BLACK & VEATCH LLP

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FAX NUMBER: 913-458-2934 913-458-2936 913-458-2939

FACSIMILE TRANSMISSION

TO: Al Linero
COMPANY: FDEP
FAX NUMBER: 850-922-6979
TELEPHONE NUMBER: 850-921-9523
FROM: Tim Hillman
EXTENSION: 7928 LOCATION: P3B4

B&V PROJECT: 59140
B&V PHASE: 0030
B&V FILE:

PAGE: 1 of 7
DATE: 1/5/99

NOTE TO RECEIVING OPERATOR
In the event of incomplete transmission, please call (913) 458-7218.

TRANSMITTAL DATE/TIME: OPERATOR'S INITIALS:

SUBJECT: KUA Unit 3 Draft Permit Application VOC ton per year Calculation

MESSAGE: Al,

As we discussed in our conference call this morning (1/5/99), please find below revised VOC emission calculations that demonstrate VOC emissions are less than 100 tpy. The emissions are based on the highest gas and oil lb/h VOC emission levels assessed and included in the PSD Air Permit Application for the GE 7FA machine. The applicable turbine performance data sheets from Attachment 1 of the PSD Air Permit Application for Unit 3 are attached to this fax for reference.

Maximum VOC lb/h emission rates for the GE 7FA are as follows:
Gas 3.2 lb/h: at conditions of 102 F with evaporative cooling and duct firing.
Oil 7.7 lb/h: at conditions of 19 F.

Assuming an entire year of gas firing, the calculated VOC tpy is as follows:
(3.2 lb/h)(8760 h/yr)/(2000 lb/ton) = 14.0 tpy

Assuming an 720 h/yr of oil firing, the calculated VOC tpy is as follows:
(7.7 lb/h)(720 h/yr)/(2000 lb/ton) = 2.8 tpy

Assuming 8,040 h/yr of gas firing and 720 h/yr oil firing, the calculated VOC tpy is as follows:
[(3.2 lb/h)(8040 h/yr) + (7.7 lb/h)(720 h/yr)]/(2000 lb/ton) = 15.6 tpy

If you have any questions, please do not hesitate to call me at 913-458-7928.

Regards
Tim Hillman

cc: Ben Sharma, KUA, 407-847-0787 (FAX)

KUA Cane Island Unit 3
GE 7FA 1x1 Combined Cycle

	* 100 Percent Load - Duct Firing - NG & DO *			
Case Name	Case 23	Case 24	Case 25	Case 26
CTG Model	GE 7241FA	GE 7241FA	GE 7241FA	GE 7241FA
Combustor/NOx Emission Rate	DLN/15 ppm	DLN/15 ppm	DLN/42 ppm	DLN/42 ppm
CTG Fuel Type	Natural Gas	Natural Gas	Distillate	Distillate
CTG Load Level (percent of Base Load)	Base	Base	Base	Base
CTG Performance Reference	GE 05/21/98	GE 05/21/98	GE 05/21/98	GE 05/21/98
Evaporative Cooler On/Off	On	Off	On	Off
HRSG Duct Firing On/Off	On	On	On	On
Ambient Temperature, F	102	102	102	102
Ambient Relative Humidity, %	45	45	45	45
CTG Compressor Inlet Temperature, F	84.7	102	84.7	102
CTG Compr. Inlet Relative Humidity, %	92	45	92	45
Atmospheric Pressure, psia	14.656	14.656	14.656	14.656
Site Elevation, ft	75	75	75	75
Inlet Loss, in. H2O	4.5	4.5	4.5	4.5
Exhaust Loss, in. H2O	14.0	14.0	14.0	14.0
CTG Fuel Type	Natural Gas	Natural Gas	Distillate	Distillate
Number of CTGs	1	1	1	1
Gross CTG Output, kW	152,900	141,500	161,500	151,300
Gross CTG Heat Rate, Btu/kWh (LHV)	9,680	9,900	10,260	10,480
CTG Heat Input, MBtu/h (LHV)	1,480.07	1,400.85	1,656.89	1,585.62
CTG Heat Input, MBtu/h (HHV)	1,642.12	1,554.22	1,769.23	1,693.03
CTG Fuel Flow, lb/h	70,550	66,770	89,150	85,310
CTG Water Injection Flow, lb/h	0	0	94,100	93,960
CTG Steam Injection Flow, lb/h	0	0	0	0
Injection Ratio	0.000	0.000	1.056	1.101
CTG Exhaust Flow, lb/h	3,307,000	3,184,000	3,416,600	3,296,660
CTG Exhaust Temperature, F	1,143	1,157	1,131	1,145
Duct Burner Heat Input, MBtu/h (LHV)	39.02	36.72	16.91	32.53
Duct Burner Heat Input, MBtu/h (HHV)	43.29	40.74	18.06	34.73
Stack Exit Temperature, F	192	189	282	278
Stack Exhaust Pressure, in. H2O above Patm	0	0	0	0
Stack Diameter, ft	18.0	18.0	18.0	18.0
Stack Exit Velocity, ft/s	61.3	58.6	72.0	69.0

KUA Cane Island Unit 3
GE 7FA 1x1 Combined Cycle

	* 100 Percent Load - Duct Firing - NG & DO *			
Case Name	Case 23	Case 24	Case 25	Case 26
CTG Model	GE 7241FA	GE 7241FA	GE 7241FA	GE 7241FA
Combustor/NOx Emission Rate	DLN/15 ppm	DLN/15 ppm	DLN/42 ppm	DLN/42 ppm
CTG Fuel Type	Natural Gas	Natural Gas	Distillate	Distillate
CTG Load Level (percent of Base Load)	Base	Base	Base	Base
CTG Performance Reference	GE 05/21/98	GE 05/21/98	GE 05/21/98	GE 05/21/98
Evaporative Cooler On/Off	On	Off	On	Off
HRSG Duct Firing On/Off	On	On	On	On
CTG Exhaust Analysis (Volume Basis - Wet)				
O2	12.19%	12.43%	11.06%	11.20%
CO2	3.70%	3.65%	5.28%	5.23%
H2O	10.78%	10.09%	12.77%	12.32%
N2	72.42%	72.92%	70.02%	70.37%
Ar	0.91%	0.92%	0.88%	0.88%
SO2	0.00001%	0.00001%	0.00114%	0.00114%
Total	100.00%	100.00%	100.00%	100.00%
Emissions (at CTG exhaust flange)				
NOx, ppmvd @ 15% O2	15.0	15.0	42.0	42.0
NOx, lb/h as NO2	89.6	84.8	285.1	272.8
CO, ppmvd	15.0	15.0	20.0	20.0
CO, ppmvw	13.4	13.5	17.4	17.5
CO, ppmvd @ 15% O2	12.3	12.5	14.4	14.6
CO, lb/h	44.1	42.7	59.4	57.5
UHC, ppmvd	7.85	7.79	8.02	7.98
UHC, ppmvw	7.00	7.00	7.00	7.00
UHC, ppmvd @ 15% O2	6.41	6.51	5.78	6.82
UHC, lb/h as CH4	13.20	12.68	13.64	13.14
VOC, ppmvd	1.57	1.56	4.01	3.99
VOC, ppmvw	1.40	1.40	3.50	3.50
VOC, ppmvd @ 15% O2	1.28	1.30	2.89	2.91
VOC, lb/h as CH4	2.64	2.54	6.82	6.57
SO2, ppmvd	0.13	0.13	13.12	12.97
SO2, ppmvw	0.12	0.12	11.45	11.37
SO2, lb/h	0.90	0.85	89.07	85.23
Particulates (TSP = PM10), lb/h (dry filterables only)	18.00	18.00	43.00	43.00
CTG Fuel LHV, Btu/lb	20,980	20,980	18,586	18,586
CTG Fuel HHV, Btu/lb	23,277	23,277	19,845	19,845
HHV/LHV Ratio	1.1095	1.1095	1.0677	1.0677
CTG Fuel Composition (Ultimate Analysis by Weight)				
Ar	0.000000%	0.000000%	0.000000%	0.000000%
C	74.043570%	74.043570%	86.135000%	86.135000%
H2	24.256660%	24.256660%	13.800000%	13.800000%
N2	0.575950%	0.575950%	0.015000%	0.015000%
O2	1.123180%	1.123180%	0.000000%	0.000000%
S	0.000640%	0.000640%	0.050000%	0.050000%
Total	100.00%	100.00%	100.00%	100.00%
CTG Wet (Total) Exhaust Gas Analysis				
Molecular Wt, lb/mol	28.12	28.19	28.13	28.17
Gas Constant, ft-lbf/lbm-R	54.937	54.798	54.930	54.841
Specific Volume, ft^3/lb	40.33	40.58	40.02	40.31
Exhaust Gas Flow, acfm	2,222,855	2,153,445	2,276,872	2,214,806
Specific Volume, scf/lb	13.49	13.48	13.49	13.47
Exhaust Gas Flow, scfm	743,524	714,277	768,166	740,100
Exhaust Gas Flow, lb/h	3,307,000	3,184,000	3,416,600	3,296,680

