STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF FINAL PERMIT

In the Matter of an
Application for Permit by:

Bruce Baldwin
Director of Combustion Turbine Operations
Florida Power Corporation
One Power Plaza
263-13th Avenue South
St. Petersburg, Florida 33701-5511

DEP File No. 1050234-004-AC, PSD-FL-296
Siting Certification PA92-335A
Hines Energy Complex Power Block 2
Polk County

Enclosed is Final Permit Number 1050234-004-AC, PSD-FL-296. This permit authorizes Florida Power Corporation to construct its Power Block 2 project to be located at the existing Hines Energy Complex at County Road 555, 2.5 miles south of CR 640, Bartow, Polk County. Power Block 2 will consist of two nominal 170 MW Siemens Westinghouse 501 FD CTs with evaporative inlet coolers, two unfired HRSGs and one steam electric turbine, with a total nominal generating capacity of approximately 530 MW. The project is subject to the Power Plant Siting Act. This permit is issued pursuant to Chapter 403, Florida Statutes.

Any party to this order has the right to seek judicial review of it under section 120.68 of the Florida Statutes, by filing a notice of appeal under rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within thirty days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida.

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

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Notice of Final Permit (including the Final permit) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 6/7/01 to the person(s) listed:

Mr. Bruce Baldwin, FPC *
Mr. Ken Kosky, P.E., Golder
Mr. Bill Thomas, P.E., DEP SWD
Mr. Gregg Worley, EPA
Mr. John Bunyak, NPS

Clerk Stamp

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

Charlotte J. Hayes 6/7/01
(Clerk) (Date)

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Bruce Baldwin, Director
Combustion Turbine Operations
Florida Power Corp.
One Power Plaza
263-13th Avenue South
St. Petersburg, FL 33701-5511

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1 APPLICANT NAME AND ADDRESS

Florida Power Corporation
One Power Plaza, 263-13th Avenue South
St. Petersburg, Florida 33701-5511
Authorized Representative: Bruce Baldwin, Director of Combustion Turbine Operations

2 FACILITY DESCRIPTION, PROJECT DETAILS AND RULE APPLICABILITY

This facility consists of the existing Hines Energy Complex.

The applicant proposed in this project to construct two combustion turbines and related equipment to create Power Block 2 at the existing facility. Emissions units addressed by this permit are .

EMISSIONS UNIT NO.	EMISSIONS UNIT DESCRIPTION
014	Power Block 2, CT 2A, a combined cycle combustion turbine system consisting of a Siemens Westinghouse 501 combustion turbine, evaporative inlet coolers, an unfired heat recovery steam generator and associated emission control equipment.
015	Power Block 2, CT 2B, a combined cycle combustion turbine system consisting of a Siemens Westinghouse 501 combustion turbine, evaporative inlet coolers, an unfired heat recovery steam generator and associated emission control equipment.

The annual potential emissions, in tons per year, associated with this project are: PM/PM_{10}, 106; NOx, 270; SO_2, 114; SAM, 17.5; CO, 672; and VOC, 53.6. The emissions associated with this project subject the project to the requirements of PSD and BACT for these pollutants.

The proposed project is subject to preconstruction review requirements under the provisions of Chapter 403, F.S., and Chapters 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297, F.A.C. The existing facility is located in an area designated, in accordance with Rule 62-204.340, F.A.C., as attainment or unclassifiable for the criteria pollutants ozone, PM_{10}, carbon monoxide, SO_2, nitrogen dioxide and lead. This facility is classified as a Major or Title V Source of air pollution because emissions of at least one regulated air pollutant exceeds 100 tons per year (TPY). At this facility potential emissions of PM/PM_{10}, NOx, SO_2, CO and VOC exceed 100 TPY.

This facility is within an industry included in the list of the 28 Major Facility Categories per Table 62-212.400-1 of Chapter 62-212, F.A.C. Because emissions are greater than 100 TPY for at least one criteria pollutant, the facility is also a Major Facility with respect to Rule 62-212.400, Prevention of Significant Deterioration (PSD). The net increase in emissions associated with this project of PM/PM_{10}, NOx, SO_2, SAM, CO and VOC exceed the PSD significance levels of Table 212.400-2, F.A.C. Therefore the project is subject to PSD requirements of Rule 62-212.400,F.A.C., for these pollutants.

The project is subject to siting certification under Florida's Power Plant Siting Act. Because the PSD program is delegated by EPA to the Department for facilities subject to the Power Plant Siting Act, the project is also subject to the requirements of 40 CFR 52.21, Prevention of Significant Deterioration.

The limits associated with the PSD review and BACT requirements are established in Section III of the permit. The emissions units are also subject to regulation under the New Source Performance Standards: 40 CFR 60 Subpart A, General Provisions, and Subpart GG, Standards of Performance for Stationary Gas Turbines. The limits established as BACT for these emissions units are more stringent than the limits of the NSPS, so compliance with the BACT limits will ensure compliance with this rule.

The applicant's estimated emissions show that the project is not a major source of hazardous air pollutants (HAPs). This project is not subject to a case-by-case MACT determination, per Rule 62-204.800(10)(d)2,

F.A.C., because it does not result in the construction or reconstruction of a major source of HAP emissions.

