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BUREAU OF AIR REGULATION

Pollution Prevention Planning

for the

Pompano Beach Energy Center (PBEC) L.L.C.

in fulfillment of

Broward County Ordinance 27-178

BACKGROUND

Pollution Prevention Requirements

Pollution Prevention Planning is addressed under Broward County Code Section 27-178. Applicability is directed toward any owner or operator of a source constructed or modified after the effective date (April 2000), that results in a potential to emit any pollutant in excess of a major source criteria; or of a major source reconstructed or modified after the effective date which results in an increase in the potential to emit in excess of established criteria. These types of projects are to submit to the Broward County Department of Planning and Environmental Protection (DPEP) a Pollution Prevention (P2) Plan as part of their permit application.

The P2 Plan is to address a reduction in the generation of regulated air pollutants, including hazardous air pollutants (HAPs), and is to consider the cross-media transfer of pollutants and energy efficiency. The plan is to be submitted to the DPEP at the time of submittal of a construction or modification permit application and shall be considered part of the application.

The P2 Plan may consist of a certification by a Florida-registered professional engineer with appropriate documentation that there are no reasonably available technically and economically feasible alternatives to the proposed level of emissions of regulated air pollutants.

The P2 Plan is to include a summary of all data and information in the plan, including the following:

- The names, addresses and telephone numbers of the contact person responsible for the P2 Plan, the owner or operator, and the Responsible Official at the source;
- A statement of the scope and objectives of the P2 Plan and target emission reductions;
- The identification and explanation of technology, procedures and options considered available
 and technically feasible for reducing the use of each hazardous air pollutant (HAP) and/or
 regulated air pollutant at the source, and a time schedule for implementing chosen options;
 and
- An analysis of P2 activities that are already in place and that are consistent with the requirements of this section. The analysis shall include a description of existing P2 activities and the associated estimated emission reductions from each P2 activity listed.

Finally, the permittee may modify or update the P2 Plan. If the permittee modifies or updates the P2 Plan during the course of the life of the permit, a copy of the modified or updated P2 Plan is to be kept



on site and made available for inspection. A copy of the modified or updated P2 Plan is to be submitted to the DPEP along with the permit renewal application.

Project Description

The facility addressed by this P2 Plan will be owned and operated by Pompano Beach Energy Center, LLC (PBEC). The proposed project is a dual-fuel simple-cycle merchant power plant to be located in Pompano Beach, Florida. A merchant power plant is a non-utility generation facility designed to produce power within the emerging deregulated electricity market. The PBEC is designed to have a nominal generating capacity in the range of 510 MW. Commercial operation is scheduled to commence by May 1, 2002. As a merchant peaking plant, the PBEC is being designed to convert fuel to useful power quickly, cleanly, and reliably.

The PBEC will include three (3) General Electric 7FA combustion turbine generators (CTGs) operating in a simple-cycle mode. A simple-cycle peaking project is fundamentally different than the more common "combined-cycle" base load systems. The design, purpose and energy efficiency of a simple-cycle system will be described in more detail in the "Energy Efficiency" section of this Plan. The CTGs will be designed to operate on both natural gas and low-sulfur distillate fuel oil. Dry, low NO_X (DLN) combustors will be used to minimize NO_X formation during combustion, and water injection will be employed during diesel oil-firing to reduce NO_X emissions. The use of DLN combustors during natural gas firing further serves to minimize the use of water for the project.

The proposed generation facility will utilize the Best Available Control Technology (BACT), as defined by U.S. EPA, for NO_X , CO, SO_2 , Sulfuric Acid Mist (SAM), and particulates (PM/PM₁₀) to minimize air emissions. The project will not be a major source of hazardous air pollutants (HAPs).

As part of its application, the PBEC is requesting the ability to burn 1,000 hours per year of oil. While the intention is to burn natural gas at every opportunity, near term constraints on the Florida Gas Transmission (FGT) pipeline may impede the ability to burn natural gas during periods of peak demand often associated with the summer season. In general, the FGT natural gas transmission line flows near its maximum pipeline capacity of 1.5 billion cubic feet per day (Bcf/day) during the summer season. In order to accommodate the demand for incremental generation within the state of Florida, FGT plans to expand its pipeline capacity by approximately 600,000 MMBtu/day before the summer of 2002. Additionally, FGT is in active discussions with potential shippers to perform another expansion of its pipeline in 2003. The addition of this capacity should reduce periods of pipeline constraint and will result in an increased availability of natural gas to the proposed site. The request for greater oil burning flexibility is necessitated by near-term FGT capacity constraints and is not due to deficient gas supplies received by FGT. Moreover, operational guidelines dictate that natural gas be the primary fuel source and that oil will be used only to the extent transmission capacity constraints on FGT preclude the delivery of natural gas to the site

As the proposed facility is intended to provide peak power which will typically occur during periods when natural gas demand will be high, the ability to operate using distillate oil as an alternative fuel is necessary to provide system reliability. As the facility is being proposed as a dual-fuel facility, the control technology analysis has been performed assuming the maximum amount of oil consumption, when determining potential emissions.

P2 PLAN CONTACTS

Listed below are the applicant's primary points of contact, and the address and phone number where they can be contacted.

Applicant's Address

Corporate Office

Pompano Beach Energy Center, LLC

1400 Smith Street

Houston, TX 77002-7631

Project Site

Pompano Beach Energy Center

3300 N.W. 27th Avenue

Pompano Beach, FL 33069

Applicant's Contacts

Corporate Officer

Ben Jacoby

Director

1400 Smith Street

Houston, TX 77002-7631

Environmental Contact

Dave Kellermeyer

Director

1400 Smith Street, EB-2957 B Houston, TX 77002-7631

Telephone: (713) 853-3161

Fax: (713) 646-3037



SCOPE AND OBJECTIVES

Broward County provides the following definition for pollution prevention: The act of using materials, processes, or practices that:

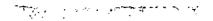
- (a) reduce or eliminate the creation of pollutants or wastes at the source; and
- (b) protect the environment and reduce the hazards to public health associated with the release of pollutants or wastes. This includes equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, material substitution, on site recycling/reuse, conservation of energy, water, and other natural resources, and improvements in housekeeping, maintenance, training, or inventory control. This does not include off site recycling, waste treatment, concentrating hazardous or toxic constituents to reduce volume, diluting constituents to reduce hazard or toxicity, or transferring hazardous or toxic constituents from one environmental medium to another.

The primary objectives of this Pollution Prevention (P2) plan are to: 1) document the process of determining technically and economically feasible control alternatives for emissions from this project, and 2) to document that pollution prevention considerations were inherent in the design features of this project. Some of these design features are addressed in the section heading of "Other P2 Activities". The scope of this plan also includes energy efficiency issues, cross-media transfer of pollutants, and other considerations written into the Broward County Ordinance

The Pollution Planning provision, as written in the Broward County code, tends to broadly apply to the types of projects it addresses, as long as the above-cited applicability criteria are triggered. As such, some new or modified construction projects that may be subject to this provision, may not be required to meet additional federal or state requirements that could be duplicative or more stringent. In the case of the Pompano Beach Energy Center, the proposed facility is required to submit an application for a permit to construct under the Prevention of Significant Deterioration (PSD) rules codified at 40 CFR Part 52 and incorporated as a SIP-approved program into Rule 62-212.400, F.A.C.

The following requirements are encompassed by PSD review:

- Compliance with any applicable emission limitation under the State Implementation Plan (SIP);
- Compliance with any applicable New Source Performance Standard (NSPS);
- Compliance with any applicable National Emission Standard for HAPs (NESHAPS);
- Application of Best Available Control Technology (BACT), as defined by the PSD rules, to emissions of NO_x, CO, SO₂, PM/PM₁₀ and HAPs from all significant sources at the facility;



- A demonstration that the facility's potential emissions, and any emissions of regulated pollutants resulting from directly related growth of a residential, commercial or industrial nature, will neither cause nor contribute to a violation of the NAAQS or allowable PSD increments;
- An analysis of the impacts on local soils, vegetation and visibility resulting from emissions
 from the facility and emissions from directly related growth of a residential, commercial, or
 industrial nature:
- An evaluation of impacts on Visibility and Air Quality Related Values (AQRVs) in PSD Class I areas (if applicable); and
- At the discretion of FDEP, pre-construction and/or post-construction air quality monitoring for NO_x, CO, SO₂, and PM/PM₁₀.

BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

In accordance with federal and state Prevention of Significant Deterioration (PSD) requirements, FDEP requires the application of Best Available Control Technology (BACT) for the control of each regulated pollutant emitted in significant quantities from a new major stationary source located in an attainment area for that pollutant. The proposed Pompano Beach Energy Center's combustion turbines are to be located in an area that is currently attainment for all pollutants, and must demonstrate the application of BACT for oxides of nitrogen (NO_X), carbon monoxide (CO), fine particulate (PM_{10}), sulfur dioxide (SO_2), and sulfuric acid mist (H_2SO_4).

The BACT requirements are intended to ensure that a proposed facility or major modification will incorporate air pollution control systems that reflect the latest demonstrated practical techniques for each particular emission unit, and will not result in the exceedance of a National Ambient Air Quality Standard (NAAQS), PSD Increment, or other air quality standard protective of the public health imposed at the state level. The BACT evaluation requires the documentation of performance levels achievable for each air pollution control technology applicable to the PBEC.

