



**Enron North America Corp.**

P.O. Box 1188

Houston, TX 77251-1188

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**APR 23 2001**

**BUREAU OF AIR REGULATION**

April 20, 2001

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

RE: Dade Development Company, LLC  
Permit Application for South Dade Energy Center

Dear Mr. Linero:

On behalf of, Dade Development Company, LLC, enclosed are four (4) copies of an air permit application for the South Dade Energy Center in Dade County, Florida. This application is for a non-PSD permit for a simple cycle combustion turbine power plant consisting of 2 Mitsubishi Heavy Industries (MHI) 501F dual-fuel units. Although not required for a non-PSD review, we have conducted an air quality impact assessment, which is contained in Attachment C of this document. In addition, enclosed is a CD-ROM containing the modeling archive. Separate copies of this application are being sent to the Southeast District of the Florida DEP as well as to Miami-Dade County Department of Environmental Resources Management (DERM). An application fee of \$7,500 has been enclosed.

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

Sincerely,  
Enron North America

A handwritten signature in black ink that reads "David A. Kellermeyer" followed by a long horizontal flourish.

David A. Kellermeyer  
Director

Enclosures

cc: Mr. Lennon Anderson, DEP Southeast District  
Mr. Patrick Wong, DERM

*S. Nelson*  
*C. Halladay*

**RECEIVED**

APR 23 2001

BUREAU OF AIR REGULATION

**Dade Development Company,  
L.L.C.  
Houston, TX**

**Air Permit Application for the  
South Dade Energy Center**

**ENSR Corporation  
April 2001  
Document Number 6792-140-410**

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## 1.0 INTRODUCTION

Dade Development Company, L.L.C. is proposing to construct and operate a simple cycle combustion turbine peaking electric generating facility in Dade County, Florida. The South Dade Energy Center (SDEC) will be a non-utility power generating facility (merchant plant) designed to produce electric energy for sale to the wholesale power market.

The SDEC will be sited on approximately 31 acres located in Dade County, Florida (see Figure 1-1). The facility will consist of two Mitsubishi Heavy Industry (MHI) 501F simple cycle combustion turbines with a nominal generating capacity of approximately 370 megawatts (MW). The plant will fire natural gas and low sulfur distillate fuel oil. Natural gas will be the primary fuel. Distillate fuel will be used as a back-up fuel, in the event that natural gas is unavailable to the facility. The turbines will use dry low-NO<sub>x</sub> combustors during natural gas firing, and water injection during distillate oil firing to minimize NO<sub>x</sub> formation. Good combustion practices will be used to control emissions of CO and VOC. The turbines will be equipped with inlet air chilling for power augmentation. The SDEC is scheduled to begin producing power as early as May 1, 2002. Construction will take approximately 6 months with a planned start date of November 1, 2001 (upon receipt of all necessary local and environmental approvals).

As a peaking facility, the project will operate on an intermittent basis, primarily during periods when short-term electrical demand exceeds base load supply. Hence, the SDEC will run primarily during the peak demand hours of the summer months and to a limited extent on the coldest winter days. In order to be permitted as a minor source of air emissions, the SDEC will limit emissions of all criteria pollutants to less than 250 tons per year (TPY) by accepting an enforceable limitation on tons per year of all criteria pollutants emitted. NO<sub>x</sub> and CO have been determined to be the limiting pollutants for major source status. As such, it is proposed that NO<sub>x</sub> and CO emissions be limited to no more than 248 TPY, as measured by NO<sub>x</sub> and CO continuous emission monitoring systems.

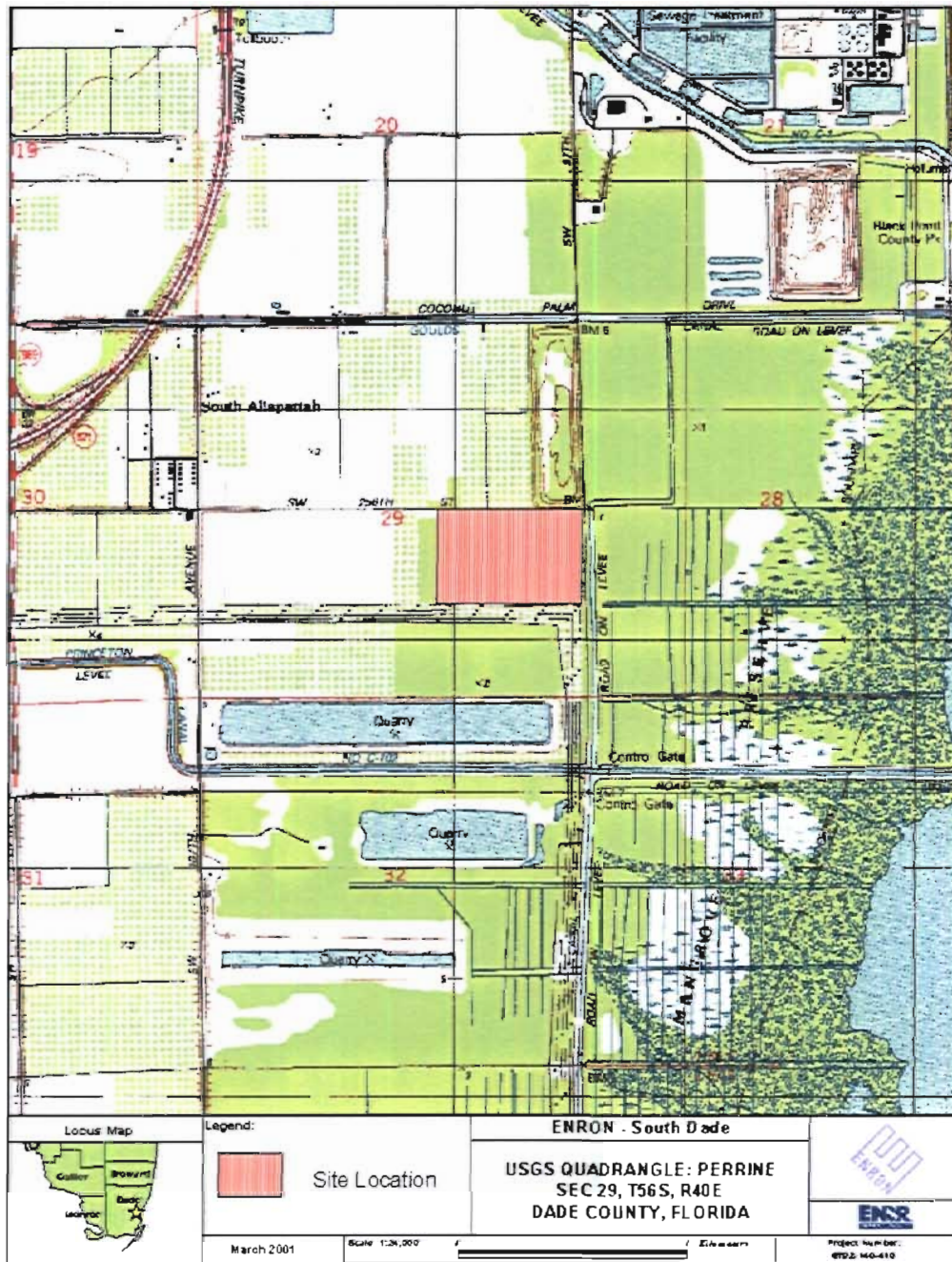
As part of its application, Dade Development Company, L.L.C. is requesting the ability to burn fuel oil. While the intention is to burn natural gas at every opportunity, near term constraints on the Florida Gas Transmission ("FGT") pipeline may impede the ability to burn natural gas during some periods of peak demand during the summer season. In general, the FGT natural gas transmission line flows near its maximum pipeline capacity of 1.5 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 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 as a backup fuel to the extent that transmission capacity constraints on FGT pipeline preclude the delivery of natural gas to the site.

Section 2 of this application provides a more detailed project description. Section 3 presents a summary of the project emissions and the basis and methods used to calculate emissions. The required Florida Department of Environmental Protection (FDEP) application forms are presented in Appendix A, with supporting calculations for emissions included in Appendix B. Although not formally required as part of the construction permitting process for minor sources, air dispersion modeling was conducted to assess the impact of the SDEC on local air quality, including the Everglades and Biscayne National Parks. The air quality impact assessment is presented in Appendix C.

As "new affected units" under Phase II of the Acid Rain Program, the SDEC is required to obtain SO<sub>2</sub> allowances. The application for the Phase II Acid Rain permit will be submitted shortly after this application is filed.

Figure 1-1 Site Location Map





## 2.0 PROJECT DESCRIPTION

The proposed SDEC will utilize two MHI 501F combustion turbines (CTs), providing a total nominal generating capacity of approximately 370 MW. Emissions from each turbine will be vented through stacks that are 80 feet tall and with an effective diameter of 27.68 feet. Figure 2-1 is a conceptual drawing depicting the layout of the proposed turbine configuration, Figure 2-2 is a process flow diagram for the proposed combustion turbines.

The turbines will be equipped to fire both natural gas and fuel oil utilizing natural gas as the primary fuel. The project will not use any other fuel source for startup, shutdown, or backup. The SDEC will have the ability to utilize power from the grid for startup. Electrical power produced by the project will be interconnected to the electric grid by a transmission line to FPL's transmission line in the vicinity of the property.

The SDEC will use simple cycle power generation for peaking electrical generation for periods when short-term electrical demand exceeds base load supply. Peaking units have the ability to be brought on-and off-line quickly in response to fluctuations in electrical demand. Typical startup to 100% load and shutdown from 100% load can be achieved in approximately 20 minutes .

The SDEC will be permitted and operated as a synthetic minor source under the Clean Air Act by accepting a permit limitation on tons per year of criteria pollutants emitted. Figure 2-3 illustrates the relative emissions rates of criteria pollutants from the proposed turbines. Based on the proposed permit limits, the most limiting pollutant is NO<sub>x</sub> during natural gas and distillate oil operation. Dade Development Company, L.L.C. proposes to limit potential emissions from the SDEC through the use of a Continuous Emission Monitoring System (CEMS) for NO<sub>x</sub> and CO. By limiting emissions of NO<sub>x</sub> and CO to less than the major source threshold of 248 tons per year, it can be seen than none of the remaining criteria pollutants will exceed the 250 ton per year threshold. Although performance data has been included for operating conditions at 75% and 100% load, each CT will typically be operated at full (100%) load. Depending upon demand, all units may not be in operation.

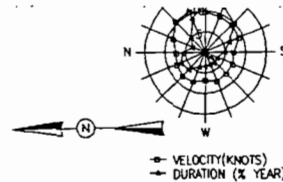
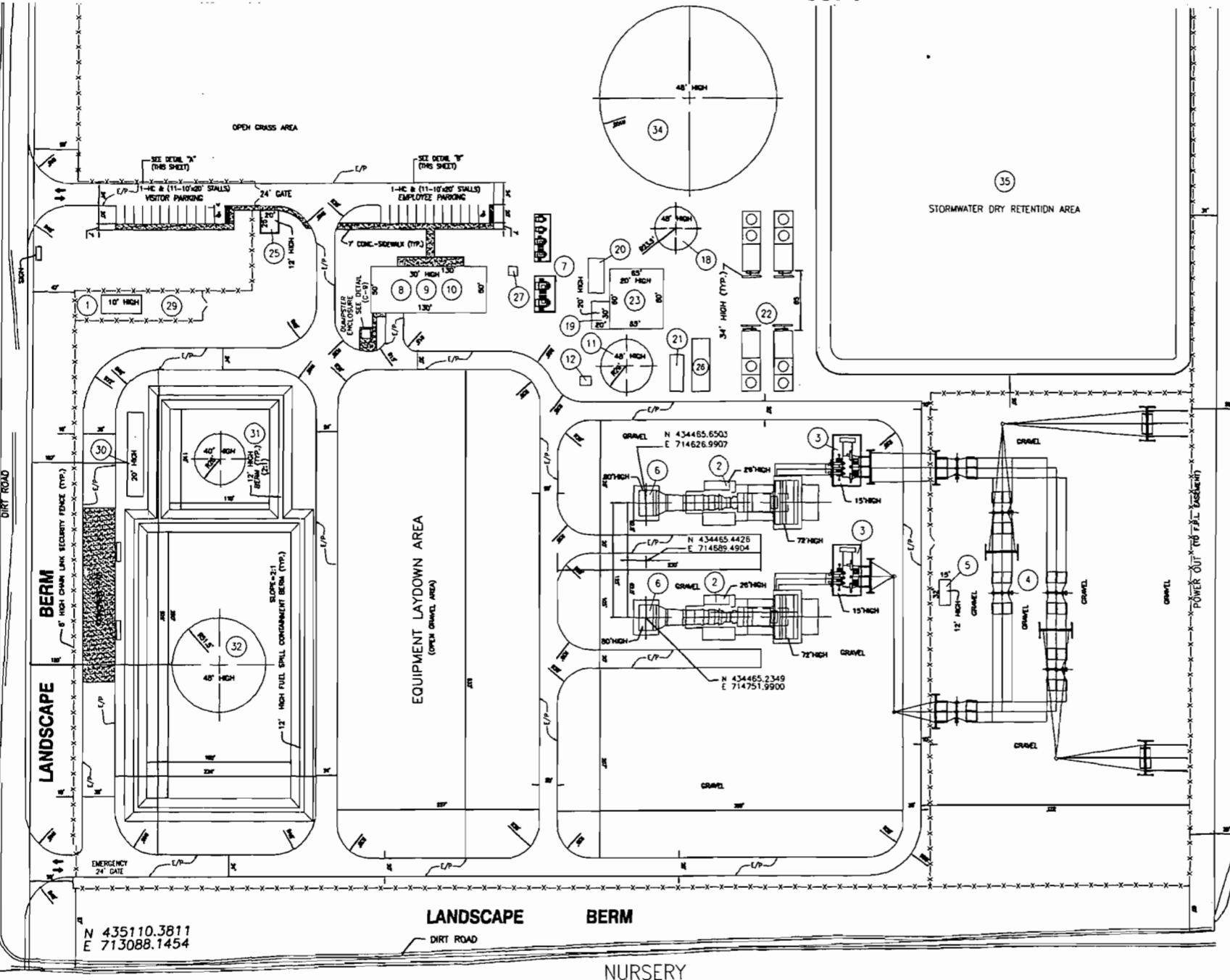
The SDEC will also incorporate tanks used to store distillate oil for the combustion turbines a fire-water pump engine, a natural gas fuel heater, and a chiller system with four small mechanical draft cooling towers for cooling the inlet air to the turbines during high ambient temperature conditions. The on site oil storage requirements have been estimated to be a maximum of 1,852,200 gallons, with a maximum day storage tank requirement of 463,000 gallons. The working and breathing losses from the two tanks has been estimated using EPA's Tanks 4.0 program to be less than 0.85 tons per year.

For emergency purposes the SDEC will incorporate a fire water pump powered by a 250 hp diesel engine. The emissions from this engine have been estimated using AP-42 emission factors, assuming a maximum operation of 500 hours per year. Based on this operational limitation the fire water pump engine satisfies the applicable criteria of Rule 62-210.300(b)1 for exemption from permitting and thus

has not been addressed in the Section III of the FDEP application forms. In addition, a 6 MMBtu/hr fuel gas heater will be included for use as a means to prevent condensation of moisture and hydrates in natural gas used in the gas turbines. This emissions unit also meets the criteria for the generic emissions unit exemption under Rule 62.210.300(b)1 and has not been included in Section III of the application forms.

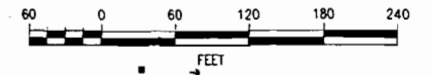
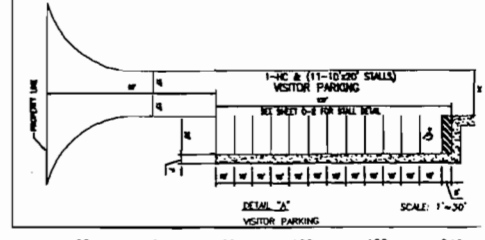
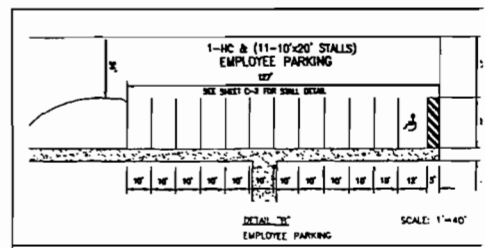
NURSERY

(S.W. 256th STREET) TUESBERG DRIVE



SCHEDULE OF COMPONENTS	
1	GAS RECEIVING/STORAGE
2	GAS FURNACE/HEATER
3	MAIN STEP-UP TRANSFORMER
4	SUBSTATION CONTROL ROOM BUILDING
5	EXPANCT STACK
6	PLANT SWITCHGEAR/SEC AREA
7	ELECTRICAL ROOM BUILDING
8	CONTROL ROOM/HAND/TOOL/STORAGE BLDG.
9	ADMINISTRATION BUILDING (2 STORIES)
10	FLEETED TRUCK & FIRE WATER TANK
11	125,000 BBL
12	FIRE WATER PUMP HOUSE
13	NOT USED
14	NOT USED
15	NOT USED
16	NOT USED
17	NOT USED
18	PERMEABLE WHITE TANK (22,000 BBL)
19	LABORATORY
20	CHEMICAL STORAGE
21	CA DRUM STORAGE
22	CHILLER/COOLING TOWER PACKAGE
23	WATER TREATMENT BUILDING 85' x 60'
24	NOT USED
25	CLADDING HOUSE
26	DRY WATER SHED
27	SANITARY PUMP STATION (PUMP)
28	NOT USED
29	FUEL GAS COMPRESSOR ENCLOSURE
30	FUEL TREATMENT/FORMWORK EQUIPMENT
31	FUEL OIL TANK (11,000 BBL)
32	FUEL OIL STORAGE (20,000 BBL)
33	NOT USED
34	CHILLER WATER TANK (22,000 BBL)
35	STORMWATER DRY RETENTION AREA

NOTES:  
 1-MECHANICAL EQUIPMENT SHOWN FOR ILLUSTRATION PURPOSES ONLY. FINAL LOCATION OF EQUIPMENT TO BE DETERMINED AT TIME OF CONSTRUCTION PLANS DESIGN FOR PERMITTING.  
 2-FOR SETBACKS TO BUILDINGS, YARDS AND OTHER EQUIPMENT; PLEASE REFER TO SITE LAYOUT PLAN, SHEET C-2



EASEMENT FOR EXISTING F.P.L. POWER LINES

OVERHEAD/WIRES

N 433728.9557  
E 713126.5109

DWG. NO.	REFERENCE DRAWING TITLE	NO.	REVISION - DESCRIPTION	BY	DATE	CHK'D	APP'D	DWG. STATUS		APPROVED		P.L./STA. ACCT. NO.	CONSTRUCTION YR	
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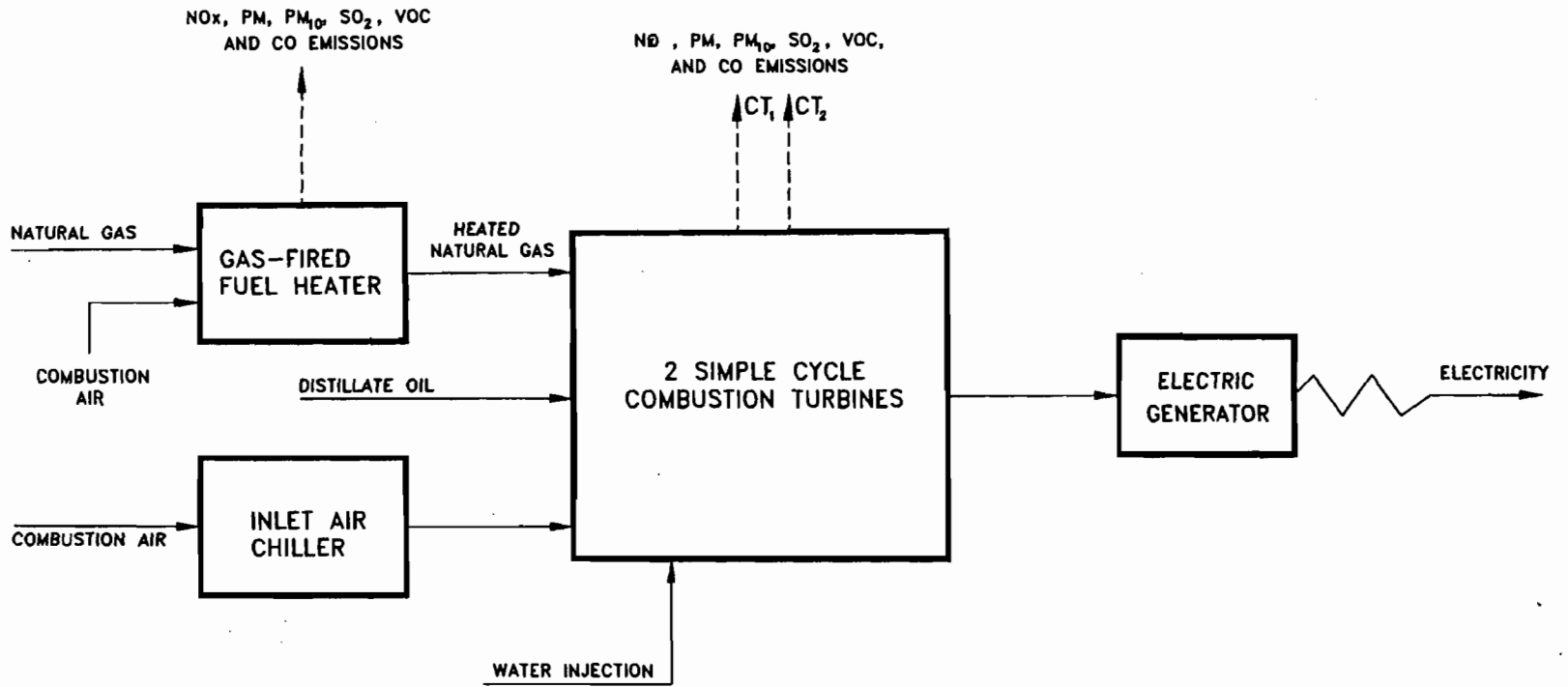
RICHARD A. LEAR, P.E.  
 DATE: \_\_\_\_\_  
 I.C. No. 25169, STATE OF FLORIDA



South Dade Energy Center  
 Figure 2-1  
 Equipment Arrangement Plan

REV. NO. **E**

SHEET C-3



2-4

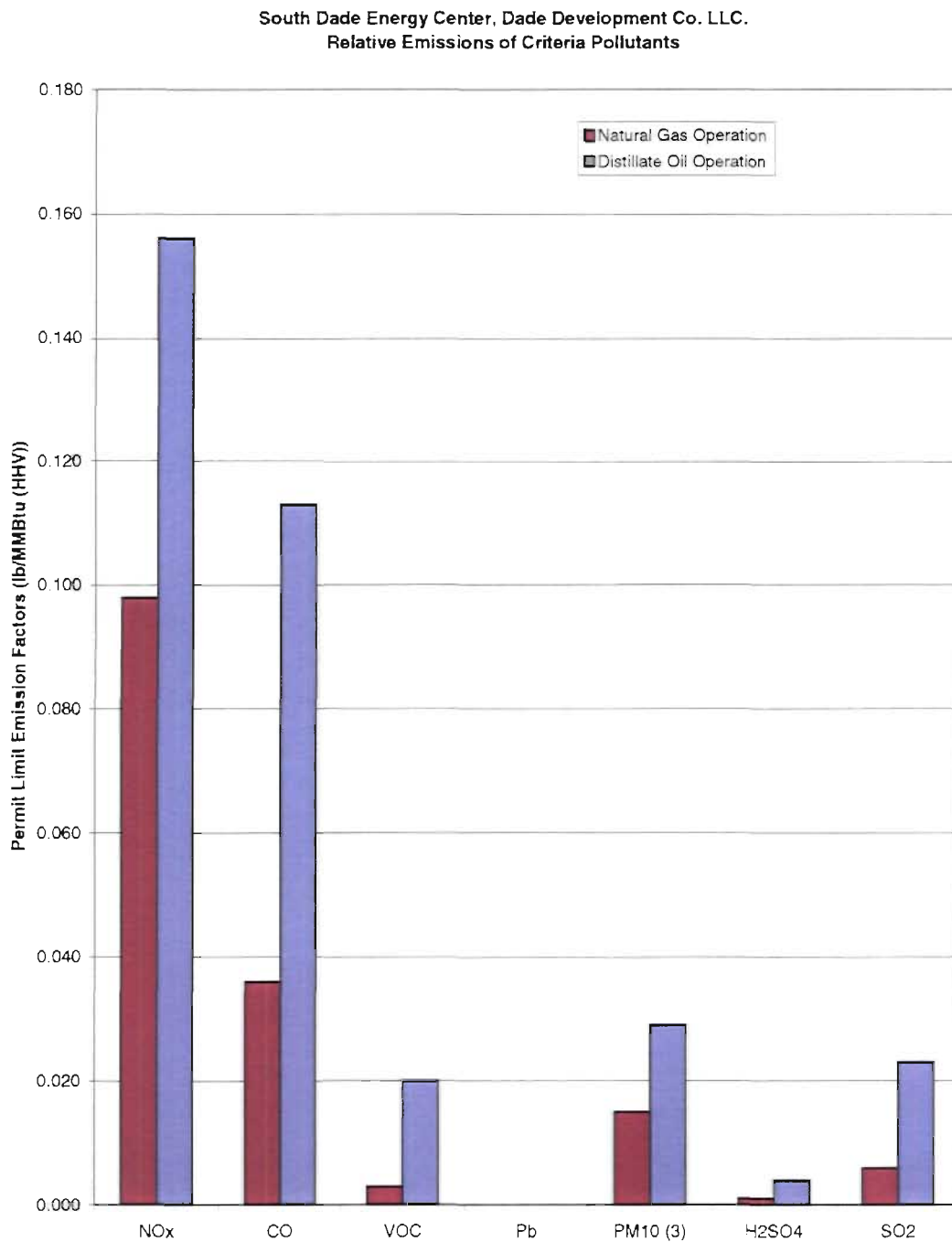
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FIGURE 2-2  
PROCESS FLOW DIAGRAM  
SIMPLE CYCLE COMBUSTION TURBINE

DRAWN:	JK	DATE:	4/01	PROJECT NUMBER:	REV.
APPVD:	DD	REVISED:	X	06792-140	0

Figure 2-3 CTG Relative Criteria Pollutant Emission Rates



### 3.0 EMISSIONS SUMMARY

This section discusses the basis and methods used to estimate potential emissions for the SDEC.

The data used during the development of this application rely on process information developed by MHI for Dade Development Company, L.L.C. The summary presented in Table 3-1 has been prepared for the two MHI 501F combustion turbines. Detailed emission calculations for these turbines are presented at 100% and 75% load cases in Appendix B along with operating specifications at the following ambient conditions:

- 32, 59, 74, 95°F dry bulb at 65% relative humidity, and
- 59, 74, 95°F dry bulb at 65% relative humidity chilled to 45°F and 65% relative humidity.

#### 3.1 Criteria Pollutant Emissions

The primary emission sources at the SDEC will be the two CTs. Each CT, when used, will typically operate at 100% load, but may, at times, be operated down to 75% load. The turbines will fire natural gas, supplied directly to the site by pipeline and fuel oil, provided by onsite storage. Hourly emissions from these units were calculated from manufacturers operating parameters and guaranteed in-stack concentrations for CO, NO<sub>x</sub>, and VOC. As PM<sub>10</sub> emissions are based on manufacturers guaranteed hourly emission rates, a worst case lb/MMBtu emission factor has been calculated from the lb/hr guarantee emission rate for purposes of calculating annual PM<sub>10</sub> emissions. SO<sub>2</sub> emissions were calculated using the manufacturers' supplied fuel consumption data and an expected maximum fuel gas sulfur content of 2.0 grains per 100 standard cubic feet for natural gas and 0.05 wt % for distillate oil. Particulate emissions are estimated to be 40 lb/hour while firing fuel oil and 20 lb/hour while firing natural gas.

Maximum hourly emission rates for each pollutant were established after reviewing the calculations for the four ambient temperatures at two turbine load conditions (75%, and 100%) that represent the range of expected operating conditions. The annual facility emissions of NO<sub>x</sub> and CO will be limited through the use of CEMS, to a maximum of 248 tons per year. Although annual operation is restricted through the use of NO<sub>x</sub> and CO CEMS rather than a fuel cap, an estimate of the maximum annual fuel consumption is used to calculate the maximum annual emissions of VOC, SO<sub>2</sub>, Pb, and PM<sub>10</sub>.

**Table 3-1 Combustion Turbine Maximum Hourly Emission Rate Summary**

Compound	Load (%)	Ambient Temperature (deg F)							
		32	59 <sup>1</sup>	74 <sup>1</sup>	95 <sup>1</sup>	32	59 <sup>1</sup>	74 <sup>1</sup>	95 <sup>1</sup>
<b>Emissions for one MHI 501F Turbine (lb/hr)</b>									
		Natural Gas				Distillate Oil			
NOx	100	173	173	173	173	281	272	272	272
	75	148	132	128	122	226	212	205	196
CO	100	47	42	42	42	204	197	197	197
	75	54	49	47	45	164	154	149	142
VOC	100	3.0	3.0	3.0	3.0	35	34	34	34
	75	4.0	2.0	2.0	2.0	28	27	26	25
SO2	100	11.3	11.3	11.3	11.3	78	76	76	76
	75	9.0	8.7	8.4	8.0	63	59	57	55
H2SO4	100	1.8	1.8	1.8	1.8	12.0	11.7	11.7	11.7
	75	1.4	1.4	1.3	1.3	9.7	9.1	8.8	8.5
Pb	100	ND	ND	ND	ND	0.02	0.02	0.02	0.02
	75	ND	ND	ND	ND	0.02	0.02	0.02	0.02
PM10	100	20	20	20	20	40	40	40	40
	75	20	20	20	20	40	40	40	40

Notes

<sup>1</sup>At baseload, turbine air inlet temperature is cooled to 45°F.

Based on the guaranteed emission concentrations, during both natural gas and distillate oil operation NO<sub>x</sub> is the limiting pollutant. Annual emissions of VOC, SO<sub>2</sub>, Pb, and PM<sub>10</sub> have been estimated using NO<sub>x</sub> as the limiting pollutant for both natural gas and distillate oil operation. The data used in this analysis is presented in Appendix B. Table 3-2 presents a summary of annual emissions for the two combustion turbines, the distillate oil storage tank, the fire-water pump engine, natural gas fuel heater, and cooling towers. Tables 3-4 and 3-5 provide a summary of proposed permit limits for the combustion turbines.

**Table 3-2 Annual Criteria Pollutant Emissions**

Source Name	NO <sub>x</sub> <sup>(1)</sup>	CO <sup>(1)</sup>	VOC <sup>(2)</sup>	SO <sub>2</sub> <sup>(2)</sup>	H <sub>2</sub> SO <sub>4</sub> <sup>(2)</sup>	Pb <sup>(2)</sup>	PM <sup>(2)</sup>	PM <sub>10</sub> <sup>(2)</sup>
<b>Annual Emission Rates (tons/year)</b>								
501F Combustion Turbines.	245.5	247.2	34.7	75.8	6.9	0.02	50.2	50.2
Distillate Oil Storage Tanks	N/A	N/A	0.8	N/A	N/A	N/A	N/A	N/A
Cooling Towers	N/A	N/A	N/A	N/A	N/A	N/A	0.73	0.73
Fire-Water Pump Engine	2.00	0.40	0.20	0.10	-	-	0.20	0.20
Natural Gas Fuel Heater	0.46	0.41	0.27	0.01	-	-	0.05	0.05
<b>Total</b>	<b>248.0</b>	<b>248.0</b>	<b>36.0</b>	<b>75.9</b>	<b>6.9</b>	<b>0.02</b>	<b>52.0</b>	<b>52.0</b>
Notes:								
(1) Limited by CEMS on NO <sub>x</sub> and CO.								
(2) Estimated from CEMS limitation on NO <sub>x</sub> and CO. Annual emissions of VOC, SO <sub>2</sub> , H <sub>2</sub> SO <sub>4</sub> , Pb, and PM/PM <sub>10</sub> increased by a 10% margin.								

### 3.2 Hazardous Air Pollutant Emissions

Emissions of hazardous air pollutants (HAPs) were calculated to confirm that the SDEC will not be a new major HAP source subject to preconstruction permitting under 40 CFR 63 Subpart B. HAP emissions (with the exception of formaldehyde) were derived from the April 2000 version of AP-42 Section 3.1 which provides emission factors for stationary combustion turbines. An emission factor for formaldehyde was developed from a subset of the database used by EPA to develop the AP-42 emission factors (see Appendix B for details).

Annual HAP emissions are presented in Table 3-3. Total facility-wide emissions for all HAPs combined is 3.0 TPY with the largest single HAP being less than 1.3 TPY. Both of these values are well below the 25/10 tpy major source thresholds for HAPs.



**Table 3-3 HAP Emission Summary, Dade Development Company Electric Generating Facility**

Pollutant	CTG Natural Gas		CTG Distillate Oil		SDEC	
	Emission Rate, Per Turbine		Emission Rate, Per Turbine		Emission Rate All CTGs	
	Max Hourly (lb/hr)	Annual (tpy)	Max Hourly (lb/hr)	Annual (tpy)	Max Hourly (lb/hr)	Annual (tpy)
1,3-Butadiene	8.20E-04	5.92E-04	2.66E-02	1.32E-02	5.33E-02	2.63E-02
Acetaldehyde	7.63E-02	5.51E-02	0.00E+00	0.00E+00	1.53E-01	1.10E-01
Acrolein	1.22E-02	8.82E-03	0.00E+00	0.00E+00	2.44E-02	1.76E-02
Benzene	2.29E-02	1.65E-02	9.16E-02	4.53E-02	1.83E-01	9.06E-02
Ethylbenzene	6.10E-02	4.41E-02	0.00E+00	0.00E+00	1.22E-01	8.82E-02
Formaldehyde	2.62E-01	1.89E-01	4.66E-01	2.31E-01	9.33E-01	4.61E-01
Naphthalene	2.48E-03	1.79E-03	5.83E-02	2.88E-02	1.17E-01	5.76E-02
PAHs	4.20E-03	3.03E-03	6.66E-02	3.29E-02	1.33E-01	6.59E-02
Propylene Oxide	5.53E-02	4.00E-02	0.00E+00	0.00E+00	1.11E-01	7.99E-02
Toluene	2.48E-01	1.79E-01	0.00E+00	0.00E+00	4.96E-01	3.58E-01
Xylene	1.22E-01	1.22E-01	0.00E+00	0.00E+00	2.44E-01	2.44E-01
Arsenic	0.00E+00	0.00E+00	1.83E-02	9.06E-03	3.66E-02	1.81E-02
Beryllium	0.00E+00	0.00E+00	5.16E-04	2.55E-04	1.03E-03	5.10E-04
Cadmium	0.00E+00	0.00E+00	7.99E-03	3.95E-03	1.60E-02	7.90E-03
Chromium	0.00E+00	0.00E+00	1.83E-02	9.06E-03	3.66E-02	1.81E-02
Lead	0.00E+00	0.00E+00	2.33E-02	1.15E-02	4.66E-02	2.31E-02
Manganese	0.00E+00	0.00E+00	1.32E+00	6.50E-01	2.63E+00	1.30E+00
Mercury	0.00E+00	0.00E+00	2.00E-03	9.88E-04	4.00E-03	1.98E-03
Nickel	0.00E+00	0.00E+00	7.66E-03	3.79E-03	1.53E-02	7.57E-03
Selenium	0.00E+00	0.00E+00	4.16E-02	2.06E-02	8.33E-02	4.12E-02
<b>Facility Total HAPs</b>						<b>3.0</b>
<b>Maximum Individual HAP</b>						<b>1.3</b>

Proposed emission limits for the combustion turbines during natural gas and distillate oil operation are presented in Tables 3-4 and 3-5, respectively. Annual limits for VOCs, SO<sub>2</sub>, PM<sub>10</sub>, and Pb are not proposed to be included in the permit. This is because compliance with a 248 ton/year limit for NO<sub>x</sub> and CO will insure that these other pollutants are emitted in quantities considerably lower than the 250 ton/year major source threshold.

**Table 3-4 Summary of Proposed Permit Limits Natural Gas Operation**

	ppmvd @ 15% O <sub>2</sub>	Lb/hr <sup>1</sup> Each Turbine	CTG Annual Tons/Yr	Control Technology	Test Method
NO <sub>x</sub>	25	173	245.5	Dry Low NO <sub>x</sub> Combustors	Stack Test Ref. Method 19 & 20
CO	16	54	247.2	Good Combustion Practices	Stack Test Ref. Method 10 & 19
VOC	2.0	4.0		Good Combustion Practices	Stack Test Ref. Method 25a less Methane via bag sample & Method 18
SO <sub>2</sub>	N/A	11.3		Low Sulfur Fuel (less than 2.0 grain S/100 SCF gas)	Fuel Monitoring
PM <sub>10</sub>	N/A	20		Low Sulfur Fuel (less than 2.0 grain S/100 SCF gas)	Stack Test Ref. Method 5 & 202
<sup>1</sup> lb/hr for each turbine is based on worst case emission rates over all operating loads and temperatures.					

**Table 3-5 Summary of Proposed Permit Limits Distillate Oil Operation**

	Ppmvd @ 15% O <sub>2</sub>	Lb/hr <sup>1</sup> Each Turbine	CTG Annual Tons/Yr	Control Technology	Test Method
NO <sub>x</sub>	42	281	245.5	Water Injection	Stack Test Ref. Method 19 & 20
CO	50	204	247.2	Good Combustion Practices	Stack Test Ref. Method 10 & 19
VOC	15	35		Good Combustion Practices	Stack Test Ref. Method 25a less Methane via bag sample & Method 18
SO <sub>2</sub>	N/A	78		Low Sulfur Fuel	Fuel Monitoring
Pb	N/A	.02		Low Ash Fuel	N/A
PM <sub>10</sub>	N/A	40		Low Sulfur Fuel	Stack Test Ref. Method 5 & 202
<sup>1</sup> lb/hr for each turbine is based on worst case emission rates over all operating loads and temperatures.					

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## 4.0 REFERENCES AND BIBLIOGRAPHY

Pequot Publishing, 1997. Gas Turbine World 1997 Handbook.

Rasnic, John B., August 1987. Letter to Air Compliance Branch Chiefs, Regions I-IX, RC: NSPS Custom Fuel Monitoring.

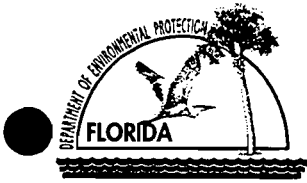
U.S. EPA. September 1977. Standards Support and Environmental Impact Statement - Volume I: Proposed Standards of Performance for Stationary gas Turbines. EPA 450/2-77-017a.

U.S. EPA. October 1990. New Source Review Workshop manual. Draft.

U.S. EPA. October 1996. AP-42.

**APPENDIX A**

**APPLICATION FOR AIR PERMIT – TITLE V SOURCE  
DEP FORM NO. 62-210.900(1)**



# Department of Environmental Protection

## Division of Air Resources Management

### APPLICATION FOR AIR PERMIT - TITLE V SOURCE

See Instructions for Form No. 62-210.900(1)

#### I. APPLICATION INFORMATION

##### Identification of Facility

1. Facility Owner/Company Name: <b>Dade Development Company, L.L.C.</b>	
2. Site Name: <b>South Dade Energy Center</b>	
3. Facility Identification Number: <span style="float: right;">[ <input checked="" type="checkbox"/> ] Unknown</span>	
4. Facility Location: Street Address or Other Locator: <b>SW Corner of 256<sup>th</sup> Street and SW 97<sup>th</sup> Avenue</b> City: <b>Unincorporated</b> County: <b>Dade</b> Zip Code: <b>33032</b>	
5. Relocatable Facility? [ <input type="checkbox"/> ] Yes      [ <input checked="" type="checkbox"/> ] No	6. Existing Permitted Facility? [ <input type="checkbox"/> ] Yes      [ <input checked="" type="checkbox"/> ] No

##### Application Contact

1. Name and Title of Application Contact: <b>Dave Kellermeyer, Director</b>		
2. Application Contact Mailing Address: Organization/Firm: <b>Dade Development Company, L.L.C.</b> Street Address: <b>1400 Smith Street</b> City: <b>Houston</b> State: <b>TX</b> Zip Code: <b>77002-7631</b>		
3. Application Contact Telephone Numbers: Telephone: <b>(713) 853-3161</b> Fax: <b>(713) 646-3037</b>		

##### Application Processing Information (DEP Use)

1. Date of Receipt of Application:	<i>4-23-01</i>
2. Permit Number:	<i>025 1099-001-AC</i>
3. PSD Number (if applicable):	
4. Siting Number (if applicable):	

**Purpose of Application**

**Air Operation Permit Application**

This Application for Air Permit is submitted to obtain: (Check one)

- [ ] Initial Title V air operation permit for an existing facility which is classified as a Title V source.
- [ ] Initial Title V air operation permit for a facility which, upon start up of one or more newly constructed or modified emissions units addressed in this application, would become classified as a Title V source.

Current construction permit number: \_\_\_\_\_

- [ ] Title V air operation permit revision to address one or more newly constructed or modified emissions units addressed in this application.

Current construction permit number: \_\_\_\_\_

Operation permit number to be revised: \_\_\_\_\_

- [ ] Title V air operation permit revision or administrative correction to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application. (Also check Air Construction Permit Application below.)

Operation permit number to be revised/corrected: \_\_\_\_\_

- [ ] Title V air operation permit revision for reasons other than construction or modification of an emissions unit. Give reason for the revision; e.g., to comply with a new applicable requirement or to request approval of an "Early Reductions" proposal.

Operation permit number to be revised: \_\_\_\_\_

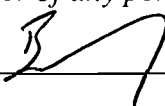
Reason for revision: \_\_\_\_\_

**Air Construction Permit Application**

This Application for Air Permit is submitted to obtain: (Check one)

- [  ] Air construction permit to construct or modify one or more emissions units.
- [ ] Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.
- [ ] Air construction permit for one or more existing, but unpermitted, emissions units.

**Owner/Authorized Representative or Responsible Official**

1. Name and Title of Owner/Authorized Representative or Responsible Official: <b>Ben Jacoby – Attorney-In-Fact</b>
2. Owner/Authorized Representative or Responsible Official Mailing Address: Organization/Firm: <b>Dade Development Company, L.L.C.</b> Street Address: <b>1400 Smith Street</b> City: <b>Houston</b> State: <b>TX</b> Zip Code: <b>77002-7631</b>
3. Owner/Authorized Representative or Responsible Official Telephone Numbers: Telephone: <b>(713) 853-6173</b> Fax: <b>(713) 646-3037</b>
4. Owner/Authorized Representative or Responsible Official Statement: <i>I, the undersigned, am the owner or authorized representative*(check here [ ] , if so) or the responsible official (check here [✓], if so) of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.</i>  DAC  _____ Date <u>4-18-01</u>

\* Attach letter of authorization if not currently on file.

**Professional Engineer Certification**

1. Professional Engineer Name: <b>Blair Burgess</b> Registration Number: <b>45460</b>
2. Professional Engineer Mailing Address: Organization/Firm: <b>ENSR</b> Street Address: <b>2809 West Mall Drive</b> City: <b>Florence</b> State: <b>AL</b> Zip Code: <b>35630</b>
3. Professional Engineer Telephone Numbers: Telephone: <b>(256) 767-1210</b> Fax: <b>(256) 767-1211</b>



4. Professional Engineer Statement:

*I, the undersigned, hereby certify, except as particularly noted herein\*, that:*


*(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and*

*(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.*

*If the purpose of this application is to obtain a Title V source air operation permit (check here [  ], if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.*

*If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [  ], if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.*

*If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [  ], if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.*

A circular embossed seal for a Professional Engineer in the State of Florida. The seal contains the text: "STATE OF FLORIDA", "REGISTERED PROFESSIONAL ENGINEER", "EMBOSSSED METALLIC", and "SEAN". The seal is partially obscured by a signature and a date stamp.

Signature \_\_\_\_\_

Date 4/18/01

\* Attach any exception to certification statement.

