R:
- items 1 and/or 2 for additional services
- items 3, 4a, and 4b.
- r name and address on the reverse of this form so that we can return this ou.
- is form to the front of the mailpiece, or on the back if space does not

Return Receipt Requested on the mailpiece below the article number.
urn Receipt will show to whom the article was delivered and the date

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

Consult postmaster for fee.

Addressed to:
Richard Wolfinger, VP
Alder Power Proj.
W. Pratt St, 23rd Fl
ore, MD
21201

4a. Article Number
Z 031 392 008

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

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

By: *(Print Name)*

(Addressee or Agent)

Thank you for using Return Receipt Service.

Z 031 392 008

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to Richard Wolfinger	
Street & Number Alexander Power	
Post Office, State, & ZIP Code Baltimore MD	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 11-22-99	

PS Form 3800, April 1995

0090180-001-AC
PSD-FI-258

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF FINAL PERMIT

In the Matter of an
Application for Permit by:

Richard L. Wolfinger, Vice President
Oleander Power Project, L.P.
250 West Pratt Street, 23rd Floor
Baltimore, MD 21201

DEP File No. 0090180-001-AC, PSD-FL-258
Oleander Power Plant
Brevard County

Enclosed is Final Permit Number 0091080-001-AC. This permit authorizes Oleander Power Project, L.P. to construct the Oleander Power Project. This permit is issued pursuant to Chapter 403, Florida Statutes.

Any party to this 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.

A. A. Linero, P.E.

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

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Notice of Final Permit (including the Final permit) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 11-22-99 to the person(s) listed:

Richard L. Wolfinger, Oleander Power Project, L.P. *
Gregg Worley, EPA
John Bunyak, NPS
Len Kozlov, CD
Ken Kosky, P.E., Golder Associates
Chair, Brevard County Commission
Administrator, Brevard County
List of Requestors

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.

Kyra Jobe (Clerk) 11-22-99 (Date)

FINAL DETERMINATION

Oleander Power Project
Oleander Power Project, L.P.
DEP File No.0090180-001-AC, PSD-FL-258

The Department distributed a public notice package on March 26, 1999 to allow the applicant to construct a new plant known as the Oleander Power Plant located west of Cocoa, Brevard County. The Public Notice of Intent to Issue was published in The Florida Today on April 8, 1999.

COMMENTS/CHANGES

Comments were received from the applicant by letter dated May 6, 1999.

A public meeting was held on May 13, 1999, transcripts of which are on file.

An Administrative Hearing was held on August 30, 1999, transcripts of which are on file.

Recommended Order issued September 27, 1999 by Administrative Law Judge Daniel Manry.

Final Order issued November 10, 1999 by the Office of The Secretary.

CONCLUSION

No comments were received which alter the Draft BACT or Draft permit.

Accordingly, the final action of the Department is to issue the BACT and permit with no changes.

Department of Environmental Protection

Jeb Bush
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

David B. Struhs
Secretary

PERMITTEE:

Oleander Power Project, L.P.
Oleander Power Project
250 West Pratt Street, 23rd Floor
Baltimore, MD 21201

File No.	0090180-001-AC
FID No.	0090180-001
SIC No.	4911
Permit No.	PSD-FL-258
Expires:	March 26, 2003

Authorized Representative:
Richard L. Wolfinger
Vice President

PROJECT AND LOCATION:

Permit for the construction of five 190-MW dual-fuel "F" class combustion turbines and two 2.8 million-gallon fuel oil storage tanks for back-up distillate fuel oil. The turbines are designated as Unit Nos. 1-5 and will be located at the Oleander Power Project, 527 Townsend Road, Cocoa, Brevard County. UTM coordinates are: Zone 17; 520.1 km E; 3137.6 km N.

STATEMENT OF BASIS:

This construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.). The above named permittee is authorized to modify the facility 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 of Environmental Protection (Department).

Attached appendices and Tables made a part of this permit:

Appendix BD	BACT Determination
Appendix GC	Construction Permit General Conditions

Howard L. Rhodes, Director
Division of Air Resources
Management

SECTION I. FACILITY INFORMATION

FACILITY DESCRIPTION

This permit is for the installation of five 190 MW simple cycle "F" class, gas and oil-fired, stationary combustion turbines, each with its own 60-foot stack and two 2.8 million gallon storage tank for back-up (0.05 percent sulfur) distillate fuel oil.

Emissions from the Oleander units will be controlled by Dry Low NO_X combustors while firing natural gas, wet injection when firing fuel oil, use of inherently clean fuels, and good combustion practices.

EMISSION UNITS

This permit addresses the following emission units:

ARMS EMISSION UNIT NO.	SYSTEM	EMISSION UNIT DESCRIPTION
001	Power Generation	190 Megawatt Combustion Turbine
002	Power Generation	190 Megawatt Combustion Turbine
003	Power Generation	190 Megawatt Combustion Turbine
004	Power Generation	190 Megawatt Combustion Turbine
005	Power Generation	190 Megawatt Combustion Turbine
006	Fuel Storage	2.8 Million Gallon Fuel Oil Storage Tank
007	Fuel Storage	2.8 Million Gallon Fuel Oil Storage Tank

REGULATORY CLASSIFICATION

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 tons per year (TPY).

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, Prevention of Significant Deterioration (PSD). Per Table 62-212.400-2, modifications at the facility resulting in emissions increases greater than the following require review per the PSD rules as well as a determination for Best Available Control Technology (BACT) per Rule 62-212.410, F.A.C.: 40 TPY of NO_X, 40 TPY of SO_2, 25/15 TPY of PM/PM_{10}, 7 TPY of SAM, 100 TPY of CO or 40 TPY of VOC.

SECTION I. FACILITY INFORMATION

PERMIT SCHEDULE

- 11/22/99 Issued Permit
- 11/10/99 Final Order Issued by Secretary's Office
- 08/30/99 Administrative Hearing held
- 04/08/99 Notice of Intent published in The Florida Today
- 03/26/99 Distributed Intent to Issue Permit
- 02/02/99 Application deemed complete
- 11/24/98 Received Application

RELEVANT DOCUMENTS:

The documents listed below are the basis of the permit. They are specifically related to this permitting action, but not all are incorporated into this permit. These documents are on file with the Department.

- Application received on November 24, 1998
- Department letters dated November 25, December 17 and December 22, 1998
- Comments from the National Park Service dated December 18, 1998
- Letter from Oleander (via Golder Associates) dated February 1, 1999 including revisions to original application.
- Letter from Oleander (via Golder Associates) dated March 17, 1999 including further revisions to application.
- Department's Intent to Issue and Public Notice Package dated March 26, 1999
- Department's Final Determination and Best Available Control Technology Determination issued concurrently with this permit.
- Administrative Hearing Officer's Recommended Order, dated September 27, 1999
- Department's Final Order from the Office of The Secretary, dated November 10, 1999

SECTION II. ADMINISTRATIVE REQUIREMENTS

1. Regulating Agencies: All documents related to applications for permits to construct, operate or modify an emissions unit should be submitted to the Bureau of Air Regulation (BAR), Florida Department of Environmental Protection (FDEP), at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400 and phone number (850) 488-1344. All documents related to reports, tests, and notifications should be submitted to the DEP Central District office, 3319 Maguire Boulevard, Orlando, Florida 32803 and phone number 407/894-7555.
2. General Conditions: The owner and operator is subject to and shall operate under the attached General Permit Conditions G.1 through G.15 listed in Appendix GC of this permit. General Permit Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. [Rule 62-4.160, F.A.C.]
3. Terminology: The terms used in this permit have specific meanings as defined in the corresponding chapters of the Florida Administrative Code.
4. Forms and Application Procedures: 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. [Rule 62-210.900, F.A.C.]
5. Modifications: The permittee shall give written notification to the Department when there is any modification to this facility. This notice shall be submitted sufficiently in advance of any critical date involved to allow sufficient time for review, discussion, and revision of plans, if necessary. Such notice shall include, but not be limited to, information describing the precise nature of the change; modifications to any emission control system; production capacity of the facility before and after the change; and the anticipated completion date of the change. [Chapters 62-210 and 62-212]
6. 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)].
7. BACT Determination: In accordance with paragraph (4) of 40 CFR 52.21(j) the Best Available Control Technology (BACT) determination shall be reviewed and modified as appropriate in the event of a plant conversion. This paragraph states: "For phased construction project, the determination of best available control technology shall be reviewed and modified as appropriate at the latest reasonable time which occurs no later than 18 months prior to commencement of construction of each independent phase of the project. At such time, the owner or operator of the applicable stationary source may be required to demonstrate the adequacy of any previous determination of best available control technology for the source."

SECTION II. ADMINISTRATIVE REQUIREMENTS

This reassessment will also be conducted for this project if there are any increases in heat input limits, hours of operation, oil firing, low or baseload operation, short-term or annual emission limits, annual fuel heat input limits or similar changes. [40 CFR 52.21(j)(4), Rule 62-4.070 F.A.C.]

8. Application for Title V Permit: An application for a Title V operating permit, pursuant to Chapter 62-213, F.A.C., must be submitted to the DEP's Bureau of Air Regulation, and a copy to the Department Central District office [Chapter 62-213, F.A.C.]

9. New or Additional Conditions: Pursuant to Rule 62-4.080, F.A.C., 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.]

10. Annual Reports: Pursuant to Rule 62-210.370(2), F.A.C., Annual Operation Reports, the permittee is required to submit annual reports on the actual operating rates and emissions from this facility. Annual operating reports shall be sent to the DEP's Central District office by March 1st of each year. [Rule 62-210.370(2), F.A.C.]

11. Stack Testing Facilities: Stack sampling facilities shall be installed in accordance with Rule 62-297.310(6), F.A.C.

12. Permit Extension: The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit [Rule 62-4.080, F.A.C.]

13. Quarterly Reports: Quarterly excess emission reports, in accordance with 40 CFR 60.7 (a)(7) (c) (1997 version), shall be submitted to the DEP's Central District office. Each excess emission report shall include the information required in 40 CFR 60.7(c) and 60.334.

SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

APPLICABLE STANDARDS AND REGULATIONS:

1. Unless otherwise indicated in this permit, the construction and operation of the subject emission unit(s) shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of Chapter 403, F.S. and Florida Administrative Code Chapters 62-4, 62-103, 62-204, 62-210, 62-212, 62-213, 62-214, 62-296, 62-297; and the applicable requirements of the Code of Federal Regulations Section 40, Parts 60, 72, 73, and 75.
2. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements or regulations. [Rule 62-210.300, F.A.C.]
3. These emission units shall comply with all applicable requirements of 40CFR60, Subpart A, General Provisions including:
   - 40CFR60.7, Notification and Recordkeeping
   - 40CFR60.8, Performance Tests
   - 40CFR60.11, Compliance with Standards and Maintenance Requirements
   - 40CFR60.12, Circumvention
   - 40CFR60.13, Monitoring Requirements
   - 40CFR60.19, General Notification and Reporting requirements
4. ARMS Emission Units 001-005, Power Generation, consisting of five 190 megawatt combustion turbines shall comply with all applicable provisions of 40CFR60, Subpart GG, Standards of performance for Stationary Gas Turbines, adopted by reference in Rule 62-204.800(7)(b), F.A.C. The Subpart GG requirement to correct test data to ISO conditions applies. However, such correction is not used for compliance determinations with the BACT standard(s). [Rule 62-204.800(7)(b), F.A.C.]
5. ARMS Emission Units 006-007, Fuel Storage, consisting of two 2.8 million gallon distillate fuel oil storage tanks shall comply with all applicable provisions of 40CFR60, Subpart Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels, adopted by reference in Rule 62-204.800, F.A.C. [Rule 62-204.800(7)(b), F.A.C.]
6. All notifications and reports required by the above specific conditions shall be submitted to the DEP's Central District office.

GENERAL OPERATION REQUIREMENTS

7. Fuels: Only pipeline natural gas or maximum 0.05 percent sulfur fuel oil No. 2 or superior grade of distillate fuel oil shall be fired in this unit. [Applicant Request, Rule 62-210.200, F.A.C. (Definitions - Potential Emissions)] {Note: The limitation of this specific condition is more stringent than the NSPS sulfur dioxide limitation and thus assures compliance with 40 CFR 60.333 and 60.334}

SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

8. Capacity: The maximum heat input rates, based on the lower heating value (LHV) of each fuel to each Unit (1-5) at ambient conditions of 59°F temperature, 60% relative humidity, 100% load, and 14.7 psi pressure shall not exceed 1,722 million Btu per hour (MMBtu/hr) when firing natural gas, nor 1,919 MMBtu/hr when firing No. 2 or superior grade of distillate fuel oil. These maximum heat input rates will vary depending upon ambient conditions and the combustion turbine characteristics. Manufacturer's curves corrected for site conditions or equations for correction to other ambient conditions shall be provided to the Department of Environmental Protection (DEP) within 45 days of completing the initial compliance testing. [Design, Rule 62-210.200, F.A.C. (Definitions - Potential Emissions)]

9. 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.]

10. 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 owner or operator shall notify the DEP Central District office as soon as possible, but at least within (1) working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; the steps being taken to correct the problem and prevent future recurrence; and 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 and the regulations. [Rule 62-4.130, F.A.C.]

11. Operating Procedures: Operating procedures shall include good operating practices and proper training of all operators and supervisors. The good operating practices shall meet the guidelines and procedures as established by the equipment manufacturers. All operators (including supervisors) of air pollution control devices shall be properly trained in plant specific equipment. [Rule 62-4.070(3), F.A.C.]

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

13. Maximum allowable hours: The stationary gas turbines shall only operate up to 3390 hours (each) any calendar year. [Applicant Request, Rule 62-210.200, F.A.C. (Definitions - Potential Emissions)]

14. Fuel usage as heat input, while burning natural gas at the site, shall not exceed 29.188×10^{12} BTU (LHV) per year during any consecutive 12 month period.
[Applicant Request, Rule 62-210.200, F.A.C. (Definitions - Potential Emissions)]

15. Fuel usage as heat input, while burning fuel oil at the site, shall not exceed 9.595×10^{12} BTU (LHV) per year during any consecutive 12 month period. Additionally, the amount of fuel oil

burned at the site (in BTU's) shall not exceed natural gas burned at the site (in BTU's) during any consecutive 12-month period.
[Applicant Request, Rule 62-210.200, F.A.C. (Definitions - Potential Emissions)]

Control Technology

16. Dry Low NO_X (DLN) combustors shall be installed on the stationary combustion turbine to control nitrogen oxides (NO_X) emissions while firing natural gas. [Design, Rule 62-4.070, F.A.C.]

17. The permittee shall design each stationary combustion turbine, ducting, and stack(s) so as to not preclude installation of SCR equipment and/or oxidation catalyst in the event of a failure to achieve the NO_X limits given in Specific Condition No. 20 and 21 or the carbon monoxide (CO) limits given in Specific Condition 22. [Rule 62-4.070, F.A.C.]

18. A water injection (WI) system shall be installed for use when firing No. 2 or superior grade distillate fuel oil for control of NO_X emissions. [Design, Rules 62-4.070 and 62-212.400, F.A.C.]