The five steps involved in a top-down BACT evaluation are:

- Identify options with practical potential for control of the regulated pollutant under evaluation;
- Eliminate technically infeasible or unavailable technology options;
- Rank the remaining control technologies by control effectiveness;
- Evaluate the most effective controls and document the results; if the top option is not selected as BACT, evaluate the next most effective control option; and

 Select BACT, which will be the most effective practical option not rejected based on prohibitive energy, environmental, or economic impacts.

The "top-down" approach was employed in evaluating available pollution controls for the PBEC.

BACT for Nitrogen Oxides (NOx)

 NO_x is primarily formed in combustion processes in two ways: 1) the combination of elemental nitrogen and oxygen in the combustion air within the high temperature environment of the combustor (thermal NO_x); and 2) the oxidation of nitrogen contained in the fuel (fuel NO_x). Natural gas does not contain fuel bound nitrogen; therefore, NO_x emissions from combustion turbines when burning natural gas originate as thermal NO_x . The rate of formation of thermal NO_x is a function of residence time and free oxygen, and increases exponentially with flame temperature. Liquid fuels such as No. 2 distillate contain fuel bound nitrogen. The combustion of liquid fuels results in inherently higher emissions of NO_x due to the combination of both thermal NO_x and fuel NO_x ; however, due to the oil refining process, low sulfur fuels have been found to have minimal amounts of fuel bound nitrogen. The specification of low sulfur fuel for this project also serves to minimize the amount of fuel bound nitrogen available for NO_x formation.

PBEC proposes to implement NO_x BACT through the application of state-of-the-art GE 7FA turbines with DLN combustors. These turbines will be able to achieve NO_x levels of "9 ppm" while firing natural gas and 42 ppm (water injected) while firing distillate oil. The use of "dry" low NO_x combustors during natural gas firing also serves to minimize the use of water at the site. This is equivalent to or more stringent than other recent BACT decisions for dual-fuel simple cycle peaking projects.

BACT for Carbon Monoxide

Carbon monoxide (CO) is formed as a result of incomplete combustion of fuel. Control of CO is accomplished by providing adequate fuel residence time and high temperature in the combustion zone to ensure complete combustion. These control factors, however, also tend to result in increased emissions of NO_x. Conversely, a low NO_x emission rate achieved through flame temperature control (by water injection or aggressive dry combustion design) tends to result in higher levels of CO emissions. Thus, a compromise must be established whereby the flame temperature reduction is set to achieve the lowest NO_x emission rate possible while minimizing CO emission rates.

Therefore, it's concluded that CO emission levels of 9 ppmvd while firing natural gas and 20 ppmvd while firing distillate oil using combustion control, represent BACT for this facility.

BACT for Particulate Matter and Trace Element Emissions

Particulate (PM) emissions from natural gas and distillate oil combustion sources consist of inert contaminants in the fuel, sulfates from fuel sulfur or mercaptans used as odorants, dust drawn in from

the ambient air, particulates of carbon and hydrocarbons resulting from incomplete combustion, and condensibles, including sulfates and nitrates. Units firing fuels with low ash content and high combustion efficiency, such as the units proposed, exhibit correspondingly low particulate emissions. Minimal trace elements may be a constituent of distillate fuel oils and, if so, may be emitted from the combustion turbine in the form of particulate emissions. These trace element particulates are present in quantities significantly lower than the thresholds that require further air quality analysis.

The use of add-on controls, such as electrostatic precipitators (ESPs) or baghouses, is technically infeasible, and does not represent an available control technology. The use of negligible or zero ash fuels such as natural gas and low sulfur distillate fuel oil, and good combustion control is concluded to represent BACT for PM control for the proposed simple-cycle peaking turbines.

BACT for Sulfur Dioxide and Sulfuric Acid Mist

Sulfur dioxide (SO_2) is exclusively formed through the oxidation of sulfur present in the fuel. The emission rate is a function of the sulfur content of the fuel, since virtually all fuel sulfur is converted to SO_2 . Another by-product of sulfur oxidation is when sulfur trioxide (SO_3) combines with water to form sulfuric acid (H_2SO_4). As a condensable gas, the sulfuric acid will appear in mist form in the stack if the temperatures are sufficiently low for condensation to occur. Since the stack exhaust will be in the $1050^{\circ}F - 1250^{\circ}F$ range, and the boiling point of sulfuric acid is less than $650^{\circ}F$, sulfuric acid mist will not form in the stack.

The proposed simple-cycle gas turbines will fire pipeline-quality natural gas and low sulfur transportation grade distillate fuel. Pipeline grade natural gas typically averages between 1-10 grains of sulfur per hundred standard cubic feet gas. The firing of pipeline quality natural gas and low sulfur transportation grade distillate fuel is the most stringent SO₂ control methodology that has been demonstrated in practice for any combustion turbine. Therefore, this evaluation concludes that that firing of pipeline quality natural gas and low sulfur transportation grade distillate fuel in the proposed simple-cycle peaking turbines and pipeline quality natural gas in the proposed fuel gas heater is BACT for SO₂.

BACT Summary

A summary of technologies determined to represent BACT for the PBEC project is presented in Table 1. Expected total emissions are summarized in Table 2, which are estimated based on 100% load for 3,500 hours per year including up to 1,000 hours per year of distillate oil operation and application of BACT as determined in this analysis.

Table 1. Summary of Selected BACTs

Pollutant	Gas Turbines				
NO _x	Dry Low NO _x Combustors with Natural Gas (9 ppmvd at 15% O ₂),				
	Water injection with Distillate Oil (42 ppmvd at 15% O₂)				
co	Good combustion control				
	(9 ppmvd with Natural Gas, 20 ppmvd with Distillate Oil)				
PM	Good combustion control; low ash, low sulfur fuel				
SO₂	Low sulfur fuel; natural gas				
	(2 grains S / 100 scf gas)				
	distillate oil (0.05 wt% S)				

Table 2. Annual Emission Summary for the PBEC Combustion Turbines

Turbine	NO _x	co	voc	SO₂	H₂SO₄	PM	PM10	Pb
			Emissions	for One Cor	nbustion Tur	bine (tons/ye	ear) 1	
GE 7FA	235.0	70.3	5.1	63.4	9.7	39.5	39.5	0.01
	Emissions for All Combustion Turbines (tons/year) 1							
3 x GE7FA	705.0	210.9	15.3	190.2	29.1	118.5	118.5	0.04

Notes:

NG Annual Operation 2,500 hrs/year/turbine

Oil Annual Operation 1,000 hrs/year/turbine

Total Annual Operation 3,500 hrs/year/turbine

OTHER P2 ACTIVITIES

The Pompano Beach Energy Center (PBEC) has further been designed to minimize potential and real environmental impacts.

Water Supply & Water Quality Impacts.

Water is needed for use in the inlet air chiller and for injection for NOx control during fuel oil firing. An evaluation of water supply alternatives and water disposal alternatives was performed to determine the best option to protect the water resources and the environment. It was found that this site has a unique opportunity to satisfy its water requirements without consuming freshwater from groundwater

¹ Based on worst case hourly emission rate over the load range (50% - 100% base load), at the effective Annual Average Temperature of 50°F, and the following operation schedule:

or surface water resources. Reuse wastewater provided by the Broward County North Region Wastewater Treatment Plant was selected as the primary source of process water for the plant. The Broward County North Region Wastewater Treatment Plant (WWTP) has the capacity to produce 10,000,000 gallons per day of reclaimed quality water for reuse. Currently, only 40 to 60 percent of the available reclaimed water capacity is being utilized and the remainder is disposed of by either discharging to the ocean outfall or to a deep well. The PBEC will consume a large percentage of the available reuse water, thereby minimizing the costly and environmental sensitivities associated with its discharge to the ocean and/or deep well.

To insure the operation of the Pompano Beach Energy Center under any conditions, groundwater from water supply wells located on site will be utilized to provide a secondary source of water for back-up of the primary reclaimed water supply. The Surficial and Biscayne aquifers will provide the back-up source, by water supply wells approximately 160-feet deep, with no significant effect on the groundwater resource. Due to the reliable supply of reclaimed water, it is not expected that significant quantities of groundwater would ever be required.

Peak water demands for the power plant will be approximately 1.6 MMgal/day during operation of all turbines. Raw water will be treated in a reverse osmosis (RO) system and in demineralizer units to remove impurities. The demineralizers will be portable units that are regenerated offsite, thus avoiding the need to discharge regeneration wastewater from the power plant site. The side stream off the RO system will be used as makeup water in the small cooling tower that is used as part of the inlet air chilling system. A small quantity of cooling tower blowdown will be generated. Constituents of this wastewater stream will be the naturally occurring substances in the raw water, cycled up to higher concentrations by evaporation in the cooling tower. This small quantity of blowdown will be returned to the Broward County North Region WWTP.

Waste Minimization.

