State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee	
To:	Location:
To:	Location:
To:	Location:
From:	Date:

Interoffice Memorandum

TO: Carol Browner

FROM: Steve Smallwood

DATE: October 16, 1991

SUBJ: Permit and BACT determination for Florida Power Corporation

Attached for your approval and signature is a Permit and Best Available Control Technology determination for Florida Power Corporation's, Debary Facility in DeBary, Florida. The permit will allow the subject facility to construct and operate six simple-cycle combustion peaking units rated 92.2 MW each.

The determination is not controversial.

I recommend your approval and signature.

SS/MH/mh

Attachment

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF PERMIT

In the matter of an
Application for Permit by:

Mr. W. W. Vierday
Environmental Programs & Licensing
Florida Power Corporation
3201 34th Street South
St. Petersburg, Florida 33733

DER File No. AC 64-191015
PSD-FL-167
Volusia County

Enclosed is Permit Number AC 64-191015 to construct and operate six simple cycle combustion peaking units rated 92.9 MW each at the Florida Power Corporation, DeBary facility in DeBary, Volusia County, Florida, issued pursuant to Section(s) 403, Florida Statutes.

Any party to this Order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

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

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on 10-18-91 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED,
on this date, pursuant to
§120.52(11), Florida Statutes,
with the designated Department
Clerk, receipt of which is hereby
acknowledged.

Martha Jane Wise (Clerk) 10-18-91 (Date)

Copies furnished to:
Alan Zahm, DER
Kenneth Kosky, P.E., KBN
Jewell Harper, EPA
Julia Thomas, Fish & Wildlife
Chris Shaw, WPS

Final Determination

Florida Power Corporation
DeBary Facility
Debary, Volusia County, Florida

Six 92.9 MW Simple Cycle Combustion Turbines
for Peaking Service

Permit Number: AC 64-191015
PSD-FL-167

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

October 16, 1991

FINAL DETERMINATION

Florida Power Corporation (FPC) submitted an application for an air pollution source construction permit authorizing construction of six simple-cycle combustion turbine peaking units at their DeBary Electric Generating Station. Each unit is rated at 92.9 MW and will fire #2 distillate fuel oil. The DeBary facility has six existing simple-cycle combustion turbines with a generating capability of 330 MW. The Florida Department of Environmental Regulation (FDER) reviewed the application and issued a Preliminary Determination and Technical Evaluation, along with its Notice of Intent to Issue a permit for the six proposed combustion turbines on August 2, 1991.

The U.S. Environmental Protection Agency (EPA) submitted a letter commenting on the Preliminary Determination on September 10, 1991. EPA submitted one comment concerning the emission limit regarding opacity. As a result, the words, "at peak load" were removed from specific condition 2 of the permit.

On September 9, 1991, the U.S. Fish and Wildlife Service (FWS) submitted a letter commenting on the Preliminary Determination. With regard to the air quality modeling analysis, FWS indicated that neither the FDER nor FPC calculated the impact of the proposed project on the Class I sulfur dioxide (SO_2) increment at the Chassahowitzka Wilderness Area because this area is located more than 100 km away from the project. The FWS took exception to this, stating that the EPA recognizes the possible impacts of sources located more than 100 km from a class I area. To asses the proposed project's impact at the Chassahowitzka Wilderness Area, the FWS used the ISCST model, stack parameters included in the FPC permit application, and one year of meteorological data (Tampa 1986). The results of this analysis showed the highest second highest (HSH) 24-hour SO_2 concentration to be 5.20 micrograms per cubic meter (ug/m^3). Thus, there appeared to be a potential to violate the allowable Prevention of Significant Deterioration (PSD) Class I increment of 5 ug/m3 for a 24-hour averaging time.

In response to the analysis done by the FWS, on September 24, 1991, FPC submitted a letter to FDER detailing air quality modeling using the ISCST model and five years of meteorological data (Orlando/Ruskin 1982-86). Three cases for the proposed project were analyzed. The first case represents the six proposed turbines using worst-case emissions (at 20°F) and operating conditions of minimum flow (at 90°F). The second case represents the six proposed turbines using emissions and flowrates at 20°F. The last case represents emissions and flowrates at 90°F. Each of the above cases includes all other significant increment consuming sources which may interact with the FPC facility at the Class I area The HSH 24-hour predicted impacts are 4.98, 4.89, and 4.76 ug/m^3 for cases 1, 2, and 3 respectively. Both the annual and 3-hour averaging time results also meet the allowable PSD Class I

increments. The modeling done by FPC can be considered conservative for three reasons. The first reason is that the modeling analysis assumes that the maximum fuel sulfur content will occur continuously. While a maximum sulfur content of 0.5 percent has been approved, the average sulfur content for any 12 month rolling period must not be more than 0.30 percent. The second reason is that the hours of operation for the six combustion turbines are limited by permit. The maximum annual hours of operation at 0.30 percent average fuel sulfur is 2,890. This corresponds to a 33 percent capacity factor. The capacity factor could increase to as much as 38.7 percent if the average fuel sulfur content drops to 0.26 percent or less. This permit condition significantly limits the hours of operation which reduces the probability that the six turbines would operate during "worst case" meteorological conditions. The last reason is the maximum impacts predicted are due to the most stable conditions which occur at night. However, the turbines are peaking units which will be operated during peak load periods which occur during the morning to evening hours.

The modeling results from FPC have been made available to FDER, and FWS. All parties have reviewed this modeling and have determined that the proposed project including all other PSD sources will meet all allowable PSD Class I increments.

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

PERMITTEE:
Florida Power Corporation
DeBary Facility
3201 34th Street South
St. Petersburg, FL 33733

Permit Number: AC 64-191015
PSD-FL-167
Expiration Date: January 31, 1993
County: Volusia
Latitude/Longitude: 28°54'14"N
81°19'59"W
Project: Six 92.9 MW Simple Cycle Gas Turbines

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For six 92.9 MW simple cycle combustion turbines (CT's) with maximum heat input of 1,144 MMBtu/hr/unit at 59°F (oil) to be located at the DeBary facility in DeBary, Florida. The turbines are to be GE PG7111EA equipped with wet injection. The UTM coordinates are Zone 17, 467.5 km East and 3197.2 km North.

The source shall be constructed in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments are listed below:

1. Florida Power Corp.'s application received December 31, 1990.
2. Department's letter dated January 30, 1991.
3. Florida Power Corp.'s letter received February 18, 1991.
4. Florida Power Corp.'s letter dated July 8, 1991.
5. Florida Power Corp.'s letter dated July 12, 1991.
6. Florida Power Corp.'s letter dated July 18, 1991.
7. KBN's faxed letter dated July 24, 1991.
8. U.S. Fish and Wildlife Service's letter dated September 9, 1991.
9. U.S. Environmental Protection Agency's letter dated September 10, 1991.
10. Florida Power Corp.'s letter dated September 24, 1991.

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, 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.

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

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

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

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

GENERAL CONDITIONS:

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.

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

a. Have access to and copy any records that must be kept under the conditions of the permit;

b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

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

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

a. a description of and cause of non-compliance; and

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

GENERAL CONDITIONS:

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

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the 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 extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and 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.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

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

13. This permit also constitutes:

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

14. The permittee shall comply with the following:

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

GENERAL CONDITIONS:

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

c. Records of monitoring information shall include:

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

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

SPECIFIC CONDITIONS:

Emission Limits

1. The maximum allowable emissions from these sources shall not exceed the emission rates listed in Table 1.

2. Visible emissions shall not exceed 20% opacity except at full load in which case visible emissions shall not exceed 10% opacity.

Operating Rates

3. These sources are allowed to use only No. 2 fuel oil with a 0.30% average and 0.5% sulfur content maximum, by weight. The sulfur content is based upon a weighted 12 month rolling average of fuel oil analysis from delivery receipts.

SPECIFIC CONDITIONS:

4. The permitted materials and utilization rates for the combined cycle gas turbines shall not exceed: (a) the maximum heat input of 1,144 MMBtu/hr/unit at 20°F. (b) maximum No. 2 fuel oil consumption shall not exceed 7,826 (at 59°F) gal/hr/unit or 159,200,000 gal/yr for 6 CT's. (c) SO_2 emissions for the six combustion turbines not exceed 2,888 tons/year. (d) the maximum capacity factor shall be limited to 38.7%.

5. The capacity factor shall be limited to 33% based on a weighted 12 month rolling average sulfur content of 0.30%. However, if the weighted rolling average sulfur content of the fuel oil is less than 0.30%, the capacity factor may be adjusted using the following table:

Percent Average Sulfur Content	% Capacity Factor
0.30 - 0.295	33
0.29 - 0.285	34.4
0.28 - 0.275	35.8
0.27 - 0.265	37.2
0.26 - or less	38.7

6. Any change in the method of operation, equipment or operating hours shall be submitted to DER's Bureau of Air Regulation.

7. Any other operating parameters established during compliance testing and/or inspection that will ensure the proper operation of this facility shall be included in the operating permit.

Compliance Determination

8. Compliance with the NO_x, SO_2, CO, PM, PM_{10} and VOC standards shall be determined (on each unit within 10% maximum heat rate input) within 180 days of initial operation and annually thereafter, by the following reference methods as described in 40 CFR 60, Appendix A (July, 1990 version) and adopted by reference in F.A.C. Rule 17-2.700.

- Method 1. Sample and Velocity Traverses
- Method 2. Volumetric Flow Rate
- Method 3. Gas Analysis
- Method 5. Determination of Particulate Matter Emissions from Stationary Sources
- Method 9. Determination of the Opacity of the Emissions from
- Method 8. Determination of the Sulfuric Acid of the Emissions from Stationary Sources

SPECFIC CONDITIONS:

- Method 10. Determination of the Carbon Monoxide Emission from Stationary Sources
- Method 20. Determination of Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions from Stationary Gas Turbines.
- Method 25A Determination of the Volatile Organic Compounds Emissions from Stationary Sources.

Other DER approved methods may be used for compliance testing after prior Departmental approval.

9. Method 5 must be performed on one combustion turbine to determine the initial compliance status of this type unit. Thereafter, the opacity emissions test may be used unless 10% opacity is exceeded at peak load.

10. Compliance with the SO_2 emission limit can also be determined by calculations based on fuel analysis using ASTM D4292 for the sulfur content of liquid fuels.

11. Trace elements of Beryllium (Be) shall be tested during initial compliance test using EMTIC Interim Test Method. As an alternative, Method 104 may be used; or Be may be determined from fuel sample analysis using either Method 7090 or 7091, and sample extraction using Method 3040 as described in the EPA solid waste regulations SW 846.

12. Mercury (Hg) shall be tested during initial compliance test using EPA Method 101 (40 CFR 61, Appendix B) or fuel sampling analysis using methods acceptable to the Department.

13. During performance tests, to determine compliance with the proposed NO_X standard, measured NO_X emissions at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor:

$$NO_X = (NO_{X\ obs}) \left(\frac{P_{ref}}{P_{obs}}\right)^{0.5} e^{19\ (H_{obs} - 0.00633)} \left(\frac{288°K}{T_{AMB}}\right)^{1.53}$$

where:

NO_X = Emissions of NO_X at 15 percent oxygen and ISO standard ambient conditions.

$NO_{X\ obs}$ = Measured NO_X emission at 15 percent oxygen, ppmv.

P_{ref} = Reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure.

SPECIFIC CONTIDIONS:

P_{obs} = Measured combustor inlet absolute pressure at test ambient pressure.

H_{obs} = Specific humidity of ambient air at test.

e = Transcendental constant (2.718).

T_{AMB} = Temperature of ambient air at test.

14. Test results will be the average of 3 valid runs. The Central District office will be notified at least 15 days in writing in advance of the compliance test(s). The sources shall operate between 90% and 100% of permitted capacity during the compliance test(s) as adjusted for ambient temperature. Compliance test results shall be submitted to the Central District office no later than 45 days after completion.

15. A continuous monitoring system shall be installed to monitor and record the fuel consumption on each unit. Water injection shall be utilized for NOx control. The water to fuel ratio at which compliance is achieved shall be incorporated into the permit and shall be continuously monitored. The system shall meet the requirements of 40 CFR Part 60, Subpart GG.

16. Sulfur, nitrogen content and lower heating value of the fuel being fired in the combustion turbines shall be based on a weighted 12 month rolling average from fuel delivery receipts. The records of fuel oil usage shall be kept by the company for a two-year period for regulatory agency inspection purposes.

Rule Requirements

17. This source shall comply with all applicable provisions of Chapter 403, Florida Statutes, Chapters 17-2 and 17-4, Florida Administrative Code and 40 CFR (July, 1990 version).

18. The sources shall comply with all requirements of 40 CFR 60, Subpart GG, and F.A.C. Rule 17-2.660(2)(a), Standards of Performance for Stationary Gas Turbines.

19. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements and regulations (F.A.C. Rule 17-2.210(1)).

20. The sources shall comply with F.A.C. Rule 17-2.700, Stationary Point Source Emission Test Procedures.

SPECIFIC CONDITIONS:

21. If construction does not commence within 18 months of issuance of this certification/permit, then the permittee shall obtain from DER a review and, if necessary, a modification of the control technology and allowable emissions for the unit(s) on which contruction has not commenced (40 CFR 52.21(r)(2)).

22. Quarterly excess emission reports, in accordance with the July 1, 1988 version of 40 CFR 60.7 and 60.334 shall be submitted to DER's Central District office.

23. Literature on equipment selected shall be submitted as it becomes available. A CT-specific graph of the relationship between NOx emissions and steam injection and also another of ambient temperature and heat inputs to the CT shall be submitted to DER's Central District office and the Bureau of Air Regulation.

24. Stack sampling facilities shall be provided for each of the stacks.

25. Construction period fugitive dust emissions shall be minimized by covering or watering dust generation areas.

26. Pursuant to F.A.C. Rule 17-2.210(2), Air Operating Permits, the permittee is required to submit annual reports on the actual operating rates and emissions from this facility. These reports shall include, but are not limited to the following: sulfur nitrogen contents and the lower heating value of the fuel being fired, fuel usage, hours of operation, air emissions limits, etc. Annual reports shall be sent to the Department's Central District office by March 1 of each calendar year.

27. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit (F.A.C. Rule 17-4.090).

28. An application for an operation permit must be submitted to the Central District office at least 90 days prior to the expiration date of this construction permit. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

PERMITTEE:
Florida Power Corp.

Permit Number: AC 64-191015
PSD-FL-167
Expiration Date: Jan. 31, 1993

Issued this 18 day
of October, 1991

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Carol M. Browner
Secretary

Best Available Control Technology (BACT) Determination
Florida Power Corporation
DeBary Facility
Volusia County

The applicant proposes to operate six No. 2 fuel oil fired 92.9 MW peaking cycle combustion turbine systems to be used for peaking power at their DeBary facility on Highlands Road, DeBary, Volusia County, Florida.

The applicant states that the maximum heat input will be 1,144 MMBtu/hr per turbine. The applicant has indicated the maximum annual tonnage of regulated air pollutants emitted from the six turbines based on sea level conditions at 59°F and 100 percent capacity (8760 hours/year) to be as follows:

Pollutant	Potential Emissions (tons/yr)	PSD Significant Emission Rate (tons/yr)
NOx	4794	40
SO_2	14581	40
PM	394	25
PM_{10}	394	15
CO	1411	100
VOC	131	40

Florida Administrative Code Rule 17-2.500(2)(f)(3) requires a BACT review for all regulated pollutants emitted in an amount equal to or greater than the significant emission rates listed in the previous table.

Date of Receipt of a BACT Application

December 31, 1990

BACT Determination Requested by the Applicant

Pollutant	Determination
NOx	42 ppmvd @ 15% O_2
SO2 and H_2SO_4	Max 0.5% Sulfur No. 2 fuel oil
PM/PM_{10}	Combustion Controls
CO	Combustion Controls

BACT Determination Procedure

In accordance with Florida Administrative Code Chapter 17-2, Air Pollution, this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department, on a case by case basis, taking into account energy, environmental and

economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques. In addition, the regulations state that in making the BACT determination the Department shall give consideration to:

(a) Any Environmental Protection Agency determination of Best Available Control Technology 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 determinations 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 source in question the most stringent control available for a similar or identical source or source category. If it is shown that this level of control is technically or economically infeasible for the source 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 applicant has stated that BACT for nitrogen oxides will be met by using wet injection necessary to limit emissions to 42 ppmvd at 15% oxygen for No. 2 fuel oil firing.

A review of the EPA's BACT/LAER Clearinghouse indicates that the lowest NOx emission limit established to date for a combustion turbine is 4.5 ppmvd at 15% percent oxygen. This level of control was accomplished through the use of water injection and a selective catalytic reduction (SCR) system.

Selective catalytic reduction is a post-combustion method for control of NOx emissions. The SCR process combines vaporized ammonia with NOx in the presence of a catalyst to form nitrogen and water. The vaporized ammonia is injected into the exhaust gases prior to passage through the catalyst bed. The SCR process can achieve up to 90% reduction of NOx with a new catalyst. As the catalyst ages, the maximum NOx reduction will decrease to approximately 86 percent.

The applicant has rejected using SCR because of technical infeasibility. The applicant was unable to find similar combustion turbines firing fuel oil and equipped with SCR. The applicant states several supporting reasons for the decision in Table 4-3 of the application.

Although the Department agrees that there was a time when SCR was not feasible for oil firing, the latest information available now indicates that SCR can be used for oil firing provided that adjustments are made in the ammonia to NOx injection ratio. By lowering the injection ratio below 1 to 1, testing has indicated that NOx can be controlled with efficiencies ranging from 60 to 75 percent. When the injection ratio is lowered, there is not a problem with ammonium bisulfate formation since essentially all of the ammonia is able to react with the nitrogen oxides present in the combustion gases.

The Department recently reviewed an application for a similar combustion turbine, which included levelized cost for SCR of $2,190,000. Assuming that the lowered ammonia injection ratio strategy was used to control NOx emissions by 65%, the SCR would control 201 tons (65% x 309 tons/year) of NOx annually. The 309 tons/year assumes an operating rate of 3400 hours/year/unit. When this reduction of NOx is taken into consideration with the total annual cost of $2,190,000, the cost per ton of controlling NOx is $10,896. This calculated cost is higher than has previously been approved as BACT and if the capacity factor were limited to 33% (2,891 hrs), the cost per ton would be even higher.

The applicant has stated that sulfur dioxide (SO_2) and sulfuric acid mist (H_2SO_4) emissions when firing fuel oil will be controlled by lowering the operating hours to 3400/year per unit and the fuel oil sulfur content to a maximum of 0.5% by weight, and an average of 0.3%. This would result in a SO_2 reduction of 377 tons/year/unit (0.3/0.5 x 3400/8760 hrs x 14,581 TPY 6 units). Also, H_2SO_4 mist would be reduced by 46 tons/year/unit.

With regard to the operation of turbines on oil, several BACT determinations have established a 25% capacity factor as an operating limit. This is due to the increase in nitrogen oxides emissions that results from the burning of oil as compared to natural gas. In some cases, turbines have been allowed to operate above the 25% capacity factor limitation on oil (generally 33%), provided that they use low NOx combustors (42 ppm on oil firing) and limit the sulfur content of oil. Those facilities that have been permitted to operate above the 25% capacity factor limitation had a maximum sulfur content ranging from 0.20 to 0.25 percent. However, their primary fuel was natural gas. Since the DeBary facility is capable of limiting NOx emissions to 42 ppm and can only use oil, it is reasonable to allow the capacity factor to range from 33 to 38.7% provided that the <u>average</u> sulfur content is at or below 0.30%. The Department accepts the applicants proposal to control CO and PM/PM_{10} by combustion design and the use of clean fuels (No. 2 distillate). The Department also agrees with the

applicant that there are no feasible methods to control beryllium and aresenic except by limiting the inherent quality of the fuel.

Although the emissions of these toxic pollutants could be controlled by particulate control devices, such as a baghouse or scrubber, the amount of emission reductions would not warrant the added expense. As this is the case, the Department does not believe that the BACT determination would be affected by the emissions of these pollutants.

Potentially Sensitive Concerns

With regard to controlling NOx emissions with SCR, the applicant has identified the following technical limitations:

- Reduced power output, ammonia slip and disposal of hazardous waste generated (spent catalyst)

BACT Determination by DER

Based on the information presented by the applicant and the studies conducted, the Department believes that the use of SCR for NOx control is not justifiable as BACT. Since these units are intended for peaking service and have operating hours limited to 3,390 hrs/yr/unit, wet injection for NOx emission control is justifiable as BACT for this facility. Should the weighted rolling average sulfur content for the fuel oil be greater than 0.30% the operating hours will be reduced or prorated.

As this is the case, the BACT emission limitations are established as follows:

Pollutant	Emission Limit	Method of Control
NOx	42 ppmvd @ 15% O_2	Wet Injection
SO_2	555 lbs/hr/unit	Avg. 0.30% and max. 5% sulfur content, by weight, No. 2 fuel oil
PM and PM_{10}	15 lbs/hr/unit	Combustion
CO	54 lbs/hr/unit	Combustion
VOC	5 lbs/hr/unit	Combustion
Arsenic	7.1×10^{-3} lbs/hr/unit	Fuel Quality
Beryllium	1.3×10^{-6} lbs/hr/unit	Fuel Quality
H_2SO_4	76 lbs/hr/unit	Avg. 0.30% and max. 0.5% sulfur content, by weight, No. 2 fuel oil

Details of the Analysis May be Obtained by Contacting:

Barry Andrews, P.E., BACT Coordinator
Department of Environmental Regulation
Bureau of Air Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended by:

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

October 17, 1991
Date

Approved by:

Carol M. Browner, Secretary
Dept. of Environmental Regulation

October 18, 1991
Date

TABLE 1
ALLOWABLE EMISSION LIMITS
Simple Cycle Combustion Turbine

Pollutant	Standard Oil Firing	Each Unit lb/hr[a]	Total 6 Units T/yr	Basis
NOx	42 ppm at 15% oxygen-dry basis	182	1851[b]	BACT
SO_2	No. 2 fuel oil with 0.3% avg. and 0.5% max. sulfur	555	2888[c]	BACT
PM/PM_{10}	0.015 ~~0.025~~ lb/MMBtu	15	153[b]	BACT
VOC	-	5	51[b]	BACT
CO	-	54	547[b]	BACT
Sulfuric Acid Mist	No. 2 fuel oil with 0.3% avg. and 0.5% max. sulfur	69.1 ~~76~~	70.3 ~~773~~[b]	BACT
Fluorides (FR)	-	1.67×10^{-5}	0.34	Application
Mercury (Hg)	3.0×10^{-6} lbs/MMBtu	1.54×10^{-6}	0.031[b]	Application
Lead (Pb)	2.8×10^{-5} lbs/MMBtu	4.6×10^{-6}	0.093[b]	Application
Inorganic Arsenic	-	2.1×10^{-6}	0.4[b]	BACT
Beryllium (be)	2.5×10^{-3} lbs/MMBtu	1.3×10^{-6}	0.026[b]	BACT

used late for 2000/2

(a) Emission rates based on 59°F and 15% O_2.

(b) Equivalent to 3390 hours per year at peak load and 38.7% capacity factor. If less than 6 units are constructed annual emissions prorated for actual number units constructed (i.e., if 4 units constructed, the annual NOx emission limit is 1851 TPY * (4/6) = 1234 TPY).

(c) Total TPY CAP for SO_2 assumes 33% capacity factor and fuel sulfur content of 0.30% avg. If less than 6 units constructed annual emission limit prorated for actual number units (4/6) = 1925 TPY).

P 832 538 736

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PS Form **3800**, June 1990

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JH
John returns from
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Atlanta

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- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- 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.
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3. Article Addressed to:
Mr. W. W. Vierday
Environmental Programs & Licen.
Florida Power Corp.
3201 34th Street South
St. Petersburg, FL 33733

4a. Article Number
P 832 538 736

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

7. Date of Delivery
OCT 21 1991

5. Signature (Addressee)

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6. Signature (Agent)
Walt Yurkus

PS Form **3811**, October 1990 ☆U.S. GPO: 1990—273-861 **DOMESTIC RETURN RECEIPT**

Florida Power
CORPORATION

RECEIVED
SEP 30 1991
Division of Air Resources Management

September 24, 1991

Mr. Tom Rogers
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32399

Dear Mr. Rogers:

Re: DER File No. AC 64-191015
PSD-FL-167
Volusia County

This is in response to the Department of Environmental Regulation's intent to issue an air construction permit for the permanent installation of six simple cycle combustion turbines at Florida Power Corporation's DeBary Facility in Volusia County.

KBN Engineering and Applied Science, Inc. (KBN) has performed an air quality modeling analysis to determine the maximum sulfur dioxide (SO_2) Prevention of Significant Deterioration (PSD) increment consumption that would be consumed at the Chassahowitzka PSD Class I area. This analysis included modeling the SO_2 emissions from Florida Power Corporation's (FPC) proposed project at DeBary and other increment consuming sources. The original emission inventory for this analysis was provided to KBN by the Florida Department of Environmental Regulation (FDER). KBN added FPC's proposed combustion turbines (CTs) and the proposed Pasco County Cogeneration facility to the inventory.

Three cases for the proposed CTs were analyzed. The first case, identified as ISCST source ID number 99001, represents six proposed turbines using worst-case emissions (at 20°F) and operating conditions of minimum flow (at 90°F). The second case, identified as ISCST source ID number 99002, represents six proposed turbines using emissions and flowrates at 20°F. The last case, identified as ISCST source ID number 99003, represents emissions and flowrates at 90°F. Each of these cases was modeled as a separate source group using a 5-year meteorological record from Orlando/Ruskin (1982-86). These three additional source

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Florida Power
CORPORATION

Mr. C. H. Fancy
Florida Department of Environmental
Regulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

3

951 675(S)

groups were included to determine the total source impacts at the PSD Class I area for each DeBary plant case identified above. All impacts were calculated at thirteen discrete receptors surrounding the PSD Class I area. These receptors are the same receptors used by the FDER. Enclosed are the paper and disk copies of the ISCST computer runs.

The modeling results indicate that the proposed DeBary project including all other PSD sources will meet all allowable PSD Class I increments. The highest second-highest (HSH) 24-hour predicted impact for the combined worst-case emissions and flow rate is 4.98 $\mu g/m^3$. With the DeBary turbines at 20°F emissions and flowrate, the HSH 24-hour impact is 4.89 $\mu g/m^3$. The total impact with the DeBary turbines at 90°F is 4.76 $\mu g/m^3$. Both the annual and 3-hour averaging time results also meet the allowable PSD Class I increments for those respective averaging times.

The results of the Class I impact analysis is extremely conservative for the following reasons:

1. Maximum sulfur content versus average sulfur content - - The modeling analysis assumes that the maximum sulfur content will occur continuously. While a maximum sulfur content of 0.5 percent has been approved, the average sulfur content for any 12 month rolling period must be less than 0.3 percent. As provided by permit condition, the sulfur content will be determined for fuel delivery which will be used in the annual calculation. While the sulfur content of one or more fuel deliveries may approach 0.5 percent, these shipments will be mixed with the oil in the storage tanks which will have to be of lower sulfur content to assure meeting the annual sulfur condition. Therefore, the actual SO_2 emissions that would have a potential of impacting the Class I area will likely be those calculated using a sulfur content of 0.3 percent rather than 0.5 percent.

2. Hours of operation/SO_2 emissions - - The hours of operation of the CTs and SO_2 emissions are limited by permit. The maximum annual hours of operation anticipated by the project are 3,390 based on NO_x limitation. The maximum annual hours of operation at 0.3 percent sulfur are 2,890 (i.e., 33 percent capacity factor) based on the annual SO_2 emission limit. Together, these permit provisions significantly limit hours of operation which reduce the probability that the units would operate during "worst case" meteorological conditions.

3. Nighttime operation - - The maximum impacts predicted are due to stable conditions which occur at night. In contrast, the CTs are peaking units which would be operated primarily during peak load periods which occur during the morning to evening hours, e.g., 7:00 a.m. to 10:00 p.m. Thus, the peaking units would not likely be run during the periods that maximum impacts are predicted to occur.

Sincerely,

W. W. Vierday, Manager
Environmental Programs-Licensing

Enclosure

cc: C. H. Fancy, FDER, Tallahassee
B. A. Andrews, FDER, Tallahassee
P. Lewis
C. Halladay
A. Zahm

pag/WWV6.Rogers.Ltr

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

4APT-AEB

SEP 10 1991

RECEIVED
SEP 16 1991
Division of Air
Resources Management

Mr. Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Florida Power Corporation/DeBary Plant (PSD-FL-167)

Dear Mr. Fancy:

This is to acknowledge receipt of your revised technical evaluation, preliminary determination, and draft permit for the above referenced facility's proposed construction, by your letter dated August 2, 1991. The facility will consist of six simple-cycle combustion peaking units, each rated 92.9 MW, fired with No. 2 distillate fuel oil. Your determination proposes to limit NO_x emissions through wet injection, to limit SO_2 and H_2SO_4 mist emissions through limiting the sulfur content of the fuel oil, to limit PM and PM_{10} through combustion design and the use of clean fuel, to limit CO through combustion design, and to limit Hg, Be, and As emissions through the specifications on No. 2 distillate fuel oil. The revised permit establishes adjustments to the capacity factor based on the weighted rolling average sulfur content of the fuel, with the maximum capacity factor limited to 38.7%.

We have reviewed the package as submitted and have one comment. It concerns the emission limit regarding opacity, listed on page 5 of the draft permit. The limit should be specified as follows:

2. Visible emissions shall not exceed 20% opacity except at full load, in which case visible emissions shall not exceed 10% opacity. (deleting "at peak load")

Thank you for the opportunity to review and comment on the revised package. If you have any questions or comments, please contact Mr. Scott Davis of my staff at (404) 347-5014.

Sincerely yours,

Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides, and Toxics
Management Division

cc: P. Lewis
B. Andrews
C. Holladay
A. Zahm, C Dist.
C. Shrader, UPS
K. Kosky, P.E., KBN

United States Department of the Interior
FISH AND WILDLIFE SERVICE

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Denver Federal Center
Denver, Colorado 80225

STREET LOCATION:
134 Union Blvd.
Lakewood, Colorado 80228

IN REPLY REFER TO:

RW Air Quality
Mail Stop 60130

SEP 09 1991

Mr. C.H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Fancy:

We have completed our review of the Florida Power Corporation (FPC) permit application and your Technical Evaluation and Preliminary Determination Document. These documents are in regard to FPC's proposal to install six 192.9 MW oil-fired peaking turbines at their facility in DeBary, Florida. The DeBary facility is located approximately 120 km east of the Chassahowitzka Wilderness Area (WA), a class I air quality area administered by the U.S. Fish and Wildlife Service.

As we indicated in past permit reviews, most recently in our letter regarding the IMC Fertilizer project, the Chassahowitzka National Wildlife Refuge was established in 1943 for the purpose of migratory bird conservation. The refuge provides habitat for a number of federally threatened and endangered species including the American alligator, bald eagle, eastern brown pelican, eastern indigo snake, Florida manatee, and three species of sea turtle. Our comments on the best available control technology (BACT), air quality, and air quality related values analyses with respect to the proposed project's potential impacts on the Chassahowitzka WA are discussed below.

The proposed FPC project would be a significant emitter of the following pollutants: sulfur dioxide (SO_2), sulfuric acid mist (H_2SO_4), nitrogen oxides (NO_x), particulate matter (PM), carbon monoxide (CO), volatile organic compounds (VOC), and beryllium (Be). We agree with the Florida Department of Environmental Regulation (FDER) that wet injection represents BACT for NO_x emissions from FPC's proposed simple cycle, peaking turbines. We also agree that combustion controls and fuel oil specifications represent BACT for PM, CO, VOC, and Be. However, for SO_2 and H_2SO_4 control, we do not agree that the proposed 0.50 percent maximum sulfur content oil is consistent with what has been established as BACT on a national basis nor for certain other gas turbines permitted by the FDER. For example, the FDER determined that BACT for a combustion turbine proposed by the City of Lakeland is burning a fuel oil with a maximum sulfur content of 0.20 percent. Also, we have reviewed other combustion turbine projects that were permitted to burn No. 2 fuel oil with a maximum sulfur content of 0.20

percent. Therefore, considering these past BACT determinations and our class I increment concerns discussed below, we recommend that the FDER lower the maximum sulfur content of the oil fired in the FPC turbines from 0.50 percent to 0.20 percent.

Florida Power Corporation could reduce SO_2 and H_2SO_4, as well as NO_x, emissions even further by using natural gas as the primary fuel, and fuel oil only as the backup fuel. We understand that the proposed turbines are designed for both natural gas and oil firing, and that the turbines could be modified to accommodate future gas firing. Although we realize that natural gas is not currently available at the DeBary site, we recommend that the FDER include a condition in the final FPC permit that requires FPC to fire natural gas if, and when, it becomes available.

Regarding the air quality modeling analysis, you indicate that neither the FDER nor FPC calculated the impact of the proposed project on the class I SO_2 increments at Chassahowitzka because this area is located more than 100 km away from the project. However, the FDER concluded that the proposed project will not cause or contribute to a violation of any air quality standard or PSD increment in the wilderness area. Since neither the FDER nor the applicant performed a class I impact analysis, we do not understand how the FDER can conclude that the proposed project would not cause or contribute to class I increment violations. To the contrary, our dispersion modeling analysis shows that the proposed project would indeed cause and contribute to class I increment violations at the Chassahowitzka WA.

As you know, in our recent comments regarding IMC Fertilizer's proposed project near Chassahowitzka, we raised concerns regarding potential class I increment violations. In response to our comments, your office performed additional modeling showing the highest 24-hr SO_2 increment consumption at Chassahowitzka to be 5.24 ug/m^3, and that the second highest concentration at the same receptor to be 5.08 ug/m^3. Because only one exceedance of the 24-hr increment is permitted at a given receptor, your analysis shows that the IMC Fertilizer emissions would cause or contribute to a violation of the class I increment (5.0 ug/m^3).

To assess FPC's impact at the Chassahowitzka WA, we used the ISCST model (the same dispersion model that FPC used in their PSD Class II increment analysis), the stack parameters included in the FPC permit application, and one year of the same National Weather Service meteorological data (Tampa, 1986) that FPC used in their analysis. We ran the ISCST model using nine discrete receptors placed at the Chassahowitzka WA. The results of our analysis showed the highest 24-hour SO_2 concentration attributed to FPC's emissions alone to be 5.36 ug/m^3, and that the second highest concentration to be 5.20 ug/m^3. Also, the 5.36 ug/m^3 contribution occurred at the same receptor that the FDER modeled the 5.24 and 5.08 ug/m^3 concentrations. Therefore, our analysis shows that the proposed FPC project would exacerbate the increment situation at the Chassahowitzka WA and contribute to a class I increment violation. The results of the class I modeling analyses are summarized in the following table:

Maximum Modeled SO_2 Impacts at the Chassahowitzka WA for 1986

Julian Day	UTM East	UTM North	FDER Modeled Impacts at Chassahowitzka (ug/m^3)	FPC Impact at Chassahowitzka (ug/m^3)
242	340700*	3171900*	NP**	5.36
215	340700*	3171900*	5.24	0.00
205	340700*	3171900*	5.08	0.00
242	340300	3169800	NP	5.20
32	340300	3167700	NP	4.11
32	340300	3169800	NP	3.93
242	342000	3174000	NP	3.91
242	340300	3167700	NP	3.86
67	343000	3176200	NP	3.77

*Denotes receptor with known high, 2nd high violation of class I increment.

**Not Provided

It is important to note that our analysis only included one year of meteorological data, and that the complete results of the FDER's modeling for the IMC Fertilizer project were not provided to us. If the FDER would model four more years, as the modeling guideline requires, and include the cumulative impacts from all other increment-consuming sources, it is possible that other class I increment violations would be found.

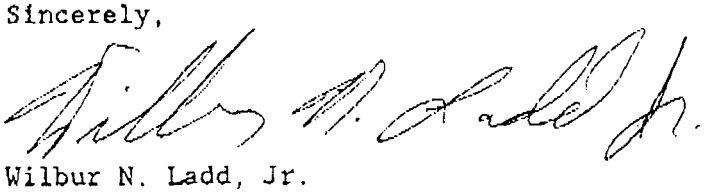
Also, as we have indicated in past permit reviews, for regulatory applications with potential impacts on class I areas, use of dispersion models is not necessarily limited to a 100 km distance. Guidance provided by the EPA recognizes the possible impacts of sources located more than 100 km from a class I area. Therefore, it follows that the analysis of increment consumption should not be limited to 100 km, but should include all increment-consuming sources that could impact the class I airshed, regardless of their distance from the area. In addition to the increment issue, we continue to be concerned about the cumulative impact that the emissions may have on sensitive resources in the wilderness area.

In summary, we recommend that the FDER lower the maximum sulfur content of the oil fired in the FPC turbines from 0.50 percent to 0.20 percent, and include a condition in the final FPC permit that requires FPC to fire natural gas if, and when, it becomes available at the DeBary site. In addition, we believe that the FPC air quality analysis is deficient with

respect to class I impacts and that the FDER made an erroneous conclusion that the proposed FPC project would not cause or contribute to a class I increment violation at the Chassahowitzka WA. Because the class I increment would be violated by the proposed FPC project, in accordance with Section 165 of the Clean Air Act, FPC will need to show that there will be no adverse impacts to class I area resources, and ask the Federal Land Manager to so certify, before the final permit can be issued. Consequently, the FDER should not grant the final FPC permit until the increment issue has been resolved. Finally, we recommend that the FDER initiate the required emission control programs necessary to correct the modeled increment violations at the Chassahowitzka WA.

We will await your response regarding this matter. In the meantime, if you have any questions, please contact John Bunyak of our Air Quality office in Denver at (303) 969-2071.

Sincerely,



Wilbur N. Ladd, Jr.
Assistant Regional Director
Refuges and Wildlife, Region 6

cc: Jellell Harper, Chief
Air Enforcement Branch
Air, Pesticides and Toxic Management Division
U.S. EPA, Region 4
345 Courtland Street, NE
Atlanta, Georgia 30365

Florida Department of
Environmental Protection

Memorandum

TO : Howard Rhodes

FROM for John Brown
Clair Fancy

DATE : September 21, 1994

SUBJECT: Approval of Construction Permit Amendment
AC 64-191015 [PSD-FL-167(A)]
DeBary Facility

Attached for your approval and signature is an amendment to the Florida Power Corporation DeBary Facility construction permit, prepared by the Bureau of Air Regulation. The purpose of this amendment is to clarify language regarding testing requirements and the use of a manufacturer's heat input vs. ambient temperature curve; and, to incorporate the manufacturer's heat input vs. ambient temperature curve into the construction permit. The curve is necessary for correcting heat input during compliance and performance tests. This amendment will not cause an increase in annual allowable emission limits or result in any equipment change.

This amendment is recommended for your approval and signature.

CF/CSL

Attachment

Department of
Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

September 21, 1994

PSD-FL-167A

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Kent Hedrick
Supervisor, Air Programs
Florida Power Corporation
Post Office Box 14042
St. Petersburg, Florida 33733

Dear Mr. Hedrick:

RE: Amendment to Construction Permit
AC 64-191015 [PSD-FL-167(A)]
DeBary Facility

The Department has reviewed your request to amend the subject permit by A) incorporating an ISO corrected nitrogen oxide (NO_x) emission limit of 57 ppm @ 15% O_2, B) incorporate a fuel bound nitrogen allowance of 6 ppm, and C) clarify language concerning the application of a heat input vs. ambient temperature curve. The Department's determination on these amendment requests are as follows:

A. Incorporation of an ISO NO_x Emission Limit

Your request to amend the construction permit by incorporating an ISO NO_x emission limit of 57 ppm @ 15% O_2 is denied.

The DeBary facility is subject to 40 CFR 60, Subpart GG, which specifically states that no owner or operator shall emit nitrogen oxides which exceed a specific NO_x STD (40 CFR 60.332(a)(1)). Pursuant to 40 CFR 60.330 and Rule 62-296.800, Florida Administrative Code (F.A.C.), the NO_x STD for the subject construction permit was established by the best available control technology (BACT) determination to be an allowable NO_x emission limit of 42 ppm at 15 percent oxygen and on a dry basis. This limit is an allowable/observed value and no mention is made of an ISO NO_x emission limit. Also, observed values of NO_x emissions are to be corrected to ISO conditions to meet the requirements of 40 CFR 60.335(c)(2) using the equation in 40 CFR 60.335(c)(1). The ambient temperature and specific humidity variables in this equation could create potential situations which would restrict the operations of the facility beyond the intent of the permit. Your statement in this request that we have not permitted you to utilize the GE Mark IV Algorithm, which is an integral part of and was specifically designed for the GE Frame 7EA combustion turbine to correct the water/fuel ratio for different ambient temperatures/specific humidity, seems to be incorrect. The subject construction permit does not specify nor is the intent of the permit to specify design criteria, but to only specify performance criteria.

B. Fuel Bound Nitrogen (FBN)

Your request for an FBN allowance of 6 ppm is denied.

Pursuant to 40 CFR.332(a)(1) and (2), and Rule 62-296.800, F.A.C., no owner or operator subject to the provisions of Subpart GG shall cause to be discharged NO_x emissions which exceed a STD. This STD

is equal to the allowable NO_x emissions (percent by volume at 15 percent oxygen on a dry basis) and is the sum of two values, one of which is the NO_x emission allowance for fuel bound nitrogen (F) as defined in 40 CFR 60.332(a)(3). The applicant was given a NO_x emission allowance (F=0) pursuant to 40 CFR 60.332(a)(3) for fuels having a nitrogen content (N) equal to or less than 0.015 percent by weight. To give the applicant an additional NO_x emission allowance, 6 ppm as requested, would be a relaxation of a standard established by a BACT determination, which is a federally enforceable standard. To relax a federally enforceable standard or to increase allowable NO_x emissions would require a modification (40 CFR 60.5, 40 CFR 60.14, Rule 62-210.200(39), F.A.C.). In reference to excess emissions resulting from the nitrogen content of the fuel, pursuant to 40 CFR 60.334(c)(1), the nitrogen content of the fuel is for reporting purposes and is not to be used exclusively for compliance/enforcement purposes.

C. Manufacturers Heat Input vs. Ambient Temperature Curves

- Specific Condition No. 4(a) is amended as follows;

From

The permitted materials and utilization rates for the combined cycle gas turbines shall not exceed: (a) The maximum heat input of 1,144 MMBtu/hr/unit at 20°F.

To

The permitted materials and utilization rates for the combined cycle gas turbines shall not exceed: (a) The maximum heat input of 1,144 MMBtu/hr/unit at 20°F. **The heat input will be corrected in accordance with Specific Condition No. 14 and the heat input vs. ambient temperature curve in Figure 1L.**

- Specific Condition No. 14 is amended as follows;

From

Test results will be the average of 3 valid runs. The Central District office will be notified at least 15 days in writing in advance of the compliance test(s). The sources shall operate between 90% and 100% of permitted capacity during the compliance test(s) as adjusted for ambient temperature. Compliance test results shall be submitted to the Central District office no later than 45 days after completion.

To

Test results will be the average of 3 valid runs. The **Department's** Central District office will be notified at least 15 days in writing in advance of the compliance test(s). The sources shall operate between 90% and 100% of permitted capacity during the compliance test(s) as adjusted for ambient temperature using **Figure 1L. In the event that a combustion turbine does not achieve 95% of the designed heat input**

capacity as adjusted for average ambient temperature during a compliance test, the entire heat input vs. ambient temperature curve will be adjusted downward by the increment equal to the difference between the design heat input value and 105% of the value reached during the test. The curve will be automatically adjusted upward upon demonstration of compliance at a higher heat input capacity during a subsequent compliance test. Until compliance is demonstrated at a higher heat input capacity during a subsequent compliance test, the combustion turbine shall not be operated at a heat input capacity greater than the adjusted curve values. In no case shall the maximum permitted heat input capacity of 1144 MMBtu/hr/unit at 20°F (peak load) be exceeded. Compliance test results shall be submitted to the Department's Central District office no later than 45 days after compliance.

D. Attachments to be Incorporated;

- FPC letter dated June 23, 1994.
- FDEP letter lated July 12, 1994.
- FPC letter dated July 26, 1994.
- Figure 1L, Heat Input vs. Ambient Temperature Curve.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes (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 at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the applicant of the amendment request/application and the parties listed below must be filed within 14 days of receipt of this amendment. Petitions filed by other persons must be filed within 14 days of the amendment issuance or within 14 days of their receipt of this amendment, whichever occurs first. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

The Petition shall contain the following information:

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

to the Department's action or proposed action.

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

This letter amendment must be attached to the construction permit, No. AC 64-191015, and the federal permit, No. PSD-FL-167(A), and shall become part of the permit.

Sincerely,

Howard L. Rhodes
Director
Division of Air Resources Management

HLR/CSL

Attachment
cc: A. Zahm, CD
J. Harper, EPA
J. Bunyak, NPS

CERTIFICATE OF SERVICE

The undersigned duly designated duputy clerk hereby certifies that this AMENDMENT and all copies were mailed by certified mail before the close of business on 9/23/94 to the listed persons.

FILING AND ACKNOWLEDGMENT FILED,
on this date, pursuant to 120.52(11), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Charlotte J Hayes 9/23/94
Clerk Date

PS Form **3800,** March 1993

Z 751 859 981

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

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

Consult postmaster for fee.

3. Article Addressed to:
Mr. Kent Hedrick
Supervisor, Air Programs
Florida Power Corporation
P. O. Box 14042
St. Petersburg, FL 33733

4a. Article Number
Z 751 859 981

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

7. Date of Delivery
SEP 28 1994

5. Signature (Addressee)

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

6. Signature (Agent)

PS Form **3811,** December 1991 ★U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service

DEP ROUTING AND TRANSMITTAL SLIP

TO: (NAME, OFFICE, LOCATION)

1. Bruce Mitchell — Review
2. Clair Fancy — Review
3. Howard Hoskins — Signature
4.
5.

PLEASE PREPARE REPLY FOR:

____ SECRETARY'S SIGNATURE
____ DIV/DIST DIR SIGNATURE
____ MY SIGNATURE
____ YOUR SIGNATURE
____ DUE DATE _____

ACTION/DISPOSITION

____ DISCUSS WITH ME
____ COMMENTS/ADVISE
____ REVIEW AND RETURN
____ SET UP MEETING
____ FOR YOUR INFORMATION
____ HANDLE APPROPRIATELY
____ INITIAL AND FORWARD
____ SHARE WITH STAFF
____ FOR YOUR FILES

COMMENTS:

Charles,
Make the edits and return to me.
Thanks,
Bruce

Howard:
This has dragged out (2 amendments) for a long period of time as a result of meeting with the company on 8/16 and several conversations subsequently. also, clair was making decisions as a result. It needs to go out ASAP.
thanks - John Brown

FROM: Charles Logan DATE: 9/19/94 PHONE: _____

DEP 15-026 (12/93)

Attachment

Florida Power Corporation

GE Frame 7EA Combustion Turbines

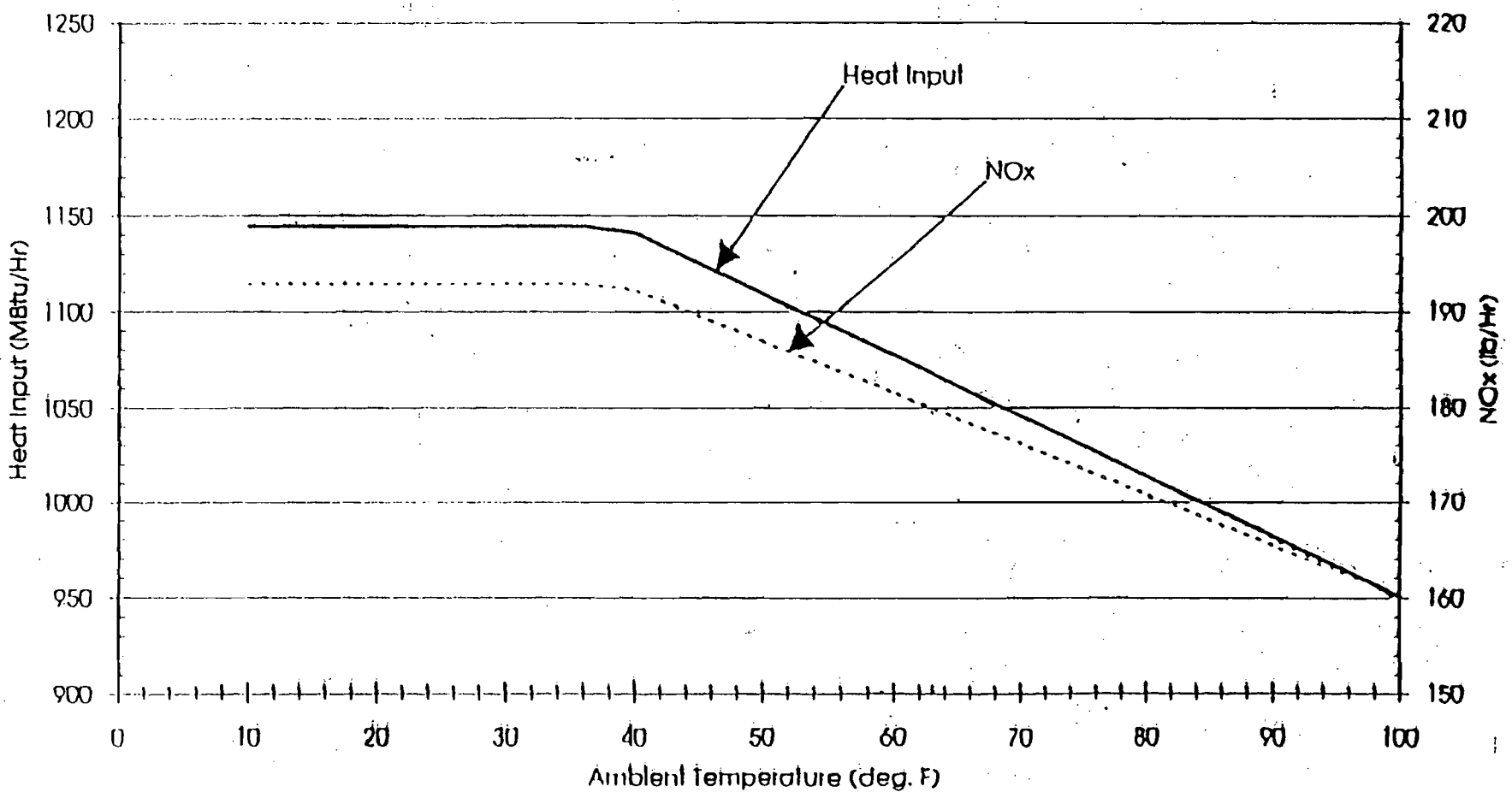


Figure 1L
Florida Power Corporation
DeBary Facility
Heat Input vs. Ambient Temperature Curve

Florida Power
CORPORATION

0005272

July 26, 1994

Mr. Clair Fancy, Chief
Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Fancy:

Re: Construction Permit Amendment Processing Fee

In response to your letter dated July 12, 1994, Florida Power Corporation (FPC) submits the enclosed additional fee payment of $250.00 for the processing of FPC's submittal for construction permit amendments to permit number AC64-191015 (DeBary) and permit number AC49-203114 (Intercession City).

Please contact me at (813) 866-4344 if you have any questions.

Sincerely,

J. Michael Kennedy

J. Michael Kennedy
Senior Environmental Specialist

Enclosure

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

July 12, 1994

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. W. Jeffrey Pardue, C.E.P., Manager
Environmental Programs - Energy Supply
Florida Power Corporation
P. O. Box 14042
St. Petersburg, FL 33733

Dear Mr. Pardue:

RE: Florida Power Corporation
Construction Permit Amendments
AC64-191015, PSD-FL-167, DeBary
AC49-203114, PSD-FL-180, Intercession City

The Bureau of Air Regulation received your June 23, 1994, letter concerning the above referenced request, along with a $250 processing fee. Since this request will necessitate two separate department actions, we will need an additional $250 to begin processing the amendments. If you have any questions, please call Patty Adams at (904)488-1344.

Sincerely,

for Patty Adams

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

CHF/pa

cc: Charles Logan

Florida Power
CORPORATION

0004895

June 23, 1994

Mr. John C. Brown, P.E.
Administrator of Permitting
Division of Air Resource Management
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Brown:

Re: Request to Amend DeBary Construction Permit AC 64-191015 PSD-FL-167
Request to Amend Intercession City Construction Permit AC 49-203114 PSD-FL-180

Florida Power Corporation (FPC) requests that the permits referenced above be amended to incorporate an ISO corrected NO_x limit of 57 ppm @ 15% 0_2, a fuel bound nitrogen allowance and clarifying language on the application of a heat input vs. ambient temperature curve. Included in this submission are detailed discussions supporting each of these requested changes. The request to amend these permits is consistent with FPC's understanding of the strategy mutually agreed upon by FDEP and FPC at the meeting held in Tallahassee on February 3, 1994 to resolve outstanding permitting issues at these facilities.

Attachment #1 contains the rationale supporting the addition of a new ISO-corrected NO_x limit of 57 ppm @ 15% 0_2 for these facilities. The current limits of 42 ppm @ 15% O_2 and 182 lb./hour @ 59°F would remain unchanged. This limit would result in no increase in emissions from these sources, therefore, this change would not require a modification of the permits. This change would allow the use of the GE NO_x algorithm to continuously adjust water injection based on ambient temperature and humidity. In addition to NO_x control, this algorithm eliminates the current procedure requiring over-injection of water, thus conserving one of Florida's most valuable resources.

Attachment #2 contains the rationale supporting the use of a fuel bound nitrogen (FBN) allowance in determining allowable NO_x emissions. This allowance was requested in the PSD application for these facilities and FPC is requesting the BACT determination be corrected to allow the use of this FBN allowance. As detailed in Attachment #2, FPC is proposing to use the FBN allowance in the determination of allowable excess emissions as provided in 40 CFR 60.334(c)(1).

Attachment #3 explains FPC's proposal for the use of a heat input vs. ambient temperature curve during compliance testing. FPC is requesting clarifying language be added to the construction permits which incorporates current/proposed FDEP guidance on this issue.

It is FPC's desire to meet with you and your staff at your office in the near future to discuss this submittal and respond to any questions resulting from FDEP's initial review. We will be contacting you during the next several days in order to schedule this meeting.

A check in the amount of $250.00 for the processing of this permit amendment request is attached. Please contact Mike Kennedy at (813)866-4344 or Kent Hedrick at (813)866-4281 if you have any questions or comments.

Sincerely,

W. Jeffrey Pardue, C.E.P., Manager
Environmental Programs - Energy Supply

KDH
Attachments
cc: Mr. Mike Harley, FDEP Tallahassee
Mr. Alexander Alexander, FDEP Central District

Attachment 1

NOx ISO-Corrected Limit

Discussion of Separate ISO-Based NOx Limit

New DeBary and Intercession City Combustion Turbines

1.0 Introduction

Florida Power Corporation (FPC) is proposing to add a separate ISO-based NOx concentration limit of 57 ppm for the new combustion turbines at its DeBary (P7 - P10) and Intercession City (P7 - P10) facilities. The current mass emission limits in lbs./hour and tons/year will not change. In addition, the proposed ISO-based limit is equivalent to the limit of 42 ppm at 15% O_2 given in the BACT determination for both facilities.

2.0 Discussion

The construction permit applications for the new GE Frame 7EA combustion turbines at both the DeBary and Intercession City facilities contained a proposed NOx concentration limit of 42 ppm corrected to 15% O_2. This limitation was adopted as part of the BACT determination for both facilities and incorporated into the construction permits. The BACT determination supersedes the emission limitations established in the federal New Source Performance Standards (NSPS), which are codified at 40 CFR Part 60, Subpart GG.

It was subsequently determined that the BACT limit established for the new GE Frame 7EA combustion turbines is to be corrected to ISO conditions, as reflected in the compliance testing portions of the permits. The ISO correction is contained in the NSPS for combustion turbines. Its original purpose was to ensure that each new source could meet the NSPS limit as if it were tested at ISO conditions. Since the BACT determinations are based on manufacturer's data which is corrected to 15% O_2 only, and the determinations have resulted in limits which are well below the NSPS, FPC believes the use of the ISO correction is not necessary or appropriate. However, FPC is aware that an ISO based NOx limit will be required by FDEP for these turbines and establishment of this requirement is a prerequisite in obtaining FDEP approval to use the GE Mark IV ambient temperature/humidity correction algorithm. This strategy was adopted by FPC, FDEP and USEPA as a mutually agreeable solution to this issue during previous meetings attended by these parties.

Under the warm, humid conditions prevalent in central Florida, this additional correction results in a NOx limit which is several parts per million lower than 42 ppm corrected to 15% O_2, causing the injection of additional water in order to control NOx emissions to a lower level. In addition, the use of the GE Mark IV ambient temperature/humidity correction algorithm, which is an integral part of the NOx control system, was not permitted. This system uses the moisture present in the ambient air to contribute to the water injection. As a result of the inability to use the algorithm as it is designed, additional over-injection of water is occurring at both DeBary and Intercession City.

The water/fuel ratios which result from the two factors described above are as high as 1.3/1 on equipment which is designed for ratios of 0.9/1 to 1.0/1. This additional water use is unfortunate from a water conservation standpoint and causes significant unnecessary wear on the combustion turbines. The additional maintenance and major outage costs that FPC will incur are conservatively estimated to be approximately $4.7 million per unit over the lifetime of the units. This estimate does not include an additional $5 million per unit plus replacement energy costs which would occur as the result of a catastrophic failure. The replacement energy costs would be significant since the failure would occur during a peak demand period. FPC is already observing cracks in the combustors at the DeBary facility, which are occurring after less than a year of operation.

The 42 ppm NOx limit corrected to ISO conditions presents a greater problem for the DeBary and Intercession City units than for other GE Frame 7 units in the state of Florida. Other units use natural gas as the primary fuel with No. 2 oil only as a backup in the event gas is not available. The FPC units use only No. 2 oil for fuel. The over-injection of water which occurs continuously in the FPC units occurs infrequently for short periods of time in other units in Florida, in most cases only for compliance testing. Therefore, the excessive wear as a result of additional water injection does not become evident on the other units.

3.0 Proposed ISO-Based NOx Limit

Because of the reasons discussed above, a separate ISO-based NOx concentration limit for the new combustion turbines at DeBary and Intercession City is justified. The units were designed to use the ambient temperature/humidity correction algorithm for a NOx limit of 42 ppm corrected to 15% O_2. FPC proposes an additional NOx limit to be corrected to ISO conditions while retaining the current limits contained in the BACT determination.

In order to develop an ISO-based equivalent to the limit of 42 ppm at 15% O_2, 42 ppm was used as a basis in the ISO correction equation contained in 40 CFR 60 Subpart GG. A worst-case ISO limit was calculated using temperature and humidity conditions which could reasonably be expected to occur.

For representative temperature and humidity conditions, hourly meteorological ISO-Based NOx Limit observations from the National Weather Service office at the Orlando International Airport were obtained. Data for the years 1991 through 1993 were examined for worst-case combinations of temperature and humidity. (Copies of the meteorological data will be forwarded to the DEP upon request, but are not included with this submittal because there are 1096 pages of data.)

The combination of 85 degrees F. and 100% relative humidity is the worst-case set of ambient conditions which can reasonably be expected to occur at the DeBary and Intercession City plant sites. The following shows the derivation of the proposed ISO-based NOx limit using 42 ppm at 15% O_2 and the worst-case meteorology.

$$NOx_{(ISO)} = (NOx_{(obs)})(P_{(ref)}/P_{(obs)})^{0.5}\, e^{19(H(obs) - 0.00633)}\, (288°K/T_{(amb)})^{1.53}$$

Where:

$NOx_{(ISO)}$ = Emissions of NOx at 15% O_2 and ISO standard conditions

$NOx_{(obs)}$ = NOx emissions at 15% O_2 (= 42 ppm)

$(P_{(ref)}/P_{(obs)})$ = Reference combustor inlet pressure/measured combustor inlet pressure (= approximately 1)

$H_{(obs)}$ = Specific humidity (= 0.027 from psychrometric chart)

$T_{(amb)}$ = Ambient temperature (= 85° F. = 302° K.)

$NOx_{(ISO)}$ = 57.7 ppm when solved using the input given above

FPC requests that a separate ISO-based NOx concentration limit of 57 ppm, corrected to 15% O_2 and ISO conditions, be added to the construction permits for the new combustion turbines at DeBary and Intercession City. The current BACT limits for each GE Frame 7EA unit will not be

changed. Compliance will be maintained with these existing limitations. In addition, FPC requests that the ISO-based limit of 57 ppm, corrected to 15% O_2 and ISO conditions, be added to the conditions for the other new units which are contained in the Intercession City construction permit.

Attachment 2

Fuel-Bound Nitrogen Allowance

Discussion of Fuel-Bound Nitrogen Allowance

New DeBary and Intercession City Combustion Turbines

1.0 Introduction

Florida Power Corporation (FPC) is requesting a permit condition allowing for the use of a fuel-bound nitrogen (FBN) allowance for the new combustion turbines at its DeBary and Intercession City peaking facilities. FPC is not requesting a change in the current NO_x emission limits in lb/hr or tons per year. FPC originally requested this provision in the construction permit applications for both facilities. At the time the construction permit was issued, FPC did not have the necessary data to determine the need for this allowance. FPC now has determined, based on test data of FBN concentrations in the fuel being burned at these facilities, this allowance is needed.

2.0 Discussion

The new combustion turbines at these facilities are regulated by the provisions in 40 CFR 60, Subpart GG. This subpart contains language on the use of a fuel-bound nitrogen allowance at 40 CFR 60.332(a) and 60.334(c). FPC referenced this allowance in the construction permit application and indicated it would be needed if the FBN concentration in the fuel being burned at these facilities was higher than the assumed concentration of 0.015 percent.