KUA Cane Island Unit 3
GE 7FA 1x1 Combined Cycle

	* 100 Percent Load - Duct Firing - NG & DO *			
Case Name	Case 23	Case 24	Case 25	Case 26
CTG Model	GE 7241FA	GE 7241FA	GE 7241FA	GE 7241FA
Combustor/NOx Emission Rate	DLN/15 ppm	DLN/15 ppm	DLN/42 ppm	DLN/42 ppm
CTG Fuel Type	Natural Gas	Natural Gas	Distillate	Distillate
CTG Load Level (percent of Base Load)	Base	Base	Base	Base
CTG Performance Reference	GE 05/21/98	GE 05/21/98	GE 05/21/98	GE 05/21/98
Evaporative Cooler On/Off	On	Off	On	Off
HRSG Duct Firing On/Off	On	On	On	On
Stack Exhaust Analysis (Volume Basis - Wet)				
Ar	0.91%	0.91%	0.88%	0.88%
CO2	3.79%	3.74%	5.32%	5.33%
H2O	10.96%	10.27%	12.82%	12.41%
N2	72.35%	72.85%	70.01%	70.33%
O2	11.99%	12.23%	10.98%	11.04%
SO2	0.00001%	0.00001%	0.00116%	0.00116%
Total	100.00%	100.00%	100.00%	100.00%
Stack Exhaust Gas Analysis (Wet)				
Molecular Wt, lb/mol	28.11	28.18	28.13	28.17
Gas Constant, ft-lb/lbm-R	54.959	54.819	54.930	54.840
Specific Volume, ft^3/lb	16.97	16.85	19.30	19.17
Exhaust Gas Flow, acfm	935,856	894,665	1,099,299	1,053,842
Specific Volume, scf/lb	13.50	13.46	13.49	13.47
Exhaust Gas Flow, scfm	744,494	714,670	768,370	740,493
Exhaust Gas Flow, lb/h	3,308,860	3,185,750	3,417,510	3,298,410
Emissions (at Stack exit)				
NOx, ppmvd @15% O2 without SCR	15.2	15.2	41.6	41.6
NOx, lb/h as NO2 without SCR	93.0	88.1	286.5	275.6
NOx, ppmvd @15% O2 with SCR	4.0	4.0	11.1	11.1
NOx, lb/h as NO2 with SCR	24.5	23.2	76.1	73.2
NH3 slip, ppmvd @15% O2 with SCR	10.0	10.0	10.0	10.0
NH3 slip, lb/h with SCR	22.4	21.2	25.3	24.5
CO, ppmvd without Catalyst	16.5	16.4	20.6	21.2
CO, lb/h without Catalyst	48.4	46.7	61.2	61.0
CO, ppmvd @ 15% O2 without Catalyst	13.1	13.4	14.7	15.2
CO, ppmvd with Catalyst	16.5	16.4	20.6	21.2
CO, lb/h with Catalyst	48.4	46.7	61.2	61.0
CO, ppmvd @ 15% O2 with Catalyst	13.1	13.4	14.7	15.2
SO2, ppmvd	0.14	0.13	13.26	13.24
SO2, ppmvw	0.12	0.12	11.56	11.60
SO2, lb/h	0.93	0.88	89.98	86.98
UHC, ppmvd	9.4	9.3	8.7	9.3
UHC, ppmvw	8.4	8.3	7.6	8.1
UHC, ppmvd @ 15% O2	7.3	7.6	6.2	6.6
UHC, lb/h as CH4	15.6	15.1	14.7	15.2
VOC, ppmvd	1.9	1.9	4.1	4.2
VOC, ppmvw	1.7	1.7	3.6	3.7
VOC, ppmvd @ 15% O2	1.5	1.5	3.0	3.0
VOC, lb/h as CH4	3.2	3.0	7.0	7.0
Particulates (TSP = PM10), lb/h (dry filterables only)	18.6	18.6	43.3	43.5

Notes:
1. Values shown above are for one combustion turbine/HRSG unit only.
2. Sample anelysis for natural gas fuel received from KUA, sulfur at 0.2 gr/100 scf added for illustration purposes only.
3. 73% effective SCR and no CO catalyst.
4. Particulates are front and back half.
5. CTG performance from General Electric data received 5/21/98 for KUA.
6. Duct Burner NOx, lb/MBtu (HHV) is 0.0800
7. Duct Burner CO, lb/MBtu (HHV) is 0.1000
8. Duct Burner Particulate, lb/MBtu (HHV) is 0.0150
9. Duct Burner UHC (CH4), lb/MBtu (HHV) is 0.0600
10. Duct Burner VOC (CH4), lb/MBtu (HHV) is 0.0120

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KUA Cane Island Unit 3
GE 7FA 1x1 Combined Cycle

	* 100 Percent Load - Distillate Oil *				
Case Name	Case 12	Case 13	Case 14	Case 15	Case 16
CTG Model	GE 7241FA	GE 7241FA	GE 7241FA	GE 7241FA	GE 7241FA
Combustor/NOx Emission Rate	DLN/42 ppm	DLN/42 ppm	DLN/42 ppm	DLN/42 ppm	DLN/42 ppm
CTG Fuel Type	Distillate	Distillate	Distillate	Distillate	Distillate
CTG Load Level (percent of Base Load)	Base	Base	Base	Base	Base
CTG Performance Reference	GE 05/21/98	GE 05/21/98	GE 05/21/98	GE 05/21/98	GE 05/21/98
Evaporative Cooler On/Off	Off	On	Off	On	Off
HRSG Duct Firing On/Off	Off	Off	Off	Off	Off
Ambient Temperature, F	19	72	72	102	102
Ambient Relative Humidity, %	55	74	74	45	45
CTG Compressor Inlet Temperature, F	19	66.7	72	84.7	102
CTG Compr. Inlet Relative Humidity, %	55	96	74	92	45
Atmospheric Pressure, psia	14.656	14.656	14.656	14.656	14.656
Site Elevation, ft	75	75	75	75	75
Inlet Loss, in. H2O	4.5	4.5	4.5	4.5	4.5
Exhaust Loss, in. H2O	14.0	14.0	14.0	14.0	14.0
CTG Fuel Type	Distillate	Distillate	Distillate	Distillate	Distillate
Number of CTGs	1	1	1	1	1
Gross CTG Output, kW	169,300	174,000	171,600	161,500	151,300
Gross CTG Heat Rate, Btu/kWh (LHV)	10,090	10,110	10,150	10,260	10,460
CTG Heat Input, MBtu/h (LHV)	1,910.04	1,759.14	1,740.73	1,656.99	1,585.62
CTG Heat Input, MBtu/h (HHV)	2,039.42	1,878.30	1,858.65	1,769.23	1,693.03
CTG Fuel Flow, lb/h	102,770	94,660	93,660	89,150	85,310
CTG Water Injection Flow, lb/h	131,760	110,720	111,020	94,100	93,990
CTG Steam Injection Flow, lb/h	0	0	0	0	0
Injection Ratio	1.282	1.170	1.185	1.056	1.101
CTG Exhaust Flow, lb/h	3,901,400	3,586,520	3,552,540	3,416,600	3,298,660
CTG Exhaust Temperature, F	1,068	1,112	1,116	1,131	1,145
Duct Burner Heat Input, MBtu/h (LHV)	0	0	0	0	0
Duct Burner Heat Input, MBtu/h (HHV)	0	0	0	0	0
Stack Exit Temperature, F	281	282	281	284	281
Stack Exhaust Pressure, in. H2O above Patm	0	0	0	0	0
Stack Diameter, ft	18.0	18.0	18.0	18.0	18.0
Stack Exit Velocity, ft/s	81.4	75.3	74.5	72.2	69.3

