

FPC Polk

Plant Data

Site	FWS Area(s)		Source	Capacity	
				(mmBtu/hr)	(MW)
Polk Co	Chassahowitzka	2	CCT	4087	235
				total	each

FPC Polk

Given/Assumptions

Source	CCT
Exhaust gas flow (lb/Hr)	3,554,960
Basic Equipment Costs	1,150,000
Ammonia storage cost (\$/1,000 lb mass flow)	\$35
Uncontrolled Emission rate (TPY)	1309
Control efficiency (%)	73%
Operating Hours per Year	8,760
Operating Hours per Shift	8
Operating Shifts per Year	1095
Operating Labor Cost (\$/hr)	15
Maintenance Labor Cost (\$/hr)	15
Electrical Cost (\$/kWh)	\$0.05
Reagent use (lb/hr @ 28% sol.)	377
Reagent Costs (\$/T)	\$300
Electrical efficiency	90%
Catalyst replacement	\$750,000
Catalyst disposal (\$/Yr)	\$19,769
Catalyst life (Yr)	6
Ammonia slip (ppm)	5
Heat rate penalty (% of MW output)	0.5%
Equipment Life (Yr)	15
Interest Rate (%)	7.00%

FPC Polk

Capital Costs (OAQPS Control Cost Manual Chapter 3--Catalytic Incinerators)

Cost Item	Factor	Cost
Direct Costs		CCT
Purchased equipment costs		
SCR + auxiliary equipment		\$1,150,000
Ammonia storage		\$124,424
Total	A	\$1,274,424
Sales taxes	0.03 A	\$34,500
Freight	0.05 A	\$63,721.18
Purchased equipment cost, PEC	B= 1.08 A	\$1,372,645

Direct installation costs		
Foundations & supports	0.08 B	\$109,812
Handling & erection	0.14 B	\$192,170
Electrical	0.04 B	\$54,906
Piping	0.02 B	\$27,453
Insulation	0.01 B	\$13,726
Painting	0.01 B	\$13,726
Direct installation costs	<u>0.30 B</u>	\$411,793
Site preparation	As required, SP	\$0
Buildings	As required, Bldg.	\$0
Total Direct Costs, DC	1.30 B+SP+Bldg	\$1,784,438
Indirect Costs (installation)		
Engineering	0.10 B	\$137,264
Construction and field expenses	0.05 B	\$68,632
Contractor fees	0.10 B	\$137,264
Start-up	0.02 B	\$27,453
Performance test	0.01 B	\$13,726
Contingencies	0.03 B	\$41,179
Total Indirect Cost, IC	<u>0.31 B</u>	\$425,520
Total Capital Investment = DC + IC	1.61 B+SP+Bldg	\$2,209,958

FPC Polk

Annual Costs (OAQPS Control Cost Manual Chapter 3--Catalytic Incinerators)

Cost Item	Factor			
Direct Annual Costs, DC				
Operating labor				
Operator		0.5 hr/shift		
Supervisor		15% of operator		
Operating materials				
Reagent	377 lb/hr *	8760 hr/yr/2000lb/T*		300 \$/T =
Maintenance				
Labor		0.5 hr/shift		
Material		100% of maintenance labor		
Catalyst replacement				
Electricity	377 lb/hr *	518.1 Btu/lb*	0.000293 kW*hr/Btu*	
	0.05 \$/kWh*	8760 hr/yr*	0.90 ef. =	
Total DC				
Energy Costs				
Heat rate penalty	470 MW *	8,760 hr/yr *		
	1000 kW/MW *	0.005 loss *		0.05 \$/kWh =
Indirect Annual Costs, IC				
Overhead	60% of maintenance costs			
Administrative charges	2% of Total Capital Investment			
Property tax	1% of Total Capital Investment			
Insurance	1% of Total Capital Investment			
Capital recovery	0.1098 * [Total Capital Investment-1.08(Cat Cost)]			
Total IC				
Total Annual Cost		DC + IC		

