Department of
Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

October 6, 2000

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Charles A. Russell, CEO/General Manager
Florida Keys Electric Cooperative Assoc., Inc.
91605 Overseas Highway
Post Office Box 700377
Tavernier, Florida 33070-0377

Re: DRAFT Permit No. 0870004-004-AC (PSD-FL-285)
Marathon Generation Plant

Dear Mr. Russell:

Enclosed is one copy of the Draft Air Construction Permit for the Marathon Generation Plant's Unit 9 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 one time only, as soon as possible, in the legal advertisement section of a newspaper of general circulation in the area affected, pursuant to the requirements of Chapter 50, Florida Statutes. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within 7 (seven) days of publication. Failure to publish the notice and provide proof of publication 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 850/488-0114.

Sincerely,

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

CHF/sa

Enclosures

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Charles A Russell
CEO / Gen Mgr.
Ft. Keys Electric Coop Assoc.
91605 Overseas Highway
P.O. Box 700377
Tavernier, Fl 33070-0377

C. Signature

X

☐ Agent
☐ Addressee

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

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Copy from service label)
7099 3400 0000 1453 2368

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

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

Article Sent To:
Charles Russell

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

10/15/01
Ft. Keys Electric
Here

7099 3400 0000 1453 2368

Name (Please Print Clearly) (to be completed by mailer)
Charles A Russell
Street, Apt. No.; or PO Box No.
PO Box 700377
City, State, ZIP+4
Tavernier, Fl 33070-0377

PS Form 3800, July 1999 See Reverse for Instructions

In the Matter of an
Application for Permit by:

Mr. Charles A. Russell, CEO & General Manager
Florida Keys Electric Cooperative Association, Inc.
91605 Overseas Highway
Post Office Box 700377
Tavernier, Florida 33070-0377

DRAFT Permit No. 0870004-004-AC (PSD-FL-285)
Marathon Generation Plant Unit 9
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 February 17, 2000 to the Department for an air construction permit to install a 3.58 megawatt diesel generator (Unit 9) 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 for the proposed work.

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

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

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

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

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

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

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

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above. Mediation is not available in this proceeding.

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

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number of the petitioner; (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any; (c) Each rule or portion of a rule from which a variance or waiver is requested; (d) The citation to the statute underlying

(implemented by) the rule identified in (c) above; (e) The type of action requested; (f) The specific facts that would justify a variance or waiver for the petitioner; (g) The reason why the variance or waiver would serve the purposes of the underlying statute (implemented by the rule); and (h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

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

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

Executed in Tallahassee, Florida.

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

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this INTENT TO ISSUE AIR CONSTRUCTION PERMIT (including the PUBLIC NOTICE, 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 10/9/00 to the person(s) listed:

Mr. Charles A. Russell, FKEC *
Mr. Gregg Worley, EPA
Mr. John Bunyak, NPS
Mr. David Knowles, DEP
Ms. Amy Hacker, RW Beck

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.

Charlotte J. Hayes (Clerk) 10/9/00 (Date)

NOTICE TO BE PUBLISHED IN THE NEWSPAPER

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DRAFT Permit No. 0870004-004-AC, (PSD-FL-285)
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 9 located at Marathon Generation Plant, 3421 Overseas Highway, Marathon, Monroe County. A Best Available Control Technology (BACT) determination was required for nitrogen oxides (NO_x) and particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM_{10}), pursuant to Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD). The applicant's name and address are: Florida Keys Electric Cooperative Association, Inc., 91605 Overseas Highway, Tavernier, Florida 33070.

This permit is for installation of a 3.58 megawatt diesel generator designated as Unit 9. The diesel generator will burn No. 2 fuel oil with a sulfur content of 0.05 percent or less, by weight. Controls for NO_x emissions consist of timing retardation and turbocharger aftercoolers. PM_{10} emissions will be reduced with a combination of good combustion practices and low sulfur fuel oil. The diesel generator is allowed to operate continuously with the fuel oil usage limited to 2.015 million gallons per year.