**Scope of Application**

<b>Emissions Unit ID</b>	<b>Description of Emissions Unit</b>	<b>Permit Type</b>	<b>Processing Fee</b>
<b>CT001 – CT002</b>	<b>MHI 501F Single Cycle Combustion Turbines (Two identical combustion turbines)</b>	<b>AC1B</b>	<b>\$5,000</b> Similar emissions unit fee per Rule 62-4.050(4)(a)(4)
<b>T001 – T002</b>	<b>Distillate Fuel Oil Storage Tanks</b>	<b>AC1F</b>	<b>\$250</b>
<b>FWP</b>	<b>Firewater Pump Diesel Engine</b>	<b>AC1F</b>	<b>\$250</b>
<b>NGH</b>	<b>Natural Gas Fuel Heater</b>	<b>AC1F</b>	<b>\$250</b>

**Application Processing Fee**

Check one:  Attached - Amount: **\$5,750**       Not Applicable

**Construction/Modification Information**

1. Description of Proposed Project or Alterations

**Dade Development Company, L.L.C. proposes to construct and operate a peaking electrical power generating facility at a greenfield site in Dade County, Florida. The facility will consist of up to two MHI 501F combustion turbines operating in simple cycle mode; each turbine has a nominal generating capacity of 184 MW. The combustion turbines will be fired primarily with natural gas with low sulfur distillate oil as a backup fuel. NO<sub>x</sub> emissions will be controlled with dry low NO<sub>x</sub> combustors when firing natural gas and water injection when firing distillate oil. Permit conditions will limit total facility annual emissions to less than 248 tons per year of any regulated air pollutant in order to be permitted as a synthetic minor source with respect to Rule 62-212.400, Prevention of Significant Deterioration. Ancillary equipment includes one 1.9 million gallon distillate oil storage tank, one 463,000 gallon distillate oil storage tank, one natural gas fuel heater and one emergency diesel fired IC engine driving a firewater pump.**

2. Projected or Actual Date of Commencement of Construction:

**November 1, 2001**

3. Projected Date of Completion of Construction:

**May 1, 2002**

**Application Comment**

## II. FACILITY INFORMATION

### A. GENERAL FACILITY INFORMATION

#### Facility Location and Type

1. Facility UTM Coordinates: Zone: <b>17</b> East (km): <b>565.1</b> North (km): <b>2823.4</b>			
2. Facility Latitude/Longitude: Latitude (DD/MM/SS):                      Longitude (DD/MM/SS):			
3. Governmental Facility Code: <b>0</b>	4. Facility Status Code: <b>C</b>	5. Facility Major Group SIC Code: <b>49</b>	6. Facility SIC(s): <b>4911</b>
7. Facility Comment (limit to 500 characters):			

#### Facility Contact

1. Name and Title of Facility Contact: <b>Dave Kellermeier, Director</b>		
2. Facility Contact Mailing Address: Organization/Firm: <b>Dade Development Company, L.L.C.</b> Street Address: <b>1400 Smith Street</b> City: <b>Houston</b> State: <b>TX</b> Zip Code: <b>77002-7631</b>		
3. Facility Contact Telephone Numbers: Telephone: <b>(713) 853-3161</b> Fax: <b>(713) 646-3037</b>		

**Facility Regulatory Classifications**

**Check all that apply:**

1. [ ] Small Business Stationary Source?	[ ] Unknown
2. [✓] Major Source of Pollutants Other than Hazardous Air Pollutants (HAPs)?	
3. [✓] Synthetic Minor Source of Pollutants Other than HAPs?	
4. [ ] Major Source of Hazardous Air Pollutants (HAPs)?	
5. [ ] Synthetic Minor Source of HAPs?	
6. [✓] One or More Emissions Units Subject to NSPS?	
7. [ ] One or More Emission Units Subject to NESHAP?	
8. [✓] Title V Source by EPA Designation?	
9. Facility Regulatory Classifications Comment (limit to 200 characters):	

**List of Applicable Regulations (Facility-wide)**

Chapter 62-4	Permits
Rule 62-204.220	Ambient Air Quality Protection
Rule 62-204.240	Ambient Air Quality Standards
Rule 62-204.800	Federal Regulations Adopted by Reference
Rule 62-210.300	Permits Required
Rule 62-210.350	Public Notice and Comments
Rule 62-210.370	Reports
Rule 62-210.550	Stack Height Policy
Rule 62-210.650	Circumvention
Rule 62-210.700	Excess Emissions
Rule 62-210.900	Forms and Instructions
Rule 62-212.300	General Preconstruction Review Requirements
Rule 62-213	Operation Permits for Major Sources of Air Pollution
Rule 62-214	Requirements for Sources Subject to the Federal Acid Rain Program

Rule 62-296.	General Pollutant Emission Limiting Standards
Rule 62-297.310	General Test Requirements
Rule 62-297.401	Compliance Test Methods
Rule 62-297.520	EPA Continuous Monitor Performance Specifications
40 CFR 60	Applicable sections of Subpart A, General Requirements, NSPS Subparts GG and Kb
40 CFR 72	Acid Rain Permits
40 CFR 75	Monitoring
40 CFR 77	Acid Rain Program – Excess Emissions

**B. FACILITY POLLUTANTS**

**List of Pollutants Emitted**

1. Pollutant Emitted	2. Pollutant Classif.	3. Requested Emissions Cap		4. Basis for Emissions Cap	5. Pollutant Comment
		lb/hour	tons/year		
NOX	A, SM (PSD/248 tpy)		248	ESCPSD	Units CT001-CT002, FWP + NGH included under NO <sub>x</sub> cap.
CO	A, SM (PSD/248 tpy)		248	ESCPSD	Units CT001-CT002, FWP + NGH included under CO cap.
SO2	B				CT SO <sub>2</sub> emissions and fuel sulfur content regulated under 40 CFR 60, Subpart GG
VOC	B				Units T001-T002 subject to record keeping requirements of 40 CFR 60, Subpart Kb

## C. FACILITY SUPPLEMENTAL INFORMATION

### Supplemental Requirements

<p>1. Area Map Showing Facility Location:  <input checked="" type="checkbox"/> Attached, Document ID: <b>Fig. 1-1</b>    <input type="checkbox"/> Not Applicable    <input type="checkbox"/> Waiver Requested</p>
<p>2. Facility Plot Plan:  <input checked="" type="checkbox"/> Attached, Document ID: <b>Fig. 2-1</b>    <input type="checkbox"/> Not Applicable    <input type="checkbox"/> Waiver Requested</p>
<p>3. Process Flow Diagram(s):  <input type="checkbox"/> Attached, Document ID: <b>Fig. 2-2</b>    <input type="checkbox"/> Not Applicable    <input type="checkbox"/> Waiver Requested</p>
<p>4. Precautions to Prevent Emissions of Unconfined Particulate Matter:  <input type="checkbox"/> Attached, Document ID: _____    <input checked="" type="checkbox"/> Not Applicable    <input type="checkbox"/> Waiver Requested</p>
<p>5. Fugitive Emissions Identification:  <input type="checkbox"/> Attached, Document ID: _____    <input checked="" type="checkbox"/> Not Applicable    <input type="checkbox"/> Waiver Requested</p>
<p>6. Supplemental Information for Construction Permit Application:  <input checked="" type="checkbox"/> Attached, Document ID: <b>ENSR Document No. 6792-123-410</b>    <input type="checkbox"/> Not Applicable</p>
<p>7. Supplemental Requirements Comment:</p>



**Additional Supplemental Requirements for Title V Air Operation Permit Applications**

8. List of Proposed Insignificant Activities: <input checked="" type="checkbox"/> Attached, Document ID: <b>Section 2</b> <input type="checkbox"/> Not Applicable
9. List of Equipment/Activities Regulated under Title VI: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Equipment/Activities On site but Not Required to be Individually Listed <input checked="" type="checkbox"/> Not Applicable
10. Alternative Methods of Operation: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
11. Alternative Modes of Operation (Emissions Trading): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
12. Identification of Additional Applicable Requirements: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
13. Risk Management Plan Verification: <input type="checkbox"/> Plan previously submitted to Chemical Emergency Preparedness and Prevention Office (CEPPO). Verification of submittal attached (Document ID: _____) or previously submitted to DEP (Date and DEP Office: _____) <input type="checkbox"/> Plan to be submitted to CEPPO (Date required: _____) <input checked="" type="checkbox"/> Not Applicable
14. Compliance Report and Plan: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
15. Compliance Certification (Hard-copy Required): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

**III. EMISSIONS UNIT INFORMATION**

A separate Emissions Unit Information Section (including subsections A through J as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

**A. GENERAL EMISSIONS UNIT INFORMATION  
(All Emissions Units)**

**Emissions Unit Description and Status**

<p>1. Type of Emissions Unit Addressed in This Section: (Check one)</p> <p><input type="checkbox"/> This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).</p> <p><input checked="" type="checkbox"/> This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.</p> <p><input type="checkbox"/> This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.</p>			
<p>2. Regulated or Unregulated Emissions Unit? (Check one)</p> <p><input checked="" type="checkbox"/> The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.</p> <p><input type="checkbox"/> The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.</p>			
<p>3. Description of Emissions Unit Addressed in This Section (limit to 60 characters):  <b>CT001 through CT002 are identical MHI 501F simple cycle combustion turbines (CT) each having a nominal rating 184 megawatts (MW). Each CT will be fired primarily with natural gas with low sulfur distillate oil as a back up fuel.</b></p>			
<p>4. Emissions Unit Identification Number:  <b>ID: CT001 – CT002</b>                  Unknown</p>		<p><input checked="" type="checkbox"/> No ID  <input type="checkbox"/> ID</p>	
<p>5. Emissions Unit Status Code:  <b>C</b></p>	<p>6. Initial Startup Date:  <b>May 2002</b></p>	<p>7. Emissions Unit Major Group SIC Code:  <b>49</b></p>	<p>8. Acid Rain Unit?  <input checked="" type="checkbox"/></p>
<p>9. Emissions Unit Comment: (Limit to 500 Characters)  <b>Each combustion turbine (CT001 to CT002) should be considered separate emissions units. The grouping of all turbines into one Emissions Unit Information Section has been done for administrative convenience since the information required in Subsections A through J is identical for each combustion turbine.</b></p>			

**Emissions Unit Information Section 1 of 2**

**Emissions Unit Control Equipment**

1. Control Equipment/Method Description (Limit to 200 characters per device or method):

**NOx is limited through use of dry low NOx combustors for natural gas firing and water injection for distillate oil firing.**

2. Control Device or Method Code(s): **028**

**Emissions Unit Details**

1. Package Unit:	Manufacturer: <b>Mitsubishi Heavy Industries</b>	Model Number: <b>501F</b>
2. Generator Nameplate Rating:	<b>184MW (nominal)</b>	
3. Incinerator Information: <b>N/A</b>	Dwell Temperature:	°F
	Dwell Time:	seconds
	Incinerator Afterburner Temperature:	°F

**B. EMISSIONS UNIT CAPACITY INFORMATION  
(Regulated Emissions Units Only)**

**Emissions Unit Operating Capacity and Schedule**

1. Maximum Heat Input Rate:	1907 mmBtu/hr	HHV (base load on natural gas @ 59°F)
2. Maximum Incineration Rate:	N/A lb/hr	N/A tons/day
3. Maximum Process or Throughput Rate:	N/A	
4. Maximum Production Rate:	N/A	
5. Requested Maximum Operating Schedule:	24 hours/day	7 days/week
	52 weeks/year	8760 <sup>1</sup> hours/year
6. Operating Capacity/Schedule Comment (limit to 200 characters):	<p><b>1 – Annual operations will be limited through the use of a Continuous Emissions Monitoring System for NO<sub>x</sub> and CO.</b></p>	

**C. EMISSIONS UNIT REGULATIONS  
(Regulated Emissions Units Only)**

**List of Applicable Regulations**

<b>40 CFR 60, Subpart A (General Provisions for New Source Performance Standards)</b>	
<b>40 CFR 60.332(a)(1) – NO<sub>x</sub> standards for Stationary Gas Turbines</b>	
<b>40 CFR 60.333 – SO<sub>2</sub> standards for Stationary Gas Turbines</b>	
<b>40 CFR 60.334 – Monitoring Provisions for Stationary Gas Turbines</b>	
<b>40 CFR Part 72 – Acid Rain Program Requirements Regulations</b>	
<b>40 CFR Part 73 – Acid Rain Program SO<sub>2</sub> Allowances System</b>	
<b>40 CFR Part 75 – Acid Rain Program Continuous Emissions Monitoring</b>	
<b>Rule 62-296(4)(b)1 – Visible emissions</b>	

**D. EMISSION POINT (STACK/VENT) INFORMATION  
(Regulated Emissions Units Only)**

**Emission Point Description and Type**

1. Identification of Point on Plot Plan or Flow Diagram? <b>CT1 and CT2</b>		2. Emission Point Type Code: <b>1</b>	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): <b>Exhaust stacks for combustion turbines; one stack per turbine unit.</b>			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: <b>N/A</b>			
5. Discharge Type Code: <b>V</b>	6. Stack Height: <b>80 feet</b>	7. Exit Diameter: <b>27.68 feet</b> <b>(Effective diameter)</b>	
8. Exit Temperature: <b>1124°F (NG)</b> <b>1006°F (Oil)</b>	9. Actual Volumetric Flow Rate: <b>532,310 acfm (NG)</b> <b>2,395,169 acfm (Oil)</b>	10. Water Vapor: <b>8.45 % (NG)</b> <b>6.51 % (Oil)</b>	
11. Maximum Dry Standard Flow Rate: <b>844,444 dscfm (NG)</b> <b>861,779 dscfm (Oil)</b>		12. Nonstack Emission Point Height: <b>N/A</b> feet	
13. Emission Point UTM Coordinates: <b>Zone: 17 East (km): 565.065 North (km): 2823.350</b>			
14. Emission Point Comment (limit to 200 characters):  <b>Exhaust temperatures and flow rates (Items 8,9,10,11) are at 100% load and 59° F operating conditions. Stack temperatures and flow rates will vary with load and ambient temperature.</b>			

**E. SEGMENT (PROCESS/FUEL) INFORMATION  
(All Emissions Units)**

**Segment Description and Rate:** Segment  1  of  2

1. Segment Description (Process/Fuel Type ) (limit to 500 characters): <b>Natural gas</b>		
1. Source Classification Code (SCC): <b>2-01-002-01</b>		3. SCC Units: <b>Million Cubic Feet Burned</b>
6. Maximum Hourly Rate: <b>1.821</b>	7. Maximum Annual Rate: <b>5264</b>	6. Estimated Annual Activity Factor: <b>N/A</b>
7. Maximum % Sulfur: <b>2 grains/100 SCF</b>	8. Maximum % Ash: <b>N/A</b>	9. Million Btu per SCC Unit: <b>1047</b>
10. Segment Comment (limit to 200 characters): <b>Annual operation will be restricted through the use of NOx and CO CEMS. Maximum Annual Rate is an estimate only.</b>		

**Segment Description and Rate:** Segment  2  of  2

2. Segment Description (Process/Fuel Type) (limit to 500 characters): <b>No. 2 Distillate Fuel Oil</b>		
3. Source Classification Code (SCC): <b>2-01-001-0</b>		3. SCC Units: <b>Thousand Gallons Burned</b>
4. Maximum Hourly Rate: <b>12.38</b>	5. Maximum Annual Rate: <b>23,692</b>	6. Estimated Annual Activity Factor: <b>N/A</b>
7. Maximum % Sulfur: <b>0.05</b>	8. Maximum % Ash: <b>Trace</b>	9. Million Btu per SCC Unit: <b>144.5</b>
10. Segment Comment (limit to 200 characters): <b>Annual operation will be restricted through the use of NOx and CO CEMS. Maximum Annual Rate is an estimate only.</b>		

**F. EMISSIONS UNIT POLLUTANTS  
(All Emissions Units)**

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
<b>NOX</b>	<b>028</b>		<b>EL</b>
<b>CO</b>			<b>EL</b>
<b>PM</b>			<b>NS</b>
<b>PM10</b>			<b>NS</b>
<b>SO2</b>			<b>NS</b>
<b>VOC</b>			<b>NS</b>
<b>PB</b>			<b>NS</b>



**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION  
(Regulated Emissions Units -  
Emissions-Limited and Preconstruction Review Pollutants Only)**

**Potential/Fugitive Emissions**

1. Pollutant Emitted: <b>NOX</b>	2. Total Percent Efficiency of Control:
3. Potential Emissions: <b>281 lb/hour (per turbine) 245.5 tons/year (total two turbines)</b>	4. Synthetically Limited? [ <input checked="" type="checkbox"/> ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year	
6. Emission Factor: <b>0.164 lb/MMBtu (HHV)</b> Reference: <b>See Appendix B for emissions calculations</b>	7. Emissions Method Code: <b>2</b>
8. Calculation of Emissions (limit to 600 characters):  <b>Hourly emission rate is based on worst case emission rate for both natural gas and distillate oil. Annual NOx emissions will be restricted through the use of CEMS.</b>	
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):	

**Allowable Emissions** Allowable Emissions 1 of 2

1. Basis for Allowable Emissions Code: <b>ESCPSD</b>	2. Future Effective Date of Allowable Emissions: <b>N/A</b>
3. Requested Allowable Emissions and Units: <b>245.5 tons/yr (CT1 -CT2)</b>	4. Equivalent Allowable Emissions: <b>N/A lb/hour N/A tons/year</b>
5. Method of Compliance (limit to 60 characters): <b>Direct emissions monitoring of stack emissions using Part 75-certified CEMs</b>	
6. Allowable Emissions Comment (Desc. Of Operating Method) (limit to 200 characters):	

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION  
(Regulated Emissions Units -  
Emissions-Limited and Preconstruction Review Pollutants Only)**

**Potential/Fugitive Emissions**

1. Pollutant Emitted: <b>CO</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>204 lb/hour (per turbine)      247.2 tons/year (total two turbines)</b>		4. Synthetically Limited? <input checked="" type="checkbox"/>	
5. Range of Estimated Fugitive Emissions: [ ] 1      [ ] 2      [ ] 3      _____ to _____ tons/year			
6. Emission Factor: <b>0.119 lb/MMBtu (HHV)</b>  Reference: <b>See Appendix B for emission calculations</b>		7. Emissions Method Code: <b>2</b>	
8. Calculation of Emissions (limit to 600 characters):  <b>Hourly emission rate is based on worst case emissions for both natural gas and distillate oil. Annual CO emissions will be restricted through the use of CEMS.</b>			
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):			

**Allowable Emissions** Allowable Emissions   2   of   2  

1. Basis for Allowable Emissions Code: <b>ESCPD</b>		2. Future Effective Date of Allowable Emissions: <b>N/A</b>	
3. Requested Allowable Emissions and Units: <b>247.2 tons/yr (CT1 – CT2)</b>		4. Equivalent Allowable Emissions: <b>N/A lb/hour      N/A tons/year</b>	
5. Method of Compliance (limit to 60 characters): <b>Direct emissions monitoring of stack emissions using certified continuous emissions monitors on each turbine stack</b>			
6. Allowable Emissions Comment (Desc. Of Operating Method) (limit to 200 characters):			

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION  
(Regulated Emissions Units -  
Emissions-Limited and Preconstruction Review Pollutants Only)**

**Potential/Fugitive Emissions**

1. Pollutant Emitted: <b>PM/PM10</b>	2. Total Percent Efficiency of Control:
3. Potential Emissions: <b>40 lb/hour (per turbine) 51.04 tons/year (total two turbines)</b>	4. Synthetically Limited? <input checked="" type="checkbox"/>
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year	
6. Emission Factor: <b>0.031 lb/MMBtu (HHV)</b> Reference: <b>See Appendix B for emissions calculations</b>	7. Emissions Method Code: <b>2</b>
8. Calculation of Emissions (limit to 600 characters):  <b>Hourly emission rate is based on worst case emission rate for both natural gas and distillate oil.</b>	
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):	

**Allowable Emissions** Allowable Emissions \_\_\_\_\_ of \_\_\_\_\_ N/A

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):	
6. Allowable Emissions Comment (Desc. Of Operating Method) (limit to 200 characters):	

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION  
(Regulated Emissions Units -  
Emissions-Limited and Preconstruction Review Pollutants Only)**

**Potential/Fugitive Emissions**

1. Pollutant Emitted: <b>SO2</b>	2. Total Percent Efficiency of Control:
3. Potential Emissions: <b>78 lb/hour (per turbine) 75.79 tons/year (total two turbines)</b>	4. Synthetically Limited? <input checked="" type="checkbox"/>
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year	
6. Emission Factor: <b>0.046 lb/MMBtu (HHV)</b> Reference: <b>See Appendix B for emissions calculations</b>	7. Emissions Method Code: <b>2</b>
8. Calculation of Emissions (limit to 600 characters):  <b>Hourly emission rate is based on worst case emission rate for both natural gas and distillate oil.</b>	
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):	

**Allowable Emissions** Allowable Emissions \_\_\_\_\_ of \_\_\_\_\_ N/A

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION  
(Regulated Emissions Units -  
Emissions-Limited and Preconstruction Review Pollutants Only)**

**Potential/Fugitive Emissions**

1. Pollutant Emitted: <b>VOC</b>	2. Total Percent Efficiency of Control:
3. Potential Emissions: <b>35 lb/hour (per turbine) 34.54 tons/year (total six turbines)</b>	4. Synthetically Limited? <input checked="" type="checkbox"/>
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year	
6. Emission Factor: <b>0.021 lb/MMBtu (HHV)</b> Reference: <b>See Appendix B for emissions calculations</b>	7. Emissions Method Code: <b>2</b>
8. Calculation of Emissions (limit to 600 characters):  <b>Hourly emission rate is based on worst case emission rate for both natural gas and distillate oil.</b>	
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):	

**Allowable Emissions** Allowable Emissions \_\_\_\_\_ of \_\_\_\_\_ **N/A**

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                  tons/year
5. Method of Compliance (limit to 60 characters):	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	



**J. EMISSIONS UNIT SUPPLEMENTAL INFORMATION  
(Regulated Emissions Units Only)**

**Supplemental Requirements**

1. Process Flow Diagram <input checked="" type="checkbox"/> Attached, Document ID: <b>Fig. 2-2</b> <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
2. Fuel Analysis or Specification <input checked="" type="checkbox"/> Attached, Document ID: <b>App. B</b> <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
3. Detailed Description of Control Equipment <input type="checkbox"/> Attached, Document ID:_____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
4. Description of Stack Sampling Facilities <input type="checkbox"/> Attached, Document ID:_____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
5. Compliance Test Report <input type="checkbox"/> Attached, Document ID:_____ <input type="checkbox"/> Previously submitted, Date:_____ <input checked="" type="checkbox"/> Not Applicable
6. Procedures for Startup and Shutdown <input type="checkbox"/> Attached, Document ID:_____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
7. Operation and Maintenance Plan <input type="checkbox"/> Attached, Document ID:_____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
8. Supplemental Information for Construction Permit Application <input checked="" type="checkbox"/> Attached, Document ID: <b>ENSR Doc. No. 6792-123-410</b>
9. Other Information Required by Rule or Statute <input type="checkbox"/> Attached, Document ID:_____ <input checked="" type="checkbox"/> Not Applicable
10. Supplemental Requirements Comment:          

**Emissions Unit Information Section 1 of 2**

**Additional Supplemental Requirements for Title V Air Operation Permit Applications**

11. Alternative Methods of Operation [ ] Attached, Document ID: _____ [✓] Not Applicable
12. Alternative Modes of Operation (Emissions Trading) [ ] Attached, Document ID: _____ [✓] Not Applicable
13. Identification of Additional Applicable Requirements [ ] Attached, Document ID: _____ [✓] Not Applicable
14. Compliance Assurance Monitoring Plan [ ] Attached, Document ID: _____ [✓] Not Applicable
15. Acid Rain Part Application (Hard-copy Required) [ ] Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Attached, Document ID: _____ [ ] Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) Attached, Document ID: _____ [ ] New Unit Exemption (Form No. 62-210.900(1)(a)2.) Attached, Document ID: _____ [ ] Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) Attached, Document ID: _____ [ ] Phase II NO <sub>x</sub> Compliance Plan (Form No. 62-210.900(1)(a)4.) Attached, Document ID: _____ [ ] Phase NO <sub>x</sub> Averaging Plan (Form No. 62-210.900(1)(a)5.) Attached, Document ID: _____ [ ] Not Applicable



**III. TANK EMISSIONS UNIT INFORMATION**

A separate Emissions Unit Information Section (including subsections A through J as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

**A. GENERAL EMISSIONS UNIT INFORMATION  
(All Emissions Units)**

**Emissions Unit Description and Status**

<p>1. Type of Emissions Unit Addressed in This Section: (Check one)</p> <p><input type="checkbox"/> This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).</p> <p><input checked="" type="checkbox"/> This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.</p> <p><input type="checkbox"/> This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.</p>			
<p>2. Regulated or Unregulated Emissions Unit? (Check one)</p> <p><input type="checkbox"/> The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.</p> <p><input checked="" type="checkbox"/> The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.</p>			
<p>3. Description of Emissions Unit Addressed in This Section (limit to 60 characters):</p> <p><b>Distillate fuel oil storage tanks</b></p>			
<p>4. Emissions Unit Identification Number:</p> <p>ID: <b>T001, T002</b></p>		<p><input checked="" type="checkbox"/> No ID</p> <p><input type="checkbox"/> ID Unknown</p>	
<p>5. Emissions Unit Status Code:</p> <p><b>C</b></p>	<p>6. Initial Startup Date:</p> <p><b>May 2002</b></p>	<p>7. Emissions Unit Major Group SIC Code:</p> <p><b>49</b></p>	<p>8. Acid Rain Unit?</p> <p><input type="checkbox"/></p>
<p>9. Emissions Unit Comment: (Limit to 500 Characters)</p> <p><b>T001 – main storage tank</b></p> <p><b>T002 – day storage tank.</b></p>			

**Emissions Unit Information Section 2 of 2**

**Emissions Unit Control Equipment**

1. Control Equipment/Method Description (Limit to 200 characters per device or method):

**None**

2. Control Device or Method Code(s):

**Emissions Unit Details**

1. Package Unit:

Manufacturer:

Model Number:

2. Generator Nameplate Rating:

MW

3. Incinerator Information:

Dwell Temperature:

°F

Dwell Time:

seconds

Incinerator Afterburner Temperature:

°F

**B. EMISSIONS UNIT CAPACITY INFORMATION  
(Regulated Emissions Units Only)**

**Emissions Unit Operating Capacity and Schedule**

1. Maximum Heat Input Rate: N/A mmBtu/hr
2. Maximum Incineration Rate: N/A lb/hr N/A tons/day
3. Maximum Process or Throughput Rate: 22,660,000 gal/year
4. Maximum Production Rate: N/A
5. Requested Maximum Operating Schedule: 24 hours/day 7 days/week 52 weeks/year 8760 hours/year
6. Operating Capacity/Schedule Comment (limit to 200 characters):

**C. EMISSIONS UNIT REGULATIONS  
(Regulated Emissions Units Only)**

**List of Applicable Regulations**

<b>40 CFR 60, Subpart A (General Provisions for New Source Performance Standards)</b>	
<b>40 CFR 60.116b(a) and (b) – Record Keeping requirements under Subpart Kb</b>	

**D. EMISSION POINT (STACK/VENT) INFORMATION**  
**(Regulated Emissions Units Only)**

**Emission Point Description and Type**

1. Identification of Point on Plot Plan or Flow Diagram? <b>T001 + T002</b>		2. Emission Point Type Code: <b>4</b>	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): <b>N/A</b>			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: <b>N/A</b>			
5. Discharge Type Code: <b>V</b>	6. Stack Height: <b>N/A</b> feet	7. Exit Diameter: <b>N/A</b> feet	
8. Exit Temperature: <b>N/A</b>	9. Actual Volumetric Flow Rate: <b>N/A</b>	10. Water Vapor: <b>N/A</b>	
11. Maximum Dry Standard Flow Rate: <b>N/A</b> dscfm		12. Nonstack Emission Point Height: <b>N/A</b> feet	
13. Emission Point UTM Coordinates: Zone: <b>17</b> East (km): <b>565.048 (Main Tank); 565.116 (Day Tank)</b> North (km): <b>2823.498 (Main Tank); 2823.498 (Day Tank)</b>			
14. Emission Point Comment (limit to 200 characters):			

**E. SEGMENT (PROCESS/FUEL) INFORMATION  
(All Emissions Units)**

**Segment Description and Rate:** Segment 1 of 1

1. Segment Description (Process/Fuel Type) (limit to 500 characters):  <b>Distillate fuel oil storage tanks</b>		
2. Source Classification Code (SCC): <b>40301021</b>		3. SCC Units: <b>Thousand Gallons Throughput</b>
4. Maximum Hourly Rate: <b>N/A</b>	5. Maximum Annual Rate: <b>22,600</b>	6. Estimated Annual Activity Factor: <b>N/A</b>
7. Maximum % Sulfur: <b>N/A</b>	8. Maximum % Ash: <b>N/A</b>	9. Million Btu per SCC Unit: <b>N/A</b>
10. Segment Comment (limit to 200 characters):		

**Segment Description and Rate:** Segment \_\_\_ of \_\_\_\_

1. Segment Description (Process/Fuel Type ) (limit to 500 characters):		
2. Source Classification Code (SCC):		3. SCC Units:
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment (limit to 200 characters):		

**F. EMISSIONS UNIT POLLUTANTS**  
**(All Emissions Units)**

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units -**  
**Emissions-Limited and Preconstruction Review Pollutants Only)**

**Potential/Fugitive Emissions**

1. Pollutant Emitted: <b>VOC</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: lb/hour                      tons/year		4. Synthetically Limited? <input type="checkbox"/> <input type="checkbox"/>	
5. Range of Estimated Fugitive Emissions: [ ] 1                      [ ] 2                      [ ] 3                      _____ to _____ tons/year			
6. Emission Factor: Reference:		7. Emissions Method Code:	
8. Calculation of Emissions (limit to 600 characters):			
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):  <p align="center"><b>Potential VOC emissions from distillate fuel oil storage tanks are less than 5 tons per year (less than the threshold amount for reporting in this subsection). See Appendix B for emission calculations.</b></p>			

**Allowable Emissions** Allowable Emissions 1 of 1 N/A

1. Basis for Allowable Emissions Code:		2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:		4. Equivalent Allowable Emissions: lb/hour                      tons/year	
5. Method of Compliance (limit to 60 characters):			
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):			



**H. VISIBLE EMISSIONS INFORMATION**  
**(Only Regulated Emissions Units Subject to a VE Limitation)**

**Visible Emissions Limitation: N/A**

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Requested Allowable Opacity: Normal Conditions:                      %                      Exceptional Conditions:                      % Maximum Period of Excess Opacity Allowed:                      min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment (limit to 200 characters):	

**I. CONTINUOUS MONITOR INFORMATION**  
**(Only Regulated Emissions Units Subject to Continuous Monitoring)**

**Continuous Monitoring System:** N/A

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	[ ] Rule (NOX) [ ] Other (CO)
4. Monitor Information: Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment (limit to 200 characters):	

**J. EMISSIONS UNIT SUPPLEMENTAL INFORMATION  
(Regulated Emissions Units Only)**

**Supplemental Requirements N/A**

1. Process Flow Diagram <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
2. Fuel Analysis or Specification <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
3. Detailed Description of Control Equipment <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
4. Description of Stack Sampling Facilities <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
5. Compliance Test Report <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously submitted, Date: _____ <input type="checkbox"/> Not Applicable
6. Procedures for Startup and Shutdown <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
7. Operation and Maintenance Plan <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
8. Supplemental Information for Construction Permit Application <input type="checkbox"/> Attached, Document ID: _____
9. Other Information Required by Rule or Statute <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
10. Supplemental Requirements Comment:          

**Emissions Unit Information Section 2 of 2**

**Additional Supplemental Requirements for Title V Air Operation Permit Applications**

11. Alternative Methods of Operation <input type="checkbox"/> Attached, Document ID:_____ <input type="checkbox"/> Not Applicable
12. Alternative Modes of Operation (Emissions Trading) <input type="checkbox"/> Attached, Document ID:_____ <input type="checkbox"/> Not Applicable
13. Identification of Additional Applicable Requirements <input type="checkbox"/> Attached, Document ID:_____ <input type="checkbox"/> Not Applicable
14. Compliance Assurance Monitoring Plan <input type="checkbox"/> Attached, Document ID:_____ <input type="checkbox"/> Not Applicable
15. Acid Rain Part Application (Hard-copy Required) <input type="checkbox"/> Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Attached, Document ID: <input type="checkbox"/> Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) Attached, Document ID:_____ <input type="checkbox"/> New Unit Exemption (Form No. 62-210.900(1)(a)2.) Attached, Document ID:_____ <input type="checkbox"/> Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) Attached, Document ID:_____ <input type="checkbox"/> Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) Attached, Document ID:_____ <input type="checkbox"/> Phase NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) Attached, Document ID:_____ <input type="checkbox"/> Not Applicable



**APPENDIX B**  
**EMISSION CALCULATIONS**

**ENSR**  
**Dade Development Co. LLC**  
**South Dade Energy Center**  
**MHI 501F Simple Cycle Natural Gas Emissions**  
**EMISSIONS COMPUTATION PER CTG**  
**GAS Fired CTG**

Date 3/21/2001  
 Author J. Lubetsky  
 Checked By M. Griffin  
 Revision 1

CASE NUMBER and OPERATION CONDITIONS	1	2	3	4	5	6	7	8
(1) AMBIENT TEMPERATURE, °F	32	59	74	95	32	59	74	95
(1) RELATIVE HUMIDITY, %	65%	65%	65%	65%	65%	65%	65%	65%
CTG LOAD	100%	100%	100%	100%	75%	75%	75%	75%
CHILLER STATUS	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
(1) CTG EFFECTIVE INLET TEMPERATURE, °F	32	45	45	45	32	59	74	95
(1) CTG EFFECTIVE INLET RELATIVE HUMIDITY, %	65%	100%	100%	100%	65%	65%	65%	65%
(1) CTG NET POWER OUTPUT, kW	185,130	183,900	183,900	183,900	138,620	131,640	124,940	115,880
(1) CTG FUEL CONSUMPTION, MMBtu/hr LHV	1,717	1,716	1,716	1,716	1,368	1,314	1,269	1,211
(1) CTG FUEL CONSUMPTION, lb/hr	82,212	82,260	82,260	82,260	65,406	62,916	60,761	57,984
CTG FUEL CONSUMPTION, MMBtu/hr HHV	1,906	1,907	1,907	1,907	1,516	1,459	1,409	1,344
(1) CTG EXHAUST GAS FLOW RATE, 1000 lb/hr	3,743	3,730	3,730	3,730	2,983	2,945	2,893	2,818
(1) STACK TEMPERATURE, °F	112	124	124	124	114	114	114	114
<b>CTG STACK EXHAUST ANALYSIS (%VOL)</b>								
(1) ARGON + NITROGEN	28.154	75.74%	75.28%	75.28%	75.28%	75.30%	74.78%	73.49%
(1) OXYGEN	31.996	12.53%	12.40%	12.40%	12.55%	12.64%	12.65%	12.50%
(1) CARBON DIOXIDE	44.009	3.67%	3.58%	3.58%	3.88%	3.76%	3.68%	3.58%
(1) WATER	18.015	7.85%	8.45%	8.45%	7.84%	8.31%	8.88%	10.42%
TOTAL		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
CTG EXHAUST MOLECULAR WEIGHT		28.45	28.39	28.39	28.39	28.45	28.39	28.32
CTG EXHAUST GAS FLOW RATE, lb mol/hr		131,546	131,390	131,390	131,390	104,835	103,723	102,142
CTG EXHAUST GAS FLOW RATE, DRY, lb mol/hr		121,218	120,290	120,290	120,290	96,621	95,106	93,067
<b>EXH. PARAMETERS @ STACK</b>								
(5) STACK DIAMETER, ft		27.68	27.68	27.68	27.68	27.68	27.68	27.68
MOLECULAR WEIGHT		28.45	28.39	28.39	28.39	28.45	28.39	28.32
STACK EXHAUST GAS FLOW RATE, lb/hr		3,743,000	3,730,000	3,730,000	3,730,000	2,983,000	2,945,000	2,818,000
SPECIFIC VOLUME, ft <sup>3</sup> /lb		40.3	40.7	40.7	40.7	41.3	41.4	41.7
VOLUMETRIC FLOW, acfm		2,516,114	2,532,310	2,532,310	2,532,310	2,051,142	2,029,371	1,998,442
DRY STANDARD FLOW RATE, dscfm		844,444	843,390	843,390	843,390	672,982	665,807	655,622
EXIT VELOCITY, ft/sec		69.7	70.1	70.1	70.1	56.8	56.2	55.4
ACTUAL O <sub>2</sub> DRY		13.6%	13.5%	13.5%	13.5%	13.6%	13.8%	13.9%
MOLES EXHAUST GAS per HOUR WET		131,546	131,390	131,390	131,390	104,835	103,723	102,142
MOLES EXHAUST GAS per HOUR DRY		121,218	120,290	120,290	120,290	96,621	95,106	93,067
<b>NOx EMISSION CALCULATION</b>								
(1) LIMIT, ppmVd @ 15% O <sub>2</sub>		25.0	25.0	25.0	25.0	27.0	25.0	25.0
LIMIT, ppmVd		30.9	31.2	31.2	31.2	33.3	30.2	29.7
CORRESPONDING MASS RATE, lb/hr as NO <sub>2</sub>		173	173	173	173	148	132	128
CORRESPONDING EMISSIONS FACTOR, lb/MMBtu HHV		0.091	0.091	0.091	0.091	0.098	0.091	0.091
<b>CO EMISSION CALCULATION</b>								
(6) LIMIT, ppmVd @ 15% O <sub>2</sub>		11	10	10	10	16	15	15
CTG Exhaust, ppmVd		13.6	12.5	12.5	12.5	19.8	18.1	17.8
CTG MASS RATE, lb/hr		47	42	42	42	54	49	47
CTG EMISSIONS FACTOR, lb/MMBtu HHV		0.025	0.022	0.022	0.022	0.036	0.034	0.033
<b>PARTICULATE EMISSION CALCULATION</b>								
(2) CTG EXHAUST, lb/hr		20.0	20.0	20.0	20.0	20.0	20.0	20.0
CORRESPONDING EMISSIONS FACTOR, lb/MMBtu HHV		0.010	0.010	0.010	0.010	0.013	0.014	0.015
<b>VOC EMISSION CALCULATION</b>								
(3) LIMIT, ppmVd @ 15% O <sub>2</sub>		1.0	1.0	1.0	1.0	2.0	1.0	1.0
CTG Exhaust, ppmVd		1.2	1.2	1.2	1.2	2.5	1.2	1.2
CTG MASS RATE, lb/hr		3.0	3.0	3.0	3.0	4.0	2.0	2.0
CTG EMISSIONS FACTOR, lb/MMBtu HHV		0.0016	0.0016	0.0016	0.0016	0.0026	0.0014	0.0015
<b>Pb EMISSION CALCULATION</b>								
PB EMISSION FACTOR, lb/MMBtu		0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
STACK EMISSIONS, lb/hr		0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>SO<sub>2</sub> EMISSION CALCULATION</b>								
(4) CTG EMISSIONS, lb/hr		11.3	11.3	11.3	11.3	9.0	8.7	8.0
CTG EMISSIONS FACTOR, lb/MMBtu HHV		0.006	0.006	0.006	0.006	0.006	0.006	0.006
STACK EMISSIONS, ppmVd @ ACTUAL O <sub>2</sub>		1.5	1.5	1.5	1.5	1.5	1.4	1.4
STACK EMISSIONS, ppmVd @ 15% O <sub>2</sub>		1.2	1.2	1.2	1.2	1.2	1.2	1.2
<b>H<sub>2</sub>SO<sub>4</sub> EMISSION CALCULATION</b>								
(4) CTG EMISSIONS, lb/hr		1.8	1.8	1.8	1.8	1.4	1.4	1.3
CTG EMISSIONS FACTOR, lb/MMBtu HHV		0.009	0.009	0.009	0.009	0.009	0.009	0.009

**SITE CONDITIONS**

FUEL TYPE	Natural Gas
FUEL LHV, Btu/lb	20885
FUEL LHV, Btu/SCF	868.9
FUEL HHV, Btu/SCF	964.5
FUEL SULFUR CONTENT [grains per 100 SCF]	2

**CONTROL EQUIPMENT LIMITS**  
 NOx PERMIT LIMIT, ppmVd @ 15% O<sub>2</sub>      25

**SO<sub>2</sub> TO H<sub>2</sub>SO<sub>4</sub> CONVERSION**  
 (7) % CONVERSION, SO<sub>2</sub> TO H<sub>2</sub>SO<sub>4</sub>      10%

- Notes**
- Based on MHI501F data provided in e-mail from Davo Kellermeyer (e-mail dated March 15, 2001).
  - PM10 Emission rate based on data provided in e-mail from Davo Kellermeyer March 15, 2001.
  - VOC Emission limit based on data provided in e-mail from Davo Kellermeyer March 15, 2001.
  - SO<sub>2</sub> emissions calculated based on fuel sulfur content of 2 grains per 100 standard cubic foot.
  - Stack diameter based on conversation with Chris Booth, May 23, 2000.
  - CO Emission limit based on data provided in e-mail from Davo Kellermeyer March 15, 2001.
  - Assume 10% of SO<sub>2</sub> is converted to H<sub>2</sub>SO<sub>4</sub>.