FPC has collected over 12 months of data on the FBN levels in the fuel at the DeBary facility. These data indicate that the average FBN concentration is 0.023 percent with a range of approximately 0.004 to 0.033 percent. FPC believes this level of FBN is representative of the long term supply of fuel to these facilities.

Discussions were held with the current fuel suppliers for these facilities on the potential to specify an FBN level of 0.015 percent in the fuel contract. Both suppliers indicated that they could not supply a fuel with the current sulfur content and an FBN at or below 0.015 percent. (Please see the attached letters from BP Oil and Coastal Refining and Marketing.) The only supply of fuel that could be guaranteed to this level of FBN would be ultra-low sulfur fuel oil (i.e. 0.05 percent S) and would require special handling in the form of dedicated terminal storage tanks and/or analyzing various terminal bulk supplies of ultra-low sulfur oil to locate acceptable FBN concentrations. FPC has estimated the potential increase in fuel costs above the current cost of fuel for these facilities to be $0.05/gallon. Based on the permitted allowable heat input of the combustion turbines, this represents a potential fuel cost increase of approximately $1,223,000 per year for each combustion turbine. Based on a total of eight combustion turbines, the total potential fuel cost increase is $9,784,000 per year (see attached calculation sheet). FPC's fuel suppliers and contact names are given at the end of this discussion.

3.0 Proposed Fuel-Bound Nitrogen Allowance

Based on the above discussion, the use of an FBN allowance is justified at the DeBary and Intercession City new combustion turbine facilities. FPC requested the FBN allowance in the

original construction permit application pending collection of actual FBN concentrations in the fuel and 40 CFR 60 Subpart GG requires the use of an FBN allowance in determining allowable NOx emissions.

FPC is proposing that language be added to the construction permits for DeBary and Intercession City allowing the use of an FBN allowance up to an FBN concentration of 0.030 percent and not exceeding an allowable NO_x ISO-corrected concentration of 57 ppm. This approach would limit the allowance for NO_x emissions to an additional 6 ppm. Using the estimated cost impact of $9,784,000 per year, the potential cost impact of having to purchase fuel with an FBN concentration of 0.015 percent would be $28,277 per ton NO_x removed (see attached calculation sheet). This is not an economically justified alternative.

The FBN allowance would be used to determine allowable excess emissions from each combustion turbine. Current permit requirements include fuel testing for FBN, which would be used to determine the amount of the FBN allowance and identify periods of excess emissions. During a compliance test, a fuel sample would be taken and analyzed to determine the FBN concentration. The allowance would be determined and used to set the water to fuel ratio during the compliance test for unit operation.

During normal operation, the FBN will be monitored and recorded. Anytime the FBN level exceeds 0.015 percent, the period would be included in the quarterly excess emissions report and noted as an allowable exceedance in accordance with the FBN allowance. These exceedances would be allowable up to a limit of 0.030 percent FBN (i.e. 6 ppm NO_x) and not exceeding an ISO corrected NO_x concentration of 57 ppm.

Using the criteria stated above and the regulatory provisions contained in 40 CFR 60.332 and 40 CFR 60.334, FPC proposes the following language be added as a specific condition in the DeBary and Intercession City construction permits:

> During normal unit operation, periods of excess NO_x emissions caused solely by an increase in fuel-bound nitrogen will be allowed. NO_x emissions shall not exceed 57 ppm @ 15 % O2 corrected to ISO conditions in accordance with the fuel-bound nitrogen allowance provided in the following table.

Fuel Bound Nitrogen (percent by weight)	NO_x Allowance (ppm)
N<=0.015	0
0.015<N<=0.030	200(N)

Fuel Oil Supplier Information

Coastal Refining and Marketing, Inc.

Contact: Mr. J. R. Sauls
Telephone: (305) 551-5239

BP Oil

Contact: Mr. William Smith
Telephone: (404) 641-2501

Calculation Sheet

Data

Maximum permitted CT Heat Input @ 59°F = 1029 mmBtu/Hr

Maximum permitted hours of operation = 3328 Hrs/Year (0.38% capacity factor)

Heat content of No. 2 fuel oil = 140,000 Btu/Gal

Incremental fuel cost increase = $0.05/Gal

Maximum allowable NOx emission rate = 182 lb./hr. @ 59°F

Annual Potential Cost Increase

$$1029\frac{mmBtu}{Hr} \; X \; 3328\frac{Hrs}{Yr} \; X \; \frac{Gal}{140{,}000 \; Btu} \; X \; \frac{\$0.05}{Gal} \approx \$1{,}223{,}000 \; per \; CT$$

$$\frac{\$1{,}223{,}000}{CT} \; X \; 8 \; CTs \approx \$9{,}784{,}000 \; per \; year$$

$$\frac{6ppm}{42ppm} \; X \; 182 \; \frac{lb}{Hr} = 26$$ (Potential NOx emissions controlled by specifying FBN level of 0.015% in fuel contract)

$$26\frac{lb}{Hr} \; X \; 3328\frac{Hr}{Yr} \; X \; \frac{1Ton}{2000lb} = 43 \; \frac{Tons}{Yr} \; X \; 8 \; CTs \approx 346\frac{Tons}{Yr}$$

$$\frac{\$9{,}784{,}000}{YR} \; X \; \frac{YR}{346 \; Tons} \approx \frac{\$28{,}277}{Ton}$$

BP OIL

BP Oil Company
9010 Rockwell Road, Suite 520
Atlanta, Georgia 30350 1199
1-800-544-3210
(404) 641-2500

May 10, 1994

Mr. Dan Putnam
Florida Power Corp.
3201 Thirty-Fourth St., S.
St. Petersburg, FL 33733

RE: **LOW NITROGEN #2 FUEL**

Dear Mr. Putnam:

We have historically been able to produce #2 Fuel Oil with a guaranteed Maximum Nitrogen Content of 150 PPM. We were the only oil company, to my knowledge, able to make this guarantee for two reasons: 1, We processed very sweet crude through our refinery; and, 2. We had the ability to blend to this very tight specification. The costs associated with this blending and separate storage were between four and six cents per gallon.

Recent changes in our refining configuration to allow us to process a wider range of crude oils may have jeopardized our ability to provide low nitrogen at any cost. We are presently testing the refinery output and expect to have a much better indication of our ability by May 20th. Until the 20th, I am unable to commit to our ability to supply on a guaranteed basis at any cost.

Sincerely,

W F Smith /pg

W. F. Smith
Manager, Direct Fuels South

WFS:PG

cc: S. F. Johnston

Coastal
The Energy People

April 20, 1994

FAX NO. 813-866-4936

Mr. T. D. Putnam
Buyer, Fuel Supply
FLORIDA POWER CORPORATION
P. O. Box 14042
St. Petersburg, FL 33733

Dear Mr. Putnam:

Confirming our recent conversation, in order to supply Florida Power Corporation with No. 2 Fuel Oil having a maximum of 150 PPM of fuel bound nitrogen, Coastal would supply low sulfur No. 2 Fuel Oil 0.05% maximum which is usually below 150 PPM but can be up to 200 PPM.

The additional cost of low sulfur No. 2 oil has been from zero to 6 cents per gallon. Also there would be additional cost for transporting the oil from a terminal farther away which would be approximately 2 cents per gallon more.

If you have any questions or require additional information, please do not hesitate to contract me at (305) 551-5239.

Sincerely,

COASTAL REFINING & MARKETING, INC.

J. R. Sauls
Director, Utility Sales

Coastal Refining & Marketing, Inc.
A SUBSIDIARY OF THE COASTAL CORPORATION
P O BOX 029300 - MIAMI FL 33102-9300 • 305 551-5200

Attachment 3

Heat Input vs. Ambient Temperature

Discussion of Heat Input vs. Ambient Temperature

New DeBary and Intercession City Combustion Turbines

1.0 Introduction

Florida Power Corporation (FPC) proposes that the Department of Environmental Protection (DEP) incorporate the final guidance on rate of operation during compliance testing for combustion turbines. FPC submits the attached heat input vs. ambient temperature curves, which are based on manufacturer's data of maximum unit performance, for each facility.

2.0 Discussion

The construction permit for the new combustion turbines at Intercession City contains the manufacturer's design heat input for three ambient temperatures, which provides the relationship of ambient temperature vs. heat input. Specific Condition 14 of the permit requires that compliance testing be performed while the units are operating at between 90 and 100% of heat input capacity as adjusted for ambient temperature.

The construction permit for the new combustion turbines at the DeBary facility was issued at an earlier date than that for Intercession City and does not contain the heat input vs. ambient temperature curve. Therefore, compliance testing must be performed while the units are operating at between 90 and 100% of the maximum permitted heat input, regardless of ambient temperature. Initial compliance testing was performed in July, 1993, and the ambient temperature was too high for the units to achieve the required heat input. Therefore, the units have been limited to less than full capacity since that time. Incorporation of the heat input vs. ambient temperature relationship into both the construction and operation permits for the DeBary combustion turbines is extremely important for the economical operation of the units at any ambient temperature in order to provide the electricity FPC customers need at reasonable cost.

3.0 Heat Input vs. Ambient Temperature Curves

FPC submits the attached heat input vs. ambient temperature curve for application to both the DeBary and Intercession City new combustion turbines. For DeBary, FPC requests that the curve be incorporated into the construction permit. FPC will then request that the Central District amend the operating permit accordingly.

For the new GE Frame 7EA combustion turbines at Intercession City, FPC requests that the DEP remove the current specific ambient temperature and heat input references contained in Specific Condition 4.D. The attached curve would then be incorporated into the construction permit, replacing the specific references.

4.0 Heat Input During Compliance Testing

DEP is in the process of developing guidance on the rate of operation during compliance testing for combustion turbines. FPC requests that the final guidance be incorporated into the construction permits for both the DeBary and Intercession City new combustion turbines. In addition, FPC requests that the following language be incorporated into both permits in order to address the potential situation of one or more of the units being unable to achieve the required Heat Input vs. Ambient Temperature percentage of maximum rated heat input as adjusted for ambient temperature during a compliance test. This suggested language is based on the DEP

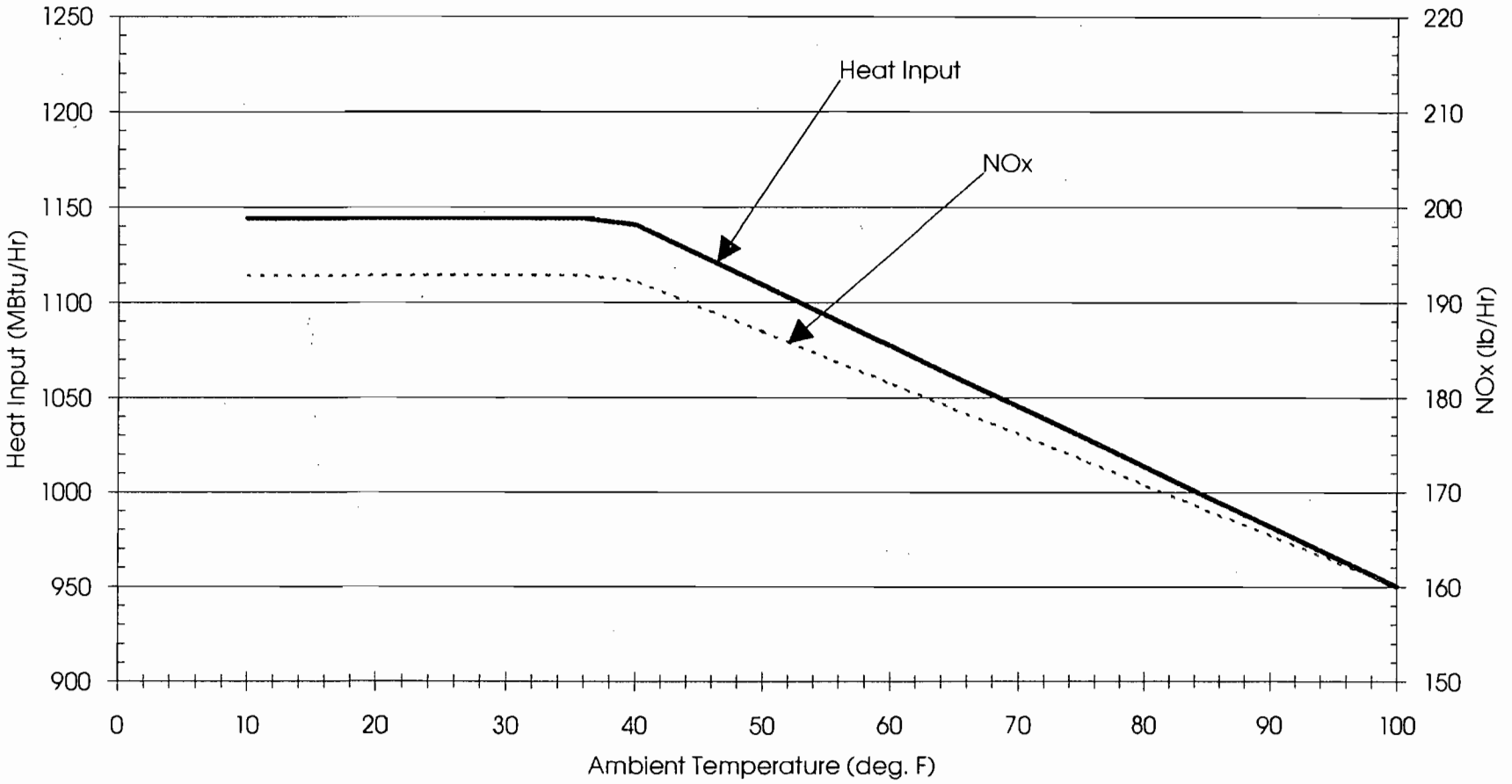
draft guidance dated May 4, 1994, which uses 95% as the required percentage of maximum rated capacity.

> *In the event that a combustion turbine does not achieve 95% of the design heat input capacity as adjusted for average ambient temperature during a compliance test, the entire heat input vs. ambient temperature curve will be adjusted downward by the increment equal to the difference between the design heat input value and 105% of the value reached during the test. The curve will be automatically adjusted upward upon demonstration of compliance at a higher heat input during a subsequent compliance test.*

This language accounts for the possible degradation of the units over a period of time while allowing for the continued use of the ambient temperature vs. heat input relationship unique to combustion turbines.

Florida Power Corporation

GE Frame 7EA Combustion Turbines



Note: Curves based on General Electric's (GE's) expected performance data.

6/10/94

Best Available Copy

Accounts Payable Department B3F
P.O. Box 14042
St. Petersburg, Fl 33733-4042

Florida Power
CORPORATION

0004895 63-115/631

DATE 06/20/94 CHECK NO. 1646777

PAY: $250*DOLLARS AND 00 CENTS $*******250.00

SunBank / Mid-Florida

TO THE ORDER OF

FLA DEPT OF ENVIRONMENTAL
PROTECTION
2600 BLAIR STONE RD
TALLAHASSEE FL 32399-2400

Void after 60 days

Treasurer

Marvin M. Schorr
Consulting Engineer
(518)385-3036 Fax 385-5703

GE Industrial & Power Systems
General Electric Company
1 River Road, Bldg. 2-Rm. 647
Schenectady, New York 12345

February 14, 1994

SUBJECT: Fuel Bound Nitrogen Content Data From Sites With GE Gas Turbines

Mr. Preston Lewis
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

As promised at our February 3, 1994 meeting, I am forwarding three copies of a compilation of data on fuel bound nitrogen (FBN) content in No. 2 distillate oil used at various sites with GE gas turbines. This data is representative of the wide range of FBN found in distillate oil today and, as will be seen from the data, is even wider than the band seen by Florida Power Corporation in tests of its fuel oil. The attached letter also discusses the test methods used to determine FBN content.

If I can be of any further help please feel free to contact me to discuss the data.

Sincerely,

Marvin M. Schorr
Consulting Engineer

bcc: J. Chalfin, 22-237
K. Hedrick, FPC
J. Kovacik, 2-637
R. Pavri, 37-2C
J. Zdeb, 23-221

GE Power Generation

Power Plant Systems Department
General Electric Company
One River Road Schenectady, N.Y. 12345

5-7206

August 23, 1990

cc: EF Reeves - #23-371
A Whitehead - #55-111
P Budka - #55-104E
RA Symonds - #53-322
RM Jones - #22-237
J Chalfin - #22-237
J Torosian - #22-237
M Schorr - #2-647
JE Hopkins - #53-200
RK Anand - #53-301
DL Chase - #53-200
RE Pavri - #36-420
F Jacocks - Va. Pwr.

Mr. M Grumo
Building #23 - Room 221

Re: Fuel Bound Nitrogen Data for OSP

I've promised to share our current FBN data with OSP. While we aren't fuel experts, we have been living with FBN as a NO_x emission problem for some time.

The attached data list is compiled from our work at various sites, often using different test methods. Our conclusions to date are:

1. ASTM D4629 (combustion/chemiluminescence) is the most desirable method. It reports all types of organic nitrogen including the N-O and N-N linkages omitted by Kjeldahl tests. It does not report free (atmospheric) nitrogen since the temperatures are not high enough for a reaction involving unattached N_2. One of the equipment manufacturers (Dohrmann) ran a check of this by processing a sample using nitrogen in lieu of helium as the sample carrier with no change in test results.

2. Data from SGS seem to be outside the range of credible data. Their kerosene tests for Atlantic City Electric were reported as "less than .0075%" (75 ppm) using a method (D4629) which should give results down to 0.3 ppm. Their JCP&L data (4 tests) were initially reported to the nearest 1/100 percent until I called them about it. The scatter in their data both for Iowa and JCP&L is fairly large.

3. If we ignore the SGS data, D4629 data gives higher results than Kjeldahl data. (See Southern Md. and Va. Power)

4. It is absurd to test for our FBN levels using an instrument with a threshold of .19%.

From Virginia Power, I have just learned the details of the barge of distillate intended for the Chesterfield Station and rejected in September, 1989. The lab doing the tests was SGS. Using a Perkin-Elmer 240B instrument, they got .127% FBN. To check this, a test using ASTM D3228 was made, with a report of 0.1% FBN. It is unusual to see D3228 result only to 1/10%. One hundredth or one thousandth of a percent is more common. The test scope says it is for fuel oils from .015% to 2.0% nitrogen.

We are in the process of determining the minimum detection levels for the various Perkin-Elmer instruments. We have data for Dohrmann and will be getting data from Antek on their equipment for the combustion/chemiluminescence (D4629) test.

B. L. Bailey

BL Bailey
Senior Environmental Engineer
Building #22 - Room 237

/m
attachment

082301

FUEL BOUND NITROGEN DATA

General Notes:
1. #2 Distillate except kerosene if *
2. Bracketed data are for tests without any intervening fuel delivery, i.e., same fuel

FBN ppm	SITE	Test Method Chem/Comb D4629	Test Method Other	Date of Sample	Lab
2.4*	Atlantic City		?	5/90	?
<75* (4 samples)	Atlantic City	X		6/90	SGS
10*	Atlantic City		Kjeldahl	6/28/90	Atlantic Anal. Lab
77	Ft. Pierce		E258 Kjeldahl	12/89	Thornton Lab
240	Iowa (pretest)	X		4/24/90	Phoenix
410	Iowa	X		5/30/90	SGS
290 & 360	Iowa	X		6/4/90	SGS
254	Iowa	X		6/6/90	Core
255	Iowa	X		6/7/90	Core
144 (134 on repeat)	JCP&L		351.3	11/29/89	Roy F. Weston
82 & 81	JCP&L		?	5/10/90	Camin Cargo Cont.
110-170-150-130 (4 samples)	JCP&L	X		6/6/90	SGS
111	JCP&L	X		7/9/90	Core Lab
195	Orlando-Titus.	X		6/21/90 PM	Bionomics
198	Orlando-Titus.	X		6/21/90 AM	Bionomics

FBN ppm	SITE	Test Method Chem/Comb D4629	Other	Date of Sample	Lab
300	S Md Elect Coop		D3228	5/2/90	SGS
48	S Md Elect Coop		AOAC 2.057	6/18/90	Gascoyne Labs
115	S Md Elect Coop	X		6/19/90	Core
80	S Md Elect Coop		D3228	8/17/90	Gascoyne Labs
200	Springfield		D3179	10/6/90	Interpoll
213	Springfield		351.1	10/6/90	Interpoll
216	Springfield		351.1	10/6/90	Interpoll
205	Springfield		351.1	10/6/90	Interpoll
1900 (See note 1)	TBG-Cogen		Perkin-Elmer	10/10/89	Atl. Anal. Lab.
120	Va. Pwr./ Chest. #7		D3228	4/6/90	M&P Lab
177	Va. Pwr./ Chest. #7	X		5/27/90	Core

Notes: 1. Level of detection for this Perkin-Elmer instrment is the reported value of 1900 ppm. (.19%)

2. ASTM D3228, E258, EPA 351.1, 351.3 and AOAC 2.057 are all various modified Kjeldahl tests.

B L Bailey

BL Bailey
8/23/90

082002

Florida Power
CORPORATION

January 17, 1994

Mr. A. Alexander, P. E.
District Director
Florida Department of Environmental Protection
Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Dear Mr. Alexander:

Re: DeBary New Peaker Combustion Turbine Facility, Permit # AO64-233544

The above referenced units currently are load restricted as a result of earlier compliance testing which occurred during July, 1993. As you are aware, combustion turbines have variable heat input requirements depending on the ambient temperature. Since compliance testing was conducted in the summer, 90 percent of the maximum allowable heat input of 1144 mmBtu/hr at 20 °F could not be achieved. The air operation permit currently limits the allowable heat input to 110 percent of the actual heat input achieved during compliance testing.

Florida Power Corporation (FPC) is currently working on two approaches to return these units to full load capability. The preferred approach is to have the heat input language contained in the Intercession City permit incorporated into the DeBary permit. This language requires achieving 90 percent of the maximum allowable heat input at the ambient temperature recorded during the compliance testing. Achieving this level of heat input allows for unit operation over the entire ambient temperature range. The second approach would be to conduct a compliance test during cold weather to assure achieving 90 percent of the heat input a 20 °F. A meeting is scheduled for February 3, 1994 which will include a discussion of this issue. The actual approach taken by FPC will depend on the outcome of this meeting. To assure the ability to test during cold weather, FPC will be filing the necessary 15 day notification to perform compliance testing in early February, 1994. This notification will be amended as necessary after the meeting on February 3, 1994.

If you have any questions or comments on either of these approached, please contact me at (813)866-4281.

Sincerely,

Kent D. Hedrick, P. E.
Supervisor, Air Programs

cc: John C. Brown, P. E. - FDEP, Tallahassee
Mike Harley, P. E. - FDEP, Tallahassee

Bretlan

Copy for
Outlaw
Haror
Logan
~~Lewis~~

Copies made

(Give original to Patty for file)

Preston

DEPARTMENT OF ENVIRONMENTAL PROTECTION

ROUTING AND TRANSMITTAL SLIP

TO: (NAME, OFFICE, LOCATION)

1. Preston
2.
3.
4.

(1) Discuss with Doug the Jan 17 letter from Hedrick. See if there is any reason not to change DeBary permit to the same as in in Kissimmee City.
~~(2)~~ Have a cy of both permits at our Feb 3 meeting, please.

(2) Hedrick is sending agenda:
a) Establish NOx em rates for ISO values over a range of amb temp, per curves est. by them.
b) Use ~~[illegible]~~ algorithm? (GG)
c) Discuss 90-100% of tested value (1) above.

FROM: John B

DATE

PHONE

08-18-93

Florida Power
CORPORATION

Certified Mail P 627 945 413

December 7, 1993

Mr. Alexander Alexander, P.E.
Director, Central District
Florida Department of Environmental Protection
3319 Maguire Boulevard, Suite 232
Orlando, FL 32803-3767

Dear Mr. Alexander:

Re: Compliance Test Notification for New Combustion Turbines at Intercession City
DEP Permit Number AC49-203114

As required by 40 CFR 60.8 and Specific Condition 14. of the permit referenced above, Florida Power Corporation (FPC) is providing the Department of Environmental Protection (DEP) notification of the commencement of compliance testing of the new combustion turbines at FPC's Intercession City electric generating station which have not yet been tested. Testing of Units P7 and P9 will begin on January 10, 1994.

FPC will perform the tests in accordance with the test protocol which was agreed upon during the pre-test meeting between the Central District and FPC on October 19, 1993. The visible emissions test requirements, which were revised after this meeting, will be followed consistent with the tests performed on Units P8 and P10 in November 1993.

Please feel free to contact me at (813) 866-4344 if you have any questions.

Sincerely,

J. Michael Kennedy

J. Michael Kennedy
Senior Environmental Specialist

cc: Mr. Charles Collins, DEP Central District
Mr. Garry Kuberski, DEP Central District
Mr. John Brown, DEP Tallahassee ✓

RECEIVED
DEC 13 1993
Division of Air
Resources Management

Florida Power
CORPORATION

Patty

3201 Thirty-Fourth Street South • P. O. Box 14042 • St. Petersburg, Florida 33733

ENVIRONMENTAL SERVICES DEPARTMENT

TELECOPIER NUMBER (813) 866-4926

TO: Preston Lewis

FROM: Kent Hedrick

DATE: 10/7/93.

TELECOPIER NUMBER: [redacted] (904) 922-6979

CONFIRMATION NUMBER: (813) [redacted] 866-5825

NUMBER OF PAGES TO FOLLOW: 5

PLEASE NOTIFY (813) 866-4940 FOR ANY PROBLEMS CONCERNING THE RECEIPT OF THIS FAX.

REMARKS:

Florida Power
CORPORATION

Patty
Copy for all
review CL
0021-
10/12

RECEIVED
OCT 12 1993
Division of Air
Resources Management

October 7, 1993

Mr. Chuck M. Collins
Florida Department of Environmental Protection
Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Dear Mr. Collins:

Re: DeBary Operating Permit AO64-233544

Per your request, enclosed is a summary of the interpretive issues Florida Power Corporation (FPC) has identified with the above referenced permit. FPC is requesting the Central District to consider amending the permit to incorporate necessary language to address these issues.

FPC requests a meeting with Central District to discuss these issues and I will contact you to establish a date for this meeting.

Please call me at (813)866-4281 with any questions or comments. I look forward to meeting with you to reach resolution regarding these issues.

Sincerely,

Kent D. Hedrick

Kent D. Hedrick, P.E.
Supervisor, Air Programs

cc: Preston Lewis, FDEP, Tallahassee/by fax
C. Logan

Department of Environmental Regulation

Routing and Transmittal Slip

To: (Name, Office, Location)

1. ~~Dave~~
2. ~~John B.~~
3. ~~Jim R.~~
4. ~~Mike H.~~

Remarks:

FYI
Please return to me for file -

Preston: Please take a look at this to determine whether CFD is limited by the AC conditions. IF so are the AC conditions defensible? JS

Ask Patty

From	Date
Patty	10-13-93
	Phone

Florida Power Corporation
DeBary Permit AO64-233544
Interpretive Issues

Specific Condition:

1) How is the heat input limitation of 944 mmBtu/Hr at base load and 87 °F applied to actual turbine operation? Specifically, what is the implication of the temperature reference? Can the turbines be operated at other heat inputs based on the ambient temperature as indicated by the curve of ambient temperature versus heat input that was part of the application for the permit to operate?

   Florida Power Corporation (FPC) requests this condition be changed to reflect a maximum permitted capacity of 1144 mmBtu/Hr at 20 °F (based on FDEP approved PSD application) and contain language addressing heat input limitations based on compliance tests as provided in a guidance memo from Howard L. Rhodes, dated August 30, 1993 (copy attached). In addition, the heat input vs. ambient temperature curve supplied by FPC in the application for a permit to operate needs to be made a part of the operating permit.

4) FPC requests clarification from FDEP Central District that the hours of operation limitation contained in this condition applies to <u>any</u> load, not just peak load. FPC believes this interpretation to be correct since the capacity factor of 38.7% stated in this condition is equivalent to 3390 hour per year.

5) FPC requests that this condition be reworded to require agency approval for changes in equipment and/or method of operation which results in <u>increased</u> pollutant emissions above permitted allowable limits.

6) FPC requests FDEP Central District to identify the specific operating parameters that were established during compliance testing that are a part of this operating permit. FPC cannot assure compliance with this condition without the knowledge of these specific operating parameters.

7) FPC requests this condition be changed to allow this notification be done at the time FPC makes the 15 day notification for formal compliance testing that is required in Specific Condition 9. In addition, this condition should be combined with Specific Condition 14 for clarification. FPC believes these two conditions are a restatement of the same requirement.

   FPC also requests clarification on an apparent conflict with Specific Condition 12. This condition states that the compliance year is October 1 to September 30 while Specific Condition 12 requires compliance testing be conducted 60 days prior to

July 15 of each year. For clarity and notification purposes, FPC requests the compliance year be defined as August 1 to July 31. This time frame corresponds with the time requirement for compliance testing.

8) FPC cannot reproduce the tons/yr. values supplied in this table. FPC requests the method of calculation for these values to allow review and concurrence with the values.

The reference to 15% 0_2 should be changed to apply only to pollutant concentrations (i.e. 42 ppm NOx) and not mass rate (i.e. lb/hr) emissions. If this is not the case, FPC requests guidance on the method to correct mass rate emissions to 15% 0_2.

Footnote (a) needs to be changed to state the sulfur content shall not exceed 0.30% based upon a weighted 12 month rolling average as stated in Specific Condition 2, not an annual average.

10) This condition should be reworded according to the August 30, 1993 memo from Howard Rhodes providing Agency guidance on proper language addressing heat input limitations based on compliance testing.

The language in the second paragraph should be amended to state that the particulate test requirement is optional as per Specific Condition 14.

13) The requirement to perform VE tests needs to be amended to provide the requirements for this test if it is used in lieu of a particulate test. In addition, FPC is unaware of any regulatory requirement to perform a VE during each particulate run. Typically, only one VE is required during particulate testing. FPC request this condition be changed to require one VE during each particulate test or provide the regulatory cite that requires a VE to be performed during each particulate test run.

For clarification, the method of determination for fuel heat content (Btu/lb) contained in the second table should be changed to state ASTM D-240, which is the actual test method used.

The second table should also be changed to add CO_2 in addition to 0_2 as parameters to be determined by Method 3A. Method 20 allows the use of either 0_2 or CO_2 in determining emission rate calculations.

14) This condition should be combined with Specific Condition 7 for clarification.

15) The continuous monitoring system required by this condition is the GE Mark IV Control System. This system is comprised of may component parts and, therefore, does not have a single unique serial number or model number. FPC

requests guidance on how to properly identify this system to FDEP Central District in light of this fact.

17) This condition needs to be changed to disallow the use of the GE NO_x ISO correction algorithm contained in the GE Mark IV Control System until approval from the EPA Administrator is obtained. FPC will be unable to operate the combustion turbines without the GE Mark IV Control System. FPC does not believe FDEP Central District's intent is to prevent the operation of the combustion turbines, therefore, this change is needed.

18) This condition should be changed to state higher heating value of the fuel is required as well as lower to be consistent with the requirements of the second table in Specific Condition 13.

19) These units are not required to have a continuous opacity monitoring strip chart, therefore, this requirement should be deleted. A requirement to submit FDEP approved VE forms should be added.

20) FPC disagrees with the statement that compliance is based upon daily averages. As stated in Specific Condition 2, the weighted 12 month rolling average and maximum fuel sulfur content is the basis of determining compliance. It is also unclear what daily averages are being referenced. Daily records of lb/hr and lb/mmBtu of SO_2 will be impossible to record since fuel analysis is not done on a daily basis (see Specific Condition 2). FPC can provide these values on a monthly basis, which can be submitted quarterly to the Department.

Memorandum

Florida Department of
Environmental Protection

TO: District Air Program Administrators
Local Air Program Administrators
Bureau of Air Regulation Engineers

FROM: Howard L. Rhodes, Director
Division of Air Resources Management

DATE: August 30, 1993

SUBJ: Guidance on Rate of Operation During Compliance Testing

Testing of emissions shall be conducted with the source operating at capacity. Capacity is defined as 90-100% of rated capacity. If it is impracticable to test at capacity, then sources may be tested at less than capacity; in this case subsequent source operation is limited to 110% of the test load until a new test is conducted. Once the unit is so limited, then operation at higher capacities is allowed for no more than fifteen days for purposes of additional compliance testing to regain the rated capacity in the permit, with prior notification to the Department.

If a source tests at less than capacity, the source should be notified of the limited capacity, however, the permit should not be changed to reflect the reduced loading. The above paragraph should be used as a condition in all construction and operating permits where capacity is a permit limitation.

This guidance will be incorporated into Rule 17-297 at the next update.

HLR/CHF/kt

8-31-93

OP signed this a.m.; therefore, no need to extend Exp. Date. [initials]

File w/ appl. [initials]

Florida Power
CORPORATION

LEGAL DEPARTMENT
POST OFFICE BOX 14042
ST. PETERSBURG, FL 33733
Telecopier: (813) 866-4931

TELECOPY TRANSMITTAL SHEET

DATE: August 31, 1993 **TIME:**

TO: Mr. John C. Brown

TELECOPIER NO.: (904) 922-6979

ORGANIZATION, DEPARTMENT, AND/OR LOCATION: Florida Department of Environmental Protection

FROM: GERALD A. WILLIAMS

TELEPHONE NO.: (813) 866-5186

Re: Extension Request of Construction Permit AC 64-191015

MESSAGE: Although FPC records show a confirmation of a fax transmittal of our letter to you dated August 30, 1993 being received on August 30, 1993 at 16:07, Pat Manning has requested a re-transmittal. Attached is a copy of the letter sent to you on August 30, 1993, together with a copy of the fax confirmation.

NUMBER OF PAGES TRANSMITTED *INCLUDING* THIS SHEET: 3

If all pages are not legibly received, please call:

KATE ALLWURDEN at (813) 866-5185
Telecopier Operator

5/2/91

Florida Power
CORPORATION

August 30, 1993

Mr. John C. Brown, P.E.
Administrator
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: Extension Request of Construction Permit AC 64-191015
DeBary New Combustion Turbines Peaking Facility

Dear Mr. Brown:

As you are aware, the most recent extension of the construction permit for the above-referenced facility expires on August 30, 1993. FPC has previously submitted a Certificate of Completion of Construction, the final compliance test report for the facility and any other information requested by DEP in support of FPC's application for an operating permit. Additionally, FPC has been informed orally by the Department that the operating permit for the facility will be issued shortly, but has been delayed briefly for proofreading and finalization of the text. It is apparent that the operating permit will not be issued before the expiration of the current construction permit extension.

FPC believes that it has, in accordance with FAC 17-4.080 (3), demonstrated "reasonable assurances" that an extension of the construction permit will comply with the standards and conditions required by applicable regulation. Accordingly, FPC requests such further extension of the construction permit as may be needed to afford DEP sufficient time to conclude processing of the operating permit for this facility.

We appreciate DEP's cooperation in this regard. If you have any questions, please contact Mr. Kent Hedrick at (813) 866-4281.

Sincerely

Patricia Bligand, Director, for/
W. Jeffrey Pardue, C.E.P.
Manager, Environmental Programs

WJP/kma
cc: A. Alexander

Transmit Confirmation Report

No.	:	005
Receiver	:	7-/9049226979
Transmitter	:	FLA POWER LEGAL DEPT
Date	:	Aug 30'93 16:07
Time	:	01'20
Mode	:	Norm
Pages	:	02
Result	:	OK

Florida Department of
Environmental Protection

Memorandum

TO: Howard L. Rhodes

FROM: Clair Fancy

DATE: August 30, 1993

SUBJ: Approval of an Amendment to Construction Permit
AC 64-191015 (PSD-FL-167)
Florida Power Corporation: DeBary Facility
Volusia County

Attached for your approval and signature is an amendment to construction permits prepared by the Bureau of Air Regulation for the above referenced company. The purpose of the amendment is to reflect the proper emission limitations and rates for PM/PM_{10} and sulfuric acid mist in Table 1 and the BACT (i.e., correction factor: 20°F to 59°F). The changes are consistent with the application package associated with the Construction Permit; and, the permittee has demonstrated compliance with the permitted conditions, including the proposed changes. The facility is located in Volusia County, which is an attainment area for all pollutants.

I recommend your approval and signature.

HLR/BM/rbm

Florida Department of
Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

August 30, 1993

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. Kent D. Hedrick, P.E.
Supervisor, Air Programs
Florida Power Corporation
Post Office Box 14042
St. Petersburg, Florida 33733

Dear Mr. Hedrick:

Re: Amendment to Construction Permit: AC 64-191015 (PSD-FL-167)
Florida Power Corporation: DeBary Facility
Volusia County

Based on a review of the application package for an Operation Permit received by the Central District, the Department has determined that a Construction Permit amendment is necessary to reflect the proper emission limitations and rates for PM/PM_{10} and sulfuric acid mist in Table 1 and the BACT (i.e., correction factor: 20°F to 59°F). The changes are consistent with the application package associated with the Construction Permit. Therefore, the following changes will be made:

A. AC 64-191015: Specific Condition No. 1

FROM:

TABLE 1
ALLOWABLE EMISSION LIMITS
Simple Cycle Combustion Turbine

Pollutant	Standard Oil Firing	Each Unit lb/hr(a)	Total 6 Units T/yr	Basis
PM/PM_{10}	0.025 lb/MMBtu	15	153(b)	BACT
Sulfuric Acid Mist	No. 2 fuel oil with 0.3% avg. and 0.5% max. sulfur	76	773(b)	BACT

TO:

TABLE 1
ALLOWABLE EMISSION LIMITS
Simple Cycle Combustion Turbine

Pollutant	Standard Oil Firing	Each Unit lb/hr[a]	Total 6 Units T/yr	Basis
PM/PM_{10}	**0.015** lb/MMBtu	15	153[b]	BACT
Sulfuric Acid Mist	No. 2 fuel oil with 0.3% avg. and 0.5% max. sulfur	**69**	**703**[b]	BACT

B. AC 64-191015: BACT Determination by DER

FROM:

Pollutant	Emission Limit	Method of Control
H_2SO_4	76 lbs/hr/unit	Avg. 0.30% and max. 0.5% sulfur content, by weight, No. 2 fuel oil

TO:

Pollutant	Emission Limit	Method of Control
H_2SO_4	**69** lbs/hr/unit	Avg. 0.30% and max. 0.5% sulfur content, by weight, No. 2 fuel oil

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes (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 at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permittee of this amendment and the parties listed below must be filed within 14 days of receipt of this amendment. Petitions

filed by other persons must be filed within 14 days of this amendment issuance or within 14 days of receipt of this amendment, whichever first occurs. Petitioner shall mail a copy of the petition to the permittee at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

The Petition shall contain the following information:

(a) The name, address, and telephone number of each petitioner, the permittee's name and address, the Department Permit Amendment File Number(s) and the county in which the project is located;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by Petitioner, if any;

(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and,

(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

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

This letter amendment must be attached to the construction permit, No. AC 64-191015 (PSD-FL-167), and shall become a part of the permit.

Sincerely,

Howard L. Rhodes
Director
Division of Air Resources
Management

HLR/RBM/rbm

cc: C. Collins, CD
J. Harper, EPA
J. Bunyak, NPS

Florida Department of
Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

FAX TRANSMITTAL SHEET

TO: Kent Hedrick

DATE: 8/30/93 PHONE: (813) 480-6555

TOTAL NUMBER OF PAGES, INCLUDING COVER PAGE: 5

FROM: Charles Logan

DIVISION OF AIR RESOURCES MANAGEMENT

COMMENTS: Let me know if you can't read this fax. I have sent a copy to CFO office of DEP. If we can assist you on this call

PHONE: (904) 488-1344 FAX NUMBER: 904/922-6979

If there are any problems with this fax transmittal, please call the above phone number.

P 230 524 387

Receipt for Certified Mail

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Do not use for International Mail
(See Reverse)

Sent to: Mr. Kent D. Hedrick, P.E.	
Street and No.: P. O. Box 14042	
P.O., State and ZIP Code: St. Petersburg, FL 33733	
Postage	$
Certified Fee	
Special Delivery Fee	
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Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date: Mailed: 8/31/93 Permit No: AC 64-191015 PSD-FL-167	

PS Form **3800**, June 1991

Is your RETURN ADDRESS completed on the reverse side?

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

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

Consult postmaster for fee.

3. Article Addressed to:
Mr. Kent D. Hedrick, P.E.
Florida Power Corporation
Post Office Box 14042
St. Petersburg, Florida 33733

4a. Article Number: P 230 524 387

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

7. Date of Delivery: SEP 2 - 1993

5. Signature (Addressee)

6. Signature (Agent)

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

Thank you for using Return Receipt Service.

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Florida Department of
Environmental Protection

Memorandum

To : Howard Rhodes

From : Clair Fancy

Date : August 11, 1993

Subject: Approval of Construction Permit Amendment
AC 64-191015 (PSD-FL-167)
DeBary Facility - Florida Power Corporation

Attached for your approval and signature is an amendment to a construction permit prepared by the Bureau of Air Regulation for Florida Power Corporation-DeBary Facility. The purpose of this amendment is to specify No.2 Fuel Oil, rather than a numerical value, as the allowable emission limits for Fluorides, Mercury, Lead, Inorganic Arsenic and Beryllium. Because of the inherent nature of the fuel fired, these constituents in the fuel oil will be emitted after firing. Consequently, specifying the type of fuel oil (i.e., No.2) is sufficient to control the emissions of the various constituents. As is the case, specifying No.2 Fuel Oil was recognized by the U.S. EPA. to be BACT for Mercury, Arsenic and Beryllium.

This amendment is recommended for your approval and signature.

CF/CSL

Florida Department of
Environmental Protection

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

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

August 11, 1993

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Kent D. Hedrick, P.E.
Supervisor, Air Programs
Florida Power Corporation
Post Office Box 14042
St. Petersburg, FL. 33733

Dear Mr. Hedrick:

RE: Amendment to Construction Permit
AC 64-191015 [PSD-FL-167]
DeBary Facility

The Department has determined that the above permit should be amended to specify No.2 Fuel Oil, rather than a numerical value, as the allowable emission limits for Fluorides, Mercury, Lead, Inorganic Arsenic and Beryllium. Because of the inherent nature of the fuel fired, these constituents in the fuel oil will be emitted after firing. Consequently, specifying the type of fuel oil (i.e., No.2) is sufficient to control the emissions of the various constituents. Specifying No.2 Fuel Oil is recognized to be BACT for Mercury, Arsenic and Beryllium. Therefore, the following will be changed and/or added:

A. Specific Condition No.1

From:

Table 1
Allowable Emission Limits
Simple Cycle Combustion Turbine

Pollutants	Standard Oil Firing	Each Unit lb/hr[a]	Total 6 Units T/yr	Basis
Fluorides(FR)	-	1.67×10^{-5}	0.34	Application
Mercury(Hg)	3.0×10^{-6} lbs/MMBTU	1.54×10^{-6}	0.031[b]	Application
Lead(Pb)	2.8×10^{-5} lbs/MMBTU	4.6×10^{-6}	0.093[b]	Application
Inorganic Arsenic	-	2.1×10^{-6}	0.4[b]	BACT
Beryllium(Be)	2.5×10^{-3} lbs/MMBTU	1.3×10^{-6}	0.026[b]	BACT

To: **NEW**

Table 1-A
Emission Control
Simple Cycle Combustion Turbine

Pollutant	**Method of Control**	Basis
Fluorides	**No.2 Fuel Oil(a)**	**(b)**
Mercury(Hg)	**No.2 Fuel Oil(a)**	**(b)**
Lead(Pb)	**No.2 Fuel Oil(a)**	**(b)**
Inorganic Arsenic	**No.2 Fuel Oil(a)**	BACT
Beryllium(Be)	**No.2 Fuel Oil(a)**	BACT

New: (a) The No.2 Fuel Oil's sulfur content, by weight, shall not exceed 0.3% (annual average) and 0.5% (maximum).

(b) Since this pollutant is an inherent constituent in distillate fuel oil, it will be regulated by specifying that only No.2 Fuel Oil be fired at this facility.

B. Attachment to be Incorporated:

o Ms. Jewell Harper's letter received November 21, 1991.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, 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 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the applicant of the amendment request/ application and the parties listed below must be filed within 14 days of receipt of this amendment. Petitions filed by other persons must be filed within 14 days of the

amendment issuance or within 14 days of their receipt of this amendment, whichever occurs first. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information:

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

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this amendment. Persons whose substantial interests will be affected by any decision of the Department with regard to the request/application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this amendment

in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to (request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

This letter amendment must be attached to Construction Permit, No. AC 64-191015 (PSD-FL-167), and shall become part of the permit.

Sincerely,

Howard L. Rhodes
Director
Division of Air Resources
Management

HLR/CSL

Attachment

cc: A. Zahm, CD
J. Harper, EPA
J. Bunyak, NPS

P 230 524 384

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to Mr. Kent D. Hedrick, P.E.	
Street and No P. O. Box 14042	
P.O., State and ZIP Code St. Petersburg, Florida 3373	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date Mailed: 8/12/93 Permit No.: AC64-191015 (PSD-FL-167)	

PS Form 3800, June 1991

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- 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.

RECEIVED
AUG 17 1993
Division of Air Resources Management

3. Article Addressed to:
Mr. Kent D. Hedrick, P.E.
Supervisor, Air Programs
Florida Power Corporation
Post Office Box 14042
St. Petersburg, Florida 33733

4a. Article Number
P 230 524 384

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

7. Date of Delivery
AUG 16 1993

5. Signature (Addressee)

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

6. Signature (Agent)

PS Form 3811, December 1991 ☆U.S. GPO: 1992—323-402 DOMESTIC RETURN RECEIPT

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

Department of Environmental Regulation

Routing and Transmittal Slip

To: (Name, Office, Location)

1. Clair Fancy
2. Air
3. Patty
4. for File

Remarks:

RECEIVED
AUG 03 1993
Division of Air
Resources Management

From: Doug Beason

Date: 8-2-93

Phone

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

FLORIDA POWER CORPORATION,
DeBary Facility,

Petitioner,

vs. OGC CASE NO. 93-2298

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION,

Respondent.

_____/

ORDER CLOSING FILE

On June 30, 1993, the Florida Department of Environmental Protection (Department) received a Petition for Formal Administrative Proceedings from Petitioner Florida Power Corporation. The applicant challenged the Department's decision to amend Permit No. AC64-191015.

On July 9, 1993, the Department received a Notice of Voluntary Withdrawal of Petition for Formal Administrative Proceedings. See Exhibit 1. There being no further matters to consider,

IT IS ORDERED:

The petition having been withdrawn, the Department's previously proposed agency action is now final. The Department's file in this matter is closed.

Any party to this order has the right to seek judicial review of the order under section 120.68 of the Florida Statutes by the filing of a notice of appeal under rule 9.110

Department of Environmental Regulation

Routing and Transmittal Slip

To: (Name, Office, Location)

1. Preston Lewis
2.
3. Air Charles DeBerry for file thanks Patty
4.

Remarks:

RECEIVED
AUG 03 1993
Division of Air Resources Management

From: Doug Beason

Date: 8-2-93

Phone:

of the Florida Rules of Appellate Procedure with the clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400 and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within 30 days from the date this order is filed with the clerk of the Department.

DONE AND ORDERED this 30th day of July 1993 in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to S120.52 Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Clerk Date 8/02/93

Kenneth J. Plante
KENNETH J. PLANTE
General Counsel

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400
Telephone: (904) 488-9314

CERTIFICATE OF SERVICE

I CERTIFY that a true copy of the foregoing was mailed to:

Gary Perko
HOPPING, BOYD, GREEN & SAMS
Post Office Box 6526
Tallahassee, Florida 32314

on this 3RD day of ~~July~~ August 1993.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

W. DOUGLAS BEASON
Assistant General Counsel

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400
Telephone: (904) 488-9730

Florida Department of
Environmental Protection

Memorandum

To : Howard Rhodes

From : Clair Fancy

Date : July 30, 1993

Subject: Construction Permit Extension
AC 64-191015 (PSD-FL-167)
Florida Power Corporation - Debary Facility

Attached for your approval and signature is a permit extension. The extension will allow time for the Department to complete their review of the compliance test results and the allowable limitations established in the construction permit.

The District concurs with the extension and I recommend that it be approved.

CF/CSL

Attachment

Florida Department of
Environmental Protection

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

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

July 30, 1993

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Kent D. Hedrick, P.E.
Supervisor, Air Programs
Florida Power Corporation
Post Office Box 14042
St. Petersburg, FL. 33733

Dear Mr. Hedrick:

The Department received your request to extend the expiration date of the construction permit referenced below. The permit is amended as shown.

Permit No. AC 64-191015, PSD-FL-167, DeBary Facility

Current Expiration Date : July 30, 1993
New Expiration Date : August 31, 1993

This letter shall become Attachment No. 15 to this permit.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, 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 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this amendment. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this amendment, whichever occurs first. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of

filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information:

(a) The name, address and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by Petitioner, if any;

(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action;

(g) A statement of the relief sought by petitioner, stating precisely the action the petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this amendment. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to

become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this amendment in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

Sincerely,

Howard L. Rhodes
Director
Division of Air Resources
Management

HLR/CSL

Attachment

cc: C. Collins, CD
J. Harper, EPA
J. Bunyak, NPS

P 230 523 757

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to Kent Hedrick, Fla. Power	
Street and No. P. O Box 14042	
P.O., State and ZIP Code St. Petersburg, FL 33733	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date Mailed: 8-3-93 Permit: AC64-191015	

PS Form **3800**, June 1991

Is your RETURN ADDRESS completed on the reverse side?

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

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

3. Article Addressed to:
Mr. Kent D. Hedrick, P.E.
Supervisor, Air Programs
Florda Power Corporation
Post Office Box 14042
St. Petersburg, Florida 33733

4a. Article Number
P 230 523 757

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

7. Date of Delivery
AUG 5 1993

5. Signature (Addressee)

6. Signature (Agent)

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

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

Florida Power
CORPORATION

3201 Thirty-Fourth Street South • P. O. Box 14042 • St. Petersburg, Florida 33733

Bruce
Doug

ENVIRONMENTAL SERVICES DEPARTMENT

TELECOPIER NUMBER (813) 866-4926

TO: John Brown

FROM: W. Jeffrey Pardue (Kent Hedrick)

DATE: 7/27/93

TELECOPIER NUMBER: (904) 922-6979

CONFIRMATION NUMBER: (904) 488-1344

NUMBER OF PAGES TO FOLLOW: 2

PLEASE NOTIFY (813) 866-4940 FOR ANY PROBLEMS CONCERNING THE RECEIPT OF THIS FAX.

REMARKS:

1820

Patty,
For file

Florida Power
CORPORATION

July 27, 1993

Mr. John C. Brown, P.E.
Administrator
Florida Department of Environmental Protection
Twin Towers Office Bldg.
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Brown:

Re: Extension Request of Construction Permit AC64-191015
DeBary New Combustion Turbines Peaking Facility

As you were advised during a recent telephone conversation with Mr. Kent Hedrick, Florida Power Corporation's Supervisor of Air Programs, Florida Power Corporation (FPC) has completed and submitted its application for an operation permit for the facility which is the subject of the above-referenced construction permit. Additionally, FPC has submitted a Certificate of Completion of Construction, the final compliance test report for the facility and has responded fully to the DEP Central District's Completeness Summary letter dated July 20, 1993, regarding the operation permit application.

The current construction permit expires on July 30, 1993. This obviously does not provide DEP sufficient time in which to process an operation permit for the facility. FPC understands that DEP has, in the past, regarded the completion of an operation permit application and the submission of compliance test results, as providing an automatic extension of the terms of the construction permit, until the DEP processing is complete. If this is not the case, FPC requests a further extension of the above-referenced construction permit for a period of 120 days, in order to allow the facility to remain in operation pending DEP's processing of the new permit application. Mr. Alan Zahm, Air Permitting Supervisor in the Central District recently stressed that the District is entitled to at least 90 days to process the application.

As you are aware, FAC 17-4.080 (3) states in pertinent part that an extension of an operation permit "shall be granted if the applicant can demonstrate reasonable assurances that upon completion, the extended permit will comply with the standards and conditions required by applicable regulation." With the submission of the compliance test data and the completed operation permit application and other information mentioned above, FPC has provided DEP such "reasonable assurance".

FPC has contacted Mr. A. Alexander in the Central District Office to notify him of this extension request. FPC will continue its efforts to communicate and cooperate with the Central District regarding this matter.

FPC greatly appreciates the past cooperation of the DEP Bureau of Air Regulation and the Central District Office in extending the construction permit to allow completion of compliance testing. Your consideration of the present request is also greatly appreciated. If you have any questions or comments, please contact me at (813)866-4387 or Kent D. Hedrick at (813)866-4281.

Sincerely,

Patricia A. Glazoid, Director

W. Jeffrey Pardue, C.E.P.
Manager, Environmental Programs

cc: A. Alexander, P.E./FDEP Central District

Clair

Florida Power
CORPORATION

LEGAL DEPARTMENT
POST OFFICE BOX 14042
ST. PETERSBURG, FL 33733
Telecopier: (813) 866-4931

RECEIVED
JUL 12 1993
Division of Air Resources Management

TELECOPY TRANSMITTAL SHEET

DATE: 6/30/93 TIME: _____

TO: Howard Rhodes TELECOPIER NO.: (904) 922-6979

ORGANIZATION, DEPARTMENT, AND/OR LOCATION: FDER - Tallahassee

FROM: W. Jeffrey Pardue TELEPHONE NO.: (813) 866-4387

MESSAGE: _____

NUMBER OF PAGES TRANSMITTED *INCLUDING* THIS SHEET: 3

If all pages are not legibly received, please call:

_____ at (813) 866-_____
Telecopier Operator

I N T E R O F F I C E M E M O R A N D U M

Date: 02-Jul-1993 07:56am EST
From: Dea Wahlen TAL
WAHLEN_D
Dept: Office General Counsel
Tel No: (904)488-9730
SUNCOM: 278-9730

TO: Alex Alexander ORL (ALEXANDER_A)
TO: Patty Adams TAL (ADAMS_P)

Subject: Florida Power Corporation, DeBary Facility

On June 30, 23 received a Petition for Formal Administrative Proceedings from James Alves, counsel for Florida Power Corporation, concerning an amendment which would extend the expiration date of AC64-191015 from June 30 until July 30, 1993, which "also would require FPC to document that all hours of operation during the extension period are necessary to meet the testing requirements for demonstrating initial compliance with the permit conditions."

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

FLORIDA POWER CORPORATION, DeBary Facility, Petitioner,	
v.	OGC FILE NO. DEP FILE NO. AC 64-191015
STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL PROTECTION, Respondent.	

NOTICE OF VOLUNTARY WITHDRAWAL OF PETITION FOR FORMAL ADMINISTRATIVE PROCEEDINGS

PLEASE TAKE NOTICE: On or about July 9, 1993, Petitioner, FLORIDA POWER CORPORATION ("FPC"), received the attached extension of DER Permit No. AC 64-191015, PSD-FL 167, which supersedes the extension referenced in FPC's Petition for Formal Administrative Proceedings filed on June 30, 1993. The revised modification omits the objectionable conditions referenced in FPC's Petition. Accordingly, by and through undersigned counsel, FPC hereby voluntarily withdraws its Petition for Formal Administrative Proceedings dated June 30, 1993.

Respectfully submitted this 9th day of July, 1993.

HOPPING BOYD GREEN & SAMS

By: _____
Gary V. Perko
P.O. Box 6526
123 South Calhoun Street
Tallahassee, FL 32314

Attorneys for Petitioner,
FLORIDA POWER CORPORATION

EXHIBIT 1

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that the original and one copy of the foregoing was hand-delivered to the offices of Kathy Carter, Clerk, Department of Environmental Protection, Room 672, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, and Kenneth Plante, Esq., General Counsel, Department of Environmental Protection, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, this 9th day of July, 1993.

Attorney

Mailed 7-9-93

Patty

Florida Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

July 7, 1993

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

REVISED

Mr. Scott H. Osbourn
Senior Environmental Engineer
Florida Power Corporation
Post Office Box 14042
St. Petersburg, FL. 33733

Dear Mr. Osbourn:

The Department received your request to extend the expiration date of the construction permit referenced below. The permit is amended as shown.

Permit No. AC 64-191015, PSD-FL-167, DeBary Facility

Current Expiration Date : ~~June~~ 30, 1993
New Expiration Date : July 30, 1993

This permit extension is a revision of and replaces the permit extension dated June 29, 1993.

This letter shall become Attachment No. 13 to this permit.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, 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 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this amendment. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this amendment, whichever occurs first. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of

filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information:

(a) The name, address and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by Petitioner, if any;

(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action;

(g) A statement of the relief sought by petitioner, stating precisely the action the petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this amendment. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to

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Sincerely,

Howard L. Rhodes
Director
Division of Air Resources Management

HLR/CSL
c: A. Zahm, CD
J. Harper, EPA
J. Bunyak, NPS

P 230 523 760

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to Scott Osbourn	
Street and No. PO Box 14042	
P.O., State and ZIP Code St. Pete, FL 33733	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 1-9-93	

PS Form 3800, June 1991

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee	
To: _____	Location: _____
To: _____	Location: _____
To: _____	Location: _____
From: _____	Date: _____

Interoffice Memorandum

To : Howard Rhodes

From : for Clair Fancy JKP

Date : June 30, 1993

Subject: Permit Amendment - Florida Power Corporation
DeBary Facility
AC 64-191015, PSD-FL-167

Attached for your approval and signature is a permit amendment prepared by the Bureau of Air Regulation. The permittee has requested that EPA Method 3A be used for compliance testing in lieu of EPA Method 3.

I recommend that this amendment be approved.

CF/CSL

Attachment

Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Virginia B. Wetherell, Secretary

June 30, 1993

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Kent Hedrick, P.E.
Supervisor of Air Programs
Florida Power Corporation
Post Office Box 14042
St. Petersburg, FL. 33733

Dear Mr. Hedrick:

The Department received your request to amend the construction permit listed below. The permit is amended as shown.

Permit No. AC 64-191015, PSD-FL-167, DeBary Facility

From:

- Method 3. Gas Analysis

TO:

- Method 3A. Gas Analysis

This letter shall become Attachment No. 14 to this permit.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, 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 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this amendment. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this amendment, whichever occurs first. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have

to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information:

(a) The name, address and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the 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;

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(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action;

(g) A statement of the relief sought by petitioner, stating precisely the action the petitioner wants the Department to take with respect to the Department's action or proposed action.

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Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

Sincerely,

Howard L. Rhodes
Director
Division of Air Resources
Management

HLR/CSL

c: A. Zahm, CD
J. Harper, EPA
J. Bunyak, NPS

P 230 524 367

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to: Kent Hedrick	
Street and No.: FlA Power Corp	
P.O., State and ZIP Code: St Pete, Fl	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 7-2-93 AC 64-191015 PSD-Fl-167	

PS Form 3800, June 1991

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- 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:
Kent Hedrick, PE
FlA Power Corp
P.O. Box 14042
St. Petersburg, Fl
33733

4a. Article Number: P 230 524 367

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

7. Date of Delivery: JUL 0 6 1993

5. Signature (Addressee)

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

6. Signature (Agent) [signature]

PS Form 3811, December 1991 ★U.S. GPO: 1992—323-402 DOMESTIC RETURN RECEIPT

Thank you for using Return Receipt Service.

Sent by Facsimile & U.S. Mail

Florida Power
CORPORATION

June 30, 1993

Charles Logan Law the earlier fax -

Mr. Alexander Alexander, P.E.
District Manager, Central District
Florida Department of Environmental Regulation
3319 Maguire Boulevard, Suite 232
Orlando, FL 32803-3767

Re: AC 64-191015, Permit Extension

Dear Mr. Alexander:

I was unable to reach you today by telephone and did not hear from you in response to my letter sent by facsimile transmission earlier today. As you are aware, the DeBary construction permit expires today. As I explained in my earlier letter, we believe there may have been some miscommunication regarding the terms of DER's extension of that permit. Since I was unable to contact you, FPC filed late today a request for administrative hearing regarding the conditions imposed in the extension granted on June 29, 1993.

Please be advised that we have filed this request solely to allow us sufficient time in which to clarify the terms of the extension and to avoid an outage at this site during a critical period of energy demand. It is our understanding that this request for administrative hearing will have the affect of temporarily extending the construction permit under its original terms.

The language I suggested in my earlier letter to you today was an attempt to reflect what I believed, based upon our meeting last Friday, to be the terms the Central District required to grant FPC an extension of the construction permit. If this suggested language is acceptable and can be reflected in a permit extension which will supersede the extension granted on June 29, 1993, FPC will immediately withdraw the request for administrative hearing.

FPC will, of course, continue to expedite the testing required for issuance of an operating permit for the DeBary facility and to cooperate with the Central District in that regard.

I would appreciate your courtesy in contacting me as soon as possible so that we can discuss this matter further and avoid any misunderstanding. If I am not available, please contact Mr. Kent Hedrick (813-866-4281) or Mrs. Patricia Blizzard (813-866-4298).

Sincerely,

W. Jeffrey Pardue, C.E.P., Manager
Environmental Programs

WJP/km
cc: Howard Rhodes, FDER-Tallahassee
John Brown, FDER-Tallahassee

Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Virginia B. Wetherell, Secretary

June 29, 1993

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Scott H. Osbourn, Senior Environmental Engineer
Florida Power Corporation
Post Office Box 14042
St. Petersburg, FL. 33733

Dear Mr. Osbourn:

The Department received your request for an extension of the construction permit referenced below. The permit is amended as shown.

Permit No. AC 64-191015, PSD-FL-167, DeBary Facility

Current Expiration Date : June 30, 1993
New Expiration Date : July 30, 1993

This permit is extended, for the period July 1, 1993 through July 30, 1993, for the purposes of demonstrating compliance with the conditions established in the permit. Records shall be maintained to document that all hours of operation during this extension period are necessary to meet the testing requirements for demonstrating initial compliance in accordance with the permit conditions.