KUA Cane Island Unit 3
GE 7FA 1x1 Combined Cycle

	* 100 Percent Load - Distillate Oil *				
Case Name	Case 12	Case 13	Case 14	Case 15	Case 16
CTG Model	GE 7241FA	GE 7241FA	GE 7241FA	GE 7241FA	GE 7241FA
Combustor/NOx Emission Rate	DLN/42 ppm	DLN/42 ppm	DLN/42 ppm	DLN/42 ppm	DLN/42 ppm
CTG Fuel Type	Distillate	Distillate	Distillate	Distillate	Distillate
CTG Load Level (percent of Base Load)	Base	Base	Base	Base	Base
CTG Performance Reference	GE 05/21/98	GE 05/21/98	GE 05/21/98	GE 05/21/98	GE 05/21/98
Evaporative Cooler On/Off	Off	On	Off	On	Off
HRSG Duct Firing On/Off	Off	Off	Off	Off	Off
CTG Exhaust Analysis (Volume Basis - Wet)					
O2	11.38%	11.13%	11.16%	11.06%	11.20%
CO2	5.36%	5.34%	5.34%	5.26%	5.23%
H2O	10.60%	11.90%	11.80%	12.77%	12.32%
N2	71.76%	70.73%	70.81%	70.02%	70.37%
Ar	0.90%	0.89%	0.89%	0.88%	0.88%
SO2	0.00117%	0.00116%	0.00116%	0.00114%	0.00114%
Total	100.00%	100.00%	100.00%	100.00%	100.00%
Emissions (at CTG exhaust flange)					
NOx, ppmvd @ 15% O2	42.0	42.0	42.0	42.0	42.0
NOx, lb/h as NO2	328.6	302.6	299.4	285.1	272.6
CO, ppmvd	20.0	20.0	20.0	20.0	20.0
CO, ppmvw	17.9	17.6	17.6	17.4	17.5
CO, ppmvd @ 15% O2	14.5	14.3	14.4	14.4	14.6
CO, lb/h	68.9	62.7	62.2	59.4	57.5
UHC, ppmvd	7.83	7.95	7.94	8.02	7.98
UHC, ppmvw	7.00	7.00	7.00	7.00	7.00
UHC, ppmvd @ 15% O2	5.68	5.70	5.70	5.78	5.82
UHC, lb/h as CH4	15.44	14.27	14.13	13.64	13.14
VOC, ppmvd	3.91	3.97	3.97	4.01	3.99
VOC, ppmvw	3.50	3.50	3.50	3.50	3.50
VOC, ppmvd @ 15% O2	2.84	2.85	2.85	2.89	2.91
VOC, lb/h as CH4	7.72	7.13	7.06	6.82	6.57
SO2, ppmvd	13.04	13.19	13.17	13.12	12.97
SO2, ppmvw	11.66	11.62	11.61	11.45	11.37
SO2, lb/h	102.67	94.56	93.57	89.07	85.23
Particulates (TSP = PM10), lb/h (dry filterables only)	44.00	44.00	44.00	43.00	43.00
CTG Fuel LHV, Btu/lb	18,586	18,586	18,586	18,586	18,586
CTG Fuel HHV, Btu/lb	19,845	19,845	19,845	19,845	19,845
HHV/LHV Ratio	1.0677	1.0677	1.0677	1.0677	1.0677
CTG Fuel Composition (Ultimate Analysis by Weight)					
Ar	0.000000%	0.000000%	0.000000%	0.000000%	0.000000%
C	86.135000%	86.135000%	86.135000%	86.135000%	86.135000%
H2	13.800000%	13.800000%	13.800000%	13.800000%	13.800000%
N2	0.015000%	0.015000%	0.015000%	0.015000%	0.015000%
O2	0.000000%	0.000000%	0.000000%	0.000000%	0.000000%
S	0.050000%	0.050000%	0.050000%	0.050000%	0.050000%
Total	100.00%	100.00%	100.00%	100.00%	100.00%
CTG Wet (Total) Exhaust Gas Analysis					
Molecular Wt, lb/mol	28.37	28.23	28.24	28.13	28.17
Gas Constant, ft-lbf/lbm-R	54.449	54.729	54.708	54.930	54.841
Specific Volume, ft^3/lb	38.10	39.40	39.48	40.02	40.31
Exhaust Gas Flow, acfm	2,477,389	2,355,148	2,337,571	2,276,872	2,214,808
Specific Volume, scf/lb	13.37	13.44	13.43	13.49	13.47
Exhaust Gas Flow, scfm	869,362	803,380	795,177	768,186	740,100
Exhaust Gas Flow, lb/h	3,901,400	3,586,620	3,552,640	3,416,800	3,296,680

