Cedar Bay Cogeneration Project
Air Quality Analysis

Technical Review Guide

Excerpts from "Cedar Bay Air Quality Analysis"
February 1993

Model Input Data

Prepared for Max Linn of FDER

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TABLE 1-1

Case 1: Maximum Regulated Pollutant Emissions Modeled in Section 2 for SKC's Emission Sources Power and Bark Boilers as Necessary to Generate 640,000 lb/hr Total Annualized Steam

	Total Power Boilers		Bark Boiler #1		Bark Boiler #2		Total
Pollutant	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	Total ton/yr
SO2	744.7	3262	34.0	149	34.0	149	3,560
NOx	302.6	1325	46.85	205.5	46.85	205.5	1,736
CO	17.6	77	241.3	1057	241.3	1057	2,191
TSP	53.3	233	38.6	169	38.6	169	572
PM-10	37.8	166	33.6	147	33.6	147	460
VOC	2.7	12	50.2	220	50.2	220	451
Lead	0.0149	0.065	0.0147	0.064	0.0147	0.064	0.19
Mercury	0.0017	0.0075	0.00046	0.0020	0.00046	0.0020	0.012
Beryllium	0.0028	0.0125	0.00001	6.1e-05	0.00001	6.1e-05	0.013
Fluorides	0.063	0.275	23.16	101.4	23.16	101.4	203.2
H2SO4 mist	16.25	71.2	1.61	7.04	1.61	7.04	85.2
Notes: See Appendix A							

TABLE 1-2

Case 1: Maximum Non-Regulated Pollutant Emissions Modeled in Section 2 for SKC's Emission Sources Power and Bark Boilers as Necessary to Generate 640,000 lb/hr Total Annualized Steam

Pollutant	Total Power Boilers		Bark Boiler #1		Bark Boiler #2		Total
	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	Total ton/yr
Antimony	0.00975	0.043	0.00081	0.0035	0.00081	0.0035	0.050
Arsenic	0.01286	0.056	0.00011	0.0005	0.00011	0.0005	0.057
Barium	0.00768	0.034	0.08299	0.363	0.08299	0.363	0.76
Bromine	0.00373	0.016	1.80	7.90	1.80	7.90	15.82
Cadmium	0.00837	0.037	0.0023	0.010	0.0023	0.010	0.057
Cobalt	0.01386	0.061	0.60	2.62	0.60	2.62	5.30
HCl	0.35178	1.541	2.32	10.14	2.32	10.14	21.8
Indium	0.00810	0.035	0.155	0.68	0.155	0.68	1.39
Chromium VI	0.00011	0.00049	0.00005	0.00022	0.00005	0.00022	0.0009
Copper	0.14817	0.649	0.0077	0.034	0.0077	0.034	0.72
Formaldehyde	0.21587	0.945	0.164	0.72	0.164	0.72	2.38
Manganese	0.01386	0.061	0.013	0.057	0.013	0.057	0.18
Molybdenum	0.02601	0.114	0.3092	1.35	0.3092	1.35	2.82
Nickel	0.67158	2.942	0.017	0.076	0.017	0.076	3.09
Phosphorous	0.03091	0.135	0.069	0.30	0.069	0.30	0.74
POM	0.00490	0.021	0.0483	0.21	0.0483	0.21	0.44
Selenium	0.00162	0.007	0.00013	0.0006	0.00013	0.0006	0.008
Tin	0.17589	0.770	0.19585	0.86	0.19585	0.86	2.49
Vanadium	2.38	10.42	0.061	0.266	0.061	0.266	10.95
Zinc	0.04104	0.180	0.168	0.735	0.168	0.735	1.65
Notes: See Appendix A							

TABLE C-1

Emission Rates for SKC Power Boilers and Bark Boilers in Future Recycling Mode at 640,000 lb/hr Steam As Used in Modeling Analyses For All Averaging Periods

Pollutant	Emissions (g/sec)		
	Total Power Boilers[a]	Bark Boiler #1	Bark Boiler #2
SO_2	93.83	4.28	4.28
NO_x	38.13	5.90	5.90
CO	2.24	30.40	30.40
PM_{10}	4.76	4.23	4.23
Lead	1.88e-03	1.85e-03	1.85e-03
Total Air Toxics	2.58	3.88	3.88

[a] Power boilers exhausted through new common stack

ISC Code	NEWPOW	BARK1	BARK2

TABLE 2-3

Stack Exhaust Parameters for SKC Power Boilers and Bark Boilers In Future Recycling Mode[a] at 640,000 lb/hr Total Steam Generation Bark Boilers at Full Load

	PB1	PB2	PB3	BB1	BB2
Steam Flow (lb/hr)	100,000	145,000	145,000	125,000	125,000
Heat Input (MMBtu/hr)	137	198	198	193	193
Fuel Type	Oil	Oil	Oil	Bark	Bark
UTM East (km)[b]	441.871			441.849	441.856
UTM North (km)[b]	3365.587			3365.613	3365.606
Stack height (m)	38.1			41.5	41.5
Stack diameter (m)	3.20			2.46	2.46
Temperature (deg. K)[b]	443			332	332
Velocity (m/s)[b]	13.78			13.08	13.08

Source: SKC except where noted
[a]Power boilers exhausted through new common stack
[b]ENSR 1993, based on SKC stack test data and plot plan

TABLE 2-4

Stack Parameters for SKC Power Boilers and Bark Boilers In Future Recycling Mode[a] at 640,000 lb/hr Total Steam Generation Power Boilers at Full Load

	PB1	PB2	PB3	BB1	BB2
Steam Flow (lb/hr)	135,000	180,000	180,000	72,500	72,500
Heat Input (MMBtu/hr)	185	246	246	112	112
Fuel Type	Oil	Oil	Oil	Bark/Oil	Bark/Oil
UTM East (km)[b]	441.871			441.849	441.856
UTM North (km)[b]	3365.587			3365.613	3365.606
Stack height (m)	38.1			41.5	41.5
Stack diameter (m)	3.20			2.46	2.46
Temperature (deg. K)[b]	443			332	332
Velocity (m/s)[b]	17.48			7.59	7.59

Source: SKC except where noted
(a) Power Boilers exhausted through new common stack
(b) ENSR 1993, based on SKC stack test data and plot plan

SKC's Power and Bark Boilers
Necessary to Generate 745,000 lb/hr
Total Annualized Steam (Case 1a)

1. Tables 1-3 and 1-4; lb/hr and ton/yr emissions - criteria and non-criteria pollutants

2. Table C-2; g/sec emissions

   a. Assumes lb/hr emissions occur 8760 hours/year
   b. (lb/hr)(453.59 g/lb)/(3600 sec/hr) = (g/sec)
   c. Total air toxics equals sum of all pollutants except SO_2, NO_x, CO, TSP, PM_{10}, VOC and lead

3. Table 2-5 - Bark and power boiler stack parameters all at full load

TABLE 1-3

Case 1a: Maximum Regulated Pollutant Emissions Modeled in Section 2 for SKC's Emission Sources Power and Bark Boilers as Necessary to Generate 745,000 lb/hr Total Annualized Steam

Pollutant	Total Power Boilers		Bark Boiler #1		Bark Boiler #2		
	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	Total ton/yr
SO_2	744.7	3262	58.6	256.5	58.6	256.5	3775
NO_x	302.6	1325	80.75	354	80.75	354	2033
CO	22.3	98	241.3	1057	241.3	1057	2212
TSP	67.7	297	38.6	169	38.6	169	635
PM-10	48.1	211	33.6	147	33.6	147	505
VOC	3.5	15	50.2	220	50.2	220	455
Lead	0.0190	0.083	0.0147	0.064	0.0147	0.064	0.21
Mercury	0.0022	0.0095	0.00046	0.0020	0.00046	0.0020	0.014
Beryllium	0.0028	0.0125	0.00002	1.06e-04	0.00002	1.06e-04	0.013
Fluorides	0.080	0.350	23.16	101.4	23.16	101.4	203.2
H_2SO_4 mist	16.25	71.2	2.76	12.13	2.76	12.13	95.4

Notes: See Appendix A

TABLE 1-4

Case 1a: Maximum Non-Regulated Pollutant Emissions Modeled in Section 2 for SKC's Emission Sources Power and Bark Boilers as Necessary to Generate 745,000 lb/hr Total Annualized Steam