3 SOURCE IMPACT ANALYSIS

3.1 AIR QUALITY ANALYSIS INTRODUCTION

The proposed project will increase emissions of six regulated pollutants at levels in excess of PSD significant amounts: PM/PM_{10}, SO_2, NO_2, CO, VOC and SAM. PM_{10}, SO_2 and NO_2 are criteria pollutants and have national and state ambient air quality standards (AAQS), PSD increments, and significant impact levels defined for them. CO is a criteria pollutant and has only AAQS and significant impact levels defined for it. SAM is a non-criteria pollutant and has no AAQS or PSD increments defined for it; therefore, only a qualitative analysis of the impact of this pollutant was done. Potential emissions for VOC are above the 40 TPY significance threshold for the pollutant ozone. The applicant presented the potential increase to the Department. Based on the options available to predict potential impacts associated with the emissions and formation of ozone, the Department has determined that the use of regional models which incorporate the complex chemical mechanisms for predicting ozone formation are not feasible for this project.

The applicant's initial Class II PM_{10}, SO_2, NO_2 and CO analyses revealed no significant impacts in the area surrounding the proposed facility; therefore, full impact Class II AAQS and PSD Class II increment analyses were not required to be conducted for PM_{10}, SO_2, NO_2 and CO. Because the project's impact for PM_{10}, SO_2, NO_2 and CO are less than the de minimus monitoring concentrations, preconstruction monitoring was not required for these pollutants.

PSD Class I impacts were predicted for the Chassahowitzka National Wilderness Area (CNWA) located 118 km to the northwest. No significant impacts for PM_{10}, SO_2 or NO_2 were predicted; therefore, no further PSD Class I modeling was required.

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 significantly contribute to a violation of any AAQS or PSD increment. However, the following EPA-directed stack height language is included: "In approving this permit, the Department has determined that the application complies with the applicable provisions of the stack height regulations as revised by EPA on July 8, 1985 (50 FR 27892). Portions of the regulations have been remanded by a panel of the U.S. Court of Appeals for the D.C. Circuit in NRDC v. Thomas, 838 F. 2d 1224 (D.C. Cir. 1988). Consequently, this permit may be subject to modification if and when EPA revises the regulation in response to the court decision. This may result in revised emission limitations or may affect other actions taken by the source owners or operators." A more detailed discussion of the required analyses follows.

3.2 ANALYSIS OF EXISTING AIR QUALITY

Preconstruction ambient air quality monitoring is required for all pollutants subject to PSD review unless otherwise exempted or satisfied. This monitoring requirement may be satisfied by using previously existing representative monitoring data, if available. An exemption to the monitoring requirement shall be granted by rule if either of the following conditions is met: the maximum predicted air quality impact resulting from the projected emissions increase, as determined by air quality modeling, is less than a pollutant-specific de minimus ambient concentration; or the existing ambient concentrations are less than a pollutant-specific de minimus ambient concentration. No de minimus ambient concentration is provided for ozone. Instead the net emissions increase of VOC is compared to a de minimus monitoring emission rate of 100 tons per year. The table below shows maximum project air quality impacts for comparison to these de minimus levels.

MAXIMUM PROJECT AIR QUALITY IMPACTS FOR COMPARISON TO THE DE MINIMUS LEVELS				
Pollutant	Averaging Time	Maximum Predicted Impact ($\mu g/m^3$)	Impact Greater than De Minimus (Yes/No)?	De Minimus Level ($\mu g/m^3$)
PM10	24-hr	3	NO	10
CO	8-hr	107	NO	575
NO2	Annual	0.1	NO	14
SO_2	24-hour	5	NO	13
VOC	Annual Emission Rate	52 TPY	NO	100 TPY

As shown in the table, air quality impacts are predicted to be less than the de minimus levels; therefore, no preconstruction monitoring is required.

3.3 MODELS AND METEOROLOGICAL DATA USED IN THE AIR QUALITY ANALYSIS

PSD Class II Area in the vicinity of the project

The EPA-approved Industrial Source Complex Short-Term (ISCST3) dispersion model was used to evaluate the pollutant emissions from the proposed project and other existing major facilities. The model determines ground-level concentrations of inert gases or small particles emitted into the atmosphere by point, area, and volume sources. The model incorporates elements for plume rise, transport by the mean wind, Gaussian dispersion, and pollutant removal mechanisms such as deposition. The ISCST3 model allows for the separation of sources, building wake downwash, and various other input and output features. A series of specific model features, recommended by the EPA, are referred to as the regulatory options. The applicant used the EPA recommended regulatory options in each modeling scenario. Direction-specific downwash parameters were used for all sources for which downwash was considered. The stacks associated with this project will not exceed the good engineering practice (GEP) stack height criteria.

Meteorological data used in the ISCST3 model consisted of a concurrent 5-year period of hourly surface weather observations and twice-daily upper air soundings from the National Weather Service (NWS) stations at Tampa (surface) and Ruskin (upper air). The 5-year period of meteorological data was from 1987 through 1991. These NWS stations were selected for use in the study because they are the closest primary weather stations to the study area and are most representative of the project site. The surface observations included wind direction, wind speed, temperature, cloud cover, and cloud ceiling.