KUA Cane Island Unit 3
GE 7FA 1x1 Combined Cycle

	* 100 Percent Load - Distillate Oil *				
Case Name	Case 12	Case 13	Case 14	Case 15	Case 16
CTG Model	GE 7241FA	GE 7241FA	GE 7241FA	GE 7241FA	GE 7241FA
Combustor/NOx Emission Rate	DLN/42 ppm	DLN/42 ppm	DLN/42 ppm	DLN/42 ppm	DLN/42 ppm
CTG Fuel Type	Distillate	Distillate	Distillate	Distillate	Distillate
CTG Load Level (percent of Base Load)	Base	Base	Base	Base	Base
CTG Performance Reference	GE 05/21/98	GE 05/21/98	GE 05/21/98	GE 05/21/98	GE 05/21/98
Evaporative Cooler On/Off	Off	On	Off	On	Off
HRSG Duct Firing On/Off	Off	Off	Off	Off	Off
Stack Exhaust Analysis (Volume Basis - Wet)					
Ar	0.90%	0.89%	0.89%	0.88%	0.88%
CO2	5.36%	5.34%	5.34%	5.26%	5.23%
H2O	10.60%	11.90%	11.80%	12.77%	12.32%
N2	71.76%	70.73%	70.81%	70.02%	70.37%
O2	11.38%	11.13%	11.16%	11.06%	11.20%
SO2	0.00117%	0.00116%	0.00116%	0.00114%	0.00114%
Total	100.00%	100.00%	100.00%	100.00%	100.00%
Stack Exhaust Gas Analysis (Wet)					
Molecular Wt, lb/mol	28.37	28.23	28.24	28.13	28.17
Gas Constant, ft-lbf/lbm-R	54.449	54.729	54.708	54.930	54.841
Specific Volume, ft^3/lb	19.11	19.23	19.20	19.36	19.25
Exhaust Gas Flow, acfm	1,242,596	1,149,480	1,136,813	1,102,423	1,057,678
Specific Volume, scf/lb	13.37	13.44	13.43	13.49	13.47
Exhaust Gas Flow, scfm	869,362	803,380	795,177	788,166	740,100
Exhaust Gas Flow, lb/h	3,901,400	3,586,520	3,552,540	3,416,600	3,256,660
Emissions (at Stack exit)					
NOx, ppmvd @15% O2 without SCR	42.0	42.0	42.0	42.0	42.0
NOx, lb/h as NO2 without SCR	328.5	302.6	299.4	285.1	272.8
NOx, ppmvd @15% O2 with SCR	11.2	11.2	11.2	11.2	11.2
NOx, lb/h as NO2 with SCR	87.3	80.4	79.6	75.8	72.5
NH3 slip, ppmvd @15% O2 with SCR	10.0	10.0	10.0	10.0	10.0
NH3 slip, lb/h with SCR	28.5	26.6	26.3	25.0	24.0
CO, ppmvd without Catalyst	20.0	20.0	20.0	20.0	20.0
CO, lb/h without Catalyst	68.9	62.7	62.2	59.4	57.5
CO, ppmvd @ 15% O2 without Catalyst	14.5	14.3	14.4	14.4	14.6
CO, ppmvd with Catalyst	20.0	20.0	20.0	20.0	20.0
CO, lb/h with Catalyst	68.9	62.7	62.2	59.4	57.5
CO, ppmvd @ 15% O2 with Catalyst	14.5	14.3	14.4	14.4	14.6
SO2, ppmvd	13.04	13.19	13.17	13.12	12.97
SO2, ppmvw	11.66	11.62	11.61	11.45	11.37
SO2, lb/h	102.67	94.56	93.57	89.07	85.23
UHC, ppmvd	7.8	7.9	7.9	8.0	8.0
UHC, ppmvw	7.0	7.0	7.0	7.0	7.0
UHC, ppmvd @ 15% O2	5.7	5.7	5.7	5.8	5.8
UHC, lb/h as CH4	15.4	14.3	14.1	13.6	13.1
VOC, ppmvd	3.9	4.0	4.0	4.0	4.0
VOC, ppmvw	3.5	3.5	3.5	3.5	3.5
VOC, ppmvd @ 15% O2	2.8	2.8	2.9	2.9	2.9
VOC, lb/h as CH4	7.7	7.1	7.1	6.8	6.8
Particulates (TSP = PM10), lb/h (dry filterables only)	44.0	44.0	44.0	43.0	43.0

Notes:
1. Values shown above are for one combustion turbine/HRSG unit only.
2. 73% effective SCR and no CO catalyst
3. Particulates are front and back half.
4. CTG performance from General Electric data received 5/21/98 for KUA.

B&V Project 59140.0031
File: c:\proj\kua\ccigen\7fa_exh.wk4
06/05/98

BLACK & VEATCH LLP

8400 Ward Parkway, P.O. Box No. 8405, Kansas City, Missouri 64114, (913) 458-2000

Kissimmee Utility Authority
Cane Island Unit 3

B&V Project 59140
December 1, 1998

Mr. Al Linero, P. E.
Florida Department of Environmental Protection
Twin Towers Office building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: Site Certification Application

Dear Mr. Linero:

Enclosed is the ELSA disk which accompanies the Sufficiency Responses to the SCA that Buck Oven is forwarding to you. I will send the second disk, Regional Haze, within the next 2-3 days.

Please call if we can be of further assistance.

Sincerely yours,

Myron Rollins

Mr

CC: C. Holladay

Regional Haze Analysis

A regional haze analysis was performed to evaluate the potential for visibility impairment (significant increase in uniform haze) at the Chassahowitzka Class I area. The regional haze analysis was performed in accordance with guidance published in the Interagency Workgroup on Air Quality Modeling (IWAQM) (EPA-454/R-93-015) document, as well as technical guidance and an example provide by the NPS. The methodology and input are described in Section 5.4 of the Site Certification Application; Appendix 10.7 – PSD Application for the Kissimmee Utility Authority Cane Island Project document submitted in August 1998 (hereinafter referred to as the Document).

The percent change in extinction was calculated for base load operation in both the simple and combined cycle operating using the refined modeling methodology presented in Section 4.0 of the Document. The analysis was performed using a background visual rage of 65 kilometers (km). The ISCST3 air dispersion model was used in the flat terrain mode to determine the maximum predict highest first-highest 24-hour impacts of NO_x and PM/PM_{10} at a receptor placed at the closest boundary point of the park. Actual relative humidity data corresponding to the date of the maximum predicted NO_x impacts for each scenario were used in the regional haze calculations. It should be noted that the NO_x emission levels in this revised regional haze analysis are based on 9 ppm natural gas firing. The results of the analysis are presented in a spreadsheet included as Table 1 and the model results are included on the attached diskette.

As the results in Table 1 indicate, the percent change in extinction for each year and operating scenario is less than screening threshold for Level I analyses of 5 percent. Therefore, further analysis of potential visibility impairment is not warranted.

Calculation of Extinction per Year Maximum Impact

SHEET D

Table 1

Background Visibility 65.0 km
Background Extinction 0.06018 km^-1

Scenario Name	Actual 24-hr Impact (ug/m^3)	Date (yr/mo/dy/hr)	X Coordinate	Y Coordinate	NO2 Impact (ug/m^3)	NO3 Impact (ug/m^3)	NH4NO3 (ug/m^3)	Minimum Daily Relative Humidity (%)	Maximum Daily Relative Humidity (%)	Average Daily Relative Humidity (%)	Estimated Relative Humidity Factor	NH4NO3 Source Extinction (km^-1)	Scenario Name	Actual 24-hr Impact (ug/m^3)	X Coordinate	Y Coordinate	PM Source Extinction (km^-1)	Source Change in Extinction (%)	Pass/Fail 5.0% Change
NOx													*PM*						
1987 NSCC1NG	0 0803	87070224	348451.5	3165401.0	0 08029	0 10839	0 13983	51	97	74 0	2 6	0 00109	PSCC1NG	0.0243	348451.5	3165401 0	0 00007	1.93	PASS
NSSC1NG	0 0277	87061824	348451.5	3165401.0	0.02770	0.03740	0 04824	40	91	65 5	1.9	0 00027	PSSC1NG	0.0081	348451.5	3165401 0	0.00002	0.50	PASS
NOx													*PM*						
1988 NSCC1NG	0.0698	88020124	348451.5	3165401.0	0.06975	0 09416	0 12147	49	100	74.5	2 6	0 00095	PSCC1NG	0 0211	348451.5	3165401.0	0 00006	1 68	PASS
NSSC1NG	0.0355	88020124	348451.5	3165401.0	0 03550	0 04793	0 06182	49	100	74.5	2 6	0 00048	PSSC1NG	0 0104	348451.5	3165401.0	0 00003	0.85	PASS
NOx													*PM*						
1989 NSCC1NG	0 0832	89091524	348451.5	3165401.0	0 08316	0 11227	0 14482	52	97	74 5	2 6	0 00113	PSCC1NG	0 0251	348451.5	3165401.0	0 00008	2.00	PASS
NSSC1NG	*0 0324*	*89101724*	*348451.5*	*3165401 0*	*0.03240*	*0 04374*	*0 05642*	44	97	70 5	2 4	0 00041	PSSC1NG	0 0095	348451.5	3165401 0	0 00003	0 72	PASS
NOx													*PM*						
1990 NSCC1NG	0 1091	90020124	348451.5	3165401.0	0.10906	0.14723	0.18993	53	100	76 5	2 8	0 00160	PSCC1NG	0 0330	348451 5	3165401.0	0 00010	2 82	PASS
NSSC1NG	0 0378	90020124	348451.5	3165401.0	0.03782	0.05106	0 06586	53	100	76 5	2 8	0 00055	PSSC1NG	0 0111	348451 5	3165401.0	0 00003	0.97	PASS
NOx													*PM*						
1991 NSCC1NG	0 0961	91020624	348451 5	3165401 0	0 09612	0.12976	0.16739	35	93	64 0	1.8	0 00090	PSCC1NG	0 0292	348451.5	3165401.0	0 00009	1 65	PASS
NSSC1NG	0.0410	91020624	348451.5	3165401.0	0.04096	0.05530	0 07133	35	93	64.0	1.8	0.00039	PSSC1NG	0 0120	348451.5	3165401.0	0 00004	0.70	PASS

