capacity, defined as the increment between current air quality and ambient air quality standards or significant impact levels.

11. Each new facility that locates in a region and emits pollutants will consume part of this carrying capacity. For example, this proposed plant together with the proposed Pompano Beach Energy Center Facility and the proposed Deerfield Beach Energy Center Facility, plus other existing sources, consume well in excess of 80% of the 24-hour sulfur dioxide significant impact level,[1] thus severely limiting future potential growth in the region and greatly increasing the possibility that the carrying capacity will be exceeded.

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[1] Public Notice of Intent to Issue Air Construction Permit at 1.

12. Thus, the City has a direct interest in assuring that all pollution-emitting facilities that locate in the region and which affect air quality in the City use best available control technology to reduce pollution to the maximum extent required by law. As discussed infra, the proposed Plant has failed to use best available control technology.

13. Further, City currently has good air quality and is in attainment with all federal ambient air quality standards. The DEP, by failing to compel new industry to comply with federal and state pollution control laws, unlawfully allows regional air quality to be degraded, including air quality in the City, degrading the environment, including the City's parks and native species of plants and animals within the parks and throughout the community.

14. As a Florida municipality charged with preserving the health, safety and welfare of its citizens, the City has a substantial significant interest in protecting the air quality within its boundaries.

15. The nature of the injury is clearly one in which this type of proceeding is designed to protect.

BACKGROUND

16. On or about August 21, 2001, the CITY received a copy of DEP's Public Notice of Intent to Issue Air Construction Permit for the EL PASO Plant.

17. On March 28, 2001, EL PASO filed its Application with the DEP.

18. On or about August 17, 2001, the DEP entered its Intent to Issue Air Construction Permit.

19. EL PASO is proposing to construct, own and operate a seven hundred and seventy five megawatt (775 MW) power plant, designated as the Broward Energy Center.

The project includes combined cycle and simple cycle gas combustion turbine generators ("CTGs"). The combined cycle CTG consists of a natural gas fired 175-MWGE 7FA turbine, an unfired heat recovery steam generator (HRSG), and a 75-MW steam turbine that would operate continuously. The simple cycle CTGs consist of three natural gas fired 175-MW GE 7FA turbines that would operate 5,000 hours per year. The Plant also includes four 19-foot diameter, 135-foot high stacks, inlet air evaporative cooling, steam injection for power augmentation, a five-cell fresh water cooling tower, one 250-hp emergency fire water pump diesel engine, one 2,600-hp emergency diesel generator, a 12.8 MMBtu/hr gas-fired fuel heater, an ammonia storage tank, and two 1,000-gallon diesel storage tanks.

20. The following uses are located within the immediate vicinity of ENRON's proposed cogeneration power plant facility: (1) Broward County North Regional Wastewater Treatment Plant; (2) Florida Power and Light Electrical Substation; (3) Broward County Central Sanitary Landfill; (4) Wheelabrator Resource Recovery Facility; (5) Hazardous Materials Receiving Facility; and (6) Waste Management Trash Transfer Station.

21. There are currently two (2) other proposed power plants by ENRON North America, both within two (2) miles of this proposed Plant.

22. In addition, the proposed Plant is within thirteen (13) miles of the Arthur R. Marshall Loxahatchee National Wildlife Refuge and within ten (10) miles of the Florida Everglades.

23. The proposed Plant is required to use best available control technology ("BACT") to limit the emissions of nitrogen oxide ("NOx"), carbon monoxide ("CO"),

volatile organic compounds ("VOCs"), sulfur dioxide ("SO_2"), sulfuric acid mist, and particulate matter with an aerodynamic diameter less than ten (10) microns ("PM10"), pursuant to Rule 62-212.400(2)(f), F.A.C.

24. DEP's Intent to Issue Air Construction Permit was based on erroneous information concerning the proposed Plant's distance to environmentally sensitive lands and, therefore, should be reassessed:

(i) The Technical Evaluation and Preliminary Determination provides in Paragraph 2 entitled "Facility Information" that the proposed power Plant is located approximately sixty seven (67) kilometers (41.5 miles) from the Everglades National Park;

(ii) The environmentally sensitive ecosystem of the National Wildlife Refuge is within thirteen (13) miles of the proposed power Plant;

(iii) While the entrance of Everglades National Park may be over forty one (41) miles away from the proposed power Plant, the environmentally sensitive ecosystem of the Florida Everglades is within ten (10) miles of the proposed site; and

(iv) The proximity of these ecosystems were not taken into account by the DEP in their review of the proposed location.

DISPUTED ISSUES OF FACT AND LAW

I. PLANT FAILED TO COMPLY WITH THE PREVENTION OF SIGNIFICANT DETERIORATION RULES

The Plant must comply with the Prevention of Significant Deterioration ("PSD") rules codified at 40 CFR Part 52 and incorporated as a Florida State Implementation Plan ("SIP") approved program into Rule 62-212.400, F.A.C. These regulations require that

the applicant demonstrate that emission increases would not cause or contribute to air pollution in violation of any applicable maximum allowable increase over the baseline concentration in any area. 40 CFR 52.21(k). The applicant must also demonstrate that the project's emissions coupled with general commercial, residential, industrial and other growth associated with the project would not impair visibility, soil, and vegetation. 40 CFR 52.21(o). Finally, the applicant must demonstrate that the project's emission do not impair air-quality-related values in any Class I area. 40 CFR 52.21(p). Failure to make these demonstrates requires permit denial. CITY will demonstrate that applicant's analyses are technically flawed. When the errors and omissions in applicant's analyses are corrected, emissions from the project will cause exceedances of PSD significance thresholds, significant impairment to sensitive habitats, and result in significant visibility impacts. Therefore, DEP must deny the Permit or modify the project to eliminate these impacts.

II. PM10 SIGNIFICANCE THRESHOLD WRONGFULLY EXCEEDED

The Notice of Intent assumes that the project's PM10 emissions would increase the 24-hour average ambient PM10 concentration by 23 ug/m^3, consuming 77% of the PM10 significance threshold of 30 ug/m^3. (Notice of Intent at 1). However, the modeling that this conclusion is based on contains errors and omissions. These include omission of minor sources, omission of contributions of sulfuric acid mist ("SAM") and ammonium sulfate to PM10 emissions, failure to model worst-case scenario, and a number of improper ISC input assumptions (e.g., rural dispersion coefficients).

When these errors and omissions are corrected, the project's PM10 emissions cause exceedances of the PM10 PSD significance of 30 ug/m^3 threshold for Class II

areas. CITY requests that the DEP revisit the air dispersion analyses for PM10 and deny the Permit based on the fact that PSD thresholds will be exceeded.

III. VISIBILITY IMPACTS ARE UNDERESTIMATED

The regional visibility analysis substantially underestimates impacts. The analyses used the wrong emission rates, omitted other power plant projects proposed in the immediately vicinity, failed to consider all of the visibility impairing substances that would be emitted by the project, and made a number of erroneous input assumptions. When these errors and omissions are corrected, project emissions would result in more than 5% visibility impairment, requiring additional analysis and project denial, unless the project is modified. CITY requests that DEP revisit the visibility analyses and deny the Permit based on the fact that the project would significantly impair visibility.

IV. PROJECT EMISSIONS EXCEED SAM ACCEPTABLE REFERENCE CONCENTRATION

The applicant estimated that emissions from the project would increase the 8-hour and 24-hour ambient concentrations of SAM by 0.70 and 0.40 ug/m^3, assuming that 12% of the fuel sulfur is converted to SAM. (Application at 7-20). Because these concentrations were less than the proposed acceptable reference concentrations, the issue was not further considered. (Application at 7-20).

However, a number of source tests on identical turbines indicate that up to 100% of the fuel sulfur is converted to SAM, not just 12% as assumed by the applicant. Assuming 100% of the fuel sulfur is converted to SAM, the 24-hour proposed acceptable reference concentration of 2.4 ug/m^3 would be exceeded. Thus, CITY requests that DEP revisit this issue and establish numerical SAM permit limits to assure that emissions do

not result in significant impacts and lower fuel sulfur limits. The CITY also requests that DEP require source testing for SAM.

V. COOLING TOWER PLUME VISIBILITY NOT CONSIDERED

The project includes several cooling towers. Cooling tower drift is mechanically entrained water droplets which are generated inside the cooling tower and are carried along with the air flowing through the tower and exhausted to the environment. The drift ha the same makeup as the circulating water, which will be concentrated depending upon the number of times the water is circulated in the towers.

Visible water vapor plumes would form when ambient temperatures are low and humidity is high, a common occurrence during Florida winters. This situation would be aggravated during steam augmentation because large amounts of water is intentionally injected into the combustors to boost power output. The resulting plumes would likely be of a substantial size, would occur for a considerable amount of time, and would be highly visible to large numbers of people, including those traveling along the Florida Turnpike.

These plumes will create hazards. These plumes can pose a significant safety hazard for the nearby Turnpike by obstructing the visibility of motorists or forming ice slicks on the road surface. During freezing temperatures, the droplets of water in the cooling tower mist freeze on local roadways, such as the Turnpike, creating hazardous, icy road conditions that could cause accidents. In addition, the plumes will be a distraction to motorists and will reduce visibility, causing accidents. Third, plumes from cooling towers have been linked to legionellosis disease. Finally, the drift will deposit downwind, potentially adversely affecting local vegetation and the animals that forage on it. The draft also forms large visible plumes that impair visibility.

These types of impacts must be evaluated under the additional impact analyses required by the PSD regulations. 40 CFR 52.21(o). The applicant did not evaluate these impacts. Therefore, CITY requests that the DEP deny the Permit or alternatively direct the applicant to complete the requisite studies, modify the draft Permit as appropriate, and recirculate the permit for public review.

VI. PERMIT APPLICATION FAILS TO USE BEST AVAILABLE CONTROL TECHNOLOGY

The proposed project is required to use best available control technology ("BACT") to limit the emissions of nitrogen oxide ("NOx"), carbon monoxide ("CO"), sulfur dioxide ("SO_2"), SAM, and PM10, pursuant to Rule 62-212.400(2)(f), F.A.C. This rule has been incorporated into the SIP, therefore requiring DEP to follow federal guidance and policy. 64 FR 32346 (August 16, 1999); 60 FR 2688 (March 13, 1995); 59 FR 52916 (December 19, 1994).

CITY disputes the DEP's best available control technology ("BACT") determinations contained in Appendix BD of the Technical Evaluation and Preliminary Determination and incorporated into the draft Permit. These determinations do not comply with federal or state law adopted pursuant to the federal Clean Air Act and its amendments, which are designed to protect public health and welfare, including damage to and deterioration of property and hazards to air and ground transportation. See Clean Air Act, Section 101.

The Department must require best available control technology for the Plant. Rule 62-210.200(38), F.A.C. defines BACT as "an emission limitation...based on the *maximum* degree of reduction of each pollutant emitted which the Department, on a case by case basis, taking into account energy, environmental and economic impacts, and

other costs, determines is achievable through application of production processes and available methods, systems and techniques (including fuel cleaning or treatment or innovative fuel combustion techniques) for control of each such pollutant." (emphasis added) The DEP has not enforced BACT as required.

BACT is "an emission limitation...based on the *maximum* degree of reduction" that has been demonstrated. In determining BACT, the Department shall give consideration to, among others, "all scientific, engineering, and technical material and other information available to the Department," "the emission limiting standards or BACT determination of any other state," and "the social and economic impact of such technology." Rule 62-212.400(6), F.A.C. As set forth below, the DEP has failed to identify the "maximum degree of reduction" in violation of the Florida Administrative Code.

The CITY will demonstrate to the DEP that the proposed BACT limits (or absence thereof) for the turbines, cooling tower, heater, and diesel engines are not consistent with the definition of BACT in Rule 62-210.200(38), F.A.C. and the requirements in Rule 62-212.400(6), F.A.C. as specifically set forth below. BACT is a national standard that does not recognize state lines. The DEP's BACT determinations do not recognize the much lower limits currently being permitted in other states, nor do they address the social and environmental impacts to the CITY for failing to appropriately limit emissions from the facility.

The draft permit establishes BACT for NOx from the three simple cycle gas turbines as 9 ppmvd at 15% O_2 averaged over 3 hours, achieved using dry low NOx combustors. Continuous compliance would be demonstrated using a continuous emission

monitoring ("CEM") system, based on a 24-hour block average. (Permit, § III.B.9) Other states, including New York, Connecticut, Illinois, and California, have enforced BACT standards by permitting a large number of gas-fired simple cycle peaking power plants with NOx limits of 2 to 6 ppmvd at 15% O_2 averaged over 1 to 3 hours and achieved using high-temperature selective catalytic reduction ("SCR"). Continuous compliance is demonstrated using CEMs, based on 1-hour to 3-hour averages.

The draft Permit also establishes BACT for NOx for the combined cycle gas turbine as 2.5 ppmvd at 15% O_2 averaged over 3 hours, achieved using dry low NOx combustors and SCR. Continuous compliance would be demonstrated using a CEM system, based on a 24-hour block average. (Permit, § III.A.12) Other states, including New York, Connecticut, Massachusetts, Rhode Island, New Jersey, Arizona, Washington, and California have enforced BACT by permitting a large number of gas-fired combined cycle power plants with NOx limits of 1.55 to 2.5 ppmvd at 15% O_2 averaged over 1 hour. Continuous compliance is demonstrated with a CEM system, based on a 1-hour average.

These lower limits are technically and economically feasible for the Plant. They have been demonstrated elsewhere in source tests and with CEMs and thus are achieved in practice. Therefore, a much lower NOx limit should be established for the Plant turbines, consistent with formal BACT determinations and permitting history in other states and pursuant to Rule 62.212.400(2)(f), F.A.C. and Florida's SIP. The CITY will demonstrate that BACT for NOx for all Plant turbines is 2.0 ppmvd at 15% O_2 averaged over 1 hour and achieved with SCR.

The draft permit establishes BACT for CO for the simple cycle gas turbines as 8.0 ppmvd @ 15% O_2 on gas achieved with good combustion. Compliance would be demonstrated based on a 3-hour source test. (Permit, § III.B.8.) Other states, including California, have enforced BACT standards by permitting simple cycle peaking power plants with CO limits of 2 to 6 ppmvd at 15% O_2 on gas, achieved using an oxidation catalyst.

The draft permit establishes BACT for CO for the combined cycle gas turbine as 12.0 ppmvd @ 15% O_2 when injecting steam for power augmentation and 8.0 ppmvd @ 15% O_2 at all other times, achieved with good combustion. Compliance would be demonstrated based on a 3-hour source test when injecting steam and with CEM system at all other times, based on a 3-hour average. (Permit, § III.A.11.) Other states, including California, Massachusetts, Connecticut, New York, New Jersey, Arizona, and Washington have enforced BACT standards by permitting simple cycle and combined cycle power plants with CO limits of 2 to 6 ppmvd at 15% O_2 averaged over 3 hours, achieved using an oxidation catalyst.

Oxidation catalysts are technically feasible and cost effective for both simple cycle and combined cycle applications. They are also essential to control toxic emissions, particularly from simple cycle turbines that experience a large number of startups. Temperature is not a constraint, as alleged by the DEP. These lower limits have been demonstrated in hundreds of source tests and with CEM systems. As a result, a much lower CO limit should be established for the turbines and continuous compliance should be demonstrated with a CEM system. The CITY will demonstrate that BACT for

CO for all Plant turbines is 2.0 ppmvd at 15% O_2 averaged over 3 hours and achieved with an oxidation catalyst.

The draft Permit establishes a fuel sulfur limit of 1.5 grains per 100 standard cubic feet ("gr/100 scf") (Permit at III.A.6 and III.B.6), concluding that this establishes BACT for both SO_2 and SAM. However, this is a large amount of sulfur for natural gas, amounting to 25 ppmw. Most natural gas has less than 0.1 to 1 gr/100 scf. Sulfur can be economically removed from natural gas using a number of amine scrubbing processes.

Clean fuels were not considered in the BACT analysis. The 1990 Clean Air Act Amendments inserted "clean fuels" into the definition of BACT at 42 U.S.C. § 169(3) so that it now reads:

> An emission limitation based on the maximum degree of reduction of each pollutant...which the permitting authority, on a case-by-case basis...determines is achievable for such facility through application of production processes and available methods, systems and techniques, including fuel cleaning, *clean fuels*, or treatment or innovative fuel combustion techniques for control of each such pollutant.

(emphasis added).

This change codified the then practice "which holds that clean fuels are an available means of reducing emissions to be considered along with other approaches in identifying BACT level controls."[2] Thus, in deciding what constitutes BACT, the DEP must consider both the cleanliness of the fuel and the use of add-on pollution control devices. Hawaiian Commercial & Sugar Company, PSD Appeal No. 92-1 at 5, n.7

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[2] Letter from William G. Rosenberg, Assistant Administrator for Air and Radiation, to Henry A. Waxman, Chairman, Subcommittee on Health and Environment, House Committee on Energy and Commerce, October 17, 1990, reprinted in 136 Cong. Rec. at S16916-17, daily edition, October 17, 1990.

(EAB, July 20, 1992) ("the definition of BACT includes consideration of both clean fuels and use of air pollution control devices.")

The cleanliness of the fuel was not considered. Therefore, CITY requests that the DEP direct the applicant to conduct a formal top-down BACT analysis that considers alternate fuel suppliers or treating the existing supply to a lower sulfur level.

VII. OMITTING STARTUPS AND SHUTDOWN EMISSIONS IS INCONSISTENT WITH CLEAN AIR ACT

The Permit contains no limits on the number of startups/shutdowns nor on the emissions during these periods, which must be considered as part of the BACT determination, but was not. During startups and shutdowns, combustion temperatures and pressures change rapidly, resulting in inefficient combustion and much higher emissions of NOx, CO, and VOCs (including aldehydes) than during steady state operation.

The CITY is concerned that virtually unlimited and uncontrolled startup and shutdown emissions will result in significant health impacts in Coral Springs, particularly during simultaneous operation of the Pompano and Deerfield Beach Energy Centers. Emissions of formaldehyde and other toxic pollutants can increase by large amounts during startups, compared to full load operation.

Omitting limits on startup and shutdown emissions is not consistent with requirements of the Clean Air Act. The U.S. EPA has consistently defined startup and shutdown to be part of the normal operation of a source. See, Letter from Kathleen M. Bennett attached hereto as composite Exhibit "A." The EPA has also consistently concluded that these emissions should be accounted for in the design and implementation or the operating procedure for the process and control equipment. EPA has concluded

that "[w]ithout clear definition and limitations, these automatic exemption provisions [for startups and shutdowns] could effectively shield excess emissions arising from poor operation and maintenance or design, thus precluding attainment." (Bennett 9/28/82).

Accordingly, these emission should have been considered in the BACT analysis and the related health impacts addressed in conjunction with the environmental review required pursuant to Rule 62-210.200(38), F.A.C. Permits issued by other states include limits on startup and shutdown emissions. Thus, the CITY recommends that a permit condition be included that specifically limits the number, duration, and emissions during startups and shutdowns, to comply with BACT and MACT.

VIII. PERMIT FAILS TO MAKE BACT DETERMINATION FEDERALLY ENFORCEABLE

The DEP made BACT determinations for PM10, SO_2, NOx, CO and SAM to satisfy the prevention of significant deterioration ("PSD") regulations. Technical Evaluation at TE-6 and Permit at 2. These determinations must be federally enforceable. The NSR Manual[3] provides that "to complete the BACT process, the reviewing agency must establish an enforceable emission limit for each subject emission unit at the source and for each pollutant subject to review that is emitted from the source." NSR Manual at B.56.

The limits in the Permit must be practically enforceable to qualify as legitimate restrictions on emissions. Practical enforceability means the source and/or enforcement authority must be able to show continual compliance (or noncompliance) with each limitation or requirement. See, U.S. v. Louisiana-Pacific Corp., 682 F.Supp. 1122, Civil

[3] U.S. EPA, New Source Review Workshop Manual. Prevention of Significant Deterioration and Nonattainment Area Permitting, Draft, October 1990.

Action No. 86-A-1880 (D. Colorado, March 22, 1988). The draft Permit does not contain practically enforceable limits on PM10, SO_2, or SAM.

The DEP did not establish any limits for PM10 emissions from the turbines, although it has done so in other recently issued permits. Permit at III.A.13 and III.B.10. Instead, it lists emission rates that it "expects" to be met, arguing that fuel specifications, CO limits, and visible emission standards are substitutes. However, there is no demonstrated relationship between PM10 and visible emissions, CO and fuel specifications.

Further, PM10 originates from many sources besides fuel sulfur, including ambient particulates, steam injected into the turbine for power augmentation, and contaminants in the fuel and in the combustion system. Thus, these surrogates are not replacements for a federally enforceable emission limit on PM10 itself that is demonstrated in annual source tests.

IX. PERMIT FAILS TO MAKE TURBINE PM10 LIMITS FEDERALLY ENFORCEABLE

The PM/PM10 limits are not practically enforceable because the Permit contains inadequate monitoring requirements (PM/PM10). Condition III.B.14 requires a single source test for PM/PM10 from the simple cycle turbines only. No subsequent source tests for PM10 are required for these turbines. Permit at III.A.18. This is inconsistent with federal case law, which requires that limits be established for all pollutant for which BACT is established and that each individual limit (when one is appropriately established) is federally enforceable.

One source test is not adequate to assure continuous compliance because PM10 emissions are highly variable and emissions on initial testing represent "new and clean" conditions. Turbine performance degrades and emissions increase over time.

The CITY request that DEP establish firm PM10 emission limits, expressed in pounds per million Btus, pounds per hour, and tons per year and require compliance demonstration in annual source tests.

X. PM10 FROM COOLING TOWER NOT PROPERLY LIMITED

The BACT analysis established a PM10 drift rate of 0.0005% for the cooling tower but did not establish an enforceable PM10 permit limit for the tower. Instead, it simply repeated the BACT level without providing any means to determine compliance. Permit at III.D.1. CITY recommends that the circulating water flow rate and the total dissolved solids concentration in the circulating water be limited to those assumed in the BACT analysis. Appendix BD at BD-13 and –14.

XI. PERMIT FAILS TO MAKE CO LIMIT FEDERALLY ENFORCEABLE

The Permit establishes emission limits for CO. Permit Condition III.A.20 requires a CEMs for the combined cycle CTG, but Condition III.B.16 does not require a CEMs for the simple cycle CTGs. The NSR Manual recommends that compliance with emission limits be demonstrated, continuously, where feasible. It is feasible to continuously monitor CO, and, in fact, CEMs are commonly required to determine compliance with CO. Therefore, CITY requests that DEP require CO CEMs to demonstrate compliance with the CO limits for the simple cycle CTGs.

XII. PERMIT FAILED TO PUT LIMITS ON MINOR SOURCES

The draft Permit exempts the diesel generator, fuel heater, and diesel fire pump engine, based on small source exemptions in Florida regulations. (Permit at III.D) However, these are state exemptions that do not apply to federal programs, such as the PSD regulations, which are part of Florida's SIP. The PSD regulations do not allow exemptions for minor sources. These sources, although individually minor, must use BACT and be regulated by permit, pursuant to Rule 62-210.200(112), F.A.C., which defines a facility as "all of the emissions units which are located on one or more contiguous or adjacent properties, and which are under the control of the same person (or persons under common control)." Thus, CITY requests that the Permit be modified to require BACT for these minor sources and to establish emission limits and operating hours, consistent with emissions estimates in the Application.

XIII. PERMIT FAILS TO PROPERLY LIMIT SO_2 AND SAM

The draft Permit does not establish any emission limits for either SAM or SO_2 to determine compliance with the BACT determinations, instead arguing that compliance with the BACT determinations, instead arguing that compliance with fuel sulfur specifications is adequate. (Permit at III.A.14 and III.B.11.)

The fuel sulfur specifications themselves to not require any monitoring, instead accepting the vendor's analysis for each month of operation. (Permit at III.C.6.) BACT emission limits must be met on a continual basis at all levels of operation. (NSR Manual at B.56.) Thus, the Permit must be modified to require continuous monitoring of fuel sulfur.

XIV. PLANT EMITS HAZARDOUS AIR POLLUTANTS (HAPs)

A. Diesel Exhaust

The Plant intends on using diesel in the emergency generator and firewater pump engine. The combustion of diesel in these engines would produce "diesel exhaust," which is recognized by the U.S. Environmental Protection Agency (EPA) and California as a potent human carcinogen and respiratory irritant. The CITY is deeply concerned about the impact of these emissions, as well as others, set out below, on the residents of Coral Springs. CITY maintains these emissions should have been considered as a collateral environmental impact in a formal BACT analysis for these engines, pursuant to the definition of BACT at F.A.C. 62-210.200(38) and federal guidance.

B. Maximum Achievable Control Technology for HAPs Required

The applicant's estimates of hazardous air pollutant ("HAPs") did not consider the significant increase in these emissions that occurs during startups and shutdowns. (Application at 2-16.) The emissions of NOx, CO, VOCs, and individual HAPs increase during startups.

It is well documented that turbine performance, in terms of combustion efficiency, degrades as load decreases. Turbines are designed to run efficiently at full load where fuel combustion is nearly 100% efficient. During startup and shutdowns when loads fall below 50%, turbine combustors are extremely inefficient, which results in incomplete combustion. The three simple cycle turbines would experience frequent startups (the number was not disclosed). The emissions from these low load periods should have been included in the HAP emission estimates and in health risk assessments.

When HAP emission estimates are revised to include startups, formaldehyde emissions substantially exceed the 10 ton/yr threshold for any single HAP and combined HAP emissions exceed the 25 ton/yr combined HAP threshold. In fact, if each turbine experienced as few as 100 startups per year, lasting only 10 minutes, the emissions of formaldehyde would exceed 10 ton/yr *per turbine* and require the use of maximum achievable control technology ("MACT"), pursuant to Rule 62-204.800, F.A.C.

There are currently no source category MACT standards for combustion turbines. However, EPA published an Interpretive Rule on May 25, 2000[4] clarifying that case-by-case MACT analyses under 40 CFR 63, Subpart B, are required for major stationary source combustion turbines such as this project. Therefore, a case-by-case MACT analysis should be performed. Normally, MACT for gas turbines is an oxidation catalyst, which is also required here to control CO emissions.

XV. PERMIT FAILS TO COMPLY WITH BROWARD COUNTY REQUIREMENTS

Finally, regulations governing air permits at F.A.C. 62-210.300(4)(d) require that each facility located within the borders of Broward County must comply with the requirements of Broward County. The Plant does not comply with Broward County requirements.

The applicant has not prepared an acceptable pollution prevention plant ("PPP"), as required by Broward County Code ("BCC") Section 27-178. The PPP should achieve a reduction in the generation of regulated air pollutants. The emissions of all regulated pollutants from the Plant exceed the criteria established in this code section, requiring the

[4] National Emission Standards for Hazardous Air Pollutants for Source Categories, Federal Register, v. 65, no. 102, May 25, 2000.

preparation of a PPP. The PPP should lay out a plan to implement "reasonably available technically and economically feasible alternatives" to the proposed levels of emissions. BCC Sec. 27-178(2) and (3)(c).

WHEREFORE, Petitioner CITY, respectfully requests a formal administrative evidence hearing, de novo, pursuant to Chapter 120, Florida Statutes, to resolve disputed issues of material fact and law and that the DEP should not issue Permit No. 0112545-001-AC (PSD-FL-316) or, in the alternative, should amend the Permit to comply with BACT requirements and should prohibit diesel oil from being used at this Facility

Respectfully submitted this 4th day of September, 2001.

SAMUEL S. GOREN
City Attorney

JOHN J. HEARN
Assistant City Attorney

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished via facsimile and regular U.S. mail to: the State of Florida Department of Environmental Protection, Marjory Stoneman Douglas Building, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000 (850-921-3000) and via regular U.S. mail to Joel Gustafson, Esquire, Holland & Knight, Post Office Box 14070, Fort Lauderdale, Florida 33302-4070 this 4th day of September, 2001.

CITY OF CORAL SPRINGS
CITY ATTORNEY'S OFFICE

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STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CITY OF MARGATE,

Petitioner,

v.

Case No.:
FDEP File No. 0112545-001-AC
(PSD-FL-316)

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

And

BROWARD BEACH ENERGY CENTER, L.L.C.
(AN AFFILIATE OF EL PASO MERCHANT
ENERGY COMPANY),

Respondents.
_____/

CITY OF MARGATE'S PETITION FOR ADMINISTRATIVE HEARING

Petitioner, City of Margate, a Florida municipal corporation ("City"), hereby files this Petition for Administrative Hearing challenging the Department of Environmental Protection's ("DEP") Intent to Issue Air Construction Permit for Permit No. 0112545-001-AC (PSD-FL-316) ("Permit") to Broward Beach Energy Center, L.L.C., an affiliate of El Paso Merchant Energy Company ("EL PASO") which would allow the construction of a seven hundred seventy five (775) megawatt natural gas-fired combustion turbine power plant immediately east of the Turnpike and north of Hilton Road (Northwest 48 Street) in Deerfield Beach, Broward County, Florida. As grounds for this Administrative Hearing, City states:

1. City is a Florida municipality comprising approximately 8.98 square miles in the northern end of Broward County.

2. The DEP is the permitting authority in this proceeding and has its offices located at 400 North Congress Avenue, West Palm Beach, Florida 33416 and 111 S. Magnolia Drive, Suite 4, Tallahassee, Florida 32301.

3. Broward Beach Energy Center, L.L.C., through its applicant, EL PASO, has its offices located at 1001 Louisiana Street, Houston, Texas 77002.

SUBSTANTIAL INTEREST

4. CITY is a Florida municipality with over 53,000 residents located within the immediate area which will be affected by the building of a power plant. As a result, City has a substantial interest in this proceeding.

5. As a Florida municipality, the City enjoys the powers expressly granted to it by Article 8 of the Constitution of the State of Florida. Specifically, Article 8, Section 2(b), entitled, "Powers," expressly enables municipalities to conduct municipal government, perform municipal functions and render municipal services, except as otherwise provided by law.

6. The City, as a Florida municipality, has the obligation to use its police power to regulate and provide for the public health, safety and welfare of its citizens, including the opportunity to afford its citizens light, air and opportunity for recreation.

7. As confirmed on Page TE-8 of EL PASO's Technical Evaluation and Preliminary Determination Review and on Page TE-8 of ENRON's Deerfield Plant Application which proposed plant is located less than two miles from the proposed Pompano Plant (FDEP File No. 00112515-001-AC (PSD-FL-304)), the prevailing wind at the location of the proposed plant is predominantly from the east. The City is located

directly to the west of the proposed location of the Broward Energy Center Plant ("BEC").

8. The City has a total of 105 acres of parks and has in excess of 257 acres of Environmentally Sensitive land as designated by the City's Comprehensive Plan and approved and adopted by the Department of Community Affairs.

9. There can be no dispute that known carcinogens and irritants will be released from the proposed Plant. Due to the City's location, the City's parks, wetlands, species of plants and animals, and its citizens will be directly injured by the degradation of the environment.

10. The emissions from the proposed Plant will degrade regional air quality, including air quality in the City. The air in a region has limited carrying capacity, defined as the increment between current air quality and ambient air quality standards or significant impact levels.

11. Each new facility that locates in a region and emits pollutants will consume part of this carrying capacity. For example, this proposed plant together with the proposed Pompano Beach Energy Center Facility and the proposed Deerfield Beach Energy Center Facility, plus other existing sources, consume well in excess of 80% of the 24-hour sulfur dioxide significant impact level,[1] thus severely limiting future potential growth in the region and greatly increasing the possibility that the carrying capacity will be exceeded.

12. Thus, the City has a direct interest in assuring that all pollution-emitting facilities that locate in the region and which affect air quality in the City use best

[1] Public Notice of Intent to Issue Air Construction Permit at 1.

available control technology to reduce pollution to the maximum extent required by law. As discussed infra, the proposed Plant has failed to use best available control technology.

13. Further, City currently has good air quality and is in attainment with all federal ambient air quality standards. The DEP, by failing to compel new industry to comply with federal and state pollution control laws, unlawfully allows regional air quality to be degraded, including air quality in the City, degrading the environment, including the City's parks and native species of plants and animals within the parks and throughout the community.

14. As a Florida municipality charged with preserving the health, safety and welfare of its citizens, the City has a substantial significant interest in protecting the air quality within its boundaries.

15. The nature of the injury is one in which this type of proceeding is designed to protect.

BACKGROUND

16. On or about August 21, 2001, the CITY received a copy of DEP's Public Notice of Intent to Issue Air Construction Permit for the EL PASO Plant.

17. On March 28, 2001, EL PASO filed its Application with the DEP.

18. On or about August 17, 2001, the DEP entered its Intent to Issue Air Construction Permit.

19. EL PASO is proposing to construct, own and operate a seven hundred and seventy five megawatt (775 MW) power plant, designated as the Broward Energy Center ("BEC"). The project includes combined cycle and simple cycle gas combustion turbine generators ("CTGs"). The combined cycle CTG consists of a natural gas fired 175-

MWGE 7FA turbine, an unfired heat recovery steam generator (HRSG), and a 75-MW steam turbine that would operate continuously. The simple cycle CTGs consist of three natural gas fired 175-MW GE 7FA turbines that would operate 5,000 hours per year. The Plant also includes four 19-foot diameter, 135-foot high stacks, inlet air evaporative cooling, steam injection for power augmentation, a five-cell fresh water cooling tower, one 250-hp emergency fire water pump diesel engine, one 2,600-hp emergency diesel generator, a 12.8 MMBtu/hr gas-fired fuel heater, an ammonia storage tank, and two 1,000-gallon diesel storage tanks.

20. The following uses are located within the immediate vicinity of ENRON's proposed cogeneration power plant facility: (1) Broward County North Regional Wastewater Treatment Plant; (2) Florida Power and Light Electrical Substation; (3) Broward County Central Sanitary Landfill; (4) Wheelabrator Resource Recovery Facility; (5) Hazardous Materials Receiving Facility; and (6) Waste Management Trash Transfer Station.

21. There are currently two (2) other proposed power plants by ENRON North America, both within two (2) miles of this proposed Plant.

22. In addition, the proposed Plant is within thirteen (13) miles of the Arthur R. Marshall Loxahatchee National Wildlife Refuge and within ten (10) miles of the Florida Everglades.

23. The proposed Plant is required to use best available control technology ("BACT") to limit the emissions of nitrogen oxide ("NOx"), carbon monoxide ("CO"), volatile organic compounds ("VOCs"), sulfur dioxide ("SO_2"), sulfuric acid mist, and

particulate matter with an aerodynamic diameter less than ten (10) microns ("PM10"), pursuant to Rule 62-212.400(2)(f), F.A.C.

24. DEP's Intent to Issue Air Construction Permit was based on erroneous information concerning the proposed Plant's distance to environmentally sensitive lands and, therefore, should be reassessed:

(i) The Technical Evaluation and Preliminary Determination provides in Paragraph 2 entitled "Facility Information" that the proposed power Plant is located approximately sixty seven (67) kilometers (41.5 miles) from the Everglades National Park;

(ii) The environmentally sensitive ecosystem of the National Wildlife Refuge is within thirteen (13) miles of the proposed power Plant;

(iii) While the entrance of Everglades National Park may be over forty one (41) miles away from the proposed power Plant, the environmentally sensitive ecosystem of the Florida Everglades is within ten (10) miles of the proposed site; and

(iv) The proximity of these ecosystems were not taken into account by the DEP in their review of the proposed location.

DISPUTED ISSUES OF FACT AND LAW

AIR QUALITY ISSUES

The proposed facility must comply with the Prevention of Significant Deterioration ("PSD") rules codified at 40 CFR Part 52 and incorporated as a SIP-approved program into Rule 62-212.400, F.A.C. These regulations require that the applicant demonstrate that emission increases would not cause or contribute to air

pollution in violation of any applicable maximum allowable increase over the baseline concentration in any area. 40 CFR 52.21(k). The applicant must also demonstrate that the project's emissions coupled with general commercial, residential, industrial and other growth associated with the project would not impair visibility, soil, and vegetation. 40 CFR 52.21(o). Finally, the applicant must demonstrate that the project's emission do not impair air-quality-related values in any Class I area. 40 CFR 52.21(p). Failure to make these demonstrates requires permit denial. CITY will demonstrate that applicant's analyses are technically flawed. When the errors and omissions in applicant's analyses are corrected, emissions from the project will cause exceedances of PSD significance thresholds, significant impairment to sensitive habitats, and result in significant visibility impacts. Therefore, DEP must deny the Permit or modify the project to eliminate these impacts.

PM10 Significance Threshold Exceeded

The Notice of Intent assumes that the project's PM10 emissions would increase the 24-hour average ambient PM10 concentration by 23 ug/m^3, consuming 77% of the PM10 significance threshold of 30 ug/m^3. (Notice of Intent at 1). However, the modeling that this conclusion is based on contains errors and omissions. These include omission of minor sources, omission of contributions of SAM and ammonium sulfate to PM10 emissions, failure to model worst-case scenario, and a number of improper ISC input assumptions (e.g., rural dispersion coefficients).

When these errors and omissions are corrected, the project's PM10 emissions cause exceedances of the PM10 PSD significance of 30 ug/m^3 threshold for Class II

areas. CITY requests that the DEP revisit the air dispersion analyses for PM10 and deny the Permit based on the fact that PSD thresholds will be exceeded.

Visibility Impacts are Significant

The regional visibility analysis substantially underestimates impacts. The analyses used the wrong emission rates, omitted other power plant projects proposed in the immediately vicinity, failed to consider all of the visibility impairing substances that would be emitted by the project, and made a number of erroneous input assumptions. When these errors and omissions are corrected, project emissions would result in more than 5% visibility impairment, requiring additional analysis and project denial, unless the project is modified. CITY requests that DEP revisit the visibility analyses and deny the Permit based on the fact that the project would significantly impair visibility.

Project Emissions Exceed SAM Acceptable Reference Concentration

The applicant estimated that emissions from the project would increase the 8-hour and 24-hour ambient concentrations of SAM by 0.70 and 0.40 ug/m^3, assuming that 12% of the fuel sulfur is converted to SAM. (Application at 7-20). Because these concentrations were less than the proposed acceptable reference concentrations, the issue was not further considered. (Application at 7-20).

However, a number of source tests on identical turbines indicate that up to 100% of the fuel sulfur is converted to SAM, not just 12% as assumed by the applicant. Assuming 100% of the fuel sulfur is converted to SAM, the 24-hour proposed acceptable reference concentration of 2.4 ug/m^3 would be exceeded. Thus, CITY requests that DEP revisit this issue and establish numerical SAM permit limits to assure that emissions do

not result in significant impacts and lower fuel sulfur limits. The CITY also requests that DEP require source testing for SAM.

Cooling Tower Plume Visibility Not Considered

The project includes several cooling towers. Cooling tower drift is mechanically entrained water droplets which are generated inside the cooling tower and are carried along with the air flowing through the tower and exhausted to the environment. The drift ha the same makeup as the circulating water, which will be concentrated depending upon the number of times the water is circulated in the towers. **The plumes from the cooling towers and turbines could create a number of impacts that are not evaluated in any of the materials that I have reviewed. These include fogging, icing, drift, visibility impairment and contamination of surfaces.**

Visible water vapor plumes would form when ambient temperatures are low and humidity is high, a common occurrence during Florida winters. This situation would be aggravated during steam augmentation because large amounts of water is intentionally injected into the combustors to boost power output. The resulting plumes would likely be of a substantial size, would occur for a considerable amount of time, and would be highly visible to large numbers of people, including those traveling along the Florida Turnpike.

These plumes will create hazards. These plumes can pose a significant safety hazard for the nearby Turnpike by obstructing the visibility of motorists or forming ice slicks on the road surface on the occasional winter nights when frost occurs. During freezing temperatures, the droplets of water in the cooling tower mist freeze on local roadways, such as the Turnpike, creating hazardous, icy road conditions that could cause accidents. In addition, the plumes will be a distraction to motorists and will reduce

visibility, causing accidents. Third, plumes from cooling towers have been linked to legionellosis disease. Finally, the drift will deposit downwind, potentially adversely affecting local vegetation and the animals that forage on it. The draft also forms large visible plumes that impair visibility.

These types of impacts must be evaluated under the additional impact analyses required by the PSD regulations. 40 CFR 52.21(o). The applicant did not evaluate these impacts. Therefore, CITY requests that the DEP deny the Permit or alternatively direct the applicant to complete the requisite studies, modify the draft Permit as appropriate, and recirculate the permit for public review.

BEST AVAILABLE CONTROL TECHNOLOGY

The proposed project is required to use best available control technology ("BACT") to limit the emissions of nitrogen oxide ("NOx"), carbon monoxide ("CO"), sulfur dioxide ("SO_2"), sulfuric acid mist ("SAM"), and particulate matter with an aerodynamic diameter less than 10 microns ("PM10"), pursuant to Rule 62-212.400(2)(f), F.A.C. This rule has been incorporated into the Florida State Implementation Plan ("SIP"), therefore requiring DEP to follow federal guidance and policy. 64 FR 32346 (August 16, 1999); 60 FR 2688 (March 13, 1995); 59 FR 52916 (December 19, 1994).

CITY disputes the DEP's best available control technology ("BACT") determinations contained in Appendix BD of the Technical Evaluation and Preliminary Determination and incorporated into the draft Permit. These determinations do not comply with federal or state law adopted pursuant to the federal Clean Air Act and its amendments, which are designed to protect public health and welfare, including damage

to and deterioration of property and hazards to air and ground transportation. See Clean Air Act, Section 101.

The Department must require best available control technology for the Plant. Rule 62-210.200(38), F.A.C. defines BACT as "an emission limitation ... based on the *maximum* degree of reduction of each pollutant emitted which the Department, on a case by case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems and techniques (including fuel cleaning or treatment or innovative fuel combustion techniques) for control of each such pollutant." (emphasis added) The DEP has not enforced BACT as required.

BACT is "an emission limitation ... based on the *maximum* degree of reduction" that has been demonstrated. In determining BACT, the Department shall give consideration to, among others, "all scientific, engineering, and technical material and other information available to the Department," "the emission limiting standards or BACT determination of any other state," and "the social and economic impact of such technology." Rule 62-212.400(6), F.A.C. As set forth below, the DEP has failed to identify the "maximum degree of reduction" in violation of the Florida Administrative Code.

The CITY will demonstrate to the DEP that the proposed BACT limits (or absence thereof) for the turbines, cooling tower, heater, and diesel engines are not consistent with the definition of BACT in Rule 62-210.200(38), F.A.C. and the requirements in Rule 62-212.400(6), F.A.C. as specifically set forth below. BACT is a national standard that does not recognize state lines. The DEP's BACT determinations

do not recognize the much lower limits currently being permitted in other states, nor do they address the social and environmental impacts to the CITY for failing to appropriately limit emissions from the facility.

BACT Not Required for NOx

The draft permit establishes BACT for NOx from the three simple cycle gas turbines as 9 ppmvd at 15% O_2 averaged over 3 hours, achieved using dry low NOx combustors. Continuous compliance would be demonstrated using a continuous emission monitoring ("CEM") system, based on a 24-hour block average. (Permit, § III.B.9) Other states, including New York, Connecticut, Illinois, and California, have permitted a large number of gas-fired simple cycle peaking power plants with NOx limits of 2 to 6 ppmvd at 15% O_2 averaged over 1 to 3 hours and achieved using high-temperature selective catalytic reduction ("SCR"). Continuous compliance is demonstrated using CEMs, based on 1-hour to 3-hour averages.

The draft Permit also establishes BACT for NOx for the combined cycle gas turbine as 2.5 ppmvd at 15% O_2 averaged over 3 hours, achieved using dry low NOx combustors and SCR. Continuous compliance would be demonstrated using a CEM system, based on a 24-hour block average. (Permit, § III.A.12) Other states, including New York, Connecticut, Massachusetts, Rhode Island, New Jersey, Arizona, Washington, and California have permitted a large number of gas-fired combined cycle power plants with NOx limits of 1.55 to 2.5 ppmvd at 15% O_2 averaged over 1 hour. Continuous compliance is demonstrated with a CEM system, based on a 1-hour average.

These lower limits are technically and economically feasible for the Plant. They have been demonstrated elsewhere in source tests and with CEMs and thus are achieved

in practice. Therefore, a much lower NOx limit should be established for the Plant turbines, consistent with formal BACT determinations and permitting history in other states and pursuant to Rule 62.212.400(2)(f), F.A.C. and Florida's SIP. The CITY will demonstrate that BACT for NOx for all Plant turbines is 2.0 ppmvd at 15% O_2 averaged over 1 hour and achieved with SCR.

BACT Not Required For CO

The draft permit establishes BACT for CO for the simple cycle gas turbines as 8.0 ppmvd @ 15% O_2 on gas achieved with good combustion. Compliance would be demonstrated based on a 3-hour source test. (Permit, § III.B.8.) Other states, including California, have permitted simple cycle peaking power plants with CO limits of 2 to 6 ppmvd at 15% O_2 on gas, achieved using an oxidation catalyst.

The draft permit establishes BACT for CO for the combined cycle gas turbine as 12.0 ppmvd @ 15% O_2 when injecting steam for power augmentation and 8.0 ppmvd @ 15% O_2 at all other times, achieved with good combustion. Compliance would be demonstrated based on a 3-hour source test when injecting steam and with CEM system at all other times, based on a 3-hour average. (Permit, § III.A.11.) Other states, including California, Massachusetts, Connecticut, New York, New Jersey, Arizona, and Washington have permitted simple cycle and combined cycle power plants with CO limits of 2 to 6 ppmvd at 15% O_2 averaged over 3 hours, achieved using an oxidation catalyst.

Oxidation catalysts are technically feasible and cost effective for both simple cycle and combined cycle applications, including BEC. They are also essential to control toxic emissions, particularly from simple cycle turbines that experience a large number of

startups. Temperature is not a constraint, as alleged by the DEP. These lower limits have been demonstrated in hundreds of source tests and with CEM systems. As a result, a much lower CO limit should be established for the turbines and continuous compliance should be demonstrated with a CEM system. The CITY will demonstrate that BACT for CO for all Plant turbines is 2.0 ppmvd at 15% O_2 averaged over 3 hours and achieved with an oxidation catalyst.

BACT Not Required For Sulfur Species

The draft Permit establishes a fuel sulfur limit of 1.5 grains per 100 standard cubic feet ("gr/100 scf") (Permit at III.A.6 and III.B.6), concluding that this establishes BACT for both SO_2 and SAM. However, this is a large amount of sulfur for natural gas, amounting to 25 ppmw. Most natural gas has less than 0.1 to 1 gr/100 scf. Sulfur can be economically removed from natural gas using a number of amine scrubbing processes.

Clean fuels were not considered in the BACT analysis. The 1990 Clean Air Act Amendments inserted "clean fuels" into the definition of BACT at 42 U.S.C. § 169(3) so that it now reads:

> An emission limitation based on the maximum degree of reduction of each pollutant ... which the permitting authority, on a case-by-case basis ... determines is achievable for such facility through application of production processes and available methods, systems and techniques, including fuel cleaning, *clean fuels*, or treatment or innovative fuel combustion techniques for control of each such pollutant.

(emphasis added).

This change codified the then practice "which holds that clean fuels are an available means of reducing emissions to be considered along with other approaches in

identifying BACT level controls."[2] Thus, in deciding what constitutes BACT, the DEP must consider both the cleanliness of the fuel and the use of add-on pollution control devices. Hawaiian Commercial & Sugar Company, PSD Appeal No. 92-1 at 5, n.7 (EAB, July 20, 1992) ("the definition of BACT includes consideration of both clean fuels and use of air pollution control devices.")

The cleanliness of the fuel was not considered. Therefore, CITY requests that the DEP direct the applicant to conduct a formal top-down BACT analysis that considers alternate fuel suppliers or treating the existing supply to a lower sulfur level.

Startups and Shutdown Emissions Not Limited

The Permit contains no limits on the number of startups/shutdowns nor on the emissions during these periods, which should be considered as part of the BACT determination, but was not. During startups and shutdowns, combustion temperatures and pressures change rapidly, resulting in inefficient combustion and much higher emissions of NOx, CO, and VOCs (including aldehydes) than during steady state operation.

The CITY is concerned that virtually unlimited and uncontrolled startup and shutdown emissions will result in significant health impacts in Margate, particularly during simultaneous operation of the Pompano and Deerfield Beach Energy Centers. Emissions of formaldehyde and other toxic pollutants can increase by large amounts during startups, compared to full load operation.

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[2] Letter from William G. Rosenberg, Assistant Administrator for Air and Radiation, to Henry A. Waxman, Chairman, Subcommittee on Health and Environment, House Committee on Energy and Commerce, October 17, 1990, reprinted in 136 Cong. Rec. at S16916-17, daily edition, October 17, 1990.

Omitting limits on startup and shutdown emissions is not consistent with requirements of the Clean Air Act. The U.S. EPA has consistently defined startup and shutdown to be part of the normal operation of a source. See, Letter from Kathleen M. Bennett attached hereto as composite Exhibit "A." The EPA has also consistently concluded that these emissions should be accounted for in the design and implementation or the operating procedure for the process and control equipment. EPA has concluded that "[w]ithout clear definition and limitations, these automatic exemption provisions [for startups and shutdowns] could effectively shield excess emissions arising from poor operation and maintenance or design, thus precluding attainment." (Bennett 9/28/82).

Accordingly, these emission should have been considered in the BACT analysis and the related health impacts addressed in conjunction with the environmental review required pursuant to Rule 62-210.200(38), F.A.C. Permits issued by other states include limits on startup and shutdown emissions. Thus, the CITY recommends that a permit condition be included that specifically limits the number, duration, and emissions during startups and shutdowns, to comply with BACT and MACT.

BACT Determination Not Federally Enforceable

The DEP made BACT determinations for PM10, SO_2, NOx, CO and SAM to satisfy the prevention of significant deterioration ("PSD") regulations. Technical Evaluation at TE-6 and Permit at 2. These determinations must be federally enforceable. The NSR Manual[3] provides that "to complete the BACT process, the reviewing agency must establish an enforceable emission limit for each subject emission unit at the source

[3] U.S. EPA, New Source Review Workshop Manual. Prevention of Significant Deterioration and Nonattainment Area Permitting, Draft, October 1990.

and for each pollutant subject to review that is emitted from the source." NSR Manual at B.56.

The limits in the Permit must be practically enforceable to qualify as legitimate restrictions on emissions. Practical enforceability means the source and/or enforcement authority must be able to show continual compliance (or noncompliance) with each limitation or requirement. See, U.S. v. Louisiana-Pacific Corp., 682 F.Supp. 1122, Civil Action No. 86-A-1880 (D. Colorado, March 22, 1988). The draft Permit does not contain practically enforceable limits on PM10, SO_2, or SAM.

The Draft Permit Does Not Contain Turbine PM10 Limits

The DEP did not establish any limits for PM10 emissions from the turbines, although it has done so in other recently issued permits. Permit at III.A.13 and III.B.10. Instead, it lists emission rates that it "expects" to be met, arguing that fuel specifications, CO limits, and visible emission standards are substitutes. However, there is no demonstrated relationship between PM10 and visible emissions, CO and fuel specifications.

Further, PM10 originates from many sources besides fuel sulfur, including ambient particulates, steam injected into the turbine for power augmentation, and contaminants in the fuel and in the combustion system. Thus, these surrogates are not replacements for a federally enforceable emission limit on PM10 itself that is demonstrated in annual source tests.

Turbine PM10 Limits Are No Federally Enforceable

The PM/PM10 limits are not practically enforceable because the Permit contains inadequate monitoring requirements (PM/PM10). Condition III.B.14 requires a single

source test for PM/PM10 from the simple cycle turbines only. No subsequent source tests for PM10 are required for these turbines. Permit at III.A.18. This is inconsistent with federal case law, which requires that limits be established for all pollutant for which BACT is established and that each individual limit (when one is appropriately established) is federally enforceable.

One source test is not adequate to assure continuous compliance because PM10 emissions are highly variable and emissions on initial testing represent "new and clean" conditions. Turbine performance degrades and emissions increase over time.

The CITY request that DEP establish firm PM10 emission limits, expressed in pounds per million Btus, pounds per hour, and tons per year and require compliance demonstration in annual source tests.

PM10 From Cooling Tower Not Properly Limited

The BACT analysis established a PM10 drift rate of 0.0005% for the cooling tower but did not establish an enforceable PM10 permit limit for the tower. Instead, it simply repeated the BACT level without providing any means to determine compliance. Permit at III.D.1. CITY recommends that the circulating water flow rate and the total dissolved solids concentration in the circulating water be limited to those assumed in the BACT analysis. Appendix BD at BD-13 and –14.

CO Limit Not Federally Enforceable

The Permit establishes emission limits for CO. Permit Condition III.A.20 requires a CEMs for the combined cycle CTG, but Condition III.B.16 does not require a CEMs for the simple cycle CTGs. The NSR Manual recommends that compliance with emission limits be demonstrated, continuously, where feasible. It is feasible to

continuously monitor CO, and, in fact, CEMs are commonly required to determine compliance with CO. Therefore, CITY requests that DEP require CO CEMs to demonstrate compliance with the CO limits for the simple cycle CTGs.

No Limits on Minor Sources

The draft Permit exempts the diesel generator, fuel heater, and diesel fire pump engine, based on small source exemptions in Florida regulations. (Permit at III.D) However, these are state exemptions that do not apply to federal programs, such as the PSD regulations, which are part of Florida's SIP. The PSD regulations do not allow exemptions for minor sources. These sources, although individually minor, must use BACT and be regulated by permit, pursuant to Rule 62-210.200(112), F.A.C., which defines a facility as "all of the emissions units which are located on one or more contiguous or adjacent properties, and which are under the control of the same person (or persons under common control)." Thus, CITY requests that the Permit be modified to require BACT for these minor sources and to establish emission limits and operating hours, consistent with emissions estimates in the Application.

SO_2 And SAM Not Properly Limited

Finally, the draft Permit does not establish any emission limits for either SAM or SO_2 to determine compliance with the BACT determinations, instead arguing that compliance with the BACT determinations, instead arguing that compliance with fuel sulfur specifications is adequate. (Permit at III.A.14 and III.B.11.)

The fuel sulfur specifications themselves to not require any monitoring, instead accepting the vendor's analysis for each month of operation. (Permit at III.C.6.) BACT emission limits must be met on a continual basis at all levels of operation. (NSR Manual

at B.56.) Thus, the Permit must be modified to require continuous monitoring of fuel sulfur.

HAZARDOUS AIR POLLUTANTS (HAPs)

Diesel Exhaust

The Plant intends on using diesel in the emergency generator and firewater pump engine. The combustion of diesel in these engines would produce "diesel exhaust," which is recognized by the U.S. Environmental Protection Agency (EPA) and California as a potent human carcinogen and respiratory irritant. The CITY is deeply concerned about the impact of these emissions, as well as others, set out below, on the residents of Margate. CITY maintains these emissions should have been considered as a collateral environmental impact in a formal BACT analysis for these engines, pursuant to the definition of BACT at F.A.C. 62-210.200(38) and federal guidance.

Maximum Achievable Control Technology for HAPs Required

The applicant's estimates of hazardous air pollutant ("HAPs") did not consider the significant increase in these emissions that occurs during startups and shutdowns. (Application at 2-16.) The emissions of NOx, CO, VOCs, and individual HAPs increase during startups.

It is well documented that turbine performance, in terms of combustion efficiency, degrades as load decreases. Turbines are designed to run efficiently at full load where fuel combustion is nearly 100% efficient. During startup and shutdowns when loads fall below 50%, turbine combustors are extremely inefficient, which results in incomplete combustion. The three simple cycle turbines would experience frequent

startups (the number was not disclosed). The emissions from these low load periods should have been included in the HAP emission estimates and in health risk assessments.

When HAP emission estimates are revised to include startups, formaldehyde emissions substantially exceed the 10 ton/yr threshold for any single HAP and combined HAP emissions exceed the 25 ton/yr combined HAP threshold. In fact, if each turbine experienced as few as 100 startups per year, lasting only 10 minutes, the emissions of formaldehyde would exceed 10 ton/yr *per turbine* and require the use of maximum achievable control technology ("MACT"), pursuant to Rule 62-204.800, F.A.C.

There are currently no source category MACT standards for combustion turbines. However, EPA published an Interpretive Rule on May 25, 2000[4] clarifying that case-by-case MACT analyses under 40 CFR 63, Subpart B, are required for major stationary source combustion turbines such as this project. Therefore, a case-by-case MACT analysis should be performed. Normally, MACT for gas turbines is an oxidation catalyst, which is also required here to control CO emissions.

BROWARD COUNTY

Finally, regulations governing air permits at F.A.C. 62-210.300(4)(d) require that each facility located within the borders of Broward County must comply with the requirements of Broward County. The Plant does not comply with Broward County requirements.

The applicant has not prepared an acceptable pollution prevention plant ("PPP"), as required by Broward County Code ("BCC") Section 27-178. The PPP should achieve a reduction in the generation of regulated air pollutants. The emissions of all regulated

pollutants from BEC exceed the criteria established in this code section, requiring the preparation of a PPP. The PPP should lay out a plan to implement "reasonably available technically and economically feasible alternatives" to the proposed levels of emissions. BCC Sec. 27-178(2) and (3)(c).

WHEREFORE, Petitioner CITY, respectfully requests a formal administrative evidence hearing, de novo, pursuant to Chapter 120, Florida Statutes, to resolve disputed issues of material fact and law and that the DEP should not issue Permit No. 0112545-001-AC (PSD-FL-316) or, in the alternative, should amend the Permit to comply with BACT requirements and should prohibit diesel oil from being used at this Facility

Respectfully submitted this 4th day of September, 2001.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished via facsimile and regular U.S. mail to: the State of Florida Department of Environmental Protection, Marjory Stoneman Douglas Building, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000 (850-921-3000) and via regular U.S. mail to Joel Gustafson, Esquire, Holland & Knight, Post Office Box 14070, Fort Lauderdale, Florida 33302-4070 this 4th day of September, 2001.

EUGENE M. STEINFELD
City Attorney
City of Margate
5790 Margate Blvd.
Margate, FL 33063
(954) 972-6454

[4] National Emission Standards for Hazardous Air Pollutants for Source Categories, Federal Register, v. 65, no. 102, May 25, 2000.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 10460

SEP 28 1982

OFFICE OF
AIR, NOISE AND RADIATION

MEMORANDUM

SUBJECT: Policy on Excess Emissions During Startup, Shutdown, Maintenance, and Malfunctions

FROM: Kathleen M. Bennett

TO: Assistant Administrator for Air, Noise and Radiation
Regional Administrators, Regions I-X

This memorandum is in response to a request for a clarification of EPA's policy relating to excess emissions during startup, shutdown, maintenance, and malfunctions.

Excess emission provisions for startup, shutdown, maintenance, and malfunctions were often included as part of the original SIPS approved in 1971 and 1972. Because the Agency was inundated with proposed SIPS and had limited experience in processing them, not enough attention was given to the adequacy, enforceability, and consistency of these provisions. Consequently, many SIPS were approved with broad and loosely-defined provisions to control excess emissions.

In 1978, EPA adopted an excess emissions policy after many, less effective attempts to rectify problems that existed with these provisions. This policy disallowed automatic exemptions by defining all periods of excess emissions as violations of the applicable standard. States can, of course, consider any demonstration by no source that excess emissions were due to an unavoidable occurrence in determining whether any enforcement action a required.

The rationale for establishing these emissions as violations, as opposed to granting automatic exemptions, is that SIPs are ambient-based standards and any emissions above the allowable may cause or contribute to violations of the national ambient air quality standards. Without clear definition and limitations, these automatic exemption provisions could effectively shield excess emissions arising from poor operation and maintenance or design, thus precluding attainment. Additionally, by establishing an enforcement discretion approach and by requiring the source to demonstrate the existence of an unavoidable malfunction on the source, good maintenance procedures are indirectly encouraged.

EXHIBIT "A"

Attached is a document stating EPA's present policy on excess emissions. This document basically reiterates the earlier policy, with some refinement of the policy regarding excess emissions during periods of scheduled maintenance.

A question has also been raised as to what extent operating permits can be used to address excess emissions in cases where the SIP is silent on this issue or where the SIP is deficient. Where the SIP is silent on excess emissions, the operating permit may contain excess emission provisions which should be consistent with the attached policy. Were the SIP is deficient, the SIP should be made to conform to the present policy. Approval of the operating permit as part of the SIP would accomplish that result.

If you have any questions concerning this policy, please contact Ed Reich at (382-2807).

Attachment

ECT
Environmental Consulting & Technology, Inc.