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 nitrogen dioxide (NO_2) and particulate matter (PM_{10}) PSD Class II increments consumed by all sources in the area, including this project, will be as follows:

Pollutant	Averaging Time	PSD Class II Increment Consumed ($\mu g/m^3$)	Allowable Increment ($\mu g/m^3$)	Percent Increment Consumed
NO_2	Annual	13	25	52
PM_{10}	Annual	0.4	17	2
PM_{10}	24-hour	7	30	23

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

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

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition

NOTICE TO BE PUBLISHED
IN THE NEWSPAPER

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

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

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

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

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

Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301
Telephone: 850/488-0114
Fax: 850/922-6979

Department of Environmental Protection
South District Office
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 850/488-0114, for additional information.

TECHNICAL EVALUATION

AND

PRELIMINARY DETERMINATION

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

DIESEL GENERATOR
(3.58 megawatts)

Construction Permit No. 087004-004-AC
PSD-FL-285

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

October 6, 2000

I. GENERAL INFORMATION

A. Name and address of applicant
Florida Keys Electric Cooperative Association, Inc.-FKEC
91605 Overseas Highway
Tavernier, Florida 33070

Authorized Representative: Mr. Charles A. Russell, CEO and General Manager

B. Reviewing and Process Schedule

02-17-2000: Date of Receipt of Application
03-15-2000: DEP's 1st Completeness Request
04-17-2000: Applicant's response to DEP's 1st Completeness Request
05-16-2000: DEP's 2nd Completeness Request
06-20-2000: Applicant's response to DEP's 2nd Completeness Request
07-19-2000: DEP's 3rd Completeness Request
08-24-2000: Applicant's response to DEP's 3rd Completeness Request.
10-06-2000: Issue Intent

C. Facility Location

This facility is located at Marathon Generation Plant, 3421 Overseas Highway, Marathon, Monroe County, Florida 33050. 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 an Electro-Motive Diesel (EMD) generator. The EMD generator, which will be noted as Unit 9, has a nominal base load rating of 3.58 megawatt (MW) at 32°C and 718 mm Hg. The Unit 9 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 eight (8) 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. Unit 8 has a rated capacity of 3.58 MW. Total capacity of the facility with nine (9) units will be 25.2 MW.

E. Project Emissions

The proposed project, a 3.58 MW diesel generator, will produce maximum emissions of 298 tons per year (TPY) of nitrogen oxides (NO_X); 7 TPY of sulfur dioxide (SO_2); 24 TPY of carbon monoxide (CO); 13 TPY of volatile organic compounds (VOC); 9.2/7.6 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 640 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.

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., Preconstruction Review Requirements. 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 62-213	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 eight additional diesel generators. This facility is a stand-by Electric Generating Plant that 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 and PM_{10} 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 one nominal 3.58 MW unit, 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 and PM_{10} emissions because the proposed increase in annual NO_X and PM_{10} 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 24 tpy. These emissions are based on emissions tests for the identical Unit No. 8.

Particulate matter (PM) emissions from the diesel engine will be below the PSD significance levels, and, therefore will not be subjected to a BACT analysis. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM_{10}) from the diesel engine when combined with contemporaneous emissions increases of PM_{10} from the existing unit 8 will slightly exceed the PSD threshold of 15 TPY. The BACT for PM_{10}, as determined by the Department, will be met through combustion controls via proper engine design, operation and maintenance. Additionally, the unit will exclusively burn low sulfur fuel oil (less than or equal to 0.05 percent sulfur, by weight). This fuel restriction will contribute to limiting the emissions of particulate. Compliance shall be determined by monitoring for the sulfur content of the fuel oil.