This letter shall become Attachment No. 13 to this permit.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, 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 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this amendment. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this amendment, whichever occurs first. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have

to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information:

(a) The name, address and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by Petitioner, if any;

(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action;

(g) A statement of the relief sought by petitioner, stating precisely the action the petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this amendment. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this amendment in the Office of General Counsel at the above address of the Department.

Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

Sincerely,

Howard L. Rhodes

Howard L. Rhodes
Director
Division of Air Resources
Management

HLR/CSL

c: A. Zahm, CD
J. Harper, EPA
J. Bunyak, NPS

P 230 524 366

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to	Scott Osbourn
Street and No.	FLA Power Corp
P.O. State and ZIP Code	St Pete, Fl
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	6-30-93

AC4-191015
PSD-FI-167

PS Form 3800, June 1991

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- 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:
Scott Osbourn / Sr. Env. Eng
Gla Power Corp
PO Box 14042
Saint Petersburg, Fl
33733

4a. Article Number: P 230 524 366

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

7. Date of Delivery: JUL 02 1993

5. Signature (Addressee)

6. Signature (Agent)

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

PS Form 3811, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

Florida Department of Environmental Regulation

Central District • 3319 Maguire Boulevard, Suite 232 • Orlando, Florida 32803-3767

Lawton Chiles, Governor

Virginia B. Wetherell, Secretary

CERTIFIED
P 128 890 008

OCD-AP-93-131

Mr. W. W. Vierday
Environmental Programs & Licensing
Florida Power Corporation
3201 34th Street South
St. Petersburg, Florida 33733

RECEIVED
JUN 10 1993
Division of Air
Resources Management

Volusia County - AP
Debary Plant

Dear Mr. Vierday:

This letter is as a result of a meeting held on May 18, 1993 with representatives of your company, Ms. Pat Blizzard, Jim Stitt and Department representatives, A. Alexander, District Director, Charles Collins, P. E. Air Program Administrator, and Caroline Shine, Supervisor in the Air Program.

The purpose of the meeting was to meet each other and to discuss items of mutual interest and Department requirements concerning environmental matters. During the meeting, the discussion centered more on the status of the application for the Debary plant operating permit. As you are probably aware, the Debary plant received a construction permit issued by the Tallahassee's Air Division, which expired January 31, 1993. Since that time, you have received two extensions, the second of which will expire June 30, 1993.

According to legal requirements, the application for an operating permit should have been submitted ninety days prior to the expiration date (6/30/93) of the construction permit.

Also a Warning Letter (OWL-92-232, dated 1/22/93) had been mailed to you regarding the untimely submittal of the stack test. In addition your second test has failed to show compliance.

As a result of our meeting, it has been determined and agreed, that the application for an operating permit should be submitted prior to June 30, 1993, and that our staff will discuss the details of the upcoming stack test during our pre-test conference to be scheduled shortly.

Department of Environmental Regulation

Routing and Transmittal Slip

To: (Name, Office, Location)

1. Howard Rhodes
2. Tallahassee
3. Air Chair
4. John Brown

Remarks:

Preston & Chas. Logan
File w/ permit info.

RECEIVED

JUN 10 1993

Division of Air
Resources Management

From:	Date
C.D. Howard 6/14 Air	6-9-93
	Phone

For your information, according to Mr. John Brown, Air Division, additional extensions will not be granted.

We also have received a letter from Ms. Pat Blizzard, dated June 3, the contents of which are not acceptable to this office.

Sincerely,

cmc

A. Alexander, P.E.
District Director

Date 6-8-93

P.S. You have received a short form Consent Order dated April 20, 1993 for your review. Should you have any questions about the Consent Order, please contact our Office of General Counsel Attorney Steve Medina, in Tallahassee.

AA/j

cc: Howard Rhodes, Tallahassee
John Brown, Tallahassee

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee
To Preston Info Location
To Location
To Location
From Date

Interoffice Memorandum

Pretty

File with FPC permits.

File Debary

TO: Charles M. Collins, Administrator
Air Program—Central District Office

FROM: Mike Harley, Administrator
Emissions Monitoring Section

DATE: May 19, 1993

SUBJECT: Florida Power Corporation Turbine Test
Deviation From Specific Condition No. 13 Of Construction Permit
AC 64-191015

Clair Fancy asked us to respond your April 12 memo about the above referenced test. On the basis of the information that you provided, we agree with your interpretation of the applicable requirements.

Both the permit and the applicable federal regulation require the emissions to be corrected to ISO standard day conditions. The formula for the ISO correction is specified in specific condition 13 of construction permit AC 64-191015 and 40 CFR 60.335(c)(1). Pursuant to 40 CFR 60.335(f)(1), the manufacturer is required to obtain federal approval of any alternate correction factors prior to the initial performance test. The federal regulation requires publication of the approval in the Federal Register. And, Rule 17-297.620, F.A.C., requires Florida Power Corporation to apply for approval of the alternate correction factor prior to the compliance test.

EPA Region IV agrees that alternate correction factors must be approved prior to the initial performance test. If you have any questions, please call Ramesh Menon or me at Suncom 278-1344.

MH/rm

cc: C. Fancy
J. Brown
P. Lewis

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee	
To:	Location:
To:	Location:
To:	Location:
From:	Date:

Interoffice Memorandum

CENTRAL DISTRICT

TO: Preston Lewis, P.E. III — OCD-AP-93-78
Permitting & Standards Section
Division of Air Resources Management

THROUGH: A. Alexander, District Director

FROM: Charles M. Collins, P.E. Administrator cmc

DATE: April 12, 1993

SUBJECT: FLORIDA POWER CORPORATION TURBINE TEST
DEVIATION FROM DIVISION ISSUED PERMIT SPECIFIC CONDITION

As we discussed Friday, we are keeping the lines of communication open when we observe a stack test deviation on an AC permit issued by Tallahassee.

The District's position is that FPC has not followed specific condition #13 in permit AC64-191015, which covers the testing of four turbines covered under NSPS.

It is the District's position that FPC together with GE, should have received the EPA Administrator's approval if they did not want to use this equation (see attached 40 CFR Subpart GG 60.335(f)(1)).

Should you feel different about the permit you issued, please let me know Thursday, April 15 at 2:00 p.m., as it is important that we are in complete agreement.

We have gone on record as not accepting the turbine stack tests where this formula is not used.

CMC/j

cc: John Brown

Attachment

FACT SHEET

Florida Power Corporation
Debary Facility
Debary, Volusia County, Florida

Six 92.9 MW Simple Cycle Combustion Turbines for Peaking Service

Permit Number: AC64 - 191015 PSD-FL-167

Specific Condition #13 of the above permit states the following: During performance tests to determine compliance with the proposed NO_X standard, measured NO_X emissions at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor:

$$NO_X = (NO_{X\ obs})\ (P_{ref} / P_{obs})^{0.5}\ e^{19}\ (H_{obs} - 0.00633)\ (288^{o}\ K / T_{AMB})^{1.53}$$

where:

NO_X = Emissions of NO_X at 15 percent oxygen and ISO standard ambient conditions.

$NO_{X\ obs}$ = Measured NO_X emission at 15 percent oxygen, ppmv.

P_{ref} = Reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure.

P_{obs} = Measured combustor inlet absolute pressure at test ambient pressure.

H_{obs} = Specific humidity of ambient air at test.

e = Transcendental constant (2.718).

T_{AMB} = Temperature of ambient air at test.

The following comment was submitted by the General Electric representative on site as justification for not adhering to the requirements of Specific Condition #13 above:

Calculation of NO_X measurements in terms of ISO conditions is not applicable. GE's Mark IV control system contains an algorithm which determines how much diluent (water/steam) is required to meet allowable NO_X emission concentrations under all operating conditions. In calculating the required diluent/fuel ratio, the algorithm makes adjustments for ambient temperature and relative humidity. The rate of injection is continuously corrected during actual operating conditions. An additional ISO correction could unfavorably bias the NO_X result in ppmvd at 15% O_2 by almost 30%.

The decision which the Department must make is whether or not use of the Mark IV control system justifies disregarding Specific condition #13 of the permit.

reports shall be postmarked by the 30th day following the end of each calendar quarter.

(4) *Emergency fuel.* Each period during which an exemption provided in § 60.332(k) is in effect shall be included in the report required in § 60.7(c). For each period, the type, reasons, and duration of the firing of the emergency fuel shall be reported.

[44 FR 52798, Sept. 10, 1979, as amended at 47 FR 3770, Jan. 27, 1982]

§ 60.335 Test methods and procedures.

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

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

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

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

$$NO_x = (NO_m)\ (P_r/P_o)^{0.5}\ e^{19(H_o - 0.00633)}\ (288°K/T_a)^{1.53}$$

where:

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

NO_m = observed NO_x concentration, ppm by volume.

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

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

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

e = transcendental constant, 2.718.

T_a = ambient temperature, °K.

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

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

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

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

(f) The owner or operator may use the following as alternatives to the reference methods and procedures specified in this section:

(1) Instead of using the equation in paragraph (b)(1) of this section, manufacturers may develop ambient condition correction factors to adjust the nitrogen oxides emission level measured by the performance test as provided in § 60.8 to ISO standard day conditions. These factors are developed for each gas turbine model they manufacture in terms of combustion inlet pressure, ambient air pressure,

ambient air humidity, and ambient air temperature. They shall be substantiated with data and must be approved for use by the Administrator before the initial performance test required by § 60.8. Notices of approval of custom ambient condition correction factors will be published in the FEDERAL REGISTER.

[54 FR 6675, Feb. 14, 1989, as amended at 54 FR 27016, June 27, 1989]

Subpart HH—Standards of Performance for Lime Manufacturing Plants

SOURCE: 49 FR 18080, Apr. 26, 1984, unless otherwise noted.

§ 60.340 Applicability and designation of affected facility.

(a) The provisions of this subpart are applicable to each rotary lime kiln used in the manufacture of lime.

(b) The provisions of this subpart are not applicable to facilities used in the manufacture of lime at kraft pulp mills.

(c) Any facility under paragraph (a) of this section that commences construction or modification after May 3, 1977, is subject to the requirements of this subpart.

§ 60.341 Definitions.

As used in this subpart, all terms not defined herein shall have the same meaning given them in the Act and in the General Provisions.

(a) *Lime manufacturing plant* means any plant which uses a rotary lime kiln to produce lime product from limestone by calcination.

(b) *Lime product* means the product of the calcination process including, but not limited to, calcitic lime, dolomitic lime, and dead-burned dolomite.

(c) *Positive-pressure fabric filter* means a fabric filter with the fans on the upstream side of the filter bags.

(d) *Rotary lime kiln* means a unit with an inclined rotating drum that is used to produce a lime product from limestone by calcination.

(e) *Stone feed* means limestone feedstock, and millscale or other iron oxide additives that become part of the product.

§ 60.342 Standard for particulate matter.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any rotary lime kiln any gases which:

(1) Contain particulate matter in excess of 0.30 kilogram per megagram (0.60 lb/ton) of stone feed.

(2) Exhibit greater than 15 percent opacity when exiting from a dry emission control device.

§ 60.343 Monitoring of emissions and operations.

(a) The owner or operator of a facility that is subject to the provisions of this subpart shall install, calibrate, maintain, and operate a continuous monitoring system, except as provided in paragraphs (b) and (c) of this section, to monitor and record the opacity of a representative portion of the gases discharged into the atmosphere from any rotary lime kiln. The span of this system shall be set at 40 percent opacity.

(b) The owner or operator of any rotary lime kiln having a control device with a multiple stack exhaust or a roof monitor may, in lieu of the continuous opacity monitoring requirement of § 60.343(a), monitor visible emissions at least once per day of operation by using a certified visible emissions observer who, for each site where visible emissions are observed, will perform three Method 9 tests and record the results. Visible emission observations shall occur during normal operation of the rotary lime kiln at least once per day. For at least three 6-minute periods, the opacity shall be recorded for any point(s) where visible emissions are observed, and the corresponding feed rate of the kiln shall also be recorded. Records shall be maintained of any 6-minute average that is in excess of the emissions specified in § 60.342(a) of this subpart.

(c) The owner or operator of any rotary lime kiln using a wet scrubbing emission control device subject to the provisions of this subpart shall not be required to monitor the opacity of the gases discharged as required in para-

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee	
To:	Location:
To:	Location:
To:	Location:
From:	Date:

Interoffice Memorandum

TO: Howard Rhodes

FROM: Clair Fancy

DATE: April 8, 1993

SUBJECT: Amendment to Construction Permit AC64-191015, Florida Power Corporation, PSD-FL-167 DeBary Facility

Attached for your approval and signature is a letter extending the expiration date for the above referenced construction permit. The permittee requested additional time due to problems with operation performance.

I recommend that this extension be approved.

HLR/JR/w

Attachments

Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Virginia B. Wetherell, Secretary

April 8, 1993

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Jeffrey Pardue, Manager-Regulatory Programs
Florida Power Corporation
Post Office Box 14042
St. Petersburg, FL 33733

Dear Mr. Pardue:

The Department received your request for extension of the construction permit referenced below. The permit is amended as shown.

Permit No. AC64-191015, PSD-FL-167 - DeBary Facility

Current Expiration Date: March 31, 1993
New Expiration Date: June 30, 1993

This letter shall become Attachment No. 12 to this permit.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, 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 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this intent, whichever first occurs. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information:

(a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
(d) A statement of the material facts disputed by Petitioner, if any;
(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and
(g) A statement of the relief sought by petitioner, stating precisely the action wants the Department to take with respect to the Department's action or proposed action.

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

Sincerely,

Howard L. Rhodes
Director
Division of Air Resources Management

HLR/JR/w

c: A. Zahm, CD
J. Harper, EPA
J. Bunyak, NPS

P 710 058 556

Certified Mail Receipt
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to	Jeffrey Pardue
Street & No.	FL Power Corp
P.O., State & ZIP Code	St Pete, Fl
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	$
Postmark of Date	4-12-93

AC 64-191015
PSD-FL-167

PS Form **3800**, June 1990

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- 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:
Jeffrey Pardue
FLA Power Corp
PO Box 14042
St. Pete, Fl 33733

4a. Article Number
P 710 058 556

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

7. Date of Delivery
APR 14 1993

5. Signature (Addressee)

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

6. Signature (Agent)
Frank Chan

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Is your RETURN ADDRESS completed on the

Thank you for using Return Receipt Service.

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee	
To:	Location:
To:	Location:
To:	Location:
From:	Date:

Interoffice Memorandum

TO: Howard L. Rhodes

FROM: C. H. Fancy

DATE: March 30, 1993

SUBJ: Amendment to Construction Permit AC64-191015
Florida Power Corporation - DeBary

Attached for your approval and signature is a letter extending the expiration date for the above referenced construction permit. The permittee requested additional time due to modifications being made by the turbine manufacturer.

The Bureau recommends approval of this amendment.

CHF/JR/plm

Attachment

Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor — Virginia B. Wetherell, Secretary

PSD-FL-167

March 31, 1993

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Kent D. Hedrick, P.E.
Supervisor, Air Programs
Florida Power Corporation
P. O. Box 14042
St. Petersburg, Florida 33733

Dear Mr. Hedrick:

Re: Expiration Date Extension

The Department received your request for an extension of the construction permit referenced below. The permit is amended as shown.

Permit No. AC64-191015

Current Expiration Date: March 31, 1993
New Expiration Date: June 30, 1993

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, 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 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this amendment. Petitions filed by other persons must be filed within 14 days of receipt of this amendment. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information:

(a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
(d) A statement of the material facts disputed by Petitioner, if any;
(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and
(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

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

This letter shall become an attachment to this permit.

Sincerely,

Howard L. Rhodes
Director
Division of Air Resources Management

HLR/JR/plm

cc: A. Zahm, CD
J. Harper, EPA
B. Mitchell, NPS

P 360 185 700

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to Kent Hedrick	
Street and No. FIA Power Corp	
P.O., State and ZIP Code St Pete, Fl	
Postage	$
Certified Fee	
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Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 4-12-93 AC 64-191015	

PS Form 3800, June 1991

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- 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.
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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:
Kent D Hedrick, PE
Fla Power Corp
PO Box 14042
St. Pete, Fl 33733

4a. Article Number P 360 185 700

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

7. Date of Delivery APR 14 1993

5. Signature (Addressee)

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

6. Signature (Agent) Frank Chop

PS Form 3811, December 1991 ★U.S. GPO: 1992—323-402 DOMESTIC RETURN RECEIPT

Thank you for using Return Receipt Service.

Florida Power
CORPORATION

3/5/93
Patty
I don't have a problem extending it.
JH or TH do

March 3, 1993

RECEIVED

MAR 05 1993

Division of Air
Resources Management

Mr. John C. Brown, P.E.
Administrator
Florida Department of Environmental Regulation
Twin Towers Office Bldg.
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Brown:

Re: Extension Request of Construction Permit AC64-191015
DeBary Facility New Peaking Combustion Turbines

Florida Power Corporation (FPC) requests an extension of the above referenced construction permit. The current construction permit will expire March 31, 1993. An extension up to and including June 30, 1993 is requested.

The need for this extension is due to continued performance concerns with the combustion turbines. Although all four units successfully met emission limits during initial compliance testing, the operating performance of the turbines during this testing was found to be unsatisfactory to FPC. FPC and the turbine manufacturer have been working to resolve the performance concerns and should reach a resolution by the end of this month. Once resolved, additional compliance testing may be required to demonstrate compliance at the final operational configuration. Therefore, the extension is needed to complete the compliance testing and submit this data in final form along with an application for an operating permit to the Central District. This submittal must occur 90 days prior to the expiration of the construction permit (as required by Specific Condition 28 of the construction permit). In addition, FPC's modification request for this permit is still being considered by FDER. The extension should allow for resolution of this request as well.

? FPC submitted a check in the amount of $7500 to FDER on October 30, 1992 for the administrative fee associated with the modification request. It is FPC's understanding through discussion with your staff, that if this fee amount is correct, no additional fee should be required for this extension request.

Your consideration of this extension request is greatly appreciated. If you have any questions or comments, please do not hesitate to contact me at (813)866-4281.

Sincerely,

Kent D. Hedrick

Kent D. Hedrick, P.E.
Supervisor, Air Programs

J. Reynolds

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

January 21, 1993

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Kent Hedrick
Florida Power Corporation
P. O. Box 14042
St. Petersburg, Florida 33733

Dear Mr. Hedrick:

Re: Extension/Modification of Permit AC64-191605, PSD-FL-167

This letter supplements the Department's January 12, 1993, response to Florida Power Corporation's December 21, 1992, letter regarding the DeBary permit extension/modification. Our letter of January 12 addressed specifically the issue of applying for an operation permit. The other question that needs to be clarified is FPC's interpretation that the permit is automatically extended until the modification is approved. F.A.C. Rule 17-4.080(3) addresses requests for extensions - not modifications of the technical conditions of the permit. To keep the permit in effect, the permittee must request that the permit be extended independently of any technical modification, which could require an indefinite period to resolve.

If you have further questions, please call John Reynolds or myself at (904) 488-1344.

Sincerely,

G. Preston Lewis, P.E.
Supervisor
Air Permitting and Standards

GPL/JR/plm

cc: A. Zahm, CD

P 062 921 959

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to Kent Hedrick	
Street and No. FL Power Corp	
P.O., State and ZIP Code St. Pete, Fl	
Postage	$
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Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 1-22-93	

AC 64-191605
PSD-FL-167

PS Form 3800, June 1991

PS Form 3811, July 1983 447-845

SENDER: Complete items 1, 2, 3 and 4.

Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.

1. ☐ Show to whom, date and address of delivery.
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3. Article Addressed to:
Kent Hedrick
FL Power Corp
P.O. Box 14042
St. Pete, Fl 33733

4. Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail

Article Number: P062 921 959

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Addressee
X

6. Signature — Agent
X

7. Date of Delivery
JAN 25 1993

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

TALLAHASSEE FL 32

DOMESTIC RETURN RECEIPT

Florida
Power
CORPORATION

3201 Thirty-Fourth Street South • P. O. Box 14042 • St. Petersburg, Florida 33733

ENVIRONMENTAL SERVICES DEPARTMENT

TELECOPIER NUMBER (813) 866-4926

TO: Preston Lewis

FROM: Kent Hedrick

DATE: 1/12/93

TELECOPIER NUMBER: (904) 922-6979

CONFIRMATION NUMBER: (813) 864-4281

NUMBER OF PAGES TO FOLLOW: 1

PLEASE NOTIFY (813) 866-4940 FOR ANY PROBLEMS CONCERNING THE RECEIPT OF THIS FAX.

REMARKS:

Preston,

Please refer to Specific Condition 28. FPC is interpreting this condition to require submittal of an operating permit application 90 days prior to the expiration of the construction permit (March 31, 1993). Your clarification of this requirement would be greatly appreciated.

Kent

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

January 12, 1993

FAX

Mr. Kent Hedrick
Florida Power Corporation
Post Office Box 14042
St. Petersburg, Florida 33733

Re: Specific Condition 28 - Debary Air Construction Permit - AC 64-191015

Specific Condition 28 requires that "at least 90 days prior to the construction permit expiration you will submit an application for an operation permit. The application shall include the form, fee, construction completion certificate and test reports." I am told that this is a standard air permit requirement.

Should the construction permit expiration date not allow you enough time to comply with this condition, send us a letter and the appropriate fee requesting another extension of the construction permit. Your request should extend the permit far enough out to avoid any further extensions.

Should you have any questions, call either Teresa Heron or myself at (904) 488-1344.

Sincerely,

G. Preston Lewis, PE
Supervisor
Air Permitting and Standards

PERMITTEE:
Florida Power Corp.

Permit Number: AC 64-191015
PSD-FL-167
Expiration Date: Jan. 31, 1993

SPECIFIC CONDITIONS:

21. If construction does not commence within 18 months of issuance of this certification/permit, then the permittee shall obtain from DER a review and, if necessary, a modification of the control technology and allowable emissions for the unit(s) on which contruction has not commenced (40 CFR 52.21(r)(2)).

22. Quarterly excess emission reports, in accordance with the July 1, 1988 version of 40 CFR 60.7 and 60.334 shall be submitted to DER's Central District office.

23. Literature on equipment selected shall be submitted as it becomes available. A CT-specific graph of the relationship between NOx emissions and steam injection and also another of ambient temperature and heat inputs to the CT shall be submitted to DER's Central District office and the Bureau of Air Regulation.

24. Stack sampling facilities shall be provided for each of the stacks.

25. Construction period fugitive dust emissions shall be minimized by covering or watering dust generation areas.

26. Pursuant to F.A.C. Rule 17-2.210(2), Air Operating Permits, the permittee is required to submit annual reports on the actual operating rates and emissions from this facility. These reports shall include, but are not limited to the following: sulfur nitrogen contents and the lower heating value of the oil being fired, fuel usage, hours of operation, air emissions limits, etc. Annual reports shall be sent to the Department's Central District office by March 1 of each calendar year.

27. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit (F.A.C. Rule 17-4.090).

28. An application for an operation permit must be submitted to the Central District office at least 90 days prior to the expiration date of this construction permit. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

PM
12-23-92
St. Petersburg, FL

Florida Power
CORPORATION

RECEIVED
DEC 28 1992
Division of Air
Resources Management

December 21, 1992

Mr. John C. Brown, P.E.
Administrator
Florida Department of Environmental Regulation
Twin Towers Office Bldg.
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Brown:

Re: Extension/Modification of Construction Permit AC64-191015
DeBary Facility New Peaking Combustion Turbines

This letter is to clarify Florida Power Corporation's (FPC) understanding of the expiration date of the above referenced permit.

On October 30, 1992, FPC requested a modification of this construction permit. This request is currently being reviewed by your department. As provided in F.A.C. 17-4.080(3), ". . . the permit will remain in effect until final agency action is taken on the request." FPC's interpretation of this provision is that the construction permit is automatically extended until final action is taken on the modification request. This provision supersedes the expiration date given in the construction permit if final determination on the modification request occurs at a later date.

If the department's interpretation of this regulation is different than stated above, please provide a written response containing your department's interpretation. If you have any questions, please contact me at (813)866-4281.

Sincerely,

Kent D. Hedrick

Kent D. Hedrick, P.E.
Sr. Environmental Engineer

cc: C. Collins, FDER-Central District

File Copy

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

PSD-FL-167

November 23, 1992

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. W. Jeffrey Pardue, Manager-Regulatory Programs
Florida Power Corporation
Post Office Box 14042
St. Petersburg, Florida 33733

Dear Mr. Pardue:

The Department received your request for extension of the construction permit referenced below. The permit is amended as shown.

Permit No. AC 64-191015, PSD-FL-167

Current Expiration Date: January 31, 1993
New Expiration Date: March 31, 1993

This letter shall become Attachment No. 11 to this permit.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, 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 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this intent, whichever first occurs. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information:

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

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

Sincerely,

Howard L. Rhodes

Howard L. Rhodes
Director
Division of Air Resources
Management

HLR/JR/w

c: A. Zahm, CD
J. Harper, EPA
B. Mitchell, NPS
Reading File
John Reynolds

11-25-92 RBR

P 062 922 012

Receipt for Certified Mail

No Insurance Coverage Provided
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UNITED STATES POSTAL SERVICE

Sent to Mr. W. Jeffrey Pardue	
Street and No. Mgr- Regulatory Programs	
P.O. State and ZIP Code P.O. Box 14042 FL Power Corp St. Petersburg FL, 33733	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date mailed: 11-25-92 AC 64-191015 PSD-FL-167	

PS Form 3800, June 1991

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- 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 Fee will provide you the signature of the person delivered to and the date of delivery.

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

3. Article Addressed to:
Mr. W. Jeffrey Pardue
Manager - Regulatory Programs
FL Power Corp.
P.O. Box 14042
St. Petersburg, FL 33733

4a. Article Number
P 062 922 012

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

7. Date of Delivery
NOV 30 1992

5. Signature (Addressee)

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

6. Signature (Agent)

PS Form 3811, November 1990 ★U.S. GPO: 1991—287-066 **DOMESTIC RETURN RECEIPT**

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee	
To:	Location:
To:	Location:
To:	Location:
From:	Date:

Interoffice Memorandum

TO: Howard Rhodes

FROM: Clair Fancy

DATE: November 23, 1992

SUBJECT: Permit Extension - Florida Power Corporation, PSD-FL-167

Attached for your approval and signature is a permit extension prepared by the Bureau of Air Regulation. The permittee requested an additional 60 days to compile compliance test data before submitting their operation permit application to the District Office.

I recommend that this extension be approved.

HR/CF-JR/w

Attachments

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400
Lawton Chiles, Governor
Carol M. Browner, Secretary

November 19, 1992

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Jeffrey Pardue, Manager-Regulatory Programs
Florida Power Corporation
Post Office Box 14042
St. Petersburg, FL 33733

Dear Mr. Pardue:

RE: FPC's Request for Extension/Modification of Permit
AC64-191015, DeBary Facility Peaking Turbines

This is in reply to Florida Power Corporation's October 30, 1992, letter requesting a 60 day extension of the above permit for compliance testing and an increase of 108 tons of NO_x emissions per year for each turbine due to higher-than-expected fuel-bound nitrogen.

The Department will begin processing of the 60 day time extension but cannot evaluate the need for a modification until additional information is received. FPC's letter does not state what levels of fuel bound nitrogen are being encountered. Data to substantiate this would consist of certified lab analyses of fuel oil supplied to the facility over a period of several months.

Although Specific Condition No. 18 refers to compliance with Subpart GG of the new source performance standards (NSPS), this does not mean, as FPC implied, that all provisions of the NSPS automatically apply. The DeBary permit limits are based on a BACT analysis which is substantially more stringent than the NSPS.

Also, a new modeling analysis would have to be submitted to the Department covering all sources and facilities having any ambient impact that have been permitted in the 23 months since the DeBary permit application was filed.

If you have any questions on the above, please contact Preston Lewis or John Reynolds at (904) 488-1344.

Sincerely,

John C. Brown, P.E.
Administrator
Bureau of Air Regulation

JB/PL-JR/plm

c: A. Zahm, CD
J. Harper, EPA
B. Mitchell, NPS

P 062 921 925

Receipt for Certified Mail

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Sent to Jeff Pardue	
Street and No. FIA. Power Corp	
P.O., State and ZIP Code St. Pete, Fl	
Postage	$
Certified Fee	
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Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 11-20-92	

AC 64-191015

PS Form 3800, June 1991

SENDER: Complete items 1, 2, 3 and 4.

Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.

1. ☐ Show to whom, date and address of delivery.
2. ☐ Restricted Delivery.

3. Article Addressed to:
Jeffrey Pardue
FIA Power Corp
PO Box 14042
St Pete, Fl 33733

4. Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail

Article Number
P062 921 925

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Addressee
X

6. Signature — Agent
X

7. Date of Delivery
NOV 23 1992

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

RETURN RECEIPT

Florida Power
CORPORATION

October 30, 1992

Mr. C. H. Fancy, P.E.
Chief
Bureau of Air Regulation
Florida Department of Environmental Regulation
Twin Towers Office Bldg.
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Fancy:

Re: Air Construction Permit No. AC 64-191015
Request for Permit Extension and Modification

Florida Power Corporation (FPC) received your letter of September 24, 1992 in response to FPC's letter requesting an extension to the above reference permit. Since the submittal of the original request for extension, certain events have occurred that necessitate both an extension of the permit as well as a modification to the allowable Nitrogen Oxides (NO_x) emission limitations.

During October, FPC has been performing compliance testing on the combustion turbines as required by the construction permit. During this testing, FPC determined that the percentage of fuel bound nitrogen (FBN) in the fuel being burned was greater than anticipated and was causing an increase in NO_x emissions above the permitted concentration. In the PSD application for this facility, the estimated NOx emissions and the proposed limit on NO_x (42 ppm) was based on a FBN of 0.015% or less. FPC is finding actual percentage of FBN in excess of 0.015%. Since water injection has no affect on NO_x resulting from FBN, as FBN

a. Contain nitrogen oxides in excess of that allowed by the following equation:

$$STD = 0.0042 + F$$

where:

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

F = NO_x emission allowance for fuel-bound nitrogen defined by the following table:

Fuel-bound nitrogen (% by wt.)	F (NO_x % by volume)
$N \leq 0.015$	0
$0.015 < N \leq 0.04$	0.04(N)
$N > 0.04$	0.0016

where: N = the nitrogen content of the fuel (% by wt.)

b. Contain carbon monoxide in excess of 25 ppmvd at baseload conditions.

c. Contain particulate matter in excess of 0.009 pound per million Btu heat input.

d. Contain beryllium in excess of 2.61 pound per 10^{12} Btu heat input.

e. Exhibit greater than 10 percent opacity.

7. The Permittee shall not discharge or cause the discharge into the atmosphere from any combustion turbine when burning natural gas in the turbine any gases which:

a. Contain nitrogen oxides in excess of 25 ppmvd at 15 percent oxygen.

b. Contain carbon monoxide in excess of 25 ppmvd at baseload conditions.

c. Contain particulate matter in excess of 0.004 pound per million Btu heat input.

d. Exhibit greater than 10 percent opacity.

PERMIT NUMBER

FACILITY I.D. NUMBER
1860-0005-011

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

1. Best Available Control Technology for the emissions of nitrogen oxides from the operation of each of these turbines (Combustion Turbine #1 and Combustion Turbine #2) is set at 42 parts per million by volume, one-hour rolling average, corrected to 15% oxygen, when burning natural gas.

2. Best Available Control Technology for the emissions of nitrogen oxides from the operation of each of these turbines (Combustion Turbine #1 and Combustion Turbine #2) is set at 65 parts per million by volume, one-hour rolling average, corrected to 15% oxygen, when combusting No. 2 fuel oil.

   Recognizing that fuel-bound nitrogen can be a problem when combusting No. 2 fuel oil, an allowance for fuel-bound nitrogen is allowed. The allowance is taken from the following table, and added to the 65 ppm$_v$ limit.

Fuel-bound nitrogen (percent by weight)	Allowance (ppm$_v$)
$N \leq 0.015$	0
$0.015 < N \leq 0.05$	400(N)

3. The aggregate emissions from the operation of both turbines shall not exceed the de minimis emissions limits for any pollutant except nitrogen oxides. Performance testing shall be conducted by the applicant in order to verify that the de minimis emissions rates for particulate matter, carbon monoxide, and volatile organic compounds will not be exceeded under any operating conditions permitted by this permit. Performance testing shall be conducted in accordance with relevant test methods of 10 CSR 10-6.030 Sampling Methods for Air Pollution Sources, (5) for particulate emissions, (10) for carbon monoxide, and (18) Section 7.2 for volatile organic compounds.

   Particulate testing shall be conducted at maximum load, both fuels, three runs each. Testing for carbon monoxide and volatile organic compounds shall be conducted at four loads, both fuels (natural gas and No. 2 fuel oil), three runs each. Test method 18, section 7.2 is specified because it has a lower minimum detection level than DNR method 13A.

   Sulfur dioxide will be measured by fuel analysis rather than by Method 6 or 6C. There being no SO_2 reduction in the gas turbine, this method will provide acceptable accuracy.

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

September 24, 1992

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. Kent D. Hedrick, P.E.
Senior Environmental Engineer
Florida Power Corporation
P. O. Box 14042
St. Petersburg, FL 33733

Dear Mr. Hedrick:

RE: Air Construction Permit No. AC 64-191015
Request for Permit Extension

The Bureau of Air Regulation received your September 15, 1992, request for the above referenced project. On October 30, 1991, Rule 17-4.050(4)(o), F.A.C., was changed to require a $50 processing fee for a permit extension; therefore, we will not be able to take action on your request until the fee is received. If you have any questions, please call Patty Adams at (904)488-1344.

Sincerely,

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

CHF/pa

cc: Preston Lewis

P 062 921 888

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to Kent D Hedrick	
Street and No. FIA Power Corp	
P.O. State and ZIP Code St. Pete, Fl 33733	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 9-24-92	

AC 64-191015

PS Form **3800**, June 1991

PS Form 3811, July 1983 447-845

SENDER: Complete items 1, 2, 3 and 4.

Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.

1. ☐ Show to whom, date and address of delivery.
2. ☐ Restricted Delivery.

3. Article Addressed to:
Kent D Hedrick, P.E.
FIA Power Corp
P O Box 14042
St Pete, Fl 33733

4. Type of Service:
☐ Registered ☐ Insured
☑ Certified ☐ COD
☐ Express Mail

Article Number
P 062 921 888

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X

6. Signature – Agent
X

7. Date of Delivery
SEP 28 1992

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

DOMESTIC RETURN RECEIPT

PM
9-18-92
St. Petersburg, FL

Florida Power
CORPORATION

September 15, 1992

Mr. C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Fancy:

Re: DeBary New Peakers, Construction Permit #AC 64-191015, PSD-FL-167

Pursuant to Specific Condition 27 of the above reference permit and F.A.C. Rule 17-4.090, Florida Power Corporation requests that the expiration date of this permit be extended sixty days from January 31, 1993 to March 31, 1993.

This request for an extension is necessary to allow for the required compliance testing to be performed and the data assembled into report form for submittal to your department 60 days prior to the expiration date of the construction permit. The units are scheduled for compliance testing during the first two weeks of October, 1992, which will make it difficult to meet the current time schedule for submittal of the results of the compliance testing. The revised timeframe for conducting the compliance testing is a result of delays that have occurred in the final performance testing of the units. The unit performance testing is currently scheduled for completion by the end of September, 1992.

Your consideration of this request is greatly appreciated. If you have any questions or comments concerning this request, please do not hesitate to call me at (813)866-4281.

Sincerely,

Kent D. Hedrick

Kent D. Hedrick, P.E.
Senior Environmental Engineer

RECEIVED
SEP 21 1992
Division of Air
Resources Management

GENERAL OFFICE: 3201 Thirty-fourth Street South • P.O. Box 14042 • St. Petersburg, Florida 33733 • (813) 866-5151
A Florida Progress Company

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

4APT-AEB

NOV 18 1991
RECEIVED
NOV 21 1991
Division of Air
Resources Management

Mr. Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Florida Power Corporation/DeBary Plant (PSD-FL-167)

Dear Mr. Fancy:

This is to acknowledge receipt of your final determination and Prevention of Significant Deterioration (PSD) permit for the above referenced facility's proposed construction, by your letter dated October 18, 1991. The facility will consist of six simple-cycle combustion peaking units, each rated 92.9 MW, fired with No. 2 distillate fuel oil. Your determination proposes to limit NO_x emissions through wet injection, to limit SO_2 and H_2SO_4 mist emissions through limiting the sulfur content of the fuel oil, to limit PM and PM_{10} through combustion design and the use of clean fuel, to limit CO through combustion design, and to limit Hg, Be, and As emissions through the specifications on No. 2 distillate fuel oil.

We have reviewed the package as submitted and have no adverse comments. Thank you for the opportunity to review and comment on this package. If you have any questions or comments, please contact Mr. Scott Davis of my staff at (404) 347-5014.

Sincerely yours,

Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides, and Toxics
Management Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY - REGION IV
AIR, PESTICIDES & TOXICS MANAGEMENT DIVISION
345 Courtland Street, N. E.
Atlanta, Georgia 30365
Fax Number:FTS 257-5207 or 404/347-5207

PACSIMILE TRANSMISSION SHEET

DATE: NOV 18, 1991 NUMBER OF PAGES (Including this sheet) 2

(Preparer must number all pages)

TO: Clair H. Fancy PHONE: 904-488-1344

ADDRESS: FDER FAX NUMBER: 904-922-6979

FROM: Jewell A. Harper PHONE: 404-347-2904

If the following pages are received poorly, please call Scott Davis at FTS 257-5017 or 404/347-5014.

SPECIAL INSTRUCTIONS FOR RECEIVER:

Florida Power
CORPORATION

RECEIVED
AUG 23 1991
Bureau of
Air Regulation

August 21, 1991

Mr. Claire Fancy, P. E.
Bureau of Air Regulation
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Fancy:

Re: Proof of Publication of the Notice of Intent to Issue the DeBary Construction Air Permit

Pursuant to Section 403.315, Florida Statutes and DER Rule 17-103.150, F.A.C., the Notice of Intent to Issue the DeBary Construction Air Permit was published August 15, 1991 in the Daytona News Journal. Enclosed is proof of this publication.

If you have any questions or require any additional information, please contact me at (813) 866-4511.

Sincerely,

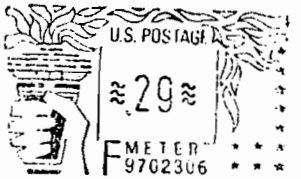
W W Vierday

W. W. Vierday
Manager
Environmental Programs - Licensing

WWV:sp

sp/TJC:WWV.Fancy.Let

Enclosure
cc: P. Lewis
C. Holladay
C. Collins/C List
J. Harper, EPA
C. Shaver, NPS



M.A.C._____
POST OFFICE BOX 14042, ST. PETERSBURG, FLORIDA 33733

Florida Power
CORPORATION

Mr. Claire Fancy, P.E.
Bureau of Air Regulation
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

951 675(S)

The News-Journal

Published Daily and Sunday
Daytona Beach, Volusia County, Florida

State of Florida,
County of Volusia:

Before the undersigned authority personally appeared

C. Morgan Miller

who, on oath says that he is.....

Classified Manager

of The News-Journal, a daily and Sunday newspaper, published at Daytona Beach in Volusia County, Florida; that the attached copy of advertisement, being a.....

Notice of Intent to Issue Permit

in the matter of.....

Florida Power Corporation

in the .....Court, was published

in said newspaper in the issues.....

August 15, 1991

Affiant further says that The News-Journal is a newspaper published at Daytona Beach, in said Volusia County, Florida, and that the said newspaper has heretofore been continuously published in said Volusia County, Florida, each day and Sunday and has been entered as second-class mail matter at the post office in Daytona Beach, in said Volusia County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

C. Morgan Miller

Sworn to and subscribed before me

this ...16th.....day of .....August.....

A.D. 19..91...

Marsha L. Nichols

NOTARY PUBLIC, State of Florida at Large
My Commission Expires August 20, 1994
BONDED BY BROWN & BROWN, INC.

49

LEGAL ADVERTISEMENT

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION NOTICE OF INTENT TO ISSUE PERMIT

The Department of Environmental Regulation gives notice of its intent to issue a PSD permit to Florida Power Corporation, 3201 34th Street South, St. Petersburg, Florida 33733, to construct six 92.9 MW simple cycle combustion turbines. a determination of Best Available Control Technology (BACT) was required. For sulfur dioxide, the maximum increment consumption is 26%. The department is issuing this Intent to Issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, 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 2600 Blair Stone road, Tallahassee, Florida 32399-2400, within 14 days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Floria Statutse.

The Petition shall contain the following information:

(a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by Petitioner, if any;

(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and

(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to

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

The application 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 Regulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Department of Environmental Regulation
Central District
3319 Maguire Blvd., suite 232
Orlando, Florida 32803-3767

Any person may send written comments on the proposed action to Mr. Barry Andrews at the Department's Tallahassee address. All comments mailed within 30 days of the publication of this notice will be considered in the Department's final determination. Further, a public hearing can be requested by any person. Such requests must be submitted within 30 days of this notice.

Legal L01941. August 15, 1991 1t.

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

August 2, 1991

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. W. W. Vierday
Environmental Programs & Licensing
Florida Power Corporation
3201 34th Street South
St. Petersburg, Florida 33733

Dear Mr. Vierday:

Attached is one copy of the Revised Technical Evaluation and Preliminary Determination and proposed permit to construct and operate six simple-cycle combustion peaking units rated 92.9 MW each at the Florida Power Corporation, DeBary Facility in DeBary, Volusia County, Florida.

Please submit any written comments concerning the Department's proposed action to Mr. Barry Andrews of the Bureau of Air Regulation.

Sincerely,

Barry D. Andrews

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

CHF/PL/kt

Attachments

c: Allen Zahm, Central District
Kenneth Kosky, P.E., KBN
Jewell Harper, EPA

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

CERTIFIED MAIL

In the Matter of an
Application for Permit by:

Florida Power Corporation
DeBary Facility
3201 34th Street South
St. Petersburg, FL 33733

DER File No. AC 64-191015
PSD-FL-167
Volusia County

_____/

INTENT TO ISSUE

The Department of Environmental Regulation gives notice of its intent to issue an air construction permit (copy attached) for the proposed project as detailed in the application specified above, for the reasons stated below.

The applicant, Florida Power Corporation, applied on December 31, 1991, to the Department of Environmental Regulation for a PSD permit to permanently install six simple cycle combustion turbines at the DeBary Facility in Volusia County.

The Department has permitting jurisdiction under Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 and 17-4. The project is not exempt from permitting procedures. The Department has determined that an air construction permit is required for the proposed work.

Pursuant to Section 403.815, Florida Statutes and DER Rule 17-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Notice of Intent to Issue Permit. The notice shall be published one time only within 30 days in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "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, at 2600 Blair Stone Road, Twin Towers Office Building, Tallahassee, Florida 32399-2400, within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

The Department will issue the permit with the attached conditions unless a petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, F.S.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, 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 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this intent, whichever first occurs. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information;

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

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this intent. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the

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Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

Barry D. Andrews

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

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this INTENT TO ISSUE and all copies were mailed by certified mail before the close of business on 8-2-91 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to S.120.52(11), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Clerk 8-2-91
Date

Copies furnished to:

Allen Zahm, Central District
Kenneth F. Kosky, P.E.
Jewell Harper, EPA

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF INTENT TO ISSUE PERMIT

The Department of Environmental Regulation gives notice of its intent to issue a PSD permit to Florida Power Corporation, 3201 34th Street South, St. Petersburg, Florida 33733, to construct six 92.9 MW simple cycle combustion turbines. A determination of Best Available Control Technology (BACT) was required. For sulfur dioxide, the maximum increment consumption is 26%. The Department is issuing this Intent to Issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, 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 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

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(d) A statement of the material facts disputed by Petitioner, if any;
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Department of Environmental Regulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Department of Environmental Regulation
Central District
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803-3767

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Revised
Technical Evaluation
and
Preliminary Determination

Florida Power Corporation
DeBary Facility
DeBary, Volusia County, Florida

Six 92.9 MW Simple Cycle Combustion Turbines
For Peaking Service

Permit Number: AC 64-191015
PSD-FL-167

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

August 2, 1991

SYNOPSIS OF APPLICATION

I. NAME AND ADDRESS OF APPLICANT

Florida Power Corporation
DeBary Facility
3201 34th Street South
St. Petersburg, Florida 33733

II. REVIEWING AND PROCESS SCHEDULE

Date of Receipt of Application: December 3, 1990
1st Completeness Review: Department letter dated January 30, 1991.

Response to 1st Incompleteness Letter: Company letter received on February 18, 1991.

2nd Completeness Review: Department telephone call to KBN March 18, 1991 (chart missing).

Response to 2nd Incompleteness Notification: Fax letter (with chart) received from KBN March 20, 1991.

Application Completeness Date: March 20, 1991.

Technical Evaluation and Preliminary Determination and Proposed Permit June 14, 1991

Florida Power Corp. letters July 8, July 12, and July 18, 1991

KBN Fax July 24, 1991

III. FACILITY INFORMATION

III.1 **Facility Location**

This facility is located at Highlands Road in DeBary, Volusia County, Florida. The UTM coordinates are Zone 17, 467.5 km East and 3197.2 km North.

III.2 **Facility Identification Code (SIC)**

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

Industry Group No. 493 - Combination Electric, Gas and Other Utility Services.

Industry Group No. 4931 - Electric and Other Services Combined.

III.3 **Facility Category**

The Florida Power Corporation DeBary combustion peaking units are classified as major emitting facilities. The proposed project will burn No. 2 fuel oil and emit approximately 4,794 tons per year (TPY) of nitrogen oxides (NO_x), 14,581 TPY of sulfur dioxide (SO_2), 394 TPY of particulate matter (PM), 131 TPY of volatile organic compounds (VOC), 0.068 TPY of beryllium, 0.24 TPY of lead, 0.081 TPY of mercury, and 1,816 TPY of sulfuric acid mist if operated 8,760 hours per year.

IV. PROJECT DESCRIPTION

The Florida Power Corporation proposes to operate six combustion peaking turbines (CT) rated at 92.9 MW each for a total of 557.4 MW at the DeBary Facility in DeBary, Florida. The six CT's will be located along side six existing CT's generating 282 MW (total capacity).

V. RULE APPLICABILITY

The proposed project is subject to preconstruction review under the provisions of Chapter 403, Florida Statutes, Chapters 17-2 and 17-4, Florida Administrative Code (F.A.C.), and 40 CFR (July, 1990 version).

The plant is located in an area designated attainment for all criteria pollutants in accordance with F.A.C. Rule 17-2.420.

The proposed project will be reviewed under F.A.C. Rule 17-2.500(5), New Source Review (NSR) for Prevention of Significant Deterioration (PSD), because it will be a major modification to a major facility. This review consists of a determination of Best Available Control Technology (BACT) and unless otherwise exempted, 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 sources shall be in compliance with the New Source Performance Standards for Gas Turbines, Subpart GG, Appendix A, which is contained in 40 CFR 60, and is adopted by reference in F.A.C. Rule 17-2.660. The proposed sources shall also comply with applicable provisions of F.A.C Rule 17-2.700, Stack Test Procedures, and F.A.C. Rule 17-2.630, Best Available Control Technology.

VI. SOURCE IMPACT ANALYSIS

VI.1 **Emission Limitations**

The operation of the simple cycle combustion plant burning No. 2 fuel oil will produce emissions of NO_x, SO_2, CO, sulfuric acid mist, PM, Be, Pb and Hg. The impact of these pollutant emissions are below the Florida ambient air quality standards (AAQS) and/or the acceptable ambient concentration levels (AAC). Table 1 lists each contaminant and its maximum expected emission rate, along with the proposed increase of emissions.

VI.2 **Air Toxics Evaluation**

The operation of the sources will produce emissions of chemical compounds that may be toxic in high concentrations. The emission rates of these chemicals shall not create ambient concentrations greater than the acceptable ambient concentrations (AAC) as shown below. Determination of the AAC for these organic compounds shall be determined by Department approved dispersion modeling or ambient monitoring.

$$AAC = \frac{OEL}{\text{Safety Factor}}$$

Where,

AAC = acceptable ambient concentration

Safety Factor = 50 for category B substances and 8 hrs/day
100 for category A substances and 8 hrs/day
210 for category B substances and 24 hrs/day
420 for category A substances and 24 hrs/day

OEL = Occupational exposure level such as ACGIH, ASHA and NIOSH published standards for toxic materials.

MSDS = Material Safety Data Sheets

VI.3 **Air Quality Analysis**

a. Introduction

The operation of the proposed six combustion peaking turbines will result in emissions increases which are projected to be greater than the PSD significant emission rates for the following pollutants: NO_x, SO_2, PM, PM_{10}, Be, Hg, inorganic arsenic, and H_2SO_4 mist. Therefore, the project is subject to the PSD NSR requirements contained in F.A.C. Rule 17-2.500(5) for these pollutants. Part of these requirements is an air quality impact analysis for these pollutants, which includes:

- An analysis of existing air quality;
- A PSD increment analysis (for SO_2, PM, PM_{10}, and NO_x);
- An ambient Air Quality Standards analysis (AAQS);
- An analysis of impacts on soils, vegetation, visibility and growth-related air quality impacts; and,
- A Good Engineering Practice (GEP) stack height determination

The analysis of existing air quality generally relies on preconstruction monitoring data collected in accordance with EPA-approved methods. The PSD increment and AAQS analyses are based on air quality dispersion modeling completed in accordance with EPA guidelines.

Based on these required analyses, the Department has reasonable assurance that the proposed project, as described in this report and subject to the conditions of approval proposed herein, will not cause or contribute to a violation of any PSD increment or ambient air quality standard. A brief description of the modeling methods used and results of the required analyses follow. A more complete description is contained in the permit application on file.

b. Analysis of the Existing Air Quality

Preconstruction ambient air quality monitoring may be required for pollutants subject to PSD review. However, an exemption to the monitoring requirement can be obtained if the maximum air quality impact resulting from the projected emissions increase, as determined through air quality modeling, is less than a pollutant-specific de minimus concentration. The predicted maximum concentration increase for each pollutant subject to PSD (NSR) is given below:

	SO_2	TSP & PM_{10}	NOx	CO	Be	Hg
PSD de minimus Concentra. (ug/m^3)	13	10	14	575	.001	.25
Averaging Time	24-hr	24-hr	Annual	8-hr	24-hr	24-hr
Maximum Predicted Impact (ug/m^3)	11.4	1.2	0.31	2.9	.000053	0.000063

There are no monitoring de minumus concentrations for H_2SO_4 mist and inorganic arsenic. As shown above, the predicted impacts are all less than the corresponding de minimus concentrations; therefore, no preconstruction monitoring is required for the pollutants. However, background concentrations were developed by the applicant and approved by the Department for use in the SO_2 AAQS analysis. Values of 90 ug/m^3, 3-hr average; 25 ug/m^3, 24-hr

average; and 4 ug/m^3, annual average, were based on 1988 data from the DeBary SO_2 monitoring site in Volusia County. This site is located 2.8 km away from the project.

c. Modeling Method

The EPA-approved Industrial Source Complex Short-Term (ISCST) dispersion model was used by the applicant to predict the impact of the proposed project on the surrounding ambient air. All recommended EPA default options were used. Direction-specific downwash parameters were used because the stacks were less than the good engineering practice (GEP) stack height. Five years of sequential hourly surface and mixing depth data from the Tampa/Orlando Florida National Weather Service (NWS) station collected during 1982 through 1986 were used in the model. Since five years of data were used, the highest-second-high (HSH) short-term predicted concentrations are compared with the appropriate ambient air quality standards or PSD increments. For the annual averages, the highest predicted yearly average was compared with the standards.

d. Modeling Results

The applicant first evaluated the potential increase in ambient ground-level concentrations associated with the project to determine if these predicted ambient concentration increases would be greater than specified PSD significant impact levels for SO_2, CO, NO_x, PM and PM_{10}. This evaluation was based on the proposed CT units operating at load conditions of 100, 75, 50 and 25 percent. The modeling was performed using the highest emissions at 20°F design condition coupled with the lowest exit gas flow rates at 95°F design condition to maximize predicted impacts. The maximum predicted concentrations generally occur for the maximum capacity at 100% operating load. Dispersion modeling was performed with receptors placed along the 36 standard radial directions (10 degrees apart) surrounding the proposed units at the following downwind distances: (1) the first 36 receptors were located at the plant property boundaries with an additional near-field grid of 27 receptors located 300m from the proposed units off of plant property, (2) subsequent receptors were located at distances of .5, .8, 1.2, 1.6, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 6.0, 7.0 and 8.0 km off of plant property. The results of this modeling presented below show that the increases in ambient ground-level concentrations for all averaging times are less than the PSD significant impact levels for CO, NO_x, PM and PM_{10}.

	SO_2			NO2	CO		PM and PM_{10}	
Avg. Time	Annual	3-hr	24-hr	Annual	1-hr	8-hr	Ann.	24-hr
PSD Signifi. Level (ug/m^3)	1.0	25.0	5.0	1.0	2000	800	1.0	5.0
Ambient Concen. Increase (ug/m^3)	0.94	50.9	11.4	0.31	13.3	2.9	0.10	1.2

Therefore, further dispersion modeling for comparison with AAQS and PSD increment consumption were not required for CO, NOx, PM and PM_{10}. However, the results also show that the increases in maximum ambient groundlevel concentrations for the 3-hr and 24-hr averaging times for SO_2 were greater than the PSD significant impact levels, thus requiring the applicant to do a full impact analysis for SO_2. The significant impact area for the facility was determined to be greater than 50 km; therefore, all sources within 50 km of the facility were evaluated by the applicant. Screening analyses were performed for predicting maximum SO_2 concentrations for comparison to the PSD Class II increments and the AAQS using the same receptor grid described above. Refined AAQS and PSD Class II analyses were based on modeling the years during which the overall HSH 3-hour, HSH 24-hour, and highest annual concentrations were predicted in the screening analyses. The refined 3-hr and 24-hr modeling was conducted using a receptor grid centered on the receptor which had the HSH 3-hr or 24-hr concentration determined from the screening analysis. These receptors were located at intervals of 100m between the distances considered in the screening phase, along 9 radials spaced at 2-degree increments centered on the radial along which the maximum concentration was predicted. The results of these analyses for SO_2 and comparison with the appropriate standards and increments are summarized in the following tables. The maximum predicted SO_2 concentration are all less than the appropriate AAQS and PSD increments.

AAQS Analysis (all values in ug/m^3)

Avg. Time	Annual	3-hr	24-hr
Maximum Predicted Concentration	37.7	792	215
Includes Background Value	4	90	25
AAQS	60	1300	260

PSD Class II Increment Analysis (all values in ug/m^3)

Avg. Time	Annual	3-hr	24-hr
Max. Predicted Consumption Concen.	2.53	138	23.2
Increment	20	512	138

The impact of this project on the Class I increments for SO_2, PM, and NO_2 in the closest Class I area, the Chassahowitzka National Wilderness Area, was not evaluated by the applicant or the Department since this area is located 120 km away from the project.

Sulfuric acid mist, beryllium, mercury and arsenic are noncriteria pollutants, which means that neither national AAQS nor PSD Significant Impacts have been defined for these pollutants. However, the Department does have a draft Air Toxics Permitting Strategy, which defines no threat levels for these pollutants. The Department and the applicant have used the same modeling procedure described above for the screening analysis to evaluate the maximum increase in ground level concentration of these pollutants for comparison with the no-threat levels. The results of this analysis are shown on the following page:

Avg. Time	H_2SO_4 mist 24-hr	Be Annual	Hg 24-hr	As Annual
No Threat-Level (ug/m^3)	2.4	.0004	.024	.00023
Max. Concen. Increase	1.2	.000004	.000063	.000007

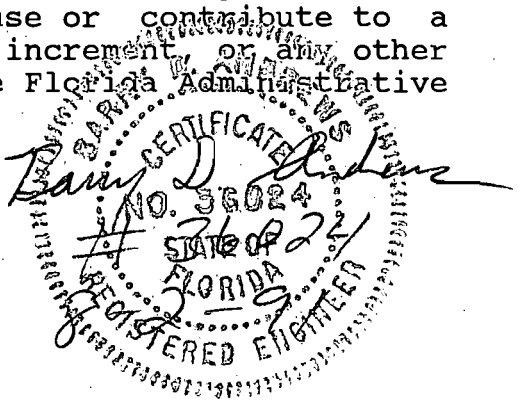
All of these values are less than their respective no-threat levels.

e. Additional Impacts Analysis

The maximum predicted concentrations from NOx, SO_2, PM and PM_{10} are predicted to be less than the AAQS, including the national secondary standards designed to protect public welfare-related values. As such, no harmful effects on soil and vegetation are expected. The increased emissions at the facility are not expected to affect the visibility in the Chassahowitzka Class I area located over 100 km away. In addition, the proposed modification will not significantly change employment, population, housing or commercial/industrial development in the area to the extent that a significant air quality impact will result.

VII. CONCLUSION

Based on the information provided by Florida Power Corporation, the Department has reasonable assurance that the proposed installation of the 557.4 MW simple cycle gas turbine system, as described in this evaluation, and subject to the conditions proposed herein, will not cause or contribute to a violation of any air quality standard, PSD increment, or any other technical provision of Chapter 17-2 of the Florida Administrative Code.



Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

PERMITTEE:
Florida Power Corp.
DeBary Facility
3201 34th Street South
St. Petersburg, FL 33733

Permit Number: AC 64-191015
PSD-FL-167
Expiration Date: Jan. 31, 1993
County: Volusia
Latitude/Longitude: 28°54'14"N
81°19'59"W
Project: Six 92.9 MW Simple Cycle Gas Turbines

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For six 92.9 MW simple cycle combustion turbines (CT's) with maximum heat input of 1,144 MMBtu/hr/unit at 59°F (oil) to be located at the DeBary facility in DeBary, Florida. The turbines are to be GE PG7111EA equipped with wet injection. The UTM coordinates are Zone 17, 467.5 km East and 3197.2 km North.

The sources shall be constructed in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments are listed below:

1. Florida Power Corporation application received December 31, 1990.
2. Department's letter dated January 30, 1991.
3. Florida Power Corporation's letter received February 18, 1991.
4. Florida Power Corp.'s letter dated July 8, 1991.
5. Florida Power Corp.'s letter dated July 12, 1991
6. Florida Power Corp.'s letter dated July 18, 1991.
7. KBN faxed letter dated July 24, 1991.

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, 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.

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

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

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

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

GENERAL CONDITIONS:

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.

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

a. Have access to and copy any records that must be kept under the conditions of the permit;

b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

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

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

a. a description of and cause of non-compliance; and

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

GENERAL CONDITIONS:

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

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the 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 extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and 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.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

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

13. This permit also constitutes:

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

14. The permittee shall comply with the following:

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

GENERAL CONDITIONS:

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

c. Records of monitoring information shall include:

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

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

SPECIFIC CONDITIONS:

Emission Limits

1. The maximum allowable emissions from these sources shall not exceed the emission rates listed in Table 1.

2. Visible emissions shall not exceed 20% opacity except at full load in which case visible emissions shall not exceed 10% opacity at peak load.

Operating Rates

3. These sources are allowed to use only No. 2 fuel oil with a 0.30% average and 0.5% sulfur content maximum, by weight. The sulfur content is based upon a weighted 12 month rolling average of fuel oil analysis from delivery receipts.

SPECIFIC CONDITIONS:

4. The permitted materials and utilization rates for the combined cycle gas turbines shall not exceed: (a) the maximum heat input of 1,144 MMBtu/hr/unit at 20°F. (b) maximum No. 2 fuel oil consumption shall not exceed 7,826 (at 59°F) gal/hr/unit or 159,200,000 gal/yr for 6 CT's. (c) SO_2 emissions for the six combustion turbines not exceed 2,888 tons/year. (d) the maximum capacity factor shall be limited to 38.7%.

5. The capacity factor shall be limited to 33% based on a weighted 12 month rolling average sulfur content of 0.30%. However, if the weighted rolling average sulfur content of the fuel oil is less than 0.30%, the capacity factor may be adjusted using the following table:

Percent Average Sulfur Content	% Capacity Factor
0.30 - 0.295	33
0.29 - 0.285	34.4
0.28 - 0.275	35.8
0.27 - 0.265	37.2
0.26 - or less	38.7

6. Any change in the method of operation, equipment or operating hours shall be submitted to the DER's Bureau of Air Regulation and Southeast District offices.

7. Any other operating parameters established during compliance testing and/or inspection that will ensure the proper operation of this facility shall be included in the operating permit.

Compliance Determination

8. Compliance with the NO_x, SO_2, CO, PM, PM_{10} and VOC standards shall be determined (on each unit within 10% maximum heat rate input) within 180 days of initial operation and annually thereafter, by the following reference methods as described in 40 CFR 60, Appendix A (July, 1990 version) and adopted by reference in F.A.C. Rule 17-2.700.

- Method 1. Sample and Velocity Traverses
- Method 2. Volumetric Flow Rate
- Method 3. Gas Analysis
- Method 5. Determination of Particulate Matter Emissions from Stationary Sources
- Method 9. Determination of the Opacity of the Emissions from
- Method 8. Determination of the Sulfuric Acid of the Emissions from Stationary Sources

SPECFIC CONDITIONS:

- Method 10. Determination of the Carbon Monoxide Emission from Stationary Sources
- Method 20. Determination of Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions from Stationary Gas Turbines.
- Method 25A Determination of the Volatile Organic Compounds Emissions from Stationary Sources.

Other DER approved methods may be used for compliance testing after prior Departmental approval.

9. Method 5 must be performed on one combustion turbine to determine the initial compliance status of this type unit. Thereafter, the opacity emissions test may be used unless 10% opacity is exceeded at peak load.