19. The DLN systems shall each be tuned upon initial operation to optimize emissions reductions and shall be maintained to minimize NO_X emissions and CO emissions. Operation of the DLN systems in the diffusion-firing mode shall be minimized when firing natural gas. [Rule 62-4.070, and 62-210.650 F.A.C.]

EMISSION LIMITS AND STANDARDS

20. The following table is a summary of the BACT determination and is followed by the applicable specific conditions. Values for NO_X are corrected to 15% O_2 on a dry basis. [Rule 62-212.400, F.A.C.]

Operational Mode (Fuel)	NO_X (15%O2)	CO	VOC	PM/Visibility (% Opacity)	SO_2/SAM	Technology and Comments
Natural Gas	9 ppm	12 ppm	3 ppm	10	1 grain S per 100 CF	Dry Low NOx Burners. Clean fuels, good combustion
Fuel Oil	42 ppm	20 ppm	6 ppm	10	0.05% sulfur oil	Water Injection. Units limited to 1000 hrs equivalent full load oil operation (per CT) annually. Clean fuels, good combustion

21. Nitrogen Oxides (NO_X) Emissions:

- When NO_X monitoring data is not available, substitution for missing data shall be handled as required by Title IV (40 CFR 75) to calculate any specified average time.
- While firing Natural Gas: The emission rate of NO_X in the exhaust gas shall not exceed 62.6 lb/hr (at ISO conditions) on a 24 hr block average as measured by the continuous

emission monitoring system (CEMS). In addition, NO_X emissions calculated as NO_2 (at ISO conditions) shall not exceed 9 ppm @15% O_2 to be demonstrated by stack test. Note: Basis for lb/hr limit is 9 ppm @ 15% O_2, full load. [Rule 62-212.400, F.A.C.]

- While firing Fuel oil: The concentration of NO_X in the exhaust gas shall not exceed 42 ppmvd at 15% O_2 on the basis of a 3 hr average as measured by the continuous emission monitoring system (CEMS). In addition, NO_X emissions calculated as NO_2 (at ISO conditions) shall not exceed 42 ppm @15% O_2 to be demonstrated by stack test. [Rule 62-212.400, F.A.C.]
- Within 18 months after the initial compliance test, the permittee shall prepare and submit for the Department's review and acceptance an engineering report regarding the lowest NO_X emission rate that can consistently be achieved when firing distillate oil. This lowest recommended rate shall include a reasonable operating margin, taking into account long-term performance expectations and good operating and maintenance practices. The Department may revise the NO_X emission rate based upon this report. [BACT determination; Applicant request]

22. Carbon Monoxide (CO) emissions: The concentration of CO in the exhaust gas when firing natural gas shall not exceed 12 ppmvd when firing natural gas and 20 ppmvd when firing fuel oil as measured by EPA Method 10. CO emissions (at ISO conditions) shall not exceed 41.0 lb/hr (when firing natural gas) and 66.9 lb/hr (when firing fuel oil). [Rule 62-212.400, F.A.C.]
23. Sulfur Dioxide (SO_2) emissions: SO_2 emissions (at ISO conditions) shall not exceed 5.5 pounds per hour when firing pipeline natural gas and 103.4 pounds per hour when firing maximum 0.05 percent sulfur No. 2 or superior grade distillate fuel oil as measured by applicable compliance methods described below. [Rule 62-212.400, F.A.C.]
24. Visible emissions (VE): VE emissions shall not exceed 10 percent opacity when firing natural gas or No. 2 or superior grade of fuel oil, except for during startup and shutdown at which time emissions shall not exceed 20 percent opacity. [Rule 62-296.320(4)(b), F.A.C.]
25. Volatile Organic Compounds (VOC) Emissions: The concentration of VOC in the exhaust gas when firing natural gas shall not exceed 3 ppmvd when firing natural gas and 6 ppmvd when firing fuel oil as assured by EPA Methods 18, and/or 25 A. VOC emissions (at ISO conditions) shall not exceed 5.9 lb/hr (when firing natural gas) and 11.5 lb/hr (when firing fuel oil). [Rule 62-212.400, F.A.C.]

EXCESS EMISSIONS

26. Excess emissions resulting from startup, shutdown or malfunction shall be permitted provided that best operational practices are adhered to and the duration of excess emissions shall be minimized. Excess emissions occurrences shall in no case exceed two hours in any 24-hour period for other reasons unless specifically authorized by DEP for longer duration. Operation below 50% output shall be limited to 2 hours per unit cycle (breaker closed to breaker open).

Excess emissions 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 pursuant to Rule 62-210.700, F.A.C.

27. Excess Emissions Report: If excess emissions occur due to malfunction, start-up or shut-down the owner or operator shall notify DEP's Central District office within (1) working day of: the nature, extent, and duration of the excess emissions; the cause of the excess emissions; and the actions taken to correct the problem. In addition, the Department may request a written summary report of the incident. Pursuant to the New Source Performance Standards, excess emissions shall also be reported in accordance with 40 CFR 60.7, Subpart A. [Rules 62-4.130 and 62-210.700(6), F.A.C.]

COMPLIANCE DETERMINATION

28. Compliance with the allowable emission limiting standards shall be determined within 60 days after achieving the maximum production rate, for each fuel, at which this unit will be operated, but not later than 180 days of initial operation of the unit for that fuel, and annually thereafter as indicated in this permit, by using the following reference methods as described in 40 CFR 60, Appendix A (1997 version), and adopted by reference in Chapter 62-204.800, F.A.C.

29. Initial (I) performance tests shall be performed on each unit while firing natural gas as well as while firing fuel oil. Initial tests shall also be conducted after any modifications (and shake down period not to exceed 100 days after starting the CT) to air pollution control equipment, including low NO_X burners or Hot SCR. Annual (A) compliance tests shall be performed during every federal fiscal year (October 1 - September 30) pursuant to Rule 62-297.310(7), F.A.C., on each unit as indicated. The following reference methods shall be used. No other test methods may be used for compliance testing unless prior DEP approval is received in writing.

    - EPA Reference Method 9, "Visual Determination of the Opacity of Emissions from Stationary Sources" (I, A).
    - EPA Reference Method 10, "Determination of Carbon Monoxide Emissions from Stationary Sources" (I, A).
    - EPA Reference Method 20, "Determination of Oxides of Nitrogen Oxide, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines." Initial test only for compliance with 40CFR60 Subpart GG and (I, A) short-term NO_X BACT limits (EPA reference Method 7E, "Determination of Nitrogen Oxides Emissions from Stationary Sources" or RATA test data may be used to demonstrate compliance for annual test requirement).
    - EPA Reference Method 18, and/or 25A, "Determination of Volatile Organic Concentrations." Initial test only.

30. Continuous compliance with the NO_X emission limits: Continuous compliance with the NO_X emission limits shall be demonstrated with the CEM system based on the applicable averaging

time of 24-hr block average (DLN technology) or a 3-hr average (if SCR is used). For the 24-hr block average (lb/hr) emissions may be determined via EPA Method 19 or equivalent EPA approved methods. Based on CEMS data, a separate compliance determination is conducted at the end of each operating day (or 3-hr period when applicable) and a new average emission rate is calculated from the arithmetic average of all valid hourly emission rates from the previous operating day (or 3-hr period when applicable). Valid hourly emission rates shall not include periods of startup, shutdown, or malfunction as defined in Rule 62-210.200 F.A.C., where emissions exceed the applicable NO_X standard. These excess emissions periods shall be reported as required in Conditions 26 and 27. A valid hourly emission rate shall be calculated for each hour in which at least two NO_X concentrations are obtained at least 15 minutes apart. [Rules 62-4.070 F.A.C., 62-210.700, F.A.C., and 40 CFR 75]

31. Compliance with the SO_2 and PM/PM_{10} emission limits: Notwithstanding the requirements of Rule 62-297.310(7), F.A.C., the use of pipeline natural gas and maximum 0.05 percent sulfur (by weight) No. 2 or superior grade distillate fuel oil, is the method for determining compliance for SO_2 and PM_{10}. For the purposes of demonstrating compliance with the 40 CFR 60.333 SO_2 standard and the 0.05% S limit, fuel oil analysis using ASTM D2880-941 or D4294-90 (or equivalent latest version) for the sulfur content of liquid fuels and D1072-80, D3031-81, D4084-82 or D3246-81 (or equivalent latest version) for sulfur content of gaseous fuel shall be utilized in accordance with the EPA-approved custom fuel monitoring schedule. The applicant is responsible for ensuring that the procedures above are used for determination of fuel sulfur content. 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 pursuant to 40 CFR 60.335(e) (1997 version).

32. Compliance with CO emission limit: An initial test for CO shall be conducted concurrently with the initial NO_X test, as required. The initial NO_X and CO test results shall be the average of three valid one-hour runs. Annual compliance testing for CO may be conducted concurrent with the annual RATA testing for NO_X required pursuant to 40 CFR 75 (required for gas only).

33. Compliance with the VOC emission limit: An initial test is required to demonstrate compliance with the BACT VOC emission limit. Thereafter, CO emission limit will be employed as surrogate and no annual testing is required.

34. Testing procedures: Testing of emissions shall be conducted with the combustion turbine operating at permitted capacity. Permitted capacity is defined as 95-100 percent of the maximum heat input rate allowed by the permit, corrected for the average ambient air temperature during the test (with 100 percent represented by a curve depicting heat input vs. ambient temperature). If it is impracticable to test at permitted capacity, the source may be tested at less than permitted capacity. In this case, subsequent operation is limited by adjusting the entire heat input vs. ambient temperature curve downward by an increment equal to the difference between the maximum permitted heat input (corrected for ambient temperature) and 105 percent of the value reached during the test 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 purposes of additional compliance testing to regain the permitted capacity. Test procedures shall meet all applicable requirements (i.e., testing time frequency, minimum compliance duration, etc.) of Chapter 62-204.800 F.A.C.

35. Test Notification: The DEP's Central District office shall be notified, in writing, at least 30 days prior to the initial performance tests and at least 15 days before annual compliance test(s). [40 CFR 60.11]

36. Special Compliance Tests: The DEP may request a special compliance test pursuant to Rule 62-297.310(7), F.A.C., when, after investigation (such as complaints, increased visible emissions, or questionable maintenance of control equipment), there is reason to believe that any applicable emission standard is being violated.

37. Test Results: Compliance test results shall be submitted to the DEP's Central District office no later than 45 days after completion of the last test run. [Rule 62-297.310(8), F.A.C.]

NOTIFICATION, REPORTING, AND RECORDKEEPING

38. Records: All measurements, records, and other data required to be maintained by Oleander shall be recorded in a permanent form and retained for at least five (5) years following the date on which such measurements, records, or data are recorded. These records shall be made available to DEP representatives upon request.

39. Emission Compliance Stack Test Reports: A test report indicating the results of the required compliance tests shall be filed as per Condition 37. above. 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), F.A.C.

40. Special Record Keeping Requirements: The owner or operator shall obtain, make, and keep the following records related to fuel usage:

    (1) Monthly Fuel usage as heat input, for natural gas and fuel oil at the site.

    (2) Fuel usage as heat input, for natural gas and fuel oil at the site for each consecutive 12-month period.

    (3) Fuel usage as heat input, for natural gas and fuel oil at the site during each calendar year shall be submitted with the Annual Operation Report (AOR).

    (4) Hours of operation for each combustion turbine shall be reported during each calendar year with the Annual Operation Report (AOR).

MONITORING REQUIREMENTS

41. Continuous Monitoring System: The permittee shall install, calibrate, maintain, and operate a continuous emission monitor in the stack to measure and record the nitrogen oxides emissions from each (CT) unit. Periods when NO_X emissions are above the standards as listed in Specific Condition No 21, shall be reported to the DEP Central District Office pursuant to Rule 62-4.160(8), F.A.C. Following the format of 40 CFR 60.7, periods of startup, shutdown, malfunction, and fuel switching shall be monitored, recorded, and reported as excess emissions when emission levels exceed the standards listed in Specific Condition No. 21 except as noted in Specific Condition No. 30. [Rule 62-204.800 and 40 CFR 60.7 (1997 version)]

42. CEMS in lieu of Water to Fuel Ratio: The NO_X CEMS shall be used in lieu of the water/fuel monitoring system for reporting excess emissions in accordance with 40 CFR 60.334(c)(1), Subpart GG (1997 version). The calibration of the water/fuel-monitoring device required in 40 CFR 60.335 (c)(2) (1997 version) will be replaced by the 40 CFR 75 certification tests of the NO_X CEMS. Upon request from DEP, the CEMS emission rates for NO_X shall be corrected to ISO conditions to demonstrate compliance with the NO_X standard established in 40 CFR 60.332.

43. Continuous Monitoring System Reports: The monitoring devices shall comply with the certification and quality assurance, and any other applicable requirements of Rule 62-297.520, F.A.C., 40 CFR 60.13, including certification of each device in accordance with 40 CFR 60, Appendix B, Performance Specifications and 40 CFR 60.7(a)(5) or 40 CFR Part 75. Quality assurance procedures must conform to all applicable sections of 40 CFR 60, Appendix F or 40CFR75. Data on CEM equipment specifications, manufacturer, type, calibration and maintenance needs, and its proposed location shall be provided to the Department's Central District Office for review at least 90 days prior to installation.

44. Fuel Oil Monitoring Schedule: The following monitoring schedule for No. 2 or superior grade fuel oil shall be followed: For all bulk shipments of No. 2 or superior grade fuel oil received at the Oleander Power Plant, an analysis which reports the sulfur content and nitrogen content of the fuel shall be provided by the fuel vendor. The analysis shall also specify the methods by which the analyses were conducted and shall comply with the requirements of 40 CFR 60.335(d).

45. Natural Gas Monitoring Schedule: The following custom monitoring schedule for natural gas is approved (pending EPA concurrence) in lieu of the daily sampling requirements of 40 CFR 60.334 (b)(2):

    - The permittee shall apply for an Acid Rain permit when the deadlines specified in 40 CFR 72.30.
    - The permittee shall submit a monitoring plan, certified by signature of the Designated Representative that commits to using a primary fuel of pipeline supplied natural gas (sulfur content less than 20 gr/100 scf pursuant of 40 CFR 75.11(d)(2)).

- Each unit shall be monitored for SO_2 emissions using methods consistent with the requirements of 40 CFR 75 and certified by the USAEPA.
- Oleander shall notify DEP of any change in natural gas supply for reexamination of this monitoring schedule. A substantial change in natural gas quality (i.e., sulfur content variation of greater than 1 grain per 100 cubic foot of natural gas) shall be considered as a change in the natural gas supply. Sulfur content of the natural gas will be monitored weekly by the natural gas supplier during the interim period when this monitoring schedule is being reexamined.