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 for the proposed Unit 9 in tpy :

Pollutant	PSD Significance Levels[1]	Uncontrolled Emissions[2]	Controlled Emissions	Expected Emissions[3]
NO_X	40	423	289	21.2
CO	100	24		1.7
PM	25	9.2	<9.2	0.67
PM_{10}	15	7.6	<7.6	0.55
VOC	40	13		0.96
SO_2	40	7.2		0.53

1 Florida Administrative Code Table 62-212.400-2, F.A.C.
2 Based on operating at 100% capacity for 8760 hr/yr.
3 Based on FKEC's historical and projected actual operating hours of 650 or less.

IV. AIR QUALITY IMPACT ANALYSIS

A. Introduction

The proposed project will increase NO_x and PM_{10} 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 de minimus concentration, or the existing ambient concentrations are less than a pollutant-specific de minimus concentration.

If preconstruction ambient monitoring is exempted, determination of background concentrations for PSD significant pollutants with established AAQS may still be necessary for use in any required AAQS analysis. These concentrations may be established from the required preconstruction ambient air quality monitoring analysis or from existing representative monitoring data. These background ambient air quality concentrations are added to pollutant impacts predicted by modeling and represent the air quality impacts of sources not included in the modeling.

The table below shows that PM_{10} and NO_2 impacts from the project are predicted to be less than the de minimus levels. Therefore, preconstruction monitoring is not required for PM_{10} and NO_2. However, AAQS analyses are required for both pollutants as will be discussed in the significant impact section. Therefore, background concentrations for use in the AAQS analyses are necessary. Although there are no PM_{10} or NO_2 monitors located near this facility, there are monitors for these pollutants located in Dade County to the north of the facility. PM_{10} background concentrations of 37 and 21 ug/m^3 for the 24-hour and annual averaging times, respectively, were established from previously existing air quality data collected in 1999 at Homestead approximately 110 km to the north. An NO_2 background concentration of 11 ug/m^3 was established from monitoring data collected in 1999 at a monitor located on Virginia Key about 150 km to the north of the facility. Since these monitors would be effected by the highly populated Miami-Dade County metropolitan area with its large number of motor vehicles and industrial and utility boilers, these measured concentrations represent a very conservative estimate of the maximum existing ambient concentrations of PM_{10} and NO_2 to be found in the vicinity of this facility.

Maximum Project Air Quality Impacts for Comparison
to the De Minimus Ambient Levels

Pollutant	Averaging Time	Max Predicted Impact (ug/m^3)	De Minimus Level (ug/m^3)	Impact Greater Than De Minimus?
PM_{10}	24-hour	6	10	NO
NO_X	24-hour	9	14	NO

C. Models and 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.

Since five years of data were used in ISCST3, the highest-second-high (HSH) short-term predicted concentrations were compared with the appropriate AAQS or PSD increments. For the annual averages, the highest predicted yearly averages were compared with the standards. For determining the project's significant impact area in the vicinity of the facility, both the highest short-term predicted concentrations and the highest predicted yearly averages were compared to their respective significant impact levels.

D. Significant Impact Analysis

Initially, the applicant conducted modeling to determine whether the proposed project's 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 720 receptors along the site boundary and out to 5.5 km from the facility, which is located in a PSD Class II area. 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 in the vicinity of the facility is also shown in the first table below.

Maximum Project Air Quality Impacts for Comparison
to 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_x	Annual	9	1	YES	5.0
PM_{10}	Annual	1.3	1	YES	0.15
	24-hour	6	5	YES	0.15

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

Pollutant	Averaging Time	Maximum Predicted Impact (ug/m^3)	Significant Impact Level (ug/m^3)	Significant Impact?
NO_x	Annual	0.03	0.1	NO
PM_{10}	Annual	0.001	0.1	NO
	24-hour	0.07	5	NO

As shown in the tables the maximum predicted air quality impacts due to NO_X and PM_{10} emissions from the proposed project are greater than the PSD Class II significant impact levels in the vicinity of the facility. Therefore, the applicant was required to do further NO_2 and PM_{10} 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 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.