Cost
CCT
\$8,213
\$1,232
\$495,378
\$8,213
\$8,213
\$125,000
\$22,560
\$646,247
\$1,029,300
\$312,748
\$44,199
\$0
\$22,100
\$227,819
\$606,866
\$2,282,414

FPC Polk

Cost Effectiveness

Source	CCT	Units
Pollutant	NOx	
Uncontrolled emissions	1309.2	TPY
Control efficiency	73%	
Controlled emissions	349.6	TPY
Pollutants removed	959.6	TPY
Annual cost	\$2,282,414	/yr
Annual cost - Emission fees saved	\$2,253,625	@ \$30/T
Cost/ton	\$2,378	/T

FPC Polk

Environmental Impacts of SCR at

73% removal

NOx removed

960 TPY

Ammonia released

122 TPY @

5 ppm

5 ppmvd NOx* E-06 * (20.9/(20.9- 15 % O2)) * 17 MW NH3 * 8740

$$\text{dscf/mmBtu (fuel input) F-factor(gas)/ 385 scf/lb-mole (vol/mol ratio) = 0.007 lbm/mmBtu}$$

FPC Polk

Plant Data

Site	FWS Area(s)		Source	Capacity	
				(mmBtu/hr)	(MW)
Polk Co	Chassahowitzka	2	CCT	4087	235
				total	each

FPC Polk

Given/Assumptions

Source	CCT
Exhaust gas flow (lb/Hr)	3,554,960
Basic Equipment Costs	1,250,000
Ammonia storage cost (\$/1,000 lb mass flow)	\$35
Uncontrolled Emission rate (TPY)	1309
Control efficiency (%)	80%
Operating Hours per Year	8,760
Operating Hours per Shift	8
Operating Shifts per Year	1095
Operating Labor Cost (\$/hr)	15
Maintenance Labor Cost (\$/hr)	15
Electrical Cost (\$/kWh)	\$0.05
Reagent use (lb/hr @ 28% sol.)	403
Reagent Costs (\$/T)	\$300
Electrical efficiency	90%
Catalyst replacement	\$855,000
Catalyst disposal (\$/Yr)	\$22,537
Catalyst life (Yr)	6
Ammonia slip (ppm)	5
Heat rate penalty (% of MW output)	0.5%
Equipment Life (Yr)	15
Interest Rate (%)	7.00%

FPC Polk

Capital Costs (OAQPS Control Cost Manual Chapter 3--Catalytic Incinerators)

Cost Item	Factor	Cost
Direct Costs		CCT
Purchased equipment costs		
SCR + auxiliary equipment		\$1,250,000
Ammonia storage		\$124,424
Total	A	\$1,374,424
Sales taxes	0.03 A	\$37,500
Freight	0.05 A	\$68,721.18
Purchased equipment cost, PEC	B= 1.08 A	\$1,480,645

Direct installation costs		
Foundations & supports	0.08 B	\$118,452
Handling & erection	0.14 B	\$207,290
Electrical	0.04 B	\$59,226
Piping	0.02 B	\$29,613
Insulation	0.01 B	\$14,806
Painting	0.01 B	\$14,806
Direct installation costs	<u>0.30 B</u>	\$444,193
Site preparation	As required, SP	\$0
Buildings	As required, Bldg.	\$0
Total Direct Costs, DC	1.30 B+SP+Bldg	\$1,924,838
Indirect Costs (installation)		
Engineering	0.10 B	\$148,064
Construction and field expenses	0.05 B	\$74,032
Contractor fees	0.10 B	\$148,064
Start-up	0.02 B	\$29,613
Performance test	0.01 B	\$14,806
Contingencies	0.03 B	\$44,419
Total Indirect Cost, IC	<u>0.31 B</u>	\$459,000
Total Capital Investment = DC + IC	1.61 B+SP+Bldg	\$2,383,838

FPC Polk

Annual Costs (OAQPS Control Cost Manual Chapter 3—Catalytic Incinerators)