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

PSD Class I Area

The California Puff (CALPUFF) dispersion model was used to evaluate the pollutant emissions from the proposed project in the Class I Chassahowitzka National Wilderness Area (CNWA). Meteorological data used in this model was 1990 ISCST3 data which was enhanced for CALPUFF. CALPUFF is a non-steady state, Lagrangian, long-range transport model that incorporates Gaussian puff dispersion algorithms. This model determines ground-level concentrations of inert gases or small particles emitted into the atmosphere by point, line, area, and volume sources. The CALPUFF model has the capability to treat time-varying sources. It is also suitable for modeling domains from tens of meters to hundreds of kilometers, and has mechanisms to handle rough or complex terrain situations. Finally, the CALPUFF

model is applicable for inert pollutants as well as pollutants that are subject to linear removal and chemical conversion mechanisms.

3.4 SIGNIFICANT IMPACT ANALYSIS

Preliminary modeling is performed using only the proposed project's worst-case emission scenario for each pollutant and applicable averaging time. Over 700 receptors were placed along the facility's restricted property line and out to 50 km from the facility, which is located in a PSD Class II area. Modeling refinements were done, as needed, by using a polar receptor grid with a maximum spacing of 100 m along each radial and an angular spacing between radials of one or two degrees. A network of 13 discrete receptors was placed at the boundary of the CNWA in order to assess the impact of the project on this Class I area. For each pollutant subject to PSD and also subject to PSD increment and/or AAQS analyses, this modeling compares maximum predicted impacts due to the project with PSD significant impact levels to determine whether significant impacts were predicted in the vicinity of the facility or in the Class I CNWA. In the event that the maximum predicted impact of a proposed project is less than the appropriate significant impact level, a full impact analysis for that pollutant is not required. Full impact modeling is modeling that considers not only the impact of the project but also other major sources, including background concentrations, located within the vicinity of the project to determine whether all applicable AAQS or PSD increments are predicted to be met for that pollutant. Consequently, a preliminary modeling analysis, which shows an insignificant impact, is accepted as the required air quality analysis (AAQS and PSD increments) for that pollutant and no further modeling for comparison to the AAQS and PSD increments is required for that pollutant. The tables below show the results of this modeling. The radius of significant impact, if any, for each pollutant and applicable pollutant averaging time is also shown in the tables below.

MAXIMUM PROJECT AIR QUALITY IMPACTS FOR COMPARISON TO THE PSD CLASS II SIGNIFICANT IMPACT LEVELS IN THE VICINITY OF THE FACILITY

Pollutant	Averaging Time	Maximum Predicted Impact ($\mu g/m^3$)	Significant Impact Level ($\mu g/m^3$)	Significant Impact? (Yes/No)	Radius of Significant Impact (km)
PM_{10}	Annual	0.04	1	NO	---
	24-hr	3	5	NO	---
SO_2	Annual	0.04	1	NO	---
	24-hour	4.9	5	NO	---
	3-hour	17.8	25	NO	---
CO	8-hr	35	500	NO	---
	1-hr	107	2,000	NO	---
NO_2	Annual	0.01	1	NO	---

MAXIMUM PROJECT IMPACTS IN THE CNWA FOR COMPARISON TO THE PSD CLASS I SIGNIFICANT IMPACT LEVELS

Pollutant	Averaging Time	Maximum Predicted Impact ($\mu g/m^3$)	Significant Impact Level ($\mu g/m^3$)	Significant Impact? (Yes/No)
PM_{10}	Annual	0.001	0.2	NO
	24-hr	0.033	0.3	NO
NO_2	Annual	0.0013	0.1	NO
SO_2	Annual	0.0014	0.1	NO
	24-hour	0.12	0.2	NO
	3-hour	0.46	1.0	NO

As shown in the tables the maximum predicted air quality impacts from the proposed project are less than the PSD significant impact levels in the vicinity of the facility and in the CNWA. Therefore, the applicant was not required to do full impact modeling for any pollutant.

3.5 ADDITIONAL IMPACTS-IMPACTS ON SOIL, VEGETATION, WILDLIFE, VISIBILITY AND GROWTH

The maximum ground-level concentrations predicted to occur for all regulated pollutants, as a result of the proposed project, including background concentrations and all other nearby sources, will be less than the respective ambient air quality standard (AAQS). The project impacts are less than the AAQS for all regulated pollutants, and less than the applicable allowable increments for all regulated pollutants. Because the AAQS are designed to protect both the public health and welfare, it is reasonable to assume the impacts on soils, vegetation, and wildlife will be minimal or insignificant. A regional haze analysis using the CALPUFF model was performed to determine visibility impacts in the Class I CNWA. No significant impact on visibility in this area was predicted. There will be little no growth associated with this project.

4 BACT DETERMINATION REQUESTED BY THE APPLICANT

The applicant, in its application and response to request for additional information, proposed BACT for the PSD pollutants PM/PM_{10}, NOx, SO_2, SAM, CO and VOC. BACT for VE was proposed as a surrogate for. Generally, the applicant proposed to control NOx emissions from firing natural gas using dry low NOx combustors and selective catalytic reduction (SCR), and from firing distillate fuel oil using water injection and SCR. Control for SO_2 and SAM is through the use of pipeline natural gas and very low sulfur (0.05%) distillate fuel oil. Control for the other pollutants is by proper combustion design and operation.