RECEIVED
DEC 01 1998
BUREAU OF
AIR REGULATION

BLACK & VEATCH LLP

8400 Ward Parkway, P.O. Box No. 8405, Kansas City, Missouri 64114, (913) 458-2000

Kissimmee Utility Authority
Cane Island Unit 3

B&V Project 59140
B&V File 15.0203
November 30, 1998

Florida Department of Environmental Protection
Division of Air Resources Management
Bureau of Air Regulation
Twin Towers Office Building, MS #5505
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Subject: Response to VOC Emission Level Inquiry

Dear Cleve Holladay:

As requested in a telephone conversation on November 17, 1998, Black & Veatch is responding to FDEP's inquiry regarding the difference between the VOC emission values listed in Table 2-2 and Table 4-7 of Site Certification Application (SCA), Appendix 10.7 – Prevention of Significant Deterioration Air Permit Application document for Cane Island Unit 3. The differences are described below:

Table 2-2; PSD Applicability.
The emissions presented in Table 2-2 represent the worst-case potential to emit (PTE) for determining New Source Review (NSR) and Prevention of Significant Deterioration (PSD) applicability. The VOC PTE value listed in this table (173.3 tpy) is based on the worst-case maximum pound per hour emission rates, assuming the following conditions:

- Two possible combustion turbine manufacturers.
- Annual ambient temperature of 72 degrees Fahrenheit.
- Three operating loads (i.e., 100, 70, 50 percent).
- Changing operating scenarios (i.e., evaporative cooler on or off).
- Combined cycle or simple cycle operation.
- 8,040 and 720 hours per year of natural gas and distillate oil firing, respectively.

Specifically, the worst-case VOC value is from the combined usage of natural gas at 50 percent load and fuel oil at 70 percent load, both for combined cycle operation. The above methodology is illustrated in a spreadsheet included as Attachment 3 of the SCA.

Table 4-7; Comparison of Maximum Predicted Impacts with the PSD Class II Significant impact Levels and the PSD De Minimis Monitoring Levels.
The VOC value listed in this table (45.2 tpy) is based on 8,040 hours of natural gas firing and 720 hours of distillate oil firing during base load (100 percent) conditions at 72 degrees Fahrenheit ambient temperature. In addition to the emissions from the turbine, the VOC emissions from the distillate fuel oil storage tank were also included. This VOC value represents a more typical worst-case annual VOC emission rate for Unit 3.

Conservative methods were used to estimate the VOC emissions from Unit 3 for the permitting process. However, it is expected that actual annual VOC emissions will be less than the PSD De Minimis Monitoring Level.

If you have any questions, please to not hesitate to contact me at 913-458-7928.

Very truly yours,

for Tim Hillman
Air Permit Coordinator

kjl

cc: Ben Sharma, KUA
Robert Williams, FMPA

Department of Environmental Protection

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

September 23, 1998

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. A. K. Sharma, P.E.
Director of Power Supply
Kissimmee Utility Authority
Post Office Box 423219
Kissimmee, Florida 34742-3219

Re: DEP File Nos. PSD-FL-254, PA-98-38
Cane Island Unit No. 3 - Combined Cycle Turbine

Dear Mr. Sharma:

Subsequent to our letter dated August 17, 1998, the Park Service provided the attached letter regarding KUA's proposed Best Available Control Technology (BACT) determination and the PSD modeling.

Attached for your information is a copy of the technical evaluation for the 1500 megawatt (MW) Fort Myers Repowering project. Florida Power & Light proposed emission limits of 9 parts per million (ppm) of NO_X at start-up (in 2001) for six General Electric 7FA combustion turbines. These levels will be attained by Dry Low NO_X technology. FPL "netted out" of PSD and could have done so even at NO_X emission limits on the order of 40 ppm. The GE units will be permitted to emit 12 ppm of carbon monoxide (CO) and 1.4 ppm of volatile organic compounds (VOC).

We have not yet received input from EPA. We will forward their comments to you as soon as we get them. We submitted our specific completeness/sufficiency questions through our Siting Office. If you have any questions regarding this matter, please call me at (850)921-9523.

Sincerely,

A A Linero 9/23

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

AAL/aal

Attachment

cc: Buck Oven, DEP PPSO
Len Kozlov, DEP CD
D. D. Schultz, P.E., B&V
file

Z 333 612 518

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

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Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 9-24-98	

PS Form **3800**, April 1995

PA 98-38
PSD-FL-254

SENDER:

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- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Mr. A. K. Sharma, PE
Director of Power Supply
Kissimmee Utility Auth.
PO Box 423219
Kissimmee, FL 34742-3219

4a. Article Number
Z 333 612 515

4b. Service Type
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7. Date of Delivery
9-29-98

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6. Signature: *(Addressee or Agent)*
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PS Form **3811**, December 1994 102595-97-B-0179 Domestic Return Receipt

United States Department of the Interior

FISH AND WILDLIFE SERVICE
1875 Century Boulevard
Atlanta, Georgia 30345

IN REPLY REFER TO:

September 11, 1998

Re: PSD-FL-254

Mr. C. H. Fancy
Chief, Bureau of Air Regulation
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road, MS 48
Tallahassee, Florida 32399-2400

KUA - PSD-FL-254

Dear Mr. Fancy:

Our Air Quality Branch has reviewed the Prevention of Significant Deterioration permit application for Kissimmee Utility Authority (KUA)'s proposal to add a new 250 MW combined cycle turbine (CCT) at the Cane Island Power Park. The facility is located 105 km southeast of Chassahowitzka Wilderness, a Class I air quality area administered by the Fish and Wildlife Service. Our comments are summarized below.

KUA's proposed control technology for emissions of nitrogen oxides (NO_x) lags well behind the more advanced technology used for similar turbines throughout the United States. Although the control technologies applied to CCTs found in EPA's RACT/BACT/LAER Clearinghouse (RBLC - Table 1) are split between dry low-NO_x combustors and selective catalytic reduction (SCR), our own compilation (Table 2) of more recent permit applications shows a clear trend toward installing SCR on these facilities. Unless KUA can demonstrate why it cannot achieve a similar level of control, we recommend that it revise its application to include SCR and meet a NO_x limit of 3.5-5.0 ppm, instead of the currently proposed limit of 15 ppm. If KUA refuses to install SCR without good reason, we shall recommend denial of the permit.

KUA assessed potential impacts to regional haze and visibility at Chassahowitzka incorrectly, using a background visual range (BVR) of 25 km. We have advised Mr. Cleve Holladay of your staff to have KUA conduct the analysis using a BVR of 65 km. It is our policy to protect those days with the best visibility because visibility is most sensitive to change under clean conditions. A BVR of 65 km represents the cleanest 20 percent of days at Chassahowitzka.

