Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

August 11, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Deborah Shaw
305-664-6501

Ms. Deborah Shaw
Environmental Affairs Coordinator
91605 Overseas Highway
P.O. Box 700377
Tavernier, Florida 33070-0377

Re: DRAFT Permit No. 0870004-002-AC (PSD-FL-237)
Marathon Generation Plant

Dear Ms. Shaw:

Enclosed is one copy of the Draft Air Construction Permit for the Marathon Generation Plant's Unit 8 located at 3421 Overseas Highway, Marathon, Monroe County. The Technical Evaluation and Preliminary Determination, Best Available Control Technology, the Department's Intent to Issue Air Construction Permit and the "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT" are also included.

The "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT" must be published within 30 (thirty) days of receipt of this letter. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within 7 (seven) days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

Please submit any written comments you wish to have considered concerning the Department's proposed action to A. A. Linero, P.E., Administrator, New Source Review Section at the above letterhead address. If you have any other questions, please contact Syed Arif or Mr. Linero at 850/488-1344.

Sincerely,

A. A. Linero, P.E.

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

CHF/sa

Enclosures

In the Matter of an
Application for Permit by:

Florida Keys Electric Cooperative Association, Inc.
91605 Overseas Highway
P.O. Box 700377
Tavernier, Florida 33070-0377

DRAFT Permit No. 0870004-002-AC
PSD-FL-237
Marathon Generation Plant Unit 8
Monroe County

INTENT TO ISSUE AIR CONSTRUCTION PERMIT

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

The applicant, Florida Keys Electric Cooperative Association, Inc., applied on January 27, 1997 to the Department for an air construction permit to install a 3.58 megawatt diesel generator (Unit 8) at its Marathon Generation Plant located at 3421 Overseas Highway, Marathon, Monroe County.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above actions are not exempt from permitting procedures. The Department has determined that a review for the Prevention of Significant Deterioration (PSD), a determination of Best Available Control Technology (BACT) and an air construction permit are required to construct the new diesel generator.

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

Pursuant to Section 403.815, F.S., and Rule 62-103.150, F.A.C.; you (the applicant) are required to publish at your own expense the enclosed "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT". The notice shall be published one time only within 30 (thirty) days in the legal advertisement section of a newspaper of general circulation in the area affected. For the purpose of these rules, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. Where there is more than one newspaper of general circulation in the county, the newspaper used must be one with significant circulation in the area that may be affected by the permit. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-1344; Fax 850/ 922-6979) within 7 (seven) days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit pursuant to Rule 62-103.150 (6), F.A.C.

The Department will issue the FINAL Permit, in accordance with the conditions of the enclosed DRAFT Permit unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments and requests for public meetings concerning the proposed DRAFT Permit issuance action for a period of 30 (thirty) days from the date of publication of "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT." Written comments and requests for public meetings should be provided to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in this DRAFT Permit, the Department shall issue a Revised DRAFT Permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S. The procedures for petitioning for a hearing are set forth below. Mediation is not available for this action.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57 F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000, telephone: 850/488-9730, fax: 850/487-4938. Petitions must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. A petitioner must mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-5.207 of the Florida Administrative Code.

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

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

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

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

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

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

Executed in Tallahassee, Florida.

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

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this INTENT TO ISSUE AIR CONSTRUCTION PERMIT (including the PUBLIC NOTICE, Technical Evaluation and Preliminary Determination, Draft BACT Determination, and the DRAFT permit) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 8-11-97 to the person(s) listed:

Ms. Deborah A. Shaw, FKEC *
Mr. Brian Beals , EPA
Mr. John Bunyak, NPS
Mr. David Knowles, DEP

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52(7), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Kyra Tober 8-11-97
(Clerk) (Date)

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DRAFT Permit No. 0870004-002-AC, (PSD-FL-237)
Marathon Generation Plant
Monroe County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to Florida Keys Electric Cooperative Association, Inc., for Unit 8 located at Marathon Generation Plant, 3421 Overseas Highway, Marathon, Monroe County. A Best Available Control Technology (BACT) determination was required for nitrogen oxides (NOx), pursuant to Rule 62-212.400, F.A.C. and 40 CFR 52.21, Prevention of Significant Deterioration (PSD). The applicant's name and address are: Florida Keys Electric Cooperative Association, Inc., 91605 Overseas Highway, P.O. Box 700377, Tavernier, Florida 33070-0377.

This permit is for installation of a 3.58 megawatt diesel generator designated as Unit 8. The diesel generator will burn No. 2 fuel oil with a sulfur content of 0.05 percent or less, by weight. Controls for NOx emissions consist of timing retardation and turbocharger aftercoolers. The diesel generator is allowed to operate continuously with the fuel oil usage limited to 2.015 million gallons per year. Additionally, enforceable conditions are included on Units 1-7 to limit the hours of operation and fuel usage thus insuring that there will be no predicted violations of any ambient air quality standards or PSD increments.

An air quality impact analysis was conducted. Emissions from the facility will consume PSD increment but will not significantly contribute to or cause a violation of any state or federal ambient air quality standards. The maximum predicted PSD Class II annual nitrogen dioxide (NO2) increment consumed by all sources in the area, including this project, will be as follows:

PSD Class II Increment Consumed ($\mu g/m^3$)	Allowable Increment ($\mu g/m^3$)	Percent Increment Consumed
18.8	25	75

The project has no significant impact on the Everglades National Park PSD Class I area.

The Department will issue the FINAL Permit, in accordance with the conditions of the DRAFT Permit unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments and requests for public meetings concerning the proposed DRAFT Permit issuance action for a period of 30 (thirty) days from the date of publication of this Notice. Written comments and requests for public meetings should be provided to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in this DRAFT Permit, the Department shall issue a Revised DRAFT Permit and require, if applicable, another Public Notice.

The Department will issue FINAL Permit with the conditions of the DRAFT Permit unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S. The procedures for petitioning for a hearing are set forth below. Mediation is not available for this action.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57 F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000, telephone: 850/488-9370, fax: 850/487-4938. Petitions must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. A petitioner must mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-5.207 of the Florida Administrative Code.

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

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

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

Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301
Telephone: 850/488-1344
Fax: 850/922-6979

Department of Environmental Protection
South District
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901
Telephone: (941) 332-6975
Fax: 941/332-6969

The complete project file includes the application, technical evaluations, Draft Permit, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, New Resource Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-1344, for additional information.