As shown in the table there were no significant PM_{10} and NO_2 impacts predicted in the ENP Class I area; therefore, no further NO_2 and PM_{10} analyses were required in this area.

E. PSD Increment Analysis

The PSD increment represents the amount that new sources in an area may increase ambient ground level concentrations of a pollutant from a baseline concentration which was established in 1977 (the baseline year was 1975 for existing major sources of PM_{10}) for PM_{10} and 1988 for NO_2. 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)	Allowable Increment (ug/m^3)	Impact Greater than Allowable Increment?
NO_2	Annual	13	25	NO
PM_{10}	Annual	0.4	17	NO
	24-hour	7	30	NO

F. 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	Modeled Sources Impact (ug/m^3)	Background Concentration (ug/m^3)	Total Impact (ug/m^3)	Florida AAQS (ug/m^3)	Total Impact Greater Than AAQS?
NO_2	Annual	88	11	99	100	NO
PM_{10}	Annual	3	21	24	50	NO
	24-hour	66	37	103	150	NO

G. Additional Impacts Analysis

Impacts On Soils, Vegetation, Wildlife, and Visibility

The maximum ground-level concentrations predicted to occur due to PM_{10} and 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 visibility in this area.

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, P.E.
Meteorologist: Cleve Holladay

PERMITTEE:

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

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

FID No.	0870004
PSD No.	PSD-FL-285
SIC No.	4911
Project:	Unit 9
Permit No.	0870004-004-AC
Expires:	December 31, 2001

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, Monroe County. 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

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), two 2.5 MW diesel generators (Units 6 & 7), and one nominal 3.58 MW diesel generator (Unit 8). This permit is to construct another 3.58 MW diesel generator designated as Unit 9.

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:

- 02-17-00: Date of Receipt of Application
- 08-24-00: Application deemed complete
- 10-06-00: Intent issued
- 10-xx-00: Notice published in the _____

SUBSECTION D. RELEVANT DOCUMENTS:

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

- Application received 2-17-00
- Department letters dated 3-15-00, 5-16-00, and 7-19-00
- Company letters dated 4-17-00, 6-20-00, and 8-24-00
- Technical Evaluation and Preliminary Determination dated 10-06-00
- Best Available Control Technology determination (issued concurrently with permit)

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)488-0114.

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

A.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.]**

A.5 Expiration: This air construction permit shall expire on **December 31, 2001. [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.6 Applicable Regulations: The facility is subject to the following regulations: Florida Administrative Code Chapters 62-4; 62-103; 62-204; 62-210; 62-212, 62-213, 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.]**

SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

SUBSECTION A. LISTING OF EMISSIONS UNITS

This permit addresses the following emission units.

EMISSIONS UNIT NO.	SYSTEM	EMISSIONS UNITS DESCRIPTION
008#	Power	3.58 MW Diesel Electric Generator
009*	Power	3.58 MW Diesel Electric Generator

\# Existing Emission unit
* New Emission unit

SUBSECTION B. SPECIFIC CONDITIONS (UNIT 008):

The following Specific Conditions apply to the following emission unit:

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

EMISSION LIMITATIONS

B.1 The maximum allowable emission rates for NO_x for Unit No. 009 shall not exceed 68 pounds per hour (lb/hr) and 298 tons per year (TPY) pursuant to the Best Available Control Technology (BACT) Determination. **[Rule 62-212.400, 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. 009 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. 009 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]

SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

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 (1999, 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.]**

B.9 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.10 The permittee shall maintain daily records of fuel oil consumption for the emission unit. **[Rule 62-210.200, F.A.C.]**

B.11 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.12 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.13 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.]**

SUBSECTION C. SPECIFIC CONDITIONS (UNIT 008)

The following Specific Conditions apply to the following emission unit:

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

C.1 The emission unit will comply with all the requirements of 0870004-001-AV issued on March 17, 1999. **[Title V Permit Requirements]**