10. Compliance with the SO_2 emission limit can also be determined by calculations based on fuel analysis using ASTM D4292 for the sulfur content of liquid fuels.

11. Trace elements of Beryllium (Be) shall be tested during initial compliance test using EMTIC Interim Test Method. As an alternative, Method 104 may be used; or Be may be determined from fuel sample analysis using either Method 7090 or 7091, and sample extraction using Method 3040 as described in the EPA solid waste regulations SW 846.

12. Mercury (Hg) shall be tested during initial compliance test using EPA Method 101 (40 CFR 61, Appendix B) or fuel sampling analysis using methods acceptable to the Department.

13. During performance tests, to determine compliance with the proposed NO_X standard, measured NO_X emissions at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor:

$$NO_X = (NO_{X\ obs}) \left(\frac{P_{ref}}{P_{obs}}\right)^{0.5} e^{19\,(H_{obs} - 0.00633)} \left(\frac{288°K}{T_{AMB}}\right)^{1.53}$$

where:

NO_X = Emissions of NO_X at 15 percent oxygen and ISO standard ambient conditions.

$NO_{X\ obs}$ = Measured NO_X emission at 15 percent oxygen, ppmv.

P_{ref} = Reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure.

SPECIFIC CONTIDIONS:

P_{obs} = Measured combustor inlet absolute pressure at test ambient pressure.

H_{obs} = Specific humidity of ambient air at test.

e = Transcendental constant (2.718).

T_{AMB} = Temperature of ambient air at test.

14. Test results will be the average of 3 valid runs. The Central District office will be notified at least 15 days in writing in advance of the compliance test(s). The sources shall operate between 90% and 100% of permitted capacity during the compliance test(s) as adjusted for ambient temperature. Compliance test results shall be submitted to the Central District office no later than 45 days after completion.

15. A continuous monitoring system shall be installed to monitor and record the fuel consumption on each unit. Water injection shall be utilized for NOx control. The water to fuel ratio at which compliance is achieved shall be incorporated into the permit and shall be continuously monitored. The system shall meet the requirements of 40 CFR Part 60, Subpart GG.

16. Sulfur, nitrogen content and lower heating value of the fuel being fired in the combustion turbines shall be based on a weighted 12 month rolling average from fuel delivery receipts. The records of fuel oil usage shall be kept by the company for a two-year period for regulatory agency inspection purposes.

Rule Requirements

17. This source shall comply with all applicable provisions of Chapter 403, Florida Statutes, Chapters 17-2 and 17-4, Florida Administrative Code and 40 CFR (July, 1990 version).

18. The sources shall comply with all requirements of 40 CFR 60, Subpart GG, and F.A.C. Rule 17-2.660(2)(a), Standards of Performance for Stationary Gas Turbines.

19. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements and regulations (F.A.C. Rule 17-2.210(1)).

20. The sources shall comply with F.A.C. Rule 17-2.700, Stationary Point Source Emission Test Procedures.

SPECIFIC CONDITIONS:

21. If construction does not commence within 18 months of issuance of this certification/permit, then the permittee shall obtain from DER a review and, if necessary, a modification of the control technology and allowable emissions for the unit(s) on which contruction has not commenced (40 CFR 52.21(r)(2)).

22. Quarterly excess emission reports, in accordance with the July 1, 1988 version of 40 CFR 60.7 and 60.334 shall be submitted to DER's Central District office.

23. Literature on equipment selected shall be submitted as it becomes available. A CT-specific graph of the relationship between NOx emissions and steam injection and also another of ambient temperature and heat inputs to the CT shall be submitted to DER's Central District office and the Bureau of Air Regulation.

24. Stack sampling facilities shall be provided for each of the stacks.

25. Construction period fugitive dust emissions shall be minimized by covering or watering dust generation areas.

26. Pursuant to F.A.C. Rule 17-2.210(2), Air Operating Permits, the permittee is required to submit annual reports on the actual operating rates and emissions from this facility. These reports shall include, but are not limited to the following: sulfur nitrogen contents and the lower heating value of the fuel being fired, fuel usage, hours of operation, air emissions limits, etc. Annual reports shall be sent to the Department's Central District office by March 1 of each calendar year.

27. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit (F.A.C. Rule 17-4.090).

28. An application for an operation permit must be submitted to the Central District office at least 90 days prior to the expiration date of this construction permit. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

PERMITTEE:
Florida Power Corp.

Permit Number: AC 64-191015
PSD-FL-167
Expiration Date: Jan. 31, 1993

Issued this _____ day
of _____, 1991

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

_____
Carol M. Browner
Secretary

Best Available Control Technology (BACT) Determination
Florida Power Corporation
DeBary Facility
Volusia County

The applicant proposes to operate six No. 2 fuel oil fired 92.9 MW peaking cycle combustion turbine systems to be used for peaking power at their DeBary facility on Highlands Road, DeBary, Volusia County, Florida.

The applicant states that the maximum heat input will be 1,144 MMBtu/hr per turbine. The applicant has indicated the maximum annual tonnage of regulated air pollutants emitted from the six turbines based on sea level conditions at 59°F and 100 percent capacity (8760 hours/year) to be as follows:

Pollutant	Potential Emissions (tons/yr)	PSD Significant Emission Rate (tons/yr)
NOx	4794	40
SO_2	14581	40
PM	394	25
PM_{10}	394	15
CO	1411	100
VOC	131	40

Florida Administrative Code Rule 17-2.500(2)(f)(3) requires a BACT review for all regulated pollutants emitted in an amount equal to or greater than the significant emission rates listed in the previous table.

Date of Receipt of a BACT Application

December 31, 1990

BACT Determination Requested by the Applicant

Pollutant	Determination
NOx	42 ppmvd @ 15% O_2
SO2 and H_2SO_4	Max 0.5% Sulfur No. 2 fuel oil
PM/PM_{10}	Combustion Controls
CO	Combustion Controls

BACT Determination Procedure

In accordance with Florida Administrative Code Chapter 17-2, Air Pollution, this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department, on a case by case basis, taking into account energy, environmental and

economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques. In addition, the regulations state that in making the BACT determination the Department shall give consideration to:

(a) Any Environmental Protection Agency determination of Best Available Control Technology 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 determinations 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 source in question the most stringent control available for a similar or identical source or source category. If it is shown that this level of control is technically or economically infeasible for the source 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 applicant has stated that BACT for nitrogen oxides will be met by using wet injection necessary to limit emissions to 42 ppmvd at 15% oxygen for No. 2 fuel oil firing.

A review of the EPA's BACT/LAER Clearinghouse indicates that the lowest NOx emission limit established to date for a combustion turbine is 4.5 ppmvd at 15% percent oxygen. This level of control was accomplished through the use of water injection and a selective catalytic reduction (SCR) system.

Selective catalytic reduction is a post-combustion method for control of NOx emissions. The SCR process combines vaporized ammonia with NOx in the presence of a catalyst to form nitrogen and water. The vaporized ammonia is injected into the exhaust gases prior to passage through the catalyst bed. The SCR process can achieve up to 90% reduction of NOx with a new catalyst. As the catalyst ages, the maximum NOx reduction will decrease to approximately 86 percent.

The applicant has rejected using SCR because of technical infeasibility. The applicant was unable to find similar combustion turbines firing fuel oil and equipped with SCR. The applicant states several supporting reasons for the decision in Table 4-3 of the application.

Although the Department agrees that there was a time when SCR was not feasible for oil firing, the latest information available now indicates that SCR can be used for oil firing provided that adjustments are made in the ammonia to NOx injection ratio. By lowering the injection ratio below 1 to 1, testing has indicated that NOx can be controlled with efficiencies ranging from 60 to 75 percent. When the injection ratio is lowered, there is not a problem with ammonium bisulfate formation since essentially all of the ammonia is able to react with the nitrogen oxides present in the combustion gases.

The Department recently reviewed an application for a similar combustion turbine, which included levelized cost for SCR of $2,190,000. Assuming that the lowered ammonia injection ratio strategy was used to control NOx emissions by 65%, the SCR would control 201 tons (65% x 309 tons/year) of NOx annually. The 309 tons/year assumes an operating rate of 3400 hours/year/unit. When this reduction of NOx is taken into consideration with the total annual cost of $2,190,000, the cost per ton of controlling NOx is $10,896. This calculated cost is higher than has previously been approved as BACT and if the capacity factor were limited to 33% (2,891 hrs), the cost per ton would be even higher.

The applicant has stated that sulfur dioxide (SO_2) and sulfuric acid mist (H_2SO_4) emissions when firing fuel oil will be controlled by lowering the operating hours to 3400/year per unit and the fuel oil sulfur content to a maximum of 0.5% by weight, and an average of 0.3%. This would result in a SO_2 reduction of 377 tons/year/unit (0.3/0.5 x 3400/8760 hrs x 14,581 TPY 6 units). Also, H_2SO_4 mist would be reduced by 46 tons/year/unit.

With regard to the operation of turbines on oil, several BACT determinations have established a 25% capacity factor as an operating limit. This is due to the increase in nitrogen oxides emissions that results from the burning of oil as compared to natural gas. In some cases, turbines have been allowed to operate above the 25% capacity factor limitation on oil (generally 33%), provided that they use low NOx combustors (42 ppm on oil firing) and limit the sulfur content of oil. Those facilities that have been permitted to operate above the 25% capacity factor limitation had a maximum sulfur content ranging from 0.20 to 0.25 percent. However, their primary fuel was natural gas. Since the DeBary facility is capable of limiting NOx emissions to 42 ppm and can only use oil, it is reasonable to allow the capacity facator to range from 33 to 38.7% provided that the <u>average</u> sulfur content is at or below 0.30%. The Department accepts the applicants proposal to control CO and PM/PM_{10} by combustion design and the use of clean fuels (No. 2 distillate). The Department also agrees with the

applicant that there are no feasible methods to control beryllium and aresenic except by limiting the inherent quality of the fuel.

Although the emissions of these toxic pollutants could be controlled by particulate control devices, such as a baghouse or scrubber, the amount of emission reductions would not warrant the added expense. As this is the case, the Department does not believe that the BACT determination would be affected by the emissions of these pollutants.

Potentially Sensitive Concerns

With regard to controlling NOx emissions with SCR, the applicant has identified the following technical limitations:

- Reduced power output, ammonia slip and disposal of hazardous waste generated (spent catalyst)

BACT Determination by DER

Based on the information presented by the applicant and the studies conducted, the Department believes that the use of SCR for NOx control is not justifiable as BACT. Since these units are intended for peaking service and have operating hours limited to 3,390 hrs/yr/unit, wet injection for NOx emission control is justifiable as BACT for this facility. Should the weighted rolling average sulfur content for the fuel oil be greater than 0.30% the operating hours will be reduced or prorated.

As this is the case, the BACT emission limitations are established as follows:

Pollutant	Emission Limit	Method of Control
NOx	42 ppmvd @ 15% O_2	Wet Injection
SO_2	555 lbs/hr/unit	Avg. 0.30% and max. 5% sulfur content, by weight, No. 2 fuel oil
PM and PM_{10}	15 lbs/hr/unit	Combustion
CO	54 lbs/hr/unit	Combustion
VOC	5 lbs/hr/unit	Combustion
Arsenic	7.1×10^{-3} lbs/hr/unit	Fuel Quality
Beryllium	1.3×10^{-6} lbs/hr/unit	Fuel Quality
H_2SO_4	76 lbs/hr/unit	Avg. 0.30% and max. 0.5% sulfur content, by weight, No. 2 fuel oil

Details of the Analysis May be Obtained by Contacting:

Barry Andrews, P.E., BACT Coordinator
Department of Environmental Regulation
Bureau of Air Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended by:	Approved by:
C. H. Fancy, P.E., Chief Bureau of Air Regulation	Carol M. Browner, Secretary Dept. of Environmental Regulation
_____1991 Date	_____1991 Date

TABLE 1
ALLOWABLE EMISSION LIMITS
Simple Cycle Combustion Turbine

Pollutant	Standard Oil Firing	Each Unit lb/hr[a]	Total 6 Units T/yr	Basis
NOx	42 ppm at 15% oxygen-dry basis	182	1851[b]	BACT
SO_2	No. 2 fuel oil with 0.3% avg. and 0.5% max. sulfur	555	2888[c]	BACT
PM/PM_{10}	0.025 lb/MMBtu	15	153[b]	BACT
VOC	-	5	51[b]	BACT
CO	-	54	547[b]	BACT
Sulfuric Acid Mist	No. 2 fuel oil with 0.3% avg. and 0.5% max. sulfur	76	773[b]	BACT
Fluorides (FR)	-	1.67×10^{-5}	0.34	Application
Mercury (Hg)	3.0×10^{-6} lbs/MMBtu	1.54×10^{-6}	0.031[b]	Application
Lead (Pb)	2.8×10^{-5} lbs/MMBtu	4.6×10^{-6}	0.093[b]	Application
Inorganic Arsenic	-	2.1×10^{-6}	0.4[b]	BACT
Beryllium (be)	2.5×10^{-3} lbs/MMBtu	1.3×10^{-6}	0.026[b]	BACT

(a) Emission rates based on 59°F and 15% O_2.

(b) Equivalent to 3390 hours per year at peak load and 38.7% capacity factor. If less than 6 units are constructed annual emissions prorated for actual number units constructed (i.e., if 4 units constructed, the annual NOx emission limit is 1851 TPY * (4/6) = 1234 TPY).

(c) Total TPY CAP for SO_2 assumes 33% capacity factor and fuel sulfur content of 0.30% avg. If less than 6 units constructed annual emission limit prorated for actual number units (4/6) = 1925 TPY).

P 832 538 668

Certified Mail Receipt

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UNITED STATES POSTAL SERVICE

Sent to Mr. W. W. Vierday, FPLC	
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P.O., State & ZIP Code St. Petersburg, FL 33733	
Postage	$
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TOTAL Postage & Fees	$
Postmark or Date Mailed: 8-2-91 Permit: AC64-191015 PSD-FL-167	

PS Form **3800**, June 1990

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- 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 next to the article number.

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

Consult postmaster for fee.

3. Article Addressed to:
Mr. W. W. Vierday
Environmental Programs & Lic.
Florida Power Corp.
3201 34th Street South
St. Petersburg, Florida 33733

4a. Article Number
P 832 538 668

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

ST. PETERSBURG, FLORIDA AUG 6 1991 USPO

7. Date of Delivery 8/6/91

5. Signature (Addressee)
W. W. Vierday

6. Signature (Agent)

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

PS Form **3811**, October 1990 ☆U.S. GPO: 1990—273-861 **DOMESTIC RETURN RECEIPT**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

4APT-AEB

JUL 26 199

Mr. Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Florida Power Corporation/DeBary Plant (PSD-FL-167)

Dear Mr. Fancy:

This is to acknowledge receipt of your preliminary determination and draft permit for the above referenced facility's proposed construction, by your letter dated June 14, 1991. The facility will consist of six simple-cycle combustion peaking units, each rated 92.9 MW, fired with No. 2 distillate fuel oil. Your determination proposes to limit NO_X emissions through wet injection, to limit SO_2 and H_2SO_4 mist emissions through limiting the sulfur content of the fuel oil, to limit PM and PM10 through combustion design and the use of clean fuel, to limit CO through combustion design, and to limit Hg, Be, and As emissions through the specifications on No. 2 distillate fuel oil.

We have reviewed the package as submitted and have no adverse comments. Thank you for the opportunity to review and comment on the package. If you have any questions or comments, please contact Mr. Scott Davis of my staff at (404) 347-5014.

Sincerely yours,

Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides, and Toxics Management Division

cc: P. Tennis
C. Holladay
B. Andrews
C. Collins
K. Kosky, KBN
C. Stanley, NPS

Florida Power
CORPORATION

July 18, 1991

RECEIVED
JUL 24 1991
Division of Air
Resources Management

Mr. C. H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental
Regulation (FDER)
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

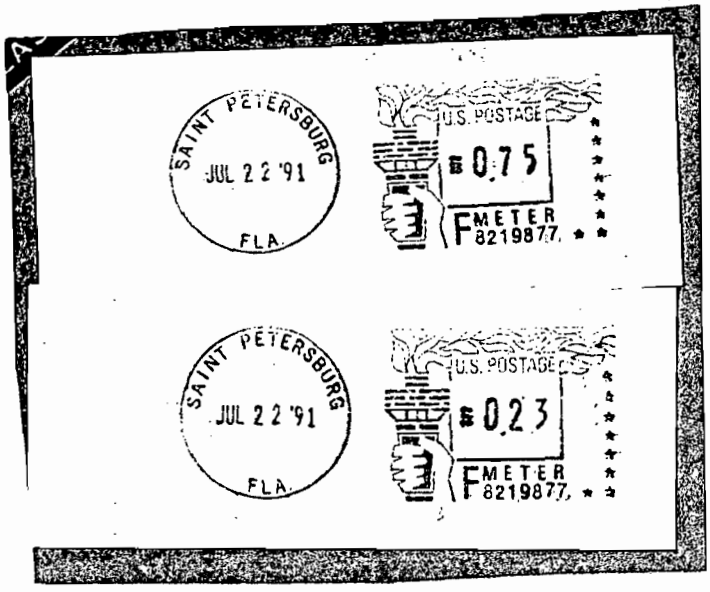
Dear Mr. Fancy:

Re: Volusia County - DeBary Combustion Turbines
AC 64-191015

This is to respond to our meeting on July 9, 1991, and my memo to you, July 8, 1991, proposing amendments to the proposed FDER draft permit received by Florida Power Corporation (FPC) on June 17, 1991. We have also held subsequent phone conversations with your Mr. Barry Andrews. There were several items that required additional information related to the construction permit. Presented herein is additional information that supports these discussions and our recommended changes to the construction permit.

Sulfur Dioxide (SO_2) Limitation

FPC has proposed a permit condition that would limit annual average SO_2 emissions equivalent to 38.7 percent capacity factor (full load at 59°F) at an average sulfur content of 0.3 percent sulfur. The FDER has proposed to limit annual average SO_2 emissions equivalent to 33 percent capacity factor under the same conditions. Corresponding SO_2 emission levels equate to 3,386 tons/year (TPY) under the 38.7 percent scenario and 2,888 tons/year (TPY) under the 33 percent scenario. The rationale for FPC's proposed permit condition is twofold. First, the proposed project is unlike any previous combustion turbine or combined cycle project that has been used as a basis of comparison for this BACT review. As we discussed, the proposed DeBary combustion turbines will be constructed as simple cycle units with the ability to fire only distillate oil. Natural gas is not available at the site. FPC requests an average 0.3 percent sulfur, the average being based on a fixed number of gallons of fuel oil burned in order that FPC can manage the sulfur content on a long term basis. In contrast, combustion turbines/combined cycle facilities which are primarily gas fired can better manage their inventory to reduce fuel costs. The higher costs of requiring lower sulfur fuel (e.g., 0.3 percent maximum vs. 0.3 percent average) for a capacity factor greater than 25 percent will result in direct cost increases for FPC's customers. Indeed, as we discussed at the meeting and as demonstrated in our application, FPC's customers would have to pay for the higher fuel costs without obtaining a direct benefit in lower emissions.



Florida Power Corporation
P.O. Box 14042, St. Petersburg, FL 33733

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- ☐ Special Handling
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906 209(S)

TO:

Mr. C. H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Second, the DeBary plant has 6 existing combustion turbines with a generating capability of 330 MW. If the proposed unit's capacity factor is restricted due to SO_2 emissions, then the older less efficient units would have to operate. Based on the currently permitted SO_2 emissions of the existing units, there would be a net SO_2 emissions increase of 1,233 TPY under the 38.7 percent scenario (or 720 TPY under the 33 percent scenario) from the existing units replacing the generation that could be provided by the new units (i.e., replacing the generation from the new units between 25 percent to 38.7 percent or 33 percent, respectively).

Operating Limitation

As we discussed, FPC desires to have the ability to operate an equivalent of 3,390 hours/year at full load and 59°F. This was based on the proposed NO_x emissions, which have been restricted to 42 ppm (corrected to 15 percent oxygen dry conditions) using GE's "Quiet Combustor", as compared with NO_x limitations (i.e., 65 ppm) for other similar simple cycle combustion turbines when firing oil. The 3,390 hours per year is equivalent to a 38.7 percent capacity factor. Similar to the comparison made above for SO_2, if the older less efficient combustion turbines were required to replace the generation that could not be performed by the new units, then a net NO_x emissions increase of 1,024 TPY would result from operating the older units.

When taken together, the SO_2 emissions (calculated at 38.7 percent or at 33 percent) plus the NO_x emissions would be reduced by 2,257 TPY or 1,724 TPY, respectively, from the DeBary plant site by allowing the proposed new units to operate up to a 38.7 percent capacity factor.

FPC Concession

The FDER has represented its rationale for limiting our capacity factor to 33 percent based upon three other recent determinations. Those being the OUC Indian River peaking facility, the City of Lakeland and the Vero Beach combined cycle installations. We feel that it is inappropriate to use these previous determinations as a precedent for setting BACT for our proposed facility. First, two of these facilities are combined cycle installations not simple cycle turbine installations. Secondly, all three facilities use oil as a secondary fuel. FPC is permitting oil as a primary fuel because gas simply is not available. Thirdly, we have heard no rationale as to why we should be limited to 33 percent for SO_2 other than the fact that three previous utilities proposed, or accepted, a 33 percent capacity factor for a secondary fuel source. The restriction posed by an SO_2 cap, on facilities whose primary fuel generates no SO_2, makes it obvious why the 33 percent capacity factor was willingly accepted by the three facilities in question.

However, in order to preserve the construction schedule for this project, FPC reluctantly agrees to accept a permit condition that would limit annual average SO_2 emissions equivalent to 33 percent capacity factor (full load at 59°F) at an average sulfur content of 0.3 percent sulfur. This is reflected in Table 1 of the proposed draft permit, FPC Proposed Revision 2, July 16, 1991.

Opacity

FPC requests an opacity limitation of 20 percent when firing oil. The basis for this request is GE's guarantee: 20 percent opacity from 0 to 25 percent load, 15 percent opacity from 25 to 50 percent load, and 10 percent opacity from 50 to 100 percent load. This variable opacity guarantee would render a regulatory limit impractical for these units since load can be highly variable. Also, our request for 20 percent opacity is consistent with the BACT limits placed on the FPL Martin and Lauderdale units when firing oil. These units, although advanced combustion turbines, have similar water to fuel ratios for controlling NO_x, i.e., about 1:1.

Since the amount of water steam injected affects the combustion process and therefore opacity, it stands to reason that the limit we have proposed (i.e., 20 percent) is consistent with previous BACT determinations. Moreover, the proposed NO_x limitation for the new DeBary units when firing oil is the lowest of any recently authorized in any PSD permit. As we discussed on July 9th and as included in our letter, we would accept a condition to perform particulate testing in the event that the annual opacity measurement exceeded 10 percent average opacity.

Compliance Determination

The request to allow an adjustment of heat input rates for ambient temperature has not been specifically addressed in a previous PSD permit. However, all previous PSD permits have emission limits tied to an ambient temperature. It is not possible for all combustion turbines to perform testing during the coldest periods which usually occur during a one week period. Indeed, there is not sufficient stack test teams in the U.S., let alone Florida, to test all combustion turbines during the same week. Coupled with the uncertainty of cold periods in Florida, the requirement to test at 90 to 100 percent of rated capacity is impractical. We therefore request the ambient temperature adjustment in Specific Condition 14.

For Specific Condition 16, we request that monthly analyses be performed from weekly composite samples. Currently, this protocol is used for our combustion turbines. Authorizing this approach would allow us to perform sampling and analysis consistent with current practices.

Attached are our additional recommended changes to the proposed permit that incorporate the comments in this letter.

Please call if there are any questions concerning this response. Your efforts to expedite the issuance of the construction permits for this project would be greatly appreciated. The generation made available by this project will assist Florida Power Corporation in meeting its growing energy demands while applying advanced and efficient process and pollution control technology.

Sincerely,

W. W. Vierday

W. W. Vierday, Manager
Environmental Programs-Licensing

Attachment

pag/WWV6.Fancy.Let

cc: P. Lewis
C. Holladay
C. Collins, E Dist.
J. Harper, EPA
CHF/BA

PERMITTEE:
Florida Power Corporation
DeBary Facility
3201 34th Street South
St. Petersburg, FL 33733

Permit Number: AC 64-191015
PSD-FL-167
Expiration Date: July 31, 1992
County: Volusia
Latitude/Longitude: 28 54'14"N
81 19'59"W
Project: Six 92.9 MW Simple Cycle Gas Turbines

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the follows:

For six-92.9 MW simple cycle combustion turbines with maximum heat input of ~~1,114~~ **1144** MMBtu/hr/unit at 20°F (oil) to be located at the DeBary facility in DeBary, Florida. The turbines are to be GE PG7111EA equipped with wet injection. The UTM coordinates are Zone 17, 467.5 km East and 3197.2 km North.

The sources shall be constructed in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments are listed below:

1. Florida Power Corporation application received December 31, 1990.
2. Department's letter dated January 30, 1991.
3. Florida Power Corporation's letter received February 18, 1991.

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, 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.

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

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

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement 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 Fund may express State opinion as to title.

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

GENERAL CONDITIONS:

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,

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

a. Have access to and copy any records that must be kept under the conditions of the permit;

b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

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

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

a. a description of and cause of non-compliance; and

b. the period of non-compliance, 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.

GENERAL CONDITIONS:

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

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the 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 extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and 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.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

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

13. This permit also constitutes:

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

14. The permittee shall comply with the following:

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

GENERAL CONDITIONS:

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

c. Records of monitoring information shall include:

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

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

SPECIFIC CONDITIONS:

Emission Limits

1. The maximum allowable emissions from these sources shall not exceed the emission rates listed in Table 1.

Rationale: Refer to Table 1. Changes allow operational flexibility in eliminating TPY for each unit.

2. ~~Unless the Department has determined that other concentrations are required to protect public health and safety, the predicted acceptable ambient air concentrations (AAC) of the following pollutants shall not be exceeded:~~

~~Pollutant~~	~~Acceptable Ambient Concentrations ug/m^3~~		
	~~8 hrs~~	~~24 hrs~~	~~Annual~~
~~Beryllium~~	~~0.02~~	~~0.005~~	~~0.0004~~
~~Lead~~	~~1.50~~	~~0.360~~	~~0.0900~~
~~Inorganic mercury compounds all forms of vapor as Hg~~			~~0.3000~~

Rationale: This condition should be omitted from the permit. This has already been or can be determined from existing modeling.

3. Visible emissions shall not exceed ~~10%~~ 20% opacity.

Rationale: The opacity percentage should be changed from 10% to 20% to allow for load changes and low load operation. General Electric will not guarantee an opacity of 10% at low loads on their "Quiet Combustor" combustion system. This type combustor was chosen for providing lower NO_x emissions reliability.

Operating Rates:

4. ~~These six combustion turbines are allowed to operate for peaking purposes only 2190 HRS/unit/year and/or 25% annual capacity factor.~~

Rationale: This condition should be omitted. Equating hours of operation allowable to fuel consumption was agreed upon in the May 8th meeting with FDER.

5. These sources are allowed to use only No. 2 fuel oil with 0.3% average and 0.5% sulfur content maximum, by weight. **The average sulfur content is determined for each 126,000,000 gallons of oil fired at the facility.**

Rationale: **This clause allows an average of 0.3 for 126,000,000 gallons of oil burned. This is a compromise to allow a 0.3% sulfur content for a 33% capacity factor.**

6. The permitted materials and utilization rates for the ~~combined~~ **simple** cycle gas turbines shall not exceed: a. the maximum heat input of 1,144 MMBtu/hr/unit at ~~59° F~~ **20°** F. b. ~~maximum~~ **annual average** No. 2 fuel oil consumption shall not exceed 146,000,520 gal/~~yr/unit~~ **6 units (as long as the maximum annual SO_2 emissions are not exceeded).**

Rationale: **Correction for temperature and average conditions are reflected. These changes allow operation consistent with Table 1.**

7. Any change in the method of operation, equipment or operating hours shall be submitted to the DER's Bureau of Air Regulation and Southeast District offices.

8. Any other operating parameters established during compliance testing and/or inspection that will ensure the proper operation of this facility shall be included in the operating permit.

Compliance Determination

9. Compliance with the NOx, SO_2, CO, ~~PM, PM_{10}~~ **PM/PM_{10}** and VOC standards shall be determined within 60 days of construction completeness/initial operation and annually thereafter, by the following reference methods as described in 40 CFR 60, Appendix A (July, 1990 version) and adopted by reference in F.A.C. Rule 17-2.700.

- Method 1. Sample and Velocity Traverses
- Method 2. Volumetric Flow Rate
- Method 3. Gas Analysis

SPECIFIC CONDITIONS:

- Method 5. Determination of Particulate Matter Emissions from Stationary Sources
- Method 9. Determination of the Opacity of the Emissions from Stationary Sources
- Method 10. Determination of the Carbon Monoxide Emission from Stationary Sources
- Method 20. Determination of Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions from Stationary Gas Turbines

Rationale: The PM and the PM_{10} standards are considered equal for simple cycle combustion turbines.

10. Method 5 must be ~~used~~ **performed on one gas turbine** to determine the initial compliance status of this **type** unit. Thereafter, the opacity emissions test may be used unless 10% opacity is exceeded **under steady state conditions.**

Rationale: This condition provides for one Method 5 Test to show compliance. Since all units are identical, the results from one unit tested would be representative of PM emissions from each unit.

11. Compliance with the SO_2 emission limit can also be determined by calculations based on fuel analysis using ~~ASTM D2880-71~~ **ASTM D4292 or ASTM D1552** for the sulfur content of liquid fuels ~~and ASTM D1072-80, D3031-81, D4084-82 or D3246-81 for sulfur content of gaseous fuels.~~

Rationale: The ASTM D2880-71 standard required should be changed to ASTM D4292 or ASTM D1552. These are the current standards for sulfur analysis. The test standards listed for gaseous fuels should be eliminated. These units do not have gaseous fuels.

12. Compliance with the total volatile organic compound emission limits will be assumed, provided the CO allowable emission rate is achieved; specific VOC compliance testing is not required.

13. During performance tests, to determine compliance with the proposed NOx standard, measured NOx emissions at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor:

$$NO_x = (NO_{x\,obs}) \left(\frac{P_{ref}}{P_{obs}}\right)^{0.5} e^{19(H_{obs}-0.00633)} \left(\frac{288°k}{T_{AMB}}\right)^{1.53}$$

where:

NO_x = Emissions of NOx at 15 percent oxygen and ISO standard ambient conditions.

$NO_{x\,obs}$ = Measured NOx emission at 15 percent oxygen, ppmv.

P_{ref} = Reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure.

P_{obs} = Measured combustor inlet absolute pressure at test ambient pressure.

SPECIFIC CONDITIONS:

H_{obs} = Specific humidity of ambient air at test.

e = Transcendental constant (2.718).

T_{AMB} = Temperature of ambient air at test.

14. Test results will be the average of 3 valid runs. The Central District office will be notified at least 15 days in writing in advance of the compliance test(s). The sources shall operate between 90% and 100% of permitted capacity during the compliance test(s) as **adjusted for ambient temperature.** Compliance test results shall be submitted to the Central District office no later than 45 days after completion.

Rationale: The statement "as adjusted for ambient temperature" was added to this condition. Data from permit application can be used to interpolate results for different ambient conditions.

15. A continuous monitoring system shall be installed to monitor and record the fuel consumption. **Water injection shall be utilized for NO_x control. The water to fuel ratio at which compliance is achieved shall be incorporated into the permit and shall be continuously monitored. The system shall meet the requirements of 40 CFR Part 60, Subpart GG. If rules are eventually drafted, subsequent to the clean air act amendments, that require CEMS to be installed for this specific installation, then the permittee will comply.** ~~Continuous monitoring shall also be installed, operated, and maintained in accordance with 40 CFR 60, Appendix F, for the peaking cycle unit to monitor nitrogen oxides emissions.~~

~~a. Each continuous emission monitoring system (CEMS) shall meet performance specifications of 40 CFR 60, Appendix B.~~

~~b. CEMS data shall be recorded and reported in accordance with Chapter 17-2, F.A.C., and 40 CFR 60. The record shall include periods of startup, shutdown and malfunction in accordance with F.A.C. Rule 17-2.250, Excess Emissions.~~

~~c. A malfunction means any sudden and unavoidable failure of air pollution control equipment or process equipment to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation or any other preventable upset conditions or preventable equipment breakdown shall not be considered malfunctions.~~

~~d. The procedures under 40 CFR 60.13 shall be followed for installation, evaluation and operation of all CEMS.~~

~~e. For purposes of reports required under this permit, excess emissions are defined as any calculated average emission concentration, as determined pursuant to Condition No. 22 herein, which exceeds the applicable emission limits in Condition No. 1.~~

Rationale: The continuous emissions monitoring requirement for NOx should be changed to monitoring on a water to fuel ratio. A NOx CEM is not necessary with water injection. This requirement would be costly and require special systems (i.e., stack gas cooling required for sample probe).

SPECIFIC CONDITIONS:

16. Sulfur, nitrogen content and lower heating value of the fuel being fired in the combustion turbines shall be recorded ~~daily~~ **based upon a monthly analyses performed from weekly composite samples.** The records of fuel oil usage shall be kept by the company for a two-year period for regulatory agency inspection purposes.

Rationale: The required frequency of a fuel analysis should be changed from daily to analyzing a monthly composite sample. The fuel analysis does not change significantly on a day to day basis.

17. ~~Compliance with the acceptable ambient concentrations for Be, Lead, and Hg emissions shall be demonstrated based on calculations certified by a Professional Engineer registered in Florida, using actual operating conditions. Determination of the ambient concentrations for chemical compounds shall be determined by Department approved dispersion modeling. This compliance determination shall be made available upon request.~~

Rationale: This condition should be omitted from the permit. This has already been or can be determined from existing modeling.

Rule Requirements

18. This source shall comply with all applicable provisions of Chapter 403, Florida Statutes, Chapters 17-2 and 17-4, Florida Administrative Code and 40 CFR (July, 1990 version).

19. The sources shall comply with all requirements of 40 CFR 60, Subpart GG, and F.A.C. Rule 17-2.660(2)(a), Standards of Performance for Stationary Gas Turbines.

20. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements and regulations (F.A.C, Rule 17-2.210(1)).

21. The sources shall comply with F.A.C. Rule 17-2.700, Stationary Point Source Emission Test Procedures.

22. Pursuant to F.A.C. Rule 17-2.215(2), Emission Estimates, General Provisions, the permittee is required to submit annual reports on the actual operating rates and emissions from this facility. ~~These reports shall include, but are not limited to the following: sulfur nitrogen contents and the lower heating value of the fuel being fired, fuel usage, hours of operation, air emissions limits, etc.~~ Annual reports shall be sent to the Department's Central District office by March 1 of each calendar year.

Rationale: **The second sentence in this condition should be eliminated from the permit. The information required in the annual report is specified in F.A.C. Rule 17-2.210(2).**

23. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit (F.A.C. Rule 17-4.090).

SPECIFIC CONDITIONS:

24. An application for an operation permit must be submitted to the Central District office at least 90 days prior to the expiration date of this construction permit. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

Issued this _____ day
of _____, 1991

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Carol M. Browner
Secretary

TABLE 1
ALLOWABLE EMISSION LIMITS
Simple Cycle Combustion Turbine

Pollutant	Standard Oil Firing	Each lb/hr(a)	~~Unit T/yr(b)~~	~~Total lb/hr~~	Total 6 Units T/yr	Basis
NO_x	42 ppm at 15% oxygen–dry basis	182	~~199~~	~~1092~~	1851(b) ~~1195~~	BACT
SO_2	No. 2 fuel oil with 0.3% avg. and 0.5% max. sulfur	555	~~608~~	~~3330~~	2888(c) ~~3648~~	BACT
PM/PM_{10}	0.025 lb/MMBtu	15	~~16~~	~~90~~	153(b) ~~96~~	BACT
VOC	-	5	~~5~~	~~30~~	51(b) ~~33~~	BACT
CO	-	54	~~59~~	~~324~~	547(b) ~~354~~	BACT
Sulfuric Acid Mist	No. 2 fuel oil with 0.3% avg. and 0.5% max. sulfur	76	~~83~~	~~454~~	773(b) ~~499~~	BACT

(a) Emission rates based on 59°F ~~and 15 % O_2~~.

(b) ~~Annual hours 2190 per year and 25% capacity factor.~~ Equivalent to 3390 hours per year at peak load, and 38.7% capacity factor. If less than 6 units are constructed, annual emissions are prorated for the actual number of units constructed (i.e., If 4 units are constructed, the annual NOx emission limit is 1851 TPY * (4/6) = 1234 TPY).

(c) Total TPY cap for SO_2 is calculated assuming a 33% capacity factor and a fuel sulfur content of .3% avg. If less than 6 units are constructed, annual emissions are prorated for the actual number of units constructed (i.e., If 4 units are constructed, the annual SO_2 emission limit is 2888 TPY *(4/6) = 1925 TPY).

I N T E R O F F I C E M E M O R A N D U M

Date: 01-Jul-1991 04:40pm GMT
From: Iris Littleton
LITTLETON_I
Dept: Office General Counsel
Tel No: 904/488-9730

TO: Alex Alexander (ALEXANDER,ALEX)

CC: Dottie Diltz (DILTZ_D)
CC: Pat Manning (MANNING_P)

Subject: New OGC Case Assignments

TO: Alex Alexander

FROM: Iris - OGC - Tallahassee

Received 6/26/91 request for an Administrative Hearing from David and Eleanor Shreve against intent to issue permit DC05-194008 to Florida Cities Water Company.

Received 6/26/91 request for an Extension of Time from Florida Power Corp. concerning permit AC64-191015.

Received 6/21/91 request for an Extension of Time from I.G. Fonte, Jr., dba Import Used Auto Parts concerning permit WT48-167515.

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

June 14, 1991

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. W. W. Vierday
Environmental Programs & Licensing
Florida Power Corporation
3201 34th Street South
St. Petersburg, Florida 33733

Dear Mr. Vierday:

Attached is one copy of the Technical Evaluation and Preliminary Determination and proposed permit to construct and operate six simple-cycle combustion peaking units rated 92.9 MW each at the Florida Power Corporation, DeBary Facility in DeBary, Volusia County, Florida.

Please submit any written comments concerning the Department's proposed action to Mr. Barry Andrews of the Bureau of Air Regulation.

Sincerely,

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

CHF/PL/kt

Attachments

c: Allen Zahn, Central District
Kenneth Kosky, P.E., KBN
Jewell, Harper, EPA

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

CERTIFIED MAIL

In the Matter of an
Application for Permit by:

Florida Power Corporation
DeBary Facility
3201 34th Street South
St. Petersburg, FL 33733

DER File No. AC 64-191015
PSD-FL-167
Volusia County

_____/

INTENT TO ISSUE

The Department of Environmental Regulation gives notice of its intent to issue an air construction permit (copy attached) for the proposed project as detailed in the application specified above, for the reasons stated below.

The applicant, Florida Power Corporation, applied on December 31, 1991, to the Department of Environmental Regulation for a PSD permit to permanently install six simple cycle combustion turbines at the DeBary Facility in Volusia County.

The Department has permitting jurisdiction under Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 and 17-4. The project is not exempt from permitting procedures. The Department has determined that an air construction permit is required for the proposed work.

Pursuant to Section 403.815, Florida Statutes and DER Rule 17-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Notice of Intent to Issue Permit. The notice shall be published one time only within 30 days in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "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, at 2600 Blair Stone Road, Twin Towers Office Building, Tallahassee, Florida 32399-2400, within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

The Department will issue the permit with the attached conditions unless a petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, F.S.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, 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 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this intent, whichever first occurs. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information;

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

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this intent. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the

right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this intent in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

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

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this INTENT TO ISSUE and all copies were mailed by certified mail before the close of business on 6-14-91 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to S.120.52(11), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Clerk 6-14-91 Date

Copies furnished to:

Allen Zahn, Central District
Kenneth F. Kosky, P.E.
Jewell Harper, EPA

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF INTENT TO ISSUE PERMIT

The Department of Environmental Regulation gives notice of its intent to issue a PSD permit to Florida Power Corporation, 3201 34th Street South, St. Petersburg, Florida 33733, to construct six 92.9 MW simple cycle combustion turbines. A determination of Best Available Control Technology (BACT) was required. For sulfur dioxide, the maximum increment consumption is 26%. The Department is issuing this Intent to Issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, 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 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information;

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

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

The application 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 Regulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Department of Environmental Regulation
Central District
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803-3767

Any person may send written comments on the proposed action to Mr. Barry Andrews at the Department's Tallahassee address. All comments mailed within 30 days of the publication of this notice will be considered in the Department's final determination. Further, a public hearing can be requested by any person. Such requests must be submitted within 30 days of this notice.

Technical Evaluation
and
Preliminary Determination

Florida Power Corporation
DeBary Facility
DeBary, Volusia County, Florida

Six 92.9 MW Simple Cycle Combustion Turbines
For Peaking Service

Permit Number: AC 64-191015
PSD-FL-167

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

June 14, 1991

394 TPY of particulate matter (PM), 131 TPY of volatile organic compounds (VOC), 0.068 TPY of beryllium, 0.24 TPY of lead, 0.081 TPY of mercury, and 1,816 TPY of sulfuric acid mist if operated 8,760 hours per year.

IV. PROJECT DESCRIPTION

The Florida Power Corporation proposes to operate six combustion peaking turbines (CT) rated at 92.9 MW each for a total of 557.4 MW at the DeBary Facility in DeBary, Florida. The six CT's will be located along side six existing CT's generating 282 MW (total capacity).

V. RULE APPLICABILITY

The proposed project is subject to preconstruction review under the provisions of Chapter 403, Florida Statutes, Chapters 17-2 and 17-4, Florida Administrative Code (F.A.C.), and 40 CFR (July, 1990 version).

The plant is located in an area designated attainment for all criteria pollutants in accordance with F.A.C. Rule 17-2.420.

The proposed project will be reviewed under F.A.C. Rule 17-2.500(5), New Source Review (NSR) for Prevention of Significant Deterioration (PSD), because it will be a major modification to a major facility. This review consists of a determination of Best Available Control Technology (BACT) and unless otherwise exempted, 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 sources shall be in compliance with the New Source Performance Standards for Gas Turbines, Subpart GG, Appendix A, which is contained in 40 CFR 60, and is adopted by reference in F.A.C. Rule 17-2.660. The proposed sources shall also comply with applicable provisions of F.A.C Rule 17-2.700, Stack Test Procedures, and F.A.C. Rule 17-2.630, Best Available Control Technology.

VI. SOURCE IMPACT ANALYSIS

VI.1 **Emission Limitations**

The operation of the simple cycle combustion plant burning No. 2 fuel oil will produce emissions of NO_x, SO_2, CO, sulfuric acid mist, PM, Be, Pb and Hg. The impact of these pollutant emissions are below the Florida ambient air quality standards (AAQS) and/or the acceptable ambient concentration levels (AAC). Table 1 lists each contaminant and its maximum expected emission rate, along with the proposed increase of emissions.

SYNOPSIS OF APPLICATION

I. NAME AND ADDRESS OF APPLICANT

Florida Power Corporation
DeBary Facility
3201 34th Street South
St. Petersburg, Florida 33733

II. REVIEWING AND PROCESS SCHEDULE

Date of Receipt of Application: December 3, 1990
1st Completeness Review: Department letter dated January 30, 1991.

Response to 1st Incompleteness Letter: Company letter received on February 18, 1991.

2nd Completeness Review: Department telephone call to KBN March 18, 1991 (chart missing).

Response to 2nd Incompleteness Notification: Fax letter (with chart) received from KBN March 20, 1991.

Application Completeness Date: March 20, 1991.

III. FACILITY INFORMATION

III.1 **Facility Location**

This facility is located at Highlands Road in DeBary, Volusia County, Florida. The UTM coordinates are Zone 17, 467.5 km East and 3197.2 km North.

III.2 **Facility Identification Code (SIC)**

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

Industry Group No. 493 - Combination Electric, Gas and Other Utility Services.

Industry Group No. 4931 - Electric and Other Services Combined.

III.3 **Facility Category**

The Florida Power Corporation DeBary combustion peaking units are classified as major emitting facilities. The proposed project will burn No. 2 fuel oil and emit approximately 4,794 tons per year (TPY) of nitrogen oxides (NO_x), 14,581 TPY of sulfur dioxide (SO_2),

VI.2 Air Toxics Evaluation

The operation of the sources will produce emissions of chemical compounds that may be toxic in high concentrations. The emission rates of these chemicals shall not create ambient concentrations greater than the acceptable ambient concentrations (AAC) as shown below. Determination of the AAC for these organic compounds shall be determined by Department approved dispersion modeling or ambient monitoring.

$$AAC = \frac{OEL}{\text{Safety Factor}}$$

Where,

AAC = acceptable ambient concentration

Safety Factor = 50 for category B substances and 8 hrs/day
100 for category A substances and 8 hrs/day
210 for category B substances and 24 hrs/day
420 for category A substances and 24 hrs/day

OEL = Occupational exposure level such as ACGIH, ASHA and NIOSH published standards for toxic materials.

MSDS = Material Safety Data Sheets

VI.3 Air Quality Analysis

a. Introduction

The operation of the proposed six combustion peaking turbines will result in emissions increases which are projected to be greater than the PSD significant emission rates for the following pollutants: NO_x, SO_2, PM, PM_{10}, Be, Hg, inorganic arsenic, and H_2SO_4 mist. Therefore, the project is subject to the PSD NSR requirements contained in F.A.C. Rule 17-2.500(5) for these pollutants. Part of these requirements is an air quality impact analysis for these pollutants, which includes:

- An analysis of existing air quality;
- A PSD increment analysis (for SO_2, PM, PM_{10}, and NO_x);
- An ambient Air Quality Standards analysis (AAQS);
- An analysis of impacts on soils, vegetation, visibility and growth-related air quality impacts; and,
- A Good Engineering Practice (GEP) stack height determination

The analysis of existing air quality generally relies on preconstruction monitoring data collected in accordance with EPA-approved methods. The PSD increment and AAQS analyses are based on air quality dispersion modeling completed in accordance with EPA guidelines.

Based on these required analyses, the Department has reasonable assurance that the proposed project, as described in this report and subject to the conditions of approval proposed herein, will not cause or contribute to a violation of any PSD increment or ambient air quality standard. A brief description of the modeling methods used and results of the required analyses follow. A more complete description is contained in the permit application on file.

b. Analysis of the Existing Air Quality

Preconstruction ambient air quality monitoring may be required for pollutants subject to PSD review. However, an exemption to the monitoring requirement can be obtained if the maximum air quality impact resulting from the projected emissions increase, as determined through air quality modeling, is less than a pollutant-specific de minimus concentration. The predicted maximum concentration increase for each pollutant subject to PSD (NSR) is given below:

	SO_2	TSP & PM_{10}	NOx	CO	Be	Hg
PSD de minimus Concentra. (ug/m^3)	13	10	14	575	.001	.25
Averaging Time	24-hr	24-hr	Annual	8-hr	24-hr	24-hr
Maximum Predicted Impact (ug/m^3)	11.4	1.2	0.31	2.9	.000053	0.000063

There are no monitoring de minumus concentrations for H_2SO_4 mist and inorganic arsenic. As shown above, the predicted impacts are all less than the corresponding de minimus concentrations; therefore, no preconstruction monitoring is required for the pollutants. However, background concentrations were developed by the applicant and approved by the Department for use in the SO_2 AAQS analysis. Values of 90 ug/m^3, 3-hr average; 25 ug/m^3, 24-hr average; and 4 ug/m^3, annual average, were based on 1988 data from the DeBary SO_2 monitoring site in Volusia County. This site is located 2.8 km away from the project.

c. Modeling Method

The EPA-approved Industrial Source Complex Short-Term (ISCST) dispersion model was used by the applicant to predict the impact of the proposed project on the surrounding ambient air. All recommended EPA default options were used. Direction-specific downwash parameters were used because the stacks were less than the good engineering practice (GEP) stack height. Five years of sequential hourly surface and mixing depth data from the Tampa/Orlando Florida National Weather Service (NWS) station

collected during 1982 through 1986 were used in the model. Since five years of data were used, the highest-second-high (HSH) short-term predicted concentrations are compared with the appropriate ambient air quality standards or PSD increments. For the annual averages, the highest predicted yearly average was compared with the standards.

d. Modeling Results

The applicant first evaluated the potential increase in ambient ground-level concentrations associated with the project to determine if these predicted ambient concentration increases would be greater than specified PSD significant impact levels for SO_2, CO, NO_x, PM and PM_{10}. This evaluation was based on the proposed CT units operating at load conditions of 100, 75, 50 and 25 percent. The modeling was performed using the highest emissions at 20°F design condition coupled with the lowest exit gas flow rates at 95°F design condition to maximize predicted impacts. The maximum predicted concentrations generally occur for the maximum capacity at 100% operating load. Dispersion modeling was performed with receptors placed along the 36 standard radial directions (10 degrees apart) surrounding the proposed units at the following downwind distances: (1) the first 36 receptors were located at the plant property boundaries with an additional near-field grid of 27 receptors located 300m from the proposed units off of plant property, (2) subsequent receptors were located at distances of .5, .8, 1.2, 1.6, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 6.0, 7.0 and 8.0 km off of plant property. The results of this modeling presented below show that the increases in ambient ground-level concentrations for all averaging times are less than the PSD significant impact levels for CO, NO_x, PM and PM_{10}.

	SO_2			NO2	CO		PM and PM_{10}	
Avg. Time	Annual	3-hr	24-hr	Annual	1-hr	8-hr	Ann.	24-hr
PSD Signifi. Level (ug/m^3)	1.0	25.0	5.0	1.0	2000	800	1.0	5.0
Ambient Concen. Increase (ug/m^3)	0.94	50.9	11.4	0.31	13.3	2.9	0.10	1.2

Therefore, further dispersion modeling for comparison with AAQS and PSD increment consumption were not required for CO, NOx, PM and PM_{10}. However, the results also show that the increases in maximum ambient groundlevel concentrations for the 3-hr and 24-hr averaging times for SO_2 were greater than the PSD significant impact levels, thus requiring the applicant to do a full impact analysis for SO_2. The significant impact area for the facility was determined to be greater than 50 km; therefore, all sources within 50 km of the facility were evaluated by the applicant. Screening analyses were performed for predicting maximum SO_2 concentrations for comparison to the PSD Class II increments and the AAQS using

the same receptor grid described above. Refined AAQS and PSD Class II analyses were based on modeling the years during which the overall HSH 3-hour, HSH 24-hour, and highest annual concentrations were predicted in the screening analyses. The refined 3-hr and 24-hr modeling was conducted using a receptor grid centered on the receptor which had the HSH 3-hr or 24-hr concentration determined from the screening analysis. These receptors were located at intervals of 100m between the distances considered in the screening phase, along 9 radials spaced at 2-degree increments centered on the radial along which the maximum concentration was predicted. The results of these analyses for SO_2 and comparison with the appropriate standards and increments are summarized in the following tables. The maximum predicted SO_2 concentration are all less than the appropriate AAQS and PSD increments.

AAQS Analysis (all values in ug/m^3)

Avg. Time	Annual	3-hr	24-hr
Maximum Predicted Concentration	37.7	792	215
Includes Background Value	4	90	25
AAQS	60	1300	260

PSD Class II Increment Analysis (all values in ug/m^3)

Avg. Time	Annual	3-hr	24-hr
Max. Predicted Consumption Concen.	2.53	138	23.2
Increment	20	512	~~138~~ 9/

The impact of this project on the Class I increments for SO_2, PM, and NO_2 in the closest Class I area, the Chassahowitzka National Wilderness Area, was not evaluated by the applicant or the Department since this area is located 120 km away from the project.

Sulfuric acid mist, beryllium, mercury and arsenic are noncriteria pollutants, which means that neither national AAQS nor PSD Significant Impacts have been defined for these pollutants. However, the Department does have a draft Air Toxics Permitting Strategy, which defines no threat levels for these pollutants. The Department and the applicant have used the same modeling procedure described above for the screening analysis to evaluate the maximum increase in ground level concentration of these pollutants for comparison with the no-threat levels. The results of this analysis are shown on the following page:

Avg. Time	H_2SO_4 mist 24-hr	Be Annual	Hg 24-hr	As Annual
No Threat-Level (ug/m^3)	2.4	.0004	.024	.00023
Max. Concen. Increase	1.2	.000004	.000063	.000007

All of these values are less than their respective no-threat levels.

e. Additional Impacts Analysis

The maximum predicted concentrations from NOx, SO_2, PM and PM_{10} are predicted to be less than the AAQS, including the national secondary standards designed to protect public welfare-related values. As such, no harmful effects on soil and vegetation are expected. The increased emissions at the facility are not expected to affect the visibility in the Chassahowitzka Class I area located over 100 km away. In addition, the proposed modification will not significantly change employment, population, housing or commercial/industrial development in the area to the extent that a significant air quality impact will result.

VII. CONCLUSION

Based on the information provided by Florida Power Corporation, the Department has reasonable assurance that the proposed installation of the 557.4 MW simple cycle gas turbine system, as described in this evaluation, and subject to the conditions proposed herein, will not cause or contribute to a violation of any air quality standard, PSD increment, or any other technical provision of Chapter 17-2 of the Florida Administrative Code.

TABLE 1
ALLOWABLE EMISSION LIMITS
Simple Cycle Combustion Turbine

Pollutant	Standard Oil Firing	Each Unit lb/hr	Each Unit T/yr(b)	Total 6 Units lb/hr	Total 6 Units T/yr(b)	Basis
NOx	42 ppm at 15% oxygen-dry basis	182	199	1092	1195	BACT
SO_2	No. 2 fuel oil with 0.3% avg. and 0.5% max. sulfur	555	608	3330	3648	BACT
PM/PM_{10}	0.025 lb/MMBtu	15	16	90	96	BACT
VOC	-	5	5	30	33	BACT
CO	-	54	59	324	354	BACT
Sulfuric Acid Mist	No. 2 fuel oil with 0.3% avg. and 0.5% max. sulfur	76	83	454	499	BACT

(a) Emission rates based on 59°F and 15% O_2.

(b) Annual hours 2190 per year and 25% capacity factor.

Best Available Control Technology (BACT) Determination
Florida Power Corporation
DeBary Facility
Volusia County

The applicant proposes to operate six No. 2 fuel oil fired 92.9 MW peaking cycle combustion turbine systems to be used for peaking power at their DeBary facility on Highlands Road, DeBary, Volusia County, Florida.

The applicant states that the maximum heat input will be 1,144 MMBtu/hr per turbine. The applicant has indicated the maximum annual tonnage of regulated air pollutants emitted from the six turbines based on sea level conditions at 59°F and 100 percent capacity (8760 hours/year) to be as follows:

Pollutant	Potential Emissions (tons/yr)	PSD Significant Emission Rate (tons/yr)
NOx	4794	40
SO_2	14581	40
PM	394	25
PM_{10}	394	15
CO	1411	100
VOC	131	40

Florida Administrative Code Rule 17-2.500(2)(f)(3) requires a BACT review for all regulated pollutants emitted in an amount equal to or greater than the significant emission rates listed in the previous table.

Date of Receipt of a BACT Application

December 31, 1990

BACT Determination Requested by the Applicant

Pollutant	Determination
NOx	42 ppmvd @ 15% O_2
SO2 and H_2SO_4	Max 0.5% Sulfur No. 2 fuel oil
PM/PM_{10}	Combustion Controls
CO	Combustion Controls

BACT Determination Procedure

In accordance with Florida Administrative Code Chapter 17-2, Air Pollution, this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department, on a case by case basis, taking into account energy, environmental and

economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques. In addition, the regulations state that in making the BACT determination the Department shall give consideration to:

(a) Any Environmental Protection Agency determination of Best Available Control Technology 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 determinations 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 source in question the most stringent control available for a similar or identical source or source category. If it is shown that this level of control is technically or economically infeasible for the source 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 applicant has stated that BACT for nitrogen oxides will be met by using wet injection necessary to limit emissions to 42 ppmvd at 15% oxygen for No. 2 fuel oil firing.

A review of the EPA's BACT/LAER Clearinghouse indicates that the lowest NOx emission limit established to date for a combustion turbine is 4.5 ppmvd at 15% percent oxygen. This level of control was accomplished through the use of water injection and a selective catalytic reduction (SCR) system.

Selective catalytic reduction is a post-combustion method for control of NOx emissions. The SCR process combines vaporized ammonia with NOx in the presence of a catalyst to form nitrogen and water. The vaporized ammonia is injected into the exhaust gases prior to passage through the catalyst bed. The SCR process can achieve up to 90% reduction of NOx with a new catalyst. As the catalyst ages, the maximum NOx reduction will decrease to approximately 86 percent.

The applicant has rejected using SCR because of technical infeasibility. The applicant was unable to find similar combustion turbines firing fuel oil and equipped with SCR. The applicant states several supporting reasons for the decision in Table 4-3 of the application.

Although the Department agrees that there was a time when SCR was not feasible for oil firing, the latest information available now indicates that SCR can be used for oil firing provided that adjustments are made in the ammonia to NOx injection ratio. By lowering the injection ratio below 1 to 1, testing has indicated that NOx can be controlled with efficiencies ranging from 60 to 75 percent. When the injection ratio is lowered, there is not a problem with ammonium bisulfate formation since essentially all of the ammonia is able to react with the nitrogen oxides present in the combustion gases.

The Department recently reviewed an application for a similar combustion turbine, which included levelized cost for SCR of $2,190,000. Assuming that the lowered ammonia injection ratio strategy was used to control NOx emissions by 65%, the SCR would control 201 tons (65% x 309 tons/year) of NOx annually. The 309 tons/year assumes an operating rate of 3400 hours/year/unit. When this reduction of NOx is taken into consideration with the total annual cost of $2,190,000, the cost per ton of controlling NOx is $10,896. This calculated cost is higher than has previously been approved as BACT and if the capacity factor were limited to 25% (2,190 hrs), the cost per ton would be even higher.

The applicant has stated that sulfur dioxide (SO_2) and sulfuric acid mist (H_2SO_4) emissions when firing fuel oil will be controlled by lowering the operating hours to 3400/year per unit and the fuel oil sulfur content to a maximum of 0.5% by weight, and an average of 0.3%. This would result in a SO_2 reduction of 377 tons/year/unit (0.3/0.5 x 3400/8760 hrs x 14,581 TPY 6 units). Also, H_2SO_4 mist would be reduced by 46 tons/year/unit.

With regard to the operation of turbines on oil, several BACT determinations have established a 25% capacity factor as an operating limit. This is due to the increase in nitrogen oxides emissions that results from the burning of oil as compared to natural gas. In some cases, turbines have been allowed to operate above the 25% capacity factor limitation on oil, provided that they use low NOx combustors (42 ppm) and limit the sulfur content of oil. Those facilities that have been permitted to operate above the 25% capacity factor limitation had a maximum sulfur content ranging from 0.20 to 0.25 percent. Although the DeBary facility is capable of holding NOx emissions to 42 ppm when oil is fired, the proposed maximum sulfur content of 0.5% by weight, is not consistent with what has been allowed for other facilities, thereby establishing a 25% capacity factor operating limit as BACT.

The Department accepts the applicants proposal to control CO and PM/PM_{10} by combustion design and the use of clean fuels (No. 2 distillate). The Department also agrees with the applicant that there are no feasible methods to control beryllium and aresenic except by limiting the inherent quality of the fuel.

Although the emissions of these toxic pollutants could be controlled by particulate control devices, such as a baghouse or scrubber, the amount of emission reductions would not warrant the added expense. As this is the case, the Department does not believe that the BACT determination would be affected by the emissions of these pollutants.

Potentially Sensitive Concerns

With regard to controlling NOx emissions with SCR, the applicant has identified the following technical limitations:

- Reduced power output, ammonia slip and disposal of hazardous waste generated (spent catalyst)

BACT Determination by DER

Based on the information presented by the applicant and the studies conducted, the Department believes that the use of SCR for NOx control is not justifiable as BACT. Since these units are intended for peaking service and have operating hours limited to 2,190 hrs/yr/unit, wet injection for NOx emission control is justifiable as BACT for this facility.

As this is the case, the BACT emission limitations are established as follows:

Pollutant	Emission Limit	Method of Control
NOx	42 ppmvd @ 15% O_2	Wet Injection
SO_2	555 lbs/hr/unit	Avg. 0.3% and max. 5% sulfur content, by weight, No. 2 fuel oil
PM and PM_{10}	15 lbs/hr/unit	Combustion
CO	54 lbs/hr/unit	Combustion
VOC	5 lbs/hr/unit	Combustion
H_2SO_4	76 lbs/hr/unit	Avg. 0.3% and max. 0.5% sulfur content, by weight, No. 2 fuel oil

Details of the Analysis May be Obtained by Contacting:

Barry Andrews, P.E., BACT Coordinator
Department of Environmental Regulation
Bureau of Air Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended by:

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

_____1991
Date

Approved by:

Carol M. Browner, Secretary
Dept. of Environmental Regulation

_____1991
Date

P 832 539 795

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PS Form **3800**, June 1990

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3. Article Addressed to:
Mr. W. W. Vierday
Env. Programs & Licensing
Florida Power Corporation
3201 34th Street South
St. Petersburg, Fl 33733

4. Article Number
P 832 539 795

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ST. PETERSBURG, FL SOUTH AM
JUN 17 1991

PS Form **3811**, Apr. 1989 *U.S.G.P.O. 1989-238-815 DOMESTIC RETURN RECEIPT

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

PERMITTEE:
Florida Power Corp.
DeBary Facility
3201 34th Street South
St. Petersburg, FL 33733

Permit Number: AC 64-191015
PSD-FL-167
Expiration Date: July 31, 1992
County: Volusia
Latitude/Longitude: 28°54'14"N
81°19'59"W
Project: Six 92.9 MW Simple Cycle Gas Turbines

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For six 92.9 MW simple cycle combustion turbines with maximum heat input of 1,114 MMBtu/hr/unit at 59°F (oil) to be located at the DeBary facility in DeBary, Florida. The turbines are to be GE PG7111EA equipped with wet injection. The UTM coordinates are Zone 17, 467.5 km East and 3197.2 km North.