P 265 659 250

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

Sent to	Deborah Shaw
Street & Number	Marathon Gen.
Post Office, State, & ZIP Code	Plant - Fla. Keys
Postage	Elect Coop. Assoc
Certified Fee	Tavernier, Fl
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	8-11-97
0870004-002-AC	
PSD-FI-237	

PS Form **3800**, April 1995

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

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

Consult postmaster for fee.

3. Article Addressed to:
Deborah Shaw, EAC
91605 Overseas Hwy
PO Box 7003-77
Tavernier, Fl
Fla. Keys 33070-0377

4a. Article Number
P 265 659 250

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

7. Date of Delivery

5. Received By: *(Print Name)*

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

6. Signature: *(Addressee or Agent)*
X Jennifer Uzgovich

PS Form **3811**, December 1994 Domestic Return Receipt

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

DRAFT

PERMITTEE:

Florida Keys Electric Cooperative Association, Inc.
91605 Overseas Highway
Tavernier, Florida 33070

Authorized Representative:
Charles A. Russell
Chief Executive Officer General Manager

FID No.	0870004
PSD No.	PSD-FL-237
SIC No.	4911
Project:	Unit 8
Permit No.	0870004-002-AC
Expires:	January 31, 1999

PROJECT AND LOCATION:

Permit for the construction of a 3.58 megawatt diesel electric generator at the Marathon Generation Power Plant, 3421 Overseas Highway, Marathon. UTM coordinates are Zone 17; 490.7 km E; 2732.7 km N.

STATEMENT OF BASIS:

This construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and the Florida Administrative Code (F.A.C.) Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297. 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 are made a part of this permit:

Appendix BD	BACT Determination
Appendix GC	Construction Permit General Conditions
Appendix CSC	Emission Unit(s) Common Specific Conditions

Howard L. Rhodes, Director
Division of Air Resources
Management

SECTION I. FACILITY INFORMATION

SUBSECTION A. FACILITY DESCRIPTION

The Florida Keys Electric Cooperative Association (FKEC) Marathon Generating Plant presently consists of two nominal 2.0 Megawatt (MW) diesel generators designated as Units 1 and 2, three nominal 3.0 MW diesel generators (Units 3, 4 and 5), and two 2.5 MW diesel generators (Units 6 & 7). This permit is to construct a 3.58 MW diesel generator designated as Unit 8 and to limit the potential-to-emit of the other units.

SUBSECTION B. REGULATORY CLASSIFICATION

The Marathon Generation Power Plant is classified as a Major Source of Air Pollution or Title V Source because it emits or has the potential to emit at least 100 tons per year of nitrogen oxides (NO_X) and carbon monoxide (CO). It is also a Major Facility with respect to preconstruction review because it emits or has the potential to emit at least 250 tons per year of NO_X and CO.

SUBSECTION C. PERMIT SCHEDULE:

- 01-27-97: Date of Receipt of Application
- 02-13-97: Department's Preliminary Incompleteness Letter
- 07-10-97: Company's Response to Department's letter
- 07-10-97: Application deemed complete

SUBSECTION D. RELEVANT DOCUMENTS:

The documents listed below are the basis of the permit. They are specifically related to this permitting action. These documents are on file with the Department.

1. Application received 1/27/97.
2. Department's letter dated 2/13/97.
3. Company letter dated 7/10/97.

SECTION II. EMISSION UNIT(S) GENERAL REQUIREMENTS

SUBSECTION A. ADMINISTRATIVE

A.1 Regulating Agencies: All documents related to applications for permits to operate, reports, tests, minor modifications and notifications shall be submitted to the Department of Environmental Protection, South District Office located at 2295 Victoria Avenue, Suite 364, Ft. Myers, Florida 33901, and phone number (941) 332-6975. All applications for permits to construct or modify an emission unit(s) *subject to the Prevention of Significant Deterioration (PSD)* should be submitted to the Bureau of Air Regulation (BAR), Florida Department of Environmental Protection (FDEP) located at 2600 Blairstone Road, Tallahassee, Florida 32399-2400 and phone number (850)488-1344.

A.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.]**

A.3 Emission Unit(s) Common Specific Conditions: The owner and operator is subject to and shall operate under the attached Emission Unit(s) Common Specific Conditions listed in *Appendix CSC* of this permit. The Emission Unit(s) Common Specific Conditions are binding and enforceable pursuant to Chapters 62-204 through 62-297 of the Florida Administrative Code.

A.4 Terminology: The terms used in this permit have specific meanings as defined in the corresponding chapters of the Florida Administrative Code.

A.5 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.]**

A.6 Expiration: This air construction permit shall expire on **January 31, 1999. [Rule 62-210.300(1), F.A.C.].** The permittee may, for good cause, 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. However, the permittee shall promptly notify the permitting authority office of any delays in completion of the project which would affect the startup day by more than 90 days. **[Rule 62-4.090, F.A.C]**

A.7 Applicable Regulations: The facility is subject to the following regulations: Florida Administrative Code Chapters 62-4; 62-103; 62-204; 62-210; 62-212, 62-296, and 62-297. 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.]**

SUBSECTION A. COMMON CONDITIONS: 40 CFR 60 SUBPART A, GENERAL PROVISIONS

EMISSION UNITS

This permit addresses the following emission units.

EMISSIONS UNIT NO.	SYSTEM	EMISSIONS UNITS DESCRIPTION
001#	Power	2.0 MW Diesel Electric Generator
002#	Power	2.0 MW Diesel Electric Generator
003#	Power	3.0 MW Diesel Electric Generator
004#	Power	3.0 MW Diesel Electric Generator
005#	Power	3.0 MW Diesel Electric Generator
006#	Power	2.5 MW Diesel Electric Generator
007#	Power	2.5 MW Diesel Electric Generator
008*	Power	3.58 MW Diesel Electric Generator

\# Existing Emission units
* New Emission unit

SUBSECTION B. SPECIFIC CONDITIONS:

The following Specific Conditions apply to the following emission unit:

EMISSION UNIT NO.	SYSTEM	EMISSION UNIT DESCRIPTION
008	Power	3.58 MW Diesel Electric Generator

EMISSION LIMITATIONS

B.1 The maximum allowable emission rates for NO_X for Unit No. 008 shall not exceed 62 pounds per hour (lb/hr) and 271 tons per year (TPY) pursuant to the Best Available Control Technology (BACT) Determination. **[Rule 62-212.410, F.A.C.]**

B.2 Visible emissions shall not exceed 20% opacity. **[Rule 62-296.310, F.A.C.]**

B.3 In order to minimize excess emissions during startup/shutdown/malfunction this emission unit shall adhere to best operational practices. **[Rule 62-210.700, F.A.C.]**

OPERATIONAL LIMITATIONS

B.4 The emission unit is allowed to operate continuously (8760 hours/year) **[Rule 62-210.200, F.A.C.,** Definitions: Potential-to-Emit].

