



Florida Department of Environmental Regulation

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

Lawton Chiles, Governor

Carol M. Browner, Secretary

May 22, 1992

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. W. W. Vierday
Legal and Governmental Affairs
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 four 92.9 MW and two 185.5 simple cycle combustion turbines.

Please submit any written comments you wish to have considered concerning the Department's proposed action to Mr. Preston Lewis of the Bureau of Air Regulation.

Sincerely,

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

CHF/TH/plm

Attachments

c: Kennard Kosky, P.E.
Chuck Collins, CD
Jewell Harper, EPA
Chris Shaver, NPS
Julia Thomas, Fish & Wildlife

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

CERTIFIED MAIL

In the Matter of an
Application for Permit by:

DER File No. AC 49-203114
PSD-FL-180
Osceola County

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

INTENT TO ISSUE

The Department of Environmental Regulation gives notice of its intent to issue a permit (copy attached) for the proposed project as detailed in the application specified above, for the reasons stated in the attached Technical Evaluation and Preliminary Determination.

The applicant, Florida Power Corporation, applied on October 3, 1991, to the Department of Environmental Regulation for a permit to construct four 92.9 MW and two 185.5 simple cycle combustion turbines. The facility is located in Intercession City, Osceola County, Florida.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes and Florida Administrative Code (F.A.C.) Chapters 17-2 and 17-4. The project is not exempt from permitting procedures. The Department has determined that a construction permit is required for the proposed work.

Pursuant to Section 403.815, Florida Statutes and 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. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, 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;

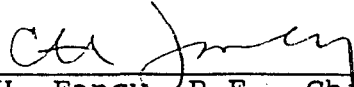
- (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- (c) 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
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 May 22, 1992 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.



Clerk 5/22/92
Date

Copies furnished to:
Kennard Kosky, P.E.
Chuck Collins, CD
Jewell Harper, EPA
Chris Shaver, NPS
Julia Thomas, Fish & Wildlife

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 four 92.9 MW and two 185.5 simple cycle combustion turbines. A determination of Best Available Control Technology (BACT) was required. The nearest Class I area is the Chassahowitzka National Wilderness Area which is located approximately 110 km away. The Class I sulfur dioxide PSD increment consumed is 19.3 vs. 25 allowable 3-hour average, 4.92 vs. 5 allowable 24-hour average and 0.45 vs. 2 allowable annual average, in micrograms per cubic meter. The Class II sulfur dioxide PSD increment consumed is 63.8 vs. 512 allowable 3-hour average, 17.1 vs. 91 allowable 24-hour average and 1.8 vs. 20 allowable annual average, in micrograms per cubic meter. The Class I particulate matter PSD increment consumed is less than 0.34 vs. 10 allowable 24-hour average and less than 0.02 vs. 5 allowable annual average, in micrograms per cubic meter. The Class I nitrogen dioxide increment consumed is less than 0.34 vs. 2.5 allowable annual average, in micrograms per cubic meter. The maximum predicted increases in ambient concentrations for both particulate matter and nitrogen dioxide are less than significant in the Class II area surrounding the plant, thus no Class II increment consumption was calculated for these pollutants. 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. Preston Lewis at the Department's Tallahassee address. All comments received within 14 days of the publication of this notice will be considered in the Department's final determination.

Technical Evaluation
and
Preliminary Determination

Florida Power Corporation
Intercession City Facility
Intercession City, Osceola County, Florida

Six Simple Cycle Combustion Turbines
(Four 92.9 MW & Two 185.5 MW)

Permit Number: AC 49-203114
PSD-FL-180

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

May 22, 1992

SYNOPSIS OF APPLICATION

I. NAME AND ADDRESS OF APPLICANT

Florida Power Corporation
Intercession City Facility
3201 34th Street South
St. Petersburg, Florida 33733

II. REVIEWING AND PROCESS SCHEDULE

Date of Receipt of Application: October 3, 1991

Completeness Review: Department letters dated October 31, 1991, February 21, 1992, and March 9, 1992.

Response to Incompleteness Letters: Company letter received on December 16, 1991, January 23, 1992, February 10, 1992, March 6, 1992, and March 26, 1992.

Application Completeness Date: March 26, 1992.

III. FACILITY INFORMATION

III.1 Facility Location

This facility is located at State Road 532, 3.5 miles west of Intercession City in Osceola County, Florida. The UTM coordinates are Zone 17, 446.3 km East and 3126 km North.

III.2 Facility Identification Code (SIC)

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

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

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

III.3 Facility Category

The Florida Power Corporation in Intercession City is classified as a major emitting facility. The proposed project, combustion turbines (CT) peaking units, will increase this facility's emissions by approximately 2,369 tons per year (TPY) of nitrogen oxides (NO_x); 2,459 TPY of sulfur dioxide (SO₂); 159 TPY of particulate matter (PM); 65 TPY of volatile organic compounds (VOC); 0.034 TPY of beryllium; 0.12 TPY of lead; 0.04 TPY of mercury; and 187 TPY of sulfuric acid mist if operated at 3,390 hours per year and using a maximum of 0.2 percent sulfur by weight (33% capacity factor).

IV. PROJECT DESCRIPTION

The Florida Power Corporation proposes to operate four simple cycle CTs (GE Model PG7111EA) rated at 92.9 MW each for a total of 371.6 MW and two simple cycle CTs (GE Model PG7221FA) rated at 185.5 MW each for a total of 371 MW. The six CTs will be located along side six existing CTs generating 306 MW. The proposed CTs are designed to burn No. 2 fuel oil and are equipped with water injection for NOx control.