No hazardous or non-hazardous waste will be generated as a by-product during operation of the facility. Extremely small quantities of listed hazardous wastes, such as spent solvents and paint thinners may be generated during the course of normal operation and maintenance activities. These substances will be stored, manifested, and disposed of in accordance with the hazardous waste regulations contained in applicable Florida regulations. Non-hazardous waste generated from plant operations include garbage and paper wastes, waste oils, and equipment maintenance washes. These wastes will be generated during routine maintenance of the plant equipment. Waste oils and spent solvents will be recycled. The procedure for equipment maintenance washes will generate a minimal amount of waste, which will be sent offsite for treatment. No wastes will remain onsite.

Accidental Release Prevention.

No hazardous materials, as defined by 40 CFR 302, will be used at this facility. Pipeline natural gas will meet all U.S. Department of Transportation safety standards that will greatly reduce the risk of an accidental release of natural gas. Turbine oil will be used and stored within the gas turbine lube oil reservoirs. Each turbine will have a lube oil reservoir with a capacity of 150 gallons. No. 2 Fuel Oil for the combustion turbines and the emergency fire-water pump will be stored on site in above-ground fuel oil storage tanks. Tanks will be constructed with impervious containment materials and in accordance with all applicable safety standards. Fuel oil spill containment for the project is governed by \$\quad 5239.13\$ of the South Florida Fire Code (because the fuel is a combustible liquid) and NFPA 30 "Flammable and Combustible Liquids Code, 2000 Edition" (because NFPA 30 is adopted by specific reference into Section 5239 by \$\quad 5239.1\$). Further, Paragraph 5239.13(h) of the South Florida Fire Code provides that above-ground storage tanks be surrounded by embankments or impervious dikes. Spill Prevention and Countermeasures plans (SPCC plans) for turbine oil and fuel oil handling will be written and implemented as required. The SPCC plan will identify potential leak pathways, will put in place plans for responding to releases and will describe measures taken to minimize the risk of an accidental release occurring

Energy Efficiency

Adequate electric generation is essential for the maintenance and growth of industry and commerce, as well as for the comfort and well being of Florida's residents based on recent shortfalls in the supply of electricity in the Southeast. Electricity can be generated from other non-fossil fuel resources, such as, wind energy, solar energy, hydro-energy and nuclear energy. However, Florida is in a flat terrain of the sub-tropical area; therefore, wind energy, hydro-energy, and solar energy are not capable of economically satisfying peak energy demands. Nuclear power plants will generate less criteria pollutants than natural gas fired plants, but present problems associated with the use of nuclear fuel and waste storage and handling. Generating electricity using natural gas fired combustion turbines is the most reliable, efficient, economic and cleanest option available for meeting the region's on-demand peak electric supply needs. There are no demonstrated alternative technologies that would offer greater environmental protection.

There are two types of combustion turbine electric generating facilities typically utilized to meet customer demand: 1) simple-cycle units and 2) combined cycle units. A simple-cycle unit consists mainly of a combustion turbine and is designed to start up quickly to meet peak energy demands. A combined-cycle unit uses the heating value of the exhaust gas to generate steam and drive a steam turbine, thus generating additional electricity. This type of design requires a longer startup time, is more efficient and is well suited to be used as a "base load" unit.

While a combined-cycle power plant exhibits much higher initial capital cost, these costs can be quickly recovered in greater fuel efficiency in a base load plant which operates around the clock at near full capacity. The combined-cycle power plant therefore, by definition incorporates a waste heat boiler or Heat Recovery Steam Generator (HRSG) and steam turbine generator. The HRSG recovers waste heat exiting the turbine at about 1.100°F and exhausts at about 220°F.

Regional power demand is variable from night to day, from hot summer days (which reflect air-conditioning loads) to cold winter days, from workdays to weekends, etc. However, there is a certain constant level of electrical demand that is always present, referred to as "base load". The nature of generation capacity built to provide base load power is that it is designed to maximize annual operation at a constant or "base" load at the lowest operating cost possible. Since fuel cost is the single biggest component of the cost to produce power, competitive base load generators must be designed to operate at the highest possible fuel efficiency and to produce their rated output continuously at maximum availability. The combined-cycle plant meets these criteria.

Once base load demand is satisfied, a need still exists to supply additional power at certain times when base load requirements are exceeded by the short-term peak power demand. Average peak power prices tend to be higher than for base load power. However, peaking units operate substantially fewer hours per year than base load units. The economics of providing peak power favor lower initial capital cost. (there are fewer operating hours per year in which to earn back the capital investment) and are less sensitive to optimization of heat rate. Most importantly, peak power must be able to come on-and off-line very quickly and, in some cases is designed to "follow" electrical demand. Simple-cycle is the only combustion turbine comiguration that meets this requirement. Combined-cycle units, on the other hand require a cold start-up schedule, measured in hours, to be brought from ambient temperature to full load. This is because the heat transfer surfaces and catalyst beds within the HRSG are sensitive to "thermal shock". On any given day, the demand for peak power may only last three to four hours. By the time a combined-cycle unit has been warmed up to full operating load, the market demand to produce the peak power may be over.

For the reasons presented above, simple-cycle peaking units operate intermittently and must be designed to follow electrical demand. As such, it is not economically feasible to rely on the heating value of the exhaust gas for commercial application to any type of process steam demand. PBEC commits to continually evaluate the economics and needs for the project, with a focus on optimizing the energy efficiency.

CONCLUSIONS

It is our belief that measures to provide for pollution prevention and prevent significant environmental impacts are inherent design features of the project. Some of these design features include:

- The use of highly efficient state-of-the-art combustion turbines to minimize air emissions, as well as
 the amount of fuel needed to produce electricity.
- Emissions of nitrogen oxides will be measured in real time using a continuous emission monitoring system (CEMS). This instrument will provide ongoing assurance that good combustion is being achieved and that the facility's air quality impacts are insignificant.

- Clean burning, low sulfur natural gas and fuel oil will be used, with natural gas being the primary fuel.
- The combustion turbines will be equipped with Dry Low NOx burners, simultaneously achieving the lowest emissions currently demonstrated and eliminating the need for water injection for NOx control through its "dry" design.
- The project will prepare and implement a Spill Prevention Control and Countermeasure (SPCC) plan to ensure that areas in which oil (distillate, lubricating, turbine) is stored and used is protected
 by appropriate measures such as containment dikes, and that procedures exist to prevent the occurrence of spills.
- Discharges of process wastewater will be minimal and consist of blowdown from an evaporative cooler. No significant quantities of treatment chemicals are anticipated to be required.
- Process water needs will be niet by the reuse of wastewater from the Broward County North Region WWT Plant.

We believe that the proposed project represents the most environmentally responsible manner for the production of on-demand peaking power. As a result, there is no need to identify additional mitigation measures to reduce environmental impacts.

Finally, PBEC conducts environmental awareness training programs. These programs cover all media and emphasize waste minimization. Employees are always encouraged to look at their job responsibilities and identify further reduction opportunities. In addition, PBEC has an ongoing training program for operators, mechanics, and electricians to help them identify ways to improve and maintain efficient operation of equipment.

PBEC anticipates that additional opportunities for pollution prevention may come from this increased awareness by our employees and will, therefore commit to revisit this plan and consider revisions where appropriate. If the P2 plan is modified or updated during the course of the life of the permit, a copy of the modified or updated P2 plan will be kept on site and made available for inspection. A copy of the modified or updated P2 plan will also be submitted to the DPEP along with the permit renewal application.

Enron North America Corp.

P.O. Box 1188 Houston, TX 77251-1188



December 14, 2000

Mr. Al Linero, P.E.
Administrator, New Source Review Section
Bureau of Air Regulation, Division of Air Resource Management
Florida Department of Environmental Protection
2600 Blair Stone Rd.
Tallahassee, FL 32399-2400

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DEC 15 2000

BUREAU OF AIR REGULATION

Re: Request for Additional Information

DEP File No. 0112515-001-AC (PSD-FL-304)

Pompano Beach Energy Center

Dear Mr. Linero:

On behalf of Pompano Beach Energy Center, LLC (PBEC), we have reviewed your letter requesting additional information, dated November 21, 2000. There were nine separate items in your letter to be addressed in order for the Department to continue the processing of our application. The items are addressed below in the order in which they were stated in the Department's letter.

1. Please refer to the attached letter containing the comments of the Broward County Department of Planning and Environmental Protection. We will set up a meeting with them and include your representatives so we can agree on the baseline concentrations in the area. Also they will be able to explain their requirements for the Pollution Prevention Plan mentioned in the attached letter. We believe that it is necessary to comply with the local rule and that it should be done in the course of this permitting action. Please copy DPEP on the response as you did on the original application.

Response – The referenced letter from the Broward County Department of Planning and Environmental Protection (DPEP) is included as Attachment I. The letter essentially references three items to be addressed that are required by the Broward County Code. First, the revised application (attached) now references the applicability of Broward County Code, Article IV, in the List of Applicable Regulations (Section II, Subsection A). Secondly, the application now meets the provisions of Broward County Code. Sec. 27-175 and 27-176(c)(2)b. Specifically, the application includes a demonstration that the emission of criteria pollutants will not reduce by more than one-half (½) the margin between the existing ambient concentrations and the applicable National Ambient Air Quality Standard (NAAQS). The revised application now presents the results of this analysis in Section 6.6. The last comment to be addressed was in reference to Broward County Code, Sec. 27-178, which requires the applicant to submit to DPEP, Air Quality

Mr. A. Linero December 14, 2000 Page 2

Division, a Pollution Prevention Plan. During the meeting held with the DPEP on November 30, 2000, it became apparent that the plan requested for this project would be the first to be submitted in fulfillment of this requirement. A follow-up meeting was conducted with William Hahne of the DPEP for further discussion regarding the intent of the requirements and the content of the plan. This plan, in *DRAFT* form is included as Appendix G in the attached revised application. It's understood, by all parties, that this remains a work in progress and that there is a commitment on behalf of the applicant to continue to address the DPEP's concerns and comments.