Cost Item	Factor			
Direct Annual Costs, DC				
Operating labor				
Operator			0.5 hr/shift	
Supervisor			15% of operator	
Operating materials				
Reagent	403 lb/hr *		8760 hr/yr/2000lb/T*	300 \$/T =
Maintenance				
Labor			0.5 hr/shift	
Material			100% of maintenance labor	
Catalyst replacement				
Electricity	403 lb/hr *	518.1 Btu/lb*		0.000293 kW*hr/Btu*
	0.05 \$/kWh*	8760 hr/yr*		0.90 ef. =
Total DC				
Energy Costs				
Heat rate penalty	470 MW *		8,760 hr/yr *	
	1000 kW/MW *		0.005 loss *	0.05 \$/kWh =
Indirect Annual Costs, IC				
Overhead	60% of maintenance costs			
Administrative charges	2% of Total Capital Investment			
Property tax	1% of Total Capital Investment			
Insurance	1% of Total Capital Investment			
Capital recovery	0.1098 * [Total Capital Investment-1.08(Cat Cost)]			
Total IC				
Total Annual Cost			DC + IC	

Cost
CCT
\$8,213
\$1,232
\$529,542
\$8,213
\$8,213
\$142,500
\$24,116
\$697,911
\$1,029,300
\$333,247
\$47,677
\$0
\$23,838
\$244,835
\$649,597
\$2,376,809

FPC Polk

Cost Effectiveness

Source	CCT	Units
Pollutant	NOx	
Uncontrolled emissions	1309.2	TPY
Control efficiency	80%	
Controlled emissions	261.8	TPY
Pollutants removed	1047.3	TPY
Annual cost	\$2,376,809	/yr
Annual cost - Emission fees saved	\$2,345,388	@ \$30/T
Cost/ton	\$2,269	/T

FPC Polk

Environmental Impacts of SCR at

80% removal

NOx removed

1047 TPY

Ammonia released

122 TPY @

5 ppm

5 ppmvd NOx* E-06 * (20.9/(20.9- 15 % O2)) * 17 MW NH3 * 8740

$$\text{dscf/mmBtu (fuel input) F-factor(gas)} / 385 \text{ scf/lb-mole (vol/mol ratio)} = 0.007 \text{ lbm/mmBtu}$$

Plant data

9/1/00

	FPC Polk					
	Plant Data					
					Capacity	
	Site	FWS Area(s)		Source	(mmBtu/hr)	(MW)
	Polk Co	Chassahowitzka	2	CCT	4087	235
					total	each

Cap Cost

FPC Polk			
Capital Costs (OAQPS Control Cost Manual Chapter 3--Catalytic Incinerators)			
Cost Item		Factor	Cost
Direct Costs			CCT
Purchased equipment costs			
SCR + auxiliary equipment			\$1,250,000
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Site preparation	As required, SP		\$0
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Total Direct Costs, DC	1.30 B+SP+Bldg		\$1,924,838
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Ann Cost

FPC Polk							
Annual Costs (OAQPS Control Cost Manual Chapter 3--Catalytic Incinerators)							
Cost Item	Factor					Cost	
Direct Annual Costs, DC						CCT	
Operating labor							
Operator		0.5	hr/shift			\$8,213	
Supervisor		15%	of operator			\$1,232	
Operating materials							
Reagent	403	lb/hr *	8760	hr/yr/2000lb/T*	300 \$/T =	\$529,542	
Maintenance							
Labor		0.5	hr/shift			\$8,213	
Material		100%	of maintenance labor			\$8,213	
Catalyst replacement							
Electricity	403	lb/hr *	518.1	Btu/lb*	0.000293	kW*hr/Btu*	
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Heat rate penalty		470	MW *	8,760	hr/yr *		
		1000	kW/MW *	0.005	loss *	0.05	\$/kWh =
							\$1,029,300
Indirect Annual Costs, IC							
Overhead		60% of maintenance costs				\$333,247	
Administrative charges		2% of Total Capital Investment				\$47,677	
Property tax		1% of Total Capital Investment				\$0	
Insurance		1% of Total Capital Investment				\$23,838	
Capital recovery		0.1098 * [Total Capital Investment-1.08(Cat Cost)]				\$244,835	
						\$649,597	
Total Annual Cost							
					DC + IC	\$2,376,809	