5 BACT DETERMINATION PROCEDURE

In accordance with Chapter 62-212, F.A.C., this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department, 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 for control of each such pollutant. In addition, Rule 62-212.400(6)(a), F.A.C., states that in making the BACT determination, the Department shall give consideration to:

1. Any Environmental Protection Agency determination of BACT pursuant to Section 169 of the Clean Air Act, 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).
2. All scientific, engineering, and technical material and other information available to the Department.
3. The emission limiting standards or BACT determination of any other state.
4. The social and economic impact of the application of such technology.

The EPA currently directs that BACT should be determined using the "top-down" approach. In this approach, available control technologies are ranked in order of control effectiveness for the emissions unit under review. The most stringent alternative is evaluated first. That alternative is selected as BACT unless the alternative is found to not be achievable based on technical considerations or energy, environmental or economic impacts. If this alternative is eliminated for these reasons, the next most stringent alternative is considered. This top-down approach is continued until BACT is determined. In general EPA has identified five key steps in the top-down BACT process: Identify alternative control technologies; eliminate technically infeasible options; rank remaining control technologies by control effectiveness; evaluate most effective controls; select BACT.

The Department will consider the control or reduction of "non-regulated" air pollutants when determining the BACT limit for regulated pollutants, and will weigh control of non-regulated air pollutants favorably

when considering control technologies for regulated pollutants. The Department will also favorably consider control technologies that utilize pollution prevention strategies. These approaches are consistent with EPA's consideration of environmental impacts.

The EPA has determined that a BACT determination shall not result in a selection of a control technology which would not meet any applicable emission limitation under 40 CFR Part 60 (Standards of Performance for New Stationary Sources) or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants). The only such limits applicable to this project are the requirements of NSPS Subpart GG, but the BACT requirements of the permit are more stringent than these requirements.

The BACT evaluation should be performed for each emissions unit and pollutant under consideration. For this project, the BACT evaluation was performed for the emission units for PM/PM_{10}, NOx, SO_2, SAM, CO, VOC and VE.

In addition to the information submitted by the applicant in its application and that information mentioned above, the Department may rely upon other available information in making its BACT determination. For this project, the Department also relied upon information in its previous and current BACT determinations for combined cycle projects, particularly those of CPV Gulfcoast (draft), TECO Bayside (under review), Calpine Osprey (draft), KUA Cane Island 3 and Lake Worth LLC. The Department also relied upon the determination for Alabama DEM's Tenaska Central Alabama Generating Station, information in EPA's RACT/BACT/LAER Clearinghouse and upon information previously provided in comments to other similar projects by EPA Region 4 and the Air Quality Branch of the US Fish and Wildlife Service. For each emission source, the Department's BACT determination is based on this information and the informed judgement of the Department.

6 BACT ANALYSIS AND DEPARTMENT'S DETERMINATION

For this project the PSD pollutants of concern are PM/PM_{10}, NOx, SO_2, SAM, CO, and VOC. Visible emissions is included in the evaluation because of its relationship to PM/PM_{10}. The technologies proposed by the applicant as BACT for this project were generally acceptable to the Department. However, the Department's specific emission limits and compliance monitoring requirements were not necessarily the same as those suggested by the applicant. The Department does not endorse the applicant's technical or economic analyses of control technologies for this project.

The Department has written extensively about the available technologies for control of these pollutants from combined cycle combustion turbine projects. Because of the similarities between this project and the other recent projects reviewed by the Department, a detailed discussion of the control technologies reviewed for each pollutant will be omitted from this document.

For control of PM/PM_{10} and VOC emissions, the applicant proposed the use of clean burning fuels and good combustion practices. The Department has previously written for similar projects that these are generally regarded as the top controls for combustion turbines. SO_2 and SAM emissions are limited in a similar manner, with particular emphasis on limiting the sulfur content of the fuels and limiting the quantity of fuel oil fired. The primary fuel is pipeline natural gas with a sulfur content of 1 grain per 100 scf. The backup fuel is distillate fuel oil with a sulfur content of 0.05% by weight, with fuel consumption limited to an equivalent of 1000 hours of operation for each turbine. As with previous determinations, these fuels are BACT for these pollutants.

For control of NOx, the applicant evaluated combustion process designs (water/steam injection, dry low NOx combustor design and XONON catalytic combustor) and post-combustion controls (selective catalytic reduction—SCR, selective non-catalytic reduction—SNCR, and SCONOx). The applicant proposed to use a dry low NOx combustor design for firing natural gas and water injection for firing oil, coupled with an SCR system. The applicant rejected XONON and SNCR because of technical