C.2 The permittee shall raise the stack height for the emission unit from 38.7 feet to 45 feet. This should be completed prior to the operation of Emission Unit 9. **[Per Application]**

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

Marathon Generation Plant Unit No. 9
Florida Keys Electric Cooperative Association
PSD-FL-285 and 0870004-004-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 eight (8) 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, Units 6 & 7 are 2.5 MW each, and Unit 8 is rated at 3.58 MW and is identical to the new Unit 9. Units 1-7 are allowed to burn No. 2 fuel oil with a sulfur content of 0.5 percent or less, by weight. Unit 8 and the new Unit 9 will burn No. 2 low sulfur fuel oil with a sulfur content not to exceed 0.05 percent, by weight, and each will have 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 9 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?[5]
NO_X	40	423	289.5	21.15	Yes
CO	100	23.7		1.73	No
PM	25	9.2	<9.2	0.67	No
PM_{10}	15	7.6	<7.6	0.55	Yes
SO_2	40	7.2		0.53	No
VOC	40	13.2		0.96	No

[1] Table 62-212.400-2, F.A.C.
[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 good combustion control practices and NO_X emissions control of timing retardation and aftercoolers.
[4] Based on FKEC's historical and projected actual operating hours of 640 or less.
[5] Annual PM_{10} emissions from the new Unit 9 will not exceed the PSD Significance Level of 15 tpy. However, when the potential emissions from Unit 9 are combined with potential emissions from the existing major PSD source onsite (Unit 8), total PM_{10} potential emissions from the two units (15.2 tpy) exceed the PM_{10} Significance Level.

The Marathon Generation Power Plant is a major source of air pollution or Title V source. Additionally, since potential emissions are greater than 250 tpy for at least one criteria pollutant (NO_X from Unit 8), the facility is also a Major Facility with respect to Rule 62-212.400, Prevention of Significant Deterioration. Because the project will result in a significant increase in nitrogen oxide and particulate matter (less than or equal to 10 microns) emissions per Table 62-212.400-2, F.A.C., "Regulated Air Pollutants - Significant Emissions Rates," a BACT determination is required pursuant to Rule 62-212.410, F.A.C.

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

BACT DETERMINATION REQUESTED BY THE APPLICANT:

POLLUTANT	EMISSION LIMIT
Nitrogen Oxides	68 lbs/hr by timing retardation and aftercoolers
Particulate Matter less than or equal to 10 microns	1.73 lbs/hr by low sulfur fuel (less than or equal to 0.05% sulfur, by weight) and good combustion practices

The Applicant proposed the control technology for BACT for the PSD pollutant NO_X to be timing retardation and aftercoolers, with emissions limited to 68 lbs/hr. For the PSD pollutant PM_{10}, the Applicant proposed good combustion practices and the exclusive use of low sulfur fuel (less than or equal to 0.05% sulfur, by weight) to limit emissions to 1.73 lbs/hr.

DATE OF RECEIPT OF COMPLETE BACT APPLICATION:

August 24, 2000

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) determines is achievable through application of production processes and available methods, systems, and techniques. This determination includes consideration of energy, environmental and economic impacts, and other costs. 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.

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

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. For control of NO_X, the Applicant evaluated exhaust control technologies. combustion modifications and combustion practices.

The most stringent NO_X control to be evaluated for the project was Selective Catalytic Reduction (SCR), which is an exhaust control technology. The Applicant determined that SCR was technically infeasible for the new Unit 9 due to engine design, limited guarantees provided by SCR manufacturers, back pressure limitations and limited, if any, operating experience on similar units.

The new Unit 9 is a two-stroke engine that requires injection of lube oil into the unit. Due to the two-stroke design (which includes intake of air and fuel, compression, power and exhaust in two piston strokes and one crankshaft revolution) an additional 'blower' or turbocharger must be included. The turbocharger works to 'pull' the exhaust from the chamber, resulting in lube oil being pulled into the chamber, which is then exhausted. This exhaust would pass through the SCR, thus contaminating and fouling the catalyst.