B.5 Only No. 2 fuel oil can be fired in the diesel generator. The maximum sulfur content of the No. 2 fuel oil shall not exceed 0.05 percent, by weight. **[Rule 62-210.200, F.A.C.,** Definitions: Potential-to-Emit].

B.6 The maximum heat input rate to Unit No. 008 shall not exceed 30.2 million Btu per hour (MMBtu/hr) **[Rule 62-210.200, F.A.C.,** Definitions: Potential-to-Emit].

B.7 The maximum No. 2 fuel oil consumption allowed to be burned in Unit No. 008 is 2,015,000 gallons per year, which is equivalent to 8760 hours per year of operation at full load. **[Rule 62-210.200, F.A.C.,** Definitions: Potential-to-Emit]

TEST METHODS AND PROCEDURES

B.8 Compliance with the allowable emission limiting standards for NO_X in B.1 shall be determined by using EPA Reference Method **7E** (or equivalent) as described in 40 CFR 60, Appendix A (1996, version) adopted by reference in Rule 62-204.800, F.A.C. An annual compliance test shall be performed on the unit if operated for more than 400 hours in the preceding 12-month period. **[Rule 62-297.310, F.A.C.]**

SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

B.9 An initial compliance test shall be conducted for CO emissions using EPA Reference Method **10** as described in 40 CFR 60, Appendix A (1996, version) adopted by reference in Rule 62-204.800, F.A.C. If the test indicates emissions to be less than 23 lb/hr, then no further testing will be required. If CO emissions exceed 23 lb/hr, the permittee will have to submit a BACT determination for CO. **[Rules 62-297.310, F.A.C.]**

B.10 The fuel shall be monitored initially and annually for the sulfur content using ASTM D4294 Method (or equivalent). **[Rule 62-297.440, F.A.C.]**

B.11 The permittee shall maintain daily records of fuel oil consumption for the emission unit. **[Rule 62-210.200, F.A.C.]**

B.12 Compliance with the visible emission standard shall be demonstrated with EPA Reference Method 9 as described in 40 CFR 60, Appendix A (1996, version) adopted by reference in Rule 62-204.800, F.A.C. **[Rule 62-297.401, F.A.C.]**

RECORDKEEPING AND REPORTING REQUIREMENTS

B.13 All measurements, records, and other data required to be maintained by this facility shall be retained for at least five (5) years following the data on which such measurements, records, or data are recorded. These data shall be made available to the Department upon request. **[Rule 62-4.070(3), F.A.C.]**

B.14 Two copies of the results of the emission tests for the pollutant listed in Condition B.1 for Unit No. 8 shall be submitted within forty-five days of the last sampling run to the South District office in Ft. Myers. All reports shall be in a format consistent with and shall include the information in accordance with Rule 62-297.310 (8), F.A.C. **[Rule 62-297.310(8), F.A.C.]**

DRAFT

SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

SUBSECTION C. SPECIFIC CONDITIONS

The following Specific Conditions apply to the following emission units:

EMISSIONS UNIT NO.	SYSTEM	EMISSIONS UNITS DESCRIPTION
001	Power	2.0 MW Diesel Electric Generator
002	Power	2.0 MW Diesel Electric Generator
003	Power	3.0 MW Diesel Electric Generator
004	Power	3.0 MW Diesel Electric Generator
005	Power	3.0 MW Diesel Electric Generator
006	Power	2.5 MW Diesel Electric Generator
007	Power	2.5 MW Diesel Electric Generator

EMISSION LIMITATIONS

C.1 Visible emissions shall not exceed 20% opacity. **[Rule 62-296.310, F.A.C.]**

C.2 In order to minimize excess emissions during startup/shutdown/malfunction this emission unit shall adhere to best operational practices. **[Rule 62-210.700, F.A.C.]**

OPERATIONAL LIMITATIONS

C.3 The combined maximum heat input to Units No. 001-007 shall not exceed 187 MMBtu/hr while firing No. 2 fuel oil. **[Rule 62-210.200, F.A.C.,** Definitions: Potential-to-Emit]

C.4 The existing Units No. 001-007 operations shall be limited to either 4380 hours per year per unit or to a total fuel oil consumption of 6,200,000 gallons per year for all seven units, whichever limit is more restrictive. **[Rule 62-210.200, F.A.C.,** Definitions: Potential-to-Emit]

C.5 No. 2 fuel oil can be fired in the diesel generators 001-007. The maximum sulfur content of the No. 2 fuel oil shall not exceed 0.50 percent, by weight. **[Rule 62-210.200, F.A.C.,** Definitions: Potential-to-Emit]

TEST METHODS AND COMPLIANCE PROCEDURES

C.6 The No. 2 fuel oil shall be monitored initially and annually for the sulfur content using ASTM D4294 Method (or equivalent). **[Rule 62-297.440, F.A.C.]**

C.7 The permittee shall maintain daily records of fuel oil consumption for the emission units. **[Rule 62-210.200, F.A.C.,** Definitions: Potential-to-Emit.]

SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

C.8 Compliance with the visible emission standard shall be demonstrated with EPA Reference Method 9 as described in 40 CFR 60, Appendix A (1996, version) adopted by reference in 62-204.800, F.A.C. **[Rule 62-297.310, F.A.C.]**

Technical Evaluation
and
Preliminary Determination

Florida Keys Electric Cooperative Association, Inc.-FKEC
Monroe County, Florida

DIESEL GENERATOR
(3.58 megawatts)

Construction Permit No. 087004-002-AC
PSD-FL-237

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

August 11, 1997

I. GENERAL INFORMATION

A. Name and address of applicant

Florida Keys Electric Cooperative Association, Inc.-FKEC
91605 Overseas Highway
P.O. Box 700377
Tavernier, Florida 33070-0377

B. Reviewing and Process Schedule

Date of Receipt of Application: January 27, 1997

Request for additional information: February 13, 1997

Application Completeness Date: July 10, 1997

C. Facility Location

This facility is located at Marathon Generation Plant, 3421 Overseas Highway, Marathon, Monroe County, Florida. The UTM coordinates are Zone 17, 490.7 km east and 2732.7 km north.

Facility Identification Code (SIC)

Major Group No. 49 - Electric, Gas and Sanitary Services.

Industry Group No. 491 - Combination Electric, Gas and Other Utility Services.