Dade Development Co. LLC  
 South Dade Energy Center  
 MHI 501F - Calculation of Exhaust Composition

		Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8
CTG STACK EXHAUST ANALYSIS (%VOL)	Mol Wt	% weight	% weight	% weight	% weight	% weight	% weight	% weight	% weight
ARGON	39.95	1.32%	1.31%	1.31%	1.31%	1.32%	1.31%	1.31%	1.29%
NITROGEN	28.013	73.63%	73.35%	73.35%	73.35%	73.64%	73.36%	73.03%	72.23%
OXYGEN	31.998	14.09%	13.97%	13.97%	13.97%	14.11%	14.24%	14.29%	14.21%
CARBON DIOXIDE	44.009	5.99%	6.01%	6.01%	6.01%	5.97%	5.82%	5.72%	5.60%
WATER	18.015	4.97%	5.36%	5.36%	5.36%	4.96%	5.27%	5.65%	6.67%
		<u>Mol</u>	<u>Mol</u>	<u>Mol</u>	<u>Mol</u>	<u>Mol</u>	<u>Mol</u>	<u>Mol</u>	<u>Mol</u>
ARGON		0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.00032
NITROGEN		0.02628	0.02618	0.02618	0.02618	0.02629	0.02619	0.02607	0.02578
OXYGEN		0.00440	0.00437	0.00437	0.00437	0.00441	0.00445	0.00447	0.00444
CARBON DIOXIDE		0.00136	0.00137	0.00137	0.00137	0.00136	0.00132	0.00130	0.00127
WATER		0.00276	0.00298	0.00298	0.00298	0.00275	0.00293	0.00314	0.00370
		(%Vol)	(%Vol)	(%Vol)	(%Vol)	(%Vol)	(%Vol)	(%Vol)	(%Vol)
ARGON		0.94%	0.93%	0.93%	0.93%	0.94%	0.93%	0.93%	0.91%
NITROGEN		74.80%	74.35%	74.35%	74.35%	74.81%	74.37%	73.85%	72.58%
NITROGEN + ARGON		75.74%	75.28%	75.28%	75.28%	75.75%	75.30%	74.78%	73.49%
OXYGEN		12.53%	12.40%	12.40%	12.40%	12.55%	12.64%	12.65%	12.50%
CARBON DIOXIDE		3.87%	3.88%	3.88%	3.88%	3.86%	3.76%	3.68%	3.58%
WATER		7.85%	8.45%	8.45%	8.45%	7.84%	8.31%	8.88%	10.42%



**ENSR**  
**South Dade Development Co. LLC**  
**South Dade Energy Center**  
**MHI 501F Simple Cycle Oil Emissions**  
**EMISSIONS COMPUTATION PER CTG**  
**Oil Fired CTG**

Date 3/21/2001  
 Author J. Lubetaky  
 Checked By M. Griffin  
 Revision 1

CASE NUMBER and OPERATION CONDITIONS	1	2	3	4	5	6	7	8
(1) AMBIENT TEMPERATURE, °F	32	59	74	95	32	59	74	95
(1) RELATIVE HUMIDITY, %	65%	65%	65%	65%	65%	65%	65%	65%
CTG LOAD	100%	100%	100%	100%	75%	75%	75%	75%
CHILLER STATUS	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
(1) CTG EFFECTIVE INLET TEMPERATURE, F	32	80	80	80	32	59	74	95
(1) CTG EFFECTIVE INLET RELATIVE HUMIDITY, %	65%	100%	100%	100%	65%	65%	65%	65%
(1) CTG NET POWER OUTPUT, kW	186,020	159,140	159,140	159,140	124,200	112,490	108,250	87,790
(1) CTG FUEL CONSUMPTION, MMBtu/hr LHV	1,623	1,571	1,571	1,571	1,303	1,224	1,184	1,132
(1) CTG FUEL CONSUMPTION, lb/hr	77,711	75,221	75,221	75,221	62,389	58,807	56,891	54,106
CTG FUEL CONSUMPTION, MMBtu/hr HHV	1,720	1,665	1,665	1,665	1,381	1,297	1,255	1,198
(1) CTG EXHAUST GAS FLOW RATE, 1000 lb/hr	3,988	3,781	3,781	3,781	3,044	2,896	2,815	2,692
(1) STACK TEMPERATURE, °F	1,008	1,014	1,014	1,014	1,064	1,086	1,099	1,121
<b>CTG STACK EXHAUST ANALYSIS (%VOL)</b>								
28.154 ARGON + NITROGEN	78.00%	75.55%	75.55%	75.55%	75.94%	75.43%	74.90%	73.57%
31.998 OXYGEN	13.27%	13.20%	13.20%	13.20%	13.12%	13.10%	13.00%	12.69%
44.009 CARBON DIOXIDE	4.77%	4.74%	4.74%	4.74%	4.67%	4.80%	4.76%	4.72%
18.015 WATER	5.95%	6.51%	6.51%	6.51%	6.06%	6.67%	7.34%	9.01%
TOTAL	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
CTG EXHAUST MOLECULAR WEIGHT	28.82	28.75	28.75	28.75	28.82	28.74	28.66	28.48
CTG EXHAUST GAS FLOW RATE, lb mol/hr	134,223	130,807	130,807	130,807	105,635	100,757	98,203	94,531
CTG EXHAUST GAS FLOW RATE, DRY, lb mol/hr	126,234	122,287	122,287	122,287	99,229	94,036	90,999	86,012
<b>EXH. PARAMETERS @ STACK</b>								
(5) STACK DIAMETER, ft	27.68	27.68	27.68	27.68	27.68	27.68	27.68	27.68
MOLECULAR WEIGHT	28.82	28.75	28.75	28.75	28.82	28.74	28.66	28.48
CTG EXHAUST GAS FLOW RATE, lb/hr	3,988,000	3,781,000	3,781,000	3,781,000	3,044,000	2,896,000	2,815,000	2,692,000
SPECIFIC VOLUME, ft <sup>3</sup> /lb	37.1	37.4	37.4	37.4	38.6	39.3	39.7	40.5
VOLUMETRIC FLOW, actm	2,394,169	2,345,962	2,345,962	2,345,962	1,958,790	1,895,314	1,862,822	1,818,476
DRY STANDARD FLOW RATE, dscfm	861,779	839,797	839,797	839,797	678,225	646,868	630,435	606,761
EXIT VELOCITY, ft/sec	66.3	65.0	65.0	65.0	54.3	52.5	51.6	50.4
ACTUAL O <sub>2</sub> DRY	14.1%	14.1%	14.1%	14.1%	14.0%	14.0%	14.0%	14.0%
MOLES EXHAUST GAS per HOUR WET	134,223	130,807	130,807	130,807	105,635	100,757	98,203	94,531
MOLES EXHAUST GAS per HOUR DRY	126,234	122,287	122,287	122,287	99,229	94,036	90,999	86,012
<b>NOx EMISSION CALCULATION</b>								
(1) LIMIT, ppmVd @ 15% O <sub>2</sub>	42	42	42	42	42	42	42	42
LIMIT, ppmVd	48.3	48.2	48.2	48.2	49.3	48.9	48.9	49.5
CORRESPONDING MASS RATE, lb/hr as NO <sub>2</sub>	281	272	272	272	226	212	205	196
CORRESPONDING EMISSIONS FACTOR, lb/MMBtu HHV	0.163	0.163	0.163	0.163	0.164	0.163	0.163	0.164
<b>CO EMISSION CALCULATION</b>								
(6) LIMIT, ppmVd @ 15% O <sub>2</sub>	50	50	50	50	50	50	50	50
CTG Exhaust, ppmVd	57.6	57.4	57.4	57.4	58.7	58.2	58.2	58.9
CTG MASS RATE, lb/hr	204	197	197	197	164	154	149	142
CTG EMISSIONS FACTOR, lb/MMBtu HHV	0.119	0.118	0.118	0.118	0.119	0.119	0.119	0.119
<b>PARTICULATE EMISSION CALCULATION</b>								
(2) CTG EXHAUST, lb/hr	40	40	40	40	40	40	40	40
CORRESPONDING EMISSIONS FACTOR, lb/MMBtu HHV	0.023	0.024	0.024	0.024	0.029	0.031	0.032	0.033
<b>VOC EMISSION CALCULATION</b>								
(3) LIMIT, ppmVd @ 15% O <sub>2</sub>	15	15	15	15	15	15	15	15
CTG Exhaust, ppmVd	17.3	17.2	17.2	17.2	17.8	17.5	17.5	17.7
CTG MASS RATE, lb/hr	35	34	34	34	28	27	26	25
CTG EMISSIONS FACTOR, lb/MMBtu HHV	0.020	0.020	0.020	0.020	0.020	0.021	0.021	0.021
<b>Pb EMISSION CALCULATION</b>								
PB EMISSION FACTOR, lb/MMBtu	0.000014	0.000014	0.000014	0.000014	0.000014	0.000014	0.000014	0.000014
STACK EMISSIONS, lb/hr	0.023	0.022	0.022	0.022	0.018	0.017	0.017	0.016
<b>SO<sub>2</sub> EMISSION CALCULATION</b>								
(4) CTG EMISSIONS, lb/hr	78	76	76	76	63	59	57	55
CTG EMISSIONS FACTOR, lb/MMBtu HHV	0.045	0.046	0.046	0.046	0.046	0.045	0.045	0.046
STACK EMISSIONS, ppmVd @ ACTUAL O <sub>2</sub>	9.6	9.7	9.7	9.7	9.9	9.8	9.8	10.0
STACK EMISSIONS, ppmVd @ 15% O <sub>2</sub>	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.5
<b>H<sub>2</sub>SO<sub>4</sub> EMISSION CALCULATION</b>								
(4) CTG EMISSIONS, lb/hr	12.0	11.7	11.7	11.7	9.7	9.1	8.8	8.5
CTG EMISSIONS FACTOR, lb/MMBtu HHV	0.0070	0.0070	0.0070	0.0070	0.0070	0.0070	0.0070	0.0071

<b>SITE CONDITIONS</b>	
FUEL TYPE	Distillate Oil
FUEL LHV, Btu/lb	18180
FUEL SULFUR CONTENT [wt % S]	0.05
<b>CONTROL EQUIPMENT LIMITS</b>	
NOx PERMIT LIMIT, ppmVd @ 15% O <sub>2</sub>	42
<b>SO<sub>2</sub> TO H<sub>2</sub>SO<sub>4</sub> CONVERSION</b>	
(7) % CONVERSION, SO <sub>2</sub> TO H <sub>2</sub> SO <sub>4</sub>	10%

- Notes**
- Based on MHI501F data provided in e-mail from Dave Kellormeyer (e-mail dated March 15, 2001).
  - PM10 Emission rate based on data provided in e-mail from Dave Kellormeyer March 15, 2001.
  - VOC Emission limit based on data provided in e-mail from Dave Kellormeyer March 15, 2001
  - SO<sub>2</sub> emissions calculated based on fuel sulfur content.
  - Stack diameter based on conversation with Chris Booth, May 23, 2000
  - CO Emission limit based on data provided in e-mail from Dave Kellormeyer March 15, 2001
  - Assume 10% of SO<sub>2</sub> is converted to H<sub>2</sub>SO<sub>4</sub>.

**Dade Development Co. LLC  
 South Dade Energy Center  
 MHI 501F - Calculation of Exhaust Composition**

		Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8
<b>CTG STACK EXHAUST ANALYSIS</b>	<b>Mol Wt</b>	% weight	% weight	% weight	% weight	% weight	% weight	% weight	% weight
ARGON	39.95	1.31%	1.30%	1.30%	1.30%	1.31%	1.30%	1.29%	1.28%
NITROGEN	28.013	72.95%	72.68%	72.68%	72.68%	72.89%	72.59%	72.28%	71.46%
OXYGEN	31.998	14.73%	14.69%	14.69%	14.69%	14.57%	14.58%	14.51%	14.26%
CARBON DIOXIDE	44.009	7.29%	7.25%	7.25%	7.25%	7.44%	7.35%	7.31%	7.30%
* WATER	18.015	3.72%	4.08%	4.08%	4.08%	3.79%	4.18%	4.61%	5.70%
		<b>Mol</b>	<b>Mol</b>	<b>Mol</b>	<b>Mol</b>	<b>Mol</b>	<b>Mol</b>	<b>Mol</b>	<b>Mol</b>
ARGON		0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.00032	0.00032
NITROGEN		0.02604	0.02594	0.02594	0.02594	0.02602	0.02591	0.02580	0.02551
OXYGEN		0.00460	0.00459	0.00459	0.00459	0.00455	0.00456	0.00453	0.00446
CARBON DIOXIDE		0.00166	0.00165	0.00165	0.00165	0.00169	0.00167	0.00166	0.00166
WATER		0.00206	0.00226	0.00226	0.00226	0.00210	0.00232	0.00256	0.00316
		<b>(%Vol)</b>	<b>(%Vol)</b>	<b>(%Vol)</b>	<b>(%Vol)</b>	<b>(%Vol)</b>	<b>(%Vol)</b>	<b>(%Vol)</b>	<b>(%Vol)</b>
ARGON		0.95%	0.94%	0.94%	0.94%	0.95%	0.94%	0.93%	0.91%
NITROGEN		75.06%	74.61%	74.61%	74.61%	74.99%	74.49%	73.97%	72.66%
NITROGEN + ARGON		76.00%	75.55%	75.55%	75.55%	75.94%	75.43%	74.90%	73.57%
OXYGEN		13.27%	13.20%	13.20%	13.20%	13.12%	13.10%	13.00%	12.69%
CARBON DIOXIDE		4.77%	4.74%	4.74%	4.74%	4.87%	4.80%	4.76%	4.72%
WATER		5.95%	6.51%	6.51%	6.51%	6.06%	6.67%	7.34%	9.01%

**CALCULATIONS AND COMPUTATIONS**

Project: South Dade Energy Center, Dade Development Co. LLC.

Project Number: 6792-140-410

Computed by: J. Lubetsky

Date: 3/21/2001

Subject: Fire-Water Pump Emission Calculations

Checked by: M. Griffin

Date: 4/9/2001

Emission Source: Fire-Water Pump Engine

Source Type: Diesel Fueled Reciprocating Engine  
250 Horsepower

Operating Hours per Year: 500

Compound	Emission		Emission Rate	
	Factor (a)		Hourly (b)	Annual (c)
	(Lbs/hp hr)	(lb/MMBtu)	(Lbs/Hr)	(Tons/Year)
Nitrogen Oxides	0.031		7.8	2.0
Carbon Monoxide	0.00668		1.7	0.4
Volatile Organic Carbon	0.00247		0.6	0.2
Sulfur Oxides	0.00205		0.5	0.1
Particulate	0.0022		0.6	0.2
Benzene	6.53E-06	9.33E-04	1.63E-03	4.08E-04
Toluene	2.86E-06	4.09E-04	7.16E-04	1.79E-04
Xylenes	2.00E-06	2.85E-04	4.99E-04	1.25E-04
Propylene	1.81E-05	2.58E-03	4.52E-03	1.13E-03
1,3-Butadiene	2.74E-07	3.91E-05	6.84E-05	1.71E-05
Formaldehyde	8.26E-06	1.18E-03	2.07E-03	5.16E-04
Acetaldehyde	5.37E-06	7.67E-04	1.34E-03	3.36E-04
Acrolein	6.48E-07	9.25E-05	1.62E-04	4.05E-05
PAH	1.18E-06	1.68E-04	2.94E-04	7.35E-05

Total HAPS 5.6 lb/year

Notes:

- (a) Emission Factors from AP-42, Section 3.3, Table 3.3-1
- (b) Hourly Emission Rate (Lbs/Hr) = (Emission Factor, Lbs/BHP) \* (Horsepower, BHP)
- (c) Annual Emission Rate (Tons/Yr) = (Hourly Emission Rate, Lbs/Hr) \*  
(Hour of Operation Per Year, Hr/Yr) / (2,000 Lbs/Ton)

### CALCULATIONS AND COMPUTATIONS

Project: South Dade Energy Center, Dade Development Co. LLC. Computed by: J. Lubetsky Date: 3/27/2001  
 Project Number: 6792-123-610 Checked by: M. Griffin Date: 4/9/2001  
 Subject: Natural Gas Heater - Emission Calculations

Emission Source:	Natural Gas Heater
Heat Input (MMBtu/hr):	6
Number of Units:	1
Sulfur Content of Fuel (grains/scf):	0.02
Fuel Heating Value, HHV (Btu/scf):	1047
LHV (Btu/scf):	946
Operating Hours per Year:	1500
Fuel Feed Rate (scf/HR):	5731

Compound	Emission Factor (a) (Lbs/MMBtu)	Emission Rate - per Unit	
		Hourly (b) (Lbs/Hr)	Annual (c) (Tons/Year)
Criteria Pollutants			
Nitrogen Oxides	0.102	0.612	0.459
Carbon Monoxide	0.09	0.54	0.405
Volatile Organic Carbon	0.06	0.36	0.27
Sulfur Oxides (d)	0.003	0.016	0.012
Particulate	0.01	0.06	0.045

**Notes:**

- (a) Emission Factors based on the information supplied by ENRON on 8/11/99.
- (b) Hourly Emission Rate (Lbs/Hr) = (Heat Input \* Emission Factor)
- (c) Annual Emission Rate (Tons/Yr) = (Hourly Emission Rate, Lbs/Hr) \*  
(Hour of Operation Per Year, Hr/Yr) / (2,000 Lbs/Ton)
- (d) Sulfur Oxides Emission Rate (Lbs/Hr) based on the sulfur content of the fuel.

CALCULATIONS AND COMPUTATIONS

Project: South Dade Energy Center, Dade Development Co. LLC.

Project Number: 6792-123-610

Computed by: K. Field

Date: 10/2/2000

Subject: Cooling Tower Emissions

Checked by: M. Griffin

Date: 4/9/2001

Water Circulation Rate (a), per cell	(GPM)	4,000
Number of Cells		4
Total Water Circulation Rate (a), all cells	(GPM)	16,000
Annual Operation	(hrs/year)	8,760
Total Liquid Drift (b)	(%)	0.001
Expected TDS/TSS of Circulated Water (c)	(ppmw)	2085
Emission Rate - Total Cooling Tower		
Total Suspended Particulate (d)	(Lbs/Hr)	0.167
	(Tons/Yr)	0.732

- Notes:
- (a) Design Water Circulation Rate, Gallons/Minute (GPM)
  - (b) Design Total Liquid Drift, Percent (%)
  - (c) Process Design Data
  - (d) Based on USEPA AP-42 Section 13.4 Wet Cooling Towers, Table 13.4-1. Modified to Cooling Tower Design  

$$\text{Lbs/Hr} = (\text{Water Circulation Rate, GPM}) * 60 * (\text{Drift, \%}) / 100 * (8.3453 \text{ Lbs/Gal}) * (\text{TDS, Lbs PM}/1,000,000 \text{ Lbs Water})$$

$$\text{Tons/Yr} = (\text{Lbs/Hr}) * (8,760 \text{ Hrs/Yr}) / (2,000 \text{ Lbs/Ton})$$

South Dade Energy Center, Dade Development Co. LLC.

Pollutant	CTG Natural Gas Short Term Emission Limits			CTG Distillate Oil Short Term Emission Limit			Compliance Method <sup>(7)</sup>	Fuel Use Calculation			Annual Emissions			
								Maximum CTG Emissions for Minor Source <sup>(1)</sup>	Natural Gas No Oil Annual Fuel Use <sup>(5)</sup>	Distillate Oil Annual Fuel Use <sup>(5)</sup>	Option 1 Natural Gas Fired CTGs <sup>(6)</sup>	Option 2 Distillate Oil Fired CTGs <sup>(6)</sup>	Worst Case CTG Emissions <sup>(4)</sup>	Ancillary Equipment Emissions
	ppmvd @ 15% O <sub>2</sub>	lb/MMBtu (HHV)	Max lb/hr <sup>(1)</sup>	ppmvd @ 15% O <sub>2</sub>	lb/MMBtu (HHV)	Max lb/hr <sup>(1)</sup>		tons/year	MMBtu/yr (HHV)	MMBtu/yr (HHV)	(tpy)	(tpy)	(tpy)	(tpy)
NOx	27	0.098	173	42	0.164	281	CEMS	245.5	5,010,204	2,993,902	245.5	245.5	245.5	2.5
CO	16	0.036	54	50	0.119	204.0	CEMS	247.2	13,733,333	4,154,622	247.2	247.2	247.2	0.8
VOC	2	0.003	4	15	0.021	35	Fuel Tracking	218.7	145,800,000	20,828,571	7.5	31.4	34.54	1.3
Pb	N/A	0	0	N/A	0.000014	0.02	Fuel Tracking	220	N/A	31,428,571,429	0	0.02	0.02	0.0
PM10 <sup>(2)</sup>	N/A	0.015	20	N/A	0.031	40	Fuel Tracking	219	29,200,000	14,129,032	37.6	46.4	51.04	1.0
H2SO4	N/A	0.001	1.8	N/A	0.007	12	Fuel Tracking	220	440,000,000	62,857,143	2.5	10.5	11.55	0.0
SO2	N/A	0.006	11.3	N/A	0.046	78	Fuel Tracking	219.9	73,300,000	9,560,870	15	68.9	75.79	0.1
Estimated Fuel Cap <sup>(3)</sup>									5,010,204	2,993,902	Margin		10%	
Total CTG Hours/Year									2,627	1,798				
Hours/CTG/Year									1,314	899				

Notes

- (1) CTG Emissions = Total Facility Emissions - (Fire Water Pump Engine Emissions + Natural Gas Heater + Tank Emissions)
- (2) PM10 emissions limited based on lb/hr emission rate, lb/MMBtu value calculated only for demonstration of compliance with Minor Source Status.
- (3) NOx and CO limited based on CEMS. To provide the most conservative estimate of of non-CEMS monitored pollutant emissions the maximum annual fuel consumption limited by the NOx fuel cap is used.
- (4) Worst Case of Natural Gas and Distillate Oil Case. VOC, PM10, and SO2 emissions include a margin of 10%.
- (5) [Annual Fuel Use (MMBtu/yr (HHV))] = [Maximum CTG Emissions (tons/year)] x [2,000 lb/ton] / [Emission Factor (lb/MMBtu (HHV))]
- (6) [CTG Annual Emissions (tons/year)] = [Estimated Fuel Cap (MMBtu/yr (HHV))] \* [Emission Factor (lb/MMBtu (HHV))] / [2,000 lb/ton]
- (7) For pollutants monitored by CEMS, maximum annual allowable emissions are assumed to be 248 tpy. For pollutants monitored through fuel tracking, maximum annual allowable emissions are assumed to be 220 tpy.

**South Dade Energy Center, Dade Development Co. LLC.  
NSPS NO<sub>x</sub> Emission Standard Calculation**

<b>Turbine MHI 501F</b>	
<b>Fuel Natural Gas</b>	
Maximum Electrical Capacity	183.9 MW
Maximum Energy Input	1,718 MMBtu/hr (LHV) 1,813,520,800 kJ/hr
Heat Rate	9,342 Btu/kWh 9.9 kJ/Wh
NSPS Subpart GG NO <sub>x</sub> Limit	0.0110% Volume % NO <sub>x</sub> @ 15% O <sub>2</sub> 110 ppmvd @ 15% O <sub>2</sub>

<b>Turbine MHI 501F</b>	
<b>Fuel Distillate Oil</b>	
Maximum Electrical Capacity	159.1 MW
Maximum Energy Input	1,571 MMBtu/hr (LHV) 1,658,347,600 kJ/hr
Heat Rate	9,872 Btu/kWh 10.4 kJ/Wh
NSPS Subpart GG NO <sub>x</sub> Limit	0.0104% Volume % NO <sub>x</sub> @ 15% O <sub>2</sub> 104 ppmvd @ 15% O <sub>2</sub>

**Calculations and Computations**

**HAP Emissions from Combined Cycle CTG Facility**

Project: South Dade Energy Center, Dade Development Co. LLC.  
 Project Number: 6792-140-410  
 Subject: Natural Gas/Distillate Oil Fired Turbine Non-Criteria Regulated Pollutant Emissions Calculations

Computed by: J. Lubetsky Date: 3/27/2001  
 Checked by: M. Griffin Date: 4/9/2001

Pollutant	Type <sup>(a)</sup>	Emission Factor		Rating	Emission Factor		CTG Natural Gas Combustion		Distillate Oil		CTG Natural Gas		CTG Distillate Oil		Facility		Facility Major Source	
		AP-42 Section 3.1 04/00 - Combustion Turbine Natural Gas			AP-42 Section 3.1 04/00 - Combustion Turbine No. 2 Fuel Oil		Maximum Heat Input,	Average Heat Input,	Maximum Heat Input,	Average Heat Input,	Emission Rate, Per Turbine		Emission Rate, Per Turbine		Emission Rate All CTGs			
		(lb/10 <sup>6</sup> scf)	(lb/MMBtu) <sup>(d)</sup>		(lb/10 <sup>3</sup> gallons)	(lb/MMBtu) <sup>(d)</sup>	per turbine (MMBtu/Hr) <sup>(e)</sup>	per turbine (MMBtu/Hr) <sup>(e)</sup>	per turbine (MMBtu/Hr) <sup>(e)</sup>	per turbine (MMBtu/Hr) <sup>(e)</sup>	Hourly <sup>(b)</sup> (lb/hr)	Annual <sup>(f)</sup> (tpy)	Hourly <sup>(b)</sup> (lb/hr)	Annual <sup>(f)</sup> (tpy)	Hourly <sup>(b)</sup> (lb/hr)	Annual <sup>(f)</sup> (tpy)		
1,3-Butadiene	HAP		4.30E-07	D		1.60E-05	D	1,907	1,907	1,665	1,665	8.20E-04	5.92E-04	2.66E-02	1.32E-02	5.33E-02	2.63E-02	No
Acetaldehyde	HAP		4.00E-05	C				1,907	1,907	1,665	1,665	7.63E-02	5.51E-02	0.00E+00	0.00E+00	1.53E-01	1.10E-01	No
Acrolein	HAP		6.40E-06	C				1,907	1,907	1,665	1,665	1.22E-02	8.82E-03	0.00E+00	0.00E+00	2.44E-02	1.76E-02	No
Benzene	HAP		1.20E-05			5.50E-05	C	1,907	1,907	1,665	1,665	2.29E-02	1.65E-02	9.16E-02	4.53E-02	1.83E-01	9.06E-02	No
Ethylbenzene	HAP		3.20E-05	C				1,907	1,907	1,665	1,665	6.10E-02	4.41E-02	0.00E+00	0.00E+00	1.22E-01	8.82E-02	No
Formaldehyde <sup>(h)</sup>	HAP	1.32E-01	1.37E-04			2.80E-04	B	1,907	1,907	1,665	1,665	2.62E-01	1.89E-01	4.66E-01	2.31E-01	9.33E-01	4.61E-01	No
Naphthalene	HAP		1.30E-06	C		3.50E-05	C	1,907	1,907	1,665	1,665	2.48E-03	1.79E-03	5.83E-02	2.88E-02	1.17E-01	5.76E-02	No
PAHs	HAP		2.20E-06	C		4.00E-05	C	1,907	1,907	1,665	1,665	4.20E-03	3.03E-03	6.66E-02	3.29E-02	1.33E-01	6.59E-02	No
Propylene Oxide	HAP		2.90E-05	D				1,907	1,907	1,665	1,665	5.53E-02	4.00E-02	0.00E+00	0.00E+00	1.11E-01	7.99E-02	No
Toluene	HAP		1.30E-04					1,907	1,907	1,665	1,665	2.48E-01	1.79E-01	0.00E+00	0.00E+00	4.96E-01	3.58E-01	No
Xylene	HAP		6.40E-05	C				1,907	1,907	1,665	1,665	1.22E-01	8.82E-02	0.00E+00	0.00E+00	2.44E-01	1.76E-01	No
Arsenic	HAP			E		1.10E-05	D	1,907	1,907	1,665	1,665	0.00E+00	0.00E+00	1.83E-02	9.06E-03	3.66E-02	1.81E-02	No
Beryllium	HAP			E		3.10E-07	D	1,907	1,907	1,665	1,665	0.00E+00	0.00E+00	5.16E-04	2.55E-04	1.03E-03	5.10E-04	No
Cadmium	HAP			E		4.80E-06	D	1,907	1,907	1,665	1,665	0.00E+00	0.00E+00	7.99E-03	3.95E-03	1.60E-02	7.90E-03	No
Chromium	HAP			E		1.10E-05	D	1,907	1,907	1,665	1,665	0.00E+00	0.00E+00	1.83E-02	9.06E-03	3.66E-02	1.81E-02	No
Lead	HAP			E		1.40E-05	D	1,907	1,907	1,665	1,665	0.00E+00	0.00E+00	2.33E-02	1.15E-02	4.66E-02	2.31E-02	No
Manganese	HAP			E		7.90E-04	D	1,907	1,907	1,665	1,665	0.00E+00	0.00E+00	1.32E+00	6.50E-01	2.63E+00	1.30E+00	No
Mercury	HAP			E		1.20E-06	D	1,907	1,907	1,665	1,665	0.00E+00	0.00E+00	2.00E-03	9.88E-04	4.00E-03	1.98E-03	No
Nickel	HAP			E		4.60E-06	D	1,907	1,907	1,665	1,665	0.00E+00	0.00E+00	7.66E-03	3.79E-03	1.53E-02	7.57E-03	No
Selenium	HAP			E		2.50E-05	D	1,907	1,907	1,665	1,665	0.00E+00	0.00E+00	4.16E-02	2.06E-02	8.33E-02	4.12E-02	No

Annual Fuel Use (MMBtu/yr)		
CTG Natural Gas Maximum <sup>(i)</sup>	5,511,224	Facility Total HAPs 3.0
CTG Distillate Oil Maximum <sup>(i)</sup>	3,293,293	Maximum Individual HAP 1.3
Number of CTGs per Facility	2	
Natural Gas Heating Value	964.5 Btu/SCF (HHV)	

Notes:  
 (a) Type = NC for Non-Criteria Pollutants, HAP/POM for compounds included as polycyclic organic matter or HAP for Hazardous Air Pollutant.  
 (b) Maximum heat input rate for turbine is based on HHV data at an ambient temperature of 59 °F and base load operating conditions.  
 (c) Average heat input rate is based on data at an average ambient temperature of 59 °F and base load operating conditions.  
 (d) Emission Factor (lb/MMBtu) = (Emission Factor, lb/10<sup>6</sup> scf) / (Heat Value Btu/scf)  
 (e) Hourly Emission Rate (lb/hr) = [Heat Input (MMBtu/Hr) \* Emission Factor (lb/MMBtu)]  
 (f) Annual Emission Rate (tons/year) = [Annual Heat Input (MMBtu/Yr) \* Emission Factor (lb/MMBtu) / (2,000 lb/ton)]  
 (h) Modified from AP-42 Section 3.1 emissions database for aero derivative turbines.  
 (i) Annual Fuel Use increased by 10% margin.



**AP-42 Emission Factor for Formaldehyde Emissions from Natural Gas Fired Combustion Turbine**

ID Number	Facility	Turbine	Turbine Rating	Turbine Load	AP-42			GE LM2500	
					AP-42	AP-42 Expected Final Value	AP-42 Less Outliers	GE LM2500 Turbines	GE LM2500 Turbines - Less Outliers
					(lb/Mmcuft)	(lb/Mmcuft)	(lb/Mmcuft)	(lb/Mmcuft)	(lb/Mmcuft)
11	Gilroy Energy Co./Gilroy, CA	General Electric Fram	87 MW	NR	0.72	0.72	0.72		
12.1	Sithe Energies, 32nd St. Naval S/San I	General Electric MS60	44 MW	100	0.11	0.11	0.11		
13.1	SD Gas & Electric Co./San Diego, CA	General Electric 5221	17 MW	95	0.48	0.48	0.48		
15.1	Modesto Irrigation District/Mclure/Mod	General Electric Fram	50 MW	100	0.14	0.14	0.14		
16	Willamette Industries, Inc./Oxnard, CA	General Electric LM25	67.4 MW	33	0.04	0.04	0.04	0.04	0.04
18	Sycamore Cogen. Co./Bakersfield, CA	General Electric Fram	75 MW	100	0.09	0.09	0.09		
2	Calpine / Agnews Cogen./San Jose, C.	General Electric LM50	23.33 MW	100	0.06	0.06	0.06	0.06	0.06
21	Dexzel Inc./Bakersfield, CA	General Electric LM25	29.1 MW	77	0.03	0.03	0.03	0.03	0.03
22	Procter & Gamble Manufacturing/Sacr	General Electric LM25	20.5 MW	95	0.09	0.09	0.09	0.09	0.09
23	Chevron Inc./Gaviota, CA	Allison K501	2.5 MW	NR	3.57	3.57	3.57		
25 <sup>2</sup>	EII / Stewart & Stevenson/Berkeley, C/	General Electric LM25	25 MW	NR	0.48	0.48	0.48	0.48	
26	Calpine Corp./Sumas, WA	General Electric MS70	87.83 MW	100	0.01	0.01	0.01		
27	Sargent Canyon Cogen/Bakersfield, C.	General Electric Fram	42.5 MW	50	0.06	0.06	0.06		
28	Watsonville Cogen, Partnership/Watso	General Electric LM 2	24 MW	100	0.09	0.09	0.09	0.09	0.09
3.1	Southern Cal. Edison Co./Long Beach,	Brown-Boveri-Sulzer	61.75 MW	107	1.33	1.33	1.33		
313.1.1	NR/NR	General Electric Fram	7.7 MW	100	0.27	0.27	0.27		
313.1.2	NR/NR	General Electric Fram	7.7 MW	25	0.43	0.43	0.43		
313.2.1	NR/NR	Solar T12000	9.4 MW	100	0.02	0.02	0.02		
313.2.2	NR/NR	Solar T12000	9.4 MW	25	9.62	9.62	9.62		
315.1	NR/NR	General Electric LM15	10.6 MW	100	4.27	4.27	4.27		
315.2	NR/NR	General Electric LM15	10.6 MW	25	25.91	25.91			
4.1.2x <sup>1</sup>	Southern Cal. Edison Co./Coolwater, C	Westinghouse PACE5	63 MW	100	38.96				
4.2	Southern Cal. Edison Co./Coolwater, C	Westinghouse PACE5	63 MW	100	0.35	0.35	0.35		
6.2	Imperial Irrigation D / Choachella/Impe	General Electric NS50	46.3 MW	100	0.31	0.31	0.31		
7	Bonneville Pacific Corp./Somis, CA	Solar Mars	9 MW	100	0.74	0.74	0.74		
9	WSPA/SWEPI GT/Bakersfield, CA	Allison 501 KB5	4 MW	85	0.01	0.01	0.01		
Mean (lb/Mmcuft)					3.39	1.97	0.97	0.13	0.06
Std Dev					8.98	5.41	2.13	0.17	0.03

Notes:

<sup>1</sup> Formaldehyde data point was an outlier. Retest of the same turbine (ID Number 4.2) generated formaldehyde data more consistent with other formaldehyde data

<sup>2</sup> The data point for the EII/Stewart & Stevenson facility was calculated from three "non-detects"; the Test Method employed an unusually high detection limit

**TANKS 4.0**  
**Emissions Report - Detail Format**  
**Tank Identification and Physical Characteristics**

**Identification**

User Identification:	T001
City:	Dade County
State:	Florida
Company:	South Dade Energy Center
Type of Tank:	Vertical Fixed Roof Tank
Description:	Main Tank

**Tank Dimensions**

Shell Height (ft):	48.00
Diameter (ft):	103.00
Liquid Height (ft):	30.00
Avg. Liquid Height (ft):	15.00
Volume (gallons):	1,852,000.00
Turnovers:	12.24
Net Throughput (gal/yr):	22,660,000.00
Is Tank Heated (y/n):	N

**Paint Characteristics**

Shell Color/Shade:	White/White
Shell Condition:	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

**Roof Characteristics**

Type:	Dome
Height (ft):	0.00
Radius (ft) (Dome Roof):	103.00

**Breather Vent Settings**

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Meteorological Data used in Emissions Calculations: Miami, Florida (Avg Atmospheric Pressure = 14.75 psia)

### TANKS 4.0 Emissions Report - Detail Format Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Distillate fuel oil no. 2	Jul	81.34	76.83	85.86	75.91	0.0127	0.0111	0.0146	130.0000			188.00	Option 5: A=12.101, B=8907

## TANKS 4.0 Emissions Report - Detail Format Detail Calculations (AP-42)

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):							84.8772					
Vapor Space Volume (cu ft):							333,831.6374					
Vapor Density (lb/cu ft):							0.0003					
Vapor Space Expansion Factor:							0.0295					
Vented Vapor Saturation Factor:							0.9736					
Tank Vapor Space Volume												
Vapor Space Volume (cu ft):							333,831.6374					
Tank Diameter (ft):							103.0000					
Vapor Space Outage (ft):							40.0648					
Tank Shell Height (ft):							48.0000					
Average Liquid Height (ft):							15.0000					
Roof Outage (ft):							7.0648					
Roof Outage (Dome Roof)												
Roof Outage (ft):							7.0648					
Dome Radius (ft):							103.0000					
Shell Radius (ft):							51.5000					
Vapor Density												
Vapor Density (lb/cu ft):							0.0003					
Vapor Molecular Weight (lb/lb-mole):							130.0000					
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.0127					
Daily Avg. Liquid Surface Temp. (deg. R):							541.0146					
Daily Average Ambient Temp. (deg. F):							82.6000					
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):							10.731					
Liquid Bulk Temperature (deg. R):							535.5817					
Tank Paint Solar Absorptance (Shell):							0.1700					
Tank Paint Solar Absorptance (Roof):							0.1700					
Daily Total Solar Insulation Factor (Btu/sqft day):							1,854.1259					
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:							0.0295					
Daily Vapor Temperature Range (deg. R):							18.0416					
Daily Vapor Pressure Range (psia):							0.0035					
Breather Vent Press. Settling Range (psia):							0.0600					
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.0127					
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):							0.0111					
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):							0.0146					
Daily Avg. Liquid Surface Temp. (deg R):							541.0146					
Daily Min. Liquid Surface Temp. (deg R):							536.5042					
Daily Max. Liquid Surface Temp. (deg R):							545.5250					
Daily Ambient Temp. Range (deg. R):							12.8000					
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:							0.9736					
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.0127					
Vapor Space Outage (ft):							40.0648					
Working Losses (lb):							894.0045					

**TANKS 4.0**  
**Emissions Report - Detail Format**  
**Detail Calculations (AP-42)- (Continued)**

Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0127
Net Throughput (gal/mo.):	22,660,000.00
	00
Annual Turnovers:	12.2354
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	1,852,000.000
	0
Maximum Liquid Height (ft):	30.0000
Tank Diameter (ft):	103.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	978.8817

**TANKS 4.0**  
**Emissions Report - Detail Format**  
**Individual Tank Emission Totals**

**Emissions Report for: July**

Components	Losses(lbs)		Total Emissions
	Working Loss	Breathing Loss	
Distillate fuel oil no. 2	894.00	84.88	978.88

## TANKS 4.0

### Emissions Report - Detail Format

#### Tank Identification and Physical Characteristics

#### Identification

User Identification:	T002
City:	Dade County
State:	Florida
Company:	South Dade Energy Center
Type of Tank:	Vertical Fixed Roof Tank
Description:	Day Tank

#### Tank Dimensions

Shell Height (ft):	40.00
Diameter (ft):	56.00
Liquid Height (ft):	25.10
Avg. Liquid Height (ft):	12.60
Volume (gallons):	463,050.00
Turnovers:	48.94
Net Throughput (gal/yr):	22,661,871.00
Is Tank Heated (y/n):	N

#### Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition:	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

#### Roof Characteristics

Type:	Dome
Height (ft):	0.00
Radius (ft) (Dome Roof):	56.00

#### Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Meteorological Data used in Emissions Calculations: Miami, Florida (Avg Atmospheric Pressure = 14.75 psia)

**TANKS 4.0**  
**Emissions Report - Detail Format**  
**Liquid Contents of Storage Tank**

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Distillate fuel oil no. 2	Jul	81.34	76.83	85.86	75.91	0.0127	0.0111	0.0146	130.0000			188.00	Option 5: A=12.101, B=8907



## TANKS 4.0 Emissions Report - Detail Format Detail Calculations (AP-42)

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):							19.6781					
Vapor Space Volume (cu ft):							76,947.0142					
Vapor Density (lb/cu ft):							0.0003					
Vapor Space Expansion Factor:							0.0295					
Vented Vapor Saturation Factor:							0.9793					
Tank Vapor Space Volume												
Vapor Space Volume (cu ft):							76,947.0142					
Tank Diameter (ft):							56.0000					
Vapor Space Outage (ft):							31.2411					
Tank Shell Height (ft):							40.0000					
Average Liquid Height (ft):							12.6000					
Roof Outage (ft):							3.8411					
Roof Outage (Dome Roof)												
Roof Outage (ft):							3.8411					
Dome Radius (ft):							56.0000					
Shell Radius (ft):							28.0000					
Vapor Density												
Vapor Density (lb/cu ft):							0.0003					
Vapor Molecular Weight (lb/lb-mole):							130.0000					
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.0127					
Daily Avg. Liquid Surface Temp. (deg. R):							541.0146					
Daily Average Ambient Temp. (deg. F):							82.6000					
Ideal Gas Constant R (psia cu ft / (lb-mol-deg R)):							10.731					
Liquid Bulk Temperature (deg. R):							535.5817					
Tank Paint Solar Absorptance (Shell):							0.1700					
Tank Paint Solar Absorptance (Roof):							0.1700					
Daily Total Solar Insulation Factor (Blu/sqft day):							1,854.1259					
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:							0.0295					
Daily Vapor Temperature Range (deg. R):							18.0416					
Daily Vapor Pressure Range (psia):							0.0035					
Breather Vent Press. Setting Range (psia):							0.0600					
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.0127					
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):							0.0111					
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):							0.0146					
Daily Avg. Liquid Surface Temp. (deg R):							541.0146					
Daily Min. Liquid Surface Temp. (deg R):							536.5042					
Daily Max. Liquid Surface Temp. (deg R):							545.5250					
Daily Ambient Temp. Range (deg. R):							12.8000					
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:							0.9793					
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.0127					
Vapor Space Outage (ft):							31.2411					
Working Losses (lb):							697.0741					

**TANKS 4.0**  
**Emissions Report - Detail Format**  
**Detail Calculations (AP-42)- (Continued)**

Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0127
Net Throughput (gal/mo.):	22,661,871.00
	00
Annual Turnovers:	48.9404
Turnover Factor:	0.7797
Maximum Liquid Volume (gal):	463,050.0000
Maximum Liquid Height (ft):	25.1000
Tank Diameter (ft):	56.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	716.7522

**TANKS 4.0**  
**Emissions Report - Detail Format**  
**Individual Tank Emission Totals**

Emissions Report for: July

Components	Losses(lbs)		Total Emissions
	Working Loss	Breathing Loss	
Distillate fuel oil no. 2	697.07	19.68	716.75

**APPENDIX C**  
**AIR QUALITY IMPACT ANALYSIS**

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## 1.0 INTRODUCTION

Dispersion modeling using U.S. EPA –approved models was conducted to determine the peak impact of emissions from the proposed South Dade Energy Center on ambient air concentrations of criteria pollutants for which there is a National Ambient Air Quality Standard (NAAQS). For the proposed facility, this includes NO<sub>x</sub>, CO, SO<sub>2</sub>, PM<sub>10</sub> and lead. In addition, maximum air impacts were identified at receptors located in Biscayne National Park (BNP), approximately 2 kilometers to the east of SDEC. Analyses were also conducted to assess the potential for adverse impact to soils and vegetation (relative to the project peak impacts and impacts at BNP), and to estimate acidic deposition at BNP. The maximum air impacts predicted with the U.S. EPA's ISCST3 model were assessed relative to U.S. EPA recommended criteria for soils and vegetation. The CALPUFF model, recommended by the National Park Service for assessing deposition, was used to compute acidic deposition, in the form of sulfur and nitrogen, relative to background deposition measurements.

Section 2 presents the modeling analysis methodology and the results of the peak predicted SDEC air impacts and maximum impacts at BNP. Section 3 presents the soils and vegetation impact analysis and deposition modeling results.

## 2.0 AIR QUALITY MODELING ANALYSIS

### 2.1 Overview of Analysis Methodology

The ambient concentrations of the pollutants resulting from allowable emissions from the proposed facility were predicted using an approved U.S. EPA atmospheric dispersion model in accordance with U.S. EPA's "Guideline on Air Quality Models" (U.S. EPA, 1999). The atmospheric dispersion of emissions was simulated for a record of representative sequential hourly meteorological conditions over a historical five-year period. Ground-level concentrations at various averaging periods depending on the pollutant were predicted for a grid of ground-level model "receptors" surrounding the proposed facility. The following sections detail the specific aspects of the ambient air quality impact analysis.

### 2.2 Model Selection

The selection of an appropriate dispersion model must take into consideration the physical geometry of the sources, the local dispersion environment, and terrain characteristics. These factors, which formulate the basis for choosing one or more of the models recommended in the U.S. EPA modeling guidelines for both screening and refined modeling, are discussed below.

#### 2.2.1 Physical Source Geometry

The sources of criteria pollutants from the proposed facility consist of high velocity, high temperature exhausts from stacks connected to the combustion turbines. This requires the use of a model capable of simulating the dispersion of buoyant releases from elevated point sources. The U.S. EPA modeling guidelines require the evaluation of the potential for physical structures to affect the dispersion of emissions from elevated point sources. The exhaust from stacks that are located within specified distances of buildings, and whose physical heights are below specified levels, may be subject to "aerodynamic building downwash" under certain meteorological conditions. If this is the case, a model capable of simulating this effect must be employed.

The analysis used to evaluate the potential for building downwash is referred to as a physical "Good Engineering Practice" (GEP) stack height analysis. Stacks with heights below physical GEP are considered to be subject to building downwash. In the absence of structural effects, U.S. EPA has established a "default" GEP height of 213 feet. Any portion of a stack above the maximum of the physical or default GEP height cannot be used in the dispersion modeling analysis for purposes of comparison to U.S. EPA's ambient impact criteria.

Each of the two combustion turbines at the proposed facility will have its own stack. A GEP stack height analysis was performed for the proposed project configuration in accordance with U.S. EPA's guidelines (U.S. EPA, 1985). Per the guidelines, the physical GEP height,  $H_{GEP}$ , is determined from the dimensions of all buildings which are within the region of influence using the following equation:

$$H_g = H + 1.5L$$

where:

H = height of the structure within 5L of the stack which maximizes  $H_g$ , and

L = lesser dimension (height or projected width) of the structure.

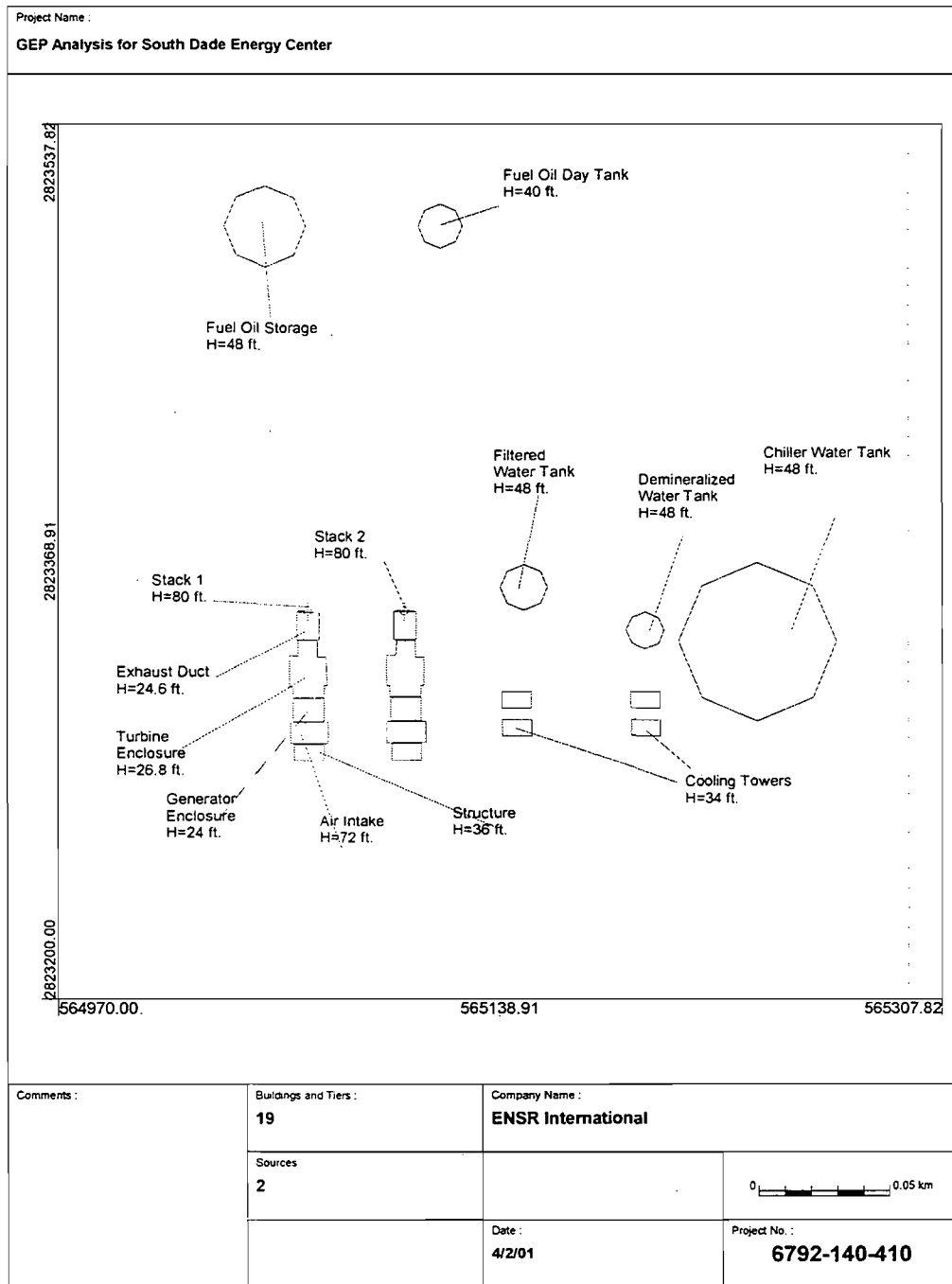
For a squat structure, i.e., height less than projected width, the formula reduces to:

$$H_g = 2.5H$$

In the absence of influencing structures, a "default" GEP stack height is credited up to 65 meters (213 feet). The locations and dimensions of the various structures at the proposed facility relative to the exhaust stacks are depicted in Figure 2-1. An analysis of the potential for building downwash is presented below.