2. Significant Impact and/or Increment Consumption analyses are required for sulfur dioxide (SO₂), nitrogen dioxide (NO₂), and particulate matter (PM₁₀) for the nearby Class I Everglades National Park. The Department is working with your consultant to prepare the particulate inventory. This will allow you to conduct the increment analysis for PM₁₀ as well as the regional haze analysis.

Response – The required Class I area impact analysis has been completed and is included in the attached revised application (Section 7.3). The modeling was conducted in accordance with the protocol submitted to John Notar of the National Park Service (NPS) on October 17, 2000. Although final approval still has not been received from the NPS, the protocol provides the details of the proposed approach to assess the Class I area impacts and incorporates guidance previously received from the NPS. Once final comments are received from the NPS, the Class I analysis will be updated, if necessary. The preparation of a more refined particulate inventory isn't deemed necessary at this time.

3. Please review the cost calculation for the carbon monoxide oxidation catalysi. The cost appears high compared to similar projects. Please ask your consultant to contact us on this matter so we can provide specific guidance.

Response – Discussions were held regarding this issue with Messrs. Linero and Koerner on November 28, 2000. There were several assumptions used in the economic analysis that were discussed, such as the estimate of required labor (shifts/day), the use of interest costs during construction, and the inclusion of estimated lost revenue due to extended startups. Although PBEC feels that the addition of a catalyst bed would fundamentally alter the operation of the simple cycle turbines and that the inclusion of lost revenue due to extended startups was a legitimate cost, it was agreed that the application would be revised to reflect the Department's position on this issue and their other comments. However, the application text would also be modified to state that there were legitimate costs that were being excluded from the analysis. The BACT analysis in Section 5.0 of the revised application, has been updated to reflect these changes.

4. According to recent tests conducted at TECO Polk Power Station, a simple cycle GE 7FA unit achieved between 1 and 3 ppmvd CO at loads between 50 and 100 percent while burning fuel oil. These are very low emissions. We understand that GE will not actually guarantee these low values, but it is worth mentioning this fact in your analysis of CO control costs. We do not believe it is cost-effective to control CO by

BYLE COMPANY OF SEC.

oxidation catalyst, but want to have the most accurate possible information in the record.

Response -- PBEC hasn't been able to obtain and review the referenced data, but does appreciate the Department's comment that actual CO values, determined during a unit's initial compliance test, have been found to be well below levels that the vendor was willing to guarantee. PBEC would add that the test values were likely recorded during the unit's "new and clean" conditions, at steady state operation. In cases where some simple cycle projects have committed to install CO CEMS (e.g. minor source projects that are required to demonstrate compliance with a 250 TPY cap), more data will be available regarding long-term CO values, during all representative operating conditions.

5. According to recent tests conducted at the Tallahassee Purdom Unit 8, a combined cycle GE 7FA unit achieved between NO_X emissions of 7.2, 6.1, 6.7, and 8.7 ppmvd at loads of 70, 80, 90, and 100 percent while firing natural gas. Indications are that this unit could probably consistently achieve emissions less than 12 ppmvd if operated as a simple cycle unit.

Response - This is likely a true statement. NOx CEMS data was obtained from the City of Tallahassee for an approximate 16 day period. Some of the hourly averages were in the 10 ppmvd range; however, it could be that the unit was tuned for compliance with a 12 ppmvd limit, PBEC has concerns regarding its ability to continuously meet a 9 ppmvd limit, during the life of the unit. However, in an effort to move forward with processing of the application, a limit of 9 ppmvd (corrected to 15% O₂, 24 hour average), while firing natural gas, has been accepted.

6. The cost of further NO_X control by hot selective catalytic reduction should be reexamined. For instance, costs for other similar projects have been estimated at \$10,000 to 15,000 per ton of NO_X removed. This compares with the estimate of \$20,000 per ton in your application. We do not believe hot SCR catalyst is costeffective, but want a more accurate evaluation for the record.

Response – Reference the response to Item 3. The Department's comments have been incorporated into the revised analysis.

7. We have not permitted any projects recently that allow 1,500 hours per year of backup fuel oil firing. Please review the attached table and consider how to insure that the proposed project can fit into the range of NO_X emission limits and hours of fuel oil operation.

Response - This issue was addressed in a letter from PBEC to the Department, dated December 1, 2000 (Attachment 2). Our initial request for 1,500 hours of fuel oil firing was based on a concern over near-term gas pipeline capacity constraints in South Florida. The referenced letter confirmed that we would revise our PSD application to reflect the equivalent of 1,000 hours per year of fuel oil use. In addition, PBEC reconfirmed the fact that natural gas is the primary fuel and that the reliable supply of natural gas to the site would be aggressively pursued.

8. During recent tests conducted at the City of Tallahassee, the 7FA combustion turbine achieved 7.2, 6.1, 6.7, and 8.7 ppmvd at 70, 80, 90, and 100% of full load. While the unit is a combined cycle unit, we believe that it is possible to consistently achieve better than 12 ppmvd in a simple cycle unit. For a requested 12 ppmvd limit, we would suggest only 500 hours of fuel oil firing.

Response - As the Department's policy is to relate the amount of back-up fuel oil firing to the allowable NOx emission limit; PBEC has elected to accept the NOx limit summarized in Item 5 above. This is necessary because PBEC feels that a minimum of 1,000 hours of fuel oil firing flexibility is necessary for the project. As described below in the response to Item 9, PBEC doesn't believe that this amount of fuel oil firing will be required; however the operational flexibility is necessary to minimize risk to the project.

9. Describe the feasibility and effects of the fuel oil delivery. Based upon the application, trucking of the fuel oil is contemplated. At 1500 hours per year of oil operation on all 3 turbines, approximately 70 million gallons may be consumed annually or approximately 9,000 truckloads. If fuel oil operation was concentrated into just a few months, this would require a great deal of truck traffic into and out of the facility.

Response – As stated above, our request for 1,500 hours of oil firing was based on a concern over near-term gas pipeline capacity constraints in South Florida. In spite of these concerns, we are also sensitive to the environmental concerns of the Florida DEP and the community at large. As a result, we've amended our PSD permit application (attached) to change our maximum annual use of distillate oil to the equivalent of 1,000 hours of oil firing.

This revised estimate of fuel oil firing would reduce annual truck traffic below that estimated by the Department and bring the project fuel usage in line with other recently issued Department permits. We estimate that this represents, on average; about 15 truck trips per day, assuming the full 1,000 hours of oil use occurs. The 30 acres upon which the facility is to be constructed is the subject of an agreement between Broward County and the landowner, whereby Broward County is required to make an official finding that industrial development upon the subject property meets traffic concurrency pursuant to the Broward County land development code and comprehensive plan.

Please contact Dave Kellermeyer of Enron North America at (713) 853-3161, if you have any questions or comments concerning the above.

Sincerely,

Enron North America

Ben Jacoby Director Mr. A. Linero December 14, 2000 Page 5

cc: Dave Kellermeyer, Enron North America Steve Krimsky, Enron North America Bob Iwanchik, ENSR Scott Osbourn, ENSR

Enclosures

C. Carlson STD

9. Well, General Co.

EPA

ATTACHMENT 1



Department of Planning and Environmental Protection

Air Quality Division 218 S.W. 1st Avenue Fort Lauderaale, FL 33301 (954) 519-1220 • Fax (954) 519-1495

November 21, 2000

Mr. A. A. Linero, P.E.
Administrator, New Source Review
Bureau of Air Regulation, Division of Air Resources Management
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RE: Construction Permit Application #0112515-001-AC

Pompano Beach Energy, LLC

Dear Al:

In response to the above referenced Construction Permit Application for Pompano Beach Energy, LLC, we are offering the following comments:

- 1) Please advise the applicant that separate Prevention of Significant Deterioration (PSD) and construction permits are not required. Only a construction permit which incorporates all PSD requirements will be issued by your office.
- 2) Please advise the applicant that separate Title V and Title IV permits are not required. Only a Title V permit which incorporates all Acid Rain provisions will be issued by your office.
- 3) Please advise the applicant that the Section II. Facility Information Subsection A. General Facility Information: List of Applicable Regulations (Facility-Wide) is incomplete. The applicant must acknowledge that the facility is also subject to Broward County Code, Article IV although an additional county license will not be required.
- 4) Please advise the applicant that the application must meet the provisions of Broward County Code, Sec. 27-175 and 27-176(c)(2)b. Specifically, section 27-175 prohibits an owner or operator of a major source of air pollution from causing, letting, permitting, suffering or allowing the emission of criteria pollutants in quantities that will reduce by more than one-half (½) the margin between the existing ambient concentrations and the applicable National Ambient Air Quality Standard (NAAQS). Section 27-176(c)(2)b states the permit application for any facility whose potential emissions of a pollutant for which a NAAQS has been established, equal or exceed one hundred (100) tons per year, shall contain a demonstration, using any EPA-approved dispersion model, that the source will not reduce by more than one-half (½) the margin between the ambient concentrations and the applicable NAAQS. This requirement does not apply to sources whose potential to emit will be limited by the permit to less than one hundred (100) tons per year.