Industry Group No. 4911 - Electric and Other Services Combined.

D. Project Description

The Florida Keys Electric Cooperative Association (FKEC) is proposing to install a Electro-Motive Diesel (EMD) generator. The EMD generator which will be noted as Unit 8 has a nominal base load rating of 3.58 megawatt (MW) at 32°C and 718 mm Hg. The Unit 8 generator will be fired primarily on No. 2 low sulfur fuel oil (0.05%, by weight, sulfur). Fuel oil combustion shall be limited to 2.015 million gallons per year for the generator (which corresponds to 8760 hours of full-load operation per year limit).

The Marathon Generation Plant currently consists of seven (7) diesel engines generators used for peaking power. Units 1 & 2 are 2.0 MW each, and Units 6 & 7 are 2.5 MW each. Low sulfur (0.5% or less, by weight) No. 2 oil is used as fuel for these units. Units 3, 4 and 5 have a rated capacity of 3.0 MW each utilizing 0.5% or less, by weight No. 2 low sulfur fuel oil. Total capacity of the facility with eight (8) units will be 21.5 MW.

E. Project Emissions

The proposed project, a 3.58 MW diesel generator, will produce maximum emissions of 271 tons per year (TPY) of nitrogen oxides (NO_x); 7 TPY of sulfur dioxide (SO_2); <100 TPY of carbon monoxide (CO); 9.1/7.9 TPY of particulate matter (PM/PM_{10}) respectively, based on an annual consumption of 2.015 million gallons of No. 2 fuel oil and 100% capacity factor or 8760 hours of operation for the EMD Diesel Generator. The No. 2 fuel oil will be limited to maximum of 0.05% sulfur content, by weight. The actual emissions for the proposed project

will be much less than the numbers represented above based on FKEC's historical and projected actual operating hours of 500 or less for the other units.

II. RULE APPLICABILITY

The proposed project, installation of a 3.58 MW diesel generator (SIC 4911), in Monroe County, is subject to preconstruction review under the provisions of Chapter 403, Florida Statutes, Chapters 62-212 and 62-4, Florida Administrative Code (F.A.C.), and 40 CFR 60 (July 1, 1996 version).

This facility is located in an area designated attainment for all criteria pollutants in accordance with F.A.C. Rule 62-275.400.

The proposed project was reviewed under Rule 62-212.400(5), F.A.C., New Source Review (NSR) for Prevention of Significant Deterioration (PSD), because it will be a major stationary source. This review consisted of a determination of Best Available Control Technology (BACT) and an analysis of the air quality impact of the increased emissions. The review also includes an analysis of the project's impacts on soils, vegetation and visibility, along with air quality impacts resulting from associated commercial, residential and industrial growth.

The emission units affected by this PSD permit shall comply with all applicable provisions of the Florida Administrative Code and, specifically, the following Chapters and Rules:

Chapter 62-4	Permits.
Rule 62-204.220	Ambient Air Quality Protection
Rule 62-204.240	Ambient Air Quality Standards
Rule 62-204.260	Prevention of Significant Deterioration Increments
Rule 62-204.360	Designation of Prevention of Significant Deterioration Areas
Rule 62-204.800	Federal Regulations Adopted By Reference
Rule 62-210.200	Definitions
Rule 62-210.300	Permits Required
Rule 62-210.350	Public Notice and Comments
Rule 62-210.370	Reports
Rule 62-210.550	Stack Height Policy
Rule 62-210.650	Circumvention
Rule 62-210.700	Excess Emissions
Rule 62-210.900	Forms and Instructions
Rule 62-212.300	General Preconstruction Review Requirements
Rule 62-212.400	Prevention of Significant Deterioration
Rule 62-212.410	Best Available Control Technology (BACT)
Rule 62-213	Operation Permits for Major Sources of Air Pollution
Rule 62-296.320	General Pollutant Emission Limiting Standards
Rule 62-297.310	General Test Requirements
Rule 62-297.401	Compliance Test Methods

III. TECHNICAL EVALUATION

The applicant proposes to install a diesel generator with a rated capacity of 3.58 MW at their existing facility which consists of seven additional diesel generators. This facility is a stand-by Electric Generating Plant which generates power only during emergencies or during Peak Power Demand periods when Florida Power and Light (FP&L) cannot provide sufficient power to supply FKEC's customers.

FKEC supplies electric power to the Middle and Upper Florida Keys. FKEC buys its electricity from FP&L to distribute to Florida Keys consumers. The Marathon Generation Plant is maintained in a standby generating capacity, ready to generate power in the event that FP&L cannot supply power to the Keys. FKEC has a contractual agreement with FP&L to have available at all times, and to provide if required by FP&L, capacity and energy from FKEC Resources. PSD is triggered due to the existing Marathon Generation Plant being a major facility, and the emissions of NO_X exceed their respective significance levels.

The diesel generator is a General Motors model 20-710G4B with a nominal base load rating of 3.58 MW at 32°C and 718 mm Hg. The existing units at Marathon Generation Plant consists of two nominal 2.0 MW units, two nominal 2.5 MW units and three nominal 3.0 MW diesel electric generating units, fuel storage tanks, and other electrical generating support equipment.

The primary fuel to the diesel generator will be No. 2 fuel oil, with a maximum sulfur content of 0.05%, by weight. There will be a fuel oil consumption limit of 2.015 million gallons per year. The emissions of NO_X represents a significant proportion of the total emissions generated by this project. The facility is subject to PSD and BACT for NO_X emissions because the proposed increase in annual NO_X emissions exceeds the significant emission rate. The BACT for NO_X, as determined by the Department, will be met by using fuel injection timing retardation and cooling of combustion air. Compliance with the NO_X emission standards will be determined by stack tests.

CO emissions from the diesel engine if operated continuously with no emissions reductions, are estimated to be about 111 tpy, just over the PSD significance limit of 100 tpy. The least restrictive emissions reduction technology which will be used on this diesel engine would reduce CO emissions to a level below the PSD limit, therefore, CO will not be subjected to a BACT analysis. Compliance tests for determining CO emissions will be done initially and at permit renewal times to show non-PSD status for CO.

Particulate matter (PM/PM_{10}) emissions from the diesel engine will be below the PSD significance levels, and, therefore will not be subjected to a BACT analysis.

SO_2 emissions will be controlled by the use of low sulfur fuel. The No. 2 fuel oil will be limited to a maximum of 2.015 million gal/yr, and to a maximum sulfur content of 0.05%, by weight. The proposed facility is not subject to PSD and BACT for SO_2 emissions, because the proposed increase in annual SO_2 emissions does not exceed the significant emission rate.