The significant structures of the proposed facility will include the turbine enclosures, turbine air intake structures, water storage tanks, and fuel storage tanks. U.S. EPA's Building Profile Input Processor (BPIP), as implemented in Lakes-Environmental *BPIP View* software, was used to determine the GEP stack height and to develop building input data for the modeling analysis. A summary of the GEP analysis and the controlling building is provided in Table 2-1. The table lists the physical GEP stack height calculated for each influencing structure. Based on the BPIP analysis, the GEP stack height for the turbine stacks is 148.5 feet. Since the proposed height of the combustion turbine stacks is 80 feet, building downwash affects must be simulated in the dispersion modeling analysis. Also, since the stacks are less than the default GEP height of 213 feet, their full height can be considered in the modeling.

**Figure 2-1 Location of Turbine Stacks Relative to Structures Included in the GEP Analysis**



BPIP View by Lakes Environmental Software



**Table 2-1 Summary of GEP Analysis (Units in Feet)**

Structure	Height	Length	Width	MPW <sup>(2)</sup>	GEP Formula Height	5L <sup>(3)</sup>	Distance to Turbine Stack <sup>(4)</sup>	Turbine Stack(s) Potentially Effected By Downwash Yes/No
Exhaust Duct <sup>(1)</sup>	24.6	33	26	42	61.5	123	0	No
Turbine Enclosure <sup>(1)</sup>	26.8	69	46	83	67	134	33	No
Generator Enclosure <sup>(1)</sup>	24	36	26	44	60	120	105	No
Turbine Air Intake <sup>(1)</sup>	72	46	23	51	148.5	255	138	Yes
Turbine End Structure <sup>(1)</sup>	36	36	20	41	90	180	167	Yes
Cooling Tower	34	36	20	41	85	170	157	Yes
Filtered Water Tank	48	58	58	58	120	240	125	Yes
De-mineralized Water Tank	48	47	47	47	118.5	235	276	No
Chiller Water Tank	48	200	200	200	120	240	341	No

(1) One associated with each turbine (see Figure 2-1).  
(2) Maximum projected width.  
(3) 5 times the lesser of the MPW or height is the maximum influence region.  
(4) Closest distance relative to both turbine stacks.

### 2.2.2 Dispersion Environment

The selection and application of the model requires characterization of the local (within 3 km) dispersion environment as either urban or rural, based on a U.S. EPA-recommended procedure that characterizes an area by prevalent land use. This land use approach classifies an area according to 12 land use types. In this scheme, areas of industrial, commercial, and compact residential land use are designated urban. According to U.S. EPA modeling guidelines, if more than 50 percent of an area within a three-kilometer radius of the proposed facility is classified as rural, then rural dispersion coefficients are to be used in the dispersion modeling analysis.

For this analysis, the 1:24,000 scale United States Geological Survey (USGS) topographic maps were obtained for: Goulds NW, Perrine NE, Homestead SW, Arsenicker. Visual observation of the land use depicted on these maps clearly indicates that the region within 3 km is predominately rural.

### 2.2.3 Terrain Considerations

The U.S. EPA modeling guidelines require that the differences in terrain elevations, between the stack base and each location (receptor) at which air quality impacts are predicted, be considered in the modeling analyses. There are three types of terrain:

- simple terrain – locations where the terrain elevation is at or below the exhaust height of the stacks to be modeled;

- intermediate terrain – locations where the terrain is between the height of the stack and the modeled exhaust “plume” centerline (this varies as a function of plume rise, which in turn, varies as a function of meteorological condition);
- complex terrain – locations where the terrain is above the plume centerline.

Based on a review of USGS topographical maps, the area throughout the modeling domain is generally flat. The dispersion model must therefore be capable of simulating impacts on simple terrain only.

Based on a review of the factors discussed above, the ISCST3-Version 00101 dispersion model was selected for use in the modeling analysis.

## **2.3 Model Application**

The ISCST3 model was used to calculate concentrations at simple terrain receptor locations. The model was applied using the ISCST3 regulatory default option, in accordance with the U.S. EPA Guidelines.

### **2.3.1 Meteorological Data**

The ISCST3 model requires a sequential hourly record of dispersion meteorology representative of the region within which the proposed source is located. In the absence of site-specific measurements, the EPA Guidelines recommend the use of data from nearby National Weather Service (NWS) stations, provided they are representative. For this analysis a five-year sequential meteorological data set was used consisting of surface observations from the NWS at Miami International airport and concurrent mixing heights data from the NWS at West Palm Beach International airport from 1986 through 1990. These data are the closest representative data available and are recommended by the DEP. The surface data and mixing height data files were processed with the U.S. EPA’s meteorological processor, PCRAMMET, for input to ISCST3.

### **2.3.2 Model Receptor Grid**

A cartesian receptor grid was generated for use in the ISCST3 modeling to assess the peak project impacts. The grid consisted of densely spaced receptors 100 meters apart starting at and extending to 3000 meters from the plant fence-line. Beyond 3000 meters, a spacing of 500 meters was used out to five kilometers from the facility. From six to ten kilometers, a spacing of 1000 meters was used. Between ten and twenty kilometers, a spacing of 2000 meters was used. Additional receptors were placed approximately every 50 meters along the property fence-line for increased resolution of impacts. Terrain elevations were not used for the receptors given that the terrain in the study area is generally flat. The extent of this grid was sufficient to capture maximum impacts.

Figure 2-2 shows the near-field receptors (out to three kilometers) including the near-field portion of the cartesian grid and fence-line receptors. The full cartesian receptor grid out to twenty kilometers is shown in Figure 2-3.

A separate set of receptors, shown in Figure 2-4, was used to assess impacts in BNP. BNP receptors were placed at 1000-meter intervals along the park boundary and in a 5000-meter spaced grid inside the park.

Figure 2-2 Near-Field Receptor Locations



Figure 2-3 Far-Field Receptors

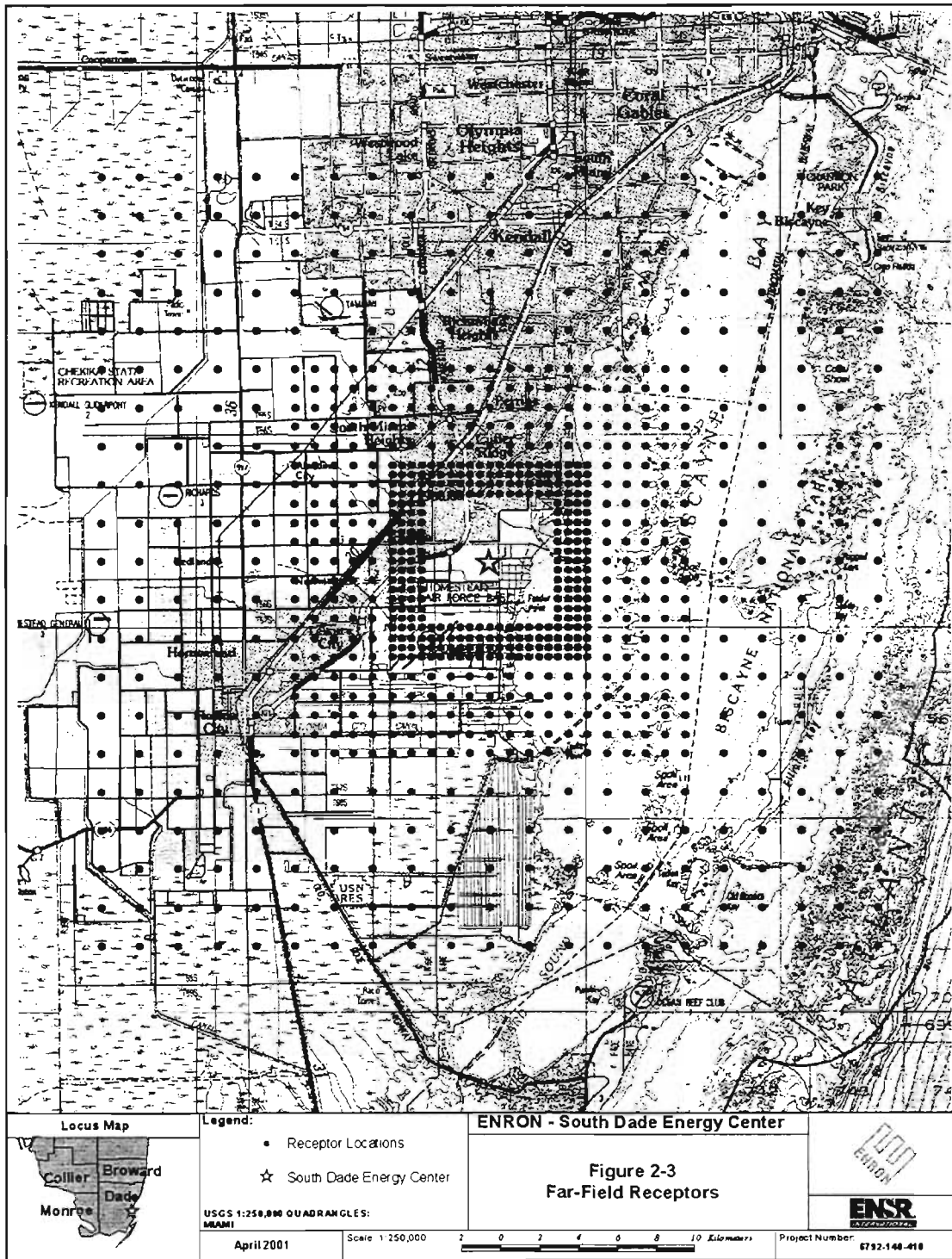
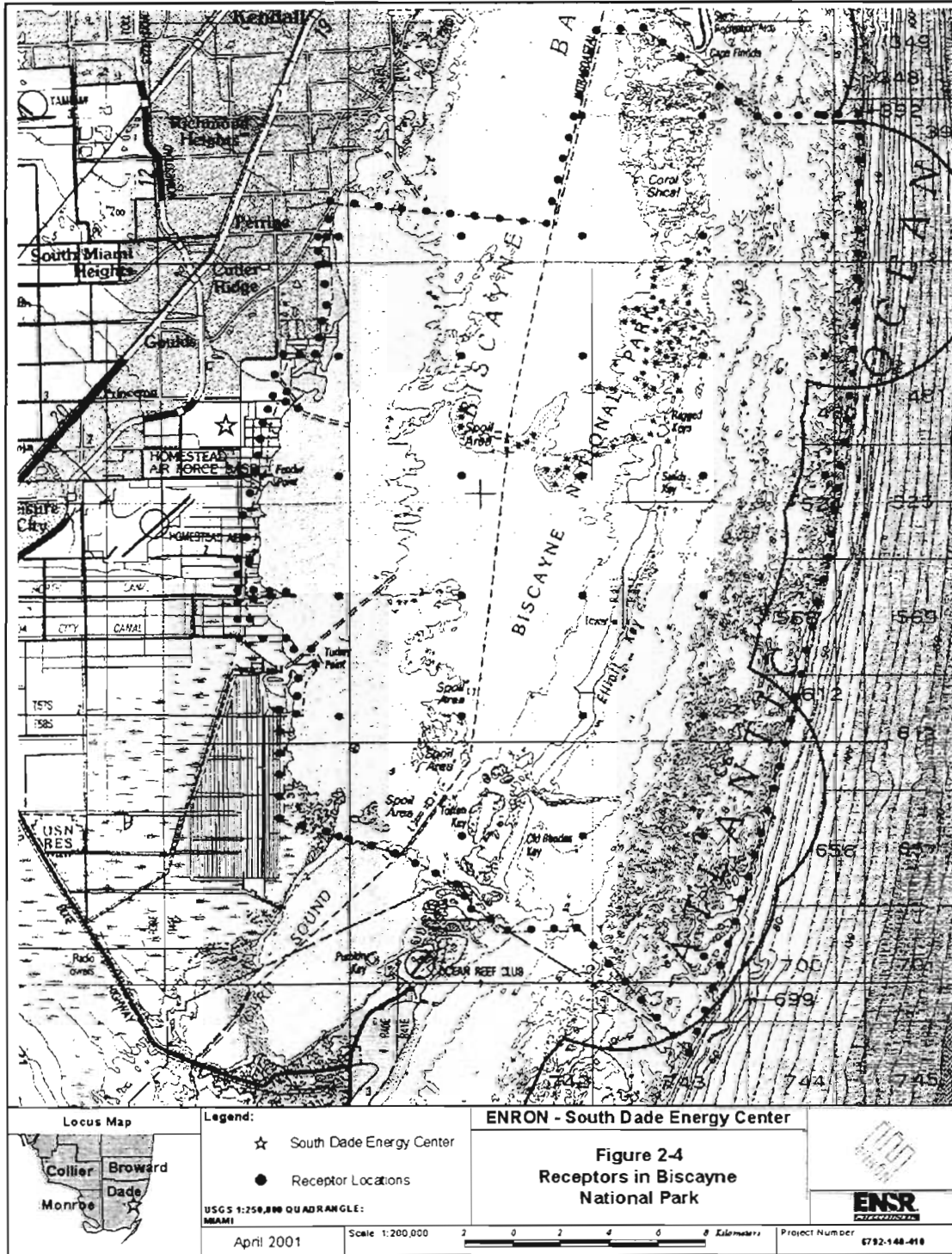


Figure 2-4 Biscayne National Park Receptors



### 2.3.3 Physical Source and Emissions Data

The air dispersion modeling analysis was conducted with emission rates and flue gas exhaust characteristics (flow rate and temperature) that are expected to represent the worst-case parameters among the range of possible values for the proposed MHI501F turbines. Because turbine emission rates and flue gas characteristics for a given turbine load vary as a function of ambient temperature and fuel use, data were derived for four ambient temperatures for both natural gas and distillate oil at each of the two operating loads (100% and 75%). The temperatures selected were:

- 32°F, an extreme lower boundary
- 59°F, ISO conditions
- 74°F, representative annual average
- 95°F, a representative upper boundary

A summary of the exhaust data and emission rates for the modeled pollutants for each fuel at each temperature and the three operating loads is provided in Table 2-2 for the MHI 501F turbines. Detailed calculations of the emissions parameters are presented in Appendix B.

In order to conservatively calculate ground-level concentrations, a composite “worst-case” set of emissions parameters was developed for each proposed fuel for input to the modeling. For each operating load, the highest pollutant-specific emission rate, the lowest exhaust temperature and the lowest exhaust flow rate were selected. Table 2-3 summarizes the worst-case emissions parameters for the two fuels at three operating loads.

Wind-direction-specific dimensions of the structures potentially causing building downwash of the turbine stacks were derived using the U.S. EPA BPIP processor. The BPIP inputs to the ISCST3 model are provided in Appendix D.

### 2.4 Ambient Impact Criteria

The U.S. EPA has established specific ambient impact criteria against which to evaluate the impact of a proposed new source. These are listed in Table 2-4 for the pollutants considered in this analysis. A description of each of the criteria is described below.

**Table 2-2 Combustion Turbine Performance Data for Natural Gas and Distillate Fuel Oil Operation**

**100 % Load – Natural Gas**

Parameter		Values			
Ambient Temperature (°F)		95	74	59	32
Stack Height (Ft.)		80	80	80	80
Stack Diameter (Ft.) <sup>(1)</sup>		27.68	27.68	27.68	27.68
Exit Temperature (°F)		1124	1124	1124	1112
Exit Velocity (Ft./sec)		70.1	70.1	70.1	69.7
Pollutant Emissions Per Combustion Turbine (lb/hr)	NO <sub>x</sub>	173	173.0	173.0	173.0
	CO	42	42.0	42.0	47.0
	SO <sub>2</sub>	11.3	11.3	11.3	11.3
	PM <sub>10</sub>	20.0	20.0	20.0	20.0

**75 % Load – Natural Gas**

Parameter		Values			
Ambient Temperature (°F)		95	74	59	32
Stack Height (Ft.)		80	80	80	80
Stack Diameter (Ft.) <sup>(1)</sup>		27.68	27.68	27.68	27.68
Exit Temperature (°F)		1148	1148	1148	1148
Exit Velocity (Ft./sec)		54.3	55.4	56.2	56.8
Pollutant Emissions Per Combustion Turbine (lb/hr)	NO <sub>x</sub>	122.0	128.0	132.0	148.0
	CO	45.0	47.0	49.0	54.0
	SO <sub>2</sub>	8.0	8.4	8.7	9.0
	PM <sub>10</sub>	20.0	20.0	20.0	20.0

<sup>(1)</sup> Equivalent diameter for rectangular stack of dimensions 22' 7 11/16" x 26' 7".



**Table 2-2 Combustion Turbine Performance Data for Natural Gas and Distillate Fuel Oil Operation (continued)**

**100 % Load – Distillate Oil**

Parameter		Values			
Ambient Temperature (°F)		95	74	59	32
Stack Height (Ft.)		80	80	80	80
Stack Diameter (Ft.) <sup>(1)</sup>		27.68	27.68	27.68	27.68
Exit Temperature (°F)		1014	1014	1014	1006
Exit Velocity (Ft./sec)		65.0	65.0	65.0	66.3
Pollutant Emissions Per Combustion Turbine (lb/hr)	NO <sub>x</sub>	272.0	272.0	272.0	281.0
	CO	197.0	197.0	197.0	204.0
	SO <sub>2</sub>	39.0	39.0	39.0	41.0
	PM <sub>10</sub>	40.0	40.0	40.0	40.0
	Lead	0.02	0.02	0.02	0.02

**75 % Load – Distillate Oil**

Parameter		Values			
Ambient Temperature (°F)		95	74	59	32
Stack Height (Ft.)		80	80	80	80
Stack Diameter (Ft.) <sup>(1)</sup>		27.68	27.68	27.68	27.68
Exit Temperature (°F)		1121	1099	1086	1064
Exit Velocity (Ft./sec)		50.4	51.6	52.5	54.3
Pollutant Emissions Per Combustion Turbine (lb/hr)	NO <sub>x</sub>	196.0	205.0	212.0	226.0
	CO	142.0	149.0	154.0	164.0
	SO <sub>2</sub>	28.0	30.0	31.0	33.0
	PM <sub>10</sub>	40.0	40.0	40.0	40.0
	Lead	0.02	0.02	0.02	0.02

<sup>(1)</sup> Equivalent diameter for rectangular stack of dimensions 22' 7 11/16" x 26' 7".

**Table 2-3 Worst-Case Turbine Stack Data for Dispersion Modeling**

**Natural Gas Operation**

Parameter		Value	
Load (%)		100	75
Stack Height (Ft.)		80	80
Stack Diameter (Ft.) <sup>(1)</sup>		27.68	27.68
Exit Temperature (°F)		1112	1148
Exit Velocity (Ft./sec)		69.7	54.3
Pollutant Emissions Per Combustion Turbine (lb/hr)	NO <sub>x</sub>	173.0	281.0
	CO	47.0	204.0
	SO <sub>2</sub>	11.3	41.0
	PM <sub>10</sub>	20.0	40.0

**No. 2 Fuel Operation**

Parameter		Value	
Load (%)		100	75
Stack Height (Ft.)		80	80
Stack Diameter (Ft.) <sup>(1)</sup>		27.68	27.68
Exit Temperature (°F)		1006	1064
Exit Velocity (Ft./sec)		65.0	50.4
Pollutant Emissions Per Combustion Turbine (lb/hr)	NO <sub>x</sub>	281.0	226.0
	CO	204.0	164.0
	SO <sub>2</sub>	78.0	63.0
	PM <sub>10</sub>	40.0	40.0
	Lead	0.02	0.02

<sup>(1)</sup> Equivalent diameter for rectangular stack of dimensions 22' 7 11/16" x 26' 7".

**Table 2-4 Ambient Impact Criteria<sup>1</sup>**

Pollutant	Averaging Period	NAAQS		Significant Impact Levels
		Primary	Secondary	
NO <sub>2</sub>	Annual	100	100	1
CO	1-hour	40,000	NA	2,000
	8-hour	10,000	NA	500
PM <sub>10</sub>	24-hour	150	150	5
	Annual	50	50	1
SO <sub>2</sub>	3-hour	NA	1300	25
	24-hour	365	NA	5
	Annual	80	NA	1
Lead	Quarter	1.5	1.5	NA

<sup>1</sup> All values in  $\mu\text{g}/\text{m}^3$ . Annual averages are the maximum over all receptors. Short-term averages are the highest of the second-highest concentration over all receptors.  
NA = Not Applicable

National Ambient Air Quality Standards (NAAQS)

National Ambient Air Quality Standards (NAAQS) are set by U.S. EPA, based on specific health and welfare effects criteria. Hence the term “criteria” pollutants. Ambient air refers to the air to which the general public is exposed, not the air inside buildings or in workplaces. The combined impacts of all existing sources cannot exceed the NAAQS. The primary NAAQS are established to protect the health of sensitive individuals. The secondary NAAQS are established to protect the general welfare of the public-at-large from adverse impacts on air quality related values such as visibility.

Significant Impact Levels

As can be seen from the concentrations representing these levels, the Significant Impact Levels (SILs) are small fractions of the NAAQS. The U.S. EPA guidelines require these levels to be used to determine the extent of the area surrounding a proposed source within which the source could significantly add to ambient air quality concentrations. For proposed sources whose impacts are above these levels, an analysis of the combined impacts of the proposed source with other existing sources is required. If a proposed source’s impacts are below these levels it is considered to be unable to either cause or contribute to violations of the NAAQS. Therefore, a cumulative impact assessment is not required.

## 2.5 Background Air Quality Data

For comparison purposes, a summary of the most recent background air quality measurements available from the Florida Department of Environmental Protection (FDEP) monitoring network was compiled for the criteria pollutants. The values listed in Table 2-5 represent the highest concentrations from the most recent year of data (1999) measured at the closest monitors relative to the location of the SDEC.

## 2.6 Results of Ambient Air Quality Impact Analysis

The emissions from the turbine stacks (2) were modeled with ISCST3 to estimate the maximum concentrations for the criteria pollutants including NO<sub>x</sub>, PM/PM<sub>10</sub>, SO<sub>2</sub>, CO, and lead for each year of meteorological data. Note that the modeling of annual impacts reflects limited annual operation of the combustion turbines (a maximum of 900 hours/year oil firing per turbine or a maximum of 1300 hours/year gas firing per turbine in order to limit potential emission to less than 250 tons per year).

### Detailed Results for Cartesian Grid Receptors

Tables 2-6 and 2-7 provide summaries of the ISCST3 modeling results for NO<sub>x</sub>, PM/PM<sub>10</sub>, SO<sub>2</sub>, CO, and lead for the cartesian grid and fence-line receptors for natural gas and oil firing, respectively. The maximum air concentrations over the five years modeled and corresponding receptor locations are listed for each turbine load case (100% and 75%). Note that in Table 2-6 (results for natural gas), the maximum annual concentrations are based on a maximum of 1300 hours/year of natural gas firing (i.e., the results have been scaled by a factor of 1300/8760). Similarly, in Table 2-7 (results for oil), the maximum annual concentrations are based on a maximum of 900 hours/year of oil firing (i.e., the results have been scaled by a factor of 900/8760).

### Summary of SDEC Peak Air Impacts, BNP Air Impacts, and Comparison to Background

Table 2-8 lists the peak ground-level air concentrations for each pollutant and averaging period over all receptors (see Figures 2-5 and 2-6 for peak impact locations) as well as the maximum concentrations calculated at BNP (see Figure 2-7 for maximum impact locations). The maximum impacts for all pollutants and averaging periods are associated with oil firing. Note that the maximum annual impacts are associated with a worst-case operating schedule of 900 hours/year oil firing for both turbines with no natural gas firing. (This is the worst-case in terms of the dispersion modeling because oil exhaust parameters are lower than gas and therefore, higher impacts are modeled assuming an "all oil" annual operating scenario as opposed to a combination of oil and gas or gas only with the same annual emission rates.) Also listed in Table 2-8 are the measured background concentrations from the FDEP monitoring network.

The air quality impact results are illustrated in graphical form in Figures 2-8 through 2-15.

As shown in Table 2-8, all air concentrations modeled for the SDEC are very low compared to the background levels and represent an almost imperceptible increase relative to existing pollution levels. In addition, all estimated SDEC impacts are well below the SILs and the summed total of the peak SDEC impacts and background concentrations are well below the NAAQS. Based on these results it can be concluded that the proposed facility will neither cause nor contribute to a violation of the NAAQS.

Table 2-5 Summary of Florida DEP Air Monitoring Data from Miami-Dade County for 1999

Pollutant	Avg. Period	Site Name	Highest Measured Concentration ( $\mu\text{g}/\text{m}^3$ )
PM <sub>10</sub>	24-hour	325 NW 2nd St.	41
	Annual		21
SO <sub>2</sub>	3-hour	US 27 & SR821	24
	24-hour		8
	Annual		3
NO <sub>2</sub>	Annual	864 NW 23 <sup>rd</sup> St.	34
	1-hour		216
CO	1-hour	16000 S Dixie Highway	4580
	8-hour		3435

**Table 2-6 ISCST3 Modeling Results for Natural Gas**

**100% Load**

Pollutant	Averaging Period	Maximum Concentration ( $\mu\text{g}/\text{m}^3$ )*	Receptor Location	
			UTM East (m)	UTM North (m)
NO <sub>x</sub>	Annual	0.011	549100	2823400
PM-10	24-hour	0.121	571100	2811400
	Annual	0.001	549100	2823400
SO <sub>2</sub>	3-hour	0.291	566900	2823300
	24-hour	0.069	571100	2811400
	Annual	0.001	549100	2823400
CO	1-hour	2.500	564975	2823305
	8-hour	0.538	575100	2807400

\* Annual concentrations based on a maximum of 1300 hours/year of natural gas use.

**75% Load**

Pollutant	Averaging Period	Maximum Concentration ( $\mu\text{g}/\text{m}^3$ )*	Receptor Location	
			UTM East (m)	UTM North (m)
NO <sub>x</sub>	Annual	0.012	551100	2823400
PM-10	24-hour	0.506	564975	2823305
	Annual	0.002	551100	2823400
SO <sub>2</sub>	3-hour	0.565	564975	2823305
	24-hour	0.228	564975	2823305
	Annual	0.001	551100	2823400
CO	1-hour	8.525	564975	2823305
	8-hour	2.235	564975	2823305

\* Annual concentrations based on a maximum of 1300 hours/year of natural gas use.

**Table 2-7 ISCST3 Modeling Results for Distillate Oil**

**100% Load**

Pollutant	Averaging Period	Maximum Concentration ( $\mu\text{g}/\text{m}^3$ )*	Receptor Location	
			UTM East (m)	UTM North (m)
NO <sub>x</sub>	Annual	0.013	551100	2823400
PM-10	24-hour	0.281	564975	2823304.5
	Annual	0.002	551100	2823400
SO <sub>2</sub>	3-hour	2.066	566800	2823300
	24-hour	0.549	564975	2823304.5
	Annual	0.004	551100	2823400
CO	1-hour	15.904	564975	2823304.5
	8-hour	3.909	564975	2823304.5
Lead	24-hour	1.41E-04	564975	2823304.5

\* Annual concentrations based on a maximum of 900 hours/year of oil use.

**75% Load**

Pollutant	Averaging Period	Maximum Concentration ( $\mu\text{g}/\text{m}^3$ )*	Receptor Location	
			UTM East (m)	UTM North (m)
NO <sub>x</sub>	Annual	0.014	553100	2823400
PM-10	24-hour	1.457	564975	2823304.5
	Annual	0.002	553100	2823400
SO <sub>2</sub>	3-hour	5.819	564975	2823304.5
	24-hour	2.295	564975	2823304.5
	Annual	0.004	553100	2823400
CO	1-hour	35.214	564975	2823304.5
	8-hour	9.577	564975	2823304.5
Lead	24-hour	7.29E-04	564975	2823304.5

\* Annual concentrations based on a maximum of 900 hours/year of oil use.



**Table 2-8 Summary of SDEC Dispersion Modeling Results**

Pollutant	Avg Period	Peak Impact of SDEC ( $\mu\text{g}/\text{m}^3$ )	SDEC Impact at Biscayne National Park ( $\mu\text{g}/\text{m}^3$ )	EPA Sign. Impact Level ( $\mu\text{g}/\text{m}^3$ )	Baseline Conc. <sup>(1)</sup> ( $\mu\text{g}/\text{m}^3$ )	Sum of Peak SDEC Impact and Baseline ( $\mu\text{g}/\text{m}^3$ )	NAAQS ( $\mu\text{g}/\text{m}^3$ )
NO <sub>2</sub>	Annual	0.014	0.011	1	34	34	100
PM <sub>10</sub>	24 hr	1.457	0.306	5	41	42	150
	Annual	0.0024	0.0020	1	21	21	50
SO <sub>2</sub>	3-hr	5.819	1.613	25	24	27	1300
	24-hr	2.295	0.497	5	8	9	365
	Annual	0.0038	0.0031	1	3	3	80
CO	1-hr	35.214	10.778	2,000	4,580	4,615	40,000
	8-hr	9.577	2.731	500	3,435	3,445	10,000

Note: Maximum short-term ( $\leq$  24-hour average) concentrations based on oil usage. Maximum annual concentrations based on the worst-case annual emissions scenario of 900 hours/yr of oil use for each turbine.

<sup>(1)</sup> Highest measured concentration in 1999 from FDEP monitoring stations closest to SDEC.

Figure 2-5 Location of SDEC Peak Short-term Impacts

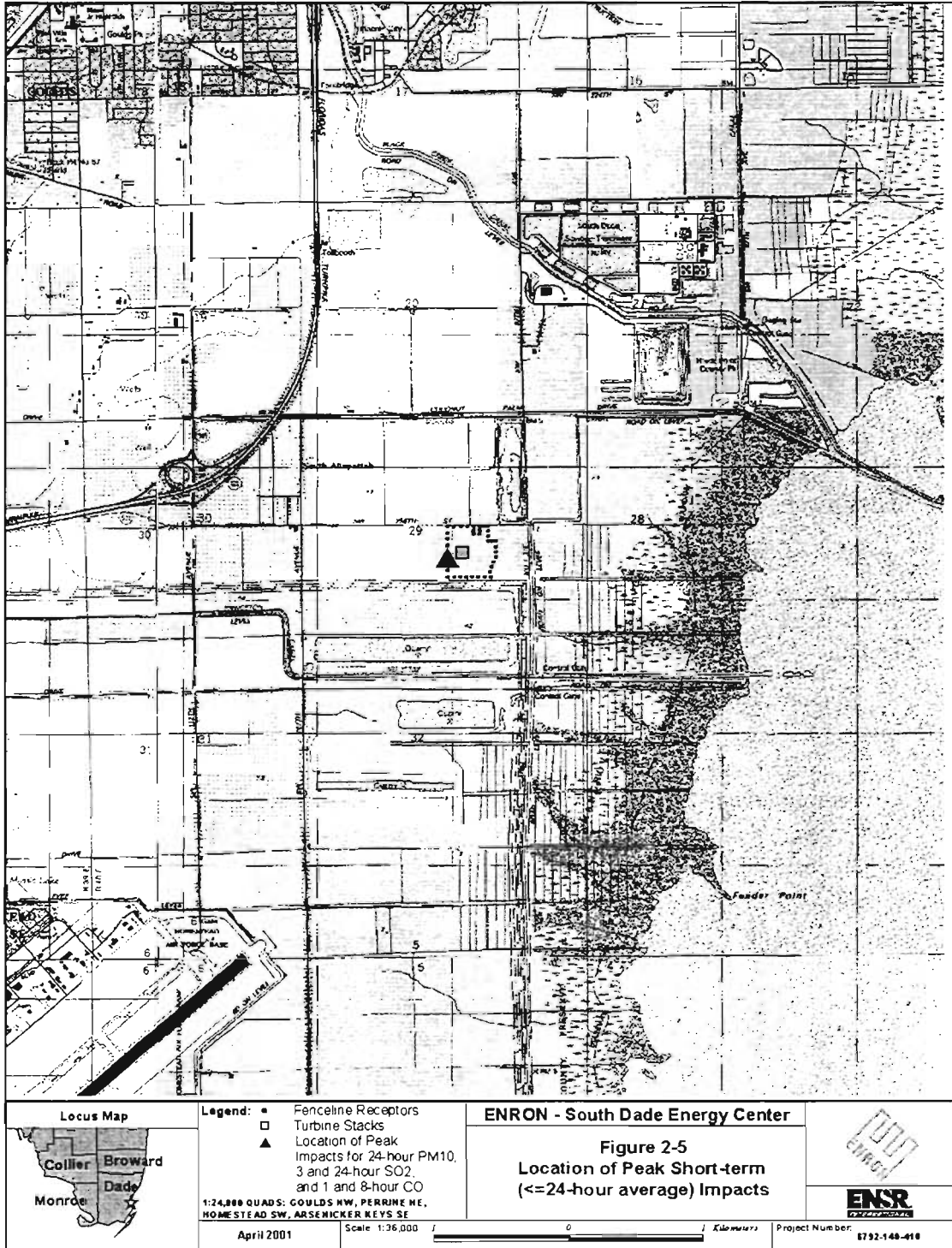


Figure 2-6 Location of SDEC Peak Annual Impacts

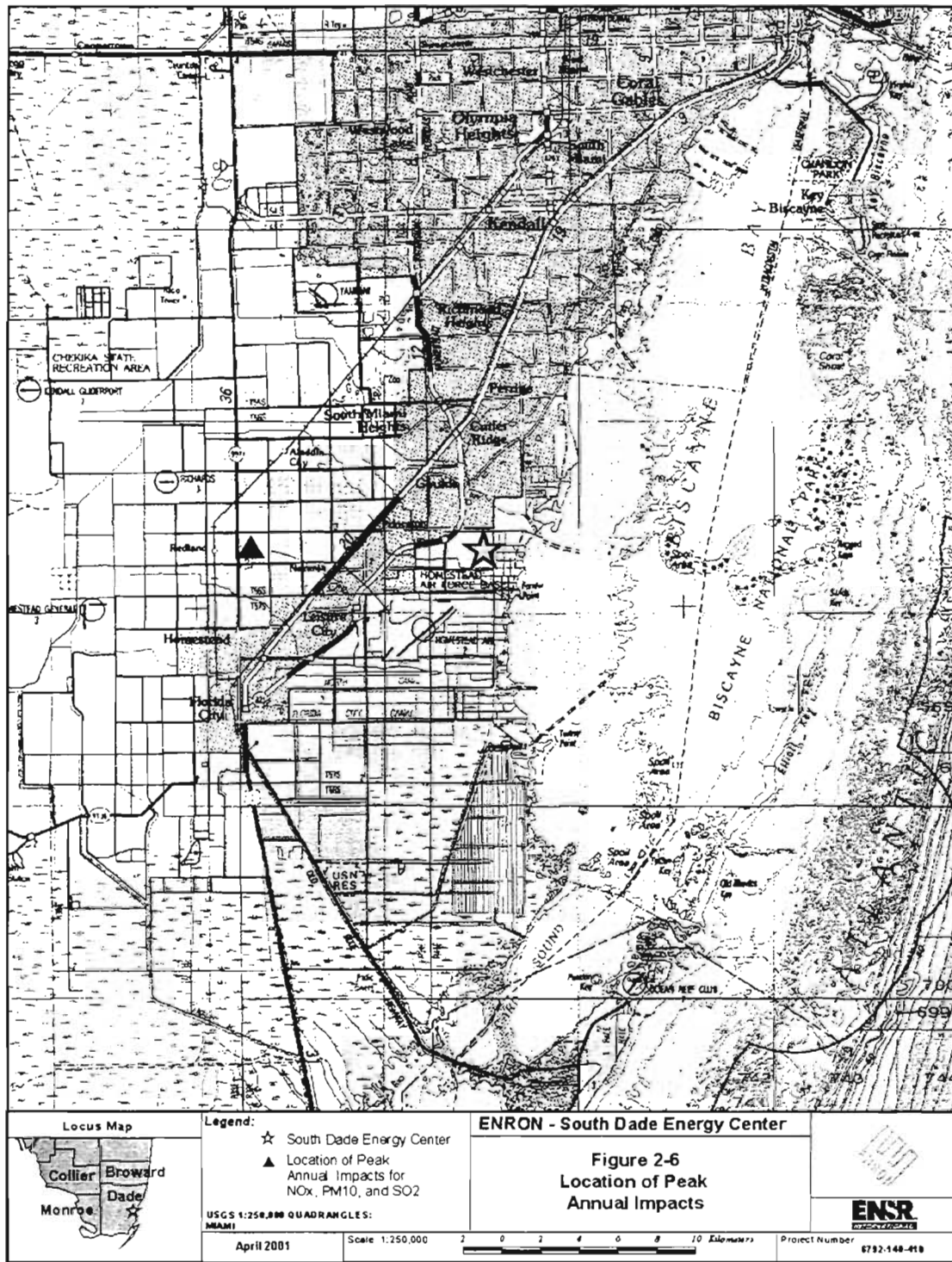
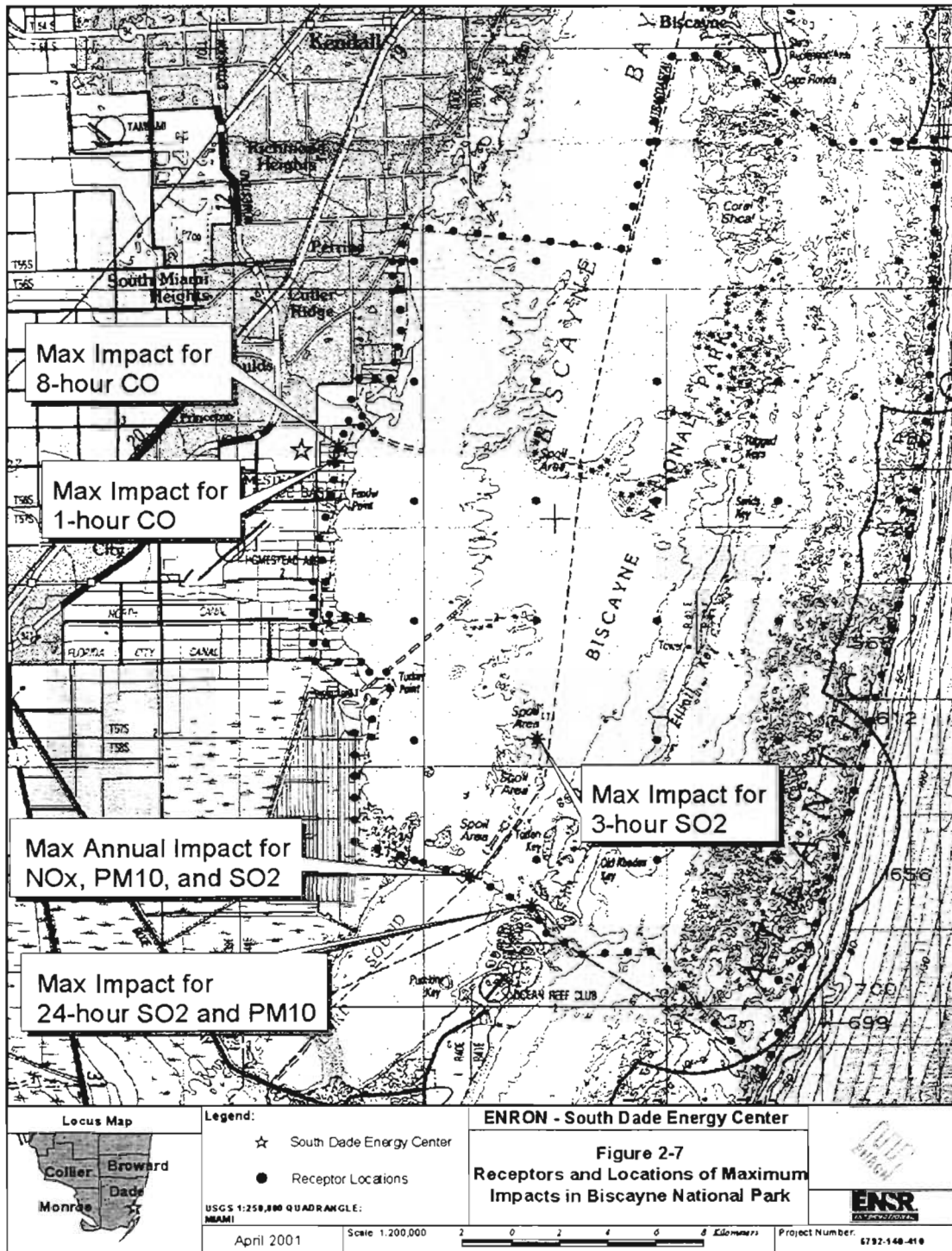
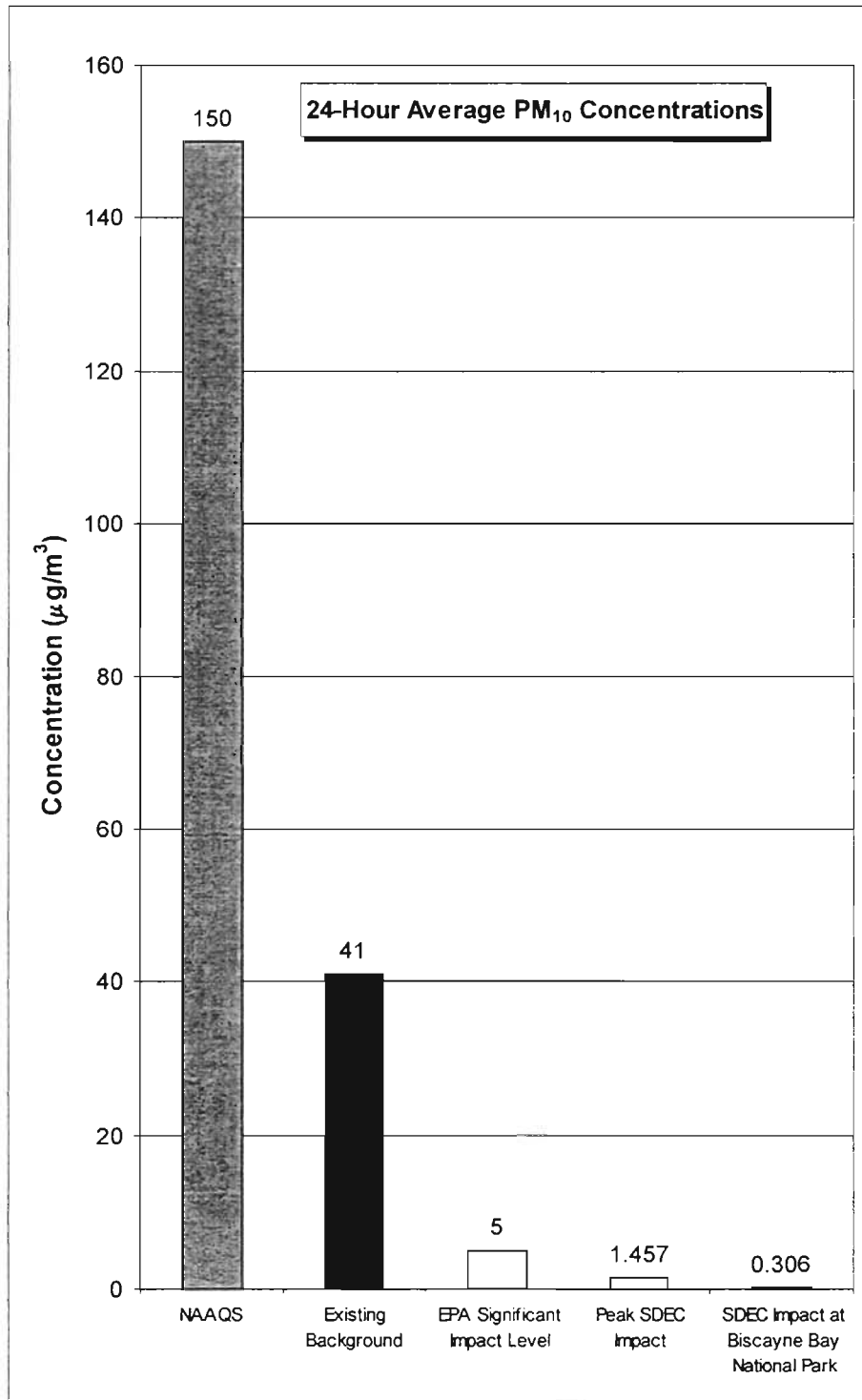