46. Determination of Process Variables:

- The permittee shall operate and maintain equipment and/or instruments necessary to determine process variables, such as process weight input or heat input, when such data is needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.
- Equipment and/or instruments used to directly or indirectly determine such process variables, including devices such as belt scales, weigh 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]

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

Oleander Power Project
Oleander Power Project, L.P.
PSD-FL-258 and 0090180-001-AC
Brevard County, Florida

BACKGROUND

The applicant, Oleander Power Project, L.P., proposes to install a nominal 950 megawatt (MW) independent power production facility (5 new simple cycle combustion turbines) at 527 Townsend Road, Cocoa, Brevard County. The proposed project will result in "significant increases" with respect to Table 62-212.400-2, Florida Administrative Code (F.A.C.) of emissions of particulate matter (PM and PM_{10}), carbon monoxide (CO), volatile organic compounds (VOC), sulfur dioxide (SO_2) and nitrogen oxides (NO_X). The project is therefore subject to review for the Prevention of Significant Deterioration (PSD) and a determination of Best Available Control Technology (BACT) in accordance with Rules 62-212.400, F.A.C.

The five units to be installed are 190-MW dual-fuel "F" class combustion turbines. Descriptions of the process, project, air quality effects, and rule applicability are given in the Technical Evaluation and Preliminary Determination dated March 26, 1999, accompanying the Department's Intent to Issue.

DATE OF RECEIPT OF A BACT APPLICATION:

The application was received on November 24, 1998 and included a proposed BACT prepared by the applicant's consultant, Golder Associates Inc. The application was revised on February 1, 1999 incorporating responses to completeness questions by FDEP and revised again on March 17, 1999 proposing lower emissions levels based upon vendor data and guarantees.

REVIEW GROUP MEMBERS:

Michael P. Halpin, P.E. and A. A. Linero, P.E.

BACT DETERMINATION REQUESTED BY THE APPLICANT:

POLLUTANT	CONTROL TECHNOLOGY	PROPOSED BACT LIMIT
Particulate Matter	Pipeline Natural Gas No. 2 Distillate Oil Use (1000 hr/yr.) Combustion Controls	9 lb/hr (Gas) 17 lb/hr, 0.05% sulfur (Oil)
Volatile Organic Compounds	As Above	3 ppm (Gas) 6 ppm (Oil)
Visibility	As Above	10 percent
Carbon Monoxide	As Above	12 ppm (Gas, baseload) 20 ppm (Oil, baseload)
Sulfuric Acid Mist	As Above	1 gr. S/100 scf of natural gas 0.05% sulfur oil
Nitrogen Oxides	Dry Low NO_X Burners (Gas) Water Injection (Oil)	9 ppm @ 15% O_2 (Gas, baseload) 42 ppm @ 15% O_2 (Oil, baseload)

According to the application, the maximum emissions from the facility will be approximately 1235 tons per year (TPY) of NO_X, 412 TPY of CO, 96 TPY of PM/PM_{10}, 291 TPY of SO_2 and 64 TPY of VOC.

BACT DETERMINATION PROCEDURE:

In accordance with Chapter 62-212, 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. 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, and 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 ppm NO_X @ 15% O_2. (assuming 25 percent efficiency) and 150 ppm SO_2 @ 15% O_2.(or <0.8% sulfur in fuel). The BACT proposed by the applicant is more stringent than the NSPS. No National Emission Standard for Hazardous Air Pollutants exists for stationary gas turbines.

DETERMINATIONS BY EPA AND STATES:

Most recent stationary gas turbine BACT determinations made to-date by EPA and the states, including the State of Florida, have been much more stringent than the requirements of the NSPS. The following table is a sample of information on recent BACT and a few Lowest Achievable Emission Rate (LAER) determinations made by EPA and the States for stationary gas turbine projects as large or larger than the one under review. LAER is required in areas where the ambient air (unlike that Florida) does not attain the National Ambient Air Quality Standards (NAAQS).

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

Project Location	Power Output and Duty	NO_X Limit Ppm @ 15% O_2 and Fuel	Technology	Comments	F.O. LIMIT	Year Permit Issued
FPC DeBary **FL**	311 MW **SC**	N/A	None	6x51.9MW GE MS7000 CT	N/A	1974
	372 MW **SC**	25 – NG 42 – FO	WI	4x92.9MW GE PG7111EA CT	Total hrs/CT 3390 hrs/yr. gas or oil	1991
FPC Intercession City **FL**	385 MW **SC**	25 – NG 42 – FO	DLN WI	4x96.3MW GE PG7111EA CT	Total hrs/CT 3390 hrs/yr. gas or oil	1991
	171 MW **SC**	25 – NG 42 – FO	DLN WI	171 MW Siemens V84.3 CT	Total hrs/CT 3390 hrs/yr. gas or oil	1995
Kamine/Besicorp NY	79 MW CC	9 – NG 55 – FO	DLN	79 MW Siemens V64.2	2000 hrs/yr.	1992
Hart County, GA	318 MW **SC**	25 – NG 42 – FO	DLN & WI	2x159 MW GE7FA CT's	Total hrs/CT 2500 hrs/yr. gas or oil	1992
FPC Tiger Bay, **FL**	270 MW CC	15/10-NG 42 – FO	DLN &/or SCR WI	184 MW GE MS7001FA CT DLN/15 or SCR/10 ppm	3.7M gal/yr.	1993
Auburndale Power **FL**	156 MW CC	25/15 - NG 42 – FO	DLN & WI	1x156 MW WH 501D5 CT	400 hrs/yr.	1993
FPC Hines Polk, **FL**	485 MW CC	12 – NG * 42 – FO	DLN & SCR WI	2x165 MW WH 501FC CTs	1000 hrs/yr. out of 8760	1994
GRU Deerhaven **FL**	74 MW **SC**	15 – NG 42 – FO	DLN WI	CT #3; 74 MW	2000 hrs/yr. out of 3900	1995
PREPA, PR	248 MW **SC**	10 - FO	WI & Hot SCR	3x83 MW ABB GT11N CTs	2000 hrs/yr. < 60% output	1996
City Tallahassee, **FL**	260 MW CC	12 – NG 42 – FO	DLN WI	160 MW GE MS 7231FA CT DLN Guarantee is 9 ppm	NO_X site cap of 467 TPY	1997
Berkshire, MA	272 MW CC	3.5 – NG (LAER) 9.0 – FO	DLN & SCR WI & SCR	178 MW ABB GT24 CT	No oil from 5/1 thru 9/30; 3 hr <50% su/sd	1997
Lordsburg, L.P. NM	100 MW **SC**	15/25 – NG 42/60 - FO	DLN WI	100 MW WH 501D5A or equiv. (NO_X values are >/< 75% output)	1440 hrs/yr.	1997
City of Lakeland, **FL**	250 MW **SC**	9 – NG 42 – FO	ULN on gas, WI on oil 4/30/2002.	230 MW WH 501G CT	250 hrs/CT per year	1998
		9 – NG 15 – FO	Hot SCR if 9ppm not achievable by ULN 4/30/2002		250 hrs/CT per year	
TECO Polk, **FL**	330 MW **SC**	10.5 - NG 42 - FO	DLN WI	2x160 MW GE MS 7241FA CT's	876 hr/CT out of 4380	1999 proposed
RockGen, Wis.	525 MW **SC**	15 – NG 42 – FO	DLN WI	3x175 MW CT's	800 hr/CT out of 3800; not operated <50% continuously	1999

SC = Simple Cycle
CC = Combined Cycle
NG = Natural Gas
CT = Combustion Turbine
ULN = UltraDry Low NO_X
MW = Megawatt
FO = Fuel Oil
ISO = 59°F
DLN = Dry Low NO_X Combustion
SCR = Selective Catalytic Reduction
WI = Water or Steam Injection
* = Equivalent Basis
GE = General Electric
WH = Westinghouse
ABB = Asea Brown Bovari
ppm = parts per million

All determinations are BACT unless denoted as LAER. Factors in common with project are denoted with **bold** type. Data derived from appropriate BACT determination or permit conditions.

Project Location	CO – ppm (or lb/MMBtu)	VOC - ppm (or lb/MMBtu)	PM - lb/MMBtu (or gr./dscf or lb/hr)	Technology and Comments
FPC DeBary FL	None	None	None	Clean Fuels Good Combustion
	54 lb/hr	5 lb/hr	15 lb/hr	Clean Fuels Good Combustion
Intercession City FL	21.3 lb/hr - NG 25 - FO (25 ppm)	3 lb/hr - NG 5 lb/hr - FO	7.5 lb/hr - NG 15 lb/hr - FO	Clean Fuels Good Combustion
	30.9 lb/hr - NG 79 - FO (25 ppm)	5.3 lb/hr - NG 9 lb/hr - FO	7.5 lb/hr - NG 17 lb/hr - FO	Clean Fuels Good Combustion
Kamine/Besicorp NY	9.5 – NG 9.5 – FO	0.007 lb/MMBtu	0.008 - NG 0.03 - FO	Clean Fuels Good Combustion
Hart County, GA	25 – NG 25 – FO	None	0.0064 - NG 0.0156 - FO	Clean Fuels Good Combustion
Tiger Bay, FL	15 – NG 30 – FO	2.8 lb/hr - NG 7.5 lb/hr - FO	0.053 - NG 0.009 - FO	Clean Fuels Good Combustion
Auburndale Power FL	21/15 – NG 25 – FO	6 lb/hr – NG 10 lb/hr - FO	0.0134 – NG 0.0472 - FO	Clean Fuels Good Combustion
Hines Polk, FL	25 – NG 30 – FO	7 - NG 7 - FO	0.006 - NG 0.01 - FO	Clean Fuels Good Combustion
GRU Deerhaven FL	None	None	None	Clean Fuels Good Combustion
PREPA, PR	9 – FO	11 - FO	0.0171 gr./dscf	Clean Fuels Good Combustion
Tallahassee, FL	25 – NG 90 – FO	None	9 lb/hr - NG 17 lb/hr - FO	Clean Fuels Good Combustion
Berkshire, MA	4 - NG (LAER) 5 - FO (LAER)	4 - NG 16 - FO	0.0105 - NG 0.0468 - FO	Clean Fuels CO Catalyst
Lordsburg, L.P. NM	10/200 - NG (>/< 75%) 90/150 - FO (>/< 75%)	6/11 - NG 8/11 - FO	5.3 lb/hr - NG 40.6 lb/hr - FO	Clean Fuels CO Catalyst
Lakeland, FL	25 - NG or 10 by Ox Cat 90 – FO	4 - NG 10 - FO	0.01 gr./dscf	Clean Fuels Good Combustion
TECO Polk, FL	15 – NG 33 – FO	7 - NG 7 - FO	10 lb/hr - NG 27 lb/hr – FO	Clean Fuels Good Combustion
RockGen, Wis.	12 - NG 15 - FO	2 - NG 5 - FO	18 lb/hr – NG 44 lb/hr - FO	Clean Fuels Good Combustion

OTHER INFORMATION AVAILABLE TO THE DEPARTMENT:

Besides the information submitted by the applicant and that mentioned above, other information available to the Department consists of:

- Comments from the U.S. Fish and Wildlife Service, Air Quality Branch dated December 18, 1998 and February 10, 1999.
- DOE website information on Advanced Turbine Systems Project
- Mitsubishi website
- Oleander Power Website: http://www.oleanderpower.com/
- Alternative Control Techniques Document - NO_X Emissions from Stationary Gas Turbines
- Goal Line Environmental Technologies' Website: http://www.glet.com
- Catalytica Combustion System's Website: http://www.catalytica-inc.com/cs/

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.

Fuel NO_X is formed when fuels containing bound nitrogen are burned. This phenomenon is not important when combusting natural gas. It is not a significant issue for the Oleander project because these units will not be continuously operated, but rather will be "peakers". Also, low sulfur fuel oil (which has more fuel-bound nitrogen than natural gas) is proposed to be used for no more than 1000 equivalent hours per year (per CT).

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

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 about 42 ppm when firing fuel oil in large combustion turbines. These values may form the basis 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 increase emissions of both of these pollutants.

Combustion Controls

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 depicted

in Figure 1 for a General Electric can-annular combustor operating on gas. For ignition, warm-up, and acceleration to approximately 20 percent load, the first stage serves as the complete combustor. Flame is present only in the first stage, which is operated as lean stable combustion will permit. With increasing load, fuel is introduced into the secondary stage, and combustion takes place in both stages. When the load reaches approximately 40 percent, fuel is cut off to the first stage and the flame in this stage is extinguished. The venturi ensures the flame in the second stage cannot propagate upstream to the first stage. When the fuel in the first-stage flame is extinguished (as verified by internal flame detectors), fuel is again introduced into the first stage, which becomes a premixing zone to deliver a lean, unburned, uniform mixture to the second stage. The second stage acts as the complete combustor in this configuration.

To further reduce NO_X emissions, GE developed the DLN-2 combustor (cross section shown in Figure 1) wherein air usage (other than for premixing) was minimized. The venturi and the centerbody assembly were eliminated and the combustor has a single burning zone. So-called "quaternary fuel" is introduced through pegs located on the circumference of the outward combustion casing.

Further improvements in the DLN design were made by GE. The most recent version is the DLN-2.6 (proposed for Oleander). The combustor is similar to the DLN-2 with the addition of a sixth (center) fuel nozzle. The emission characteristics of the DLN-2.6 combustor while firing natural gas are given in Figure 2 for a unit tuned to meet a 15 ppm NO_X limit (by volume, dry corrected to at 15 percent oxygen) at Jacksonville Electric Authority's Kennedy Station.

NO_X concentrations are higher in the exhaust at lower loads because the combustor does not operate in the lean pre-mix mode. Therefore such a combustor emits NO_X at concentrations of 15 parts per million (ppm) at loads between 50 and 100 percent of capacity, but concentrations as high as 100 ppm 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.

The combustor can be tuned differently to achieve emissions as low as 9 ppm of NO_X and 9 ppm of CO. Emissions characteristics while firing oil are expected to be similar for the DLN-2.6 as they are for those of the DLN-2.0 shown in Figure 3. Simplified cross sectional views of the totally premixed DLN-2.6 combustor to be installed at the Oleander project are shown in Figure 4.

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, results in a lower achievable thermal efficiency.

Larger units, such as the Westinghouse 501 G or the planned General Electric 7H, use steam in a closed loop system to provide much of the cooling. The fluid is circulated through the internal portion of the nozzle component or around the transition piece between the combustor and the nozzle and does not enter the exhaust stream. Instead it is normally sent back to a steam generator. The difference between flame temperature and firing temperature into the first stage is minimized and higher efficiency is attained.

Another important result of steam cooling is that a higher firing temperature can be attained with no increase in flame temperature. Flame temperatures and NO_X emissions can therefore be maintained at comparatively low levels even at high firing temperatures. At the same time, thermal efficiency should be greater when employing steam cooling. A similar analysis applies to steam cooling around the transition piece between the combustor and first stage nozzle.

The relationship between flame temperature, firing temperature, unit efficiency, and NO_X formation can be appreciated from Figure 5 which is from a General Electric discussion on these principles. In addition to employing pre-mixing and steam cooling, further reductions are accomplished through design optimization of the burners, testing, further evaluation, etc.

At the present time, emissions achieved by combustion controls are low as 9 ppm (and even lower) from gas turbines smaller than about 200 MW (simple cycle), such as the F class.

Selective Catalytic Combustion

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 and excess oxygen yielding molecular nitrogen and water. The catalyst used in combined cycle, low temperature applications (conventional SCR), is usually vanadium or titanium oxide and accounts 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).