The following table summarizes the potential and expected emissions of air pollutants in tpy :

Pollutant	PSD Significance Levels[1]	Uncontrolled Emissions[2]	Controlled Emissions	Expected Emissions[3]
NO_X	40	423	271	24.2
CO	100	111	<100	6.4
PM	25	9.5	9.1	0.6
PM_{10}	15	7.9		0.5
SO_2	40	7.2		0.5

1 Florida Administrative Code 212.400-2.
2 Based on operating at 100% capacity for 8760 hr/yr.
3 Based on FKEC's historical and projected actual operating hours of 500 or less.

IV. AIR QUALITY IMPACT ANALYSIS

A. Introduction

The proposed project will increase NO_x emissions at a level in excess of PSD significant amounts. The air quality impact analyses required by the PSD regulations for this pollutant include:

* An analysis of existing air quality;

* A significant impact analysis;

* A PSD increment analysis;

* An Ambient Air Quality Standards (AAQS) analysis, and

* An analysis of impacts on soils, vegetation, and visibility and of growth-related air quality modeling impacts.

The analysis of existing air quality generally relies on preconstruction monitoring data collected with EPA-approved methods. The significant impact, PSD increment, and AAQS analyses depend on air quality dispersion modeling carried out in accordance with EPA guidelines.

Based on the required analyses, the Department has reasonable assurance that the proposed project, as described in this report and subject to the conditions of approval proposed herein, will not cause or significantly contribute to a violation of any AAQS or PSD increment. However, the following EPA-directed stack height language is included: "In approving this permit, the Department has determined that the application complies with the applicable provisions of the stack height regulations as revised by EPA on July 8, 1985 (50 FR 27892). Portions of the regulations have been remanded by a panel of the U.S. Court of Appeals for the D.C. Circuit in NRDC v. Thomas, 838 F. 2d 1224 (D.C. Cir. 1988). Consequently, this permit may be subject to modification if and when EPA revises the regulation in response to the court decision. This may result in revised emission limitations or may affect other actions taken by the source owners or operators." A discussion of the required analyses follows.

B Analysis of Existing Air Quality

Preconstruction ambient air quality monitoring is required for all pollutants subject to PSD review unless otherwise exempted or satisfied. This monitoring requirement may be satisfied by using previously existing representative monitoring data, if available. An exemption to the monitoring requirement may be obtained if either of the following conditions is met: the maximum predicted air quality impact resulting from the projected emissions increase, as determined by air quality modeling, is less than a pollutant-specific deminimus concentration, or the existing ambient concentrations are less than a pollutant-specific deminimus concentration.

Annual NO_2 impacts from the project are predicted to be 18.8 ug/m^3, which is greater than the de minimus level of 14 ug/m^3. Although there are no NO_2 monitors located near this facility, there is an NO_2 monitor located on Virginia Key in Dade County about 150 km northeast of the facility. This monitor had a measured annual average NO_2 concentration of 13 ug/m^3 in 1996. Since this monitor would be effected by the highly populated Miami-Dade County metropolitan area with its large number of motor vehicles and industrial and utility boilers, this measured concentration, which is less than the NO_2 de minimus level, represents a very conservative

estimate of the maximum existing ambient concentration of NO_2 to be found in the vicinity of this facility.

Therefore, results from this monitor can be used to exempt FKEC from the preconstruction monitoring requirement.

C. Models and Meteorological Data Used in Significant Impact, PSD Increment and AAQS Analyses

The EPA-approved Industrial Source Complex Short-Term (ISCST3) dispersion model was used to evaluate the pollutant emissions from the proposed project and other existing major facilities. The model determines ground-level concentrations of inert gases or small particles emitted into the atmosphere by point, area, and volume sources. The model incorporates elements for plume rise, transport by the mean wind, Gaussian dispersion, and pollutant removal mechanisms such as deposition. The ISCST3 model allows for the separation of sources, building wake downwash, and various other input and output features. A series of specific model features, recommended by the EPA, are referred to as the regulatory options. The applicant used the EPA recommended regulatory options in each modeling scenario. Direction-specific downwash parameters were used for all sources for which downwash was considered. The stacks associated with this project all satisfy the good engineering practice (GEP) stack height criteria.

Meteorological data used in the ISCST3 model consisted of a concurrent 5-year period of hourly surface weather observations and twice-daily upper air soundings from the National Weather Service (NWS) stations at Key West, Florida (surface data) and West Palm Beach, Florida (upper air data). The 5-year period of meteorological data was from 1987 through 1991. These NWS stations were selected for use in the study because they are the closest primary weather stations to the study area and are most representative of the project site. The surface observations included wind direction, wind speed, temperature, cloud cover, and cloud ceiling. For this project, since only the impacts of NO_X emissions are being evaluated and since the NO_2 standards and increments are based on annual averages, the highest predicted annual averages were compared with the significant impact level, the AAQS and the PSD increments.

D. Significant Impact Analysis

Initially, the applicant conducted modeling to determine whether the proposed project's NOx emissions were predicted to have a significant impact in the vicinity of the facility or in the Class I area. The applicant placed a total of 324 receptors along the site boundary and within 1 km of the facility, which is located in a PSD Class II area. The Department did further significant impact modeling with an additional 216 receptors placed out to 10 km from the facility. A total of seven receptors were placed along the southern boundary of the Everglades National Park (ENP). ENP is a PSD Class I area which is located approximately 30 km from the project at its closest point. The tables below show the results of this modeling. The radius of significant impact is also shown in the first table below.

Maximum Project Air Quality Impacts for Comparison to the PSD Class II Significant Impact Levels in the Vicinity of the Facility

Pollutant	Averaging Time	Maximum Predicted Impact (ug/m^3)	Significant Impact Level (ug/m^3)	Significant Impact?	Radius of Significant Impact (km)
NO_2	Annual	18.8	1	YES	5

Maximum Project Air Quality Impacts in the ENP for Comparison to the PSD Class I Significant Impact Level

Pollutant	Averaging Time	Maximum Predicted Impact (ug/m^3)	Significant Impact?	Significant Impact Level (ug/m^3)
NO_2	Annual	0.04	NO	0.1

As shown in the tables the maximum predicted air quality impacts due to NO_X emissions from the proposed project are greater than the PSD Class II significant impact level in the vicinity of the facility. Therefore, the applicant was required to do further NO_2 modeling in the vicinity of the facility, within the applicable significant impact area, to determine the impacts of the project along with all other sources in the vicinity of the facility. The significant impact area is based upon the predicted radius of significant impact.. Full impact modeling is modeling that considers not only the impact of the project but the impacts of the existing facility and other major sources, including background concentrations, located within the vicinity of the project.