The sources shall be constructed in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments are listed below:

1. Florida Power Corporation application received December 31, 1990.
2. Department's letter dated January 30, 1991.
3. Florida Power Corporation's letter received February 18, 1991.

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, 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.

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

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

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

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

GENERAL CONDITIONS:

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.

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

a. Have access to and copy any records that must be kept under the conditions of the permit;

b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

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

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

a. a description of and cause of non-compliance; and

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

GENERAL CONDITIONS:

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

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the 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 extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and 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.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

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

13. This permit also constitutes:

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

14. The permittee shall comply with the following:

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

GENERAL CONDITIONS:

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

c. Records of monitoring information shall include:

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

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

SPECIFIC CONDITIONS:

Emission Limits

1. The maximum allowable emissions from these sources shall not exceed the emission rates listed in Table 1.

2. Unless the Department has determined that other concentrations are required to protect public health and safety, the predicted acceptable ambient air concentrations (AAC) of the following pollutants shall not be exceeded:

SPECIFIC CONDITIONS:

Pollutant	Acceptable Ambient Concentrations ug/m^3		
	8-hrs	24-hrs	Annual
Beryllium	0.02	0.005	0.0004
Lead	1.5	0.36	0.09
Inorganic mercury compounds all forms of vapor as Hg	-	-	0.3

3. Visible emissions shall not exceed 10% opacity.

Operating Rates

4. These six combustion turbines are allowed to operate for peaking purposes only 2190 HRS/unit/year and/or 25% annual capacity factor.

5. These sources are allowed to use only No. 2 fuel oil with 0.3% average and 0.5% sulfur content maximum, by weight.

6. The permitted materials and utilization rates for the combined cycle gas turbines shall not exceed: a. the maximum heat input of 1,144 MMBtu/hr/unit at 59°F. b. maximum No. 2 fuel oil consumption shall not exceed 7,718 gal/hr unit or 15,719,820 gal/yr/unit.

7. Any change in the method of operation, equipment or operating hours shall be submitted to the DER's Bureau of Air Regulation and Southeast District offices.

8. Any other operating parameters established during compliance testing and/or inspection that will ensure the proper operation of this facility shall be included in the operating permit.

Compliance Determination

9. Compliance with the NO_x, SO_2, CO, PM, PM_{10} and VOC standards shall be determined within 60 days of construction completeness/initial operation and annually thereafter, by the following reference methods as described in 40 CFR 60, Appendix A (July, 1990 version) and adopted by reference in F.A.C. Rule 17-2.700.

- Method 1. Sample and Velocity Traverses
- Method 2. Volumetric Flow Rate
- Method 3. Gas Analysis

SPECIFIC CONDITIONS:

- Method 5. Determination of Particulate Matter Emissions from Stationary Sources
- Method 9. Determination of the Opacity of the Emissions from Stationary Sources
- Method 10. Determination of the Carbon Monoxide Emission from Stationary Sources
- Method 20. Determination of Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions from Stationary Gas Turbines

10. Method 5 must be used to determine the initial compliance status of this unit. Thereafter, the opacity emissions test may be used unless 10% opacity is exceeded.

11. Compliance with the SO_2 emission limit can also be determined by calculations based on fuel analysis using ASTM D2880-71 for the sulfur content of liquid fuels and ASTM D1072-80, D3031-81, D4084-82 or D3246-81 for sulfur content of gaseous fuels.

12. Compliance with the total volatile organic compound emission limits will be assumed, provided the CO allowable emission rate is achieved; specific VOC compliance testing is not required.

13. During performance tests, to determine compliance with the proposed NO_X standard, measured NO_X emissions at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor:

$$NO_X = (NO_{X\ obs}) \left(\frac{P_{ref}}{P_{obs}}\right)^{0.5} e^{19\ (H_{obs} - 0.00633)} \left(\frac{288°K}{T_{AMB}}\right)^{1.53}$$

where:

NO_X = Emissions of NO_X at 15 percent oxygen and ISO standard ambient conditions.

$NO_{X\ obs}$ = Measured NO_X emission at 15 percent oxygen, ppmv.

P_{ref} = Reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure.

P_{obs} = Measured combustor inlet absolute pressure at test ambient pressure.

SPECIFIC CONDITIONS:

H_{obs} = Specific humidity of ambient air at test.

e = Transcendental constant (2.718).

T_{AMB} = Temperature of ambient air at test.

14. Test results will be the average of 3 valid runs. The Central District office will be notified at least 15 days in writing in advance of the compliance test(s). The sources shall operate between 90% and 100% of permitted capacity during the compliance test(s). Compliance test results shall be submitted to the Central District office no later than 45 days after completion.

15. A continuous monitoring system shall be installed to monitor and record the fuel consumption. Continuous monitoring shall also be installed, operated, and maintained in accordance with 40 CFR 60, Appendix F, for the peaking cycle unit to monitor nitrogen oxides emissions.

a. Each continuous emission monitoring system (CEMS) shall meet performance specifications of 40 CFR 60, Appendix B.

b. CEMS data shall be recorded and reported in accordance with Chapter 17-2, F.A.C., and 40 CFR 60. The record shall include periods of startup, shutdown and malfunction in accordance with F.A.C. Rule 17-2.250, Excess Emissions.

c. A malfunction means any sudden and unavoidable failure of air pollution control equipment or process equipment to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation or any other preventable upset conditions or preventable equipment breakdown shall not be considered malfunctions.

d. The procedures under 40 CFR 60.13 shall be followed for installation, evaluation and operation of all CEMS.

e. For purposes of reports required under this permit, excess emissions are defined as any calculated average emission concentration, as determined pursuant to Condition No. 22 herein, which exceeds the applicable emission limits in Condition No. 1.

SPECIFIC CONDITIONS:

16. Sulfur, nitrogen content and lower heating value of the fuel being fired in the combustion turbines shall be recorded daily. The records of fuel oil usage shall be kept by the company for a two-year period for regulatory agency inspection purposes.

17. Compliance with the acceptable ambient concentrations for Be, Lead, and Hg emissions shall be demonstrated based on calculations certified by a Professional Engineer registered in Florida, using actual operating conditions. Determination of the ambient concentrations for chemical compounds shall be determined by Department approved dispersion modeling. This compliance determination shall be made available upon request.

Rule Requirements

18. This source shall comply with all applicable provisions of Chapter 403, Florida Statutes, Chapters 17-2 and 17-4, Florida Administrative Code and 40 CFR (July, 1990 version).

19. The sources shall comply with all requirements of 40 CFR 60, Subpart GG, and F.A.C. Rule 17-2.660(2)(a), Standards of Performance for Stationary Gas Turbines.

20. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements and regulations (F.A.C. Rule 17-2.210(1)).

21. The sources shall comply with F.A.C. Rule 17-2.700, Stationary Point Source Emission Test Procedures.

22. Pursuant to F.A.C. Rule 17-2.210(2), Air Operating Permits, the permittee is required to submit annual reports on the actual operating rates and emissions from this facility. These reports shall include, but are not limited to the following: sulfur nitrogen contents and the lower heating value of the fuel being fired, fuel usage, hours of operation, air emissions limits, etc. Annual reports shall be sent to the Department's Central District office by March 1 of each calendar year.

23. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit (F.A.C. Rule 17-4.090).

SPECIFIC CONDITIONS:

24. An application for an operation permit must be submitted to the Central District office at least 90 days prior to the expiration date of this construction permit. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

Issued this _____ day
of _____, 1991

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

_____
Carol M. Browner
Secretary

Florida Power
CORPORATION

June 4, 1991

Mr. Preston Lewis
Central Air Permitting Section
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Lewis:

Re: DeBary Construction Air Permit
AC 64-191015, PSD-FL-167

This letter regards our meeting on Wednesday, May 8, 1991, on the above mentioned permit. The items discussed at this meeting included the annual hours of operation limit, equating the annual hours of operation to fuel consumption, and the allowable sulfur content.

The annual hours of operation limit was the first topic of discussion. FDER agreed to compensating FPC for their lower emissions by increasing the annual hours of operation limit. The limit agreed upon was 3400 hours per year. This was based on a SO_2 emissions ratio (NESCAUM standard/FPC amount) and using 25 percent of the capacity factor in Region 4.

$$0.25 * 8760 \text{ hr/yr} * (65 \text{ ppmvd}/42 \text{ ppmvd}) = 3390 \text{ hr/yr}$$

The second topic of discussion considered equating the annual hours of operation to fuel consumption. It was agreed that this could be calculated by using the peak generation fuel usage at isothermal conditions with the 3400 hour per year per unit operation. The units will be allowed to operate against the total fuel consumption allowed for the number of units constructed. FDER was to provide FPC a draft for comment of any clause pertaining to partial load operation prior to issuing the permit.

The final consideration discussed was the allowable sulfur content. KBN proposed keeping the average sulfur content of 0.3 percent. However, the average would be based on the 3400 hours of operation limit, as opposed to an annual average. This would mitigate the concern of the unpredictable annual operation of these units and provide a fixed quantity of fuel over which to average the sulfur content. The following statement is a draft for your review of the recommended verbiage for the permit, as requested:

a. The average aggregate sulfur content for every 174,800,000 gallons (61,690 lb/hr/unit x gal/7.2 lb x 6 units x 3400 hr) burned at the facility shall not exceed 0.3 percent sulfur.

b. Sulfur content shall be verified by submittal of monthly composite fuel analysis reports on a quarterly basis (within 30 days after the end of each calendar quarter) to the Air Section of the Florida Department of Environmental Regulation.

The economic justification for this request is discussed in Section 4.3.3.3 Impact Analysis of the original Construction Air Permit application submitted.

The projected timeframe for completing the permit review was mid-July. If there are any changes in this timeframe or there are any questions, please contact me at (813) 866-4511.

Sincerely,

James J. Compton for

W. W. Vierday, Manager
Environmental Programs - Licensing

cc: Barry Andrews (FDER)
Ken Kosky (KBN)

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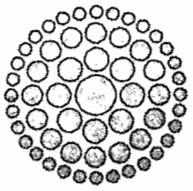

Florida Power
CORPORATION

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APR 18 1991
DER - BAQM

April 16, 1991

Mr. Preston Lewis
Central Air Permitting Section
Florida Department of Environmental
Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Lewis:

Re: DeBary Construction Air Permit
AC 64-191015, PSD - FL - 167

In regards to our meeting on Monday, March 4, 1991, on the DeBary Construction Air Permit, Florida Power Corporation (FPC) would like three items to be considered in the permit review. These items include the limit on hours of operation, equating operating hours to fuel consumption, and the allowable sulfur content.

In the meeting, the type of BACT expected by DER was discussed. DER informed FPC that currently they are adhering to the NESCAUM Guidelines. In reviewing these guidelines, two significant factors make the DeBary Site different from the units discussed in these guidelines. These include the location of the site and the NO_x emissions ratings.

The units discussed in the NESCAUM Guidelines are located in the Northeast, where as the FPC units are located in the Southeast. Due to the climates of both areas, the Florida units require more peaking hours in the summer and winter seasons. The next significant difference is the NO_x emissions ratings. The combustion turbines referenced in these guidelines have a NO_x emissions rating of 62 PPMVD. The combustion turbines proposed for the DeBary site have a NO_x emissions rating of 42 PPMVD.

The NESCAUM Guidelines limit the hours of operation to 2500 for simple cycle combustion turbines. However, because of Florida's longer peaking period requirements and lower NO_x emissions ratings than the units discussed in these guidelines, Florida Power requests a minimum operating hour limit of 3500 hours. This is 40 percent of the original operating hour request.

Florida Power also requests equating the hours of operation to fuel consumption. Emissions are based on fuel use. Since FPC currently monitors fuel use as a means of operation, this would allow easier operations administration.

As provided in the PSD application, the average sulfur content of No. 2 distillate fuel received at the DeBary Plant was 0.305 over the last five years. This is consistent with that found by other utilities in the state. Several recent projects have accepted an average sulfur limit of 0.3 percent since it is presumed that the proper fuel management specifications for a lower sulfur content would not be necessary. Specifying a lower sulfur content distillate fuel than the standard grade (which has a 0.5 percent sulfur maximum) would result in higher fuel costs as noted in the application. By not specificating a lower sulfur content, the costs for fuel would be reduced and the savings could be passed on to customers. Unlike these projects, the DeBary Project is for peaking purpose. Therefore, it is unknown how the units would operate over time. This uncertainty would directly result in an inability to effectively manage fuel sulfur content. This occurs since it is unknown whether the units would operate on a lower sulfur fuel, i.e., less than 0.3 percent in the latter months of a year when in the early months the sulfur content was higher that 0.3 percent. We believe the net effect to the environment can be achieved by requiring the use of the No. 2 distillate fuel oil with a maximum sulfur content of 0.5 percent. This would also result in direct savings to our customers.

DER stated in the meeting that the department has a large backlog of permits to review. With this current backlog, a preliminary decision could be expected within 75 to 90 days of obtaining a complete application. Your telephone conversation with Teresa Compton confirmed the application was considered complete on February 18, 1991. Since EPA will review your final decision, coordination with them in the permit review process would be appreciated so as not to delay the project.

Florida Power would like to schedule a meeting to discuss these considerations before the end of April. We will contact you later this week to determine a convenient date and time. If there are any questions or additional information is required, please contact me at (813) 866-4511. Thank you for your time.

Sincerely,

W W Vierday

W. W. Vierday, Manager
Environmental Programs - Licensing

cc: Barry Andrews

pag/TJC1.Lewis.Let

KBN

FACSIMILE COVER SHEET

DATE: 3-20-91

TO: Mr. Clair Holladay

ORGANIZATION: FL Dept of Environmental Regulation

FAX NUMBER: 904-922-6979 TELEPHONE NUMBER: _____

FROM: Bob McCann

TOTAL NUMBER OF PAGES: 3 (including cover page)

MESSAGE/INSTRUCTIONS:

PROJECT NUMBER: 9085 FAX OPERATOR: Denise

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cc: Project File _____ yes _____ no

KBN Engineering and Applied Sciences, Inc.
1034 NW 57th Street, Gainesville, FL 32605
Phone (904) 331-9000 FAX (904) 332-4180

900951
11/16/90

Table 2-2. Stack, Operating, and Emission Data for Existing Sources at FPC's DeBary Facility

Parameter	Units	Boilers	Gas Turbines
Relative x,y Location[a]			
Unit 1	ft	146; 892	154; 1,015
	m	44.5; 272	46.9; 309.5
Unit 2	ft	146; 892	154; 1,146
	m	44.5; 272	46.9; 349.3
Unit 3	ft	—	154; 1,266
	m	—	46.9; 385.9
Unit 4	ft	—	-138; 1,015
	m	—	-42.2; 309.5
Unit 5	ft	—	-138; 1,146
	m	—	-42.2; 349.3
Unit 6	ft	—	-138; 1,266
	m	—	-42.2; 385.5
Stack Data			
Height	ft	30	30
	m	9.15	9.15
Diameter	ft	2.5	9.67[b]
	m	0.76	2.95
Operating Data			
Temperature	°F	320	950
	K	433	783
Velocity	ft/sec	20	101.6
	m/sec	6.1	31.0
Total Emission Data			
PM	lb/hr	1.1	122.0
	g/sec	0.14	15.3
SO_2	lb/hr	39.0	2,384
	g/sec	4.9	300
NO_2	lb/hr	17.9	550
	g/sec	2.3	69.3
CO	lb/hr	1.5	125
	g/sec	0.18	8.90
VOC	lb/hr	0.52	141.1
	g/sec	0.066	17.78

[a]Relative location to the centroid of the proposed CT units.
[b]Effective diameter based on a 73.5-ft² area of rectangular vent.

MEMORANDUM

To: Mr. Cleve Holladay, Florida Department of Environmental Regulation (FAX 904-922-6979)

From: Mr. Robert McCann, KBN Engineering and Applied Sciences, Inc. (KBN Project 90095)

Date: March 20, 1991

Re: PSD Permit Application for the FPC DeBary Facility

Per your request, I am sending you Table 2-2 which was inadvertantly left out of the PSD permit application report for the proposed simple cycle turbines for the FPC DeBary facility. This table contains the stack, operating, and emission data for the existing spources at the facility.

Based on our discussion, the receptors located at plant property (see table 6-4) are located along the fence that surrounds the facility or will surround the proposed turbines. Thus, these receptors represent the nearest locations to the plant that the public may have access.

Florida Power
CORPORATION

RECEIVED
FEB 18 1991
DER - BAQM

February 15, 1991

Mr. Clair H. Fancy, P.E.
Central Air Permitting Section
Florida Department of Environmental
Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Fancy:

Re: DeBary Construction Air Permit
AC 64-191015, PSD - FL - 167

Florida Power Corporation received your letter of January 30, 1991, requesting additional information on the DeBary Construction Air Permit. This letter is in response to that request.

Question 1: **Explain and demonstrate how the actual emissions of each pollutant listed in Table 500-2 of Rule 17-2.500 Florida Administrative Code (F.A.C.) were calculated in units of applicable emission limiting standard (lbs/hr and tons/yr) for each source at the DeBary Facility.**

The emission calculations of all regulated and non-regulated pollutants were calculated using both manufacturer's data and EPA emission factors. The design information and emissions are presented in Tables A-1 through A-20 of Appendix A in the permit application. These tables were generated using a computerized spreadsheet (i.e., Lotus 1-2-3). Attached are Tables A-1 through A-5 which have been annotated to show the columns (i.e., A, B, C, and D) and rows (i.e., 1, 2, 3, ...) in the spreadsheet. Attachment A presents a printout of all the calculations made in the spreadsheet along with the basis for the calculation. The calculations, as well as text comments, are listed alpha-numerically in ascending order. For example, in Table A-1 column D row 12 is listed as A:D12 on the calculation page and the data input is 82740; as noted, this data was provided by General Electric (GE). Attachment B presents a copy of the relevant EPA emission factors.

Question 2: **What is the anticipated schedule for using natural gas at the DeBary facility for the proposed new combustion turbines and other units?**

The proposed new combustion turbines will burn No. 2 fuel oil as described in permit application AC 64-191015, PSD-FL-167.

Question 3: What is the intended use for the facility - baseload, cycling, peaking, etc?

The immediate plan for the new facility is for peaking purposes. However, due to changes in system electric demand and systems supply capability, these units may be called upon to run more frequently than is typically characterized as peaker operation.

Question 4: Why was combined cycle not used, particularly for such a large facility expansion?

Simple cycle units were selected because they were the most appropriate generation technology for peaking purposes.

Question 5: Please provide a map showing the facility location, county, municipalities, adjacent facilities, etc.

Attached is a copy of drawing number SUR-0062-D which shows the existing facility property and its relationship to municipalities, the county name and the township range and sections where the DeBary Plant is located.

The attached Black and Veatch drawing number 17113-DS-0004 is a site arrangement which shows the new units P7 through P10 located south of the existing facility. Locations for two future peaking facilities are also shown.

Question 6: Please provide a copy of the air quality dispersion modeling inputs and results in both paper and diskette formats.

This information is enclosed in both paper and diskette formats. A list of filenames and corresponding descriptions is also attached for your convenience.

If you have any further questions, please contact me at (813) 866-4511.

Sincerely,

W. W. Vierday
Environmental & Licensing

Enclosures

pag\TJC1.Fancy.Let

cc: P. Lewis
B. Andrews
C. Halladay
C. Collins
J. Harper, EPA

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor | Carol M. Browner, Secretary

January 30, 1991

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. W. W. Vierday
Florida Power Corporation
3201 Thirty-fourth Street South
P. O. Box 14042
St. Petersburg, Florida 33733

Re: Six Simple-cycle Combustion Peaking Units at DeBary Facility
AC 64-191015, PSD-FL-167

Dear Mr. Vierday:

We have reviewed your December 31, 1990 application concerning the above referenced permit application and find it to be incomplete. You will need to show all calculations, state and justify all assumptions, identify the sources of any emission factors, and provide copies of references where the emission factors or other information were obtained from sources other than AP-42. In responding to those questions that request information concerning air pollutant emissions, please provide the emissions for each fuel that the affected sources are authorized to burn. Processing of your application will resume upon receipt of the following information:

1. Explain and demonstrate how the actual emissions of each pollutant listed in Table 500-2 of Rule 17-2.500 Florida Administrative Code (F.A.C.) were calculated in units of the applicable emission limiting standard (lbs/hr and tons/year) for each source at the DeBary facility.

2. What is the anticipated schedule for using natural gas at the DeBary facility for the proposed new combustion turbines and other existing units?

3. What is the intended use for the facility - base load, cycling, peaking, etc?

4. Why was combined cycle not used, particularly, for such a large facility expansion?

5. Please provide a map showing the facility location, county, municipalities, adjacent facilities, etc.

6. Please provide a copy of the air quality dispersion modeling inputs and results in both paper and diskette formats.

If you have any questions or wish to meet with us, please write to me at the address above or call Barry Andrews at (904)488-1344.

Sincerely,

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

CHF/PL/plm

c: J. Turner
G. Harper, EPA
P. Lewis
C. Halladay
B. Andrews

P 407 853 135

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

☆U.S.G.P.O. 1989-234-555

Sent to Mr. W. W. Vierday, FPC	
Street and No. P. O. Box 14042	
P.O., State and ZIP Code St. Petersburg, FL 33733	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date Mailed: 1-30-91 Permit: AC 64-191015 PSD-FL-167	

PS Form 3800, June 1985

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)*
2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:
Mr. W. W. Vierday
Florida Power Corporation
3201 Thirty-fourth St., South
P. O. Box 14042
St. Petersburg, FL 33733

4. Article Number
P 407 853 135

Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Addressee
X

6. Signature — Agent
X

7. Date of Delivery
FEB 1 1991

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

PS Form 3811, Apr. 1989 ★U.S.G.P.O. 1989-238-815 DOMESTIC RETURN RECEIPT

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

January 10, 1991

Ms. Jewell A. Harper, Chief
Air Enforcement Branch
U.S. EPA - Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Ms. Harper:

RE: Completeness Review

The enclosed applications are being forwarded to you for your review and comments

1. City of Lakeland, Polk County, combustion turbine project, PSD-FL-166.

2. Florida Power Corporation, Volusia County, combustion turbine units at DeBary, PSD-FL-167.

If you have any questions, please call Preston Lewis, Cleve Holladay, or Barry Andrews at (904)488-1344. If it is convenient to FAX a response to us, the FAX number to use is (904)922-6979.

Sincerely,

Patricia G. Adams

Patricia G. Adams
Planner
Bureau of Air Regulation

/pa

Enclosures

Florida Power
CORPORATION

December 27, 1990

Mr. Clair Fancy
Florida Department of Environmental
Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

Dear Mr. Fancy:

Re: Application to Operate/Construct Air Pollution Sources (Six simple-cycle combustion turbine peaking units at DeBary)

Enclosed for your review and approval are five (5) copies of Florida Power Corporation's (FPC) application to operate and construct six simple-cycle combustion turbine peaking units at our DeBary facility. Also enclosed is FPC's check no. 1267700 in the amount of $5,000.00 for the application fee.

If we can provide any additional information or answer any questions regarding our application, please advise.

I will be leaving the Environmental and Licensing Department, FPC, on January 14, 1991 for a new assignment. After that date, please contact Mr. W.W. Vierday regarding this project.

Sincerely,

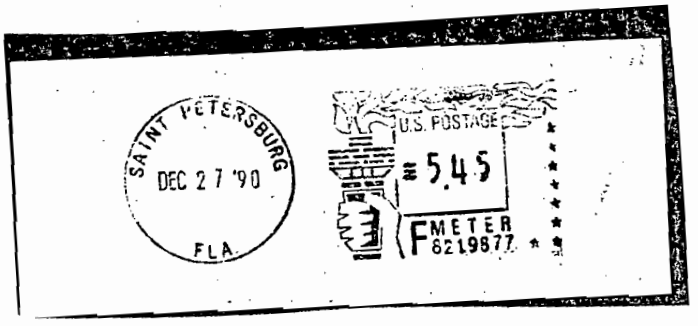
Judy Corces /wwv

Judy N. Corces

mrj/WWV4.Fancy.let
Encs.

bcc: W.W. Vierday
P.A. Blizzard
E.G. Major
W.J. Pardue

File: DeBary 1992 CT Addition (Air)



Florida Power Corporation
P.O. Box 14042, St. Petersburg, FL 33733

MARK CLEARLY
- [x] First Class
- [ ] Air Mail
- [ ] Third Class
- [ ] Registered
- [ ] Certified
- [ ] Insured
- [ ] Parcel Post
- [ ] Special Delivery
- [ ] Special Handling
- [ ] UPS

906 209(S)

TO:
Mr. Clair Fancy
Florida Department of
Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

P.O. BOX 14042
ST. PETERSBURG, FLA. 33733

REMITTANCE ADVICE

DATE 11/30/90 VENDOR FLORIDA DEPARTMENT OF VENDOR NO. 284216 CHECK NO. 126770

VOICE NO.	DATE	OUR ORDER NO.	VOUCHER	GROSS AMOUNT	DISCOUNT	NET AMOUNT
FL1119500 CK82537	11/19/90		11157821	5,000.00		5,000.00
					TOTAL	5,000.00

PLEASE DETACH BEFORE DEPOSITING FORM 935-600

THE ATTACHED REMITTANCE IS IN FULL SETTLEMENT OF ACCOUNT AS STATED. IF NOT CORRECT PLEASE RETURN TO ABOVE ADDRESS.

Florida Power CORPORATION

St. Petersburg, Florida
SOUTHEAST BANK, N.A.
CORPORATE BANKING DIVISION
TAMPA, FLORIDA

63-406
631

CHECK NO. 1267700

$5*THOUSAND*DOLLARS AND 00 CENTS

DATE 11/30/90

$*******5,000.00

Florida Power Corporation

R R Hoge
K E McDonald

TO THE ORDER OF
FLORIDA DEPARTMENT OF
ENVIRONMENTAL REGULATION
2600 BLAIR STONE RD
TALLAHASSEE FL
32301

[redacted]

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

$5,000 pd. 12-31-90 Recpt. #151232

AC 64-191015
PSD-FL-167

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Electric Generating Station [X] New[1] [ ] Existing[1]

APPLICATION TYPE: [X] Construction [ ] Operation [ ] Modification

COMPANY NAME: Florida Power Corporation COUNTY: Volusia

Identify the specific emission point source(s) addressed in this application (i.e., Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) 6 Simple Cycle Combustion Turbines

SOURCE LOCATION: Street Highlands Road City DeBary

UTM: East 467.5 km North 3197.2 km

Latitude 28 ° 54 ' 14 "N Longitude 81 ° 19 ' 59 "W

APPLICANT NAME AND TITLE: R.W. Neiser, Senior Vice President, Legal and Governmental Affairs

APPLICANT ADDRESS: 3201 34th Street South, St. Petersburg, FL 33733

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Florida Power Corporation

I certify that the statements made in this application for an air construction permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: R. W. Neiser

R.W. Neiser, Senior Vice President, Legal and Governmental Affairs
Name and Title (Please Type)

Date: 12/27/90 Telephone No. (813) 866-5784

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgement, that

[1]See Florida Administration Code Rule 17-2.100(57) and (104)

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed Kennard F. Kosky

Kennard F. Kosky
Name (Please Type)

KBN Engineering and Applied Sciences, Inc.
Company Name (Please Type)

1034 N.W. 57th Street, Gainesville, FL
Mailing Address (Please Type)

Florida Registration No. 14996 Date: 12/21/90 Telephone No. (904) 331-9000

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

Six simple-cycle combustion turbine, peaking units designed to burn No. 2 fuel oil. Each combustion turbine is a GE model PG7111EA, equipped with water injection for NO_x control to 42 PPMVD at 15% oxygen with fuel-bound nitrogen content less than 0.015 percent. Each unit is site-rated at 92.9 MW (at 59°F) for a total site rating of 557.4 MW.

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction August 1991* Completion of Construction December 1992*

*For first 4 units only.

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

See attached Table 4-4 in PSD application

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

A064-129252, Peaking Units No. 1 through 6;

A064-125826, Steam Boilers No. 1 and 2

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ;
If power plant, hrs/yr 8,760; if seasonal, describe: _____

F. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? No

   a. If yes, has "offset" been applied? _____

   b. If yes, has "Lowest Achievable Emission Rate" been applied? _____

   c. If yes, list non-attainment pollutants. _____

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. Yes

3. Does the State "Prevention of Significant Deterioration" (PSD) requirement apply to this source? If yes, see Sections VI and VII. Yes

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? Yes

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? No

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? No

   a. If yes, for what pollutants? _____

   b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Well Water	N/A	N/A		
Annual Avg.*			57 x 10^8 gallons	
Peak Daily**			1.3 x 10^8 gallons	

*Based on 6 CTG units operating 1,500 hrs/yr at base load.
**Based on 6 CTG units operating at peak load and 20F.

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): N/A

2. Product Weight (lbs/hr): N/A

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
PM	15	65.7	NA	NA	15	65.7	See
SO_2[5]	555	2,430.2	0.8% sulfur	888	555	2,430.2	Figure
NO_x[6]	182	799	92 ppmvd	399.6	182	799	2-1 in
CO	54	235.2	NA	NA	54	235.2	PSD
VOC	5	21.9	NA	NA	5	21.9	app.

See also Table A-1 through A-6; data shown based on one CT.
[1]See Section V, Item 2.
[2]Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input).
[3]Calculated from operating rate and applicable standard.
[4]Emission, if source operated with control (See Section V, Item 3).
[5]Potential emissions using 0.5% sulfur maximum presented; actual sulfur content of No. 2 fuel oil over last 5 years was 0.31% (see Table 4-6).
[6]Does not include allowance for fuel-bound nitrogen (FBN); if FBN exceeds 0.015%, the allowance under 40 CFR Part 60 Subpart GG is requested (see Table 4-1).

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
Gas Turbine Water		Controlled to		
Injection (GE PG7111E	A) NO_x	42 PPMDV @ 15%	O_2 N/A	N/A
Quiet Combustor				

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
No. 2 Distillate Oil			
+ Per CT Unit	7,178*	8,698**	1,144**
+ For 4 CT Units	28,712*	34,792**	4,576**
+ For 6 CT Units	43,068*	52,188**	6,864**

+Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.
*Based on CT operation at base load and 59F. **Based on CT operation at peak load and and 20F.

Fuel Analysis:

Percent Sulfur: 0.5 WT % Max Percent Ash: 0.01 WT % Max

Density: 7.09 lbs/gal Typical Percent Nitrogen: 0.03 WT%

Heat Capacity: 18,550 (LHV) BTU/lb 131,520 (LHV) BTU/gal

Other Fuel Contaminants (which may cause air pollution): None

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average N/A Maximum N/A

G. Indicate liquid or solid wastes generated and method of disposal.

1. Water treatment system wastewater will be neutralized before disposal to on-site percolation ponds.
2. Oily wastes will be collected in an oil/water separator, with the oil pumped out periodically for off-site disposal. Water from oil/water separator will be disposed to the on-site percolation ponds.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 50 ft. Stack Diameter: 8'-8" x 17'-4" (13.8 effective) ft.

Gas Flow Rate: 1,662,283 ACFM 594,638 DSCFM Gas Exit Temperature: 1,016 °F.

Water Vapor Content: 5.80 % Velocity: 184.4 FPS
See Tables A-1 through A-20 in PSD application

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type 0 (Plastics)	Type II (Rubbish)	Type III (Refuse)	Type IV (Garbage)	Type IV (Pathological)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr. _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diameter: _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity: _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control devices: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other

(specify) _____

Brief description of operating characteristics of control devices: _____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]
   Not Applicable
2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods, 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.
   See Tables A-1 through A-20 in PSD application.
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
   Manufacturer data sheets and emission factors; See Tables A-1 through A-20.
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)
   Water injection; see Tables A-1, A-6, A-11, and A-16 in PSD application.
5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).
   Manufacturers' guarantees form the basis of emission estimates; see Tables A-1 through A-20 in PSD application.
6. An 8 ½" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
   See Figure 2-1 in PSD application.
7. An 8 ½" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Examples: Copy of relevant portion of USGS topographic map).
   See Figure 1-1 in PSD application.
8. An 8 ½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.
   See Figure 1-1 in PSD application.

9. The appropriate application fee in accordance with Rule 17-4.05. The check should be made payable to the Department of Environmental Regulation.

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?

[X] Yes [ ] No

Contaminant	Rate or Concentration
NO_x	92 ppmvd corrected to 15% O_2 (when corrected for heat rate)
SO_2	0.8% sulfur fuel

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy)

[X] Yes [ ] No

Contaminant	Rate or Concentration
See Section 4.0 in PSD application	

C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration
See Section 4.0 in PSD application	

D. Describe the existing control and treatment technology (if any). (See PSD application)

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:

*Explain method of determining

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant	Rate or Concentration

10. Stack Parameters

a. Height: ft.

b. Diameter ft.

c. Flow Rate: ACFM

d. Temperature: °F.

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary). See Section 4.0 in PSD application.

1.

a. Control Devices:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected: See Section 4.0 in PSD application.

1. Control Device:

2. Efficiency:[1]

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:[2]

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

b. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

10. Reason for selection and description of systems:

[1]Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION

See Section 5.0 in PSD application

A. Company Monitored Data

1. _____ no. sites _____ TSP _____ ( ) SO^{2*} _____ Wind spd/dir

Period of Monitoring _____/_____/_____ to _____/_____/_____
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

*Specify bubbler (B) or continuous (C).

2. Instrumentation, Field and Laboratory

a. Was instrumentation EPA referenced or its equivalent? [ ] Yes [ ] No

b. Was instrumentation calibrated in accordance with Department procedures?

[ ] Yes [ ] No [ ] Unknown

B. Meteorological Data Used for Air Quality Modeling
See Section 6.1 in PSD application

1. _____ Year(s) of data from _____/_____/_____ to _____/_____/_____
month day year month day year

2. Surface data obtained from (location)_____

3. Upper air (mixing height) data obtained from (location) _____

4. Stability wind rose (STAR) data obtained from (location) _____

C. Computer Models Used
See Section 6.1 in PSD application

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data
See Section 6.1 in PSD application

Pollutant	Emission Rate
TSP	_____ grams/sec
SO^2	_____ grams/sec

E. Emission Data Used in Modeling
See Section 6.1 in PSD application
Attach list of emission sources. Emission data required is source name, description of point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.
See PSD application

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e, jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.
See Section 4.0 in PSD application

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.
See Section 4.0 in PSD application

PREVENTION OF SIGNIFICANT DETERIORATION PERMIT APPLICATION FOR THE PROPOSED SIMPLE CYCLE COMBUSTION TURBINES FPC DEBARY FACILITY

Prepared For:

Florida Power Corporation
3201 34th Street South
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Prepared By:

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1034 NW 57th Street
Gainesville, Florida 32605

November 1990
90095B1

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ACRONYMS AND ABBREVIATIONS

AAQS	Ambient Air Quality Standards
ABB	Asea Brown Boveri
acfm	actual cubic feet per minute
As	arsenic
BACT	best available control technology
Be	beryllium
10^6 Btu/hr	million British thermal units per hour
Btu/kWh	British thermal units per kilowatt hour
CAA	Clean Air Act
CFR	Code of Federal Regulations
CO	carbon monoxide
CT	combustion turbine
EPA	U.S. Environmental Protection Agency
EPRI	Electric Power Research Institute
°F	degrees Fahrenheit
F.A.C.	Florida Administrative Code
FBN	fuel-bound nitrogen
FDER	Florida Department of Environmental Regulation
FGD	flue gas desulfurization
FPC	Florida Power Corporation
FPL	Florida Power & Light Company
ft	foot/feet
GEP	good engineering practice
gr/scf	grains per standard cubic feet
H_2SO_4	sulfuric acid
Hg	mercury
HRSG	heat recovery steam generators
HSH	highest, second highest
ISC	Industrial Source Complex
ISCST	Industrial Source Complex Short-Term
ISO	International Organization for Standardization
KBN	KBN Engineering and Applied Sciences, Inc.
km	kilometer
LAER	lowest achievable emission rate
lb/hr	pounds per hour
m	meter
MW/hr	megawatts per hour
MW	monitor well
NH_3	ammonia
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NSCR	nonselective catalytic reduction
NSPS	New Source Performance Standards
NWS	National Weather Service
PM(TSP)	total suspended particulate matter
PM10	particulate matter less than or equal to 10 micrometers
ppm	parts per million
ppmvd	parts per million volume, dry
PSD	prevention of significant deterioration

ACRONYMS AND ABBREVIATIONS

SCR	selective catalytic reduction
SIP	Site Implementation Plan
SNCR	selective noncatalytic reduction
SO_2	sulfuric dioxide
SO_3	sulfuric trioxide
TPH	tons per hour
TPY	tons per year
UNAMAP	Users Network for Applied Modeling of Air Pollution
VOC	volatile organic compound

1.0 INTRODUCTION

Florida Power Corporation (FPC) is proposing to locate up to 557.4 megawatts (MW) of simple cycle combustion turbines (CTs) at the existing DeBary facility. The DeBary Plant site is located in Volusia County about 1 mile northwest of DeBary (Figure 1-1). Each simple cycle CT will have a peak load of 92.9 MW at an ambient temperature of 59 degrees Fahrenheit (°F) and a generating capacity of 76 to 105 MW, depending upon ambient temperature and operating conditions. The six CTs needed to generate up to 557.4 MW will be located adjacent to six existing CTs which have a generating capacity of 282 MW (Figure 1-2).

KBN Engineering and Applied Sciences, Inc. (KBN) has been contracted by FPC to provide air permitting services for the DeBary expansion. Initially, preliminary analyses were performed to determine compliance with prevention of significant deterioration (PSD) increments and preconstruction de minimis monitoring levels for the proposed plant only. A full PSD review was then performed to determine whether significant air quality deterioration will result from the proposed facility and other PSD increment consuming sources and to determine compliance with ambient air quality standards (AAQS). The PSD review included control technology review, source impact analysis, air quality analysis (monitoring), and additional impact analyses.

The existing DeBary plant is considered to be an existing major facility because emissions of regulated pollutants exceed 250 tons per year (TPY). PSD review is required for any pollutant for which the net increase in emissions exceeds the PSD significant emission rates which would constitute a major modification. The potential emissions from the proposed project will exceed the PSD significant emission rates for the following regulated pollutants: sulfur dioxide (SO_2), particulate matter as total suspended particulate [PM(TSP)], particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM10), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfuric acid (H_2SO_4) mist, beryllium (Be), mercury (Hg),

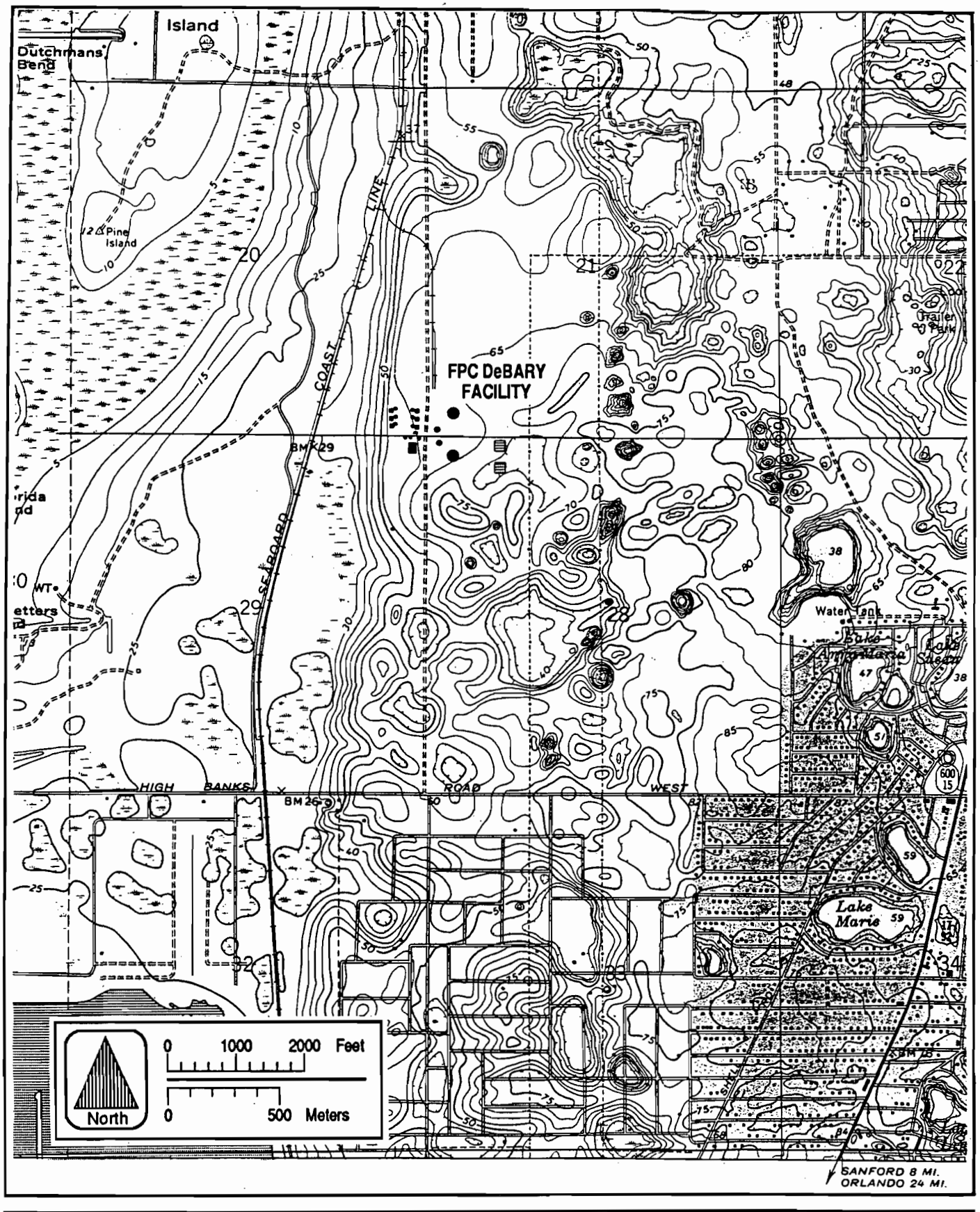

Figure 1-1 LOCATION OF THE FPC DeBARY FACILITY

KBN

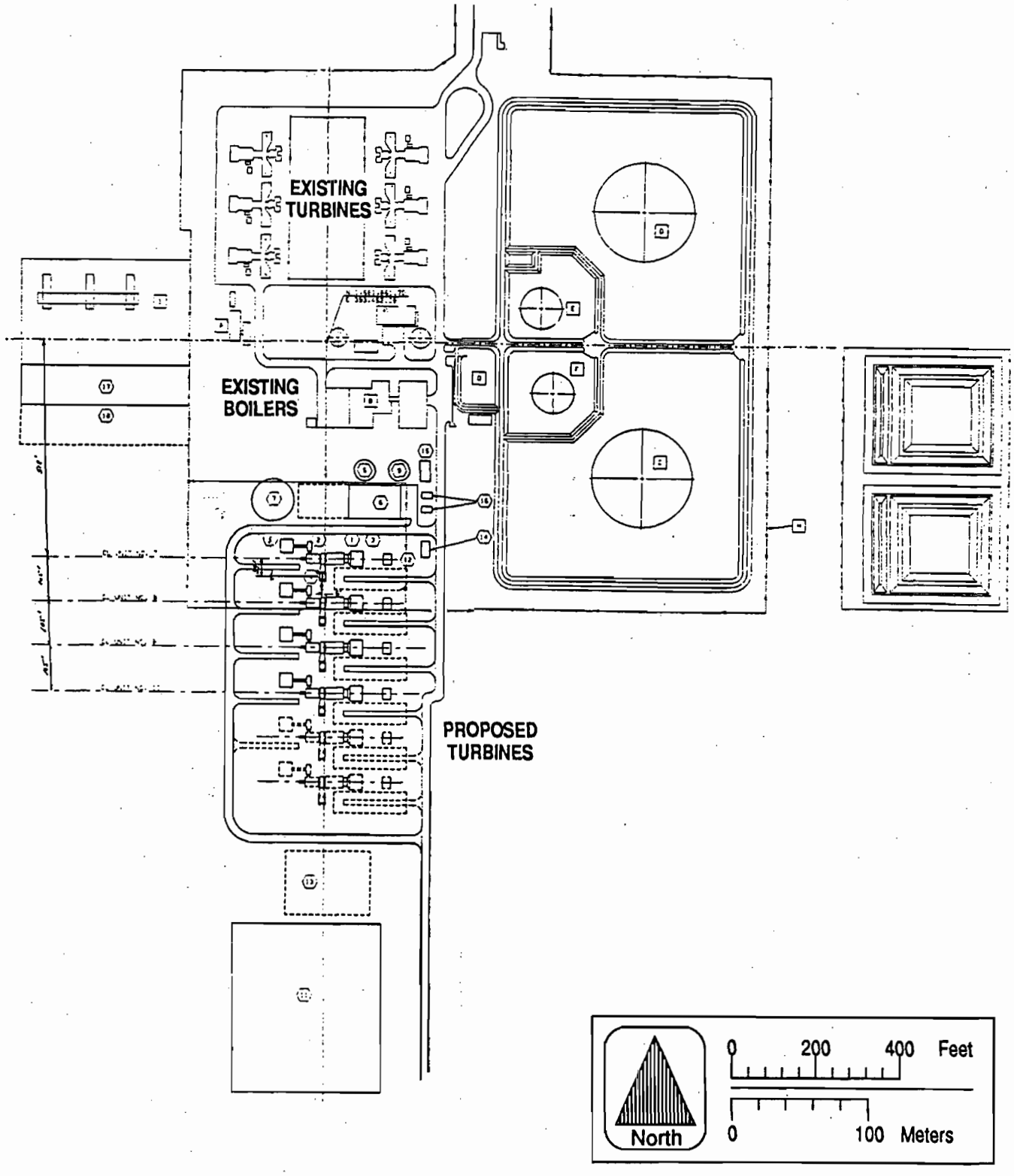

Figure 1-2 SITE PLAN OF THE EXISTING TURBINE AND BOILERS AND PROPOSED TURBINES

KBN

and arsenic (As). Therefore, the project is subject to PSD review for these pollutants.

This report is presented in eight sections. Descriptions of the existing operation and proposed project are given in Section 2.0. The air quality review requirements and applicability of the project to the PSD and nonattainment regulations are presented in Section 3.0. The control technology review for the CTs applicable under the U.S. Environmental Protection Agency's (EPA's) current top-down approach is discussed in Section 4.0. The air quality monitoring data, including the use of existing air quality monitoring data to satisfy the PSD preconstruction monitoring requirements, are given in Section 5.0. The air source impact analysis approach is presented in Section 6.0. The results of the air quality analyses are summarized in Section 7.0. Additional impact analyses associated with the project's impacts on vegetation, soils, and associated growth are discussed in Section 8.0.

2.0 EXISTING OPERATION AND PROJECT DESCRIPTION

2.1 EXISTING OPERATION

The existing facility consists of six peaking gas turbine units and two boilers. Each of the six gas turbines has a maximum permitted heat input rate of 588 million British thermal units per hour (10^6 Btu/hr) at 95°F with a 47 megawatts per hour (MW/hr) output and is fired with No. 2 or No. 6 fuel oil. The two boilers operate at a maximum heat input rate of 26 x 10^6 Btu/hr while burning either No. 2 fuel oil or No. 6 fuel oil only and each is used to heat No. 6 fuel oil for the peaking gas turbines. The maximum sulfur content in the fuel oil fired in the turbines and boilers is 0.7 percent. The combustion unit descriptions and emission factors for these sources are presented in Table 2-1. The stack, operating, and emission data for these sources are given in Table 2-2.

2.2 PROJECT DESCRIPTION

The proposed project will consist of six simple-cycle CT peaking units designed to burn No. 2 distillate fuel oil and natural gas. The DeBary site currently does not have natural gas firing capability. However, the new CTs can be modified to burn natural gas so that future gas capability can be accommodated. The operating and emission data for oil firing were used to assess impacts and evaluate best available control technology (BACT) because emissions with this fuel are higher than those for natural gas and distillate oil is currently planned as the primary fuel.

Each CT is site-rated at 92.9 MW at 59°F for a total site rating of 557.4 MW (see Figure 2-1). Design information and operating parameters for an individual CT when firing distillate oil at ambient temperatures of 20, 59, and 90°F are presented in Appendix A. Information is also provided for the CTs operating at 100, 75, 50, and 25 percent load.

The maximum emissions from the CTs occur at the lowest design temperature of 20°F, while the lowest exit gas flow rates occur at the highest design

Table 2-1. Combustion Unit Descriptions and Emission Factors for Existing Sources at FPC's DeBary Facility

Unit	Fuel	Heat Input Rate (10^6 Btu/hr)	Maximum Fuel Use	Emission Factors Units	PM	SO_2	NO_2	CO	VOC
Boilers No. 1 and No. 2	No. 6 oil	26.0	179 gal/hr	lb/10^6 Btu	0.021[a]	0.75[a]	0.344[a]	0.028[a]	0.010[a]
Gas Turbines No. 1 through No. 6	No. 6 oil	588.0	4,055 gal/hr	lb/10^6 Btu	0.034	0.68	0.47	0.11	0.04
				lb/10^3 gal	5	98[b]	67.8	15.4	5.57

Note: Heat contents for No. 6 fuel oil is assumed to be approximately 145,000 Btu/gal.

Btu = British thermal units.
Btu/gal = British thermal units per gallon.
CO = carbon monoxide.
gal/hr = gallons per hour.
lb/10^6 Btu = pounds per million British thermal units.
lb/10^3 gal = pounds per thousand gallons.
NO_2 = nitrogen dioxide.
PM = particulate matter.
SO_2 = sulfur dioxide.
VOC = volatile organic compound.

[a]Based on permit condition. For boilers, maximum sulfur content in fuel oil is limited to 0.7 percent.
[b]Based on emission factor of 140 x S, where S is the sulfur content, assumed to be 0.7 percent.

Table 2-3. Design, Stack, Operating, and Emission Data for the Proposed Combustion Turbines Operating at Various Loads

Parameter	Operating Load for Each Turbine			
	100[a]	75	50	25
Heat Input, 10^6 Btu/hr[b]	1,144.3	806.4	593.1	399.7
Stack Height, ft (m)	50 (15.2)	50 (15.2)	50 (15.2)	50 (15.2)
Stack Diameter, ft (m)	13.8 (4.22)	13.8 (4.22)	13.8 (4.22)	13.8 (4.22)
Stack Gas Velocity ft/sec (m/sec)[c]	161.5 (49.2)	135.4 (41.3)	112.4 (34.3)	95.5 (29.1)
Stack Gas Exit Temperature °F (K)[c]	1,065 (847)	843 (724)	761 (678)	660 (622)
SO_2 Emission Rate, lb/hr (g/s) Each Turbine[c]	616.9 (77.7)	434.7 (54.8)	319.8 (40.3)	215.5 (27.1)

Note: The stacks were located at the relative x,y (m) values of: 0.0, 79.7; 0.0, 46.9; 0.0, 16.4; 0.0, -16.4; 0.0, -46.9; and 0.0, -79.7.

[a]Peak load.
[b]Operating data at ambient temperature of 20°F.
[c]Operating data at ambient temperature of 90°F.

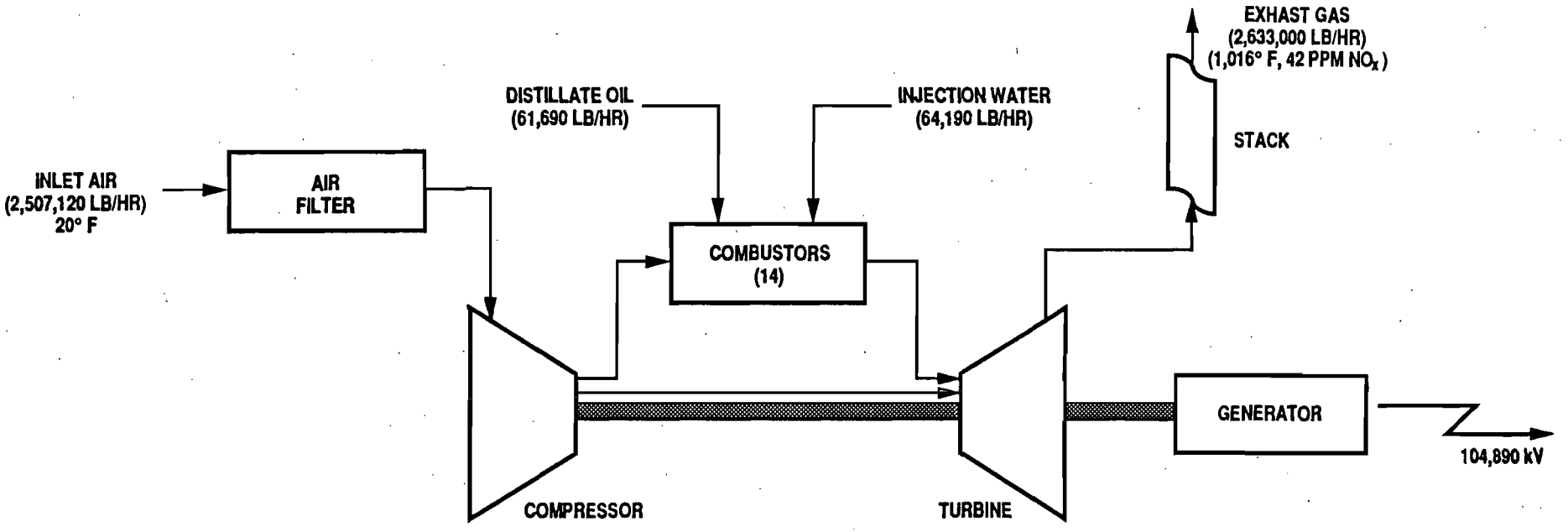

Figure 2-1 COMBUSTION TURBINE FLOW DIAGRAM PEAK LOAD OPERATION (100%) AT 20° F AMBIENT

temperature of 95°F. In order to provide a conservative estimate of impacts (i.e., higher than expected), modeling was performed using the highest emissions at the 20°F design condition coupled with the lowest exit gas flow rates at 95°F design condition. The stack, operating, and SO_2 emission data for four operating loads are given in Table 2-3.

Table 2-3. Design, Stack, Operating, and Emission Data for the Proposed Combustion Turbines Operating at Various Loads

Parameter	Operating Load for Each Turbine			
	100[a]	75	50	25
Boiler Heat Input, 10^8 Btu/hr[b]	1,144.3	806.4	593.1	399.7
Stack Height, ft (m)	50 (15.2)	50 (15.2)	50 (15.2)	50 (15.2)
Stack Diameter, ft (m)	13.8 (4.22)	13.8 (4.22)	13.8 (4.22)	13.8 (4.22)
Stack Gas Velocity ft/sec (m/sec)[c]	161.5 (49.2)	135.4 (41.3)	112.4 (34.3)	95.5 (29.1)
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Note: The stacks were located at the relative x,y (m) values of: 0.0, 79.7; 0.0, 46.9; 0.0, 16.4; 0.0, -16.4; 0.0, -46.9; and 0.0, -79.7.

[a]Peak load.
[b]Operating data at ambient temperature of 20°F.
[c]Operating data at ambient temperature of 90°F.

3.0 AIR QUALITY REVIEW REQUIREMENTS AND APPLICABILITY

The following discussion pertains to the federal and state air regulatory requirements and their applicability to the DeBary project. These regulations must be satisfied before the proposed simple-cycle turbines can begin operation.

3.1 NATIONAL AND STATE AAQS

The existing applicable national and Florida AAQS are presented in Table 3-1. Primary national AAQS were promulgated to protect the public health, and secondary national AAQS were promulgated to protect the public welfare from any known or anticipated adverse effects associated with the presence of pollutants in the ambient air. Areas of the country in violation of AAQS are designated as nonattainment areas, and new sources to be located in or near these areas may be subject to more stringent air permitting requirements.

3.2 PSD REQUIREMENTS

3.2.1 GENERAL REQUIREMENTS

Under federal and State of Florida PSD review requirements, all major new or modified sources of air pollutants regulated under the Clean Air Act (CAA) must be reviewed and a preconstruction permit issued. Florida's State Implementation Plan (SIP), which contains PSD regulations, has been approved by EPA, and therefore PSD approval authority has been granted to the Florida Department of Environmental Regulation (FDER).

A "major facility" is defined as any one of 28 named source categories which has the potential to emit 100 TPY or more, or any other stationary facility which has the potential to emit 250 TPY or more of any pollutant regulated under CAA. "Potential to emit" means the capability, at maximum design capacity, to emit a pollutant after the application of control equipment.

Table 3-1. National and State AAQS, Allowable PSD Increments, and Significance Levels ($\mu g/m^3$)

Pollutant	Averaging Time	AAQS National Primary Standard	AAQS National Secondary Standard	AAQS State of Florida	PSD Increments Class I	PSD Increments Class II	Significant Impact Levels
Particulate Matter (TSP)	Annual Geometric Mean	NA	NA	NA	5	19	1
	24-Hour Maximum[a]	NA	NA	NA	10	37	5
Particulate Matter (PM10)	Annual Arithmetic Mean	50	50	50	4[c]	17[c]	1
	24-Hour Maximum[b]	150	150	150	8[c]	30[c]	5
Sulfur Dioxide	Annual Arithmetic Mean	80	NA	60	2	20	1
	24-Hour Maximum[b]	365	NA	260	5	91	5
	3-Hour Maximum[b]	NA	1,300	1,300	25	512	25
Carbon Monoxide	8-Hour Maximum[b]	10,000	10,000	10,000	NA	NA	500
	1-Hour Maximum[b]	40,000	40,000	40,000	NA	NA	2,000
Nitrogen Dioxide	Annual Arithmetic Mean	100	100	100	2.5	25	1
Ozone	1-Hour Maximum[d]	235	235	235	NA	NA	NA
Lead	Calendar Quarter Arithmetic Mean	1.5	1.5	15	NA	NA	NA

[a]Maximum concentration not to be exceeded more than once per year.
[b]Achieved when the expected number of exceedances per year is less than 1.
[c]Proposed October 5, 1989.
[d]Achieved when the expected number of days per year with concentrations above the standard is less than 1.

Note: Particulate matter (TSP) = total suspended particulate matter.
Particulate matter (PM10) = particulate matter with aerodynamic diameter less than or equal to 10 micrometers.

NA = Not applicable, i.e., no standard exists.

Sources: Federal Register, Vol. 43, No. 118, June 19, 1978.
40 CFR 50.
40 CFR 52.21.
Chapter 17-2.400, F.A.C.

A "major modification" is defined under PSD regulations as a change at an existing major facility which increases emissions by greater than significant amounts. PSD significant emission rates are shown in Table 3-2.

PSD review is used to determine whether significant air quality deterioration will result from the new or modified facility. Federal PSD requirements are contained in 40 CFR 52.21, Prevention of Significant Deterioration of Air Quality. The State of Florida has adopted PSD regulations that are essentially identical to federal regulations [Chapter 17-2.510, Florida Administrative Code (F.A.C.)]. Major facilities and major modifications are required to undergo the following analysis related to PSD for each pollutant emitted in significant amounts:

1. Control technology review,
2. Source impact analysis,
3. Air quality analysis (monitoring),
4. Source information, and
5. Additional impact analyses.

In addition to these analyses, a new facility must also be reviewed with respect to Good Engineering Practice (GEP) stack height regulations. Discussions concerning each of these requirements are presented in the following sections.

3.2.2 INCREMENTS/CLASSIFICATIONS

In promulgating the 1977 CAA Amendments, Congress specified that certain increases above an air quality baseline concentration level of SO_2 and PM(TSP) concentrations would constitute significant deterioration. The magnitude of the allowable increment depends on the classification of the area in which a new source (or modification) will be located or have an impact. Three classifications were designated based on criteria established in the CAA Amendments. Initially, Congress promulgated areas as Class I (international parks, national wilderness areas, and memorial parks larger than 5,000 acres, and national parks larger than 6,000 acres)

Table 3-2. PSD Significant Emission Rates and De Minimis Monitoring Concentrations

Pollutant	Regulated Under	Significant Emission Rate (TPY)	De Minimis Monitoring Concentration ($\mu g/m^3$)
Sulfur Dioxide	NAAQS, NSPS	40	13, 24-hour
Particulate Matter (TSP)	NAAQS, NSPS	25	10, 24-hour
Particulate Matter (PM10)	NAAQS	15	10, 24-hour
Nitrogen Oxides	NAAQS, NSPS	40	14, annual
Carbon Monoxide	NAAQS, NSPS	100	575, 8-hour
Volatile Organic Compounds (Ozone)	NAAQS, NSPS	40	100 TPY[a]
Lead	NAAQS	0.6	0.1, 3-month
Sulfuric Acid Mist	NSPS	7	NM
Total Fluorides	NSPS	3	0.25, 24-hour
Total Reduced Sulfur	NSPS	10	10, 1-hour
Reduced Sulfur Compounds	NSPS	10	10, 1-hour
Hydrogen Sulfide	NSPS	10	0.2, 1-hour
Asbestos	NESHAP	0.007	NM
Beryllium	NESHAP	0.0004	0.001, 24-hour
Mercury	NESHAP	0.1	0.25, 24-hour
Vinyl Chloride	NESHAP	1	15, 24-hour
Benzene	NESHAP	b	NM
Radionuclides	NESHAP	b	NM
Inorganic Arsenic	NESHAP	b	NM

Note: Ambient monitoring requirements for any pollutant may be exempted if the impact of the increase in emissions is below de minimis monitoring concentrations.