\$T

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	Cost Effectiveness		
	Source	CCT	Units
	Pollutant	NOx	
	Uncontrolled emissions	1309.2	TPY
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	Pollutants removed	1047.3	TPY
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					Capacity	
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Cost Item		Factor	Cost
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Total Capital Investment = DC + IC	1.61	B+SP+Bldg	\$2,209,958

\$T

	FPC Polk		
	Cost Effectiveness		
	Source	CCT	Units
	Pollutant	NOx	
	Uncontrolled emissions	1309.2	TPY
	Control efficiency	73%	
	Controlled emissions	349.6	TPY
	Pollutants removed	959.6	TPY
	Annual cost	\$2,282,414	/yr
	Annual cost - Emission fees saved	\$2,253,625	@ \$30/T
	Cost/ton	\$2,378	/T

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BUREAU OF AIR REGULATION

November 9, 2001

Mr. Hamilton Oven, P.E., Administrator
Office of Siting Coordination
Florida Department of Environmental Protection
2600 Blair Stone Road (Mail Station 48)
Tallahassee, Florida 32399-2400

Dear Mr. Oven:

Re: Hines Energy Complex – Power Block 2
Supplemental Site Certification Application, PA 92-33SA
Revised Power Block Arrangement Information
Results of Revised Air Quality Modeling

As noted in previous correspondence dated September 25, 2001 and October 4, 2001, Florida Power has made a minor alteration to the arrangement of equipment identified in the above application originally submitted on July 21, 2000. The layout of equipment in Power Block 2, as identified in Figure 3.2.1-2 of the above application, has been modified as reflected in the revised general arrangement drawing enclosed with the September 25, 2001 submittal. This change entails a minor relocation the two combustion turbines (CT).

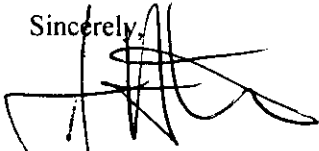
At the Departments request, an additional air modeling analysis was conducted to determine any changes in air quality impacts that would result from the relocation of the CTs. No changes in CT emission rates, operating parameters, or property fence line location have occurred. The CTs of power block 2 and associated equipment have been relocated approximately 135 feet west of their original location identified in the July, 2000 Site Certification Application (SCA) Figure 3.2.1-2.

The revised near-field air modeling results are presented in Tables 5.6-1 from Chapter 5 of the SCA and Prevention of Significant Deterioration (PSD) Tables 5-1, 7-1, D-1, D-2, and D-3, located in SCA Appendix 10.1.5. As shown in Table 5.6-1 and Table 5-1, the maximum impacts due to the design changes have been reduced and are predicted to remain below the EPA Class II significant impact levels for all pollutants evaluated. These revised tables are enclosed and the revised air modeling files will be transferred to the Department electronically.

Florida Power requests a letter of concurrence from the Department that no changes are necessary to either the Conditions of Certification or to permit PSD-FL-296 as a result of the CT relocation.

Please feel free to contact me at (727) 826-4363 if you have any questions or need additional information.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jamie Hunter', written over the word 'Sincerely,'.

Jamie Hunter
Environmental Specialist

jjh/JJH016

Enclosures

c: Al Linero, FDEP – Tallahassee (w/enc)
Cleve Holiday, FDEP – Tallahassee (w/enc)
Robert McCann - Golder Associates, Inc.