Siemens Westinghouse was contacted by the Applicant to provide information on the feasibility of installing an SCR catalyst on the project. Due to the typical oil consumption of a two-stroke engine, Siemens Westinghouse would not offer a SCR system because the catalyst would become excessively contaminated.

The Applicant then contacted SCR vendor Johnson Matthey to obtain information about an SCR system for the proposed Project. Although Johnson Matthey did provide cost data for an SCR that could potentially be placed on Unit 9, the guarantees provided for performance are limited. In the information provided, Johnson Matthey did not provide a guarantee for the catalyst life for a two-stroke diesel engine due to the operating conditions found on these engines. Additionally, Johnson Matthey would only provide a performance guarantee for 8,000 hours after exhaust gas initially passes across the catalyst, or one-year after start-up, whichever occurs first.

The Applicant also evaluated the increased exhaust back pressure due to the addition of an SCR system. The maximum allowed back pressure for the 20-710GB unit is 5 inches H_2O. According to calculations done by the engine vendor, the expected exhaust back pressure of the unit to be installed at Marathon will be approximately 4 inches H_2O. Johnson Matthey indicated that they could possibly increase the exhaust ducting size to meet back pressure requirements of the exhaust system. However, Johnson Matthey has not conducted a site visit to determine the feasibility of increasing duct size and the placement of the SCR in relation to the engine and engine building. Due to space constraints, the Applicant has indicated that increased ducting would be difficult, if not infeasible, and as a result installation costs may be significantly higher than those provided by the Vendor.

A review of EPA's BACT/LAER Clearinghouse (BACT Clearinghouse) information by the Applicant indicates that process control and good combustion practices minimize NO_X emissions for most small facilities. Only two facilities (both owned and operated by the same entity) have installed SCR on two-stroke diesel engines. However, both facilities have limited operating experience and one facility had difficulty meeting its NO_X permit limits. Additionally, the SCR at each plant serves seven and ten units, respectively. Four facilities with SCR on small diesel units, listed in the California Air Resources Board's (CARB) database, were also evaluated. Three facilities have four-stoke engines, which cannot be compared to the operating characteristics of a two-stroke engine. The fourth facility's enforceable permit NO_X limit with SCR is similar to the NO_X emission rate for the new Unit 9 with timing retardation and aftercoolers, which are considered more technically feasible controls by the Applicant.

The next most stringent NO_X control evaluated by the Applicant was the 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.

Vendor's 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 30 to 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 minimize PM emissions thus reducing or eliminating the increase in PM caused by NO_X controls.

PARTICULATE MATTER LESS THAN OR EQUAL TO 10 MICRONS (PM_{10})

Emissions of particulate matter are primarily the result of fuel impurities and byproducts of incomplete combustion. Primary particulate matter control consists of burning clean fuel oil in combination with proper engine design, operation and maintenance. Post-combustion controls for particulate matter include cyclones, electrostatic precipitators, baghouses and scrubbers.

A review of BACT Clearinghouse information indicates that no post-combustion particulate control systems, such as electrostatic precipitators or baghouses, have been employed on diesel engines. The high gas velocities and volumetric flow rates, along with the high combustion efficiency associated with diesel engines, make the application of post-combustion particulate control devices technically infeasible. Rather, particulate emissions from diesel engines are controlled through combustion controls via proper engine design, operation and maintenance. With respect to combustion controls, there are no significant economic, energy or environmental impacts. The combination of good combustion control practices and low sulfur fuel oil (less than or equal to 0.05% sulfur, by weight) results in lower PM_{10} emission rates.

Based on the above information, the Applicant proposes BACT as the combination of NO_X controls (timing retardation and aftercoolers), proper engine design, good combustion practices, and the use of low sulfur fuel, which should provide effective emissions control for the new Unit 9.