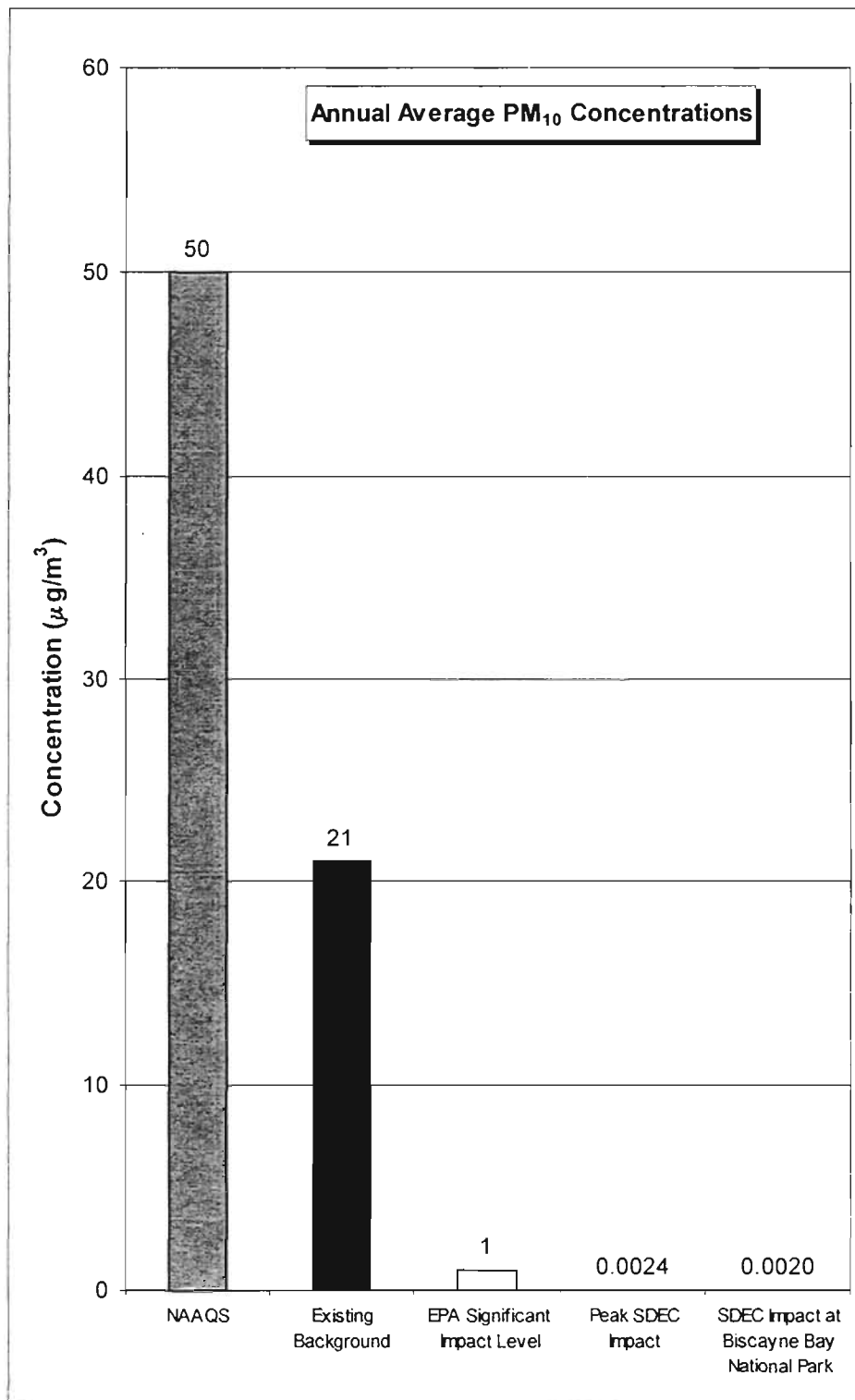
Figure 2-7 Location of SDEC Maximum Impacts at Biscayne National Park



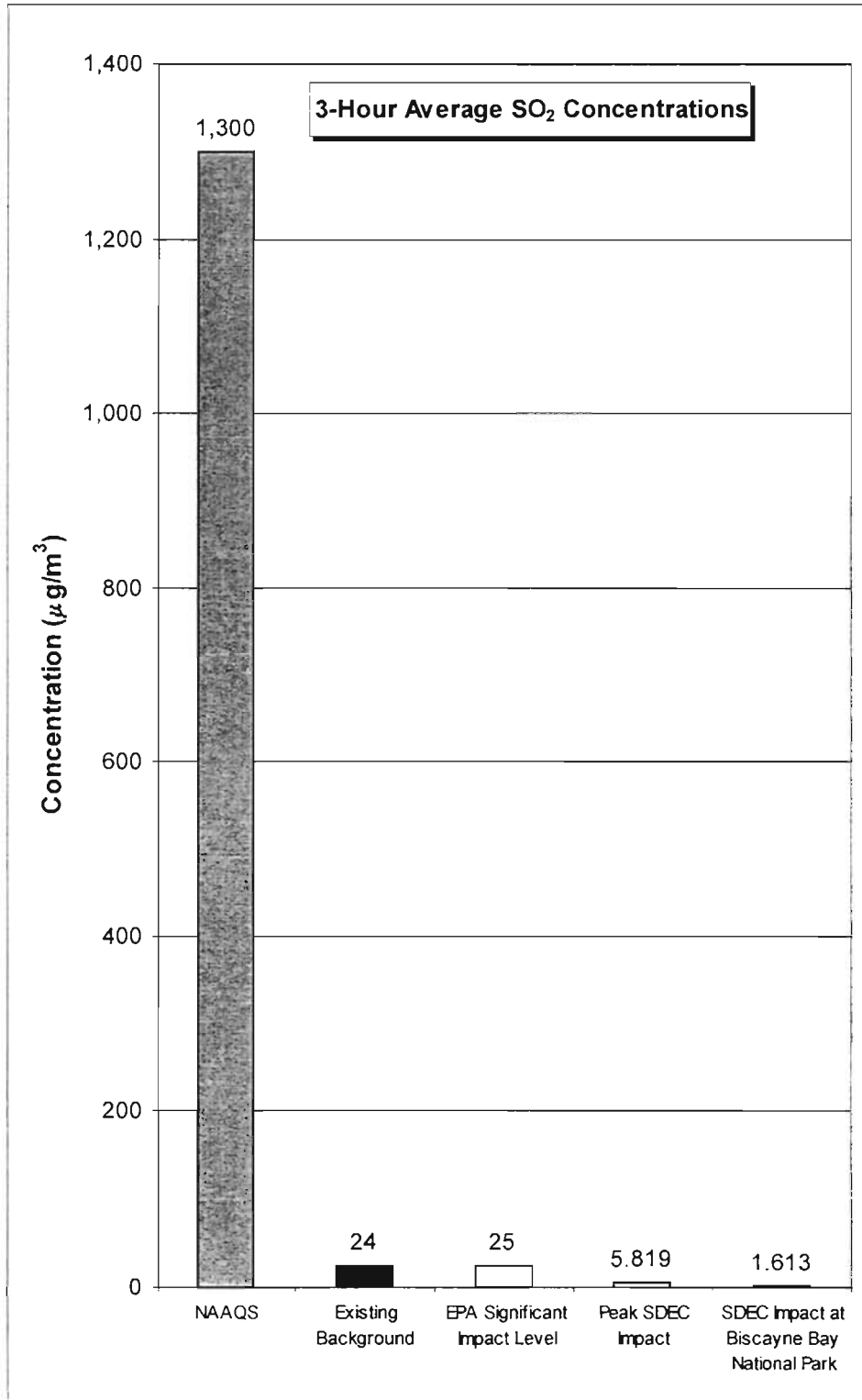
**Figure 2-8 Dispersion Modeling Results for South Dade Energy Center (SDEC): 24-hour Average PM<sub>10</sub> Concentrations**



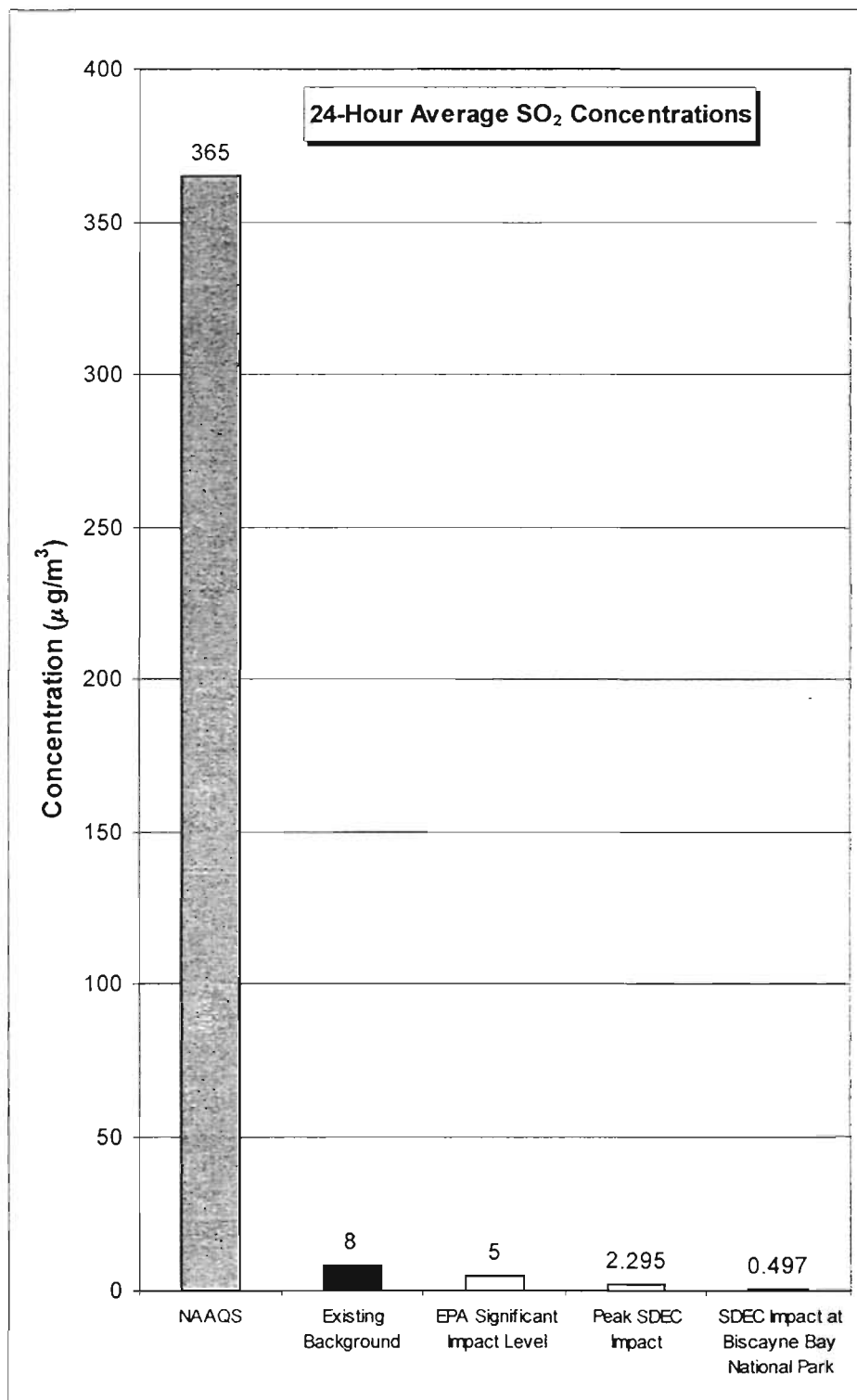
**Figure 2-9 Dispersion Modeling Results for South Dade Energy Center (SDEC): Annual Average PM<sub>10</sub> Concentrations**



**Figure 2-10 Dispersion Modeling Results for South Dade Energy Center (SDEC): 3-hour Average SO<sub>2</sub> Concentrations**

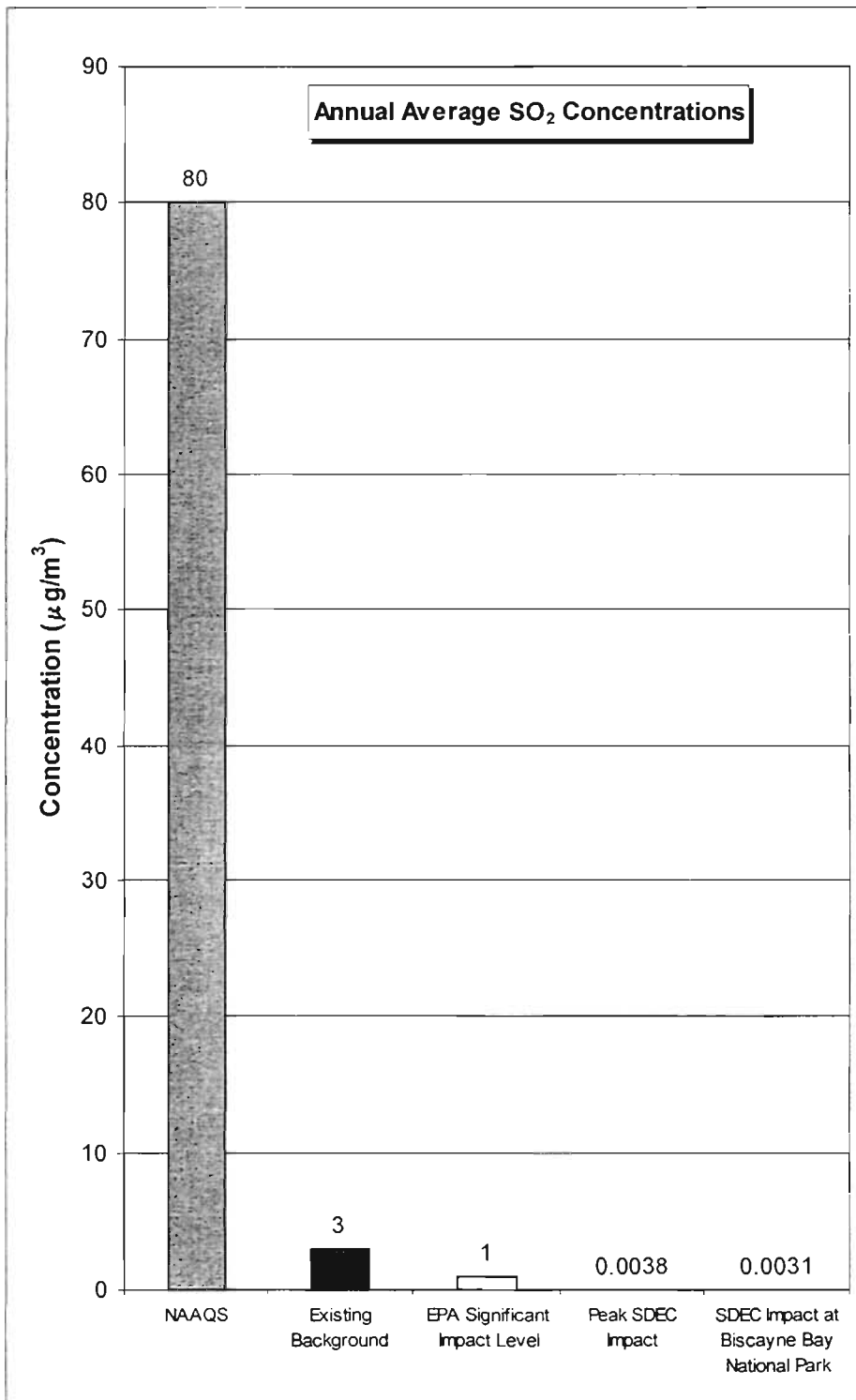


**Figure 2-11 Dispersion Modeling Results for South Dade Energy Center (SDEC): 24-hour Average SO<sub>2</sub> Concentrations**

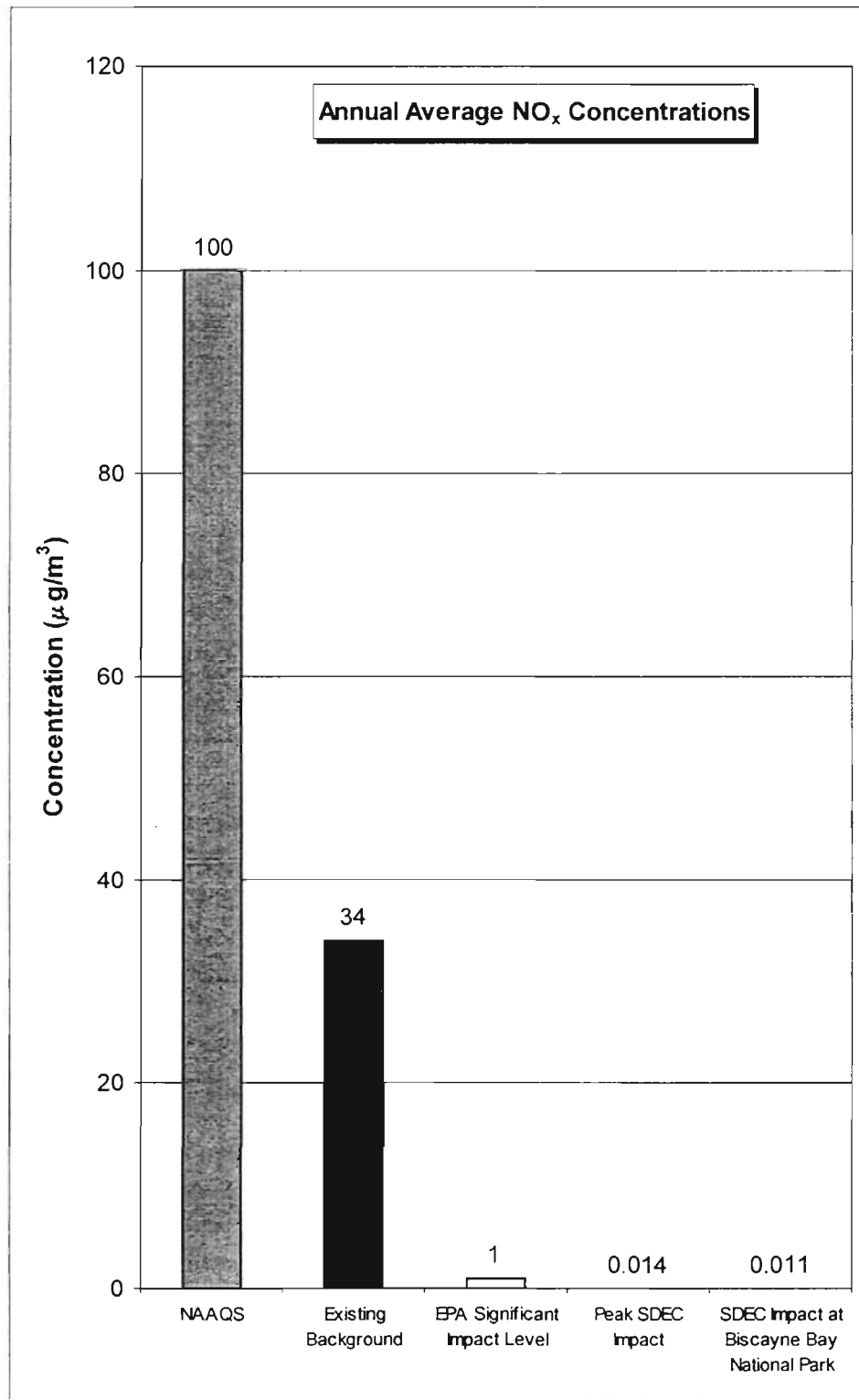




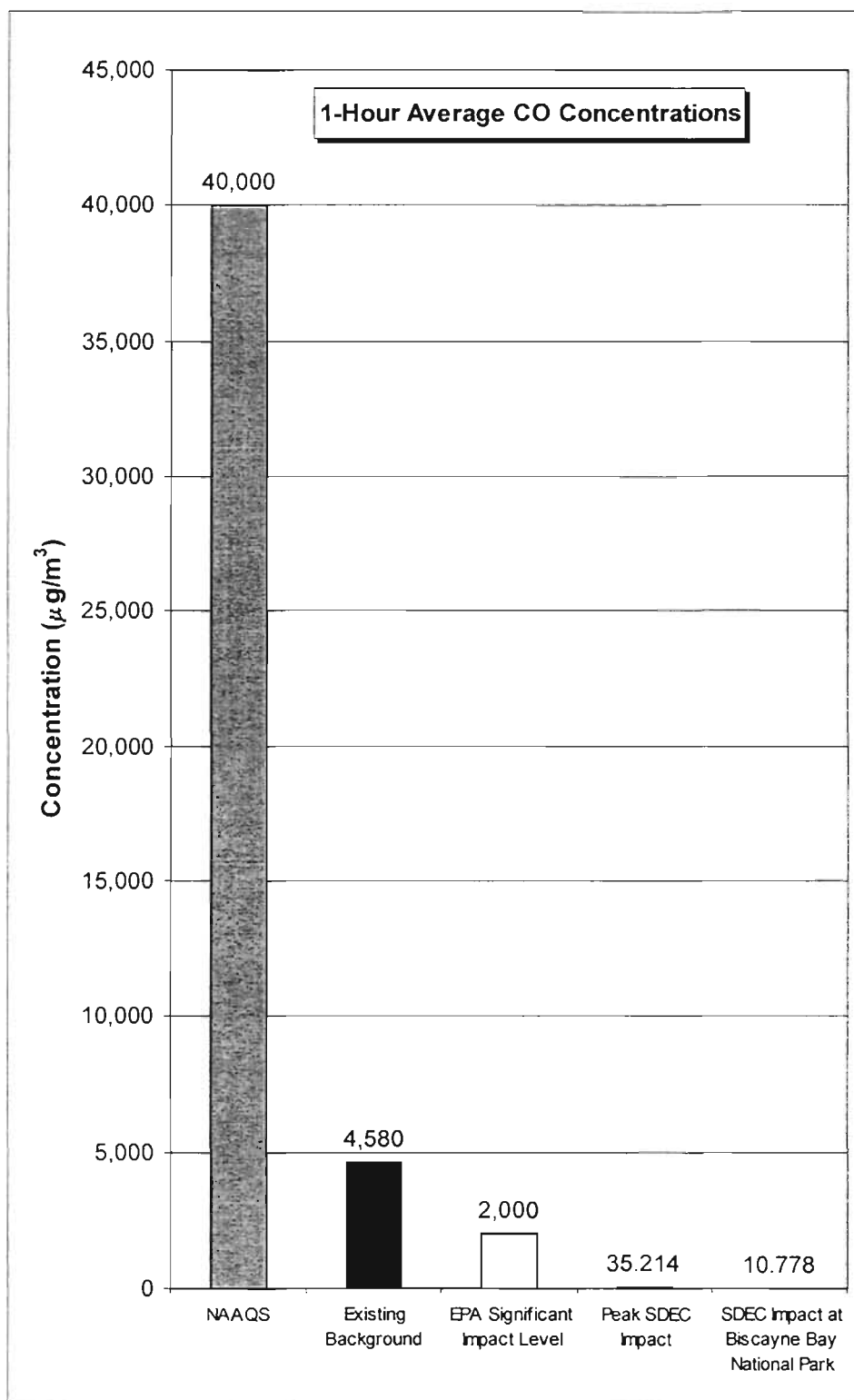
**Figure 2-12 Dispersion Modeling Results for South Dade Energy Center (SDEC): Annual Average SO<sub>2</sub> Concentrations**



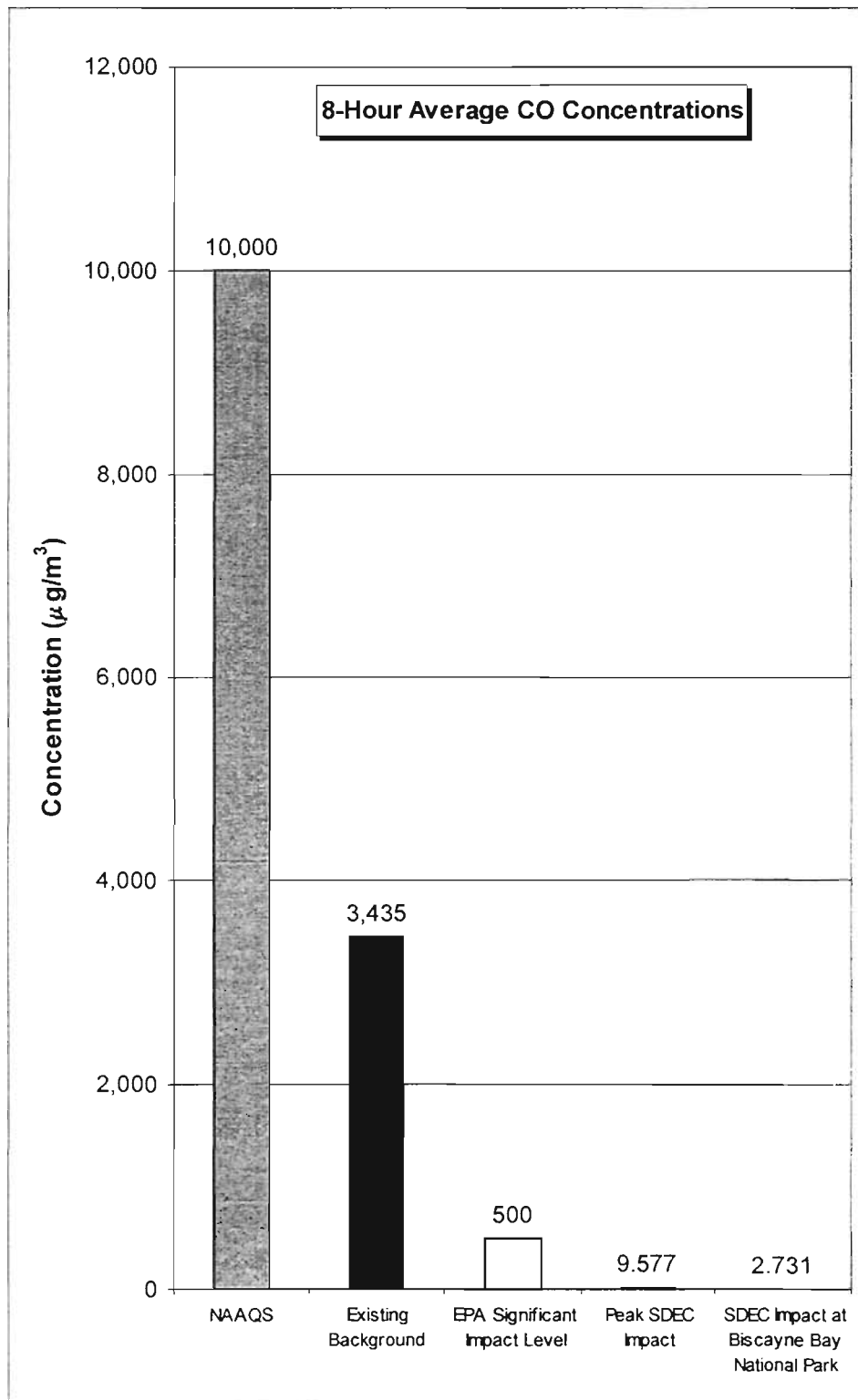
**Figure 2-13 Dispersion Modeling Results for South Dade Energy Center (SDEC): Annual Average NO<sub>x</sub> Concentrations**



**Figure 2-14 Dispersion Modeling Results for South Dade Energy Center (SDEC): 1-hour Average CO Concentrations**



**Figure 2-15 Dispersion Modeling Results for South Dade Energy Center (SDEC): 8-hour Average CO Concentrations**



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## 3.0 ADDITIONAL IMPACTS

Additional analyses were conducted to assess the potential for adverse air impact to soils and vegetation and to estimate acidic deposition at Biscayne National Park (BNP). The maximum air impacts from the ISCST3 modeling were compared to U.S. EPA recommended criteria for soils and vegetation. The CALPUFF model, recommended by the National Park Service for assessing deposition, was used to compute acidic deposition in the form of sulfur and nitrogen relative to background deposition measurements.

### 3.1 Soils and Vegetation

The criteria for evaluating impacts on soils and vegetation is taken from U.S. EPA's A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils and Animals (U.S. EPA 1980). Table 3-1 lists the U.S. EPA suggested criteria for the gaseous pollutants emitted directly from the proposed facility. The table lists the background concentrations (see Section 2.5), the peak SDEC impacts, the maximum SDEC impacts predicted at BNP, and the sum of the SDEC impacts plus background for comparison to the criteria concentrations. The criteria are established for sensitive vegetation and crops exposed to the effects of the gaseous pollutants through direct exposure. Adverse impacts on soil systems result more readily from the secondary effects of these pollutants' impacts on the stability of the soil system. These impacts could include increased soil temperature and moisture stress and/or increased runoff and erosion resulting from damage to vegetative cover. Thus, the Table 3-1 criteria have been applied to the proposed facility to evaluate impacts on both soils and vegetation. As shown in Table 3-1, the results clearly indicate that no adverse impacts will occur to sensitive vegetation, crops, or soil systems as a result of operation of the proposed facility.

**Table 3-1 Comparison to U.S. EPA Criteria for Gaseous Pollutant Impacts on Natural Vegetation and Crops**

Pollutant	Averaging Time	Peak SDEC Impact ( $\mu\text{g}/\text{m}^3$ ) <sup>(1)</sup>	Max Impact of SDEC at BNP ( $\mu\text{g}/\text{m}^3$ ) <sup>(1)</sup>	Background Concentration ( $\mu\text{g}/\text{m}^3$ ) <sup>(2)</sup>	Peak SDEC Impact Plus Background ( $\mu\text{g}/\text{m}^3$ )	Max Impact of SDEC at BNP Plus Background ( $\mu\text{g}/\text{m}^3$ )	Minimum Impact Level for Affects On Sensitive Plants ( $\mu\text{g}/\text{m}^3$ )
SO <sub>2</sub>	1 hour	13.53	4.14	24	37.5	28.1	917
	3 hours	5.82	1.61	24	29.8	25.6	786
	Annual	0.004	0.003	3	3.0	3.0	18
NO <sub>x</sub>	4 hours	20.87	5.81	216	236.9	221.8	3760
	8 hours	13.20	3.76	216	229.2	219.8	3760
	1 month	8.23	1.79	216	224.2	217.8	564
	Annual	0.01	0.01	34	34.0	34.0	94
CO	1 week	5.97	1.30	3,435	3,441	3,436	1,800,000

<sup>(1)</sup> 24-hour average used to conservatively represent 1-week and 1-month average impacts and 3-hour average used to conservatively represent 4-hour average impact.

<sup>(2)</sup> Not all averaging periods are available from FDEP monitoring reports. Therefore, the following substitutions were made:  
 SO<sub>2</sub> – 3-hour value substituted for 1-hour value;  
 NO<sub>x</sub> – 1-hour value substituted for 4-hour and 8-hour values; and  
 CO – 8-hour value substituted for 1-week value.

### 3.2 Acid Deposition At Biscayne National Park

Acid deposition was evaluated in the form of total sulfur and nitrogen deposition at BNP. CALPUFF modeling provided upper limit estimates of annual (wet and dry) deposition of sulfur and nitrogen compounds (kg/ha/yr) associated with emissions of SO<sub>2</sub> and NO<sub>x</sub>. The CALPUFF modeling was applied with the same meteorological data used in the ISCST3 modeling analysis and was applied in accordance with recent guidance provided by the National Park Service for deposition modeling at the Everglades National Park for another project. The maximum annual sulfur deposition for the BNP receptors was 3.58E-02 kg/ha/yr and the maximum nitrogen deposition was 8.69E-03 kg/ha/yr.

There are no published deposition significance thresholds for BNP. However, the modeled results can be compared to deposition measurements at nearby Everglades National Park (ENP), which is a reasonable representation of the existing deposition of the region including BNP area. Wet deposition measurements at ENP have been taken in 1998 and 1999. Although dry deposition values are currently being taken at ENP, measurements are not yet available. Therefore, consistent with Federal Land Managers Air Quality Related Values Workgroup (FLAG) Phase I guidance, the total existing deposition was estimated by doubling the wet deposition values. Using this convention, the estimated existing annual sulfur deposition at ENP is 8 kg/ha/yr and the existing annual nitrogen deposition is 7 kg/ha/yr. Given that the modeled SDEC deposition rates of sulfur and nitrogen are only about 0.4% and 0.1%, respectively, of existing deposition rates, the deposition impact of the SDEC emissions can

be deemed insignificant. This increase in deposition does not include potential regional emission and deposition benefits that could occur if SDEC displaces emissions from existing fossil generating units.



Enron North America Corp.

P.O. Box 1188

Houston, TX 77251-1188

RECEIVED

OCT 30 2001

BY FEDERAL EXPRESS

BUREAU OF AIR REGULATION

October 29, 2001

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: DEP Project No. 0251099-001-AC  
South Dade Energy Center

Dear Mr. Linero:

On September 13, 2001 the Department sent a letter to Dade Development Company, LLC in regards to the incompleteness of the application for the South Dade Energy Center. This letter stated that unless a response to the information request made by the Department on May 3, 2001 was received by October 30, 2001, the permit would be denied.

Please be advised that Dade Development Company, LLC is hereby withdrawing the permit application for the South Dade Energy Center.

If you have any questions or would like to discuss these issues further, please contact Dave Kellermeyer of Enron North America at (713) 853-3161.

Sincerely  
Dade Development Company, LLC

Ben F. Jacoby  
Attorney-in-Fact

cc: Greg Krause  
J. Goldman, SED  
M. Mitchell, DER M



BEST AVAILABLE COPY



---

## Facsimile Cover Sheet

**To:** Al Linero  
**Company:** DEP – Bureau of Air Regulation  
**Phone:** (850) 921-9523  
**Fax:** (850) 922-6979

**From:** Dave Kellermeyer  
**Company:** Enron North America  
**Phone:** (713) 853-3161  
**Fax:**

RECEIVED

**Date:** 10/29/2001

OCT 29 2001

**Pages including this  
cover page:** 2

BUREAU OF AIR REGULATION

### Comments:

Al-

You should have this letter tomorrow by Federal Express. Sorry about the last minute (as usual). We would like to withdraw this application rather than have you deny it.

Thanks

Dave Kellermeyer



Jeb Bush  
Governor

# Department of Environmental Protection

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

David B. Struhs  
Secretary

September 14, 2001

Mr. R. Douglas Neeley, Chief  
Air, Radiation Technology Branch  
Air, Pesticides and Toxics Mgt. Division  
U.S. EPA – Region 4  
61 Forsyth Street  
Atlanta, Georgia 30303-8960

Re: South Dade Energy Center - Simple Cycle Project  
DEP File No. 0251099-001-AC

Dear Mr. Neeley:

Thank you your letter regarding the Enron South Dade application as well as the demographic and economic information for the vicinity of the project. This non-PSD application is still incomplete. There have been news reports that Enron will not proceed with the project, but they have not withdrawn their application for an air permit.

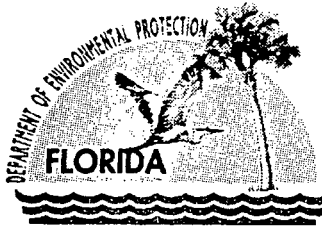
If the Enron does not withdraw the application, we intend to process it in accordance with the requirements of our statutes and regulations.

Thank you for your input on this project. If you have any questions, please contact me at (850) 921-9523.

Sincerely,

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

AAL/aal



# Department of Environmental Protection

Jeb Bush  
Governor

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

David B. Struhs  
Secretary

September 13, 2001

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Ben Jacoby, Attorney-in-Fact  
Dade Development Company, L.L.C.  
1400 Smith Street  
Houston, Texas 77002-7631

Re: Request for Additional Information  
DEP File No. 0251099-001-AC  
South Dade Energy Center

Dear Mr. Jacoby:

On May 3, 2001 the Department advised that the application for the referenced project was incomplete. In that letter we also noted the following rule provision:

*"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."* Rule 62-4.055(1), F.A.C.

The ninety-day period expired on August 1. At the same time, we understand from reports in local newspapers that Enron North America does not intend to pursue the project. We verbally advised Enron's representative that we would deny the permit application unless we receive a timely response to our completeness letter or Enron withdraws the application.

We consider that a second 90-day period began on August 2 and will expire on October 30. If we do not receive the requested information or a response to our information request by October 30, we intend to deny the permit on the basis of the rule cited above.

If you have any questions, please call Teresa Heron at 850/921-9529.

Sincerely,

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

AAL/al

cc: Gregg Worley, EPA  
Isidore Goldman, DEP SED  
H. Patrick Wong, Miami-Dade DERM  
Scott Osbourn, ENSR  
Blair Burgess, ENSR

"More Protection, Less Process"

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**SENDER: COMPLETE THIS SECTION**

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

1. Article Addressed to:

Mr. Ben Jacoby  
 Attorney-in-Fact  
 Dade Development Company, LLC  
 1400 Smith Street  
 Houston, TX 77002-7631

**COMPLETE THIS SECTION ON DELIVERY**

A. Received by (Please Print Clearly) *[Signature]* B. Date of Delivery *9-17-01*  
 C. Signature *[Signature]*  Agent  
 Addressee  
 D. Is delivery address different from item 1?  Yes  
 If YES, enter delivery address below:  No

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

4. Restricted Delivery? (Extra Fee)  Yes

2. Article Number (Copy from service label)

7000 0600 0026 4129 9029

PS Form 3811, July 1999

Domestic Return Receipt

102595-99-M-1789

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

Mr. Ben Jacoby

Postage	\$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
<b>Total Postage &amp; Fees</b>	<b>\$</b>

Postmark  
Here

Recipient's Name (Please Print Clearly) (to be completed by mailer)  
 Dade Development Company, L.L.C.  
 Street, Apt. No., or PO Box No.  
 1400 Smith Street  
 City, State, ZIP+4  
 Houston, TX 77002-7631

PS Form 3800, February 2000

See Reverse for Instructions

7000 0600 0026 4129 9029



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

JUL 27 2001

4 APT-ARB

A. A. Linero, P.E.  
Florida Department of Environmental Protection  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

RECEIVED

AUG 03 2001

BUREAU OF AIR REGULATION

Dear Mr. Linero:

Thank you for sending the air construction permit application for Dade Development Company's South Dade Energy Center dated April 23, 2001. The application is for the proposed installation of two simple cycle combustion turbines (CT) with a total nominal generating capacity of 370 MW to be located in Dade County, Florida. The CTs proposed for the facility are Mitsubishi 501F units which will primarily combust pipeline quality natural gas with No. 2 fuel oil combusted as backup fuel. As proposed, the project avoids prevention of significant deterioration (PSD) review for all pollutants by limiting the total facility emissions for nitrogen oxides (NO<sub>x</sub>) and carbon monoxide (CO).

Based on our preliminary review of the air construction permit application, we have the following comments.

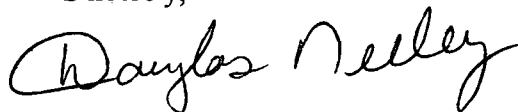
1. Dade Development Company proposes to limit the facility-wide emissions of NO<sub>x</sub> and CO to less than 248 tons per year of each pollutant, to be monitored by a continuous emission monitoring system (CEMS). Consequently, by controlling NO<sub>x</sub> and CO emissions from the facility, emissions from the remaining PSD regulated pollutants will fall below the PSD significant emission rates. In order for the new CTs to avoid PSD review, EPA suggests the draft/final air construction permit should contain practically enforceable limits on fuel oil consumption and/or hours of operation which correspond to 248 tons per year each of CO and NO<sub>x</sub> emissions.
2. Since periods of startup and shutdown are part of normal combustion turbine facility operation, determination of PSD applicability should be assessed with estimates of startup and shutdown emissions included in the facility's potential to emit. Additionally, any determination of compliance with the PSD avoidance limits in the air construction permit should take into account startup and shutdown emissions.
3. Region 4 has received correspondence from a local citizen expressing concern over the siting of this facility and the potential for cumulative impacts from "a major wastewater and sewer facility, the largest (150 ft) trash/garbage dump in Miami-Dade County and the

Turkey Point Nuclear facility” on two nearby minority communities. In responding to this correspondence, Region 4's Environmental Justice/Community Liaison Staff Office conducted a preliminary evaluation of the residential area surrounding the proposed location for the South Dade Energy Center using demographic data (minority populations and low-income populations) and found that the area qualifies as a potential environmental justice area of concern. A copy of the resulting map is enclosed (see Enclosure 1). Elizabeth Bartlett of the Air Permits Section discussed this correspondence with you on July 3, 2001, and faxed you a copy of the letter and several of the attachments. This correspondence was also forwarded to our office by U.S. Senator Bob Graham for a response. In our reply, we committed to review this permit and to forward our review correspondence to the Senator's office.

4. Finally, because there is definite public interest in air permitting at this site, EPA Region 4 strongly recommends that you provide enhanced public participation for this project and exercise available authority to set permit conditions based on public input. We have enclosed the following documents, which may provide useful information for conducting public involvement activities associated with permitting activities. Enclosure 2, entitled “The Model Plan for Public Participation,” contains useful information on the principles of public involvement. Enclosure 3, entitled “Stakeholder Involvement & Public Participation at the U.S. EPA - Lessons Learned, Barriers, & Innovative Approaches,” discusses some practical considerations for involving local communities in regulatory activities.

If you have any questions regarding these comments, please direct them to either Katy Forney at 404-562-9130 or Elizabeth Bartlett at 404-562-9122.

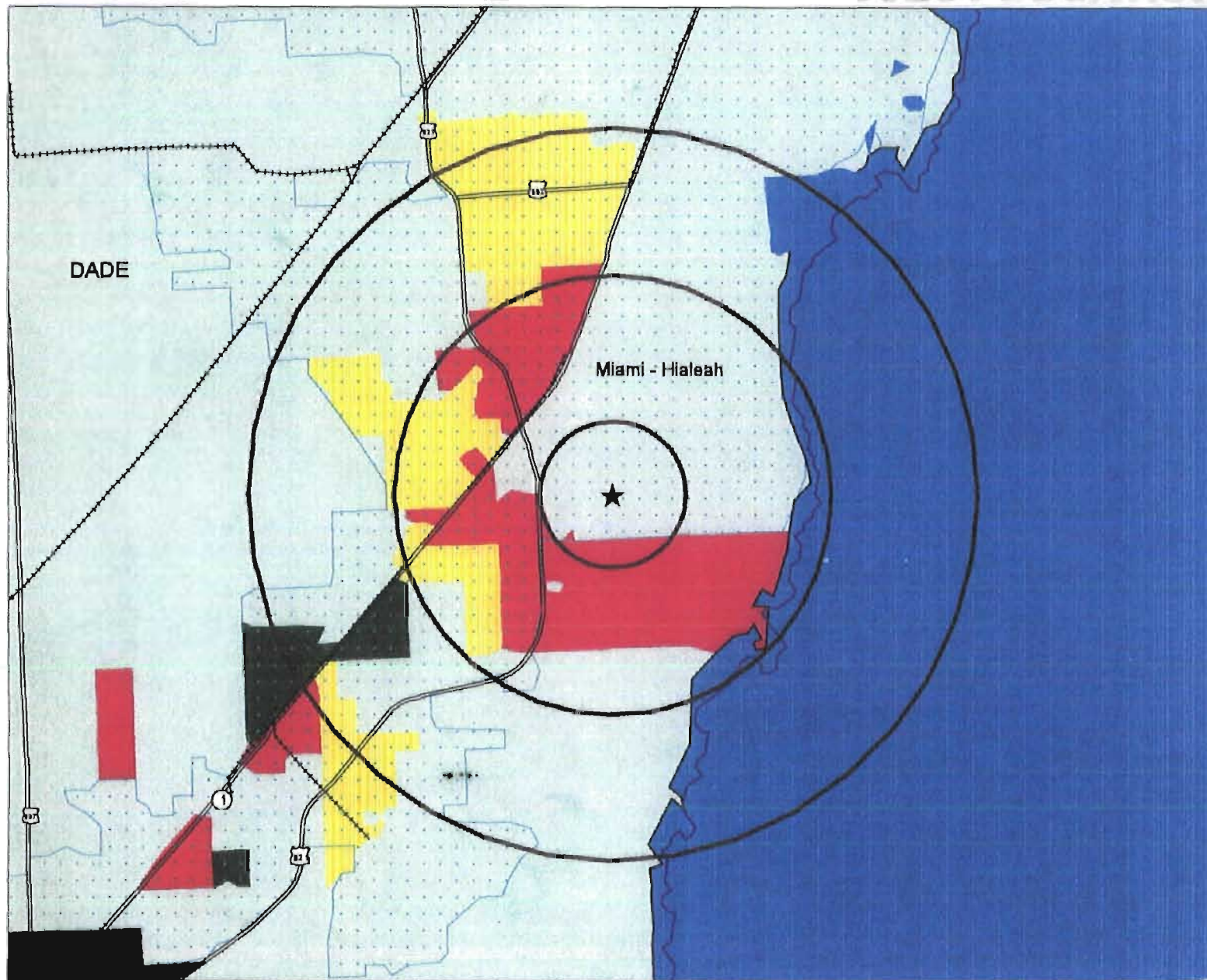
Sincerely,



R. Douglas Neeley  
Chief  
Air and Radiation Technology Branch  
Air, Pesticides and Toxics  
Management Division

Enclosures

# POTENTIAL EJ AREAS AROUND PROJECT LOCATION, MIAMI, FL



- ★ Project Location
- 1, 3, 5mi. Buffer Zones
- ⚡ Railroads
- ⚡ Major Roads
- ⚡ Major Streams
- Water
- Major Cities
- Potential EJ Areas
  - Low Income
  - Minority
  - Minority/Low Income
- Non-EJ Areas



0.8 0 0.8 1.6 Miles

Source: 1990 U.S. Census Population and Housing Summary Tape File 3 (STF3) Data.  
Aggregated to Block Group Level ~800-2000 People.