**TABLE 5.6-1
SUMMARY OF MAXIMUM CONCENTRATIONS PREDICTED FOR POWER BLOCK 2 COMPARED TO THE PSD
CLASS II SIGNIFICANT IMPACT LEVELS**

Pollutant	Averaging Period	Maximum Concentration Predicted for Power Block 2^(a) (ug/m³)	PSD Class II Significant Impact Level (ug/m³)	PSD Class II Increment (ug/m³)	Ambient Air Quality Standard^(c) (ug/m³)	Predicted Impact Greater than the PSD Significant Impact Level? (Yes/No)
Carbon Monoxide	1-Hour	113	2,000	N/A	40,000	No
	8-Hour	28.6	500	N/A	10,000	No
Nitrogen Dioxide	Annual	0.115	1	25	100	No
Sulfur Dioxide	3-Hour	15.2	25	512	1,300	No
	24-Hour	4.1	5	91	260	No
	Annual	0.042	1	20	60	No
Particulate Matter (PM ₁₀) ⁽²⁾	24-Hour	2.5	5	30	150	No
	Annual	0.047	1	17	50	No
Sulfuric Acid Mist	24-Hour	0.62	N/A	N/A	N/A	N/A

^(a) Concentrations are the highest values for this analysis.

^(b) As a conservative approach, all project emissions of particulate matter were assumed to be in the form of PM₁₀.

^(c) Florida AAQS, Rule 62-204.240

N/A = Not applicable

Revision 10/30/01: Combustion turbines relocated 135 feet west of original location identified in SCA Figure 3.2.1-2, July 2000.

Source: Golder, 2001.

TABLE 5-1
SUMMARY OF MAXIMUM MODELED POWER BLOCK 2 IMPACTS
COMPARED TO THE PSD MONITORING *DE MINIMIS* VALUES

Pollutant	Averaging Period	Highest Modeled Concentration (ug/m³)	PSD <i>De Minimis</i> Level (ug/m³)	Greater than the <i>De Minimis</i> Level?
Sulfur Dioxide (SO ₂)	24-Hour	4.1	13	NO
Particulate Matter (PM ₁₀)	24-Hour	2.5	10	NO
Nitrogen Dioxide (NO ₂)	Annual	0.115	14	NO
Carbon Monoxide (CO)	8-Hour	28.6	575	NO
Volatile Organic Compounds (VOC)	Annual	57	100 TPY	NO
Sulfuric Acid Mist	NA	NA	NA	NA

Revision 10/30/01: Combustion turbines relocated 135 feet west of original location identified in SCA Figure 3.2.1-2, July 2000.

Source: Golder, 2001.

TABLE 7-1
SUMMARY OF MAXIMUM CONCENTRATIONS PREDICTED FOR POWER BLOCK 2
COMPARED TO THE PSD CLASS II SIGNIFICANT IMPACT LEVELS

Pollutant	Averaging Period	Maximum Predicted Concentration ^(a) (ug/m ³)	Location ^(b)		Year	Significant Impact Level (ug/m ³)	Distance to Significant Impact Level (km)	Predicted Impact Greater than the Significant Impact Level? (Yes/No)
			X (m)	Y (m)				
Carbon Monoxide	1-Hour	113	-433	250	1988	2,000	None	No
	8-Hour	28.6	398	-202	1991	500	None	No
Nitrogen Dioxide	Annual	0.115	3000	0	1987	1	None	No
Sulfur Dioxide	3-Hour	15.2	398	-202	1991	25	None	No
	24-Hour	4.1	398	-202	1991	5	None	No
	Annual	0.042	3000	0	1987	1	None	No
Particulate Matter (PM ₁₀) ^(c)	24-Hour	2.5	398	-202	1991	5	None	No
	Annual	0.047	3000	0	1987	1	None	No
Sulfuric Acid Mist	24-Hour	0.62	398	-202	1991	N/A	N/A	N/A

(a) Concentrations are highest values for this analysis; annual average concentrations based on firing natural gas and fuel oil for 7,760 and 1,000 hours, respectively.

(b) With respect to zero point of 414.30 km E; 3,073.88 km N.

(c) As a conservative approach, all project emissions of particulate matter were assumed to be in the form of PM₁₀.