	Total Power Boilers		Bark Boiler #1		Bark Boiler #2		
Pollutant	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	Total ton/yr
Antimony	0.00975	0.043	0.00139	0.006	0.00139	0.006	0.055
Arsenic	0.01286	0.056	0.00018	0.0008	0.00018	0.0008	0.058
Barium	0.00975	0.043	0.08299	0.363	0.08299	0.363	0.77
Bromine	0.00474	0.021	1.80	7.90	1.80	7.90	15.82
Cadmium	0.01063	0.047	0.0023	0.010	0.0023	0.010	0.067
Cobalt	0.01760	0.077	0.60	2.62	0.60	2.62	5.32
HCl	0.44682	1.957	2.32	10.14	2.32	10.14	22.2
Indium	0.01029	0.045	0.155	0.68	0.155	0.68	1.40
Chromium VI	0.00014	0.00062	0.00005	0.00022	0.00005	0.00022	0.0011
Copper	0.18821	0.824	0.0077	0.034	0.0077	0.034	0.89
Formaldehyde	0.27419	1.201	0.164	0.72	0.164	0.72	2.64
Manganese	0.01760	0.077	0.013	0.057	0.013	0.057	0.19
Molybdenum	0.03304	0.145	0.3092	1.35	0.3092	1.35	2.85
Nickel	0.85302	3.736	0.017	0.076	0.017	0.076	3.89
Phosphorous	0.03927	0.172	0.069	0.30	0.069	0.30	0.78
POM	0.00623	0.027	0.0483	0.21	0.0483	0.21	0.45
Selenium	0.00162	0.007	0.00023	0.001	0.00023	0.001	0.009
Tin	0.22341	0.979	0.19585	0.86	0.19585	0.86	2.69
Vanadium	2.38	10.42	0.104	0.46	0.104	0.46	11.34
Zinc	0.05213	0.228	0.168	0.735	0.168	0.735	1.70

Notes: See Appendix A

TABLE C-2

Emission Rates for SKC Power Boilers and Bark Boilers in Future Recycling Mode at 745,000 lb/hr Total Steam As Used in Modeling Analyses For All Averaging Periods

Pollutant	Emissions (g/sec)		
	Total Power Boilers[a]	Bark Boiler #1	Bark Boiler #2
SO_2	93.83	7.38	7.38
NO_x	38.13	10.17	10.17
CO	2.85	30.40	30.40
PM_{10}	6.06	4.23	4.23
Lead	2.39e-03	1.85e-03	1.85e-03
Total Air Toxics	2.64	4.03	4.03

[a] Power boilers exhausted through new common stack

ISC Code	NEWPOW	BARK1	BARK2

TABLE 2-5

Stack Exhaust Parameters for SKC Power Boilers and Bark Boilers in Future Recycling Mode[a] at 745,000 lb/hr Total Steam Generation

	PB1	PB2	PB3	BB1	BB2
Steam Flow (lb/hr)	135,000	180,000	180,000	125,000	125,000
Heat Input (MMBtu/hr)	185	246	246	193	193
Fuel Type	Oil	Oil	Oil	Bark Bark/Oil	Bark Bark/Oil
UTM East (km)[b]	441.871			441.849	441.856
UTM North (km)[b]	3365.587			3365.613	3365.606
Stack Height (m)	38.1			41.5	41.5
Stack Diameter (m)	3.2			2.46	2.46
Temperature (K)[b]	443			332	332
Velocity (m/s)[b]	17.48			13.08	13.08

Source: SKC except where noted
[a]Power boilers exhausted through new common stack
[b]ENSR 1993, based on SKC stack test data and plot plan

Cedar Bay as Certified (Case 2)

1. Tables 1-5 and 1-6; criteria and non-criteria pollutant emissions

   a. CFB's; lb/MMBtu and ton/yr emissions

      - assumes 3189 MMBtu/hr and 93 percent capacity factor
      - (lb/MMBtu)(3189 MMBtu/hr)(0.93 capacity factor)(4.38) = (ton/yr), except where actual permit ton/yr differs slightly

   b. Limestone dryers; lb/hr and ton/year emissions

      - both assumed to operate 24 hours per day
      - (lb/hr)(2 dryers)(4.38) = tons/year

2. Table C-3; g/sec emissions

   a. CFBs

      - short-term (24 hours or less)
        (lb/MMBtu)(3189 MMBtu/hr)(453.59 g/lb)/(3600 sec/hr) = g/sec

      - long-term
        (lb/MMBtu)(3189 MMBtu/hr)(0.93 C.F.)(453.59 g/lb)/(3600 sec/hr) = g/sec

   b. Limestone dryers

      - all averaging periods
        (lb/hr)(453.59 g/lb)/(3600 sec/hr) = g/sec/dryer

   c. Total air toxics equals sum of all pollutants except SO_2, NO_x, CO, TSP, PM_{10}, VOC and lead

3. Table 2-6 - CBCP as certified stack parameters

4. Table B-1 - Cooling tower

   a. Particulate emissions
      (11.29 lb/hr)(453.59 g/lb)/[(3600 sec/hr)(7 cells)] = 0.2032 g/sec/cell

   b. Cooling tower modeling parameters (Table 2-9)

5. Table 2-12 - Source parameters and TSP/PM_{10} emission rates for aggregate material handling and storage operations

TABLE 1-5

Case 2: Maximum Regulated Pollutant Emissions for Cedar Bay as Certified (a)

Pollutant	CFB		Limestone Dryers (b)		Total (tons/yr)
	(lb/MMBtu)	(tons/yr)	(lb/hr)	(tons/yr)	
SO2	0.31 (c)	4,015	5.00	43.8	4,058.8
NOx	0.29 (d)	3,767	2.40	21.0	3,788.0
CO	0.19	2,468	0.60	5.2	2,473.2
TSP (PM)	0.020	260	0.25	2.2	262.2
PM-10	0.020	257	0.25	2.2	259.2
VOC	0.015	195	0.05	0.4	195.4
Lead	0.007	91	1.52e-04(e)	1.33e-03(e)	91.0
Beryllium	0.00011	1.5	4.26e-05(e)	3.73e-04(e)	1.5
Mercury	0.00026	3.4	5.11e-05(e)	4.48e-04(e)	3.4
Fluorides	0.086	1,122	5.45e-04(e)	4.78e-03(e)	1,122.0
H2SO4 mist	0.024	308	0.20(e)	1.75(e)	309.8

Notes:
NA = Not Available
(a) Source: Final Order and Certification PA-88-24 (2/11/91) and Final Determination, AES/Cedar Bay Cogeneration Project, Duval County, FL Permit No. PSD-FL-137 (3/28/91).
(b) lb/hr values represent emissions limits for each of two limestone dryers
Annual emissions are for both dryers, based on permitted 8760 hrs/yr operation
(c) 12 month running average
(d) 30 day running average
(e) For emissions not specified in (a), emissions in terms of lb/10^{12} Btu supplied by Bechtel, Correspondence from A. Nawaz to M. Carney (U.S. Generating Company): converted to lb/hr based on fuel rate of 120 gal/hr and heating value of 142,000 Btu/gal.

TABLE 1-6

Case 2: Maximum Non-Regulated Pollutant Emissions for Cedar Bay as Certified (a)

Pollutant	CFB		Limestone Dryers (c)		Total (tons/yr)
	(lb/MMBtu)[b]	(tons/yr)	(lb/hr)	(tons/yr)	
Antimony	1.06e-05	0.14	6.82e-05	5.97e-04	0.14
Arsenic	1.44e-04	1.9	7.16e-05	6.27e-04	1.9
Barium	6.11e-04	7.9	4.60e-05	4.03e-04	7.9
Bromine	-	-	1.19e-04	1.04e-03	1.04e-03
Cadmium	3.15e-05	0.41	1.79e-04	1.57e-03	4.12e-01
Cobalt	3.78e-05	0.49	1.07e-03	9.37e-03	0.50
HCl	1.81e-03	23.5	1.12e-02	9.81e-02	23.6
Indium	1.40e-07	1.82e-03			1.82e-03
Chromium VI	1.06e-06	1.38e-02	3.41e-06	2.99e-05	1.38e-02
Copper	8.04e-05	1.0	4.77e-03	4.18e-02	1.0
Formaldehyde	1.30e-04	1.7	6.90e-03	6.04e-02	1.8
Manganese	5.00e-04	6.5	1.79e-04	1.57e-03	6.5
Molybdenum	1.00e-04	1.3	8.32e-04	7.29e-03	1.3
Nickel	8.08e-05	1.0	2.90e-03	2.54e-02	1.0
Phosphorous	3.35e-04	4.4	1.81e-03	1.59e-02	4.4
POM	1.86e-05	0.24	3.83e-04	3.36e-03	0.24
Selenium	1.58e-05	0.21	1.93e-04	1.69e-03	0.21

TABLE 1-6 (Cont'd)

Case 2: Maximum Non-Regulated Pollutant Emissions for Cedar Bay as Certified (a)

Pollutant	CFB		Limestone Dryers (c)		Total (tons/yr)
	(lb/MMBtu)[b]	(tons/yr)	(lb/hr)	(tons/yr)	
Tin	3.94e-05	0.51	5.62e-03	4.92e-02	0.56
Vanadium	3.21e-04	4.2	1.28e-02	1.12e-01	4.3
Zinc	3.73e-03	48.45	2.56e-03	2.24e-02	48.5
Radionuclides (d)	8.66e-10	0.022	NA	NA	0.022