Relative State Minority Threshold: 31.99%  
Relative State Low Income Threshold (15K): 30.01%



EPA REGION 4  
ENVIRONMENTAL ACCOUNTABILITY DIVISION

# Enclosure 2

United States  
Environmental Protection  
Agency

Enforcement and  
Compliance Assurance  
(2201A)

EPA-300-K-00-001  
February 2000

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Office of Environmental Justice

---

# THE MODEL PLAN FOR PUBLIC PARTICIPATION

(Originally Published as EPA-300-K-96-003)

<http://www.epa.gov/eca/ej/main/nejacpub.html>

*Developed by  
The Public Participation and  
Accountability Subcommittee  
of the  
National Environmental Justice Advisory Council  
A Federal Advisory Committee to the U.S. EPA*



**This report and recommendations have been written as a part of the activities of the National Environmental Justice Advisory Council (NEJAC), a public advisory committee providing extramural policy information and advice to the Administrator and other officials of the United States Environmental Protection Agency (EPA). The Council is structured to provide balanced, expert assessment of matters related to environmental justice. This report has been reviewed by the EPA. Mention of trade names or commercial products does not constitute a recommendation for use.**

**This report is a revision of EPA-300-K-96-003 published in 1996.**

**Inside Front Cover**

Dear Colleagues and Friends:

The National Environmental Justice Advisory Council (NEJAC) considers public participation crucial in ensuring that decisions affecting human health and the environment embrace environmental justice. To facilitate such public participation, the NEJAC requested that its Public Participation and Accountability Subcommittee develop recommendations for methods by which EPA can institutionalize public participation in its environmental programs. In 1994, the Public Participation and Accountability Subcommittee developed the Model Plan for Public Meetings. The NEJAC adopted the model plan as a living document to be reviewed annually and revised as needed.

We are pleased to send you an updated copy of the Model Plan for Public Participation. We also have enclosed the "Core Values for the Practice of Public Participation," developed by Interact: The Journal of Public Participation, and the "Guiding Principles for Public Participation," developed by the NEJAC Public Participation and Accountability Subcommittee. We invite you to consider the model plan as a tool that will enhance the public participation process. Please share this document with others who may be interested in encouraging broader community participation in the environmental decision-making process.

Please forward any written comments to:

NEJAC Public Participation and Accountability Workgroup  
c/o U.S. Environmental Protection Agency  
Office of Environmental Justice  
1200 Pennsylvania Avenue NW (Mail Code: 2201A)  
Washington, DC 20460  
Phone: (202) 564-2598  
Hotline: (800) 962-6215  
Fax: (202) 501-0740  
Internet E-mail: [environmental-justice-epa@epa.gov](mailto:environmental-justice-epa@epa.gov)  
World Wide Web: <http://www.epa.gov/oeca/ej/nejac>

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## BACKGROUND

The National Environmental Justice Advisory Council (NEJAC) is a federal advisory committee that was established by charter on September 30, 1993, to provide independent advice, consultation, and recommendations to the Administrator of the U.S. Environmental Protection Agency (EPA) on matters related to environmental justice. The NEJAC is made up of 25 members, and one designated federal official (DFO), who serve on a parent council that has six subcommittees--Air and Water, Enforcement, Health and Research, Indigenous Peoples, International, and Waste and Facility Siting. Along with the NEJAC members who fill subcommittee posts, an additional 34 individuals serve on the various subcommittees. The NEJAC has held meetings in locations across the United States, including Washington, D.C.; Albuquerque, New Mexico; Herndon, Virginia; Atlanta, Georgia; Arlington, Virginia; Detroit, Michigan; Durham, North Carolina; Oakland, California; and Baton Rouge, Louisiana.

As a federal advisory committee, the NEJAC is bound by all requirements of the Federal Advisory Committee Act (FACA) of October 6, 1972. Those requirements include:

- Members must be selected and appointed by EPA
- Members must attend and participate fully in meetings of the NEJAC
- Meetings must be open to the public, except as specified by the EPA Administrator
- All meetings must be announced in the Federal Register
- Public participation must be allowed at all Public Participation
- The public must be provided access to materials distributed during the meeting
- Meeting minutes must be kept and made available to the public
- NEJAC must provide independent judgment that is not influenced by special interest groups

Each subcommittee, formed to deal with a specific topic and to facilitate the conduct of the business of the NEJAC, has a DFO and is bound by the requirements of FACA. Subcommittees of the NEJAC meet independently of the full NEJAC and present their findings to the NEJAC for review. Subcommittees cannot make recommendations independently to EPA. In addition to the six subcommittees, the NEJAC has established a Protocol Committee, the members of which are the chair of NEJAC and the chairs of each subcommittee.

EPA's Office of Environmental Justice (OEJ) maintains transcripts, summary reports, and other material distributed during the meetings. Those documents are available to the public upon request. Executive summaries of the reports of the NEJAC meetings are available on the Internet at <http://www.epa.gov/oeca>

Comments or questions can be directed to OEJ through the Internet at [environmental-justice-epa@epa.gov](mailto:environmental-justice-epa@epa.gov)

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## CRITICAL ELEMENTS FOR CONDUCTING PUBLIC PARTICIPATION

### 1. PREPARATION

- A. Developing co-sponsoring and co-planning relationships with community organizations is essential to successful community meetings. To ensure a successful meeting, agencies should provide co-sponsors the resources they need and should share all planning roles.

These roles include:

- Decision making
  - Development of the agenda
  - Establishment of clear goals
  - Leadership
  - Outreach
- B. Educating the community to allow equal participation and provide a means to influence decision making.
- C. Regionalizing materials to ensure cultural sensitivity and relevance.
- D. Providing a facilitator who is sensitive and trained in environmental justice issues.

### 2. PARTICIPANTS

- A. As the NEJAC model demonstrates, the following communities should be involved in environmental justice issues:
- Community and neighborhood groups
  - Community service organizations (health, welfare, and others)
  - Educational institutions and academia
  - Environmental organizations
  - Government agencies (federal, state, county, local, and tribal)
  - Industry and business
  - Medical community
  - Non-government organizations
  - Religious communities
  - Spiritual communities



B. Identify key stakeholders, including:

- Educational institutions
- Affected communities
- Policy and decision makers (for example, representatives of agencies accountable for environmental justice issues, such as health officials, regulatory and enforcement officials, and social agency staff).

### 3. LOGISTICS

A. Where:

- The meetings should be accessible to all who wish to attend (public transportation, child care, and access for persons with disabilities should be considered).
- The meeting must be held in an adequate facility (size and conditions must be considered).
- Technologies should be used to allow more effective communication (teleconferences, adequate translation, equipment, and other factors).

B. When:

- The time of day and year of the meeting should accommodate the needs of affected communities (evening and weekend meetings accommodate working people, and careful scheduling can avoid conflicts with other community or cultural events).

C. How:

- An atmosphere of equal participation must be created (avoid using a "panel" or "head table").
- A two-day meeting, at a minimum, is suggested. The first day should be reserved for community planning and education.
- The community and the government should share leadership and presentation assignments.

#### 4. MECHANICS

- Maintain clear goals by referring to the agenda; however, do not be bound by it.
- Incorporate cross-cultural exchanges in the presentation of information and the meeting agenda.
- Provide a professional facilitator who is sensitive to, and trained in environmental justice issues.
- Provide a timeline that describes how the meeting fits into the overall agenda of the issues at hand.
- Coordinate follow-up by developing an action plan and determining who is the contact person who will expedite the work products from the meeting.
- Distribute minutes and a list of action items to facilitate follow-up.

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## **CORE VALUES AND GUIDING PRINCIPLES FOR THE PRACTICE OF PUBLIC PARTICIPATION**

Items 1-7 were adopted from "Interact: The Journal of Public Participation, Volume 2, Number 1, Spring 1996." Items 8-14 are The Guiding Principles for Public Participation developed by the NEJAC's Public Participation/Accountability Workgroup to ensure the early involvement of the public.

- \*1. People should have a say in decisions about actions which affect their lives.
- \*2. Public participation includes the promise that the public's contribution will influence the decision.
- \*3. The public participation process communicates the interests and meets the process needs of all participants.
- \*4. The public participation process seeks out and facilitates the involvement of those potentially affected.
- \*5. The public participation process involves participants in defining how they participate.
- \*6. The public participation process communicates to participants how their input was, or was not, utilized.
- \*7. The public participation process provides participants with the information they need to participate in a meaningful way.
- 8. Involve the public in decisions about actions which affect their lives.
- 9. Maintain honesty and integrity throughout the process.
- 10. Encourage early and active community participation.
- 11. Recognize community knowledge.
- 12. Use cross-cultural methods of communication.
- 13. Institutionalize meaningful public participation by acknowledging and formalizing the process.
- 14. Create mechanisms and measurements to ensure the effectiveness of public participation.

*\*Interact is published by the International Association of Public Participation Practitioners, a non-profit corporation established in 1990 to serve practitioners throughout the world seeking practical experience designing and conducting public involvement programs.*

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## **ENVIRONMENTAL JUSTICE PUBLIC PARTICIPATION CHECKLIST FOR GOVERNMENT AGENCIES**

1. Ensure that the Agency's public participation policies are consistent with the requirements of the Freedom of Information Act, the Emergency Planning and Community Right to Know Act and the National Environmental Policy Act.
2. Obtain the support of senior management to ensure that the Agency's policies and activities are modified to ensure early, effective and meaningful public participation, especially with regard to Environmental Justice stakeholders. Identify internal stakeholders and establish partnering relationships.
3. Use the following Guiding Principles in setting up all Public Meetings:
  - Maintain honesty and integrity throughout the process
  - Recognize community and indigenous knowledge
  - Encourage active community participation
  - Utilize cross-cultural formats and exchanges
4. Identify external Environmental Justice stakeholders and provide opportunities to offer input into decisions that may impact their health, property values and lifestyles. Consider at a minimum individuals from the following organizations as appropriate:
  - Environmental organizations
  - Business and trade organizations
  - Civic/public interest groups
  - Grassroots/community-based organizations
  - Congress
  - Federal agencies
  - Homeowner and resident organizations
  - International organizations
  - Labor unions
  - Local and State government
5. Identify key individuals who can represent various stakeholder interests. Learn as much as possible about stakeholders and their concerns through personal consultation, phone or written contacts. Ensure that information-gathering techniques include modifications for minority and low-income communities (for example, consider language and cultural barriers, technical background, literacy, access to respondents, privacy issues and preferred types of communications).
6. Solicit stakeholder involvement early in the policy-making process, beginning in the planning and development stages and continuing through implementation and oversight.
7. Develop co-sponsoring/co-planning relationships with community organizations, providing resources for their needs.

8. Establish a central point of contact within the Federal agency to assist in information dissemination, resolve problems and to serve as a visible and accessible advocate of the public's right to know about issues that affect health or environment.
9. Regionalize materials to ensure cultural sensitivity and relevance. Make information readily accessible (for example, access for the handicapped and sight- and hearing-impaired) and understandable. Unabridged documents should be placed in repositories. Executive summaries/fact sheets should be prepared in layman's language. Whenever practicable and appropriate, translate targeted documents for limited English-speaking population.
10. Make information available in a timely manner. Environmental Justice stakeholders should be viewed as full partners and Agency customers. They should be provided with information at the same time it is submitted for formal review to State, Tribal and/or Federal regulatory agencies.
11. Ensure that personnel at all levels in the Agency clearly understand policies for transmitting information to Environmental Justice stakeholders in a timely, accessible and understandable fashion.
12. Establish site-specific community advisory boards where there is sufficient and sustained interest. To determine whether there is sufficient and sustained interest, at a minimum, review correspondence files, review media coverage, conduct interviews with local community members and advertise in local newspapers. Ensure that the community representation includes all aspects and diversity of the population. Organize a member selection panel. Solicit nominations from the community. Consider providing administrative and technical support to the community advisory board.
13. Schedule meetings and/or public hearings to make them accessible and user-friendly for Environmental Justice stakeholders. Consider time frames that do not conflict with work schedules, rush hours, dinner hours and other community commitments that may decrease attendance. Consider locations and facilities that are local, convenient and represent neutral turf. Ensure that the facility meets American with Disabilities Act Statements about equal access. Provide assistance for hearing-impaired individuals. Whenever practical and appropriate, provide translators for limited-English speaking communities. Advertise the meeting and its proposed agenda in a timely manner in the print and electronic media. Provide a phone number and/or address for communities to find out about pending meetings, issues, enter concerns or to seek participation or alter meetings agendas.
14. Consider other vehicles to increase participation of Environmental Justice stakeholders including:
  - Posters and Exhibits
  - Participation in Civic and Community Activities
  - Public Database and Bulletin Boards
  - Surveys
  - Telephone Hotlines
  - Training and Education Programs, Workshops and Materials

15. Be sure that trainers have a good understanding of the subject matter both technical and administrative. The trainers are the Ambassadors of this program. If they don't understand - no one will.
16. Diversity in the workplace: whenever practical be sure that those individuals that are the decision makers reflect the intent of the Executive Order and come from diverse backgrounds, especially those of a community with whom the Agency will have extensive interaction.
17. After holding a public forum in a community, establish a procedure to follow up with concrete action to address the communities' concerns. This will help to establish credibility for your Agency as having an active role in the Federal government.
18. Promote interagency coordination to ensure that the most far reaching aspects of environmental justice are sufficiently addressed in a timely manner. Environmental problems do not occur along departmental lines. Therefore, solutions require many agencies and other stakeholders to work together efficiently and effectively.
19. Educate stakeholders about all aspects of environmental justice (functions, roles, jurisdiction, structure and enforcement).
20. Ensure that research projects identify environmental justice issues and needs in communities, and how to meet those needs through the responsible agencies.
21. Establish interagency working groups (at all levels) to address and coordinate issues of environmental justice.
22. Provide information to communities about the government's role as it pertains to short-term and long-term economic and environmental needs and health effects.
23. Train staff to support inter-and intra-Agency coordination, and make them aware of the resources needed for such coordination.
24. Provide Agency staff who are trained in cultural, linguistic and community outreach techniques.
25. Hold workshops, seminars and other meetings to develop partnerships between agencies, workers and community groups. (Ensure mechanisms are in place to ensure that partnerships can be implemented via cooperative agreements, etc.)
26. Provide effective outreach, education and communications. Findings should be shared with community members, with an emphasis on being sensitive and respectful to race, ethnicity, gender, language, and culture.



27. Design and implement educational efforts tailored to specific communities and problems. Increase the involvement of ethnic caucuses, religious groups, the press, and legislative staff in resolution of Environmental Justice issues.
28. Assure active participation of affected communities in the decision-making process for outreach, education, training and community programs – including representation on advisory councils and review committees.
29. Encourage Federal and State governments to "reinvent government" -- overhaul the bureaucratic in favor of community responsiveness.
30. Link environmental issues to local economic issues to increase level of interest.
31. Use local businesses for environmental cleanup or other related activities.
32. Utilize, as appropriate, historically Black Colleges and Universities (HBCU) and Minority Institutes (MI), Hispanic Serving Colleges and Universities (HSCU) and Indian Centers to network and form community links that they can provide.
33. Utilize, as appropriate, local expertise for technical and science reviews.
34. Previous to conducting the first Agency meeting, form an agenda with the assistance of community and Agency representatives.
35. Provide "open microphone" format during meetings to allow community members to ask questions and identify issues from the community.

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# **Stakeholder Involvement & Public Participation at the U.S. EPA**

*Lessons Learned, Barriers, &  
Innovative Approaches*

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January 2001

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## *Executive Summary*

In the 1990s, EPA increased its efforts to involve the public by giving citizens, industry, environmental groups, and academics a much greater opportunity to play key roles in environmental decision-making. Today, EPA is continuing this tradition by initiating and supporting a vast array of stakeholder involvement and public participation initiatives well-beyond the scope of what was originally in place when the Agency opened for business in 1970. Due to the diversity and extensive number of Agency initiatives involving the public, however, much of the wisdom and experience gained by EPA staff implementing these efforts can be lost from one activity to the next, making it difficult for the rest of the Agency to benefit. Staff performing outreach and leading stakeholder involvement and public participation activities in one office may have limited interaction with staff performing similar types of work in other offices. In addition, Agency reviews of stakeholder involvement and public participation tend to focus on single initiatives and preclude Agency staff from benefitting from a broader perspective of EPA's public involvement activities.

With this report, the Office of Environmental Policy Innovation (OEPI) has taken a fresh look at Agency efforts to involve the public by reviewing formal evaluations and informal summaries from across the Agency that identify, describe, and/or evaluate Agency stakeholder involvement and public participation activities. Based upon our review, we identify key cross-cutting lessons learned, pinpoint unique barriers and ways to overcome them, and highlight innovative approaches to stakeholder involvement and public participation. *This report is informed by Agency evaluations and reviews and is written for Agency staff and EPA's co-regulators. As such, it will be a valuable tool for staff who are (1) considering new initiatives; (2) seeking to improve existing ones; or (3) in need of new perspectives on stakeholder involvement and public participation at the Agency.*

Our review suggests that EPA has made important progress in expanding its efforts to work with the public and is continually trying to improve. However, EPA has limited ability to measure improvements in how the Agency works with stakeholders and the public. Many of the reports, summaries, and briefings reviewed for this report were sufficient to characterize the effectiveness of a particular Agency stakeholder involvement or public participation activity. However, several documents lacked an evaluative component, making it difficult to discern different efforts' strengths and weaknesses. To improve Agency initiatives in the future, it would be valuable to evaluate a greater number of EPA's initiatives to work with the public: for both traditional and non-traditional approaches. It's clear that the Agency has worked hard to involve the public. What isn't always as clear is how effective EPA's initiatives have been. A greater focus on developing standard evaluation criteria and performance measures that evaluators can draw upon should greatly assist this effort.

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## ***Introduction***

Throughout the 1980s and 1990s citizens have sought to become more active participants in the environmental decision-making process. The U.S. Environmental Protection Agency (EPA) has responded by working hard to better ensure that citizens can have a substantive impact on environmental decisions affecting them at the national, regional, and local levels. The public's role in environmental decisions was generally limited during the 1970s to federal register public comment periods on rules and permit decisions, review of environmental impact statements and occasional input through a relatively small number of Federal Advisory Committees. However, in the early 1980s through its regulatory negotiation efforts, EPA began moving beyond traditional rulemaking to a collaborative process. Although these regulatory negotiation efforts were few, the framework used in these multi-stakeholder, consensus-based processes helped lay the groundwork for expanded public participation initiatives in the 1990s.<sup>1</sup>

Today EPA initiates and supports a vast array of stakeholder involvement and public participation activities<sup>a</sup> well-beyond the scope of what was in place when the Agency opened for business in 1970. Some of these activities and initiatives include: Superfund Technical Assistance Grants, Superfund Job Training Initiative, Forum on State and Tribal Toxics Action, Consumer Labeling Initiative, Sector-based Environmental Protection, Regulatory Negotiation, Watershed Partnerships, Environmental Justice Small Grants Program, Community-based Environmental Protection, and National Community Involvement Conferences.

In the 1990s, EPA increased its efforts to involve the public by giving citizens, industry, environmental groups, and academics a much greater opportunity to play key roles in environmental decision-making. EPA engages the public and stakeholders by conducting outreach, exchanging information, providing the public with opportunities to make formal EPA

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<sup>a</sup>This report makes reference to stakeholder involvement activities and public participation activities throughout. *Public participation activities* represent the full spectrum of actions and processes that EPA uses to involve the American public in the work of the Agency. Public participation activities and processes allow the public to participate in Agency actions and hold the Agency accountable for its decisions. Some activities with significant public participation components discussed in this report include public hearings for Superfund and permit-related actions and public dialogues.

*Stakeholder involvement activities* imply activities where EPA engages a select set of individuals, groups or representatives of those individuals and groups to work directly on specific issues. Stakeholders are individuals and organizations or their representatives who work with EPA primarily because they have an interest in the Agency's work and policies or seek to influence the Agency's future direction. Some activities and programs discussed in this report that include a specific stakeholder involvement component include Project XL and regulatory negotiations. For a more thorough discussion of EPA public participation terminology, see *Engaging the American People: A Review of EPA Policy and Regulations with Recommendations for Action*.

recommendations, and working with certain groups to develop consensus agreements.<sup>a</sup> Roundtables, constituency meetings<sup>b</sup>, charrettes<sup>c</sup>, information gathering sessions and websites are just a few tools the Agency has come to rely upon over this past decade to ensure more effective stakeholder involvement and public participation. As evidence mounts that some of the best solutions to environmental problems can be achieved in tandem with the public, EPA will continue to advocate for and support more effective ways to engage stakeholders and the public.

Recent EPA actions that reflect this include (1) finalization of a report to the Administrator that lays out a framework for improving how EPA conducts its public participation initiatives;<sup>d</sup> (2) on-going Agency effort to revise EPA's policy and regulations that guide public participation efforts;<sup>e</sup> (3) development of a comprehensive permitting reference guide that provides the foundation for understanding federal permitting public participation requirements and serves as a point of departure for getting more specific information on a given state's requirements;<sup>f</sup> (4) release of a guidance document that promotes effective federal government consultation and collaboration with American Indian and Alaska Native Tribes regarding federal decisions that could affect tribal lands, resources, members and welfare;<sup>g</sup> and (5) release of a guidance document that encourages early communication and collaboration between facilities, governments, and communities in order to overcome the gridlock and distrust that often

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<sup>a</sup> For a more detailed discussion on the range of EPA's public participation activities see *Engaging the American People: A Review of EPA Policy with Recommendations for Action*. For more information contact Pat Bonner (bonner.patricia@epa.gov).

<sup>b</sup> A *constituency meeting* brings together representatives from similar organizations such as environmental groups in order to address certain issues.

<sup>c</sup> A *charrette* is a workshop designed to involve the public in a planning or design process.

<sup>d</sup> *Engaging the American People: A Review of EPA Policy and Regulations with Recommendations for Action*.

<sup>e</sup> Update on EPA's 1981 Policy on Public Participation. For more information contact Pat Bonner (bonner.pat@epa.gov).

<sup>f</sup> *Public Involvement in Environmental Permits: A Reference Guide*. Office of Solid Waste and Emergency Response. U.S. Environmental Protection Agency. August 2000. <http://www.epa.gov/permits/publicguide.htm>. This permit guide provides a baseline of information on public participation activities in the permitting process to all stakeholders in an uneven playing field. Permits are largely delegated to the states, and most of the states have their own process for engaging citizens in permit decisions--some of those are very comprehensive and others are less so.

<sup>g</sup> *Guide on Consultation and Collaboration with Indian Tribal Governments and the Public Participation of Indigenous Groups and Tribal Members in Environmental Decision Making*. Office of Environmental Justice. Office of Enforcement and Compliance Assurance. U.S. Environmental Protection Agency. Prepared by the National Environmental Justice Advisory Council Indigenous Peoples Subcommittee -A Federal Advisory Committee to the EPA. November 2000. For more information contact Danny Gogal (gogal.danny@epa.gov).

accompany hazardous waste facility siting decisions.<sup>a</sup>

Due to the diversity and extensive number of Agency initiatives involving the public, however, much of the wisdom and experience gained by EPA staff implementing these efforts can get lost from one activity to the next, making it difficult for the rest of the Agency to benefit. Staff performing outreach and leading stakeholder involvement activities in one office may have limited interaction with staff performing similar types of work in other offices. In addition, Agency reviews of stakeholder involvement and public participation tend to focus on single initiatives and preclude Agency staff benefitting from a broader perspective of EPA's public involvement activities. To date, no comprehensive effort has been made to collectively document the many lessons EPA has learned in its efforts to more effectively involve the American public.

With this report, the Office of Environmental Policy Innovation (OEPI) has taken a fresh look at EPA public involvement initiatives by reviewing formal evaluations and informal summaries from across the Agency that identify, describe, and/or evaluate Agency stakeholder involvement and public participation activities. In total we reviewed just over thirty evaluations and reports. Based upon our review, we identify key cross-cutting lessons learned, pinpoint unique barriers and ways to overcome them, and highlight innovative approaches to stakeholder involvement and public participation. *This report is informed by Agency evaluations and reviews and is written for EPA staff and EPA's co-regulators. As such, it will be a valuable tool for staff who are (1) considering new initiatives; (2) seeking to improve existing ones; or (3) in need of new perspectives on stakeholder involvement and public participation at the Agency.*

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<sup>a</sup> *Social Aspects of Siting RCRA Hazardous Waste Facilities*. Office of Solid Waste and Emergency Response, U. S. Environmental Protection Agency, April 2000. <http://www.epa.gov/epaoswer/osw/mbodys.htm>

## ***Lessons Learned in Stakeholder Involvement and Public Participation***

In the following pages we discuss some of the major lessons learned by EPA staff from various program offices and regions who have implemented stakeholder involvement or public participation activities. The lessons describe common themes and recommendations found throughout the evaluations, summaries and reports. These lessons are rooted in the experiences of EPA staff, their co-regulators, industry, environmental groups, and local citizens. The first section below describes five lessons learned that could apply to almost any public participation or stakeholder involvement initiative. The second section describes five sets of lessons that are specific to particular Agency activities such as stakeholder negotiation, community outreach, and capacity building.

### ***Establishing Trust Is Integral***

Trust between EPA and the public is a crucial component of any stakeholder involvement or public participation initiative in order to ensure an effective working relationship. However, trust between the Agency and stakeholders can take time to develop. Historically, some communities and organizations have had adverse relationships with government agencies that carry into the present. In other instances, statutory or regulatory limitations may lead to a break down of trust between communities and agencies.<sup>2</sup> For example, in the 1980s at a Superfund site in New Mexico, EPA at first had difficulty addressing the affected community's contaminated drinking water supply because of a petroleum exclusion in the Comprehensive Emergency Response, Compensation, and Liability Act (CERCLA).<sup>3</sup> This initially damaged the affected community's trust in, and respect for, the Agency.<sup>4</sup>

To overcome such barriers, making extra efforts to ensure trust can prove crucial. For example, in a Superfund community in Los Angeles in the early 1990s, only by initiating a comprehensive and concerted effort to engage the community about site problems and cleanup solutions was EPA able to develop the trust it needed with the community to move forward on cleanup.<sup>5</sup> Much can be done to enhance trust including: 1) meeting with the community early,<sup>6</sup> 2) responding to community concerns and clearly explaining what action will be taken to address their concerns,<sup>7</sup> 3) maintaining a presence in the community, 4) working with the community on equal footing,<sup>8</sup> 5) openly sharing information,<sup>9</sup> 6) involving stakeholders in decision making and data gathering,<sup>10</sup> 7) linking up with trusted local officials,<sup>11</sup> and 8) keeping communication channels open.<sup>12</sup>

### ***Credible Data and Technical Assistance Can Be Critical***

Credible sources of information can serve a very important role in solving conflicts with stakeholders and the public. One evaluation completed in late 1998 looked at eight Agency regulatory negotiations and found that eighty percent of the controversial issues “were either successfully negotiated or resolved through the presentation of objective data and/or analysis.”<sup>13</sup> Often, data credibility depends upon whether the data can be produced or confirmed by an outside source. Without outside expertise, groups with non-technical backgrounds can be significantly disadvantaged in their ability to participate effectively in decision-making.<sup>14</sup> In the Carpet Policy Dialogue, a one-year multi-stakeholder policy discussion initiated in 1991 that focused on encouraging the carpet industry to reduce volatile organic compound (VOC) emissions, the industry was responsible for gathering the data needed for the policy discussions. This led to controversy over the adequacy and reliability of the data and potentially limited progress on certain policy issues because several stakeholders did not trust the industry’s data collection method.<sup>15</sup> No outside verification of the data was conducted and participants’ concerns were not relieved. One participant remarked that “a lot of issues were swept under the rug as a result of the dialogue needing to accept the data as it was presented.”<sup>16</sup>

Without a concerted effort to ensure reliable, trustworthy data, the stakeholder process may prove frustrating for all participants involved. EPA has made strides to improve in this area, however, by enabling participants in multi-stakeholder processes easier access to technical experts. For example, in 1988, the Superfund program started making Technical Assistance Grants available to community groups which enabled them to hire technical experts to review technical issues associated with contaminated sites. This effort has proven to be a considerable success making it easier for community groups to interpret data and reports, understand technical issues, improve dialogue with EPA, educate other nearby residents about the issues, and establish the credibility of the group.<sup>17</sup> More recently, in response to claims that Project XL did not enable local residents to fully participate in individual XL project negotiations since they often lacked technical expertise, the Project XL team developed a grant program similar to that of the Superfund program whereby stakeholder groups can apply for task-specific technical assistance to help them address XL issues either in project negotiation or implementation. In early 2000, two stakeholder groups each accessed this grant to improve their ability to participate in project negotiations for two XL projects involving a paper mill in Jay, Maine.

### ***Recognize the Links between Environmental, Economic, and Social Concerns***

Throughout the 1990s more communities began to recognize that in order to improve their quality of life they must focus on solutions that link together their environmental, economic and social concerns. As communities have adopted this approach, EPA has reached out to communities to assist them in their holistic planning efforts by advocating and supporting the Watershed Approach and Community-based Environmental Protection. However, being a

regulatory agency, EPA can be slow to direct focus on communities' social and economic priorities. In EPA's Brownfields Initiative launched in 1994, EPA was initially criticized for spending most of its attention addressing concerns of developers and investors instead of those expressed by potentially affected community members. For example, one observer suggested that "EPA's Brownfields locomotive left the station without a major group of passengers."<sup>18</sup> A year later, however, EPA responded to this criticism by hosting a series of public dialogues designed to solicit input from local residents most likely to be directly impacted by Brownfields policy decisions.

EPA can work to integrate economic and social concerns into environmental decision-making by forming partnerships with impacted communities and taking time to learn about community quality of life and environmental justice concerns. EPA staff should be prepared to answer questions about local economic impacts and health impacts of its environmental decisions.<sup>19</sup> For instance, will the permitting of a certain type of facility negatively affect a community's ability to garden, fish, or hunt because of possible future contamination? EPA can improve its understanding of impacts by gathering a wide-variety of information from local residents including demographic information, oral history of community's health, and location of important cultural, religious, and historical sites.<sup>20</sup> By working harder to integrate social, economic, and even cultural concerns of the community, EPA can enhance trust between industry stakeholders and the community and ultimately strengthen environmental decision-making both in its non-traditional activities, such as Project XL, and in its regulatory activities, such as the permitting of hazardous waste facilities.

### ***Successful Stakeholder Involvement and Public Participation Activities Require That Agency Staff Receive Training or Expert Assistance***

Agency staff involved in stakeholder and public participation efforts, including partnerships, need special training both in the value and use<sup>21</sup> of these activities and how to conduct them properly. If training is not available, staff should obtain expert assistance. A variety of skills and techniques in addition to adequate background knowledge are a must if the initiative is to be successful. For instance, at the start of the Carpet Policy Dialogue in 1990 (see above), little effort was made to train EPA staff as to what their roles would be alongside the facilitator. As a result, several EPA staff did not know what to expect and did not understand how to best participate.<sup>22</sup> In a 1999 evaluation that looked at public participation in contaminated site cleanups, Community Advisory Board members involved in contamination remediation at the Sandia National Laboratory Site near Albuquerque remarked that public participation processes will not be perceived as credible unless agency staff are educated why such processes are important and how they should be implemented.<sup>23</sup> Other areas in which staff involved in public participation and stakeholder involvement activities could benefit from training include: listening and communication, partnering, process management, negotiation, consensus-building, vision-building, cross-cutting analysis, and multi-media approaches to environmental protection.<sup>24,25</sup> In addition, for staff lacking experience but currently involved in public

participation initiatives at the community level, efforts should be made to coordinate work with local residents experienced in community outreach.<sup>26</sup>

### ***Several Factors May Limit Participation***

Several factors may limit the willingness or ability of citizens to participate in either stakeholder involvement or public participation initiatives. Citizens may have difficulty participating in technical discussions because they believe they will be unable to significantly influence issues, or because they lack time to participate substantively. They may choose not to participate because of a lack of controversy surrounding an issue or because they are simply “turned off” by conflict.<sup>27</sup> In a 1998 EPA evaluation of public involvement in the Source Water Assessment Program, a Congressionally-mandated program requiring all state environmental agencies to develop and implement plans for ensuring safe drinking water, several citizens described additional reasons why they were unable to participate effectively as advisory committee members for their respective state agencies. These included inadequate explanations of background and technical material, inadequate minutes from meetings, and overwhelming amounts of reading.<sup>28</sup>

Furthermore, citizens may choose not to participate for historical (e.g., this solution was attempted years ago without success), social (e.g., outsiders have low expectations of what stakeholders can actually contribute) or cultural (e.g., the problem was a result of god’s will), reasons.<sup>29</sup> Non-participation may also be a cultural way of indicating opposition to a certain initiative.<sup>30</sup> It is not necessary to have high a degree of involvement for all public participation or stakeholder involvement initiatives. However, lack of adequate participation or lack of effective means for participation can result in agreements or policies that do not necessarily reflect the interests of communities or constituencies that will be most impacted by them.

#### **Recognizing Barriers to Participation**

Inadequate explanations of background and technical material

Difficulty participating in technical discussions

Inadequate minutes from meetings

Overwhelming amounts of reading

Perceived inability to influence issues

Lack of time to participate



### ***Lessons Learned in Multi-Stakeholder Negotiation***

Many Agency initiatives involve some form of multi-stakeholder negotiation. Key lessons learned can improve the quality of future negotiations for the Agency and participating stakeholders. First, in the early stages of any stakeholder negotiation it is crucial to clarify the

type of stakeholder process to be used, what the goals will be, and what the negotiation process can and cannot accomplish. Even if there is only a low-level of trust among stakeholders, an effective communication and decision-making process can still allow for successful negotiation to take place.<sup>31</sup> Second, it is important to educate stakeholders on both the process and technical issues before the negotiation. By spending extra time up-front to better ensure a common understanding for all stakeholders, the quality of the negotiation should be greatly improved and the time required to carry out the negotiation significantly reduced. Third, it's important to use a trained facilitator throughout the negotiation. Lack of quality facilitation can impede a successful negotiation. Moreover, employing a trained facilitator only when it becomes apparent that a facilitator is needed may not erase troubling developments that have already emerged.<sup>32</sup> Fourth, it is often essential that EPA senior leadership play a very active role in negotiations. If EPA does not show high-level support for the process it's advocating, it's clear that other stakeholders may be less than enthusiastic about developing an agreement or product. With high-level participation, EPA can keep other stakeholders at the table and clarify possibilities for agreements.<sup>33</sup>

Finally, it's important to include a full diversity of stakeholders and perspectives. The greater the diversity, the more likely the process itself and resulting products will be perceived as credible. It can be easy to by-pass certain stakeholders and pull together a group where issues can be resolved with relative ease. Only by drawing together all affected stakeholders, however, can contentious issues truly be resolved and effective, long-lasting agreements be reached.<sup>34</sup> Moreover, by ensuring diversity, there is a much greater likelihood that issues of environmental justice may be resolved.<sup>35</sup> Without a broad range of voices, the concerns of disenfranchised can be more easily ignored.

### ***Lessons Learned in Partnerships***

Many evaluations focused on partnerships involving EPA and other stakeholders. The partnerships vary considerably in terms of stakeholders, the size of the area of concern (e.g, single rural community to a region spanning several counties), and the types of environmental problems addressed, yet the evaluations describe several valuable lessons learned that could be

#### **Improving Stakeholder Negotiations**



Clarify the type of process to be used, what the goals will be, and what the process can and can't accomplish

Educate stakeholders on both the process and technical issues

Use a trained facilitator throughout the negotiation – don't wait until troubles emerge

Plan EPA's involvement carefully – high-level participation is critical

Include a full diversity of stakeholders



applied to almost any partnership. One important lesson is the need for participating stakeholders to develop clear visions, goals, and action items for the partnership.<sup>36</sup> With goals and objectives broken down into discreet tasks, it is easier for partnership efforts to measure and celebrate results and build trust. There will not always be complete agreement on an overall vision, but a vision that everyone accepts can be sufficient to get the partnership started. This can, in turn, set the stage for the development of more specific objectives and action items.<sup>37</sup> For partnerships where problems are complex and somewhat ambiguous, it can be useful to develop a shared context of meaning amongst the different stakeholders. For example, use of EPA's comparative risk process can center the partnership decision-making process around a common set of definitions<sup>38</sup> and make it easier for all to participate. Another essential lesson is that local stakeholder involvement in partnerships can be critical. Without local leadership and support, it may be difficult to advance the partnership.<sup>39</sup> Finally, care should be taken with the press to make sure they understand partnership efforts and can adequately explain them to the community.<sup>40</sup>

### Building Better Partnerships



Establish clear visions, goals, and action items

Encourage a vision that everyone can accept

Develop a shared context of meaning for stakeholders in partnerships with ambiguous goals

Closely involve local stakeholders

Ensure that partnership goals, activities, and results will be effectively

### Lessons Learned in Community Outreach

Community outreach can involve a variety of actions including posting information on an agency web site to holding a public hearing. Evaluations covering community outreach include several important lessons. First, when preparing to educate groups about a certain issue, it's important to know your audience. This includes understanding how the audience prefers to learn, making information easy to understand, and providing information in plain English or the predominant languages of the community. Building on this, it is also important to host meetings at times that are convenient for most community members and to announce meetings through media that are regularly used by community members. Additionally, when conducting outreach it is important to ensure that the message is heard beyond those most willing to

### Enhancing Community Outreach



Know your audience

Hold meetings at times convenient for community members

Work hard to engage those community members not immediately receptive to your message

Use websites to complement, rather

listen.<sup>41</sup> Certain groups are easier to communicate with than others. However, chances are that some groups most likely to be impacted by a decision will be hardest to reach. Special efforts, therefore, must be made to meet this challenge. Websites are useful for conducting outreach, however they are by no means perfect. Besides the fact that not everyone has access to the Internet<sup>42</sup>, websites do not always operate correctly, they do not allow for meaningful public input, and it can be time-consuming to download material from them.<sup>43</sup> Finally, it's important to realize that no matter how information is provided, certain groups simply may not believe the information<sup>44</sup> or, they may only believe the information if it coincides with their position.<sup>45</sup> This can lead to considerable frustration on behalf of all parties involved. Although there are no easy remedies for this, allowing groups adequate opportunity to respond and gain additional feedback from the Agency may help to defuse certain controversies.

### ***Lessons Learned in Public Participation in Agency Decisions***

In addition to providing information to stakeholders and the public, the Agency works to actively involve these same groups in Agency decision-making on issues ranging from cleanup at a contaminated site to permitting discharges at an industrial facility. The evaluations reviewed discuss a range of lessons learned that focus on public participation in decision-making. First, it's important to involve the public in Agency decision making early. Stakeholders and the public have perspectives and insight that can greatly improve the quality of decision-making. For example, in 1997, a community's input regarding a proposed remedy for a Superfund site located on the lower east fork of Poplar Creek in Tennessee led to a savings of \$160 million in clean-up costs after citizens argued that the level of risk reduction called for in the proposed cleanup plan did not justify the \$168 million price tag, and opted for an \$8 million cleanup instead.<sup>46</sup> Second, holding public meetings and hearings that are structured to address public concerns is critical. Such efforts send a signal to the community that the public's input truly is valued.<sup>47</sup> Third, when EPA asks for and receives citizen input, the Agency needs to be able to clearly explain how that advice will be used. If the Agency makes a decision at odds with citizen input, the Agency should clearly explain why and expect that citizens will strongly desire to re-state and argue their position. The Agency must have a clear, flexible process that allows citizens to further debate the

#### **Effectively Involving the Public in Agency Decisions**



Get the public involved early

Ensure that public meetings and hearings allow public's concerns to be adequately addressed

Clearly explain how public input will be used

Give public adequate explanations if their input is rejected

Re-double efforts to involve the public in Agency decision making if

Agency's decision and be open to the possibility that the decision may require changes before being considered final. Without such measures, the credibility of the public participation effort may be lost.<sup>48</sup>

Finally, if public participation in Agency decision making is low, it is important for the Agency to identify why, test a variety of efforts to encourage participation, or even re-think the entire process. Without such efforts, the Agency may not be able to discern whether a program or permit will actually benefit the community.<sup>49</sup>

### ***Lessons Learned in Capacity Building***

Several evaluations touch on the capacity of citizens to participate more effectively in environmental decision-making. EPA has used a series of tools including grants, direct technical assistance, information postings on the Internet, hardware, technical resources such as phone conference and email support, and facilitation services. The evaluations provide several lessons about capacity building that are relevant. First, capacity building efforts can help communities lacking organization and leadership turn concerns into action and enable citizens to better process information and provide input into Agency decisions.<sup>50</sup> Second, even relatively low levels of funding for capacity building initiatives can have significant impacts. Flexibility in how the funding is spent can encourage innovation, and initial grant monies can make it easier to leverage other sources of funding.<sup>51</sup> Finally, when engaging in a capacity building initiative it is important to understand the civic infrastructure of the community targeted for assistance.<sup>52</sup> Fully understanding and capitalizing on the existing resources and institutions can make it easier to undertake and enhance an initiative's effectiveness. For example, in a 1999 EPA New England capacity building effort, EPA was able to greatly increase the participation for its urban sprawl demonstration projects by networking with regional municipal associations.<sup>53</sup>

#### **Why Build Capacity?**



Enables communities lacking organization and leadership to turn concerns into action

Helps citizens better process information and provide input into Agency decisions

Empowers communities to leverage additional resources

Allows communities to capitalize on their existing civic assets

## ***Unique Barriers to Effective Stakeholder Involvement and Public Participation***

When implementing various stakeholder involvement and public participation initiatives, obstacles and roadblocks often emerge which can curtail an initiative's potential effectiveness or momentum. In this next section we describe some of these unique issues and discuss what attempts were made to overcome them.

### ***Numerous Stakeholders, Complex Issues***

Achieving success in stakeholder negotiations involving large numbers of stakeholders and/or complex technical issues can be difficult. In 1995, EPA faced both these challenges directly when it established a Subcommittee under the Clean Air Act Advisory Committee to provide advice and recommendations on new, integrated approaches for meeting the new and revised National Ambient Air Quality Standards (NAAQS) for particulate matter and ozone and for reducing haze in national parks and wilderness areas. The Subcommittee consisted of 83 members, and was supported by four working groups and a coordination group which together included roughly 140 more individuals. Participants represented diverse stakeholder interests ranging from state, local, and tribal governments, public health and environmental groups, to industry, academia and other federal agencies.

EPA asked the Subcommittee to address several different complex policy and technical issues that could have long term ramifications for air quality management and to provide innovative solutions which would satisfy the concerns of each participating stakeholder. Given the diversity and number of stakeholders involved, and given the emphasis placed upon addressing the concerns of each stakeholder, this effort could have easily been plagued by disagreements between stakeholder groups, lack of coordination between the Subcommittee and the working groups, or lack of clear direction and objectives.

The framework used for the negotiation enabled stakeholders to avoid this outcome for number of reasons. First, after the work groups were formed, the Subcommittee assigned topics to each work group according to their responsibilities initially outlined by the Subcommittee. Each workgroup then highlighted key issues and chose lead authors to develop issue papers. These actions appear to have ensured that the most important topics were adequately addressed. Second, the coordination group provided instructive guidance for how issue papers should be developed by producing a set of content- and process-related principles that served as frameworks. The process-related principles consisted of six parts that described who would be expected to give input, how decisions would be made, and how the issue papers should be presented to the Subcommittee. The content-related principles consisted of nine parts that described substance-related factors that must be considered when developing the issue papers. For example, the fourth principle suggests that any working group recommendations requiring

amendments to the Clean Air Act be clearly identified and include an analysis of the advantages and disadvantages of doing so. The coordination group also conducted preliminary reviews of products before the work groups presented them to the Subcommittee.