August 30, 2001

SENT VIA OVERNIGHT MAIL ON AUGUST 30, 2001

Mr. A.A. Linero, P.E.
Administrator, New Source Review Section
Florida Department of Environmental Protection
Division of Air Resources Management
111 S. Magnolia Drive, Suite 23
Tallahassee, FL 32301

Re: El Paso Merchant Energy Company
DEP File No. 0112545-001-AC (PSD-FL-316)
Broward Energy Center
Public Notice Affidavit

Dear Mr. Linero:

The Public Notice of the draft Department Prevention of Significant Deterioration (PSD) permit for the Broward Energy Center was published in the Sun-Sentinel on August 24, 2001. A copy of the newspaper's affidavit of publication is attached.

Please contact Tom Davis at (352) 332-6230, Ext. 351 if there are any questions regarding this notice.

ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.

Adrienne Arteaga

Attachment

cc: Mr. Krish Ravishankar, El Paso
O. Galbraith
B. Worley, EPA
J. Bunyak, NPS
D. Bonn, Broward Co.
M. Meeker, SED
Chair, Broward Co. BCC
Mayor, Pompano Beach
Mayor, Deerfield Beach
Mayor, Coral Springs
Mayor, Coconut Creek
Mayor, Margate
Mayor, Parkland
R. Blickman

6300 NE First Avenue
Suite 100
Fort Lauderdale, FL
33334

(954)
771-0444

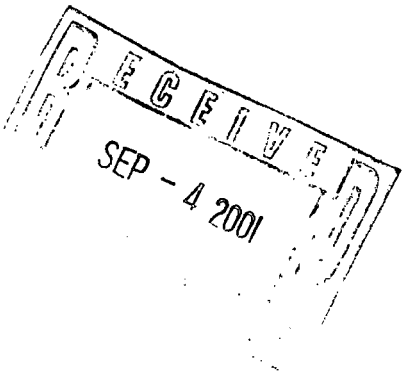
FAX(954)
771-8118

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished by facsimile and regular U.S. Mail to: State of Florida Department of Environmental Protection, Marjory Stoneman Douglas Building, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000, (850) 921-3000 (facsimile), and Joel Gustafson, Attorney for Broward Beach Energy, Holland & Knight, P.O. Box 14070, Fort Lauderdale, Florida 33302-4070, (954) 463-2030, (facsimile) this 31st day of August, 2001.

CITY OF COCONUT CREEK
CITY ATTORNEY'S OFFICE

Nancy A. Cousins
Assistant City Attorney
Florida Bar No. 224154
City of Coconut Creek
4800 West Copans Road
Coconut Creek, FL 33063
(954) 973-6797
(954) 973-6790 – Facsimile
ncousins@creekgov.net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SUN-SENTINEL

Published Daily

Fort Lauderdale, Broward County, Florida

Boca Raton, Palm Beach County, Florida

STATE OF FLORIDA
COUNTY OF BROWARD/PALM BEACH

Before the undersigned authority personally appeared _____ who on oath says that he is Classified Supervisor of the Sun-Sentinel, daily newspaper published in Broward/Palm Beach County, Florida, that the attached copy of advertisement, being, a Police August 2001 Notice in the matter of _____ in the _____ Court was published in said newspaper in the issues of August 24, 2001

Affiant further says that the said Sun-Sentinel is a newspaper published in Said Broward/Palm Beach County, Florida, and that the said newspaper has heretofore been continuously published in said Broward/Palm Beach County, Florida, each day, and have been entered as second class matter at the post office in Fort Lauderdale, in said Broward County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement, and affiant says that he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing, this advertisement for publication in said newspaper.

_____
(Signature of Affiant)

Sworn to and subscribed before me this 24th day of August, 2001

Tara L. Bezak
MY COMMISSION # DD024939 EXPIRES
July 20, 2005
BONDED THRU TROY FAIN INSURANCE, INC.

_____
(Signature of Notary Public)

(Name of Notary typed, printed or stamped) _____

Personally Known ✓ or Produced Identification _____

PLEASE COPY LEGAL NOTICE HERE

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP File No. 0112545-001-AC (PSD-FL-316)

El Paso Broward Energy Center
Broward County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit under the requirements for the Prevention of Significant Deterioration (PSD) of Air Quality to El Paso Merchant Energy Company. The permit is to construct a nominal 775-megawatt (MW) nature gas-fueled power plant East of the Turnpike and North of Hilton Road (Northwest 48th Street) in Deerfield Beach, Broward County. A Best Available Control Technology (BACT) determination was required for sulfur dioxide (SO_2), particulate matter (PM/PM_{10}), nitrogen oxides (NO_x), sulfuric acid mist (SAM), and carbon monoxide (CO) pursuant to Rule 62-212.400, F.A.C. The applicant's name and address are El Paso Merchant Energy Company, 1001 Louisiana Street, Houston, Texas 77002.

El Paso proposes to construct four nominal 175-MW General Electric PG7241FA natural gas-fired combustion turbine-electrical generators. Three of the units will operate in simple cycle mode and intermittent duty. The other unit will operate in combined cycle mode and will include an unfired heat recovery steam generator and a separate steam-electrical generator.

Additional equipment includes four 135-foot stacks, a five-cell mechanical draft fresh water cooling towers, a 2,600-horsepower (hp) emergency diesel-fired electrical generator, a 250-hp emergency diesel-fired fire water pump, a natural gas fired heater, an aqueous ammonia storage tank, and raw and demineralized water storage tanks.

NO_x emissions will be controlled by Dry Low NO_x (DLN-2.6) combustors. The three simple cycle units must meet an emission limit of 9 parts per million by volume, dry, at 15 percent oxygen (ppmvd @ 15% O_2). NO_x emissions from the Emissions of CO will be controlled to 8 ppmvd @ 15% O_2 except during periods of power augmentation when the limit for the combined cycle unit will be 12 ppmvd @ 15% O_2.

Emissions of PM/PM_{10}, SO_2, sulfuric acid mist, volatile organic compounds, and hazardous air pollutants (HAP) will be controlled to very low levels by good combustion and use of inherently clean pipeline quality natural gas. Ammonia emissions (NH_3) generated due to NO_x control on the combined cycle unit will be limited to 5 ppmvd.

The combined maximum emissions from the four units in tons per year are summarized below. These include the minor emissions from the emergency diesel engines and the cooling towers.

Pollutant	Maximum Potential Emissions	PSD Significant Emission Rate
PM/PM_{10} (filterable plus condensable)	227	25/15
CO	420	100
NO_x	534	40
VOC	36	40
SO_2	87	40
Sulfuric Acid Mist	13	7

Maximum predicted air quality impacts due to emissions from the El Paso project are less than the applicable PSD Class II significant impact levels, with the exception of 24-hour average PM_{10}. Therefore, multi-source modeling was required for PM_{10}. The maximum predicted PSD Class II PM_{10} increments consumed in Broward County by increment consuming sources (since 1975-77) within 51 km of the project, will be as follows:

Averaging Time	Increment Consumed All Sources/El Paso Project ($\mu g\ PM_{10}/m^3$)	Allowable Increment All Sources ($\mu g\ PM_{10}/m^3$)	Percent Increment Consumed All Sources/El Paso Project (percent)
24-hour	23/6	30	77/20

Maximum predicted air quality impacts due to emissions from the El Paso project are less than the applicable PSD Class I significant impact levels.

A CALPUFF modeling analysis for the El Paso project was submitted by the applicant to the National Park Service (NPS). On the basis of the submittal, NPS advised the Department that it "does not anticipate any significant impacts on Air Quality Related Values for the Everglades National Park."

Based on the required analyses, the Department has reasonable assurance that the proposed project will not cause or significantly contribute to a violation of any ambient air quality standard of PSD increment.

The project is not subject to Section 403.501-518, F.S., Florida Electrical Power Plant Siting Act, based on information regarding gross electrical power generated from the steam cycle submitted by the applicant and reviewed by the Department.

The Department will issue the FINAL Permit, in accordance with the conditions of the 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 and requests for a public meeting concerning the proposed permit issuance action for a period of 30 (thirty) 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 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.

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, 32399-300. 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 the 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
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301
Telephone: 850/488-0114
Fax: 850/922-6979

Department of Environmental Protection
Southeast District Office
400 North Congress Avenue
West Palm Beach, Florida 33416
Telephone: 561/681-6600
Fax: 561/681-6755

Broward County Department of
Planning & Environmental Protection
218 Southwest 1st Avenue
Fort Lauderdale, Florida 33301
Telephone: 954/519-1220
Fax: 954/519-1495

10529245

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 Resource Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information. The draft permit, technical evaluation and preliminary BACT determination can be accessed at http://www8.myflorida.com/licensingpermitting/learn/environment/air/airpermit.html

Department of Environmental Protection

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

Jeb Bush
Governor

David B. Struhs
Secretary

August 17, 2001

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. William Mack Sr., Managing Director
El Paso Merchant Energy Company
1001 Louisiana Street
Houston, Texas 77002

Re: DEP File No. 0112545-001-AC (PSD-FL-316)
Broward Beach Energy Center
775-Megawatt Power Plant

Dear Mr. Mack:

Enclosed is one copy of the Draft Permit, Technical Evaluation and Preliminary Determination, and Draft BACT Determination, for the Broward Energy Center to be located in Deerfield Beach, Broward County. 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 must be published one time only as soon as possible in a newspaper of general circulation in the area affected, pursuant to Chapter 50, Florida Statutes. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office 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.

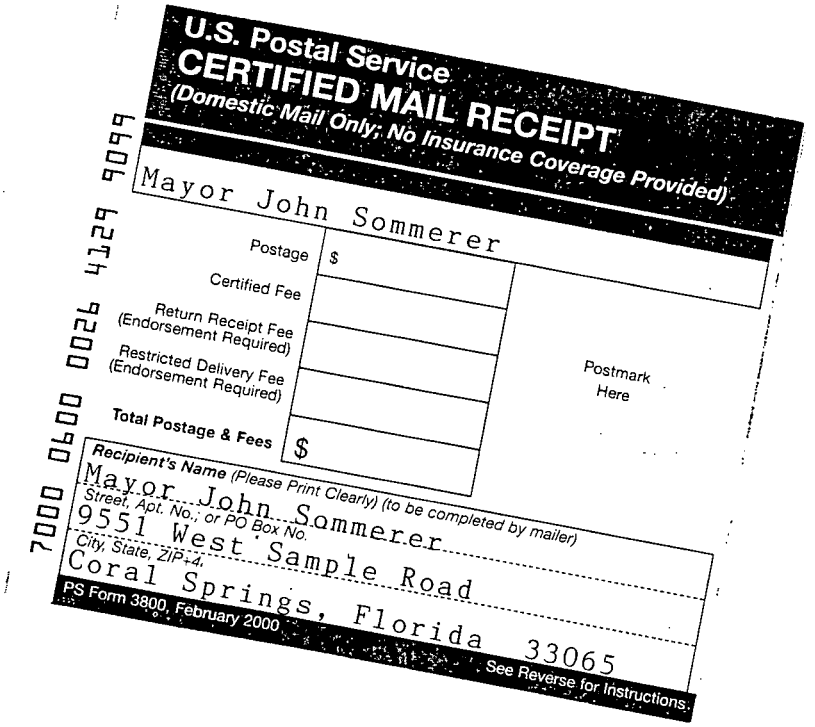
Please submit any other written comments you wish to have considered concerning the Department's proposed action to A. A. Linero, P.E. Administrator, New Source Review Section at the above letterhead address. If you have any questions please call Ms. Debbie Galbraith at 850/921-9537 or Mr. Linero at 850/921-9523.

Sincerely,

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

CHF/al

Enclosures



U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Mayor John Sommerer

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Recipient's Name (Please Print Clearly) (to be completed by mailer)
Mayor John Sommerer
Street, Apt. No., or PO Box No.
9551 West Sample Road
City, State, ZIP+4
Coral Springs, Florida 33065

PS Form 3800, February 2000 See Reverse for Instructions

7000 0600 0026 4129 9069

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. William Mack, Sr.
Managing Director
El Paso Merchant Energy Co.
1001 Louisiana Street
Houston, TX 77002

COMPLETE THIS SECTION ON DELIVERY

A. Received by (Please Print Clearly) B. Date of Delivery AUG 21 2001

C. Signature
X 8/21 ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
XX ☑ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Copy from service label) 7000 0600 0026 4129 9167

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U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Mr. William Mack

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

7000 0600 0026 4129 9167

Recipient's Name (Please Print Clearly) (to be completed by mailer)
El Paso Energy Center
Street, Apt. No.; or PO Box No.
1001 Louisiana St.
City, State, ZIP+4
Houston, TX 77002

PS Form 3800, February 2000 See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

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- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Steve Somerville
Director
Broward County Department of
Planning and Environmental
Protection
218 Southwest First Avenue
Fort Lauderdale, FL 33301

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* B. Date of Delivery 8/20/07

C. Signature
X [signature] ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Copy from service label)*
7000 0600 0026 4129 9136

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

U.S. Postal Service
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Mr. Steve Somerville

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Recipient's Name *(Please Print Clearly) (to be completed by mailer)*
Mr. Steve Somerville
Street, Apt. No.; or PO Box No.
218 Southwest First Avenue
City, State, ZIP+4
Fort Lauderdale, FL 33301

PS Form 3800, February 2000 See Reverse for Instructions

7000 0600 0026 4129 9136

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- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
Mr. John E. Rostrom, Jr.
Chair
Broward County Commission
District 7
Broward County Governmental Center, Room 421
115 South ANdrews Avenue
Fort Lauderdale, Florida 33301

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)*: C. Austin
B. Date of Delivery: 8/20/04
C. Signature: X C. Austin ☐ Agent ☐ Addressee
D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Copy from service label)*
7000 0600 0026 4129 9143

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Mr. John E. Rostrom, Jr.

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Recipient's Name *(Please Print Clearly) (to be completed by mailer)*
Mr. John E. Rostrom, Jr.
Street, Apt. No.; or PO Box No.
115 S. South Andrews Avenue
City, State, ZIP+4
Fort Lauderdale, Florida 33301

PS Form 3800, February 2000 See Reverse for Instructions

7000 0600 0026 4129 9143

SENDER: COMPLETE THIS SECTION

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1. Article Addressed to:

Mayor William Griffin
City of Pompano Beach
100 West Atlantic Boulevard
Pompano Beach, FL 33060

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)*: MICHELE BREWER
B. Date of Delivery: 05/24/01

C. Signature
X Michele Brewer
☑ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Copy from service label)*
7000 0600 0026 4129 9129

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U.S. Postal Service
CERTIFIED MAIL RECEIPT
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Mayor William Griffin

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Recipient's Name (Please Print Clearly) (to be completed by mailer)
Mayor William Griffin
Street, Apt. No.; or PO Box No.
100 West Atlantic Boulevard
City, State, ZIP+4
Pompano Beach, Florida 33060

PS Form 3800, February 2000 See Reverse for Instructions

7000 0600 0026 4129 9129

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mayor Albert R. Capellini
City of Deerfield Beach
City Hall
150 NE Second Avenue
Deerfield Beach, FL 33441

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* B. Date of Delivery

Julie Heldros

C. Signature

X J. Coldros ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Copy from service label)*
7000 0600 0026 4129 9105

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

7000 0600 0026 4129 9105

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Mayor Albert R. Capellini

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Recipient's Name *(Please Print Clearly) (to be completed by mailer)*
Mayor Albert R. Capellini
Street, Apt. No.; or PO Box No.
150 NE Second Avenue
City, State, ZIP+4
Deerfield Beach, Florida 33441

PS Form 3800, February 2000 See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

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- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mayor Gloria Fantl
City of Coconut Creek
4800 West Copans Road
Coconut Creek, FL 33063

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)*: T. Peterson
B. Date of Delivery: 8/20/01

C. Signature: X [signature] ☒ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Copy from service label)*
7000 0600 0026 4129 9082

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Mayor Gloria Fantl

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

7000 0600 0026 4129 9082

Recipient's Name (Please Print Clearly) (to be completed by mailer)
Mayor Gloria Fantl
Street, Apt. No., or PO Box No.
4800 West Copans Road
City, State, ZIP+4
Coconut Creek, Florida 33063

PS Form 3800, February 2000 See Reverse for Instructions

7000 0600 0026 4129 9068

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Mayor Sal Pagliera

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Recipient's Name (Please Print Clearly) (to be completed by mailer)
Mayor Sal Pagliera
Street, Apt. No.; or PO Box No.
6500 Parkside Drive
City, State, ZIP+4
Parkland, Florida 33067-1638

PS Form 3800, February 2000 — See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

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- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mayor Sal Pagliera
City of Parkland
6500 Parkside Drive
Parkland, Florida
33067-1638

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* B. Date of Delivery

C. Signature

X ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes ☐ No
If YES, enter delivery address below:

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2

102595-99-M-1789

F

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mayor Arthur Bross
City of Margate
5790 Margate Boulevard
Margate, Florida
33063-3680

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* | B. Date of Delivery: 8-21-01

C. Signature
X Carleen Strachan ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

MARGATE FLORIDA AUG 21 2001

3. Service Type
XX ☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Copy from service label)*
7000 0600 0026 4129 9075

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Mayor Arthur Bross

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

7000 0600 0026 4129 9075

Recipient's Name *(Please Print Clearly) (to be completed by mailer)*
Mayor Arthur Bross
Street, Apt. No.; or PO Box No.
5790 Margate Boulevard
City, State, ZIP+4
Margate, Florida 33063-3680

PS Form 3800, February 2000 See Reverse for Instructions

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

August 17, 2001

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. William Mack Sr., Managing Director
El Paso Merchant Energy Company
1001 Louisiana Street
Houston, Texas 77002

Re: DEP File No. 0112545-001-AC (PSD-FL-316)
Broward Beach Energy Center
775-Megawatt Power Plant

Dear Mr. Mack:

Enclosed is one copy of the Draft Permit, Technical Evaluation and Preliminary Determination, and Draft BACT Determination, for the Broward Energy Center to be located in Deerfield Beach, Broward County. 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 must be published one time only as soon as possible in a newspaper of general circulation in the area affected, pursuant to Chapter 50, Florida Statutes. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office 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.

Please submit any other 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 questions please call Ms. Debbie Galbraith at 850/921-9537 or Mr. Linero at 850/921-9523.

Sincerely,

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

CHF/al

Enclosures

In the Matter of an
Application for Permit by:

Mr. William Mack, Sr., Managing Director
El Paso Merchant Energy Company
1001 Louisiana Street
Houston, Texas 77002

DEP File No. 0112545-001-AC (PSD-316)
Broward Energy Center
Broward County

/

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 attached Technical Evaluation and Preliminary Determination, for the reasons stated below.

The applicant, El Paso Merchant Energy Company, applied on March 28, 2001 (complete June 27, 2001) to the Department for an air construction permit to construct a 775-megawatt natural gas-fueled combustion turbine power plant for the Broward Energy Center to be located in Deerfield Beach, Broward County.

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 under the provisions for the Prevention of Significant Deterioration (PSD) of Air Quality is required for the proposed work.

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 and requests for public meetings concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of the enclosed Public Notice. The Department will also accept written and oral comments at a public hearing (meeting) to be held as described in the enclosed Public Notice. 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 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

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 0112545-001-AC (PSD-FL-316)

El Paso Broward Energy Center
Broward County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit under the requirements for the Prevention of Significant Deterioration (PSD) of Air Quality to El Paso Merchant Energy Company. The permit is to construct a nominal 775-megawatt (MW) natural gas-fueled power plant East of the Turnpike and North of Hilton Road (Northwest 48th Street) in Deerfield Beach, Broward County. A Best Available Control Technology (BACT) determination was required for sulfur dioxide (SO_2), particulate matter (PM/PM_{10}), nitrogen oxides (NO_x), sulfuric acid mist (SAM), and carbon monoxide (CO) pursuant to Rule 62-212.400, F.A.C. The applicant's name and address are El Paso Merchant Energy Company, 1001 Louisiana Street, Houston, Texas 77002.

El Paso proposes to construct four nominal 175-MW General Electric PG7241FA natural gas-fired combustion turbine-electrical generators. Three of the units will operate in simple cycle mode and intermittent duty. The other unit will operate in combined cycle mode and will include an unfired heat recovery steam generator and a separate steam-electrical generator.

Additional equipment includes four 135-foot stacks, a five-cell mechanical draft fresh water cooling tower, a 2,600-horsepower (hp) emergency diesel-fired electrical generator, a 250-hp emergency diesel-fired fire water pump, a natural gas fired heater, an aqueous ammonia storage tank, and raw and demineralized water storage tanks.

NO_X emissions will be controlled by Dry Low NO_X (DLN-2.6) combustors. The three simple cycle units must meet an emission limit of 9 parts per million by volume, dry, at 15 percent oxygen (ppmvd @15% O_2). NO_x emissions from the combined cycle unit will be further controlled by selective catalytic reduction (SCR) to achieve 2.5 pppmvd at 15% O_2. Emissions of CO will be controlled to 8 ppmvd @15% O_2 except during periods of power augmentation when the limit for the combined cycle unit will be 12 ppmvd @15% O_2.

Emissions of PM/PM_{10}, SO_2, sulfuric acid mist, volatile organic compounds, and hazardous air pollutants (HAP) will be controlled to very low levels by good combustion and use of inherently clean pipeline quality natural gas. Ammonia emissions (NH_3) generated due to NO_X control on the combined cycle unit will be limited to 5 ppmvd.

The combined maximum emissions from the four units in tons per year are summarized below. These include the minor emissions from the emergency diesel engines and the cooling towers.

Pollutant	Maximum Potential Emissions	PSD Significant Emission Rate
PM/PM_{10} (filterable plus condensable)	227	25/15
CO	420	100
NO_X	534	40
VOC	36	40
SO_2	87	40
Sulfuric Acid Mist	13	7

Maximum predicted air quality impacts due to emissions from the El Paso project are less than the applicable PSD Class II significant impact levels, with the exception of 24-hour average PM_{10}. Therefore, multi-source modeling was required for PM_{10}. The maximum predicted PSD Class II PM_{10} increments consumed in Broward County by increment consuming sources (since 1975-77) within 51 km of the project, will be as follows:

Averaging Time	Increment Consumed All Sources/El Paso Project (ug PM_{10}/m^3)	Allowable Increment All Sources (ug PM_{10}/m^3)	Percent Increment Consumed All Sources/El Paso Project (percent)
24-hour	23/6	30	77/20

Maximum predicted air quality impacts due to emissions from the El Paso project are less than the applicable PSD Class I significant impact levels.

A CALPUFF modeling analysis for the El Paso project was submitted by the applicant to the National Park Service (NPS). On the basis of the submittal, NPS advised the Department that it "does not anticipate any significant impacts on Air Quality Related Values for the Everglades National Park."

Based on the required analyses, the Department has reasonable assurance that the proposed project will not cause or significantly contribute to a violation of any ambient air quality standard or PSD increment.

Notice for Newspaper

The project is not subject to Section 403.501-518, F.S., Florida Electrical Power Plant Siting Act, based on information regarding gross electrical power generated from the steam cycle submitted by the applicant and reviewed by the Department.

The Department will issue the FINAL Permit, in accordance with the conditions of the 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 and requests for a public meeting concerning the proposed permit issuance action for a period of 30 (thirty) 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 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.

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 111 S. Magnolia Drive, Suite 4 Tallahassee, Florida 32301 Telephone: 850/488-0114 Fax: 850/922-6979	Dept. of Environmental Protection Southeast District Office 400 North Congress Avenue West Palm Beach, Florida 33416 Telephone: 561/681-6600 Fax: 561/681-6755	Broward County Department of Planning & Environmental Protection 218 Southwest 1st Avenue Fort Lauderdale, Florida 33301 Telephone: 954/519-1220 Fax: 954/519-1495

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 Resource Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information. The draft permit, technical evaluation and preliminary BACT determination can be accessed at http://www8.myflorida.com/licensingpermitting/learn/environment/air/airpermit.html

Notice for Newspaper

(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.

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, Technical Evaluation and Preliminary Determination, Draft BACT Determination, and the DRAFT permit) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 8/17/01 to the person(s) listed:

William Mack, El Paso*
Gregg Worley, EPA
John Bunyak, NPS
Melissa Meeker, DEP SED
Tom Davis, P.E., ECT
Director, Broward County DPEP*
Chair, Broward County BCC*
Commissioners, Districts 1,2,3 and 9, Broward County BCC
Mayor, Pompano Beach*
Mayor, Deerfield Beach*
Mayor, Coral Springs*
Mayor, Coconut Creek*
Mayor, Margate*
Mayor, Parkland*

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.

Barbara J. Friday 8/17/01
(Clerk) (Date)

TECHNICAL EVALUATION

AND

PRELIMINARY DETERMINATION

El Paso Broward Energy Center

775-Megawatt Electrical Power Plant

Broward County

DEP File No. 0112545-001-AC (PSD-FL-316)

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

August 17, 2001

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

1. APPLICATION INFORMATION

1.1 Applicant Name and Address

El Paso Merchant Energy Company
1001 Louisiana Street
Houston, Texas 77002

Authorized Representative: *William Mack, Sr., Managing Director*

1.2 Reviewing and Process Schedule

03-28-01: Date of Receipt of Application
06-27-01: Application Complete
08-17-01: Distributed Intent to Issue

2. FACILITY INFORMATION

2.1 Facility Location

Refer to Figures 1 and 2 below. The El Paso Broward Energy Center will be located in Broward County near the Southeast coast of Florida. The location is approximately 67 kilometers North-northeast of the Everglades National Park. The proposed site is East of the Florida Turnpike, West of Powerline Road and North of Hilton Road (Northwest 48th Street) in Deerfield Beach. The UTM coordinates for this facility are Zone 17; 583.3 km East; 2908.0 km North.

Figure 1 – Regional Location

Figure 2 – Proposed Project Site

2.2 Standard Industrial Classification Codes (SIC)

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

2.3 Facility Category

This proposed project will generate 775 megawatts (nominal MW) of electrical power. The facility is classified as a Major or Title V Source of air pollution because emissions of at least one regulated air pollutant, such as particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), nitrogen oxides (NO_X), carbon monoxide (CO), or volatile organic compounds (VOC) exceeds 100 TPY.

This facility is within an industry included in the list of the 28 Major Facility Categories per Table 62-212.400-1, F.A.C. Because emissions are greater than 100 TPY for at least one criteria pollutant, the facility is also a major facility with respect to Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD), and a Best Available Control Technology (BACT) determination is required. Given that emissions of at least one single criteria pollutant will exceed 100 TPY, PSD Review and a BACT determination are required for each pollutant emitted in excess of the Significant Emission Rates listed in Table 62-212.400-2, F.A.C. These values are: 40 TPY for NO_X, SO_2, and VOC; 25/15 TPY of PM/PM_{10}; 7 TPY of Sulfuric Acid Mist (SAM); and 100 TPY of CO.

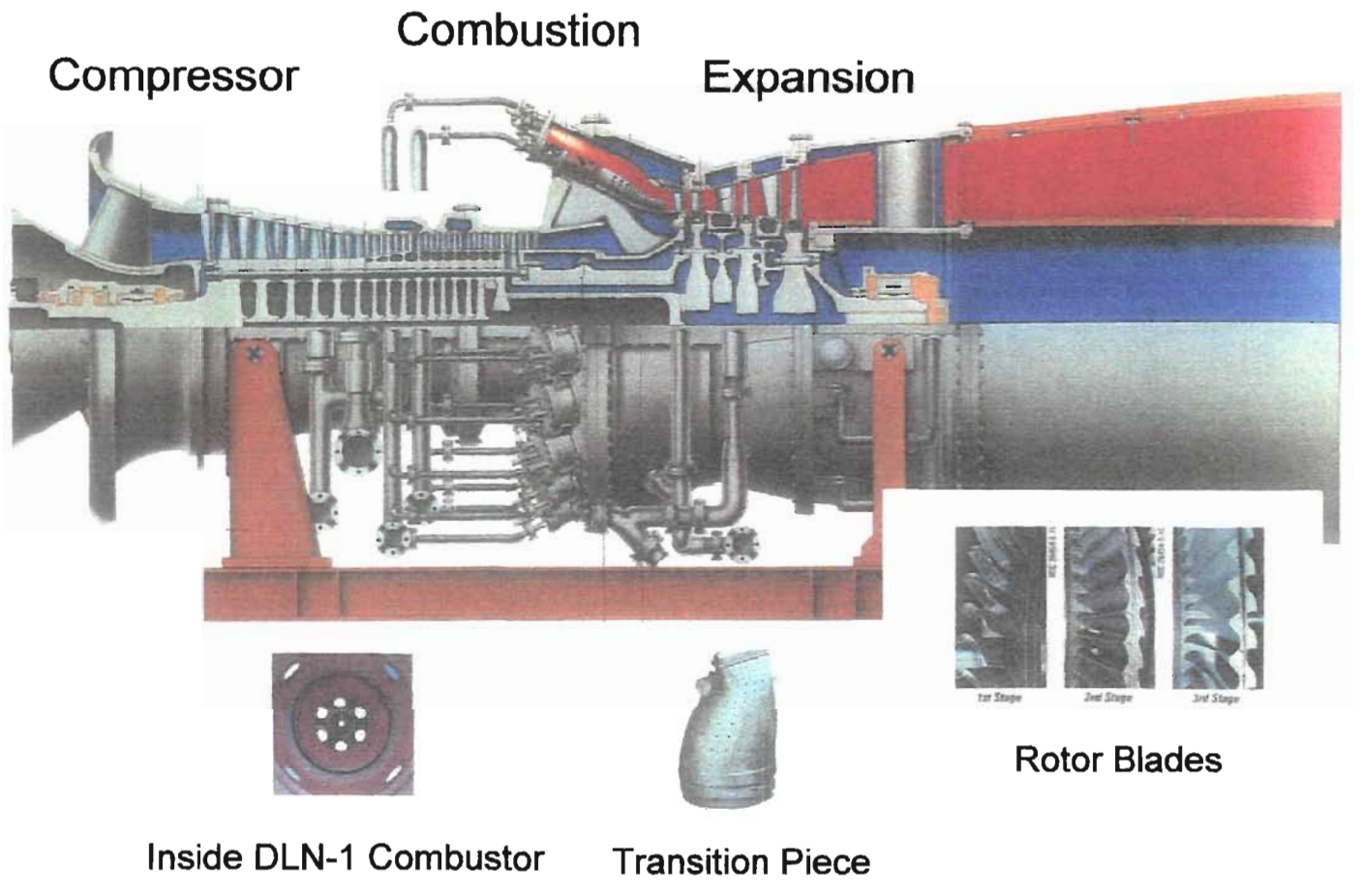
3. PROJECT DESCRIPTION

This permit addresses the following emissions units:

ID	Emission Unit Description
001	**Combined Cycle Unit No. CC-1** consists of a natural gas-fueled General Electric Model PG7241FA (GE 7FA) combustion turbine-electrical generator with a nominal capacity of 175 MW, an unfired heat recovery steam generator (HRSG), a separate steam turbine-electrical generator and a 135-foot stack.
002	**Simple Cycle Unit No. SC-1** consists of a natural gas-fueled GE 7FA combustion turbine-electrical generator with a nominal capacity of 175 MW and a 135-foot stack.
003	**Simple Cycle Unit No. SC-2** consists of a natural gas-fueled GE 7FA combustion turbine-electrical generator with a nominal capacity of 175 MW and a 135-foot stack.
004	**Simple Cycle Unit No. SC-3** consists of a natural gas-fueled GE 7FA combustion turbine-electrical generator with a nominal capacity of 175 MW and a 135-foot stack.
005	**Cooling Tower** – one 5-cell freshwater mechanical draft cooling tower.
006	**Other Emissions Units** including one 2600-hp diesel generator, one 250-hp diesel fire pump, one gas heater, aqueous ammonia storage tank and small diesel storage tanks.

Significant emission rate increases per Table 212.400-2, F.A.C. will occur for CO, SO_2, SAM, PM/PM_{10} and NO_X. A BACT determination is required for each of these pollutants. An air quality impact review is also required for CO, PM/PM_{10}, NO_X, and SO_2.

Each turbine will be equipped with Dry Low NO_X (DLN-2.6) combustors and evaporative inlet cooling systems. Each will have a maximum heat input rating of approximately 1,700 mmBtu per hour while operating at 100% load. El Paso proposes to operate the simple cycle units up to 5,000 hours per year per unit and to operate the combined cycle unit continuously. The key components of the GE MS 7001FA (a predecessor of the PG 7241FA) are identified in Figure 3. An exterior view is also shown. The project includes highly automated controls, described as the GE Mark VI Gas Turbine Control System to fulfill all of the gas turbine control requirements.



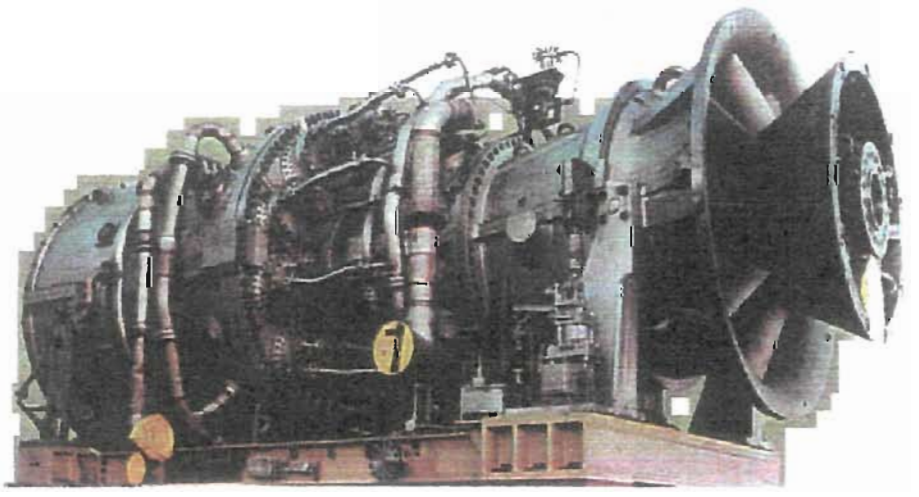


Figure 3 - Internal and External Views of GE MS7001FA

4. PROCESS DESCRIPTION

A gas turbine is an internal combustion engine that operates with rotary rather than reciprocating motion. Ambient air is drawn into the 18-stage compressor of the GE 7FA where it is compressed by a pressure ratio of about 15 times atmospheric pressure. The compressed air is then directed to the combustor section, where fuel is introduced, ignited, and burned. The combustion section consists of 14 separate can-annular combustors.

Flame temperatures in a typical combustor section can reach 3600 degrees Fahrenheit (°F). Units such as the 7FA operate at lower flame temperatures, which minimize NO_X formation. The hot combustion gases are then diluted with additional cool air and directed to the turbine section at temperatures of approximately 2400 °F. Energy is recovered in the turbine section in the form of shaft horsepower, of which typically more than 50 percent is required to drive the internal compressor section. The balance of recovered shaft energy is available to drive the external load unit such as an electrical generator.

Figure 4 is a simplified process flow diagram of the proposed El Paso project. Three of the units will operate in the simple cycle mode. Cycle efficiency, defined as a percentage of useful shaft energy output to fuel energy input, is approximately 35 percent for F-Class combustion turbines in the simple cycle mode. In addition to shaft energy output, 1 to 2 percent of fuel input energy can be attributed to mechanical losses. The balance is exhausted from the turbine in the form of heat.

One of the units will operate in combined cycle mode in which the combustion turbine drives an electric generator while the exhausted gases are used to raise additional steam in a heat recovery steam generator. The steam, in-turn, drives a separate steam turbine-electrical generator producing additional electrical power. In combined cycle mode, the thermal efficiency of the 7FA can exceed 56 percent.

At high ambient temperature, the units cannot generate as much power because of lower compressor inlet air density. To compensate for the loss of output (which can be on the order of 20 MW compared to referenced temperatures), an inlet air cooler (fogger or chiller) can be installed ahead of the combustion turbine inlet. At an ambient temperature of 95 °F, roughly 15 MW of power can be regained per simple cycle unit by using a chiller to cool the inlet air to 50 °F.

Other possibilities include placing a gas-fired duct burner between the combustion turbine and the HRSG, power augmentation and peaking. Power augmentation is accomplished by injecting some steam from the HRSG into the rotor (power) section of the combustion turbine. Peaking is simply running the unit at greater than design fuel input. The additional process information related to the combustor design, and control measures to minimize pollutant emissions are given in the attached draft BACT determination.

5. RULE APPLICABILITY

The proposed project is subject to preconstruction review requirements under the provisions of Chapter 403, Florida Statutes, and Chapters 62-4, 62-204, 62-210, 62-212, 62-214, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.).

This project will be located in Broward County; an area designated as attainment for all criteria pollutants in accordance with Rule 62-204.360, F.A.C. The proposed project is subject to PSD review under Rule 62-212.400, F.A.C. for the reasons given in Section 2.3, Facility Category, above.

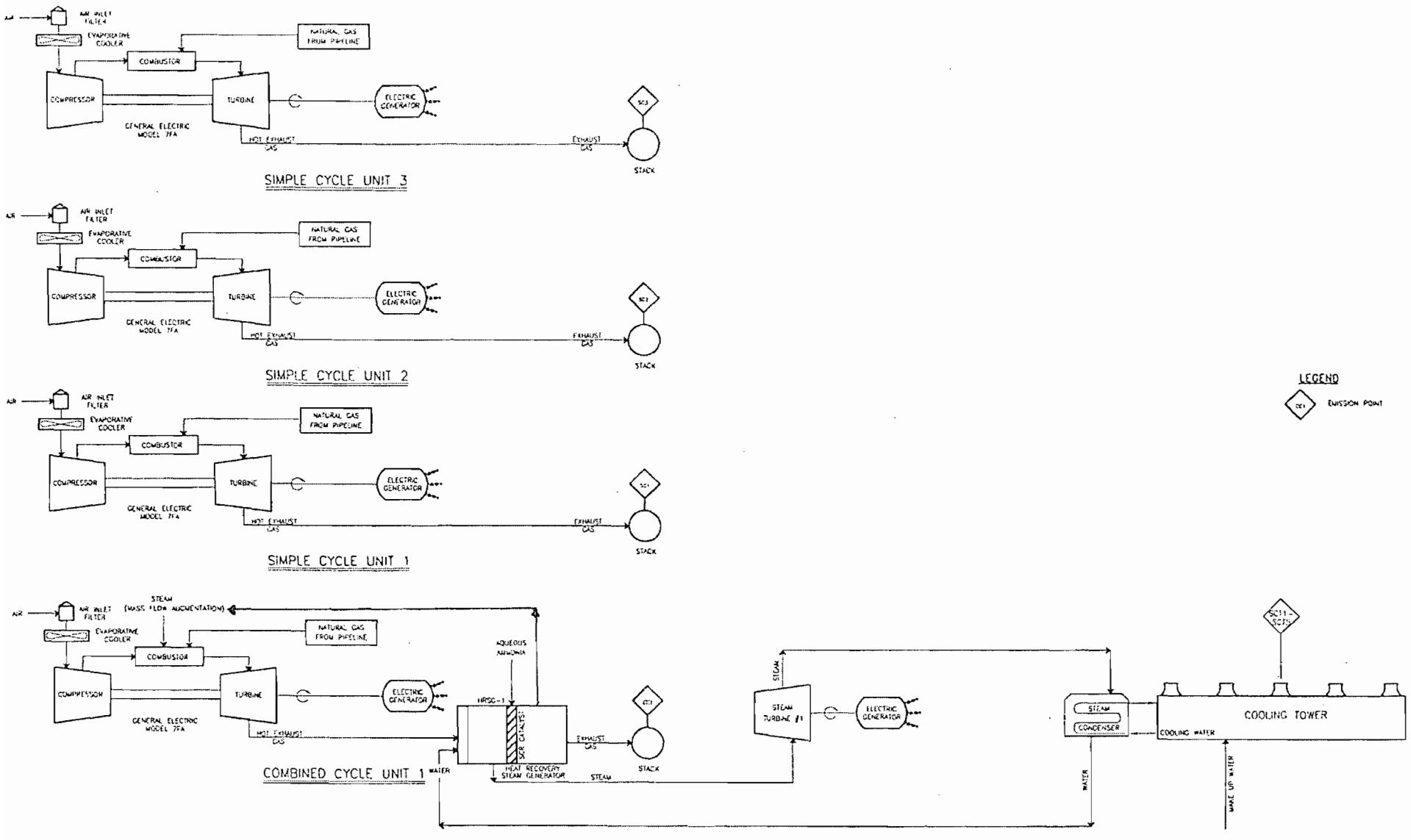


Figure 4. Process Flow Diagram

This PSD review consists of an evaluation of resulting ambient air pollutant concentrations, and increases with respect to the National Ambient Air Quality Standards and Increments as well as a determination of Best Available Control Technology (BACT) for PM/PM_{10}, CO, SO_2, SAM and NO_X. An analysis of the air quality impact from proposed project upon soils, vegetation and visibility is required along with air quality impacts resulting from associated commercial, residential, and industrial growth

The emission units affected by this air construction permit shall comply with all applicable provisions of the Florida Administrative Code (including applicable portions of the Code of Federal Regulations incorporated therein) and, specifically, the following Chapters and Rules related to air:

5.1 State Regulations

Chapter 62-4	Permits.
Rule 62-204.220	Ambient Air Quality Protection
Rule 62-204.240	Ambient Air Quality Standards
Rule 62-204.260	Prevention of Significant Deterioration Increments
Rule 62-204.800	Federal Regulations Adopted by Reference
Rule 62-210.300	Permits Required
Rule 62-210.350	Public Notice and Comments
Rule 62-210.370	Reports
Rule 62-210.550	Stack Height Policy
Rule 62-210.650	Circumvention
Rule 62-210.700	Excess Emissions
Rule 62-210.900	Forms and Instructions
Rule 62-212.300	General Preconstruction Review Requirements
Rule 62-212.400	Prevention of Significant Deterioration
Rule 62-213	Operation Permits for Major Sources of Air Pollution
Rule 62-214	Requirements For Sources Subject To The Federal Acid Rain Program
Rule 62-296.320	General Pollutant Emission Limiting Standards
Rule 62-297.310	General Test Requirements
Rule 62-297.401	Compliance Test Methods
Rule 62-297.520	EPA Continuous Monitor Performance Specifications

5.2 Federal Rules

40 CFR 60	Applicable sections of Subpart A, General Requirements, Subparts Dc, and GG
40 CFR 72	Acid Rain Permits (applicable sections)
40 CFR 73	Allowances (applicable sections)
40 CFR 75	Monitoring (applicable sections including applicable appendices)
40 CFR 77	Acid Rain Program-Excess Emissions (future applicable requirements)

5.2 Broward County Rules

Section 27-175(g)	General Prohibitions, Cumulative Impacts
Section 27-176(c)(2)b.	Permit Application Requirements, Cumulative Impacts
Section 27-176(c)(2)c.	Permit Application Requirements, Pollution Prevention Plan
Section 27-178	Pollution Prevention Planning

6. SOURCE IMPACT ANALYSIS

6.1 Emission Limitations

The proposed project will emit the following PSD pollutants (Table 212.400-2, F.A.C.): PM/PM_{10}, SO_2, NO_X, CO, SAM, and negligible quantities of fluorides (F), mercury (Hg) and lead (Pb). The applicant's proposed annual emissions are summarized in the Table below and form the basis of the source impact review. The Department's proposed permitted allowable emissions are summarized in the Draft BACT document and Specific Condition Nos. 10-16 Section III (Combined Cycle) and Specific Condition Nos. 8-12 Section III (Simple Cycle) of Draft Permit PSD-FL-316.

6.2 Emission Summary

The annual emissions increases for all PSD pollutants as a result of the project are presented below:

PROJECT EMISSIONS (TPY) AND PSD APPLICABILITY

Pollutant	Emissions [1]	PSD Significance	PSD Review?
PM/PM_{10} (filterable plus condensable)	227	25	Yes
SO_2	87	40	Yes
NO_X	534 [2]	40	Yes
CO	420	100	Yes
Ozone (VOC)	36	40	No
Sulfuric Acid Mist	13	7	Yes
Total Fluorides	~0	3	No
Mercury	~0	0.1	No
Lead	0.3	0.6	No
HAPs	8	NA	NA

1. Based on 5,000 hours of natural gas firing per year per simple cycle unit, 8,760 hours per year for the combined cycle unit. Includes emergency diesel engines and cooling tower.
2. NO_X emissions will be 505 TPY based on Department's proposed BACT determination.

6.3 Control Technology

The PSD regulations require new major stationary sources to undergo a control technology review for each pollutant that may be potentially emitted above significant amounts. The control technology review requirements of the PSD regulations are applicable to emissions of NO_X, SO_2, CO, SAM, and PM/PM_{10}. Emissions control will be accomplished primarily by good combustion of clean natural gas. The combustors will operate in lean pre-mixed mode to minimize the flame temperature and nitrogen oxides formation potential. A selective catalytic reduction (SCR) system will be installed within the heat recovery steam generator of the single combined cycle unit to effect additional NO_X control. A full discussion is given in the separate Draft Best Available Control Technology (BACT) Determination that is incorporated into this document by reference.

6.4 Existing Air Quality in the Vicinity of the project

6.4.1 Description of Vicinity

Refer to Figures 1 and 2 above. The Broward Energy Center will be in the City of Deerfield Beach, which has a population of 50,000 to 70,000 people compared to the 1.6 million in Broward County. Deerfield Beach is located between Boca Raton and Pompano Beach and is also near the cities of Coral Springs and Coconut Creek.

Refer to Figure 5 below. The proposed site is East of the Florida Turnpike and about one mile South of the Sawgrass Expressway.

A landfill and the North Broward Resource Recovery Facility are located immediately to the South of the proposed site and include the entire quadrant bounded by the Turnpike, Hilton Road, Powerline Road and Sample Road. Pavex Asphalt, a concrete plant, and the proposed Enron and El Paso sites are located along the North side of Hilton Road (Northwest 48th Street) and across the lake from the Lakeview community. Hardrives Asphalt is located nearby on Powerline Road and South of 10th Street.

Figure 5 – Vicinity of Proposed El Paso Project

The nearest residential community is the Lakeview development immediately North of the proposed site. There are other residential communities immediately West of the Turnpike as well as East of Powerline Road. Following is a picture of the landfill and the North Broward RRF taken from the lake East of Powerline Road between Hilton Road and approximately Southwest 14th Street. The second picture was also taken from approximately the same point towards homes in Lakeview that lie on the Northwest corner of the Lake.

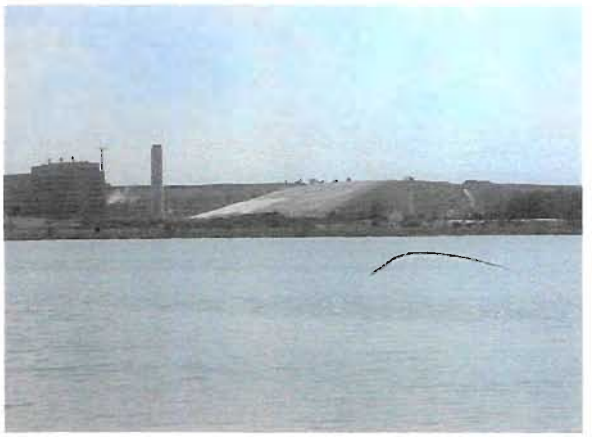


Figure 6 – N. Broward RRF and Landfill

Figure 7 – Lakeview from Powerline Road

6.4.2 Climate

The average annual high temperature for Deerfield Beach is 84 degrees and the average low is 66 degrees. Winds are predominately out of the East. Refer to Figure 8 below.

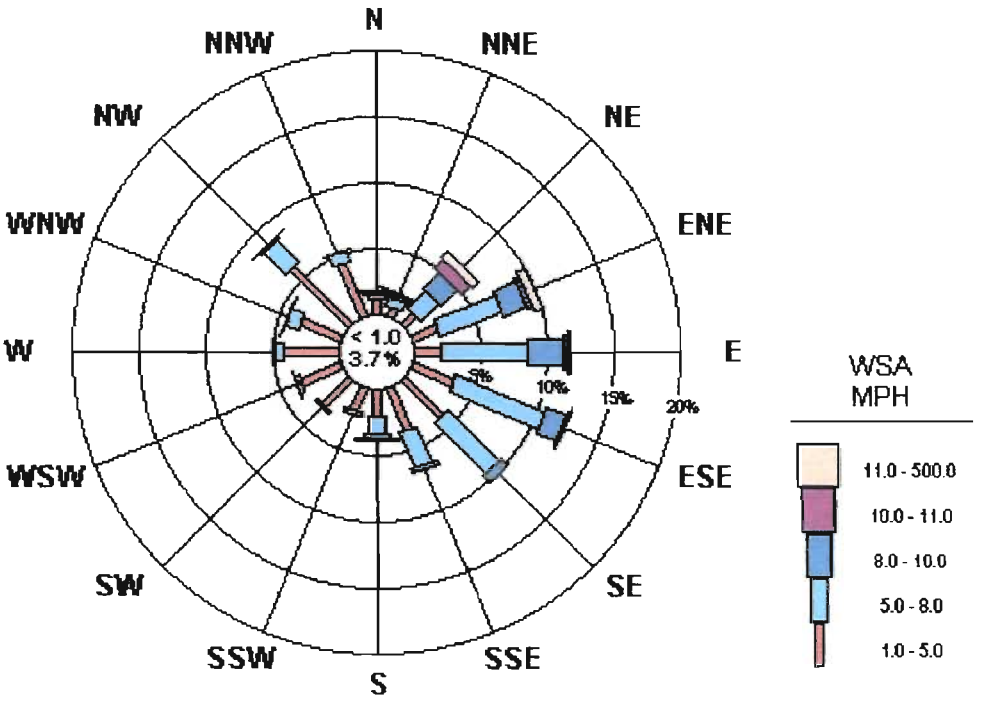


Figure 8 – Broward County Wind Rose – April 2000 to May 2001

6.4.3 Major Stationary Sources in Broward County

The current largest sources of air pollutants in Broward County are listed below:

MAJOR SOURCES OF SO_2 IN BROWARD COUNTY (1999)

Owner/Company	Site Name	Tons per year
Florida Power & Light	FP&L Port Everglades Plant	19856
Florida Power & Light	FP&L Lauderdale Plant	78
Wheelabrator S. Broward Inc.	S. Broward Resource Recovery Facility	47
Owens Corning	Owens corning Trumbull Division	38
Hardrives Asphalt Co.	Hardrives Deerfield Plant	11
Wheelabrator N. Broward, Inc	N. Broward Resource Recovery Facility	8
Waste Management Inc. of Florida	Central Sanitary Landfill & Recycling	7
East Coast Asphalt	East Coast Asphalt	6
Pavex Corporation	Pavex Corporation	6
Weekly Asphalt Paving, Inc.	Weekly Asphalt Plant No. 1	4
Enron (Future)	Pompano & Deerfield Projects	**~330**
El Paso (Future)	Broward Energy Center (Deerfield)	**~90**

MAJOR SOURCES OF NO_X IN BROWARD COUNTY (1999)

Owner/Company	Site Name	Tons per year
Florida Power & Light	FP&L Port Everglades Plant	7689
Florida Power & Light	FP&L Lauderdale Plant	3819
Wheelabrator S. Broward Inc.	S. Broward Resource Recovery Facility	1491
Wheelabrator N. Broward, Inc	N. Broward Resource Recovery Facility	1438
Waste Management Inc. of Florida	Central Sanitary Landfill & Recycling	121
S. Florida Water Mgt. District	SFWMD Pump Station S-9	65
S. Florida Water Mgt. District	SFWMD Pump Station S-8	50
Broward County	N. Regional Wastewater Treatment Plant	14
South Broward Hospital District	Memorial Regional Hospital	11
Hardrives Asphalt Co.	Hardrives Deerfield Plant	8
Enron (Future)	Pompano & Deerfield Projects	**~1145**
El Paso (Future)	Broward Energy Center (Deerfield)	**~505**

Total NO_X emissions were 191 tons per day including traffic during the 1997 ozone season.

MAJOR SOURCES OF VOC IN BROWARD COUNTY (1999)

Owner/Company	Site Name	Tons per year
Coastal Fuels Marketing, Inc.	Coastal Fuels (Belcher)	182
Florida Power & Light	FP&L Port Everglades Plant	116
Motiva Enterprises, LLC	Motiva Enterprises, Port Everglades	113
Loewenstein, Inc.	Loewenstein, Inc.	82
Marathon Ashland Petroleum, LLC	Marathon Ashland. LLC	81
Sun Graphics, Inc.	Sun Graphics, Inc.	81
Mobil Oil Corporation	Mobil Oil Corporation	75
Chevron Products Company	Chevron Products Company	65
Amerada Hess Corporation	Amerada Hess – Ft. Lauderdale Terminal	64
Transmontaigne Terminalling, Inc.	Port Everglades Terminal	48
Enron (Future)	Pompano & Deerfield Projects	**~36**
El Paso (Future)	Broward Energy Center (Deerfield)	**~36**

Total VOC emissions were 347 tons per day including traffic during the 1997 ozone season.

MAJOR SOURCES OF PM IN BROWARD COUNTY (1999)

Owner/Company	Site Name	Tons per year
Florida Power & Light	FP&L Port Everglades Plant	1629
Florida Power & Light	FP&L Lauderdale Plant	257
Continental Cement Co.	Continental Cement	24
FHP Manufacturing	FHP Manufacturing	19
Wheelabrator N. Broward, Inc	N. Broward Resource Recovery Facility	19
Steel fabricators, LLC	Steel Fabricators, LLC	13
Sun Graphics, Inc.	Sun Graphics, Inc.	11
Wheelabrator S. Broward Inc.	S. Broward Resource Recovery Facility	4
Owens Corning	Owens corning Trumbull Division	4
Pavex Corporation	Pavex Corporation	4
Enron (Future)	Pompano & Deerfield Projects	**~110**
El Paso (Future)	Broward Energy Center (Deerfield)	**~130 (EPA-5)**

6.4.4 Air Quality Monitoring in Broward County

Broward County has 26 monitors at 14 sites measuring CO, PM, ozone, lead, SO_2 and NO_2. The 2001 Broward County monitoring network is shown in Figure 9.

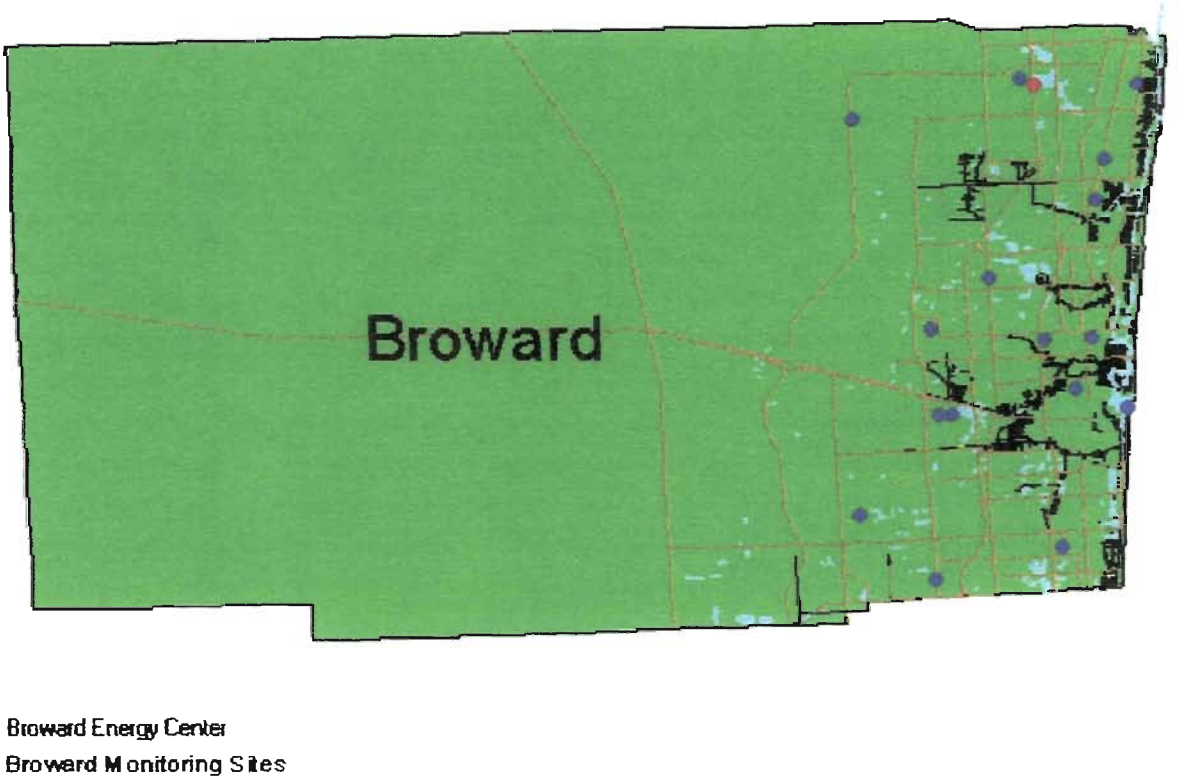


Figure 9 – Broward County Monitoring Network

6.4.5 Ambient Air Quality in Broward County

Measured ambient air quality is given in the following table. The highest measured values are all less than the respective National Ambient Air Quality Standards. The average measurements are all much less than the respective standards.

1999 AMBIENT AIR QUALITY NEAR PROJECT SITE

Pollutant	Site Location			Averaging Period	Ambient Concentration				
	City	Site no.	UTM		1st High	2nd High	Mean	Standard	Units
PM_{10}	Coconut Creek	011-5005	17-2908.456N-582.089E	24-hour	36	31		150[c]	ug/m³
				Annual			17	50[b]	ug/m³
SO_2	Fort Lauderdale	011-0010	17-2890.362N-583.251E	3-hour	102	51		500[a]	ppb
				24-hour	17	15		100[a]	ppb
				Annual			3	20[b]	ppb
NO_2	Coral Springs	011-0031	17-2905.871N-570.365E	Annual			10	53[b]	ppb
CO	Pompano	011-2004	17-2899.870N-587.137E	1-hour	5	4		35[a]	ppm
				8-hour	2	2		9[a]	ppm
Ozone	Pompano	011-2003	17-2907.993N-590.166E	1-hour	0.105	0.103	0.04[d]	0.12[c]	ppm
Lead	Coconut Creek	011-5005	17-2908.456N-582.089E	24-hour	0	0	0	1.5[b]	ug/m³

a - Not to be exceeded more than once per year.
b - Arithmetic mean.
c - Not to be exceeded on more than an average of one day per year over a three-year period.
d – Mean ozone value reflects the average daily 1-hour maximum reading.

6.5 Air Quality Impact Analysis

6.5.1 Introduction

The proposed project will increase emissions of five pollutants at levels in excess of PSD significant amounts: PM/PM_{10}, CO, NO_X, SO_2, and SAM. PM_{10}, SO_2 and NO_X are criteria pollutants and have national and state ambient air quality standards (AAQS), PSD increments, and significant impact levels defined for them. CO is a criteria pollutant and has only AAQS and significant impact levels defined for it. There are no applicable PSD increments, AAQS or de minimis monitoring levels for SAM; the BACT determination will set the emission limits for SAM.

The applicant's initial PM/PM_{10}, CO, NO_X, and SO_2 air quality impact analyses for this project predicted significant impacts only for PM_{10} in the Class II area in the vicinity of the project. Therefore, no further applicable AAQS and PSD increment impact analyses for were CO, NO_X, and SO_2 were required in the Class II area. The nearest PSD Class I area is the Everglades National Park (ENP) located about 67 km to the south. The applicant's PSD Class I air quality analysis showed no significant impacts. Therefore, a cumulative PSD Class I increment analysis was not required. Also, the maximum predicted impacts for all pollutants were below their respective *de minimis* ambient impact levels. Therefore, pre-construction monitoring at the proposed site was not required for this project. Based on the preceding discussion, the air quality analyses required by the PSD regulations for this project were the following:

- A significant impact analysis for PM_{10}, CO, SO_2, and NO_2 in the surrounding Class II Area;

- An Ambient Air Quality Standards (AAQS) and PSD increment analysis for PM_{10} in the Class II area in the vicinity of the project
- A significant impact analysis for PM_{10}, SO_2, and NO_2 in the ENP;
- An analysis of impacts on soils, vegetation, visibility, and of growth-related air quality modeling impacts.

Based on these required analyses, the Department has reasonable assurance that the proposed project, as described in this report and subject to the conditions of approval proposed herein, will not cause or significantly contribute to a violation of any AAQS or PSD increment. However, the following EPA-directed stack height language is included: "In approving this permit, the Department has determined that the application complies with the applicable provisions of the stack height regulations as revised by EPA on July 8, 1985 (50 FR 27892). Portions of the regulations have been remanded by a panel of the U.S. Court of Appeals for the D.C. Circuit in NRDC v. Thomas, 838 F. 2d 1224 (D.C. Cir. 1988). Consequently, this permit may be subject to modification if and when EPA revises the regulation in response to the court decision. This may result in revised emission limitations or may affect other actions taken by the source owners or operators." A more detailed discussion of the required analyses follows.