Notes:
NA - Not Available
(a) Emissions estimated based on emission factors developed by Bechtel Power (Letter from A. Nawaz, Bechtel to M. Carney, U.S. Generating Company)
(b) Annual average.
(c) lb/hr values represent emissions limits for each of two limestone dryers
Annual emissions are for both dryers, based on permitted 8760 hrs/yr operation
(d) Emission units expressed as curies

TABLE C-3

Emission Rates for Cedar Bay as Certified[a] as Used in Modeling Analyses

Pollutant	Total CFBs				Each Limestone Dryer	
	Short-Term		Long-Term			
	(lb/MMBtu)	(g/sec)	(lb/MMBtu)	(g/sec)	(lb/hr)	(g/sec)
SO_2	0.6[b]	241.1	0.31	115.8	5.0	0.63
NO_x	0.29	---	0.29	108.4	2.4	3.02e-01
CO	0.19	76.34	0.19	---	0.6	7.56e-02
TSP	0.020	8.04	0.020	7.47	0.25	3.15e-02
PM_{10}	0.020	8.04	0.020	7.47	0.25	3.15e-02
Lead	0.007	---	0.007	2.62	1.52e-04	1.92e-05
Mercury	0.00026	1.04e-01	0.00026	9.72e-02	5.11e-05	6.44e-06
Beryllium	0.00011	4.42e-02	0.00011	4.11e-02	4.26e-05	5.37e-06
Fluoride	0.086	34.56	0.086	32.14	5.45e-04	6.87e-05
H_2SO_4 Mist	0.024	9.64	0.024	8.97	0.20	2.52e-02
Antimony	1.58e-05	6.35e-03	1.06e-05	3.96e-03	6.82e-05	8.59e-06
Arsenic	2.35e-04	9.44e-02	1.44e-04	5.38e-02	7.16e-05	9.02e-06
Barium	9.36e-04	3.76e-01	6.11e-04	2.28e-01	4.60e-05	5.80e-06
Bromine	-	-	-	-	1.19e-04	1.50e-05
Cadmium	5.54e-05	2.23e-02	3.15e-05	1.18e-02	1.79e-04	2.26e-05
Cobalt	5.52e-05	2.22e-02	3.78e-05	1.41e-02	1.07e-03	1.34e-04
HCl	1.81e-03	7.27e-01	1.81e-03	6.76e-01	1.12e-02	1.42e-03
Indium	2.11e-07	8.48e-05	1.40e-07	5.23e-05	0	0
Chromium VI	1.66e-06	6.67e-04	1.06e-06	3.96e-04	3.41e-06	4.3e-07
Copper	1.21e-04	4.86e-02	8.04e-05	3.00e-02	4.77e-03	6.01e-04

TABLE C-3 (Cont'd)

Emission Rates for Cedar Bay as Certified[a] as Used in Modeling Analyses

Pollutant	Total CFBs				Each Limestone Dryer	
	Short-Term		Long-Term			
	(lb/MMBtu)	(g/sec)	(lb/MMBtu)	(g/sec)	(lb/hr)	(g/sec)
Formaldehyde	1.30e-04	5.22e-02	1.30e-04	4.86e-02	6.90e-03	8.69e-04
Manganese	7.6e-04	3.05e-01	5.00e-04	1.87e-01	1.79e-04	2.26e-05
Molybdenum	1.56e-04	6.27e-02	1.00e-04	3.74e-02	8.32e-04	1.05e-04
Nickel	1.24e-04	4.98e-02	8.08e-05	3.02e-02	2.90e-03	3.65e-04
Phosphorous	5.09e-04	2.05e-01	3.35e-04	1.25e-01	1.81e-03	2.28e-04
POM	1.86e-05	7.47e-03	1.86e-05	6.95e-03	3.83e-04	4.83e-05
Selenium	2.18e-05	8.76e-03	1.58e-05	5.90e-03	1.93e-04	2.43e-05
Tin	6.13e-05	2.46e-02	3.94e-05	1.47e-02	5.62e-03	7.08e-04
Vanadium	3.86e-04	1.55e-01	3.21-04	1.20e-01	1.28e-02	1.61e-03
Zinc	6.21e-03	2.50	3.73e-03	1.39	2.56e-03	3.22e-04
Pyridine, Phenol, Acetic Acid, Acetaldehyde[d]	0.01	4.02	0.01	3.47	0.17	0.02
Total Air Toxics[c]	-	53.04	-	47.70	-	5.18e-02

(a) Derived from emissions data presented in Section 1. Short-term values used for all averaging periods of 24-hours or less.
(b) Source: Final Order and Certification PA-88-24 (2/11/91) and Final Determination AES/Cedar Bay Cogeneration Project, Duval County, FL Permit No. PSD-FL-137 (3/28/91).
(c) Non-criteria
(d) The 0.01 lb/MMBtu emission factor represents total organics. Pyridine, phenol, acetic acid and acetaldehyde represent an unknown percentage of this total. However, this emission factor was conservatively assumed for these substances in the modeling analyses in Sections 2 and 3.

ISC Codes

CFB = CFB
Limestone Dryers = LIDRY1 and LIDRY2

TABLE 2-6

The CBCP
Physical Stack Exhaust Parameters

Parameter	CBCP As Certified		CBCP As Modified (a)		
	CFBs	Limestone Dryers	CFBs	Limestone Dryer #1	Limestone Dryer #2
UTM East (km)	441.610	441.664	441.610	441.660	441.668
UTM North (km)	3365.540	3365.680	3365.540	3365.790	3365.682
Stack Height (m)	129.54	9.14	122.68	19.21	19.21
Stack Diameter (m)	4.27	1.04	4.04	1.27	1.27
Stack Exit Velocity (m/s)	33.22	21.34	32.45	18.26	18.26
Stack Exit Temperature (K)	403.0	355	403.0	355	355

(a) Source: Correspondence from A. Nawaz, Bechtel to G. Harkness, ENSR, 11/6/92

TABLE B-1

Cooling Tower Particulate Emissions

Parameter	Cedar Bay as Certified	Cedar Bay as Proposed to be Modified
Total Water Flow (gpm)[a]	160,000	160,000
Drift Elimination Efficiency (%)	.002[a]	.001[b]
Drift Loss Rate (gpm)[c]	3.2	1.6
Total Dissolved Solids[d]	13,000 ppm	13,000 ppm
Total Suspended Solids[d]	50 ppm	50 ppm
% Drift <50 microns[a]	54	54
Particulate Emission Rate (lb/hr)[e]	11.29	5.64

[a] Source: Black & Veatch Memorandum from A.L. Carson to M.A. Perry, 10/14/92.
[b] Proposed improvement by Cedar Bay Cogeneration Project
[c] Calculated from total water flow and drift elimination efficiency
[d] Assumed upper limit
[e] Calculated from drift loss rate and total solids

lb/hr numbers represent total emissions g/sec emissions are per cell (7 cells)		
per cell (g/sec)	0.2032	0.1015
ISC Codes = COOL1, COOL2, COOL3, COOL4, COOL5, COOL6 and COOL7		

TABLE 2-9

Cedar Bay Cooling Tower Modeling Parameters[a]

Cell #	UTM Coordinates (km)		Height (m)	Diameter (m)	Exit Temperature (°K)	Exit Velocity (m/s)
	East	North				
1	441.593	3365.746	14.94	9.75	316.3	8.96
2	441.593	3365.729	14.94	9.75	316.3	8.96
3	441.593	3365.713	14.94	9.75	316.3	8.96
4	441.594	3365.696	14.94	9.75	316.3	8.96
5	441.594	3365.680	14.94	9.75	316.3	8.96
6	441.595	3365.663	14.94	9.75	316.3	8.96
7	441.595	3365.647	14.94	9.75	316.3	8.96

[a]Source: CBCP plot plan and Telephone Conversation between J. Yuhas, ENSR and A. Nawaz, Bechtel on 11-5-92.