E. Procedure For Performing PSD Class II Increment And AAQS Analyses

For the PSD Class II and AAQS analyses, receptor grids normally are based on the size of the significant impact area for each pollutant. The size of the significant impact areas for the required NO_2 analyses were based on a 5 km radius of significant impact. However, the receptor grids used in AAQS and PSD Class II analyses were the same and were as extensive (receptors out to 10 km) as those used in the analysis to determine the extent of significant impact. Preliminary PSD Class II increment and AAQS modeling runs with FKEC Unit 8 and existing Units 1 through 7 operating continuously throughout the year showed predicted violations of both the Class II increment and the AAQS. Refined modeling runs were done with FKEC Unit 8 operating continuously and Units 1 through 7 operating only 50 percent of the time. These runs showed there would be no predicted violations of the PSD Class II increment and the AAQS if FKEC accepted a permit condition limiting operation of Units 1 through 7 to only 50 percent of the year or less. The applicant agreed to this condition. The results of these analyses are shown below.

E.1 PSD Increment Analysis

The PSD increment represents the amount that new sources in an area may increase ambient ground level concentrations of a pollutant. The results of the required PSD Class II increment analysis presented in the table below show that all of the maximum predicted impacts are less than the allowable Class II increments.

PSD Class II Increment Analysis

Pollutant	Averaging Time	Maximum Predicted Impact (ug/m^3)	Impact Greater Than Allowable Increment?	Allowable Increment (ug/m^3)
NO_2	Annual	18.8	NO	25

E.2 AAQS Analysis

The results of the AAQS analysis are summarized in the table below. As shown in this table, emissions from the proposed facility are not expected to cause or significantly contribute to a violation of any AAQS.

Ambient Air Quality Impacts

Pollutant	Averaging Time	Maximum Predicted Impact (ug/m^3)	Predicted Impact Greater Than AAQS?	AAQS (ug/m^3)
NO_2	Annual	96	NO	100

F. Additional Impacts Analysis

F.1 Impacts On Soils, Vegetation, Wildlife, and Visibility

The maximum ground-level concentrations predicted to occur due to NO_X emissions as a result of the proposed project, including all other nearby sources, will be below the associated AAQS. The AAQS are designed to protect both the public health and welfare. As such, this project is not expected to have a harmful impact on soils and vegetation in the PSD Class II area. An air quality related values (AQRV) analysis was done by the applicant for the Class I area. No significant impacts on this area are expected. A visibility analysis was done by the Department for the Class I area. This analysis showed no significant impact on visiblity in this area.

F.2 Growth-Related Air Quality Impacts

There will be no growth associated with this project since this facility is a stand-by facility and only generates power during emergencies or during peak power demand periods when the mainland-based FP&L cannot provide sufficient power to supply FKEC's customers.

V. CONCLUSION

Based on the foregoing technical evaluation of the application and additional information submitted by FKEC , the Department has made a preliminary determination that the proposed project will comply with all applicable state air pollution regulations provided the Department's Best Available Control Technology Determination is implemented and certain conditions are met. The General and Specific Conditions are listed in the attached draft conditions of approval

Permit Engineer: Syed Arif
Meteorologist: Cleve Holladay

Reviewed and Approved by A. A Linero, P.E.
Administrator, New Source Review Section

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

DRAFT

Marathon Generation Plant Unit No. 8
Florida Keys Electric Cooperative Association
PSD-FL-237 and 0870004-002-AC
Marathon, Monroe County

The Florida Keys Electric Cooperative Association (FKEC) plans to install a new Diesel Engine Generator at its existing Marathon Generation Plant (MGP) in Marathon, Monroe County. The unit is a General Motors Electro-Motive Diesel generator model 20-710G4B with a nominal base load rating of 3.58 megawatts (MW) at 32°C and 718 mm Hg..The facility currently consists of seven (7) diesel engine generators used for peaking power. Units 1 & 2 are each rated at 2.0 MW. Units 3, 4 and 5 are each rated at 3.0 MW, and Units 6 & 7 are 2.5 MW each. The existing Units 1-7 are allowed to burn No. 2 fuel oil with a sulfur content of 0.5 percent or less, by weight. The new Unit 8 will be fired with No. 2 low sulfur fuel oil with a sulfur content not to exceed 0.05 percent, by weight, and a fuel oil consumption limit of 2.015 million gallons per year. The facility also has four fuel oil storage tanks and other electrical generating support equipment.

FKEC has indicated that the maximum annual air pollutant emission rates in tons per year for the Unit 8 diesel generator, based on consumption of 2.015 million gallons of No. 2 fuel oil, with a maximum sulfur content of 0.05 percent, by weight, will be:

Pollutant	PSD Significance Levels[1]	Uncontrolled Emissions[2]	Controlled Emissions[3]	Expected Emissions[4]	Subject to PSD Review?
NO_x	40	423	271	24.2	Yes
CO	100	111	<100	6.4	No
PM	25	9.5	9.1	0.6	No
PM_{10}	15	7.9		0.5	No
SO_2	40	7.2		0.5	No

1 Florida Administrative Code 212.400-2
2 Based on firing No. 2 fuel oil (0.05% sulfur by weight) at a maximum of 2.015 million gals/yr at full load with no emission controls.
3 Based on firing No. 2 fuel oil (0.05% sulfur by weight) at a maximum of 2.015 million gals/yr at full load with emissions control of timing retardation.
4 Based on FKEC's historical and projected actual operating hours of 500 or less.

Following is the BACT determination proposed by the applicant:

BACT DETERMINATION REQUESTED BY THE APPLICANT:

POLLUTANT	EMISSION LIMIT
Nitrogen Oxides	62 lbs/hr by timing retardation and aftercoolers

Marathon Generation Power Plant is among the major facilities listed in Florida Administrative Code (F.A.C.) Chapter 62-212, Prevention of Significant Deterioration (PSD), Table 62-212.400-1, "Major Facilities Categories." A BACT determination is required for each pollutant exceeding the significant emission rates in Table 62-212.400-2, "Regulated Air Pollutants Significant Emissions Rates," which in this case is nitrogen oxides (NO_x).

DATE OF RECEIPT OF A BACT APPLICATION:

January 27, 1997

REVIEW GROUP MEMBERS:

Syed Arif (Permit Engineer) and A. A. Linero (Administrator) New Source Review Section.