6.5.2 Ambient Monitoring Requirements

Preconstruction ambient air quality monitoring is required for all pollutants subject to PSD review unless otherwise exempted or satisfied. The monitoring requirement may be satisfied by using existing representative monitoring data, if available. Substantial monitoring data exist for the area as discussed in the previous sections.

An exemption to the monitoring requirement may be obtained if the maximum air quality impact resulting from the projected emissions increase, as determined by air quality modeling, is less than a pollutant-specific de minimus concentration. The table below shows that predicted impacts from the combustion turbines are substantially less than the respective de minimus levels; therefore, preconstruction ambient air quality monitoring is not required for any pollutant. Additionally, the approximate high values measured at existing ambient monitoring sites in Broward County are included for comparison purposes.

Installation of additional monitors near the proposed site will probably not show any increases from the plant because of the very low impact levels. Basically, the highest contribution from the plant would be on the order of 1 percent or less of the highest measured concentrations. This is less than the inherent measurement error in the sampling and analytical techniques.

MAXIMUM PROJECT AIR QUALITY IMPACTS FOR COMPARISON TO THE DE MINIMIS AMBIENT IMPACT LEVELS

Pollutant	Averaging Time	Max Predicted Impact (ug/m^3)	De Minimis Level (ug/m^3)	Baseline Concentrations (ug/m^3)	Impact Greater Than De Minimis?
PM_{10}	24-hour	6	10	~ 40	NO
NO_2	Annual	~~0.5~~ 0.07	14	~ 10	NO
SO_2	24-hour	0.6	13	~ 45	NO
CO	8-hour	6	575	~ 2500	NO

6.5.3 Models and Meteorological Data Used in the Air Quality Analysis

PSD Class II Area

The EPA-approved Industrial Source Complex Short-Term (ISCST3) dispersion model was used to evaluate the pollutant emissions from the proposed project in the surrounding Class II Area. This model determines ground-level concentrations of inert gases or small particles emitted into the atmosphere by point, area, and volume sources. It incorporates elements for plume rise, transport by the mean wind, Gaussian dispersion, and pollutant removal mechanisms such as deposition. The ISCST3 model allows for the separation of sources, building wake downwash, and various other input and output features. A series of specific model features, recommended by the EPA, are referred to as the regulatory options. The applicant used the EPA recommended regulatory options. Direction-specific downwash parameters were used for all sources for which downwash was considered. The stacks associated with this project all satisfied the good engineering practice (GEP) stack height criteria.

Meteorological data used in the ISCST3 model consisted of a concurrent 5-year period of hourly surface weather observations and twice-daily upper air soundings from the National Weather Service (NWS) station at West Palm Beach, Florida (surface and upper air data). The 5-year period of meteorological data was from 1987 through 1991. This NWS station was selected for use in the study because it is the closest primary weather station to the study area and is most representative of the project site. The surface observations included wind direction, wind speed, temperature, cloud cover, and cloud ceiling.

PSD Class I Area

Since the PSD Class I ENP is greater than 50 km from the proposed facility, long-range transport modeling was required for the Class I impact assessment. The California Puff (CALPUFF) dispersion model was used to evaluate the potential impact of the proposed pollutant emissions on the PSD Class I increments and two Air Quality Related Values (AQRVs), regional haze and deposition of sulfur and nitrogen compounds. CALPUFF is a non-steady state, Lagrangian, long-range transport model that incorporates Gaussian puff dispersion algorithms. This model determines ground-level concentrations of inert gases or small particles emitted into the atmosphere by point, line, area, and volume sources. The CALPUFF model has the capability to treat time-varying sources. It is also suitable for modeling domains from tens of meters to hundreds of kilometers, and has mechanisms to handle rough or complex terrain situations. Finally, the CALPUFF model is applicable for inert pollutants as well as pollutants that are subject to linear removal and chemical conversion mechanisms.

CALPUFF was first run in screen mode using ISCST3 meteorological input data. Five years of regionally representative data were used as input. The source of the surface data was the Solar and Meteorological Surface Observation Network (SAMSON) data set that has been produced by the National Climatic Data Center (NCDC). Hourly SAMSON surface data for West Palm Beach International Airport supplemented with precipitation data obtained from NCDC for the period 1987 through 1991 was used along with concurrent upper air data from West Palm Beach.

6.5.4 Significant Impact Analysis

In order to conduct a significant impact analysis, the applicant uses the proposed project's emissions at worst load conditions as inputs to the models. The highest predicted short-term concentrations and highest predicted annual averages predicted by this modeling are compared to the appropriate significant impact levels for the Class I and Class II Areas. If this modeling at worst load conditions shows significant impacts, additional modeling which includes the emissions

from surrounding facilities is required to determine the project's impacts on the existing air quality and any applicable AAQS or PSD increments. If no significant impacts are shown, the applicant is exempted from doing any further modeling.

For the Class II analysis a combination of fence line, near-field and far-field receptors were chosen for predicting maximum concentrations in the vicinity of the project. The fence line receptors consisted of discrete Cartesian receptors spaced at 50 meter intervals around the facility fence line. The remaining receptor grid consisted of densely spaced Cartesian receptors at 100 meters apart starting at and extending to 1 kilometer at 100 meter spacing from the fence line. Beyond 1 kilometer, polar receptor rings (with 36 receptors per ring at 10 degree intervals) with a spacing of 100 meters were used out to 2 kilometers from the facility. From 2 to 4 kilometers, polar receptor rings with a spacing of 250 meters were used. Between 4 and 10 kilometers, polar receptor rings with a spacing of 500 meters were used.

For the Class I screening analysis two rings of receptors were centered on the facility at distances bracketing the ENP. These distances represent the nearest boundary and the farthest boundary of the ENP with respect to the proposed project. Receptors were placed at two-degree intervals over a 360-degree arc along each ring. Screening model runs showed insignificant impacts for all pollutants.

The tables below show the results of the significant impact modeling for the Class II and Class I areas:

MAXIMUM PROJECT AIR QUALITY IMPACTS FROM THE EL PASO PROJECT FOR COMPARISON TO THE PSD CLASS II SIGNIFICANT IMPACT LEVELS

Pollutant	Averaging Time	Max Predicted Impact (ug/m^3)	Significant Impact Level (ug/m^3)	Significant Impact?
SO_2	Annual	0.02	1	NO
	24-Hour	0.6	5	NO
	3-Hour	1.7	25	NO
PM_{10}	Annual	0.2	1	NO
	24-Hour	6	5	YES
CO	8-Hour	6	500	NO
	1-Hour	23	2000	NO
NO_2	Annual	0.07	1	NO

The results of the significant impact modeling show that there are significant impacts for the PM_{10} 24-hour averaging time predicted due to the emissions from this project in the vicinity of the facility; therefore, further modeling was required in the Class II area.

MAXIMUM PROJECT AIR QUALITY IMPACTS FROM THE EL PASO PROJECT COMPARED WITH PSD CLASS I SIGNIFICANT IMPACT LEVELS (ENP)

Pollutant	Averaging Time	Max. Predicted Impact at Class I Area (ug/m^3)	Class I Significant Impact Level (ug/m^3)	Significant Impact?
PM_{10}	Annual	0.01	0.2	NO
	24-hour	0.12	0.3	NO
NO_2	Annual	0.02	0.1	NO
SO_2	Annual	0.004	0.1	NO
	24-hour	0.05	0.2	NO
	3-hour	0.13	1	NO

The results of the significant impact modeling for the ENP show that there are no significant impacts predicted due to SO_2, NO_2, and PM_{10} emissions from these projects; therefore, no further modeling was required in the Class I area for these pollutants.

6.5.5 Broward County Analysis

The Broward County Code Section 27-175 and 27-176(c)(2)b prohibit major sources from allowing emissions of criteria pollutants in quantities that would reduce by more than one half the margin between the existing ambient concentrations and the applicable NAAQS. The Broward County Department of Planning and Environmental Protection (DPEP) provided 1999 ambient monitoring data to the applicant from sites throughout the County. These data were derived from eight monitoring sites for PM_{10}, one for SO_2, one for NO_2 and five for CO. The results were submitted by the applicant to DPEP for review and are tabulated below.

EL PASO BEC COMPLIANCE DEMONSTRATION FOR BROWARD COUNTY CODE SECTION 27.176(C)(2)(B)

Pollutant	Averaging Time	Baseline Concentration (ug/m^3)	Monitoring Site Number	NAAQS (ug/m^3)	½ [NAAQS-Baseline] (ug/m^3)	Maximum Predicted Impact Of Facility
SO_2	Annual	8	011-0010	80	36	0.02
	24-Hour	45	011-0010	365	160	0.6
	3-Hour	267	011-0010	1300	517	1.7
PM_{10}	Annual	17	011-5005	50	16	0.2
	24-Hour	36	011-5005	150	57	6
CO	8-Hour	2,320	011-2004	10,000	3,840	6
	1-Hour	5,800	011-2004	40,000	17,100	23
NO_2	Annual	10	011-0031	100	45	0.07

The table above shows that this project will consume much less than one-half of the margin between the maximum baseline concentration and the NAAQS. The project's impact is less than one percent of this margin for all the criteria pollutants modeled.

6.5.6 AAQS Analysis

For pollutants subject to an AAQS review, the total impact on ambient air quality is obtained by adding a "background" concentration to the maximum modeled concentration. This "background" concentration takes into account all sources of a particular pollutant that are not explicitly modeled. The results of the AAQS analysis are summarized in the table below. As shown in this table, emissions from the proposed facility are not expected to cause or contribute to a violation of an AAQS.

AMBIENT AIR QUALITY IMPACTS

Pollutant	Averaging Time	Major Sources Impact (ug/m^3)	Background Conc. (ug/m^3)	Total Impact (ug/m^3)	Total Impact Greater Than AAQS?	Florida AAQS (ug/m^3)
PM_{10}	24-hour	23	71	94	NO	150

6.5.7 PSD Class Increment Analysis for PM_{10}

The PSD increment represents the amount that new sources in an area may increase ambient ground level concentrations of a pollutant from a baseline concentration, which was established in 1977 for PM_{10} (the baseline year was 1975 for existing major sources of PM_{10}). The maximum predicted 24-hour PM_{10} PSD Class II area impacts from this project and all other increment-consuming sources in the vicinity of the BEC are shown in the following table. The table shows that the maximum predicted impacts are less than the allowable Class II PM_{10} increments.

PSD CLASS II INCREMENT ANALYSIS

Pollutant	Averaging Time	Maximum Predicted Impact ($\mu g/m^3$)	Impact Greater Than Allowable Increment?	Allowable Increment ($\mu g/m^3$)
PM_{10}	24-hr	23	NO	30

6.5.8 Additional Impacts Analysis

Impact on Soils, Vegetation, And Wildlife

Very low emissions are expected from these natural gas-fueled combustion turbines in comparison with conventional power plants generating equal power. Emissions of acid rain and ozone precursors will be very low The maximum ground-level concentrations predicted to occur for PM_{10}, CO, NO_X, and SO_2 as a result of the proposed project, including background concentrations and all other nearby sources, will be considerably less than the respective AAQS. The project impacts are just slightly greater for PM_{10} and less than the significant impact levels for all other pollutants. These values in-turn are less than the respective applicable allowable increments.

The total emissions of NO_X will be about 1.5 tons per day compared with nearly 200 tons per day from all sources in the County. SO_2 emissions will be roughly ¼ of a ton per day compared with countywide emissions of roughly 600 tons per day. The contribution to the total load of these pollutants into the air is very small and will not affect soils in any appreciable manner.

The concentrations of key pollutants are substantially less than values known to cause damage to vegetation. For example, lichens are known to be more sensitive to SO_2 than higher order leafy plants. Injury has been documented at exposures of 88 ug/m^3 according to the application. The average long-term and maximum short-term SO_2 concentrations caused by the proposed project are several orders of magnitude less (0.08 – 1.74 ug/m^3). It is also noted that, at the site of the only SO_2 station in the county, the annual average and 24-hour concentrations of SO_2 are 8 and 45 ug/m^3 respectively. Therefore, the contribution from the proposed project would be minimal.

Similar analyses apply to the other pollutants and their impacts on soil, vegetation and wildlife. The Department's conclusion is that the effects of the project on soils, vegetation, and wildlife will be minimal or insignificant.

Impact On Visibility and Regional Haze

Natural gas is a clean fuel and produces little ash. This will minimize smoke formation. The low NO_X and SO_2 emissions will also minimize plume visibility (typically zero percent opacity). The contribution to smog in the area will be minimal. The applicant submitted a regional haze analysis for the Everglades National Park. Based on NPS criteria, no adverse impacts were predicted.

Growth-Related Air Quality Impacts

There will be short-term increases in the labor force to construct the project. These temporary increases will not result in significant commercial and residential growth in the vicinity of the project. When operational, the project will generate approximately 25 jobs at the site.

The type of project proposed has a small overall physical "footprint," and the lowest air emissions per unit of electric power generating capacity for both combined cycle and simple cycle (intermittent) duty.

Hazardous Air Pollutants

The project is not a major source of hazardous air pollutants (HAPs) and is not subject to any specific industry or HAP control requirements pursuant to Section 112 of the Clean Air Act.

7. CONCLUSION

Based on the foregoing technical evaluation of the application and additional information submitted by the applicant, the Department has made a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations. In making this preliminary determination, the Department also drafted a determination of Best Available Control Technology that may be modified based on comments from the applicant, agencies, and the public.

A. A. Linero, P.E.
Debbie Galbraith, Meteorologist

DRAFT PERMIT

PERMITTEE:

El Paso Merchant Energy Company
1001 Louisiana Street
Houston, TX 77002

Authorized Representative:
William Mack, Sr., Managing Director

Facility Name: Broward Energy Center
Project No. 0112545-001-AC
Air Permit No. PSD-FL-316
Facility ID No. 0112545
SIC No. 4911
Expires: December 1, 2004

PROJECT AND LOCATION

This permit authorizes the construction of a new nominal 775-megawatt electrical generating plant, the Broward Energy Center, to be located west of the intersection of North Powerline Road and Northwest 48th Street and east of the Florida Turnpike in Deerfield Beach, Broward County. UTM coordinates are: Zone 17; 583.3 km East; 2908.0 km North. The plant will consist of one combined cycle gas turbine, three simple cycle gas turbines, and associated equipment.

STATEMENT OF BASIS

This PSD air pollution construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.) and Title 40, Part 52, Section 21 of the Code of Federal Regulations. Specifically, this permit is issued pursuant to the requirements for the Prevention of Significant Deterioration (PSD) of Air Quality, Rule 62-212.400, 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.

CONTENTS

(DRAFT)

Howard L. Rhodes, Director
Division of Air Resources Management

(Date)

FACILITY DESCRIPTION

The proposed project is for a new electrical power plant, the Broward Energy Center, which will generate a nominal 775 MW of electricity. The plant will consist of one combined cycle gas turbine unit (250 MW, total) and three simple cycle gas turbine units (175 MW, each).

NEW EMISSIONS UNITS

This permit authorizes construction and installation of the following new emissions units.

ID	Emission Unit Description
001	**Combined Cycle Unit No. CC-1** consists of a natural gas fired 175 MW General Electric Model PG7241FA gas turbine-electrical generator set, an unfired heat recovery steam generator, and a separate steam turbine-electrical generator.
002	**Simple Cycle Unit No. SC-1** consists of a natural gas fired General Electric Model PG7241FA gas turbine-electrical generator set with a nominal capacity of 175 MW.
003	**Simple Cycle Unit No. SC-2** consists of a natural gas fired General Electric Model PG7241FA gas turbine-electrical generator set with a nominal capacity of 175 MW.
004	**Simple Cycle Unit No. SC-3** consists of a natural gas fired General Electric Model PG7241FA gas turbine-electrical generator set with a nominal capacity of 175 MW.
005	**Cooling Tower** consisting of one 5-cell freshwater mechanical draft freshwater cooling tower.
006	**Other Emissions Units** include one 2600-hp diesel generator, one 250-hp diesel fire pump, a 12.8 MMBtu/hr (HHV) gas-fired fuel heater, an aqueous ammonia storage tank, and small diesel storage tanks.

REGULATORY CLASSIFICATION

Title III: Based on available data, the new facility is not a major source of hazardous air pollutants (HAP).

Title IV: The new gas turbines are subject to the acid rain provisions of the Clean Air Act.

Title V: Because potential emissions of at least one regulated pollutant exceed 100 tons per year, the new facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C. Regulated pollutants include pollutants such as carbon monoxide (CO), nitrogen oxides (NOx), particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), and volatile organic compounds (VOC).

PSD: The project is located in an area designated as "attainment" or "unclassifiable" for each pollutant subject to a National Ambient Air Quality Standard. The facility is considered a "fossil fuel fired steam electric plant of more than 250 million BTU per hour of heat input", which is one of the 28 PSD source categories with the lower PSD applicability threshold of 100 tons per year. Potential emissions of at least one regulated pollutant exceed 100 tons per year. Therefore, the facility is classified as 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.

NSPS: The new gas turbines are subject to the New Source Performance Standards of 40 CFR 60, Subpart GG. The gas fired fuel heater is subject to the New Source Performance Standards of 40 CFR 60, Subpart Dc.

NESHAP: No emission units are identified as being subject to a National Emissions Standards for Hazardous Air Pollutants (NESHAP).

SITING: The project is not subject to Section 403.501-518, F.S., Florida Electrical Power Plant Siting Act, based on information regarding gross electrical power generated from the steam (Rankine) cycle submitted by the applicant and reviewed by the Department.

PERMITTING AUTHORITY

All documents related to applications for permits to construct, operate or modify an emissions unit shall be submitted to the Bureau of Air Regulation of the Florida Department of Environmental Protection (DEP) at 2600 Blair Stone Road (MS #5505), Tallahassee, Florida 32399-2400.

COMPLIANCE AUTHORITIES

All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Air Quality Division of the Broward County Department of Planning and Environmental, 218 Southwest 1st Avenue, Fort Lauderdale, Florida 33301. Copies of all such documents shall be submitted to the Air Resources Section of the Southeast District Office, Florida Department of Environmental Protection, Post Office Box 15425, West Palm Beach, Florida 33416-5425.

APPENDICES

The following Appendices are attached as part of this permit.

Appendix BD. Final BACT Determinations and Emissions Standards

Appendix GC. General Conditions

Appendix GG. NSPS Subpart GG Requirements for Gas Turbines

Appendix SC. Standard Conditions

Appendix XS. Continuous Monitor Systems Semi-Annually Report

RELEVANT DOCUMENTS

The documents listed below are not a part of this permit; however, they are specifically related to this permitting action and are on file with the Department.

- Permit application received on 03/28/01 and all related completeness correspondence.
- Draft permit package issued on _____
- Comments received from the public, the applicant, the EPA Region 4 Office, and the National Park Service.

1. 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.]

2. Applicable Regulations, Forms and Application Procedures: Unless otherwise indicated in this permit, the construction and operation of the subject emissions unit 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.); and the Title 40, Parts 51, 52, 60, 72, 73, and 75 of the Code of Federal Regulations (CFR), adopted by reference in Rule 62-204.800, F.A.C. The terms used in this permit have specific meanings as defined in the applicable chapters of the Florida Administrative Code. 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 permittee 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.]

3. PSD Expiration: Approval to construct shall become invalid if construction is not commenced within 18 months after receipt of such approval, or if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. The Department may extend the 18-month period upon a satisfactory showing that an extension is justified. [40 CFR 52.21(r)(2)]

4. Completion of Construction: The permit expiration date is December 1, 2004. Physical construction shall be completed by September 1, 2004. The additional time provides for testing, submittal of results, and submittal of the Title V permit application to the Department.

5. Permit Expiration: For good cause, the permittee may request that this PSD 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]

6. BACT Determination: In conjunction with an extension of the 18-month period to commence or continue construction, phasing of the project, or an extension of the permit expiration date, the permittee may be required to demonstrate the adequacy of any previous determination of Best Available Control Technology (BACT) for the source. [Rule 62-212.400(6)(b), F.A.C. and 40 CFR 51.166(j)(4)]

7. 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.]

8. 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.]

9. Application for Title IV Permit: At least 24 months before the date on which the new unit begins serving an electrical generator greater than 25 MW, the permittee shall submit an application for a Title IV Acid Rain Permit to the Department's Bureau of Air Regulation in Tallahassee and a copy to the Region 4 Office of the U.S. Environmental Protection Agency in Atlanta, Georgia. [40 CFR 72]

10. Title V Permit: This permit authorizes construction of the permitted emissions units and initial operation to determine compliance with Department rules. A Title V operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after commencing operation. 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, and copies to each Compliance Authority.
[Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

This section of the permit addresses the following new emissions unit.

Emissions Unit 001: Combined Cycle Gas Turbine No. CC-1

Description: The combined cycle unit consists of a General Electric Model PG7241FA gas turbine-electrical generator set with a nominal capacity of 175 MW, an unfired heat recovery steam generator (HRSG), and a separate steam turbine-electrical generator set. Ancillary equipment includes an automated gas turbine control system, an inlet air filtration system, and an evaporative inlet air-cooling system.

Fuel: The combined cycle unit is fired exclusively with pipeline-quality natural gas.

Capacity: At a compressor inlet air temperature of 35° F, the combined cycle gas turbine produces approximately 180 MW when firing approximately 1700 MMBtu (LHV) per hour of natural gas.

Controls: The efficient combustion of pipeline-quality natural gas at high temperatures minimizes emissions of CO, PM/PM_{10}, SAM, SO_2, and VOC. A selective catalytic reduction (SCR) system combined with Dry Low-NO_X (DLN) combustion technology reduces NO_X emissions.

Stack Parameters: When operating at 100% load and at an inlet temperature of 35° F, exhaust gases exit a 135 feet tall stack that is 19.0 feet in diameter with a flow rate of approximately 1,040,000 acfm at 187° F.

APPLICABLE STANDARDS AND REGULATIONS

1. BACT Determinations: The emissions standards specified for this unit represent Best Available Control Technology (BACT) determinations for carbon monoxide (CO), nitrogen oxides (NO_X), particulate matter (PM/PM_{10}), sulfuric acid mist (SAM), and sulfur dioxide (SO_2). See Appendix BD of this permit for a summary of the final BACT determinations. [Rule 62-212.400(BACT), F.A.C.]

EQUIPMENT

2. Combined Cycle Gas Turbine: The permittee is authorized to install, tune, maintain and operate a new combined cycle unit consisting of a General Electric Model PG7241FA gas turbine-electrical generator set, an unfired heat recovery steam generator (HRSG), and a steam turbine-electrical generator set. The combined cycle unit shall be designed as a system to generate a nominal 175 MW of shaft-driven electrical power and less than 75 MW of steam-generated electrical power. Ancillary equipment includes an automated gas turbine control system, an inlet air filtration system, an evaporative inlet air cooling system, a single exhaust stack that is 135 feet tall and 19.0 feet in diameter, and associated support equipment. A separate bypass stack and damper may be installed to facilitate startup of the steam cycle while operating the combustion turbine in Low Emissions Modes 5, 5Q, and 6Q. [Applicant Request; Design]

3. DLN Combustion Technology: The permittee shall tune, maintain and operate the General Electric DLN-2.6 combustion system to control NO_X emissions from the combined cycle gas turbine. Prior to the initial emissions performance tests for each gas turbine, the DLN combustors and automated gas turbine control system shall be tuned to reduce NO_X emissions. Thereafter, each system shall be maintained and tuned in accordance with the manufacturer's recommendations.
[Design; Rule 62-212.400(BACT), F.A.C.]

4. (SCR) System: The permittee shall install, tune, maintain and operate a selective catalytic reduction (SCR) system to control NOx emissions from the combined cycle gas turbine. The SCR system consists of an ammonia injection grid, catalyst, aqueous ammonia storage, monitoring and control system, electrical, piping and other auxiliary equipment. The SCR system shall be designed to reduce NO_X emissions and ammonia slip below the permitted levels. [Rule 62-212.400(BACT), F.A.C.]

PERFORMANCE RESTRICTIONS

5. Permitted Capacity: The maximum heat input rate to the combined cycle gas turbine shall not exceed 1742 MMBtu per hour based on a compressor inlet air temperature of 35° F, the lower heating value (LHV) of natural gas, and 100% load. Heat input rates will vary depending upon gas turbine characteristics, ambient conditions, alternate methods of operation, and evaporative cooling. The permittee shall provide manufacturer's performance curves (or equations) that correct for site conditions to the Permitting and Compliance Authorities within 45 days of completing the initial compliance testing. Operating data may be adjusted for the appropriate site conditions in accordance with the performance curves and/or equations on file with the Department. [Rule 62-210.200(PTE), F.A.C.]

6. Authorized Fuel: The combined cycle gas turbine shall fire only pipeline-quality natural gas with a maximum of 1.5 grains of sulfur per 100 standard cubic feet of natural gas. [Applicant Request; Rules 62-210.200(PTE) and 62-212.400(BACT), F.A.C.]

7. Restricted Operation: The hours of operation for the combined cycle gas turbine are not limited (8760 hours per year). [Rules 62-210.200(PTE) and 62-212.400(BACT), F.A.C.]

8. Power Augmentation: As an alternate method of operation, the permittee may inject steam into the combined cycle gas turbine for power augmentation. Power augmentation is permitted 2000 hours per 12-consecutive months and is not limited if oxidation catalyst is installed. The 2000 hour limit may be revised at the request of the applicant based upon review of actual performance and control equipment cost-effectiveness following proper public notice. [Rule 62-212.400 (BACT), F.A.C.]

9. Power Generated Limitation: Electrical power from the steam-electrical generator shall be limited to 74.9 MW (gross) on an hourly basis. The owner or operator shall be capable of demonstrating to the Department, continuous compliance with the 74.9 MW limit by the stored information in the power plant's electronic data system. [Applicant Request]

EMISSIONS STANDARDS

{Permitting Note: The following standards apply to the combined cycle gas turbine. Unless otherwise noted, the mass emission limits are based a compressor inlet temperature of 35° F and 100% load. For comparison to the standard, actual measured concentrations shall be corrected to this compressor inlet temperature with manufacturer's data on file with the Department. Emissions standards with continuous monitoring requirements apply at all loads. Appendix BD provides a summary of the emissions standards of this permit.}

10. Ammonia Slip: Ammonia slip shall not exceed 5 ppmvd corrected to 15% oxygen based on a 3-hour test average as determined by EPA Method CTM-027. [Rule 62-4.070(3), F.A.C.]

11. Carbon Monoxide (CO)

    a. *Initial Test, Standard Operation*: When not operating in the power augmentation mode, CO emissions shall not exceed 31.0 pounds per hour nor 8.0 ppmvd corrected to 15% oxygen based on a 3-hour test average as determined by an initial performance test conducted in accordance with EPA Method 10.

    b. *Continuous Compliance, Standard Operation*: When not operating in the power augmentation mode, CO emissions shall not exceed 8.0 ppmvd corrected to 15% oxygen based on a 3-hour block average as determined by valid data collected from the certified CEM system.

c. *Initial Test, Power Augmentation*: When injecting steam for power augmentation and a compressor inlet temperature of 59° F, CO emissions shall not exceed 48.0 pounds per hour nor 12.0 ppmvd corrected to 15% oxygen based on a 3-hour test average as determined by an initial performance test conducted in accordance with EPA Method 10.

d. *Continuous Compliance, Power Augmentation*: When injecting steam for power augmentation, CO emissions shall not exceed 12.0 ppmvd corrected to 15% oxygen based on a 3-hour block average as determined by valid data collected from the certified CEM system. [Rule 62-212.400(BACT), F.A.C.]

12. Nitrogen Oxides (NO_X)

a. *Initial Test*: NO_X emissions shall not exceed 17.0 pounds per hour nor 2.5 ppmvd corrected to 15% oxygen based on a 3-hour test average as determined by EPA Method 7E.

b. *Continuous Compliance*: NO_X emissions shall not exceed 2.5 ppmvd corrected to 15% oxygen based on a 24-hour block average as determined by valid data collected from the certified CEM system.

NO_X emissions are defined as oxides of nitrogen expressed as NO_2. [Rule 62-212.400(BACT), F.A.C.]

13. Particulate Matter (PM/PM_{10}): The fuel specifications established in Condition No. 6 of this section combined with the efficient combustion design and operation of the combined cycle gas turbine represent the Best Available Control Technology (BACT) requirements for PM/PM_{10} emissions. Compliance with the fuel specifications, CO standards, and visible emissions standards shall serve as indicators of good combustion. {Permitting Note: Particulate matter emissions are expected to be less than 11 pounds per hour as determined by EPA Method 5, front-half catch only.} [Rule 62-212.400(BACT), F.A.C.]

14. Sulfuric Acid Mist (SAM) and Sulfur Dioxide (SO_2): The fuel sulfur specification established in Condition No. 6 of this section effectively limits the potential emissions of SAM and SO_2 from the combined cycle gas turbine. Compliance with the fuel sulfur specification shall be demonstrated by the sampling, analysis, record keeping and reporting requirements established in Section III.C of this permit. [Rule 62-212.400(BACT), F.A.C.]

15. Visible Emissions: As determined by EPA Method 9, visible emissions shall not exceed 10% opacity based on a 6-minute average. Except as allowed by Condition No. 17 of this section, this standard applies to all loads. [Rule 62-212.400(BACT), F.A.C.]

16. Volatile Organic Compounds (VOC): The efficient combustion of clean fuels and good operating practices for the combined cycle gas turbine represent the Best Available Control Technology (BACT) requirements for VOC emissions. Compliance with the fuel specification and CO standards shall serve as indicators of good combustion. {Permitting Note: VOC emissions are expected to be less than 3 pounds per hour and 1.3 ppmvd corrected to 15% oxygen as determined by EPA Method 25A measured and reported as methane.} [Design; Rule 62-4.070(3), F.A.C.]

EXCESS EMISSIONS

17. Excess Emissions Defined: The following permit conditions allow excess emissions or the exclusion of monitoring data for specifically defined periods of startup, shutdown, and malfunction of the combined cycle gas turbine. These conditions apply only if operators employ the best operational practices to minimize the amount and duration of excess emissions during such episodes.

a. *Visible Emissions*: For startups and shutdowns in a calendar day, visible emissions shall not exceed 10% opacity except for up to ten, 6-minute averaging periods, which shall not exceed 20% opacity.

b. *Work Practice BACT*: The unit(s) will reach Mode 5Q (i.e. five burners plus quaternary pegs in operation) within 15 minutes following gas turbine ignition and crossfire.

c. *Low-Load Restriction*: Except for startup and shutdown, operation under DLN Modes 1, 2, 3, and 4 is prohibited.

d. *CEM System Data Exclusion*: Except for combined cycle cold startups, no more than two hourly average emission rate values in a calendar day shall be excluded from the continuous NO_X and CO compliance demonstrations due to startup, shutdown, or documented unavoidable malfunction. No more than four hourly average emission rate values in a calendar day shall be excluded from the continuous NO_X and CO compliance demonstrations due to combined cycle cold startups. No more than a total of four hourly average emission rate values shall be excluded from the continuous NO_X and CO compliance demonstrations for all such episodes in any calendar day. A "*combined cycle cold startup*" is defined as startup after the combined cycle gas turbine has been shutdown for 48 hours or more. A "*documented unavoidable malfunction*" is a malfunction beyond the control of the operator that is documented within 24 hours of occurrence by contacting each Compliance Authority by telephone or facsimile transmittal.

[Design; Rules 62-4.070(3), 62-4.130, 62-210.700, and 62-212.400 (BACT), F.A.C.]

EMISSIONS PERFORMANCE TESTING

{Permitting Note: Performance test methods are specified in Gas Turbine Common Conditions, Section III.C.}

18. Initial Compliance Tests: The combined cycle gas turbine shall be tested initially and upon permit renewal to demonstrate compliance with the emission standards for CO, NO_X, visible emissions and ammonia slip. The tests shall be conducted within 60 days after achieving at least 90% of the maximum permitted capacity, but not later than 180 days after initial operation of the combined cycle gas turbine. With appropriate flow measurements, certified CEM system data may be used to demonstrate compliance with the CO and NO_X standards. NO_X emissions recorded by the CEM system shall be reported for each ammonia slip test run. [Rule 62-297.310(7)(a)1., F.A.C.]

19. Annual Compliance Tests: During each federal fiscal year (October 1st to September 30th), the combined cycle gas turbine shall be tested to demonstrate compliance with the emission standards for NOx, CO, ammonia slip and visible emissions. NO_X emissions recorded by the CEM system shall be reported for each ammonia slip test run. Annual compliance with the applicable NOx and CO emissions standards can also be demonstrated with valid data collected by the required annual RATA at permitted capacity. {Permitting Note: Continuous compliance with the CO and NOx standards shall be demonstrated with certified CEMS system data.} [Rules 62-212.400 (BACT) and 62-297.310(7)(a)4., F.A.C.]

CONTINUOUS MONITORING REQUIREMENTS

20. CEM Systems: The permittee shall install, calibrate, maintain, and operate continuous emission monitoring (CEM) systems to measure and record the emissions of CO and NO_X from the combined cycle gas turbine in a manner sufficient to demonstrate continuous compliance with the emission standards of this section. The CEM systems shall comply with the general monitoring requirements specified under "Gas Turbine Common Conditions" in Section III.C.

    a. The CO monitor shall have a span of no more than 25 ppmvd corrected to 15% oxygen. For purposes of determining compliance with the CEM emission standards of this permit, missing or excluded data shall not be substituted. Instead, the next valid hourly emission rate value (within the same period of operation) shall be used to complete the 3-hour block average for CO. Each monitoring system shall be installed, calibrated, and properly functioning prior to the initial performance tests and shall be used to demonstrate continuous compliance with the corresponding CO emissions standards specified in this section. [Rule 62-212.400(BACT), F.A.C.]

b. The NO_X monitor shall have a span of no more than 10 ppmvd corrected to 15% oxygen. Compliance with the continuous NO_X emissions standards shall be based on a 24-hour block average starting at midnight of each operating day. The 24-hour block average shall be calculated from 24 consecutive hourly average emission rate values. If a unit operates less than 24 hours during the block, the 24-hour block average shall be the average of available valid hourly average emission rate values for the 24-hour block. For purposes of determining compliance with the CEM emission standards of this permit, missing (or excluded) data shall not be substituted. Instead the block average shall be determined using the remaining hourly data in the 24-hour block. Each monitoring system shall be installed, calibrated, and properly functioning prior to the initial performance tests and shall be used to demonstrate continuous compliance with the corresponding NO_X emissions standards specified in this section.
[Rule 62-212.400(BACT), F.A.C.]

21. Ammonia Monitoring Requirements: In accordance with the manufacturer's specifications, the permittee shall install, calibrate, maintain and operate an ammonia flow meter to measure and record the ammonia injection rate to the SCR system. The permittee shall document the general range of ammonia flow rates required to meet permitted emissions levels over the range of load conditions allowed by this permit by comparing NO_X emissions recorded by the CEM system with ammonia flow rates recorded using the ammonia flow meter. During NO_X monitor downtimes or malfunctions, the permittee shall operate at the ammonia flow rate that is consistent with the documented flow rate for the combustion turbine load. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

OTHER REQUIREMENTS

The combined cycle gas turbine is also subject to the "Gas Turbine Common Conditions" specified in Section III.C as well as the "Standard Conditions" included as Appendix SC in Section IV.

B. SIMPLE CYCLE GAS TURBINES

This section of the permit addresses the following new emissions units.

Emissions Units 002, 003 and 004: Simple Cycle Gas Turbine Nos. SC-1, SC-2 and SC-3
Description: Each simple cycle unit consists of a General Electric Model PG7241FA gas turbine-electrical generator set with a nominal capacity of 175 MW. Ancillary equipment includes an automated gas turbine control system, an inlet air filtration system, and an evaporative inlet air-cooling system.
Fuel: Each simple cycle unit is fired exclusively with pipeline-quality natural gas.
Capacity: At a compressor inlet air temperature of 35° F and firing approximately 1700 MMBtu (LHV) per hour of natural gas, each unit produces approximately 180 MW.
Controls: Emissions of CO, PM/PM_{10}, SAM, SO_2, and VOC are minimized by the efficient combustion of pipeline-quality natural gas at high temperatures. NO_X emissions are reduced by Dry Low-NO_X (DLN) combustion technology.
Stack Parameters: When operating at 100% load and at an inlet temperature of 35° F, exhaust gases exit a 135 feet tall stack that is 19.0 feet in diameter with a flow rate of approximately 2,500,000 acfm at 1092° F.

APPLICABLE STANDARDS AND REGULATIONS

1. BACT Determinations: The emissions standards specified for these emissions units represent Best Available Control Technology (BACT) determinations for carbon monoxide (CO), nitrogen oxides (NO_X), particulate matter (PM/PM_{10}), sulfuric acid mist (SAM), and sulfur dioxide (SO_2). See Appendix BD of this permit for a summary of the final BACT determinations. [Rule 62-212.400(BACT), F.A.C.]

EQUIPMENT

2. Simple Cycle Gas Turbines: The permittee is authorized to install, tune, maintain and operate three new General Electric Model PG7241(FA) gas turbine-electrical generator sets. Each simple cycle unit shall be designed and operated to generate a nominal 175 MW of shaft-driven electrical power. Ancillary equipment includes an automated gas turbine control system, an inlet air filtration system, a compressor inlet air evaporative cooling system, a single exhaust stack that is 135 feet tall and 19.0 feet in diameter, and associated support equipment. [Applicant Request; Design]

3. DLN Combustion Technology: The permittee shall tune, maintain and operate the General Electric DLN 2.6 combustion system to control NO_X emissions from each simple cycle gas turbine. Prior to the initial emissions performance tests for each gas turbine, the DLN combustors and automated gas turbine control system shall be tuned to reduce NO_X emissions. Thereafter, each system shall be maintained and tuned in accordance with the manufacturer's recommendations.
[Design; Rule 62-212.400(BACT), F.A.C.]

PERFORMANCE REQUIREMENTS

4. Simple Cycle Operation Only: Each gas turbine shall operate only in simple cycle mode. This restriction is based on the permittee's request, which formed the basis of the CO and NO_X BACT determinations and resulted in the emission standards specified in this permit. Specifically, the CO and NO_X BACT determinations eliminated several control alternatives based on technical considerations due to the elevated temperatures of the exhaust gas as well as costs related to restricted operation. Any request to convert these units to combined cycle operation or increase the allowable hours of operation shall be accompanied by a revised CO and NO_X BACT analysis (as if never constructed) and the approval of the Department through a permit modification in accordance with Chapters 62-210 and 62-212, F.A.C. The results of this analysis

may validate the initial BACT determinations or result in the submittal of a full PSD permit application, new control equipment, and new emissions standards.
[Applicant Request; Rules 62-210.300 and 62-212.400, F.A.C.]

5. Permitted Capacity: The maximum heat input rate to each simple cycle gas turbine shall not exceed 1743 MMBtu per hour based on a compressor inlet air temperature of 35° F, the lower heating value (LHV) of natural gas, and 100% load. Heat input rates will vary depending upon gas turbine characteristics, ambient conditions, and evaporative cooling. The permittee shall provide manufacturer's performance curves (or equations) that correct for site conditions to the Permitting and Compliance Authorities within 45 days of completing the initial compliance testing. Operating data may be adjusted for the appropriate site conditions in accordance with the performance curves and/or equations on file with the Department. [Design; Rule 62-210.200(PTE), F.A.C.]

6. Fuel Specifications: Each simple cycle gas turbine shall fire only pipeline-quality natural gas with a maximum of 1.5 grains of sulfur per 100 standard cubic feet of natural gas.
[Applicant Request; Rules 62-210.200(PTE) and 62-212.400(BACT), F.A.C.]

7. Restricted Operation: The three combustion turbines shall operate no more than an average of 5,000 hours per installed unit during any consecutive 12-month period. Each simple cycle gas turbine shall fire no more than 8,500,000 MMBtu of natural gas (LHV) during any consecutive 12-month period. {Permitting Note: This is approximately equivalent to 5000 hours of operation at 100% load.}
[Applicant Request; Rules 62-212.400(BACT) and 62-210.200(PTE), F.A.C.]

EMISSIONS STANDARDS

{Permitting Note: The following standards apply to each simple cycle gas turbine. Unless otherwise noted, the mass emission limits are based a compressor inlet temperature of 35° F and 100% load. For comparison to the standard, actual measured concentration shall be corrected to this compressor inlet temperature with manufacturer's data on file with the Department. Emissions standards with continuous monitoring requirements apply at all loads. Appendix BD provides a summary of the emissions standards of this permit.}

8. Carbon Monoxide (CO): CO emissions from each simple cycle gas turbine shall not exceed 31.0 pounds per hour nor 8.0 ppmvd corrected to 15% oxygen based on a 3-hour test average as determined by EPA Method 10. [Rule 62-212.400(BACT), F.A.C.]

9. Nitrogen Oxides (NO_X)

   a. *Initial Performance Test*: NO_X emissions from each simple cycle gas turbine shall not exceed 61.0 pounds per hour nor 9.0 ppmvd corrected to 15% oxygen based on a 3-hour test average conducted at base load as determined by EPA Method 7E.

   b. *CEM System*: NO_X emissions shall not exceed 9.0 ppmvd corrected to 15% oxygen based on a 24-hour block average as determined by valid data collected from the certified NO_X CEM system.

   NO_X emissions are defined as oxides of nitrogen expressed as NO_2. [Rule 62-212.400(BACT), F.A.C.]

10. Particulate Matter (PM/PM_{10}): The fuel specifications established in Condition No. 6 of this section combined with the efficient combustion design and operation of the combined cycle gas turbine represent the Best Available Control Technology (BACT) requirements for particulate matter emissions. Compliance with the fuel specifications, CO standards, and visible emissions standards shall serve as indicators of good combustion. Particulate matter emissions are expected to be less than 9 pounds per hour as determined by EPA Method 5, front-half catch only. [Rule 62-212.400(BACT), F.A.C.]

11. Sulfuric Acid Mist (SAM) and Sulfur Dioxide (SO_2): The fuel sulfur specification established in Condition No. 6 of this section effectively limits the potential emissions of SAM and SO_2 from each simple cycle gas turbine. Compliance with the fuel sulfur specification shall be demonstrated by the sampling, analysis, record keeping and reporting requirements established in Section III.C of this permit.
[Rule 62-212.400(BACT), F.A.C.]

12. Volatile Organic Compounds (VOC)

    a. *Initial Performance Test*: VOC emissions from each simple cycle gas turbine shall not exceed 3.0 pounds per hour nor 1.3 ppmvd corrected to 15% oxygen based on a 3-hour test average at base load as determined by EPA Method 25A, measured and reported in terms of methane. Optionally, EPA Method 18 may be used concurrently with EPA Method 25A to deduct emissions of methane and ethane from the measured VOC emissions.
    [Rule 62-4.070, F.A.C.; To Avoid Rule 62-212.400(BACT), F.A.C.]

    b. *After Initial Performance Test*: The efficient combustion of a clean fuel and good operating practices minimize VOC emissions from each simple cycle gas turbine. Compliance with the fuel specifications and CO standards of this section shall serve as indicators of good combustion. Subsequent VOC emissions performance tests shall only be required when the Department has good reason to believe that a VOC emission standard is being violated pursuant to Rule 62-297.310(7)(b), F.A.C.
    [Rule 62-4.070, F.A.C.]

EXCESS EMISSIONS

13. Excess Emissions Defined: The following permit conditions allow excess emissions or the exclusion of monitoring data for specifically defined periods of startup, shutdown, and malfunction of each simple cycle gas turbine. These conditions apply only if operators employ the best operational practices to minimize the amount and duration of excess emissions during such episodes.

    a. *Visible Emissions*: For startups and shutdowns in a calendar day, visible emissions shall not exceed 10% opacity except for up to ten, 6-minute averaging periods, which shall not exceed 20% opacity.

    b. *Work Practice BACT*: The unit(s) will reach Mode 5Q (i.e. five burners plus quaternary pegs in operation) within 15 minutes following gas turbine ignition and crossfire.

    c. *Low-Load Restriction*: Except for startup and shutdown, operation under DLN Modes 1, 2, 3, and 4 is prohibited.

    d. *CEM System NO_X Data Exclusion*: No more than two hourly average emission rate values shall be excluded from the continuous NO_X compliance demonstrations due to startup, shutdown, or documented unavoidable malfunction. No more than a total of three hourly average emission rate values shall be excluded from the continuous NO_X compliance demonstrations for such periods in any calendar day. A "documented unavoidable malfunction" is a malfunction beyond the control of the operator that is documented within 24 hours of occurrence by contacting each Compliance Authority by telephone or facsimile transmittal.

    [Design; Rules 62-210.700, 62-4.130, and 62-212.400 (BACT), F.A.C.]

EMISSIONS PERFORMANCE TESTING

{Permitting Note: Performance test methods are specified in Gas Turbine Common Conditions, Section III.C.}

14. Initial Tests Required: Each simple cycle gas turbine shall be tested initially and upon permit renewal to demonstrate compliance with the emission standards for PM/PM_{10}, CO, NO_X, VOC and visible emissions. The initial tests shall be conducted within 60 days after achieving at least 90% of the maximum permitted capacity, but not later than 180 days after initial operation of each unit. With appropriate flow measurements, certified CEM system data may be used to demonstrate compliance with the NOx standards. Tests for CO and VOC emissions shall be conducted concurrently. [Rule 62-297.310(7)(a)1., F.A.C.]

15. Annual Performance Tests: During each federal fiscal year (October 1st to September 30th), each simple cycle gas turbine shall be tested to demonstrate compliance with the emission standards for NOx, CO and visible emissions. Annual compliance with the applicable NOx and CO emissions standards can also be demonstrated with valid data collected by the required annual RATA at permitted capacity. NO_X emissions recorded by the CEM system shall be reported for each CO test run. {Permitting Note: Continuous compliance with the NO_X standard shall be demonstrated with certified CEMS system data.} [Rule 62-297.310(7)(a)4., F.A.C.]

CONTINUOUS MONITORING REQUIREMENTS

16. CEM Systems: The permittee shall install, calibrate, maintain, and operate continuous emission monitoring (CEM) systems to measure and record NO_X emissions from each simple cycle gas turbine in a manner sufficient to demonstrate continuous compliance with the emission standards of this section. Each CEM system shall comply with the general monitoring requirements specified under "Gas Turbine Common Conditions" in Section III.C. Each NO_X monitor shall have a span of no more than 25 ppmvd corrected to 15% oxygen. Compliance with the continuous NO_X emissions standards shall be based on a 24-hour block average starting at midnight of each operating day. The 24-hour block average shall be calculated from 24 consecutive hourly average emission rate values. If a unit operates less than 24 hours during the block, the 24-hour block average shall be the average of available valid hourly average emission rate values for the 24-hour block. For purposes of determining compliance with the CEM emission standards of this permit, missing (or excluded) data shall not be substituted. Instead the block average shall be determined using the remaining hourly data in the 24-hour block. Each monitoring system shall be installed, calibrated, and properly functioning prior to the initial performance tests and shall be used to demonstrate continuous compliance with the corresponding NO_X emissions standards specified in this section. [Rule 62-212.400(BACT), F.A.C.]

OTHER REQUIREMENTS

Each simple cycle gas turbine is also subject to the "Gas Turbine Common Conditions" specified in Section III.C as well as the "Standard Conditions" included as Appendix SC in Section IV.

This section of the permit addresses the following new emissions units.

ID	Emission Unit Description
001	**Combined Cycle Unit No. CC-1** consists of a natural gas fired General Electric Model PG7241FA 175 MW gas turbine-electrical generator set, an unfired heat recovery steam generator, and a separate turbine-electrical generator.
002	**Simple Cycle Unit No. SC-1** consists of a natural gas fired General Electric Model PG7241FA gas turbine-electrical generator set with a nominal capacity of 175 MW.
003	**Simple Cycle Unit No. SC-2** consists of a natural gas fired General Electric Model PG7241FA gas turbine-electrical generator set with a nominal capacity of 175 MW.
004	**Simple Cycle Unit No. SC-3** consists of a natural gas fired General Electric Model PG7241FA gas turbine-electrical generator set with a nominal capacity of 175 MW.

NEW SOURCE PERFORMANCE STANDARDS, SUBPART GG

1. NSPS Requirements: The Department determines that compliance with the emissions performance and monitoring requirements of Sections III.A and B also demonstrates compliance with the New Source Performance Standards for gas turbines in 40 CFR 60, Subpart GG. For completeness, the applicable Subpart GG requirements are included in Appendix GG of this permit. [Rule 62-4.070(3), F.A.C.]

PERFORMANCE REQUIREMENTS

2. Operating Procedures: The Best Available Control Technology (BACT) determinations established by this permit rely on "good operating practices" to reduce emissions. Therefore, all operators and supervisors shall be properly trained to operate and maintain the combined cycle gas turbine and pollution control systems in accordance with the guidelines and procedures established by each manufacturer. The training shall include good operating practices as well as methods of minimizing excess emissions. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

EXCESS EMISSIONS

3. 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. All such emissions shall be included in any compliance demonstration based on continuous monitoring data. [Rule 62-210.700(4), F.A.C.]

EMISSIONS PERFORMANCE TESTING

4. Test Methods: Required tests shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
CTM-027	Procedure for Collection and Analysis of Ammonia in Stationary Source {Notes: This is an EPA conditional test method. The minimum detection limit shall be 1 ppm.}
5	Determination of Particulate Matter Emissions from Stationary Sources {Note: For gas firing, the minimum sampling time shall be two hours per run and the minimum sampling volume shall be 60 dscf per run.}
7E	Determination of Nitrogen Oxide Emissions from Stationary Sources
9	Visual Determination of the Opacity of Emissions from Stationary Sources

Test Methods, Continued

Method	Description of Method and Comments
10	Determination of Carbon Monoxide Emissions from Stationary Sources {Notes: The method shall be based on a continuous sampling train. The ascarite trap may be omitted or the interference trap of section 10.1 may be used in lieu of the silica gel and ascarite traps.}
18	Measurement of Gaseous Organic Compound Emissions by Gas Chromatography {Note: EPA Method 18 may be used (optional) concurrently with EPA Method 25A to deduct emissions of methane and ethane from the measured VOC emissions.}
20	Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines
25A	Determination of Volatile Organic Concentrations

Except for Method CTM-027, the above methods are described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. Method CTM-027 is published on EPA's Technology Transfer Network Web Site at "http://www.epa.gov/ttn/emc/ctm.html". No other methods may be used for compliance testing unless prior written approval is received from the Department.
[Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

CONTINUOUS MONITORING REQUIREMENTS

5. CEM Systems: Each continuous emissions monitoring (CEM) system shall comply with the following requirements:

   a. *CO Monitors.* The CO monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 4. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, and the Data Assessment Report of Section 7 shall be made each calendar quarter, and reported semi-annually to each Compliance Authority. The RATA tests required for the CO monitor shall be performed using EPA Method 10, of Appendix A of 40 CFR 60. The Method 10 analysis shall be based on a continuous sampling train, and the ascarite trap may be omitted or the interference trap of section 10.1 may be used in lieu of the silica gel and ascarite traps.

   b. *NO_X Monitors.* Each NO_X monitor shall be certified pursuant to 40 CFR Part 75 and shall be operated and maintained in accordance with the applicable requirements of 40 CFR Part 75, Subparts B and C. Record keeping and reporting shall be conducted pursuant to 40 CFR Part 75, Subparts F and G. The RATA tests required for the NO_X monitor shall be performed using EPA Method 20 or 7E, of Appendix A of 40 CFR 60.

   c. *O_2 or CO_2 Monitors.* The oxygen (O_2) content or carbon dioxide (CO_2) content of the flue gas shall also be monitored at the location where CO and/or NO_X are monitored to correct the measured emissions rates to 15% oxygen. If a CO_2 monitor is installed, the oxygen content of the flue gas shall be calculated by the CEM system using F-factors that are appropriate for the fuel fired. Each O_2 and CO_2 monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 3. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, and the Data Assessment Report of Section 7 shall be made each calendar quarter, and reported quarterly to each Compliance Authority. The RATA tests required for the O_2 or CO_2 monitors shall be performed using EPA Method 3B, of Appendix A of 40 CFR 60.

d. *Data Collection.* Each hourly average value shall be computed using at least one data point in each fifteen-minute quadrant of an hour, where the unit combusted fuel during that quadrant of an hour. Notwithstanding this requirement, an hourly value shall be computed from at least two data points separated by a minimum of 15 minutes (where the unit operates for more than one quadrant of an hour). The permittee shall use all valid measurements or data points collected during an hour to calculate the hourly averages. The CEM system shall be designed and operated to sample, analyze, and record data evenly spaced over an hour. If the CEM system measures concentration on a wet basis, the CEM system shall include provisions to determine the moisture content of the exhaust gas and an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Alternatively, the owner or operator may develop through manual stack test measurements a curve of moisture contents in the exhaust gas versus load for each allowable fuel, and use these typical values in an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Final results of the CEM system shall be expressed as ppmvd, corrected to 15% oxygen. The CEM system shall be used to demonstrate compliance with the CEM emission standards for CO and NO_X as specified in this permit. Upon request by the Department, the CEM systems emission rates shall be corrected to ISO conditions to demonstrate compliance with the applicable standards of 40 CFR 60.332.

e. *Data Exclusion.* All required emissions data shall be recorded by the CEM systems during episodes of startup, shutdown and malfunction. CO and NO_X emissions data recorded during such episodes may be excluded from the corresponding compliance-averaging period subject to the conditions specified in Sections III.A and B of this permit. All periods of data excluded for any startup, shutdown or malfunction episode shall be consecutive for each episode. The permittee shall minimize the duration of data excluded for startup, shutdown and malfunctions, to the extent practicable. Data recorded during startup, shutdown or malfunction events shall not be excluded if the startup, shutdown or malfunction episode was caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure, which may reasonably be prevented. Best operational practices shall be used to minimize hourly emissions that occur during episodes of startup, shutdown and malfunction. Emissions of any quantity or duration that occur entirely or in part from poor maintenance, poor operation, or any other equipment or process failure, which may reasonably be prevented, shall be prohibited.

f. *Data Exclusion Reports.* A summary report of the duration of data excluded from each compliance average calculation, and all instances of missing data from monitor downtime, shall be reported quarterly to each Compliance Authority. This report shall be consolidated with the report required pursuant to 40 CFR 60.7. For purposes of reporting "excess emissions" pursuant to the requirements of 40 CFR 60.7, excess emissions shall be defined to include the hourly emissions which are recorded by the CEM system during periods of data excluded for episodes of startup, shutdown and malfunction, as allowed above. The duration of excess emissions shall include the duration of the periods of data excluded for such episodes. Reports required by this paragraph and by 40 CFR 60.7 shall be submitted no less than quarterly, including periods in which no data is excluded or no instances of missing data occur.

g. *Notification*: If a CEM system reports CO or NO_X emissions in excess of an emissions standard, the permittee shall notify each Compliance Authority within one working day with a preliminary report 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.

h. *Availability.* Monitor availability for CO and NO_X CEM systems shall be 95% or greater in any calendar quarter. The report required in Appendix XS of this permit shall be used to demonstrate monitor availability. In the event 95% availability is not achieved, the permittee shall provide the Department with a report identifying the problems in achieving 95% availability and a plan of corrective actions that will be taken to achieve 95% availability. The permittee shall implement the reported corrective actions within the next calendar quarter. Failure to take corrective actions or continued failure to achieve the minimum monitor availability shall be violations of this permit.

{Permitting Note: Compliance with these requirements will ensure compliance with the other applicable CEM system requirements such as: NSPS Subpart GG; Rule 62-297.520, F.A.C.; 40 CFR 60.7(a)(5) and 40 CFR 60.13; 40 CFR Part 51, Appendix P; 40 CFR 60, Appendix B - Performance Specifications; and 40 CFR 60, Appendix F - Quality Assurance Procedures.}

[Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

RECORDS

6. Fuel Sulfur Records: The permittee shall demonstrate compliance with the fuel sulfur specification of this permit by maintaining records of the sulfur content of the natural gas being supplied based on the vendor's analysis for each month of operation. Methods for determining the sulfur content of the natural gas shall be ASTM methods D4084-82, D3246-81 (or more recent versions) in conjunction with the provisions of 40 CFR 75 Appendix D. [Rules 62-4.070(3) and 62-4.160(15), F.A.C.]

7. Monitoring of Operations: To demonstrate compliance with the fuel consumption limits, the permittee shall monitor and record the rates of fuel consumption for each gas turbine in accordance with the provisions of 40 CFR 75 Appendix D. To demonstrate compliance with the turbine capacity requirements, the permittee shall monitor and record the operating rate of each combined cycle gas turbine on a daily average basis, considering the number of hours of operation during each day (including the times of startup, shutdown and malfunction). Such monitoring shall be made using a monitoring component of the CEM system required above, or by monitoring daily rates of consumption and heat content of each allowable fuel in accordance with the provisions of 40 CFR 75 Appendix D. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

8. Monthly Operations Summary: By the fifth calendar day of each month, the permittee shall record the monthly fuel consumption (million cubic feet of natural gas per month), heat input rates (million BTU per month), and hours of operation for each gas turbine. The information shall be recorded in a written (or electronic log) and shall summarize the previous month of operation and the previous 12 months of operation. Information recorded and stored as an electronic file shall be available for inspection and printing within at least three days of a request by the Department. [Rule 62-4.070(3), F.A.C.]

REPORTS

9. Semi-Annually Excess Emissions Reports: Following the NSPS format provided in Appendix XS of this permit, emissions shall be reported as "excess emissions" when emission levels exceed the standards specified in this permit (including periods of startup, shutdown and malfunction). Within 30 days following the end of the six month period, the permittee shall submit a report to the Compliance Authority summarizing periods of excess emissions, periods of data exclusion, and CEMS systems monitor availability for the previous six month period.
[Rules 62-4.130, 62-204.800, 62-210.700(6), F.A.C.; and 40 CFR 60.7]

D. OTHER EMISSIONS UNITS

This permit authorizes installation of the following emissions units.

ID	Emission Unit Description
005	**Cooling Tower** : One 5-cell mechanical draft fresh water cooling tower.
006	**Other Emissions Units:** One 2600 hp diesel generator, one 250 hp diesel fire pump, aqueous ammonia storage tank, a 12.8 MMBtu/hr (HHV) gas-fired fuel heater and two diesel fuel storage tanks (less than 1000 gallons).

1. Cooling Tower: BACT for the Cooling Tower was determined to be the use of fresh water and drift eliminators designed and maintained to reduce drift to 0.0005 percent of the circulating water flow rate. {Permitting Note: Potential emissions in tons per year are expected to be less than 1.64 for PM and 0.99 for PM_{10}}.
2. 2600 HP Diesel Generator: This unit is specifically exempted from permitting and BACT requirements according to Rules 62-210.300 (3) and 62-210.300 (3)(a)20. F.A.C., provided that fuel oil use does not exceed 32,000 gallons per year. The unit will be fired with No. 2 diesel fuel with a maximum sulfur content of 0.05%. {Permitting Note: Potential emissions in tons per year are expected to be less than 0.12 for PM, 3.26 for NOx, 0.73 for CO, 0.07 for SO_2 and 0.18 for TOC (total organic carbons)}.
3. 12.8 MMBtu/hr Gas-fired Natural Gas Fuel Heater: This unit is specifically exempted from permitting and BACT requirements according to Rules 62-210.300 (3) and 62-210.300 (3)(a)2 F.A.C., Categorical Exemptions. This unit is subject to applicable provisions of 40 CFR 60, Subpart Dc. New Source Performance Standards for Small Industrial-Commercial-Institutional Steam Generating Units.
4. 250 HP Diesel Fire Pump: This unit is specifically exempted from permitting and BACT requirements according to Rules 62-210.300 (3) and 62-210.300 (3)(a)21 F.A.C., Categorical Permit Exemptions. The unit will be fired with No. 2 diesel fuel with a maximum sulfur content of 0.05%. {Permitting Note: Potential emissions in tons per year are expected to be less than 0.013 for PM, 0.74 for NO_X, 0.18 for CO, 0.0014 for SO_2 and 0.08 for TOC (total organic carbons)}
5. Aqueous Ammonia Storage Tank: This unit will contain less than a 20 percent concentration of aqueous ammonia by volume and therefore is not subject to applicable provisions of 40 CFR 68, Chemical Accident Provisions.
6. Two Diesel Fuel Storage Tanks (less than 1000 gallons): This unit is specifically exempted from permitting and BACT requirements according to Rules 62-210.300 (3) and 62-210.300 (3)(b)(iv) F.A.C., Generic and Temporary Exemptions.