5) Please advise the applicant that the application must meet the provisions of Broward County Code, Sec. Sec. 27-178, which requires the applicant to submit to DPEP, Air Quality Division, a Pollution Prevention Plan. For example, one issue that might be addressed in the Pollution Prevention Plan is the reuse of the waste heat by a neighboring facility.

6) Finally, please advise the applicant that the equation for estimating the concentration of NO_x in 40 CFR 60.335(c)(1) is in error. The correct equation can be found in Broward County Code, Sec. 27-177(e).

We apologize for the delay in getting these comments to you. In the future, we will make every effort to submit any comments on applications more expeditiously. In addition, please keep us appraised of any and all significant developments regarding the intent to issue or deny this permit.

Very truly yours;	
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Daniela Banu, Director	

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FROM : ENSR

Enron North America Corp.

P.O. Box 1188 Houston, TX 77251-1188



BY: CERTIFIED MAIL

December 1, 2000

Mr. Alvaro A. Linero, P.E.
Administrator, New Source Review Section
Bureau of Air Regulation, Division of Air Resources Management
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RE: Request for Additional Information
DEP File No. 0112515-001-AC (PSD-FL-304)
Pompano Beach Energy Center

Dear Mr. Linero:

On behalf of Pompano Beach Energy Center, LLC, we have reviewed your letter requesting additional information, dated November 21, 2000. These data and analyses are in preparation; we expect to be able to submit everything by late next week. We did want to inform you immediately about our response to one issue raised in your letter; i.e., the request to be allowed up to 1500 hours of oil firing annually.

We recognize that the maximum oil usage that has previously been allowed in Florida for dual-fuel peakers is 1000 hours. Our request for a higher limit was based on a concern over near-term gas pipeline capacity constraints in South Florida. These capacity constraints are less critical to the north, where most of the dual-fuel peaker plants have been permitted to date. As stated in our application, we feel that FGT is taking steps to relieve these constraints and that the Project will be less likely to need oil firing after the initial 2 to 3 years of operation. Nevertheless, in the first couple of years of operation, the potential unavailability of the preferred fuel, natural gas, will likely dictate that the Pompano Beach Energy Center needs to fire oil during certain periods of peak power demand.

Although we have concern over the reliability of near-term natural gas supplies, we are also sensitive to the environmental concerns of the Florida DEP and the community at large. We are committed to being a good neighbor to the citizens of Pompano Beach and Broward County. Environmental protection is a major part of that commitment. We feel that our permit application has demonstrated that our environmental performance will be excellent while using either oil or gas. However, we also recognize that our environmental performance will be incrementally better on natural gas, the cleaner fuel.

FROM : ENSR FAX NO. : 7278989582 Dec. 15 2000 11:55AM P5

Mr. Al Linero December 1, 2000 Page 2

As a result, we have decided to amend our PSD permit application to change our maximum annual use of distillate oil to 1000 hours. In addition, we want to reconfirm the fact that natural gas is the primary fuel for the plant and that we will aggressively pursue the reliable supply of natural gas to our site. We will be filing an amended application that reflects this and incorporates responses to your other information requests.

Please contact Dave Kellermeyer of Enron North America at (713) 853-3161 if you have any questions regarding this matter.

Sincerely, Enron North America

David A. Kellermeyer

David A. Kelberr

Director

Cc: Steve Krimsky, Enron North America

Ben Jacoby, Enron North America

Bob Iwanchuk, ENSR Scott Osborne, ENSR

Enron North America Corp.

P.O. Box 1188

Houston, TX 77251-1106



CERTIFIED MAIL

December 1, 2000

Fred Comments of the Comments

DEC 0 8 2000

BUREAU OF AIR REGULATION

(Received by fax on 12/1/00)

Mr. Alvaro A. Linero, P.E. Administrator, New Source Review Section Bureau of Air Regulation, Division of Air Resources Management Florida Department of Environmental Protection 2600 Blair Stone Road Tallahassee, FL 32399-2400

RE: Request for Additional Information

DEP File No. 01.12515-001-AC (PSD-FL-304)

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Mr. Al Linero December 1, 2000 Page 2

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Enron North America

David A. Kellermeyer

David A. Kellen

Director

€a: Steve Krimsky, Enron North America

Ben Jacoby, Enron North America

Bob Iwanchuk, ENSR

Scott Osborne, ENSR

C. Janlary

J. andrewn, SEP G. Trank, Howard G.

EPA NPS

Butterfly World.

TRADEWINDS PARK
3600 W. SAMPLE ROAD
COCONUT CREEK, FLORIDA, U.S.A. 33073
TELEPHONE: 954-977-4434
FAX: 954-977-4501

December 11, 2000://www.butterflyworld.com e-mail: gardens@butterflyworld.com

Alvero Linero
State Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RE



DEC 15 2000

BUREAU OF AIR REGULATION

Dear Mr. Linero:

I write to let you know we are deeply disturbed by the possibility of the Enron Power Plant being built at it's proposed location in Pompano Beach.

With the daily southeastern wind we would be first in line for all the toxins and pollutants since we are only hundreds of yards and directly in line with the proposed site. Of course they say they intend to meet strict state pollution standards, but when you are fishing in the ocean early in the morning and see the brown haze over all of south Fort Lauderdale from FPL's plant in Port Everglades, then you begin to understand what really happens in these situations with power plants.

Butterfly World is not only South Florida's top attraction with hundreds of thousands of visitors, but is the home to intense research on endangered species. These species include some of the rarest butterflies and hummingbirds in the world. These creatures have zero tolerance for air that is not near perfect like their habitat. We have just been permitted by Coconut Creek and Broward County for a million dollar expansion most of which is for our endangered research. If this plant is allowed to be built in Pompano, we could just as well give up on most of what we do in the scientific arena. There is no doubt in our minds of the long term effect of such a plant on our facility and the benefits to tourism and the scientific community for which we are responsible.

When we selected this site we were careful to avoid the landfill with it's incinerator and power plant and stay north of the huge sewerage treatment plant at Powerline and Copans with it's flaming stacks.

I could say so much more, but will wait for your response.

Ronald Boender, Founder Butterfly World, Ltd.

cc: Beevb, Repks, Cities

Enron North America Corp.

P.O. Box 1188 Houston, TX 77251-1188



December 1, 2000

RECEIVED

DEC 0 8 2000

BUREAU OF AIR REGULATION

(Received by fax on 12/1/00)

Mr. Alvaro A. Linero, P.E. Administrator, New Source Review Section Bureau of Air Regulation, Division of Air Resources Management Florida Department of Environmental Protection 2600 Blair Stone Road Tallahassee, FL 32399-2400

RE: Request for Additional Information

DEP File No. 0112515-001-AC (PSD-FL-304)

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Sincerely, Enron North America

David A. Kellermeyer

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Ben Jacoby, Enron North America

Bob Iwanchuk, ENSR Scott Osborne, ENSR

C. Carlson

J. andleson, SED Q. Trank, Broward G.

NPS

Unconfined emissions means emissions which escape and become airborne from 2 unenclosed operations or which are emitted into the outdoor atmosphere without being 3 conducted through a stack.

U.S.C. shall mean the United States Code.

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Utility means any person as defined in Section 27-4 of the Code that sells electricity.

Vegetative debris shall have the meaning given it in Article VI of the Code.

Visible emission means an emission greater than five (5) percent opacity measured by 8 EPA or DEP approved test methods.

Volatile organic compounds (VOCs) shall have the same meaning given it in 40 C.F.R. 10 51.100(s).

Volume reduction process means a facility where operations or processes are 12 performed or equipment is used to receive and process spent mercury-containing lamps or 13 devices in a manner such as crushing, grinding, compacting, or physically altering the state of 14 the lamps or devices and which does not produce separation of the residuals, and is used for 15] the size or volume reduction of lamps or mercury containing devices.

Worst-case scenario describes the different pathway combination exposures at the 17 maximum exposure levels of toxic pollutants.

18 Section 27-175. General Prohibitions.

(a) Unless otherwise authorized by this article, no owner or operator shall construct or 20 operate any source of air pollution, including parking facility(ies), except in accordance with a valid air quality license, permit, or parking facility(ies) license, and all general and specific 22 conditions contained therein, including any other requirements under federal, state or local 23 regulations.