N/A = Not applicable

Revision 10/30/01: Combustion turbines relocated 135 feet west of original location identified in SCA Figure 3.2.1-2, July 2000.

Golder, 2001.

Table D-1. Maximum Pollutant Concentrations Predicted for One Combustion Turbine in Combined Cycle Operation Firing Natural Fuel and Distillate Fuel Oil -- Revision: 10/30/01
 Based on Modeled Generic Emission Rate

Pollutant	Maximum Emission Rates (lb/hr) by Operating Load and Air Temperature									Averaging Time	Maximum Predicted Concentrations (ug/m ³) by Operating Load and Air Temperature (1)									
	Base Load			80% Load			60% (NG) /65% Load(FO)				Base Load			80% Load			60% (NG) /65% Load(FO)			
	20°F	59°F	90°F(NG)/ 105°F (FO)	20°F	59°F	90°F(NG)/ 105°F (FO)	20°F	59°F	90°F(NG)/ 105°F (FO)		20°F	59°F	90°F(NG)/ 105°F (FO)	20°F	59°F	90°F(NG)/ 105°F (FO)	20°F	59°F	90°F(NG)/ 105°F (FO)	
Natural Gas																				
Generic (10 g/s)	79.37	79.37	79.37	79.37	79.37	79.37	79.37	79.37	79.37	79.37	Annual	0.1235	0.1347	0.1448	0.1396	0.1569	0.1662	0.1929	0.2565	0.2770
											24-Hour	2.4650	2.8836	3.0766	2.9861	3.2633	3.4557	4.0144	4.2524	4.4727
											8-Hour	4.9652	5.3013	5.6688	5.4823	5.8272	6.3218	7.3493	7.7819	8.1646
											3-Hour	8.7686	9.8541	10.8862	10.4032	11.2902	12.2606	14.2225	15.0473	15.7762
											1-Hour	18.5478	20.6923	22.7062	21.7667	23.4881	25.3524	29.0645	30.6034	31.9535
SO ₂	5.6	5.1	4.8	4.3	4.3	4.0	3.8	3.6	3.3	Annual	0.00876	0.00869	0.00871	0.00756	0.00849	0.00832	0.00916	0.01158	0.01150	
										24-Hour	0.1749	0.1861	0.1830	0.1618	0.1765	0.1729	0.1907	0.1919	0.1857	
										3-Hour	0.622	0.636	0.655	0.564	0.611	0.614	0.675	0.679	0.655	
PM10	8.5	7.9	7.2	7.5	7.1	6.3	6.1	5.8	5.5	Annual	0.0132	0.0133	0.0131	0.0132	0.0140	0.0132	0.0148	0.0189	0.0191	
										24-Hour	0.2628	0.2854	0.2785	0.2817	0.2913	0.2752	0.3074	0.3128	0.3088	
NO _x	25.0	23.1	21.2	20.6	19.1	17.7	16.8	15.9	14.6	Annual	0.039	0.039	0.039	0.036	0.038	0.037	0.041	0.051	0.051	
CO	46.0	42.0	37.0	38.0	35.0	33.0	154.0	146.0	134.0	8-Hour	2.88	2.81	2.64	2.62	2.57	2.63	14.26	14.32	13.79	
										1-Hour	10.75	10.95	10.59	10.42	10.36	10.54	56.40	56.30	53.95	
Distillate Fuel Oil																				
Generic (10 g/s)	79.37	79.37	79.37	79.37	79.37	79.37	79.37	79.37	79.37	Annual	0.0707	0.0740	0.0834	0.0716	0.0760	0.0859	0.0794	0.0839	0.0992	
										24-Hour	1.5007	1.5587	1.8853	1.5148	1.6033	1.9678	1.7485	1.9013	2.1324	
										8-Hour	3.0964	3.2101	3.5951	3.1242	3.2852	3.7766	3.3961	3.6306	4.1293	
										3-Hour	5.3484	5.7387	7.0218	5.4208	6.0191	7.3718	6.4370	7.0903	8.0515	
										1-Hour	11.2302	12.0835	14.6628	11.4375	12.6510	15.3588	13.4929	14.7993	16.7019	
SO ₂	105.6	97.1	86.0	85.6	79.4	71.0	72.0	68.0	62.0	Annual	0.094	0.091	0.090	0.077	0.076	0.077	0.072	0.072	0.077	
										24-Hour	2.00	1.91	2.04	1.63	1.60	1.76	1.59	1.63	1.67	
										3-Hour	7.11	7.02	7.61	5.85	6.02	6.60	5.84	6.07	6.29	
PM10	64.8	59.6	52.5	52.4	48.6	44.3	43.5	40.9	37.2	Annual	0.0577	0.0556	0.0552	0.0472	0.0465	0.0480	0.0435	0.0433	0.0465	
										24-Hour	1.225	1.171	1.247	0.999	0.981	1.100	0.958	0.980	0.999	
NO _x	116.9	109.4	96.7	96.6	89.4	80.0	81.2	76.0	69.3	Annual	0.104	0.102	0.102	0.087	0.086	0.087	0.081	0.080	0.087	
CO	112.0	106.0	91.0	111.0	103.0	89.0	101.0	94.0	86.0	8-Hour	4.37	4.29	4.12	4.37	4.26	4.24	4.32	4.30	4.47	
										1-Hour	15.85	16.14	16.81	16.00	16.42	17.22	17.17	17.53	18.10	