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

El Paso Broward Energy Center
PSD-FL-316 and 0112545-001-AC
Broward County, Florida

BACKGROUND

The applicant, El Paso Merchant Energy Company (El Paso), proposes to install four nominal 175-megawatt (MW) General Electric PG 7241FA (GE 7FA) combustion turbine-electrical generators at the planned Broward Energy Center in Broward County. The proposed project will constitute a New Major Facility per Rule 62-212.400(d)2.b., Florida Administrative Code (F.A.C.). It is therefore subject to review for the Prevention of Significant Deterioration (PSD) and a determination of Best Available Control Technology (BACT) per Rule 62-212.400, F.A.C. Emissions of particulate matter (PM and PM_{10}), carbon monoxide (CO), nitrogen oxides (NO_X), sulfur dioxide (SO_2), and sulfuric acid mist (SAM) will exceed the "Significant Emission Rates" with respect to Table 212.400-2, (F.A.C.). PSD and BACT reviews are required for each of these pollutants.

Three of the units will operate in simple cycle mode and intermittent duty while the fourth will operate in combined cycle mode and continuous duty. The units will exhaust through separate 135-foot stacks. The units will be fired exclusively with pipeline natural gas. El Paso proposes to operate the simple cycle units up to 5,000 hours per year per unit. Descriptions of the process, project, air quality effects, and rule applicability are given in the Technical Evaluation and Preliminary Determination, accompanying the Department's Intent to Issue.

DATE OF RECEIPT OF A BACT APPLICATION:

The application was received on March 28, 2001 (complete June 27) and included a BACT proposal prepared by the applicant's consultant, ECT.

PREPARED BY:

A. A. Linero, P.E.

BACT DETERMINATION REQUESTED BY THE APPLICANT:

POLLUTANT	CONTROL TECHNOLOGY	PROPOSED BACT LIMIT
Nitrogen Oxides	Dry Low NO_X Combustors Selective Catalytic Reduction	9 ppmvd @ 15% O_2 (simple cycle units) 3.5 ppmvd @ 15% O_2 (combined cycle)
Particulate Matter	Pipeline Natural Gas Combustion Controls	18.3 pounds per hour (Front + Back Half, Simple) 20 pounds per hour (Front + Back Half, Combined)
Carbon Monoxide	As Above	7.4 ppmvd (Full load, Simple or Combined) 12 ppmvd (Combined Cycle Steam Augmentation)
Sulfur Oxides	As Above	1.5 grains sulfur/100 std cubic feet

BACT DETERMINATION PROCEDURE:

In accordance with Rule 62-212.400, F.A.C., this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department of Environmental Protection (Department), on a case by case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques. In addition, the regulations state that, in making the BACT determination, the Department shall give consideration to:

- Any Environmental Protection Agency determination of BACT pursuant to Section 169, and any emission limitation contained in 40 CFR Part 60 - Standards of Performance for New Stationary Sources or 40 CFR Part 61 - National Emission Standards for Hazardous Air Pollutants.
- All scientific, engineering, and technical material and other information available to the Department.
- The emission limiting standards or BACT determination of any other state.
- The social and economic impact of the application of such technology.

The EPA currently stresses that BACT should be determined using the "Top-Down" approach, particularly when permits are issued by states acting on behalf of EPA. The Department considers Top-Down to be a useful tool, though not a unique or required approach to achieve a BACT under the State regulations. The first step in this approach is to determine, for the emission unit in question, the most stringent control available for a similar or identical emission unit or emission unit category. If it is shown that this level of control is technically or economically unfeasible for the emission unit in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections.

STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES:

The minimum basis for a BACT determination is 40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines (NSPS). The Department adopted subpart GG by reference in Rule 62-204.800, F.A.C. The key emission limits required by Subpart GG are 75 ppmvd NO_X @ 15% O_2 (assuming 25 percent efficiency) and 150 ppmvd SO_2 @ 15% O_2 (or <0.8% sulfur in fuel). The BACT proposed by El Paso is well within the NSPS limit, which allows NO_X emissions in the range of 100 - 110 ppmvd for the high efficiency units to be purchased for the El Paso project.

A National Emission Standard for Hazardous Air Pollutants (NESHAP) under development exists for stationary gas turbines. However this facility will not be subject to the NESHAP or to a requirement for a case-by-case determination of maximum achievable control technology because HAP emissions will be less than 10 TPY.

DETERMINATIONS BY EPA AND STATES:

The following tables include some recently permitted simple and combined cycle turbines. The proposed El Paso project is included to facilitate comparison.

TABLE 1

RECENT NO_X EMISSION LIMIT PROPOSALS AND DETERMINATIONS FOR "F-CLASS" SIMPLE CYCLE PROJECTS IN THE SOUTHEAST

Project Location	Power Output (MW)	NO_X Limit ppmvd @ 15% O_2 and Fuel	Technology	Comments
El Paso Deerfield, FL	525	9 - NG	DLN	3x175 MW GE 7FA CTs Gas Only
Enron Deerfield, FL	510	9 - NG 42 - No. 2 FO	DLN WI	3x170 MW GE 7FA CTs Draft 06/01. 1000 hrs on oil
Pompano Beach, FL	510	9 - NG 42 - No. 2 FO	DLN WI	3x170 MW GE 7FA CTs Draft 03/01. 1000 hrs on oil
Midway St. Lucie, FL	510	9 - NG 42 - No. 2 FO	DLN WI	3x170 MW GE 7FA CTs Issued 2/01. 1000 hrs on oil
DeSoto County, FL	510	9 - NG 42 - No. 2 FO	DLN WI	3x170 MW GE 7FA CTs Issued 7/00. 1000 hrs on oil
Shady Hills Pasco, FL	510	9 - NG 42 - No. 2 FO	DLN WI	3x170 MW GE 7FA CTs Issued 1/00. 1000 hrs on oil
Vandolah Hardee, FL	680	9 - NG 42 - No. 2 FO	DLN WI	4x170 MW GE 7FA CTs Issued 11/99. 1000 hrs on oil
Oleander Brevard, FL	850	9 - NG 42 - No. 2 FO	DLN WI	5x170 MW GE 7FA CTs Issued 11/99. 1000 hrs on oil
JEA Baldwin, FL	510	10.5 - NG 42 - No. 2 FO	DLN WI	3x170 MW GE 7FA CTs Issued 10/99. 750 hrs on oil
Reliant Osceola, FL	510	10.5 - NG 42 - No. 2 FO	DLN WI	3x170 MW GE 7FA CTs Issued. 750 hrs on oil
TEC Polk Power, FL	330	10.5 – NG 42 – No. 2 F.O.	DLN WI	2x165 MW GE 7FA CTs Issued 10/99. 750 hrs on oil
Dynegy, FL	510	15 – NG	DLN	3x170 MW WH 501F CTs Issued. Gas only
Dynegy Heard, GA	510	15 – NG	DLN	3x170 MW WH 501F CTs Issued. Gas only
Thomaston, GA	680	15 - NG 42 - No. 2 FO	DLN WI	4x170 MW GE 7FA CTs Issued. 1687 hrs on oil
Dynegy Reidsville, NC	900	15 – NG (by 2002) 42 – No. 2 FO	DLN WI	5x180 MW WH 501F CTs Initially 25 ppm NO_X limit on gas Issued. 1000 hrs on oil.
Lyondell Harris, TX	160	25 – NG	DLN	1x160 MW WH 501F CTs Issued 11/99. Gas only
Southern Energy, WI	525	15/12 – NG 42 - No. 2 FO	DLN WI	3x175 MW GE 7FA CTs 15/12 ppm are on 1/24 hr basis Issued 1/99. 800 hrs on oil
Carson Energy, CA	42	5 – NG (LAER)	Hot SCR	42 MW LM6000PA. Startup 1995. Ammonia limit is 20 ppmvd
McClelland AFB, CA	85	5 – NG (LAER)	Hot SCR	85 MW GE 7EA. Applied 1999 Ammonia proposal 10 ppmvd
Lakeland, FL	250 CON	9/9 – NG (by 2002) 42/15 - No. 2 FO	DLN/HSCR WI/HSCR	250 MW WH 501G CT Initially 25 ppm NO_X limit on gas Issued 7/98. 250 hrs on oil.
PREPA, PR	248 CON	10 - No. 2 FO	WI & HSCR	3x83 MW ABB GT11N CTs Issued 12/95.

CON = Continuous
SC = Simple Cycle
INT = Intermittent
DLN = Dry Low NO_X Combustion
SCR = Selective Catalytic Reduction
HSCR = Hot SCR
FO = Fuel Oil
NG = Natural Gas
WI = Water or Steam Injection
GE = General Electric
WH = Westinghouse
ABB = Asea Brown Bovari

TABLE 2

RECENT CO, VOC, AND PM NO_X EMISSION LIMIT PROPOSALS AND DETERMINATIONS FOR "F-CLASS" SIMPLE CYCLE PROJECTS

Project Location	CO - ppm (or as indicated)	VOC - ppm (or as indicated)	PM - lb/hr (or as indicated)	Technology and Comments
El Paso Deerfield, FL	9 (7.4@15% O_2) - NG	1.4 (1.3@15% O2)	18 lb/hr (Front & Back)	Clean Fuels Good Combustion
Enron Deerfield, FL	9 - NG 30 - FO	1.4 – NG 1.4– FO	18 lb/hr - NG 34 lb/hr - FO	Clean Fuels Good Combustion
Pompano Beach, FL	9 - NG 30 - FO	1.4 – NG 1.4– FO	10 lb/hr - NG 17 lb/hr - FO	Clean Fuels Good Combustion
Midway St. Lucie, FL	9 - NG 30 - FO	1.4 – NG 1.4– FO	10 lb/hr - NG 17 lb/hr - FO	Clean Fuels Good Combustion
DeSoto County, FL	12 - NG 20 - FO	1.4 – NG 7 – FO	10 lb/hr - NG 17 lb/hr - FO	Clean Fuels Good Combustion
Shady Hills Pasco, FL	12 - NG 20 - FO	1.4 – NG 7 – FO	10 lb/hr - NG 17 lb/hr - FO	Clean Fuels Good Combustion
Vandolah Hardee, FL	12 - NG 20 - FO	1.4 – NG 7 – FO	10 lb/hr - NG 17 lb/hr - FO	Clean Fuels Good Combustion
Oleander Brevard, FL	12 - NG 20 - FO	3 – NG 6 – FO	10% Opacity	Clean Fuels Good Combustion
JEA Baldwin, FL	12 - NG 20 - FO	1.4 – NG/FO Not PSD	9/17 lb/hr – NG/FO 10% Opacity	Clean Fuels Good Combustion
Reliant Osceola, FL	10.5 - NG 20 - FO	2.8 lb/hr – NG 7.5 lb/hr – FO	9 lb/hr - NG 17 lb/hr - FO	Clean Fuels Good Combustion
TEC Polk Power, FL	15 - NG 33 - FO	7 – NG 7 – FO	10% Opacity	Clean Fuels Good Combustion
Dynegy, FL	25 - NG	? – NG	? - NG	Clean Fuels Good Combustion
Dynegy Heard Co., GA	25 - NG	? – NG	? - NG	Clean Fuels Good Combustion
Tenaska Heard Co., GA	15 - NG 20 - FO	? – NG ? – FO	? - NG ? lb/hr - FO	Clean Fuels Good Combustion
Dynegy Reidsville, NC	25 - NG 50 - FO	6 lb/hr – NG 8 lb/hr – FO	6 lb/hr - NG 23 lb/hr - FO	Clean Fuels Good Combustion
Lyondell Harris, TX	25 - NG			Clean Fuels Good Combustion
Southern Energy, WI	12@>50% load – NG 15@>75% 24@<75% - FO	2 - NG 5 - FO	18 lb/hr – NG 44 lb/hr - FO	Clean Fuels Good Combustion
RockGen Cristiana, WI	12@>50% load – NG 15@>75% 24@<75% - FO	2 - NG 5 - FO	18 lb/hr – NG 44 lb/hr - FO	Clean Fuels Good Combustion
Carson Energy, CA	6 – NG			Oxidation Catalyst
McClelland AFB, CA	23 – NG	3.9 - NG	7 lb/hr	Clean Fuels Good Combustion
Lakeland, FL	25 - NG or 10 by Ox Cat 75 - FO @ 15% O_2	4 – NG 10 – FO	10% Opacity	Clean Fuels Good Combustion
PREPA, PR	9 – FO @15% O_2	11 – FO @15% O_2	0.0171 gr/dscf	Clean Fuels Good Combustion

TABLE 3

RECENT NO_X EMISSION LIMIT PROPOSALS AND DETERMINATIONS FOR "F-CLASS" COMBINED CYCLE PROJECTS IN THE SOUTHEAST

Project Location	Capacity Megawatts	NO_X Limit ppmvd @ 15% O_2 and Fuel	Technology	Comments
El Paso Deerfield, FL	250	2.5 – NG	SCR	175 MW GE 7FA
CPV Pierce, FL	245	2.5 – NG 10 – FO	SCR	170 MW GE 7FA CT 7/2001
Metcalf Energy, CA	600	2.5 – NG	SCR	2x170 MW WH501F & Duct Burners
Enron/Ft. Pierce, FL	~250	3.5 – NG 10 - FO	SCR	170 MW MHI501F CT Repowering
CPV Atlantic, FL	245	3.5 – NG 10 – FO	SCR	170 MW GE 7FA CT
CPV Gulfcoast, FL	245	3.5 – NG 10 – FO	SCR	170 MW GE 7FA CT
TECO Bayside, FL	1750	3.5 – NG 12 - FO	SCR	7x170 MW GE 7FA CTs Repowering
FPC Hines II, FL	530	3.5 - NG 12 - FO	SCR	2x170 MW WH501F
Calpine Osprey, FL	527	3.5 – NG	SCR	2x170 MW WH501F Draft 5/00
Calpine Blue Heron, FL	1080	3.5 – NG	SCR	4x170 MW WH501F Draft 2/00
Santee Cooper, SC	~500	9 – NG	DLN	2x170 MW GE 7FA CTs ~ 4/00
Mobile Energy, AL	~250	~3.5 - NG ~11 – FO	SCR	178 MW GE 7FA CT 1/99
Alabama Power Barry	800	3.5 - NG	SCR	3x170 MW GE 7FA CTs 11/98
Alabama Power Theo	210	3.5 – NG	SCR	4x170 MW GE 7FA CTs 11/98
KUA Cane Island 3, FL	250	3.5 – NG (12 – simple cycle) 15 - FO	SCR	170 MW GE 7FA. 11/99 DLN on simple cycle
Lake Worth LLC, FL	250	9 or 3.5 – NG 9.4 or 3.5 – NG (CT&DB) 42 or 16.4 - FO	DLN or SCR DLN or SCR WI or SCR	170 MW GE 7FA. 11/99 Increase allowed for DB under DLN.
Miss Power Daniel	1000	3.5 – NG	SCR	4x170 MW GE 7FA CTs 11/98

DB = Duct Burner
NG = Natural Gas
FO = Fuel Oil
DLN = Dry Low NO_X Combustion
SCR = Selective Catalytic Reduction
WI = Water or Steam Injection
GE = General Electric
WH = Westinghouse
CT = Combustion Turbine

TABLE 4

RECENT CO, VOC, AND PM NO_X EMISSION LIMIT PROPOSALS AND DETERMINATIONS FOR "F-CLASS" COMBINED CYCLE PROJECTS

Project Location	CO - ppmvd (or lb/mmBtu)	VOC - ppmv (or lb/mmBtu)	PM - lb/mmBtu (or gr/dscf or lb/hr)	Technology and Comments
El Paso Deerfield, FL	9 (7.4 @15% O_2) 15 (12 @15% O_2) (PA)	1.4 - NG	20 lb/hr – (Front & Back) 5 ppmvd Ammonia Slip	Clean Fuels Good Combustion
CPV Pierce, FL	9 - NG (50 - 100% load) 15 - NG (PA) 20 – FO	1.4 – NG 3.5 FO	11 lb/hr – NG (front) 36 lb/hr – FO (front) 5 ppmvd Ammonia Slip	Clean Fuels Good Combustion
Metcalf Energy, CA	6 - NG (100% load)	.00126 lb/mmBtu-NG	12 lb/hr – NG (w DB) 5 ppmvd Ammonia Slip	Clean Fuels Good Combustion
Enron Ft. Pierce, FL	3.5 - NG 10 - Low Load 8 - FO	2.2 - NG 16 – Low Load 10 - FO	10% Opacity	Oxidation Catalyst Clean Fuels Good Combustion
CPV Atlantic, FL	9 - NG (50 - 100% load) 15 - NG (PA) 20 – FO	1.4 – NG 3.5 FO	11 lb/hr – NG (front) 36 lb/hr – FO (front) 5 ppmvd Ammonia Slip	Clean Fuels Good Combustion
CPV Gulfcoast, FL	9 - NG (50 - 100% load) 15 - NG (PA) 20 – FO	1.4 – NG 3.5 FO	11 lb/hr – NG (front) 36 lb/hr – FO (front) 5 ppmvd Ammonia Slip	Clean Fuels Good Combustion
TECO Bayside, FL	9 – NG (24-hr CEMS) 20 – FO (24-hr CEMS)	1.3 – NG 3 - FO	12 lb/hr – NG 30 lb/hr - FO	Clean Fuels Good Combustion
FPC Hines II, FL	16 - NG (24-hr CEMS) 30 – FO (24-hr CEMS)	2 – NG 10 – FO	10% Opacity – NG 5/9 ammonia – NG/FO	Clean Fuels Good Combustion
Calpine Osprey, FL	10 – NG 17 – NG (DB&PA)	2.3 – NG 4.6 – NG (DB&PA)	24 lb/hr – NG (DB&PA) 10 percent Opacity 9 ppmvd Ammonia Slip	Clean Fuels Good Combustion
Calpine Blue Heron, FL	10 – NG (24-hr CEMS) 17 – NG (DB&PA)	1.2 – NG 6.6 – NG (DB&PA)	31.9 lb/hr – NG (DB&PA) 10 percent Opacity 5 ppmvd Ammonia Slip	Clean Fuels Good Combustion
Mobile Energy, AL	~18 – NG ~26 – FO	~5 – NG ~6 - FO	10% Opacity	Clean Fuels Good Combustion
Alabama Power Barry	~15 – NG(CT) ~25 – NG(DB & CT)	~8 - NG(CT) ~12 – NG(CT & DB)	0.010 lb/mmBtu – (CT) 0.011 lb/mmBtu -(CT/DB) 10% Opacity	Clean Fuels Good Combustion
Alabama Power Theo	~36 – CT & DB	~12.5 CT & DB		Clean Fuels Good Combustion
KUA Cane Island	10 - NG (CT) 20 - NG (CT&DB) 30 - FO	1.4 - NG (CT) 4 - NG (CT&DB) 10 - FO	10% Opacity	Clean Fuels Good Combustion
Lake Worth LLC, FL	9 - NG (CT) 15 – NG (CT & DB) 20 - F.O. (3-hr)	1.4 - NG (CT) 1.8 - NG (CT & DB) 3.5 – F.O.	10% Opacity	Clean Fuels Good Combustion
Miss Power Daniel	~15 - NG(CT) ~25 – NG(DB & CT	~8 - NG(CT) ~12 – NG(CT & DB)	0.010 lb/mmBtu – (CT) 0.011 lb/mmBtu -(CT/DB) 10% Opacity	Clean Fuels Good Combustion

All of the projects listed above control SO_2 and sulfuric acid mist by limiting the sulfur content of the fuel. In every case, pipeline quality natural gas is used and has a sulfur content less than 2 grains per 100 cubic feet. In some cases, the limits are even lower or are expressed in different terms. However all ultimately rely on a fairly uniform gas distribution network and have very little flexibility in actually controlling sulfur content. Similarly, emissions of these two pollutants are controlled by using 0.05 percent sulfur distillate fuel oil.

Some of the projects listed above include front and back half catch for PM limits. Therefore comparison is not simple.

REVIEW OF NITROGEN OXIDES CONTROL TECHNOLOGIES:

Some of the discussion in this section is based on a 1993 EPA document on Alternative Control Techniques for NO_X Emissions from Stationary Gas Turbines. Project-specific information is included where applicable.

Nitrogen Oxides Formation

Nitrogen oxides form in the gas turbine combustion process as a result of the dissociation of molecular nitrogen and oxygen to their atomic forms and subsequent recombination into seven different oxides of nitrogen. Thermal NO_X forms in the high temperature area of the gas turbine combustor. Thermal NO_X increases exponentially with increases in flame temperature and linearly with increases in residence time. Flame temperature is dependent upon the ratio of fuel burned in a flame to the amount of fuel that consumes all of the available oxygen.

By maintaining a low fuel ratio (lean combustion), the flame temperature will be lower, thus reducing the potential for NO_X formation. Prompt NO_X is formed in the proximity of the flame front as intermediate combustion products. The contribution of Prompt to overall NO_X is relatively small in near-stoichiometric combustors and increases for leaner fuel mixtures. This provides a practical limit for NO_X control by lean combustion.

In all but the most recent gas turbine combustor designs, the high temperature combustion gases are cooled to an acceptable temperature with dilution air prior to entering the turbine (expansion) section. The sooner this cooling occurs, the lower the thermal NO_X formation. Cooling is also required to protect the first stage nozzle. When this is accomplished by air cooling, the air is injected into the component and is ejected into the combustion gas stream, causing a further drop in combustion gas temperature. This, in turn, lowers achievable thermal efficiency for the unit.

The relationship between flame temperature, firing temperature, unit efficiency, and NO_X formation can be appreciated from Figure 1 which is from a General Electric discussion on these principles.

Fuel NO_X is formed when fuels containing bound nitrogen are burned. This phenomenon is not important for natural gas-fired projects such as the El Paso Broward Energy Center.

Uncontrolled emissions range from about 100 to over 600 parts per million by volume, dry, corrected to 15 percent oxygen (ppmvd @15% O_2). The Department estimates uncontrolled emissions at approximately 200 ppmvd @15% O_2 for each turbine of the El Paso project. The proposed NO_X controls will reduce these emissions significantly.

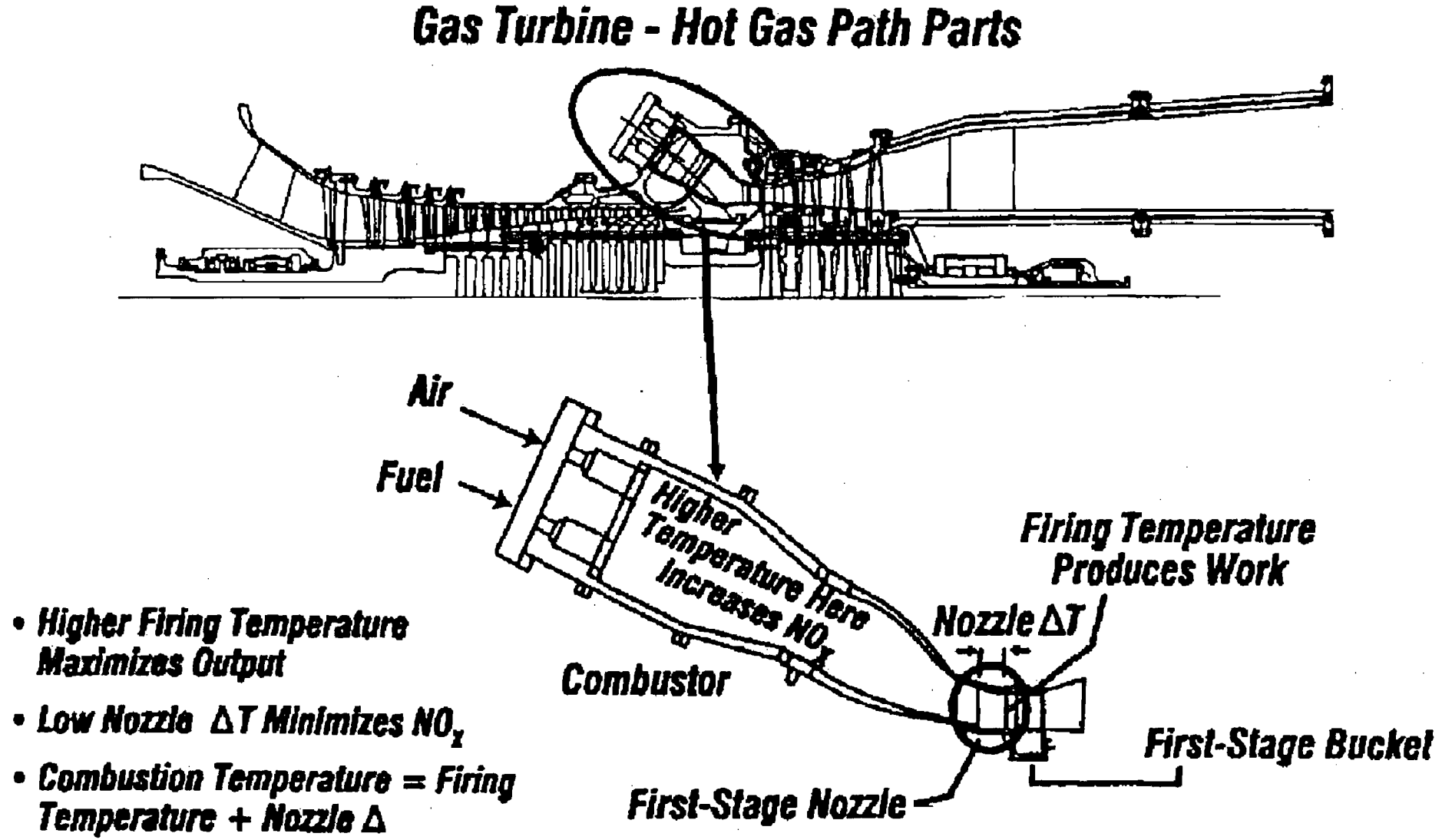


Figure 1 – Relation Between Flame Temperature and Firing Temperature

NO_X Control Techniques

Wet Injection

Injection of either water or steam directly into the combustor lowers the flame temperature and thereby reduces thermal NO_X formation. Typical emissions achieved by wet injection are in the range of 15–25 ppmvd when firing gas and 42 ppmvd when firing fuel oil in large combustion turbines. These values often form the basis, particularly in combined cycle turbines, for further reduction to BACT limits by other techniques. Carbon monoxide (CO) and hydrocarbon (HC) emissions are relatively low for most gas turbines. However steam and (more so) water injection may increase emissions of both of these pollutants.

Combustion Controls: Dry Low NO_X (DLN)

The excess air in lean combustion cools the flame and reduces the rate of thermal NO_X formation. Lean premixing of fuel and air prior to combustion can further reduce NO_X emissions. This is accomplished by minimizing localized fuel-rich pockets (and high temperatures) that can occur when trying to achieve lean mixing within the combustion zones.

The above principle is incorporated into the General Electric DLN-2.6 can-annular combustor shown in Figure 2. Each combustor includes six nozzles within which fuel and air have been fully pre-mixed. There are 16 small fuel passages around the circumference of each combustor can known as quarternary fuel pegs. The six nozzles are sequentially ignited as load increases in a manner that maintains lean pre-mixed combustion and flame stability.

Design emission characteristics of the DLN-2.6 combustor while firing natural gas are given in Figure 3 for a unit tuned to meet a 15 ppmvd NO_X limit (by volume, dry corrected to at 15 percent oxygen) at JEA's Kennedy Station. The combustor can be tuned differently to achieve emissions as low as 9 ppm of NO_X.

The combustor emits NO_X at concentrations of 15 ppmvd at loads between 50 and 100 percent of capacity, but concentrations as high as 100 ppmvd may occur at less than 50 percent of capacity. Note that VOC comprises a very small amount of the "unburned hydrocarbons" which in turn is mostly non-VOC methane.

Following are the results of the new and clean tests conducted on a dual-fuel GE 7FA combustion turbine operating in combined cycle mode and burning natural gas at the City of Tallahassee Purdom Station Unit 8.[1] The DLN-2.6 combustors for this project were guaranteed to achieve 9 ppmvd of NO_X while burning natural gas although the permit limit is 12 ppmvd. The results are all superior to the emission characteristics given in Figure 3.

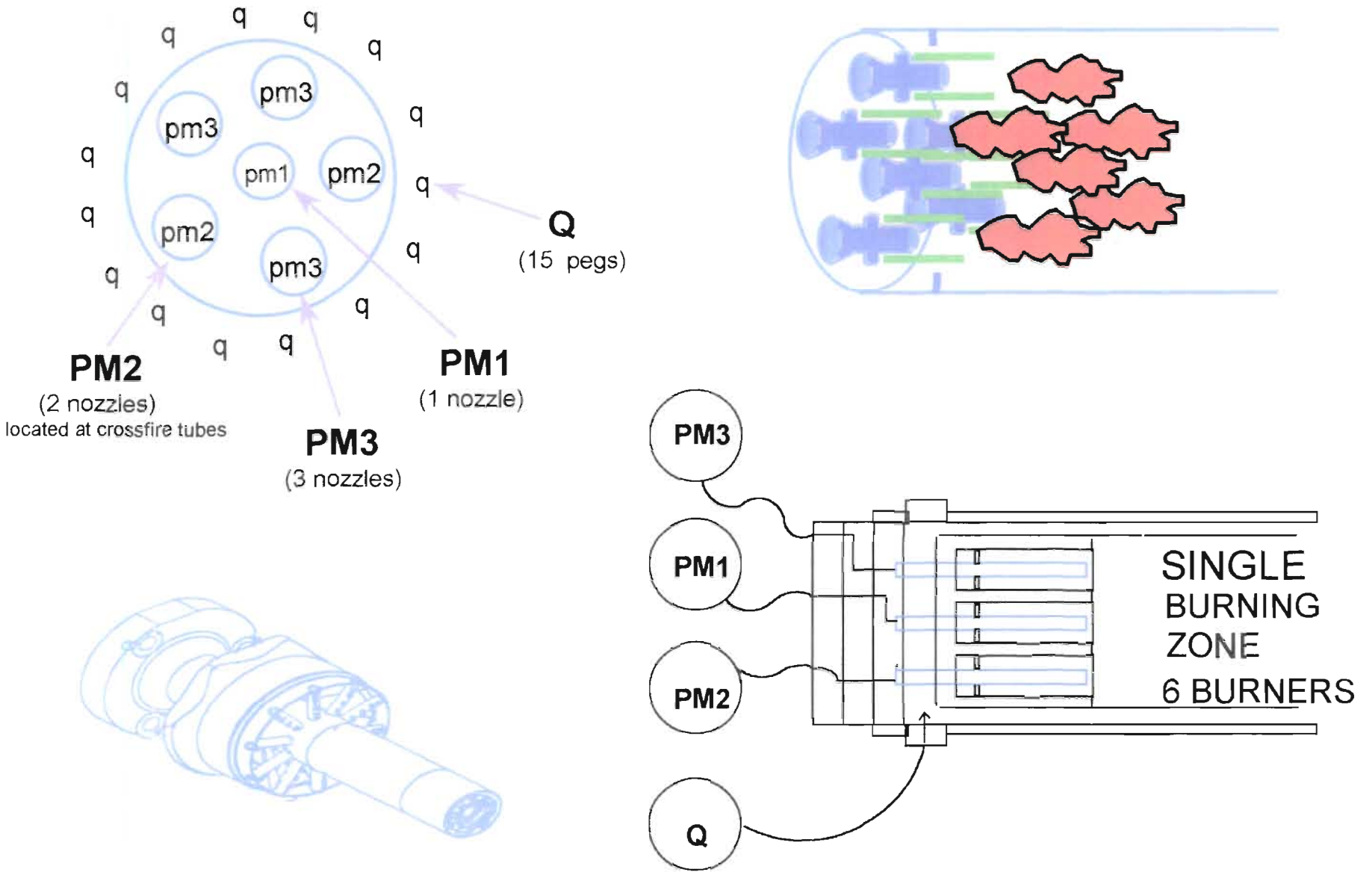


Figure 2 - DLN2.6 Fuel Nozzle Arrangement

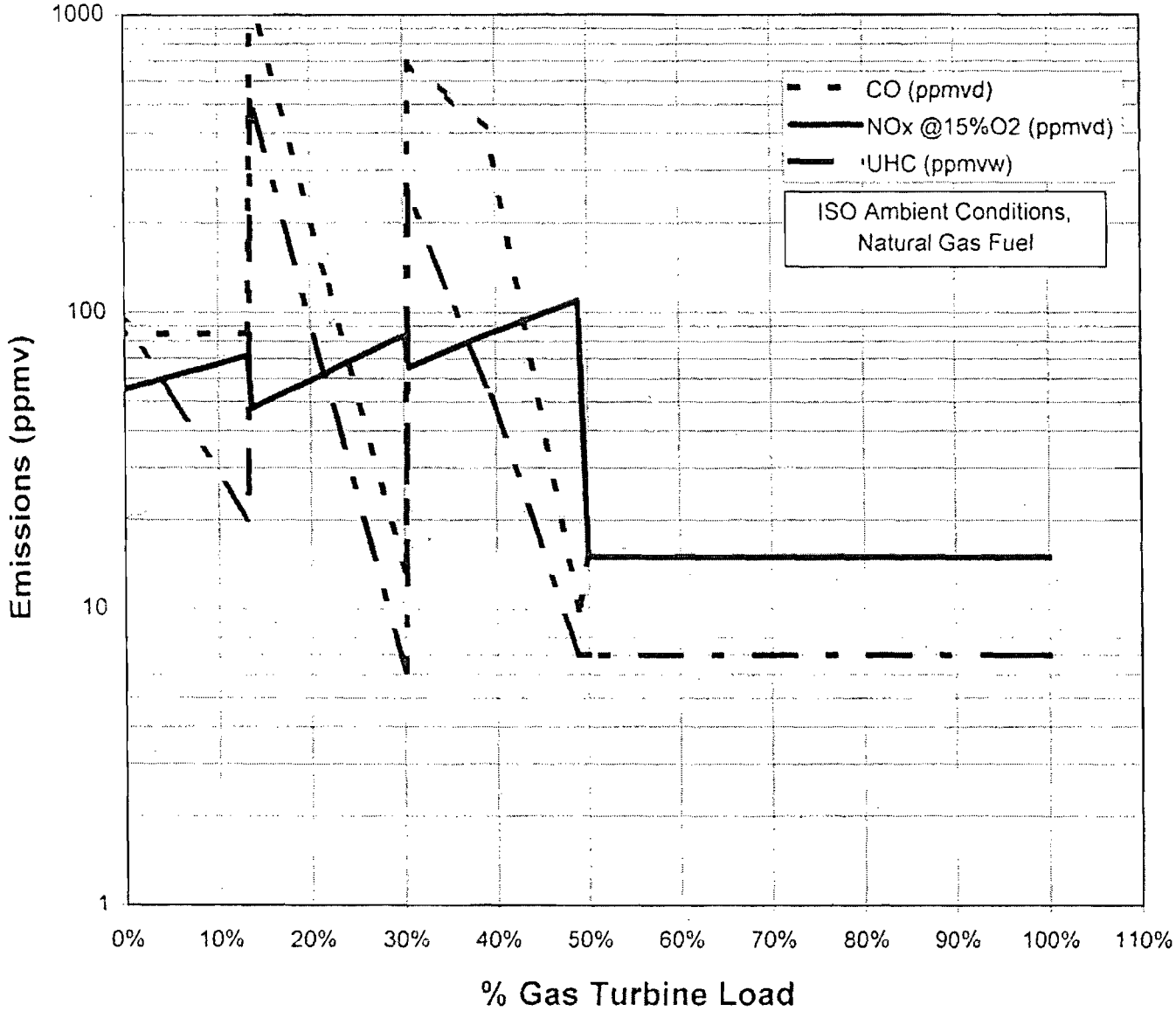


Figure 3 – Emissions Performance Curves for GE DLN-2.6 Combustor Firing Natural Gas in a Dual Fuel GE 7FA Combustion Turbine

(Simple Cycle Intermittent Duty – If Tuned to 15 ppmvd NO_X)

Percent of Full Load	NO_X (ppmvd @15% O_2)	CO (ppmvd)
70	7.2	
80	6.1	
90	6.6	
100	8.7	0.85
Limit	12	25

Following are the results of the new and clean tests conducted on a dual-fuel GE 7FA combustion turbine operating in simple cycle mode and burning natural gas at the Tampa Electric Polk Power Station.[2] The DLN 2-6 combustors for this project were guaranteed to achieve 9 ppmvd of NO_X while burning natural gas although the permit limit is 10.5 ppmvd. Again, the results are all superior to the emission characteristics given in Figure 3.

Percent of Full Load	NO_X (ppmvd @15% O_2)	CO (ppmvd)	VOC (ppmvd)
50	5.3	1.6	0.5
70	6.3	0.5	0.4
85	6.2	0.4	0.2
100	7.6	0.3	0.1
Limit	10.5	15	7

Recent conversations with other operators indicate that the "Dry Low NO_X" characteristics extend to operations less than 50 percent of full load, though such operation is not (yet) guaranteed by GE.[3]

An important consideration is that power and efficiency are sacrificed in the effort to achieve low NO_X by combustion technology. This limitation is seen in Figure 4 from an EPRI report.[4] Developments such as single crystal blading, aircraft compressor design, high technology blade cooling have helped to greatly increase efficiency and lower capital costs. Further improvements are more difficult in large part because of the competing demands for air to support lean premix combustion and to provide blade cooling. New concepts are under development by GE and the other turbine manufacturers to meet the challenges implicit in Figure 4.

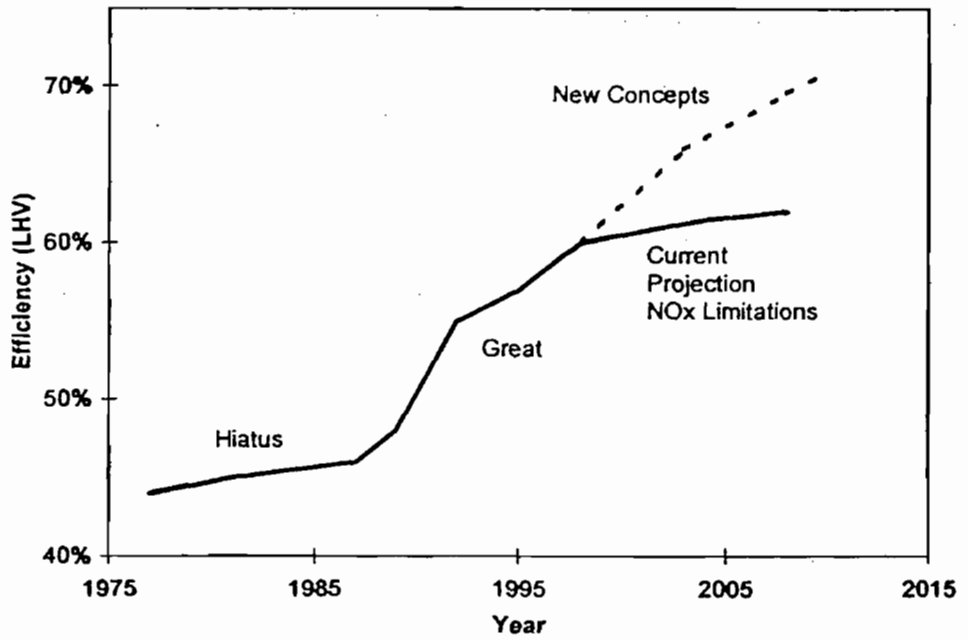


Figure 4 – Efficiency Increases in Combustion Turbines

Further NO_X reductions related to flame temperature control are possible such as closed loop steam cooling. This feature is available only in larger units (G or H Class technology) than the units planned by El Paso. It is more feasible for a combined cycle unit with a heat recovery steam generator (HRSG). In simple cycle, a once-through steam generator would be required. Steam is circulated through the internal portion of the nozzle component, the transition piece between the combustor and the nozzle, or certain turbine blades. The difference between flame temperature and firing temperature into the first stage is minimized and higher efficiency is attained. Flame temperatures and NO_X emissions can therefore be maintained at comparatively low levels even at high firing temperatures (refer back to figure 1). At the same time, thermal efficiency should be greater when employing steam cooling instead of air cooling.

Catalytic Combustion: XONON™

Catalytic combustion involves using a catalytic bed to oxidize a lean air and fuel mixture within a combustor instead of burning with a flame as described above. In a catalytic combustor the air and fuel mixture oxidizes at lower temperatures, producing less NO_X.[5] In the past, the technology was not reliable because the catalyst would not last long enough to make the combustor economical.

There has been increased interest in catalytic combustion as a result of technological improvements and incentives to reduce NO_X emissions without the use of add-on control equipment and reagents. Westinghouse, for example, is working to replace the central pilot in its DLN technology with a catalytic pilot in a project with Precision Combustion Inc.

Catalytica has developed a system know as XONON™, which works by partially burning fuel in a low temperature pre-combustor and completing the combustion in a catalytic combustor. The overall result is low temperature partial combustion (and thus lower NO_X production) followed by flameless catalytic combustion to further attenuate NO_X formation.

In 1998, Catalytica announced the startup of a 1.5 MW Kawasaki gas turbine equipped with XONON™.[6] The turbine is owned by Catalytica and is located at the Gianera Generating Station of Silicon Valley Power, a municipally owned utility serving the City of Santa Clara, California. Previously, this turbine and XONON™ system had successfully completed over 1,200 hours of extensive full-scale tests at a project development facility in Oklahoma that documented XONON's ability to limit emissions of NO_X to less than 3 ppmvd.

Recently, Catalytica and GE announced that the XONON™ combustion system has been specified as the *preferred* emissions control system with GE 7FA turbines that have been ordered for Enron's proposed 750 MW Pastoria Energy Facility.[7] The project will enter commercial operation by the summer of 2001. However actual installation of XONON™ is doubtful.

In principle, XONON™ will work on a simple cycle project. However, the Department does not have information regarding the status of the technology for fuel oil firing and cycling operations.

Selective Catalytic Combustion: SCR

Selective catalytic reduction (SCR) is an add-on NO_X control technology that is employed in the exhaust stream following the gas turbine. SCR reduces NO_X emissions by injecting ammonia into the flue gas in the presence of a catalyst. Ammonia reacts with NO_X in the presence of a catalyst and excess oxygen yielding molecular nitrogen and water. The catalysts used in combined cycle, low temperature applications (conventional SCR), are usually vanadium or titanium oxide and account for almost all installations. For high temperature applications (Hot SCR up to 1100 °F), such as simple cycle turbines, zeolite catalysts are available but used in few applications to-date. SCR units are typically used in combination with wet injection or DLN combustion controls.

In the past, sulfur was found to poison the catalyst material. Sulfur-resistant catalyst materials are now becoming more available. Catalyst formulation improvements have proven effective in resisting sulfur-induced performance degradation with fuel oil in Europe and Japan, where conventional SCR catalyst life in excess of 4 to 6 years has been achieved, while 8 to 10 years catalyst life has been reported with natural gas.

Excessive ammonia use tends to increase emissions of CO, ammonia (slip) and particulate matter (when sulfur-bearing fuels are used).

Kissimmee Utilities Authority (KUA) will install SCR at the Cane Island Unit 3 project. The KUA project will meet a limit of 3.5 ppmvd with a combination of DLN and SCR. Permits were issued recently to Competitive Power Ventures (CPV), Calpine, Florida Power Corporation, and Tampa Electric to achieve 3.5 ppmvd. More recently a permit was issued to CPV for its Pierce, Polk County project with a limit of 2.5 ppmvd @15% O_2 by SCR.

Figure 5 below is a diagram of a HRSG including an SCR reactor with honeycomb catalyst and the ammonia injection grid. The SCR system lies between low and high-pressure steam systems where the temperature requirements for conventional SCR can be met. Figure 6 is a photograph of FPC Hines Energy Complex. The external lines to the ammonia injection grid are easily visible. The magnitude of the installation can be appreciated from the relative size compared with nearby individuals and vehicles.

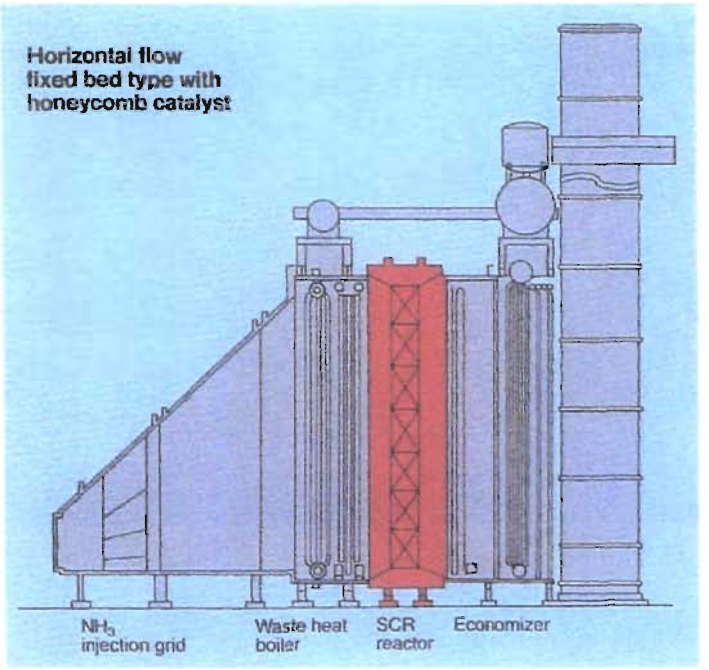


Figure 5 – SCR System within HRSG

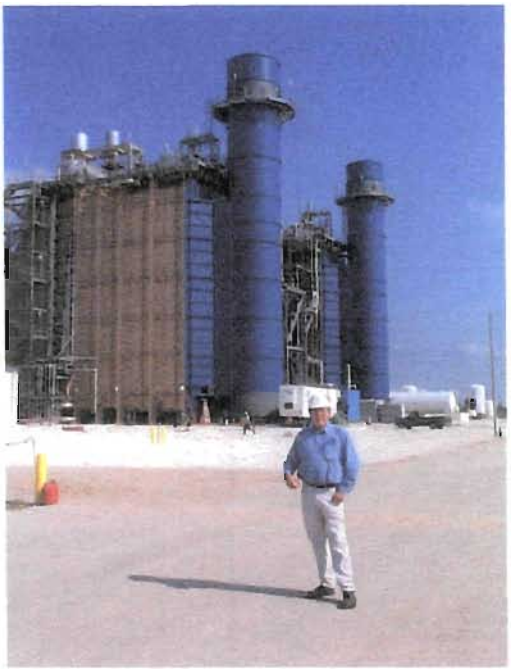


Figure 6 – FPC Hines Power Block I

Selective Non-Catalytic Combustion

Selective non-catalytic reduction (SNCR) works on the same principle as SCR. The differences are that it is applicable to hotter streams than conventional or hot SCR, no catalyst is required, and urea can be used as a source of ammonia. No applications have been identified wherein SNCR was applied to a gas turbine because the exhaust temperature of 1100 °F is too low to support the NO_X removal mechanism.

The Department did, however, specify SNCR as one of the available options for the combined cycle Santa Rosa Energy Center. The project will incorporate a large 600 MMBtu/hr duct burner in the heat recovery steam generator (HRSG) and can provide the acceptable temperatures (between 1400 and 2000 °F) and residence times to support the reactions.

$SCONO_X$™

$SCONO_X$™ is a catalytic add-on technology that achieves NO_X control by oxidizing and then absorbing the pollutant onto a honeycomb structure coated with potassium carbonate. The pollutant is then released as molecular nitrogen during a regeneration cycle that requires dilute hydrogen gas. The technology has been demonstrated on small units in California and has been purchased for a small source in Massachusetts.[8]

California regulators and industry sources stated that the first 250 MW block to install $SCONO_X$™ will be at PG&E's La Paloma Plant near Bakersfield.[9] The overall project includes several more 250 MW blocks with SCR for control.[10] USEPA has identified an "achieved in practice" BACT value of 2.0 ppmvd over a three-hour rolling average based upon the recent performance of a Vernon, California natural gas-fired 32 MW combined cycle turbine equipped with $SCONO_X$™.

$SCONO_X$™ technology (at 2.0 ppmvd) is considered to represent LAER in non-attainment areas where cost is not a factor in setting an emission limit. It competes with less-expensive SCR in those areas, but has the advantages that it does not cause ammonia emissions in exchange for NO_X reduction. Advantages of the $SCONO_X$ ™ process include in addition to the reduction of NO_X, the elimination of ammonia and the control of VOC and CO emissions. $SCONO_X$™ has not been applied on any major sources in ozone attainment areas.

Recently EPA Region IX acknowledged that $SCONO_X$™ was demonstrated in practice to achieve 2.0 ppmv NO_X. [11] Permitting authorities planning to issue permits for future combined cycle gas turbine systems firing exclusively on natural gas, and subject to LAER must recognize this limit which, in most cases, would result in a LAER determination of 2.0 ppmvd. More recently, Goal Line announced that $SCONO_X$™ has in practice achieved emissions of 1.3 ppmvd.[12]

According to a recent press release, the Environmental Segment of ABB Alstom Power offers the technology (with performance guarantees) to "all owners and operators of natural gas-fired combined cycle combustion turbines, regardless of size."[13]

$SCONO_X$ requires a much lower temperature regime that is not available in simple cycle units and is therefore not feasible for the simple cycle units proposed in this application.

REVIEW OF SULFUR DIOXIDE (SO_2) AND SULFURIC ACID MIST (SAM)

SO_2 control processes can be classified into five categories: fuel/material sulfur content limitation, absorption by a solution, adsorption on a solid bed, direct conversion to sulfur, or direct conversion to sulfuric acid. A review of the BACT determinations for combustion turbines contained in the BACT Clearinghouse shows that the exclusive use of low sulfur fuels constitutes the top control option for SO_2 from natural gas and fuel oil-fired combustion turbines.

For this project, the applicant has proposed as BACT the use of pipeline natural gas. The applicant estimated total emissions for the project at 87 TPY of SO_2 and 13 TPY of SAM. The Department expects the emissions to be lower because the typical natural gas in Florida contains less than the 1.5 grains of sulfur per 100 standard cubic feet (gr S/100scf) specification proposed by El Paso. This value is well below the "default" maximum value of 20 gr S/100 scf characteristic of natural gas, but is still high enough to require a BACT determination.

REVIEW OF PARTICULATE MATTER (PM/PM_{10}) CONTROL TECHNOLOGIES:

Particulate matter is generated by various physical and chemical processes during combustion and will be affected by the design and operation of the NO_X controls. The particulate matter emitted from this unit will mainly be less than 10 microns in diameter (PM_{10}).

Natural gas will be the only fuel fired and is efficiently combusted in gas turbines. Clean fuels are necessary to avoid damaging turbine blades and other components already exposed to very high temperature and pressure. Natural gas is an inherently clean fuel and contains no ash.

A technology review indicated that the top control option for PM/PM_{10} is a combination of good combustion practices, fuel quality, and filtration of inlet air. Total annual emissions of PM_{10} for the project are expected to be approximately 227 tons per year (including filterable and condensable particulate fractions).

Drift eliminators will be installed on the freshwater mechanical draft cooling tower to reduce PM/PM_{10}. The drift eliminators proposed by El Paso will reduce drift to 0.0005 percent of the circulating water flow rate. This is equivalent to approximately 1 and 1.6 tons per year of PM_{10} and PM respectively.

REVIEW OF CARBON MONOXIDE (CO) CONTROL TECHNOLOGIES

CO is emitted from combustion turbines due to incomplete fuel combustion. Combustion design and catalytic oxidation are the control alternatives that are viable for the project. The most stringent control technology for CO emissions is the use of an oxidation catalyst.

CO is emitted from combustion turbines due to incomplete fuel combustion. Most combustion turbines incorporate good combustion to minimize emissions of CO. There is a great deal of uncertainty regarding actual CO emissions from installed units. Despite the relatively high BACT limits typically proposed when using combustion controls, much lower emissions have actually been reported from several facilities without use of oxidation catalyst. For example, although Westinghouse does not offer a single digit CO guarantee on the 501F, the units installed at the FPC Hines Energy Complex achieved CO emissions in the range of 1-3 ppmvd on both gas and fuel oil at full load.[14] As previously discussed, GE 7FA units achieved similar results when firing gas at the City of Tallahassee Purdom Unit 8 and the TECO Polk Power Station Unit 2 at loads between 50 and 100 percent.

CO emissions *should* be low (at least at full load) because of the very high combustion temperatures characteristic of "F-Class" turbines. It appears that contract writing has not yet "caught up" with the field experience to consistently guarantee low CO emissions for F-Class units, at least at high loads.

One alternative is to complete the combustion by installation of an oxidation catalyst. Among the most recently permitted projects with oxidation catalyst requirements are the 500 MW Wyandotte Energy project in Michigan, the El Dorado project in Nevada, Ironwood in Pennsylvania, Millennium in Massachusetts, and Sutter Calpine in California. The permitted CO values of these units are between 3 and 5 ppmvd.

A recent permit was issued by the Bay Area AQMD in California for the Metcalf Energy Center. The limit for CO from a Siemens-Westinghouse 501F gas turbine is 6 ppmvd (at full load). No Catalyst is required. However it is doubtful that performance can be maintained at low load.

A recent draft permit was issued by the Department that limits CO to 3.5 ppmvd on a Mitsubishi 501F combustion turbine.[15] Enron will install an oxidation catalyst at Ft. Pierce in order to avoid high CO emissions at low load (<70 percent of full load). This results in the ability to obtain a guarantee for the low permitted level at full load. This would not have been a concern if the units were GE7FAs for the reasons discussed above.

The limit proposed by El Paso for the Broward Energy Center under normal operation is 7.4 ppmvd @15% O_2 at full load. This is consistent with the description of the DLN-2.6 technology. The expected results are 1-2 ppmvd and are actually better than what the Enron and Metcalf projects will likely achieve across the 50-100 percent operating range.

A higher limit of 12 ppmvd @15% O_2 is proposed during power augmentation for the combined cycle unit. Under this mode, steam from the HRSG is re-injected into the combustors to boost power production. One consequence is that CO emissions can increase.

Total annual emissions of CO for the project are expected to be approximately 420 tons per year.

REVIEW OF VOLATILE ORGANIC COMPOUND (VOC) CONTROL TECHNOLOGIES

Volatile organic compound (VOC) emissions, like CO emissions, are formed due to incomplete combustion of fuel. The high flame temperature is very efficient at destroying VOC. The applicant has proposed good combustion practices to control VOC. The limit proposed by El Paso for this project is 1.4 ppmvd @ 15% O_2 for all modes of operation. According to GE (and Department data), VOC emissions less than 1.4 ppm were achieved during recent tests of the DLN-2.6 technology when firing natural gas.[16]

Based on the chosen equipment, the Department believes that annual VOC emissions will be less than 40 TPY. Therefore a BACT determination is not required.

BACKGROUND ON PROPOSED GAS TURBINE

El Paso plans to install four nominal 175-MW General Electric 7FA gas turbines, one of which will operate in combined cycle mode. Per the discussion above, such units are capable of achieving and have achieved (with DLN and SCR technology) all of the emission limits proposed by El Paso as BACT.

The GE Speedtronic™ Mark VI Gas Control System will be used. This control system is designed to fulfill all gas turbine control requirements. These include fuel control in accordance with the requirements of the speed, load control under part-load conditions, temperature control under maximum capability conditions, or during start-up conditions. The Mark VI also monitors the DLN process and controls fuel staging and combustion modes to maintain the programmed NO_X values.[17]

STARTUP AND SHUTDOWN EMISSIONS

The Department defines "Startup" as follows[18]:

"Startup" - The commencement of operation of any emissions unit which has shut down or ceased operation for a period of time sufficient to cause temperature, pressure, chemical or pollution control device imbalances, which result in excess emissions.

The Department permits excess emissions during startup and shut down as follows:[19]

Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration.

The Department defines "Excess Emissions" as follows:[20]

"Excess Emissions" - Emissions of pollutants in excess of those allowed by any applicable air pollution rule of the Department, or by a permit issued pursuant to any such rule or Chapter 62-4, F.A.C. The term applies only to conditions which occur during startup, shutdown, sootblowing, load changing or malfunction.

The U.S. EPA Region IV office recently recommended that the Department consider "establishment of establishment of startup and shutdown BACT for CO and NO_X such as mass emission limits (e.g., pounds of emissions in any 24-hour period) that include startup and

shutdown emissions, or future emission limits derived from monitoring results during the first few months of commercial operation."[21]

The Department reviewed a number of emission estimates and permit conditions addressing startup and shutdowns for projects in California, Georgia, Washington, and Mississippi and has determined that much of the information is based on estimates that are very difficult to verify.

A review of published General Electric information indicates that features are incorporated into the design of the DLN-2.6 technology specifically aimed at minimizing emissions. One of the key elements was to incorporate lean pre-mixed burning while operating the unit in low load and startup.[22] This is in contrast with the previous DLN-2.0 technology that relied on diffusion mode combustion at four of the burners in each combustor during startup and low load operation.

During startup, NO_X concentrations in the exhaust of a simple cycle unit are greater than during full-load operation. The concentrations are estimated at 20 to 80 ppmvd @15% O_2 during the first 10 minutes or so after the unit is actually firing fuel. This occurs while only one to four of the six nozzles shown in Figure 2 are in operation on each combustor.

Within the following 5 minutes, the unit switches to Mode 5 (or 5 Q), during which NO_X concentrations are typically less than 10 ppmvd even though the unit is not yet at full load.[23] The Low-NO_X modes occurs when at least the five outer nozzles are in operation.

Given the short duration and the relatively low exhaust rate (and load) during the high pollutant concentration phases of simple cycle startup, the Department believes that the NO_X emissions during the first hour of startup and operation will be approximately equal to emissions during an hour of full load steady-state operation. Arguments covering shutdown are similar and the time is more compressed so that the Department believes the conclusion is the same for startup as for shutdown.

NO_X concentrations in the exhaust during startup and shutdown will be less than the New Source Performance Standard limit of approximately 110 ppmvd @15% O_2 applicable to F-Class turbines. A simple cycle unit will typically have one startup and shutdown every day that it is used.

For a combined cycle cold unit startup, the gas turbine will operate at a very low load (less than 10 percent) while the heat recovery steam generator and the steam turbine-electrical generator are heated up. During a period of approximately 2 hours emissions will be roughly 60 to 80 ppmvd NO_X @15% O_2. Once the HRSG is heated sufficiently, the ammonia system is turned on to abate emissions.

While emissions during the first two or three hours may be greater than during full load steady state operation, such startups are infrequent. Also, it is noted that such a cold startup would be preceded by a shutdown of at least 48 hours. Therefore the startup emissions would not cause annual emissions greater than the potential-to-emit under continuous operation.

The combined cycle startup scenario described above can be modified by use of a bypass stack and damper.[24] Under this scenario, the steam cycle can be slowly brought up to load while the gas turbine reaches full load as fast as it would under simple cycle mode. The exhaust gas can be modulated in such a fashion that the HRSG and steam turbine are ramped up slowly in accordance with their respective specifications. At the same time, the gas turbine will quickly accelerate to the DLN modes (5Q or 6Q) thus minimizing emissions. In this manner the startup NO_X and CO

concentrations are reduced to the values observed during simple cycle startup. Thereafter the unit will exhibit the same characteristics (for about two hours) as a simple cycle unit in steady-state operation until the ammonia system is actuated.

Implementation of bypass modulation requires an additional stack and design features to minimize stratification and uneven heating of boiler tube bundles in the HRSG.

The Department is gathering information from recently commissioned 7FA units to more accurately estimate startup emissions for NO_X and address carbon monoxide too.

DEPARTMENT BACT DETERMINATION

Following are the BACT limits determined for the El Paso project assuming full load. Values for NO_X and CO are corrected to 15% O_2 on a dry volume basis. These emission limits or their equivalents in terms of pounds per hour and NSPS units, as well as the applicable averaging times, are specified in the permit.

POLLUTANT	CONTROL TECHNOLOGY	DEPARTMENT'S PROPOSED BACT LIMIT
Nitrogen Oxides	Dry Low NO_X Combustors Selective Catalytic Reduction	9 ppmvd @ 15% O_2 (simple cycle units) 2.5 ppmvd @ 15% O_2 (combined cycle) 5 ppm ammonia slip from combined cycle unit
Particulate Matter	Pipeline Natural Gas Combustion Controls	20 pounds per hour (filterable plus condensable) 0.0005 % drift of circulating rate – cooling tower
Visible Emissions	As Above	10 Percent (surrogate for PM_{10})
Carbon Monoxide	As Above	7.4 ppmvd @15% O_2 (full load, simple or combined) 12 ppmvd @15% O_2 (combined-steam augmentation)
Sulfur Oxides	As Above	1.5 grain sulfur/100 std cubic feet

RATIONALE FOR DEPARTMENT'S DETERMINATION

- Certain control options are feasible only for combined cycle units are not applicable to simple cycle operation. This rules out Low Temperature (conventional) SCR, and $SCONO_X$. XONON is claimed to be available for F Class gas-fired projects.
- The Top technology and Lowest Achievable Emission Rate (LAER) for simple cycle combustion turbines are high temperature (Hot) SCR and an emission limit of 5 ppmvd NO_X.
- It is conceivable that catalytic combustion technology such as XONON™ can be applied to this project. Theoretically XONON can achieve the 5-ppmvd NO_X value and would equate to the top technology.
- An example of the top technology is the Carson Plant in Sacramento, California where there is a Hot SCR system on a simple cycle LM6000PA combustion turbine with a limit of 5 ppmvd.
- Hot SCR is proposed as LAER for the Sacramento Municipal Utilities District simple cycle GE 7EA project at McClelland Air Force Base to achieve 5 ppmvd.