TABLE 2-12

Source Parameters and TSP/PM-10 Emission Rates For Aggregate Materials Handling and Storage Operations For the CBCP As Certified [a]

ISC Code	Description	Type	UTM Coordinates (km)		24-Hour Emission Rate (g/s)	Annual Emission Rate (g/s)
			East	North		
LIDRY1 and LIDRY2	Limestone Dryers[b]	Point	441.639	3365.692	2.50e-02	5.65e-02
FUG3	Coal Pile and Associated Activities	Area	441.648	3365.899	2.32e-02	0
FUG4	Coal Crusher	Point	441.721	3365.847	5.04e-03	4.32e-03
FUG5	Coal Conveying	Area	441.700	3365.676	3.23e-02	1.62e-02
FUG6	Limestone Pile	Area	441.751	3365.774	8.36e-03	8.36e-03
FUG7	Limestone Fabric Filters	Point	441.761	3365.737	4.79e-02	3.45e-02
FUG8	Limestone Hopper	Point	441.764	3365.640	4.79e-02	3.45e-02
FUG9	Fly Ash Mechanical Collector	Point	441.695	3365.695	1.71e-02	1.50e-02
FUG10	Bed Ash Mechanical Collector	Point	441.693	3365.681	2.14e-03	1.87e-03
FUG11	Coal Pile and Associated Activities[c]	Area	441.648	3365.899	2.32e-02	0

[a] Source: A. Carlson of Black & Veatch transmittal of ISCST2 input File to J. Yuhas, ENSR on 10/6/92
[b] emission rate is for limestone pulverizer dust only
[c] listed twice to represent different settling velocities

Cedar Bay as Modified with Proposed SKC Package Boilers Producing 260,000 lb/hr Steam (Case 3)

1. Tables 1-7 and 1-8; Criteria and non-criteria pollutant emissions

   a. CFB's; lb/MMBtu and ton/yr emissions

      - assumes 3189 MMBtu/hr and 85.5 percent capacity factor
        (lb/MMBtu)(3189 MMBtu/hr)(0.855 C.F.)(4.38) = (ton/yr)

   b. Limestone dryers; lb/hr and ton/year emissions

      - Both assumed to operate 8 hours per day
      - (lb/hr)(2 dryers)(4.38)(8 hrs/24 hrs) = tons/year

   c. SKC package boilers - lb/hr and ton/year emissions

      - 3 units operating 8760 hrs per year firing natural gas
      - (lb/hr)(3 units)(4.38) = (tons/year)

2. Tables 1-9 and 1-10; Criteria and non-criteria pollutant emissions

   a. CFB's - same as above
   b. Limestone dryers - same as above
   c. SKC package boilers - lb/hr and ton/yr emissions

      - 3 units operating 8760 hours per year firing distillate oil
      - (lb/hr)(3 units)(4.38) = (tons/year)

3. Tables C-4, C-5, C-6; g/sec emissions

   a. CFBs - Table C-4

      - short-term (24 hours or less)
        (lb/MMBtu)(3189 MMBtu/hr)(453.59 g/lb)/(3600 sec/hr) = g/sec

      - long term (conservative 93% capacity factor assumed)
        (lb/MMBtu)(3189 MMBtu/hr)(0.93)(453.59 g/lb)/(3600 sec/hr) = (g/sec)

   b. Limestone dryers - Table C-5

      - 8-hour averaging period (short-term)
        (lb/hr)(453.59 g/lb)/(3600 sec/hr) = (g/sec)

      - 24-hour and annual (long-term)
        (lb/hr)(453.59 g/lb)(8 hrs/24 hrs)/(3600 sec/hr) = (g/sec)

c. SKC package boilers - Table C-6 (distillate oil and natural gas)

- all averaging periods
  (lb/hr)(3 units)(453.59 g/lb)/(3600 sec/hr) = (g/sec)

d. Total air toxics equals sum of all pollutants except SO_2, NO_x, CO, TSP, PM_{10}, VOC and lead

4. Table 2-6 - CBCP as modified stack parameters
Table 2-8 - Stack parameters for SKC package boilers producing 260,000 lb/hr total steam

5. Table B-1 - Cooling tower

a. Particulate emissions
(5.64 lb/hr)(453.59 g/lb)/[(3600 sec/hr)(7 cells)] = 0.1015 g/sec/cell

b. Cooling tower modeling parameters (Table 2-9)

6. Tables 2-10 and 2-11 - Materials handling emissions and source parameters

a. Table 2-10; Area sources - Emissions summed from Tables B-3 and B-6 (for TSP) or B-4 and B-7 (for PM_{10}) from list of "Sources Included"

- 24-hour emissions based on lb/hr emission rates
- annual emissions based on ton/year emission rates

b. Table 2-11; Point sources - TSP emissions from Tables B-3, B-6, B-8 and B-9; PM_{10} emissions from Tables B-4, B-7, B-8 and B-9

- 24-hr emissions based on lb/hr emission rates
- annual emissions based on ton/year emission rates

7. Limestone dryer TSP/PM_{10} emissions; combination of combustion and materials handling

a. Combustion portion - 1.05e-02 g/sec - See Table C-5

b. Materials handling portion from lime pulverizers - See Table 2-11 - annual of 5.09e-02 g/sec; 24-hr of 5.29e-02 g/sec

c. total limestone dryer TSP/PM_{10} emissions
annual - 1.05e-02 + 5.09e-02 = 0.0614 g/sec
24-hr - 1.05e-02 + 5.29e-02 = 0.0634 g/sec

TABLE 1-7

Case 3: Maximum Regulated Pollutant Emissions for Cedar Bay as Proposed to be Modified (a) and SKC Package Boilers Firing Natural Gas at 260,000 lb/hr Steam

	CFB		Limestone Dryers (d)		SK Package Boilers (e)		Total
Pollutant	(lb/MMBtu)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	(tons/yr)
SO2	0.20 (b)	2388.5	5.00	14.6	0.07	1.0	2404.1
NOx	0.17 (c)	2030.2	2.40	7.0	24.3	319.3	2356.5
CO	0.175 (c)	2089.9	0.60	1.8	43.4	569.9	2661.6
TSP	0.018	215.0	0.25	0.73	0.61	8.0	223.7
PM-10	0.018	215.0	0.25	0.73	0.61	8.0	223.7
VOC	0.015	179.1	0.05	0.15	0.17	2.2	181.5
Lead (b)	6.03e-05	0.72	1.52e-04	4.44e-04	NA	NA	0.72
Beryllium (b)	8.70e-06	0.10	4.26e-05	1.24e-04	NA	NA	0.10
Mercury (b)	2.89e-05	0.35	5.11e-05	1.49e-04	1.7e-06	2.2e-05	0.35
Fluorides (b)	7.44e-04	8.9	5.45e-04	1.59e-03	NA	NA	8.9
H2SO4 mist	4.66e-04	5.6	0.20	0.58	NA	NA	6.2

Notes:
NA = Not Applicable
(a) Source: Final Order and Certification PA-88-24 (2/11/91) and Amended Petition for Modification of Certification (July 22, 1992 Before the State of Florida, Division of Administrative Hearings, In Re: AES Cedar Bay Cogeneration Project, Power Plant Site Certification Application PA-88-24) plus additional improvements by CBCP.
(b) 12 month running average
(c) 30 day running average
(d) Lb/hr values represent emission limits for each of two limestone dryers
Annual emissions are for both dryers and are based on maximum operation of 8 hours/day each, 365 days/yr
(e) Firing natural gas - lb/hr values for each of three boilers - emissions data from ENSR 1993

TABLE 1-8

Case 3: Maximum Non-Regulated Pollutant Emissions for Cedar Bay as Proposed to be Modified (a) and SKC Package Boilers Firing Natural Gas at 260,000 lb/hr Steam

	CFB		Limestone Dryers (c)		SK Package Boilers (d)		Total
Pollutant	(lb/MMBtu)(b)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	(tons/yr)
Antimony	1.06e-05	0.13	6.82e-05	1.99e-04	NA	NA	0.13
Arsenic	1.44e-04	1.7	7.16e-05	2.09e-04	NA	NA	1.7
Barium	6.11e-04	7.3	4.60e-05	1.34e-04	NA	NA	7.3
Bromine			1.19e-04	3.47e-04	NA	NA	3.47e-04
Cadmium	3.15e-05	0.38	1.79e-04	5.23e-04	NA	NA	0.38
Cobalt	3.78e-05	0.45	1.07e-03	3.12e-03	NA	NA	0.45
HCl	1.81e-03	21.6	1.12e-02	3.27e-02	NA	NA	21.6
Indium	1.40e-07	1.67e-03	NA	NA	NA	NA	1.67e-03
Chromium VI	1.06e-06	1.27e-02	3.41e-06	9.96e-06	NA	NA	1.27e-02
Copper	8.04e-05	0.96	4.77e-03	1.39e-02	NA	NA	0.97
Formaldehyde	1.30e-04	1.6	6.90e-03	2.01e-02	NA	NA	1.6
Manganese	5.00e-04	6.0	1.79e-04	5.23e-04	NA	NA	6.0
Molybdenum	1.00e-04	1.2	8.32e-04	2.43e-03	NA	NA	1.2
Nickel	8.08e-05	0.96	2.90e-03	8.47e-03	NA	NA	0.97
Phosphorous	3.35e-04	4.0	1.81e-03	5.29e-03	NA	NA	4.0
POM	1.86e-05	0.22	3.83e-04	1.12e-03	NA	NA	0.22
Selenium	1.58e-05	0.19	1.93e-04	5.64e-04	NA	NA	0.19
Tin	3.94e-05	0.47	5.62e-03	1.64e-02	NA	NA	0.49