unfeasibility, and rejected SCONOx in part because of economic impacts. The Department agreed with the selection of SCR, combined with dry low NOx for natural gas and water injection for fuel oil, as BACT for NOx. The Department asked the applicant to evaluate a more stringent limit on NOx emissions during distillate oil firing than that proposed by the applicant. The applicant informed the Department that decreasing the emission limit from 15 ppmvd @ 15% O_2 to 10 ppmvd @ 15% O_2 would increase annualized costs by approximately $150,000 because of costs of additional catalyst, and higher energy costs associated with the additional pressure drop from the necessary extra catalyst. This option would require the applicant to use the backup fuel as the design limiting condition, even though use of this fuel is limited. The applicant presented a complete cost effectiveness analysis for this option. The applicant did not show this alternative is not cost effective. However, the Department ultimately determined that an emissions limit of 12 ppmvd @ 15% O_2, with an aggregate fuel consumption limit equivalent to 720 hours of operation for each unit, represents BACT for this project. This alternative will reduce potential NOx emissions from oil firing to approximately 67 TPY from the 117 TPY originally proposed, and is consistent with the determinations of the Department and other states. The Department set the averaging time for the NOx emission standard at a 24 hour block starting at midnight of each day. This averaging time simplifies compliance recording requirements, provides for sufficient averaging time to account for measurement uncertainties, and is appropriate given that the ambient NO_2 standard is based on an annual average. The Department also set limits on ammonia slip for both natural gas and distillate fuel oil firing.

For control of CO, the applicant evaluated combustion process design (high combustion temperatures, adequate excess air, good fuel/air mixing during combustion) and post-combustion control (oxidation catalyst). The applicant rejected oxidation catalysts because of economic impacts. The Department did not necessarily agree that the oxidation catalyst was not cost effective based on the applicant's initial emissions estimate. However, the Department specified good combustion design and control as BACT for this project, in part because it set a more stringent CO emission limit than the applicant originally proposed. Because of the relationship between NOx and CO emissions, the averaging time for the CO limit was set at a 24 hour block to match the averaging time of the NOx limit.

Because the Department has also written extensively regarding its rationale for making its BACT determinations for similar projects, such documentation will not be extensively presented again here. Considerations particular to this project are the applicant's need to operate the turbines at less than full load for extended periods of time, the limited number of expected startup and shutdown events each year (the project is for base load operation), the requirement of a CEM system for NOx and CO compliance demonstration, design of the SCR system for natural gas firing and the limited amount of permitted operation while firing fuel oil. Following is a summary of the Department's BACT determination and the associated emission limits. Note that SO_2 and SAM are limited by limiting the sulfur content of natural gas to 1 grain per 100 scf and fuel oil to 0.05% by weight, and by limiting the combined fuel consumption for both emissions units to the equivalent of approximately 720 hours of operation each.

SUMMARY OF BACT TECHNOLOGY DETERMINATIONS

Emissions Unit	Pollutants	BACT Requirements
014 and 015	NOx	Dry low NOx combustors and selective catalytic reduction
014 and 015	PM/PM_{10}, VE	Good combustion practices, clean fuels
014 and 015	SO_2, SAM	Limit fuel sulfur (clean fuels) and fuel oil consumption
014 and 015	CO, VOC	Combustor design, good combustion practices

The allowable emission limits associated with the BACT technologies and related compliance requirements are specified in detail in Section III of the permit, and are summarized below:

POLLUTANT	EMISSION LIMIT NATURAL GAS	EMISSION LIMIT, DISTILLATE FUEL OIL	COMPLIANCE METHOD
PM/PM_{10}	7.3 lb/hour	64.8 lb/hour	Test
NOx	3.5 ppmvd @ 15% O_2	12 ppmvd @ 15% O_2	CEM, 24 hr block
CO	16 ppmvd @ 15% O_2	30 ppmvd @ 15% O_2	CEM, 24 hr block
Ammonia	5 ppmvd @ 15% O_2	9 ppmvd @ 15% O_2	Test
VOC	2 ppmvd @ 15% O_2	10 ppmvd @ 15% O_2	Test
VE	10% opacity	10% opacity	Test

6.1 BACT EXCESS EMISSIONS APPROVAL

As part of this BACT determination, the Department specified allowable excess emissions in the permit pursuant to its authority at Rule 62-210.700(5), F.A.C.. Allowable excess emissions for visible emissions are limited by condition 14 of Section II of the permit. The excess emissions provisions of Rule 62-210.200, F.A.C., are not applicable to any other pollutant. However, condition 7 of Section III includes provisions for excluding CEM system data from the calculation of the block averages for NOx and CO for startup, shutdown and malfunction episodes. The emissions during these episodes are not explicitly limited, but best operational practices must be used to minimize hourly emissions during these episodes. Emissions of any quantity or duration that occur entirely or in part from poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented are prohibited.

7 MACT REQUIREMENTS

As discussed above, although the applicant indicated that the facility is a major source of HAP emissions, this facility is not subject to a case-by-case MACT determination for control of emissions of HAPs. Rule 62-204.800(10)(d)2, F.A.C., generally requires a MACT review for all major sources of HAPs that are to be constructed or reconstructed. In this case, no source of HAPs is proposed to be constructed or reconstructed, so this project is not subject to a case-by-case MACT determination.

8 COMPLIANCE

The compliance methods are detailed in Section III of the permit. Briefly, initial and annual tests are required for PM/PM_{10}, ammonia and visible emissions. Tests for VOC are required initially and prior to renewal of each subsequent operation permit. A CEM system is required to demonstrate compliance with the emission limits for NOx and CO. Monitoring and record keeping are required of operational parameters.