Note: NG = natural gas; FO = fuel oil

(1) Concentrations are based on highest predicted concentrations using five years of meteorological for 1987 to 1991 of surface and upper air data from the National Weather Service stations at Tampa International Airport and Ruskin, respectively.

Pollutant concentrations were based on a modeled or generic concentration predicted using a modeled emission rate of 79.37 lb/hr (10 g/s). Specific pollutant concentrations were estimated by multiplying the modeled concentration (at 10 g/s) by the ratio of the specific pollutant emission rate to the modeled emission rate of 10 g/s.

Revision 10/30/01: Combustion turbines relocated 135 feet west of original location identified in SCA Figure 3.2.1-2, July 2000.

Table D-2. Maximum Pollutant Concentrations Predicted for Two Combined-Cycle Combustion Turbines Firing -- Revision: 10/30/01
Natural Gas and Distillate Fuel Oil by Operating Load and Inlet Ambient Temperature

		Maximum Predicted Concentrations (ug/m ³) by Operating Load and Air Temperature (1)								
Pollutant	Averaging Time	Base Load			80% Load			60% (NG) /65% Load(FO)		
		20°F	59°F	90°F(NG)/	20°F	59°F	90°F(NG)/	20°F	59°F	90°F(NG)/
				105°F (FO)			105°F (FO)			105°F (FO)
Natural Gas										
SO ₂	Annual	0.018	0.017	0.017	0.015	0.017	0.017	0.018	0.023	0.023
	24-Hour	0.350	0.372	0.370	0.324	0.353	0.346	0.381	0.384	0.371
	3-Hour	1.24	1.27	1.31	1.13	1.22	1.23	1.35	1.36	1.31
PM10	Annual	0.0263	0.0267	0.0262	0.0263	0.0280	0.0265	0.0295	0.0377	0.0383
	24-Hour	0.526	0.571	0.557	0.563	0.583	0.550	0.615	0.626	0.618
NO _x	Annual	0.078	0.078	0.077	0.072	0.076	0.074	0.082	0.103	0.102
CO	8-Hour	5.76	5.61	5.29	5.25	5.14	5.26	28.5	28.6	27.6
	1-Hour	21.5	21.9	21.2	20.8	20.7	21.1	113	113	108
Distillate Fuel Oil										
SO ₂	Annual	0.188	0.181	0.181	0.154	0.152	0.154	0.144	0.144	0.155
	24-Hour	3.99	3.82	4.09	3.27	3.21	3.52	3.17	3.26	3.33
	3-Hour	14.2	14.0	15.2	11.7	12.0	13.2	11.7	12.1	12.6
PM10	Annual	0.115	0.111	0.110	0.0945	0.0930	0.0960	0.0870	0.0865	0.0930
	24-Hour	2.45	2.34	2.49	2.00	1.96	2.20	1.92	1.96	2.00
NO _x	Annual	0.21	0.20	0.20	0.17	0.17	0.17	0.16	0.16	0.17
CO	8-Hour	8.74	8.57	8.24	8.74	8.53	8.5	8.6	8.6	8.9
	1-Hour	31.7	32.3	33.6	32.0	32.8	34.4	34.3	35.1	36.2