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- (c) Circumvention: No person shall circumvent any air pollution control equipment, or allow the emission of air pollutants without the applicable air pollution control device operating properly.
- (d) Maintenance: No person shall operate any air pollution control equipment or systems without proper and sufficient maintenance to assure compliance with this article.
- (e) Objectionable Odor. No person shall cause, suffer, allow or permit the discharge of air pollutants from a stationary source which cause or contribute to an objectionable odor. For the purposes of this article, this prohibition does not apply to odors generated from restaurants 12 and residential dwelling units.
- (f) Volatile Organic Compounds Emissions or Organic Solvents Emissions: Unless 14 otherwise authorized by this article, no person shall store, pump, handle, process, load, unload 15] or use in any process or installation volatile organic compounds or organic solvents without 16| applying known and existing air pollution control equipment or systems deemed necessary and ordered by DPEP.
 - (g) Cumulative Impacts: No owner or operator of a major source of air pollution constructed, reconstructed, or modified after the effective date of this article shall cause, let, permit, suffer or allow the emission of criteria pollutants in quantities that will reduce by more than one-half (1/2) the margin between the existing ambient concentrations and the applicable NAAQS.
- (h) Unconfined Emissions of Particulate Matter: No person shall cause, let, permit, 24 suffer, or allow the emissions of particulate matter, from any source whatsoever, including but

- √(i) Visible Emissions: Unless otherwise authorized by this article or any federal or state specific emission limiting standard, no person shall cause, let, permit, suffer or allow to be 10 discharged into the outdoor atmosphere any air pollutants from sources, the opacity of which 11] is equal or greater than twenty percent (20%). If the presence of uncombined water is the only 12 reason for failure to meet visible emission standards given in this section; such failure shall not be a violation of this prohibition.
 - (j) Visible Emissions from Motor Vehicles:

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- No person shall operate any gasoline-powered motor vehicle which generates (1) visible emissions from the exhaust pipe(s) for more than a continuous period of five (5) seconds;
- No person shall operate any diesel-powered motor vehicle which generates (2) visible emissions from the exhaust pipe(s) for more than a continuous period of five (5) seconds while in the cruise mode or idle mode.
- General License and Permit Requirements; Exemptions; Section 27-176. Application Requirements; Actions on Licenses and Permits; and Criteria for Issuance or Denial.
 - General License and Permit Requirements: (a)

- Air quality monitoring requirements shall be limited to carbon monoxide. Procedures, instrumentation and sampling sites must be approved by DPEP before monitoring;
- DPEP reserves the right to require additional data as determined necessary to evaluate impacts to air quality.
- Permit Application Requirements: A complete application for a permit shall be submitted on the appropriate DEP form, adopted by reference in Rule 62-210.900, F.A.C., by an owner or operator or authorized agent, and must be accompanied by required fee(s) as established in Chapter 62-4, F.A.C. Required permit application data:
 - a. A complete application for a permit shall include all the appropriate information as described in the appropriate DEP instruction form, adopted by reference in Rule 62-210.900, F.A.C. and any other information required in this article;

Cumulative Impacts: A permit application for any facility(ies) constructed, reconstructed or modified after the effective date of this article and whose potential emissions of a pollutant for which a NAAQS has been established equal or exceed one hundred (100) tons per year, shall contain a demonstration, using any EPA-approved dispersion model, that the source will not reduce by more than one-half (½) the margin between the ambient concentrations and the applicable NAAQS. This requirement does not apply to sources whose potential to emit will be limited by the permit to less than one hundred (100) tons per year;

- Pollution Prevention Plan: When applicable, the application shall include a Pollution Prevention plan as specified in Section 27-178(a).
- (d) Actions on Licenses and Permits:
- (1) Action on air quality and parking facility(ies) license applications shall be in accordance with the provisions in Chapter 27, Article I of the Code. A multi-year air quality license, not to exceed five (5) years, may be issued provided that payment equals the fee multiplied by the number of years for which the license is issued.
- (2) If the parking facility(ies) is not completed and operational within five (5) years from the date of issuance, the parking facility(ies) license shall expire and a new application shall be submitted to DPEP. The application may consist of a demonstration that no significant changes to the carbon monoxide concentrations at the receptor sites have occurred and that the information submitted in the initial application is still valid.
- (3) Action on air permit applications shall be in accordance with the provisions in Chapter 62-4, F.A.C.
- (e) Criteria for Issuance or Denial:
- (1) Standards for issuance or denial of an air quality license shall be in accordance with the provisions in Chapter 27, Article I of the Code. The air quality license for a source which has been shut down for six (6) months or more before the expiration date of the current air quality license shall be renewed for a period not to exceed one (1) year from the date of shutdown, even if the source is not maintained in operational condition, provided:

- The owner or operator of the source demonstrates to DPEP that the source may need to be reactivated and used;
- The source was operating in compliance with all applicable rules as of the time the source was shut down;
- c. The owner or operator shall demonstrate to DPEP before reactivation that such reactivation would not constitute a violation of any applicable provisions of this chapter.
- (2) Standards for issuance or denial of a parking facility(ies) license: DPEP will deny or issue a parking facility(ies) license after making the determination that the proposed facility(ies) will or will not result in a violation of the Broward County Air Quality Standard for carbon monoxide (CO).
 - a. The determination shall be made by evaluating the anticipated carbon monoxide concentrations which will be generated by the parking facility(ies) for the current year, build-out year, and ten (10) year period following the date of completion. Such determination may be made by using traffic flow characteristic guidelines published by the EPA which relate traffic demand and capacity considerations to ambient carbon monoxide impact by use of appropriate atmospheric diffusion models and/or any other reliable analytic method approved by DPEP. Carbon monoxide concentration estimates (for current, build-out, and ten (10) years after the facility(ies) is completed and operational) shall be made for one (1) hour and eight (8) hour periods. Determination of the air quality impact of a proposed parking facility(ies) shall be made at the receptor sites.

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- If estimated carbon monoxide concentrations are greater than one b. hundred percent (100%) of the NAAQS, the application shall be denied.
- A license shall be issued only for the phase or phases for which the C. information is submitted. The remaining phase or phases of the project shall require a separate license application and review from DPEP, in accordance with Section 27-176(c)(1)b).
- Standards for issuance or denial of an air permit shall be in accordance with the (3) provisions in Chapter 62-4, F.A.C., unless otherwise specified in this article.

Section 27-177. General License and Permit Standards.

The emission limiting and performance standards in Chapter 62-296, F.A.C. are adopted by reference in Section 27-173 of the Code. The following are additional emission limiting and performance standards that are applicable to sources in Broward County:

- Specific Limits on Emissions of Pollutants: Specific limits will be included in a (a) license or permit:
 - When specifically requested by the permit or license applicant; (1)
 - When the limitation is a result of a consent order, a settlement agreement, or a (2) final order pursuant to Article I of the Code, or pursuant to the F.A.C. or F.S.; or
 - To provide DPEP with reasonable assurances that federal, state, and local (3) regulations are being complied with.
- Any license issued to a source of fugitive particulate matter shall specify the (b) reasonable precautions to be taken by that source to control emissions of fugitive particulate matter. In determining what constitutes reasonable precautions for a particular source, DPEP 23 shall consider the cost of the control technique or work practice, the environmental impacts of 24 the technique or practice, and the degree of reduction of emissions expected from a particular

- Paving and maintenance of roads, parking areas and yards; (1)
- Application of water or chemicals to control emissions from such activities as (2) demolition of buildings, grading roads, construction, and land clearing;
- Application of asphalt, water, oil, chemicals or other dust suppressants to (3) unpaved roads, yards, open stock piles and similar sources;
- Removal of particulate matter from roads and other paved areas under the (4) control of the owner or operator of the source to prevent reentrainment, and from buildings or work areas to prevent particulate from becoming airborne;
- Landscaping or planting of vegetation; (5)

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- Use of hoods, fans, filters, and similar equipment to contain, capture and/or vent (6)particulate matter;
- Confining abrasive blasting where possible; (7)
- (8) Enclosure or covering of conveyor systems;
- In addition to the excess emissions rule requirements of Rule 62-210.700, (c) 17 F.A.C., the following shall apply to emission units that require an elevated operating temperature 18 to comply with emission limiting standards and which are not subject to any emission limiting 19| standard under NSPS, NESHAP, the Acid Rain Program, or this section. The following shall 20 not apply to any BACT or LAER standard to the extent that it would cause such standard to be less stringent than any otherwise applicable standards in NSPS, NESHAP, the Federal Acid Rain Program, or this article:
 - Excess emissions resulting from startup or shutdown of any source shall be (1) allowed provided: the best operational practices to minimize emissions are

 H_0 = observed humidity of ambient air, g H_2O/g air.

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followed and the duration of excess emissions shall be minimized but shall not

- Standards of Performance for Bulk Gasoline Terminals: The standards required (f) 4 in 40 C.F.R. 60, Subpart XX, shall apply to owners and operators of loading racks at bulk 5 gasoline terminals that load any petroleum products, unless the owner or operator can 6 demonstrate as a practical matter that the tank trucks being loaded do not contain gasoline 7 vapors.
- Standards of Performance for Asphalt Processing and Asphalt Roofing (g) 9 Manufacture: If the owner or operator subject to the provisions of 40 C.F.R. 60, Subpart UU, 10 using an afterburner to meet the emission limiting standards of 40 C.F.R. 60.472(a) and/or (b), 11 the owner or operator shall continuously monitor and record the temperature in the combustion 12 zone of the afterburner. The monitoring instrument shall have an accuracy of ± ten degrees 13 Celsius (10°C) over its range. The annual test report shall provide the average temperature 14 recorded in the combustion zone during the test. The owner or operator shall not operate the 15 afterburner at temperatures below the average temperature recorded during the most recent 16 test, unless the owner or operator submits a request to DPEP for a retest at an average lower 17 combustion zone temperature and the results demonstrate that the emission limits in 40 C.F.R. 18 60.472(a) and (b) can be achieved at the average lower combustion zone temperature.