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:

(a) 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.

(b) All scientific, engineering, and technical material and other information available to the Department.

(c) The emission limiting standards or BACT determination of any other state.

(d) 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 infeasible 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.

The air pollutant emissions from this facility can be grouped into categories based upon the control equipment and techniques that are available to control emissions from these emission units. Using this approach, the emissions can be classified as follows:

- ***Combustion Products*** (e.g., SO_2, NO_X, PM). Controlled generally by good combustion of clean fuels, removal in add-on control equipment.

- ***Products of Incomplete Combustion*** (e.g., CO, VOC). Control is largely achieved by proper combustion techniques.

Grouping the pollutants in this manner facilitates the BACT analysis because it enables the equipment available to control the type or group of pollutants emitted and the corresponding energy, economic, and environmental impacts to be examined on a common basis. Although all of the pollutants addressed in the BACT analysis may be subject to a specific emission limiting standard as a result of PSD review, the control of "non-regulated" air pollutants is considered in imposing a more stringent BACT limit on a "regulated" pollutant (i.e., PM, SO_2, H_2SO_4, fluorides, etc.), if a reduction in "non-regulated" air pollutants can be directly attributed to the control device selected as BACT for the abatement of the "regulated" pollutants.

BACT POLLUTANT ANALYSIS

NITROGEN OXIDES (NO_X)

Oxides of nitrogen (NO_x) are generated during fuel combustion by oxidation of chemically bound nitrogen in the fuel (fuel NO_x) and by thermal fixation of nitrogen in the combustion air (thermal NO_x). As flame temperature increases, the amount of thermally generated NO_x increases. Fuel type affects the quantity and type of NO_x generated. Generally, natural gas is low in nitrogen. However it causes higher flame temperatures and generates more thermal NO_x than oil or coal, which have higher fuel nitrogen content, but exhibit lower flame temperatures.

NO_x emissions represent a significant portion of the total emissions generated by this project, and must be minimized using BACT.

A review of EPA BACT/LAER Clearinghouse (BACT Clearinghouse) information indicates that NO_x emissions at most facilities are minimized by process control and good combustion practices.

The applicant has proposed modification of the combustion process through a combination of fuel injection timing retardation and cooling of combustion air resulting in exhaust temperature reduction. The design specific to FKEC's 20-710G4B includes a 4° injection timing retardation and a 4-pass aftercooler circuit with the addition of a separately cooled aftercooler circuit. The combination of retarded injection timing and lowered combustion air temperature results in less NO_x formation. Vendors data indicate that retarding injection timing will reduce NO_x formation by about 20 percent, but will increase PM emissions by about 10 percent and fuel consumption by 1.5 percent. The 4-pass aftercooler will reduce both NO_x and

PM emissions by about 10 percent while reducing fuel consumption by about 0.7 percent. The separately cooled aftercooling circuit will decrease both NO_x and PM by another 10 percent and fuel consumption by 0.5 percent. The net result will be a 40 percent reduction in NO_x, a 5 percent increase in PM and about 0.3 percent increase in fuel consumption. The use of low sulfur fuel oil will reduce PM emissions thus reducing or eliminating the increase in PM caused by NO_x controls. **This combination of NO_x controls, proper engine design, good combustion practices, and the use of low sulfur fuel should provide effective emissions control.**

BACT DETERMINATION BY DEP:

Based on the information provided by the applicant and the information searches conducted by the Department, lower emissions limits can be obtained employing the top-down BACT approach for NO_x.

NO_x DETERMINATION

The top-down BACT approach for diesel fired internal combustion engines listed in order from most stringent control to least:

1. Selective Catalytic Reduction (SCR)
2. Combined technologies of injection timing retardation, turbocharger with aftercoolers
3. Good combustion design/practices

The following table summarizes the feasibility of using these control technologies with the EMD 20-710G4B as designed for installation in FKEC's Marathon Generation Plant.

Control Technology	Emission Reduction (%)	Technically Feasible	Cost Effective	Adverse Environ. Impacts	Adverse Energy Impacts
SCR with ammonia	60-90	No	N/A	N/A	N/A
SCR with urea	80	No	N/A	N/A	N/A
Timing retard; turbo charger w/aftercoolers	40	Yes	Yes	No	0.3%
Dry/Low NO_x	18	No	N/A	N/A	N/A

SCR is more widely used in Japan and Germany than it is in the United States and the technology is being improved such that some of the hazards and costs have been reduced. It remains, however, a very costly technology that has significant environmental hazards associated with the use and storage of ammonia. SCR is not generally used with diesel engines of this size. In addition, it is less effective with diesel engines because contaminants in diesel and lube oil (phosphorus) can render the catalyst inactive through coating the catalyst surface or contaminating it. The BACT/LAER database lists only a single facility which uses SCR on diesel engines. SCR was selected in that instance because a local ordinance mandated strict limits on emissions without regards to cost. SCR was not technically feasible for this diesel engine because the exhaust back pressure maximum allowance for the EMD 20-710G4B is 5 inches H_2O. An SCR system will

add 5 to 6 inches H_2O back pressure, far exceeding the manufacturers specifications and recommendations. Even if the manufacturer would warrant a redesigned exhaust system, such a system would exceed the spatial limitations of the engine site.

For NO_x emissions, the Department accepts the applicants proposed use of injection timing retardation and cooling of combustion air as BACT for this project.

The BACT emission levels established by the Department are as follows:

POLLUTANT	EMISSION LIMIT
Nitrogen Oxides (NO_x)	62 lbs/hr (271 TPY)
Visible Emissions	20%

COMPLIANCE

Compliance with the visible emission limitations shall be in accordance with the EPA Reference Method 9 as contained in 40 CFR 60, Appendix A.

Compliance with the NO_x limitations shall be in accordance with the EPA Reference Method 7E as contained in 40 CFR 60, Appendix A.

DETAILS OF THE ANALYSIS MAY BE OBTAINED BY CONTACTING:

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

Recommended By:

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

Date:

Approved By:

Howard L. Rhodes, Director
Division of Air Resources Management

Date:

any liability for failure to comply with the conditions of this permit and the regulations. **[Rule 62-4.130, F.A.C.]**

3.3 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.]**

3.4 Excess Emissions Requirements **[Rule 62-210.700, F.A.C.]**

(a) Excess emissions resulting from start-up, shutdown or malfunction of these emissions units shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized, but in no case exceed two hours in any 24 hour period unless specifically authorized by the Permitting Authority office for longer duration. **[Rule 62-210.700(1), F.A.C.]**

(b) Excess emissions that are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during start-up, shutdown, or malfunction shall be prohibited. **[Rule 62-210.700(4), F.A.C.]**

(c) In case of excess emissions resulting from malfunctions, the owner or operator shall notify Permitting Authority within one (1) working day of: the nature, extent, and duration of the excess emissions; the cause of the problem; and the corrective actions being taken to prevent recurrence. **[Rule 62-210.700(6), F.A.C.]**

3.5 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.]**

SUBSECTION 4.0 MONITORING OF OPERATIONS

4.1 Determination of Process Variables

(a) The permitee 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.