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, SO₂, 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 and 2 lists each contaminant and its maximum expected emission rate.

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.

$$\text{AAC} = \frac{\text{OEL}}{\text{Safety Factor}}$$

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, SO₂, PM, PM₁₀, Be, CO, inorganic arsenic, and H₂SO₄ 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 SO₂, PM, PM₁₀, 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	NO _x	CO	Be
PSD de minimus Concentra. (ug/m ³)	13	10	14	575	.001
Averaging Time	24-hr	24-hr	Annual	8-hr	24-hr
Maximum Predicted Impact (ug/m ³)	16.1	0.34	0.34	4.2	.000075

There are no monitoring de minimus concentrations for H₂SO₄ mist and inorganic arsenic. As shown above, the predicted impacts for TSP/PM₁₀, NO_x, CO, and Be are all less than the corresponding de minimus concentrations; therefore, no preconstruction monitoring is required for these pollutants. However, since the predicted SO₂ impact is greater than the de minimus concentration, a pre-construction ambient monitoring analysis is required for SO₂. The Department determined that the use of existing FDER air quality monitoring data collected in 1990 from the Winter Park SO₂ monitoring site in Orange County would be appropriate to satisfy the ambient monitoring analysis requirement. Background SO₂ values of 53 ug/m³, 3-hr average; 28 ug/m³, 24-hr average; and 4 ug/m³, annual average, were based on these data. This site is located 4.1 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

Orlando/Tampa 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 SO₂, CO, NO_x, PM and PM₁₀. 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 90°F design condition to maximize predicted impacts. The applicant modeled emissions based on the use of fuel oil with a maximum sulfur content of 0.5%. The BACT determination specifies the use of fuel oil with a maximum sulfur content of 0.2%, thus the modeled results are conservative. 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 54 receptors located 400m and 700m from the proposed units off of plant property; (2) subsequent receptors were located at distances of 1.0, 1.3, 1.6, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 7.5, 10.0, 12.5, 15.0, 20.0, 25.0, 30.0, 40.0, and 50.0 km from the facility, all of which are off 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 PM₁₀.

Avg. Time PSD Signifi. Level (ug/m ³)	SO ₂		NO ₂		CO		PM and PM ₁₀	
	Annual	3-hr 24-hr	Annual	1-hr 8-hr	Ann.	24-hr		
Level (ug/m ³)	1.0	25.0 5.0	1.0	2000 800	1.0	5.0		
Ambient Concen. Increase (ug/m ³)	0.62	71.4 16.1	0.34	11.2 4.2	0.02	0.34		

Therefore, further dispersion modeling for comparison with AAQS and PSD increment consumption were not required for CO, NO_x, PM and PM₁₀. However, the results also show that the increases in maximum ambient groundlevel concentrations for the 3-hr and 24-hr averaging times for SO₂ were greater than the PSD significant impact levels, thus requiring the applicant to do a full impact analysis for SO₂. 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 SO₂ 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 19 radials spaced at 1-degree increments centered on the radial along which the maximum concentration was predicted. The results of these analyses for SO₂ and comparison with the appropriate standards and increments are summarized in the following tables. The maximum predicted SO₂ concentrations are all less than the appropriate AAQS and PSD increments.

AAQS Analysis (all values in ug/m³)

<u>Avg. Time</u>	<u>Annual</u>	<u>3-hr</u>	<u>24-hr</u>
Maximum Predicted Concentration	37.7	792	215
Includes Background Value	4	53	28
AAQS	60	1300	260

Cumulative PSD Class II
 Increment Analysis (all values in ug/m³)

<u>Avg. Time</u>	<u>Annual</u>	<u>3-hr</u>	<u>24-hr</u>
Max. Predicted Consumption Concen.	1.80	63.8	17.1
Increment	20	512	91

The impact of this project on the Class I increments for SO₂ in the closest Class I area, the Chassahowitzka National Wilderness Area, which is located approximately 110 km away is shown below:

Cumulative PSD Class I
 Increment Analysis (all values in ug/m³)

<u>Avg. Time</u>	<u>Annual</u>	<u>3-hr</u>	<u>24-hr</u>
Max. Predicted Consumption Concen.	.45	19.3	4.92
Increment	2	25	5

The maximum predicted increment consumptions are all less than the appropriate PSD increments.

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 ₂ SO 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	2.0	.000005	.00009	.000008

All of these values are less than their respective no-threat levels.

e. Additional Impacts Analysis

A Level-1 screening analysis using the EPA model, VISCREEN was used to determine any potential adverse visibility impacts on the Class I Chassahowitzka National Wilderness Area located about 110 km away. Based on this analysis, the maximum predicted visual impacts due to the proposed project are less than the screening criteria both inside and outside the Class I area. A comprehensive air quality related values (AQRV) analysis for this Class I area was performed by the applicant for not only SO₂ and other criteria pollutants but for numerous non-criteria pollutants that could potentially be emitted by the proposed project. No significant impacts on the Class I area are expected.

In addition, the maximum predicted concentrations from NO_x, CO, SO₂, PM and PM₁₀ 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 in the area of the project. Also, 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 742.6 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.

A. [Signature]
PE #41755