Sec. 27-178. Pollution Prevention Planning

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Any owner or operator of a source constructed or modified after the effective (a) 21 date of this article which results in a potential to emit any pollutant in excess of a major source criteria; or of a major source reconstructed or modified after the effective date of this article 23 which results in an increase in the potential to emit in excess of the criteria established below,

1	shall submit to DPEP a Pollution Prevention (P2) plan as part of the permit application as						
2	described below:						
3		PM		Twenty-five (25) tons per year			
4		PM10)	Fifteen (15) tons per year			
5		, SO2		Forty (40) tons per year			
6		NOx		Forty (40) tons per year			
7		VOC		Forty (40) tons per year			
8	_	СО		One hundred (100) tons per year			
9	Any individual HAP Ten (10) tons per year						
10	·	Total	HAP's	Twenty-five (25) tons per year			
11	(1)	The P2 plan shall address a reduction in the generation of regulated air					
12		pollutants, including HAPs, and shall consider the cross-media transfer of					
13		pollutants and energy efficiency. The plan shall be submitted to the DPEP at the					
14		time of submittal of a construction or modification permit application and shall					
15		be considered part of the application.					
16	(2)	The P2 plan may consist of a certification by a Florida registered professional					
17		engineer with appropriate documentation that there are no reasonably available					
18		technically and economically feasible alternatives to the proposed level of					
- 19		emissions of regulated air pollutants.					
20	(3)	The P2 plan shall include a summary of all data and information in the plan,					
21		including the following:					
22		a. The	names, addres	sses and telephone numbers of the contact			
23		person responsible for the P2 plan, the owner or operator, and					
24		the re	esponsible offi	cial at the source;			
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- A statement of the scope and objectives of the P2 plan and target b. emission reductions:
- The identification and explanation of technology, procedures and C. options considered available and technically feasible for reducing the use of each hazardous air pollutant and/or regulated air pollutant at the source, and a time schedule for implementing chosen options.;
- An analysis of P2 activities that are already in place and that are d) consistent with the requirements of this section. The analysis shall include a description of existing P2 activities and the associated estimated emission reductions from each P2 activity listed.
- If a P2 plan is not submitted, or DPEP determines that a plan is not in (b) compliance with the requirements of this section, the application shall be deemed incomplete. 15 Processing of the application will be pursuant to F.A.C. Rule 62-4.055.
- The permittee may modify or update the P2 plan. If the permittee modifies or (c) updates the P2 plan during the course of the life of the permit, a copy of the modified or updated 18 P2 plan shall be kept on site and be made available for inspection. A copy of the modified or updated P2 plan shall be submitted to DPEP along with the permit renewal application.
 - If, at any time, any owner or operator of a source subject to the P2 planning requirements of this article applies for a permit modification, the applicant shall submit an environmental cost accounting which compares the financial return of pollution control projects with pollution prevention projects.

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1 (e) If, at any time, the permittee reduces or maintains the potential emissions of any criteria air pollutant to below one hundred (100) tons per any consecutive twelve (12) month period, and total HAPs emissions to below twenty-five (25) tons per any consecutive twelve (12) month period, and any individual HAP emission to below ten (10) tons per any consecutive twelve (12) month period, and it can be demonstrated by the permittee that these reductions are permanent, any and all of the requirements of this section may be waived.

Section 27-179. Hospital/Medical/Infecticus Waste Incinerators, Human Crematories, and Animal Crematories.

- (a) General Requirements
- (1) Applicability:
 - a. This section shall apply to all new and existing Hospital/Medical/Infectious Waste Incinerators and Human and Animal Crematories;
 - b. To construct or operate a facility(ies) subject to this section, an air permit must be obtained as set forth in this article;
 - c. To construct or operate a Hospital/Medical/Infectious Waste Incinerator ("HMIWI"), the air permit applicant must meet the requirements set forth in 40 C.F.R. 60, Subpart Ec, which are adopted by reference in Rule 62-204.800(7)(b)8, F.A.C., in addition to the requirements of this section;
 - d. To construct or operate a human or animal crematory, the air quality license applicant must meet the appropriate requirements set forth in this section as well as all the applicable requirements of Rule 62-210.300, F.A.C.



Department of Environmental Protection

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

David B. Struhs Secretary

November 21, 2000

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Ben Jacoby, Director Pompano Beach Energy Center, L.L.C. 1400 Smith Street Houston, Texas 77002-7631

Re: Request for Additional Information DEP File No. 0112515-001-AC (PSD-FL-304) Pompano Beach Energy Center

Dear Mr. Jacoby:

On October 23, 2000 the Department has received your application fee for an air construction permit for three 170-MW dual fuel GE "7FA" combustion turbines for the proposed Pompano Beach Energy Center (PBEC) in Broward County. The application is incomplete. In order to continue processing your application, the Department will need the additional information below. Should your response to any of the below items require new calculations, please submit the new calculations, assumptions, reference material and appropriate revised pages of the application form.

- 1. Please refer to the attached letter containing the comments of the Broward County Department of Planning and Environmental Protection. We will set up a meeting with them and include your representatives so we can agree on the baseline concentrations in the area. Also they will be able to explain their requirements for the Pollution Prevention Plan mentioned in the attached letter. We believe that it is necessary to comply with the local rule and that it should be done in the course of this permitting action. Please copy DPEP on the response as you did on the original application.
- 2. Significant Impact and/or Increment Consumption analyses are required for sulfur dioxide (SO₂), nitrogen dioxide (NO₂), and particulate matter (PM₁₀) for the nearby Class I Everglades National Park. The Department is working with your consultant to prepare the particulate inventory. This will allow you to conduct the increment analysis for PM₁₀ as well as the regional haze analysis.
- 3. Please review the cost calculation for the carbon monoxide oxidation catalyst. The cost appears high compared to similar projects. Please ask your consultant to contact us this matter so we can provide specific guidance.
- 4. According to recent tests conducted at TECO Polk Power Station, a simple cycle GE 7FA unit achieved between 1 and 3 ppmvd CO at loads between 50 and 100 percent while burning fuel oil. These are very low emissions. We understand that GE will not actually guarantee these low values, but it is worth mentioning this fact in your analysis of CO control costs. We do not believe it is cost-effective to control CO by oxidation catalyst, but want to have the most accurate possible information in the record.

"More Protection, Less Process"

- 5. According to recent tests conducted at the Tallahassee Purdom Unit 8, a combined cycle GE 7FA unit achieved between NO_x emissions of 7.2, 6.1, 6.7, and 8.7 ppmvd at loads of 70, 80, 90, and 100 percent while firing natural gas. Indications are that this unit could probably consistently achieve emissions less than 12 ppmvd if operated as a simple cycle unit.
- 6. The cost of further NO_X control by hot selective catalytic reduction should be re-examined. For instance, costs for other similar projects have been estimated at \$10,000 to 15,000 per ton of NO_X removed. This compares with the estimate of \$20,000 per ton in your application. We do not believe hot SCR catalyst is cost-effective, but want a more accurate evaluation for the record.
- 7. We have not permitted any projects recently that allow 1500 hours per year of backup fuel oil firing. Please review the attached table and consider how to insure that the proposed project can fit into the range of NO_x emission limits and hours of fuel oil operation.
- 8. Describe the feasibility and effects of the fuel oil delivery. Based upon the application, trucking of the fuel oil is contemplated. At 1500 hours per year of oil operation on all 3 turbines, approximately 70 million gallons may be consumed annually or approximately 9,000 truckloads. If fuel oil operation was concentrated into just a few months, this would require a great deal of truck traffic into and out of the facility.

Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. Please note that per Rule 62-4.055(1): "The applicant shall have ninety days after the Department mails a timely request for additional information to submit that information to the Department....... Failure of an applicant to provide the timely requested information by the applicable date shall result in denial of the application."

If you have any questions, please call me at 850/921-9523. Matters regarding review of the modeling should be directed to Chris Carlson (meteorologist) at 850/921-8986.