NAAQS = National Ambient Air Quality Standards.
NM = No ambient measurement method.
NSPS = New Source Performance Standards.
NESHAP = National Emission Standards for Hazardous Air Pollutants.
$\mu g/m^3$ = micrograms per cubic meter.

[a]No de minimis concentration; an increase in VOC emissions of 100 TPY or more will require monitoring analysis for ozone.
[b]Any emission rate of these pollutants.

Sources: 40 CFR 52.21.
Chapter 17-2, F.A.C.

or as Class II (all areas not designated as Class I). No Class III areas, which would be allowed greater deterioration than Class II areas, were designated. EPA then promulgated as regulations the requirements for classifications and area designations.

On October 17, 1988, EPA promulgated regulations to prevent significant deterioration due to emissions of nitrogen oxides (NO_x) and established PSD increments for NO_2 concentrations. The EPA class designations and allowable PSD increments are presented in Table 3-1. FDER has adopted the EPA class designations and allowable PSD increments for SO_2, PM(TSP), and NO_2 increments.

The term "baseline concentration" evolves from federal and state PSD regulations and refers to a concentration level corresponding to a specified baseline date and certain additional baseline sources. By definition, in the PSD regulations as amended August 7, 1980, baseline concentration means the ambient concentration level that exists in the baseline area at the time of the applicable baseline date. A baseline concentration is determined for each pollutant for which a baseline date is established and includes:

1. The actual emissions representative of facilities in existence on the applicable baseline date; and
2. The allowable emissions of major stationary facilities that commenced construction before January 6, 1975, for SO_2 and PM(TSP) concentrations, or February 8, 1988, for NO_2 concentrations, but that were not in operation by the applicable baseline date.

The following emissions are not included in the baseline concentration and therefore affect PSD increment consumption:

1. Actual emissions from any major stationary facility on which construction commenced after January 6, 1975, for SO_2 and PM(TSP) concentrations, and after February 8, 1988, for NO_2 concentrations; and

2. Actual emission increases and decreases at any stationary facility occurring after the baseline date.

In reference to the baseline concentration, the term "baseline date" actually includes three different dates:

1. The major facility baseline date, which is January 6, 1975, in the cases of SO_2 and PM(TSP), and February 8, 1988, in the case of NO_2.
2. The minor facility baseline date, which is the earliest date after the trigger date on which a major stationary facility or major modification subject to PSD regulations submits a complete PSD application.
3. The trigger date, which is August 7, 1977, for SO_2 and PM(TSP), and February 8, 1988, for NO_2.

The minor source baseline date for SO_2 and PM(TSP) has been set as December 27, 1977, for the entire State of Florida (Chapter 17-2.450, F.A.C.).

3.2.3 CONTROL TECHNOLOGY REVIEW

The control technology review requirements of the federal and state PSD regulations require that all applicable federal and state emission limiting standards be met and that BACT be applied to control emissions from the source [Chapter 17-2.500(5)(c), F.A.C]. The BACT requirements are applicable to all regulated pollutants for which the increase in emissions from the facility or modification exceeds the significant emission rate (see Table 3-2).

BACT is defined in Chapter 17-2.100(25), F.A.C., as:

> An emissions limitation, including a visible emission standard, based on the maximum degree of reduction of each pollutant emitted which the department, on a case by case basis, taking into account energy, environmental, and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques (including fuel cleaning or treatment or innovative fuel combustion techniques) for control of such pollutant. If the Department determines that technological or

> economic limitations on the application of measurement methodology to a particular part of a source or facility would make the imposition of an emission standard infeasible, a design, equipment, work practice, operational standard or combination thereof, may be prescribed instead to satisfy the requirement for the application of BACT. Such standard shall, to the degree possible, set forth the emissions reductions achievable by implementation of such design, equipment, work practice, or operation.

The requirements for BACT were promulgated within the framework of PSD in the 1977 amendments of the CAA [Public Law 95-95; Part C, Section 165(a)(4)]. The primary purpose of BACT is to optimize consumption of PSD air quality increments and thereby enlarge the potential for future economic growth without significantly degrading air quality (EPA, 1978; 1980). Guidelines for the evaluation of BACT can be found in EPA's Guidelines for Determining Best Available Control Technology (BACT), (EPA, 1978) and in the PSD Workshop Manual (EPA, 1980). These guidelines were promulgated by EPA to provide a consistent approach to BACT and to ensure that the impacts of alternative emission control systems are measured by the same set of parameters. In addition, through implementation of these guidelines, BACT in one area may not be identical to BACT in another area. According to EPA (1980), "BACT analyses for the same types of emissions unit and the same pollutants in different locations or situations may determine that different control strategies should be applied to the different sites, depending on site-specific factors. Therefore, BACT analyses must be conducted on a case-by-case basis."

The BACT requirements are intended to ensure that the control systems incorporated in the design of a proposed facility reflect the latest in control technologies used in a particular industry and take into consideration existing and future air quality in the vicinity of the proposed facility. BACT must, as a minimum, demonstrate compliance with New Source Performance Standards (NSPS) for a source (if applicable). An evaluation of the air pollution control techniques and systems, including a cost-benefit analysis of alternative control technologies capable of achieving a higher degree of emission reduction than the proposed control

technology, is required. The cost-benefit analysis requires the documentation of the materials, energy, and economic penalties associated with the proposed and alternative control systems, as well as the environmental benefits derived from these systems. A decision on BACT is to be based on sound judgment, balancing environmental benefits with energy, economic, and other impacts (EPA, 1978).

Historically, a "bottom-up" approach consistent with the BACT Guidelines and PSD Workshop Manual has been used. With this approach, an initial control level, which is usually NSPS, is evaluated against successively more stringent controls until a BACT level is selected. However, EPA developed a concern that the bottom-up approach was not providing the level of BACT decisions originally intended. As a result, in December 1987, the EPA Assistant Administrator for Air and Radiation mandated changes in the implementation of the PSD program including the adoption of a new "top-down" approach to BACT decision making.

The top-down BACT approach essentially starts with the most stringent (or top) technology and emissions limit that have been applied elsewhere to the same or a similar source category. The applicant must next provide a basis for rejecting this technology in favor of the next most stringent technology or propose to use it. Rejection of control alternatives may be based on technical or economic infeasibility. Such decisions are made on the basis of physical differences (e.g., fuel type), locational differences (e.g., availability of water), or significant differences that may exist in the environmental, economic, or energy impacts. The differences between the proposed facility and the facility on which the control technique was applied previously must be justified. Recently, EPA issued a draft guidance document on the top-down approach entitled Top-Down Best Available Control Technology Guidance Document (EPA, 1990).

3.2.4 AIR QUALITY MONITORING REQUIREMENTS

In accordance with requirements of 40 Code of Federal Regulations (CFR) 52.21(m) and Chapter 17-2.500(f), F.A.C, any application for a PSD permit must contain an analysis of continuous ambient air quality data in the area affected by the proposed major stationary facility or major modification. For a new major facility, the affected pollutants are those that the facility potentially would emit in significant amounts. For a major modification, the pollutants are those for which the net emissions increase exceeds the significant emission rate (see Table 3-2).

Ambient air monitoring for a period of up to 1 year is generally appropriate to satisfy the PSD monitoring requirements. A minimum of 4 months of data is required. Existing data from the vicinity of the proposed source may be utilized if the data meet certain quality assurance requirements; otherwise, additional data may need to be gathered. Guidance in designing a PSD monitoring network is provided in EPA's Ambient Monitoring Guidelines for Prevention of Significant Deterioration (EPA, 1987a).

The regulations include an exemption which excludes or limits the pollutants for which an air quality analysis must be conducted. This exemption states that FDER may exempt a proposed major stationary facility or major modification from the monitoring requirements with respect to a particular pollutant if the emissions increase of the pollutant from the facility or modification would cause, in any area, air quality impacts less than the de minimis levels presented in Table 3-2 [Chapter 17-2.500(3)(e), F.A.C.].

3.2.5 SOURCE IMPACT ANALYSIS

A source impact analysis must be performed for a proposed major source subject to PSD for each pollutant for which the increase in emissions exceeds the significant emission rate (Table 3-2). The PSD regulations specifically provide for the use of atmospheric dispersion models in performing impact analyses, estimating baseline and future air quality

levels, and determining compliance with AAQS and allowable PSD increments. Designated EPA models normally must be used in performing the impact analysis. Specific applications for other than EPA-approved models require EPA's consultation and prior approval. Guidance for the use and application of dispersion models is presented in the EPA publication Guideline on Air Quality Models (Revised) (EPA, 1987b). The source impact analysis for criteria pollutants may be limited to only the new or modified source if the net increase in impacts due to the new or modified source is below significance levels, as presented in Table 3-1.

Various lengths of record for meteorological data can be utilized for impact analysis. A 5-year period can be used with corresponding evaluation of highest, second-highest short-term concentrations for comparison to AAQS or PSD increments. The term "highest, second-highest" (HSH) refers to the highest of the second-highest concentrations at all receptors (i.e., the highest concentration at each receptor is discarded). The second-highest concentration is significant because short-term AAQS specify that the standard should not be exceeded at any location more than once a year. If less than 5 years of meteorological data are used in the modeling analysis, the highest concentration at each receptor normally must be used for comparison to air quality standards.

3.2.6 ADDITIONAL IMPACT ANALYSIS

In addition to air quality impact analyses, federal and State of Florida PSD regulations require analyses of the impairment to visibility and the impacts on soils and vegetation that would occur as a result of the proposed source [40 CFR 52.21; Chapter 17-2.500(5)(e), F.A.C.]. These analyses are to be conducted primarily for PSD Class I areas. Impacts due to general commercial, residential, industrial, and other growth associated with the source must also be addressed. These analyses are required for each pollutant emitted in significant amounts (Table 3-2).

3.2.7 GOOD ENGINEERING PRACTICE STACK HEIGHT

The 1977 CAA Amendments require that the degree of emission limitation required for control of any pollutant not be affected by a stack height that exceeds GEP or any other dispersion technique. On July 8, 1985, EPA promulgated final stack height regulations (EPA, 1985a). Identical regulations have been adopted by FDER [Chapter 17-2.270, F.A.C.]. GEP stack height is defined as the highest of:

1. 65 meters (m), or
2. A height established by applying the formula:

$$Hg = H + 1.5L$$

where: Hg = GEP stack height,
H = Height of the structure or nearby structure, and
L = Lesser dimension (height or projected width) of nearby structure(s), or

3. A height demonstrated by a fluid model or field study.

"Nearby" is defined as a distance up to five times the lesser of the height or width dimensions of a structure or terrain feature, but not greater than 0.8 kilometers (km). Although GEP stack height regulations require that the stack height used in modeling for determining compliance with AAQS and PSD increments not exceed the GEP stack height, the actual stack height may be greater.

The stack height regulations also allow increased GEP stack height beyond that resulting from the above formula in cases where plume impaction occurs. Plume impaction is defined as concentrations measured or predicted to occur when the plume interacts with elevated terrain. Elevated terrain is defined as terrain which exceeds the height calculated by the GEP stack height formula.

3.3 NONATTAINMENT RULES

Based on the current nonattainment provisions (Chapter 17-2.510, F.A.C.), all major new facilities and modifications to existing major facilities located in a nonattainment area must undergo nonattainment review. A new

major facility is required to undergo this review if the proposed pieces of equipment have the potential to emit 100 TPY or more of the nonattainment pollutant. A major modification at a major facility is required to undergo review if it results in a significant net emission increase of 40 TPY or more of the nonattainment pollutant or the modification is major (i.e., 100 TPY or more).

For major facilities or major modifications that locate in an attainment or unclassifiable area, the nonattainment review procedures apply if the source or modification is located within the area of influence of a nonattainment area. The area of influence is defined as an area which is outside the boundary of a nonattainment area but within the locus of all points that are 50 km outside the boundary of the nonattainment area. Based on Chapter 17-2.510(2)(a)2.a, F.A.C., all volatile organic compound (VOC) sources that are located within an area of influence are exempt from the provisions of new source review for nonattainment areas. Sources that emit other nonattainment pollutants and are located within the area of influence are subject to nonattainment review unless the maximum allowable emissions from the proposed source do not have a significant impact within the nonattainment area.

3.4 SOURCE APPLICABILITY

3.4.1 AREA CLASSIFICATION

The DeBary Plant is located in Volusia County, which has been designated by EPA and FDER as an attainment area for all criteria pollutants. Volusia County and surrounding counties are designated as PSD Class II areas for SO_2, PM(TSP), and NO_x. The DeBary site is located more than 100 km from any PSD Class I area. The nearest Class I areas to the site are the Everglades National Park and Chassahowitzka National Wildlife Refuge, which are approximately 340 km and 120 km, respectively, from the plant site.

3.4.2 PSD REVIEW

3.4.2.1 Pollutant Applicability

The existing DeBary Plant is considered to be an existing major facility because emissions of regulated pollutants exceed 250 TPY (refer to Table 2-2); therefore, PSD review is required for any pollutant for which the net increase in emissions exceeds the PSD significant emission rates presented in Table 3-2 (i.e., major modification). As shown, potential emissions from the proposed project will exceed the PSD significant emission rates for the following regulated pollutants: SO_2, PM(TSP), PM10, NO_x, CO, H_2SO_4 mist, Be, Hg, and inorganic As. Therefore, the project is subject to PSD review for these pollutants.

3.4.2.2 Ambient Monitoring

Based upon the net increase in emissions from the proposed project, presented in Table 3-3, a PSD preconstruction ambient monitoring analysis is required for SO_2, PM(TSP), PM10, NO_x, CO, sulfuric acid mist, Be, Hg, and As. However, if the net increase in impact of a pollutant is less than the de minimis monitoring concentration, then an exemption from the preconstruction ambient monitoring requirement may be granted for that pollutant. In addition, if an acceptable ambient monitoring method for the pollutant has not been established by EPA, monitoring is not required.

If preconstruction monitoring data are required to be submitted, data collected at or near the project site can be submitted based on existing air quality data (e.g., FDER) or the collection of on-site data.

Maximum predicted impacts due to the net increase associated with the proposed project are presented in Table 3-4 for pollutants requiring PSD review. The methodology used to predict maximum impacts and the impact analysis results are presented in Sections 6.0 and 7.0. As shown in Table 3-4, the maximum net increase in impact is below the respective de minimis monitoring concentration for all pollutants. There is no

Table 3-3. Net Increase in Emissions Due to the DeBary Project Compared to the PSD Significant Emission Rates

Pollutant	Emissions (TPY) Potential Emissions From Proposed Turbines	Significant Emission Rate	PSD Review
Sulfur Dioxide	14,581[a]	40	Yes
Particulate Matter (TSP)	394	25	Yes
Particulate Matter (PM10)	394	15	Yes
Nitrogen Dioxide	4,794	40	Yes
Carbon Monoxide	1,411	100	Yes
Volatile Organic Compounds	131	NA	No
Lead	0.24	0.6	No
Sulfuric Acid Mist	1,816	7	Yes
Total Fluorides	0.88	3	No
Total Reduced Sulfur[b]	NEG	10	No
Reduced Sulfur Compounds[b]	NEG	10	No
Hydrogen Sulfide[b]	NEG	10	No
Asbestos[b]	NEG	0.007	No
Beryllium	0.068	0.0004	Yes
Mercury	0.081	0.1	No
Vinyl Chloride[b]	NEG	1	No
Benzene[b]	NEG	0	No
Radionuclides[b]	NEG	0	No
Inorganic Arsenic	0.11	0	Yes

Note: NEG = Negligible.
All calculations based on 59°F peak load condition.

[a]Based on maximum sulfur content specification of 0.5 percent in fuel oil.
[b]Emissions of these pollutants considered not to have any emission rate increase.

Table 3-4. Predicted Net Increase In Impacts Due to the DeBary Project Compared to PSD De Minimis Monitoring Concentrations

Pollutant	Concentration ($\mu g/m^3$) Predicted Net Increase In Impacts[a]	Concentration ($\mu g/m^3$) De Minimis Monitoring Concentration
Sulfur Dioxide	11.4	13, 24-hour
Particulate Matter (TSP)	1.2	10, 24-hour
Particulate Matter (PM10)	1.2	10, 24-hour
Nitrogen Dioxide	0.31[b]	14, annual
Carbon Monoxide	2.9	575, 8-hour
Beryllium	0.000053	0.001, 24-hour
Mercury	0.000063	0.25, 24-hour
Sulfuric Acid Mist	NA	NM
Inorganic Arsenic	NA	NM

Note: NA = Not applicable.
NM = No acceptable ambient measurement method has been developed and, therefore, de minimis levels have not been established by EPA.

[a]Based on maximum emissions at 100-percent load and 100-percent capacity factor.

[b]If fuel-bound nitrogen content was 0.25 percent (i.e., NO_x emission rate of 92 ppm) the maximum annual concentration is predicted to be 0.68 $\mu g/m^3$.

acceptable ambient monitoring method for sulfuric acid mist and As; therefore, monitoring is not required for these pollutants.

In May 1990, FPC submitted a preliminary air quality impact assessment of the proposed simple-cycle CTs to FDER in response to the potential SO_2 monitoring requirement. The assessment described the maximum predicted impacts due to the turbines and recommended the use of existing FDER air quality monitoring data that would be appropriate to satisfy PSD preconstruction monitoring requirements. In July 1990, FDER determined that data collected at the recommended monitoring site was acceptable for satisfying this requirement (see Appendix B).

3.4.2.3 GEP Stack Height Impact Analysis

The GEP stack height regulations allow any stack to be at least 65 m high. The proposed stacks for the proposed turbines will be 50 feet (ft) in height (15.2 m) and, therefore, do not exceed the GEP stack height. The potential for downwash of the units' emissions due to nearby structures is discussed in Section 6.0, Air Quality Modeling Approach.

3.4.3 NONATTAINMENT REVIEW

The DeBary plant is located in Volusia County, which is classified as an attainment area for all criteria pollutants. The plant is also located more than 50 km from any nonattainment area. Therefore, nonattainment requirements are not applicable.

4.0 CONTROL TECHNOLOGY REVIEW

4.1 APPLICABILITY

The control technology review requirements of the PSD regulations are applicable to emissions of SO_2, PM(TSP), PM10, NO_x, CO, H_2SO_4 mist, Be, Hg, and inorganic As (see Section 3.0). This section presents the applicable NSPS and the proposed BACT for these pollutants. The approach to BACT analyses is based on the regulatory definitions of BACT, as well as EPA's current policy guidance requiring the top-down approach.

4.2 NEW SOURCE PERFORMANCE STANDARDS

The applicable NSPS for gas turbines are codified in 40 CFR 60, Subpart GG. These regulations apply to:

1. "Electric utility stationary gas turbines" with a heat input at peak load of greater than 100 x 10^6 Btu/hr [40 CFR 60.332 (b)];
2. "Stationary gas turbines" with a heat input at peak load between 10 and 100 x 10^6 Btu/hr [40 CFR 60.332 (c)]; or
3. "Stationary gas turbines" with a manufacturer's rate base load at ISO conditions of 30 MW or less [40 CFR 60.332 (d)].

The electric utility stationary gas turbine provisions apply to stationary gas turbines constructed for the purpose of supplying more than one-third of its potential electric output capacity to any utility power distribution system for sale [40 CFR 60.331 (q)]. The requirements for electric utility stationary gas turbines are applicable to the project and are the most stringent provision of the NSPS. These requirements are summarized in Table 4-1 and were considered in the BACT analysis.

As noted from Table 4-1, the NSPS NO_x emission limit can be adjusted upward to allow for fuel-bound nitrogen. For a fuel-bound nitrogen concentration of 0.015 percent or less, no increase in the NSPS is provided; for a fuel-bound nitrogen concentration of 0.06 percent, the NSPS is increased by 0.0024 percent or 24 parts per million (ppm).

Table 4-1. Federal NSPS For Electric Utility Stationary Gas Turbines

Pollutant	Emission Limitation[a]
Sulfur Dioxide	Maximum of 0.015 percent by volume at 15 percent oxygen on a dry basis or sulfur in fuel no greater than 0.8 percent by weight
Nitrogen Oxides[b]	0.0075 percent by volume (75 ppm) at 15 percent O_2 on a dry basis adjusted for heat rate and fuel nitrogen

[a] Applicable to electric utility gas turbines with a heat input at peak load of greater than 100 x 10^6 Btu/hr.

[b] Standard is multiplied by 14.4/Y; where Y is the manufacturer's rated heat rate in kilojoules per watt at rated load or actual measured heat rate based on the lower heating value of fuel measured at actual peak load; Y cannot be greater than 14.4. Standard is adjusted upward (additive) by the percent of nitrogen in the fuel:

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

where:

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

Source: 40 CFR 60 Subpart GG.

For the DeBary CTs, the NSPS emission limit would be 92 ppm corrected to 15 percent oxygen at a fuel-bound nitrogen content of 0.015 percent.

4.3 BEST AVAILABLE CONTROL TECHNOLOGY

4.3.1 NITROGEN OXIDES

4.3.1.1 Identification of NO_x Control Technologies for CTs

NO_x emissions from combustion of fossil fuels consist of thermal NO_x and fuel-bound NO_x. Thermal NO_x is formed from the reaction of oxygen and nitrogen in the combustion air at combustion temperatures. Formation of thermal NO_x depends on the flame temperature, residence time, combustion pressure, and air-to-fuel ratios in the primary combustion zone. The design and operation of the combustion chamber dictates these conditions. Fuel-bound NO_x is created by the oxidation of volatilized nitrogen in the fuel. Nitrogen content in the fuel is the primary factor in its formation.

Table 4-2 presents a listing of the lowest achievable emission rates/best available control technology (LAER/BACT) decisions for gas turbines made by state environmental agencies and EPA regional offices. This table was developed from the information contained in the LAER/BACT clearinghouse documents (EPA, 1985b, 1986, 1987c, 1988c, 1989) and by contacting state agencies, such as the California Air Control Board, the South Coast Air Quality Management District, the New Jersey Department of Environmental Protection, and the Rhode Island Department of Environmental Management.

The most stringent NO_x controls for CTs established as LAER/BACT by state agencies are selective catalytic reduction (SCR) with wet injection and wet injection alone. When SCR has been employed, wet injection is used initially to reduce NO_x emissions. SCR has been installed or permitted in about 132 projects. The majority of these projects (more than 90 percent) are cogeneration facilities with capacities of 50 MW or less. About 83 percent (i.e., 109) of the projects have been in California. Of these 109 projects that have either installed SCR or have been permitted with SCR, 43 percent have been in the Southern California NO_2 nonattainment

Table 4-2. LAER/BACT Decisions For Gas Turbines (Page 1 of 4)

Company Name	State	Unit Description	Capacity (Size)	Date of Permit	Emission Limit	Emission Control
Virginia Power	VA	GE turbine	1,875x10^6 BTU/hr	4/88	NO_x 42 ppmvd at 15% O_2 (gas) NO_x 77 ppmvd at 18% O_2 (fuel oil)	Steam injection with maximization NSPS Subpart GG
Trunkline LNG	LA	Gas turbine	147,102 scf/hr	5/87	NO_x 59 lb/hr	
Wichita Falls E. I., I.	TX	Gas turbine	20 MW	6/86	NO_x 684 TPY CO 420 TPY	Steam injection
Merck Sharp and Pohme	PA	Turbine	310x10^6 Btu/hr	5/88	NO_x 42 ppm at 15% O_2	Steam injection
California Dept. of Corr.	CA	Gas turbine	5.1 MW	12/86	NO_x 38 ppmv at 15% O_2	1 to 1 H_2O injection
City of Santa Clara	CA	Gas turbine		1/87	NO_x 42 ppmvd at 15% O_2	Water injection
Combined Energy Resources	CA	Cogeneration Fac.	27 MW	3/87	NO_x 199 lb/day	SCR unit, duct burner, H_2O injection, low NO_x design
Double 'C' Limited	CA	Gas turbine	25 MW	11/86	NO_x 194 lb/day	H_2O injection and SCR 95.80 efficiency
Kern Front Limited	CA	Gas turbine	25 MW	11/86	NO_x 194 lb/day 4.5 ppmvd at 15% O_2	H_2O injection and SCR 95.80 efficiency
Midway - Sunset Project	CA	Gas turbine	973x10^6 Btu/hr	1/87	NO_x 113.4 lb/hr 16.31 ppmv	H_2O injection, 73% efficiency
O'Brien Energy Systems	CA	Gas turbine	359.5x10^6 Btu/day	12/86	NO_x 30.3 lb/hr 15 ppmvd at 15% O_2	Duct burner, H_2O injection and scrubber
PG and E, Station T	CA	GE gas turbine	396x10^6 Btu/hr	8/86	NO_x 25 ppm at 15% O_2 63 lb/hr	Steam injection at steam/fuel ratio of 1.7/1, 75% efficiency
Sierra LTD.	CA	GE gas turbine	11.34x$10^6$$ft^3$/day		NO_x 4.04 lb/hr	Scrubber and CO catalytic converter
Sycamore Cogeneration Co.	CA	Gas turbine	75 MW	3/87	CO 10 ppmv at 15% O_2 3 hr average	CO oxidizing catalyst combustion control
U.S. Borax and Chemical Corp.	CA	Gas turbine	45 MW	2/87	NO_x 40 lb/hr 25 ppm at 15% O_2 Dry CO 23 lb/hr	Scrubber Proper combustion techniques
Western Power System, Inc	CA	GE gas turbine	26.5 MW	3/86	NO_x 9 ppmvd at 15% O_2	H_2O injection, SCR 80% efficiency
Calcogen, Cal Polytechic	CA	Gas turbine	21.4 MW	4/84	NO_x 42 ppm at 15% O_2	H_2O injection, 70% efficiency
Greenleaf Power Co.	CA	GE gas turbine	35.62 MW	4/85	NO_x 42 ppm at 15% O_2 91 lb/hr CO 20.41 lb/hr 0.016 lb/10^6 Btu	H_2O injection Good Engineering Practices Steam injection 95.86 efficiency

Table 4-2. LAER/BACT Decisions For Gas Turbines (Page 2 of 4)

Company Name	State	Unit Description	Capacity (Size)	Date of Permit	Emission Limit	Emission Control
Greenleaf Power Co.	CA	Duct Burner	63.7x10^6 Btu/hr	4/85	NO_x 0.1 lb/10^6 Btu 6.4 lb/hr CO 0.12 lb/10^6 Btu 7.6 lb/hr	Low NO_x design
OLS Energy	CA	GE gas turbine	256x10^6 Btu/hr	1/86	NO_x 9 ppmvd at 15% O_2	H_2O injection and scrubber 80% efficiency for scrubber
Ciba Giegy Corp.	NJ	Gas turbine	3 MW	1/85	NO_x 11.06 lb/hr CO 9.4 lb/hr	SIP, H_2O injection, 55% efficiency
Energy Reserve, Inc.	CA	Gas turbine	322.5x10^6 Btu/hr	10/85	NO_x 185.4 lb/day	H_2O injection, SCR 92.5% efficiency
Gilroy Energy Co.	CA	Gas turbine	60 MW	8/85	NO_x 25 ppmvd at 15% O_2	Steam injection, quiet combustor
		Auxiliary boiler	90x10^6 Btu/hr		NO_x 40 ppmvd at 3% O_2	Low NO_x burners
Kern Energy Corp.	CA	Gas turbine	8.8x10^6 ft^3/day	4/86	NO_x 8.29 lb/hr 0.023 lb/10^6 Btu	Scrubber with NH_3 reduction agent Steam injection and low NO_x configuration exhaust duct burner 87% efficiency
Moran Power, Inc.	CA	Gas turbine	8.0x10^6 ft^3/day	4/86	NO_x 8.29 lb/hr 0.023 lb/10^6 Btu	Scrubber with NH_3 reduction agent Steam injection and low NO_x configuration exhaust duct burner 87% efficiency
Northern California Power	CA	GE gas turbine	25.8 MW	4/85	NO_x 75 ppm	H_2O injection
Shell California Production	CA	Gas turbine	22 MW	4/85	NO_x 42 ppm at 15% O_2 35 lb/hr CO 10 ppmv at 15% O_2 22 lb/hr	H_2O injection Proper combustion
Southeast Energy, Inc.	CA	Gas turbine	8.0x10^6 ft^3/day	4/86	NO_x 8.29 lb/hr 0.023 lb/10^6 Btu	Scrubber with NH_3 reduction agent Steam injection and low NO_x configuration exhaust duct burner 87% efficiency
Sunlaw/Industrial Park	CA	Gas turbine	412.3x10^6 Btu/hr	6/85	NO_x 9 ppmvd at 15% O_2	Scrubber and steam injection, 80% efficiency
Union Cogeneration	CA	Gas turbine with Duct burner	16 MW	1/86	NO_x 25 ppmv at 15% O_2	H_2O injection and scrubber
Willamette Industries	CA	GE gas turbine	230x10^6 Btu/hr	4/85	NO_x 15 ppmvd at 15% O_2	H_2O injection with SCR 92% efficiency
Witco Chemical Corp.	CA	Gas turbine	350x10^6 Btu/hr	12/84	NO_x 0.18 lb/10^6 Btu oil 0.20 lb/10^6 Btu gas	
		Duct burner	111.6x10^6 Btu/hr		NO_x 0.12 lb/10^6 Btu	Gas firing only

Table 4-2. LAER/BACT Decisions For Gas Turbines (Page 3 of 4)

Company Name	State	Unit Description	Capacity (Size)	Date of Permit	Emission Limit	Emission Control
AES Placerita, Inc.	CA	Turbine and Recovery Boiler	519x10^6 Btu/hr	3/86	NO_x 629 lb/day 7 ppmvd at 15% O_2 CO 103 lb/day 2 ppmvd at 15% O_2	H_2O injection, SCR 80% efficiency
AES Placerita, Inc.	CA	Turbine and Recovery Boiler	530x10^6 Btu/hr	7/87	NO_x 340 lb/day 9 ppmvd at 15% O_2	Steam injection, SCR
AES Placerita, Inc.	CA	Gas turbine	530x10^6 Btu/hr	7/87	NO_x 289 lb/day 9 ppmvd at 15% O_2	Steam injection, SCR
Alaska Electrical Generation	AK	Gas turbine	80 MW	3/87	NO_x 75 ppmvd at 15% O_2 CO 109 lb/scf fuel	H_2O injection
Alaska Electrical Generation	AK	Gas turbine	38 MW	3/85	NO_x 75 ppm at 15% O_2	H_2O injection
BAF Energy	CA	Turbine, Generator	887.2x10^6 Btu/hr	7/87	NO_x 9 ppm at 15% O_2 30.1 lb/hr	Steam injection, scrubber 80% efficiency
BAF Energy	CA	Auxiliary Boiler	150x10^6 Btu/hr	10/87	NO_x 17.4 lb/day 40 ppmvd at 3% O_2 CO 63.6 lb/day 0.018 lb/10^6 Btu	Flue gas recirculation Low NO_x burners Oxidation catalyst
Champion International Corp.	TX	Gas turbine	30.6 MW (1,342x10^6 Btu/hr)	3/85	NO_x 720.34 TPY CO 70.08 TPY	Low NO_x burners
Cogen Technologies	NJ	GE gas turbines	40 MW	6/87	NO_x 9.6 ppmvd at 15% O_2 CO 50 ppmvd at 15% O_2	H_2O injection and SCR, 95% efficiency
Combined Energy Resources	CA	Gas turbine	2 MW	2/88	NO_x 199 lb/hr	H_2O injection and scrubber, 81% efficiency
Formosa Plastic Corp.	TX	GE gas turbine	38.4 MW	5/86	NO_x 640 TPY CO 32.4 TPY	Steam injection
Midland Cogeneration Venture	MI	Turbine Duct burner	984.2x10^6 Btu/hr 249x10^6 Btu/hr	2/88	NO_x 42 ppmv at 15% O_2 CO 26 lb/hr NO_x 0.1 lb/10^6 Btu	Steam injection Turbine design Burner design
Pacific Gas Transmission	OR	Gas turbine	14,000 HP	5/87	NO_x 154 ppm 50 lb/hr CO 6 lb/hr 25 TPY	Combustion control
Power Development Co.	CA	Gas turbine	49x10^6 Btu/hr	6/87	NO_x 36 lb/day 9 ppmvd at 15% O_2	Scrubber and H_2O injection
San Joaquin Cogen Limited	CA	Gas turbine	48.6 MW	6/87	NO_x 250 lb/day 6 ppmvd at 15% O_2 CO 1326 lb/day 55 ppmvd at 15% O_2	Scrubber and H_2O injection 76% efficiency Combustion controls
United Airlines	CA	Gas turbine-Cogeneration	21 MW	12/85	NO_x 15 ppmvd at 15% O_2	SCR and steam injection Oil limited to 500 hours operation

Table 4-2. LAER/BACT Decisions For Gas Turbines (Page 4 of 4)

Company Name	State	Unit Description	Capacity (Size)	Date of Permit	Emission Limit	Emission Control
TBG/Grumman	NY	Gas turbine	16 MW	3/88	NO_x 75 ppm + NSPS Corr. 0.2 lb/10^6 Btu CO 0.181 lb/10^6 Btu	H_2O injection and combustion controls CO catalyst
Texas Gas Transmission Corp.	KY	Gas turbine	14,300 HP	2/88	NO_x 0.015% by Volume	
Orlando Utilities Commission	FL	Gas turbine	4 x 445x10^6 Btu/hr	9/88	NO_x 42 ppmvd Gas 65 ppmvd Oil CO 10 ppmvd	Steam injection Good combustion
Anheuser-Busch	FL	Gas turbine	95.7x10^6 Btu/hr	4/87	NO_x 0.1 lb/10^6 Btu	
Ocean State Power	RI	Combined Cycle	500 MW	1/89	NO_x 9 ppmvd at 15% O_2 (Natural Gas) NO_x 42 ppmvd at 15% O_2 (fuel oil) CO 25 ppmvd at 15% O_2	SCR and steam injection
Pawtucket Power	RI	Cogeneration-Gas turbine	58 MW	2/89	NO_x 9 ppmvd at 15% O_2 (natural gas) NO_x 18 ppmvd at 15% O_2 (fuel oil) CO 23 ppmvd at 15% O_2	SCR and steam injection
Cogen Technologies	NJ	Gas turbine	55 MW	3/87	NO_x 9 ppmvd at 15% O_2 (natural gas) NO_x 14 ppmvd at 15% O_2 (fuel oil) CO 8 ppm; 20 ppm NH_3	SCR and wet injection

area where SCR was required not as BACT but as LAER, a more stringent requirement. LAER is distinctly different from BACT in that there is no consideration of economic, energy, or environmental impacts; if a control technology has previously been installed, it must be required as LAER. LAER is defined as follows:

> Lowest achievable emission rate means, for any source, the more stringent rate of emissions based on the following: (i) The most stringent emissions limitation which is contained in the implementation plan of any State of such class or category of stationary source, unless the owner or operator of the proposed stationary source demonstrates that such limitations are not achievable; or (ii) The most stringent emissions limitation which is achieved in practice by such class or category of stationary source. This limitation, when applied to a modification, means the lowest achievable emissions rate for the new or modified emissions units within the stationary source. In no event shall the application of this term permit a proposed new modified stationary source to emit any pollutant in excess of the amount allowable under applicable new source standards of performance (40 CFR 51 Appendix S. II, A.18).

As noted from the discussion contained in Section 3.2.3, there are distinct regulatory and policy differences between LAER and BACT.

All the projects in California have natural gas as the primary fuel, and only 15 of the SCR applications in California have distillate fuel as backup.

The remaining projects with SCR (i.e., 23 projects) are located in the eastern United States. These projects are located in Vermont, Massachusetts, Connecticut, New Jersey, New York, Rhode Island, and Virginia. A majority of these projects are cogenerators or independent power producers. The size of these projects ranges from 22 MW to 450 MW, with 87 percent less than 100 MW in size. While almost all of the facilities have distillate oil as backup fuel, distillate oil is generally restricted by permit to 1,000 hours per CT or less.

Reported and permitted NO_x removal efficiencies of SCR range from 40 to 80 percent. The most stringent emission limiting standards associated with SCR are approximately 9 ppm for natural gas firing. However, two

facilities have reported emission limits of about 4.5 ppm. These emission limits were clearly determined to be LAER on CTs using water injection with uncontrolled NO_x levels below 42 ppm. For fuel oil firing, permitted NO_x emission limits with SCR have ranged from 14 ppm to 42 ppm. SCR has not been installed or permitted on simple-cycle CTs.

Wet injection is the primary method of reducing NO_x emissions from CTs. This method of control was first mandated by the NSPS to reduce NO_x levels to 75 parts per million by volume, dry (ppmvd) (corrected to 15 percent O_2 and heat rate). Development of improved wet injection combustors reduced NO_x concentrations to 25 ppmvd and 42 ppmvd (corrected to 15 percent O_2) when burning natural gas and fuel oil, respectively. Recently, CT manufacturers have developed dry low NO_x combustors that can reduce NO_x concentrations to 25 ppmvd (corrected to 15 percent O_2) when firing natural gas.

In Florida, a majority of the most recent PSD permits and BACT determinations for simple-cycle gas turbines have required wet injection for NO_x control. The emission limits included in these permits and BACT determinations were 42 ppm and 65 ppm (corrected to 15 percent O_2, dry conditions), respectively, for natural gas and fuel oil firing. In November 1990, FDER determined that a CT using a dry low NO_x combustor to reduce NO_x concentrations to 25 ppmvd when firing natural gas was BACT. The corresponding BACT emission limit for distillate oil firing was 65 ppmvd using wet injection.

4.3.1.2 Technology Description and Feasibility

Selective Catalytic Reduction (SCR)--SCR uses ammonia (NH_3) to react with NO_x in the gas stream in the presence of a catalyst. NH_3, which is diluted with air to about 5 percent by volume, is introduced into the gas stream at reaction temperatures between 570°F and 750°F. The reactions are as follows:

$$4NH_3 + 4NO + O_2 = 4N_2 + 6H_2O$$

$$4NH_3 + 2NO_2 + O_2 = 3N_2 + 6H_2O$$

SCR operating experience, as applied to gas turbines, consists primarily of baseload natural-gas-fired installations either of cogeneration or combined-cycle configuration; no simple-cycle facilities have SCR. Exhaust gas temperatures of simple-cycle CTs are generally in the range of 1,000°F, which exceeds the optimum range for SCR. All current SCR applications have the catalyst placed in the heat recovery steam generators (HRSG) to achieve proper reaction conditions. This allows a relatively constant temperature for the reaction of NH_3 and NO_x on the catalyst surface.

The use of SCR has been limited to facilities that burn natural gas or small amounts of fuel oil since SCR catalysts are contaminated by sulfur-containing fuels (i.e., fuel oil). For most fuel oil burning facilities, catalyst operation is discontinued, or the exhaust bypasses the SCR system. While the operating experience has not been extensive, certain cost, technical, and environmental considerations have surfaced. These considerations are summarized in Table 4-3. Experience at the United Airlines cogeneration facility using Jet A fuel oil found catalyst contamination after 2,500 hours of operation. For this facility, the catalyst has been replaced three times and the recommended duration of operation by the manufacturer is now 500 hours.

As presented in Table 4-3, ammonium bisulfate is formed by the reaction of NH_3 and sulfur trioxide (SO_3). Ammonium bisulfate can be corrosive and could cause damage to the HRSG surfaces that follow the catalyst, as well as to the stack. Corrosion protection for these areas would be required.

Zeolite catalysts, which are reported to be capable of operating in temperature ranges from 600°F to 950°F, have been available commercially only recently. Their application with SCR primarily has been limited to internal combustion engines. Optimum performance of an SCR system using a zeolite catalyst is reported to range from about 800°F to 900°F. The exhaust temperatures of the proposed CTs for the DeBary site are expected

Table 4-3. Cost, Technical and Environmental Considerations of SCR Utilized on Combustion Turbines (Page 1 of 2)

Consideration	Description
COST:	
Catalyst Replacement	Catalyst life varies depending on the application. Cost ranges from 20 to 40 percent of total capital cost and is the dominant annual cost factor.
Ammonia	Ratio of at least 1:1 NH_3 to NO_x generally needed to obtain high removal efficiencies. Special storage and handling equipment required.
Space Requirements	For new installations, space in the catalyst is needed for replacement layers. Additional space is also required for catalyst maintenance and replacement.
Backup Equipment	Reliability requirements necessitate redundant systems such as ammonia control and vaporization equipment.
Catalyst Back Pressure Heat Rate Reduction	Addition of catalyst creates back pressure on the turbine which reduces overall heat rate.
TECHNICAL:	
Ammonia Flow Distribution	NH_3 must be uniformly distributed in the exhaust stream to assure optimum mixing with NO_x prior to reaching the catalyst.
Temperature	The narrow temperature range that SCR systems operate within, i.e., about 100°F, must be maintained even during load changes. Operational problems could occur if this range is not maintained. HRSG duct firing requires careful monitoring.
Ammonia Control System	Quantity of NH_3 introduced must be carefully controlled. With too little NH_3, the desired control efficiency is not reached; with too much NH_3, NH_3 emissions (referred to as slip) occur.

Table 4-3. Cost, Technical and Environmental Considerations of SCR Utilized on Combustion Turbines (Page 2 of 2)

Consideration	Description
Flow Control	The velocity through the catalyst must be within a range to assure satisfactory residence time.
ENVIRONMENTAL:	
Ammonia Slip	NH_3 slip, or NH_3 that passes unreacted through the catalyst and into the atmosphere, can occur if: 1) too much ammonia is added, 2) the flow distribution is not uniform, 3) the velocity is not within the optimum range, or the proper temperature is not maintained.
Ammonia Bisulfate	Ammonium bisulfate salts can lead to increased corrosion. These salts usually occur when firing fuel oil. These compounds are emitted as particulates.
N_2O and Nitrosoamines formation	The mechanism under which these compounds form is not totally understood. Secondary impacts can occur.

to be in excess of 1,000°F. At temperatures of 1,000°F and above, the zeolite catalyst will be irreparably damaged. Therefore, application of an SCR system using a zeolite catalyst on a simple-cycle operation is technically infeasible without exhaust gas cooling. Moreover, since zeolite catalysts have not been operated continuously in combustion exhausts greater than 900°F, the cooling system would have to reduce turbine exhaust temperatures about 200°F, i.e., to around 800°F.

Attemperation systems are neither commercially available nor have they been applied, even at a pilot stage, to SCR systems associated with simple-cycle CTs. Three types of potential attemperation systems include water sprays, air dilution, and indirect heat exchangers. The application of water sprays and air dilution would require sufficient distribution and mixing volume to assure uniform temperature throughout the catalyst. This would be extremely difficult to achieve in the size of CTs proposed because of their large and turbulent flowrate [greater than 1,500,000 actual cubic feet per minute (acfm)]. If the temperature was not uniform, the catalyst would be irreversibly damaged in areas where the exhaust temperatures approach 1,000°F. In addition, at temperatures above 950°F, the ammonia injected to achieve the NO_x reduction could itself be oxidized to NO_x, the pollutant it was intended to remove. Indirect heat exchanges could reduce temperatures but have not been developed for this application. Application of any attemperation technique would require research and development that is beyond that considered appropriate by EPA regulations and guidelines.

Wet Injection--The injection of water or steam in the combustion zone of CTs reduces the flame temperature with a corresponding decrease of NO_x emissions. The amount of NO_x reduction possible depends on the combustor design and the water-to-fuel ratio employed. An increase in the water-to-fuel ratio will cause a concomitant decrease in NO_x emissions until flame instability occurs. At this point, operation of the CT becomes inefficient and unreliable, and significant increases in products of incomplete combustion will occur (i.e., CO and VOC emissions).

For the CTs being considered for the DeBary site, the combustion chamber design includes water injection using the GE "quiet combustor." This multiple-nozzle combustor was developed to increase the amount of steam or water injected into the combustion zone while reducing the dynamic pressure oscillations. High dynamic pressure oscillations in standard combustors lead to reduced combustor life. The first endurance test of a quiet combustor was at Houston Light and Power Company's Wharton Station in the early 1980s. In the late 1980s, the first production units were installed in California. The lowest NO_x emission level guaranteed by GE for the quiet combustor is 42 ppmvd (corrected to 15 percent O_2) when firing fuel oil and 25 ppmvd (corrected to 15 percent O_2) when firing natural gas.

Dry Low NO_x Combustor--In the last several years, CT manufacturers have offered and installed machines with dry low NO_x combustors. These combustors, which are offered on machines manufactured by GE, Kraftwork Union, and Asea Brown Boveri (ABB), can achieve NO_x concentrations of 25 ppmvd or less when firing natural gas. Thermal NO_x formation is inhibited by using combustion techniques where the natural gas and combustion air are premixed prior to ignition. However, when firing oil, NO_x emissions are controlled only through water or steam injection to exhaust concentrations of 65 ppmvd. Since distillate oil is the primary fuel for the DeBary CTs, the use of the dry low NO_x combustor for the project will have no advantage in reducing NO_x concentrations.

NO_xOUT Process--The NO_xOUT process originated from the initial research by the Electric Power Research Institute (EPRI) in 1976 on the use of urea to reduce NO_x. EPRI licensed the proprietary process to Fuel Tech, Inc., for commercialization. In the NO_xOUT process, aqueous urea is injected into the flue gas stream ideally within a temperature range of 1,600°F to 1,900°F. In the presence of oxygen, the following reaction results:

$$CO(NH_2)_2 + 2NO + 1/2\ O_2 \rightarrow 2N_2 + CO_2 + 2H_2O$$

The amount of urea required is most cost effective when the treatment rate is 0.5 to 2 moles of urea per mole of NO_x. In addition to the original EPRI urea patents, Fuel Tech claims to have a number of proprietary catalysts capable of expanding the effective temperature range of the reaction to between 1,000°F and 1,950°F. Advantages of the system are:

1. Low capital and operating costs due to utilization of urea injection, and
2. The proprietary catalysts used are nontoxic and nonhazardous, thus eliminating potential disposal problems.

Disadvantages of the system are:

1. Formation of ammonia from excess urea treatment rates and/or improper use of reagent catalysts; and
2. SO_3, if present, will react with ammonia created from the urea to form ammonium bisulfate, potentially plugging the cold end equipment downstream.

Commercial application of the NO_xOUT system is limited to three reported cases:

1. Trial demonstration on a 62.5-ton-per-hour (TPH) stoker-fired wood waste boiler with 60 to 65 percent NO_x reduction,
2. A 600 x 10^6 Btu CO boiler with 60 to 70 percent NO_x reduction, and
3. A 75 MW pulverized coal-fired unit with 65 percent NO_x reduction.

The NO_xOUT system has not been demonstrated on any stationary internal combustion engine.

The NO_xOUT process is not technically feasible for the proposed lean-burn engine due to the high application temperature of 1,000°F to 1,950°F. The exhaust gas temperature of the CT is about 1,000°F. Raising the exhaust temperature the required amount essentially would require installation of a

heater. This would be economically prohibitive and would result in an increase in fuel consumption, an increase in the volume of gases that must be treated by the control system, and an increase in uncontrolled air emissions, including NO_x.

Thermal $DeNO_x$--Thermal $DeNO_x$ is Exxon Research and Engineering Company's patented process for NO_x reduction. The process is a high temperature selective noncatalytic reduction (SNCR) of NO_x using ammonia as the reducing agent. Thermal $DeNO_x$ requires the exhaust gas temperature to be above 1,800°F. However, use of ammonia plus hydrogen lowers the temperature requirement to about 1,000°F. For some applications, this must be achieved by additional firing in the exhaust stream prior to ammonia injection.

The only known commercial applications of Thermal $DeNO_x$ are on heavy industrial boilers, large furnaces, and incinerators that consistently produce exhaust gas temperatures above 1,800°F. There are no known applications on or experience with CTs. Temperatures of 1,800°F require alloy materials constructed with very large size piping and components since the exhaust gas volume would be increased by several times. As with the NO_xOUT process, high capital, operating, and maintenance costs are expected because of construction-specified material, an additional duct burner system, and fuel consumption. Uncontrolled emissions would increase because of the additional fuel burning.

Thus, the Thermal $DeNO_x$ process will not be considered for the proposed project because it is technically infeasible because of its high application temperature. The exhaust gas temperature of a lean-burn engine is typically about 1,000°F; the cost to raise the exhaust gas to such a high temperature is prohibitively expensive.

Nonselective Catalytic Reduction--Certain manufacturers, such as Engelhard, market a nonselective catalytic reduction system (NSCR) for NO_x control on reciprocating engines. The NSCR process requires a low oxygen content in

the exhaust gas stream and high temperature (700°F to 1,400°F) in order to be effective. CTs have the required temperature but also high oxygen levels (greater than 12 percent) and, therefore, cannot use the NSCR process. As a result, NSCR is not a technically feasible add-on NO_x control device for CTs.

Summary of Technically Feasible NO_x Control Methods--The available information suggests that SCR with wet injection is technically infeasible for simple-cycle operation. SCR with wet injection has not been applied to simple-cycle CTs.

A technical evaluation of tail gas controls (i.e., SCR, NO_xOUT, Thermal $DENO_x$, and NSCR) indicates that these processes have not been applied to simple-cycle CTs and are technically infeasible for the project due to process constraints (e.g., temperature). Dry low NO_x combustors are inappropriate for the project since distillate oil is the primary fuel and natural gas will not be used initially.

Wet injection is a technically feasible alternative for the DeBary CTs. The application of this technology has the following limitations:

1. Wet injection can be accomplished until a condition of maximum moisturization occurs; this design condition occurs at 42 ppm with fuel oil.
2. Wet injection will not reduce substantially NO_x formation caused by fuel-bound nitrogen. Any emission-limiting requirements must account for this effect.
3. Wet injection will increase the emissions of CO and VOC. Emissions are dependent on the water-to-fuel ratio.

For the BACT analysis, wet injection capable of achieving NO_x emission levels to 42 ppm when firing fuel oil (corrected to 15 percent O_2 dry conditions) was assumed. These emission levels are the most stringent being established as BACT for simple-cycle CTs.

4.3.1.3 Impact Analysis

A BACT determination requires an analysis of the economic, environmental, and energy impacts of the proposed and alternative control technologies [see 40 CFR 52.21(b)(12), Chapter 17-2.100(25), F.A.C., and Chapter 17-2.500(5)(c), F.A.C.]. The analysis must, by definition, be specific to the project, i.e., case-by-case. The BACT analysis was performed for wet injection at an emission rate of 42 ppmvd corrected to 15 percent O_2 when firing oil.

Economic--The total capital and annualized capital cost for the quiet combustor is presented in Table 4-4.

Environmental--The maximum predicted impacts of the alternative technologies are all considerably below the PSD increment for NO_x of 25 $\mu g/m^3$, annual average, and the AAQS for NO_x of 100 $\mu g/m^3$.

Energy--The use of the quiet combustor will affect energy production in two ways. First, the heat rate will increase about 1 percent (at ISO conditions) compared to the standard combustor, which requires less fuel to generate the same amount of power. This energy penalty will be about 500 British thermal units per kilowatt hour (Btu/kWh).

Second, water injection will increase power by about 5 percent over the standard combustor, for a net power benefit of about 5 MW. Since the primary purpose of the DeBary project is to provide peaking power, the benefit of increased power offsets the increased heat rate.

4.3.1.4 Proposed BACT and Rationale

The proposed BACT for the DeBary CTs is wet injection. The proposed NO_x emissions levels using wet injection are 42 ppmvd (corrected) when firing

Table 4-4. Capital and Annualized Capital Costs for GE Quiet Combustor and Water Injection Equipment[a]

Cost Category	Capital Costs[b] ($1,000)
Combustion Turbine Generators (6)	
Multi-Nozzle Quiet Combustor	3,000
Water Injection Skid	1,600
On-Base Water Injection Equipment	100
Foundations	500
Water Treatment Building	300
Site Improvements	100
Water Storage and Piping Systems	1,600
Water Treatment Equipment	2,300
Electrical and Control Systems	2,200
Miscellaneous	800
TOTAL DIRECT COST	12,500
Annualized Capital Cost (at 10 percent over 20 years)	1,468

[a] Based on preliminary engineering design concepts for all six combustion turbine units.
[b] Excludes any applicable taxes.

Source: Black & Veatch, 1990.

fuel oil and 25 ppmvd (corrected) when firing natural gas. This control technology is proposed for the following reasons:

1. SCR was rejected based on technical infeasibility. SCR has not been applied to or demonstrated on simple-cycle CTs.
2. The proposed BACT of wet injection provides the least costly control alternative and results in low environmental impacts (less than 1 percent of the allowable PSD increments and less than 1 percent of the AAQS for NO_x). Wet injection at the proposed emissions levels has been adopted previously in BACT determinations. In addition, the CT manufacturer (i.e., GE) has been willing to guarantee this level of NO_x emissions.

The proposed BACT emission level should also account for fuel-bound nitrogen (FBN) content greater than 0.015 percent since there is no practicable means for reducing NO_x at higher FBN levels. The allowance specified in the NSPS for FBN levels greater than 0.015 percent is requested.

4.3.2 CARBON MONOXIDE (CO)

4.3.2.1 Emission Control Hierarchy

CO emissions are a result of incomplete or partial combustion of fossil fuel. Combustion design and catalytic oxidation are the control alternatives that are viable for the project.

Combustion design is the more common control technique used in CTs. Sufficient time, temperature, and turbulence is required within the combustion zone to maximize combustion efficiency and minimize the emissions of CO. Combustion efficiency is dependent upon combustor design. When wet NO_x control systems are employed, the amount of water or steam injected in the combustion zone also affects combustion efficiency. For the CTs being evaluated and with wet injection NO_x control, CO emissions range from 25 ppm to 35 ppm, corrected to dry conditions.

Catalytic oxidation is a post-combustion control that has been employed in CO nonattainment areas where regulations have required CO emission levels to be less than those associated with wet injection. These installations have been required to use LAER technology and typically have CO limits in the 10 ppm range (corrected to dry conditions).

4.3.2.2 Technology Description

In an oxidation catalyst control system, CO emissions are reduced by allowing unburned CO to react with oxygen at the surface of a precious metal catalyst such as platinum. Combustion of CO starts at about 300°F, with efficiencies above 90 percent occurring at temperatures above 600°F. Catalytic oxidation occurs at temperatures 50 percent lower than that of thermal oxidation, which reduces the amount of thermal energy required. For CTs, the oxidation catalyst can be located directly after the CT. Catalyst size depends upon the exhaust flow, temperature, and desired efficiency. The existing oxidation catalyst applications have primarily been limited to smaller cogeneration facilities burning natural gas.

Oxidation catalysts have not been used on fuel-oil-fired CTs or combined cycle facilities. The use of sulfur-containing fuels in an oxidation catalyst system would result in an increase of SO_3 emissions and concomitant corrosive effects to the stack. In addition, trace metals in the fuel could result in catalyst poisoning during prolonged periods of operation.

Since the units likely will require numerous startups, variations in exhaust conditions will influence catalyst life and performance. Very little technical data exist to demonstrate the effect of such cycling.

The lack of demonstrated operation with oil firing suggests rejection of catalytic oxidation as a technically feasible alternative. However, the advent of a second generation catalyst suggests that an oxidation catalyst could be used.

Combustion design is dependent upon the manufacturer's operating specifications, which include the air-to-fuel ratio and the amount of water injected. The CTs proposed for the project have designs to optimize combustion efficiency and minimize CO emissions. Installations with an oxidation catalyst and combustion controls generally have controlled CO levels of 10 ppm as LAER and BACT.

For the DeBary CTs, the following alternatives were evaluated for natural gas firing or BACT:

1. Oxidation catalyst at 10 ppmvd; maximum CO emissions are 564 TPY (59°F).
2. Combustion controls at 25 ppmvd; maximum emissions are 1,411 TPY (59°F).

4.3.2.3 Impact Analysis

Economic--The estimated annualized cost of a CO oxidation catalyst is $6,252,000 (Table 4-5) with a cost effectiveness of $7,380/ton of CO removed. The cost effectiveness is based on CT emissions of 25 ppmvd. No costs are associated with combustion techniques since they are inherent in the design.

Environmental--The air quality impacts of both oxidation catalyst control and combustion design control techniques are below the significant impact levels for CO. Therefore, no significant environmental benefit would be realized by the installation of a CO catalyst.

Energy--An energy penalty would result from the pressure drop across the catalyst bed. A pressure drop of about 2 inches water gauge would be expected. At a catalyst back pressure of about 2 inches, an energy penalty of about 9,800,000 kWh/yr would result at 100 percent load. This energy penalty is sufficient to supply the electrical needs of about 800 residential customers over a year. Fuel oil usage would effectively increase by about 810,000 gallons/year.

Table 4-5. Capital and Annualized Cost for Oxidation Catalyst

Cost Component	Cost ($)	Basis
I. CAPITAL COSTS		
A. DIRECT:		
1. Associated Equipment for Catalyst	1,093,750	Manufacturer's Estimate - $1,750 per lb/sec mass flow
2. Exhaust Stack Modification	900,000	Engineering Estimate - $150,000/CT
3. Installation	2,047,917	25% of Equipment Costs (I.A.1. & 2., and II.A.)
B. INDIRECT:		
1. Engineering & Supervision	614,375	7.5% of Equipment Costs (I.A.1. & 2., and II.A.)
2. Construction and Field Expense	819,167	10% of Equipment Costs (I.A.1. & 2., and II.A.)
3. Construction Contractor Fee	409,583	5% of Equipment Costs (I.A.1. & 2., and II.A.)
4. Startup & Testing	163,833	2% of Equipment Costs (I.A.1. & 2., and II.A.)
5. Contingency	1,512,156	25% of Direct and Indirect Capital Costs (I.A, and I.B.1-4)
6. AFUDC	1,651,044	12% of Direct and Indirect Capital Costs, and Recurring Capital Costs (I.A., I.B.1.-4 and II.A.)
TOTAL CAPITAL COSTS	9,211,825	Sum of Direct and Indirect Capital Costs
ANNUALIZED CAPITAL COSTS	1,082,018	Capital Recovery of 10% over 20 years
II. RECURRING CAPITAL COSTS		
A. Catalyst	6,197,917	Manufacturer's Estimate - $1,750 per lb/sec mass flow
B. Contingency	1,549,479	25% of Recurring Capital Costs (II.A)
TOTAL RECURRING CAPITAL COSTS	7,747,396	Sum of Recurring Capital Costs
ANNUALIZED RECURRING CAPITAL COSTS	3,115,343	Capital Recovery of 10% over 20 years
III. OPERATING & MAINTENANCE COSTS		
A. DIRECT:		
1. Labor - Operator & Supervisor	10,525	8 hours/week, 52 weeks/year, $22/hour and 15% supervisor cost
2. Maintenance	84,796	0.5% of Total and Recurring Capital Costs
3. Inventory Cost	121,334	Capital Carrying cost (10% over 20 years) for catalyst for 1 CT
B.ENERGY COSTS		
1. Heat Rate Penalty	834,141	0.2% heat rate penalty. $7.71/million Btu fuel cost
2. MW Loss Penalty	66,881	0.2% MW loss; $60,000/MW replacement assumed
3. Fuel Escalation Costs	220,380	Fuel escalation of 3% over inflation; annualized over 20 years
C. INDIRECT:		
1. Overhead	57,193	60% of Labor and Maintenance Costs (III.A.1. and 2.)
2. Property Taxes	169,592	1% of Total and Recurring Capital Cost
3. Insurance	169,592	1% of Total and Recurring Capital Cost
4. Administration	339,184	2% of Total and Recurring Capital Cost
ANNUALIZED CAPITAL COSTS	1,082,018	
ANNUALIZED RECURRING CAPITAL COSTS	3,115,343	
OPERATING AND MAINTENANCE COSTS	2,073,618	
TOTAL ANNUALIZED COSTS	6,270,979	Sum of Operating and Maintenance and Annualized Capital Costs

Note: All calculations using machine performance were based on 59°F conditions. Assumptions based on percentage of costs were adapted from EPA OAQPS Control Cost Manual (1990).

4.3.2.4 Proposed BACT and Rationale

Combustion design is proposed as BACT as a result of the technical and economic consequences of using catalytic oxidation on CTs. Catalytic oxidation is considered infeasible and unreasonable for the following reasons:

1. Catalytic oxidation has not been demonstrated on a continuous basis when using fuel oil; and
2. The economic impacts are significant (i.e., an annualized cost of almost $63 million, with a cost effectiveness of over $7,380/ton of CO removed).

4.3.3 SULFUR DIOXIDE (SO_2)

4.3.3.1 Emission Control Hierarchy

Sulfur dioxide (SO_2) emissions are a result of the oxidation of sulfur in fossil fuel and can be minimized by reducing the sulfur content in fuel or through applying post-combustion removal techniques. For CTs, the use of low sulfur fuels is the only demonstrated control technology determined to be technically feasible. Post-combustion techniques, such as flue gas desulfurization (FGD), have not been applied to CTs.

FGD systems have been applied to oil- and coal-fired steam electric power plants. However, the relative gas volume for such facilities is significantly less than that for CTs (i.e., about 2 to 3 times), and the resultant SO_2 concentration is considerably higher. While the former factor will influence the cost of FGD, the latter poses significant technological constraints to removing SO_2. As a result, FGD is not feasible for application to CTs.

The BACT/LAER clearinghouse documents (EPA, 1985b, 1986, 1987c, and 1988c) show that fuel sulfur contents from 0.8 percent to less than 0.2 percent have been specified as BACT for CTs. The lowest sulfur-containing fuels were required in California and New Jersey, where LAER decisions dictated more stringent standards. Furthermore, such requirements generally limited fuel oil use for backup or emergency purposes only.

In Florida, CTs have been permitted recently with sulfur limitations of 0.2 and 0.3 percent annual average and 0.5 percent maximum. These facilities include the Florida Power and Light Company (FPL) Lauderdale Repowering Project, the Hardee Power Station, and the FPL Martin project. However, the primary fuel for these facilities was natural gas.