Third, one of the working groups, the Communication and Outreach working group, labored to ensure adequate levels of communication within the Subcommittee and other work groups by creating an Internet site where information could be posted and by producing “plain English” summaries of issue papers. Finally, another working group, the Science and Technical Support working group, helped fill the technical gaps experienced by other working groups developing issue papers by addressing specific technical questions, participating on joint issue paper teams, writing specific sections for other work group papers, and providing formal comments.<sup>54</sup>

Through the course of the negotiation effort, the working groups presented approximately twenty-five issue papers to the Subcommittee. These issue papers then formed the foundation which the Subcommittee used to decide which recommendations would be made to EPA. Although consensus was not reached on an overall package of recommendations, the Subcommittee successfully provided EPA with numerous options and recommendations regarding programs to meet the new and revised NAAQS and for furthering progress in regional haze reduction.<sup>55</sup>

**Ensuring Successful  
Outcomes in Negotiations  
with Numerous  
Stakeholders and Complex  
Issues**



Provide direction and ensure that certain topics will receive adequate attention

Consider developing a set of content-related and process-related principles to help guide how issues should be addressed

Assure proper levels of communication between subcommittees and work groups

Provide on-going scientific and technical support to work groups

***Defining EPA's Role in Multi-Stakeholder Negotiation***

In multi-stakeholder negotiations, it can be difficult for EPA to determine its appropriate role. This can slow negotiation momentum and build frustration for other participating stakeholders. Should the Agency play the role of observer, advisor, facilitator, and/or stakeholder? Even when the Agency decides what its role should be, however, this does not necessarily make it easy for EPA to participate. In the Carpet Policy Dialogue, a consensus-based approach focused upon reducing exposure to volatile organic compounds released from carpet products that took place over a year between 1990 and 1991, participating Agency staff showed a lack of consensus about what role they were supposed to play even though the

negotiation was facilitated by an outside party. Differing perspectives resulted from two factors. First, certain EPA participants were not comfortable that nontraditional processes did not have a clear basis in law. Second, it was very difficult to develop a consistent Agency response to issues that arose in the dialogue because of the time and effort needed to work with four different offices and staff operating under different environmental statutes. As a result, EPA made several remarks that were either ambiguous or competing during the initial stages of the dialogue.

After this troubling start, however, EPA eventually began to provide a more coherent perspective on issues. The Agency did this by establishing an ad hoc coordinator who, with the support of EPA management, helped to ensure that critical concerns and issues raised during the dialogue were brought to the attention of, and addressed by, appropriate EPA staff. In addition, EPA was able to participate as an effective stakeholder because of 1) the high degree of importance the Agency placed on the dialogue, 2) the one year deadline that served as a catalyst for resolution of issues, 3) the establishment of clear objectives, and 4) EPA's ability to assemble an Agency stakeholder team with sufficient technical expertise.<sup>56</sup>

### ***Complexity in Place-Based Projects***

Significant challenges can also arise in ensuring effective stakeholder involvement in place-based projects covering large geographic areas, involving numerous stakeholders and varied and complex issues. EPA learned first-hand about these challenges when it got involved in the *Eastward Ho!* Initiative, a robust regional project in South Florida on the Atlantic side aimed at encouraging development in existing urban centers, limiting sprawl and promoting sustainable development. EPA's effort centered mainly around forming a Brownfields Partnership to ensure that Brownfields redevelopment would fit within *Eastward Ho!*'s overall vision. The Partnership includes over 65 counties and localities, business leaders and other organizations.<sup>57</sup> The Partnership region covers a 115-mile long corridor along the coastal ridge in eastern Dade, Broward, and Palm Beach Counties, containing nearly five million people and 2,100 contaminated sites.<sup>58</sup> EPA worked with partnership members to ensure that contaminated sites were inventoried, permitting and regulatory issues associated with site redevelopment were addressed, and all stakeholders participated in the Partnership, among other activities.<sup>59</sup>

With such an ambitious project involving so many stakeholders EPA could have easily

#### **Ingredients for Working Effectively as an Agency Stakeholder**



Provide a coherent EPA perspective on issues by establishing coordinator to ensure that critical issues raised by dialogue are addressed by appropriate EPA staff

Assemble an EPA stakeholder team with sufficient technical expertise

Set meaningful deadlines

Establish clear goals

chosen to avoid getting involved, fearing an inability to contribute adequate resources, lack of a defined role for the Agency, or lack of clear goals to enable measurement of success. However, EPA engaged in a number of different ways that had positive effects on the Partnership effort. First, EPA brought a “big picture” perspective to the project. This encouraged local leaders to look past boundaries and adopt a wider regional perspective. EPA’s national perspective also paved the way for the involvement of a more diverse group of stakeholders previously not considered.<sup>60</sup> Second, EPA supported the effort by providing key fiscal and education resources. For instance, stakeholders benefitted greatly from EPA’s effort to educate Partnership members about communities confronting similar Brownfields issues from across the nation.<sup>61</sup> EPA also provided and supported a communication network that enabled participants to consistently discuss ideas and make decisions collaboratively.<sup>62</sup>

In addition to specific contributions, EPA also used new strategies. First, EPA used a “try and see”<sup>63</sup> approach when working to further the Brownfields Partnership’s progress. Because of the complexity inherent in efforts such as the *Eastward Ho!* Initiative, understanding causes and effect can be difficult. In those situations, even small changes can have significant consequences. EPA provided Partnership members with information about how to apply to be recognized as a National Showcase Community. As a result, in 1998, the *Eastward Ho!* Brownfields Partnership area was selected by Vice President Gore as a Showcase Community,<sup>64</sup> potentially contributing to a great number of positive political, social, and economic effects.<sup>65</sup> Second, EPA used guiding principles instead of a precise formula for addressing problems that potentially had more than one right answer. Instead of deciding criteria for the right answer, EPA set principles to help local leaders debate the relative merits of each solution in the context of determining what “answer” would make the overall South Florida effort stronger.<sup>66</sup>

**Keys to Being a  
National Teammate in  
Complex Local  
Projects**



Supply the “Big Picture” perspective

Provide key fiscal and educational resources to expand options

Take a “try and see” approach to project improvement—even seemingly small contributions can have significant, positive effects

Support a communication infrastructure to facilitate dialogue between stakeholders

Use guiding principles to make decisions when potentially more than one right answer exists

## ***Innovative Approaches to Stakeholder Involvement and Public Participation***

Traditional methods of involving the public and stakeholders have typically included public notice and comment periods and occasional public hearings. Some see the Agency's avenue for participation as adequate and realistic based upon the high number of rules and permitting decisions the EPA is involved in each year. Others have criticized the Agency for blocking effective public participation claiming that the Agency does not adequately notify the public of proposed Agency actions or that resource or technical barriers are so high that the public cannot effectively participate. However, innovations in stakeholder involvement and public participation are helping to overcome these barriers and EPA, co-regulators, and the public are all benefitting.

A handful of these innovations are discussed in more detail below. The innovations cover the years 1995 through 1999. Some innovations focus on process. These include innovative ways to build capacity, such as giving regional organizations authority to distribute federal grant monies to small communities to make environmental improvements; innovative ways to ensure meaningful public input, such as holding public hearings in a non-traditional manner; and innovative ways to perform outreach, such as building support for Agency initiatives by working first through local municipal associations. Other innovations focus on technology, such as a computer program that assists stakeholders to work towards agreements. While the innovations come in various forms, they all have the common goal of ensuring better and more meaningful involvement of stakeholders and the public.

### ***Ensuring Meaningful Public Input (1995)***

EPA is testing unique approaches to ensure that the public can meaningfully impact EPA programs and activities. During the initial stages of EPA's Brownfields Economic Redevelopment Initiative, EPA was criticized by the public for not soliciting input from those residents that would potentially be most impacted by Brownfields clean up and redevelopment but instead for focusing mainly on concerns of developers and investors. In response, EPA co-sponsored a series of innovative public forums referred to as the Public Dialogues to enable environmental justice advocates and community-based groups from across the country to voice their concerns regarding this high-profile, national policy issue. EPA's partner in this effort, the National Environmental Justice Advisory Council (NEJAC), closely involved communities in "planning, preparation, structure, and execution"<sup>67</sup> of the Dialogues and centered the Public

***Did you know...***In June and July 1995 EPA and the National Environmental Justice Advisory Council sponsored a community-driven public forum in five cities across the United States to give community groups a direct say in EPA's Brownfields Initiative?



Dialogues discussions on the issues of most concern to communities. Instead of a typical question and answer format, each Public Dialogue had two distinct components. In the first part, communities voiced their concerns regarding the Brownfields Initiative and their visions for ensuring healthy and sustainable communities. In the second, government agency representatives, social institutions, and business organizations were asked to describe what role they could play to help these communities achieve their visions. In addition, to avoid having concerns and recommendations reduced to sanitized phrases in the final Public Dialogues report, organizers made every effort to accurately reflect the voices of community members. As such, the supporting report contains extensive quotes from Dialogues participants throughout the text. Together, these actions resulted in a robust set of recommendations and action items for involving communities more directly in EPA's Brownfields efforts.<sup>68</sup>

Since the report was released in 1996, the concerns raised and recommendations made in the report have resulted in numerous positive impacts. First, the Agency has developed and prepared annual Brownfields conferences to engage and join numerous stakeholders to exchange information and develop additional opportunities for communities to be directly included in Brownfields redevelopment decisions. EPA has supported other dialogues as well through grants and cooperative agreements to further encourage the sharing of Brownfields ideas and environmental justice experiences of different stakeholders from government, business, and communities. Federal agencies have also joined together to support the Brownfields National Partnership in order to improve interagency collaboration on Brownfields redevelopment issues. In addition, EPA has helped create a job training program which prepares trainees for environmental careers while achieving Brownfields clean ups.<sup>69</sup>

### ***Building Capacity (1996)***

EPA is playing a hands-on role to help communities solve local environmental problems. In Southern Baltimore, EPA worked side-by-side with community members, business leaders, and local, state, and federal government officials to assess air pollution threats from 125 industrial, commercial, and waste facilities concentrated in an area containing roughly 30,000 people. In 1996, members of the partnership effort set goals to (1) determine if existing toxics from these sources may affect community health, and (2) recommend actions for air quality improvement. After setting goals, partnership members conducted an odor survey, reviewed a TRI report on local releases, and met with a

***Did you know...*** Starting in 1996, EPA Office of Pollution Prevention and Toxics' Community Assistance Technical Team began playing an instrumental role as a member of the Community Environmental Partnership in the development of a community-driven, risk-based screening approach to assess numerous air pollution threats in Southern Baltimore?

dioxin expert. Following this preparatory work, partnership members agreed on a risk-based air pollutant screening approach to help identify which chemicals being emitted pose the greatest risks. For the first screening, partnership members used accessible information and performed “simple and protective risk calculations”<sup>70</sup> to review the 175 chemicals being emitted. Two subsequent screenings were then performed, enabling partnership members to perform a more extensive analysis on a smaller set chemicals. After the final analysis, partnership members developed recommendations based on the screening effort and a report describing the results and recommendations for the community. The results of this effort have helped the community set priorities and determine possible remedies for air quality improvement. The report has also provided the community with a baseline from which to measure air quality improvements in the future. In addition, the screening methodology will soon be made available in a “how-to” manual to enable other communities to directly assess and improve local air quality.<sup>71</sup>

### ***Building Capacity (1997)***

EPA is using grants in new ways to assist local community environmental efforts (e.g., EJ, CBEP). In 1997 the Office of Research and Development’s National Risk Management Research Laboratory (NRMRL) used special CBEP funds to assist nine rural communities in Region III to address a variety of local watershed issues and other environmental problems through a unique approach which involved regional resource providers and the National Association of Counties (NACo). Implementation of this effort was a partnership between NRMRL, the Office of Research and Development’s Office of Science Policy, and Region III. The purpose was to facilitate implementation of local problem solving by 1) providing training for local teams to become aware of assistance

tools from EPA, 2) supporting regional resource providers to assist the local teams in their efforts, and 3) providing a nominal amount (\$10 to 15,000) of money to be used as the local teams and their resource providers saw fit. Funding was provided to NACo who subsequently entered into agreements with the resource providers (The Alliance for Chesapeake Bay, Canaan Valley Institute, and the Virginia Eastern Shore Resource Conservation and Development Council), who in turn provided the finances for the local projects.

***Did you know...***In 1997 ORD’s National Risk Management Research Laboratory (NRMRL) used special CBEP funds to assist nine rural communities in Region III to address a variety of local watershed issues and other environmental problems through a unique approach which involved local resource providers and the National Association of Counties (NACo)

The first major activity was a training session at the U. S. Fish and Wildlife facility in Shepherdstown, West Virginia where the presenters included all the federal partners, EPA’s Offices of Water and (what is now) the Office of Policy, Economics, and Innovation, and NACo. The presenters attempted to familiarize the local groups with an array of EPA and other potentially valuable tools available on the Internet and in hardcopy. Each of the local teams from

the states of Maryland, Pennsylvania, West Virginia, and Virginia was asked to develop a one-year implementation plan which included at least one tool from this workshop. Tools included Region III's Internet-based Green Communities Toolkit, EPA's draft Community Cultural Profiling Guide, and Geographic Information Systems (GIS). By the end of the project great strides had been made by all of the local projects, and a debriefing for all participants was held in Deep Creek Lake, Maryland, which clearly showed that the EPA support, though modest, was the key to successfully advancing the project and in many cases provided support to obtain numerous other grants which totaled many times the funding offered through the project. It even more convincingly showed that the local or regional resource providers were the absolute essential ingredient to success by working with the local groups and helping them move forward with a whole array of needs and tools, and that direct EPA involvement is often intimidating and stifling owing to its regulatory nature.<sup>72</sup>

### ***Using Technology to Improve Stakeholder Involvement (1997)***

EPA is using and supporting technology to improve stakeholder involvement. The best example of this involves the Spring Creek (PA) Watershed Association, an EPA grant recipient that applied a large share of its funding to rent a state of the art computerized facility at Pennsylvania State University to facilitate their community visioning process which involved 40 stakeholders from across their 175 square mile watershed. Before each session a facilitator collaborated with a Team Decision Center information officer to carefully plan the meeting agenda and develop questions to ensure that the responses would provide the information needed to enable participants to

***Did you know...*** Starting in 1997, the Spring Creek Watershed Association applied a large share of its EPA funding to rent a state of the art computer facility in order to facilitate a community visioning process involving a group of 40 stakeholders from across a 175 square

move one step closer towards achieving their original goals. Once meetings began, participants sat at computer terminals where they could each type in responses to questions and instantly see all responses on a larger screen. When participants voted on key issues, statistical analyses were immediately performed and displayed allowing participants to easily observe results. Ample time for discussion was also provided, during which participants could also send in anonymous responses via their computers to be posted on the large screen. Five, three-hour meetings, involving approximately 40 stakeholders, were held over the course of eight months. Each meeting was very successful, resulting in consensus, decisions, and work products. It was approximated that, without benefit of the advanced technology, each of the five sessions would have required full two-day retreats to yield the same positive results. Moreover, it was determined that because of the streamlined technology and focused sessions, a much higher number of key stakeholders participated.<sup>73</sup>



## ***Performing Outreach (1999)***

EPA is continually working to improve how it can reach out to stakeholders and keep them involved in Agency activities. In 1999, EPA New England and state co-sponsors undertook an exciting, low-cost initiative in three watershed areas in Massachusetts and New Hampshire to ensure high levels of support and participation for seven hands-on workshops for local government officials. The goal of these workshops was to improve local officials' abilities to integrate environmental management practices into traditional regulatory and planning activities by providing tools and techniques on pollution prevention, environmental management systems, GIS, and smart growth planning in storm water management. EPA, along with state co-sponsors, took a number of steps to ensure high levels of support and participation including: 1) establishing a working group of local officials from more than one town department and from several towns in each watershed to select and develop capacity-building workshop topics; and 2) networking with municipal associations that could help raise awareness about the workshops. Such efforts resulted in several important outcomes including 1) time savings; 2) significant increases in participation of local officials; 3) certain officials being more likely to adopt new practices after learning what proactive officials in other towns were doing; and 4) a greater understanding that local problems have regional implications.<sup>74</sup>

***Did you know...*** In 1999 EPA New England and state co-sponsors in Massachusetts and New Hampshire took a strategic, pro-active approach to building momentum for a series of workshops designed to encourage towns to integrate environmental and smart growth considerations into local decision making in

### ***Other Ways EPA & Co-Regulators are Getting Innovative...***

Conducting a needs assessment by placing survey cards in newsletters asking residents to list three most important issues (Rocky Flats, CO, Superfund site, circa 1990)<sup>75</sup>

Hosting small meetings in residents' homes instead of holding traditional large meetings in public halls (Tacoma, WA, Superfund site, circa 1990)<sup>76</sup>

Asking activist groups to recruit participants to broaden interest in agency activities (State Source Water Assessment Program, circa 1996)<sup>77</sup>

Letting citizens choose the structure and decision-making process of an agency-sponsored citizen advisory committee (State Source Water Assessment Program, circa 1996)<sup>78</sup>

Hosting workshops via satellite, letting attendees either call or fax in their questions (Emission Measurement Center/Air Pollution Training Institute 1998)<sup>79</sup>

## *Concluding Remarks*

EPA has greatly expanded the opportunity for the public to participate in Agency decisions, especially during the past ten years. Yet EPA has been criticized on a number of fronts regarding its stakeholder involvement and public participation efforts: not performing effective or sufficient outreach; not providing the public with adequate and timely information; not making it easier for persons with non-technical backgrounds to participate in technical decisions; not taking the advice it specifically asked stakeholders to provide; and only allowing communities to make their input known once industry and the Agency have already spent considerable time debating the most important decisions. In light of these criticisms, the Agency is making strides to continually improve.

Through this review, however, we have found that EPA has a limited ability to measure improvements in how it involves and works with the stakeholders and the public. Many of the summaries, briefings and reports reviewed for this report were sufficient to characterize the effectiveness of a particular Agency stakeholder involvement or public participation activity. Unfortunately, several documents lacked an evaluative component, making it difficult to discern different efforts' strengths and weaknesses. Moreover, except for the Superfund program, most in-depth evaluations centered on non-traditional agency activities such as Community-based Environmental Protection, Project XL, and Regulatory Negotiations. To improve Agency initiatives in the future, it would be valuable to evaluate a greater number of EPA's initiatives to work with the public: for both traditional and non-traditional approaches. It's clear that the Agency has worked hard to involve the public. What isn't always as clear is how effective EPA's initiatives have been. Greater focus on developing standard evaluation criteria<sup>a</sup> and performance measures<sup>b</sup> that evaluators can draw from should greatly assist this effort.

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<sup>a</sup> For example, it would be helpful if more evaluations answered the following questions:

What were stakeholder/public perceptions regarding their ability to participate in the process? To what degree were those expectations met? What was the level of effort required by stakeholders/the public to participate? Were the goals and steps of the process clearly explained? To what extent did the effort meet those goals? Was the process fair? Was the process competent? (e.g., was the process well-structured? was there proper leadership in place to guide the process?)

What major factors contributed to the success or shortcomings of the stakeholder involvement/public participation effort? How could the stakeholder involvement/public participation effort have been designed differently to work more effectively?

What resources (staff, time, extramural \$) did EPA spend to engage in a stakeholder involvement or public participation effort? What were the FTE (full-time employee) or dollar amounts required to perform the public participation or stakeholder involvement effort? To what extent can the level of resources be associated with positive results of the stakeholder involvement/public participation effort?

<sup>b</sup> For example, possible performance measures could include the following: How many stakeholders/citizens participated in the effort? Were all significant stakeholder groups represented? Did the effort result in a product or agreement that furthered progress towards achieving positive environmental outcomes?

Before launching a new focus on evaluation, the Agency will need to address several issues: who should conduct the evaluations, what resources should be allocated to conduct them, which activities should be evaluated, and how should the results be shared. Although these questions will be difficult to answer, the Agency is poised to begin addressing them. The Agency's recent report to the Administrator on public participation and on-going effort to revise the 1981 Public Participation Policy point to an increased emphasis on involving stakeholders and the public. EPA today is in a better position than ever to improve how it works with stakeholders and the public to strengthen environmental decision-making.

## Endnotes

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9. *Ibid.*, p. IV-21.
10. *Lessons Learned About Community Involvement*, see Palmerton case study.
11. *Ibid.*, see Michigan City case study.
12. *Social Aspects of Siting RCRA Hazardous Waste Facilities*, p. 11.
13. *An Evaluation of Negotiated Rulemaking at the Environmental Protection Agency Phase I*. Dr. Cornelius Kerwin and Professor Laura Langbein, Conference Consultants. Administrative Conference of the United States. September 1995, p. 16.
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19. *Social Aspects of Siting RCRA Hazardous Waste Facilities*, p. 3.
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33. *Ibid.*, pp. 45-46.
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35. *Evaluation of EPA's Community Based Environmental Protection Efforts in South Florida*, p. 43.
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40. *Baltimore Community Environmental Partnership Air Committee Technical Report*, p. 69.
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45. *Ibid.*, p. IV-51.
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61. Ibid., p. 34.
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65. Ibid., p. 35.
66. Ibid., pp. 35-36.
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# FAX Cover Sheet

USEPA - Region 4  
61 Forsyth St., SW  
Atlanta, Georgia 30303

TO: AL Linero  
FDEP

FAX #: 850-922-6979

RE: Southdade Energy Center  
(former synthetic minor construction Permit)

FROM: Katy Forney  
Air Permits Section, Region 4 USEPA

Phone #: 404-562-9130

Date: 7-27-01

# of Pages (including cover): 3

### COMMENTS:

Enclosures will be mailed w/original.  
We will probably send a copy to Senator Bob Graham  
even though its not cc: on the letter.

If this FAX is poorly received, please call  
Katy Forney: 404-562-913







## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

JUL 27 2001

4 APT-ARB

A. A. Linero, P.E.  
Florida Department of Environmental Protection  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Dear Mr. Linero:

Thank you for sending the air construction permit application for Dade Development Company's South Dade Energy Center dated April 23, 2001. The application is for the proposed installation of two simple cycle combustion turbines (CT) with a total nominal generating capacity of 370 MW to be located in Dade County, Florida. The CTs proposed for the facility are Mitsubishi 501F units which will primarily combust pipeline quality natural gas with No. 2 fuel oil combusted as backup fuel. As proposed, the project avoids prevention of significant deterioration (PSD) review for all pollutants by limiting the total facility emissions for nitrogen oxides (NO<sub>x</sub>) and carbon monoxide (CO).

Based on our preliminary review of the air construction permit application, we have the following comments.

1. Dade Development Company proposes to limit the facility-wide emissions of NO<sub>x</sub> and CO to less than 248 tons per year of each pollutant, to be monitored by a continuous emission monitoring system (CEMS). Consequently, by controlling NO<sub>x</sub> and CO emissions from the facility, emissions from the remaining PSD regulated pollutants will fall below the PSD significant emission rates. In order for the new CTs to avoid PSD review, EPA suggests the draft/final air construction permit should contain practically enforceable limits on fuel oil consumption and/or hours of operation which correspond to 248 tons per year each of CO and NO<sub>x</sub> emissions.
2. Since periods of startup and shutdown are part of normal combustion turbine facility operation, determination of PSD applicability should be assessed with estimates of startup and shutdown emissions included in the facility's potential to emit. Additionally, any determination of compliance with the PSD avoidance limits in the air construction permit should take into account startup and shutdown emissions.
3. Region 4 has received correspondence from a local citizen expressing concern over the siting of this facility and the potential for cumulative impacts from "a major wastewater and sewer facility, the largest (150 ft) trash/garbage dump in Miami-Dade County and the

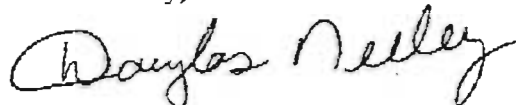
2

Turkey Point Nuclear facility" on two nearby minority communities. In responding to this correspondence, Region 4's Environmental Justice/Community Liaison Staff Office conducted a preliminary evaluation of the residential area surrounding the proposed location for the South Dade Energy Center using demographic data (minority populations and low-income populations) and found that the area qualifies as a potential environmental justice area of concern. A copy of the resulting map is enclosed (see Enclosure 1). Elizabeth Bartlett of the Air Permits Section discussed this correspondence with you on July 3, 2001, and faxed you a copy of the letter and several of the attachments. This correspondence was also forwarded to our office by U.S. Senator Bob Graham for a response. In our reply, we committed to review this permit and to forward our review correspondence to the Senator's office.

4. Finally, because there is definite public interest in air permitting at this site, EPA Region 4 strongly recommends that you provide enhanced public participation for this project and exercise available authority to set permit conditions based on public input. ★  
We have enclosed the following documents, which may provide useful information for conducting public involvement activities associated with permitting activities. Enclosure 2, entitled "The Model Plan for Public Participation," contains useful information on the principles of public involvement. Enclosure 3, entitled "Stakeholder Involvement & Public Participation at the U.S. EPA - Lessons Learned, Barriers, & Innovative Approaches," discusses some practical considerations for involving local communities in regulatory activities.

If you have any questions regarding these comments, please direct them to either Katy Forney at 404-562-9130 or Elizabeth Bartlett at 404-562-9122.

Sincerely,



R. Douglas Neeley  
Chief  
Air and Radiation Technology Branch  
Air, Pesticides and Toxics  
Management Division

Enclosures

OPTIONAL FORM 99 (7-90)

**FAX TRANSMITTAL**

# of pages = 18

To <b>AL UNERO / TERESA HEON</b>	From <b>EUZABETH</b>
Dept./Agency	Phone # <b>404 562-9122</b>
Fax # <b>850 922 6779</b>	Fax #
NSN 7540-01-317-7368	5099-101 GENERAL SERVICES ADMINISTRATION

May 16, 2001

Cynthia Peurifoy, Acting Manager  
 United States Environmental Protection Agency  
 Office of Enforcement and Compliance Assurance  
 Office of Environmental Justice  
 61 Forsyth Street  
 Atlanta, Georgia 30303

*Note: This letter was also sent to Senator Bob Graham for response. His office forwarded letter to us for response by 7/7.*

Dear Ms. Peurifoy:

The communities of South Miami-Dade continue to be bombarded with projects no one else wants in their backyard. The proposed Euron power plant sits less than a mile from Biscayne Bay National Park and the Goulds & Lakes by the Bay residential communities. The Enron Utility Plant's proposed location is SW 257 Street and SW 97 Avenue.

The environmental justice of siting an energy plant approximately 1 mile from the predominately black community of Goulds and the diverse ethnic community of Lakes by the Bay should be seriously considered. A major wastewater & sewer facility, the largest (150 ft) trash/garbage dump in Miami-Dade County and the Turkey Point Nuclear facility have already impacted these communities. Additionally, an \$80 million water treatment plant with a 150 foot water tower is currently planned for construction in the Goulds community. The EPA through its authority needs to intercede and insure that Environmental Justice issues under Presidential Executive Order 12898 are addressed.

There are approximately 50,000 residents that would be directly impacted by traffic, noise, visual, and possible health & safety concerns. The Governor of the State of Florida should be required to withhold further permitting of energy plants without a comprehensive State of Florida Energy Plan in place. The Governor's blue ribbon task force is less than a month old and was formed to look at the State's energy needs. Furthermore, the Miami-Dade County environmental officials are putting the cart in front of the horse by recommending approval of an energy plant that will have major implications to our community. The EPA should require an EIS through its NEPA process, because of this project's proximity to Biscayne National Park and adjacent residential communities.

I look forward to your action on this request. My mailing address is 9750 SW 215 Lane, Miami, Florida 33189 or you can reach me at 305-235-3354 or [jaimer@bellsouth.net](mailto:jaimer@bellsouth.net) for further information.

Sincerely,

Jaime Reyes

Cc: Barry Hill, Director, Office of Environmental Justice, Washington DC



# United States Department of the Interior

BEST AVAILABLE COPY

## NATIONAL PARK SERVICE

Biscayne National Park  
9700 SW 328<sup>th</sup> St  
Homestead Florida 33033-

Everglades National Park  
and  
Dry Tortugas National Park  
40001 State Road 9336  
Homestead, Florida 33034-6733

IN REPLY REFER TO:

LS4

Miami-Dade County  
Board of County Commissioners  
111 NW 1<sup>st</sup> Street  
Miami, Florida 33128

Dear Honorable Board Members:

As the new Superintendents of Biscayne and Everglades National Parks, we extend our greetings to you and look forward to meeting with each of you to strengthen the relationship between the county and National Park Service (NPS). The South Florida National Parks are committed to working cooperatively and in partnership with the county on the wide range of issues that affect and interest us all.

Of the many areas we are anxious to discuss with each of you, this letter will focus on one urgent concern of the National Park Service: the incremental development pressure and loss of agriculture, open space and wetlands east of US-1 outside the Urban Development Boundary (UDE). The Board of County Commissioners (BCC) has expressed its support and concern about the region with the creation of the Biscayne National Park Buffer Development Review Committee and the direction to create the South Miami-Dade Watershed Plan. While we are encouraged by the county's steps to appoint the South Miami-Dade Watershed Plan Advisory Committee, and while both parks will actively participate in the Committee, it is clear to us, based on the number of development applications in the area, that interim measures should be adopted to ensure success of the county planning efforts.

The National Park Service is requesting that 1) the interim measures called for in the Comprehensive Development Master Plan (CDMP) be developed and implemented immediately and 2) the pending development proposals in the Review Area (described below) be put on hold until such interim measures are adopted and implemented.

It is our opinion that the basis for the need for such requests is predicated on the stated intent of the County in creating the South Miami-Dade Watershed Plan (Watershed Plan) and the Biscayne National Park Buffer Development Review Committee (Review Committee).

The Watershed Plan was initiated to identify and protect lands that are essential for preserving the environmental, economic, and community values of Biscayne National Park; protect private property rights; support a viable, balanced economy; and to assure compatible land use and zoning decisions in the watershed area. The BCC further expressed its intent to conservatively manage land and water

*(Only one side available)*

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U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SERVICE  
Florida Keys National Marine Sanctuary  
P.O. Box 500368  
Marathon, FL 33050  
Phone: (305) 743-2437  
Fax: (305) 743-2357

Miami-Dade County  
Board of County Commissioners  
111 NW 1<sup>st</sup> Street  
Miami, FL 33128

April 11, 2001

Dear Honorable Board Members,

I am writing to you today in support of the adoption and implementation of interim measures called for in the Comprehensive Development Master Plan (CDMP), as outlined in the April 9, 2001 letter from the United States Department of the Interior National Park Service.

As a member of the South Florida Ecosystem Restoration Working Group, I fully support your efforts to conservatively manage our important coastal resources through the South Miami-Dade Watershed Plan and the Biscayne National Park Buffer Development Review Committee. To achieve the ultimate goal of a sustainable coastal community in Miami-Dade, immediate and long-term development decisions must correlate with the objectives of these processes. Therefore, the development and implementation of interim measures will facilitate effective conservation management of the vital land and water resources adjacent to Biscayne National Park. I would also like to request that any pending development proposals in the Review Area be put on hold until such interim measures are adopted and implemented.

The Florida Keys National Marine Sanctuary represents the final downstream component of the South Florida ecosystem. Your efforts to balance the many varied interests of Miami-Dade County and to achieve sustainability for our natural systems directly supports the living marine resources of the Florida Keys. I appreciate your work towards these shared goals, and look forward to continued collaboration with the Board through the South Florida Ecosystem Restoration Working Group.

Sincerely,

Billy D. Causey  
Superintendent

Cc: Linda Canzanelli, Superintendent, Biscayne National Park  
Maureen Finnerty, Superintendent, Everglades National Park

GREENBERG  
ATTORNEYS AT LAW  
TRAURIG

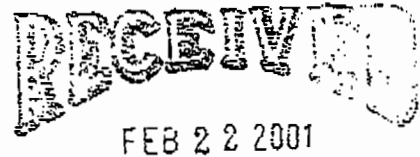
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Alan S. Krischer  
(305) 579-0837  
E-Mail: krischera@gtlaw.com

December 1, 2000

BY HAND DELIVERY

Mr. Guillermo Olmedillo  
Department of Planning and Zoning  
Miami-Dade County  
Stephen P. Clark Center, 11th Floor  
111 N.W. First Street  
Miami, Florida 33128



MIAMI-DADE COUNTY  
DEPT. OF PLANNING AND ZONING  
METROPOLITAN PLANNING SECTION

Re: Letter of Intent for Certosa Holdings, Inc. / Southwest Intersection of S.W. 156<sup>th</sup>  
Street and S.W. 97<sup>th</sup> Avenue, Miami-Dade County, Florida

Dear Mr. Olmedillo:

This constitutes the letter of intent of Certosa Holdings, Inc. (the "Applicant") in its application requesting approval of an unusual use to permit the development of a limited-operation electrical power generation facility, known colloquially as a "peaker" plant, together with a non-use variance of height regulations and a modification of a previously approved unusual use necessary to accommodate the proposed development. The Applicant is presently the owner of the property which is the subject of this Application, and has entered into a contractual agreement with Dade Development Company, LLC ("Dade Development"), which will ultimately own and operate the proposed facility.

I. The Subject Property

The subject property is located generally to the southwest of the intersection of S.W. 256<sup>th</sup> Street and S.W. 97<sup>th</sup> Avenue, Miami-Dade County, Florida, and is more particularly described in the attached Exhibit "A" (the "Property"). The property is presently zoned Agricultural (AU) and is designated as Agricultural under the County's Comprehensive Development Master Plan Future Land Use Map. The property is bounded by Tuesberg Drive to the north, an unpaved road to the west, an existing canal to the east, and an easement for electrical transmission lines to the south.

On June 23, 1993, the Miami-Dade County Zoning Appeals Board (ZAB) approved an unusual use to permit the operation of a clean construction debris landfill along the western portion of the subject property, together with a non-use variance waiving lot frontage requirements on a public street. A copy of Resolution 4-ZAB-192-93, approving the clean debris landfill, is attached as Exhibit "B" hereto (the "Resolution"). The clean debris landfill also received a general permit from the Florida Department of Environmental Protection (FDEP) under Permit No. SO13-258870, as well as a surface water management system permit under FDEP File No. 13-234897, copies of which are attached as composite Exhibit "C" hereto (collectively, the "FDEP Permit").

GREENBERG TRAURIG, P.A.  
1221 BRICKELL AVENUE MIAMI, FLORIDA 33131  
305-579-0200 Fax 305-579-0715 www.gtlaw.com

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Mr. Guillermo Olmedillo

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Pursuant to the conditions of the FDEP Permits, the easternmost 17.5 acres of the property were set aside as a conservation area, together with a four (4) acre "buffer zone" lying between the conservation area and the permitted landfill. The conservation area and the buffer zone are graphically depicted on the topographic survey accompanying the Application. The western 39.8 acres were permitted for the landfill and disposal of clean construction debris. In the years since the approval of the Resolution and the FDEP Permits, that portion of the property has been used for active disposal of such debris. The approximate boundaries of the filled area are also depicted on the accompanying topographic survey, showing the general areas where landfilling activities have taken place.

## II. Request for Unusual Use Approval

The Applicant is currently requesting the approval of an unusual use to permit the construction of the peaker plant. Pursuant to Section 33-13 of the Code of Miami-Dade County (the "Code"), such a use may be approved as an unusual use after public hearing before the appropriate Community Zoning Appeals Board (CZAB).

The proposed peaker facility will use simple-cycle gas turbine power generation technology to deliver electrical power during period when short-term demand exceeds base load requirements. While the notion of an "electrical power plant" may conjure up images of large-scale facilities, such as that maintained by Florida Power & Light (FP&L) at the Turkey Point plant to the south, a "peaker plant" is designed as a completely different facility. Peaker plants are not intended to be part of the general base-load power grid, and are substantially smaller than those facilities which make up that base-load capacity. Instead, peaking power units are brought on and off-line quickly for discrete periods of time, in response to overall electricity demand. It is anticipated that the proposed peaker facility would operate for approximately four (4) months per year, and then only during periods of peak load demand.

As indicated on the attached plans, although the property consists of more than sixty acres, the buildings of the peaker facility occupy only a small portion of the overall site. Only approximately 10,000 square feet of building area is intended to be constructed pursuant to the development plan accompanying the application. The balance of the facility consists primarily of equipment used for power generation. The facility will be staffed by only eight to twelve employees overall, of which the Applicant does not expect that more than eight will be present on-site at any given time. Because of the limited amount of habitable building space and the small number of employees on-site, the Applicant believes that impacts to the public infrastructure will be minimal.

The peaker facility would include three (3) combustion turbine generators (CTG's). These turbines would run predominantly on pipe-line quality natural gas, but would have the capability to operate on low-sulfur distillate oil during period when natural gas may not be available. The subject property is located directly adjacent to the Florida Gas Transmission natural gas pipeline, which runs directly down S.W. 97<sup>th</sup> Avenue to the Florida Power & Light facility further to the south. The facility will be required to utilize Best Available Control Technology (BACT), as defined by the United States Environmental Protection Agency ("EPA"), to minimize air emissions and will require a separate air permit from FDEP prior to operation. Natural gas is among the cleanest-

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burning fuels for electrical generation, and the facility will not be a significant source of air pollutants.

As part of its operations, the facility will also require the use of process water in order to generate electricity. The property is ideally located in close proximity to the Miami-Dade County Water and Sewer Department's ("WASD") waste-water treatment facility, located due north of the property along S.W. 97<sup>th</sup> Avenue. The close proximity of the treatment facility allows the peaker plant to run on treated effluent, a component of the effluent output of the treatment facility, avoiding the need for consumptive use of the County's potable water supply. Because both the subject property and the water treatment facility are located along the same section line roadway, it is feasible to provide for a direct hook-up to the water treatment facility to provide water for the site.

As shown on the accompanying site plan, the design of the facility is relatively straightforward. There will be an administrative building, a substation control room building, a water treatment building, and a guard house. These buildings will range in height from 12' to 35'. Other ancillary structures will range in height from 8' (air cooled chiller) to 80' (upper portion of CTG stacks and rack for electric lines to connect to the FP&L system). Although the Code is not clear as to what development regulations apply to unusual uses, it is our understanding that the County has applied the development regulations of the underlying zoning district, which would require a non-use variance for height to permit the tallest ancillary structure to be constructed at a height of 80'.

It is the Applicant's intent to allow the property to be used to provide vital infrastructural capacity to meet the growing needs of the immediate area and all of Miami-Dade County, while putting to productive use a property which would otherwise lie fallow as a former landfill. While the property is presently designated as "Agricultural" on the Miami-Dade County Comprehensive Development Master Plan, the Department of Planning and Zoning has determined that the proposed use would be consistent with the requirements of that designation district. A copy of the Department's CDMP interpretation is attached hereto as Exhibit "D." The Applicant believes that this interpretation is based, in part, upon the recognition that adequate supplies of consistent and dependable electrical power are of vital importance to, and in the public interest of, all of Miami-Dade County. As the County continues to attract information-age companies, and the economic benefits that come from siting electronic and information companies within the County, the need for consistent electrical power will only continue to grow.

The Applicant and Dade Development believe that providing the extra "peaker" capacity with a new facility capable of utilizing natural gas as a fuel, rather than at older facilities that may use less clean-burning fuel, will provide an added benefit. Throughout the County, the subject property is ideally situated for the proposed use. It is located immediately adjacent to the existing FP&L transmission lines, which run along the southern boundary of the property from the major facility to the south. It is located immediately adjacent to the existing natural gas pipeline, which would allow the facility to operate on one of the cleanest hydrocarbon fuel sources available. The property is located within close proximity to the WASD water treatment facility, which would allow the facility to utilize treated effluent as a process water input source; this has the dual benefit of

Mr. Guillermo Olmedillo

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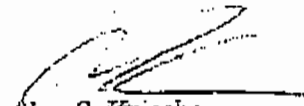
avoiding consumptive use of the County's water resources, and providing for an adaptive re-use of existing generated effluent.

Finally, the western portion of the subject property has already been used for active landfill operations for years. Moreover, the environmental records of the Miami-Dade County Department of Environmental Resources Management (DERM) of groundwater monitoring on the property indicates that DERM has already recorded exceedances above water quality standards. These exceedances, coupled with the fact that the site lies within the salt water intrusion line, render the site particularly unsuitable for farming or other traditional agricultural activities. Despite the designation of the property as Agricultural on the CDMP master plan, it is ill-suited for actual agricultural use. As such, the proposed unusual use affords the opportunity to utilize a property that is inappropriate for agricultural activities while meeting the growing infrastructural needs of the immediate area and all of Miami-Dade County.

The Applicant is aware that in the event the peaker facility is constructed, the landfill will have to be properly closed and capped in accordance with the requirements of Miami-Dade County DERM. Accordingly, the Applicant is requesting approval of the additional unusual use to permit the proposed peaker facility, but with a condition that if the facility is actually constructed on the site, then the landfill would have to be appropriately closed. Additionally, the Applicant is requesting a modification of the previous Resolution (which required that all activity be in accordance with approved plans), in order to permit development in accordance with the submitted site plans.

Based on the foregoing, we respectfully request your favorable consideration of this application.

Very truly yours,



Alan S. Krischer

encls.

cc: Mr. Greg Krause  
Raul J. Salas, Esq.  
Kerri L. Barsh, Esq.

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**EXHIBIT "A"**

Legal Description of Land

Parcel 1: The East 1/2 of the Northeast 1/4 of the Southeast 1/4 and the Southwest 1/4 of the Northeast 1/4 of the Southeast 1/4 of Section 29, Township 56 South, Range 40 East, lying and being in Dade County, Florida.

Parcel 2: The Northwest 1/4 of the Northeast 1/4 of the Southeast 1/4 of Section 29, Township 56 South, Range 40 East, lying and being in Dade County, Florida.

Parcel 3: The East 1/2 of the Northwest 1/4 of the Southeast 1/4 of Section 29, Township 56 South, Range 40 East, lying and being in Dade County, Florida.

LESS AND EXCEPT:

The property described in that certain right of way deed dated March 22, 1996 recorded in Official Records Book 17647 page 2837, Public Records of Miami-Dade County, Florida.

SDR 17-029-16



MIAMI-DADE COUNTY DEPARTMENT OF PLANNING AND ZONING  
RECOMMENDATION TO COMMUNITY COUNCIL No. 15

APPLICANT: Certosa Holdings, Inc.

PH: Z01-28 (01-5-CZ15-2)

SECTION: 29-56-40

DATE: June 6, 2001

COMMISSION DISTRICT: 9

ITEM NO.: C

=====

A. INTRODUCTION

o REQUESTS:

- (1) UNUSUAL USE to permit a private electricity utility facility; to wit: a "peaker plant".
- (2) NON-USE VARIANCE OF HEIGHT REQUIREMENTS to permit structures varying in height from 35' to 80' from grade (35' maximum permitted).
- (3) NON-USE VARIANCE OF SIGN REGULATIONS to permit a detached sign of 32 sq. ft. (24 sq. ft. permitted) and to setback 5' from the S.W. 256 Street right-of-way (15' required).

A plan is on file and may be examined in the Zoning Department entitled "South Dade Energy Center Peaking Power Generation Plant," as prepared by P.B. Power, Inc., dated March 27, 2001 and consisting of 18 sheets. Plans are on file and may be examined in the Zoning Department.

o SUMMARY OF REQUESTS:

The requests will allow the applicant to develop a private electrical power plant facility on the site and will permit exhaust stacks and other structures to be greater in height than permitted, and a sign larger than permitted.

o LOCATION:

The Southwest corner of the intersection of theoretical S.W. 97 Avenue and theoretical S.W. 256 Street, Miami-Dade County, Florida.

o SIZE: 61.297 acres.

o IMPACT:

This application will allow the applicant to provide electrical power to the community during periods when short term demand exceeds base load requirements.

B. ZONING HISTORY:

In 1993, the Zoning Appeals Board (ZAB) granted an unusual use that allowed the development of a landfill for the disposal of clean construction debris on the west half of this site and a non-

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use variance request that allowed zero lot frontage on a public street with access to same by a private drive (easement).