9 PRELIMINARY DETERMINATION

Based on the foregoing technical evaluation of the application and additional information submitted by the applicant and other available information, the Department has made a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations. The Department's preliminary determination is to issue the draft permit to allow construction of the Power Block 2 project, subject to the terms and conditions of the draft permit.

10 COMMENTS RECEIVED ON DRAFT PERMIT

The Department distributed the intent to issue for this project on January 18, 2001. The Public Notice of Intent to Issue was published in the Lakeland Ledger on January 24, 2001.

The applicant provided comments requesting minor changes to the permit text for clarification of the conditions and correction of typographical errors. These changes were minor and did not substantially alter any condition. Most notable were: correction of equivalent hourly emissions of VOC from gas firing

to 4.7 lb/hr from 3.5 lb/hr, as shown on page 11 of the draft permit; revision of the description of the emissions units to include the evaporative inlet coolers; clarification that a CO_2 monitor may be used in lieu of an O_2 diluent monitor; correction of the excess emissions provisions to allow six hours in a 24-hour period in which a cold startup occurs; clarification of subsequent requirements in the event that 95% monitor availability is not met in a calendar quarter. The Department and applicant agreed on the changes made to the draft permit.

The Department separately noted that it slightly overstated potential annual emissions from the project, and it corrected the potential emissions in this document and the final permit. The changes made by the Department, including those noted above are minor and do not change or vary any enforceable requirement of the permit.

No comments were received by the Department from the public or the NPS/FWS.

Comments were received from EPA Region 4 in a letter dated February 14, 2001. EPA recommended setting BACT limits for NOx and CO emissions during startup and shutdown periods. The Department's rules, part of its approved SIP, provide for allowable periods of excess emissions without a limitation of the nature of the emissions. The duration of these periods is limited by the permit, in a manner consistent with the SIP. Further, these units are to be dispatched as base load units, so the occurrence of startup and shutdown episodes each year will be infrequent. The Department expects that the total duration of startup and shutdown episodes each year will be a small fraction of total operating time. Engine operation during startup and shutdown episodes is transient, and the associated emissions are variable over the range of reduced operation (for this project from 0 to 60% of capacity) associated with startup and shutdown episodes. Although emissions may be higher during parts of these episodes, because of the limited duration and low expected frequency of these events, the Department does not believe it is practical or warranted to establish separate BACT limits for startup and shutdown episodes.

EPA recommended including a definition of what constitutes startup and shutdown episodes referenced in condition 7 of Section III. Department Rule 62-210.200, F.A.C., includes definitions of startup, shutdown and malfunction. A reference to this rule will be included in the final permit in conditions 7 and 3 of Section III, and condition 14 of Section II.

EPA also suggested reducing the averaging period for NOx and CO emission limits while firing oil from 24 hours to 3 hours. The Department believes that maintaining consistent averaging periods for oil firing and gas firing simplifies monitoring and record keeping requirements and avoids confusion during periods of switching from one fuel to the other. The Department does not believe there is a substantial environmental benefit from decreasing these averaging times, particularly considering that operation while firing oil is already limited to less than 10% of the total allowable operation. Based on its experience with similar projects, the Department expects that operation while firing fuel oil will not become a routine practice, and actual operation while firing fuel oil will likely not approach allowable levels.

EPA provided several thorough comments on the applicant's cost effectiveness calculations. The Department notes that EPA's comments appear likely to improve the precision of the estimates. As noted previously in this determination, the Department does not endorse the applicant's estimates. However, the Department believes that revising the calculations will not change the Department's determination of BACT for this project. In order to provide a complete record regarding this permitting action, the Department suggested to the applicant that it submit revised cost effectiveness calculations that address EPA's comments.

11 FINAL DETERMINATION

This project is subject to the requirements of the Power Plant Siting Act. No changes to the draft permit resulted from the public hearing related to the siting determination. The Governor and Florida Cabinet, meeting as the Power Plant Siting Board, approved the siting certification for this project after considering this project at its meeting of May 30, 2001. According to Florida Statutes, the Department's final action in this matter is to issue the final PSD permit for this project.

DETAILS OF THIS ANALYSIS MAY BE OBTAINED BY CONTACTING:

Joseph Kahn, P.E. and Cleve Holladay (impact analysis)
Department of Environmental Protection
Bureau of Air Regulation
Mail Station #5505
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
Telephone: 850/488-0114

Recommended By:

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

6/6/01
Date:

Approved By:

Howard L. Rhodes, Director
Division of Air Resources Management

6/7/01
Date:

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

PERMITTEE

Florida Power Corporation
One Power Plaza
263-13th Avenue South
St. Petersburg, Florida 33701-5511

Permit No.	1050234-004-AC, PSD-FL-296
Project	Hines Energy Complex Power Block 2 Siting Certification PA92-33SA
SIC No.	4911
Expires:	June 1, 2004

Authorized Representative:

Bruce Baldwin, Director of Combustion Turbine Operations

PROJECT AND LOCATION

This permit authorizes Florida Power Corporation to construct two combustion turbines and related equipment to create Power Block 2 at the existing Hines Energy Complex.

This facility is located at County Road 555, 2.5 miles south of CR 640, Bartow, Polk County. The UTM coordinates are: Zone 17; 414.4 km E and 3073.9 km N.