For the proposed CTs, the only technically feasible control technology for SO_2 is low sulfur fuel use. The use of natural gas will minimize SO_2 emissions but is not available at the site. SO_2 emissions from distillate fuel can be minimized by specification of a lower sulfur content fuel. A maximum sulfur content of 0.3 percent was selected as the top-down BACT level since it is near the lowest of the average sulfur contents permitted by FDER in mid-1990.

4.3.3.2 Technology Description

The No. 2 fuel oil used in the proposed CTs will have a maximum sulfur content specification of 0.5 percent. For the purposes of this analysis, the maximum sulfur content of 0.5 percent was assumed.

The maximum emissions on No. 2 fuel oil would be 14,581 TPY (see Table A-2; 59°F) and would be 8,749 TPY on a fuel with a maximum sulfur content of 0.3 percent.

4.3.3.3 Impact Analysis

Economic--The differential annualized present worth cost of using 0.3 percent sulfur oil in place of 0.5 percent sulfur fuel oil is $4,608,102. This was calculated assuming an initial difference of 0.62 percent between a specification of 0.5 percent and 0.3 percent oil and a fuel escalation rate of 3 percent over inflation. The resulting cost effectiveness is $790/ton of SO_2 removed. However, the weighted average sulfur content for No. 2 fuel oil received at DeBary over the last 5 years has been 0.305 percent (see Table 4-6). Therefore, no benefit likely would result from specifying a maximum sulfur content of 0.3 percent.

Table 4-6. Actual Sulfur Content and Fuel Use of No. 2 Distillate Fuel Oil at the DeBary Plant

Year	Sulfur Content (%)	Fuel Use (1,000 gal)
1989	0.327	11,699
1988	0.259	4,816
1987	0.33	4,190
1986	0.18	467
1985	0.22	912
Weighted Average Sulfur Content = 0.305 percent		

Environmental--Based upon use of 0.5 percent sulfur fuel oil, the maximum SO_2 impacts of the proposed turbines alone will be less than 5 percent of the AAQS for SO_2, and less than 13 percent of the allowable PSD Class II increments. As a result, significant air quality benefits will not occur by reducing fuel sulfur content below that in No. 2 fuel oil.

Energy--No substantial energy penalties are expected to result from using No. 2 fuel oil with different sulfur contents.

4.3.3.4 Proposed BACT and Rationale

The proposed BACT for the proposed turbines is the use of No. 2 fuel oil with a maximum sulfur content of 0.5 percent. The selection of this control alternative is based upon the following:

1. Requiring a maximum sulfur content of 0.5 percent likely would result in an average sulfur content much less than 0.5 percent as evidenced by actual sulfur content of No. 2 fuel oil over the last 5 years.
2. No. 2 fuel oil is the primary fuel for the CTs and, therefore, any requirement for specifying a lower maximum sulfur content would have a direct economic impact on their use.
3. Fuel management to reduce the annual average sulfur content to 0.3 percent (as required by recent BACT determinations) would not be practical since those units will be used for peaking service. The only way to assure that an annual average limit would be achieved is to specify a maximum sulfur content of 0.3 percent. For example, a 0.3 percent annual average sulfur limit could be exceeded if the average sulfur content was greater than 0.3 percent in the first half of the year and the units were not required to operate the remaining portion of the year.
4. The location of the DeBary site (i.e., distance from primary fuel delivery ports) makes fuel management impractical to achieve an annual average sulfur content of 0.3 percent. There are no

sufficient tanks at the sites to store and mix various sulfur content distillate oils.

5. There is no significant environmental benefit in using fuel oil with less than 0.5 percent sulfur content maximum.

4.3.4 PARTICULATE EMISSIONS/PM10

The emission of particulates from the CTs is a result of incomplete combustion and trace solids in the fuel (particularly fuel oil) and in the injected water or steam used for NO_x control. The design of the CTs ensures that particulate emissions will be minimized by combustion controls and the use of clean fuels. A review of EPA's BACT/LAER Clearinghouse Documents did not reveal any post-combustion particulate control technologies being used on oil- or gas-fueled CTs. The No. 2 (i.e. distillate) fuel oil to be used in the CTs will contain only trace quantities of particulate (i.e., typically about 0.05 percent ash or less in fuel oil). Therefore, the use of clean fuel and combustion design is the proposed BACT for PM(TSP) and PM10.

The maximum particulate emissions from the CTs when burning fuel oil will be a lower concentration than that normally specified for fabric filter designs; i.e., the grain loading associated with the maximum particulate emissions [about 15 pounds per hour (lb/hr)] is less than 0.01 grains per standard cubic foot (gr/scf), which is a typical design specification for a baghouse. This further demonstrates that no further particulate controls are necessary for the proposed project.

4.3.5 OTHER REGULATED AND NONREGULATED POLLUTANT EMISSIONS

The PSD source applicability analysis shows that PSD significant emission levels are exceeded for H_2SO_4 mist, Hg, Be, and As, requiring PSD review (including BACT) for these pollutants.

There are no technically feasible methods for controlling the emissions of these pollutants from CTs, other than the inherent quality of the fuel (see Sections 4.3.3 and 4.3.4). Sulfuric acid mist emissions are a direct function of the sulfur content of the fuel. Levels of trace metals in No. 2 distillate oil are limited by fuel oil specifications. Low sulfur No. 2 distillate oil represents BACT for these pollutants.

For the nonregulated pollutants, most of which are trace metals, none of the control technologies evaluated for other pollutants (i.e., oxidation catalyst) would reduce such emissions and low sulfur distillate oil represents BACT because of its inherent low metals content.

5.0 AIR QUALITY MONITORING DATA

5.1 PSD PRECONSTRUCTION

The CAA requires that an air quality analysis be conducted for each pollutant subject to regulation under the act before a major stationary source or major modification is constructed. This analysis may be performed by the use of modeling and/or monitoring the air quality. The use of monitoring data refers to either the use of representative air quality data from existing monitoring stations or establishing a monitoring network to monitor existing air quality. Monitoring must be conducted for a period up to 1 year prior to submission of a construction permit application. In addition to establishing existing air quality, the air quality data are useful for determining background concentrations (i.e., concentrations from sources not considered in the modeling). The background concentrations can be added to the concentrations predicted for the sources considered in the modeling to estimate total air quality impacts. These total concentrations are then evaluated to determine compliance with the AAQS.

For the criteria pollutants, continuous air quality monitoring data must be used to establish existing air quality concentrations in the vicinity of the proposed source or modification. However, preconstruction monitoring data will generally not be required if the ambient air quality concentration before construction is less than the de minimis impact monitoring concentrations (refer to Table 3-2 for de minimis impact levels). Also, if the maximum predicted impact of the source or modification is less than the de minimis impact monitoring concentrations, the source would generally be exempt from preconstruction monitoring.

For noncriteria pollutants, EPA recommends that an analysis based on air quality modeling generally should be used instead of monitoring data. The permit-granting authority has discretion in requiring preconstruction monitoring data when:

1. The state has an air quality standard for the noncriteria pollutant and emissions from the source or modification pose a threat to the standard;
2. The reliability of emission data used as input to modeling existing sources is highly questionable; or
3. Air quality models have not been validated or may be suspect for certain situations, such as complex terrain or building downwash conditions.

However, if the maximum concentrations from the major source or major modification are predicted to be above the significant monitoring concentrations, EPA recommends that an EPA-approved measurement method be available before a permit-granting authority requires preconstruction monitoring.

EPA's Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD) (EPA, 1987a) sets forth guidelines for preconstruction monitoring. The guidelines allow the use of existing air quality data in lieu of additional air monitoring, if the existing data are representative. The criteria used in determining the representativeness of data are monitor location, quality of data, and currentness of data.

For the first criterion, monitor location, the existing monitoring data should be representative of three types of areas:

1. The location(s) of maximum concentration increase from the proposed source or modification;
2. The location(s) of the maximum air pollutant concentration from existing sources; and
3. The location(s) of the maximum impact area, i.e., where the maximum pollutant concentration would hypothetically occur based on the combined effect of existing sources and the proposed new source or modification.

Basically, the locations and size of the three types of areas are determined through the application of air quality models. The areas of maximum concentration or maximum combined impact vary in size and are influenced by factors such as the size and relative distribution of ground level and elevated sources, the averaging times of concern, and the distances between impact areas and contributing sources.

For the second criteria, data quality, the monitoring data should be of similar quality as would be obtained if the applicant were monitoring according to PSD requirements. As a minimum, this would mean:

1. Use of continuous instrumentation,
2. Production of quality control records that indicate the instruments' operations and performances,
3. Operation of the instruments to satisfy quality assurance requirements, and
4. Data recovery of at least 80 percent of the data possible during the monitoring effort.

For the third criteria, currentness of data, the monitoring data must have been collected within a 3-year period preceding the submittal of permit application and must still be representative of current conditions.

5.2 PROJECT MONITORING APPLICABILITY

As determined by the source applicability analysis described in Section 2.4, an ambient monitoring analysis is required by PSD regulations for SO_2, NO_2, PM, CO, H_2SO_4 mist, radionuclides, and AS emissions. Although H_2SO_4 mist, radionuclides, and As are required to undergo air quality analyses, these pollutants may be exempt from monitoring requirements because no acceptable monitoring techniques have been established. The maximum predicted impacts from the proposed turbines are less than *de minimis* levels for SO_2, NO_2, PM, and CO. Therefore, preconstruction monitoring is not required for those pollutants for this project.

In May 1990, FPC submitted to FDER a preliminary air quality impact assessment of the proposed simple-cycle CTs. The assessment described the maximum predicted impacts due to the turbines based on preliminary design information and recommended the use of existing FDER air quality monitoring data that would be appropriate to satisfy PSD preconstruction monitoring requirements. (The predicted impacts produced for the proposed design information presented in this report are less than the de minimis levels; therefore, preconstruction monitoring would not be required.) In July 1990, FDER determined that data collected at the recommended site in Volusia County was acceptable for satisfying this requirement (see Appendix B). The monitoring site's identification number and location relative to the DeBary Plant are given in Table 5-1. A summary of the SO_2 data recorded at this monitoring site from 1986 through January 1989 is presented in Table 5-2.

The monitoring site is operated by FDER and meets all quality assurance requirements. As shown in Table 5-2, all data recoveries have exceeded the requirement of 80 percent recovery. Because the data have been gathered within the last 3 years, the data are considered to be representative of current conditions.

5.3 BACKGROUND CONCENTRATIONS

Background SO_2 concentrations must be estimated to account for sources which are not explicitly included in the atmospheric dispersion modeling analysis. The available ambient SO_2 data presented in Table 5-2 were used for this purpose, based on the latest full year of data (i.e., 1988). For the short-term averaging times, the second-highest 3- and 24-hour average concentrations of 90 and 25 $\mu g/m^3$, respectively, were used as background concentrations. For the annual averaging time, the annual average concentration of 4 $\mu g/m^3$ was used.

Table 5-1. SO_2 Monitoring Site Used to Satisfy PSD Preconstruction Monitoring Requirements for the FPC DeBary Project

Site No.	Site Address	UTM Coordinates (km)			Relative Location from DeBary Facility[a]	
		Zone	North	East	Direction (Degrees)	Distance (km)
0930-001-F02	38 South Shell Road, DeBary, Volusia County	17	3,195.2	469.4	138	2.8

[a]UTM coordinates of DeBary facility are 600.9 km east and 4,229.5 km north.

Table 5-2. 1986 to 1989 SO_2 Monitoring Data for the Monitor Located in DeBary, Volusia County

Site No.	Year	Hours of Observation/Data Collection (%)	Measured Concentration ($\mu g/m^3$) 3-Hour Highest	3-Hour Second Highest	24-Hour Highest	24-Hour Second Highest	Annual
0930-001-F02	1986	8,386/95.7	76	75	24	23	4
	1987	8,249/94.2	66	61	40	39	5
	1988	8,425/95.9	100	90	28	25	4
	1989[a]	707/95.0	46	40	12	12	5

[a]Only January data available.

6.0 AIR QUALITY MODELING APPROACH

6.1 ANALYSIS APPROACH AND ASSUMPTIONS

6.1.1 GENERAL MODELING APPROACH

The general modeling approach followed EPA and FDER modeling guidelines for determining compliance with AAQS and PSD increments. In general, when model predictions are used to determine compliance with AAQS and PSD increments, current policies stipulate that the highest annual average and HSH short-term (i.e., 24 hours or less) concentrations be compared to the applicable standard when 5 years of meteorological data are used. The HSH concentration is calculated for a receptor field by:

1. Eliminating the highest concentration predicted at each receptor,
2. Identifying the second-highest concentration at each receptor, and
3. Selecting the highest concentration among these second-highest concentrations.

This approach is consistent with the air quality standards, which permit a short-term average concentration to be exceeded once per year at each receptor.

To develop the maximum short-term concentrations for the facility, the general modeling approach was divided into screening and refined phases to reduce the computation time required to perform the modeling analysis. The basic difference between the two phases is the receptor grid used when predicting concentrations.

Concentrations for the screening phase were predicted using a coarse receptor grid and a 5-year meteorological record. After a final list of maximum short-term concentrations was developed, the refined phase of the analysis was conducted by predicting concentrations for a refined receptor grid centered on the receptor at which the HSH concentration from the screening phase was produced. The air dispersion model was then executed for the entire year during which HSH concentrations were predicted. This approach was used to ensure that valid HSH concentrations were obtained.

More detailed descriptions of the emission inventory and receptor grids used in the screening and refined phases of the analysis are presented in the following sections.

6.1.2 MODEL SELECTION

The selection of the appropriate air dispersion model was based on its ability to simulate impacts in areas surrounding the DeBary Plant site. Within 50 km of the site, the terrain can be described as simple, i.e., flat to gently rolling. As defined in the EPA modeling guidelines, simple terrain is considered to be an area where the terrain features are all lower in elevation than the top of the stack(s) under evaluation. Therefore, a simple terrain model was selected to predict maximum ground-level concentrations.

The Industrial Source Complex (ISC) dispersion model (EPA, 1988a) was selected to evaluate the pollutant emissions from the proposed units and other modeled sources. This model is contained in EPA's User's Network for Applied Modeling of Air Pollution (UNAMAP), Version 6 (EPA, 1988b). The ISC model is applicable to sources located in either flat or rolling terrain where terrain heights do not exceed stack heights.

The ISC model consists of two sets of computer codes which are used to calculate short- and long-term ground level concentrations. The main differences between the two codes are the input format of the meteorological data and the method of estimating the plume's horizontal dispersion.

The first model code, the ISC short-term (ISCST) model, is an extended version of the single-source (CRSTER) model (EPA, 1977). The ISCST model is designed to calculate hourly concentrations based on hourly meteorological parameters (i.e., wind direction, wind speed, atmospheric stability, ambient temperature, and mixing heights). The hourly concentrations are processed into non-overlapping, short-term and annual averaging periods. For example, a 24-hour average concentration is based

on twenty-four 1-hour averages calculated from midnight to midnight of each day. For each short-term averaging period selected, the highest and second-highest average concentrations are calculated for each receptor. As an option, a table of the 50 highest concentrations over the entire field of receptors can be produced.

The second model code within the ISC model is the ISC long-term (ISCLT) model. The ISCLT model uses joint frequencies of wind direction, wind speed, and atmospheric stability to calculate seasonal and/or annual average ground-level concentrations. Because the input wind directions are for 16 sectors, with each sector defined as 22.5 degrees, the model calculates concentrations by assuming that the pollutant is uniformly distributed in the horizontal plane within a 22.5-degree sector.

In this analysis, the ISCST model was used to calculate both short-term and annual average concentrations because these concentrations are readily obtainable from the model output. Major features of the ISCST model are presented in Table 6-1. Concentrations due to stack and volume sources are calculated by the ISCST model using the steady-state Gaussian plume equation for a continuous source. The area source equation in the ISCST model is based on the equation for a continuous and finite crosswind line source. The ISC model has rural and urban options which affect the wind speed profile exponent law, dispersion rates, and mixing-height formulations used in calculating ground-level concentrations. The criteria used to determine when the rural or urban mode is appropriate are based on land use near the proposed plant's surroundings (Auer, 1978). If the land use is classified as heavy industrial, light-moderate industrial, commercial, or compact residential for more than 50 percent of the area within a 3-km radius circle centered on the proposed source, the urban option should be selected. Otherwise, the rural option is more appropriate.

Table 6-1. Major Features of the ISCST Model

ISCST Model Features
• Polar or Cartesian coordinate systems for receptor locations
• Rural or one of three urban options which affect wind speed profile exponent, dispersion rates, and mixing height calculations
• Plume rise due to momentum and buoyancy as a function of downwind distance for stack emissions (Briggs, 1969, 1971, 1972, and 1975)
• Procedures suggested by Huber and Snyder (1976); Huber (1977); and Schulmann and Hanna (1986) and Schulmann and Scire (1980) for evaluating building wake effects
• Procedures suggested by Briggs (1974) for evaluating stack-tip downwash
• Separation of multiple point sources
• Consideration of the effects of gravitational settling and dry deposition on ambient particulate concentrations
• Capability of simulating point, line, volume and area sources
• Capability to calculate dry deposition
• Variation with height of wind speed (wind speed-profile exponent law)
• Concentration estimates for 1-hour to annual average
• Terrain-adjustment procedures for elevated terrain including a terrain truncation algorithm
• Receptors located above local terrain, i.e., "flagpole" receptors
• Consideration of time-dependent exponential decay of pollutants
• The method of Pasquill (1976) to account for buoyancy-induced dispersion
• A regulatory default option to set various model options and parameters to EPA recommended values (see text for regulatory options used)
• Procedure for calm-wind processing

Source: EPA, 1988a.

For modeling analyses that will undergo regulatory review, such as PSD permit applications, the following model features are recommended by EPA (1987a) and are referred to as the regulatory options in the ISCST model:

1. Final plume rise at all receptor locations,
2. Stack-tip downwash,
3. Buoyancy-induced dispersion,
4. Default wind speed profile coefficients for rural or urban option,
5. Default vertical potential temperature gradients,
6. Calm wind processing, and
7. Reducing calculated SO_2 concentrations in urban areas by using a decay half-life of 4 hours (i.e., reduce the SO_2 concentration emitted by 50 percent for every 4 hours of plume travel time).

In this analysis, the EPA regulatory options were used to address maximum impacts. Based on a review of the land use around the facility and discussions with FDER, the rural mode was selected due to the lack of residential, industrial, and commercial development within 3 km of the DeBary Plant site.

6.2 METEOROLOGICAL DATA

Meteorological data used in the ISCST model to determine air quality impacts 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 Orlando International Airport and Ruskin, respectively. The 5-year period of meteorological data was from 1982 through 1986. The NWS station in Orlando, located approximately 45 km to the south of the site, was selected for use in the study because it is the closest primary weather station to the study area considered to have meteorological data representative of the project site. This station has surrounding topographical features similar to the project site and the most readily available and complete database.

The surface observations included wind direction, wind speed, temperature, cloud cover, and cloud ceiling height. The wind speed, cloud cover, and cloud ceiling values were used in the ISCST meteorological preprocessor program to determine atmospheric stability using the Turner stability scheme. Based on the temperature measurements at morning and afternoon, mixing heights were calculated from the radiosonde data at Ruskin using the Holzworth approach (Holzworth, 1972). The Ruskin station is located about 150 km to the southwest of the site. Hourly mixing heights were derived from the morning and afternoon mixing heights using the interpolation method developed by EPA (Holzworth, 1972). The hourly surface data and mixing heights were used to develop a sequential series of hourly meteorological data (i.e., wind direction, wind speed, temperature, stability, and mixing heights). Because the observed hourly wind directions at the NWS stations are classified into one of thirty-six 10-degree sectors, the wind directions were randomized within each sector to account for the expected variability in air flow. These calculations were performed using the EPA RAMMET meteorological preprocessor program.

6.3 EMISSION INVENTORY

Stack operating parameters and air emission rates for the proposed simple-cycle CTs were presented in Section 2.0. To determine the load that would produce the highest impacts, a modeling analysis was performed that predicted concentrations for the turbines operating at 25, 50, 75, and 100 percent of maximum capacity. For each load, the highest emissions and lowest flow rate were selected from the range of operational data that were dependent upon the temperature.

The existing sources consist of two boilers and six gas turbines. Stack parameters and maximum air emission rates for these sources were presented in Section 2.0.

Modeling of the proposed turbines demonstrated that the facility's impacts are above the significant impact levels for SO_2 at a distance greater than

50 km from the DeBary Plant site. Therefore, the emission inventories for SO_2 sources were developed from available databases.

FDER supplied KBN with printouts of the facilities within a 100 km square centered on the site (UTM coordinates: east 467.5 km, north 3,197.2). FDER also provided KBN with AIR 10 reports for Volusia and Orange counties. Using this information, supplemented with data from permits, PSD applications, and previous modeling analyses, the SO_2 emitting facilities within 50 km of the location of the site were identified.

Facilities located within 50 km of the DeBary Plant site with SO_2 emissions greater than 25 TPY are presented in Table 6-2. The facilities within 10 km of the DeBary Plant were included explicitly in the modeling analysis. Facilities located within 10 to 40 km of the Debary Plant with SO_2 emissions greater than 200 TPY and facilities located within 40 to 50 km of the plant with SO_2 emissions greater than 400 TPY also were modeled explicitly.

The stack, operating, and emission data for those sources considered in the modeling are presented in Table 6-3. PSD increment-affecting sources are noted and were used in the PSD modeling analysis.

6.4 RECEPTOR LOCATIONS

As discussed in Section 6.1, the general modeling approach considered screening and refined phases to address compliance with maximum allowable PSD Class II increments and AAQS. In the ISCST modeling, concentrations were predicted for the screening phase using several receptor grids. The locations of the receptors were based on identifying the areas in which maximum concentrations are predicted due to the proposed units.

A description of the receptor locations for determining compliance with PSD increments and AAQS is as follows:

1. 567 receptors located in a radial grid centered on the proposed units. These receptors were classified into two main groups:

Table 6-2. SO_2 Sources (>25 TPY) Within 50 km of the FPC DeBary Facility

Distance Category	APIS Facility Identification Number	Facility	County	UTM Coordinates (km) East	UTM Coordinates (km) North	Relative Location to FPC DeBary Facility[a] X (km)	Relative Location to FPC DeBary Facility[a] Y (km)	Relative Location to FPC DeBary Facility[a] Distance (km)	Relative Location to FPC DeBary Facility[a] Direction (degrees)	Maximum Allowable SO_2 Emissions (TPY)
0-10 km	30ORL640064	Martin Asphalt	Volusia	467.9	3193.1	0.4	-4.1	4.1	174	536
	30ORL640028	FPL--Sanford	Volusia	468.3	3190.4	0.8	-6.8	6.8	173	46,976
	30ORL640020	FPC--Turner	Volusia	473.4	3193.3	5.9	-3.9	7.1	123	29,287
	30ORL590033	C A Meyer Paving and Constr.	Seminole	469.5	3189.0	2.0	-8.2	8.5	166	80
10-30 km	30ORL590007	L D Plante	Seminole	474.5	3176.2	7.0	-21.0	22.1	162	34
30-50 km	30ORG480068	Zellwood Farms	Orange	440.8	3180.0	-26.7	-17.2	31.8	237	101
	30ORG480156	Rogers Group, Inc.	Orange	455.8	3167.1	-11.7	-30.1	32.3	201	164
	30ORG480088	Ralston Purina Co.	Orange	451.1	3167.7	-16.4	-29.5	33.8	209	54
	30ORG350004	Florida Food Products	Lake	431.5	3194.1	-36.0	-3.1	36.1	265	97
	30ORG480063	Florida Hospital	Orange	463.8	3160.7	-3.7	-36.5	36.7	186	36
	30ORL640043	Martin Asphalt Co.	Volusia	496.7	3224.5	29.2	27.1	39.8	47	50
	30ORG480014	FPC--Rio Pinar	Orange	475.2	3156.8	7.7	-40.4	41.1	169	109
	30ORG480097	National Linen Service	Orange	462.2	3155.6	-5.3	-41.6	41.9	187	355
	30ORL640003	New Smyrna Beach Utilities	Volusia	505.9	3215.0	38.4	17.8	42.2	65	3,826
	30ORG480138	AT&T Technologies, Inc.	Orange	459.3	3153.6	-8.2	-43.6	44.4	191	64
	30ORG480053	Winter Garden Citrus Corp.	Orange	443.8	3159.6	-23.7	-37.6	44.4	212	145
	30ORG480048	American Asphalt Inc.	Orange	444.8	3158.2	-22.7	-39.0	45.1	210	53
	30ORG480137	OUC--Stanton Energy Center	Orange	483.5	3150.6	16.0	-46.6	49.3	161	41,304

Note: km = kilometers.
TPY = tons per year.

[a]The UTM coordinates of the FPC DeBary Plant are 467.5 km east and 3197.2 km north.

Table 6-3. Summary of SO_2 Emission Sources Used in the Modeling Analysis

Model. ID No.	Source Name	Emissions lb/hr	Emissions (g/s)	Height ft	Height (m)	Velocity fps	Velocity (mps)	Temperature °F	Temperature (K)	Diameter ft	Diameter (m)
9003	FPL Sanford Unit #3	1,815	228.7	300	91.4	113	34.4	275	408	9.51	2.90
9045	FPL Sanford Units #4,5	8,910	1,122.7	392	119.5	73.4	22.4	313	429	19.2	5.84
20002	FPC Turner Unit #2	990	124.7	237	72.3	58	17.7	260	400	6.0	1.83
20003	FPC Turner #3	2,255	284.1	237	72.3	79	24.1	315	430	6.0	1.83
20004	FPC Turner #4	2,255	284.1	237	72.3	76	23.2	270	405	6.4	1.95
20012	FPC Turner GT Units 1&2	329	40.6	39	11.9	63	19.2	960	789	12.9	3.93
20034	FPC Turner GT Units 1&2	867	109.0	35	10.7	100	30.5	900	755	19.1	5.82
99937	OUC Stanton Energy Center	9,430	1188.2	550	167.6	83	25.3	127	326	19.0	5.79
33001	C.A.Meyer Paving	41	5.2	34	10.4	103	31.4	325	436	3.2	0.98
99903	New Smyrna Beach Utilities[a]	873.5	110.1	29	8.8	78	23.8	650	616	2.2	0.67
64001	Martin Asphalt	122.3	15.4	20	6.1	90	27.4	325	436	3.1	0.94

[a]PSD increment-consuming source.

a. Plant boundary and near-field receptors, and
b. General grid receptors.

2. The grid for the plant boundary receptors consisted of 36 receptors. The near-field grid consisted of 27 receptors located 300 m from the proposed stack, off of plant property. These receptors are presented in Table 6-4.
3. The general grid receptors consisted of 504 receptors located at distances of 500; 800; 1,200; 1,600; 2,000; 2,500; 3,000; 3,500; 4,000; 4,500; 5,000; 6,000; 7,000; and 8,000 m along 36 radials with each radial spaced at 10-degree increments.

After the screening modeling was completed, refined short-term modeling was conducted using a receptor grid centered on the receptor which had the highest, second-highest short-term concentrations from the screening analysis. The receptors were located at intervals of 100 m between the distances considered in the screening phase, along 9 radials spaced at 2-degree increments, centered on the radial along which the maximum concentration was produced. For example, if the maximum concentration was produced along the 90-degree radial at a distance of 1.6 km, the refined receptor grid would consist of receptors at the following locations:

Directions (degrees)	Distance (km)
82, 84, 86, 88, 90, 92, 94, 96, 98	1.3, 1.4, 1.5, 1.6, 1.7, 1.8, and 1.9 per direction

To ensure that a valid HSH concentration was calculated, concentrations were predicted using the refined grid for the entire year that produced the HSH concentrations from the screening receptor grid.

Refined modeling analysis was not performed for the annual averaging period, because the spatial distribution of annual average concentrations are not expected to vary significantly from those produced from the screening analysis.

Table 6-4. Plant Property Receptors Used in the Screening Analysis

Direction (degrees)	Distance (m)	Direction (degrees)	Distance (m)
10	448	190	103 and 300
20	492	200	108 and 300
30	492	210	113 and 300
40	445	220	124 and 300
50	382	230	120 and 300
60	347	240	108 and 300
70	324	250	101 and 300
80	103 and 300	260	98 and 300
90	103 and 300	270	98 and 300
100	103 and 300	280	98 and 300
110	108 and 300	290	101 and 300
120	115 and 300	300	108 and 300
130	129 and 300	310	117 and 300
140	124 and 300	320	136 and 300
150	113 and 300	330	164 and 300
160	108 and 300	340	225 and 300
170	103 and 300	350	385
180	103 and 300	360	448

Note: Direction and distance are relative to center point of stacks for proposed units.

6.5 BACKGROUND CONCENTRATIONS

Background concentrations used in the air quality impact analysis are discussed in Section 5.0. The SO_2 background concentrations used in the AAQS analysis were 90 $\mu g/m^3$, 25 $\mu g/m^3$ and 4 $\mu g/m^3$ for averaging times of 3-hour, 24-hour and annual, respectively.

6.6 BUILDING DOWNWASH EFFECTS

Based on the building dimensions associated with buildings and structures planned at the DeBary Plant, the stacks for the proposed turbines will be less than GEP. In addition, the stacks for the existing boilers and turbines are below GEP height based upon the existing boiler and turbine buildings and structures. Therefore, the potential for building downwash to occur was considered in the modeling analysis.

The procedures used for addressing the effects of building downwash are those recommended in the ISC Dispersion Model User's Guide. The building height, length, and width are input to the model, which uses these parameters to modify the dispersion parameters. For short stacks (i.e., physical stack height is less than $H_b + 0.5\ L_b$, where H_b is the building height and L_b is the lesser of the building height or projected width), the Schulman and Scire (1980) method is used. If this method is used, then direction-specific building dimensions are input for H_b and L_b for 36 radial directions, with each direction representing a 10 degree sector. The features of the Schulman and Scire method are: 1) reduced plume rise due to initial plume dilution, 2) enhanced plume spread as a linear function of the effective plume height, and 3) specification of building dimensions as a function of wind direction.

For cases where the physical stack is greater than $H_b + 0.5\ L_b$ but less than GEP, the Huber-Snyder (1976) method is used. For this method, the ISCST model calculates the area of the building using the length and width, assumes the area is representative of a circle, and then calculates a building width by determining the diameter of the circle. If a specific

width is to be modeled, then the value input to the model must be adjusted according to the following formula:

$$M_w = \frac{\pi W^2}{4}$$

$$M_w = 0.8886\ W$$

where: M_w is input to the model to produce a building width of W used in the dispersion calculation. W is the actual building width.

The building dimensions considered in the modeling analysis are presented in Table 6-5. In the case of the existing boilers, the boiler stacks are located on the existing boiler buildings and are affected by downwash for all directions.

Table 6-5. Building Dimensions Used in ISCST Modeling Analysis To Address Potential Building Wake Effects

Source	Associated Building	Actual Building Dimensions (m) Length	Width	Height	Projected Width[a] (m)	Modeled Building Dimensions (m) Length, Width	Height
FPC--Existing Turbines No. 1 to No. 6	Turbine Structure	18.6	8.4	8.84	20.4	20.4	8.84
FPC--Existing Boilers No. 1 and 2	Boiler Building	27.4	10.7	5.49	29.4	29.4	5.49
FPC--Proposed CTs	Proposed Structure	18.0	7.1	11.8	19.3	19.3	11.8
FPL Sanford, Unit 3	Boiler Buildings No. 4 and 5	101.2	25.9	47.9	104.5	104.5	47.9

[a]Diagonal of actual building dimensions.

7.0 AIR QUALITY MODELING RESULTS

7.1 PROPOSED UNITS ONLY

A summary of the maximum concentrations due to the proposed CT units operating at load conditions of 100, 75, 50, and 25 percent of capacity is presented in Table 7-1. The results are presented for SO_2 concentrations and it is assumed that the stacks are colocated. The stacks were modeled at separate locations in subsequent analyses that addressed compliance with PSD increments and AAQS. Also, for operating load, the modeling was performed using the highest emissions at 20°F design condition coupled with the lowest exit gas flow rates at 95°F design condition to maximize predicted impacts. As shown in Table 7-1, the maximum concentrations generally occur for the maximum capacity at 100-percent operating load. Therefore, the proposed units were modeled at this load condition in the PSD increment and AAQS modeling analyses. A summary of the maximum predicted impacts of regulated pollutants due to the proposed units only, based on the results in Table 7-1, is presented in Table 7-2.

The maximum predicted 3-hour, 24-hour, and annual SO_2 concentrations due to the proposed CT units only are 50.9, 11.4, and 0.94 $\mu g/m^3$, respectively. The maximum 3-hour and 24-hour impacts are above the significance levels established by EPA and FDER and, therefore, further modeling analysis is required for SO_2 to demonstrate compliance with PSD increments and AAQS.

The maximum predicted 24-hour and annual average PM(TSP) concentrations due to the units only are 1.2 and 0.10 $\mu g/m^3$, respectively. Maximum PM10 impacts are assumed to be identical to the PM(TSP) impacts. Since these maximum concentrations are below the significance levels for these pollutants, no further modeling analysis is necessary.

The maximum predicted annual NO_2 concentration due to the units only is 0.31 $\mu g/m^3$. Because this level of impact is below the significance level, no further modeling analysis was performed.

Table 7-1. Maximum SO_2 Concentrations Predicted for Proposed CTs Only at Various Operating Load Conditions

Averaging Period/ Year	Maximum Concentration ($\mu g/m^3$) for Operating Load (percent) 100	75	50	25
1-Hour[a]				
1982	133	100	101	72.5
1983	133	114	100	87.4
1984	139	107	93.5	68.2
1985	135	106	100	70.5
1986	138	122	93.9	67.3
3-Hour[a]				
1982	44.3	41.2	38.4	33.5
1983	46.6	43.0	34.5	31.2
1984	50.9	42.1	35.7	33.3
1985	47.1	45.6	36.7	28.5
1986	59.2	44.0	36.0	30.3
8-Hour[a]				
1982	20.6	20.5	19.7	16.8
1983	29.9	21.8	21.5	19.1
1984	27.4	23.9	19.8	15.9
1985	23.9	22.1	19.5	15.9
1986	22.2	20.3	18.8	16.7
24-Hour[a]				
1982	9.62	9.78	9.27	8.08
1983	9.99	8.71	8.01	7.06
1984	11.4	8.66	8.75	7.86
1985	10.6	9.10	9.63	8.00
1986	9.36	8.48	7.92	8.48
Annual				
1982	0.82	0.80	0.82	0.76
1983	0.69	0.71	0.70	0.64
1984	0.94	0.96	0.95	0.87
1985	0.80	0.82	0.80	0.72
1986	0.79	0.80	0.79	0.70

Note: These results are based on the colocation of each stack. Each of the stacks were at separate locations in subsequent modeling for the PSD and AAQS analyses.

[a]Highest, second-highest concentrations.

Table 7-2. Summary of Maximum Pollutant Concentrations Due to the Proposed Project

Pollutant	Averaging Period	Maximum Predicted Concentrations ($\mu g/m^3$)[a]	Location Direction (°)	Location Distance (km)	Significance Impact Level ($\mu g/m^3$)	De Minimis Monitoring Level ($\mu g/m^3$)
Sulfur Dioxide	3-hour	50.9	60	1.6	25	NA
	24-hour	11.4	120	1.6	5	13
	Annual	0.94	240	5.0	1	NA
Total Suspended Particulate Matter	24-hour	1.2	120	1.6	5	10
	Annual	0.10	240	5.0	1	NA
Particulate Matter 10 microns	24-hour	1.2	120	1.6	5	10
	Annual	0.10	240	5.0	1	NA
Nitrogen Dioxide	Annual	0.31	240	5.0	1	14
Carbon Monoxide	1-hour	13.3	60	1.6	2,000	NA
	8-hour	2.9	240	1.6	500	575
Beryllium	24-hour	0.000053	120	1.6	NA	0.25
Mercury	24-hour	0.000063	120	1.6	NA	0.25

Note: NA = Not applicable.
$\mu g/m^3$ = micrograms per cubic meter.

[a]Based upon six CTs operating at maximum load.
[b]Not modeled because predicted concentrations due to the proposed units only were less than significance level.

The maximum predicted 1- and 8-hour average CO concentrations due to the units only are 13.3 and 2.9 $\mu g/m^3$, respectively. These maximum impacts are less than the CO significance impact levels. Because the maximum predicted impacts due to the repowered units are less than the CO significance levels, additional modeling is not required for this pollutant.

The maximum 24-hour Be concentration due to the units only is predicted to be 0.000053 $\mu g/m^3$. No significance level has been established for F, but a de minimis monitoring concentration has been set at 0.25 $\mu g/m^3$, 24-hour average. Since the predicted impacts due to the units only are well below the de minimis, no further modeling analysis was conducted.

The maximum predicted 24-hour Hg concentration due to the proposed units only is 0.000063 $\mu g/m^3$. Similar to the Be analysis, no significance level has been established for Hg, but a de minimis monitoring concentration has been set at 0.25 $\mu g/m^3$, 24-hour average. Since the predicted impacts due to the units only are well below the de minimis level, no further modeling analysis was conducted.

7.2 PSD CLASS II INCREMENT ANALYSIS

Maximum SO_2 concentrations predicted from the screening analysis for comparison to the PSD Class II increments are presented in Table 7-3. Based upon these results, the refined analysis was based on modeling the year during which the overall highest, second-highest 3-hour and 24-hour SO_2 concentrations were predicted in the screening analysis. The refined analysis for the annual average SO_2 concentrations was based on modeling the receptor and year which produced the highest annual concentration using the refined emission inventory. A summary of the maximum SO_2 PSD Class II increment consumption concentrations predicted in the refined analysis is presented in Table 7-4.

The maximum 3-hour average SO_2 PSD increment consumption from the refined analysis is predicted to be 138 $\mu g/m^3$, which is 27 percent of the maximum

Table 7-3. Maximum Predicted SO_2 Concentrations from the Screening Analysis for Comparison to PSD Class II Increments

Averaging Period	Maximum Concentration ($\mu g/m^3$)	Receptor Location[a] Direction (°)	Receptor Location[a] Distance (km)	Period Julian Day	Period Hour Ending	Period Year
3-Hour[b]	85	60	6.0	365	6	1982
	104	100	8.0	212	24	1983
	129	110	8.0	339	24	1984
	123	80	8.0	236	6	1985
	111	50	8.0	17	24	1986
24-Hour[b]	16.3	320	8.0	332	–	1982
	15.3	70	6.0	322	–	1983
	22.4	280	4.0	133	–	1984
	21.7	90	6.0	206	–	1985
	20.5	360	3.0	110	–	1986
Annual	2.25	180	8.0	–	–	1982
	2.06	110	7.0	–	–	1983
	2.33	110	6.0	–	–	1984
	2.53	110	7.0	–	–	1985
	2.52	360	7.0	–	–	1986

Note: Based on six CTs operating at maximum load and firing fuel oil with 0.5 percent sulfur content.

– = Not applicable.
$\mu g/m^3$ = micrograms per cubic meter.

[a]Relative to the location of the proposed CT units.
[b]Highest, second-highest concentrations predicted for this averaging period.

Table 7-4. Maximum Predicted SO_2 Concentrations from the Refined Analysis for Comparison to PSD Class II Increments

Averaging Period	Maximum Concentration ($\mu g/m^3$)	Receptor Location[a] Direction (°)	Receptor Location[a] Distance (km)	Period Julian Day	Period Hour Ending	Period Year	PSD Class II Increment
SO_2 Concentrations							
3-Hour[b]	138	104	8.9	339	24	1984	512
24-Hour[b]	23.2	278	3.8	242	24	1984	91
Annual	2.53	110	7.0	–	–	1985	20

Note: Based on six CTs operating at maximum load and firing fuel oil with 0.5 percent sulfur content.

– = Not applicable.
$\mu g/m^3$ = micrograms per cubic meter.

[a]Relative to the location of the proposed CT units.
[b]Highest, second-highest concentrations predicted for this averaging period.

allowable PSD Class II increment of 512 $\mu g/m^3$, not to be exceeded more than once per year.

The maximum 24-hour average SO_2 PSD Class II increment consumption is predicted to be 23.2 $\mu g/m^3$, which is 25 percent of the maximum allowable PSD Class II increment of 91 $\mu g/m^3$, not to be exceeded more than once per year.

The maximum annual average SO_2 PSD increment consumption is predicted to be 2.53 $\mu g/m^3$, which is 13 percent of the maximum allowable PSD Class II increment of 20 $\mu g/m^3$.

7.3 AAQS ANALYSIS

The maximum 3-hour, 24-hour, and annual average total SO_2 concentrations predicted from the screening analysis are presented in Table 7-5. The total concentrations were determined from the impacts of the modeled sources added to the background concentration (refer to Section 5.0). These results show that the maximum SO_2 concentrations due to all sources are below the AAQS for all averaging periods.

Similar to the PSD Class II increment analysis, the refined AAQS analysis was based on modeling the year during which the overall HSH 3-hour, 24-hour, and highest annual concentrations were predicted in the screening analysis. The maximum SO_2 concentrations predicted in the refined analysis are presented in Table 7-6.

The maximum 3-hour average SO_2 concentration due to all sources from the refined analysis is predicted to be 792 $\mu g/m^3$, which is 61 percent of the AAQS of 1,300 $\mu g/m^3$, not to be exceeded more than once per year. The project contributed 0 percent of this maximum 3-hour average concentration.

Table 7-5. Maximum Predicted Total SO_2 Concentrations from the Screening Analysis for Comparison to AAQS

Averaging Period	Concentration ($\mu g/m^3$) Total	Total Due To: Modeled Sources	Total Due To: Background	Receptor Location[a]: Direction (°)	Receptor Location[a]: Distance (km)	Period: Julian Day	Period: Hour Ending	Year
3-Hour[b]	732	642	90	130	6.0	194	12	1982
	727	637	90	130	8.0	49	12	1983
	698	608	90	120	8.0	109	15	1984
	624	534	90	110	7.0	170	12	1985
	680	590	90	130	6.0	268	15	1986
24-Hour[b]	212	187	25	350	0.385	33	–	1982
	214	189	25	360	0.448	97	–	1983
	194	169	25	340	0.225	280	–	1984
	238	213	25	350	0.385	243	–	1985
	214	189	25	330	0.500	68	–	1986
Annual	37.7	33.7	4	340	0.225	–	–	1982
	33.8	29.8	4	340	0.225	–	–	1983
	37.4	33.4	4	340	0.225	–	–	1984
	34.6	30.6	4	340	0.225	–	–	1985
	31.6	27.6	4	340	0.225	–	–	1986

Note: Based on six CTs operating at maximum load and firing fuel oil with 0.5 percent sulfur content.

– = Not applicable.
$\mu g/m^3$ = micrograms per cubic meter.

[a]Relative to the location of the proposed CT units.
[b]Highest, second-highest concentrations predicted for this averaging period.

Table 7-6. Maximum Predicted SO_2 Concentrations from the Refined Analysis for Comparison to AAQS

Averaging Period	Concentration ($\mu g/m^3$)			Receptor Location[a]		Period			AAQS
	Total	Total due to Modeled Sources	Total due to Background	Direction (°)	Distance (km)	Julian Day	Hour Ending	Year	
SO_2 Concentrations									
3-Hour[b]	792	702	90	130	6.2	197	15	1982	1,300
24-Hour[b]	215	190	25	354	0.450	325	24	1985	260
Annual	37.7	33.7	4	340	0.225	–	–	1982	60

Note: Based on six CTs operating at maximum load and firing fuel oil with 0.5 percent sulfur content.

– = Not applicable.
$\mu g/m^3$ = micrograms per cubic meter.

[a]Relative to the location of the proposed CT units.
[b]Highest, second-highest concentrations predicted for this averaging period.

The maximum 24-hour average SO_2 concentration due to all sources is predicted to be 215 $\mu g/m^3$, which is 83 percent of the AAQS of 260 $\mu g/m^3$, not to be exceeded more than once per year. The project contributed less than 1 percent of this maximum 24-hour average concentration.

The maximum annual average SO_2 concentration due to all sources is predicted to be 37.7 $\mu g/m^3$, which is 63 percent of the AAQS of 60 $\mu g/m^3$. The project contributed less than 1 percent to the maximum concentration.

8.0 ADDITIONAL IMPACT ANALYSIS

8.1 IMPACTS UPON VEGETATION

The response of vegetation to atmospheric pollutants is influenced by the concentration of the pollutant, duration of the exposure and the frequency of exposures. The pattern of pollutant exposure expected from the facility is that of a few episodes of relatively high ground-level concentration which occur during certain meteorological conditions interspersed with long periods of extremely low ground-level concentrations. If there are any effects of stack emissions on plants, they will be from the short-term higher doses. A dose is the product of the concentration of the pollutant and the duration of the exposure. The impact of the proposed CT units on regional vegetation was assessed by comparing pollutant doses that are predicted from modeling with threshold doses reported from the scientific literature which could adversely affect plant species typical of those present in the region.

8.1.1 SULFUR DIOXIDE

The maximum total 3-hour average SO_2 concentration (i.e., impacts due to all modeled sources added to a background concentration) is predicted to be 702 $\mu g/m^3$ (see Table 7-6). This concentration is predicted to occur about 6.2 km southeast of the stacks and represents the concentration that would occur during the worst-case meteorological conditions of the past five years. The maximum 3-hour average ground-level concentration predicted for the other 4 years are 90 percent or less of the maximum concentration. Concentrations decrease with distance beyond the location of the maximum concentration.

The maximum total predicted 24-hour average SO_2 concentration is 190 $\mu g/m^3$ (see Table 7-6) and is located approximately 0.45 km to the north of the stacks. The maximum total predicated annual SO_2 concentration is 33.7 $\mu g/m^3$ (see Table 7-6). This concentration is predicted to occur 0.225 km to the north-northwest of the stacks.

These concentrations and averaging times can be compared with SO_2 doses known to adversely affect plant species (see Table 8-1). The expected doses from the proposed project combined with background sources are much lower than doses known to cause a detrimental effect on vegetation.

8.1.2 OTHER POLLUTANTS

Predicted impacts of other regulated pollutants are less than the significant impact levels (see Table 7-2). As a result, no impacts are expected to occur to vegetation as a result of the proposed emissions of other regulated pollutants.

8.2 IMPACTS TO SOILS

SO_2 that reaches the soil by deposition from the air is converted by physical and biotic processes to sulfates. (Particulates have no affect on soils at the levels predicted.) The effects can be beneficial to plants if sulfates in native soils are less than plant requirements for optimum growth. However, sulfates can also increase acidity of unbuffered soils, causing adverse effects due to changes in nutrient availability and cycling. The predicted concentrations of SO_2 from stack emissions are not expected to have a significant adverse effect on soils in the vicinity because:

1. The predicted concentrations are low; and
2. Fertilizer and ground limestone is generally applied to lands being used for crops, pasture, and citrus.

Therefore, the facility is not expected to have a significant adverse impact on regional vegetation or soils.

8.3 IMPACTS DUE TO ADDITIONAL GROWTH

A limited number of additional personnel may be added to the current plant personnel complement. These additional personnel are expected to have an insignificant effect on the residential, commercial, and industrial growth in Volusia County.

Table 8-1. Sulfur Dioxide Doses Reported to Affect Plant Species Similar to Vegetation in the Region of the DeBary Plant

Species	Dose and Effect	Reference
Strawberry	1,040 $\mu g/m^3$ for 6 hours per day for 3 days had no affect on growth	Rajput et al., 1977
Citrus	2,080 $\mu g/m^3$ for 23 days with 10 day interruption reduced leaf area	Matsushima and Brewer, 1972
Ryegrass	42 $\mu g/m^3$ for 26 weeks or 367 $\mu g/m^3$ for 131 days reduced dry weight	Bell et al., 1979; Ayazaloo and Bell, 1981
Tomato	1,258 $\mu g/m^3$ for 5 hours per day, for 57 days, reduced growth	Kohut et al., 1983
Duckweed	390 $\mu g/m^3$ for 6 weeks reduced growth	Fankhauser et al., 1976
Lichens (Parmotrema and Ramalina spp.)	400 $\mu g/m^3$ 6 hours per week for 10 weeks reduced CO_2 uptake and biomass gain of Ramalina, not Parmotrema	Hart et al., 1988
Bald Cypress	1,300 and 2,600 $\mu g/m^3$ for 48 hours. Only 2,600 $\mu g/m^3$ reduced leaf area.	Shanklin and Kozlowski, 1985
Green Ash	210 $\mu g/m^3$ for 4 hours per day, 5 days per week for 6 weeks reduced growth	Chappelka et al., 1988

Fuel oil will be delivered by truck to the facility in the same manner as residual oil. The rail line will be activated for delivery of additional fuel oil. No additional significant impacts are expected to occur because of these activities.

Therefore, no air quality related impacts associated with residential, commercial, and industrial growth are anticipated.

8.4 IMPACTS TO VISIBILITY

The DeBary Plant is located more than 100 km from a Class I area; pursuant to Chapter 17-2.500(5)(d)1.e., F.A.C., a visibility impact analysis is not required.

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APPENDIX A

DESIGN INFORMATION OF OPERATING, STACK, AND POLLUTANT EMISSION DATA FOR THE PROPOSED COMBUSTION TURBINES

Table A-1. Design Information and Stack Parameters for Florida Power Corporation DeBary CT Project (CT Performance Data For Fuel Oil at Peak Load[a])

Data	GE PG 7111EA No.2 Oil at 20°F	GE PG 7111EA No.2 Oil at 59°F	GE PG 7111EA No.2 Oil at 90°F
General			
Power (kW)	104,890.0	92,890.0	82,740.0
Heat Rate (Btu/kWh)	10,910.0	11,080.0	11,260.0
Heat Input (10^6 Btu/hr)	1,144.3	1,029.2	931.7
Fuel Oil (lb/hr)	61,690.0	55,483.6	50,223.8
Fuel			
Heat Content--Oil(LHV)	18,550.0	18,550.0	18,550.0
Percent Sulfur	0.5	0.5	0.5
CT Exhaust			
Volume Flow (acfm)	1,662,283	1,551,317	1,455,469
Volume Flow (scfm)	594,638	544,974	503,926
Mass Flow (lb/hr)	2,633,000	2,408,000	2,218,000
Temperature (°F)	1,016	1,043	1,065
Moisture (% vol)	9.16	9.60	10.66
Moisture (% mass)	5.80	6.09	6.79
Oxygen (% vol)	12.29	12.33	12.25
Oxygen (% mass)	13.83	13.90	13.87
Molecular Weight	28.44	28.38	28.27
Water Injected (lb/hr)	64,190	55,510	43,130
Diameter (ft)	13.8	13.8	13.8
Velocity (ft/sec)	184.4	172.1	161.5

Note: Data from GE combustion turbine performance and emission guarantees.

[a]Represents maximum fuel usage, electrical output, and emission condition; base load values are slightly lower than those presented herein.

Table A-2. Maximum Criteria Pollutant Emissions for Florida Power Corporation DeBary CT Project (Fuel Oil at Peak Load)

Pollutant	GE PG 7111EA No.2 Oil at 20°F	GE PG 7111EA No.2 Oil at 59°F	GE PG 7111EA No.2 Oil at 90°F
Particulate			
Basis	15 lb/hr	15 lb/hr	15 lb/hr
lb/hr	15.0	15.0	15.0
TPY	65.7	65.7	65.7
Sulfur Dioxide			
Basis	0.5% Sulfur	0.5% Sulfur	0.5% Sulfur
lb/hr	616.90	554.84	502.24
TPY	2,702.0	2,430.2	2,199.8
Nitrogen Oxides			
Basis (Thermal NO_x)	42 ppm[a]	42 ppm[a]	42 ppm[a]
lb/hr	202.9	182.4	164.9
TPY	888.8	799.0	722.2
ppm[b]	42.0	42.0	42.0
Carbon Monoxide			
Basis	25 ppm[c]	25 ppm[c]	25 ppm[c]
lb/hr	58.9	53.7	49.1
TPY	257.8	235.2	214.9
ppm	25.0	25.0	25.0
VOCs			
Basis	5.0 lb/hr	5.0 lb/hr	4.5 lb/hr
lb/hr	5.00	5.00	4.50
TPY	21.9	21.9	19.7
Lead			
Basis	EPA(1988)	EPA(1988)	EPA(1988)
lb/hr	1.02×10^{-2}	9.16×10^{-3}	8.29×10^{-3}
TPY	4.46×10^{-2}	4.01×10^{-2}	3.63×10^{-2}

[a] Corrected to 15% O_2 dry conditions; GE guarantee.
[b] Does not include an allowance of fuel-bound nitrogen of 0.015 percent or greater.
[c] Corrected to dry conditions; GE guarantee.

Table A-3. Maximum Other Regulated Pollutant Emissions for Florida Power Corporation DeBary CT Project (Fuel Oil at Peak Load)

Pollutant	GE PG 7111EA No.2 Oil at 20°F	GE PG 7111EA No.2 Oil at 59°F	GE PG 7111EA No.2 Oil at 90°F
Arsenic			
lb/hr	4.81×10^{-3}	4.32×10^{-3}	3.91×10^{-3}
TPY	2.11×10^{-2}	1.89×10^{-2}	1.71×10^{-2}
Beryllium			
lb/hr	2.86×10^{-3}	2.57×10^{-3}	2.33×10^{-3}
TPY	1.25×10^{-2}	1.13×10^{-2}	1.02×10^{-2}
Mercury			
lb/hr	3.43×10^{-3}	3.09×10^{-3}	2.79×10^{-3}
TPY	1.50×10^{-2}	1.35×10^{-2}	1.22×10^{-2}
Fluorine			
lb/hr	3.72×10^{-2}	3.34×10^{-2}	3.03×10^{-2}
TPY	1.63×10^{-1}	1.47×10^{-1}	1.33×10^{-1}
Sulfuric acid			
lb/hr	76.8	69.1	62.5
TPY	336.5	302.6	273.9

Sources: EPA, 1988; EPA, 1980.

Table A-4. Maximum Nonregulated Pollutant Emissions for Florida Power Corporation DeBary CT Project (Fuel Oil at Peak Load)

Pollutant	Gas Turbine No.2 Oil at 40°F	Gas Turbine No.2 Oil at 59°F	Gas Turbine No.2 Oil at 90°F
Manganese			
lb/hr	7.37×10^{-3}	6.63×10^{-3}	6.00×10^{-3}
TPY	3.23×10^{-2}	2.90×10^{-2}	2.63×10^{-2}
Nickel			
lb/hr	1.95×10^{-1}	1.75×10^{-1}	1.58×10^{-1}
TPY	8.52×10^{-1}	7.66×10^{-1}	6.94×10^{-1}
Cadmium			
lb/hr	1.20×10^{-2}	1.08×10^{-2}	9.78×10^{-3}
TPY	5.26×10^{-2}	4.73×10^{-2}	4.28×10^{-2}
Chromium			
lb/hr	5.44×10^{-2}	4.89×10^{-2}	4.43×10^{-2}
TPY	2.38×10^{-1}	2.14×10^{-1}	1.94×10^{-1}
Copper			
lb/hr	3.20×10^{-1}	2.88×10^{-1}	2.61×10^{-1}
TPY	1.40	1.26	1.14
Vanadium			
lb/hr	7.98×10^{-2}	7.18×10^{-2}	6.50×10^{-2}
TPY	3.49×10^{-1}	3.14×10^{-1}	2.85×10^{-1}
Selenium			
lb/hr	2.69×10^{-2}	2.42×10^{-2}	2.19×10^{-2}
TPY	1.18×10^{-1}	1.06×10^{-1}	9.58×10^{-2}
Polycyclic Organic Matter			
lb/hr	3.19×10^{-4}	2.87×10^{-4}	2.60×10^{-4}
TPY	1.40×10^{-3}	1.26×10^{-3}	1.14×10^{-3}
Formaldehyde			
lb/hr	4.63×10^{-1}	4.17×10^{-1}	3.77×10^{-1}
TPY	2.03	1.83	1.65

Source: EPA, 1988.

Table A-5. Maximum Emissions for Additional Nonregulated Pollutants for Florida Power Corporation DeBary CT Project (Fuel Oil at Peak Load)

Pollutant	Gas Turbine No.2 Oil at 40°F	Gas Turbine No.2 Oil at 59°F	Gas Turbine No.2 Oil at 90°F
Antimony			
lb/hr	2.50×10^{-2}	2.25×10^{-2}	2.04×10^{-2}
TPY	1.09×10^{-1}	9.85×10^{-2}	8.91×10^{-2}
Barium			
lb/hr	2.23×10^{-2}	2.01×10^{-2}	1.82×10^{-2}
TPY	9.78×10^{-2}	8.80×10^{-2}	7.97×10^{-2}
Colbalt			
lb/hr	1.04×10^{-2}	9.33×10^{-3}	8.44×10^{-3}
TPY	4.54×10^{-2}	4.09×10^{-2}	3.70×10^{-2}
Zinc			
lb/hr	7.82×10^{-1}	7.03×10^{-1}	6.37×10^{-1}
TPY	3.42	3.08	2.79
Chlorine[a]			
lb/hr	3.08×10^{-2}	2.77×10^{-2}	2.51×10^{-2}
TPY	1.35×10^{-1}	1.22×10^{-1}	1.10×10^{-1}

[a]Assumes 0.5 ppm in fuel oil.

Source: EPA, 1979.

Table A-6. Design Information and Stack Parameters for Florida Power Corporation DeBary CT Project (CT Performance Data For Fuel Oil at 75% Load)

Data	GE PG 7111EA No.2 Oil at 20°F	GE PG 7111EA No.2 Oil at 59°F	GE PG 7111EA No.2 Oil at 90°F
General			
Power (kW)	72,580.0	64,010.0	56,700.0
Heat Rate (Btu/kWh)	11,110.0	11,450.0	11,820.0
Heat Input (10^6 Btu/hr)	806.4	732.9	670.2
Fuel Oil (lb/hr)	43,469.7	39,510.2	36,129.1
Fuel			
Heat Content--Oil(LHV)	18,550.0	18,550.0	18,550.0
Percent Sulfur	0.5	0.5	0.5
CT Exhaust			
Volume Flow (acfm)	1,356,805	1,282,418	1,220,251
Volume Flow (scfm)	579,606	532,324	494,469
Mass Flow (lb/hr)	2,589,000	2,372,000	2,191,000
Temperature (°F)	776	812	843
Moisture (% vol)	5.71	6.36	7.78
Moisture (% mass)	3.58	4.00	4.92
Oxygen (% vol)	14.94	14.85	14.64
Oxygen (% mass)	16.66	16.60	16.46
Molecular Weight	28.69	28.62	28.46
Water Injected (lb/hr)	29,770	26,320	19,980
Diameter (ft)	13.8	13.8	13.8
Velocity (ft/sec)	150.5	142.3	135.4

Note: Data from GE combustion turbine performance and emission guarantees.

Table A-7. Maximum Criteria Pollutant Emissions for Florida Power Corporation DeBary CT Project (Fuel Oil at 75% Load)

Pollutant	GE PG 7111EA No.2 Oil at 20°F	GE PG 7111EA No.2 Oil at 59°F	GE PG 7111EA No.2 Oil at 90°F
Particulate			
Basis	–	–	–
lb/hr	15.0	15.0	15.0
TPY	65.7	65.7	65.7
Sulfur Dioxide			
Basis	0.5% Sulfur	0.5% Sulfur	0.5% Sulfur
lb/hr	434.70	395.10	361.29
TPY	1,904.0	1,730.5	1,582.5
Nitrogen Oxides			
Basis (Thermal NO_x)	42 ppm[a]	42 ppm[a]	42 ppm[a]
lb/hr	141.0	128.2	116.8
TPY	617.5	561.6	511.8
ppm[b]	42.0	42.0	42.0
Carbon Monoxide			
Basis	25 ppm[c]	25 ppm[c]	25 ppm[c]
lb/hr	59.6	54.3	49.7
TPY	260.9	237.9	217.7
ppm	25.0	25.0	25.0
VOCs			
Basis	5.0 lb/hr	4.5 lb/hr	4.5 lb/hr
lb/hr	5.00	4.50	4.50
TPY	21.9	19.7	19.7
Lead			
Basis	EPA(1988)	EPA(1988)	EPA(1988)
lb/hr	7.18×10^{-3}	6.52×10^{-3}	5.96×10^{-3}
TPY	3.14×10^{-2}	2.86×10^{-2}	2.61×10^{-2}

[a]Corrected to 15% O_2 dry conditions.
[b]Does not include an allowance for fuel-bound nitrogen of 0.015 percent or greater.
[c]Corrected to dry conditions.

Table A-8. Maximum Other Regulated Pollutant Emissions for Florida Power Corporation DeBary CT Project (Fuel Oil at 75% Load)

Pollutant	GE PG 7111EA No.2 Oil at 20°F	GE PG 7111EA No.2 Oil at 59°F	GE PG 7111EA No.2 Oil at 90°F
Arsenic			
lb/hr	3.39×10^{-3}	3.08×10^{-3}	2.81×10^{-3}
TPY	1.48×10^{-2}	1.35×10^{-2}	1.23×10^{-2}
Beryllium			
lb/hr	2.02×10^{-3}	1.83×10^{-3}	1.68×10^{-3}
TPY	8.83×10^{-3}	8.03×10^{-3}	7.34×10^{-3}
Mercury			
lb/hr	2.42×10^{-3}	2.20×10^{-3}	2.01×10^{-3}
TPY	1.06×10^{-2}	9.63×10^{-3}	8.81×10^{-3}
Fluorine			
lb/hr	2.62×10^{-2}	2.38×10^{-2}	2.18×10^{-2}
TPY	1.15×10^{-1}	1.04×10^{-1}	9.54×10^{-2}
Sulfuric acid			
lb/hr	54.1	49.2	45.0
TPY	237.1	215.5	197.1

Sources: EPA, 1988; EPA, 1980.