TABLE 1-8 (Cont'd)

Case 3: Maximum Non-Regulated Pollutant Emissions for Cedar Bay as Proposed to be Modified (a) and SKC Package Boilers Firing Natural Gas at 260,000 lb/hr Steam

	CFB		Limestone Dryers (c)		SK Package Boilers (d)		Total (tons/yr)
Pollutant	(lb/MMBtu)(b)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	
Vanadium	3.21e-04	3.8	1.28e-02	3.73e-02	NA	NA	3.8
Zinc	3.73e-03	44.5	2.56e-03	7.48e-03	NA	NA	44.5
Radionuclides (e)	8.66e-10	0.020	NA	NA	NA	NA	0.020

Notes:
NA - Not applicable
(a) Source: emission factors developed by Bechtel Power
(b) Annual Average
(c) Lb/hr values represent emission limits for each of two limestone dryers
Annual emissions are for both dryers and are based on maximum operation of 8 hours/day each, 365 days/yr
(d) Firing natural gas - lb/hr values for each of three boilers - emissions data from ENSR 1993
(e) Emission units expressed as curies

TABLE 1-9

Case 3: Maximum Regulated Pollutant Emissions for Cedar Bay as Proposed to be Modified (a) and SKC Package Boilers Firing Distillate Oil at 260,000 lb/hr Steam

	CFB		Limestone Dryers (d)		SK Package Boilers (e)		Total
Pollutant	(lb/MMBtu)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	(tons/yr)
SO2	0.20 (b)	2388.5	5.00	14.6	34.2	449.1	2852.2
NOx	0.17 (c)	2030.2	2.40	7.0	22.8	299.4	2336.6
CO	0.175 (c)	2089.9	0.60	1.8	42	551.9	2643.6
TSP	0.018	215.0	0.25	0.73	5.7	74.9	290.6
PM-10	0.018	215.0	0.25	0.73	2.8	37.4	253.1
VOC	0.015	179.1	0.05	0.15	0.16	2.2	181.5
Lead (b)	6.03e-05	0.72	1.52e-04	4.44e-04	1.0e-03	1.3e-02	0.73
Beryllium (b)	8.70e-06	0.10	4.26e-05	1.24e-04	2.8e-04	3.7e-03	0.10
Mercury (b)	2.89e-05	0.35	5.11e-05	1.49e-04	3.9e-04	5.1e-03	0.36
Fluorides (b)	7.44e-04	8.9	5.45e-04	1.59e-03	3.7e-03	4.9e-02	9.0
H2SO4 mist	4.66e-04	5.6	0.20	0.58	1.7	22.3	28.5

(a) Source: Final Order and Certification PA-88-24 (2/11/91) and Amended Petition for Modification of Certification (July 22, 1992 Before the State of Florida, Division of Administrative Hearings, In Re: AES Cedar Bay Cogeneration Project, Power Plant Site Certification Application PA-88-24) plus additional improvements by CBCP.
(b) 12 month running average
(c) 30 day running average
(d) Lb/hr values represent emission limits for each of two limestone dryers
Annual emissions are for both dryers and are based on maximum operation of 8 hours/day each, 365 days/yr
(e) Firing distillate oil - lb/hr values for each of three boilers - emissions data from ENSR 1993

TABLE 1-10

Case 3: Maximum Non-regulated Pollutant Emissions for Cedar Bay as Proposed to be Modified (a) and SKC Package Boilers Firing Distillate Oil at 260,000 lb/hr Steam

Pollutant	CFB		Limestone Dryers (c)		SK Package Boilers (d)		Total (tons/yr)
	(lb/MMBtu)(b)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	
Antimony	1.06e-05	0.13	6.82e-05	1.99e-04	4.6e-04	0.006	0.14
Arsenic	1.44e-04	1.7	7.16e-05	2.09e-04	4.8e-04	6.3e-03	1.7
Barium	6.11e-04	7.3	4.60e-05	1.34e-04	3.1e-04	4.0e-03	7.3
Bromine			1.19e-04	3.47e-04	8.0e-04	1.05e-02	0.01
Cadmium	3.15e-05	0.38	1.79e-04	5.23e-04	1.2e-03	1.6e-02	0.40
Cobalt	3.78e-05	0.45	1.07e-03	3.12e-03	1.0e-03	1.32e-02	0.47
HCl	1.81e-03	21.6	1.12e-02	3.27e-02	7.52e-02	0.99	22.6
Indium	1.40e-07	1.67e-03	NA	NA	1.73e-03	2.28e-02	2.45e-02
Chromium VI	1.06e-06	1.27e-02	3.41e-06	9.96e-06	5.0e-05	7.0e-04	0.01
Copper	8.04e-05	0.96	4.77e-03	1.39e-02	3.19e-02	0.42	1.4
Formaldehyde	1.30e-04	1.6	6.90e-03	2.01e-02	4.61e-02	0.61	2.2
Manganese	5.00e-04	6.0	1.79e-04	5.23e-04	1.1e-03	1.45e-02	6.0
Molybdenum	1.00e-04	1.2	8.32e-04	2.43e-03	5.6e-03	0.07	1.3
Nickel	8.08e-05	0.96	2.90e-03	8.47e-03	1.94e-02	2.5e-01	1.2
Phosphorous	3.35e-04	4.0	1.81e-03	5.29e-03	1.21e-02	0.16	4.2
POM	1.86e-05	0.22	3.83e-04	1.12e-03	3.0e-05	4.0e-04	0.22
Selenium	1.58e-05	0.19	1.93e-04	5.64e-04	1.3e-03	1.7e-02	0.21
Tin	3.94e-05	0.47	5.62e-03	1.64e-02	3.76e-02	0.49	0.98
Vanadium	3.21e-04	3.8	1.28e-02	3.73e-02	5.13e-02	0.67	4.5

TABLE 1-10 (Cont'd)

Case 3: Maximum Non-Regulated Pollutant Emissions for Cedar Bay as Proposed to be Modified (a) and SKC Package Boilers Firing Distillate Oil at 260,000 lb/hr Steam

Pollutant	CFB		Limestone Dryers (c)		SK Package Boilers (d)		Total (tons/yr)
	(lb/MMBtu)(b)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	
Zinc	3.73e-03	44.5	2.56e-03	7.48e-03	1.12e-02	0.15	44.7
Radionuclides (e)	8.66e-10	0.020	NA	NA	NA	NA	0.020

Notes:
NA - Not available
(a) Source: emission factors developed by Bechtel Power
(b) Annual Average
(c) Lb/hr values represent emission limits for each of two limestone dryers
Annual emissions are for both dryers and are based on maximum operation of 8 hours/day each, 365 days/yr
(d) Firing distillate oil - lb/hr values for each of three boilers - emissions data from ENSR 1993
(e) Emission units expressed as curies

TABLE C-4

Emission Rates for Cedar Bay CFBs as Modified as Used in Modeling Analyses (a)

Pollutant	CFB Emissions			
	Short-Term		Long-Term	
	(lb/MMBtu)	(g/sec)	(lb/MMBtu)	(g/sec)
SO_2	0.24	96.44	0.20	74.74
NO_x	0.17	68.31	0.17	63.53
CO	0.175	70.32	0.175	-
TSP	0.018	7.23	0.018	6.73
PM_{10}	0.018	7.23	0.018	6.73
Lead	6.38e-05	2.56e-02	6.03e-05	2.25e-02
Mercury	4.72e-05	1.90e-02	2.89e-05	1.08e-02
Beryllium	1.25e-05	5.02e-03	8.70e-06	3.25e-03
Fluorides	8.54e-04	3.43e-01	7.44e-04	2.78e-01
H_2SO_4 Mist	4.66e-04	1.87e-01	4.66e-04	1.74e-01
Antimony	1.58e-05	6.35e-03	1.06e-05	3.96e-03
Arsenic	2.35e-04	9.44e-02	1.44e-04	5.38e-02
Barium	9.36e-04	3.76e-01	6.11e-04	2.28e-01
Bromine	-	-	-	-
Cadmium	5.54e-05	2.23e-02	3.15e-05	1.18e-02
Cobalt	5.52e-05	2.22e-02	3.78e-05	1.41e-02
HCL	1.81e-03	7.27e-01	1.81e-03	6.76e-01
Indium	2.11e-07	8.48e-05	1.40e-07	5.23e-05
Chromium VI	1.66e-06	6.67e-04	1.06e-06	3.96e-04
Copper	1.21e-04	4.86e-02	8.04e-05	3.00e-02
Formaldehyde	1.30e-04	5.22e-02	1.30e-04	4.86e-02

TABLE C-4 (Cont'd)

Emission Rates for Cedar Bay CFBs as Modified as Used in Modeling Analyses [a]

Pollutant	CFB Emissions			
	Short-Term		Long-Term	
	(lb/MMBtu)	(g/sec)	(lb/MMBtu)	(g/sec)
Manganese	7.6e-04	3.05e-01	5.00e-04	1.87e-01
Molybdenum	1.56e-04	6.27e-02	1.00e-04	3.74e-02
Nickel	1.24e-04	4.98e-02	8.08e-05	3.02e-02
Phosphorous	5.09e-04	2.05e-01	3.35e-04	1.25e-01
POM	1.86e-05	7.47e-03	1.86e-05	6.95e-03
Selenium	2.18e-05	8.76e-03	1.58e-05	5.90e-03
Tin	6.13e-05	2.46e-02	3.94e-05	1.47e-02
Vanadium	3.86e-04	1.55e-01	3.21e-04	1.20e-01
Zinc	6.21e-03	2.50	3.73e-03	1.39
Pyridine, Phenol, Acedic Acid, Acetaldehyde[c]	0.01	4.02	0.01	3.74
Total Air Toxics[b]		9.24		7.19

(a) Derived from emissions data presented in Section 1. Short-term values used for all averaging periods of 24-hours or less.