C. COMPREHENSIVE DEVELOPMENT MASTER PLAN (CDMP):

1. The Adopted 2005 and 2015 Land Use Plan designates the subject property for agriculture.
2. The area designated as "Agriculture" contains the best agricultural land remaining in Dade County. The principal uses in this area should be agriculture, uses ancillary to and directly supportive of agriculture such as packing houses, and farm residences. Uses ancillary to and necessary to support the rural residential community of the agricultural area may also be approved, including houses of worship and local schools (Land Use Element, page I-47).
3. Agriculture: Other uses compatible with agriculture and with the rural residential character may be approved in the Agriculture area only if deemed to be a public necessity, or if deemed to be in the public interest and the applicant demonstrates that no suitable site for the use exists outside the Agriculture area. (Land Use Element, page I-47).
4. Other Land Uses Not Addressed. Certain uses are not authorized under any LUP map category, including many of the uses listed as "unusual uses" in the zoning code. Uses not authorized in any LUP map category may be requested and approved in any LUP category that authorizes uses substantially similar to the requested use. Such approval may be granted only if the requested use is consistent with the objectives and policies of this Plan, and provided that the use would be compatible and would not have an unfavorable effect on the surrounding area: by causing an undue burden on transportation facilities including roadways and mass transit or other utilities and services including water, sewer, drainage, fire, rescue, police and schools; by providing inadequate off-street parking, service or loading areas; by maintaining operating hours, outdoor lighting or signage out of character with the neighborhood; by creating traffic, noise, odor, dust or glare out of character with the neighborhood; by posing a threat to the natural environment including air, water and living resources; or where the character of the buildings, including height, bulk, scale, floor area ratio or design would detrimentally impact the surrounding area. However, this provision does not authorize such uses in Environmental Protection Areas designated in this Element (Land Use Element, page I-62).
5. Urban Expansion Area: The Land Use Plan map also contains a year 2015 Urban Expansion Area (UEA) Boundary. The UEA is comprised of that area located between the 2005 UDB and the 2015 UEA Boundary. The Urban Expansion Area is the area where current projections indicate that further urban development beyond the 2005 UDB is likely to be warranted some time between the year 2005 and 2015. Until these areas are brought within the year 2005 UDB through the Plan review and amendment process, they are allowed to be used in a manner consistent with the provisions set forth for lands designated as "Agriculture" or the applicable "Open Land" area. (Land Use Element, page I-46).

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6. Major utility facilities should generally be guided away from residential areas, however, when considering such approvals, the County shall consider such factors as the type of function involved, the public need, existing land use patterns in the area and alternative locations for the facility. All approvals must be consistent with the goals, objectives and policies of the Comprehensive Development Master Plan. (Land Use Element, page I-43 and I-44).
7. Land Use Policy 4A: When evaluating compatibility among proximate land uses, the County shall consider such factors as noise, lighting, shadows, glare, vibration, odor, runoff, access, traffic, parking, height, bulk, scale of architectural elements, landscaping, hours of operation, buffering, and safety, as applicable.
8. Land Use Policy 4D: Uses which are supportive but potentially incompatible shall be permitted on sites within functional neighborhoods, communities or districts only where proper design solutions can and will be used to integrate the compatible and complementary elements and buffer any potentially incompatible elements.
9. Land Use Policy 4G: Through its planning, regulatory, capital improvements and suitable intergovernmental coordination activities, Miami-Dade County shall seek to ensure that suitable land is provided for placement of utility facilities necessary to support proposed development. Necessary utility facilities may be located throughout Miami-Dade County in all land use categories as provided in the "Interpretation of Land Use Plan Map" text.

D. NEIGHBORHOOD CHARACTERISTICS:

ZONING

LAND USE PLAN DESIGNATION

Subject Property:

AU; landfill for clean construction debris      Agriculture

Surrounding Properties:

NORTH: AU; tree farm      Agriculture

SOUTH: AU; FP&L transmission lines & tree farm      Agriculture

EAST: AU; canal      Open Land

WEST: AU; tree farm      Agriculture

The subject parcel is located east of the Homestead Extension of the Florida Turnpike (HEFT), and immediately west of the South Dade Landfill. This site was once a clean fill landfill. The surrounding area is characterized with palm and tree farms.

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**E. SITE AND BUILDINGS:**

Site Plan Review:	
Scale/Utilization of Site:	Acceptable
Location of Buildings:	Acceptable
Compatibility:	Acceptable
Open Space:	Acceptable
Buffering:	Acceptable
Access:	Acceptable
Parking Layout/Circulation:	Acceptable
Visibility/Visual Screening:	Acceptable
Energy Considerations:	Acceptable
Roof Installations:	N/A
Service Areas:	N/A
Signage:	Acceptable
Urban Design:	N/A

**F. PERTINENT REQUIREMENTS/STANDARDS:**

The Board shall hear an application for and grant or deny special exceptions; that is, those exceptions permitted by regulations only upon approval after public hearing, new uses and unusual uses which by the regulations are only permitted upon approval after public hearing; provided the applied for exception or use, including exception for site or plot plan approval, in the opinion of the Community Zoning Appeals Board, would not have an unfavorable effect on the economy of Miami-Dade County, Florida, would not generate or result in excessive noise or traffic, cause undue or excessive burden on public facilities, including water, sewer, solid waste disposal, recreation, transportation, streets, roads, highways or other such facilities which have been constructed or which are planned and budgeted for construction, are accessible by private or public roads, streets or highways, tend to create a fire or other equally or greater dangerous hazards, or provoke excessive overcrowding or concentration of people or population, when considering the necessity for and reasonableness of such applied for exception or use in relation to the present and future development of the area concerned and the compatibility of the applied for exception or use with such area and its development.

Upon appeal or direct application in specific cases, the Board shall hear and grant applications for non-use variances from the terms of the zoning and subdivision regulations and may grant a non-use variance upon a showing by the applicant that the non-use variance maintains the basic intent and purpose of the zoning, subdivision and other land use regulations, which is to protect the general welfare of the public, particularly as it affects the stability and appearance of the community and provided that the non-use variance will be otherwise compatible with the surrounding land uses and would not be detrimental to the community. No showing of unnecessary hardship to the land is required.

**G. NEIGHBORHOOD SERVICES:**

DERM No objection

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Public Works	No objection
Parks	No objection
MDTA	No objection
Fire Rescue	No objection
Police	No objection
Schools	No comment

H. ANALYSIS:

This application was deferred from the May 1, 2001 meeting of the Community Zoning Appeals Board-15 to amend an inadvertent error in the advertisement.

The subject 61.297 acre parcel is located on the southwest corner of SW 256 Street and SW 97 Avenue. In 1993, the Zoning Appeals Board (ZAB) granted requests that allowed the development of a landfill for the disposal of clean construction debris on the west half of this site. The applicant is proposing to develop a "peaker plant" on the site with structures that are greater in height than permitted. According to the letter of intent, the proposed facility will use simple-cycle gas turbine power generation technology to deliver electrical power during periods when short term demand exceeds base load requirements. According to the applicant, peaker plants are not intended to be part of the general base load power grid, and are substantially smaller than those facilities which make up that base load capacity, such as the FP&L plant at Turkey Point. These plants are brought on and off-line quickly for discreet periods of time in response to overall electricity demand. The subject parcel is located east of the Homestead Extension of the Florida Turnpike (HEFT), and immediately west of the South Dade Landfill. A Miami-Dade Water and Sewer Department's waste water treatment facility lies north of this site along SW 97 Avenue, and the remainder of the surrounding area is characterized with palm and tree farms. Additionally, the applicant has indicated that there is a Florida Gas Transmission natural gas pipeline that runs to the FP&L facility further south which will allow the proposed facility to utilize the cleanest burning fuels for its operation.

The plans submitted by the applicant indicate the development of the proposed peaker plant on the westerly portion of the site where the previously approved landfill was permitted. The easterly portion of the site will remain as a heavily overgrown wetlands preserve area with a 4 acre buffer zone separating the proposed facility and the wetlands area. The proposed peaker facility would include an administration building, a substation control room building, a water treatment building, and a guard house which will range in height from 12' to 35'. Other ancillary structures on the site, include, but are not limited to, two combustion turbine generators. The ancillary structures would range in height from 8' (air cooled chiller) to 80' (upper portion of combustion turbine generator exhaust stacks) and a rack for electric lines to connect to the FP&L system). A stormwater dry retention area would also be located on the westerly portion of the site. A landscape berm and an 8' high chain link fence would surround this westerly portion of the site.



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The Department of Environmental Resources Management (DERM) has no objections to this application and has indicated that it meets the Level of Service (LOS) standards set forth in the Master Plan. The DERM memorandum pertaining to this application addresses several issues pertaining to the final closure of this landfill site and the proposed development on same concerning, among other things, air and water quality, stormwater management, assessment and abatement of methane gas, the management of hazardous waste, and the impact of the proposed use on the Southwest Biscayne Bay Wetland Basin. The applicant would have to comply with all DERM requirements and contact all state and federal agencies as set forth in the DERM memorandum pertaining to this application. The Public Works Department has no objections to this application. However, said Department will require the applicant to dedicate 40' for SW 97 Avenue and 35' for SW 256 Street. This application will bring an additional 12 p.m. daily peak hour vehicle trips to the area. However, said trips will not affect the current Levels of Service (LOS) which are at LOS A and B. This area is served by the Cutler District of the Miami-Dade Police Department. In February 2001, that District had an average emergency response time of 4.9 minutes.

This application would allow the applicant to provide electrical power to the community during periods when short term demand exceeds base load requirements. The applicant's letter of intent states that it is anticipated that the proposed peaker facility would operate for approximately four months per year, and then only during periods of peak load demand. This site is located in the saline margin of the agriculturally designated area on the Land Use Plan (LUP) map and most of it has been used for disposal of construction and demolition debris and is poorly suited for agricultural use. Approval of a non-agricultural use on this site would not displace agriculture or be incompatible with agricultural use in the surrounding area. The proposed use would be supportive of the agricultural community, as well as the entire Miami-Dade County area in that it would supply electrical needs to the community when the demand for same exceeds available power. Land Use Policy 4G of the Master Plan states that through its planning, regulatory, capital improvements and suitable intergovernmental coordination activities, Miami-Dade County shall seek to ensure that suitable land is provided for placement of utility facilities necessary to support proposed development. Necessary utility facilities may be located throughout Miami-Dade County in all land use categories as provided in the "Interpretation of Land Use Plan Map" text. DERM has reviewed a variety of technical documents relating to this application, particularly with respect to air quality impacts, stormwater management, and closeout and management of the construction and demolition debris landfill that has been the use at the site for several years. Based upon the technical information reviewed, DERM staff has concluded that the proposed power plant can be constructed and operated without significant adverse impacts to the air, water, and land, and that it will not adversely affect the proper closure of the existing landfill as required by State and County law. When considering the necessity for and the reasonableness of the applied for private electricity utility facility in relation to the surrounding area and the compatibility of said use with the area and its development, staff is of the opinion that the proposed use, with conditions imposed, will not have an unfavorable effect on same, and will not be contrary to the public interest. This application has been deemed to be consistent with the Master Plan and compatible with the surrounding area. The non-use variances maintain the basic intent and purpose of the zoning code.

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I. RECOMMENDATION: Approval with conditions.

J. CONDITIONS:

1. That a site plan be submitted to and meet with the approval of the Director upon the submittal of an application for a building permit and/or Certificate of Use and Occupancy; said plan to include among other things but not be limited thereto, location of structure or structures, types, sizes and location of signs, light standards, off-street parking areas, exits and entrances, drainage, walls, fences, landscaping, etc.
2. That in the approval of the plan, the same be substantially in accordance with that submitted for the hearing entitled "South Dade Energy Center Peaking Power Generation Plant," as prepared by P.B. Power, Inc., dated March 27, 2001 and consisting of 18 sheets.
3. That the use be established and maintained in accordance with the approved plan.
4. That the applicant submit to the Department for its review and approval a landscaping plan which indicates the type and size of plant material prior to the issuance of a building permit and to be installed prior to the issuance of a Certificate of Use and Occupancy.
5. That the applicant obtain a Certificate of Use and Occupancy from and promptly renew the same annually with the Department, upon compliance with all terms and conditions, the same subject to cancellation upon violation of any of the conditions including a violation of the DEP air quality permit or Class VI stormwater management permit.
6. That the applicant shall comply with all applicable conditions and requirements of the Department of Environmental Resources Management.
7. That the applicant shall comply with all applicable conditions and requirements of the Public Works Department.
8. That all facility process water requirements shall be met by reclaimed water from South Dade Wastewater Treatment Facility, and that there will be no withdrawal from groundwater resources.

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9. That the applicant obtain a Class VI stormwater management permit from DERM, which shall comply with the following criteria:
  - a) That no processed water shall be discharged into the environment from the site and that all process wastewater shall be returned to the South Dade Wastewater Treatment Facility.
  - b) That all potable water supply needs and domestic waste water disposal shall be provided by Miami-Dade County Water and Sewer Department.
  - c) That the stormwater management design provide 100 percent on-site retention for the required 25-year 3-day storm event.
  - d) That the stormwater management system for the project segregate stormwater from potential petroleum contact areas and provides for monitoring and treatment of stormwater from those potential petroleum contact areas to ensure against any petroleum contamination .
  - e) That the stormwater management system for the project be designed to meet the stormwater requirements for the private electricity utility facility and closure of the existing landfill on the site.
  
10. That the applicant obtain an air quality permit from the Department of Environmental Protection, which shall provide reasonable assurances of the following to minimize impact on the Biscayne National Park and surrounding areas:
  - a) That maximum project impacts be less than 1 percent of health-based standards.
  - b) That maximum project impacts be less than 1 percent of damage thresholds for sensitive plants.
  - c) That deposition of sulfur and nitrogen be less than 0.2 percent of existing estimates, not counting for displacement of existing fossil generation.
  - d) That there shall be no visible plume under normal operations using either natural gas or low sulfur diesel fuel.
  - e) That the operation of the facility shall be limited to the use of natural gas or low sulfur diesel fuel.
  - f) That the maximum number of annual hours of operation shall not exceed approximately 1,500 hours per turbine.

U I L L I N U L I I U  
A T T O R N E Y S A T L A W

TRAURIG

Kerri L. Barsh  
(305) 579-0772  
Direct Fax: (305) 961-5772  
E-Mail: barshk@gtlaw.com

April 30, 2001

**BY HAND DELIVERY**

Mr. Carlos Espinosa  
Assistant Director  
Miami-Dade County Department of  
Environmental Resources Management  
33 S.W. 2<sup>nd</sup> Avenue, PH-2  
Miami, Florida 33130

Mr. Doug Yoder  
Assistant Director  
Miami-Dade County Department of  
Environmental Resources Management  
33 S.W. 2<sup>nd</sup> Avenue, PH-2  
Miami, Florida 33130

Re: Certosa Holdings (Public Hearing No. Z 01-028)

Dear Carlos and Doug:

In furtherance of our meeting on Monday, April 16, 2001, on the project referred to above, I am enclosing a synopsis of the documentation provided to the County on the manner in which the proposed facility will address potential environmental impacts of the proposed facility on Biscayne Bay National Park and the surrounding area. We have specifically included in this synopsis, information that corroborates the manner in which the proposed facility will safeguard the air and water quality standards of the National Park environment. With respect to minimization of the visibility of the project from the Park, we have recently submitted to the Planning & Zoning Department a new landscaping plan that creates a linear park along the perimeter of the property. The new landscaping plan is in addition to the computer generated photography depicting the views of the project from the Bay and the surrounding area.

I trust that this enclosure provides you with sufficient useful information to respond to the request by the Planning and Zoning Department for confirmation of how the proposed use would protect air and water quality and how such use would not adversely affect the Biscayne National Park environment.

Upon your review of the enclosed materials, please contact me if you need any further assistance.

Very truly yours,

*Kerri*

Kerri L. Barsh

**RECEIVED**  
MAY 01 2001

MIAMI-DADE COUNTY  
DEPT. OF PLANNING AND ZONING  
METROPOLITAN PLANNING SECTION

- cc: Diane O'Quinn Williams - Planning & Zoning Department (by facsimile)
- Mr. Robert Usherson - Planning & Zoning Department (by facsimile)
- Mr. Skip Scofield - Planning & Zoning Department (by facsimile)

1221 BRICKELL AVENUE MIAMI, FLORIDA 33131

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provide information necessary for a Class IV Wetlands Permit, submitted on March 28, 2001.

7. Topographical and boundary survey, submitted to DERM on behalf of Certosa Holdings to meet a requirement under the Consent Agreement between DERM and Certosa Holdings, submitted in March, 2001.
8. Solid Waste Facility Closure Plan submitted to DERM on April 6, 2001.
9. Supplemental Information submitted to County Planning Department on April 9, 2001:
  - Color photos with computer generated image of facility inserted showing the project as contemplated from various locations;
  - ENSR International, "Air Quality Impacts - South Dade Energy Center", April 3, 2001; and
  - Color rendering of project.
10. ENSR International, "Air Quality Impacts - South Dade Energy Center", April 3, 2001 submitted to DERM on April 12, 2001.
11. Application for FDEP Non-PSD Air Permit provided to DERM on April 23, 2001.

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Jeb Bush  
Governor

# Department of Environmental Protection

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

David B. Struhs  
Secretary

May 3, 2001

## CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Ben Jacoby, Attorney-in-Fact  
Dade Development Company, L.L.C.  
1400 Smith Street  
Houston, Texas 77002-7631

Re: Request for Additional Information  
DEP File No. 0251099-001-AC  
South Dade Energy Center

Dear Mr. Jacoby:

On April 23, 2001 the Department has received your application fee for an air construction permit for two 185-MW dual fuel Mitsubishi "501F" combustion turbines for the proposed South Dade Energy Center (SDEC) in unincorporated Miami-Dade 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 provide the conceptual description and diagrams of the burners likely to be used for this project. A 1998 Mitsubishi brochure described a "hybrid combustor featuring a two-stage burner assembly and a bypass valve which directs a portion of the compressor delivery air directly into the transition piece to enhance flame stability during starting and to maintain desired fuel/air ratio during loading". According to the literature, the "new premix lean burn hybrid combustor is to be applied to meet the existing and new NO<sub>x</sub> emissions limitations around the world".  
[Rule 62-4.070, F.A.C., Standards for Issuing or Denying Permits – Reasonable Assurance]
2. Please provide carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), volatile organic compounds (VOC), and particulate (PM/PM<sub>10</sub>) emissions from the Mitsubishi 501F as a function of percent unit output. It is preferred that these be provided as curves showing percent of full load on the abscissa and log of ppm on the ordinate. Indicate on the graph(s), the region of diffusion flame and the region of maximum lean premix combustion. These characteristics should be provided for both gas and fuel oil firing. Identify normal minimum load point as well as specific emission data at this load point. [Rule 62-4.070, F.A.C., Standards for Issuing or Denying Permits – Reasonable Assurance]
3. The requested data should originate from the manufacturer, Mitsubishi, and not from installations based on the similar Siemens-Westinghouse product. Since the two companies ceased their cooperative efforts, they have undertaken independent approaches towards development of the Dry Low NO<sub>x</sub> technology and therefore may have different characteristics.  
[Rule 62-4.070, F.A.C., Standards for Issuing or Denying Permits – Reasonable Assurance]

"More Protection, Less Process"

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4. We understand that the continuous emissions monitoring systems (CEMS) for carbon monoxide (CO) and nitrogen oxides (NO<sub>x</sub>) are proposed as the means to insure the project emits less than 250 tons per year of a regulated pollutant, thus avoiding the Prevention of Significant Deterioration (PSD) rules. Please consider as well hourly maximum emission limitations together with maximum hours of operation to limit potential-to-emit.

[Rule 62-210.200, F.A.C., Definitions – Potential Emissions]

5. Address all phases planned for this project, if any. [Rule 62-212.400(6)(b), F.A.C. and 40CFR51.166(j)(4)]

We will send you any additional comments received from other agencies by May 23.

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 Teresa Heron at 850/921-9529.

Sincerely,



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

AAL/al

cc: Gregg Worley, EPA  
Isidore Goldman, DEP SED  
H. Patrick Wong, Miami-Dade DERM  
Scott Osbourn, ENSR  
Blair Burgess, ENSR





METROPOLITAN DADE COUNTY, FLORIDA



Department of Environmental Resources Management  
33 S.W. 2nd Avenue  
Miami, FL. 33130-1540

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**SEND TO:**

Name: ALVARO LINERO / TERESA HERON

Company/Department: Miami-Dade DERM.

Phone Number: (850) 921-9532

Fax Number: (850) 922-6979

Message: As per our telephone conversation,  
I am sending you the letter from  
Greenberg Traurig regarding the  
Reaker Plant. Thanks.

Mallika Muthiah

**FROM:**

Name: MALLIKA MUTHIAH

Division/Section: AIR FACILITIES

Phone Number: (305) 372-6921

Fax Number: (305) 372-6954

Date: 5-04-01

Number of Pages (including this one): 11

**GREENBERG**  
ATTORNEYS AT LAW  
**TRAURIG**

Kerri L. Barsh  
(305) 579-0772  
Direct Fax: (305) 961-5772  
E-Mail: barshk@gtlaw.com

April 30, 2001

**RECEIVED**  
MAY 14 2001  
BUREAU OF AIR REGULATION

**BY HAND DELIVERY**

Mr. Carlos Espinosa  
Assistant Director  
Miami-Dade County Department of  
Environmental Resources Management  
33 S.W. 2<sup>nd</sup> Avenue, PH-2  
Miami, Florida 33130

Mr. Doug Yoder  
Assistant Director  
Miami-Dade County Department of  
Environmental Resources Management  
33 S.W. 2<sup>nd</sup> Avenue, PH-2  
Miami, Florida 33130

Re: Certosa Holdings (Public Hearing No. Z 01-028)

Dear Carlos and Doug:

In furtherance of our meeting on Monday, April 16, 2001, on the project referred to above, I am enclosing a synopsis of the documentation provided to the County on the manner in which the proposed facility will address potential environmental impacts of the proposed facility on Biscayne Bay National Park and the surrounding area. We have specifically included in this synopsis information that corroborates the manner in which the proposed facility will safeguard the air and water quality standards of the National Park environment. With respect to minimization of the visibility of the project from the Park, we have recently submitted to the Planning & Zoning Department a new landscaping plan that creates a linear park along the perimeter of the property. The new landscaping plan is in addition to the computer generated photography depicting the views of the project from the Bay and the surrounding area.

I trust that this enclosure provides you with sufficient useful information to respond to the request by the Planning and Zoning Department for confirmation of how the proposed use would protect air and water quality and how such use would not adversely affect the Biscayne National Park environment.

Upon your review of the enclosed materials, please contact me if I can be of further assistance.

Very truly yours,

*Kerri*  
Kerri L. Barsh

cc: Diane O'Quinn Williams - Planning & Zoning Department (by facsimile)  
Mr. Robert Usherson - Planning & Zoning Department (by facsimile)  
Mr. Skip Scofield - Planning & Zoning Department (by facsimile)

1221 BRICKELL AVENUE MIAMI, FLORIDA 33131

305-579-0500 FAX 305-579-0717 www.gtlaw.com

MIAMI NEW YORK WASHINGTON, D.C. ATLANTA PHILADELPHIA TYSONS CORNER CHICAGO BOSTON PHOENIX WILMINGTON LOS ANGELES DENVER  
SAO PAULO FORT LAUDERDALE BOCA RATON WEST PALM BEACH ORLANDO TALLAHASSEE

### List of Documents Submitted to Miami-Dade County Departments

1. Letter dated November 9, 2000, to Miami-Dade County Department of Planning & Zoning Department, requesting an interpretation of the Miami-Dade County Comprehensive Development Master Plan: specifically asking whether the approval of a "peaker" electric power generating facility on "the property", ... would be consistent with the land use designation of the property.
2. Application for unusual use approval and associated non-use height variances submitted to Planning & Zoning Department on December 1, 2000, including:
  - ALTA Land Title and Topographic Survey
  - Site Layout Plan
  - Plot Plan
  - Grading Plan
  - Drainage Plan
  - Drainage Plan Section and Details
  - Utility Plan
  - Fire Protection Plan
  - Erosion and Sediment Control Plan
  - Site Lighting and Signage Plan
  - Architectural Elevations
  - Administration Building Floor Plan
  - Administration Building Elevations
  - Landscape Plan
3. Application for an EQCB variance for use of a septic tank submitted to DERM in December 2000, subsequently withdrawn upon submittal of item No. 4.
4. Covenant executed by Certosa Holdings committing to water-and-sewer connection as a part of any development plan, submitted to DERM in January, 2001.
5. FDEP Environmental Resource Permit application, submitted to DERM on behalf of Certosa Holdings to comply with Consent Agreement requirement that Certosa Holdings provide DERM with information necessary for a Class VI Storm Water Permit, submitted on March 23, 2001.
6. FDEP Environmental Resource Permit application, submitted to DERM on behalf of Certosa Holdings to meet a requirement under the Consent Agreement to

- provide information necessary for a Class IV Wetlands Permit, submitted on March 28, 2001.
7. Topographical and boundary survey, submitted to DERM on behalf of Certosa Holdings to meet a requirement under the Consent Agreement between DERM and Certosa Holdings, submitted in March, 2001.
  8. Solid Waste Facility Closure Plan submitted to DERM on April 6, 2001.
  9. Supplemental Information submitted to County Planning Department on April 9, 2001:
    - Color photos with computer generated image of facility inserted showing the project as contemplated from various locations;
    - ENSR International, "Air Quality Impacts – South Dade Energy Center", April 3, 2001; and
    - Color rendering of project.
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  11. Application for FDEP Non-PSD Air Permit provided to DERM on April 23, 2001.

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**Certosa Holdings Property  
South Dade Energy Center  
Summary of Environmental Impact Analysis**

As specifically enumerated below, the proposed facility will not only safeguard the air and water quality of the National Park environment but will improve the current water management attributes of the site and will have no adverse visual impact.

*1.0 Water resource impacts. The proposed facility will not adversely impact the water resources of Biscayne National Park or the surrounding area.*

- 1.1 All facility water requirements will be met by reclaimed water from South Dade Wastewater Treatment Facility. There will be no withdrawal from groundwater resources. (Ref: Environmental Resource Permit filed 2/08/01 with DEP, Sec. 7.2);
- 1.2 No process water will be discharged to the environment from the site. All process wastewater will be returned to the South Dade Wastewater Treatment Facility. (Ref: Environmental Resource Permit filed 2/08/01 with DEP, Sec. 6.4);
- 1.3 All potable water supply needs and domestic waste water disposal will be provided by Miami-Dade County Water and Sewer Department. (Ref: Environmental Resource Permit filed 2/08/01 with DEP, Sec. 6.4);
- 1.4 The stormwater management design provides 100 percent on-site retention for the required 25-year 3-day storm event. (Ref: Environmental Resource Permit filed 2/08/01 with DEP, Sec. 5). This will be a substantial improvement over existing conditions, in which untreated stormwater runoff is discharged to the canal system for ultimate discharge into Biscayne Bay;
- 1.5 The stormwater management system for the project segregates stormwater from potential petroleum contact areas and provides for monitoring and treatment of stormwater to ensure against any petroleum contamination. (Ref: Environmental Resource Permit filed 2/08/01 with DEP, Sec. 2.2); and
- 1.6 The stormwater management system for the project is designed to meet the stormwater requirements for closure of the CAT Landfill and the South Dade Energy Center Development (Ref: CAT/Construction and Demolition Landfill Closure Plan filed 4/06/01 with DERM, Sec. 8 and Environmental Resource Permit filed 2/08/01 with DEP, Sec. 5).

- 2.0 *Air emission impacts. The proposed facility will not adversely impact the air quality of Biscayne National Park or the surrounding area.*
- 2.1 The maximum number of annual hours of operation permitted on natural gas is expected to be 1,500 hours. Based on anticipated emissions limits, the maximum number of hours of operation on distillate fuel will be 800 hours. The actual number of annual hours of operation is expected to be between 800 hours and 1,500 hours. (Ref: Non-PSD Air Permit filed 4/23/01 with FDEP);
- 2.2 Air emission modeling indicates no significant impact on the Biscayne National Park and surrounding areas. (Ref: ENSR International, "Air Quality Impacts - South Dade Energy Center", April 3, 2001 submitted on 4/09/01 to Miami-Dade County Planning Department, Non-PSD Air Permit filed 4/23/01 with FDEP);
- 2.3 Maximum project impacts are less than 1 percent of health-based standards. (Ref: ENSR International, "Air Quality Impacts - South Dade Energy Center", April 3, 2001 submitted on 4/09/01 to Miami-Dade County Planning Department, Non-PSD Air Permit filed 4/23/01 with FDEP);
- 2.4 Maximum impacts are less than 1 percent of damage thresholds for sensitive plants. (Ref: ENSR International, "Air Quality Impacts - South Dade Energy Center", April 3, 2001 submitted on 4/09/01 to Miami-Dade County Planning Department, Non-PSD Air Permit filed 4/23/01 with FDEP);
- 2.5 Deposition of sulfur and nitrogen is less than 0.2 percent of existing estimates, not counting for displacement of existing fossil generation. (Ref: ENSR International, "Air Quality Impacts - South Dade Energy Center", April 3, 2001 submitted on 4/09/01 to Miami-Dade County Planning Department, Non-PSD Air Permit filed 4/23/01 with FDEP).
- 3.0 *Visual Impacts. The proposed facility will be a visual improvement over the current abandoned landfill site.*
- 3.1 There will be no visible plume under either natural gas or fuel oil operation.
- 3.2 The landscaping plan buffers the facility with indigenous vegetation on all sides and shields the facility from view from the Biscayne National Park. (Ref: Curtis Rogers Design Studio, Inc. Landscaping Plan filed 12/07/00 (revised 3/28/01 and 4/26/01) with Miami-Dade County Planning Department);

- 3.3 Extensive landscape buffering will be provided using indigenous tree and plant species, creating a linear park along the perimeter of the property. (Ref: Curtis Rogers Design Studio, Inc. Landscaping Plan filed 12/07/00 (revised 3/28/01 and 4/26/01) with Miami-Dade County Planning Department); and
- 3.4 Based on line-of-site modeling, the site will not be visible from the on-shore Park and barely discernible from the Bay and other surrounding areas. (Ref: Visual imaging photographs submitted on 4/09/01 to Miami-Dade County Planning & Zoning Department).

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**BEST AVAILABLE COPY**

**Muthiah, Mallika (DERM)**  
**From:** Muthiah, Mallika (DERM)  
**Sent:** Friday, May 04, 2001 10:57 AM  
**To:** 'alvaro.linero@dep.state.fl.us'; 'teresa.heron@dep.state.fl.us'  
**Cc:** Wong, Patrick (DERM); Echanique, Frank (DERM); Gordon, Ray (DERM); Barros, Marcelo (DERM); Griner, Debbie (DERM); Garcia, Manuel (DERM); Villamil, Sonia (DERM)  
**Subject:** DERM's Additional Comments Regarding the Peaker Plant

Al/Teresa,

Please be advised that DERM received a letter dated April 30, 2001 from Greenberg Traurig Attorney's at Law, representing Certosa Holdings (the Peaker Plant). I will be faxing you a copy of the letter this morning.

Based on the information provided in the referenced letter, we are providing you with the following additional comments:

1. The referenced letter states "The maximum number of annual hours of operation permitted on natural gas is expected to be 1,500 hours. Based on anticipated emissions limits, the maximum number of hours of operation on distillate fuel will be 800 hours. The actual number of annual hours of operation is expected to be between 800 hours and 1,500 hours."
  - a) DERM recommends that FDEP impose appropriate permit conditions to restrict their hours of operation as indicated above.
2. The referenced letter also states "There will be no visible plume under either natural gas or fuel oil operation."
  - a) DERM recommends that the visible emissions on their stack be restricted to 5% opacity.
  - b) Furthermore, we recommend that appropriate stack test and visible emissions testing requirements be placed in the permit to establish compliance.

If you have any questions regarding these comments, please call me at (305) 372-6921.

Thank you,

Mallika Muthiah, P.E., Chief  
Air Facilities Section  
Miami-Dade County DERM

-----Original Message-----

**From:** Wong, Patrick (DERM)  
**Sent:** Friday, May 04, 2001 8:45 AM  
**To:** Muthiah, Mallika (DERM)  
**Subject:** RE: DERM's Comments Regarding the Peaker Plant



Mallika, as an afterthought, I think we should recommend a VE limit of 5% opacity for the peaker plant. Also, we should copy Al and Teresa on Kerri Barsh's letter dd 4/30/01 wherein they make explicit commitments re visible emissions, hours of operation on gas and oil, etc..

-----Original Message-----

**From:** Muthiah, Mallika (DERM)  
**Sent:** Thursday, May 03, 2001 2:46 PM  
**To:** 'alvaro.llnero@dep.state.fl.us'; 'teresa.hearn@dep.state.fl.us'  
**Cc:** Wong, Patrick (DERM); Echanique, Frank (DERM); Gordon, Ray (DERM); Barros, Marcelo (DERM); Griner, Debbie (DERM)  
**Subject:** DERM's Comments Regarding the Peaker Plant

Al/Teresa,

Our staff reviewed the application from ENSR International regarding the Dade Development Company, LLC project to construct and operate a simple cycle combustion turbine peaking electric facility in Miami-Dade County. As you are aware, this project has become somewhat controversial in that local organizations and citizens have already expressed their concerns regarding potential negative impacts on the environmentally sensitive areas such as, the Biscayne Park and the surrounding wetlands. DERM has the following comments to offer regarding this application:

1. The application states that the maximum fuel sulfur content will be 2.0 grains per 100 standard cubic feet for natural gas and 0.05% by weight for distillate fuel oil. DERM feels it is imperative to explicitly require conformance with these low sulfur distillate fuel oil and natural gas, so that the impact to these areas will be minimal as modeled in the application. This will also ensure compliance with Miami-Dade County's code relating to emissions of sulfur dioxide, specifically Section 24-17 of the Miami-Dade County Environmental Protection Ordinance.
2. The applicant is avoiding the PSD rules by accepting an enforceable limitation on tons per year of Nox and CO emissions to be no more than 248 TPY, and all other criteria pollutants to less than 250 TPY. In order to observe compliance with these limitations, DERM recommends that the permit contain very specific language on requirements for record-keeping, as well as maximum hours of operation burning gas or oil to meet this commitment.
3. DERM concurs with FDEP on the need for hourly maximum emissions limitations and maximum hours of operation to establish short term emissions limit and to provide reasonable continued compliance.
4. DERM recommends that FDEP perform a thorough evaluation of the modeling performed by the applicant, to confirm that there will not be any adverse air quality impact in the nearby Biscayne National Park that may affect its visitors.

If you have any questions regarding our comments, please contact H. Patrick Wong or myself at (305) 372-6925.

Thank you,

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Thank you,

## Permitting

- Minor  $\rightarrow$  210 T.P.Y.
- $\rightarrow$  Insure P.T.E. 250 T.P.Y.
- $\rightarrow$  CEQS. ...  $\text{NO}_x$ , CO
- NSPS.  $\rightarrow$  100 ppm  $\rightarrow$  25 ppm
- $\rightarrow$  200  $\text{SO}_2$

## Modeling

- NAAQS —
- Impacts —
- Incomplete

• my florida.com.

Windy O' Sullivan

Windy  
Dave Kellermeyer

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- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Ben Jacoby, Attorney-in-Fact  
 Dade Development Company, L.L.C.  
 1400 Smith Street  
 Houston, Texas 77002-7631

2. Article Number (Copy from service label)

7099 3400 0000 1453 2085

PS Form 3811, July 1999

Domestic Return Receipt

102595-99-M-1789

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*Handwritten signature* 5-7-01

C. Signature  Agent

X *Handwritten signature*  Addressee

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

3. Service Type

- Certified Mail  Express Mail
- Registered  Return Receipt for Merchandise
- Insured Mail  C.O.D.

4. Restricted Delivery? (Extra Fee)  Yes

7099 3400 0000 1453 2085

**U.S. Postal Service  
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Article Sent To:

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Certified Fee		
Return Receipt Fee (Endorsement Required)		
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<b>Total Postage &amp; Fees</b>	\$	

Name (Please Print Clearly) (to be completed by mailer)  
**Ben Jacoby**  
 Street, Apt. No., or PO Box No.  
**1400 Smith Street**  
 City, State, ZIP+4  
**Houston, Texas 77002-7631**

PS Form 3800, July 1999

See Reverse for Instructions

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- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

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Mr. Ben Jacoby  
 Attorney-in-Fact  
 Dade Development Company, LLC  
 1400 Smith Street  
 Houston, TX 77002-7631

**COMPLETE THIS SECTION ON DELIVERY**

A. Received by (Please Print Clearly) *[Signature]* B. Date of Delivery **9-17-01**

C. Signature *[Signature]*  Agent  Addressee

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

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

4. Restricted Delivery? (Extra Fee)  Yes

2. Article Number (Copy from service label)

7000 0600 0026 4129 9029

PS Form 3811, July 1999

Domestic Return Receipt

102595-99-M-1789

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

7000 0600 0026 4129 9029

Mr. Ben Jacoby

Postage	\$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
<b>Total Postage &amp; Fees</b>	<b>\$</b>

Postmark  
Here

Recipient's Name (Please Print Clearly) (to be completed by mailer)

Dade Development Company, L.L.C.

Street, Apt. No.; or PO Box No.

1400 Smith Street

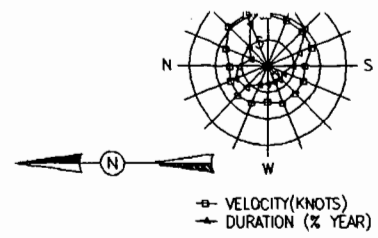
City, State, ZIP+4

Houston, TX 77002-7631

PS Form 3800, February 2000

See Reverse for Instructions

BEST AVAILABLE COPY

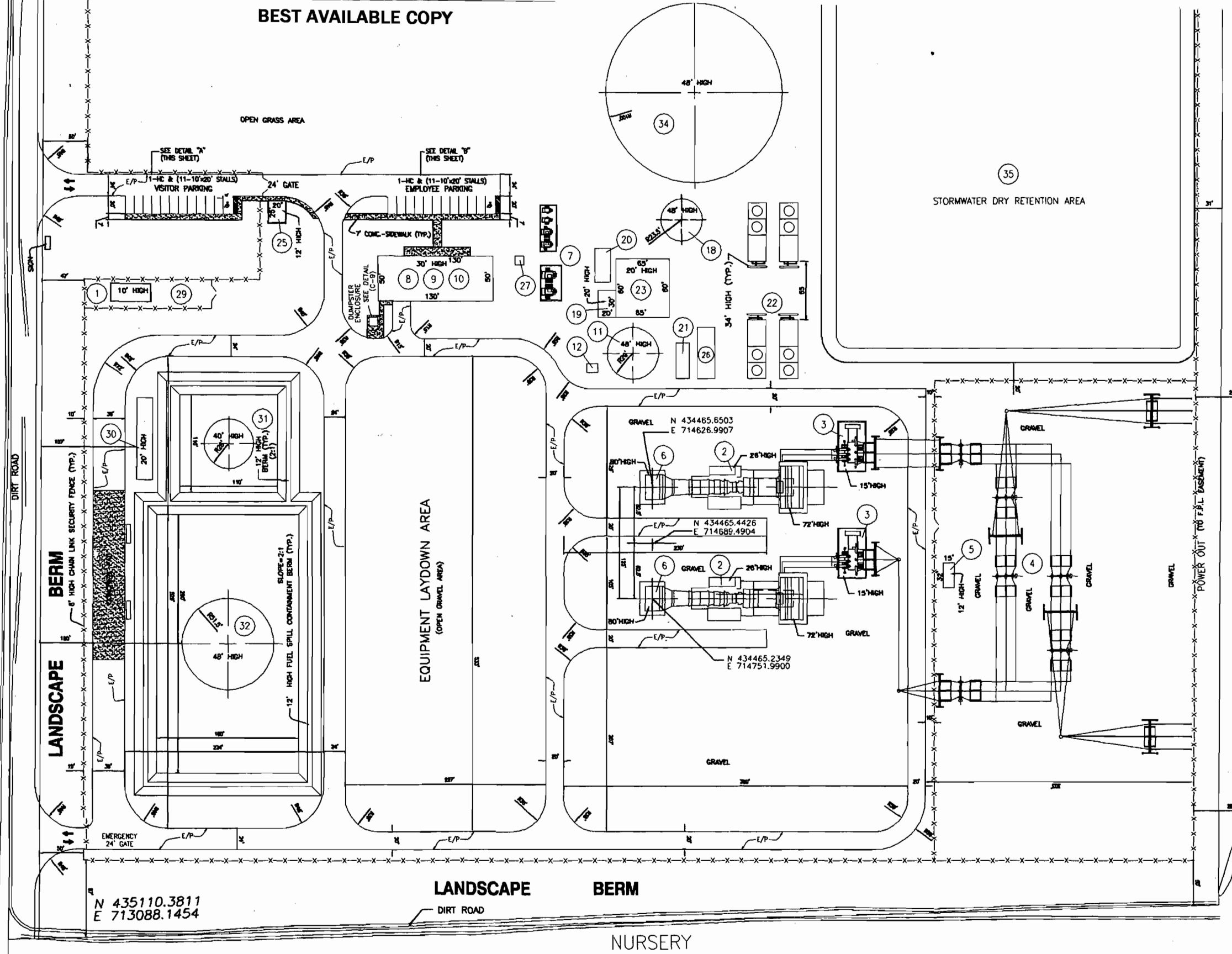


SCHEDULE OF COMPONENTS	
1	GAS RECEIVING/METERING
2	GAS TURBINE GENERATOR
3	MAIN STEP-UP TRANSFORMER
4	SUBSTATION
5	SUBSTATION CONTROL ROOM BUILDING
6	EXHAUST STACK
7	PLANT SWITCHGEAR/MCC AREA
8	ELECTRICAL ROOM BUILDING
9	CONTROL ROOM/MAINTENANCE/STORAGE BLDG.
10	ADMINISTRATION BUILDING (2 STORES)
11	FILTERED WATER & FIRE WATER TANK (23,910 BBL)
12	FIRE WATER PUMP HOUSE
13	NOT USED
14	NOT USED
15	NOT USED
16	NOT USED
17	NOT USED
18	DEMERALIZED WATER TANK (22,830 BBL)
19	LABORATORY
20	CHEMICAL STORAGE
21	OIL DRUM STORAGE
22	CHILLER/COOLING TOWER PACKAGE
23	WATER TREATMENT BUILDING 65' x 60'
24	NOT USED
25	GUARD HOUSE
26	ONLY WATER SHED
27	SANITARY PUMP STATION (PRIVATE)
28	NOT USED
29	FUEL GAS COMPRESSOR ENCLOSURE
30	FUEL TREATMENT/STORAGING EQUIPMENT
31	FUEL OIL DRY TANK (14,700 BBL)
32	FUEL OIL STORAGE (SALDOD BBL)
33	NOT USED
34	CHILLER WATER TANK (267,000 BBL)
35	STORMWATER DRY RETENTION AREA

NOTES:  
 1-MECHANICAL EQUIPMENT SHOWN FOR ILLUSTRATION PURPOSES ONLY. FINAL LOCATION OF EQUIPMENT TO BE DETERMINED AT TIME OF CONSTRUCTION PLANS DESIGN FOR PERMITTING.  
 2-FOR SETBACKS TO BUILDINGS, TANKS AND OTHER EQUIPMENT; PLEASE REFER TO SITE LAYOUT PLAN, SHEET C-2

NURSERY

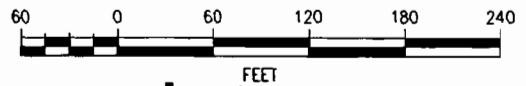
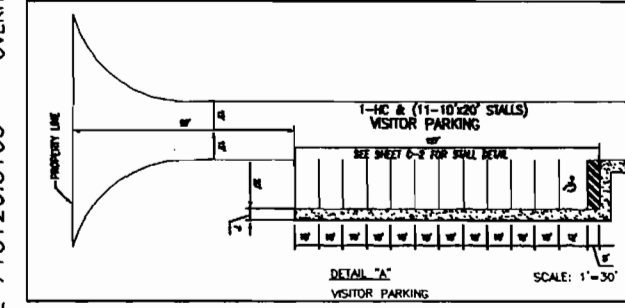
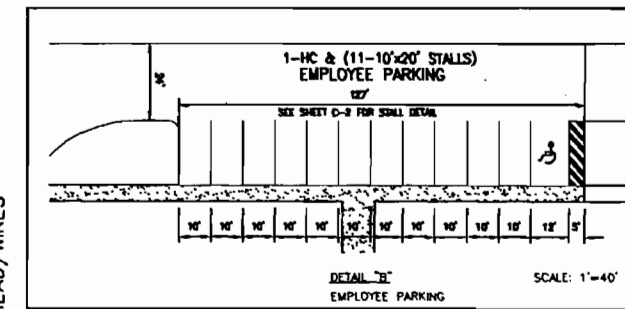
(S.W. 256th STREET) TUESBERG DRIVE



EASEMENT FOR EXISTING F.P.L. POWER LINES

OVERHEAD/WIRES

N 433779.9557  
E 713126.5109



DWG. NO.	REFERENCE DRAWING TITLE	NO.	REVISION - DESCRIPTION	BY	DATE	CHK'D	APP'D	DWG. STATUS	CHECKED	APPROVED	P.L./STA. ACCT. NO.	FILE NO.	SCALE 1"=60'	 PB Power, Inc. A Parsons Brinckerhoff Company 5775 Biscayne Blvd., Suite 300, Miami, FL 33156 (305) 261-4780 (305) 261-5735 fax	South Dade Energy Center Figure 2-1 Equipment Arrangement Plan	AFE/WORK ORDER
								PREL.Y	BY	DATE	BY					DATE
								BID								CONSTRUCTION DWG. NO.
								CONSTR.								REV. NO.
								CADDS	PLOT DATE:							SHEET C-3
									FILE NAME:							E