As of early 1992, over 100 gas turbine installations already used SCR in the United States. Per the above table, only one combustion turbine project in Florida (FPC Hines Power Block 1) employs SCR (it is currently being started up). The equipment was installed on a temporary basis because Westinghouse had not yet demonstrated emissions as low as 12 ppm by DLN technology at the time the units were to start up in 1998. SCR is also proposed on a permanent basis for the expansion of the FPC Hines Facility (Power Block II). The Department was recently advised by Seminole Electric that SCR will be installed on the 501F unit at the Hardee Unit 3 project. Permit BACT limits as low as 3.5 ppm NO_X have been specified using SCR for several combined cycle F Class projects in Alabama and Mississippi. By comparison, a 6 ppm value at baseload facility proposed by FPC (Hines Energy Complex Power Block 2) is typical and is the lowest limit proposed to-date in Florida. According to that application, the 6 ppm value will be maintained at 80 percent load. FPC has estimated concentrations of 10 ppm at 50 percent load while firing gas.

Selective Non-Catalytic Combustion

Selective non-catalytic reduction (SNCR) reduction works on the same principle as SCR. The differences are that ammonia injection occurs closer to the turbine in 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 simple cycle 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 Santa Rosa Energy Center, which incorporates a large 600 MMBtu/hr duct burner in the HRSG and can provide the acceptable temperatures (between 1400 and 2000 °F) and residence times to support the reactions.

Emerging Technologies

•SCONOx - USEPA has identified an "achieved in practice" BACT value of 2.0 ppmv over a three-hour rolling average based upon the recent performance of a Vernon, California natural gas-fired 32 MW combined cycle turbine (without duct burners) equipped with the patented SCONOx system. Additional advantages of the SCONOx process include the elimination of ammonia and the control of some CO emissions. In a letter dated March 23, 1998 to Goal Line Environmental Technologies, the SCONOx process was deemed as technically feasible for maintaining NO_X emissions at 2 ppmvd on a combined cycle unit. ABB Environmental was announced on September 10, 1998 as the exclusive licensee for SCONOx for United States turbine applications > 100 MW, and ABB Power Generation has stated that scale up and engineering work will be required before SCONOx can be offered with commercial guarantees for large turbines (based upon letter from Kreminski/Broemmelsiek of ABB Power Generation to the Massachusetts Department of Environmental Protection dated November 4, 1998). SCONOx requires a much lower temperature regime that is not available in simple cycle units and is therefore not feasible for this project.

•XONON™ - Catalytica Combustion Systems, Inc. develops manufactures and markets the XONON™ Combustion System. In a press release on October 8, 1998 Catalytica announced the first installation of a gas turbine equipped with the XONON™ Combustion System in a municipally owned utility for the production of electricity. The turbine was started up on that day at the Gianera Generating Station of Silicon Valley Power, a municipally owned utility serving the City of Santa Clara, Calif. The XONON™ Combustion System, deployed for the first time in a commercial setting, is designed to enable turbines to produce environmentally sound power without the need for expensive cleanup solutions. Previously, this XONON™ system had successfully completed over 1,200 hours of extensive full-scale tests which documented its ability to limit emissions of nitrogen oxides (NO_X), a primary air pollutant, to less than 3 parts per million.

Catalytica's XONON™ system is purported to be a powerful technology that essentially eliminates the formation of NO_X in gas turbines without impacting the turbine's operating performance. On November 19, 1998, GE Power Systems and Catalytica agreed to cooperate in the design, application, and commercialization of XONON™ systems for both new and installed GE E-class and F-class turbines used in power generation and mechanical drive applications. This appears to

be an up-and-coming technology, the development of which will be watched closely by the Department for future applications. It is not yet available for fuel oil and cycling operation.

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 and 0.05 percent sulfur No. 2 (or superior grade) distillate fuel oil will be the only fuels fired and are efficiently combusted in gas turbines. Such 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. The fuel oil to be combusted contains a minimal amount of ash and will be used for no more than 1000 hours per year making any conceivable add-on control technique for PM/PM_{10} either unnecessary or impractical.

A technology review indicated that the top control option for PM_{10} is a combination of good combustion practices, fuel quality, and filtration of inlet air. The applicant indicated that the PM_{10} emissions will not exceed 0.01 gr./scf when firing natural gas and pointed out that such a value is equal to a typical specification for baghouse design. Annual emissions of PM_{10} are expected to be approximately 20 tons per C.T. for the maximum case of 1000 hours of fuel oil and 2390 hours of natural gas firing.

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.

Most installations using catalytic oxidation are located in the Northeast. Among them are the 272 MW Berkshire, Massachusetts facility, 240 MW Brooklyn Navalyard Facility, the 240 MW Masspower facility, the 165 MW Pittsfield Generating Plant in Massachusetts, and the 345 MW Selkirk Generating Plant in New York. Catalytic oxidation was recently installed at a cogeneration plant at Reedy Creek (Walt Disney World), Florida to avoid PSD review which would have been required due to increased operation at low load. Seminole Electric recently proposed catalytic oxidation in order to meet the permitted CO limit at its planned 244 MW Westinghouse 501FD combined cycle unit in Hardee County, Florida.

Most combustion turbines incorporate good combustion to minimize emissions of CO. These installations typically achieve emissions between 10 and 30 at full load, even as they achieve relatively low NO_X emissions by SCR or dry low NO_X means. By comparison, the projected actual values of 12 and 20 ppm for gas and oil respectively (at baseload) as proposed in Oleander's application appear typical or low. These values are given in the application as representative down to and including 50 percent load on each fuel respectively

REVIEW OF VOLATILE ORGANIC COMPOUND (VOC) CONTROL TECHNOLOGIES

Volatile organic compound (VOC) emissions, like CO emissions, are formed due to incomplete combustion of fuel. There are no viable add-on control techniques as the combustion turbine itself

is very efficient at destroying VOC. The limits proposed for this project are 3 and 6 ppm for gas and oil firing respectively.

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. For this project, the applicant has proposed as BACT the use of such fuels with 0.05% sulfur oil and natural gas containing no more than 1 grain of sulfur per standard cubic foot (gr. S/f^3). This value is well below the "default" maximum value of 20 gr. S/f^3, but high enough to require a BACT determination. Emissions were estimated by the applicant to be 291 TPY of SO_2 and 45 TPY of SAM. However the Department expects the emissions to be lower because oil consumption will be further reduced and typical natural gas in Florida contains less than 1 gr. S/f^3.

BACKGROUND ON PROPOSED GAS TURBINE

In the original application, the applicant had not yet selected the supplier for the proposed five "F" class CT's and (via GolderAssociates) conducted its own BACT review assuming either a General Electric 7FA or a Westinghouse 501F. In a February 1, 1999 response to FDEP's completeness questions, the applicant stated that "Oleander Power Project, L.P. has selected General Electric Company (GE) as its primary vendor to supply the turbines for the project due to the ability of GE combustion turbines to meet a NO_X emission level of 9 ppmvd (corrected to 15 percent O_2). The applicant requests the ability to purchase a different manufacturer's machines, if they can meet the same emission characteristics as the GE machine and the emission limits approved by FDEP in the final permit. As indicated in the application, the machines will be the advanced Frame "7" class (or GE Frame 7 FA), which would be capable of achieving an NO_X emission rate of 9ppmvd @ 15% O_2 when firing natural gas."

In the submittal dated March 17, 1999 the applicant further affirmed its intentions to procure GE combustion turbines stating "... the updated forms and information reflect data representative of the General Electric (GE) Frame 7FA combustion turbine as the primary vendor..." as well as "Over the last several months, the applicant has recognized the concern by the Department and the general public over the higher emission rates when firing distillate fuel oil relative to natural gas. Both the reduction in hours of firing oil and the lower emission rates with the GE machine substantially reduce emissions, a desired goal."

Westinghouse and General Electric are counting on further advancement and refinement of DLN technology to provide sufficient NO_X control for their turbines. In the case of the WH501 G, steam cooling of the transition piece allows the unit to maintain the same NO_X formation potential as the WH501 F while achieving a higher turbine inlet (firing) temperature. Examples of Westinghouse combustors are shown in Figure 6. These include their second generation of Dry Low NO_X combustors including their fully pre-mixed Piloted Ring Combustor. Where required by BACT or LAER determinations of certain states, both companies incorporate SCR in combined cycle projects.

The approach of progressively refining such technology is a proven one, even on some relatively large units. Basically this was the strategy adopted in Florida throughout the 1990's. Recently GE Frame 7 FA units (160 MW gas turbines with firing temperatures of 2400 °F) reportedly met performance guarantees of 9 ppm with "DLN-2.6" burners at Fort St. Vrain, CO and Clark County, WA.

Westinghouse and General Electric are partners with the Department of Energy (DOE) in the Advanced Turbine Systems (ATS) Program. The Mission/Vision Statement of ATS is to "develop base-load advanced turbine systems for commercial offering in the year 2000." Among the goals of the Program is 60 percent combined cycle efficiency while achieving NO_X emissions of 8 ppm or less. The cost of producing the prototypes is estimated at $435,000,000 and $300,000,000 for the GE and Westinghouse projects respectively.

DEPARTMENT BACT DETERMINATION

Following are the BACT limits determined for the Oleander project assuming full load. Values for NO_X are corrected to 15% O_2. These limits or their equivalents in terms of pounds per hour, as well as the applicable averaging times are given in the permit Specific Conditions. The rationale for the averaging times is discussed in the Final Determination addressing comments by the applicant and EPA and which is being issued concurrently with this determination.

Operational Mode (Fuel)	NO_X (15%O2)	CO	VOC	PM/Visibility (% Opacity)	SO_2/SAM	Technology and Comments
Natural Gas	9 ppm	12 ppm	3 ppm	10	1 grain S per 100 CF	Dry Low NOx Burners. Clean fuels, good combustion
Fuel Oil	42 ppm	20 ppm	6 ppm	10	0.05% sulfur oil	Water Injection. Units limited to 1000 hrs equivalent full load oil operation (per CT) annually. Clean fuels, good combustion

RATIONALE FOR DEPARTMENT'S DETERMINATION

- The initial 9 and 42 ppm NO_X limits proposed by Oleander are guaranteed by General Electric.
- The units will be operated in simple cycle mode and therefore certain control options, which are feasible for combined cycle units, are not applicable. This rules out low temperature technologies such as SCONOx and conventional SCR, which can achieve lower limits.
- The 9 ppm limit while firing natural gas is the lowest known BACT value for an "F" frame combustion turbine operating in simple cycle mode and peaking duty. The initial 42 ppm limit while firing fuel oil is typical.
- There is a cost to Oleander for the 9 ppm guarantee compared to the 15 ppm guarantee provided by GE for an identical unit to be installed at Jacksonville Electric Authority's Kennedy Plant. There may be additional costs for the more frequent tuning needed to maintain the units at less than 9 ppm.

- Typical permit limits nation-wide for these units while operating in simple cycle mode and intermittent duty are 12-15 ppm. The lower limit will offset emissions while firing fuel oil.
- The simple cycle turbine has very high exhaust temperatures of up to 1200 °F, which is at the higher operating limit of Hot SCR zeolite catalyst (around 1050 °F). The PREPA continuous duty simple cycle turbines (referenced above) have exhaust temperatures ranging from 824 to 1024 °F and the Hot SCR catalyst (which must achieve 10 ppm NO_X) is located between the turbine and a "Once Through Steam Generator".
- The levelized costs of NO_X removal by Hot SCR were estimated by Golder Associates as $11,000 per ton of NO_X removed at 2000 hrs/yr. of oil operation, $14,000 per ton of NO_X removed at 1500 hrs/yr. of oil operation and $17,568 per ton removed at 1000 hrs/yr. of oil operation. Although the estimates appear to be high for this project (e.g.: 3 days of lost energy costs for peaking units operating at no more than 39% capacity factor; no indication of a continuation of the actual downward trend in catalyst prices, progressively improving performance, and typically longer-than-expected life), the actual per ton cost reasonably exceeds $10,000 at 1000 hrs/yr. of oil operation.
- Using much of the basic capital cost information developed by the City of Lakeland, The National Park Service estimated the cost of NO_X removal by Hot SCR at $3,802 per ton (excluding the energy penalty) for a *continuous duty* 501 G. A further refinement of the Park Service estimate by including the energy penalty, using the revised catalyst cost data obtained by the Department, and assuming a five year estimated life for the catalyst (per Engelhard) would yield a cost-effectiveness closer to $3,500 per ton of NO_X removed for that application. Hence, should the Oleander Project contemplate operation on a more continuous duty, the use of a Hot SCR may be appropriate.
- Comments from the National Park Service on the Oleander project suggested a reduction in the proposed NO_X emissions on oil from 42ppm to 25ppm (at the applicant's proposed 2000 hours of oil operation rate). Restricting the operation of these units to 1000 hours per year on oil at 42ppm will result in lower annual NO_X emissions than 2000 hours per year on oil at 25ppm.
- It is possible that the NO_X emissions while firing oil from may be reduced from 42ppm by increasing the water injection rate. In order to address this possibility, a specific condition will be added to conduct appropriate testing and prepare an engineering report. The report will be submitted for the Department's review to ensure that the lowest reliable NO_X emission rates while firing oil have been achieved.
- Hot SCR has environmental and energy impacts including increased particulate emissions, undesirable (though unregulated) ammonia emissions, and energy penalties. Given the vendor guarantee of 9 ppm on natural gas, the limitation of total operating hours to 3390 per CT and the requirement that a majority of the operation be on natural gas, Hot SCR is not considered BACT for these simple cycle peaking units.
- It is possible and even likely, that Hot SCR catalysts will be improved and can be used to replace the initial catalyst as it degrades. Should the Oleander Project contemplate operation on a more continuous duty, or should actual emissions not achieve permitted levels such that energy, environmental and economic impacts (or other costs) may be reduced, the use of a Hot

SCR may be BACT. The Department has concluded that Hot SCR is both technically and economically feasible for certain applications (e.g. Lakeland, FL which is shown above).

- BACT for PM_{10} was determined to be good combustion practices consisting of: inlet air filtering; use of clean, low ash, low sulfur fuels; and operation of the unit in accordance with the manufacturer-provided manuals.
- PM_{10} emissions will be very low and difficult to measure at the high temperature exiting the stack in simple cycle operation. Additionally, the higher emission mode will involve fuel oil firing, which will occur no more than 1000 hours per year. It is not practical to require running the turbine on oil, simply to conduct tests. Therefore, the Department will set a Visible Emission standard of 10 percent opacity as BACT for both natural gas and fuel oil firing, consistent with the definition of BACT. Examples of installations with similar VE limits include FPL Fort Myers (Florida), Santa Rosa (Florida) and the City of Tallahassee (Florida) as well as the Berkshire (Massachusetts) projects in the above table.
- Annual CO emission estimates from the Oleander project are higher than for other pollutants except NO_X. However the 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}.
- Golder Associates evaluated the use of an oxidation catalyst designed for 75 percent reduction and having a three-year catalyst life. The oxidation catalyst control system was estimated to increase the capital cost of each unit by $1,829,777 with an annualized cost of $707,655 per year. Levelized costs for CO catalyst control were calculated at $11,437 per ton to control CO emission to 75% removal. Catalytic CO control is not cost-effective for the Oleander project.
- The applicant's proposed CO levels of 12 ppmvd while firing natural gas and 20 ppmvd while firing oil are on the lower end of other permitted units neglecting those units which employ oxidation catalysts. These values are assumed to be guaranteed down to 50% of unit output.
- CO limits achievable by good combustion will be set equal to or lower than those set for other recent projects. For example, the City of Tallahassee project (25 ppm on gas and 90 ppm on oil), the FPC Hines project (25 ppm on natural gas and 30 ppm on oil) and the Tiger Bay project (limited to 15 ppm on natural gas and 30 ppm on oil). The two latter projects are both permitted at 8760 hours per year on natural gas and up to 1000 hours per year on oil (Hines).
- VOC emission limits proposed by the applicant are at the lower end of values previously determined as BACT. Good Combustion is sufficient to achieve these low levels.
- The (BACT) levels above are guaranteed down to 50% output. It is presumed that emission levels for pollutants such as NO_X and CO will increase above these guaranteed ppm levels at lower outputs. Therefore, startup and shutdown hours are defined to be hours of operation below 50% output and these hours will be limited by specific condition.
- 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 and Sulfuric Acid Mist. Pipeline natural gas and very low (0.05%) sulfur oil are considered to be BACT for this project.