- The levelized costs of NO_X removal by Hot SCR for the El Paso project were estimated by El Paso at $22,052 per ton assuming 5,000 hours of operation. The estimates are based on reducing NO_X emissions from 9 to 3.5 ppmvd @15% O_2.
- The Department does not accept the precise Hot SCR cost calculations presented by El Paso and considers them on the high end. But even at half the cost estimated by El Paso, the Department would agree that Hot SCR is not be cost-effective for this project.
- XONON is rejected because it has not yet been demonstrated in large combustion turbines and is likely to be even less cost-effective than Hot SCR.
- The Department accepts El Paso's BACT proposal of 9 ppmvd NO_X @15% O_2 for the simple cycle units and exclusive use of natural gas. The Department notes that data from the City of Tallahassee and TECO demonstrate that the GE 7FA units actually achieve 6 to 8 ppmvd @15% O_2.
- The proposed BACT limit of 9 ppmvd for the simple cycle units is less than one-tenth of the applicable NSPS limit per 40 CFR 60, Subpart GG for units as efficient as the 7FA.
- The Department's overall BACT determination for the simple cycle units is equivalent to approximately 0.35 lb of NO_X per megawatt-hour (lb/MWH) by Dry Low NO_X. For reference, the new NSPS promulgated on September 3, 1998 requires that new conventional power plants (based on boilers, etc.) meet a (fuel independent) limit of 1.6 lb/MW-hr.
- The Department will limit operation of the three units to an average of 5,000 hours per year per simple cycle unit. The Department will further limit the operation of each and every individual unit to the fuel-equivalent of 5,000 full load hours of operation. The purpose is to maintain the conclusion regarding cost-effectiveness under intermittent duty operation.
- Although startup and shutdown emissions are generally exempt, emissions during startup and shutdown are less than the NSPS limit of 110 ppmvd @15% O_2 (that applies during steady-state operation).
- The Department does not yet have sufficient information from field experience to set start-up and shutdown emissions limits. However, the modes that give rise to high NO_X concentration have been identified. The Department will therefore set a work practices standard as BACT.
- The Work Practice BACT for simple cycle startup is that the unit(s) will reach Mode 5Q (i.e. five burners plus quaternary pegs in operation) within 15 minutes following gas turbine ignition and crossfire. The shutdown case is trivial.
- The Lowest Achievable Emission Rate (LAER) for a combined cycle unit is approximately 2 ppmvd NO_X at 15 percent oxygen (@15% O_2) while firing natural gas. It has been achieved at the 32 MW Federal Merchant Plant in Los Angeles. The owner, Goal Line, has requested recognition of a 1.3 ppmvd NO_X value as *achieved in practice*.
- There are several projects for large turbines in Massachusetts, Connecticut, New York, and California requiring SCR with a NO_X emission limit of 2 ppmvd @15% O_2.
- The "Top" technology in a top/down analysis for a combined cycle unit will achieve approximately 2 ppmvd @15% O_2 by either $SCONO_X$ or SCR.

- El Paso estimated the cost effectiveness of $SCONO_X$ at $24,187 per ton of NO_X removed. The Department does not necessarily accept the precise $SCONO_X$ cost calculations presented by El Paso. However, even at half the cost estimated by El Paso, the Department agrees that $SCONO_X$ would not be cost-effective for this project.
- El Paso estimated the cost-effectiveness of conventional (cold temperature) SCR at $3,535 per ton of NO_X while reducing emissions from 9 to 3.5 ppmvd @15% O_2. The Department accepts El Paso's estimate and believes this cost-effectiveness can be maintained while achieving an NO_X emission rate of 2.5 ppmvd @15% O_2.
- The National Park Service advised in its review of the application that BACT determinations of 2.5 ppmvd NO_X @15% O_2 have recently been issued for combined cycle projects in Maine and Washington. The Park Service also agreed that 9 ppmvd represents BACT for simple cycle units.[25]
- The Department concludes that 2.5 ppmvd NO_X @15% O_2 (with 5 ppmvd ammonia slip) while firing natural gas in a combined cycle unit constitutes BACT. This value for the conventional SCR option takes into consideration the measurement uncertainties at low emission rates and minimizes particulate emissions due to ammonia emissions.
- The effects of aqueous ammonia use and ammonia slip are not unacceptable. The North Broward Resource Recovery Facility across the street from the proposed site also uses aqueous ammonia for NO_X control.
- The Department's overall BACT determination for the combined cycle unit is less than 0.07 lb of NO_X per megawatt-hour (lb/MWH) by Dry Low NO_X.
- The Work Practice BACT for combined cycle startup is that the combustion turbine will start up and operate as a simple cycle unit and modulate exhaust to the HRSG. This requires installation of a bypass stack and damper. The unit shall reach Mode 5Q (i.e. five burners plus quaternary pegs in operation) within 15 minutes following gas turbine ignition and crossfire. Ammonia injection will be practiced within three hours after gas turbine ignition and crossfire.
- The Department does not have a cost estimate for the additional stack and design requirements, but believes the additional power and flexibility offered by full load simple cycle operation during the cold startup of the steam cycle more than compensates for the additional costs.
- The applicant estimates VOC emissions of 1.4 ppmvd @15% O_2 (or less) for all firing modes. These levels will not trigger PSD or a requirement for a BACT determination.
- El Paso estimated levelized costs at $9,000 per ton to reduce emissions at the simple cycle units from about 7.4 to 0.7 ppmvd CO @15% O_2. The Department does not adopt this estimate, but would agree that even much lower estimates would not be cost-effective for removal of CO.
- In view of the performance of GE 7FA units without add-on control (~ 0 - 4 ppmvd), it is obvious that oxidation catalyst is definitely not cost-effective for the simple cycle units based on *actual* emissions and appears to not be cost-effective based on permitted emissions.

- El Paso estimated levelized costs for CO catalyst control at $2,475 to reduce emissions from 11.7 to 1.2 ppmvd @15% O_2 for the combined cycle unit operating in power augmentation mode. In view of the performance of GE 7FA units cited in the discussion above (Tallahassee and TECO Polk Power data) without add-on control (~ 1 ppmvd), it appears to the Department that oxidation catalyst costs are substantially biased to the low side based on *actual* emissions.
- The Department will set CO limits achievable by good combustion as 7.4 ppmvd @15% O_2 at full load and 8 ppmvd @15% O_2 over the full operational range for simple cycle and combined cycle operation. Additionally, the Department will set a limit of 12 ppmvd @15% O_2 for the combined cycle unit during power augmentation.
- The CO limits of 8 ppmvd @15% O_2 under normal combined cycle operation and 12 ppmvd @15% O_2 under power augmentation are low and within the range of recent BACT determinations for combustion turbines in the Southeast.
- The Department will set CO limits reflecting the "new and clean test" guarantees rather than actual performance because GE will not (yet) guarantee the lower values. The Department will gather more information and may substantially reduce CO limits in future projects if such performance is maintained at the new installations throughout the state. The Department will also limit the extent to which El Paso can operate in power augmentation mode to 2000 hours unless El Paso installs oxidation catalyst or proves that actual performance is much better than guaranteed (thus rendering control not cost effective).
- The CO impact on ambient air quality is lower compared to other pollutants because the allowable concentrations of CO are much greater than for NO_X, SO_2, or PM_{10}.
- There is no benefit is penalizing the applicant with a lower limit at this time just because the performance at another site was far better than guaranteed or expected. The applicant will be required to install a continuous CO monitor on the combined cycle unit. It is expected that data from continuous measurement will conclusively show that oxidation catalyst is not needed and is not cost effective for this project.
- BACT for sulfur oxides is the exclusive use of natural gas with a specification of 1.5 grains per 100 standard cubic feet. Pipeline quality natural gas in Florida contains less than this value.
- BACT for PM_{10} was determined to be good combustion practices consisting of: inlet air filtering, exclusive use of pipeline natural gas, and operation of the unit in accordance with the manufacturer-provided manuals. The emission limit for PM_{10} will be set at 11 pounds per hour. This value is based on filterable fraction only per the Department's definition of PM/PM_{10}. Expected particulate emissions based on filterable plus condensable particulate matter are 20 pounds per hour.
- PM_{10} emissions will be very low and difficult to measure. Therefore, the Department will set a Visible Emission standard of 10 percent opacity as BACT.
- BACT for the Cooling Tower was determined to be use of fresh water and drift eliminators designed and maintained to reduce drift to 0.0005 percent of the circulating water flow rate. A lower drift rate would be reasonable for project where reused wastewater is the cooling medium.

POLLUTANT	COMPLIANCE PROCEDURE
Visible Emissions (initial, annual)	Method 9
PM/PM_{10} (initial)	Method 5 (Front-half catch)
VOC	Method 25A corrected by methane from Method 18
CTM-027(initial, quarterly, annual)	Procedure for Collection and Analysis of Ammonia in Stationary Sources
SO_2/SAM	Record keeping for the sulfur content of fuels delivered to the site
CO (initial, annual, CEMS)	Method 10; CO-CEMS (continuous 24-hr)
NO_X (continuous 24-hr)	NO_X CEMS, O_2 or CO_2 diluent monitor, and flow device as needed
NO_X (initial and annual)	Annual Method 20 (can use RATA if at capacity); Method 7E

DETAILS OF THE ANALYSIS MAY BE OBTAINED BY CONTACTING:

A. A. Linero, P.E. Administrator
New Source Review Section
Department of Environmental Protection
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended By:

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

Date

Approved By:

Howard L. Rhodes, Director
Division of Air Resources Management

Date

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SECTION IV. APPENDIX XS

CONTINUOUS MONITOR SYSTEMS SEMI-ANNUAL REPORT

{Note: This form is referenced in 40 CFR 60.7, Subpart A, General Provisions.}

Pollutant *(Circle One)*: Nitrogen Oxides (NOx) Carbon Monoxide (CO)

Reporting period dates: From _____ to _____

Company: _____

Emission Limitation: _____

Address: _____

Monitor Manufacturer and Model No.: _____

Date of Latest CMS Certification or Audit: _____

Process Unit(s) Description: _____

Total source operating time in reporting period [a]: _____

Emission data summary [a]		CMS performance summary [a]	
1. Duration of Excess Emissions In Reporting Period Due To:		1. CMS downtime in reporting period due to:	
a. Startup/Shutdown		a. Monitor Equipment Malfunctions	
b. Control Equipment Problems		b. Non-Monitor Equipment Malfunctions	
c. Process Problems		c. Quality Assurance Calibration	
d. Other Known Causes		d. Other Known Causes	
e. Unknown Causes		e. Unknown Causes	
2. Total Duration of Excess Emissions		2. Total CMS Downtime	
3. [Total Duration of Excess Emissions] x (100%) [Total Source Operating Time] [b]		3. [Total CMS Downtime] x (100%) [Total source operating time]	

[a] For opacity, record all times in minutes. For gases, record all times in hours.

[b] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in 40 CFR 60.7(c) shall be submitted.

Note: On a separate page, describe any changes to CMS, process or controls during last 6 months.

I certify that the information contained in this report is true, accurate, and complete.

_____
Name

_____
Title

_____ _____
Signature *Date*

Department requirement: The owner or operator is allowed to make the initial compliance demonstration for NOx emissions using certified CEM system data, provided that compliance be based on a minimum of three test runs representing a total of at least three hours of data, and that the CEMS be calibrated in accordance with the procedure in section 6.2.3 of Method 20 following each run. Alternatively, initial compliance may be demonstrated using data collected during the initial relative accuracy test audit (RATA) performed on the NOx monitor. The span value specified in the permit shall be used instead of that specified in paragraph (c)(3) above.

[Note: These initial compliance demonstration requirements are consistent with guidance from EPA Region 4. The span value is changed pursuant to Department authority and is consistent with guidance from EPA Region 4.]

(d) The owner or operator shall determine compliance with the sulfur content standard in 40 CFR 60.333(b) as follows: ASTM D 2880-71 shall be used to determine the sulfur content of liquid fuels and ASTM D 1072-80, D 3031-81, D 4084-82, or D 3246-81 shall be used for the sulfur content of gaseous fuels (incorporated by reference – see 40 CFR 60.17). The applicable ranges of some ASTM methods mentioned above are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the approval of the Administrator.

Department requirement: The permit specifies sulfur testing methods.

[Note: This requirement establishes different methods than provided by paragraph (d) above, but the requirements are equally stringent and will ensure compliance with this rule.]

(e) To meet the requirements of 40 CFR 60.334(b), the owner or operator shall use the methods specified in paragraphs (a) and (d) of this section to determine the nitrogen and sulfur contents of the fuel being burned. The analysis may be performed by the owner or operator, a service contractor retained by the owner or operator, the fuel vendor, or any other qualified agency.

[Note: The fuel analysis requirements of the permit meet or exceed the requirements of this rule and will ensure compliance with this rule.]

14. Pursuant to 40 CFR 60.335 Test Methods and Procedures:

(a) To compute the nitrogen oxides emissions, the owner or operator shall use analytical methods and procedures that are accurate to within 5 percent and are approved by the Administrator to determine the nitrogen content of the fuel being fired.

(b) In conducting the performance tests required in 40 CFR 60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided for in 40 CFR 60.8(b). Acceptable alternative methods and procedures are given in paragraph (f) of this section.

(c) The owner or operator shall determine compliance with the nitrogen oxides and sulfur dioxide standards in 40 CFR 60.332 and 60.333(a) as follows:

(1) The nitrogen oxides emission rate (NOx) shall be computed for each run using the following equation:

$$NOx = (NOxo)\,(Pr/Po)^{0.5}\, e^{19(Ho-0.00633)}\,(288°K/Ta)^{1.53}$$

where:

NOx = emission rate of NOx at 15 percent O_2 and ISO standard ambient conditions, volume percent.

NOxo = observed NOx concentration, ppm by volume.

Pr = reference combustor inlet absolute pressure at 101.3 kilopascals ambient pressure, mm Hg.

Po = observed combustor inlet absolute pressure at test, mm Hg.

Ho = observed humidity of ambient air, g H_2O/g air.

e = transcendental constant, 2.718.

Ta = ambient temperature, °K.

Department requirement: The owner or operator is not required to have the NOx monitor required by this permit continuously calculate NOx emissions concentrations corrected to ISO conditions. However, the owner or operator shall keep records of the data needed to make the correction, and shall make the correction when required by the Department or Administrator.

[Note: This is consistent with guidance from EPA Region 4.]

(2) The monitoring device of 40 CFR 60.334(a) shall be used to determine the fuel consumption and the water-to-fuel ratio necessary to comply with 40 CFR 60.332 at 30, 50, 75, and 100 percent of peak load or at four points in the normal operating range of the gas turbine, including the minimum point in the range and peak load. All loads shall be corrected to ISO conditions using the appropriate equations supplied by the manufacturer.

Department requirement: The owner or operator is allowed to conduct initial performance tests at a single load because a NOx monitor shall be used to demonstrate compliance with the BACT NOx limits of this permit.

[Note: This is consistent with guidance from EPA Region 4.]

(3) Method 20 shall be used to determine the nitrogen oxides, sulfur dioxide, and oxygen concentrations. The span values shall be 300 ppm of nitrogen oxide and 21 percent oxygen. The NOx emissions shall be determined at each of the load conditions specified in paragraph (c)(2) of this section.

(b) No owner or operator subject to the provisions of this subpart shall burn in any stationary gas turbine any fuel which contains sulfur in excess of 0.8 percent by weight.

13. Pursuant to 40 CFR 60.334 Monitoring of Operations:

(b) The owner or operator of any stationary gas turbine subject to the provisions of this subpart shall monitor sulfur content and nitrogen content of the fuel being fired in the turbine. The frequency of determination of these values shall be as follows:

(2) If the turbine is supplied its fuel without intermediate bulk storage the values shall be determined and recorded daily. Owners, operators or fuel vendors may develop custom schedules for determination of the values based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom schedules shall be substantiated with data and must be approved by the Administrator before they can be used to comply with paragraph (b) of this section.

Department requirement: The requirement to monitor the nitrogen content of pipeline quality natural gas fired is waived. For purposes of complying with the sulfur content monitoring requirements of this rule, the owner or operator shall obtain a monthly report from the vendor indicating the sulfur content of the natural gas being supplied from the pipeline for each month of operation.

[Note: This is consistent with EPA's custom fuel monitoring policy and guidance from EPA Region 4.]

(c) For the purpose of reports required under 40 CFR 60.7(c), periods of excess emissions that shall be reported are defined as follows:

(1) *Nitrogen oxides.* Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate compliance with 40 CFR 60.332 by the performance test required in § 60.8 or any period during which the fuel-bound nitrogen of the fuel is greater than the maximum nitrogen content allowed by the fuel-bound nitrogen allowance used during the performance test required in § 60.8. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, gas turbine load, and nitrogen content of the fuel during the period of excess emissions, and the graphs or figures developed under 40 CFR 60.335(a).

Department requirement: NOx emissions monitoring by CEM system shall substitute for the requirements of paragraph (c)(1) because a NOx monitor is required to demonstrate compliance with the standards of this permit. Data from the NOx monitor shall be used to determine "excess emissions" for purposes of 40 CFR 60.7 subject to the conditions of the permit.

[Note: As required by EPA's March 12, 1993 determination, the NOx monitor shall meet the applicable requirements of 40 CFR 60.13, Appendix B and Appendix F for certifying, maintaining, operating and assuring the quality of the system; shall be capable of calculating NOx emissions concentrations corrected to 15% oxygen; shall have no less than 95% monitor availability in any given calendar quarter; and shall provide a minimum of four data points for each hour and calculate an hourly average. The requirements for the CEMS specified by the specific conditions of this permit satisfy these requirements.]

(2) *Sulfur dioxide.* Any daily period during which the sulfur content of the fuel being fired in the gas turbine exceeds 0.8 percent.

APPENDIX GG
NSPS Subpart GG Requirements for Gas Turbines

NSPS SUBPART GG REQUIREMENTS

[Note: Inapplicable provisions have been deleted in the following conditions, but the numbering of the original rules has been preserved for ease of reference to the original rules. The term "Administrator" when used in 40 CFR 60 shall mean the Department's Secretary or the Secretary's designee. Department notes and requirements related to the Subpart GG requirements are shown in **bold** immediately following the section to which they refer. The rule basis for the Department requirements specified below is Rule 62-4.070(3), F.A.C.]

11. Pursuant to 40 CFR 60.332 Standard for Nitrogen Oxides:

(a) On and after the date of the performance test required by § 60.8 is completed, every owner or operator subject to the provisions of this subpart as specified in paragraph (b) section shall comply with:

(1) No owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any stationary gas turbine, any gases which contain nitrogen oxides in excess of:

$$STD = 0.0075 \frac{(14.4)}{Y} + F$$

where:

STD = allowable NOx emissions (percent by volume at 15 percent oxygen and on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt-hour.

F = NOx emission allowance for fuel-bound nitrogen as defined in paragraph (a)(3) of this section.

(3) F shall be defined according to the nitrogen content of the fuel as follows:

Fuel-bound nitrogen (percent by weight)	F (NOx percent by volume)
$N \leq 0.015$	0
$0.015 < N \leq 0.1$	0.04(N)
$0.1 < N \leq 0.25$	0.004+0.0067(N–0.1)
$N > 0.25$	0.005

Where, N = the nitrogen content of the fuel (percent by weight).

Department requirement: While firing gas, the "F" value shall be assumed to be 0.

[Note: This is required by EPA's March 12, 1993 determination regarding the use of NOx CEMS. The "Y" value for this unit is approximately 10 for natural gas. The equivalent emission standard is 108 ppmvd at 15% oxygen. The emissions standards of this permit is more stringent than this requirement.]

(b) Electric utility stationary gas turbines with a heat input at peak load greater than 107.2 gigajoules per hour (100 million Btu/hour) based on the lower heating value of the fuel fired shall comply with the provisions of paragraph (a)(1) of this section.

12. Pursuant to 40 CFR 60.333 Standard for Sulfur Dioxide:

On and after the date on which the performance test required to be conducted by 40 CFR 60.8 is completed, every owner or operator subject to the provision of this subpart shall comply with:

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 (X)
b) Determination of Prevention of Significant Deterioration (X); and
c) Compliance with New Source Performance Standards (X).

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.

APPENDIX GC
GENERAL PERMIT CONDITIONS [F.A.C. 62-4.160]

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 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 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.

6.4 Existing Air Quality in the Vicinity of the project

6.4.1 Description of Vicinity

Refer to Figures 1 and 2 above. The Broward Energy Center will be in the City of Deerfield Beach, which has a population of 50,000 to 70,000 people compared to the 1.6 million in Broward County. Deerfield Beach is located between Boca Raton and Pompano Beach and is also near the cities of Coral Springs and Coconut Creek.

Refer to Figure 5 below. The proposed site is East of the Florida Turnpike and about one mile South of the Sawgrass Expressway.

A landfill and the North Broward Resource Recovery Facility are located immediately to the South of the proposed site and include the entire quadrant bounded by the Turnpike, Hilton Road, Powerline Road and Sample Road. Pavex Asphalt, a concrete plant, and the proposed Enron and El Paso sites are located along the North side of Hilton Road (Northwest 48th Street) and across the lake from the Lakeview community. Hardrives Asphalt is located nearby on Powerline Road and South of 10th Street.

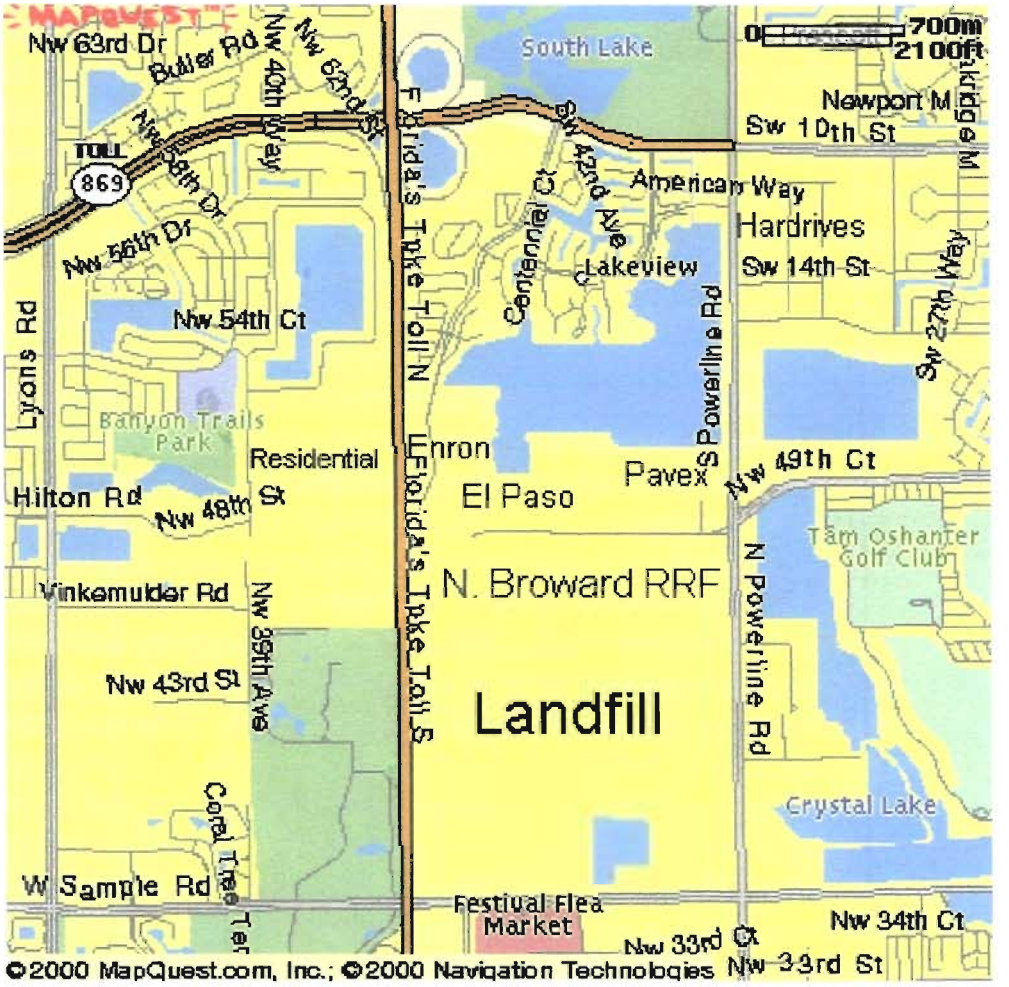


Figure 5 – Vicinity of Proposed El Paso Project

6.4.4 Air Quality Monitoring in Broward County

Broward County has 26 monitors at 14 sites measuring CO, PM, ozone, lead, SO_2 and NO_2. The 2001 Broward County monitoring network is shown in Figure 9.

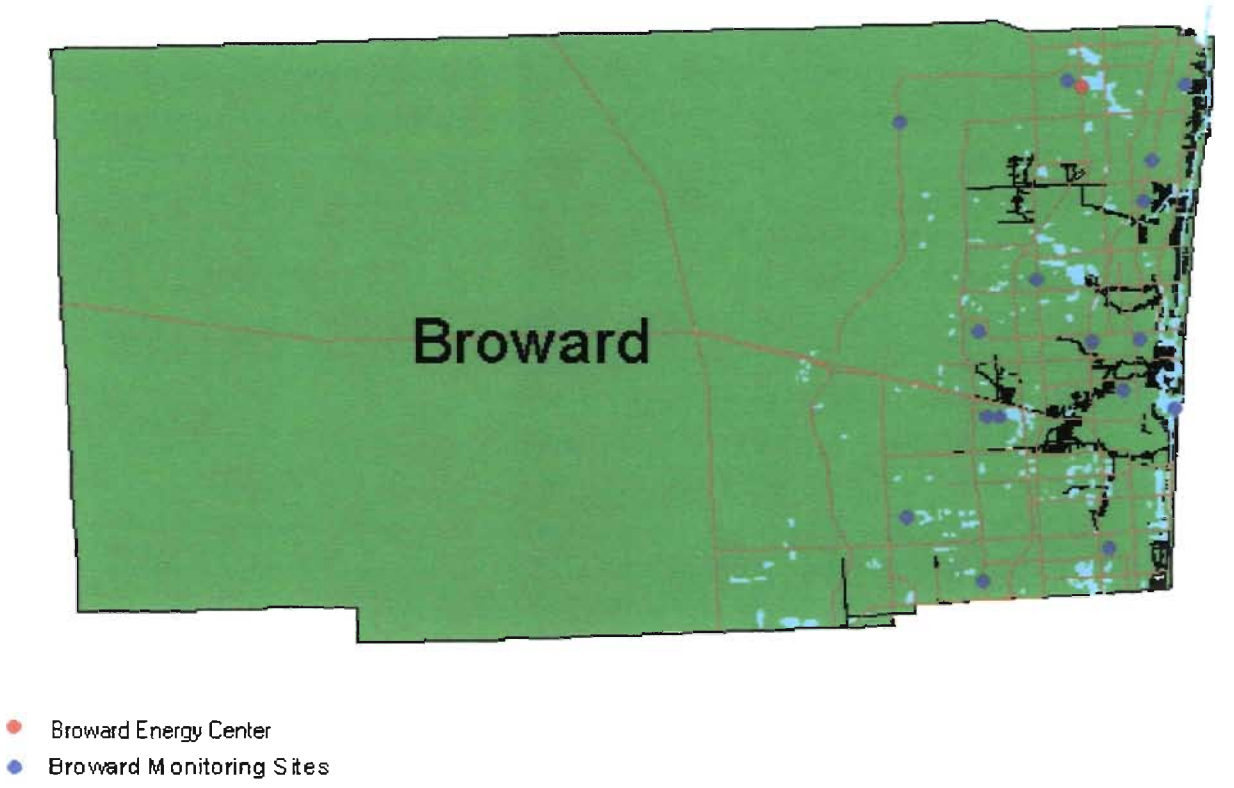


Figure 9 – Broward County Monitoring Network

6.4.5 Ambient Air Quality in Broward County

Measured ambient air quality is given in the following table. The highest measured values are all less than the respective National Ambient Air Quality Standards. The average measurements are all much less than the respective standards.

DRAFT PERMIT

PERMITTEE:

El Paso Merchant Energy Company
1001 Louisiana Street
Houston, TX 77002

Authorized Representative:
William Mack, Sr., Managing Director

Facility Name:	Broward Energy Center
Project No.	0112545-001-AC
Air Permit No.	PSD-FL-316
Facility ID No.	0112545
SIC No.	4911
Expires:	December 1, 2004

PROJECT AND LOCATION

This permit authorizes the construction of a new nominal 775-megawatt electrical generating plant, the Broward Energy Center, to be located west of the intersection of North Powerline Road and Northwest 48th Street and east of the Florida Turnpike in Deerfield Beach, Broward County. UTM coordinates are: Zone 17; 583.3 km East; 2908.0 km North. The plant will consist of one combined cycle gas turbine, three simple cycle gas turbines, and associated equipment.

STATEMENT OF BASIS

This PSD air pollution construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.) and Title 40, Part 52, Section 21 of the Code of Federal Regulations. Specifically, this permit is issued pursuant to the requirements for the Prevention of Significant Deterioration (PSD) of Air Quality, Rule 62-212.400, 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.

CONTENTS

(DRAFT)

Howard L. Rhodes, Director
Division of Air Resources Management

(Date)

FACILITY DESCRIPTION

The proposed project is for a new electrical power plant, the Broward Energy Center, which will generate a nominal 775 MW of electricity. The plant will consist of one combined cycle gas turbine unit (250 MW, total) and three simple cycle gas turbine units (175 MW, each).

NEW EMISSIONS UNITS

This permit authorizes construction and installation of the following new emissions units.

ID	Emission Unit Description
001	**Combined Cycle Unit No. CC-1** consists of a natural gas fired 175 MW General Electric Model PG7241FA gas turbine-electrical generator set, an unfired heat recovery steam generator, and a separate steam turbine-electrical generator.
002	**Simple Cycle Unit No. SC-1** consists of a natural gas fired General Electric Model PG7241FA gas turbine-electrical generator set with a nominal capacity of 175 MW.
003	**Simple Cycle Unit No. SC-2** consists of a natural gas fired General Electric Model PG7241FA gas turbine-electrical generator set with a nominal capacity of 175 MW.
004	**Simple Cycle Unit No. SC-3** consists of a natural gas fired General Electric Model PG7241FA gas turbine-electrical generator set with a nominal capacity of 175 MW.
005	**Cooling Tower** consisting of one 5-cell freshwater mechanical draft freshwater cooling tower.
006	**Other Emissions Units** include one 2600-hp diesel generator, one 250-hp diesel fire pump, a 12.8 MMBtu/hr (HHV) gas-fired fuel heater, an aqueous ammonia storage tank, and small diesel storage tanks.

REGULATORY CLASSIFICATION

Title III: Based on available data, the new facility is not a major source of hazardous air pollutants (HAP).

Title IV: The new gas turbines are subject to the acid rain provisions of the Clean Air Act.

Title V: Because potential emissions of at least one regulated pollutant exceed 100 tons per year, the new facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C. Regulated pollutants include pollutants such as carbon monoxide (CO), nitrogen oxides (NOx), particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), and volatile organic compounds (VOC).

PSD: The project is located in an area designated as "attainment" or "unclassifiable" for each pollutant subject to a National Ambient Air Quality Standard. The facility is considered a "fossil fuel fired steam electric plant of more than 250 million BTU per hour of heat input", which is one of the 28 PSD source categories with the lower PSD applicability threshold of 100 tons per year. Potential emissions of at least one regulated pollutant exceed 100 tons per year. Therefore, the facility is classified as 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.

NSPS: The new gas turbines are subject to the New Source Performance Standards of 40 CFR 60, Subpart GG. The gas fired fuel heater is subject to the New Source Performance Standards of 40 CFR 60, Subpart Dc.

NESHAP: No emission units are identified as being subject to a National Emissions Standards for Hazardous Air Pollutants (NESHAP).

SITING: The project is not subject to Section 403.501-518, F.S., Florida Electrical Power Plant Siting Act, based on information regarding gross electrical power generated from the steam (Rankine) cycle submitted by the applicant and reviewed by the Department.

PERMITTING AUTHORITY

All documents related to applications for permits to construct, operate or modify an emissions unit shall be submitted to the Bureau of Air Regulation of the Florida Department of Environmental Protection (DEP) at 2600 Blair Stone Road (MS #5505), Tallahassee, Florida 32399-2400.

COMPLIANCE AUTHORITIES

All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Air Quality Division of the Broward County Department of Planning and Environmental, 218 Southwest 1st Avenue, Fort Lauderdale, Florida 33301. Copies of all such documents shall be submitted to the Air Resources Section of the Southeast District Office, Florida Department of Environmental Protection, Post Office Box 15425, West Palm Beach, Florida 33416-5425.

APPENDICES

The following Appendices are attached as part of this permit.

Appendix BD. Final BACT Determinations and Emissions Standards

Appendix GC. General Conditions

Appendix GG. NSPS Subpart GG Requirements for Gas Turbines

Appendix SC. Standard Conditions

Appendix XS. Continuous Monitor Systems Semi-Annually Report

RELEVANT DOCUMENTS

The documents listed below are not a part of this permit; however, they are specifically related to this permitting action and are on file with the Department.

- Permit application received on 03/28/01 and all related completeness correspondence.
- Draft permit package issued on _____
- Comments received from the public, the applicant, the EPA Region 4 Office, and the National Park Service.

1. 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.]

2. Applicable Regulations, Forms and Application Procedures: Unless otherwise indicated in this permit, the construction and operation of the subject emissions unit 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.); and the Title 40, Parts 51, 52, 60, 72, 73, and 75 of the Code of Federal Regulations (CFR), adopted by reference in Rule 62-204.800, F.A.C. The terms used in this permit have specific meanings as defined in the applicable chapters of the Florida Administrative Code. 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 permittee 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.]

3. PSD Expiration: Approval to construct shall become invalid if construction is not commenced within 18 months after receipt of such approval, or if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. The Department may extend the 18-month period upon a satisfactory showing that an extension is justified. [40 CFR 52.21(r)(2)]

4. Completion of Construction: The permit expiration date is December 1, 2004. Physical construction shall be completed by September 1, 2004. The additional time provides for testing, submittal of results, and submittal of the Title V permit application to the Department.

5. Permit Expiration: For good cause, the permittee may request that this PSD 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]

6. BACT Determination: In conjunction with an extension of the 18-month period to commence or continue construction, phasing of the project, or an extension of the permit expiration date, the permittee may be required to demonstrate the adequacy of any previous determination of Best Available Control Technology (BACT) for the source. [Rule 62-212.400(6)(b), F.A.C. and 40 CFR 51.166(j)(4)]

7. 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.]

8. 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.]

9. Application for Title IV Permit: At least 24 months before the date on which the new unit begins serving an electrical generator greater than 25 MW, the permittee shall submit an application for a Title IV Acid Rain Permit to the Department's Bureau of Air Regulation in Tallahassee and a copy to the Region 4 Office of the U.S. Environmental Protection Agency in Atlanta, Georgia. [40 CFR 72]

10. Title V Permit: This permit authorizes construction of the permitted emissions units and initial operation to determine compliance with Department rules. A Title V operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after commencing operation. 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, and copies to each Compliance Authority.
[Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

This section of the permit addresses the following new emissions unit.

Emissions Unit 001: Combined Cycle Gas Turbine No. CC-1
Description: The combined cycle unit consists of a General Electric Model PG7241FA gas turbine-electrical generator set with a nominal capacity of 175 MW, an unfired heat recovery steam generator (HRSG), and a separate steam turbine-electrical generator set. Ancillary equipment includes an automated gas turbine control system, an inlet air filtration system, and an evaporative inlet air-cooling system.
Fuel: The combined cycle unit is fired exclusively with pipeline-quality natural gas.
Capacity: At a compressor inlet air temperature of 35° F, the combined cycle gas turbine produces approximately 180 MW when firing approximately 1700 MMBtu (LHV) per hour of natural gas.
Controls: The efficient combustion of pipeline-quality natural gas at high temperatures minimizes emissions of CO, PM/PM_{10}, SAM, SO_2, and VOC. A selective catalytic reduction (SCR) system combined with Dry Low-NO_X (DLN) combustion technology reduces NO_X emissions.
Stack Parameters: When operating at 100% load and at an inlet temperature of 35° F, exhaust gases exit a 135 feet tall stack that is 19.0 feet in diameter with a flow rate of approximately 1,040,000 acfm at 187° F.

APPLICABLE STANDARDS AND REGULATIONS

1. BACT Determinations: The emissions standards specified for this unit represent Best Available Control Technology (BACT) determinations for carbon monoxide (CO), nitrogen oxides (NO_X), particulate matter (PM/PM_{10}), sulfuric acid mist (SAM), and sulfur dioxide (SO_2). See Appendix BD of this permit for a summary of the final BACT determinations. [Rule 62-212.400(BACT), F.A.C.]

EQUIPMENT

2. Combined Cycle Gas Turbine: The permittee is authorized to install, tune, maintain and operate a new combined cycle unit consisting of a General Electric Model PG7241FA gas turbine-electrical generator set, an unfired heat recovery steam generator (HRSG), and a steam turbine-electrical generator set. The combined cycle unit shall be designed as a system to generate a nominal 175 MW of shaft-driven electrical power and less than 75 MW of steam-generated electrical power. Ancillary equipment includes an automated gas turbine control system, an inlet air filtration system, an evaporative inlet air cooling system, a single exhaust stack that is 135 feet tall and 19.0 feet in diameter, and associated support equipment. ~~A separate bypass stack and damper may be installed to facilitate startup of the steam cycle while operating the combustion turbine in Low Emissions Modes 5, 5Q, and 6Q~~. [Applicant Request; Design]

   EPMEC Comment: EPMEC does not consider a bypass stack system to be a cost-effective BACT approach for reducing emissions during startups. Detailed comments on this issue will be provided to the Department at a later date.

3. DLN Combustion Technology: The permittee shall tune, maintain and operate the General Electric DLN-2.6 combustion system to control NO_X emissions from the combined cycle gas turbine. Prior to the initial emissions performance tests for each gas turbine, the DLN combustors and automated gas turbine control system shall be tuned to reduce NO_X emissions. Thereafter, each system shall be maintained and tuned in accordance with the manufacturer's recommendations.
   [Design; Rule 62-212.400(BACT), F.A.C.]

4. (SCR) System: The permittee shall install, tune, maintain and operate a selective catalytic reduction (SCR) system to control NOx emissions from the combined cycle gas turbine. The SCR system consists of an

ammonia injection grid, catalyst, aqueous ammonia storage, monitoring and control system, and electrical, piping and other auxiliary equipment. The SCR system shall be designed to reduce NO_X emissions and ammonia slip below the permitted levels. [Rule 62-212.400(BACT), F.A.C.]

PERFORMANCE RESTRICTIONS

5. Permitted Capacity: The maximum heat input rate to the combined cycle gas turbine shall not exceed 1742 MMBtu per hour based on a compressor inlet air temperature of 35° F, the lower heating value (LHV) of natural gas, and 100% load. Heat input rates will vary depending upon gas turbine characteristics, ambient conditions, alternate methods of operation, and evaporative cooling. The permittee shall provide manufacturer's performance curves (or equations) that correct for site conditions to the Permitting and Compliance Authorities within 45 days of completing the initial compliance testing. Operating data may be adjusted for the appropriate site conditions in accordance with the performance curves and/or equations on file with the Department. [Rule 62-210.200(PTE), F.A.C.]

6. Authorized Fuel: The combined cycle gas turbine shall fire only pipeline-quality natural gas with a maximum of 1.5 grains of sulfur per 100 standard cubic feet of natural gas. [Applicant Request; Rules 62-210.200(PTE) and 62-212.400(BACT), F.A.C.]

7. Restricted Operation: The hours of operation for the combined cycle gas turbine are not limited (8760 hours per year). [Rules 62-210.200(PTE) and 62-212.400(BACT), F.A.C.]

8. Power Augmentation: As an alternate method of operation, the permittee may inject steam into the combined cycle gas turbine for power augmentation. ~~Power augmentation is permitted 2000 hours per 12 consecutive months and is not limited if oxidation catalyst is installed. The 2000 hour limit may be revised at the request of the applicant based upon review of actual performance and control equipment cost effectiveness following proper public notice.~~ [Rule 62-212.400 (BACT), F.A.C.]

   EPMEC Comment: The 2,000 hour per year limit on steam mass flow augmentation may be insufficient to meet plant operational objectives. The March 2001 Air Construction Permit Application submitted to the Department requested up to 8,760 hours per year of steam mass flow augmentation. EPMEC will provide additional comments on this issue to the Department at a later date.

9. Power Generated Limitation: Electrical power from the steam-electrical generator shall be limited to 74.9 MW (gross) on an hourly basis. The owner or operator shall be capable of demonstrating to the Department, continuous compliance with the 74.9 MW limit by the stored information in the power plant's electronic data system. [Applicant Request]

EMISSIONS STANDARDS

{Permitting Note: The following standards apply to the combined cycle gas turbine. Unless otherwise noted, the mass emission limits are based a compressor inlet temperature of 35° F and 100% load. For comparison to the standard, actual measured concentrations shall be corrected to this compressor inlet temperature with manufacturer's data on file with the Department. Emissions standards with continuous monitoring requirements apply at all loads. Appendix BD provides a summary of the emissions standards of this permit.}

10. Ammonia Slip: Ammonia slip shall not exceed 5 ppmvd corrected to 15% oxygen based on a 3-hour test average as determined by EPA Method CTM-027. [Rule 62-4.070(3), F.A.C.]

11. Carbon Monoxide (CO)

a. *Initial Test, Standard Operation*: When not operating in the power augmentation mode, CO emissions shall not exceed 31.0 pounds per hour nor 8.0 ppmvd corrected to 15% oxygen based on a 3-hour test average as determined by an initial performance test conducted in accordance with EPA Method 10.

b. *Continuous Compliance, Standard Operation*: When not operating in the power augmentation mode, CO emissions shall not exceed 8.0 ppmvd corrected to 15% oxygen based on a 3-hour block average as determined by valid data collected from the certified CEM system.

c. *Initial Test, Power Augmentation*: When injecting steam for power augmentation and a compressor inlet temperature of 59° F, CO emissions shall not exceed ~~48.0~~ 48.4 pounds per hour nor 12.0 ppmvd corrected to 15% oxygen based on a 3-hour test average as determined by an initial performance test conducted in accordance with EPA Method 10.

EPMEC Comment: Requested limit represents maximum hourly CO emission rate at 100% load and steam augmentation; reference Appendix C, Table C-2A of the March 2001 Air Construction Permit Application.

d. *Continuous Compliance, Power Augmentation*: When injecting steam for power augmentation, CO emissions shall not exceed 12.0 ppmvd corrected to 15% oxygen based on a 3-hour block average as determined by valid data collected from the certified CEM system. [Rule 62-212.400(BACT), F.A.C.]

12. Nitrogen Oxides (NO_X)

a. *Initial Test*: NO_X emissions shall not exceed ~~17.0~~ 23.8 pounds per hour nor ~~2.5~~ 3.5 ppmvd corrected to 15% oxygen based on a 3-hour test average as determined by EPA Method 7E.

b. *Continuous Compliance*: NO_X emissions shall not exceed ~~2.5~~ 3.5 ppmvd corrected to 15% oxygen based on a 24-hour block average as determined by valid data collected from the certified CEM system.

NO_X emissions are defined as oxides of nitrogen expressed as NO_2. [Rule 62-212.400(BACT), F.A.C.]

EPMEC Comment: Draft NO_x emission limits are inconsistent with limits requested in the March 2001 Air Construction Permit Application. Reconsideration by the Department of the draft NO_x limits is requested. EPMEC will provide the Department with additional comments on this issue at a later date.

13. Particulate Matter (PM/PM_{10}): The fuel specifications established in Condition No. 6 of this section combined with the efficient combustion design and operation of the combined cycle gas turbine represent the Best Available Control Technology (BACT) requirements for PM/PM_{10} emissions. Compliance with the fuel specifications, CO standards, and visible emissions standards shall serve as indicators of good combustion. {Permitting Note: Particulate matter emissions are expected to be less than 11 pounds per hour as determined by EPA Method 5, front-half catch only.} [Rule 62-212.400(BACT), F.A.C.]

14. Sulfuric Acid Mist (SAM) and Sulfur Dioxide (SO_2): The fuel sulfur specification established in Condition No. 6 of this section effectively limits the potential emissions of SAM and SO_2 from the combined cycle gas turbine. Compliance with the fuel sulfur specification shall be demonstrated by the sampling, analysis, record keeping and reporting requirements established in Section III.C of this permit. [Rule 62-212.400(BACT), F.A.C.]

15. Visible Emissions: As determined by EPA Method 9, visible emissions shall not exceed 10% opacity based on a 6-minute average. Except as allowed by Condition No. 17 of this section, this standard applies to all loads. [Rule 62-212.400(BACT), F.A.C.]

16. Volatile Organic Compounds (VOC): The efficient combustion of clean fuels and good operating practices for the combined cycle gas turbine represent the Best Available Control Technology (BACT) requirements for VOC emissions. Compliance with the fuel specification and CO standards shall serve as indicators of

good combustion. {Permitting Note: VOC emissions are expected to be less than 3~~–~~ 3.4 pounds per hour and ~~1.3~~ 1.5 ppmvd corrected to 15% oxygen as determined by EPA Method 25A measured and reported as methane.} [Design; Rule 62-4.070(3), F.A.C.]

EPMEC Comment: Revised values represents maximum hourly VOC emission rate with steam augmentation; reference Appendix C, Table C-2A of the March 2001 Air Construction Permit Application.

EXCESS EMISSIONS

17. Excess Emissions Defined: The following permit conditions allow excess emissions or the exclusion of monitoring data for specifically defined periods of startup, shutdown, and malfunction of the combined cycle gas turbine. These conditions apply only if operators employ the best operational practices to minimize the amount and duration of excess emissions during such episodes.
    a. *Visible Emissions*: For startups and shutdowns in a calendar day, visible emissions shall not exceed 10% opacity except for up to ten, 6-minute averaging periods, which shall not exceed 20% opacity.
    b. ~~*Work Practice BACT*: The unit(s) will reach Mode 5Q (i.e. five burners plus quaternary pegs in operation) within 15 minutes following gas turbine ignition and crossfire.~~
    c. *Low-Load Restriction*: Except for startup and shutdown, operation under DLN Modes 1, 2, 3, and 4 is prohibited.
    d. *CEM System Data Exclusion*: ~~Except for combined cycle cold startups, no more than two hourly average emission rate values in a calendar day shall be excluded from the continuous NO_x and CO compliance demonstrations due to startup, shutdown, or documented unavoidable malfunction. No more than four hourly average emission rate values in a calendar day shall be excluded from the continuous NO_x and CO compliance demonstrations due to comb ined cycle cold startups. No more than a total of four hourly average emission rate values shall be excluded from the continuous NO_x and CO compliance demonstrations for all such episodes in any calendar day.~~ A *"combined cycle cold startup"* is defined as startup after the combined cycle gas turbine has been shutdown for 48 hours or more. A *"documented unavoidable malfunction"* is a malfunction beyond the control of the operator that is documented within 24 hours of occurrence by contacting each Compliance Authority by telephone or facsimile transmittal.

    [Design; Rules 62-4.070(3), 62-4.130, 62-210.700, and 62-212.400 (BACT), F.A.C.]

    EPMEC Comment: Draft Condition 17.b. and d. requires the installation of a bypass stack system and does not allow for multiple daily startups. As noted previously, EPMEC does not consider a bypass stack system to be a cost-effective BACT approach for reducing emissions during startups. Detailed comments on this issue will be provided to the Department at a later date.

EMISSIONS PERFORMANCE TESTING

{Permitting Note: Performance test methods are specified in Gas Turbine Common Conditions, Section III.C.}

18. Initial Compliance Tests: The combined cycle gas turbine shall be tested initially and upon permit renewal to demonstrate compliance with the emission standards for CO, NO_X, visible emissions and ammonia slip. The tests shall be conducted within 60 days after achieving at least 90% of the maximum permitted capacity, but not later than 180 days after initial operation of the combined cycle gas turbine. With appropriate flow measurements, certified CEM system data may be used to demonstrate compliance with the CO and NO_X standards. NO_X emissions recorded by the CEM system shall be reported for each ammonia slip test run. [Rule 62-297.310(7)(a)1., F.A.C.]

19. Annual Compliance Tests: During each federal fiscal year (October 1st to September 30th), the combined cycle gas turbine shall be tested to demonstrate compliance with the emission standards for NOx, CO, ammonia slip and visible emissions. NO_X emissions recorded by the CEM system shall be reported for each ammonia slip test run. Annual compliance with the applicable NOx and CO emissions standards can also be demonstrated with valid data collected by the required annual RATA at permitted capacity. {Permitting Note: Continuous compliance with the CO and NOx standards shall be demonstrated with certified CEMS system data.} [Rules 62-212.400 (BACT) and 62-297.310(7)(a)4., F.A.C.]

CONTINUOUS MONITORING REQUIREMENTS

20. CEM Systems: The permittee shall install, calibrate, maintain, and operate continuous emission monitoring (CEM) systems to measure and record the emissions of CO and NO_X from the combined cycle gas turbine in a manner sufficient to demonstrate continuous compliance with the emission standards of this section. The CEM systems shall comply with the general monitoring requirements specified under "Gas Turbine Common Conditions" in Section III.C.

    a. The CO monitor shall have a span of no more than 25 ppmvd corrected to 15% oxygen. For purposes of determining compliance with the CEM emission standards of this permit, missing or excluded data shall not be substituted. Instead, the next valid hourly emission rate value (within the same period of operation) shall be used to complete the 3-hour block average for CO. Each monitoring system shall be installed, calibrated, and properly functioning prior to the initial performance tests and shall be used to demonstrate continuous compliance with the corresponding CO emissions standards specified in this section. [Rule 62-212.400(BACT), F.A.C.]

    b. The NO_X monitor shall have a span of no more than 10 ppmvd corrected to 15% oxygen. Compliance with the continuous NO_X emissions standards shall be based on a 24-hour block average starting at midnight of each operating day. The 24-hour block average shall be calculated from 24 consecutive hourly average emission rate values. If a unit operates less than 24 hours during the block, the 24-hour block average shall be the average of available valid hourly average emission rate values for the 24-hour block. For purposes of determining compliance with the CEM emission standards of this permit, missing (or excluded) data shall not be substituted. Instead the block average shall be determined using the remaining hourly data in the 24-hour block. Each monitoring system shall be installed, calibrated, and properly functioning prior to the initial performance tests and shall be used to demonstrate continuous compliance with the corresponding NO_X emissions standards specified in this section.
    [Rule 62-212.400(BACT), F.A.C.]

    EPMEC Comment: The procedure for determining NO_x compliance when data is missing or excluded appears to differ than the procedure described in Condition 20.a. for CO compliance. Clarification of these CEM compliance procedures is requested from the Department.

21. Ammonia Monitoring Requirements: In accordance with the manufacturer's specifications, the permittee shall install, calibrate, maintain and operate an ammonia flow meter to measure and record the ammonia injection rate to the SCR system. The permittee shall document the general range of ammonia flow rates required to meet permitted emissions levels over the range of load conditions allowed by this permit by comparing NO_X emissions recorded by the CEM system with ammonia flow rates recorded using the ammonia flow meter. During NO_X monitor downtimes or malfunctions, the permittee shall operate at the ammonia flow rate that is consistent with the documented flow rate for the combustion turbine load. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

OTHER REQUIREMENTS

The combined cycle gas turbine is also subject to the "Gas Turbine Common Conditions" specified in Section III.C as well as the "Standard Conditions" included as Appendix SC in Section IV.

This section of the permit addresses the following new emissions units.

Emissions Units 002, 003 and 004: Simple Cycle Gas Turbine Nos. SC-1, SC-2 and SC-3
Description: Each simple cycle unit consists of a General Electric Model PG7241FA gas turbine-electrical generator set with a nominal capacity of 175 MW. Ancillary equipment includes an automated gas turbine control system, an inlet air filtration system, and an evaporative inlet air-cooling system. *Fuel*: Each simple cycle unit is fired exclusively with pipeline-quality natural gas. *Capacity*: At a compressor inlet air temperature of 35° F and firing approximately 1700 MMBtu (LHV) per hour of natural gas, each unit produces approximately 180 MW. *Controls*: Emissions of CO, PM/PM_{10}, SAM, SO_2, and VOC are minimized by the efficient combustion of pipeline-quality natural gas at high temperatures. NO_X emissions are reduced by Dry Low-NO_X (DLN) combustion technology. *Stack Parameters*: When operating at 100% load and at an inlet temperature of 35° F, exhaust gases exit a 135 feet tall stack that is 19.0 feet in diameter with a flow rate of approximately 2,500,000 acfm at 1092° F.

APPLICABLE STANDARDS AND REGULATIONS

1. BACT Determinations: The emissions standards specified for these emissions units represent Best Available Control Technology (BACT) determinations for carbon monoxide (CO), nitrogen oxides (NO_X), particulate matter (PM/PM_{10}), sulfuric acid mist (SAM), and sulfur dioxide (SO_2). See Appendix BD of this permit for a summary of the final BACT determinations. [Rule 62-212.400(BACT), F.A.C.]

EQUIPMENT

2. Simple Cycle Gas Turbines: The permittee is authorized to install, tune, maintain and operate three new General Electric Model PG7241(FA) gas turbine-electrical generator sets. Each simple cycle unit shall be designed and operated to generate a nominal 175 MW of shaft-driven electrical power. Ancillary equipment includes an automated gas turbine control system, an inlet air filtration system, a compressor inlet air evaporative cooling system, a single exhaust stack that is 135 feet tall and 19.0 feet in diameter, and associated support equipment. [Applicant Request; Design]

3. DLN Combustion Technology: The permittee shall tune, maintain and operate the General Electric DLN 2.6 combustion system to control NO_X emissions from each simple cycle gas turbine. Prior to the initial emissions performance tests for each gas turbine, the DLN combustors and automated gas turbine control system shall be tuned to reduce NO_X emissions. Thereafter, each system shall be maintained and tuned in accordance with the manufacturer's recommendations.
[Design; Rule 62-212.400(BACT), F.A.C.]

PERFORMANCE REQUIREMENTS

4. Simple Cycle Operation Only: Each gas turbine shall operate only in simple cycle mode. This restriction is based on the permittee's request, which formed the basis of the CO and NO_X BACT determinations and resulted in the emission standards specified in this permit. Specifically, the CO and NO_X BACT determinations eliminated several control alternatives based on technical considerations due to the elevated temperatures of the exhaust gas as well as costs related to restricted operation. Any request to convert these units to combined cycle operation or increase the allowable hours of operation shall be accompanied by a revised CO and NO_X BACT analysis (as if never constructed) and the approval of the Department through a permit modification in accordance with Chapters 62-210 and 62-212, F.A.C. The results of this analysis

may validate the initial BACT determinations or result in the submittal of a full PSD permit application, new control equipment, and new emissions standards.
[Applicant Request; Rules 62-210.300 and 62-212.400, F.A.C.]

5. Permitted Capacity: The maximum heat input rate to each simple cycle gas turbine shall not exceed 1743 MMBtu per hour based on a compressor inlet air temperature of 35° F, the lower heating value (LHV) of natural gas, and 100% load. Heat input rates will vary depending upon gas turbine characteristics, ambient conditions, and evaporative cooling. The permittee shall provide manufacturer's performance curves (or equations) that correct for site conditions to the Permitting and Compliance Authorities within 45 days of completing the initial compliance testing. Operating data may be adjusted for the appropriate site conditions in accordance with the performance curves and/or equations on file with the Department.
[Design; Rule 62-210.200(PTE), F.A.C.]

6. Fuel Specifications: Each simple cycle gas turbine shall fire only pipeline-quality natural gas with a maximum of 1.5 grains of sulfur per 100 standard cubic feet of natural gas.
[Applicant Request; Rules 62-210.200(PTE) and 62-212.400(BACT), F.A.C.]

7. Restricted Operation: ~~The three combustion turbines shall operate no more than an average of 5,000 hours per installed unit during any consecutive 12-month period.~~ Each simple cycle gas turbine shall fire no more than 8,500,000 MMBtu of natural gas (LHV) during any consecutive 12-month period. {Permitting Note: This is approximately equivalent to 5000 hours of operation at 100% load.}
[Applicant Request; Rules 62-212.400(BACT) and 62-210.200(PTE), F.A.C.]

EPMEC Comment: Deletion of the limitation on annual hours is requested since it is a redundant requirement and unnecessarily limits operational flexibility.]

EMISSIONS STANDARDS

{Permitting Note: The following standards apply to each simple cycle gas turbine. Unless otherwise noted, the mass emission limits are based a compressor inlet temperature of 35° F and 100% load. For comparison to the standard, actual measured concentration shall be corrected to this compressor inlet temperature with manufacturer's data on file with the Department. Emissions standards with continuous monitoring requirements apply at all loads. Appendix BD provides a summary of the emissions standards of this permit.}

8. Carbon Monoxide (CO): CO emissions from each simple cycle gas turbine shall not exceed 31.0 pounds per hour nor 8.0 ppmvd corrected to 15% oxygen based on a 3-hour test average as determined by EPA Method 10. [Rule 62-212.400(BACT), F.A.C.]

9. Nitrogen Oxides (NO_X)

   a. *Initial Performance Test*: NO_X emissions from each simple cycle gas turbine shall not exceed 61.0 pounds per hour nor 9.0 ppmvd corrected to 15% oxygen based on a 3-hour test average conducted at base load as determined by EPA Method 7E.

   b. *CEM System*: NO_X emissions shall not exceed 9.0 ppmvd corrected to 15% oxygen based on a 24-hour block average as determined by valid data collected from the certified NO_X CEM system.

   NO_X emissions are defined as oxides of nitrogen expressed as NO_2. [Rule 62-212.400(BACT), F.A.C.]

10. Particulate Matter (PM/PM_{10}): The fuel specifications established in Condition No. 6 of this section combined with the efficient combustion design and operation of the combined cycle gas turbine represent

the Best Available Control Technology (BACT) requirements for particulate matter emissions. Compliance with the fuel specifications, CO standards, and visible emissions standards shall serve as indicators of good combustion. Particulate matter emissions are expected to be less than 9 pounds per hour as determined by EPA Method 5, front-half catch only. [Rule 62-212.400(BACT), F.A.C.]

11. Sulfuric Acid Mist (SAM) and Sulfur Dioxide (SO_2): The fuel sulfur specification established in Condition No. 6 of this section effectively limits the potential emissions of SAM and SO_2 from each simple cycle gas turbine. Compliance with the fuel sulfur specification shall be demonstrated by the sampling, analysis, record keeping and reporting requirements established in Section III.C of this permit. [Rule 62-212.400(BACT), F.A.C.]

12. Volatile Organic Compounds (VOC)

    a. *Initial Performance Test*: VOC emissions from each simple cycle gas turbine shall not exceed 3.0 pounds per hour nor 1.3 ppmvd corrected to 15% oxygen based on a 3-hour test average at base load as determined by EPA Method 25A, measured and reported in terms of methane. Optionally, EPA Method 18 may be used concurrently with EPA Method 25A to deduct emissions of methane and ethane from the measured VOC emissions. [Rule 62-4.070, F.A.C.; To Avoid Rule 62-212.400(BACT), F.A.C.]

    b. *After Initial Performance Test*: The efficient combustion of a clean fuel and good operating practices minimize VOC emissions from each simple cycle gas turbine. Compliance with the fuel specifications and CO standards of this section shall serve as indicators of good combustion. Subsequent VOC emissions performance tests shall only be required when the Department has good reason to believe that a VOC emission standard is being violated pursuant to Rule 62-297.310(7)(b), F.A.C. [Rule 62-4.070, F.A.C.]