If you have questions, please contact Ms. Ellen Porter of our Air Quality Branch in Denver at 303/969-2617.

Sincerely yours,

Sam D. Hamilton
Regional Director

Enclosures

Table 1. Gas Turbine Limits from RBLC

Facility Name	Project Description: Simple Cycle	Project Description: Combined Cycle	Project Description: Duct Burner	Power Output: MW	Power Output: mmBtu/hr	Power Output: HP	Permit #	Permit Issue Date	NOx Emission Limits: Dry Lox-NOx Comb. Gas (ppm)	NOx Emission Limits: Dry Lox-NOx Comb. Oil (ppm)	NOx Emission Limits: SCR Gas (ppm)	NOx Emission Limits: SCR Oil (ppm)	Nox Emission Limits Uncontrolled: Gas (ppm)	Nox Emission Limits Uncontrolled: Oil (ppm)
Alabama Power Company		Y	Y	100	353	10566	AL-0115	Dec-97	15.0					
Mead Coated Board, Inc		Y			568		AL-0096	Mar-97	25.0					
Ecoelectrica		Y		461	1629	48709	PR-0004	Oct-96			7.0	9.0		
South Mississippi Electric		Y			1299		MS-0028	Apr-96						
Seminole Hardee Unit 3		Y		140	495	14792	FL-0104	Jan-96	15.0					
Brooklyn Navy Yard Cogen		Y		240	848	25358	NY-0044	Jun-95			3.5	10.0		
Panda-Kathleen		Y		75	265	7925	FL-0102	Jun-95	15.0					
Hermiston Generating		Y		497	1696	50709	OR-0011	Apr-94			4.5			
Florida Power--Hines--Polk		Y		442	1510	45148	FL-0082	Feb-94	12.0	42.0				
Anitec Cogen		Y	Y		451		NY-0061	Jul-93					25	
PSI Energy		Y			1775		IN-0053	May-93						
Sithe/Independence		Y		625	2133	63775		Nov-92			4.5			
Bear Island Paper		Y	Y	139	474	14172	VA-0190	Oct-92			9.0	15.0		
Pasny/Holtsville		Y		336	1146	34264	NY-0047	Sep-92	9.0					
Maui Electric Co		Y		28			HI-0015	Jul-92						42
Tenaska WA Partners		Y	Y	1	2	55	WA-0275	May-92			7.0			
Bermuda Hundred		Y			1175		VA-0184	Mar-92			9.0	15.0		
Maui Electric Co		Y		28			HI-0013	Dec-91						42
Linden Cogeneration		Y		165	583	17434	NJ-0011	Aug-91						
Megan-Racine Associates		Y	Y	401 lb/mmbtu?			NY-0057	Aug-89					42	
Berkshire, MA		Y		272							3.5	9.0		
Talahassee		Y		260					12.0	42.0				

Table 2. Permits Pending or Not Yet in RBLC

Facility Name/Location	Project Description			Power Output			Permit #	Permit Issue Date	NOx Emission Limits < 25 ppm			
									Dry Lox-NOx Comb.		SCR	
	Simple Cycle	Combined Cycle	Duct Burner	MW	mBtu/h	HP			Gas (ppm)	Oil (ppm)	Gas (ppm)	Oil (ppm)
Androscoggin Energy		Y		150	1857	55523	ME				6.0	42.0
ARCO Watson Project							CA	Oct-97			5.0	
Bridgeport Energy Project											6.0	
Casco Bay Energy		Y		520	1838	54943	ME				5.0	
Cogen Tech. Linden Venture		Y		581	1983	59275	NJ				3.5	
Dighton, MA							MA				3.5	
Enron							CA				2.5	
Frontera Power		Y		165	1435	42905	TX		15.0			
HDPP							CA				3.0	
Hermiston Generating		Y					CA	Dec-95			4.5	
Lakeland McIntosh CCT		Y					FL				7.5	15.0
Lakeland McIntosh SCT	Y			250	883	26415	FL		9.0	42.0		
LaPoloma Generating		Y		1048			CA				3.0	
Mississippi Pwr–Daniels Plt		Y					MS		Y		3.5	
Northwest Regional Power		Y		448	1530	45746	WA		9.0			
Rotterdam, N.Y.							NY				4.5	
Sacramento Power				115			CA	Dec-94			3.0	
Tiverton, RI							RI				3.5	

U.S.FISH&WILDLIFE SERVICE
AIR QUALITY BRANCH
P.O. BOX 25287, Denver, CO 80225-0287

FACSIMILE COVER SHEET

Date: September 4, 1998

Telephone: (303) 969-2617
Fax: (303) 969-2822

To: Al Linero

From: Ellen Porter

Subject: KUA - Cane Island; you will receive signed letter in approximately one week.

Number of Pages: 3
(Including this cover sheet)

Mr. C. H. Fancy
Chief, Bureau of Air Regulation
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road, MS 48
Tallahassee, Florida 32399-2400

Re: PSD-FL-254

Dear Mr. Fancy:

Our Air Quality Branch (AQB) has reviewed the Prevention of Significant Deterioration (PSD) permit application for Kissimmee Utility Authority (KUA)'s proposal to add a new 250 MW combined cycle turbine (CCT) at the Cane Island Power Park. The facility is located 105 km southeast of Chassahowitzka Wilderness, a Class I air quality area administered by the U.S. Fish and Wildlife Service. The AQB's comments are brief and summarized below.

KUA's proposed control technology for emissions of nitrogen oxides (NO_x) lags well behind the more advanced technology used for similar turbines throughout the U.S. Although the control technologies applied to CCTs found in EPA's RACT/BACT/LAER Clearinghouse (RBLC - Table 1) are split between dry low-NO_x combustors and selective catalytic reduction (SCR), our own compilation (Table 2) of more recent permit applications shows a clear trend toward installing SCR on these facilities. Unless KUA can demonstrate why it cannot achieve a similar level of control, we recommend that it revise its application to include SCR and meet a NO_x limit of 3.5-5.0 ppm, instead of the currently proposed limit of 15 ppm. If KUA refuses to install SCR without good reason, we shall recommend denial of the permit.

KUA assessed potential impacts to regional haze and visibility at Chassahowitzka incorrectly, using a background visual range (BVR) of 25 km. We have advised Cleve Holladay of your staff to have KUA conduct the analysis using a BVR of 65 km. It is our policy to protect those days with the best visibility because visibility is most sensitive to change under clean conditions. A BVR of 65 km represents the cleanest 20 percent of days at Chassahowitzka.

If you have questions, please contact Ellen Porter of our Air Quality Branch in Denver at (303) 969-2617.

Sincerely,

Sam D. Hamilton
Regional Director

Enclosures

cc: Doug Neeley, Chief
Air and Radiation Branch
U.S. EPA, Region IV
100 Alabama St., SW
Atlanta, Georgia 30303

bcc: FWS-REG. 4: AQC
CHAS: Refuge Manager
AQD-DEN: Ellen Porter
National Park Service - AIR
P.O. Box 25287
Denver, CO 80225

BLACK & VEATCH LLP

8400 Ward Parkway, P.O. Box No. 8405, Kansas City, Missouri 64114, (913) 458-2000

Kissimmee Utility Authority
Cane Island Power Park

B&V Project 59104
B&V File 32.0304
August 31, 1998

Mr. Al Linero
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road, MS #5505
Tallahassee, FL 32399-2400

Subject: Site Tour

Dear Mr. Linero:

On behalf of the Kissimmee Utility Authority and the Florida Municipal Power Agency, Black & Veatch invites you and appropriate members of staff to attend a tour of the Cane Island Power Park beginning at 10 AM on Thursday, September 10, 1998. An agenda of the tour is enclosed. Lunch will be provided.