COMPLIANCE PROCEDURES

Pollutant	Compliance Procedure
Visible Emissions	Method 9
Volatile Organic Compounds	Method 18, 25, or 25A (initial tests only)
Carbon Monoxide	Annual Method 10 (can use RATA if at capacity)
NO_X (24/3-hr average)	NO_X CEMS, O_2 or CO_2 diluent monitor, and flow device as needed
NO_X (performance)	Annual Method 20 (can use RATA if at capacity)
Sulfur Dioxide	Custom Fuel Monitoring Schedule

DETAILS OF THE ANALYSIS MAY BE OBTAINED BY CONTACTING:

Michael P. Halpin, P.E., Review Engineer, New Source Review Section
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:

A. A. Linero, P.E.

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

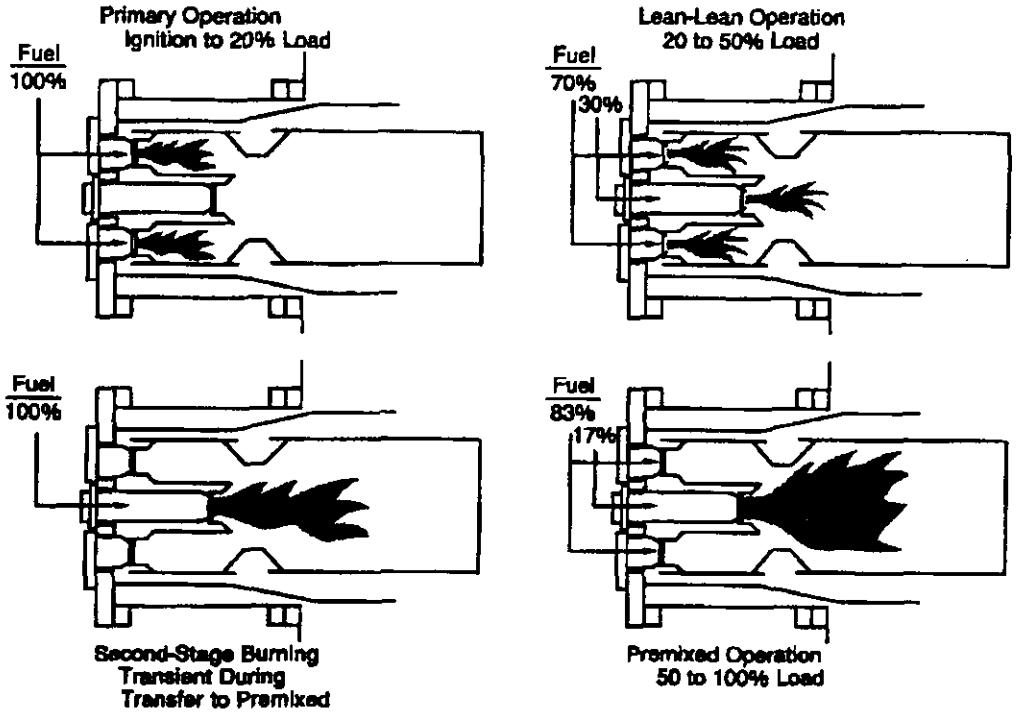
11/19/99
Date:

Approved By:

Howard L. Rhodes

Howard L. Rhodes, Director
Division of Air Resources Management

11/19/99
Date:



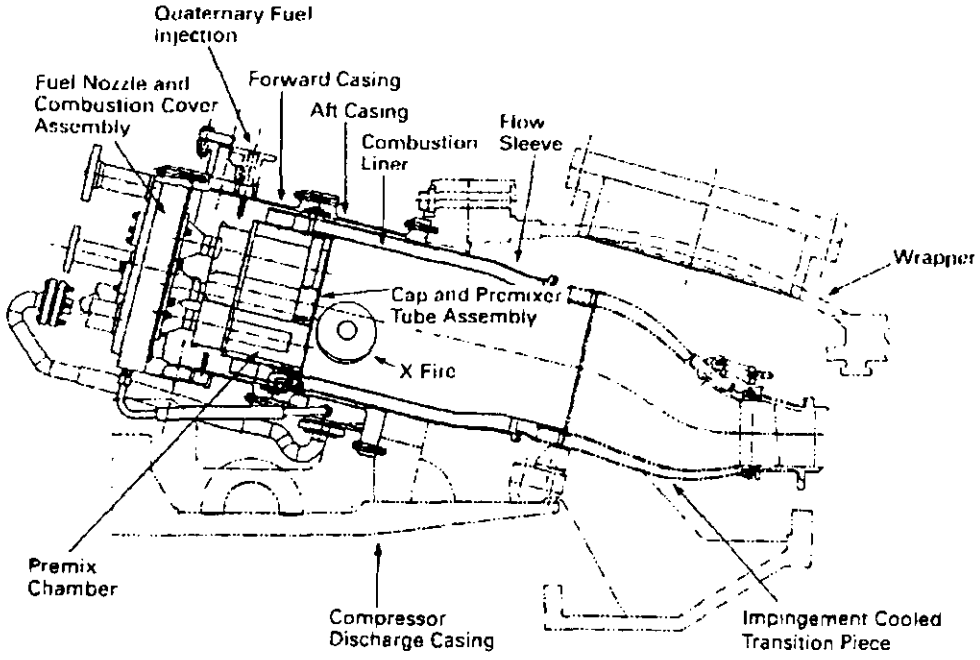


Figure 1 – Dry Low NO_X Operating Modes – DLN-1
Cross Section of GE DLN-2

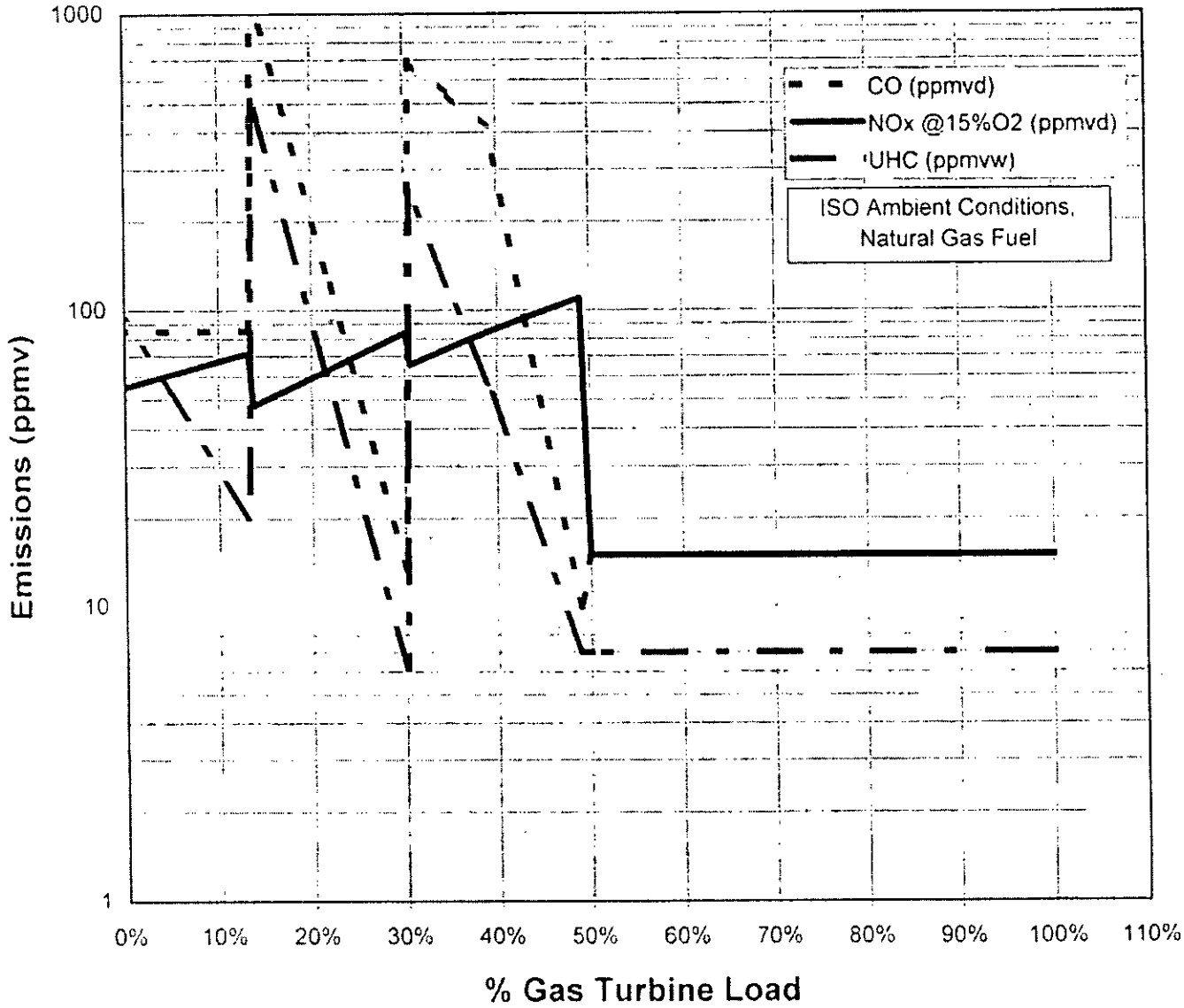


Figure 2 – Emissions Performance Curves for GE DLN-2.6 Combustor Firing Natural Gas in a Dual Fuel GE 7FA Combustion Turbine

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

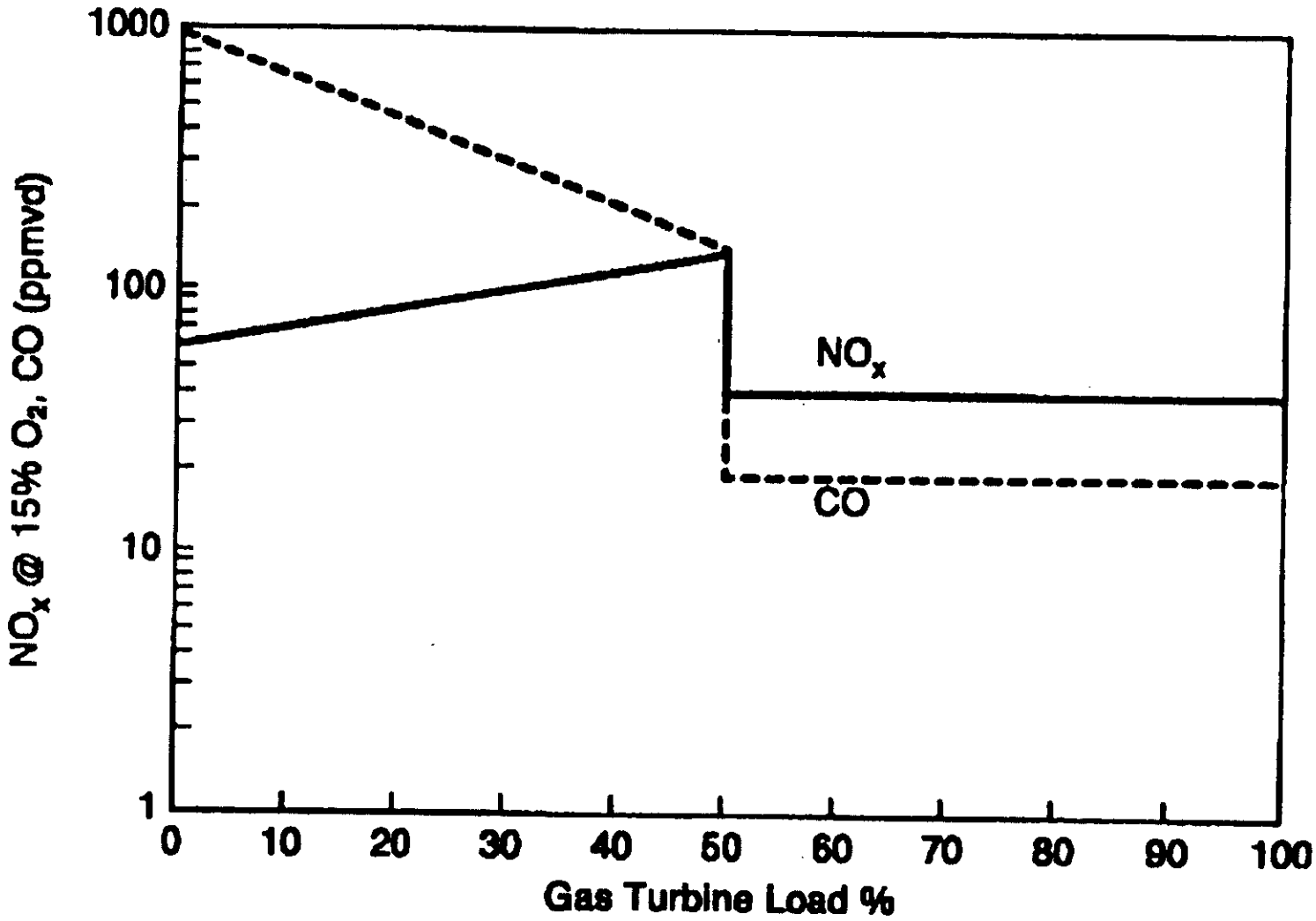


Figure 3 – Emissions Performance for DLN-2 Combustors Firing Fuel Oil in Dual Fuel GE 7FA Turbine