(b) 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]**

SUBSECTION 5.0 TEST REQUIREMENTS

5.1 Test Performance Within 60 days after achieving the maximum production rate at which these emission units will be operated, but not later than 180 days after initial startup and annually thereafter, the owner or operator of this facility shall conduct performance test(s) pursuant to 40 CFR 60.8, Subpart A, General Provisions and 40 CFR 60, Appendix A. No other test method shall be used unless approval from the Department has been received in writing. Unless otherwise stated in the applicable emission limiting standard rule, testing of emissions shall be conducted with the emission unit(s) operating at permitted capacity pursuant to Rule 62-297.310(2), F.A.C. **[Rules 62-204.800, 62-297.310, 62-297.400, 62-297.401, F.A.C.]**

5.2 Test Procedures shall meet all applicable requirements of the Florida Administrative Code Chapter 62-297. **[Rule 62-297.310, F.A.C.]**

5.3 Test Notification: The owner or operator shall notify the Permitting Authority in writing at least *(30) days* (initial) and *15 days* (annual) prior to each scheduled compliance test to allow witnessing. The notification shall include the compliance test date, place of such test, the expected test time, the facility contact person for the test, and the person or company conducting the test. The (30) or (15) day notification requirement may be waived at the discretion of the Department. Likewise, if circumstances prevent testing during the test window specified for the emission unit, the owner or operator may request an alternate test date before the expiration of this window. **[Rule 62-297.310 and 40 CFR 60.8, F.A.C.]**

5.4 Special Compliance Tests: When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in Rule 62-204, 62-210, 62 -212, 62-296 and 62-297, F.A.C. or in a permit issued pursuant to those rules is being violated, it may require the owner or operator of the facility to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions units and to provide a report on the results of said tests to the Permitting Authority. **[Rule 62-297.310(7)(b), F.A.C.]**

5.5 Stack Testing Facilities: The owner or operator shall install stack testing facilities in accordance with **Rule 62-297.310(6), F.A.C.**.

5.6 Exceptions and Approval of Alternate Procedures and Requirements: An Alternate Sampling Procedure (ASP) may be requested from the Bureau of Air Monitoring and Mobile Sources of the Florida Department of Environmental Protection in accordance with the procedures specified in **Rule 62-297.620, F.A.C.**

5.7 Operating Rate During Testing: Unless otherwise stated in the applicable emission limiting standard rule, testing of emissions shall be conducted with the emissions unit operation at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impracticable to test at permitted capacity, an emissions unit may be tested at less than the minimum

permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test load until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. **[Rule 62-297.310(2) and (3)]**

SUBSECTION 6.0 REPORTS AND RECORDS

6.1 Duration: All reports and records required by this permit shall be kept for at least (5) years from the date the information was recorded. **[Rule 62-4.160(14)(b), F.A.C.]**

6.2 Emission Compliance Stack Test Reports:

(a) A *test report* indicating the results of the required compliance tests shall be filed with the Permitting Authority as soon as practical, but no later than 45 days after the last sampling run is completed. **[Rule 62-297.310(8), F.A.C.]**

b) 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.**

6.3 Excess Emissions Report: If excess emissions occur, the owner or operator shall notify the Permitting Authority within (1) working day of: the nature, extent, and duration of the excess emissions; the cause of the excess emissions; and the actions taken to correct the problem. In addition, the Department may request a written summary report of the incident. 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.]**

6.4 Annual Operating Report for Air Pollutant Emitting Facility: Before March 1st of each year, the owner or operator shall submit to the Permitting Authority this required report [DEP Form No. 62-210.900(5)], which summarizes operations for the previous calendar year. **[Rule 62-210.370(3), F.A.C.]**

SUBSECTION 7.0 OTHER REQUIREMENTS

7.1 Waste Disposal: The owner or operator shall treat, store, and dispose of all liquid, solid, and hazardous wastes in accordance with all applicable Federal, State, and Local regulations. This air pollution permit does not preclude the permittee from securing any other types of required permits, licenses, or certifications.

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

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

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

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

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

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

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

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

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

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

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

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

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

G.9 In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extend it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

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

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

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

G.13 This permit also constitutes:

(a) Determination of Best Available Control Technology *(X)*
(b) Determination of Prevention of Significant Deterioration *(X)*; and
(c) Compliance with New Source Performance Standards *( )*.

G.14 The permittee shall comply with the following:

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

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

(c) Records of monitoring information shall include:

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

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

Memorandum

Florida Department of
Environmental Protection

TO: Clair Fancy

THRU: Al Linero 8/11

FROM: Syed Arif 8/11

DATE: August 11, 1997

SUBJECT: Florida Keys Electric Cooperative Association, Inc./ Marathon Generation Plant Unit 8/ 0870004-002-AC (PSD-FL-237)

Attached is the Public Notice package for installation of a 3.58 MW diesel electric generator at the above referenced facility.

The only pollutant that underwent PSD review was NO_X. The diesel generator will be fired with No. 2 fuel oil with a sulfur content of 0.05 percent or less, by weight. The NO_X controls will be timing retardation and turbocharger aftercoolers.

Various enforceable conditions have been included for their existing Units 1 through 7 as well as the new Unit to insure that the all allowable increment is not consumed.

I recommend your approval and signature.

SA

Attachments

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

P.E. Certification Statement

Permittee:
Florida Keys Electric Cooperative Association
Marathon Generation Plant, Unit #8

Draft Permit No. 0870004-002-AC]
Facility ID No. 0870004

Project type: Air Construction Permit for a 3.58 MW diesel engine generator burning 0.05 percent sulfur fuel with emission retardation and turbocharger cooling for combustion control.

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

A.A. Linero, P.E. Date
Registration Number: 26032

8/11/97

Department of Environmental Protection
Bureau of Air Regulation
New Source Review Section
111 South Magnolia Drive, Suite 4
Tallahassee, Florida 32301
Phone (850) 488-1344
Fax (850) 922-6979

8/11