STATEMENT OF BASIS

This PSD permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and the Florida Administrative Code (F.A.C.) Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297. The above named permittee is authorized to construct the emissions units in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department of Environmental Protection (Department).

APPENDICES

The attached appendices are a part of this permit:

Appendix A	NSPS General Provisions
Figure 1	Summary Report--Gaseous and Opacity Excess Emission & Monitoring System Performance
Appendix GC	General Permit Conditions

Howard L. Rhodes, Director
Division of Air Resources
Management

FACILITY DESCRIPTION, PROJECT DETAILS AND RULE APPLICABILITY

The facility is an existing electric power plant that currently consists of an existing combined cycle combustion turbine power generating system designated Power Block 1. Power Block 1 consists of two Siemens Westinghouse 501 combustion turbines (CTs), two unfired heat recovery steam generators (HRSGs) and one steam electric turbine, with a total nominal generating capacity of 500 MW. This permit is to authorize the construction of Power Block 2 consisting of two nominal 170 MW Siemens Westinghouse 501 FD CTs, two unfired HRSGs and one steam electric turbine, with a total nominal generating capacity of approximately 530 MW. The emissions units for this project are:

EMISSIONS UNIT NO.	EMISSIONS UNIT DESCRIPTION
014	Power Block 2, CT 2A, a combined cycle combustion turbine system consisting of a Siemens Westinghouse 501 combustion turbine, evaporative inlet coolers, an unfired heat recovery steam generator and associated emission control equipment.
015	Power Block 2, CT 2B, a combined cycle combustion turbine system consisting of a Siemens Westinghouse 501 combustion turbine, evaporative inlet coolers, an unfired heat recovery steam generator and associated emission control equipment.

The annual potential emissions, tons per year, associated with this project are: PM/PM_{10}, 106; NOx, 270; SO_2, 114; SAM, 17.5; CO, 672; and VOC, 53.6. The facility information, project scope, emissions and rule applicability are described in detail in the Department's Technical Evaluation and BACT Determination.

SUMMARY OF BACT/MACT DETERMINATION

A complete discussion of the Department's technical evaluation and BACT determination is included in the Department's Technical Evaluation and BACT Determination. Following is a summary of the Department's control technology determinations pursuant to Rules 62-212.400, F.A.C., (BACT). As noted in that document, this project is not subject to the requirements of Rule 62-204.800(10)(d)2, F.A.C., for a case-by-case MACT determination.

SUMMARY OF BACT TECHNOLOGY DETERMINATIONS

Emissions Unit	Pollutants	BACT Requirements
014 and 015	NOx	Dry low NOx combustors and selective catalytic reduction
014 and 015	PM/PM_{10}, VE	Good combustion practices, clean fuels
014 and 015	SO_2, SAM	Limit fuel sulfur (clean fuels) and fuel oil consumption
014 and 015	CO, VOC	Combustor design, good combustion practices

The allowable emission limits associated with the BACT technologies and related compliance requirements are shown in Section III of the permit.

REVIEWING AND PROCESS SCHEDULE

July 24, 2000	Received permit application and fee
August 23, 2000	Department's request for additional information
November 27, 2000	Received response to request for additional information
November 27, 2000	Application complete
January 18, 2001	Distributed Notice of Intent to Issue and supporting documents
January 24, 2001	Notice of Intent published in the Lakeland Ledger

RELEVANT DOCUMENTS

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

- Permit application
- Department's request for additional information
- Applicant's additional information
- Department's Technical Evaluation and BACT Determination
- Department's Intent to Issue

SECTION II. FACILITY-WIDE SPECIFIC CONDITIONS

The following specific conditions apply to all emissions units at this facility addressed by this permit.

ADMINISTRATIVE

1. Regulating Agencies: All documents related to applications for permits to construct, operate or modify an emissions unit should be submitted to the Bureau of Air Regulation, Florida Department of Environmental Protection at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, phone number 850/488-0114. All documents related to reports, tests, minor modifications and notifications shall be submitted to the Department's Southwest District office at 3804 Coconut Palm Drive, Tampa, FL 33619-8218, and phone number 813-744-6100

2. General Conditions: The owner and operator is subject to and shall operate under the attached General Permit Conditions G.1 through G.15 listed in Appendix GC of this permit. General Permit Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. [Rule 62-4.160, F.A.C.]

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

4. Applicable Regulations, Forms and Application Procedures: Unless otherwise indicated in this permit, the construction and operation of the subject emissions unit shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of Chapter 403, F.S. and Florida Administrative Code Chapters 62-4, 62-110, 62-204, 62-212, 62-213, 62-296, 62-297 and the Code of Federal Regulations Title 40, Part 60, adopted by reference in the Florida Administrative Code (F.A.C.) regulations. The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting or regulations. [Rules 62-204.800, 62-210.300 and 62-210.900, F.A.C.]

5. New or Additional Conditions: Pursuant to Rule 62-4.080, F.A.C., for good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]

6. Expiration: This air construction permit shall expire on June 1, 2004. The permittee, for good cause, may request that this construction/PSD permit be extended. Such a request shall be submitted to the Department's Bureau of Air Regulation prior to 60 days before the expiration of the permit. [Rules 62-210.300(1), 62-4.070(4), 62-4.080, and 62-4.210, F.A.C]

   PSD Expiration: Approval to construct shall become invalid if construction is not commenced within 18 months after receipt of such approval, or if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. The Department may extend the 18-month period upon a satisfactory showing that an extension is justified. [Rules 62-4.070(4), 62-4.210(2) & (3), and 62-210.300(1)(a), F.A.C.]