(b) Non-criteria

(c) The 0.01 lb/MMBtu emission factor represents total organics. Pyridine, phenol, acetic acid and acetaldehyde represent an unknown percentage of this total. However, this emission factor was conservatively assumed for these substances in the modeling analyses in Sections 2 and 3.

ISC Code = CFB

TABLE C-5

Emission Rates for Cedar Bay as Modified Limestone Dryers as Used in Modeling Analyses [a]

Pollutant	Limestone Dryer Emissions		
	Short-Term		Long-Term
	lb/hr	(g/sec)	(g/sec)
SO_2	5.0	0.63 x 2	0.21
NO_x	2.4	0.30	0.10
CO	0.6	7.56e-02	2.52e-02
TSP	0.25	—	1.05e-02
PM_{10}	0.25	—	1.05e-02
Lead	1.52e-04	1.92e-05	6.38e-06
Mercury	5.11e-05	6.44e-06	2.15e-06
Beryllium	4.26e-05	5.37e-06	1.79e-06
Fluorides	5.45e-04	6.87e-05	2.29e-05
H_2SO_4 Mist	0.20	2.52e-02	8.40e-03
Antimony	6.82e-05	8.59e-06	2.86e-06
Arsenic	7.16e-05	9.02e-06	3.01e-06
Barium	4.60e-05	5.80e-06	1.93e-06
Bromine	1.19e-04	1.50e-05	5.01e-06
Cadmium	1.79e-04	2.26e-05	7.52e-06
Cobalt	1.07e-03	1.35e-04	4.49e-05
HCl	1.12e-02	1.42e-03	4.72e-04
Indium	-	-	-
Chromium VI	3.41e-06	4.30e-07	1.43e-07
Copper	4.77e-03	6.01e-04	2.00e-04
Formaldehyde	6.90e-03	8.69e-04	2.90e-04

1.26 0.42

TABLE C-5 (Cont'd)

Emission Rates for Cedar Bay as Modified Limestone Dryers as Used in Modeling Analyses [a]

Pollutant	Limestone Dryer Emissions		
	Short-Term		Long-Term
	lb/hr	(g/sec)	(g/sec)
Manganese	1.79e-04	2.26e-05	7.52e-06
Molybdenum	8.32e-04	1.05e-04	3.49e-05
Nickel	2.90e-03	3.65e-04	1.22e-04
Phosphorous	1.81e-03	2.28e-04	7.60e-05
POM	3.83e-04	4.83e-05	1.61e-05
Selenium	1.93e-04	2.43e-05	8.11e-06
Tin	5.62e-03	7.08e-04	2.36e-04
Vanadium	1.28e-02	1.61e-03	5.37e-04
Zinc	2.56e-03	3.22e-04	1.07e-04
Pyridine, Phenol, Acetic Acid[c]	1.70e-01	2.14e-02	7.14e-03
Total Air Toxics[b]		5.32e-02	1.77e-02

(a) Derived from emissions data presented in Section 1. Short-term values used for all averaging periods of 8-hours or less. Values represent emission limits for each of two limestone dryers. Annual emissions assume each dryer operates 8 hr/day 365 days/year.

(b) non-criteria

(c) The 1.70e-01 lb/hr emission rate represents a total organics emissions rate. Pyridine, phenol and acetic acid represent an unknown percentage of this total. However, this emission rates was conservatively assumed for these substances in the modeling analyses in Sections 2 and 3.

ISC Code = LIDRY1 and LIDRY2

TABLE C-6

Emission Rates for SKC Package Boilers at 260,000 lb/hr Steam as Used in Modeling Analyses [a]

Pollutant	Package Boiler Emissions			
	Firing Distillate Oil		Firing Natural Gas	
	(lb/hr)	(g/sec)	(lb/hr)	(g/sec)
SO_2	57.0 (short-term) 34.2 (ann. avg.)	21.55 12.93	0.1	3.78e-02 3.78e-02
NO_x	22.8	8.62	24.3	9.19
CO	42	15.84	43.4	16.41
TSP	5.71	2.16	0.6	0.23
PM_{10}	2.85	1.08	0.6	0.23
Lead	1.0e-03	3.78e-04	0	0
Mercury	3.9e-04	1.47e-04	1.7e-06	6.43e-07
Beryllium	2.8e-04	1.06e-04	0	0
Fluorides	3.7e-03	1.40e-03	0	0
H_2SO_4 Mist	1.7	0.64	0	0
Antimony	4.6e-04	1.74e-04	0	0
Arsenic	4.8e-04	1.81e-04	0	0
Barium	3.1e-04	1.17e-04	0	0
Bromine	8.0e-04	3.02e-04	0	0
Cadmium	1.2e-03	4.54e-04	0	0
Cobalt	1.0e-03	3.78e-04	0	0
HCL	7.52e-02	2.84e-02	0	0
Indium	1.73e-03	6.54e-04	0	0
Chromium VI	5.0e-05	1.89e-05	0	0
Copper	3.19e-02	1.21e-02	0	0
Formaldehyde	4.61e-02	1.74e-02	0	0

TABLE C-6 (Cont'd)

Emission Rates for SKC Package Boilers at 260,000 lb/hr Steam as Used in Modeling Analyses [a]

Pollutant	Package Boiler Emissions			
	Firing Distillate Oil		Firing Natural Gas	
	(lb/hr)	(g/sec)	(lb/hr)	(g/sec)
Manganese	1.1e-03	4.16e-04	0	0
Molybdenum	5.6e-03	2.12e-03	0	0
Nickel	1.94e-02	7.33e-03	0	0
Phosphorous	1.21e-02	4.57e-03	0	0
POM	3.0e-05	1.13e-05	0	0
Selenium	1.3e-03	4.91e-04	0	0
Tin	3.76e-02	1.42e-02	0	0
Vanadium	5.13e-02	1.94e-02	0	0
Zinc	1.12e-02	4.23e-03	0	0
Total Air Toxics[b]		0.75		6.43-07

(a) Derived from data presented in Section 1.

lb/hr values for each of 3 boilers
g/sec values for total of 3 boilers

ISC Code = PACKG

TABLE 2-6

The CBCP
Physical Stack Exhaust Parameters

Parameter	CBCP As Certified		CBCP As Modified (a)		
	CFBs	Limestone Dryers	CFBs	Limestone Dryer #1	Limestone Dryer #2
UTM East (km)	441.610	441.664	441.610	441.660	441.668
UTM North (km)	3365.540	3365.680	3365.540	3365.790	3365.682
Stack Height (m)	129.54	9.14	122.68	19.21	19.21
Stack Diameter (m)	4.27	1.04	4.04	1.27	1.27
Stack Exit Velocity (m/s)	33.22	21.34	32.45	18.26	18.26
Stack Exit Temperature (K)	403.0	355	403.0	355	355
(a) Source: Correspondence from A. Nawaz, Bechtel to G. Harkness, ENSR, 11/6/92					

TABLE 2-8

Design Parameters for New SK Package Boilers - 260,000 lb/hr Total Steam Generation

Parameter	Units	No. 2 Fuel Oil (per boiler)	Natural Gas (per boiler)
Steam Flow	lb/hr	86,663	86,663
Heat Input	MMBtu/hr	113.93	121.46
Exhaust Gas: Temperature	°K	435	431
Common Stack[a]			
Diameter	m	2.43	2.43
Velocity	m/sec	10.90	11.10
Height	m	60.96	60.96

[a]All three boilers will exhaust into a common stack. Velocity shown is total all three boilers.
Source: ENSR 1993

TABLE B-1

Cooling Tower Particulate Emissions

Parameter	Cedar Bay as Certified	Cedar Bay as Proposed to be Modified
Total Water Flow (gpm)[a]	160,000	160,000
Drift Elimination Efficiency (%)	.002[a]	.001[b]
Drift Loss Rate (gpm)[c]	3.2	1.6
Total Dissolved Solids[d]	13,000 ppm	13,000 ppm
Total Suspended Solids[d]	50 ppm	50 ppm
% Drift <50 microns[a]	54	54
Particulate Emission Rate (lb/hr)[e]	11.29	5.64