Sincerely,

A.A. Linero, P.E. Administrator New Source Review Section

AAL/al

cc: Gregg Worley, EPA
John Bunyak, NPS
Isidore Goldman, DEP SED
Daniela Banu, Broward County DPEP
Scott Osbourn, ENSR
Blair Burgess, ENSR

<u>.</u>	U.S. Postal Service CERTIFIED MAIL RECEIPT (Domestic Mail Only; No Insurance Coverage Provided)						
7.5	Article Sent To:						
453	Postage	s					
0000	Certified Fee		Postmark				
	Return Receipt Fee (Engorsement Required)		Here 11/21/00				
	Restricted Delivery Fee (Endorsement Required)						
00 hE	Total Postage & Fees	\$					
	Name iPlease Print Clearly) (to be completed by mailer) Mr. Ben Jacoby						
7099	Street Act No. or PO Box No. 1400 Smith St.						
	Cha State ZIP-1 Hous Fon, TX 77002-7631						
	PS Form 3800; July 1999		See Reverse for Instructions				

RECENT NO $_{\rm X}$ EMISSION LIMITS – SIMPLE CYCLE PROJECTS (PROPOSED PBEC INCLUDED)

Project Location	Power Output (MW)	NO _x Limit ppmvd @ 15% O ₂ and Fuel	Technology	Comments
PBEC, Broward, FL	510	12 - NG	DLN WI	3x170 MW GE PG7241FA CTs
		42 – No. 2 FO	1	Application 10/00, 1500 hrs on oil 3x170 MW GE PG7241FA CTs
DeSote County, FL	510	9 - NG 42 - No. 2 FO	DLN WI	1ssued 6/00. 1000 hrs on oil
<u></u>	510	9 - NG .	DLN	3x170 MW GE PG7241FA CTs
Shady Hills Pasco, FL		42 - No. 2 FO	WI	Issued 3/00. 1000 hrs on oil
	680	9 - NG	DLN	4x170 MW GE PG7241FA CTs
Vandolah Hardee, FL		42 - No. 2 FO	WI ·	Issued 11/99. 1000 hrs on oil
01 1 0 1 171	850	9 - NG	DLN	5x170 MW GE PG7241FA CTs
Oleander Brevard, FL		42 - No. 2 FO	WI	Issued 11/99. 1000 hrs on oil
ID : D !! : D!	510	10.5 - NG	DLN	3x170 MW GE MS7241FA CTs
JEA Baldwin, FL		42 - No. 2 FO	WI	1ssued 10/99. 750 hrs on oil
D. II O 1. III.	510	10.5 - NG	DLN	3x170 MW GE MS7241FA CTs
Reliant Osceola, FL		42 - No. 2 FO	WI	Draft 11/99. 750 hrs on oil
WEOD II D PI	330	10.5 – NG	DLN	2x165 MW GE MS7241FA CTs
TEC Polk Power, FL		42 – No. 2 F.O.	Wl	Issued 10/99. 750 hrs on oil
D F1	510	15 – NG	DLN	3x170 MW WH 501F CTs
Dynegy, FL				Issued. Gas only
C - '4-11-1- FI	510	10.5 - NG	DLN	3x170 MW GE 7FA CTs
Granite Hardee, FL	510	42 - No. 2 FO	WI	500 hrs on oil
O 14 11 1 1 1 1	510	15 – NG	DLN	3x170 MW WH 501F CTs
Granite Hardee, FL				Gas Only
C A H L. FI	360	15 – NG	DLN	3x170 MW WH 501D5A CTs
Granite Hardee, FL				Gas Only
Cravita Hardan El	540	5 - NG	HSCR	3x180 MW ABB GT-24 CTs
Granite Hardee, FL		10/42 - FO	HSCR/WI	500 hrs on oil
D 11' 12'	510	10 - NG	DLN	3x170 MW GE 7FA CTs
Peace River, FL		42 - No. 2 FO	WI	720 hrs on oil
CDI M. C. FI	340	10/12 – NG/PA	DLN	2x170 MW GE 7FA CTs
FPL Martin, FL		42 – FO	WI	500 hrs on oil, 500 hrs on PA

CON = Continuous DLN = Dry Low NO_X Combustion

FO = Fuel Oil

GE = General Electric

SC = Simple Cycle

SCR = Selective Catalytic Reduction

NG = Natural Gas

WH = Westinghouse

INT = Intermittent

W1 = Water or Steam Injection

HSCR = Hot SCR

ABB = Asea Brown Boyari

BROWARD COUNTY

Department of Planning and Environmental Protection

Air Quality Division 218 S.W. 1st Avenue Fort Lauderdale, FL 33301 (954) 519-1220 • Fax (954) 519-1495

November 21, 2000

Mr. A. A. Linero, P.E.
Administrator, New Source Review
Bureau of Air Regulation, Division of Air Resources Management
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RE: Construction Permit Application #0112515-001-AC

Pompano Beach Energy, LLC

Dear Al:

In response to the above referenced Construction Permit Application for Pompano Beach Energy, LLC, we are offering the following comments:

- 1) Please advise the applicant that separate Prevention of Significant Deterioration (PSD) and construction permits are not required. Only a construction permit which incorporates all PSD requirements will be issued by your office.
- 2) Please advise the applicant that separate Title V and Title IV permits are not required. Only a Title V permit which incorporates all Acid Rain provisions will be issued by your office.
- 3) Please advise the applicant that the Section II. Facility Information Subsection A. General Facility Information: List of Applicable Regulations (Facility-Wide) is incomplete. The applicant must acknowledge that the facility is also subject to Broward County Code, Article IV although an additional county license will not be required.
- 4) Please advise the applicant that the application must meet the provisions of Broward County Code, Sec. 27-175 and 27-176(c)(2)b. Specifically, section 27-175 prohibits an owner or operator of a major source of air pollution from causing, letting, permitting, suffering or allowing the emission of criteria pollutants in quantities that will reduce by more than one-half (½) the margin between the existing ambient concentrations and the applicable National Ambient Air Quality Standard (NAAQS). Section 27-176(c)(2)b states the permit application for any facility whose potential emissions of a pollutant for which a NAAQS has been established, equal or exceed one hundred (100) tons per year, shall contain a demonstration, using any EPA-approved dispersion model, that the source will not reduce by more than one-half (½) the margin between the ambient concentrations and the applicable NAAQS. This requirement does not apply to sources whose potential to emit will be limited by the permit to less than one hundred (100) tons per year.

- 5) Please advise the applicant that the application must meet the provisions of Broward County Code, Sec. Sec. 27-178, which requires the applicant to submit to DPEP, Air Quality Division, a Pollution Prevention Plan. For example, one issue that might be addressed in the Pollution Prevention Plan is the reuse of the waste heat by a neighboring facility.
- 6) Finally, please advise the applicant that the equation for estimating the concentration of NO_x in 40 CFR 60.335(c)(1) is in error. The correct equation can be found in Broward County Code, Sec. 27-177(e).

We apologize for the delay in getting these comments to you. In the future, we will make every effort to submit any comments on applications more expeditiously. In addition, please keep us appraised of any and all significant developments regarding the intent to issue or deny this permit.

Very truly yours;
Daniela Banu, Director
DB/wjh



Department of Environmental Protection

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

David B. Struhs Secretary

October 24, 2000

Mr. John Bunyak, Chief Policy, Planning & Permit Review Branch NPS – Air Quality Division Post Office Box 25287 Denver, Colorado 80225

RE: Pompano Beach Energy Center, L.L.C.

PSD-FL-304

Facility ID No. 0112515-001-AC

Dear Mr. Bunyak:

Enclosed for your review and comment is an application for construction of a PSD source. The applicant, Pompano Beach Energy Center, L.L.C., proposes to construct a 510 MW simple-cycle combustion turbine peaking electric generating facility in Broward County, Florida.

Your comments may be forwarded to my attention at the letterhead address or faxed to the Bureau of Air Regulation at 850/922-6979. If you have any questions, please contact me at 850/921-9523.

Sincerely,

Patty adams JMAI Linero, P.E. Administrator

New Source Review Section

AAL/pa

Enclosures



Department of **Environmental Protection**

Jeb Bush Governor

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

David B. Struhs Secretary

October 24, 2000

Mr. Gregg Worley, Chief Air, Radiation Technology Branch Preconstruction/HAP Section U.S. EPA - Region 4 61 Forsyth Street Atlanta, Georgia 30303

RE: Pompano Beach Energy Center, L.L.C.

PSD-FL-304

Facility ID No. 0112515-001-AC

Dear Mr. Worley:

Enclosed for your review and comment is an application for construction of a PSD source. The applicant, Pompano Beach Energy Center, L.L.C., proposes to construct a 510 MW simple-cycle combustion turbine peaking electric generating facility in Broward County, Florida.

Your comments may be forwarded to my attention at the letterhead address or faxed to the Bureau of Air Regulation at 850/922-6979. If you have any questions, please contact me at 850/921-9523.

Sincerely,

Al Linero, P.E. Administrator

New Source Review Section

Patty adams

AAL/pa

Enclosures



October 20, 2000

Enron North America Corp.

P.O. Box 1188 Houston, TX 77251-1188

RECEIVED

OCT 23 2000

BUREAU OF AIR REGULATION

Mr. Al Linero, P.E. Administrator, New Source Review Section Florida Department of Environmental Protection 2600 Blair Stone Road Tallahassee, Florida 32399-2400

RE: Pompano Beach Energy, LLC

Permit Application for Pompano Beach Energy Center

Dear Mr. Linero:

On behalf of Pompano Beach Energy, LLC, enclosed are four (4) copies of an air permit application for the Pompano Beach Energy Center in Broward County, Florida. This application is for a PSD permit for a simple cycle combustion turbine power plant consisting of 3 General Electric 7FA dual-fuel units. Also enclosed is a CD-ROM containing the modeling archive required for your review. Separate copies of this application are being sent to the Southeast District of the DEP as well as to the local air quality agency in Broward County. An application processing fee has not been enclosed. Due to previously-submitted and withdrawn applications, Enron North America has an existing positive fee balance with the Florida Department of Environmental Management.

If you have any questions, please don't hesitate to call me at (713) 853-3161.

Sincerely, Enron North America

David A. Kellermeyer

Director

Enclosures

cc: Mr. Lennon Anderson, Southeast District

Mr. Jarrett Mack, Air Quality Division, Broward County

c. Carlson

David A Kellenny

EPA UPS