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	Yes	No	Yes	Yes
SCR with urea	62.5	Yes	No	No	Yes
Timing retard; turbo charger aftercoolers	30-40	Yes	Yes	No	Yes
Dry/Low NO_X	18	No	N/A	N/A	N/A

SCR has become more widely used in the United States and the technology is being improved such that the hazards and costs have been reduced. It remains, however, a costly technology for small applications and has

hazards associated with the use and storage of ammonia. Additionally, SCR is not generally used with diesel engines of this size. The Applicant rejected SCR because it was found to be technically infeasible for the new Unit 9.

The Department's review of the BACT/LAER database lists only two facilities (both owned and operated by the same entity) which use SCR on diesel engines. SCR was selected because a local ordinance mandated strict limits on emissions without regards to cost. Additionally, seven units at one facility exhaust through one SCR, while at the other facility, ten units exhaust through one SCR. Therefore, an SCR is more cost effective for these units on a dollar per kW and dollar per ton basis, when compared to Unit 9, due to the larger total capacity exhausting through each SCR and a greater NO_X reduction based on total emissions passing through the SCR.

The Department understands that SCR systems are normally not installed on small diesel engines and SCR manufacturers may not recommend this type of control equipment with these engines. However, SCR systems have been placed on other similar units, as shown in the BACT/LAER database and in the data provided by SCR manufacturer Johnson Matthey. These examples indicate that SCR on the new unit 9 may not be technically infeasible. Nevertheless, it appears that the costs for SCR to operate properly and efficiently on Unit 9 will outweigh the benefits of the NO_X reduction from this control technology. Based on the limited cost data provided by Johnson Matthey, the cost of NO_X removal may range from $4,000 to $5,000 per ton.

Johnson Matthey provided only limited guarantees: there is no guarantee for catalyst life with a two-stroke diesel engine due to the operating conditions found on these engines and there is a limited performance guarantee of 8,000 hours after exhaust gas initially passes across the catalyst, or one-year after start-up, whichever occurs first. The costs to frequently replace the catalyst and service the engine may be prohibitive. Additionally, the potential back pressure that the SCR would add to the system may exceed the ducting increase expectations of Johnson Matthey, especially when considered in combination with the space constraints at the Marathon Plant. Subsequent to more detailed design, Johnson Matthey may find that increased ducting is infeasible or installation and material costs may significantly increase. The unknown additional costs for installing SCR on Unit 9 and the more cost effective arrangement of the facilities in the BACT/LAER database (many units exhausting through one SCR), indicates that this control technology would be cost prohibitive for Unit 9.

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.

PM_{10} DETERMINATION

The Department's review of the BACT/LAER database indicates that no post-combustion particulate control systems have been installed on small diesel engines. Instead, particulate emissions are controlled through good combustion practices.

For PM_{10} emissions, the Department accepts the Applicant's proposed use of good combustion control practices and the exclusive use of low sulfur fuel oil (less than or equal to 0.05% sulfur, by weight).

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

POLLUTANT	EMISSION LIMIT
Nitrogen Oxides (NO_X)	68 lbs/hr (297.8 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 (prepared BACT)
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:

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~~ by cap

THRU: Al Linero 10/6

FROM: Syed Arif 10/4

DATE: October 4, 2000

SUBJECT: Florida Keys Electric Cooperative Association, Inc./ Marathon Generation Plant Unit 9/ 0870004-004-AC (PSD-FL-285)

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

The pollutants that underwent PSD review were NO_X and PM_{10}. PM_{10} emissions, when combined with PM_{10} emissions from the existing PSD source (Unit 8) slightly exceed the PSD threshold (15 tpy). However, with a combination of good combustion practices and low sulfur fuel, the PM_{10} emissions will be minimized. 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.

Enforceable conditions have been included for their existing Units 8 as well as the new Unit to insure that the all allowable increment is not consumed.

October 4 is Day 41 for the project.

I recommend your approval and signature.

AAL/sa

Attachments