[a] Source: Black & Veatch Memorandum from A.L. Carson to M.A. Perry, 10/14/92.
[b] Proposed improvement by Cedar Bay Cogeneration Project
[c] Calculated from total water flow and drift elimination efficiency
[d] Assumed upper limit
[e] Calculated from drift loss rate and total solids

lb/hr numbers represent total emissions g/sec emissions are per cell (7 cells)		
per cell (g/sec)	0.2032	0.1015
ISC Codes = COOL1, COOL2, COOL3, COOL4, COOL5, COOL6 and COOL7		

TABLE 2-9

Cedar Bay Cooling Tower Modeling Parameters[a]

Cell #	UTM Coordinates (km)		Height (m)	Diameter (m)	Exit Temperature (°K)	Exit Velocity (m/s)
	East	North				
1	441.593	3365.746	14.94	9.75	316.3	8.96
2	441.593	3365.729	14.94	9.75	316.3	8.96
3	441.593	3365.713	14.94	9.75	316.3	8.96
4	441.594	3365.696	14.94	9.75	316.3	8.96
5	441.594	3365.680	14.94	9.75	316.3	8.96
6	441.595	3365.663	14.94	9.75	316.3	8.96
7	441.595	3365.647	14.94	9.75	316.3	8.96

[a]Source: CBCP plot plan and Telephone Conversation between J. Yuhas, ENSR and A. Nawaz, Bechtel on 11-5-92.

TABLE 2-10

Source Parameters and TSP/PM-10 Emission Rates for Aggregate Materials Handling and Storage Operations Modeled as Areas Sources at CBCP as Proposed to be Modified[a]

ISC Code	#	UTMs Coordinates of SW Corner of Area Source (km)		Height (m)	Length of Side of Square Area Source (m)	TSP Emission Rate[b] ($g/m^2/s$)		PM-10 Emission Rate[b] ($g/m^2/s$)		Sources Included
		East	North			Annual	24-Hour	Annual	24-Hour	
A1	1	441.563	3365.744	1.52	153.7	5.85e-07	1.21e-06	1.63e-07	3.11e-07	Coal Reclaim by loader Limestone delivery Dumping from truck Reclaim by mobile loader
A2	2	441.563	3365.744	3.05	153.7	3.36e-08	1.01e-07	1.62e-08	4.80e-08	Limestone dozer traps (mobile loader to conveyor) Wind erosion from limestone pile
A3	3	441.563	3365.744	4.57	153.7	4.41e-07	5.87e-07	2.09e-07	2.77e-07	Mobile loader to Feeder 2 Feeder 2 to Conveyor 3
A4	4	441.563	3365.744	6.10	153.7	1.97e-07	6.24e-07	9.50e-08	3.04e-07	Railcar to Feeder 1 Feeder 1 to Conveyor 1 Conveyor 1 to Conveyor 2
A5	5	441.563	3365.744	9.14	153.7	6.58e-09	3.95e-07	3.17e-09	1.98e-07	Wind erosion from receiving pile Wind erosion from storage pile
A6	6	441.563	3365.744	16.76	153.7	3.67e-07	1.17e-06	1.74e-07	5.55e-07	Conveyor 2 to Lowering Well
A7	7	441.632	3365.633	43.28	9.98	5.23e-05	6.96e-05	2.48e-05	3.29e-05	Conveyor 4 to Conveyor 5

[a]Source: CBCP plot plan and design information
[b]Emission rates for individual operations listed under "Sources Included" are presented in Appendix B in units of TPY for long term and lb/hr for short term averaging periods.

TABLE 2-11

Source Parameters and TSP/PM_{10} Emission Rates For Aggregate Materials Handling Operations Modeled as Point Sources at CBCP As Proposed to be Modified(a)

ISC Code	Source	UTM Coordinates (km)		Height (m)	Exit Temperature[b] (°K)	Exit Velocity[b] (m/sec)	Diameter[b] (m)	TSP/PM_{10} Emission Rates (g/s)	
		East	North					Annual	24-Hour
CP1	Coal Crushers	441.613	3365.804	3.66	293	0	0	1.49E-02	1.55E-02
CP2	Coal Silo Area	441.672	3365.614	43.28	293	0	0	2.41E-02	2.51E-02
LIDRY1	Lime Pulverizer 1	441.660	3365.679	19.20	355	18.26	1.27	5.09E-02	5.29E-02
LIDRY2	Lime Pulverizer 2	441.668	3365.682	19.20	355	18.26	1.27	5.09E-02	5.29E-02
LP1	Storage Bin Vent	441.667	3365.602	27.43	293	0	0	6.62E-03	6.93E-03
AP1	Bed Ash Hopper	441.651	3365.625	8.53	293	0	0	2.14E-03	2.14E-03
AP2	Exhauster	441.581	3365.596	10.67	293	0	0	9.32E-03	9.70E-03
AP3	Fly Ash Silo	441.581	3365.596	42.06	293	0	0	1.15E-02	1.20E-02
AP4	Bed Ash Silo	441.581	3365.573	31.70	293	0	0	5.61E-03	5.67E-03
AP5	Bed Ash Bin	441.541	3365.695	38.10	366	0	0	4.28E-03	4.28E-03
AP6	Fly Ash Bin	441.541	3365.695	39.01	366	0	0	4.03E-03	4.03E-03
AP7	Ash Recycle Tank	441.541	3365.695	36.58	297	0	0	1.10E-03	1.10E-03
AP8	Recycle Hopper	441.541	3365.695	35.05	297	0	0	5.42E-04	5.42E-04
AP9	Pelletizer #1 & 2	441.541	3365.695	9.14	311	19.3	0.68	1.59E-02	1.59E-02
AP10	Belt Conveyor Discharge	441.541	3365.695	4.57	297	0	0	1.10E-03	1.10E-03
AP11	Screen	441.521	3365.725	7.62	297	0	0	1.61E-02	1.61E-02
AP12	Curing Silo Outlet	441.521	3365.725	25.91	297	0	0	2.27E-03	2.27E-03
AP13	Hydrator	441.499	3365.764	33.53	373	19.3	0.65	1.46E-02	1.46E-02
AP14	Curing Silo	441.499	3365.764	25.91	297	19.3	0.43	6.43E-03	6.43E-03
AP15	Rail Discharge	441.576	3365.758	12.19	297	0	0	4.91E-03	4.91E-03

[a]Source: CBCP plot plan and Letter from A. Nawaz, Bechtel to G. Weidinger, U.S. Generating, 11-13-92.
[b]Only used for vertically discharging dust collectors. All horizontally discharging dust collectors were modeled with zero exit velocity and diameter to simulate no plume rise and stack tip downwash.

TABLE B-3

Sources, Controls and Calculated Emissions of TSP from Coal Handling at the CBCP as Proposed to be Modified

Location	Operation	TSP Emission Factor	AP-42 Equation	Use Rate	Uncontrolled TSP Emissions	Controls	Control[b] Efficiency	Controlled TSP Emissions
Coal Unloading Bldg	Railcar to Feeder 1	1.17 E-03 lb/ton	Material Handling	1030570 tons/yr 9000 tons/day	0.603 tons/yr 0.44 lb/hr	Enclosure Wet Suppression	70% 70%	0.054 tons/yr 0.039 lb/hr
	Feeder 1 to Conveyor 1	1.17 E-03 lb/ton	Material Handling	1030570 tons/yr 9000 tons/day	0.603 tons/yr 0.44 lb/hr	Enclosure Wet Suppression	70% 70%	0.054 tons/yr 0.039 lb/hr
	Conveyor 1 to Conveyor 2	1.17 E-03 lb/ton	Material Handling	1030570 tons/yr 9000 tons/day	0.603 tons/yr 0.44 lb/hr	Enclosure Wet Suppression	70% 70%	0.054 tons/yr 0.039 lb/hr
Receiving Pile	Conv. 2 to Lowering Well	1.17 E-03 lb/ton	Material Handling	1030570 tons/yr 9000 tons/day	0.603 tons/yr 0.44 lb/hr	Enclosure	50%	0.301 tons/yr 0.219 lb/hr
	Wind Erosion[a]	9.60 E-02 lb/hr	Wind Erosion	18 hours/yr 3 hours/day	0.0009 tons/yr 0.0120 lb/hr	None	-	0.0009 tons/yr 0.0120 lb/hr
Storage Pile	Wind Erosion[a]	4.97E-01 lb/hr	Wind Erosion	18 hours/yr 3 hours/day	0.0045 tons/yr 0.0621 lb/hr	None	-	0.0045 tons/yr 0.0621 lb/hr
Unpaved Road	Coal Reclaim by Loader	1.49E-01 lb/VMT	Unpaved Road	5760 VMT/yr 19 VMT/day	0.429 tons/yr 0.118 lb/hr	Watering	75%	0.107 tons/yr 0.029 lb/hr
Reclaim Hopper	Mobile Loader to Feeder 2	1.17E-03 lb/ton	Material Handling	1030570 tons/yr 3770 tons/day	0.603 tons/yr 0.18 lb/hr	Enclosure	70%	0.181 tons/yr 0.055 lb/hr
Conveyor Transfer	Feeder 2 to Conveyor 3	1.17E-03 lb/ton	Material Handling	1030570 tons/yr 3770 tons/day	0.603 tons/yr 0.18 lb/hr	Enclosure	70%	0.181 tons/yr 0.055 lb/hr
Coal Crusher Building[c]	Conveyor 3 to Crusher Coal Crushing Crusher to Conveyor 4	3.00E-03 gr/cf	N/A	14336 ACFM 2808 hr/yr 8 hr/day	- -	Dust Collection Dust Collection	- -	0.518 tons/yr 0.123 lb/hr
Conveyor Transfer	Conveyor 4 to Conveyor 5	1.17E-03 lb/ton	Material Handling	1030570 tons/yr 3770 tons/day	0.603 tons/yr 0.18 lb/hr	Enclosure	70%	0.181 tons/yr 0.055 lb/hr
Coal Silo Area[c]	Conveyor 5 to Coal Silo	3.00E-03 gr/cf	N/A	23175 ACFM 2808 hr/yr 8 hr/day	- -	Dust Collection Dust Collection	- -	0.837 tons/yr 0.199 lb/hr