Table A-9. Maximum Nonregulated Pollutant Emissions for Florida Power Corporation DeBary CT Project (Fuel Oil at 75% Load)

Pollutant	Gas Turbine No.2 Oil at 40°F	Gas Turbine No.2 Oil at 59°F	Gas Turbine No.2 Oil at 90°F
Manganese			
lb/hr	5.19×10^{-3}	4.72×10^{-3}	4.32×10^{-3}
TPY	2.27×10^{-2}	2.07×10^{-2}	1.89×10^{-2}
Nickel			
lb/hr	1.37×10^{-1}	1.25×10^{-1}	1.14×10^{-1}
TPY	6.00×10^{-1}	5.46×10^{-1}	4.99×10^{-1}
Cadmium			
lb/hr	8.47×10^{-3}	7.70×10^{-3}	7.04×10^{-3}
TPY	3.71×10^{-2}	3.37×10^{-2}	3.08×10^{-2}
Chromium			
lb/hr	3.83×10^{-2}	3.48×10^{-2}	3.18×10^{-2}
TPY	1.68×10^{-1}	1.52×10^{-1}	1.39×10^{-1}
Copper			
lb/hr	2.26×10^{-1}	2.05×10^{-1}	1.88×10^{-1}
TPY	9.89×10^{-1}	8.99×10^{-1}	8.22×10^{-1}
Vanadium			
lb/hr	5.62×10^{-2}	5.11×10^{-2}	4.67×10^{-2}
TPY	2.46×10^{-1}	2.24×10^{-1}	2.05×10^{-1}
Selenium			
lb/hr	1.89×10^{-2}	1.72×10^{-2}	1.57×10^{-2}
TPY	8.29×10^{-2}	7.54×10^{-2}	6.89×10^{-2}
Polycyclic Organic Matter			
lb/hr	2.25×10^{-4}	2.04×10^{-4}	1.87×10^{-4}
TPY	9.85×10^{-4}	8.95×10^{-4}	8.19×10^{-4}
Formaldehyde			
lb/hr	3.27×10^{-1}	2.97×10^{-1}	2.71×10^{-1}
TPY	1.43	1.30	1.19

Source: EPA, 1988.

Table A-15. Maximum Emissions for Additional Nonregulated Pollutants for Florida Power Corporation DeBary CT Project (Fuel Oil at 50% Load)

Pollutant	Gas Turbine No.2 Oil at 40°F	Gas Turbine No.2 Oil at 59°F	Gas Turbine No.2 Oil at 90°F
Antimony			
lb/hr	1.30×10^{-2}	1.19×10^{-2}	1.10×10^{-2}
TPY	5.68×10^{-2}	5.19×10^{-2}	4.80×10^{-2}
Barium			
lb/hr	1.16×10^{-2}	1.06×10^{-2}	9.79×10^{-3}
TPY	5.07×10^{-2}	4.64×10^{-2}	4.29×10^{-2}
Colbalt			
lb/hr	5.38×10^{-3}	4.92×10^{-3}	4.55×10^{-3}
TPY	2.35×10^{-2}	2.15×10^{-2}	1.99×10^{-2}
Zinc			
lb/hr	4.05×10^{-1}	3.71×10^{-1}	3.43×10^{-1}
TPY	1.78	1.62	1.50
Chlorine[a]			
lb/hr	1.60×10^{-2}	1.46×10^{-2}	1.35×10^{-2}
TPY	7.00×10^{-2}	6.41×10^{-2}	5.92×10^{-2}

[a]Assumes 0.5 ppm in fuel oil.

Source: EPA, 1979.

Table A-10. Maximum Emissions for Additional Nonregulated Pollutants for Florida Power Corporation DeBary CT Project (Fuel Oil at 75% Load)

Pollutant	Gas Turbine No.2 Oil at 40°F	Gas Turbine No.2 Oil at 59°F	Gas Turbine No.2 Oil at 90°F
Antimony			
lb/hr	1.76×10^{-2}	1.60×10^{-2}	1.46×10^{-2}
TPY	7.72×10^{-2}	7.01×10^{-2}	6.41×10^{-2}
Barium			
lb/hr	1.57×10^{-2}	1.43×10^{-2}	1.31×10^{-2}
TPY	6.89×10^{-2}	6.27×10^{-2}	5.73×10^{-2}
Colbalt			
lb/hr	7.31×10^{-3}	6.64×10^{-3}	6.07×10^{-3}
TPY	3.20×10^{-2}	2.91×10^{-2}	2.66×10^{-2}
Zinc			
lb/hr	5.51×10^{-1}	5.01×10^{-1}	4.58×10^{-1}
TPY	2.41	2.19	2.01
Chlorine[a]			
lb/hr	2.17×10^{-2}	1.98×10^{-2}	1.81×10^{-2}
TPY	9.52×10^{-2}	8.65×10^{-2}	7.91×10^{-2}

[a]Assumes 0.5 ppm in fuel oil.

Source: EPA, 1979.

Table A-14. Maximum Nonregulated Pollutant Emissions for Florida Power Corporation DeBary CT Project (Fuel Oil at 50% Load)

Pollutant	Gas Turbine No.2 Oil at 40°F	Gas Turbine No.2 Oil at 59°F	Gas Turbine No.2 Oil at 90°F
Manganese			
lb/hr	3.82×10^{-3}	3.50×10^{-3}	3.23×10^{-3}
TPY	1.67×10^{-2}	1.53×10^{-2}	1.42×10^{-2}
Nickel			
lb/hr	1.01×10^{-1}	9.23×10^{-2}	8.53×10^{-2}
TPY	4.42×10^{-1}	4.04×10^{-1}	3.74×10^{-1}
Cadmium			
lb/hr	6.23×10^{-3}	5.70×10^{-3}	5.27×10^{-3}
TPY	2.73×10^{-2}	2.50×10^{-2}	2.31×10^{-2}
Chromium			
lb/hr	2.82×10^{-2}	2.58×10^{-2}	2.38×10^{-2}
TPY	1.23×10^{-1}	1.13×10^{-1}	1.04×10^{-1}
Copper			
lb/hr	1.66×10^{-1}	1.52×10^{-1}	1.40×10^{-1}
TPY	7.27×10^{-1}	6.66×10^{-1}	6.15×10^{-1}
Vanadium			
lb/hr	4.14×10^{-2}	3.78×10^{-2}	3.50×10^{-2}
TPY	1.81×10^{-1}	1.66×10^{-1}	1.53×10^{-1}
Selenium			
lb/hr	1.39×10^{-2}	1.27×10^{-2}	1.18×10^{-2}
TPY	6.10×10^{-2}	5.58×10^{-2}	5.16×10^{-2}
Polycyclic Organic Matter			
lb/hr	1.65×10^{-4}	1.51×10^{-4}	1.40×10^{-4}
TPY	7.25×10^{-4}	6.63×10^{-4}	6.13×10^{-4}
Formaldehyde			
lb/hr	2.40×10^{-1}	2.20×10^{-1}	2.03×10^{-1}
TPY	1.05	9.63×10^{-1}	8.90×10^{-1}

Source: EPA, 1988.

Table A-11. Design Information and Stack Parameters for Florida Power Corporation DeBary CT Project (CT Performance Data For Fuel Oil at 50% Load)

Data	GE PG 7111EA No.2 Oil at 20°F	GE PG 7111EA No.2 Oil at 59°F	GE PG 7111EA No.2 Oil at 90°F
General			
Power (kW)	48,380.0	42,670.0	37,810.0
Heat Rate (Btu/kWh)	12,260.0	12,720.0	13,270.0
Heat Input (10^6 Btu/hr)	593.1	542.8	501.7
Fuel Oil (lb/hr)	31,975.1	29,259.4	27,047.9
Fuel			
Heat Content--Oil(LHV)	18,550.0	18,550.0	18,550.0
Percent Sulfur	0.5	0.5	0.5
CT Exhaust			
Volume Flow (acfm)	1,060,216	1,031,868	1,012,939
Volume Flow (scfm)	463,789	448,417	438,028
Mass Flow (lb/hr)	2,076,000	2,003,000	1,945,000
Temperature (°F)	747	755	761
Moisture (% vol)	4.87	5.34	6.67
Moisture (% mass)	3.05	3.35	4.21
Oxygen (% vol)	15.55	15.69	15.63
Oxygen (% mass)	17.31	17.50	17.54
Molecular Weight	28.75	28.69	28.52
Water Injected (lb/hr)	17,280	14,940	10,910
Diameter (ft)	14.5	14.5	14.5
Velocity (ft/sec)	107.3	104.4	102.5

Note: Data from GE combustion turbine performance and emission guarantees.

Table A-12. Maximum Criteria Pollutant Emissions for Florida Power Corporation DeBary CT Project (Fuel Oil at 50% Load)

Pollutant	GE PG 7111EA No.2 Oil at 20°F	GE PG 7111EA No.2 Oil at 59°F	GE PG 7111EA No.2 Oil at 90°F
Particulate			
Basis	–	–	–
lb/hr	15.0	15.0	15.0
TPY	65.7	65.7	65.7
Sulfur Dioxide			
Basis	0.5% Sulfur	0.5% Sulfur	0.5% Sulfur
lb/hr	319.75	292.59	270.48
TPY	1,400.5	1,281.6	1,184.7
Nitrogen Oxides			
Basis (Thermal NO_x)	42 ppm[a]	42 ppm[a]	42 ppm[a]
lb/hr	102.4	93.6	86.5
TPY	448.4	410.0	378.9
ppm[b]	42.0	42.0	42.0
Carbon Monoxide			
Basis	36 ppm[c]	40 ppm[c]	28 ppm[c]
lb/hr	69.2	74.0	49.9
TPY	303.3	324.2	218.6
ppm	36.0	40.0	28.0
VOCs			
Basis	6.5 lb/hr	5.5 lb/hr	5.0 lb/hr
lb/hr	6.50	5.50	5.00
TPY	28.5	24.1	21.9
Lead			
Basis	EPA(1988)	EPA(1988)	EPA(1988)
lb/hr	5.28×10^{-3}	4.83×10^{-3}	4.47×10^{-3}
TPY	2.31×10^{-2}	2.12×10^{-2}	1.96×10^{-2}

[a]Corrected to 15% O_2 dry conditions.
[b]Does not include an allowance for fuel-bound nitrogen of 0.015 percent or greater.
[c]Corrected to dry conditions.

Table A-13. Maximum Other Regulated Pollutant Emissions for Florida Power Corporation DeBary CT Project (Fuel Oil at 50% Load)

Pollutant	GE PG 7111EA No.2 Oil at 20°F	GE PG 7111EA No.2 Oil at 59°F	GE PG 7111EA No.2 Oil at 90°F
Arsenic			
lb/hr	2.49×10^{-3}	2.28×10^{-3}	2.11×10^{-3}
TPY	1.09×10^{-2}	9.98×10^{-3}	9.23×10^{-3}
Beryllium			
lb/hr	1.48×10^{-3}	1.36×10^{-3}	1.25×10^{-3}
TPY	6.49×10^{-3}	5.94×10^{-3}	5.49×10^{-3}
Mercury			
lb/hr	1.78×10^{-3}	1.63×10^{-3}	1.51×10^{-3}
TPY	7.79×10^{-3}	7.13×10^{-3}	6.59×10^{-3}
Fluorine			
lb/hr	1.93×10^{-2}	1.76×10^{-2}	1.63×10^{-2}
TPY	8.44×10^{-2}	7.73×10^{-2}	7.14×10^{-2}
Sulfuric acid			
lb/hr	39.8	36.4	33.7
TPY	174.4	159.6	147.5

Sources: EPA, 1988; EPA, 1980.

Table A-16. Design Information and Stack Parameters for Florida Power Corporation DeBary CT Project (CT Performance Data For Fuel Oil at 25% Load)

Data	GE PG 7111EA No.2 Oil at 20°F	GE PG 7111EA No.2 Oil at 59°F	GE PG 7111EA No.2 Oil at 90°F
General			
Power (kW)	24,150.0	21,330.0	18,880.0
Heat Rate (Btu/kWh)	16,550.0	17,590.0	18,800.0
Heat Input (10^6 Btu/hr)	399.7	375.2	354.9
Fuel Oil (lb/hr)	21,546.2	20,226.1	19,134.4
Fuel			
Heat Content--Oil(LHV)	18,550.0	18,550.0	18,550.0
Percent Sulfur	0.5	0.5	0.5
CT Exhaust			
Volume Flow (acfm)	896,548	878,492	860,936
Volume Flow (scfm)	456,487	429,087	405,870
Mass Flow (lb/hr)	2,049,000	1,920,000	1,806,000
Temperature (°F)	577	621	660
Moisture (% vol)	3.12	3.90	5.57
Moisture (% mass)	1.95	2.44	3.51
Oxygen (% vol)	17.32	17.15	16.82
Oxygen (% mass)	19.22	19.10	18.83
Molecular Weight	28.83	28.74	28.58
Water Injected (lb/hr)	8,390	7,700	5,580
Diameter (ft)	14.5	14.5	14.5
Velocity (ft/sec)	90.7	88.9	87.1

Note: Data from GE combustion turbine performance and emission guarantees.

Table A-17. Maximum Criteria Pollutant Emissions for Florida Power Corporation DeBary CT Project (Fuel Oil at 75% Load)

Pollutant	GE PG 7111EA No.2 Oil at 20°F	GE PG 7111EA No.2 Oil at 59°F	GE PG 7111EA No.2 Oil at 90°F
Particulate			
Basis	–	–	–
lb/hr	15.0	15.0	15.0
TPY	65.7	65.7	65.7
Sulfur Dioxide			
Basis	0.5% Sulfur	0.5% Sulfur	0.5% Sulfur
lb/hr	215.46	202.26	191.34
TPY	943.7	885.9	838.1
Nitrogen Oxides			
Basis (Thermal NO_x)	42 ppm[a]	42 ppm[a]	42 ppm[a]
lb/hr	68.2	64.1	60.4
TPY	298.8	280.9	264.4
ppm[b]	42.0	42.0	42.0
Carbon Monoxide			
Basis	60 ppm[c]	60 ppm[c]	48 ppm[c]
lb/hr	115.7	107.9	80.2
TPY	506.6	472.4	351.3
ppm	60.0	60.0	48.0
VOCs			
Basis	7.0 lb/hr	6.0 lb/hr	6.0 lb/hr
lb/hr	7.00	6.00	6.00
TPY	30.7	26.3	26.3
Lead			
Basis	EPA(1988)	EPA(1988)	EPA(1988)
lb/hr	3.56×10^{-3}	3.34×10^{-3}	3.16×10^{-3}
TPY	1.56×10^{-2}	1.46×10^{-2}	1.38×10^{-2}

[a]Corrected to 15% O_2 dry conditions.
[b]Does not include an allowance for fuel-bound nitrogen of 0.015 percent or greater.
[c]Corrected to dry conditions.

Table A-18. Maximum Other Regulated Pollutant Emissions for Florida Power Corporation DeBary CT Project (Fuel Oil at Peak Load)

Pollutant	GE PG 7111EA No.2 Oil at 20°F	GE PG 7111EA No.2 Oil at 59°F	GE PG 7111EA No.2 Oil at 90°F
Arsenic			
lb/hr	1.68×10^{-3}	1.58×10^{-3}	1.49×10^{-3}
TPY	7.35×10^{-3}	6.90×10^{-3}	6.53×10^{-3}
Beryllium			
lb/hr	9.99×10^{-4}	9.38×10^{-4}	8.87×10^{-4}
TPY	4.38×10^{-3}	4.11×10^{-3}	3.89×10^{-3}
Mercury			
lb/hr	1.20×10^{-3}	1.13×10^{-3}	1.06×10^{-3}
TPY	5.25×10^{-3}	4.93×10^{-3}	4.66×10^{-3}
Fluoride			
lb/hr	1.30×10^{-2}	1.22×10^{-2}	1.15×10^{-2}
TPY	5.69×10^{-2}	5.34×10^{-2}	5.05×10^{-2}
Sulfuric acid			
lb/hr	26.8	25.2	23.8
TPY	117.5	110.3	104.4

Sources: EPA, 1988; EPA, 1980.

Table A-19. Maximum Nonregulated Pollutant Emissions for Florida Power Corporation DeBary CT Project (Fuel Oil at 50% Load)

Pollutant	Gas Turbine No.2 Oil at 40°F	Gas Turbine No.2 Oil at 59°F	Gas Turbine No.2 Oil at 90°F
Manganese			
lb/hr	2.57×10^{-3}	2.42×10^{-3}	2.29×10^{-3}
TPY	1.13×10^{-2}	1.06×10^{-2}	1.00×10^{-2}
Nickel			
lb/hr	6.79×10^{-2}	6.38×10^{-2}	6.03×10^{-2}
TPY	2.98×10^{-1}	2.79×10^{-1}	2.64×10^{-1}
Cadmium			
lb/hr	4.20×10^{-3}	3.94×10^{-3}	3.73×10^{-3}
TPY	1.84×10^{-2}	1.73×10^{-2}	1.63×10^{-2}
Chromium			
lb/hr	1.90×10^{-2}	1.78×10^{-2}	1.69×10^{-2}
TPY	8.32×10^{-2}	7.81×10^{-2}	7.38×10^{-2}
Copper			
lb/hr	1.12×10^{-1}	1.05×10^{-1}	9.94×10^{-2}
TPY	4.90×10^{-1}	4.60×10^{-1}	4.35×10^{-1}
Vanadium			
lb/hr	2.79×10^{-2}	2.62×10^{-2}	2.47×10^{-2}
TPY	1.22×10^{-1}	1.15×10^{-1}	1.08×10^{-1}
Selenium			
lb/hr	9.38×10^{-3}	8.81×10^{-3}	8.33×10^{-3}
TPY	4.11×10^{-2}	3.86×10^{-2}	3.65×10^{-2}
Polycyclic Organic Matter			
lb/hr	1.11×10^{-4}	1.05×10^{-4}	9.90×10^{-5}
TPY	4.88×10^{-4}	4.58×10^{-4}	4.34×10^{-4}
Formaldehyde			
lb/hr	1.62×10^{-1}	1.52×10^{-1}	1.44×10^{-1}
TPY	7.09×10^{-1}	6.66×10^{-1}	6.30×10^{-1}

Source: EPA, 1988.

Table A-20. Maximum Emissions for Additional Nonregulated Pollutants for Florida Power Corporation DeBary CT Project (Fuel Oil at 25% Load)

Pollutant	Gas Turbine No.2 Oil at 40°F	Gas Turbine No.2 Oil at 59°F	Gas Turbine No.2 Oil at 90°F
Antimony			
lb/hr	8.73×10^{-3}	8.20×10^{-3}	7.75×10^{-3}
TPY	3.82×10^{-2}	3.59×10^{-2}	3.40×10^{-2}
Barium			
lb/hr	7.80×10^{-3}	7.32×10^{-3}	6.93×10^{-3}
TPY	3.42×10^{-2}	3.21×10^{-2}	3.03×10^{-2}
Colbalt			
lb/hr	3.62×10^{-3}	3.40×10^{-3}	3.22×10^{-3}
TPY	1.59×10^{-2}	1.49×10^{-2}	1.41×10^{-2}
Zinc			
lb/hr	2.73×10^{-1}	2.56×10^{-1}	2.43×10^{-1}
TPY	1.20	1.12	1.06
Chlorine[a]			
lb/hr	1.08×10^{-2}	1.01×10^{-2}	9.57×10^{-3}
TPY	4.72×10^{-2}	4.43×10^{-2}	4.19×10^{-2}

[a]Assumes 0.5 ppm in fuel oil.

Source: EPA, 1979.

APPENDIX B

REVIEW OF PSD PRECONSTRUCTION MONITORING REQUIREMENT BY THE FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

July 27, 1990

Ms. Judy Corces
Florida Power Corporation
3201 34th Street
St. Petersburg, Florida 33711

Dear Ms. Corces:

Re: PSD Preconstruction Monitoring Requirement for Debary Site

We have reviewed your proposal to use Site No. 0930-001-F02 at Debary to satisfy the PSD preconstruction monitoring requirements for SO_2 for your project to add 450 MW of turbines at your Debary facility. We have determined that data collected at this site is acceptable for satisfying these requirements.

If you have any questions, please call Cleve Holladay at (904)488-1344.

Sincerely,

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

CHF/plm

c: Robert C. McCann, KBN

Florida Power
CORPORATION

May 10, 1990

Mr. Clair H. Fancy, Chief
Bureau of Air Regulation
Division of Air Resources Management
Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

Dear Mr. Fancy,

As discussed at the March 27th meeting between Florida Department of Environmental Regulation (FDER) and Florida Power Corporation (FPC), FPC is planning the addition of 450 megawatts (MW) of simple cycle combustion turbines at the DeBary site. Enclosed is the "Preliminary Air Quality Impact Assessment for Evaluating the Site Location of 450 MW of Simple Cycle Combustion Turbines at the FPC DeBary Facility" report, prepared by KBN Engineering and Applied Sciences, Inc. (KBN) for FPC.

Section 4.0 of the enclosed report, Existing Monitoring Data, shows that existing air quality monitoring data should be appropriate to satisfy the PSD preconstruction monitoring requirements for this project. Therefore, FPC requests that FDER review the enclosed report and determine if the existing monitoring data will be acceptable to the FDER as preconstruction monitoring for the air construction permit.

Thank you for your consideration of this matter.

Sincerely,

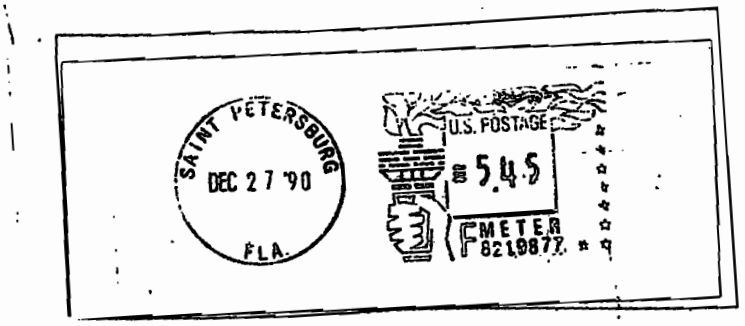
Judy N. Corces

Judy N. Corces

PYB/sss
PYB:#1:Fancy.ltr

Encl.

GENERAL OFFICE: 3201 Thirty-fourth Street South • P.O. Box 14042 • St. Petersburg, Florida 33733 • (813) 866-5151
A Florida Progress Company



Florida Power Corporation
P.O. Box 14042, St. Petersburg, FL 33733

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906 209(S)

TO:
Mr. Clair Fancy
Florida Department of
Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

bcc: W.W. Vierday
P.A. Blizzard
E.G. Major
W.J. Pardue

File: DeBary 1992 CT Addition (Air)

P 407 853 135

RECEIPT FOR CERTIFIED MAIL

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Sent to Mr. W. W. Vierday, FPC	
Street and No. P. O. Box 14042	
P.O., State and ZIP Code St. Petersburg, FL 33733	
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Mr. W. W. Vierday
Florida Power Corporation
3201 Thirty-fourth St., South
P. O. Box 14042
St. Petersburg, FL 33733

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P 407 853 135

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5. Signature — Addressee
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FEB 1 1991

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PS Form 3811, Apr. 1989 ★U.S.G.P.O. 1989-238-815 **DOMESTIC RETURN RECEIPT**

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Street & No.	FP&C
P.O., State & ZIP Code	St. Pete, Fl 33733
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Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	$
Postmark or Date	6-14-91 AC 64-191015 PSD-FL-167

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1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)* 2. ☐ Restricted Delivery *(Extra charge)*

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Mr. W. W. Vierday
Env. Programs & Licensing
Florida Power Corporation
3201 34th Street South
St. Petersburg, Fl 33733

4. Article Number
P 832 539 795

Type of Service:
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☑ Certified ☐ COD
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Always obtain signature of addressee and DATE DELIVERED.

5. Signature — Addressee
X

6. Signature — Agent
X

7. Date of Delivery

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

ST. PETERSBURG, FL JUN 17 1991

PS Form 3811, Apr. 1989 ★U.S.G.P.O. 1989-238-815 **DOMESTIC RETURN RECEIPT**

Florida Power
CORPORATION

July 18, 1991

RECEIVED
JUL 24 1991
Division of Air
Resources Management

Mr. C. H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental
Regulation (FDER)
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

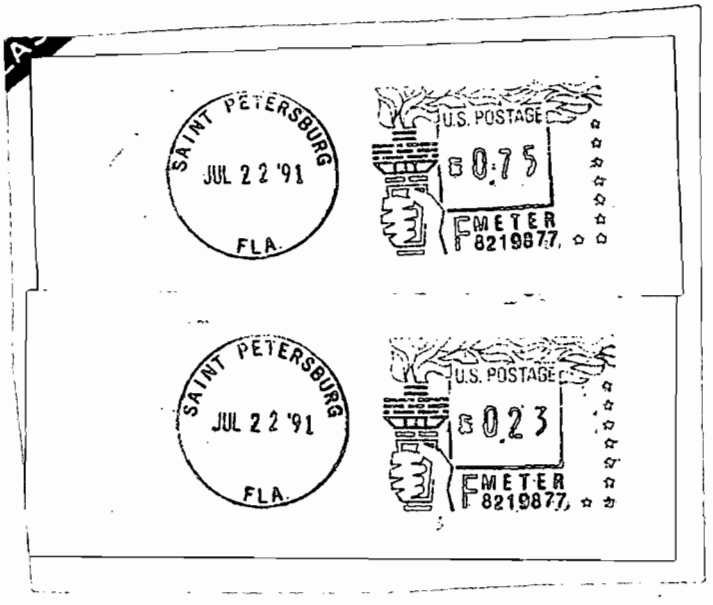
Dear Mr. Fancy:

Re: Volusia County - DeBary Combustion Turbines
AC 64-191015

This is to respond to our meeting on July 9, 1991, and my memo to you, July 8, 1991, proposing amendments to the proposed FDER draft permit received by Florida Power Corporation (FPC) on June 17, 1991. We have also held subsequent phone conversations with your Mr. Barry Andrews. There were several items that required additional information related to the construction permit. Presented herein is additional information that supports these discussions and our recommended changes to the construction permit.

Sulfur Dioxide (SO_2) Limitation

FPC has proposed a permit condition that would limit annual average SO_2 emissions equivalent to 38.7 percent capacity factor (full load at 59°F) at an average sulfur content of 0.3 percent sulfur. The FDER has proposed to limit annual average SO_2 emissions equivalent to 33 percent capacity factor under the same conditions. Corresponding SO_2 emission levels equate to 3,386 tons/year (TPY) under the 38.7 percent scenario and 2,888 tons/year (TPY) under the 33 percent scenario. The rationale for FPC's proposed permit condition is twofold. First, the proposed project is unlike any previous combustion turbine or combined cycle project that has been used as a basis of comparison for this BACT review. As we discussed, the proposed DeBary combustion turbines will be constructed as simple cycle units with the ability to fire only distillate oil. Natural gas is not available at the site. FPC requests an average 0.3 percent sulfur, the average being based on a fixed number of gallons of fuel oil burned in order that FPC can manage the sulfur content on a long term basis. In contrast, combustion turbines/combined cycle facilities which are primarily gas fired can better manage their inventory to reduce fuel costs. The higher costs of requiring lower sulfur fuel (e.g., 0.3 percent maximum vs. 0.3 percent average) for a capacity factor greater than 25 percent will result in direct cost increases for FPC's customers. Indeed, as we discussed at the meeting and as demonstrated in our application, FPC's customers would have to pay for the higher fuel costs without obtaining a direct benefit in lower emissions.



Florida Power Corporation
P.O. Box 14042, St. Petersburg, FL 33733

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- ☐ UPS

906 209(S)

TO:

Mr. C. H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

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Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	$
Postmark or Date Mailed: 8-2-91 Permit: AC64-A1015 PSD-FL-167	

PS Form **3800**, June 1990

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- Write "Return Receipt Requested" on the mailpiece next to the article number.

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Mr. W. W. Vierday
Environmental Programs & Lic.
Florida Power Corp.
3201 34th Street South
St. Petersburg, Florida 33733

4a. Article Number
P 832 538 668

4b. Service Type
☐ Registered ☐ Insured
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7. Date of Delivery
8-6-91

5. Signature (Addressee)

6. Signature (Agent)

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

PS Form **3811**, October 1990 ☆U.S. GPO: 1990—273-861 **DOMESTIC RETURN RECEIPT**

...the reverse side.

Florida Power
CORPORATION

RECEIVED
AUG 23 1991
Bureau of
Air Regulation

August 21, 1991

Mr. Claire Fancy, P. E.
Bureau of Air Regulation
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Fancy:

Re: Proof of Publication of the Notice of Intent to Issue the DeBary Construction Air Permit

Pursuant to Section 403.315, Florida Statutes and DER Rule 17-103.150, F.A.C., the Notice of Intent to Issue the DeBary Construction Air Permit was published August 15, 1991 in the Daytona News Journal. Enclosed is proof of this publication.

If you have any questions or require any additional information, please contact me at (813) 866-4511.

Sincerely,

W. W. Vierday
Manager
Environmental Programs - Licensing

WWV:sp

sp/TJC:WWV.Fancy.Let

Enclosure
cc: P. Leyis
C. Halladay
C. Collins, C Dist
J. Harper, EPA
C. Shaver, NPS

M.A.C.
POST OFFICE BOX 14042, ST. PETERSBURG, FLORIDA 33733

Florida Power
CORPORATION

Mr. Claire Fancy, P.E.
Bureau of Air Regulation
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

951 675(S)

The News-Journal

Published Daily and Sunday
Daytona Beach, Volusia County, Florida

State of Florida,
County of Volusia:

Before the undersigned authority personally appeared

C. Morgan Miller

who, on oath says that he is.....

Classified Manager

of The News-Journal, a daily and Sunday newspaper, published at Daytona Beach in Volusia County, Florida; that the attached copy of advertisement, being a .....

Notice of Intent to Issue Permit

in the matter of .....

Florida Power Corporation

in the .....Court, was published

in said newspaper in the issues.....

August 15, 1991

Affiant further says that The News-Journal is a newspaper published at Daytona Beach, in said Volusia County, Florida, and that the said newspaper has heretofore been continuously published in said Volusia County, Florida, each day and Sunday and has been entered as second-class mail matter at the post office in Daytona Beach, in said Volusia County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

C. Morgan Miller

Sworn to and subscribed before me

this ...16th.....day of .....August.....

A.D. 19..91...

Marsha J. Nichols

NOTARY PUBLIC, State of Florida at Large
My Commission Expires August 20, 1994
BONDED BY BROWN & BROWN, INC.

49

LEGAL ADVERTISEMENT

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION NOTICE OF INTENT TO ISSUE PERMIT

The Department of Environmental Regulation gives notice of its intent to issue a PSD permit to Florida Power Corporation, 3201 34th Street South, St. Petersburg, Florida 33733, to construct six 92.9 MW simple cycle combustion turbines. a determination of Best Available Control Technology (BACT) was required. For sulfur dioxide, the maximum increment consumption is 26%. The department is issuing this Intent to Issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, 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 2600 Blair Stone road, Tallahassee, Florida 32399-2400, within 14 days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Floria Statutse.

The Petition shall contain the following information:

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

If a petition is filed, the administrative hearing process is designed to

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IN RE

NEWS-JOURNAL CORPORATION
Daytona Beach, Florida
Publication Fee, $ . . . . . .

formulate agency action. Accordingly, 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 decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceedings. Any subsequent intervention wil only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

The application 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 Regulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Department of Environmental Regulation
Central District
3319 Maguire Blvd., suite 232
Orlando, Florida 32803-3767

Any person may send written comments on the proposed action to Mr. Barry Andrews at the Department's Tallahassee address. All comments mailed within 30 days of the publication of this notice will be considered in the Department's final determination. Further, a public hearing can be requested by any person. Such requests must be submitted within 30 days of this notice.

Legal L01941. August 15, 1991 1t.

P 832 538 736

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Street & No. 3201 34th St. South	
P.O., State & ZIP Code St. Petersburg, FL 33733	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	$
Postmark or Date Mailed: 10-18-91 Permit: AC 64-191015 PSD-FL-167	

PS Form **3800**, June 1990

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the trip to EPA on 6/23.
JM
Told till
John returns from
Atlanta

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
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- 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 next to the article number.

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

3. Article Addressed to:

Mr. W. W. Vierday
Environmental Programs & Licen.
Florida Power Corp.
3201 34th Street South
St. Petersburg, FL 33733

4a. Article Number
P 832 538 736

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

7. Date of Delivery
OCT 21 1991

5. Signature (Addressee)

6. Signature (Agent)
Walt Kirk

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

PS Form **3811**, October 1990 ☆U.S. GPO: 1990—273-861 **DOMESTIC RETURN RECEIPT**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

4APT-AEB

NOV 18 1991

RECEIVED

NOV 21 1991

Division of Air
Resources Management

Mr. Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Florida Power Corporation/DeBary Plant (PSD-FL-167)

Dear Mr. Fancy:

This is to acknowledge receipt of your final determination and Prevention of Significant Deterioration (PSD) permit for the above referenced facility's proposed construction, by your letter dated October 18, 1991. The facility will consist of six simple-cycle combustion peaking units, each rated 92.9 MW, fired with No. 2 distillate fuel oil. Your determination proposes to limit NO_x emissions through wet injection, to limit SO_2 and H_2SO_4 mist emissions through limiting the sulfur content of the fuel oil, to limit PM and PM_{10} through combustion design and the use of clean fuel, to limit CO through combustion design, and to limit Hg, Be, and As emissions through the specifications on No. 2 distillate fuel oil.

We have reviewed the package as submitted and have no adverse comments. Thank you for the opportunity to review and comment on this package. If you have any questions or comments, please contact Mr. Scott Davis of my staff at (404) 347-5014.

Sincerely yours,

Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides, and Toxics
Management Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

4APT-AEB

Mr. Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Florida Power Corporation/DeBary Plant (PSD-FL-167)

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Sincerely yours,

Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides, and Toxics
Management Division

P 062 921 888

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No Insurance Coverage Provided
Do not use for International Mail
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Sent to Kent D Hedrick	
Street and No. FIA Power Corp	
P.O., State and ZIP Code St. Pete, Fl 33733	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 9-24-92	

AC 64-191015

PS Form 3800, June 1991

PS Form 3811, July 1983 447-845

SENDER: Complete items 1, 2, 3 and 4.

Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.

1. ☐ Show to whom, date and address of delivery.
2. ☐ Restricted Delivery.

3. Article Addressed to:
Kent D Hedrick, P.E.
FIA. Power Corp
P O BOX 14042
St. Pete, Fl 33733

4. Type of Service:	Article Number
☐ Registered ☐ Insured ☑ Certified ☐ COD ☐ Express Mail	P062921888

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X

6. Signature – Agent
X

7. Date of Delivery
SEP 28 1992

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

DOMESTIC RETURN RECEIPT

P 062 921 925

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to Jeff Pardue	
Street and No. FLA. Power Corp	
P.O., State and ZIP Code St. Pete, Fl	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 11-20-92	

AC 64-19105

PS Form 3800, June 1991

SENDER: Complete items 1, 2, 3 and 4.

Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.

1. ☐ Show to whom, date and address of delivery.
2. ☐ Restricted Delivery.

3. Article Addressed to:
Jeffrey Pardue
FLA. Power Corp.
P.O Box 14042
St. Pete, Fl 33733

4. Type of Service:	Article Number
☐ Registered ☐ Insured ☒ Certified ☐ COD ☐ Express Mail	P062 921 925

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X

6. Signature – Agent
X

7. Date of Delivery
NOV 23 1992

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

RECEIPT

P 062 922 012

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to Mr. W. Jeffrey Pardue	
Street and No. Mgr- Regulatory Programs	
P.O. State and ZIP Code P.O. Box 14042 FL Power Corp St. Petersburg, FL, 33733	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date mailed: 11-25-92 AC 64-191015 P10-FL-167	

PS Form 3800, June 1991

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- 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 Fee will provide you the signature of the person delivered to and the date of delivery.

I also wish to receive the following services (for an extra fee):

1. ☒ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Mr. W. Jeffrey Pardue
Manager- Regulatory Programs
FL Power Corp.
P.O. Box 14042
St. Petersburg, FL 33733

4a. Article Number
P 062 922 012

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

7. Date of Delivery
NOV 30 1992

5. Signature (Addressee)

6. Signature (Agent)

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

PS Form 3811, November 1990 ☆U.S. GPO: 1991—287-066 **DOMESTIC RETURN RECEIPT**

P 062 921 959

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to Kent Hedrick	
Street and No. Fl Power Corp	
P.O. State and ZIP Code St. Pete, Fl	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 1-22-93 AC 64-191605 PSD-Fl-167	

PS Form 3800, June 1991

PS Form 3811, July 1983 447-845

DOMESTIC RETURN RECEIPT

● **SENDER: Complete items 1, 2, 3 and 4.**

Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.

1. ☐ Show to whom, date and address of delivery.
2. ☐ Restricted Delivery.

3. Article Addressed to:
Kent Hedrick
Fla. Power Corp.
P O Box 14042
St. Pete, Fl 33733

4. Type of Service:	Article Number
☐ Registered ☐ Insured ☒ Certified ☐ COD ☐ Express Mail	P062 921 959

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X

6. Signature – Agent
X [signature]

7. Date of Delivery
JAN 25 1993

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

TALLAHASSEE FL 1993

Florida Power
CORPORATION

3/5/93

March 3, 1993

RECEIVED

MAR 05 1993

Division of Air
Resources Management

Mr. John C. Brown, P.E.
Administrator
Florida Department of Environmental Regulation
Twin Towers Office Bldg.
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Brown:

Re: Extension Request of Construction Permit AC64-191015
DeBary Facility New Peaking Combustion Turbines

Florida Power Corporation (FPC) requests an extension of the above referenced construction permit. The current construction permit will expire March 31, 1993. An extension up to and including June 30, 1993 is requested.

The need for this extension is due to continued performance concerns with the combustion turbines. Although all four units successfully met emission limits during initial compliance testing, the operating performance of the turbines during this testing was found to be unsatisfactory to FPC. FPC and the turbine manufacturer have been working to resolve the performance concerns and should reach a resolution by the end of this month. Once resolved, additional compliance testing may be required to demonstrate compliance at the final operational configuration. Therefore, the extension is needed to complete the compliance testing and submit this data in final form along with an application for an operating permit to the Central District. This submittal must occur 90 days prior to the expiration of the construction permit (as required by Specific Condition 28 of the construction permit). In addition, FPC's modification request for this permit is still being considered by FDER. The extension should allow for resolution of this request as well.

FPC submitted a check in the amount of $7500 to FDER on October 30, 1992 for the administrative fee associated with the modification request. It is FPC's understanding through discussion with your staff, that if this fee amount is correct, no additional fee should be required for this extension request.

Your consideration of this extension request is greatly appreciated. If you have any questions or comments, please do not hesitate to contact me at (813)866-4281.

Sincerely,

Kent D. Hedrick, P.E.
Supervisor, Air Programs

Florida Power
CORPORATION

3/5/93

Patty & Dan to review as problem, 4 tending it. 1 Jones
JH w TA do

Preston

RECEIVED

MAR 05 1993

Division of Air Resources Management

March 3, 1993

Mr. John C. Brown, P.E.
Administrator
Florida Department of Environmental Regulation
Twin Towers Office Bldg.
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Brown:

Re: Extension Request of Construction Permit AC64-191015
DeBary Facility New Peaking Combustion Turbines

Florida Power Corporation (FPC) requests an extension of the above referenced construction permit. The current construction permit will expire March 31, 1993. An extension up to and including June 30, 1993 is requested.

The need for this extension is due to continued performance concerns with the combustion turbines. Although all four units successfully met emission limits during initial compliance testing, the operating performance of the turbines during this testing was found to be unsatisfactory to FPC. FPC and the turbine manufacturer have been working to resolve the performance concerns and should reach a resolution by the end of this month. Once resolved, additional compliance testing may be required to demonstrate compliance at the final operational configuration. Therefore, the extension is needed to complete the compliance testing and submit this data in final form along with an application for an operating permit to the Central District. This submittal must occur 90 days prior to the expiration of the construction permit (as required by Specific Condition 28 of the construction permit). In addition, FPC's modification request for this permit is still being considered by FDER. The extension should allow for resolution of this request as well.

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Your consideration of this extension request is greatly appreciated. If you have any questions or comments, please do not hesitate to contact me at (813)866-4281.

Sincerely,

Kent D. Hedrick

Kent D. Hedrick, P.E.
Supervisor, Air Programs

J. Reynolds

P 360 185 700

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to Kent Hedrick	
Street and No. FIA Power Corp	
P.O., State and ZIP Code St Pete, Fl	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 4-12-93 AC 64-19015	

PS Form **3800**, June 1991

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- 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:
Kent D. Hedrick, PE
Fla. Power Corp.
PO BOX 14042
St. Pete, Fl 33733

4a. Article Number P 360 185 700

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

7. Date of Delivery APR 14 1993

5. Signature (Addressee)

6. Signature (Agent) Frank Chop

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

Thank you for using Return Receipt Service.

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Florida Department of Environmental Regulation

Central District • 3319 Maguire Boulevard, Suite 232 • Orlando, Florida 32803-3767

Lawton Chiles, Governor

Virginia B. Wetherell, Secretary

CERTIFIED
P 128 890 008

OCD-AP-93-131

Mr. W. W. Vierday
Environmental Programs & Licensing
Florida Power Corporation
3201 34th Street South
St. Petersburg, Florida 33733

RECEIVED
JUN 10 1993
Division of Air
Resources Management

Volusia County - AP
Debary Plant

Dear Mr. Vierday:

This letter is as a result of a meeting held on May 18, 1993 with representatives of your company, Ms. Pat Blizzard, Jim Stitt and Department representatives, A. Alexander, District Director, Charles Collins, P. E. Air Program Administrator, and Caroline Shine, Supervisor in the Air Program.

The purpose of the meeting was to meet each other and to discuss items of mutual interest and Department requirements concerning environmental matters. During the meeting, the discussion centered more on the status of the application for the Debary plant operating permit. As you are probably aware, the Debary plant received a construction permit issued by the Tallahassee's Air Division, which expired January 31, 1993. Since that time, you have received two extensions, the second of which will expire June 30, 1993.

According to legal requirements, the application for an operating permit should have been submitted ninety days prior to the expiration date (6/30/93) of the construction permit.

Also a Warning Letter (OWL-92-232, dated 1/22/93) had been mailed to you regarding the untimely submittal of the stack test. In addition your second test has failed to show compliance.

As a result of our meeting, it has been determined and agreed, that the application for an operating permit should be submitted prior to June 30, 1993, and that our staff will discuss the details of the upcoming stack test during our pre-test conference to be scheduled shortly.

Department of Environmental Regulation

Routing and Transmittal Slip

To: (Name, Office, Location)

1. Howard Rhodes
2. Tallahassee
3. Air Chief
4. John Brown Logan

Remarks:

Preston & Chas.
File w/ permit info.

RECEIVED

JUN 10 1993

Division of Air
Resources Management

From: C.D. Howard 6/14

Date 6-9-93

Phone

P 230 524 366

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to: Scott Osbourn	
Street and No. FLA Power Corp	
P.O., State and ZIP Code St Pete FL	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 6-30-93	

PS Form **3800**, June 1991

AC4-191015
PSD-FL-167

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- 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:
Scott Osbourn, Sr. Env. Eng
Fla. Power Corp
PO Box 14042
Saint Petersburg, Fl
33733

4a. Article Number P 230 524 366

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

7. Date of Delivery
JUL 0 2 1993

5. Signature (Addressee)

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

6. Signature (Agent)

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

P 230 524 367

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to	Kent Hedrick
Street and No.	FLA Power Corp
P.O., State and ZIP Code	St Pete, Fl
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	7-2-93

AC64-191015
PSD-FI-167

PS Form 3800, June 1991

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- 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:
Kent Hedrick, PE
FLA Power Corp
P O Box 14042
St. Petersburg, Fl
33733

4a. Article Number
P 230 524 367

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

7. Date of Delivery
JUL 0 6 1993

5. Signature (Addressee)

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

6. Signature (Agent)
[signature]

PS Form 3811, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

P 230 523 760

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to Scott Osbourn	
Street and No. PO Box 14042	
P.O., State and ZIP Code St. Pete, FL 33733	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 1-9-93	

PS Form 3800, June 1991

Attachment

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

FLORIDA POWER CORPORATION,
DeBary Facility,

Petitioner,

vs. OGC CASE NO. 93-2298

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION,

Respondent.

_____/

ORDER CLOSING FILE

On June 30, 1993, the Florida Department of Environmental Protection (Department) received a Petition for Formal Administrative Proceedings from Petitioner Florida Power Corporation. The applicant challenged the Department's decision to amend Permit No. AC64-191015.

On July 9, 1993, the Department received a Notice of Voluntary Withdrawal of Petition for Formal Administrative Proceedings. See Exhibit 1. There being no further matters to consider,

IT IS ORDERED:

The petition having been withdrawn, the Department's previously proposed agency action is now final. The Department's file in this matter is closed.

Any party to this order has the right to seek judicial review of the order under section 120.68 of the Florida Statutes by the filing of a notice of appeal under rule 9.110

Department of Environmental Regulation

Routing and Transmittal Slip

To: (Name, Office, Location)

1. Clair Fancy
2. Air
3. Patty
4. for File

Remarks:

RECEIVED
AUG 03 1993
Division of Air
Resources Management

From: Doug Beason

Date: 8-2-93

Phone:

P 230 524 384

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to: Mr. Kent D. Hedrick, P.E.	
Street and No.: P. O. Box 14042	
P.O., State and ZIP Code: St. Petersburg, Florida 3373	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date: Mailed: 8/12/93 Permit No.: AC64-191015 (PSD-FL-167)	

PS Form 3800, June 1991

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- 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.

RECEIVED
AUG 17 1993
Division of Air Resources Management

3. Article Addressed to:
Mr. Kent D. Hedrick, P.E.
Supervisor, Air Programs
Florida Power Corporation
Post Office Box 14042
St. Petersburg, Florida 33733

4a. Article Number: P 230 524 384

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

7. Date of Delivery: AUG 16 1993

5. Signature (Addressee)

6. Signature (Agent)

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

PS Form 3811, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

P 230 523 757

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to Kent Hedrick, Fla. Power	
Street and No. P. O Box 14042	
P.O., State and ZIP Code St. Petersburg, FL 33733	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date Mailed: 8-3-93 Permit: AC64-191015	

PS Form **3800**, June 1991

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

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

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Mr. Kent D. Hedrick, P.E.
Supervisor, Air Programs
Florda Power Corporation
Post Office Box 14042
St. Petersburg, Florida 33733

4a. Article Number
P 230 523 757

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

7. Date of Delivery
AUG 5 1993

5. Signature (Addressee)

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

6. Signature (Agent)

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

P 230 524 387

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to: Mr. Kent D. Hedrick, P.E.	
Street and No. P. O. Box 14042	
P.O., State and ZIP Code St. Petersburg, FL 33733	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date Mailed: 8/31/93 Permit No: AC 64-191015 PSD-FL-167	

PS Form **3800**, June 1991

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

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

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Mr. Kent D. Hedrick, P.E.
Florida Power Corporation
Post Office Box 14042
St. Petersburg, Florida 33733

4a. Article Number: P 230 524 387

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

7. Date of Delivery: SEP 2 - 1993

5. Signature (Addressee)

6. Signature (Agent)

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

Thank you for using Return Receipt Service.

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

PSD-FL-167 PERMITTING HISTORY

FPC-DeBary **Facility ID No.: 1270028**
DeBary Power Plant

PSD Permit History (for tracking purposes):

	Issue	PERMITTING ACTION DESCRIPTION
Permit No.	Date	
PSD-FL-167 AC64- 191015	10/18/91	To construct/install six 92.9 MW, oil fired simple cycle combustion turbines. Peaking units: 3390 hour/yr each. Fuel oil burning. Expiration date January 31, 1993.
PSD-FL-167A AC64- 191015A	11/23/92	Extension of permit expiration date to March 31, 1993
PSD-FL-167B AC64 191015B	4/8/93	Extension of permit expiration date to June 30, 1993
PSD-FL-167C AC64- 191015C	6/29/93	Extension of permit expiration date to July 30, 1993. Letter of approval revised on July 7, 1993.
PSD-FL-167D AC64- 191015D	6/30/93	Change Method 3 to 3A
PSD-FL-167E AC64- 191015E	8/3/93	Extension of permit expiration date to August 31, 1993
PSD-FL-167F AC64- 191015F	8/11/93	Replace trace element limits with use of low sulfur oil
PSD-FL-167G AC64- 191015G	8/30/93	Correct PM basis and SAM limit
PSD-FL-167H AC64- 191015H	9/21/94	Incorporate heat input curves
PSD-FL-167I 1270028-002AC	5/06/97	Modification to reissue the expired construction permit for six 92.9 MW, oil fired SC turbines: revise the number of units to the four already constructed; and allow installation of natural gas firing capabilities. Peaking units: 3390 hour/yr each. PSD Permit number reads PSD-FL-167B.
PSD-FL-167J 1270028-004AC	3/X/00	Permit modification for the installation of inlet foggers in each of the four SC turbines. See files for year 2000.

Appendix H-1, Permit History/ID Number Changes

Florida Power Corporation
Debary Facility

FINAL Permit No.: 1270028-001-AV

Permit History (for tracking purposes):

E.U. ID No	Description	Permit No.	Issue Date	Expiration Date	Extended Date[1, 2]	Revised Date(s)
-001	Boiler #1	AO64-201681	11/25/91	10/25/96	removed*	
-002	Boiler #2	AO64-201681	11/25/91	10/25/96	removed*	
-003 – -014	Gas Turbine #'s 1-6	AO64-207447	8/6/92	7/30/97		
-015	Simple Cycle Combustion Turbine	AO64-233544	10/26/93	10/19/98		
-016	Simple Cycle Combustion Turbine	AO64-233544	10/26/93	10/19/98		
-017	Simple Cycle Combustion Turbine	AO64-233544	10/26/93	10/19/98		
-018	Simple Cycle Combustion Turbine	AC64-191015	10/18/91	6/30/93	11/1/96	9/21/94
-019	Simple Cycle Combustion Turbine	AC64-191015	10/18/91	6/30/93	11/1/96	8/30/93, 8/11/93 7/30/93, 7/7/93

ID Number Changes (for tracking purposes):

From: **Facility ID No.:** 30ORL640028
To: **Facility ID No.:** 1270028

Notes:
*Boilers #1 and #2 were removed in 1997
1 - AO permit(s) automatic extension(s) in Rule 62-210.300(2)(a)3.a., F.A.C.
2 - AC permit(s) automatic extension(s) in Rule 62-213.420(1)(a)4., F.A.C.
{Rule 62-213.420(1)(b)2., F.A.C., allows Title V Sources to operate under existing valid permits that were in effect at the time of application until the Title V permit becomes effective}

Source: Title V.
Modified 5/8/99

Detail | Events | Facility | Permitted EU | Help | Exit

Permitting Application

Permit #: PATS:A064233544 Issue:27-OCT-1993 Expire:19-OCT-1998

Project #/Name	Owner/Company	Type/Sub	Receive
001/FPC-DEBARY PLANT	FLORIDA POWER CORPORATION	AV /00	14-JUN-1996
002/FPC'S DEBARY PLANT SITE	FLORIDA POWER CORPORATION	AC /1F	08-NOV-1996
003/FPC - DEBARY TITLE V REVI	FLORIDA POWER CORPORATION	AV /02	27-DEC-1999
004/FPC-INLET FOGGING-DEBARY	FLORIDA POWER CORPORATION	AC /1D	31-JAN-2000
/FLORIDA POWER/DEBARY BOIL	FLORIDA POWER CORPORATION	AO /09	14-OCT-1986
/FLORIDA POWER CORP/DEBARY	FLORIDA POWER CORPORATION	AO /07	12-JAN-1987
/FPC DEBARY/SIX PEAKING UN	FLORIDA POWER CORPORATION	AC /1A	31-DEC-1990
/FLORIDA POWER/DEBARY BOIL	FLORIDA POWER CORPORATION	AO /2B	30-AUG-1991
/FLORIDA POWER CORP/6 DEBA	FLORIDA POWER CORPORATION	AO /1B	23-JAN-1992
/FPC/DEBARY COMBUSTION TUR	FLORIDA POWER CORPORATION	AO /1A	25-JUN-1993
/		/	
/		/	
/		/	
/		/	

Press [NXTBLK] for summary information.
Count: *10 <Replace>

PS Form **3800,** March 1993

Z 751 859 981

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to	Mr. Kent Hedrick, FPC
Street and No.	P. O. Box 14042
P.O. State and ZIP Code	St. Petersburg, FL 33733
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	Mailed: 9-23-94 Permit: AC64-191015 PSD-FL-167(A)

Is your **RETURN ADDRESS** completed on the reverse side?

SENDER:

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

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Mr. Kent Hedrick
Supervisor, Air Programs
Florida Power Corporation
P. O. Box 14042
St. Petersburg, FL 33733

4a. Article Number
Z 751 859 981

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

7. Date of Delivery
SEP 28 1994

5. Signature (Addressee)

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

6. Signature (Agent)
[signature]

PS Form **3811,** December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

DEP ROUTING AND TRANSMITTAL SLIP

TO: (NAME, OFFICE, LOCATION)

1. Bruce Mitchell Review
2. Clair Fancy Review
3. Howard Hedas Signature
4.
5.

PLEASE PREPARE REPLY FOR:

____ SECRETARY'S SIGNATURE
____ DIV/DIST DIR SIGNATURE
____ MY SIGNATURE
____ YOUR SIGNATURE
____ DUE DATE _____

ACTION/DISPOSITION

____ DISCUSS WITH ME
____ COMMENTS/ADVISE
____ REVIEW AND RETURN
____ SET UP MEETING
____ FOR YOUR INFORMATION
____ HANDLE APPROPRIATELY
____ INITIAL AND FORWARD
____ SHARE WITH STAFF
____ FOR YOUR FILES

COMMENTS:

Charles,
Make the clean and return to me.
Thanks,
Bruce

Howard:
This has dragged out (2 amendments) for a long period of time as a result of meeting with the company on 8/16 and several conversations subsequently. also, clair was making decisions as a result. It needs to go out ASAP.
Thanks - John Brown

FROM: Charles Logan DATE: 9/19/94 PHONE: _____

DEP 15-026 (12/93)

Florida Power
CORPORATION

RECEIVED
JAN 21 1994
Bureau of
Air Regulation

January 17, 1994

Mr. A. Alexander, P. E.
District Director
Florida Department of Environmental Protection
Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Dear Mr. Alexander:

Re: DeBary New Peaker Combustion Turbine Facility, Permit # AO64-233544

The above referenced units currently are load restricted as a result of earlier compliance testing which occurred during July, 1993. As you are aware, combustion turbines have variable heat input requirements depending on the ambient temperature. Since compliance testing was conducted in the summer, 90 percent of the maximum allowable heat input of 1144 mmBtu/hr at 20 °F could not be achieved. The air operation permit currently limits the allowable heat input to 110 percent of the actual heat input achieved during compliance testing.

Florida Power Corporation (FPC) is currently working on two approaches to return these units to full load capability. The preferred approach is to have the heat input language contained in the Intercession City permit incorporated into the DeBary permit. This language requires achieving 90 percent of the maximum allowable heat input at the ambient temperature recorded during the compliance testing. Achieving this level of heat input allows for unit operation over the entire ambient temperature range. The second approach would be to conduct a compliance test during cold weather to assure achieving 90 percent of the heat input a 20 °F. A meeting is scheduled for February 3, 1994 which will include a discussion of this issue. The actual approach taken by FPC will depend on the outcome of this meeting. To assure the ability to test during cold weather, FPC will be filing the necessary 15 day notification to perform compliance testing in early February, 1994. This notification will be amended as necessary after the meeting on February 3, 1994.

If you have any questions or comments on either of these approached, please contact me at (813)866-4281.

Sincerely,

Kent D. Hedrick, P. E.
Supervisor, Air Programs

cc: John C. Brown, P. E. - FDEP, Tallahassee
Mike Harley, P. E. - FDEP, Tallahassee

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

ROUTING AND TRANSMITTAL SLIP

TO: (NAME, OFFICE, LOCATION)

1. Preston
2.
3.
4.

(1) Discuss with Doug the Jan 17 letter from Hedrick. See if there is any reason not to change DeBary permit to the same as in in Jacksonville City.
~~(2)~~ Have a cy of both permits at our Feb 3 meeting, Please.
(2) Hedrick is sending agenda:
a) Establish NOx emission rates for ISO values over a range of amb temp, per curves est. by them.
b) Use ~~a~~ algorithm? (GG)
c) Discuss 90-100% of tested Value (1) above.

FROM: John B

DATE

PHONE

08-18-93

Breslau

Copy for

Outlaw

Haran

Logan

~~Lewis~~

Copies made

Give original to Patty for file

Preston

Check Sheet

Company Name: PPC
Permit Number: 191015
PSD Number:
County: 167
Permit Engineer:
Others involved:

Application:
- [x] Initial Application
- [x] Incompleteness Letters
- [x] Responses
- [ ] Final Application (if applicable)
- [ ] Waiver of Department Action
- [ ] Department Response
- [ ] Other

Intent:
- [x] Intent to Issue
- [x] Notice to Public
- [x] Technical Evaluation
- [x] BACT Determination
- [x] Unsigned Permit
- [ ] Correspondence with:
  - [x] EPA
  - [ ] Park Services
  - [ ] County
  - [x] Other
- [x] Proof of Publication
- [ ] Petitions - (Related to extensions, hearings, etc.)
- [ ] Other

next

Final Determination:
- [x] Final Determination
- [x] Signed Permit
- [ ] BACT Determination
- [ ] Other

PSD permit correspondence
From 1991 to 1994

Post Permit Correspondence:
- [x] Extensions
- [x] Amendments/Modifications
- [x] Response from EPA
- [ ] Response from County
- [ ] Response from Park Services
- [x] Other

Memorandum

Florida Department of
Environmental Protection

TO: Howard L. Rhodes

FROM: Clair Fancy

DATE: August 30, 1993

SUBJ: Approval of an Amendment to Construction Permit
AC 64-191015 (PSD-FL-167)
Florida Power Corporation: DeBary Facility
Volusia County

Attached for your approval and signature is an amendment to construction permits prepared by the Bureau of Air Regulation for the above referenced company. The purpose of the amendment is to reflect the proper emission limitations and rates for PM/PM_{10} and sulfuric acid mist in Table 1 and the BACT (i.e., correction factor: 20°F to 59°F). The changes are consistent with the application package associated with the Construction Permit; and, the permittee has demonstrated compliance with the permitted conditions, including the proposed changes. The facility is located in Volusia County, which is an attainment area for all pollutants.

I recommend your approval and signature.

HLR/BM/rbm

Florida Department of
Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

August 30, 1993

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. Kent D. Hedrick, P.E.
Supervisor, Air Programs
Florida Power Corporation
Post Office Box 14042
St. Petersburg, Florida 33733

Dear Mr. Hedrick:

Re: Amendment to Construction Permit: AC 64-191015 (PSD-FL-167)
Florida Power Corporation: DeBary Facility
Volusia County

Based on a review of the application package for an Operation Permit received by the Central District, the Department has determined that a Construction Permit amendment is necessary to reflect the proper emission limitations and rates for PM/PM_{10} and sulfuric acid mist in Table 1 and the BACT (i.e., correction factor: 20°F to 59°F). The changes are consistent with the application package associated with the Construction Permit. Therefore, the following changes will be made:

A. AC 64-191015: Specific Condition No. 1

FROM:

TABLE 1
ALLOWABLE EMISSION LIMITS
Simple Cycle Combustion Turbine

Pollutant	Standard Oil Firing	Each Unit lb/hr(a)	Total 6 Units T/yr	Basis
PM/PM_{10}	0.025 lb/MMBtu	15	153(b)	BACT
Sulfuric Acid Mist	No. 2 fuel oil with 0.3% avg. and 0.5% max. sulfur	76	773(b)	BACT

TO:

TABLE 1
ALLOWABLE EMISSION LIMITS
Simple Cycle Combustion Turbine

Pollutant	Standard Oil Firing	Each Unit lb/hr(a)	Total 6 Units T/yr	Basis
PM/PM_{10}	**0.015** lb/MMBtu	15	153(b)	BACT
Sulfuric Acid Mist	No. 2 fuel oil with 0.3% avg. and 0.5% max. sulfur	**69**	**703**(b)	BACT

B. AC 64-191015: BACT Determination by DER

FROM:

Pollutant	Emission Limit	Method of Control
H_2SO_4	76 lbs/hr/unit	Avg. 0.30% and max. 0.5% sulfur content, by weight, No. 2 fuel oil

TO:

Pollutant	Emission Limit	Method of Control
H_2SO_4	**69** lbs/hr/unit	Avg. 0.30% and max. 0.5% sulfur content, by weight, No. 2 fuel oil

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes (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 at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permittee of this amendment and the parties listed below must be filed within 14 days of receipt of this amendment. Petitions

filed by other persons must be filed within 14 days of this amendment issuance or within 14 days of receipt of this amendment, whichever first occurs. Petitioner shall mail a copy of the petition to the permittee at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

The Petition shall contain the following information:

(a) The name, address, and telephone number of each petitioner, the permittee's name and address, the Department Permit Amendment File Number(s) and the county in which the project is located;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by Petitioner, if any;

(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and,

(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

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

This letter amendment must be attached to the construction permit, No. AC 64-191015 (PSD-FL-167), and shall become a part of the permit.

Sincerely,

Howard L. Rhodes
Director
Division of Air Resources
Management

HLR/RBM/rbm

cc: C. Collins, CD
J. Harper, EPA
J. Bunyak, NPS