EXCESS EMISSIONS

13. Excess Emissions Defined: The following permit conditions allow excess emissions or the exclusion of monitoring data for specifically defined periods of startup, shutdown, and malfunction of each simple cycle gas turbine. These conditions apply only if operators employ the best operational practices to minimize the amount and duration of excess emissions during such episodes.

    a. *Visible Emissions*: For startups and shutdowns in a calendar day, visible emissions shall not exceed 10% opacity except for up to ten, 6-minute averaging periods, which shall not exceed 20% opacity.

    b. *Work Practice BACT*: The unit(s) will reach Mode 5Q (i.e. five burners plus quaternary pegs in operation) within 15 minutes following gas turbine ignition and crossfire.

    c. *Low-Load Restriction*: Except for startup and shutdown, operation under DLN Modes 1, 2, 3, and 4 is prohibited.

    d. *CEM System NO_X Data Exclusion*: No more than two hourly average emission rate values shall be excluded from the continuous NO_X compliance demonstrations due to startup, shutdown, or documented unavoidable malfunction. No more than a total of three hourly average emission rate values shall be excluded from the continuous NO_X compliance demonstrations for such periods in any calendar day. A "documented unavoidable malfunction" is a malfunction beyond the control of the operator that is documented within 24 hours of occurrence by contacting each Compliance Authority by telephone or facsimile transmittal.

    [Design; Rules 62-210.700, 62-4.130, and 62-212.400 (BACT), F.A.C.]

EPMEC Comment: Condition 13.b. and c. requires operation in DLN pre-mix mode within 15 minutes of commencement of gas turbine fuel ignition. EPMEC will review this requirement with the gas turbine vendor and provide the Department with additional comments as necessary.

EMISSIONS PERFORMANCE TESTING

{Permitting Note: Performance test methods are specified in Gas Turbine Common Conditions, Section III.C.}

14. Initial Tests Required: Each simple cycle gas turbine shall be tested initially and upon permit renewal to demonstrate compliance with the emission standards for PM/PM_{10}, CO, NO_X, VOC and visible emissions. The initial tests shall be conducted within 60 days after achieving at least 90% of the maximum permitted capacity, but not later than 180 days after initial operation of each unit. With appropriate flow measurements, certified CEM system data may be used to demonstrate compliance with the NOx standards. Tests for CO and VOC emissions shall be conducted concurrently. [Rule 62-297.310(7)(a)1., F.A.C.]

15. Annual Performance Tests: During each federal fiscal year (October 1st to September 30th), each simple cycle gas turbine shall be tested to demonstrate compliance with the emission standards for NOx, CO and visible emissions. Annual compliance with the applicable NOx and CO emissions standards can also be demonstrated with valid data collected by the required annual RATA at permitted capacity. NO_X emissions recorded by the CEM system shall be reported for each CO test run. {Permitting Note: Continuous compliance with the NO_X standard shall be demonstrated with certified CEMS system data.} [Rule 62-297.310(7)(a)4., F.A.C.]

CONTINUOUS MONITORING REQUIREMENTS

16. CEM Systems: The permittee shall install, calibrate, maintain, and operate continuous emission monitoring (CEM) systems to measure and record NO_X emissions from each simple cycle gas turbine in a manner sufficient to demonstrate continuous compliance with the emission standards of this section. Each CEM system shall comply with the general monitoring requirements specified under "Gas Turbine Common Conditions" in Section III.C. Each NO_X monitor shall have a span of no more than 25 ppmvd corrected to 15% oxygen. Compliance with the continuous NO_X emissions standards shall be based on a 24-hour block average starting at midnight of each operating day. The 24-hour block average shall be calculated from 24 consecutive hourly average emission rate values. If a unit operates less than 24 hours during the block, the 24-hour block average shall be the average of available valid hourly average emission rate values for the 24-hour block. For purposes of determining compliance with the CEM emission standards of this permit, missing (or excluded) data shall not be substituted. Instead the block average shall be determined using the remaining hourly data in the 24-hour block. Each monitoring system shall be installed, calibrated, and properly functioning prior to the initial performance tests and shall be used to demonstrate continuous compliance with the corresponding NO_X emissions standards specified in this section. [Rule 62-212.400(BACT), F.A.C.]

OTHER REQUIREMENTS

Each simple cycle gas turbine is also subject to the "Gas Turbine Common Conditions" specified in Section III.C as well as the "Standard Conditions" included as Appendix SC in Section IV.

This section of the permit addresses the following new emissions units.

ID	Emission Unit Description
001	**Combined Cycle Unit No. CC-1** consists of a natural gas fired General Electric Model PG7241FA 175 MW gas turbine-electrical generator set, an unfired heat recovery steam generator, and a separate turbine-electrical generator.
002	**Simple Cycle Unit No. SC-1** consists of a natural gas fired General Electric Model PG7241FA gas turbine-electrical generator set with a nominal capacity of 175 MW.
003	**Simple Cycle Unit No. SC-2** consists of a natural gas fired General Electric Model PG7241FA gas turbine-electrical generator set with a nominal capacity of 175 MW.
004	**Simple Cycle Unit No. SC-3** consists of a natural gas fired General Electric Model PG7241FA gas turbine-electrical generator set with a nominal capacity of 175 MW.

NEW SOURCE PERFORMANCE STANDARDS, SUBPART GG

1. NSPS Requirements: The Department determines that compliance with the emissions performance and monitoring requirements of Sections III.A and B also demonstrates compliance with the New Source Performance Standards for gas turbines in 40 CFR 60, Subpart GG. For completeness, the applicable Subpart GG requirements are included in Appendix GG of this permit. [Rule 62-4.070(3), F.A.C.]

PERFORMANCE REQUIREMENTS

2. Operating Procedures: The Best Available Control Technology (BACT) determinations established by this permit rely on "good operating practices" to reduce emissions. Therefore, all operators and supervisors shall be properly trained to operate and maintain the combined cycle gas turbine and pollution control systems in accordance with the guidelines and procedures established by each manufacturer. The training shall include good operating practices as well as methods of minimizing excess emissions. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

EXCESS EMISSIONS

3. 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. All such emissions shall be included in any compliance demonstration based on continuous monitoring data. [Rule 62-210.700(4), F.A.C.]

EMISSIONS PERFORMANCE TESTING

4. Test Methods: Required tests shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
CTM-027	Procedure for Collection and Analysis of Ammonia in Stationary Source {Notes: This is an EPA conditional test method. The minimum detection limit shall be 1 ppm.}
5, 5B, or 17	Determination of Particulate Matter Emissions from Stationary Sources {Note: For gas firing, the minimum sampling time shall be two hours per run and the minimum sampling volume shall be 60 dscf per run.}
7E	Determination of Nitrogen Oxide Emissions from Stationary Sources
9	Visual Determination of the Opacity of Emissions from Stationary Sources

Test Methods, Continued

Method	Description of Method and Comments
10	Determination of Carbon Monoxide Emissions from Stationary Sources {Notes: The method shall be based on a continuous sampling train. The ascarite trap may be omitted or the interference trap of section 10.1 may be used in lieu of the silica gel and ascarite traps.}
18	Measurement of Gaseous Organic Compound Emissions by Gas Chromatography {Note: EPA Method 18 may be used (optional) concurrently with EPA Method 25A to deduct emissions of methane and ethane from the measured VOC emissions.}
20	Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines
25A	Determination of Volatile Organic Concentrations

Except for Method CTM-027, the above methods are described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. Method CTM-027 is published on EPA's Technology Transfer Network Web Site at "http://www.epa.gov/ttn/emc/ctm.html". No other methods may be used for compliance testing unless prior written approval is received from the Department.
[Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

CONTINUOUS MONITORING REQUIREMENTS

5. CEM Systems: Each continuous emissions monitoring (CEM) system shall comply with the following requirements:

   a. *CO Monitors.* The CO monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 4. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, and the Data Assessment Report of Section 7 shall be made each calendar quarter, and reported semi-annually to each Compliance Authority. The RATA tests required for the CO monitor shall be performed using EPA Method 10, of Appendix A of 40 CFR 60. The Method 10 analysis shall be based on a continuous sampling train, and the ascarite trap may be omitted or the interference trap of Ssection 10.1 may be used in lieu of the silica gel and ascarite traps.

   b. *NO_X Monitors.* Each NO_X monitor shall be certified pursuant to 40 CFR Part 75 and shall be operated and maintained in accordance with the applicable requirements of 40 CFR Part 75, Subparts B and C. Record keeping and reporting shall be conducted pursuant to 40 CFR Part 75, Subparts F and G. The RATA tests required for the NO_X monitor shall be performed using EPA Method 20 or 7E, of Appendix A of 40 CFR 60.

   c. *O_2 or CO_2 Monitors.* The oxygen (O_2) content or carbon dioxide (CO_2) content of the flue gas shall also be monitored at the location where CO and/or NO_X are monitored to correct the measured emissions rates to 15% oxygen. If a CO_2 monitor is installed, the oxygen content of the flue gas shall be calculated by the CEM system using F-factors that are appropriate for the fuel fired. Each O_2 and CO_2 monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 3. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, and the Data Assessment Report of Section 7 shall be made each calendar quarter, and reported quarterly to each Compliance Authority. The RATA tests required for the O_2 or CO_2 monitors shall be performed using EPA Method 3B, of Appendix A of 40 CFR 60.

d. *Data Collection.* Each hourly average value shall be computed using at least one data point in each fifteen-minute quadrant of an hour, where the unit combusted fuel during that quadrant of an hour. Notwithstanding this requirement, an hourly value shall be computed from at least two data points separated by a minimum of 15 minutes (where the unit operates for more than one quadrant of an hour). The permittee shall use all valid measurements or data points collected during an hour to calculate the hourly averages. The CEM system shall be designed and operated to sample, analyze, and record data evenly spaced over an hour. If the CEM system measures concentration on a wet basis, the CEM system shall include provisions to determine the moisture content of the exhaust gas and an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Alternatively, the owner or operator may develop through manual stack test measurements a curve of moisture contents in the exhaust gas versus load for each allowable fuel, and use these typical values in an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Final results of the CEM system shall be expressed as ppmvd, corrected to 15% oxygen. The CEM system shall be used to demonstrate compliance with the CEM emission standards for CO and NO_X as specified in this permit. Upon request by the Department, the CEM systems emission rates shall be corrected to ISO conditions to demonstrate compliance with the applicable standards of 40 CFR 60.332.

e. *Data Exclusion.* All required emissions data shall be recorded by the CEM systems during episodes of startup, shutdown and malfunction. CO and NO_X emissions data recorded during such episodes may be excluded from the corresponding compliance-averaging period subject to the conditions specified in Sections III.A and B of this permit. All periods of data excluded for any startup, shutdown or malfunction episode shall be consecutive for each episode. The permittee shall minimize the duration of data excluded for startup, shutdown and malfunctions, to the extent practicable. Data recorded during startup, shutdown or malfunction events shall not be excluded if the startup, shutdown or malfunction episode was caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure, which may reasonably be prevented. Best operational practices shall be used to minimize hourly emissions that occur during episodes of startup, shutdown and malfunction. Emissions of any quantity or duration that occur entirely or in part from poor maintenance, poor operation, or any other equipment or process failure, which may reasonably be prevented, shall be prohibited.

f. *Data Exclusion Reports.* A summary report of the duration of data excluded from each compliance average calculation, and all instances of missing data from monitor downtime, shall be reported quarterly to each Compliance Authority. This report shall be consolidated with the report required pursuant to 40 CFR 60.7. For purposes of reporting "excess emissions" pursuant to the requirements of 40 CFR 60.7, excess emissions shall be defined to include the hourly emissions which are recorded by the CEM system during periods of data excluded for episodes of startup, shutdown and malfunction, as allowed above. The duration of excess emissions shall include the duration of the periods of data excluded for such episodes. Reports required by this paragraph and by 40 CFR 60.7 shall be submitted no less than quarterly, including periods in which no data is excluded or no instances of missing data occur.

g. *Notification*: If a CEM system reports CO or NO_X emissions in excess of an emissions standard, the permittee shall notify each Compliance Authority within one working day with a preliminary report 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.

h. *Availability.* Monitor availability for CO and NO_X CEM systems shall be 95% or greater in any calendar quarter. The report required in Appendix XS of this permit shall be used to demonstrate monitor availability. In the event 95% availability is not achieved, the permittee shall provide the Department with a report identifying the problems in achieving 95% availability and a plan of corrective actions that will be taken to achieve 95% availability. The permittee shall implement the reported corrective actions within the next calendar quarter. Failure to take corrective actions or continued failure to achieve the minimum monitor availability shall be violations of this permit.

{Permitting Note: Compliance with these requirements will ensure compliance with the other applicable CEM system requirements such as: NSPS Subpart GG; Rule 62-297.520, F.A.C.; 40 CFR 60.7(a)(5) and 40 CFR 60.13; 40 CFR Part 51, Appendix P; 40 CFR 60, Appendix B - Performance Specifications; and 40 CFR 60, Appendix F - Quality Assurance Procedures.}

[Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

RECORDS

6. Fuel Sulfur Records: The permittee shall demonstrate compliance with the fuel sulfur specification of this permit by maintaining records of the sulfur content of the natural gas being supplied based on the vendor's analysis for each month of operation. Methods for determining the sulfur content of the natural gas shall be ASTM methods D4084-82, D3246-81 (or more recent versions) in conjunction with the provisions of 40 CFR 75 Appendix D. [Rules 62-4.070(3) and 62-4.160(15), F.A.C.]

7. Monitoring of Operations: To demonstrate compliance with the fuel consumption limits, the permittee shall monitor and record the rates of fuel consumption for each gas turbine in accordance with the provisions of 40 CFR 75 Appendix D. To demonstrate compliance with the turbine capacity requirements, the permittee shall monitor and record the operating rate of each combined cycle gas turbine on a daily average basis, considering the number of hours of operation during each day (including the times of startup, shutdown and malfunction). Such monitoring shall be made using a monitoring component of the CEM system required above, or by monitoring daily rates of consumption and heat content of each allowable fuel in accordance with the provisions of 40 CFR 75 Appendix D. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

8. Monthly Operations Summary: By the fifth calendar day of each month, the permittee shall record the monthly fuel consumption (million cubic feet of natural gas per month), heat input rates (million BTU per month), and hours of operation for each gas turbine for the previous month. The information shall be recorded in a written (or electronic log) and shall summarize the previous month of operation and the previous 12 months of operation. Information recorded and stored as an electronic file shall be available for inspection and printing within at least three days of a request by the Department. [Rule 62-4.070(3), F.A.C.]

REPORTS

9. Semi-Annually Excess Emissions Reports: Following the NSPS format provided in Appendix XS of this permit, emissions shall be reported as "excess emissions" when emission levels exceed the standards specified in this permit (including periods of startup, shutdown and malfunction). Within 30 days following the end of the six month period, the permittee shall submit a report to the Compliance Authority summarizing periods of excess emissions, periods of data exclusion, and CEMS systems monitor availability for the previous six month period.
[Rules 62-4.130, 62-204.800, 62-210.700(6), F.A.C.; and 40 CFR 60.7]

D. OTHER EMISSIONS UNITS

This permit authorizes installation of the following emissions units.

ID	Emission Unit Description
005	**Cooling Tower** : One 5-cell mechanical draft fresh water cooling tower.
006	**Other Emissions Units:** One 2600 hp diesel generator, one 250 hp diesel fire pump, aqueous ammonia storage tank, a 12.8 MMBtu/hr (HHV) gas-fired fuel heater and two diesel fuel storage tanks (each less than 1000 gallons).

1. Cooling Tower: BACT for the Cooling Tower was determined to be the use of fresh water and drift eliminators designed and maintained to reduce drift to 0.0005 percent of the circulating water flow rate. {Permitting Note: Potential emissions in tons per year are expected to be less than 1.64 for PM and 0.99 for PM_{10}}.

2. 2600 HP Diesel Generator: This unit is specifically exempted from permitting and BACT requirements according to Rules 62-210.300 (3) and 62-210.300 (3)(a)20. F.A.C., provided that fuel oil use does not exceed 32,000 gallons per year. The unit will be fired with No. 2 diesel fuel with a maximum sulfur content of 0.05%. {Permitting Note: Potential emissions in tons per year are expected to be less than 0.12 for PM, 3.26 for NOx, 0.73 for CO, 0.07 for SO_2 and 0.18 for TOC (total organic carbons)}.

3. 12.8 MMBtu/hr Gas-fired Natural Gas Fuel Heater : This unit is specifically exempted from permitting and BACT requirements according to Rules 62-210.300 (3) and 62-210.300 (3)(a)2 F.A.C., Categorical Exemptions. This unit is subject to applicable provisions of 40 CFR 60, Subpart Dc. New Source Performance Standards for Small Industrial-Commercial-Institutional Steam Generating Units.

4. 250 HP Diesel Fire Pump: This unit is specifically exempted from permitting and BACT requirements according to Rules 62-210.300 (3) and 62-210.300 (3)(a)21 F.A.C., Categorical Permit Exemptions. The unit will be fired with No. 2 diesel fuel with a maximum sulfur content of 0.05%. {Permitting Note: Potential emissions in tons per year are expected to be less than 0.013 for PM, 0.74 for NO_X, 0.18 for CO, 0.0014 for SO_2 and 0.08 for TOC (total organic carbons)}

5. Aqueous Ammonia Storage Tank: This unit will contain less than a 20 percent concentration of aqueous ammonia by volume and therefore is not subject to applicable provisions of 40 CFR 68, Chemical Accident Provisions.

6. Two Diesel Fuel Storage Tanks (each less than 1000 gallons) : This unit is specifically exempted from permitting and BACT requirements according to Rules 62-210.300 (3) and 62-210.300 (3)(b)(iv) F.A.C., Generic and Temporary Exemptions.

Memorandum

Florida Department of
Environmental Protection

TO: Clair Fancy

FROM: Al Linero

DATE: August 10, 2001

SUBJECT: El Paso Broward Energy Center
One 250 MW Combined Cycle and Three 175 MW Simple Cycle Combustion Turbines
DEP File No. 0112545-001-AC (PSD-FL-316)

Attached is the public notice package for construction of a 775 MW power plant in Deerfield Beach. The plant will consist of a 250 MW combined cycle and three intermittent duty, simple cycle, 175 MW GE 7FA combustion turbines. Ancillary facilities include inlet air chillers, one 5-cell freshwater mechanical draft cooling tower, a gas-fired heater, one 2600-hp diesel generator, one 250-hp diesel fire pump, aqueous ammonia storage tank, two 500 gallons diesel storage tanks, and four (possibly 5) 135-foot stacks.

Nitrogen Oxides (NO_X) emissions from the gas turbine will be controlled by Dry Low NO_X (DLN-2.6) combustion. The applicant proposed an NO_X emission limit of 3.5 (combined cycle) and 9 ppmvd (simple cycle) @15% O_2. The NO_X BACT standard has been determined to be 2.5 ppmvd @15% O_2 in a 24-hr average time. The simple cycle units are limited to 5,000 hour per year per unit. The turbines will burn natural gas only. Emissions of carbon monoxide, volatile organic compounds, sulfur dioxide, sulfuric acid mist, and particulate matter (PM/PM_{10}) will be very low because of the inherently clean pipeline quality natural gas and the design of the GE unit.

Maximum predicted air quality impacts due to emissions from the El Paso project are less than the applicable PSD Class II significant impact levels, with the exception of 24-hour average PM_{10}. Therefore, multi-source modeling was required for PM_{10}. The maximum predicted PSD Class II PM_{10} increments consumed in Broward County by all increment sources (since 1975-77) within 51 km of the project, will be as follows:

The National Park Service reviewed the refined modeling performed by the applicant, including regional haze in the Class I Everglades National Park. They anticipate no adverse impacts on air quality related values.

I included startup and shutdown considerations. I fully expect El Paso to come back with reasonable alternatives if they do not agree with our draft Work Practice proposal for the combined cycle case.

August 14 will be Day 49. I recommend your approval of the attached Intent to Issue.

AAL/th

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:

DEP File No. 0112545-001-AC (PSD-FL-316)

El Paso Merchant Energy Company
Broward Energy Center
Broward County

Project type:

Project is construction of a 775 MW gas-fueled power plant consisting of four nominal 175-megawatt (MW) General Electric PG 7241FA combustion turbine-electrical generators .

Three of the units will operate in simple cycle mode and intermittent duty while the fourth will operate in combined cycle and continuous duty. The units will exhaust through separate 135-foot stacks. The units will be fired exclusively with pipeline natural gas. El Paso proposes to operate the simple cycle units up to 5,000 hours per year per unit.

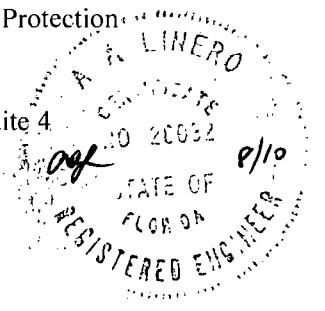
The simple cycle units must meet a BACT nitrogen oxides limit of 9 parts per million by volume, dry, at 15% oxygen (ppmvd). The combined cycle cycle unit must meet a limit of 2.5 ppmvd @15% O2 on a 24-hour basis by installing a selective catalytic reduction system. Other pollutants, including particulate matter (PM/PM_{10}), carbon monoxide, volatile organic compounds, sulfur dioxide, and sulfuric acid mist will be controlled by good combustion and use of pipeline quality natural gas.

Projected impacts from the proposed project emissions are all less than the applicable significant impact limits (SILs) corresponding to the nearest Class I area (Everglades National Park). Except for PM_{10}, projected impacts are less than the applicable SILs corresponding to Class II areas (e.g. all of Broward County). The project will not cause or contribute to a violation of any National Ambient Air Quality Standard or Increment. The National Park Service advised the Department that it "does not anticipate any significant impacts on Air Quality Related Values for the Everglades National Park."

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).*

A A. Linero, P.E. — 8/10/01
Registration Number: 26032 — Date

Department of Environmental Protection
Bureau of Air Regulation
New Source Review Section
111 South Magnolia Drive, Suite 4
Tallahassee, Florida 32301
Phone (850) 921-9523
Fax (850) 922-6979



ECT
Environmental Consulting & Technology, Inc.

July 31, 2001

SENT VIA OVERNIGHT MAIL ON JULY 31, 2001

Mr. A.A. Linero, P.E.
Administrator, New Source Review Section
Florida Department of Environmental Protection
Division of Air Resources Management
2600 Blair Stone Road, MS #5505
Tallahassee, FL 32399-2400

Re: El Paso Merchant Energy Company
DEP File No. 0112545-AC (PSD-FL-316)
Broward Energy Center – New 775 MW Gas Turbine Power Plant

Dear Mr. Linero:

On behalf of El Paso Merchant Energy Company (EPMEC), the following information is provided regarding the EPMEC Broward Energy Center (BEC) Air Construction Permit Application submitted to the Department in March 2001:

Item 1. Emergency Generator Diesel Engine

The BEC will include a 2,600-horsepower (HP) emergency diesel-fired electrical generator. EPMEC requests that the Department's draft PSD permit include a condition limiting annual diesel fuel usage for the 2,600-HP emergency diesel-fired electrical generator to no more than 32,000 gallon per year such that the diesel engine qualifies for the categorical permit exemption of Rule 62-210.300(3)(a)20., F.A.C. A revised Air Construction Permit Application, Appendix C, potential emission inventory worksheet for the 2,600-HP emergency diesel-fired electrical generator is attached.

Item 2. Emergency Fire Water Pump Diesel Engine

The BEC will include a 250-HP emergency diesel-fired fire water pump. This diesel engine qualifies for the categorical permit exemption of Rule 62-210.300(3)(a)21., F.A.C.

Item 3. Emergency Diesel Engine Fuel Storage Tanks

As noted above, the BEC will include a 2,600-HP emergency diesel-fired electrical generator and a 250-HP emergency diesel-fired fire water pump. Each of these emergency diesel engines will include a small (i.e., less than 1,000 gallon) diesel fuel storage tank. Emissions of volatile organic compounds (VOCs) from each small diesel fuel oil storage tank will well below the potential emission thresholds of Rule 62-210.300(3)(b), F.A.C. The emergency diesel engine diesel fuel

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Gainesville, FL
32606

(352)
332-0444

FAX (352)
332-6722

storage tanks therefore qualify for an exemption from permitting pursuant to Rule 62-210.300(3)(b), F.A.C.

Your continued expeditious processing of the EPMEC Broward Energy Center permit application is appreciated. Please contact Mr. Krish Ravishankar at (713) 420-5563 if there are any further questions regarding this permit application.

ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.

Thomas W. Davis, P.E.
Principal Engineer

Attachment

cc: Mr. Krish Ravishankar, EPMEC
Mr. Isidore Goldman, FDEP Southeast District
Ms. Daniela Banu, Broward County DPEP
Mr. Gregg Worley, EPA Region 4
Mr. John Bunyak, National Park Service
A. Linero
D. Galbraith

ECT
Environmental Consulting & Technology, Inc.

June 26, 2001

SENT VIA OVERNIGHT MAIL ON JUNE 26, 2001

Mr. A.A. Linero, P.E.
Administrator, New Source Review Section
Florida Department of Environmental Protection
Division of Air Resources Management
2600 Blair Stone Road, MS #5505
Tallahassee, FL 32399-2400

Re: Response to Request for Additional Information Dated April 27, 2001
DEP File No. 0112545-AC (PSD-FL-316)
Broward Energy Center – New 775 MW Gas Turbine Power Plant

Dear Mr. Linero:

On behalf of El Paso Merchant Energy Company (EPMEC), responses to the issues raised in your April 27, 2001 correspondence concerning the Broward Energy Center permit application are provided as follows:

Items 1. and 2. FPPSA Requirements and Steam-Electrical Capacity

The steam turbine generator (STG) planned for the Broward Energy Center (BEC) combined cycle (CC) unit will have a maximum generating capacity of 120 megawatts (MW). The CC unit will have a modern distributed control system (DCS) that will serve as a means to control STG operation utilizing plant instrumentation and equipment. In conjunction with the steam turbine governor, a control management system will be implemented that will limit the STG output to less than 75 MW. The power output of the STG will be recorded on the plant DCS for records purposes and reporting needs as required. The CC unit will feature hardware provisions that will allow diversion of steam produced by the heat recovery steam generator (HRSG) from the STG thereby limiting its output. The main hardware features that will limit STG electrical output include CTG steam mass flow augmentation, STG controls, and a STG steam bypass system. Each of these systems is described in the following sections.

A. CTG Steam Mass Flow Augmentation

- The CC unit CTG will incorporate steam injection nozzles and design features that will allow a portion of the high-pressure steam generated by the HRSG to be diverted from the STG to the CTG. This introduction of steam to the CTG allows for a mass flow enhancement. The increased mass flow that results from steam

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injection will increase CTG output as well as fuel consumption. At ambient temperatures of about 50°F or less, steam mass flow augmentation will be limited by CTG equipment limitations. For instance, CTG backpressure could increase to levels beyond those recommended by the vendor. At these colder ambient temperature conditions, steam injection into the CTG will be curtailed and alternate means of steam diversion from the STG will be called on to a greater extent.

- The specifics of the limitations on CTG steam injection will be developed by the CTG vendor. Additionally, the specifics of steam introduction will be developed in conjunction with the CTG control systems for proper coordination with the dry low-NO_x (DLN) combustor control algorithms.

- Steam flow to the CTG steam injection nozzles, including CTG control integration, will be controlled from a signal generated within the DCS. This control signal will operate a control valve that regulates steam flow by modulation of the valve seat or opening area thereby allowing steam flow modulation.

- Steam flow to the CTG injection nozzles will be measured with classical steam flow measurement devices such as an orifice plate or an annubar. The steam flow measurement device will have a differential pressure transmitter attached to pressure sensing lines that will monitor the process and produce a proportional 4-20 milliamp (ma) signal that will tie in to the plant DCS. This signal will be converted to flow and signals will be transmitted to the CTG combustion control systems as well as to the balance of the plant DCS. During base load operations, the steam flow to the CTG injection nozzles will likely be a fixed steam mass flow or fixed percent of CTG mass flow. Injection of steam will occur at 100 percent load only. During upsets/startups and conditions such as low ambient temperatures, the steam flow will be controlled to coordinate with CTG combustion control to allow stable operation and avoid surge and stall within the CTG. During these periods, alternate STG steam diversion paths will be used.

B. Steam Turbine Generator (STG) Controls

- The STG will be fitted with an electronic governor and control system that will control the steam flow into the STG and hence the STG electrical output. Additional instrumentation will be used to adjust this control loop. For instance, condenser back pressure, intermediate pressure and low pressure steam flows, steam temperatures and pressure will each have a significant impact on the determination of the proper steam flow to the STG.

- The primary measurement of STG electrical output will be the main input to the STG governor control loops. This power measurement will be feed to the STG governor to compare to the primary set point. As an example, the primary set

point may have a value of 74.9 MW. Following control system tuning, the set point will be adjusted to allow for control swings and upsets such that the hourly STG electrical production average will never exceed 75 MW.

C. STG Steam Bypass System

- Whenever steam to the CTG injection nozzles and to all other locations are not sufficient to reduce STG output to the set point, the primary means of final control will be a STG steam bypass system. The STG steam bypass system will allow steam flow from the HRSG to bypass the STG and "dump" directly into the condenser. The DCS will generate a final control signal that will modulate this steam dump. A CC plant typically includes this hardware to allow for steam dumping during upsets or malfunctions. Additional control signals and associated hardware will regulate this dump steam as the final means of disposal of excess HRSG steam. In addition, an economizer bypass system may be used to reduce the flow of water passing through the economizer stage of the HRSG, which will reduce the flow of steam produced.

The control systems described above will typically scan each instrument every second and recalculate and update the status and driving signals going to each field device. Following control system tuning, the control systems will regulate STG output to the required level.

Item 3. Steam Mass Flow Augmentation Operation

As noted above, steam mass flow augmentation will be only be used at 100 percent load and when ambient air temperatures are above approximately 50°F. EPMEC plans to operate the BEC CC unit to provide base load electrical power. The maximum annual hours of steam mass flow augmentation will therefore primarily depend on ambient temperatures as well as electrical power demand. At a 68°F CTG inlet air temperature and 100 percent load, steam mass flow augmentation will increase CTG electrical output by approximately 12.8 MW.

Item 4. Emissions During Steam Mass Flow Augmentation

The emissions data provided with the submitted permit application represent the CTG vendor's (General Electric) estimate performance with respect to emission rates; reference Appendix B of the permit application dated March 2001. This vendor data indicates that CO exhaust concentrations during steam mass flow augmentation will not exceed 12 ppmvd, corrected to 15% O_2. Because CTG vendors typically include some margin on their estimated emission rates, the vendor data is considered to provide reasonable assurance that CO exhaust concentrations during steam mass flow augmentation will not exceed 12 ppmvd, corrected to 15% O_2.

The CO exhaust concentration expected during steam mass flow augmentation for the BEC CC CTG is lower than the limits contained in recent Department permits for combustion turbine projects utilizing steam mass flow augmentation. For example, the July 2000 CO BACT permit limit for Gulf Power Company's Lansing Smith Plant Unit 3 (also a GE 7FA CC unit) is 23 ppmvd at 15 percent oxygen with steam mass flow augmentation. The draft Department permit for Calpine's Blue Heron Project, issued in February 2001, proposes a CO BACT limit of 17 ppmvd at 15 percent oxygen during steam mass flow augmentation. The Department's April 2001 draft permit for the CPV Atlantic combustion turbine power project specifies a CO BACT limit of 15.0 ppmvd at 15 percent oxygen with steam mass flow augmentation.

Item 5. Fuel Heaters

The BEC will include one, 12.8 MMBtu/hr (HHV) gas-fired natural gas fuel heater that uses water as the heat transfer medium. This heater is exempt from permitting pursuant to Rule 62-210.300(3)(a)2., F.A.C., categorical exemption for individual hot water heaters rated at less than 100 MMBtu/hr burning annually no more than 150 MM ft^3 of natural gas. At a natural gas heat content of 1,020 MMBtu/ft^3 (HHV) and 8,760 hrs/yr operation, the BEC gas-fired natural gas fuel heater will burn 109.9 MM ft^3/yr of natural gas. Note that NSPS Subpart Dc, applicable to new steam generating units (including units which heat water or any other heat transfer medium) greater than 10 MMBtu/hr heat input, does not contain any emission limitations for natural gas-fired units.

Responses to the National Park Service comments, and EPA Region IV comments when received, will be provided in a separate letter to the Department.

A professional engineer certification pursuant to Rule 62-4.050(3), F.A.C. is attached. Your continued expeditious processing of the BEC permit application is appreciated. Please contact Mr. Krish Ravishankar at (713) 420-5563 if there are any further questions regarding the BEC permit application.

ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.

Thomas W. Davis, P.E.
Principal Engineer

Attachment

cc: Mr. Krish Ravishankar, EPMEC
Mr. Isidore Goldman, FDEP Southeast District
Ms. Daniela Banu, Broward County DPEP
Mr. Gregg Worley, EPA Region 4
Mr. John Bunyak, National Park Service

El Paso Merchant Energy Company
Broward Energy Center

Professional Engineer Certification

Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance that the information provided to the Department regarding the El Paso Merchant Energy Company's proposed Broward Energy Center is in accordance with all applicable Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of air pollutants not regulated for an emissions unit, based solely upon the materials, information and calculations provided with this certification.

Signature _____ Date 6/26/01

(seal)

* Certification is applicable to the information provided in response to the Department's April 27, 2001 request for additional information regarding the proposed El Paso Merchant Energy Company's Broward Energy Center.

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

April 27, 2001

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. William Mack, Sr. Managing Director
El Paso Merchant Energy Company
Coastal Tower, Nine Greenway Plaza, Suite 1682A
Houston, Texas 77046-0995

Re: Request for Additional Information -001-
DEP File No. 0112545-AC (PSD-FL-316)
Broward Energy Center

Dear Mr. Mack:

On March 28, 2001 the Department has received your application for an air construction permit for one 250-MW combined cycle and three 170-MW simple cycle gas-fired GE "7FA" combustion turbines for the proposed Broward Energy Center in Deerfield Beach. The application is incomplete. In order to continue processing your application, the Department will need the additional information below. 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. Provide a written rationale for non-applicability of Sections 501-518, F.S., Florida Electrical Power Plant Siting Act.
2. Please describe the physical and digital logic constraints that control steam turbine output to less than 75 megawatts on an hourly basis. Describe the method of security and management responsibility that ensures there will be no exceedance of this value.
3. Provide a schematic of the power augmentation operation mode. What is the maximum manufacturer's recommended period (hr/year, hr/month) for operation in the power augmentation mode. Please advise how many hours the unit will actually operate in that mode based on conditions in Florida and other technical considerations.
4. Determine what actual emissions typically occur during power augmentation (especially for CO). We have found that emissions during gas and oil firing are typically around 1 ppm for new units and much less than manufacturer guarantees. However we do not have any information obtained while such units operate in power augmentation mode. There should be information available through GE. Provide reasonable assurance that the proposed limit under the power augmentation mode will not exceed 12 ppmvd @ 15 % O_2.

5. Does this project include any gas-fired natural gas fuel heaters? If so, please provide the maximum heat input and emission rates (lb/hour and tons per year).

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. Please note that per Rule 62-4.055(1): *"The applicant shall have ninety days after the Department mails a timely request for additional information to submit that information to the Department..... Failure of an applicant to provide the timely-requested information by the applicable date shall result in denial of the application."*

Attached are comments from the National Park Service. We will forward any comments from EPA Region IV as soon as they are received. If you have any questions regarding this matter, please contact me at 850/921-9523 or Cleve Holladay (meteorologist) at 850/921-8986.

Sincerely,

A.A. Linero, P.E. Administrator
New Source Review Section

AAL/al

cc: Gregg Worley, EPA
John Bunyak, NPS
Isidore Goldman, DEP SED
Daniela Banu, Broward County DPEP
Thomas W. Davis, P.E.

April 24, 2001

Memorandum

To: Cleve Holladay

From: Dee Morse

Subject: El Paso Merchant Energy – Broward County

Background

El Paso Merchant Energy (EPME) is proposing to construct a 775 MW, independent power production facility in Broward County, Florida. The facility consists of three GE Frame 7FA simple cycle turbines using Dry Low NO_x (DLN) and one GE Frame 7FA combined cycle turbine using Selective Catalytic Reduction (SCR). All of the turbines operate exclusively on natural gas.

EPME is proposing the following NO_x limits

Natural Gas	
Simple Cycle (DLN)	9ppm
Combined Cycle (SCR)	3.5ppm

Best Available Control Technology (BACT) analysis

We agree that SCR meets the BACT criteria for combined cycle turbines, however, we have found other similar sources that have permits for lower NO_x emissions using SCR during combined cycle operation. There are two sources with permitted levels of 2.5ppm NO_x or lower, Westbrook Power in Maine and the Goldendale facility in Washington. While these sources are not yet operating, the New Source Review Workshop Manual states "a commercially available control option will be presumed applicable if it has been or is soon to be deployed (e. g., is specified in a permit) on the same or a similar source type." [1] EPME could reduce annual emissions of NO_x by approximately 25 tons by employing an emissions limit of 2.5ppm NO_x. We believe that based on the two permits specifying NO_x limits on similar sources at or below 2.5ppm, EPME should further evaluate the costs of reducing NO_x below 3.5ppm.

We agree with the emissions limit of 9ppm NO_x for the simple cycle turbines.

[1] New Source Review Workshop Manual, EPA, 1990, p. B.18.

POTENTIAL EMISSION INVENTORY WORKSHEET

EPMEC Broward Energy Center

EG-ENG

EMISSION SOURCE TYPE

DIESEL ENGINES - CRITERIA POLLUTANTS

FACILITY AND SOURCE DESCRIPTION

Emission Source Description:	Stationary Diesel Engine
Emission Control Method(s)/ID No.(s):	None
Emission Point Description:	2,600 HP Emergency Generator Diesel Engine

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = Emission Factor (lb/hr)

Emission (ton/yr) = Emission Factor (lb/hr) x Operating Period (hrs/yr) x (1 ton/ 2,000 lb)

Source: ECT, 2000.

INPUT DATA AND EMISSIONS CALCULATIONS

Operating Hours:	175	hrs/yr	
Fuel Flow:	28,324	gal/yr	
Fuel Flow:	161.9	gal/hr	
Diesel Fuel Oil Sulfur Content:	0.05	weight %	
Diesel Fuel Oil Heat Content:	141,000	Btu/gal (HHV)	
Heat Input:	22.82	MMBtu/hr (HHV)	

Criteria Pollutant	Emission Factor (lb/hr)	Potential Emission Rates (lb/hr)	Potential Emission Rates (tpy)
NO_x	37.24	37.24	3.26
CO	8.34	8.34	0.73
TOC	2.05	2.05	0.18
SO_2	0.820	0.82	0.07
PM	1.380	1.38	0.12
PM_{10}	1.380	1.38	0.12

SOURCES OF INPUT DATA

Parameter	Data Source
Operating Hours (annual)	EPMEC, 2001.
Fuel Flow Rate (gal/yr)	ECT, 2001.
Emission Factors (all except TOC)	ECT, 2001.
Emission Factor (TOC)	AP-42, Table 3.4-1, EPA, October 1996.

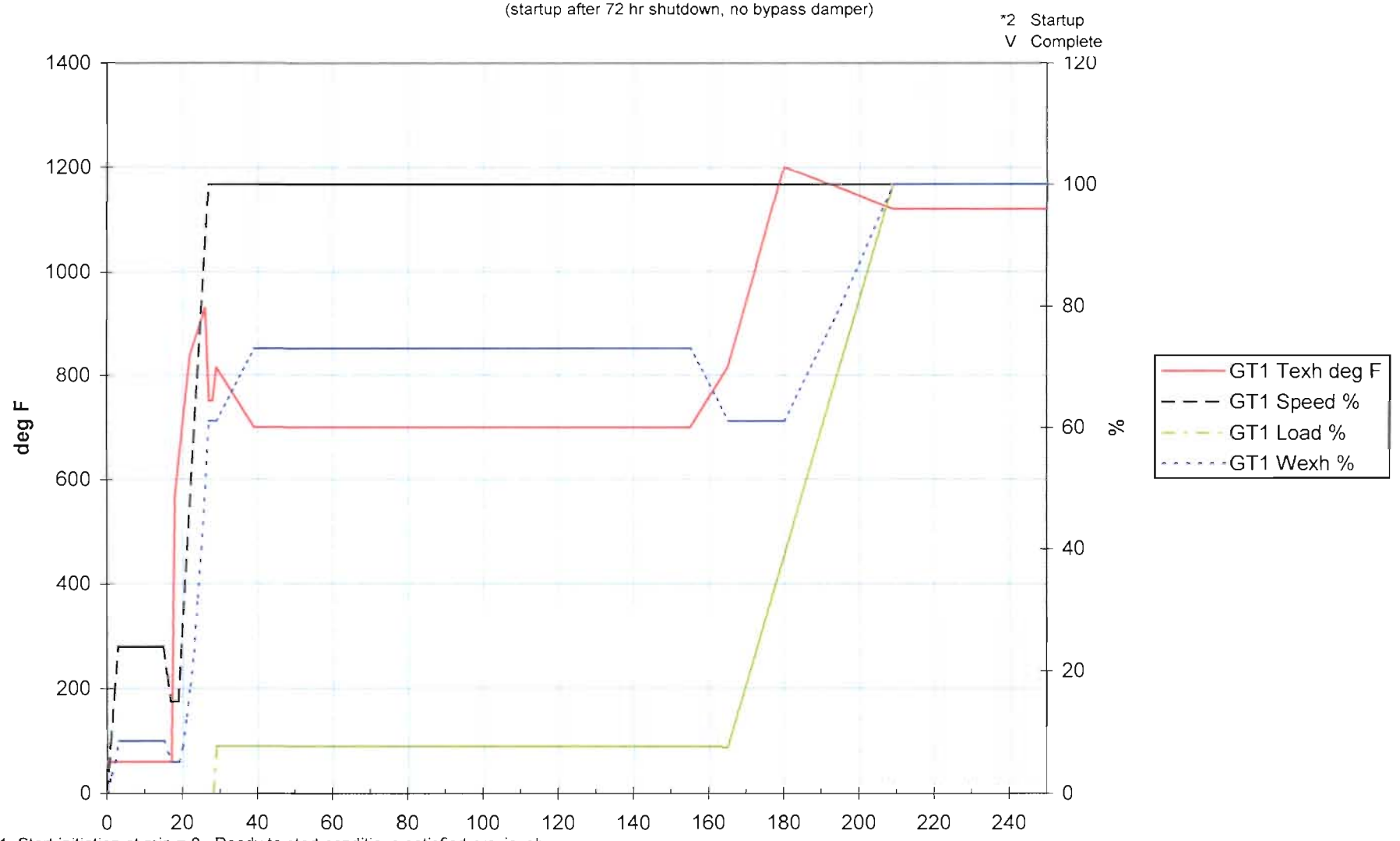
NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	K. Ravishankar	Date:	Jul-01
Data Entered by:	T.Davis	Date:	Jul-01
Reviewed by:	K. Ravishankar	Date:	Jul-01

Typical 207FA Coldstart

(startup after 72 hr shutdown, no bypass damper)



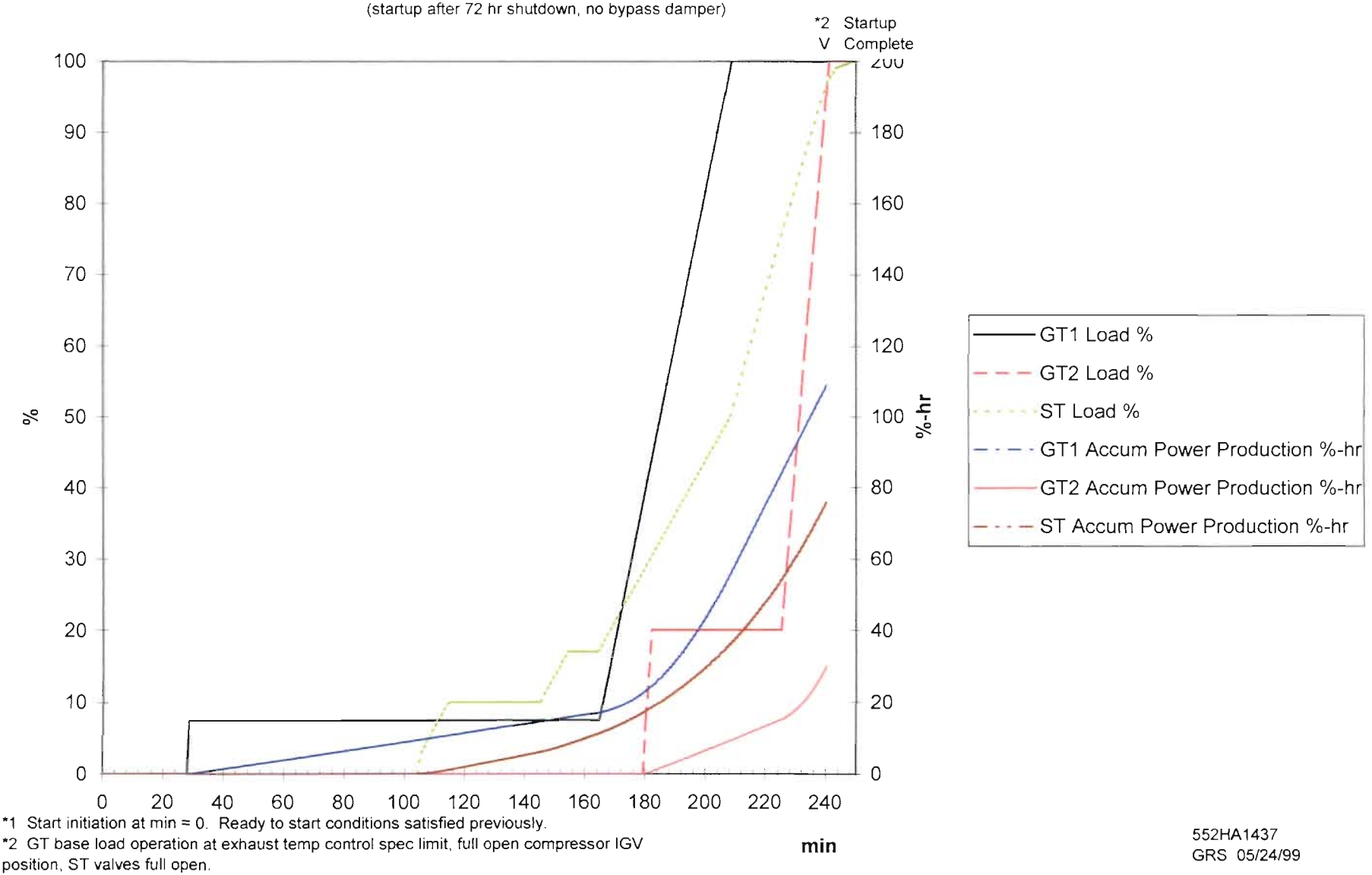
*1 Start initiation at min = 0. Ready to start conditions satisfied previously.

*2 GT base load operation at exhaust temp control spec limit, full open compressor IGV position, ST valves full open.

552HA1438
GRS 05/24/99

Typical 207FA Coldstart

(startup after 72 hr shutdown, no bypass damper)



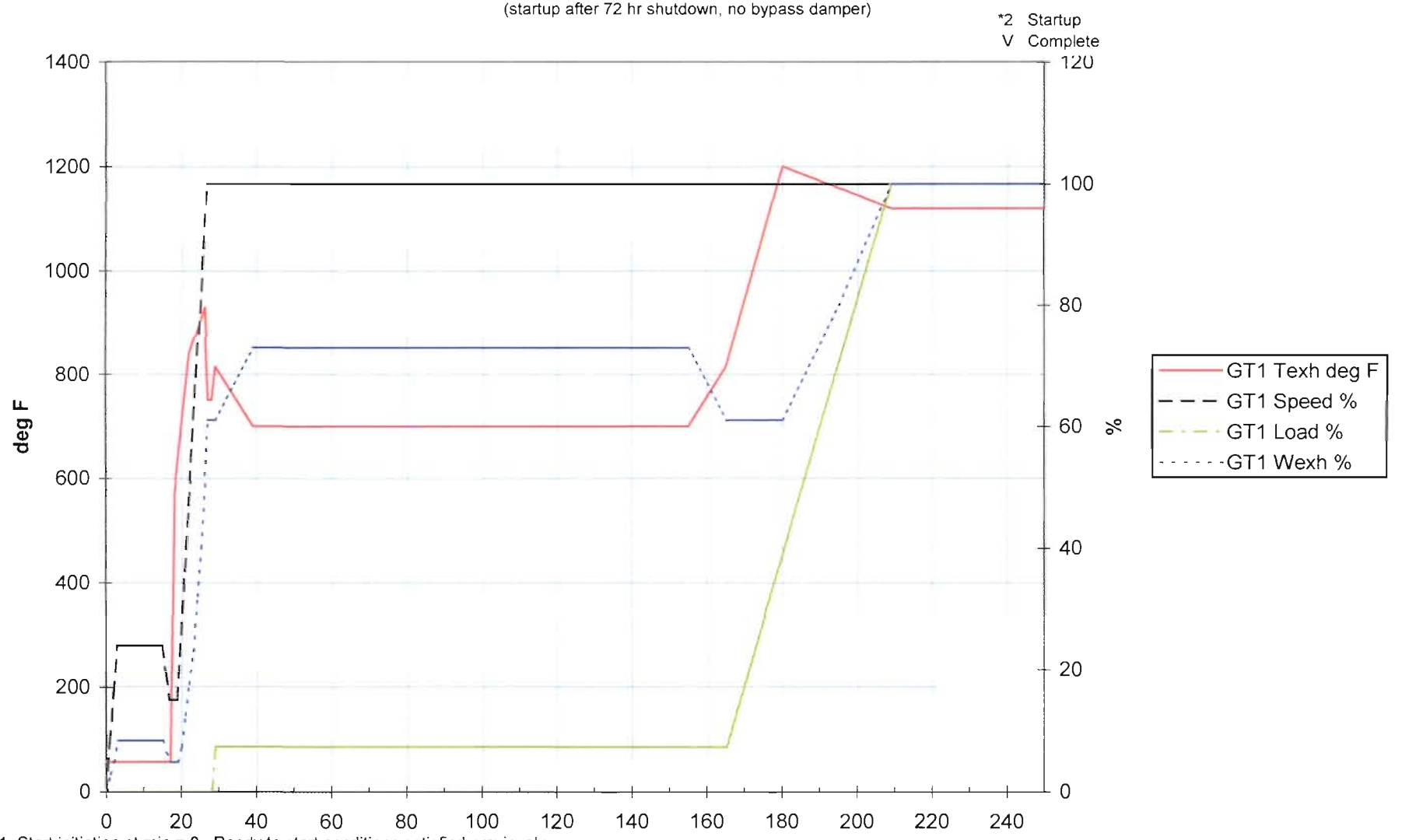
*1 Start initiation at min = 0. Ready to start conditions satisfied previously.

*2 GT base load operation at exhaust temp control spec limit, full open compressor IGV position, ST valves full open.

552HA1437
GRS 05/24/99

Typical 207FA Coldstart

(startup after 72 hr shutdown, no bypass damper)



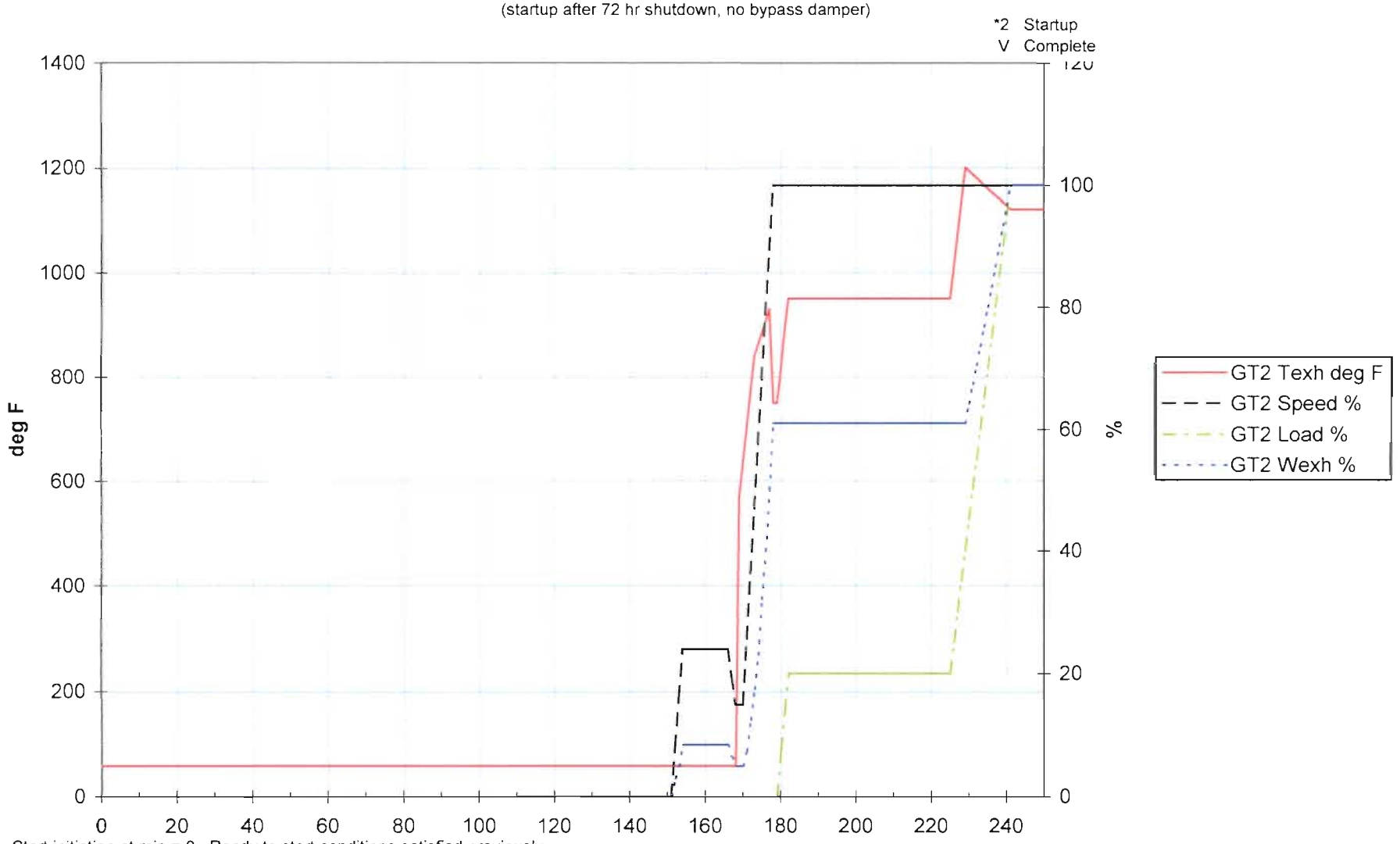
*1 Start initiation at min = 0. Ready to start conditions satisfied previously.

*2 GT base load operation at exhaust temp control spec limit, full open compressor IGV position, ST valves full open.

552HA1438
GRS 05/24/99

Typical 207FA Coldstart

(startup after 72 hr shutdown, no bypass damper)



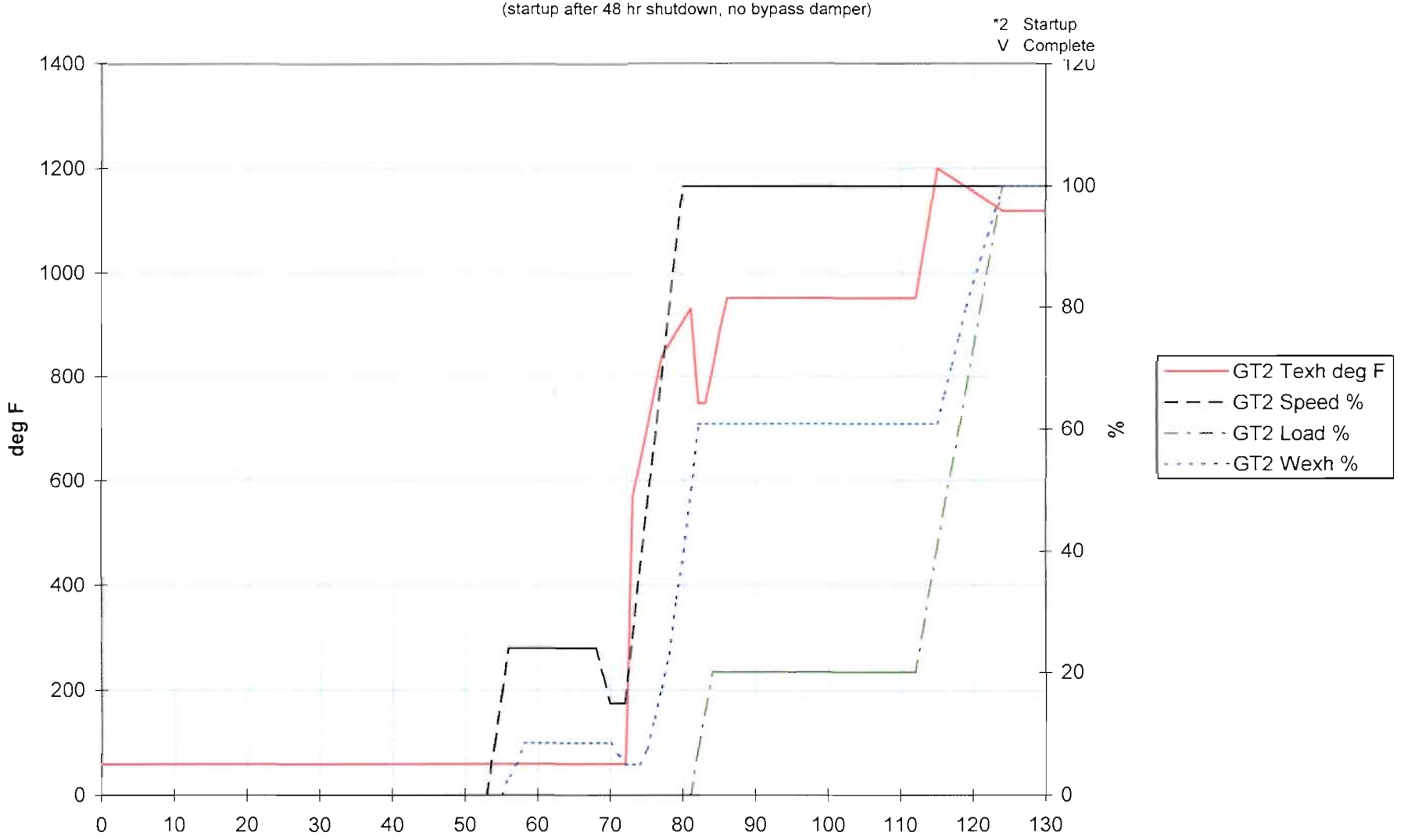
*1 Start initiation at min = 0. Ready to start conditions satisfied previously.

*2 GT base load operation at exhaust temp control spec limit, full open compressor IGV position, ST valves full open.