Note: NG= natural gas; FO= fuel oil

(1) Concentrations are based on highest predicted concentrations using five years of meteorological for 1987 to 1991 of surface and upper air data from the National Weather Service stations at Tampa International Airport and Ruskin, respectively.

Revision 10/30/01: Combustion turbines relocated 135 feet west of original location identified in SCA Figure 3.2.1-2, July 2000.

Table D-3. Summary of Maximum Pollutant Concentrations Predicted for Two Combined-Cycle Combustion Turbines -- Revision: 10/30/01
Compared to the EPA Class II Significant Impact Levels, PSD Class II Increments, and AAQS

Pollutant	Averaging Time	Maximum Concentration (ug/m ³)			EPA Class II Significant Impact Levels (ug/m ³)	PSD Class II Increments (ug/m ³)	AAQS (ug/m ³)
		Natural Gas	Fuel Oil	Natural Gas/ Fuel Oil Annual (1)			
SO ₂	Annual	0.023	0.19	0.042	1	25	60
	24-Hour	0.38	4.1	NA	5	91	260
	3-Hour	1.4	15.2	NA	25	512	1,300
PM ₁₀	Annual	0.038	0.12	0.047	1	17	50
	24-Hour	0.63	2.5	NA	5	30	150
NO _x	Annual	0.103	0.21	0.115	1	25	100
CO	8-Hour	28.6	8.9	NA	500	NA	10,000
	1-Hour	113	36.2	NA	2,000	NA	40,000

NA = not applicable

(1) Based on firing natural gas and fuel oil for the following hours:

Natural gas	7,760 hours
Fuel Oil	1,000 hours
	8,760 hours

Revision 10/30/01: Combustion turbines relocated 135 feet west of original location identified in SCA Figure 3.2.1-2, July 2000.



Florida Power
A Progress Energy Company

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SEP 27 2001

September 25, 2001

BUREAU OF AIR REGULATION

Mr. Hamilton Oven, P.E., Administrator
Office of Siting Coordination
Florida Department of Environmental Protection
2600 Blair Stone Road (Mail Station 48)
Tallahassee, Florida 32399-2400

Dear Mr. Oven:

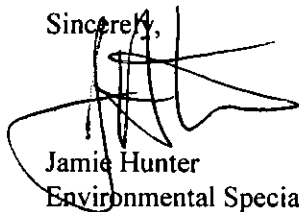
Re: Hines Energy Complex – Power Block 2
Supplemental Site Certification Application, PA 92-33SA
Revised Power Block Arrangement Information

Please be advised that due to engineering considerations, Florida Power has made a minor alteration to the arrangement of equipment identified in the above application originally submitted on July 21, 2000. The layout of equipment in Power Block 2, as identified in Figure 3.2.1-2 of the above application, has been modified as reflected in the enclosed revised general arrangement drawing. This change entails shifting the two combustion turbines/generators (CTs) approximately 100 feet to the west and relocating the heat recovery steam generator from the west-side of the CTs to the east-side of the CTs.

This minor change in the equipment layout is not expected to have any significant impact related to any other information or analysis submitted in the above application.

Please feel free to contact me at (727) 826-4363 if you have any questions or need additional information.

Sincerely,



Jamie Hunter
Environmental Specialist

jjh/JJH013

Enclosure

c: Al Linero, FDEP – Tallahassee (w/enc)