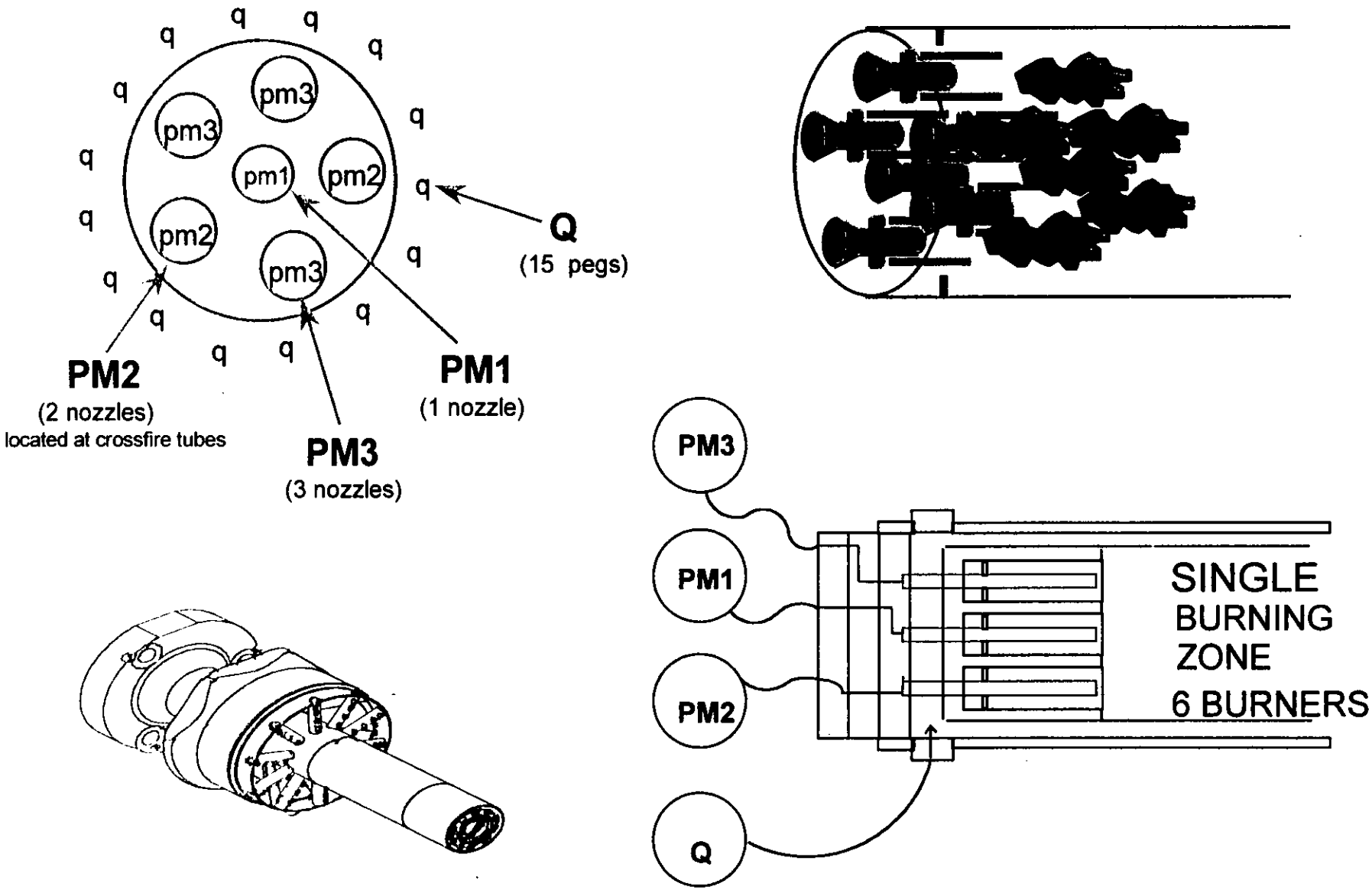


Figure 4 - DLN2.6 Fuel Nozzle Arrangement

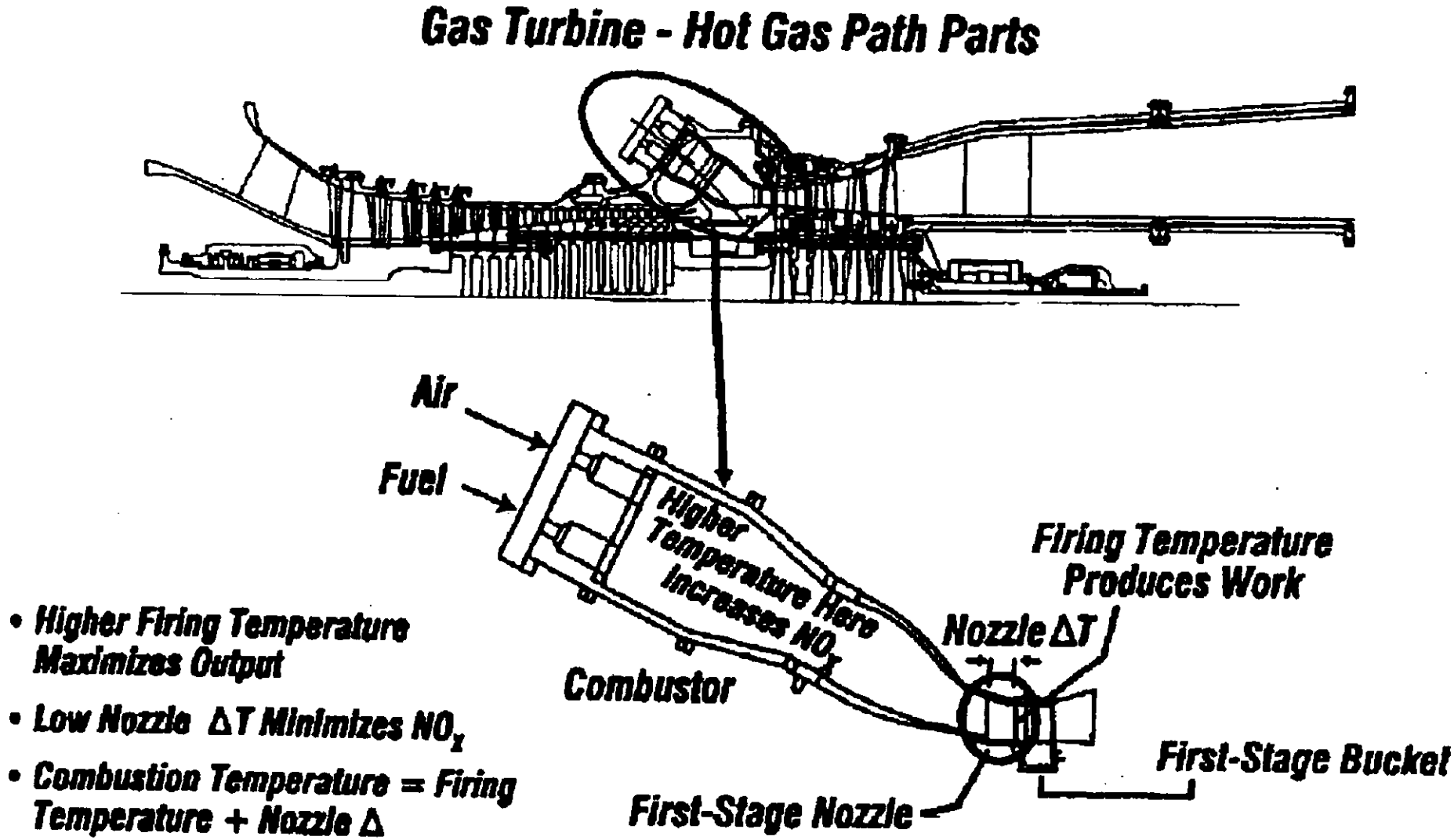
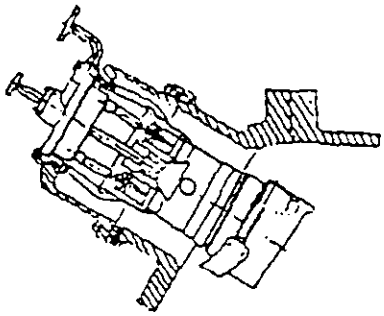


Figure 5 – Relation Between Flame Temperature and Firing Temperature



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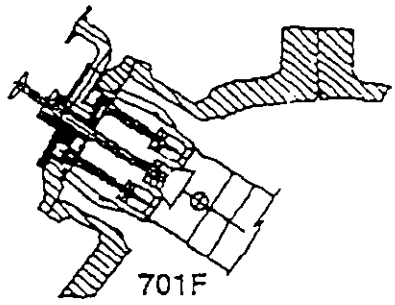

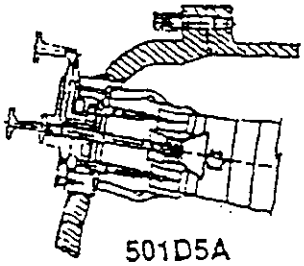

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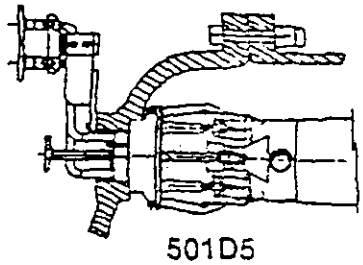

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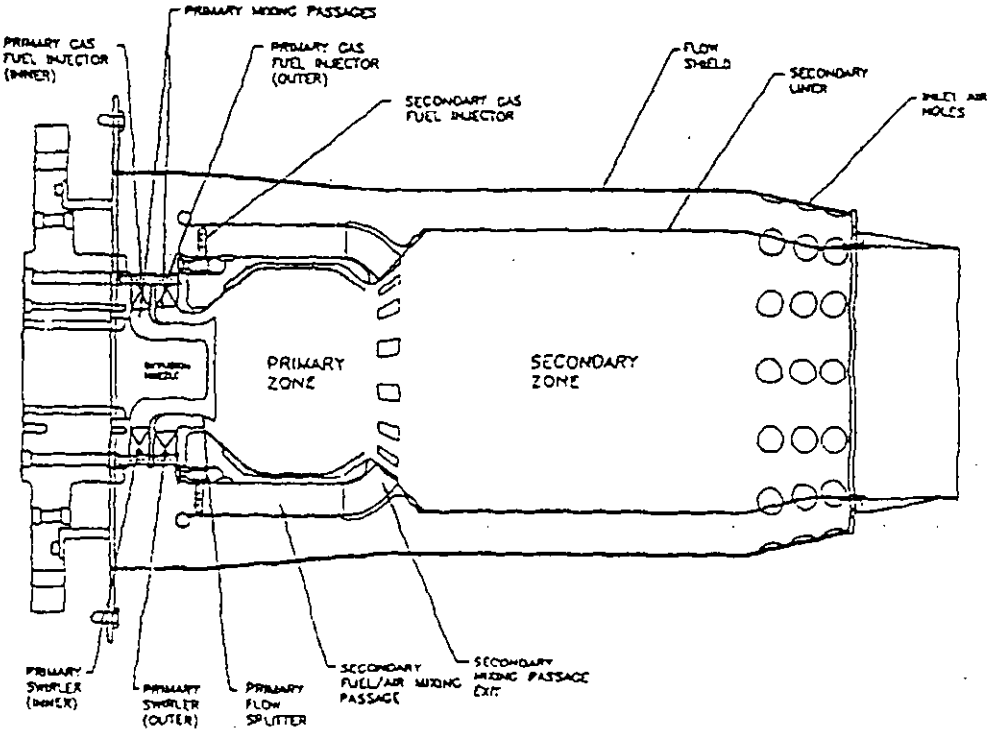

Figure 6 - Westinghouse Combustors Including Piloted Ring (Under Development)

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.

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.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CLARENCE ROWE, Petitioner, vs. OLEANDER POWER PROJECT, L.P., and DEPARTMENT OF ENVIRONMENTAL PROTECTION, Respondents.	)	OGC CASE NO. 99-0932 DOAH CASE NO. 99-2581

FINAL ORDER

On September 27, 1999, an Administrative Law Judge with the Division of Administrative Hearings ("DOAH") submitted his Recommended Order to the Department of Environmental Protection ("Department") in this formal administrative proceeding. A copy of the Recommended Order is attached hereto as Exhibit A. The Recommended Order indicates that copies were served upon *pro se* Petitioner, Clarence Rowe ("Petitioner"), and upon counsel for Co-Respondent, Oleander Power Project, L.P. ("Oleander") and the Department of Environmental Protection . Exceptions to the Recommended Order were filed on behalf of Oleander on October 11, 1999. The matter is now before the Secretary of the Department for final agency action.

BACKGROUND

Oleander proposes to build and operate an electrical power plant on approximately 38 acres of land located northeast of the intersection of Interstate 95 and State Road 520 in an unincorporated area of Brevard County, Florida (the "Project").

The Project includes the construction and operation of five 190 megawatt combustion turbines to be used for the generation of electricity. The Project also includes the construction and use of two fuel oil storage tanks, two water storage tanks, an administrative building, a stormwater management system, and other ancillary facilities. The Project is a "peaking" electrical power plant designed to operate only during times of peak demand.

On November 24, 1998, Oleander filed an application with the Department seeking an air construction permit for the Project. On March 26, 1999, the Department issued a "Public Notice of Intent to Issue an Air Construction Permit" for the Project. By letter dated April 12, 1999, Petitioner requested an administrative hearing to challenge the issuance of the air construction permit. The Department then referred the matter to DOAH and Administrative Law Judge Daniel Manry ("ALJ") was assigned to the case. A formal administrative hearing was conducted by the ALJ on August 30, 1999. Testimony and documentary evidence was presented at the formal hearing by Petitioner and Oleander.

The ALJ subsequently entered a Recommended Order ("RO") in this case on September 27, 1999. The RO contains unchallenged findings by the ALJ that air emissions from the Project "will not cause any significant impact on the water quality of water bodies in Brevard County" and "will not cause or significantly contribute to a violation of any ambient air quality standard or PSD increment." (FOF 41, 43) The ALJ also concluded in the RO that "the Project will be compatible with, and will not adversely affect, any residential neighborhood". (COL 59) The ALJ ultimately recommended that

a final order be entered by the Department issuing an air construction permit for the Project, subject to the conditions and limitations contained in the Draft Permit.

RULINGS ON OLEANDER'S EXCEPTIONS

Notwithstanding the ALJ's favorable findings, conclusions, and recommendation that an air construction permit be issued, Oleander has filed various Exceptions seeking to "clarify and correct minor discrepancies" in the RO.

Exceptions 1 and 2

These two Exceptions seek to correct purported errors in the Preliminary Statement portion of the RO wherein the ALJ summarizes the procedural background in this case. In its first Exception, Oleander requests that the ALJ's descriptions of the exhibits on page three of the RO be modified to accurately reflect those exhibits actually admitted into evidence at the formal hearing. Oleander correctly notes that not all of the exhibits "submitted" by it and by Petitioner at the formal hearing were admitted into evidence by the ALJ. (Tr. Vol. I, 131-132, 175-180; Vol. II, 217-218, 237, 252, 261)[1]

Oleander's second Exception relates to a portion of the ALJ's Preliminary Statement on page four of the RO asserting that Petitioner's allegations concerning environmental justice issues "had been previously stricken from the Petition in response to Oleander's motion". Oleander correctly points out that the ALJ did not grant either of its requests that Petitioner's "environmental justice" allegations be stricken as set forth in Oleander's motions filed on June 23 and July 30, 1999. Rather, the record reflects that the ALJ granted Oleander's alternative motion to dismiss the original Petition by order entered on July 9, 1999. The record also reflects that Oleander's subsequent

[1] The symbol "Tr." followed by a volume and page number will be used to refer to the transcript of testimony presented at the DOAH formal hearing held on August 30, 1999.

motion to strike the portion of the Amended Petition dealing with environmental justice issues was withdrawn by Oleander at the DOAH formal hearing and thus was not granted by the ALJ. (Tr. Vol. I, 67-72)

Accordingly, page three of the Preliminary Statement portion of the RO is modified to reflect that Petitioner's Exhibits 1, 3, and 7 and Oleander's Exhibits 1-17, 19-32, and 34-46 were admitted into evidence at the formal hearing. In addition, the second sentence of page four of the Preliminary Statement erroneously stating that Petitioner's environmental justice allegations "had been stricken from the petition in response to Oleander's motion" is deleted.