The Power Park is located at 6075 Old Tampa Highway, near Intercession City, which is southwest of Kissimmee. Old Tampa Highway can be reached by taking the US-192 East exit off I-4, or the US-192 West exit off the Florida Turnpike, to Poinciana Boulevard. Proceed south on Poinciana, then west on Old Tampa Highway. The Power Park has an entrance sign. Please use the speaker box at the front gate to indicate your arrival. The Control Room staff will open the gate. Proceed up the access road to the plant area. There will be signs directing you to a parking area and the Administration Building.

Please contact me or Myron Rollins by Tuesday, September 8, 1998, to indicate if you and other staff members will be able to attend the tour. My phone number is (913) 458-7563; Myron is at extension -7432.

Very truly yours,
Black & Veatch LLP

Mike Soltys

J. Michael Soltys
Licensing Manager

Enclosure

Cane Island Power Park
Site Tour
September 10, 1998

10 AM	Meet in Administrative Office Introductions Project History Unit 3 Development/SCA Process Control Room Water Quality Lab
11 AM	Unit 1 Unit 2 Unit 3 Area
12:30 PM	Lunch
1:15 PM	Cane Island-Intercession City Transmission Line Corridor Reedy Creek
2:00 PM	Wetland Creation Site/GT*-4
2:30 PM	GT-3
3:00 PM	GT-2
3:30 PM	GT-1
4:00 PM	Return to Admin Office Questions/Comments

*Gopher Tortoise Management Area

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

August 17, 1998

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. A. K. Sharma, P.E.
Director of Power Supply
Kissimmee Utility Authority
Post Office Box 423219
Kissimmee, Florida 34742-3219

Re: DEP File Nos. PSD-FL-254, PA-98-38
Cane Island Unit No. 3 - Combined Cycle Turbine

Dear Mr. Sharma:

The Bureau of Air Regulation received a copy of the application for a Prevention of Significant Deterioration (PSD) permit. We are conducting a review in parallel with the rest of the Department under the requirements for projects subject to Power Plant Siting Act and will provide a Sufficiency Review through the Office of Power Plant Siting.

We did conduct a very preliminary review of the Best Available Control Technology (BACT) Determination for nitrogen oxides (NO_X) control and wanted to provide you with our initial thoughts. We received the attached letter from EPA Region IV in response to a permit application for the Santa Rosa Energy Center in Pace, Florida. That project proposed a BACT NO_X limit of 9 ppm by Dry Low NO_X (DLN) and 12 ppm under "Power Augmentation." The Alabama project referenced in EPA's letter has now been permitted with a limit of 3.5 ppm for NO_X. Another application is under review by the State of Mississippi and includes a NO_X proposal of 3.5 ppm for NO_X. Both projects are in attainment areas. Both projects, as well as the one in Florida are based on "F" units such as the GE7FA series or the Westinghouse 501F.

We expect a very similar completeness letter from EPA when reviewing your project. We recommend that you begin to reevaluate the BACT on NO_X under the following basis. Assume that uncontrolled emissions are 200 ppm. These are the typical concentrations given in the literature before reduction by lean pre-mix or wet injection technologies. Estimate the minimum cost to achieve 15, 9, 7.5 and 3.5 ppm by any combination of technologies. Calculate the marginal cost effectiveness based on the results of achieving emissions less than 15 ppm. Note that the least expensive option to achieve 12 ppm is not necessarily to supply a DLN combustor to achieve 15 and add an SCR unit to reach 12. It may be less expensive to start with a less expensive combustor capable of reaching 25-40 ppm and then adding the SCR unit. Other combinations than assumed in the application may reflect more accurately the cost-effectiveness of reaching the lower values.

According to the application, the cost of the Hot SCR catalyst is given as $3,520,000. According to information received by the Department for the Lakeland project, the cost of the "SCR catalyst system" was estimated at $2,700,000 including: catalyst modules; internal support structures; ammonia injection grid; internally insulated ductwork with stainless steel liner to house AIG and SCR catalyst; ammonia injection grid; external AIG manifold with flow control valves; and ammonia vaporization/air dilution skid (28% ammonia to skid). The cost of replacement catalyst was estimated at $1,600,000.

The unit for which the Department obtained the quote is a "G" unit. Therefore the cost should be less for an "F" unit. The basis was firing natural gas with very limited fuel oil use. It may be possible to turn off the ammonia and implement wet injection during the few hours of fuel oil use. Alternatively, higher limits can be set when using SCR on fuel oil than when using SCR on gas. This will minimize ammonia slip and bisulfate problems. It may also be possible to reduce the costs of conventional low temperature SCR by checking around with various vendors in addition to those who prepared the quotation given in the application.

One manufacturer has informed us they may provide a guarantee of 6 ppm for the "F" units for delivery in approximately two years using DLN technology. This is similar to what is presently achieved by your smaller combined cycle "E" unit.

With the above information and a discussion of the energy, social, economic, and environmental benefits of achieving low emissions by DLN, we may be in a better position to discuss these matters with EPA Region IV even if hot or conventional SCR appear cost-effective. Future information requests will be made through our Siting Office. If you have any questions regarding this matter, please call me at (850)921-9523.

Sincerely,

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

AAL/aal

Attachment

cc: Doug Neeley, EPA
John Bunyak, NPS
Buck Oven, DEP PPSO
Len Kozlov, DEP CD
D. D. Schultz, P.E., B&V

P 265 659 407

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to A. K. Sharma	
Street & Number KUA	
Post Office, State, & ZIP Code Kissimmee FL	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date PSD-FL-254 pa 98-38	8/18/98

PS Form **3800**, April 1995

Is your **RETURN ADDRESS** completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
A. K. Sharma, PE
Director of Power Supply
Kissimmee U. Authority
PO Box 423219
Kissimmee, FL 34742-3219

4a. Article Number P 265 659 407

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery 8-7-98

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*
X

PS Form **3811**, December 1994 102595-97-B-0179 Domestic Return Receipt

Thank you for using Return Receipt Service.

Date: 8/11/98 12:35:39 PM
From: Patricia Comer TAL
Subject: Re: Kissimmee Utilities Authority
To: Scott Sheplak TAL

I think Scott Goorland is looking into this. He's the PPSA attorney and I asked him to check this out. I don't think the statute was written with this situation in mind, but I defer to him.

Date: 8/11/98 12:33:15 PM
From: Scott Sheplak TAL
Subject: Re: Kissimmee Utilities Authority
To: See Below

SUBJECT: Kissimmee Utilities Authority - Cane Island
Proposed new Unit Number 3

My understanding is that Section 403.509(3), F.S. applies to the Title V sources with FINAL Title V permits. A Title V application for new units must be filed 90 days before expiration of an air construction permit, but no later than 180 days after commencing operation (see Rule 62-213.420(1)(a)2., F.A.C.). The Title IV, acid rain SO2, application must be submitted 24 months prior to the date on which the unit commences operation (see Rule 62-214.320(1)(b), F.A.C.).

I took a look at the PSD application submitted. The projected date of completion of construction is June 1, 2001. The applicant identified the acid rain application deadline mentioned above.