552HA1439
GRS 05/24/99

Typical 207FA Warmstart

(startup after 48 hr shutdown, no bypass damper)



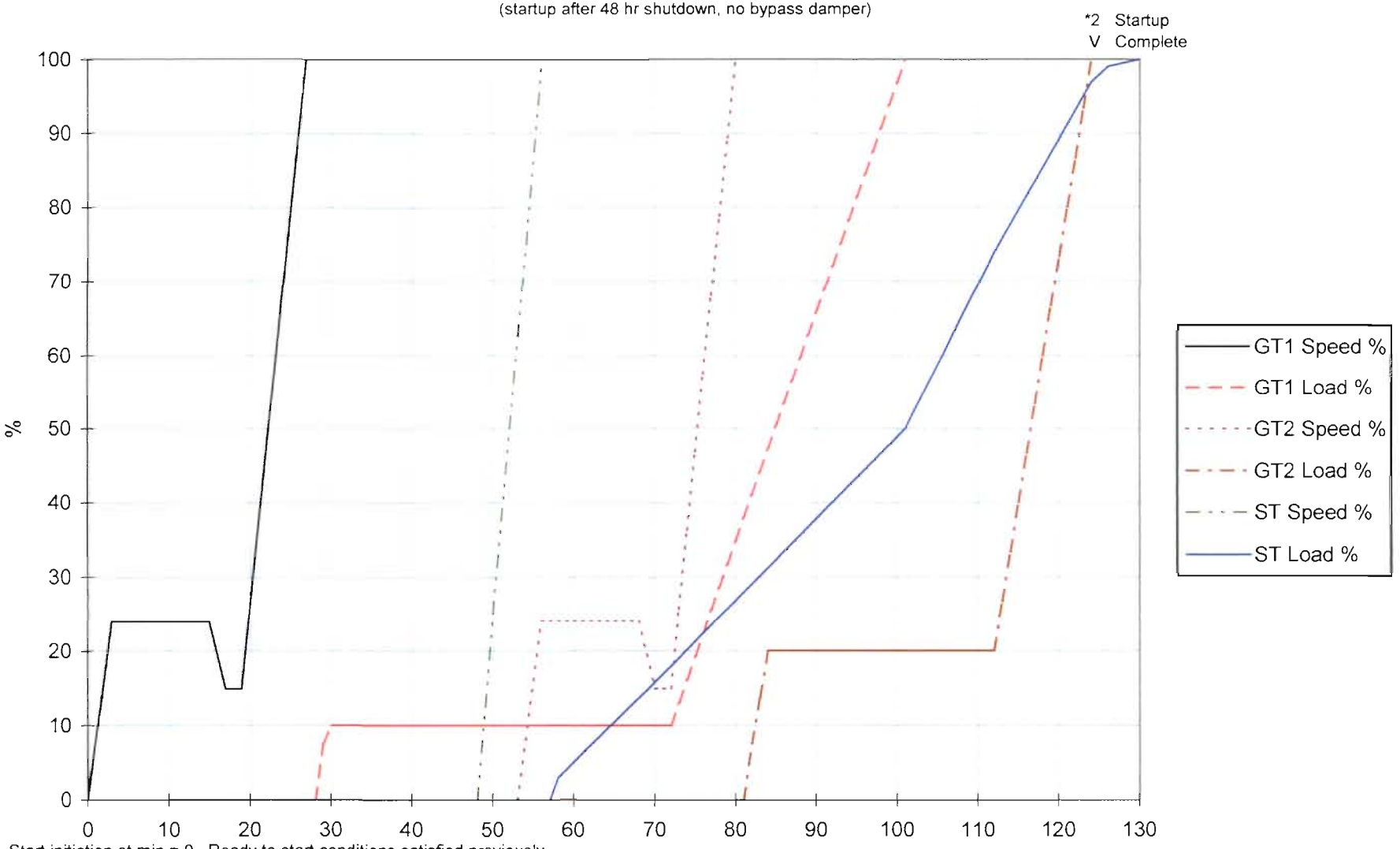
*1 Start initiation at min = 0. Ready to start conditions satisfied previously.

*2 GT base load operation at exhaust temp control spec limit, full open compressor IGV position, ST valves full open.

551HA565
GRS 06/19/98

Typical 207FA Warmstart

(startup after 48 hr shutdown, no bypass damper)



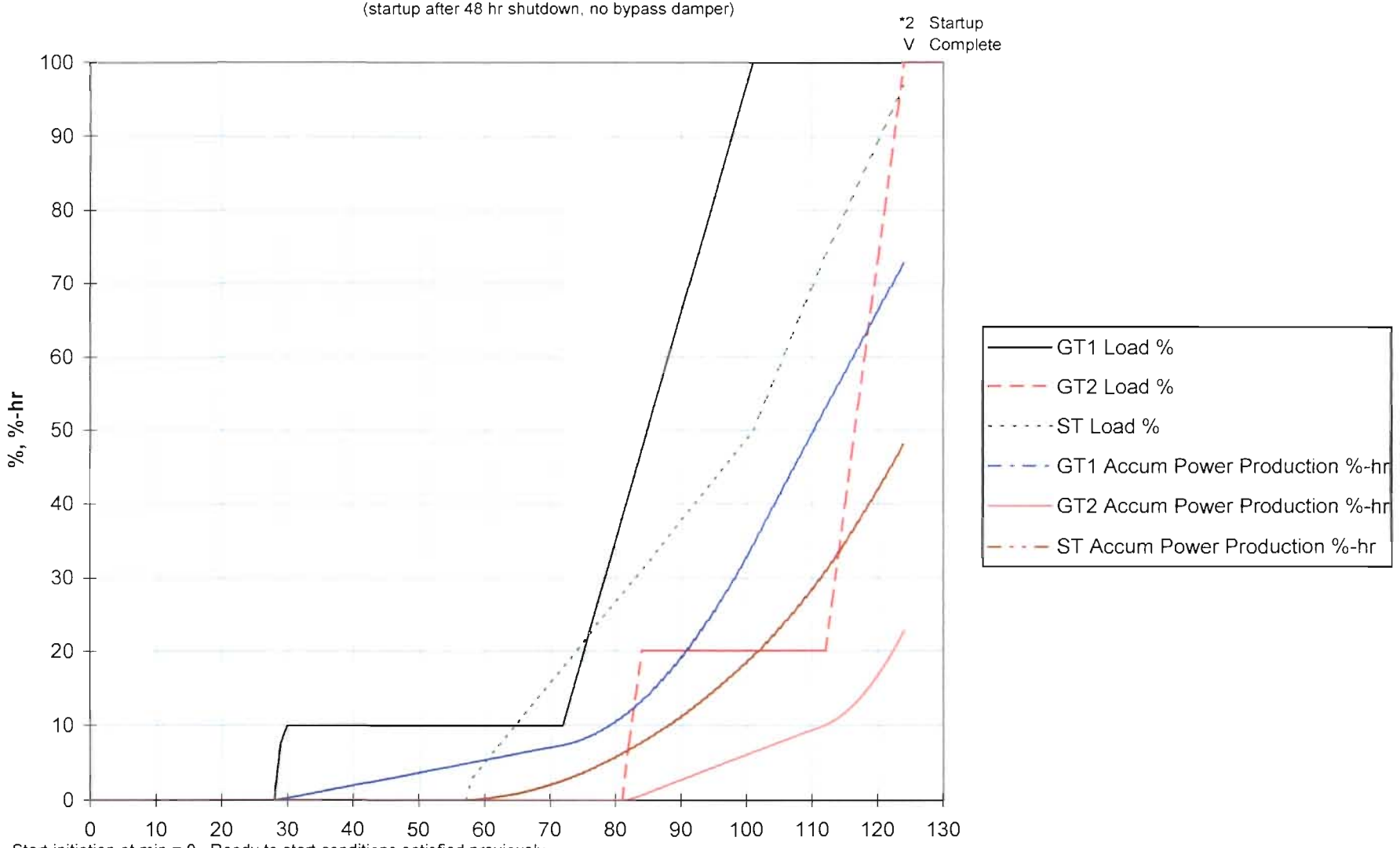
*1 Start initiation at min = 0. Ready to start conditions satisfied previously.

*2 GT base load operation at exhaust temp control spec limit, full open compressor IGV position, ST valves full open.

551HA561
GRS 06/19/98

Typical 207FA Warmstart

(startup after 48 hr shutdown, no bypass damper)



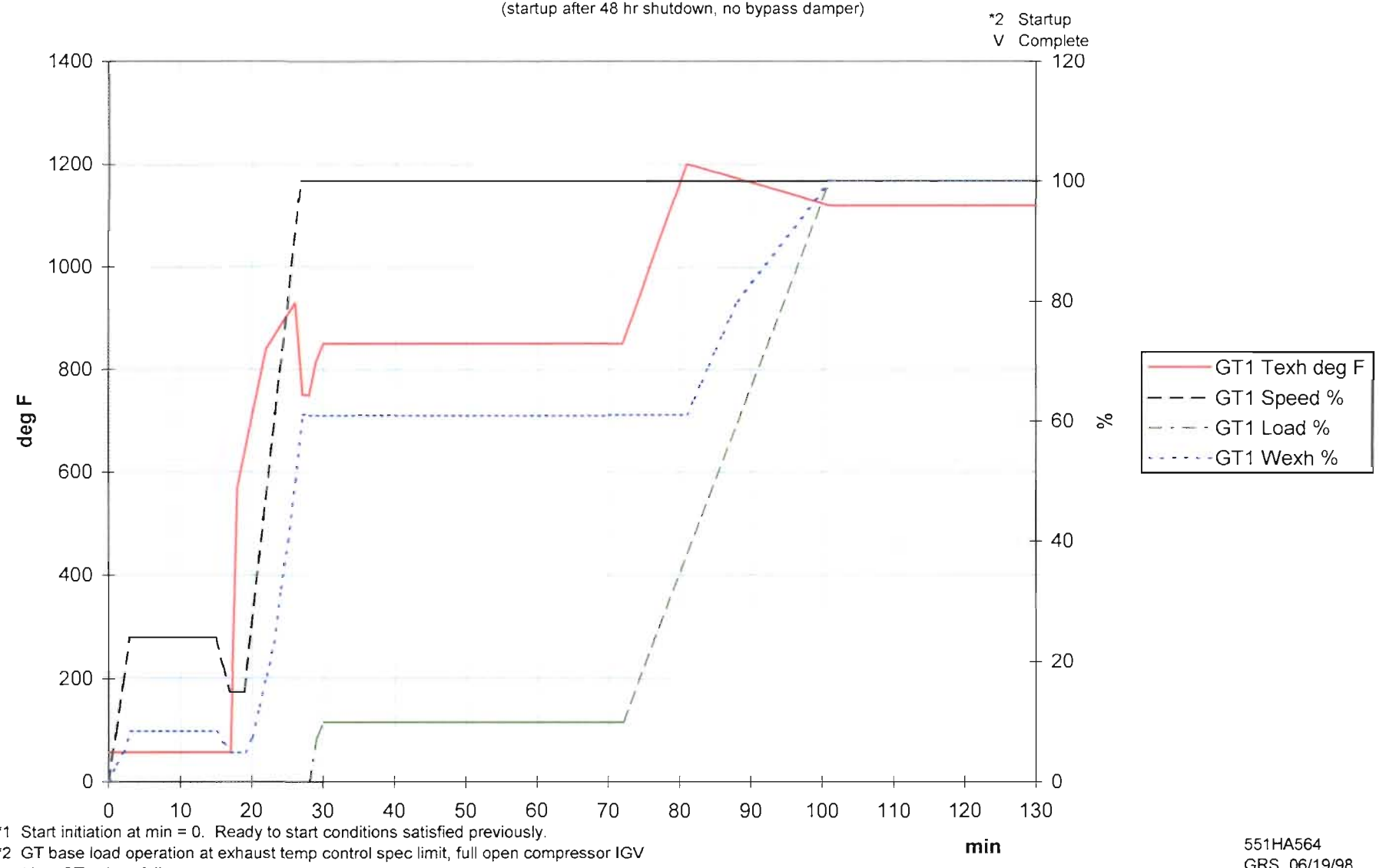
*1 Start initiation at min = 0. Ready to start conditions satisfied previously.

*2 GT base load operation at exhaust temp control spec limit, full open compressor IGV position, ST valves full open.

551HA563
GRS 06/19/98

Typical 207FA Warmstart

(startup after 48 hr shutdown, no bypass damper)

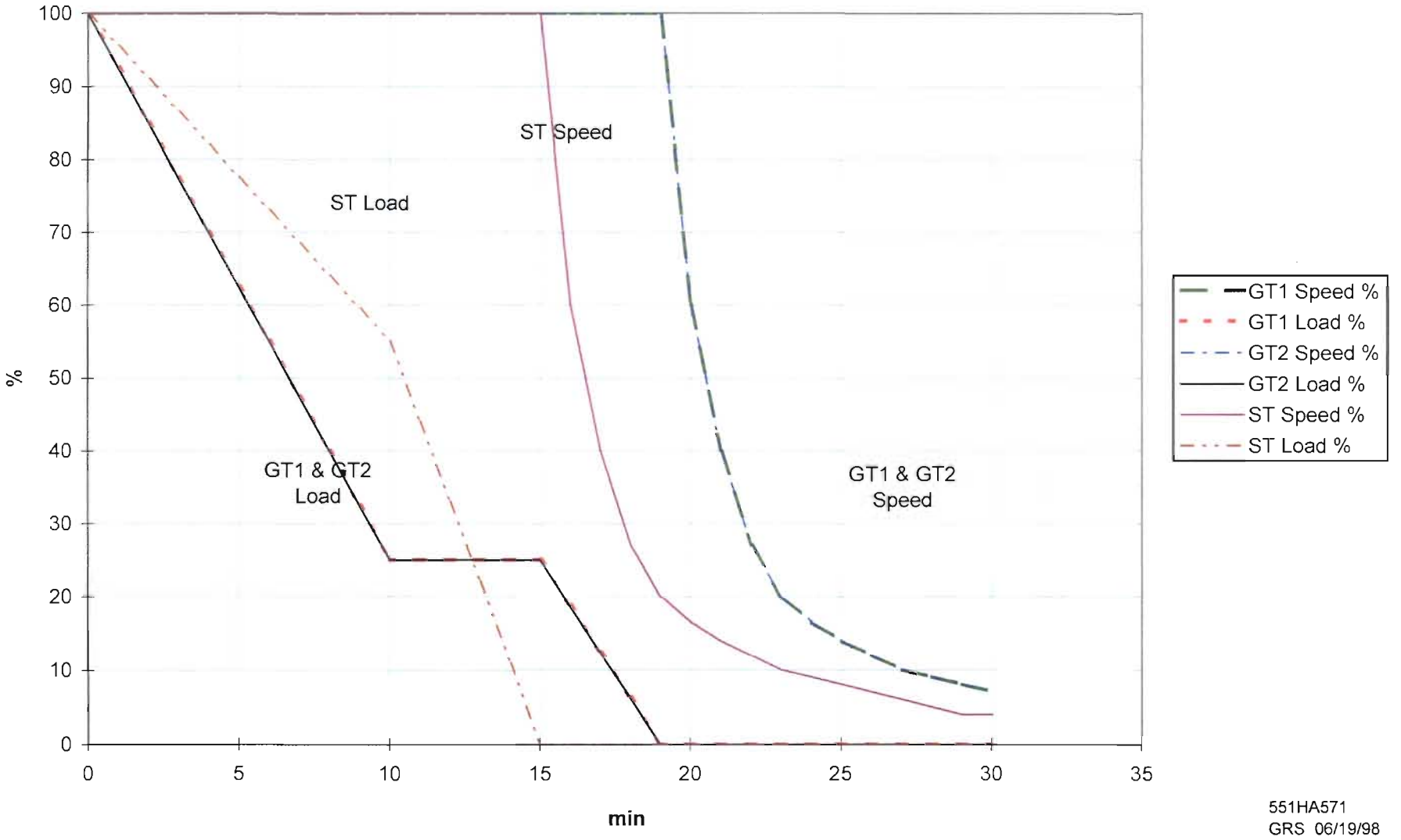


*1 Start initiation at min = 0. Ready to start conditions satisfied previously.

*2 GT base load operation at exhaust temp control spec limit, full open compressor IGV position, ST valves full open.

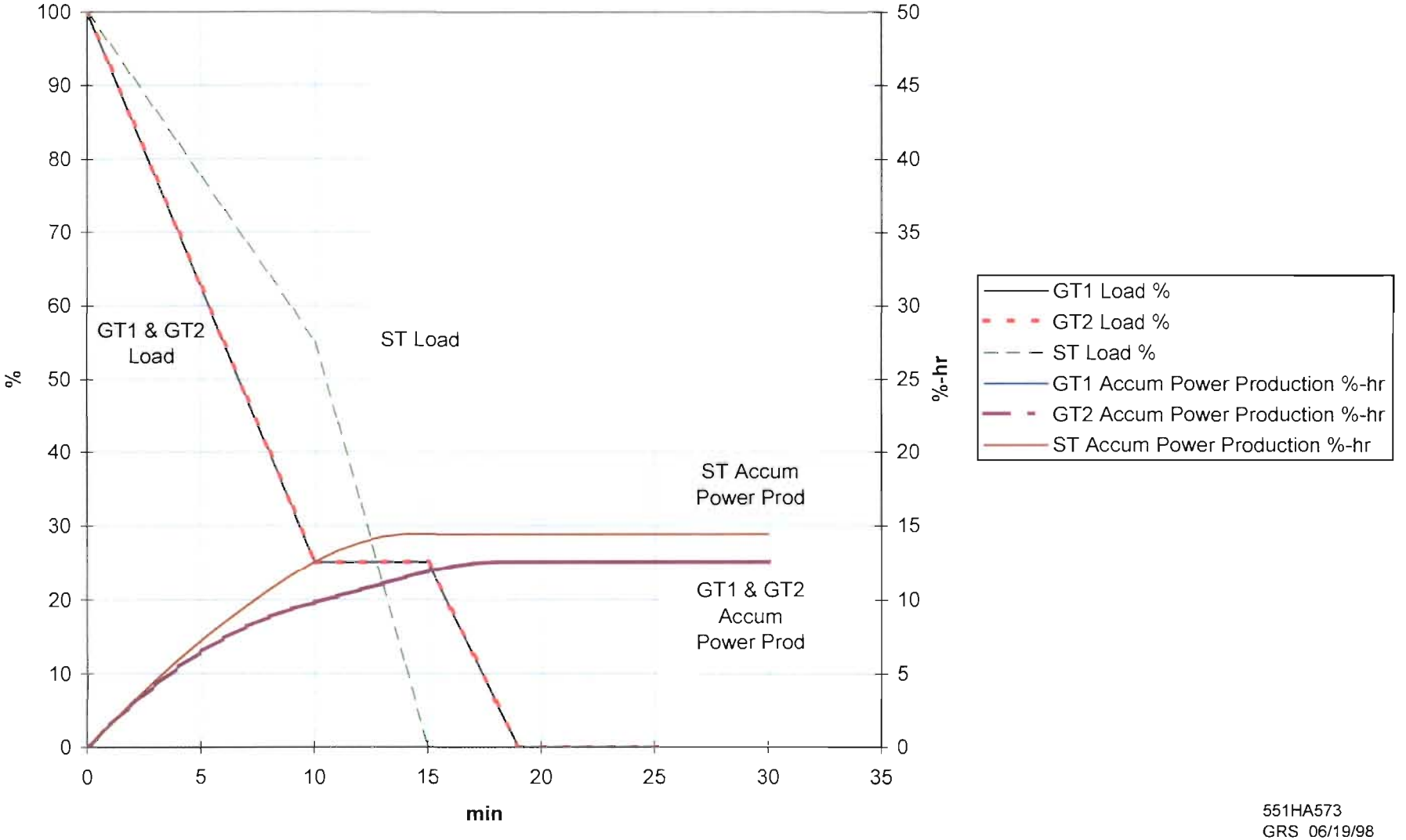
551HA564
GRS 06/19/98

Typical 207FA Shutdown



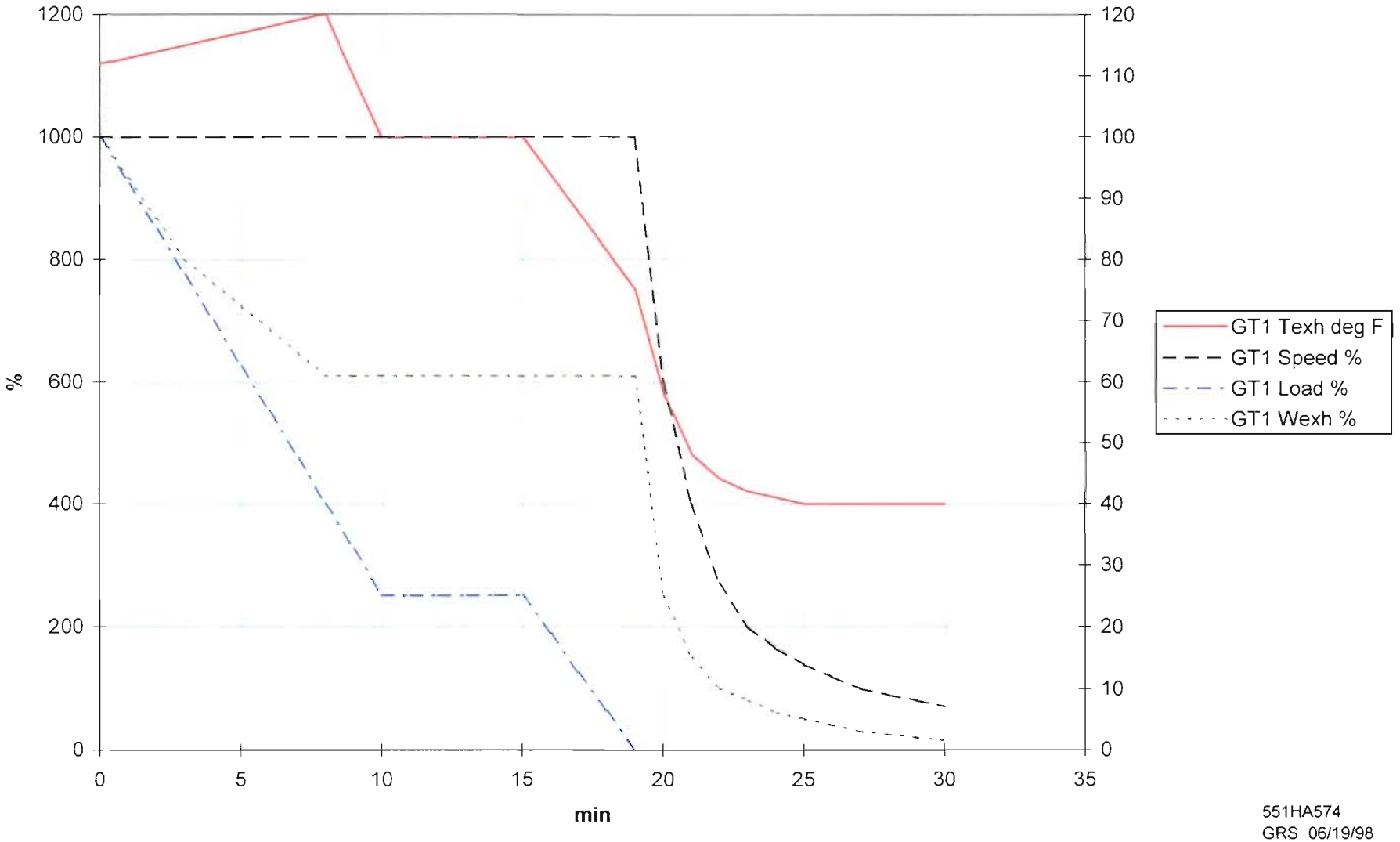
551HA571
GRS 06/19/98

Typical 207FA Shutdown



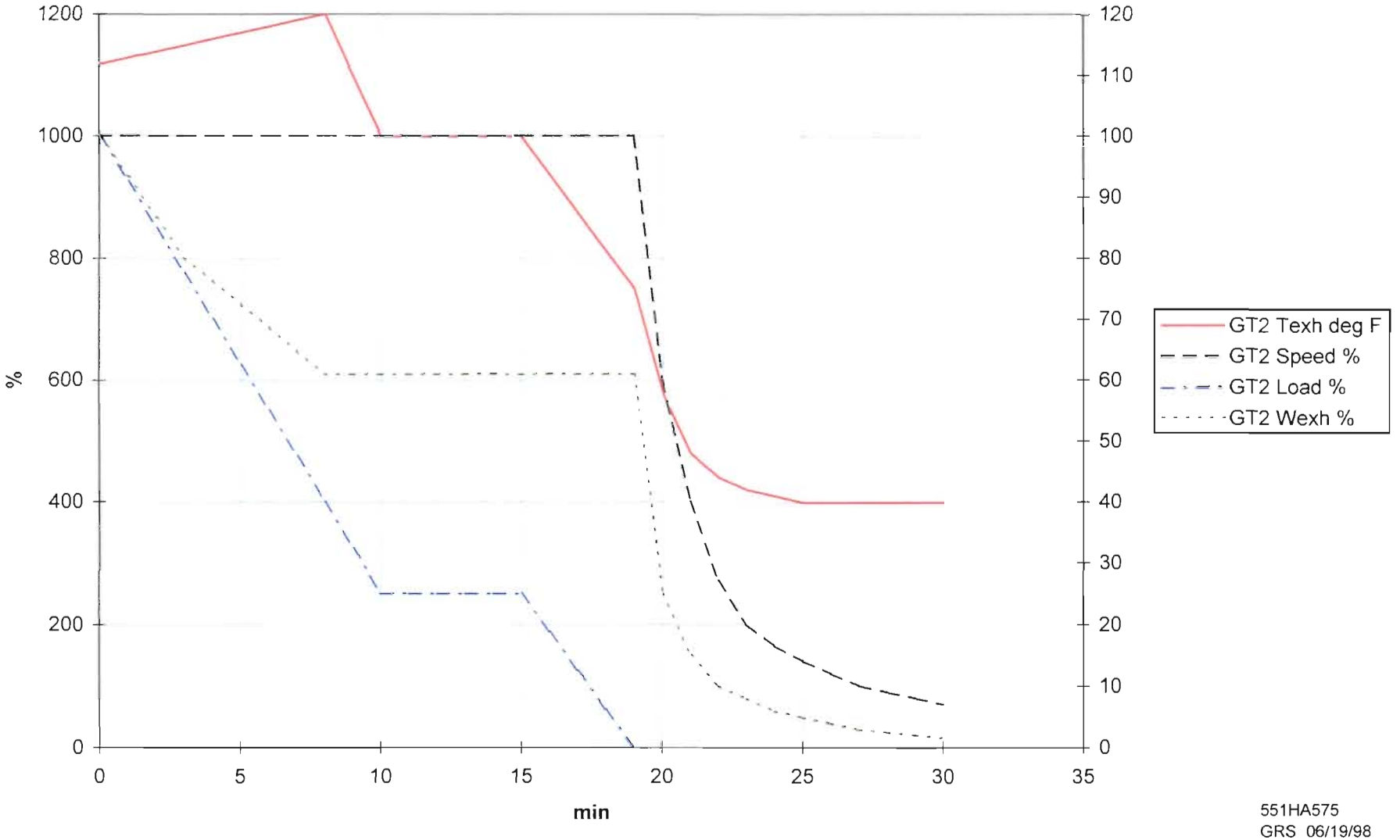
551HA573
GRS 06/19/98

Typical 207FA Shutdown



551HA574
GRS 06/19/98

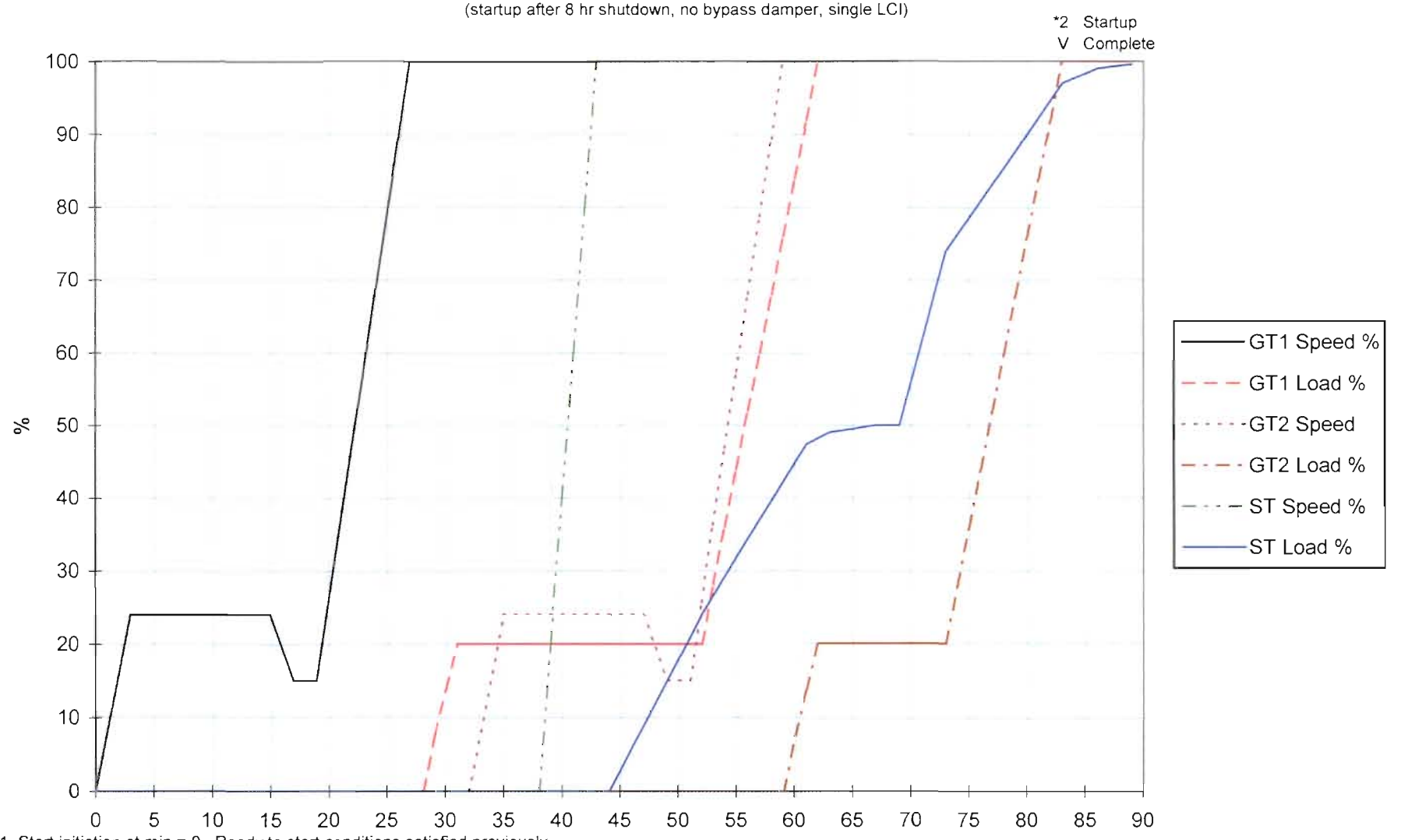
Typical 207FA Shutdown



551HA575
GRS 06/19/98

Typical 207FA Hotstart

(startup after 8 hr shutdown, no bypass damper, single LCI)



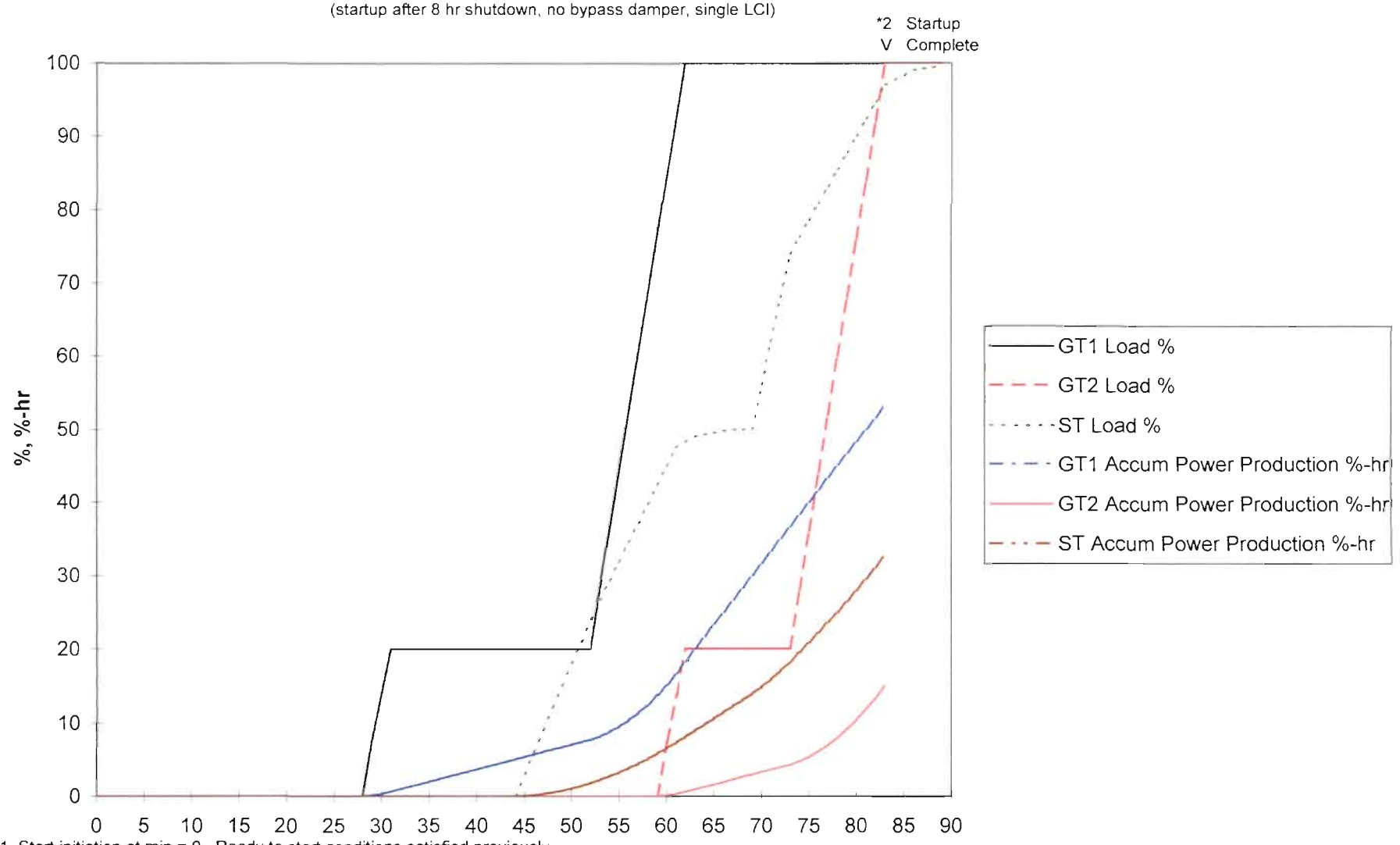
*1 Start initiation at min = 0. Ready to start conditions satisfied previously.

*2 GT base load operation at exhaust temp control spec limit, full open compressor IGV position, ST valves full open.

551HA556
GRS 06/19/98

Typical 207FA Hotstart

(startup after 8 hr shutdown, no bypass damper, single LCI)



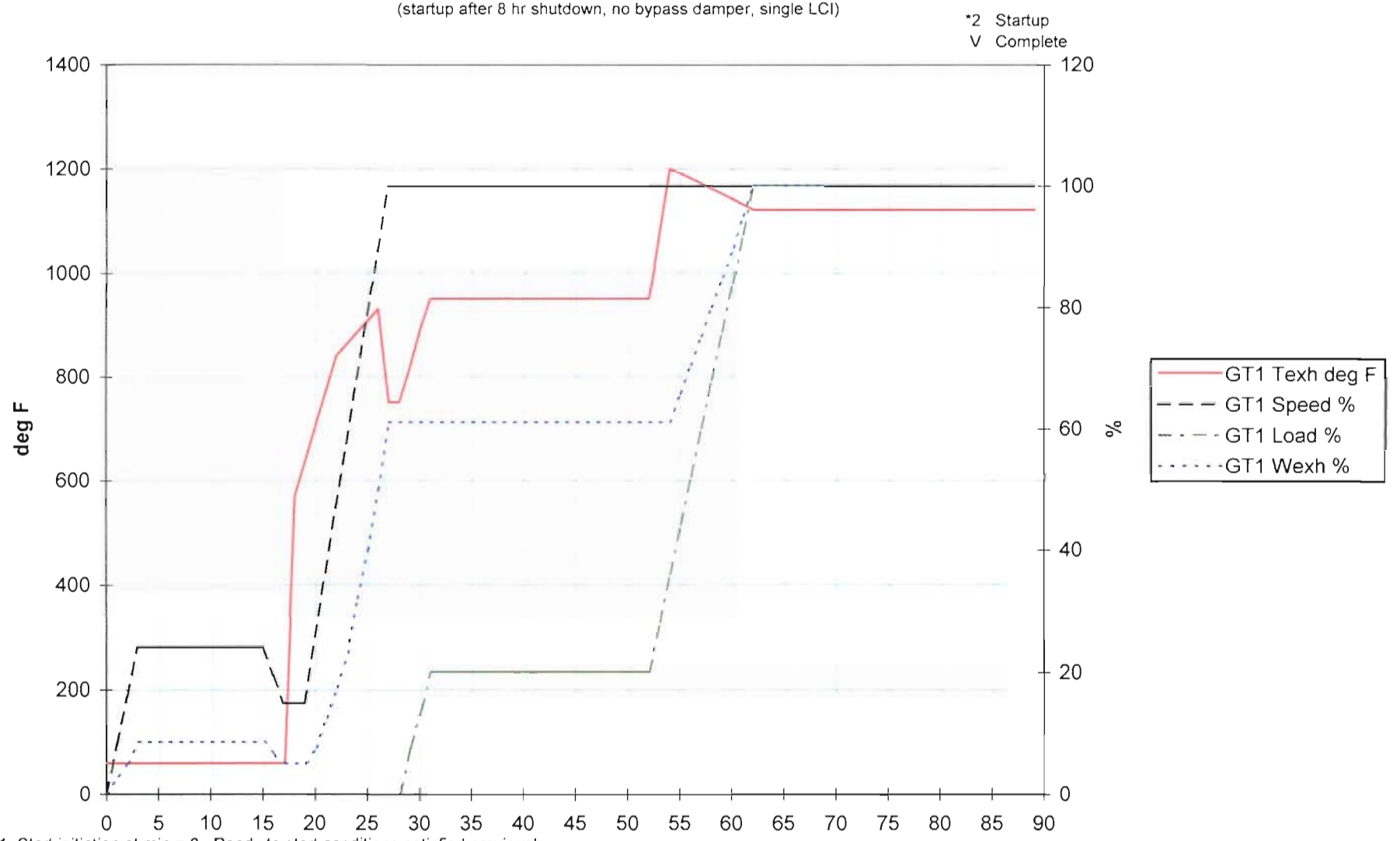
*1 Start initiation at min = 0. Ready to start conditions satisfied previously.

*2 GT base load operation at exhaust temp control spec limit, full open compressor IGV position, ST valves full open.

551HA558
GRS 06/19/98

Typical 207FA Hotstart

(startup after 8 hr shutdown, no bypass damper, single LCI)



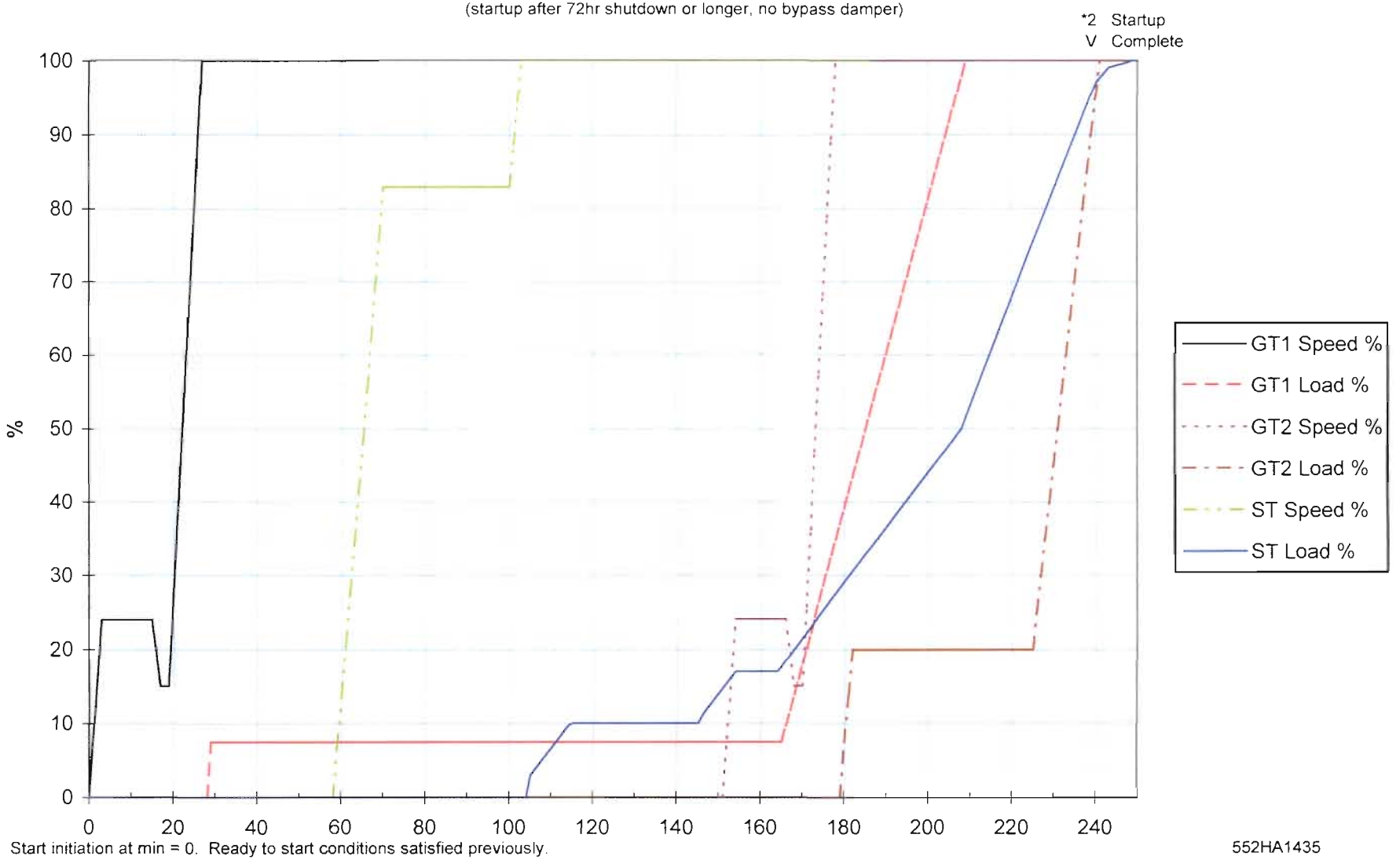
*1 Start initiation at min = 0. Ready to start conditions satisfied previously.

*2 GT base load operation at exhaust temp control spec limit, full open compressor IGV position, ST valves full open.

551HA559
GRS 06/19/98

Typical 207FA Coldstart

(startup after 72hr shutdown or longer, no bypass damper)



*1 Start initiation at min = 0. Ready to start conditions satisfied previously.

*2 GT base load operation at exhaust temp control spec limit, full open compressor IGV position, ST valves full open.

552HA1435
GRS 05/24/99

Department of
Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

April 3, 2001

Mr. John Bunyak, Chief
Policy, Planning & Permit Review Branch
NPS – Air Quality Division
Post Office Box 25287
Denver, Colorado 80225

RE: Facility ID No. 0112545-001-AC, PSD-FL-316
Broward Energy Center

Dear Mr. Bunyak:

Enclosed for your review and comment is an application for El Paso Merchant Energy Company to construct and operate a new electric power generating plant in Broward County, Florida.

Your comments may be forwarded to my attention at the letterhead address or faxed to the Bureau of Air Regulation at 850/922-6979. If you have any questions, please contact me at 850/921-9523.

Sincerely,

Patty Adams

for Al Linero, P.E.
Administrator
New Source Review Section

AAL/pa

Enclosure

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

April 3, 2001

Mr. Gregg Worley, Chief
Air, Radiation Technology Branch
Preconstruction/HAP Section
U.S. EPA, Region 4
61 Forsyth Street
Atlanta, Georgia 30303

RE: Facility ID No. 0112545-001-AC, PSD-FL-316
Broward Energy Center

Dear Mr. Worley:

Enclosed for your review and comment is an application for El Paso Merchant Energy Company to construct and operate a new electric power generating plant in Broward County, Florida.

Your comments may be forwarded to my attention at the letterhead address or faxed to the Bureau of Air Regulation at 850/922-6979. If you have any questions, please contact me at 850/921-9523.

Sincerely,

Patty Adams

for Al Linero, P.E.
Administrator
New Source Review Section

AAL/pa

Enclosure

EL PASO ENERGY

March 29, 2001

Attn: Jarrett Mack
Broward County Dept. of Planning and Environmental Protection
218 SW 2nd Ave.
Fort Lauderdale, FL 33301

Re: El Paso Merchant Energy Company
Broward Energy Center
Pollution Prevention Plan

Dear. Ms. Mack:

El Paso Merchant Energy Company is planning to construct, own, and operate a new electric power generating plant in Broward County, Florida. Four copies of the Pollution Prevention Plan required by Broward County Article IV, Chapter 27-178 are enclosed with this letter for your review. An Application for Air Permit – Title V Source was submitted to the New Source Review Section of the state Division of Air Resources Management office on March 27, 2001. A copy of the application was submitted to the Broward County Department of Planning and Environmental Protection (DPEP) on the same day. Please contact Krish Ravishankar at 713/877-7023 if there are any questions. Thank you for your attention to this matter.

Sincerely,

Jennifer Mollhagen

Jennifer Mollhagen
Senior Environmental Engineer

cc: Krish Ravishankar, El Paso Merchant Energy Company

A. A. Linero, P.E., Administrator
New Source Review Section
Division of Air Resources Management
Florida Dept. of Environmental Protection

Enclosures

POLLUTION PREVENTION PLAN
BROWARD ENERGY CENTER
BROWARD COUNTY, FLORIDA

Prepared for:

elpaso

Houston, Texas

Prepared by:

ECT

Environmental Consulting & Technology, Inc.

3701 Northwest 98th Street
Gainesville, Florida 32606

ECT No. 000965-0400

March 2001

TABLE OF CONTENTS

LIST OF TABLES

1.0 INTRODUCTION

The proposed Broward Energy Center (BEC) project is a combined-cycle (CC) and simple-cycle (SC) power plant to be located in Deerfield Beach near northern Broward County, Florida. Major components of the BEC include:

- One CC unit comprised of one General Electric (GE) 7FA combustion turbine generator (CTG), one unfired heat recovery steam generator (HRSG), and one steam turbine generator (STG). This CC configuration is commonly referred to as a "1 by 1 by 1" configuration with the values referring to the number of CTGs, HRSGs, and STGs, respectively.
- Three GE 7FA CTGs operating in SC mode.
- One 5-cell mechanical draft, fresh water cooling tower.
- One 2,600-horsepower (hp) emergency diesel-fired electrical generator.
- One 250-hp emergency diesel-fired fire water pump.
- Ancillary equipment, including raw and demineralized water storage tanks.

The proposed BEC is a source that results in a potential to emit in excess of major source criteria. Pollution control is addressed in Chapter 127 of the Broward County Code of Regulations. Article 4 addresses air pollution. Section 27-178 requires that affected sources develop a Pollution Prevention Plan (P2). This document has been prepared to meet that requirement.

The P2 Plan is a systematic accounting of all waste streams and a subsequent analysis of potential waste minimization methods. The objective of the plan is to reduce pollutant emissions through appropriate technology selection, source reduction and recycling (with preference given to source reduction), and improved operating practices. Airborne pollutants and their associated emissions reductions are identified explicitly; pollution prevention in other media are covered as well.

Chapter 2 of this P2 plan includes name, address, and telephone numbers of the contact person responsible for the P2 plan, the owner, the operator, and the responsible official at

the source. Chapter 3 provides a systematic analysis of the proposed plant's waste streams and identifies technology, procedures, and options considered available and technically feasible for reducing the use of each hazardous air pollutant (HAP) and air pollutant at the plant. Chapter 3 also provides strategies which will be implemented upon startup and operation of the plant.

2.0 MANAGEMENT INITIATIVES

El Paso Merchant Energy Company will demonstrate its commitment to emissions reductions through the P2 Plan by designating an onsite person who performs policy or decision-making functions for the corporation, and who is authorized to make management decisions which govern the operation of the regulated facility, including having the capability of making capital investment recommendations, and initiating and directing other measures to assure long term environmental compliance with environmental laws and regulations. Until plant staff have been hired, the corporate contact for pollution prevention planning shall be as follows.

Source owner/operator:	El Paso Merchant Energy Company
Corporate contact name:	Krish Ravishankar
Corporate contact address:	El Paso Merchant Energy Company Nine Greenway Plaza Houston, TX 77046
Telephone:	(713) 877-7023

It is anticipated that the P2 plan will be modified during startup and operation of the plant. A revised P2 plan will be kept onsite and will be made available for inspection.

3.0 WASTE ASSESSMENT

BEC operations which produce waste can be reduced to the following: (1) operation of the generators; (2) operation of the HRSG/STG, (3) operation of the cooling tower; and (4) maintenance of plant equipment. Much of the waste assessment activities for the first three processes have been conducted during Best Achievable Control Technology (BACT) analysis, as required by the FDEP air permit application. Information obtained from the BACT analysis will be summarized in the waste analysis for these three processes.

3.1 OPERATION OF GENERATORS

The BEC will consist of CC unit comprised of a CTG, an unfired HRSG, and one STG, and three CTGs operating in SC mode. All of the CTGs are fired by natural gas.

3.1.1 IDENTIFICATION OF WASTE(S)

Raw material inputs for the CTGs are natural gas and air. Products of the combustion cycle include carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO_2)/sulfuric acid (H_2SO_4), particulate matter (PM)/particulate matter less than or equal to 10 micrometers (PM_{10}), volatile organic compounds (VOCs), hazardous air pollutants (HAPs), and thermal and electric energy.

3.1.2 MAJOR MATERIAL LOSSES AND CAUSES

Estimated pollutant emissions are given in Table 1. Besides energy losses, relevant losses for operation of generators are uncombusted fuel and byproduct pollutants. CO is the result of incomplete combustion of fuel. An increase in combustion zone residence time and improved mixing of fuel and combustion air will increase oxidation rates and cause a decrease in CO emission rates. Emissions of NO_x and CO are, however, inversely related; i.e., decreasing CO emissions will increase NO_x emissions. Due to the high combustion efficiencies of CTGs, approximately 99 percent, CO emissions are inherently low.

Table 1. Maximum Annualized Emission Rates (tpy)

Pollutant	CTGs	Emergency Diesel Engines	Cooling Tower	BEC Totals
NO_x	529.9	4.4	N/A	534.3
CO	419.0	1.0	N/A	420.0
PM	224.9	0.2	1.6	226.7
PM_{10}	224.9	0.1	1.0	226.0
SO_2	86.7	0.1	N/A	86.8
VOCs	35.6	0.2	N/A	35.8
Lead	0.3	<0.001	N/A	0.3
Mercury	0.000017	<0.00001	N/A	0.000017
H_2SO_4 mist	12.6	<0.001	N/A	12.6
1,3-Butadiene	0.0013	<0.00001	N/A	0.0013
Acetaldehyde	0.9357	<0.00001	N/A	0.9357
Acrolein	0.1216	<0.00001	N/A	0.1216
Benzene	0.3973	<0.00001	N/A	0.3973
Ethylbenzene	0.4950	<0.00001	N/A	0.4950
Formaldehyde	2.4750	<0.00001	N/A	2.4750
Naphthalene	0.0137	<0.00001	N/A	0.0137
Polycyclic Aromatic Hydrocarbons	0.0102	<0.00001	N/A	0.0102
Propylene Oxide	0.6209	<0.00001	N/A	0.6209
Toluene	1.4763	<0.00001	N/A	1.4763
Xylene	1.4134	<0.00001	N/A	1.4134

Note: N/A = not applicable.

Sources: EPMEC, 2001.
ECT, 2001.
General Electric, 2001.

NO_x emissions from combustion sources consist of two components: oxidation of atmospheric nitrogen contained in the inlet combustion air (thermal NO_x and prompt NO_x), and conversion of chemically fuel bound nitrogen. Typically, natural gas contains a negligible amount of fuel based nitrogen; therefore, this discussion treats thermal and (to a lesser extent) prompt NO_x. Thermal NO_x results from the oxidation of atmospheric nitrogen under high temperature combustion conditions. Thermal NO_x increases with temperature and residence time (which, as observed in the previous paragraph, is the reverse for CO). Prompt NO_x is formed near the flame front from the oxidation of combustion intermediates containing nitrogen (e.g., hydrogen cyanide, nitrogen, and NH). Prompt NO_x can be an important consideration with respect to combustors that use lean fuel mixtures.

PM/PM_{10} emissions resulting from the combustion of natural gas are due to oxidation of ash and sulfur contained in the fuel. Due to its low ash and sulfur content, natural gas combustion generates inherently low PM/PM_{10} emissions.

Natural gas suppliers reduce sulfur content to very low levels, when necessary, prior to distribution. SO_2/H_2SO_4 mist emissions are inherently low since the sulfur content of natural gas is low (more than 100 times lower than other fossil fuels such as coal).

VOC and HAP emissions result principally from incomplete combustion of the natural gas. VOC and HAP emissions are inherently low given the high combustion efficiencies of CTGs.

3.1.3 WASTE MANAGEMENT COSTS

Waste management costs, in the case of generator operation, relate to pollution control equipment fuel type, and electric power generating technology applied (e.g., CT, ST, CC). The BACT analysis identified pollution control equipment, where applicable, which would minimize pollutant emissions. The BACT analysis considered technical feasibility and operational costs in a manner in line with a conventional waste analysis. Pollution control equipment and associated costs are shown below.

Pollutant	Means of Control	Capital Cost ($)	Operating Cost ($/yr)	Energy Penalty ($/yr)
PM/PM_{10}	Exclusive use of low-sulfur and low-ash natural gas	N/A	N/A	N/A
	Efficient combustion (state-of-the art combustor design)	N/A	N/A	N/A
CO and VOC	Efficient combustion (state-of-the art combustor design)	N/A	N/A	N/A
NO_x	Use of advanced dry low-NOx (DLN) combustor technology and conventional SCR (for CC CTG/HRSG)	2,583,165	876,203	138,000
	Use of advanced DLN combustor technology (for SC CTGs)	N/A	N/A	N/A
SO_2/H_2SO_4 mist	Exclusive use of low-sulfur natural gas	N/A	N/A	N/A

Note: N/A =not applicable.

Sources: EPMEC, 2001.
ECT, 2001.
General Electric, 2001.

3.1.4 ANALYSIS OF EXISTING/POTENTIAL ADDITIONAL POLLUTION PREVENTION/WASTE MINIMIZATION STRATEGIES

The advantage of preparing a pollution prevention plan for a plant in the design stage is that technologies, processes, and raw materials can be selected with pollution prevention in mind. The disadvantage is, of course, operations to be analyzed do not yet exist. For this reason, the following subsection treats existing (proposed) waste minimization strategies based on good engineering practice applied to plant design. Additional pollution prevention opportunities, such as inventory control for equipment maintenance chemicals, are addressed in Section 3.4.

Existing/Proposed Pollution Prevention/Waste Minimization Strategies

Selection/design of the generators and pollution control equipment involved analysis of technical and economic feasibility as well as environmental impacts. Design engineers at

this point have the advantage of choosing state-of-the-art technology. Waste minimization strategies applied to plant design are summarized below.

Strategy	Comment
Use low-sulfur natural gas combustion turbines	Low-sulfur natural gas is the cleanest of the fossil fuels used in the fossil fuel electric power generation industry. This translates to lower airborne pollutant emissions as well as virtually no solid waste such as fly ash, bottom ash, or slag.
Use CC CTG/HRSG/STG as primary power source	Steam turbine thermal efficiency is approximately 35%. Gas turbines have a 20-30 percent efficiency. The combined cycle system has an efficiency of about 54 percent, and the fuel consumption is approximately 25 percent lower.
Use state-of-the art combustor design	The combination of clean burning fuel and highly efficient combustion turbines minimizes CO and VOC emissions.
Use advanced DLN combustor technology	Premixing of turbine fuel and air prior to combustion in the primary zone homogenizes the air/fuel mixture, making the peak and flame temperatures the same, which causes a relative decrease in thermal NO_x emissions.
Use postcombustion conventional SCR (CC CTG)	Although application of SCR increases back pressure on the CTG (resulting in reduced turbine output power), the reduction in NO_x emissions offsets the energy penalty.

3.2 OPERATION OF HRSG/STG

The HRSG is the steam generation part of the steam cycle (in combined cycle operation). Waste heat from the CTG is captured by the HRSG as latent heat of boiler water as it is turned into steam. The heat energy from the steam is converted to electric energy at the STG.

3.2.1 IDENTIFICATION OF WASTE(S)

Raw material inputs for HRG/STG operation are thermal energy and makeup water. Products of the process are blowdown, demineralizer regenerant (boiler water purification), waste thermal energy, and electric energy.

3.2.2 MAJOR MATERIAL LOSSES AND CAUSES

Water to make steam may be recirculated and eventually builds up impurities in the HRSG. This water is periodically purged from the system. Blowdown (a portion of water removed from the HRSG to control the concentration of dissolved solids in the HRSG) is typically alkaline, is low in total dissolved solids, and contains chemical additives used to control scale and corrosion. Blowdown also contains trace amounts of copper, iron and nickel.

HRSG feed water systems may require treatment of makeup water prior to use. Ion exchange resins used in the treatment of the water accumulate cations and anions removed from the raw water. These resins are regenerated using a strong acid or a strong base. Regenerant waste contains dissolved solids, both from raw wastewater and from excess acid or base.

3.2.3 ANALYSIS OF EXISTING/POTENTIAL ADDITIONAL POLLUTION PREVENTION/WASTE MINIMIZATION STRATEGIES

The most significant opportunity for waste minimization is removal of solids during the demineralization process, in order to minimize blowdown. Design/selection of a state-of-the-art demineralizer system will minimize blowdown. Optimization of the frequency of boiler cleanouts and other maintenance related pollution prevention strategies are addressed in Section 3.4.

3.3 COOLING TOWER OPERATION

Cooling water is circulated through a condenser to condense steam left after the generation of electricity. The resulting condensate can be returned to the HRSG. Cooling water for the BEC will be recirculated through a cooling tower.

3.3.1 IDENTIFICATION OF WASTE(S)

Waste from cooling tower operations consists of cooling tower blowdown and PM/PM_{10} from cooling tower drift. Evaporative losses, though principally a function of the environment, play an integral part in cooling tower blowdown rate and, so, is mentioned here.

PM/PM_{10} emissions will also occur due to cooling tower operations. Because of direct contact between the cooling water and ambient air, a small portion of the recirculating cooling water is entrained in the air stream and discharged from the cooling tower as drift droplets. These water droplets contain the same concentration of dissolved solids as found in the recirculating cooling water. Large water droplets quickly settle out of the cooling tower exhaust stream and deposit near the tower. The remaining smaller water droplets may evaporate prior to being deposited in the area surrounding the cooling tower. These evaporated droplets represent potential PM/PM_{10} emissions because of the fine PM/PM_{10} formed by crystallization of the dissolved solids contained in the droplet. The only feasible technology for controlling PM/PM_{10} from cooling towers is the use of drift eliminators.

3.3.2 ANALYSIS OF EXISTING/POTENTIAL ADDITIONAL POLLUTION PREVENTION/WASTE MINIMIZATION STRATEGIES

Selection/design of the cooling towers and associated treatment systems involved analysis of technical and economic feasibility as well as environmental impacts. Design engineers at this point have the advantage of choosing state-of-the-art technology. Waste minimization strategies applied to plant design are summarized below.

Strategy	Comment
Use high efficiency drift eliminators	The 5-cell mechanical draft, fresh water cooling tower will be equipped with drift eliminators, achieving a drift loss rate of no more 0.0005 percent of circulating water flow rate.
Use publicly owned treatment works (POTW) reuse water	The project will use treated effluent from the North Regional Wastewater Treatment Plant. Blowdown is also returned to the POTW.
Recirculate cooling water	Recirculation instead of once-through cooling is a recognized pollution prevention strategy.

3.4 MAINTENANCE OF PLANT EQUIPMENT

This aspect of pollution prevention is more activity-oriented than design/technology oriented; therefore, implementation of pollution prevention/waste minimization techniques

discussed in this section is future-oriented as well. Nevertheless, the strategies discussed in this section are based on industry practices and accepted pollution prevention techniques such that a practical framework for future P2 efforts.

3.4.1 IDENTIFICATION OF WASTE(S)

Fossil fuel electric power generation facilities, like many industrial facilities, use solvents and other chemicals for everyday operations. Everyday operations include parts washing, lubricating, general cleaning, and degreasing application during plant and equipment maintenance activities. Often, chemical wastes generated by these operations are made up of out-of-date, necessary, off-specification, and spilled or damaged chemical products. Actual costs for materials used include not only the cost of the original product, but also the costs of disposal. Inventory management and preventive maintenance are ways these facilities can decrease the amounts of chemical wastes generated in a cost-effective manner.

There are two categories of inventory management, including inventory control and material control. Inventory control includes techniques to reduce inventory size, reduce toxic and/or hazardous chemical use, and increase current inventory turnover. Material control includes the proper storage and safer transfer of materials. Proper material control will ensure that materials are used efficiently to reduce waste and preserve the ability to recycle the wastes.

Corrective and preventive maintenance can reduce waste generation. A well-run preventive maintenance program will serve to identify the potential for releases and correct problems before material is lost and/or considered a waste. New or updated equipment can use process materials more efficiently, producing less waste.

3.4.2 ANALYSIS OF EXISTING/POTENTIAL ADDITIONAL POLLUTION PREVENTION/WASTE MINIMIZATION STRATEGIES

Following are potential pollution prevention/waste management strategies for plant maintenance.