In view of the above rulings, Oleander's Exceptions 1 and 2 are granted.

Exception 3

Oleander's third Exception challenges a portion of the ALJ's "Findings of Facts". Oleander takes exception to the second sentence of Finding of Fact 6 wherein the ALJ finds that the Project "will operate only during times of peak demand caused by hot or cold weather or storm events". (emphasis supplied) This Exception appears to be well-taken. Findings of fact in a DOAH recommended order may be rejected or modified if the reviewing agency reviews the entire record and makes a determination in the final order that the findings are not based on competent substantial evidence. See, subsection 120.57(1)(l), Florida Statutes.

A review of the entire record indicates that there is no competent substantial evidence of record in this case supporting the ALJ's challenged findings that the Project will operate "only" during times of peak demand caused by hot or cold weather or storm events. Oleander correctly notes that there is evidence of record that the Project's

power plant will also operate during various types of emergency situations that are not weather related. (Tr. Vol. I, 96-97) Therefore, Exception 3 is granted and the second sentence of the ALJ's Finding of Fact 6 is modified by deleting therefrom the word "only".

Exception 4

Oleander's fourth Exception contends that some of the factual findings set forth in the ALJ's Finding of Fact 11 are not supported by competent substantial evidence of record. This contention appears to have merit. A review of the entire record reveals the absence of any competent substantial evidence supporting the ALJ's findings in the second sentence of Finding of Fact 11 that all "[f]uel oil contains a maximum of 0.05 percent sulfur" and is "35 to 50 percent more expensive than natural gas".

There is evidence of record that the fuel oil to be used "at the Oleander Project" will contain a maximum of 0.05 percent sulfur. (Tr. Vol. I, 165; Oleander's Exhibits 9, 11) There is also evidence of record that the "cost of burning fuel oil" in the Project's power plant will be 35 to 50 percent higher than the cost of burning natural gas. (Tr. Vol. I, 173; Oleander's Exhibit 6) However, this record evidence does not support the ALJ's challenged findings which, taken at face value, would seem to indicate that all fuel oil contains a "maximum of 0.05 percent sulfur" or that all fuel oil is "35 to 50 percent more expensive than natural gas".

In view of the above, Oleander's Exception 4 is granted and the second sentence of the ALJ's Finding of Fact 11 is modified to read as follows:

> The fuel oil to be used at the Oleander Project will contain a maximum of 0.05 percent sulfur, is 35 to 50 percent more expensive to use than natural gas, and thus imposes economic incentives for Oleander to minimize the use of fuel oil.

Exception 5

This Exception takes exception to the first sentence of Finding of Fact 36 of the RO wherein the ALJ finds that the "cumulative impacts from the Project and other sources of air pollution in the area will be insignificant". (emphasis supplied) Oleander contends that this finding of the ALJ does not accurately reflect the evidence in this case. There is expert testimony of record establishing that the Project will not have a measurable impact on ambient air quality. (Tr. Vol. II, 206) There is also expert testimony and related documentary evidence establishing that the cumulative impacts of the Project and other major sources of air pollution in the area will "generally be 50 percent or lower than the Florida ambient air quality standards".[2] (Tr. Vol. II, 205-206; Oleander's Exhibit 1, Table 3-1)

I concur with the observation in Oleander's Exception 5 that the evidence referred to in the preceding paragraph does not support the ALJ's challenged finding that the cumulative impacts from the Project and other sources of air pollution in the area will be "insignificant". Furthermore, a review of the entire record does not reveal any other competent substantial evidence supporting this factual finding of the ALJ. Accordingly, the first sentence of the ALJ's Finding of Fact 36 is modified to read as follows:

> When the cumulative impacts from the Project and other sources of air pollution in the area are considered together, the maximum impact from their combined emissions will be 50 percent or less of the applicable AAQS (Ambient Air Quality Standards).

---

[2] "Ambient air quality standards" are defined by Department rule as "restrictions established to limit the quantity or concentration of an air pollutant that may be allowed to exist in the ambient air for any specific period of time". Rule 62-204.200(5), F.A.C. The Florida ambient air quality standards are set forth in Rule 62-204.240, F.A.C.

Exception 6

Oleander's Exception 6 takes exception to the second sentence of paragraph 56 of the RO consisting of the ALJ's legal conclusion that "[c]ourts have consistently held that neither DEP nor DOAH has jurisdiction to consider the provisions of Executive Order 12898". Oleander contends that this legal conclusion of the ALJ is incorrect and should be deleted. I conclude, however, that the challenged legal conclusion of the ALJ appears to be a reasonable interpretation of the governing case law and should not be rejected.

The case law cited by the ALJ holds that the issuance and denial of permits by the Department must be based solely on compliance with the environmental pollution control standards and rules of the State of Florida over which the Department has regulatory jurisdiction. Taylor v. Cedar Key Special Water and Sewage District, 590 So.2d 481, 482 (Fla. 1st DCA 1991); Council of the Lower Keys v. Charley Toppino & Sons, Inc., 429 So.2d 67, 68 (Fla. 3d DCA 1983). As noted by the ALJ in paragraph 55 of the RO, President Clinton's Executive Order 12898 directs federal agencies to identify and address those situations where federal programs, policies, and activities have disproportionate adverse impacts on minority or low-income populations in the United States. (emphasis supplied) Executive Order 12898 is thus expressly limited in its application to federal agencies. Therefore, the Department obviously has no regulatory jurisdiction over the federal law matters addressed in this Executive Order.

In addition, both federal and Florida case law holds that claims based on alleged violations of federal laws are beyond the jurisdiction of a state administrative proceeding. See Curtis v. Taylor, 648 F.2d 946, 948 (5th Cir. 1980) (a DOAH hearing

officer is not empowered to consider claims in an administrative hearing pursuant to § 120.57, Florida Statutes, that certain state actions are invalid based on alleged violations of federal law). Accord Miccosukee Tribe v. South Florida Water Management District, ER F.A.L.R. 98:119 (Fla. DEP 1998), *affirmed per curiam*, 721 So.2d 389 (Fla. 3d DCA 1998); Legal Environmental Assistance Foundation v. Dept. of Environmental Regulation, 11 F.A.L.R. 5227 (Fla. DER 1989). See also Metro. Dade County v. Coscan Florida, Inc., 609 So.2d 644, 650 (Fla. 3d DCA 1992) (concluding that a DOAH hearing officer erred by relying on the federal statutory standard for protection of endangered species, rather than the standard set forth in the Florida Statutes).

In view of the above, Oleander's Exception 6 is denied.

Exception 7

Oleander's final Exception takes exception to the ALJ's legal conclusion in paragraph 58 of the RO that consideration of evidence at the final hearing relating to environmental justice issues "would have been contrary to the law of the case established in previous rulings in this proceeding". Oleander contends that this legal conclusion of the ALJ is erroneous for the reasons set forth in its second Exception. I agree with this contention.

In the above ruling granting Oleander's Exception 2, I concluded that the ALJ did not enter orders in this case striking Petitioner's environmental justice allegations set forth in the original Petition and in the Amended Petition. Consequently, Oleander correctly notes that there was no "law of the case" established in this proceeding prior to the DOAH final hearing pertaining to Petitioner's environmental justice allegations.

For the reasons stated above, Oleander's Exception 7 is granted and the second sentence of the ALJ's Conclusion of Law 58 is deleted.[3] However, the preceding ruling in this Final Order adopts the ALJ's related legal conclusion that Petitioner's environmental justice allegations raise federal law issues which are beyond the jurisdiction of this state administrative proceeding. Accordingly, the rejected legal conclusion of the ALJ is deemed to be "harmless" error.

Having ruled on all of the Exceptions to the Recommended Order filed in this proceeding, it is therefore ORDERED:

A. The Preliminary Statement and numbered paragraphs 6, 11, 36, and 58 of the Recommend Order are modified as set forth above. These modifications are all deemed to deal with "minor" discrepancies in the Recommended Order not affecting the ultimate disposition of this proceeding.

B. As modified, the Recommended Order is adopted and incorporated herein by reference.

C. The Department's Division of Air Resources Management is hereby directed to ISSUE to Oleander the requested air construction permit for the Project, subject to the terms and conditions set forth in the Draft Permit (DEP File No. 0090180-001-AC; PSD-FL-258), dated March 26, 1999, which are incorporated by reference herein.

Any party to this proceeding has the right to seek judicial review of the Final Order pursuant to Section 120.68, Florida Statutes, 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 Office of General Counsel, 3900 Commonwealth Boulevard, M.S. 35,

[3] I find that the substituted conclusion of law set forth in this portion of the Final Order is as reasonable or more reasonable than the ALJ's conclusion of law which was rejected.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a copy of the foregoing Final Order has been sent by United States Postal Service to:

Clarence Rowe
418 Pennsylvania Avenue
Rockledge, FL 32955

David S. Dee, Esquire
Landers & Parsons
310 West College Avenue
Tallahassee, FL 32301

Ann Cole, Clerk and
Daniel Manry, Administrative Law Judge
Division of Administrative Hearings
The DeSoto Building
1230 Apalachee Parkway
Tallahassee, FL 32399-1550

and by hand delivery to:

W. Douglas Beason, Esquire
Scott A. Goorland, Esquire
Department of Environmental Protection
3900 Commonwealth Blvd., M.S. 35
Tallahassee, FL 32399-3000

this 12th day of November, 1999.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

J. Terrell Williams

J. TERRELL WILLIAMS
Assistant General Counsel

3900 Commonwealth Blvd., M.S. 35
Tallahassee, FL 32399-3000
Telephone 850/488-9314

STATE OF FLORIDA
DIVISION OF ADMINISTRATIVE HEARINGS

CLARENCE ROWE,

Petitioner,

vs.

OLEANDER POWER PROJECT, L.P., and DEPARTMENT OF ENVIRONMENTAL PROTECTION,

Respondents.

Case No. 99-2581

RECOMMENDED ORDER

An administrative hearing was conducted on August 30, 1999, in Viera, Florida, by Daniel Manry, Administrative Law Judge, Division of Administrative Hearings.

APPEARANCES

For Petitioner: Clarence Rowe, pro se
418 Pennsylvania Avenue
Rockledge, Florida 32955

For Respondent, Oleander Power Project, L.P.: David S. Dee, Esquire
Landers & Parsons
310 West College Avenue
Tallahassee, Florida 32301

For Respondent, Department of Environmental Protection: Scott A. Goorland, Esquire
W. Douglas Beason, Esquire
Assistant General Counsel
Department of Environmental Protection
The Douglas Building
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Tallahassee, Florida 32399-3000

STATEMENT OF THE ISSUE

The issue in this case is whether the Department of Environmental Protection ("DEP") should issue an air construction permit authorizing Oleander Power Project, L.P. ("Oleander"), to

EXHIBIT "A"

build and operate an electrical power plant in Brevard County, Florida, that includes five combustion turbines and two fuel oil storage tanks (the "Project").

PRELIMINARY STATEMENT

On November 24, 1998, Oleander filed an application with DEP for a permit authorizing the construction of certain stationary sources of airborne emissions (an "air construction permit"). On March 26, 1999, DEP issued a "Public Notice of Intent to Issue an Air Construction Permit" ("Public Notice"). The Public Notice included attachments comprised of DEP's draft "Air Construction Permit" (Permit No. PSD-FL-258; DEP File No. 0090180-001-AC)(the "Draft Permit"), "Technical Evaluation and Preliminary Determination," and "Best Available Control Technology Determination."

By letter dated April 12, 1999, Petitioner requested an administrative hearing. On June 9, 1999, DEP referred the matter to the Division of Administrative Hearings ("DOAH") to conduct an administrative hearing.

On June 23, 1999, Oleander filed a motion to dismiss for failure to comply with requirements prescribed in the Public Notice for a petition for administrative hearing. After hearing argument from both parties by telephone conference, the motion to dismiss was granted with leave to file an amended petition no later than July 19, 1999.

On July 19, 1999, Petitioner timely filed a Petition for Administrative Hearing (the "Petition"). On July 27, 1999, an

administrative hearing was scheduled for August 25, 1999, and subsequently rescheduled for August 30, 1999.

At the administrative hearing, Oleander presented the testimony of four witnesses, each of whom was accepted as an expert. Mr. Richard Zwolak was accepted as an expert in land-use planning, land-use compatibility analyses, and socioeconomic and environmental impact assessments. Mr. Ken Kosky was accepted as an expert regarding air pollution control and best available control technology. Mr. Bob McCann was accepted as an expert in meteorology, air quality dispersion modeling, and air pollution impact assessments. Mr. Al Linero was accepted as an expert in air pollution control issues, DEP regulations that govern new sources of air pollution, and air permitting. Oleander submitted Exhibits 1-3, 5-17, 19-32, and 34-46 for admission in evidence.

DEP did not call any witnesses or submit any exhibits for admission in evidence. Petitioner presented the testimony of one witness who was not tendered as an expert. Petitioner submitted Exhibits 1-12 for admission in evidence.

Petitioner's request for public comment was granted. Five individuals entered un-sworn public comment on the record. The individuals were not placed under oath or cross-examined because the agency stated that it did not propose to "consider such material" within the meaning of Section 120.57(1)(b), Florida Statutes (1997). (All chapter and section references are to Florida Statutes (1997) unless otherwise stated.)

The Petition included allegations of "environmental injustice" and harm to Petitioner's extended family and their progeny. Those allegations had been previously stricken from the Petition in response to Oleander's motion. At the administrative hearing, Oleander attempted to introduce evidence concerning "environmental justice" issues. DEP objected to the introduction of such evidence on the ground that DEP does not have jurisdiction to consider issues of environmental justice. DEP's objection was sustained, but Oleander was allowed to proffer its evidence concerning environmental justice.

The identity of the witnesses and exhibits, and any attendant rulings, are set forth in the Transcript of the hearing filed on September 7, 1999. Petitioner did not file a proposed recommended order ("PRO"). Respondent timely filed its PRO on September 17, 1999.

FINDINGS OF FACT

1. Oleander seeks an air construction permit to build and operate an electrical power plant in Brevard County, Florida. Oleander provided reasonable assurances that the Project will comply with all of the conditions and emissions limitations prescribed by DEP in the Draft Permit.

2. The Project received adequate review from the state agency responsible for regulating the Project. DEP reviewed Oleander's application, requested and received additional information concerning the Project, and independently verified the impacts assessments contained in the application.

3. The Project received adequate review from Brevard County. Oleander executed a Stipulated Settlement Agreement with Brevard County (the "Brevard County Agreement") in which Oleander agreed to comply with restrictions concerning the Project's hours of operation, minimum buffers, noise, odor, vibrations, traffic, and other issues. The Brevard County Agreement provides additional assurances that the Project will not adversely impact the public.