To: Patricia Comer TAL
CC: Alvaro Linero TAL
CC: Kim Tober TAL
CC: Teresa Heron TAL
CC: Cleve Holladay TAL
CC: Scott Goorland TAL
CC: Clair Fancy TAL
CC: Tom Cascio TAL

Date: 8/11/98 12:00:09 PM
From: Scott Goorland TAL
Subject: Re: Kissimmee Utilities Authority
To: See Below

Scott. You may wish to review the materials we received to determine how to comply with PPSA requirements related to draft Title V permits. Presumably it will be like the City of Tallahassee Purdom 8 project. Since we do not yet put PSD applications for PPSA applications into ARMS, maybe we can use the fact that you do use ARMS to review all Title V actions to keep track (electronically) of this project. We ought to try to coordinate notices to the extent feasible.

Al, the issue regarding Title V in this instance is a good question to raise. In Purdom, a draft Title V was already in existance at the time of certification under the PPSA. Here we have a different situation. While I think that coordination of notices is a good idea, I think we will have a problem in that we are opnly certifying a portion of the facility, but the Title V would apply to the entire facility. I'll be discussing the issue with Pat and Buck and reviewing the statute, and I'll get back to you on the issue some time mid next week after I finish deaing with some discovery on some other cases.

To: Alvaro Linero TAL
To: Teresa Heron TAL
To: Cleve Holladay TAL
To: Hamilton Buck Oven TAL
CC: Scott Sheplak TAL
CC: Patricia Comer TAL
CC: Clair Fancy TAL
CC: Clair Fancy TAL

~~Scott~~ 8/12

Kim - To new KUA file

Date: 8/8/98 11:32:25 AM
From: Alvaro Linero TAL
Subject: Kissimmee Utilities Authority
To: See Below

We receivd an application to construct a new combustion turbine and heat recovery steam generator at Kissimmee Utilities Authority - Cane Island. It will be designated as Unit 3. It is being reviewed under the Power Plant Siting Act.

The implication is that we must satisfy EPA's requirements under delegated PSD program - 52.21(u). This also means that public participation (for PSD) must satisfy the requirements of 40CFR124.

Scott. You may wish to review the materials we received to determine how to comply with PPSA requirements related to draft Title V permits. Presumably it will be like the City of Tallahassee Purdom 8 project. Since we do not yet put PSD applications for PPSA applications into ARMS, maybe we can use the fact that you do use ARMS to review all Title V actions to keep track (electronically) of this project. We ought to try to coordinate notices to the extent feasible.

Teresa. This project is being assigned to you. Please let Kim know how to log it in the docket. I recommend that you clip and send the parts of the permit that EPA and NPS might actually need. That way you don't have to send a monster package that they won't look at.

Kim. The applications are in Syed's old office. Prepare the letters to EPA and NPS for Teresa to review. Add a statement in there to the effect that the project is being reviewed under Florida's Power Plant Siting Act and will satisfy the public participation requirements of 40CFR124 as well as the requirements of of 40CFR52.21.

Who in your section will be (or is) reviewing Kissimmee?

Clair

To: Kim Tober TAL
To: Teresa Heron TAL
To: Cleve Holladay TAL
CC: Scott Sheplak TAL
CC: Patricia Comer TAL
CC: Scott Goorland TAL
CC: Clair Fancy TAL

If we have to process TV I'll need to get someone moving on it.

Clair,
The draft permit has not been issued KUA-Cane Island was not an 'existing' acid rain under last years deadline. The application has not been reviewed/processed. Joe Kahn has the application. There's a question of whether or not we have to do the Title V permit now w/ PPSA/PSD. No answer yet from Scott Goorland.

Scott
8/13

Florida Department of
Environmental Protection

Memorandum

TO: Al linero
Len Kozlov
Geof Mansfield
Mary Jean Yon

FROM: Buck Oven

DATE: August 10, 1998

SUBJECT: Kissimmee Utilities Authority - Cane Island - Amendment to Application PA 98-38, Module 8048

Kissimmee has submitted the enclosed amendments to the application reflecting the PE certification. **NOTE**: to Al, I am sending the **original** of the PSD/Title V certification to BAR.

cc: Scott Goorland

Black & Veatch

MEMORANDUM

KUA/FMPA
Cane Island Power Park
Site Certification Application
Volumes 2 & Appendix 10.7
Revision 1

August 6, 1998

To: Holders of KUA/FMPA Manual

From: Controlled Documents Center

Remove the superseded pages of your manual as identified below and insert the attached revised and new pages. Return your superseded pages in an interoffice envelope to the Controlled Documents Center (CDC). Your returned pages assure their removal and inadvertent use. After your manual has been updated, put the date, your name, and book number in the space provided below. Return this memorandum to the Controlled Documents Center, PGE by August 20, 1998.
Please note if you are a client or in a regional, global office, send back only the signoff memorandum.

Page to be deleted	Revision	Pages to be inserted	Revision
VOLUME 2		**VOLUME 2**	
Cover Sheet		Cover Sheet includes Seal & Signature	
APPENDIX 10.7		**APPENDIX 10.7**	
Air Permit Application Forms		Air Permit Application Forms	
Professional Engineer Statement		Professional Engineer Statement	
I. Part 6-1 (no signature)		I. Part 6-1 (signature)	

Prepared and Approved by Karen Burkart

Date 08/06/98

On this date I revised my manual to conform to the above.

Name_____

Date_____

Dept. _____ Book No. ____

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 pollutant 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 [X] 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 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.

D D Schultz
Signature

8/16/96
Date

(seal)

DONALD DEAN SCHULTZ * CERTIFICATE No. 30304 STATE OF FLORIDA * REGISTERED ENGINEER

4. Professional Engineer Statement :

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D. D. Schultz
Signature
(seal)

8/6/98
Date

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D O Schultz
Signature
(seal)

8/6/98
Date

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D O Schultz — 8/16/96

Signature — Date

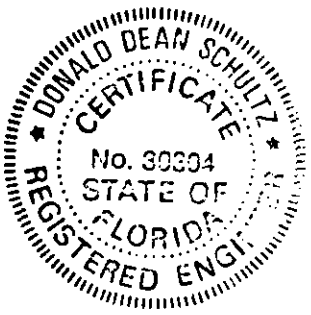
(seal)

DONALD DEAN SCHULTZ * CERTIFICATE No. 30394 STATE OF FLORIDA * REGISTERED ENGINEER

SITE CERTIFICATION APPLICATION

CANE ISLAND POWER PARK
UNITS 1-3

VOLUME 2



D D Schultz 8/6/98
Donald D. Schultz Date
Florida No. 30304
Black & Veatch
11401 Lamar
Overland Park, Kansas 66211

Submitted by:

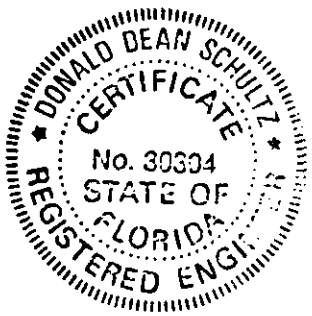
Kissimmee Utility Authority
and the
Florida Municipal Power Agency

August 1998

SITE CERTIFICATION APPLICATION

CANE ISLAND POWER PARK
UNITS 1-3

VOLUME 2



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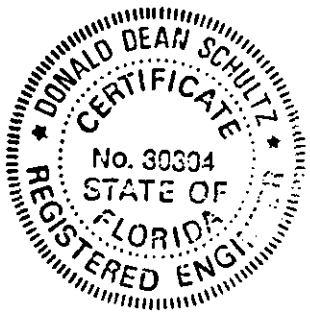

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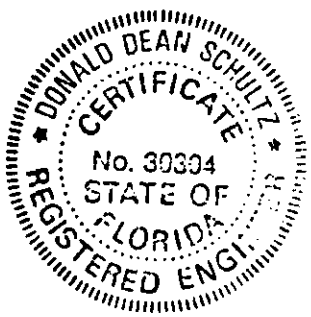

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