Pollution Prevention Opportunities for Facility Maintenance Wastes

Strategy	Comment
Use high quality fluids	While costing more initially, high quality fluids may last twice as long in service.
Routinely monitor fluid condition	Waste fluid generation can be reduced by switching to a replacement schedule based on fluid condition. Low-cost testing services can provide detailed information.
Eliminate use of hazardous materials	Substitution of hazardous materials with non-hazardous materials reduces waste disposal costs.
Solvent substitutions	Petroleum distillate and D-limonene blends are effective cleaners for electrical equipment. Detergents are good for general purpose cleaning but must be kept out of yard drains and oil/water separators.
Use high transfer efficiency painting equipment	Brushes, rollers, and hand mitts are very efficient but labor-intensive. Airless spray is common for field use since a source of clean, dry air is not required.
Inventory Control	Purchase only the quantity of material needed for the job or a set period of time Evaluate set expiration date on materials, especially for stable compounds, to determine if they could be extended. Search the inventory at other company sites for available stock before ordering additional material. Purchase material in the proper quantity and the proper container size. If large quantities are needed, purchase in bulk. If the material has a short shelf-life or small quantities are needed, purchase in small containers. If surplus inventories exist, use excess material before new material are ordered. Contact supplier to determine if surplus materials can be returned. If not, identify other potential users or markets.

EL PASO ENERGY

March 26, 2001

RECEIVED
MAR 28 2001
BUREAU OF AIR REGULATION

Mr. A. A. Linero, P.E.
Administrator, New Source Review Section
Division of Air Resources Management
Florida Department of Environmental Protection
2600 Blair Stone Road, MS # 5505
Tallahassee, Florida 32399-2400

Re: El Paso Merchant Energy Company
Broward Energy Center
Air Construction Permit Application
0112545-001-AC PSD-FL-316

Dear Mr. Linero:

El Paso Merchant Energy Company (EPMEC) is planning to construct, own, and operate a new electric power generating plant in Broward County, Florida. The new power plant, designated as the Broward Energy Center (BEC), will be a combustion turbine generator (CTG) facility comprised of one combined cycle (CC) CTG with a nominal generating capacity of 250 megawatts (MW) and three simple cycle (SC) CTGs, each with a nominal generating capacity of 175 MW. The CC unit will consist of one nominal 175 MW CTG, one unfired heat recovery steam generator, and one steam turbine generator constrained to generate less than 75 MW. Total BEC generating capacity will be a nominal 775 MW. The BEC CTGs will be fired exclusively with natural gas. BEC will be located in Broward County east of the Florida Turnpike and approximately 2.4 km (1.5 miles) northwest of the intersection of State Road (SR) 845 (Power Line Road) and SR 834 (Sample Road).

Seven copies of an Application for Air Permit – Title V Source, together with a check in the amount of $7,500 as payment of the required permit processing fee, are enclosed for your review. Three of the applications include a CD-ROM containing the dispersion modeling files. Also enclosed is a copy of the Pollution Prevention Plan required by Broward County Article IV, Chapter 27-178. Your expeditious processing of the EPMEC air permit application will be appreciated. Please contact me at 713/877-7023 if there are any questions.

Sincerely,

EL PASO MERCHANT ENERGY COMPANY

K. Ravi Shankar

Krish Ravishankar
Environmental Manager

cc: Ms. Daniela Banu, Director
Broward County DPEP
C. Holladay
Enclosures
J. Goldman, SED
EPA
NPS

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STATE OF FLORIDA
COUNTY OF BROWARD/PALM BEACH/MIAMI DADE
BEFORE THE UNDERSIGNED AUTHORITY, PERSONALLY APPEARED

Patricia Ogg

WHO, ON OATH, SAYS THAT HE/SHE IS A DULY AUTHORIZED REPRESENTATIVE OF THE CLASSIFIED DEPARTMENT OF THE SUN-SENTINEL, DAILY NEWSPAPER PUBLISHED IN BROWARD/PALM BEACH/MIAMI DADE COUNTY, FLORIDA, THAT THE ATTACHED COPY OF ADVERTISEMENT, BEING A:

NOTICE OF PUBLIC MEETING

IN THE MATTER OF:

EL PASO BROWARD (Deerfield) POWER PROJECT

IN THE CIRCUIT COURT, WAS PUBLISHED IN SAID NEWSPAPER IN THE ISSUES OF:

c,10/30,1x

AFFIANT FURTHER SAYS THAT THE SAID SUN-SENTINEL IS A NEWSPAPER PUBLISHED IN SAID BROWARD/PALM BEACH/MIAMI DADE COUNTY, FLORIDA, AND THAT THE SAID NEWSPAPER HAS HERETOFORE BEEN CONTINUOUSLY PUBLISHED IN SAID BROWARD/PALM BEACH/MIAMI DADE COUNTY, FLORIDA, EACH DAY, AND HAS BEEN ENTERED AS SECOND CLASS MATTER AT THE POST OFFICE IN FORT LAUDERDALE, IN SAID BROWARD COUNTY, FLORIDA, FOR A PERIOD OF ONE YEAR NEXT PRECEDING THE FIRST PUBLICATION OF ATTACHED COPY OF ADVERTISEMENT; AND AFFIANT FURTHER SAYS THAT HE/SHE HAS NEITHER PAID, NOR PROMISED, ANY PERSON, FIRM, OR CORPORATION, ANY DISCOUNT, REBATE, COMMISSION, OR REFUND, FOR THE PURPOSE OF SECURING THIS ADVERTISEMENT FOR PUBLICATION IN SAID NEWSPAPER.

Patricia Ogg
(SIGNATURE OF AFFIANT)

SWORN TO AND SUBSCRIBED BEFORE ME
ON: October 30, A.D. 2001

Barbara Strickland
(SIGNATURE OF NOTARY PUBLIC)

Barbara Strickland
Commission # CC 944074
Expires July 24, 2004
Bonded Thru
Atlantic Bonding Co., Inc.
(NAME OF NOTARY, TYPED, PRINTED, OR STAMPED)

PERSONALLY KNOWN ✓ OR
PRODUCED IDENTIFICATION _____

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF PUBLIC MEETING
EL PASO BROWARD (DEERFIELD) POWER PROJECT

The Department of Environmental Protection gives notice that a public meeting will be held regarding the Department's intent to issue an air construction permit pursuant to the rules for the Prevention of Significant Deterioration of Air Quality (PSD) to El Paso Merchant Energy Company for construction of a 775 megawatt natural gas-fueled power plant East of the Turnpike and North of Northwest 48th Street in Deerfield Beach, Broward County.

The meeting will be held from 4:00 to 6:00 p.m. on Wednesday, November 7, 2001 at the City of Coconut Creek Government Center, City Commission Chambers, 4800 West Copans Road, Coconut Creek, Florida 33063.

The Department's Public Notice of Intent to Issue an Air Construction Permit was published in the Sun-Sentinel on August 24, 2001. This public meeting was requested pursuant to the procedures described in that Public Notice. The application, Meeting Agenda, Public Notices, Technical Evaluation, Draft Best Available Control, Technology (BACT), Draft Permit, and file are available for review 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
111 S. Magnolia Drive, Suite 4
Tallahassee, FL 32301
Telephone: 850/488-0114
Fax: 850/922-6979

Dept. of Environmental Protection
Southeast District Office
400 North Congress Avenue
West Palm Beach, FL 33416
Telephone: 561/681-6600
Fax: 561/681-6755

Broward County Department of Planning & Environmental Protection
218 Southwest 1st Avenue
Ft. Lauderdale, FL 33301
Telephone 954/519-1220
Fax: 954/519-1495

The Public Notice of Intent to Issue an Air Construction Permit, Technical Evaluation, Draft Permit, and Draft BACT may be accessed at www.dep.state.fl.us/air/permitting/construction.htm by clicking on the Southeast part of the map.

A separate Notice of this public meeting was published in the Florida Administrative Weekly dated October 26, 2001 and can be viewed at faw.dos.state.fl.us/index.html

Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this meeting is asked to advise the agency at least 48 hours before the meeting by contacting the Personnel Service Specialist in the Bureau of Personnel at (850)488-2996. If you are hearing or speech impaired, please contact the agency by calling (800)955-8771 (TDD).

October 30, 2001

SUN-SENTINEL

Published Daily

Fort Lauderdale, Broward County, Florida

Boca Raton, Palm Beach County, Florida

STATE OF FLORIDA
COUNTY OF BROWARD/PALM BEACH

Before the undersigned authority personally appeared _____ who on oath says that he is Classified Supervisor of the Sun-Sentinel, daily newspaper published in Broward/Palm Beach County, Florida, that the attached copy of advertisement, being, a Notice in the matter of August 2001 Notice _____ in the _____ Court was published in said newspaper in the issues of August 24, 2001

Affiant further says that the said Sun-Sentinel is a newspaper published in Said Broward/Palm Beach County, Florida, and that the said newspaper has heretofore been continuously published in said Broward/Palm Beach County, Florida, each day, and have been entered as second class matter at the post office in Fort Lauderdale, in said Broward County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement, and affiant says that he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing, this advertisement for publication in said newspaper.

_____
(Signature of Affiant)

Sworn to and subscribed before me this 24th day of August, 2001

_____
(Signature of Notary Public)

Tara L. Bezak
MY COMMISSION # DD024939 EXPIRES
July 20, 2005
BONDED THRU TROY FAIN INSURANCE INC

(Name of Notary typed, printed or stamped) _____

Personally Known _____ or Produced Identification _____

PLEASE COPY LEGAL NOTICE HERE

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP File No. 0112545-001-AC (PSD-FL-316)
El Paso Broward Energy Center
Broward County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit under the requirements for the Prevention of Significant Deterioration (PSD) of Air Quality to El Paso Merchant Energy Company. The permit is to construct a nominal 775-megawatt (MW) nature gas-fueled power plant East of the Turnpike and North of Hilton Road (Northwest 48th Street) in Deerfield Beach, Broward County. A Best Available Control Technology (BACT) determination was required for sulfur dioxide (SO_2), particulate matter (PM/PM_{10}), nitrogen oxides (NO_x), sulfuric acid mist (SAM), and carbon monoxide (CO) pursuant to Rule 62-212.400, F.A.C. The applicant's name and address are El Paso Merchant Energy Company, 1001 Louisiana Street, Houston, Texas 77002.

El Paso proposes to construct four nominal 175-MW General Electric PG7241FA natural gas-fired combustion turbine-electrical generators. Three of the units will operate in simple cycle mode and intermittent duty. The other unit will operate in combined cycle mode and will include an unfired heat recovery steam generator and a separate steam-electrical generator.

Additional equipment includes four 135-foot stacks, a five-cell mechanical draft fresh water cooling towers, a 2,600-horsepower (hp) emergency diesel-fired electrical generator, a 250-hp emergency diesel-fired fire water pump, a natural gas fired heater, an aqueous ammonia storage tank, and raw and demineralized water storage tanks.

NO_x emissions will be controlled by Dry Low NO_x (DLN-2.6) combustors. The three simple cycle units must meet an emission limit of 9 parts per million by volume, dry, at 15 percent oxygen (ppmvd @ 15% O_2). NO_x emissions from the Emissions of CO will be controlled to 8 ppmvd @ 15% O_2 except during periods of power augmentation when the limit for the combined cycle unit will be 12 ppmvd @ 15% O_2.

Emissions of PM/PM_{10}, SO_2, sulfuric acid mist, volatile organic compounds, and hazardous air pollutants (HAP) will be controlled to very low levels by good combustion and use of inherently clean pipeline quality natural gas. Ammonia emissions (NH_3) generated due to NO_x control on the combined cycle unit will be limited to 5 ppmvd.

The combined maximum emissions from the four units in tons per year are summarized below. These include the minor emissions from the emergency diesel engines and the cooling towers.

Pollutant	Maximum Potential Emissions	PSD Significant Emission Rate
PM/PM_{10} (filterable plus condensable)	227	25/15
CO	420	100
NO_x	534	40
VOC	36	40
SO_2	87	40
Sulfuric Acid Mist	13	7

Maximum predicted air quality impacts due to emissions from the El Paso project are less than the applicable PSD Class II significant impact levels, with the exception of 24-hour average PM_{10}. Therefore, multi-source modeling was required for PM_{10}. The maximum predicted PSD Class II PM_{10} increments consumed in Broward County by increment consuming sources (since 1975-77) within 51 km of the project, will be as follows:

Averaging Time	Increment Consumed All Sources/El Paso Project ($\mu g\ PM_{10}/m^3$)	Allowable Increment All Sources ($\mu g\ PM_{10}/m^3$)	Percent Increment Consumed All Sources/El Paso Project (percent)
24-hour	23/6	30	77/20

Maximum predicted air quality impacts due to emissions from the El Paso project are less than the applicable PSD Class I significant impact levels.

A CALPUFF modeling analysis for the El Paso project was submitted by the applicant to the National Park Service (NPS). On the basis of the submittal, NPS advised the Department that it "does not anticipate any significant impacts on Air Quality Related Values for the Everglades National Park."

Based on the required analyses, the Department has reasonable assurance that the proposed project will not cause or significantly contribute to a violation of any ambient air quality standard of PSD increment.

The project is not subject to Section 403.501-518, F.S., Florida Electrical Power Plant Siting Act, based on information regarding gross electrical power generated from the steam cycle submitted by the applicant and reviewed by the Department.

The Department will issue the FINAL Permit, in accordance with the conditions of the 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 and requests for a public meeting concerning the proposed permit issuance action for a period of 30 (thirty) 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 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.

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, 32399-300. 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 the 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
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301
Telephone: 850/488-0114
Fax: 850/922-6979

Department of Environmental Protection
Southeast District Office
400 North Congress Avenue
West Palm Beach, Florida 33416
Telephone: 561/681-6600
Fax: 561/681-6755

Broward County Department of Planning & Environmental Protection
218 Southwest 1st Avenue
Fort Lauderdale, Florida 33301
Telephone: 954/519-1220
Fax: 954/519-1495

10529245

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 Resource Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information. The draft permit, technical evaluation and preliminary BACT determination can be accessed at http://www8.myflorida.com/licensingpermitting/learn/environment/air/airpermit.html

C POWER COMPANY
9 GREENWAY PLAZA
HOUSTON, TX 77046

CHECK DATE	CHECK NUMBER
03/16/2001	70000404

FLORIDA DEPARTMENT OF

ENVIRONMENTAL PROTECTION
TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FL 32399-2400

REMITTANCE ADVICE **RETAIN FOR YOUR RECORDS**

VENDOR 0000006153
FLORIDA DEPARTMENT OF

Voucher ID	Invoice Number	Invoice Date	Description	Discount	Paid Amount
00100255	CKREQ010306	03/06/2001	PERMIT 0 1125 45 - 001 - AC	0.00	7,500.00
			TOTAL	$0.00	$7,500.00

U.S. Postal Service

CERTIFIED MAIL RECEIPT

(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

7001 0320 0001 3692 8864

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To: John J. Hearn

Street, Apt. No.; or PO Box No.: 9551 W. Sample Road

City, State, ZIP+4: Coral Springs, FL 33065

PS Form 3800, January 2001 — See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Paul S. Stuart, Esquire
City Attorney
City of Coconut Creek
4800 W. Copans Road
Coconut Creek, FL 33063

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)*: D. McGOVERN
B. Date of Delivery: 5/17/02

C. Signature: X D. McGovern
☒ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

7001 0320 0001 3692 8796

PS Form 3811, July 1999 Domestic Return Receipt 102595-00-M-0952

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

7001 0320 0001 3692 8796

Sent To
Paul S. Stuart
Street, Apt. No.; or PO Box No.
4800 W. Copans Road
City, State, ZIP+4
Coconut Creek, FL 33063

PS Form 3800, January 2001 See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Eugene Steinfeld, Esquire
City Attorney
City of Margate
5790 Margate Boulevard
Margate, FL 33063-3699

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* PGrossman

B. Date of Delivery 5/17/02

C. Signature

X PGrossman ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

7001 0320 0001 3692 8802

PS Form 3811, July 1999 Domestic Return Receipt 102595-00-M-0952

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

7001 0320 0001 3692 8802

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To
Eugene Steinfeld, Esquire
Street, Apt. No.; or PO Box No.
5790 Margate Blvd.
City, State, ZIP+4
Margate, FL 33063-3699

PS Form 3800, January 2001 See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Lori Nance Parrish, Chair
Broward County Commissioners
Broward County Governmental Center
115 S. Andrews Avenue
Ft. Lauderdale, FL 33301

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* | B. Date of Delivery: 5/17/02

C. Signature: X [signature] ☑ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

7001 0320 0001 3692 8826

PS Form 3811, July 1999 Domestic Return Receipt 102595-00-M-0952

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

7001 0320 0001 3692 8826

Sent To
Lori Nance Parrish
Street, Apt. No.; or PO Box No.
115 S. Andrews Avenue
City, State, ZIP+4
Ft. Lauderdale, FL 33301

PS Form 3800, January 2001 See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

The Honorable Sal
Pagliera
Mayor of Parkland
6500 Parkside Drive
Parkland, FL 33067-5040

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* RACHEL WEISER B. Date of Delivery 05/17

C. Signature

X [signature] ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

7001 0320 0001 3692 8833

PS Form 3811, July 1999 Domestic Return Receipt 102595-00-M-0952

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To
Sal Pagliera
Street, Apt. No.; or PO Box No. 6500 Parkside Drive
City, State, ZIP+4
Parkland, FL 33067-5040

7001 0320 0001 3692 8833

PS Form 3800, January 2001 See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. William Mack, Sr.
Managing Director
El Paso Merchant Energy Company
1001 Louisiana Street
Houston, TX 77002

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* | B. Date of Delivery: MAY 21 2002

C. Signature: X 5/21 ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

7001 0320 0001 3692 8895

PS Form 3811, July 1999 Domestic Return Receipt 102595-00-M-0952

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To: William Mack, Sr.
Street, Apt. No.; or PO Box No.: 1001 Louisiana St.
City, State, ZIP+4: Houston, TX 77002

7001 0320 0001 3692 8895

PS Form 3800, January 2001 See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

The Honorable William Griffin
Mayor of Pompano Beach
100 W. Atlantic Blvd.
Pompano Beach, FL 33060

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)*: Michele Brewer
B. Date of Delivery: 5/10

C. Signature
X Michele Brewer
☐ Agent
☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

7001 0320 0001 3692 8857

PS Form 3811, July 1999 Domestic Return Receipt 102595-00-M-0952

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To: William Griffin
Street, Apt. No.; or PO Box No.: 100 W. Atlantic Blvd.
City, State, ZIP+4: Pompano Beach, FL 33060

7001 0320 0001 3692 8857

PS Form 3800, January 2001 See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

The Honorable Albert R. Capellini
Mayor of Deerfield
City Hall
150 NE 2nd Avenue
Deerfield Beach, FL 33441

COMPLETE THIS SECTION ON DELIVERY

A. Received by (Please Print Clearly) Lynn Barnes
B. Date of Delivery 5/11

C. Signature
X Lynn Barnes
☐ Agent
☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

7001 0320 0001 3692 8840

PS Form 3811, July 1999 Domestic Return Receipt 102595-00-M-0952

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To
Albert R. Capellini
Street, Apt. No.; or PO Box No.
City Hall, 150 NE 2nd Ave.
City, State, ZIP+4
Deerfield Beach, FL 33441

7001 0320 0001 3692 8840

PS Form 3800, January 2001 See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

MS DANIELA BANU
BROWARD CO. DEPARTMENT OF
NATURAL RESOURCE PROTECTION
218 SW FIRST AVE
FORT LAUDERDALE FL 33301

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* | B. Date of Delivery 5-17-02

C. Signature
X D. Wright ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

7001 0320 0001 3692 8888

PS Form 3811, July 1999 Domestic Return Receipt 102595-00-M-0952

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

7001 0320 0001 3692 8888

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	

Postmark Here

Total Posta

Sent To MS DANIELA BANU
BROWARD CO. DEPARTMENT OF
NATURAL RESOURCE PROTECTION

Street, Apt. N or PO Box No 218 SW FIRST AVE

City, State, Zi FORT LAUDERDALE FL 33301

PS Form 3800, January 2001 See Reverse for Instructions

7099 3400 0000 1450 2552

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Article Sent To:
Mr. William Mack

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Name (Please Print Clearly) (to be completed by mailer)
El Paso Energy Center
Street, Apt. No.; or PO Box No.
Coastal Tower, 9 Greenway Plaza
City, State, ZIP+4
Houston, TX 77046-0995

PS Form 3800, July 1999 — See Reverse for Instructions

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date *delivered.*

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Mr. William Mack
El Paso Merchant Energy Co.
Coastal Tower, 9 Greenway Plaza
Suite 1682A
Houston, TX 77046-0995

4a. Article Number
7099 3400 0000 1450 2552

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
5.2.01

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*
X

Thank you for using Return Receipt Service.

PS Form **3811**, December 1994 102595-98-B-0229 Domestic Return Receipt

UNITED STATES POSTAL SERVICE

HOUSTON TX 770
PM
3 MAY

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Print your name, address, and ZIP Code in this box •

Dept. of Environmental Protection
Division of Air Resources Mgt.
Bureau of Air Regulation, NSR
2600 Blair Stone Rd., MS 5505
Tallahassee, FL 32399-2400

RECEIVED
MAY 07 2001
BUREAU OF AIR REGULATION

FedEx. *USA Airbill* FedEx Tracking Number **806095050760**

Form I.D. No. 0210

SOR13 Sender's Copy

1 From (please print and press hard)

Date 7/26/01 Sender's FedEx Account Number 1043-1506-2

Sender's Name Al Linero Phone (850-921-9523

Company DEPT OF ENVIR PROTECTION--MS 5505

Address 2600 BLAIR STONE RD Dept./Floor/Suite/Room

City TALLAHASSEE State FL ZIP 32399

2 Your Internal Billing Reference Information (Optional) (First 24 characters will appear on invoice) 37550204000

3 To (please print and press hard)

Recipient's Name Reuben Glickman Phone (954) 978-9083

Company

Address 3000 Palm Aire Drive Apt. 103 Dept./Floor/Suite/Room

[X] Check here if residence (Extra charge applies for FedEx Express Saver)

(To "HOLD" at FedEx location, print FedEx address here) (We Cannot Deliver to P.O. Boxes or P.O. ZIP Codes)

City Pompano Beach State FL ZIP 33069

For HOLD at FedEx Location check here

- [ ] **Hold Weekday** (Not available with FedEx First Overnight)
- [ ] **Hold Saturday** (Not available at all locations) (Available for FedEx Priority Overnight and FedEx 2Day only)

For WEEKEND Delivery check here (Extra Charge. Not available to all locations)

- [ ] **Saturday Delivery** (Available for FedEx Priority Overnight and FedEx 2Day only)
- [ ] **NEW Sunday Delivery** (Available for FedEx Priority Overnight only)

Service Conditions, Declared Value, and Limit of Liability – By using this Airbill, you agree to the service conditions in our current Service Guide or U.S. Government Service Guide. Both are available on request. SEE BACK OF SENDER'S COPY OF THIS AIRBILL FOR INFORMATION AND ADDITIONAL TERMS. We will not be responsible for any claim in excess of $100 per package whether the result of loss, damage, or delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, and document your actual loss in a timely manner. Your right to recover from us for any loss includes intrinsic value of the package, loss of sales, interest, profit, attorney's fees, costs, and other forms of damage, whether direct, incidental, consequential, or special, and is limited to the greater of $100 or the declared value but cannot exceed actual documented loss. The maximum declared value for any FedEx Letter and FedEx Pak is $500. Federal Express may, upon your request, and with some limitations, refund all transportation charges paid. **See the FedEx Service Guide for further details.**

4a Express Package Service *Packages under 150 lbs.* Delivery commitment may be later in some areas.

- [X] FedEx Priority Overnight (Next business morning)
- [ ] FedEx Standard Overnight (Next business afternoon)
- [ ] FedEx First Overnight (Earliest next business morning delivery to select locations) **(Higher rates apply)**
- [ ] FedEx 2Day (Second business day)
- [ ] FedEx Express Saver (Third business day)

FedEx Letter Rate not available. Minimum charge: One pound rate.

4b Express Freight Service *Packages over 150 lbs.* Delivery commitment may be later in some areas.

- [ ] FedEx Overnight Freight (Next business day)
- [ ] FedEx 2Day Freight (Second business day)
- [ ] FedEx Express Saver Freight (Up to 3 business days)

(Call for delivery schedule. See back for detailed descriptions of freight services.)

5 Packaging [ ] FedEx Letter [ ] FedEx Pak [ ] FedEx Box [ ] FedEx Tube [ ] Other Pkg.

Declared value limit $500.

6 Special Handling (One box must be checked)

Does this shipment contain dangerous goods?* [ ] No [ ] Yes (As per attached Shipper's Declaration) [ ] Yes (Shipper's Declaration not required)

- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg.
- [ ] Cargo Aircraft Only

*Dangerous Goods cannot be shipped in FedEx packaging.

7 Payment

Bill to: [X] Sender (Account No. in Section 1 will be billed) [ ] Recipient [ ] Third Party [ ] Credit Card [ ] Cash/Check

(Enter FedEx Account No. or Credit Card No. below)

FedEx Account No.

Credit Card No. Exp. Date

Total Packages	Total Weight	Total Declared Value*	Total Charges
		$ .00	$

* When declaring a value higher than $100 per shipment, you pay an additional charge. See **SERVICE CONDITIONS, DECLARED VALUE, AND LIMIT OF LIABILITY** section for further information.

8 Release Signature *Sign to authorize delivery without obtaining signature.*

Your signature authorizes Federal Express to deliver this shipment without obtaining a signature and agrees to indemnify and hold harmless Federal Express from any resulting claims.

321

Questions?
Call 1·800·Go·FedEx® (800)463-3339

The World On Time®

005500864 0

WCSL 0398
Rev. Date 12/97
Part #153023
©1994-97 FedEx
PRINTED IN U.S.A.

RETAIN THIS COPY FOR YOUR RECORDS

FedEx Express **USA Airbill**

FedEx Tracking Number: 8287 0919 8643

SOR11

Form I.D. No.: 0215

Sender's Copy

1 From *Please print and press hard.*

Date: 8/20/01 Sender's FedEx Account Number: 1043-1506-2

Sender's Name: AL CINERO Phone: (850) 487-3922

Company: DEPT OF ENVIR PROTECTION-MS 5505

Address: 2600 BLAIRSTONE RD

Dept./Floor/Suite/Room

City: TALLAHASSEE State: FL ZIP: 32399

2 Your Internal Billing Reference First 24 characters will appear on invoice. MC. 5515 OPTIONAL

3 To

Recipient's Name: MS. Judy K. Queen Phone: (954) 973-6444

Company:

Address: 3310 CAPAMBOLA CIRCLE SOUTH

To "HOLD" at FedEx location, print FedEx address. We cannot deliver to P.O. boxes or P.O. ZIP codes.

Dept./Floor/Suite/Room

City: COCONUT CREEK State: FL ZIP: 33066-2147

Peel and Stick FedEx USA Airbill

See back for application instructions.

Questions? Visit our Web site at fedex.com

or call 1•800•Go•FedEx® (800)463-3339.

By using this Airbill you agree to the service conditions on the back of this Airbill and in our current Service Guide, including terms that limit our liability.

0181869647

4a Express Package Service — *Packages up to 150 lbs.* Delivery commitment may be later in some areas.

- ☐ FedEx Priority Overnight — Next business morning
- ☒ FedEx Standard Overnight — Next business afternoon
- ☐ FedEx First Overnight — Earliest next business morning delivery to select locations
- ☐ FedEx 2Day — Second business day
- ☐ FedEx Express Saver — Third business day
- ☐ NEW FedEx Extra Hours — Later drop-off with next business afternoon delivery for select locations

FedEx Envelope rate not available. Minimum charge: One-pound rate

4b Express Freight Service — *Packages over 150 lbs.* Delivery commitment may be later in some areas.

- ☐ FedEx 1Day Freight* — Next business day
- ☐ FedEx 2Day Freight — Second business day
- ☐ FedEx 3Day Freight — Third business day

* Call for Confirmation:

5 Packaging * Declared value limit $500

- ☐ FedEx Envelope*
- ☐ FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak
- ☐ Other Pkg. — Includes FedEx Box, FedEx Tube, and customer pkg.

6 Special Handling — Include FedEx address in Section 3.

- ☐ SATURDAY Delivery — RESTRICTIONS: Available only for FedEx Priority Overnight and FedEx 2Day to select ZIP codes
- ☐ SUNDAY Delivery — RESTRICTIONS: Available only for FedEx Priority Overnight to select ZIP codes
- ☐ HOLD Weekday at FedEx Location — RESTRICTIONS: Not available with FedEx First Overnight
- ☐ HOLD Saturday at FedEx Location — RESTRICTIONS: Available only for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

- ☐ No
- ☐ Yes — As per attached Shipper's Declaration
- ☐ Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg
- ☐ Cargo Aircraft Only

Dangerous Goods (incl. Dry Ice) cannot be shipped in FedEx packaging or with FedEx Extra Hours service.

7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below.

- ☒ Sender — Acct. No. in Section 1 will be billed.
- ☐ Recipient
- ☐ Third Party
- ☐ Credit Card
- ☐ Cash/Check

FedEx Acct. No. / Credit Card No. Exp. Date

Total Packages	Total Weight	Total Declared Value†	FedEx Use Only
		$ .00	

†Our liability is limited to $100 unless you declare a higher value. See back for details.

8 Release Signature *Sign to authorize delivery without obtaining signature.*

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.

406

SRS•Rev. Date 12/00•Part #155918S•©1994–2000 FedEx•PRINTED IN U.S.A.

PULL AND RETAIN THIS COPY BEFORE AFFIXING TO THE PACKAGE.

FedEx Express **USA Airbill**

FedEx Tracking Number: 8287 0919 8665

SOR 11

Form I.D. No. 0215

Sender's Copy

1 From *Please print and press hard.*

Date: 8/20/01

Sender's FedEx Account Number: 1043-1506-2

Sender's Name: AL LINERO

Phone: (850) 487-3922

Company: DEPT OF ENVIR PROTECTION-MS

Address: 2600 BLAIRSTONE RD

Dept./Floor/Suite/Room: MS 5505

City: TALLAHASSEE State: FL ZIP: 32399

2 Your Internal Billing Reference *First 24 characters will appear on invoice.* MC 5515 OPTIONAL

3 To

Recipient's Name: MC Rouben Glickman

Phone: (954) 978-9083

Company:

Address: 3000 Palm Place

To "HOLD" at FedEx location, print FedEx address. We cannot deliver to P.O. boxes or P.O. ZIP codes.

Building 4, Apt 103

Dept./Floor/Suite/Room

City: Pompano Beach State: FL ZIP: 33069-7039

Peel and Stick FedEx USA Airbill

See back for application instructions.

Questions? Visit our Web site at fedex.com

or call 1-800-Go-FedEx® (800)463-3339.

By using this Airbill you agree to the service conditions on the back of this Airbill and in our current Service Guide, including terms that limit our liability.

0181869647

4a Express Package Service — *Packages up to 150 lbs.* Delivery commitment may be later in some areas.

- ☐ FedEx Priority Overnight — Next business morning
- ☒ FedEx Standard Overnight — Next business afternoon
- ☐ FedEx First Overnight — Earliest next business morning delivery to select locations
- ☐ FedEx 2Day — Second business day
- ☐ FedEx Express Saver — Third business day
- ☐ NEW FedEx Extra Hours — Later drop-off with next business afternoon delivery for select locations

FedEx Envelope rate not available. Minimum charge: One-pound rate

4b Express Freight Service — *Packages over 150 lbs.* Delivery commitment may be later in some areas.

- ☐ FedEx 1Day Freight* — Next business day
- ☐ FedEx 2Day Freight — Second business day
- ☐ FedEx 3Day Freight — Third business day

* Call for Confirmation:

5 Packaging — * Declared value limit $500

- ☐ FedEx Envelope*
- ☐ FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak
- ☐ Other Pkg. — Includes FedEx Box, FedEx Tube, and customer pkg.

6 Special Handling — Include FedEx address in Section 3.

- ☐ SATURDAY Delivery — RESTRICTIONS: Available only for FedEx Priority Overnight and FedEx 2Day to select ZIP codes
- ☐ SUNDAY Delivery — RESTRICTIONS: Available only for FedEx Priority Overnight to select ZIP codes
- ☐ HOLD Weekday at FedEx Location — RESTRICTIONS: Not available with FedEx First Overnight
- ☐ HOLD Saturday at FedEx Location — RESTRICTIONS: Available only for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

- ☐ No
- ☐ Yes — As per attached Shipper's Declaration
- ☐ Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg
- ☐ Cargo Aircraft Only

Dangerous Goods (incl. Dry Ice) cannot be shipped in FedEx packaging or with FedEx Extra Hours service.

7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below.

- ☒ Sender — Acct. No. in Section 1 will be billed.
- ☐ Recipient
- ☐ Third Party
- ☐ Credit Card
- ☐ Cash/Check

FedEx Acct. No. / Credit Card No.: Exp. Date:

Total Packages	Total Weight	Total Declared Value†	FedEx Use Only
		$ .00	

†Our liability is limited to $100 unless you declare a higher value. See back for details.

8 Release Signature *Sign to authorize delivery without obtaining signature.*

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.

406

SRS • Rev. Date 12/00 • Part #155818S • ©1994–2000 FedEx • PRINTED IN U.S.A.

PULL AND RETAIN THIS COPY BEFORE AFFIXING TO THE PACKAGE.

U.S. Postal Service

CERTIFIED MAIL RECEIPT

(Domestic Mail Only; No Insurance Coverage Provided)

7000 0600 0026 4129 9099

Mayor John Sommerer

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Recipient's Name *(Please Print Clearly) (to be completed by mailer)*

Mayor John Sommerer

Street, Apt. No.; or PO Box No.

9551 West Sample Road

City, State, ZIP+4

Coral Springs, Florida 33065

PS Form 3800, February 2000 — See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. William Mack, Sr.
Managing Director
El Paso Merchant Energy Co.
1001 Louisiana Street
Houston, TX 77002

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* B. Date of Delivery AUG 21 2001

C. Signature

X 8/21 ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
XX ☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Copy from service label)* 7000 0600 0026 4129 9167

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

7000 0600 0026 4129 9167

Mr. William Mack

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Recipient's Name *(Please Print Clearly) (to be completed by mailer)*
El Paso Energy Center
Street, Apt. No.; or PO Box No.
1001 Louisiana St.
City, State, ZIP+4
Houston, TX 77002

PS Form 3800, February 2000 See Reverse for Instructions

7000 0600 0026 4129 9136

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Mr. Steve Somerville

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Recipient's Name *(Please Print Clearly) (to be completed by mailer)*
Mr. Steve Somerville
Street, Apt. No.; or PO Box No.
218 Southwest First Avenue
City, State, ZIP+4
Fort Lauderdale, FL 33301

PS Form 3800, February 2000 — See Reverse for Instructions

SENDER: ***COMPLETE THIS SECTION***

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
Mr. Steve Somerville
Director
Broward County Department o
Planning and Environmenta
Protection
218 Southwest First Avenue
Fort Lauderdale, FL 33301

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)*
B. Date of Delivery 8/20/01

C. Signature
X
☐ Agent
☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Copy from service label)*
7000 0600 0026 4129 9136

PS Form 3811, July 1999 — Domestic Return Receipt — 102595-99-M-1789

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Sender: Please print your name, address, and ZIP+4 in this box •

Dept. of Environmental Protection
Division of Air Resources Mgt.
Bureau of Air Regulation, NSR
2600 Blair Stone Rd., MS 5505
Tallahassee, FL 32399-2400

RECEIVED
AUG 27 2001
BUREAU OF AIR REGULATION

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
Mr. John E. Rostrom, Jr.
Chair
Broward County Commission
District 7
Broward County Governmental
Center, Room 421
115 South ANdrews Avenue
Fort Lauderdale, Florida
33301

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)*: C. Austin — B. Date of Delivery: 8/20/04

C. Signature: X C. Austin — ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Copy from service label)*
7000 0600 0026 4129 9143

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Mr. John E. Rostrom, Jr.

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Recipient's Name *(Please Print Clearly) (to be completed by mailer)*
Mr. John E. Rostrom, Jr.
Street, Apt. No., or PO Box No.
115 S. South Andrews Avenue
City, State, ZIP+4
Fort Lauderdale, Florida 33301

PS Form 3800, February 2000 See Reverse for Instructions

7000 0600 0026 4129 9143

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

7000 0600 0026 4129 9129

Mayor William Griffin

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Recipient's Name *(Please Print Clearly) (to be completed by mailer)*
Mayor William Griffin
Street, Apt. No., or PO Box No.
100 West Atlantic Boulevard
City, State, ZIP+4
Pompano Beach, Florida 33060

PS Form 3800, February 2000 — See Reverse for Instructions

SENDER: ***COMPLETE THIS SECTION***

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mayor William Griffin
City of Pompano Beach
100 West Atlantic Boulevard
Pompano Beach, FL 33060

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)*: MICHELE BREWER — B. Date of Delivery: 8/24/01

C. Signature: X Michele Brewer — ☑ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

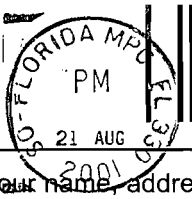
3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Copy from service label)*
7000 0600 0026 4129 9129

PS Form 3811, July 1999 — Domestic Return Receipt — 102595-99-M-1789

UNITED STATES POSTAL SERVICE



First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Sender: Please print your name, address, and ZIP+4 in this box •

Dept. of Environmental Protection
Division of Air Resources Mgt.
Bureau of Air Regulation, NSR
2600 Blair Stone Rd., MS 5505
Tallahassee, FL 32399-2400

RECEIVED
AUG 27 2001
BUREAU OF AIR REGULATION

32399+2400

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mayor Albert R. Capellini
City of Deerfield Beach
City Hall
150 NE Second Avenue
Deerfield Beach, FL 33441

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* Juliette Coldros
B. Date of Delivery

C. Signature
X J. Coldros
☐ Agent
☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
XX Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Copy from service label)*
7000 0600 0026 4129 9105

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

7000 0600 0026 4129 9105

Mayor Albert R. Capellini

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Recipient's Name *(Please Print Clearly) (to be completed by mailer)*
Mayor Albert R. Capellini
Street, Apt. No.; or PO Box No.
150 NE Second Avenue
City, State, ZIP+4
Deerfield Beach, Florida 33441

PS Form 3800, February 2000 See Reverse for Instructions

7000 0600 0026 4129 9082

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Mayor Gloria Fantl

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Recipient's Name *(Please Print Clearly) (to be completed by mailer)*
Mayor Gloria Fantl
Street, Apt. No.; or PO Box No.
4800 West Copans Road
City, State, ZIP+4
Coconut Creek, Florida 33063

PS Form 3800, February 2000 — See Reverse for Instructions

SENDER: ***COMPLETE THIS SECTION***

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
Mayor Gloria Fantl
City of Coconut Creek
4800 West Copans Road
Coconut Creek, FL 33063

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* T. Peterson
B. Date of Delivery 8/20/01

C. Signature
X Peters
☒ Agent
☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Copy from service label)*
7000 0600 0026 4129 9082

PS Form 3811, July 1999 — Domestic Return Receipt — 102595-99-M-1789

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Sender: Please print your name, address, and ZIP+4 in this box •

Dept. of Environmental Protection
Division of Air Resources Mgt.
Bureau of Air Regulation, NSR
2600 Blair Stone Rd., MS 5505
Tallahassee, FL 32399-2400

RECEIVED
AUG 24 2001
BUREAU OF AIR REGULATION

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Mayor Sal Pagliera

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

7000 0600 0026 4129 9068

Recipient's Name (Please Print Clearly) (to be completed by mailer)
Mayor Sal Pagliera
Street, Apt. No.; or PO Box No.
6500 Parkside Drive
City, State, ZIP+4
Parkland, Florida 33067-1638

PS Form 3800, February 2000 — See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mayor Sal Pagliera
City of Parkland
6500 Parkside Drive
Parkland, Florida
33067-1638

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* — B. Date of Delivery
8/25/01

C. Signature
X

☐ Agent
☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

102595-99-M-1789

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

7000 0600 0026 4129 9075

Mayor Arthur Bross

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Recipient's Name (Please Print Clearly) (to be completed by mailer)
Mayor Arthur Bross
Street, Apt. No.; or PO Box No.
5790 Margate Boulevard
City, State, ZIP+4
Margate, Florida 33063-3680

PS Form 3800, February 2000 — See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mayor Arthur Bross
City of Margate
5790 Margate Boulevard
Margate, Florida
33063-3680

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)*

B. Date of Delivery 8-21-01

C. Signature
X Carleen Strachan ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

MARGATE, FL POST OFFICE AUG 21 2001

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Copy from service label)*
7000 0600 0026 4129 9075

PS Form 3811, July 1999 — Domestic Return Receipt — 102595-99-M-1789

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Sender: Please print your name, address, and ZIP+4 in this box •

Dept. of Environmental Protection
Division of Air Resources Mgt.
Bureau of Air Regulation, NSR
2600 Blair Stone Rd., MS 5505
Tallahassee, FL 32399-2400

RECEIVED
AUG 24 2001
BUREAU OF AIR REGULATION

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. William Mack
Senior Managing Director
El Paso Merchant Energy Company
Coastal Tower, Nine Greenway Plaza
Suite 1682- A
Houston, TX 77046-0995

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)*

B. Date of Delivery APR 25 2003

C. Signature X M Cavillo ☒ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

7001 0320 0001 3692 6426

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

7001 0320 0001 3692 6426

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To William Mack
Street, Apt. No.; or PO Box No. Coastal Tower, 9 Greenway Plaza 1682A
City, State, ZIP+4 Houston, TX 77046-0995

PS Form 3800, January 2001 See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Diana Wasserman-Rubin, Chair
Broward County, Board of County
115 S. Andrews Avenue, Room 413
Fort Lauderdale, FL 33301

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* B. Date of Delivery APR 24 2003

C. Signature
X J Brown ☑ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

Commissioners

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

7001 0320 0001 3692 6273

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To Diana Wasserman-Rubin
Street, Apt. No.; or PO Box No. 115 S. Andrews Ave., Room 413
City, State, ZIP+4 Ft. Lauderdale, FL 33301

PS Form 3800, January 2001 See Reverse for Instructions

7001 0320 0001 3692 6273

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To Marilyn Gerder
Street, Apt. No.; or PO Box No. 4800 W. Copans Road
City, State, ZIP+4 Coconut Creek, FL 33063

PS Form 3800, January 2001 See Reverse for Instructions

7001 0320 0001 3692 6266

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

The Honorable Marilyn Gerder
Mayor, City of Coconut Creek
4800 W. Copans Road
Coconut Creek, FL 33063

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* C. L. Peter B. Date of Delivery 4/24/03

C. Signature
X C. L. Peter ☑ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

PS Fc 02595-99-M-1789

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

The Honorable William Griffin
Mayor, City of Pompano Beach
100 W. Atlantic Boulevard
Pompano Beach, FL 33060

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)*: Michele Brewer — B. Date of Delivery: 04/25/03

C. Signature: X Michele Brewer — ☒ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

7001 0320 0001 3692 6235

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To: William Griffin
Street, Apt. No.; or PO Box No.: 100 W. Atlantic Blvd.
City, State, ZIP+4: Pompano Bch., FL 33060

PS Form 3800, January 2001 See Reverse for Instructions

7001 0320 0001 3692 6235

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To: Daniela Banu
Street, Apt. No.; or PO Box No.: 218 SW 1st Avenue
City, State, ZIP+4: Ft. Lauderdale, FL 33301

PS Form 3800, January 2001 See Reverse for Instructions

7001 0320 0001 3692 6280

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Ms. Daniela Banu
Broward County Department of
Natural Resource Protection
218 S.W. First Avenue
Fort Lauderdale, FL 33301

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* — B. Date of Delivery: APR 24 2003

C. Signature: X M. Rodriguez — ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

7001 0320 0001 3692 6280

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

The Honorable John Sommerer
Mayor, City of Coral Springs
9551 West Sample Road
Coral Springs, FL 33065

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* | B. Date of Delivery: 4-24-03

C. Signature: x M Boothby ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

7001 0320 0001 3692 6211

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

7001 0320 0001 3692 6211

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To
John Sommerer
Street, Apt. No.; or PO Box No.
9551 W. Sample Rd.
City, State, ZIP+4
Coral Springs, FL 33065

PS Form 3800, January 2001 See Reverse for Instructions

7001 0320 0001 3692 6228

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To
Albert R. Capellini
Street, Apt. No.; or PO Box No.
150 NE 2nd Ave.
City, State, ZIP+4
Deerfield Bch., FL 33441

PS Form 3800, January 2001 See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

The Honorable Albert R. Capellini
Mayor, City of Deerfield
City Hall
150 N.E. 2nd Avenue
Deerfield Beach, FL 33441

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)*: J Bruning | B. Date of Delivery

C. Signature: x J Bruning ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

7001 0320 0001 3692 6228

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

The Honorable Arlene Schwartz
Mayor, City of Margate
5790 Margate Boulevard
Margate, FL 33067

COMPLETE THIS SECTION ON DELIVERY

A. Received by (Please Print Clearly) P GROSSMAN B. Date of Delivery 4-23-3

C. Signature X P Grossman ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

7001 0320 0001 3692 6242

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To: Arlene Schwartz
Street, Apt. No., or PO Box No.: 5790 Margate Blvd.
City, State, ZIP+4: Margate, FL 33067

PS Form 3800, January 2001 See Reverse for Instructions

7001 0320 0001 3692 6242

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

7001 0320 0001 3692 6259

Sent To: Sal Pagliera
Street, Apt. No., or PO Box No.: 6500 Parkside Dr.
City, State, ZIP+4: Parkland, FL 33067-1638

PS Form 3800, January 2001 See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

The Honorable Sal Pagliera
Mayor, City of Parkland
6500 Parkside Drive
Parkland, FL 33067-1638

COMPLETE THIS SECTION ON DELIVERY

A. Received by (Please Print Clearly) B. Date of Delivery 4/24

C. Signature X ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

SARAH CASTON

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

7001 0320 0001 3692 6259

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

Memorandum

Florida Department of
Environmental Protection

TO: Howard L. Rhodes

THRU: Trina L. Vielhauer
Al Linero

FROM: Teresa Heron

DATE: April 21, 2003

SUBJECT: El Paso Manatee Energy Center 600 Megawatt Gas-fueled Power Plant
DEP File No. 0810199-002-AC (PSD-FL-318)
El Paso Belle Glade Energy Center 600 Megawatt Gas-fueled Power Plant
DEP File No. 0990594-002-AC (PSD-FL-317)
El Paso Broward Energy Center 775 Megawatt Gas-fueled Power Plant
DEP File No. 0112545-002-AC (PSD-FL-316)

Attached are letters modifying the permit for each of the above reference power plant facilities. These permit modifications are to extend the permit expiration date along with the dates to commence and to complete construction. A request was filed on February 12, 2003.

The PSD permits were issued on January 16, 2002 (Manatee), January 28, 2002 (Belle Glade) and May 15, 2002 (Broward), all with an expiration date of December 1, 2004. The facilities have not started construction.

The permitted facilities will consist of a 250 MW combined cycle and two (Manatee and Belle Glade) and three (Broward) intermittent duty, simple cycle, 175 MW GE 7FA combustion turbines along with ancillary equipment.

The NOx BACT limit for the combined cycle unit was determined to be 2.5 ppmvd @15% O_2 on a 24-hr average time and 5 ppmvd ammonia slip. BACT for CO, controlled by oxidation catalyst was 2.5 and 4 ppmvd for normal operation and power augmentation, respectively. These are the first oxidation catalysts to be installed on a GE 7FA in this state. The simple cycle units will meet NOx and CO limits of 9 and 7.4 ppmvd @15% O_2 respectively without power augmentation.

We recommend your approval.

AAL/th

Attachments

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

April 21, 2003

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. William Mack
Senior Managing Director
El Paso Merchant Energy Company
1001 Louisiana Street
Houston, Texas 770002

Re: DEP File No. 0112545~~-002~~001-AC (PSD-FL-316)
Broward Energy Center -775 MW Cogeneration Plant

Dear Mr. Mack:

The Department reviewed your letter dated February 11, 2003 for extension of the referenced air construction permit. The request is to extend the dates for commencement of construction, completion of physical construction, and permit expiration.

The Department hereby determines that the request to extend the permit expiration date along with the dates to commence and to complete construction is acceptable. The following permit specific conditions are hereby modified as follows:

FIRST PAGE OF PERMIT

Expires~~: December 1, 2004~~ **December 1, 2005**

SECTION II – CONDITION 3

PSD Approval to Construct Expiration: Approval to construct shall become invalid if construction is not commenced ~~within 18 months after receipt of such approval~~ **by September 1, 2004,** or if construction is discontinued for a period of 18 months or more, or if physical construction is not completed ~~within a reasonable time~~ **by September 1, 2005.** ~~The Department may extend the 18-month period upon a satisfactory showing that an extension is justified.~~ [40 CFR 52.21(r)(2)].

SECTION II – CONDITION 4

Completion of Construction: The permit expiration date is ~~December 1, 2004~~ **December 1, 2005.** Physical construction shall be complete by ~~September 1, 2004~~ **September 1, 2005.** The additional time provides for testing, submittal of results, and submittal of the Title V permit to the Department.

SECTION II - CONDITION 6

BACT Determination: In conjunction with ~~extension of the 18-month periods to commence or continue construction,~~ phasing of the project, or an extension of the ~~December 1, 2004~~ **December 1, 2005** permit expiration date, the permittee may be required to demonstrate the adequacy of any previous determination of

Best Available Control Technology (BACT) for the source. [40 CFR 52.21(j)(4); 40CFR 51.166(j) and Rule 62-4.070 F.A.C.]

The Department determined that the present BACT is adequate.

A copy of this letter shall be filed with the referenced permit and shall become part of the permit. This permitting decision is issued pursuant to Chapter 403, Florida Statutes.

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.

This permitting decision is final and effective on the date filed with the clerk of the Department unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition pursuant to Rule 62-110.106, F.A.C., and the petition conforms to the content requirements of Rules 28-106.201 and 28-106.301, F.A.C. Upon timely filing of a petition or a request for extension of time, this order will not be effective until further order of the Department.

Any party to this permitting decision (order) has the right to seek judicial review of it under section 120.68 of the Florida Statutes, by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within thirty days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida

Howard L. Rhodes, Director
Division of Air Resources
Management

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this PERMIT MODIFICATION was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 4/22/03 to the person(s) listed:

William Mack, El Paso*
Jennifer Molhagen, El Paso
Tom Davis, P.E., ECT
Tom Tittle, DEP SED
Daniella Banu Broward County DPEP*
Chair, Broward County BCC*
Mayor, City of Coconut Creek*
Mayor, Parkland*
Mayor, City of Margate*
Mayor, Pompano Beach*
Mayor, Deerfield Beach*
Mayor, City of Coral Springs*

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.

Victoria Gibson April 22, 2003
(Clerk) (Date)

Executed in Tallahassee, Florida

Howard L. Rhodes, Director
Division of Air Resources
Management

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this PERMIT MODIFICATION was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 4/22/03 to the person(s) listed:

William Mack, El Paso*
Jennifer Molhagen, El Paso
Tom Davis, P.E., ECT
Tom Tittle, DEP SED
Daniella Banu Broward County DPEP*
Chair, Broward County BCC*
Mayor, City of Coconut Creek*
Mayor, Parkland*
Mayor, City of Margate*
Mayor, Pompano Beach*
Mayor, Deerfield Beach*
Mayor, City of Coral Springs*

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.

Victoria Gibson April 22, 2003
(Clerk) (Date)

elpaso

April 2, 2003

Ms. Patty Adams
Bureau of Air Regulation
Florida Dept. of Environmental Protection
2600 Blair Stone Road (MS #5505)
Tallahassee, Florida 32399-2400

Re: Request for Permit Extension
Belle Glade Energy Center, PSD-FL-317
Broward Energy Center, PSD-FL-316
Manatee Energy Center, PSD-FL-318

Dear Ms. Adams:

El Paso Merchant Energy Company (El Paso) is submitting a check made out to the Florida Department of Environmental Protection in the amount of $150.00, to cover the $50.00 processing fee for each of the three (3) above-referenced requests for permit extensions. If you have any questions or need more information, please contact me at 713-420-4771 or Krish Ravishankar at (713) 420-5563. Thank you for your help.

Sincerely,

Jennifer Mollhagen

Jennifer Mollhagen
Sr. Environmental Scientist

CC: Krish Ravishankar, El Paso

El Paso Corporation
1001 Louisiana Street Houston, Texas 77002
PO Box 2511 Houston, Texas 77252.2511
tel 713.420.2131 fax 713.420.5107

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

February 21, 2003

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Ms. Jennifer Mollhagen
Sr. Environmental Scientist
El Paso Corporation
P. O. Box 2511
Houston, Texas 77252-2511

RE: Request for Extension of Expiration Date
PSD-FL-316, Broward Energy Center
PSD-FL-317, Belle Glade Energy Center
PSD-FL-318, Manatee Energy Center

Dear Ms. Mollhagen:

The Bureau of Air Regulation received the above referenced permit extension requests on February 12, 2003. Since these facilities do not hold current Title V operating permits, a fee of $50 for each extension is required to process this request. If you have any questions, please feel free to call me at (850)921-9505.

Sincerely,

Patty Adams

Patty Adams
Bureau of Air Regulation

/pa

cc: Teresa Heron

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Ms. Jennifer Mollhagen
Senior Environmental Scientist
El Paso Corporation
P. O. Box 2511
Houston, TX 77252-2511

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) C. Date of Delivery
MAR - 3 2003

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

7001 0320 0001 3692 6914

PS Form 3811, August 2001 Domestic Return Receipt 102595-02-M-1540

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To Jennifer Mollhagen
Street, Apt. No.; or PO Box No. PO Box 2511
City, State, ZIP+4 Houston, TX 77252-2511

7001 0320 0001 3692 6914

PS Form 3800, January 2001 See Reverse for Instructions

elpaso

February 11, 2003

Al Linero
Bureau of Air Regulation
Florida Dept. of Environmental Protection
2600 Blair Stone Road (MS #5505)
Tallahassee, Florida 32399-2400

Re: Request for Permit Extension
Broward Energy Center
Deerfield Beach, Broward County, Florida
Air Permit No. PSD-FL-316
Facility ID No. 0112545

Dear Mr. Linero:

El Paso Merchant Energy Company (El Paso) currently has a permit (Air Permit No. PSD-FL-316) to construct, own, and operate a new electric power-generating plant in Broward County, Florida. The new power plant, designated as the Broward Energy Center (Broward), will have a total generating capacity of nominal 775 MW, and will be fired exclusively with natural gas. The plant will consist of one combined cycle gas turbine, three simple cycle gas turbines, and associated equipment, and will be located in Deerfield Beach in Broward County.

El Paso would like to request an extension of the above-referenced permit. The permit is currently scheduled to expire on December 1, 2004, and we would like your permission to extend the permit until December 1, 2005. The facility has not yet begun construction. If you have any questions or need more information, please contact me at 713-420-4771 or Krish Ravishankar at (713) 420-5563. Thank you for your help.

Sincerely,

Jennifer Mollhagen
Sr. Environmental Scientist

CC: Krish Ravishankar, El Paso

El Paso Corporation
1001 Louisiana Street Houston, Texas 77002
PO Box 2511 Houston, Texas 77252.2511
tel 713.420.2131 fax 713.420.5107

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

The Honorable Arlene Schwartz
Mayor, City of Margate
5790 Margate Boulevard
Margate, FL 33067

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)*: P GROSSMAN — B. Date of Delivery: 4-23-3

C. Signature: X P Grossman — ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

7001 0320 0001 3692 6242

PS Form 3811, July 1999 — Domestic Return Receipt — 102595-99-M-1789

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To: Arlene Schwartz
Street, Apt. No.; or PO Box No.: 5790 Margate Blvd.
City, State, ZIP+4: Margate, FL 33067

PS Form 3800, January 2001 — See Reverse for Instructions

7001 0320 0001 3692 6242

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To: Sal Pagliera
Street, Apt. No.; or PO Box No.: 6500 Parkside Dr.
City, State, ZIP+4: Parkland, FL 33067-1638

PS Form 3800, January 2001 — See Reverse for Instructions

7001 0320 0001 3692 6259

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

The Honorable Sal Pagliera
Mayor, City of Parkland
6500 Parkside Drive
Parkland, FL 33067-1638

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* — B. Date of Delivery: 4/24

C. Signature: X Sarah Caston — ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

SARAH CASTON

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

7001 0320 0001 3692 6259

PS Form 3811, July 1999 — Domestic Return Receipt — 102595-99-M-1789

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

The Honorable John Sommerer
Mayor, City of Coral Springs
9551 West Sample Road
Coral Springs, FL 33065

COMPLETE THIS SECTION ON DELIVERY

A. Received by (Please Print Clearly) | B. Date of Delivery: 4-24-03

C. Signature: x M Boothby ☒ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

7001 0320 0001 3692 6211

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To: John Sommerer
Street, Apt. No.; or PO Box No.: 9551 W. Sample Rd.
City, State, ZIP+4: Coral Springs, FL 33065

PS Form 3800, January 2001 See Reverse for Instructions

7001 0320 0001 3692 6211

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To: Albert R. Capellini
Street, Apt. No.; or PO Box No.: 150 N.E. 2nd Ave.
City, State, ZIP+4: Deerfield Bch., FL 33441

PS Form 3800, January 2001 See Reverse for Instructions

7001 0320 0001 3692 6228

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

The Honorable Albert R. Capellini
Mayor, City of Deerfield
City Hall
150 N.E. 2nd Avenue
Deerfield Beach, FL 33441

COMPLETE THIS SECTION ON DELIVERY

A. Received by (Please Print Clearly): J Bruning | B. Date of Delivery

C. Signature: x J Bruning ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

7001 0320 0001 3692 6228

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

The Honorable William Griffin
Mayor, City of Pompano Beach
100 W. Atlantic Boulevard
Pompano Beach, FL 33060

COMPLETE THIS SECTION ON DELIVERY

A. Received by (Please Print Clearly): Michele Brewer
B. Date of Delivery: 04/25/03

C. Signature
X Michele Brewer
☒ Agent
☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

7001 0320 0001 3692 6235

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To: William Griffin
Street, Apt. No.; or PO Box No.: 100 W. Atlantic Blvd.
City, State, ZIP+4: Pompano Bch., FL 33060

PS Form 3800, January 2001 See Reverse for Instructions

7001 0320 0001 3692 6235

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To: Daniela Banu
Street, Apt. No.; or PO Box No.: 218 SW 1st Avenue
City, State, ZIP+4: Ft. Lauderdale, FL 33301

PS Form 3800, January 2001 See Reverse for Instructions

7001 0320 0001 3692 6280

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Ms. Daniela Banu
Broward County Department of
Natural Resource Protection
218 S.W. First Avenue
Fort Lauderdale, FL 33301

COMPLETE THIS SECTION ON DELIVERY

A. Received by (Please Print Clearly)
B. Date of Delivery: APR 24 2003

C. Signature
X
☐ Agent
☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

7001 0320 0001 3692 6280

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Diana Wasserman-Rubin, Chair
Broward County, Board of County Commissioners
115 S. Andrews Avenue, Room 413
Fort Lauderdale, FL 33301

COMPLETE THIS SECTION ON DELIVERY

A. Received by (Please Print Clearly) B. Date of Delivery APR 24 2003

C. Signature X ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

7001 0320 0001 3692 6273

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To: Diana Wasserman-Rubin
Street, Apt. No.; or PO Box No.: 115 S. Andrews Ave., Room 413
City, State, ZIP+4: Ft. Lauderdale, FL 33301

PS Form 3800, January 2001 See Reverse for Instructions

7001 0320 0001 3692 6273

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To: Marilyn Gerder
Street, Apt. No.; or PO Box No.: 4800 W. Copans Road
City, State, ZIP+4: Coconut Creek, FL 33063

PS Form 3800, January 2001 See Reverse for Instructions

7001 0320 0001 3692 6266

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

The Honorable Marilyn Gerder
Mayor, City of Coconut Creek
4800 W. Copans Road
Coconut Creek, FL 33063

COMPLETE THIS SECTION ON DELIVERY

A. Received by (Please Print Clearly) C. L. Peter B. Date of Delivery 4/24/03

C. Signature X C. L. Peter ☐ Agent ☒ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

PS Fc

02595-99-M-1789

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. William Mack
Senior Managing Director
El Paso Merchant Energy Company
Coastal Tower, Nine Greenway Plaza
Suite 1682- A
Houston, TX 77046-0995

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)*
B. Date of Delivery APR 25 2003

C. Signature
X M. Coe'llor ☒ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

7001 0320 0001 3692 6426

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

7001 0320 0001 3692 6426

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To
William Mack
Street, Apt. No.; or PO Box No.
Coastal Tower, 9 Greenway Plaza 1682A
City, State, ZIP+4
Houston, TX 77046-0995

PS Form 3800, January 2001 See Reverse for Instructions