4. Members of the public received adequate notice of the Project and had sufficient opportunity to make public comments. On March 3, 1999, DEP held a public meeting in Brevard County to receive public comments regarding Oleander's application. On March 26, 1999, DEP issued its Public Notice of DEP's intent to grant the Draft Permit to Oleander. On April 8, 1999, DEP's Public Notice was published in Florida Today. On May 13, 1999, DEP held a second public meeting in Brevard County to receive public comments concerning Oleander's application. Members of the public had an opportunity during the administrative hearing to enter their comments on the record.

5. The Project includes the construction and operation of five 190 megawatt ("MW") combustion turbines that will be used to generate electricity. The Project also includes the construction and use of two fuel oil storage tanks, two water storage tanks, an administrative building, a stormwater management system, and other associated and ancillary facilities.

6. The Project is a "peaking" power plant. It will operate only during times of peak demand caused by hot or cold weather or storm events.

7. The Draft Permit authorizes Oleander to operate the Project's combustion turbines for a maximum of 3,390 hours per year, or approximately 39 percent of the available hours in a year. During the remainder of the year, the combustion turbines will not operate and will not have any airborne emissions. Based on the historical experience of other peaking power plants in Florida, the combustion turbines are expected to operate less than 800 hours per year.

8. Oleander's combustion turbines will be the most advanced turbines used in Florida for peaking service. Oleander's turbines will be more efficient, in terms of emissions and producing power, than the turbines currently used at other peaking plants in Florida.

9. The Project will use General Electric ("GE") Frame 7FA combustion turbines. These turbines are capable of complying with the emission limits and requirements in the Draft Permit. Oleander will hire staff or train their own staff to operate the Project in compliance with the Draft Permit. Oleander's parent company already has a training program for its plant operators. Oleander has operated similar projects successfully.

10. The primary fuel for the power plant will be natural gas. Natural gas is the cleanest burning of all fossil fuels.

11. In the event that natural gas becomes unavailable, the Draft Permit authorizes use of low sulfur distillate fuel oil

("fuel oil") for the equivalent of 1,000 hours of full-load operations per year. Fuel oil contains a maximum of 0.05 percent sulfur, is 35 to 50 percent more expensive than natural gas, and imposes economic incentives for Oleander to minimize the use of fuel oil.

12. Water needed for the Project will be provided by the City of Cocoa. Oleander will not install any on-site wells to supply water to the Project. All of the wastewater from the Project will be sent by pipeline to the City of Cocoa's wastewater treatment plant. The Project will not discharge any industrial wastewater on-site.

13. The Project will be built on a site that is located northeast of the intersection of Interstate 95 ("I-95") and State Road ("SR") 520 in unincorporated Brevard County (the "Site"). The Site contains approximately 38 acres of land.

14. The Site is appropriate for use as an electrical power plant. The Site already is zoned for industrial purposes. The surrounding areas are primarily zoned for industrial uses. An existing electrical substation is located on the north side of the Site. An existing electrical transmission line corridor is located on the west side of the Site. Townsend Road is located on the south side of the Site. An existing natural gas pipeline is located nearby, on the west side of I-95, and can provide gas for the Project.

15. Residential, commercial, and industrial development within a three kilometer radius of the Site is minimal. The

Project will be compatible with those industrial and commercial land uses that are located in the area near the Site.

16. The closest residential areas are more than 1,400 feet from the Site. The Site is compatible with the closest residential neighborhoods. The Site and adjacent off-Site areas provide a significant buffer to the closest residential areas. The Site can be developed without causing adverse impacts on residential areas.

17. Combustion turbines currently operate at many locations in diverse population centers in Florida. For example, combustion turbines are operated within 800 feet of the Shands Hospital at the University of Florida, within 1,200 feet of Cinderella's Castle at Disney World's Magic Kingdom, and near the Lake Worth High School. Combustion turbines also are located near several residential neighborhoods in the state.

18. DEP and Oleander evaluated the Project in accordance with requirements prescribed in DEP's Prevention of Significant Deterioration ("PSD") program. As part of the PSD review, a determination was made of the Best Available Control Technology ("BACT").

19. A BACT determination involves a case-by-case analysis of those air pollution control technologies that are feasible and can achieve the maximum emission reductions. A BACT determination also requires an analysis of the costs, environmental impacts, and energy impacts associated with the use of each one of the proposed control technologies.

20. A BACT determination results in the establishment of an emission limit for each pollutant of concern. In this case, DEP determined the appropriate BACT limits for the Project's emissions of carbon monoxide ("CO"), oxides of nitrogen ("NOx"), sulfur dioxide ("SO_2"), sulfuric acid mist ("SAM"), volatile organic compounds ("VOCs"), particulate matter ("PM"), and particulate matter less than ten microns in diameter ("PM_{10}"). (PM and PM_{10} are referred to herein as "PM/PM_{10}.") BACT emission limits applicable to the Project are set forth in the Draft Permit, and are incorporated by reference in this Recommended Order.

21. DEP determined that when the Project operates on natural gas, BACT for NOx is an emission limit of 9 parts per million ("ppm"), corrected to 15 percent oxygen. This emission limit is based on the use of dry low NOx ("DLN") combustion technology utilized in the combustion turbines included in the Project. The proposed NOx emission limit of 9 ppm is the lowest emission limit in Florida for simple cycle peaking power plants and sets the standard for similar facilities throughout the United States.

22. DEP determined that when the Project operates on fuel oil, BACT for NOx is an emission limit of 42 ppm, corrected to 15 percent oxygen. This emission limit is based on the use of DLN and wet injection technology. Wet injection technology involves the injection of either water or steam directly into the combustor to lower the flame temperature and thereby reduce the formation of NOx.

23. The U.S. Fish and Wildlife Service ("USFWS") provided comments to DEP concerning the Project. In their comments, the USFWS suggested that the NOx emission limit should be 25 ppm when the Project is operating with fuel oil. However, the USFWS' suggestion was based on the USFWS' misreading of the provisions of other PSD permits. When read correctly, those permits establish the same NOx emission limit when firing fuel oil that DEP established in this case, i.e., 42 ppm.

24. In its BACT determination, DEP considered whether a selective catalytic reduction ("SCR") system should be used to reduce the Project's NOx emissions. SCR is an add-on NOx control system in which ammonia is injected into the exhaust gases of a combustion turbine. The exhaust gases are then exposed to a catalyst where the ammonia and the NOx react to form nitrogen and water.

25. SCR does not represent BACT in this case and should not be required for the Project. The use of SCR would impose excessive costs on the Project, adversely impact the Project's energy efficiency, and cause increased emissions of particulate matter and ammonia.

26. BACT for CO and VOCs is based on the Project's use of an advanced combustor design, i.e., DLN technology, and good combustion practices. The use of an oxidation catalyst for CO removal is not required because an oxidation catalyst is not cost effective for the Project. BACT for PM/PM_{10}, SO_2, and SAM is based on good combustion practices and the use of clean low sulfur fuels.

27. The PSD program establishes separate ambient air quality standards for Class I and Class II areas defined in Florida Administrative Code Rule 62-204.360(4). (Unless otherwise stated, all references to rules are to rules promulgated in the Florida Administrative Code in effect on the date of this Recommended Order.) The Project is located in a Class II area. The Project's impacts on ambient air concentrations will be below all applicable PSD standards ("increments") prescribed in Rule 62-204.260(2) for Class II areas.

28. The nearest PSD Class I area is the Chassahowitzka Wildlife Refuge (the "Refuge"). The Refuge is approximately 180 kilometers from the Site. An analysis of the Project's impacts on the Refuge is not required because the Refuge is more than 150 kilometers from the Site. The impacts from the Project on the closest Class I area are expected to be insignificant within the meaning of Rule 62-204.200(29).

29. DEP does not require Oleander to evaluate the cumulative impacts caused by the Project and other major sources of air pollution in the relevant Class II area. However, Oleander evaluated the Project's impacts together with the impacts of the Florida Power & Light Cape Canaveral Plant, the Orlando Utilities Commission's Indian River Plant, and the Orlando Utilities Commission's Stanton Energy Center. The Project itself will not have any measurable effect on the ambient conditions resulting from the operation of all of these sources.

30. DEP has adopted primary and secondary Ambient Air Quality Standards ("AAQS") in accordance with requirements adopted by the U.S. Environmental Protection Agency ("EPA"). Primary standards are designed to create an adequate margin of safety for the protection of the public health, including the health of the young, the old, and those with respiratory diseases such as asthma. Secondary standards are designed to protect the public welfare from any known or anticipated adverse effects of air pollution. AAQS are reviewed every five years by scientists and physicians in light of the most recent scientific studies and data.

31. In Brevard County, existing air quality is better than levels allowed under AAQS. Brevard County is classified as an attainment area.

32. Oleander analyzed the Project's potential impacts on ambient air quality in Brevard County in compliance with the applicable DEP requirements for such an analysis. Oleander's analysis was based on conservative assumptions intended to over-estimate impacts from the Project. For example, the analysis assumed that the Project would operate continuously throughout the entire year, even though the Project's annual operations will be limited to a maximum of 3,390 hours. In addition, Oleander assumed that the Project would use fuel oil for the entire year, even though the Project will be limited to firing fuel oil for a maximum of 1,000 hours per year.

33. The Project's maximum impacts on ambient air quality will be 0.6 percent or less of the applicable AAQS for each

criteria pollutant. Oleander's analysis demonstrates a wide margin of safety for public health and welfare.

34. The Project's maximum potential impacts are less than the EPA "significant impact" levels. Consequently, the Project's impacts are deemed insignificant from a regulatory perspective, and more detailed analyses of the Project's impacts on ambient air quality are not required under applicable PSD requirements.

35. The Project is not expected to cause any meaningful impacts on air quality in any neighborhood in Brevard County. In all neighborhoods, the Project's impacts on air quality will be insignificant. Similarly, the Project's impacts on soils, vegetation, wildlife, and visibility will be insignificant. The Project also will not cause any significant growth-related air quality impacts.

36. The cumulative impacts from the Project and other sources of air pollution in the area will be insignificant. When all of these sources are considered together, the maximum impact from their combined emissions will be 50 percent or less of the applicable AAQS.

37. The PSD program does not require Oleander to perform any ambient air quality monitoring for any pollutant prior to the time that construction of the Project commences because the Project's air quality impacts will be less than the applicable DEP de minimis levels. Pre-construction monitoring for ozone is not required unless a facility will have VOC emissions equal to or greater than 100 tons per year. The Project's maximum

potential VOC emissions will be 64 tons per year. Therefore, the Draft Permit does not require Oleander to install any ozone monitors.

38. DEP maintains two ambient air quality monitors in Brevard County to measure ozone concentrations. DEP also has ambient air quality monitors for ozone in Volusia, Seminole, Orange, Osceola, and St. Lucie Counties.

39. The ambient air quality data from DEP monitors demonstrate that the ozone concentrations in Brevard County are below the applicable AAQS. Further, the data demonstrate that ozone is a regional issue because the ozone levels in the region tend to rise and fall at the same time and to the same degree.

40. A requirement for Oleander to install an additional monitor in Brevard County would be unnecessary and unjustified. The impacts from the Project on ozone and other ambient air quality parameters are so small that the impacts could not be measured with an additional monitor. An additional monitor in Brevard County would provide no meaningful benefits when assessing whether Brevard County is meeting the AAQS for ozone and would cost between $75,000 and $100,000 a year to install and operate.

41. Emissions from the Project will not cause any significant impact on the water quality of water bodies in Brevard County. There will be minimal, if any, "fallout" of particles into nearby waters, including the St. Johns and Indian Rivers.

42. The maximum amount of nitrogen that could be deposited annually as a result of airborne NOx emissions from the Project is 0.0007 grams per square meter ("g/m^2"). By comparison, the current nitrogen deposition rate from other sources in the area is 0.4 g/m^2. Thus, the Project's impact on nitrogen deposition in the area will be only a fraction of the deposition that is occurring already.

43. Airborne emissions from the Project will not cause or significantly contribute to a violation of any ambient air quality standard or PSD increment. The Project complies with all applicable DEP air quality requirements, including the applicable policies, rules, and statutes.

CONCLUSIONS OF LAW

44. The Division of Administrative Hearings has jurisdiction over the subject matter and the parties. The parties were duly noticed for the hearing.

45. Oleander has the ultimate burden of proof in this proceeding. Florida Department of Transportation v. J.W.C. Co., Inc., 396 So. 2d 778, 787 (Fla. 1st DCA 1981). Oleander also has the initial burden of presenting prima facie evidence that Oleander has complied with all of the applicable DEP standards and rules. J.W.C. 396 So. 2d at 788.

46. If Oleander presents the requisite prima facie evidence, Petitioner must present "contrary evidence of equivalent quality" proving the truth of the allegations in the Petition. J.W.C. 396 So. 2d at 789. Petitioner cannot satisfy his evidentiary burden with speculative concerns about potential

or possible adverse environmental effects. See Chipola Basin Protective Group, Inc. v. Florida Chapter Sierra Club, 11 F.A.L.R. 467, 481 (DER Final Order, May 29, 1988); J.T. McCormick v. City of Jacksonville, 12 F.A.L.R. 960, 971 (DER Final Order, January 22, 1990); Altman v. Kavanaugh, 15 F.A.L.R. 1588, 1576 (DOAH Recommended Order, adopted in pertinent part by DER Final Order, November 1, 1991).

47. Oleander presented competent substantial evidence that: (a) DEP properly determined BACT for the Project; (b) airborne emissions from the Project will not cause or significantly contribute to a violation of any ambient air quality standard or PSD increment; (c) airborne emissions from the Project will have no significant adverse impacts on water quality in any surface waters; (d) airborne emissions from the Project will not cause any significant adverse impacts on human health or the public welfare; (e) the Project satisfies applicable DEP rules and criteria; and (f) DEP should issue the air construction permit for the Project.

48. Petitioner failed to present "contrary evidence of equivalent quality" proving the truth of the allegations in the Petition. Petitioner speculated about potential impacts from the Project but presented no competent substantial evidence to support the allegations in the Petition.

49. During the administrative hearing, members of the public were allowed to enter comments on the record in accordance with Section 120.57(1)(b). In relevant part, Section 120.57(1)(b) provides:

Memorandum

Florida Department of
Environmental Protection

TO: Howard L. Rhodes

THRU: Clair Fancy
Al Linero

FROM: Mike Halpin

DATE: November 19, 1999

SUBJECT: Oleander Power Project PSD Permit

Attached for approval and signature is an air construction permit for the subject (new) facility. The Public Notice requirements have been met on April 8, 1999 by publishing in the Florida Today. An Administrative Hearing was held on August 30, 1999 and the Secretary issued a Final Order on November 10, 1999.

No comments were received which resulted in changes to the BACT or permit.

I recommend your approval and signature.

Attachments

/mph

KIM
SEND
OUT

Howard -
Note: Simple Cycle NOx limit of 9 ppm.
EPA uses this project as basis for
telling Region IV States that simple
cycle units need to get into
Low NOx ranges. AL