   BACT Determination Review: In conjunction with extension of the 18 month periods to commence or continue construction, extension of the permit expiration date, or where construction is conducted

in two or more phases, the permittee may be required to demonstrate the adequacy of any previous determination of Best Available Control Technology (BACT) for the source. [Rules 62-4.070(4), 62-4.210(2) & (3), 62-210.300(1)(a), and 62-212.400(6)(b), F.A.C.]

BACT Determination: In accordance with paragraph (4) of 40 CFR 52.21 (j) and 40 CFR 51.166(j), the Best Available Control Technology (BACT) determination shall be reviewed and modified as appropriate in the event of a plant conversion. This paragraph states: "For phased construction projects, the determination of best available control technology shall be reviewed and modified as appropriate at the latest reasonable time which occurs no later than 18 months prior to commencement of construction of each independent phase of the project. At such time, the owner or operator of the applicable stationary source may be required to demonstrate the adequacy of any previous determination of best available control technology for the source." This reassessment will also be conducted for this project if there are any increases in heat input limits, hours of operation, oil firing, low or base load operation, short-term or annual emission limits, annual fuel heat input limits or similar changes. [40 CFR 52.21(j), 40 CFR 51.166(j) and Rule 62-4.070 F.A.C.]

7. Modifications: No emissions unit or facility subject to this permit shall be constructed or modified without obtaining an air construction permit from the Department's Bureau of Air Regulation. Such permit must be obtained prior to the beginning of construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]

8. Title V Operation Permit Required: This permit authorizes construction and/or installation of the permitted emissions unit and initial operation to determine compliance with Department rules. A Title V operation permit is required for regular operation of the permitted emissions unit. The owner or operator shall apply for a Title V operation permit at least ninety days prior to expiration of this permit, but no later than 180 days after commencing operation. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the Department's Bureau of Air Regulation, and a copy sent to the Department's Southwest District office. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

   Application for Title IV Permit: An application for a Title IV Acid Rain Permit, must be submitted to the U.S. Environmental Protection Agency Region IV office in Atlanta, Georgia and a copy submitted to the Department's Bureau of Air Regulation 24 months before the date on which the new unit begins serving an electrical generator greater than 25 MW. [40 CFR 72]

EMISSION LIMITING STANDARDS

9. General Visible Emissions Standard: Except for emissions units that are subject to a particulate matter or opacity limit set forth or established by rule and reflected by conditions in this permit, no person shall cause, let, permit, suffer, or allow to be discharged into the atmosphere the emissions of air pollutants from any activity, the density if which is equal to or greater than that designated as Number 1 on the Ringelmann Chart (20% opacity). The test method for visible emissions shall be EPA Method 9, incorporated and adopted by reference in Chapter 62-297, F.A.C. Test procedures shall meet all applicable requirements of Chapter 62-297, F.A.C. [Rule 62-296.320(4)(b)1, F.A.C.]

10. Unconfined Emissions of Particulate Matter: [Rule 62-296.320(4)(c), F.A.C.]

(a) No person shall cause, let, permit, suffer or allow the emissions of unconfined particulate matter from any activity, including vehicular movement; transportation of materials; construction, alteration, demolition or wrecking; or industrially related activities such as loading, unloading, storing or handling; without taking reasonable precautions to prevent such emissions.

(b) Any permit issued to a facility with emissions of unconfined particulate matter shall specify the reasonable precautions to be taken by that facility to control the emissions of unconfined particulate matter.

(c) Reasonable precautions applicable to this facility include the following:

- Paving and maintenance of roads, parking areas and yards.
- Application of water or chemicals to control emissions from such activities as demolition of buildings, grading roads, construction, and land clearing.
- Application of asphalt, water, oil, chemicals or other dust suppressants to unpaved roads, yards, open stock piles and similar activities.
- Removal of particulate matter from roads and other paved areas under the control of the owner or operator of the facility to prevent reentrainment, and from buildings or work areas to prevent particulate from becoming airborne.
- Landscaping or planting of vegetation.
- Confining abrasive blasting where possible.

(d) In determining what constitutes reasonable precautions for a particular source, the Department shall consider the cost of the control technique or work practice, the environmental impacts of the technique or practice, and the degree of reduction of emissions expected from a particular technique or practice.

11. General Pollutant Emission Limiting Standards: [Rule 62-296.320(1)(a)&(2), F.A.C.]

(a) No person shall store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems deemed necessary and ordered by the Department.

(b) No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor. [Note: For Title V purposes this paragraph is considered to be not federally enforceable.]

[Note: An objectionable odor is defined in Rule 62-210.200(198), F.A.C., as any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance.]

OPERATIONAL REQUIREMENTS

12. Plant Operation - Problems: If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by hazard of fire, wind or by other cause, the permittee shall immediately notify the Department's Southwest District office. The notification shall include pertinent information as to the cause of the problem, and what steps are being taken to