[a] emission factor shown is the emission rate only when wind speeds exceed the wind erosion threshold, as shown under "use rate"
N/A = not applicable
[b] see Table B-10
[c] Correspondence from A. Nawaz, Bechtel, to G. Weidinger, U.S. Generating, 11-13-92

TABLE B-6

Sources, Controls and Calculated Emissions of TSP from Limestone Handling at the CBCP as Proposed to be Modified

Location	Operation	TSP Emission Factor	AP-42 Equation	Use Rate	Uncontrolled TSP Emissions	Controls	Control Efficiency[b]	Controlled TSP Emissions
Paved Road	Limestone Delivery	3.68E+00 lb/VMT	Paved Road	619 VMT/yr 3.94 VMT/day	1.139 tons/yr 0.604 lb/hr	Water Flushing	70%	0.342 tons/yr 0.181 lb/hr
Limestone Dump	Dumping from Truck	7.31E-04 lb/ton	Material Handling	74400 tons/yr 504 tons/day	0.027 tons/yr 0.015 lb/hr	None	-	0.027 tons/yr 0.015 lb/hr
Limestone Pile	Wind Erosion[a]	6.40E-02 lb/hr	Wind Erosion	18 hours/yr 3 hours/day	0.0006 tons/yr 0.0080 lb/hr	None	-	0.0006 tons/yr 0.0080 lb/hr
Unpaved Road	Reclaim by Mobile Loader	1.08E-01 lb/VMT	Unpaved Road	300 VMT/yr 0.85 VMT/day	0.016 tons/yr 0.004 lb/hr	Watering	75%	0.0041 tons/yr 0.0010 lb/hr
Dozer Traps	Mobile Loader to Conveyor	7.31E-04 lb/ton	Material Handling	74400 tons/yr 360 tons/day	0.027 tons/yr 0.011 lb/hr	None	-	0.027 tons/yr 0.011 lb/hr
Limestone Pulverizer[c]	Conveyor to Pulverizer Limestone Pulverizing	3.00E-03 gr/cf	N/A	98000 ACFM 2808 hr/yr 8 hr/day	- -	Dust Collection Dust Collection	- -	3.54 tons/yr 0.84 lb/hr
Storage Bin Vent[c]	Drop into Storage Bins	3.00E-03 gr/cf	N/A	6400 ACFM 2808 hr/yr 8 hr/day	- -	Dust Collection Dust Collection	- -	0.23 tons/yr 0.055 lb/hr

[a] emission factor shown is the emission rate only when wind speeds exceed the wind erosion threshold, as shown under "use rate"
N/A = not applicable
[b] see Table B-10
[c] Correspondence from A. Nawaz, Bechtel, to G. Weidinger, U.S. Generating, 11-13-92

TABLE B-4

Sources, Controls and Calculated Emissions of PM-10 from Coal Handling at the CBCP as Proposed to be Modified

Location	Operation	PM-10 Emission Factor	AP-42 Equation	Use Rate	Uncontrolled PM-10 Emissions	Controls	Control Efficiency[b]	Controlled PM-10 Emissions
Coal Unloading Bldg	Railcar to Feeder 1	5.54 E-04 lb/ton	Material Handling	1030570 tons/yr 9000 tons/day	0.285 tons/yr 0.21 lb/hr	Enclosure Wet Suppression	70% 70%	0.026 tons/yr 0.019 lb/hr
	Feeder 1 to Conveyor 1	5.54 E-04 lb/ton	Material Handling	1030570 tons/yr 9000 tons/day	0.285 tons/yr 0.21 lb/hr	Enclosure Wet Suppression	70% 70%	0.026 tons/yr 0.019 lb/hr
	Conveyor 1 to Conveyor 2	5.54 E-04 lb/ton	Material Handling	1030570 tons/yr 9000 tons/day	0.285 tons/yr 0.21 lb/hr	Enclosure Wet Suppression	70% 70%	0.026 tons/yr 0.019 lb/hr
Receiving Pile	Conv. 2 to Lowering Well	5.54 E-04 lb/ton	Material Handling	1030570 tons/yr 9000 tons/day	0.285 tons/yr 0.21 lb/hr	Enclosure	50%	0.143 tons/yr 0.104 lb/hr
	Wind Erosion[a]	4.80 E-02 lb/hr	Wind Erosion	18 hours/yr 3 hours/day	0.0004 tons/yr 0.006 lb/hr	None	-	0.0004 tons/yr 0.006 lb/hr
Storage Pile	Wind Erosion[a]	2.49 E-01 lb/hr	Wind Erosion	18 hours/yr 3 hours/day	0.0022 tons/yr 0.0311 lb/hr	None	-	0.0022 tons/yr 0.0311 lb/hr
Unpaved Road	Coal Reclaim by Loader	6.68E-02 lb/VMT	Unpaved Road	5760 VMT/yr 19 VMT/day	0.192 tons/yr 0.053 lb/hr	Watering	75%	0.048 tons/yr 0.013 lb/hr
Reclaim Hopper	Mobile Loader to Feeder 2	5.54E-04 lb/ton	Material Handling	1030570 tons/yr 3770 tons/day	0.285 tons/yr 0.09 lb/hr	Enclosure	70%	0.086 tons/yr 0.026 lb/hr
Conveyor Transfer	Feeder 2 to Conveyor 3	5.54E-04 lb/ton	Material Handling	1030570 tons/yr 3770 tons/day	0.285 tons/yr 0.09 lb/hr	Enclosure	70%	0.086 tons/yr 0.026 lb/hr
Coal Crusher Building[c]	Conveyor 3 to Crusher Coal Crushing Crusher to Conveyor 4	3.00E-03 gr/cf	N/A	14336 ACFM 2808 hr/yr 8 hr/day	- -	Dust Collection Dust Collection	- -	0.518 tons/yr 0.123 lb/hr
Conveyor Transfer	Conveyor 4 to Conveyor 5	5.54E-04 lb/ton	Material Handling	1030570 tons/yr 3770 tons/day	0.285 tons/yr 0.09 lb/hr	Enclosure	70%	0.086 tons/yr 0.026 lb/yr
Coal Silo Area[c]	Conveyor 5 to Coal Silo	3.00E-03 gr/cf	N/A	23175 ACFM 2808 hr/yr 8 hr/day	- -	Dust Collection Dust Collection	- -	0.837 tons/yr 0.199 lb/hr

[a] emission factor shown is the emission rate only when wind speeds exceed the wind erosion threshold, as shown under "use rate"
N/A = not applicable
[b] see Table B-10
[c] Correspondence from A. Nawaz, Bechtel, to G. Weidinger, U.S. Generating, 11-13-92

TABLE B-7

Sources, Controls and Calculated Emissions of PM-10 from Limestone Handling at the CBCP as Proposed to be Modified

Location	Operation	PM-10 Emission Factor	AP-42 Equation	Use Rate	Uncontrolled PM-10 Emissions	Controls	Control Efficiency[b]	Controlled PM-10 Emissions
Paved Road	Limestone Delivery	7.70E-01 lb/VMT	Paved Road	619 VMT/yr 3.94 VMT/day	0.238 tons/yr 0.126 lb/hr	Water Flushing	70%	0.071 tons/yr 0.038 lb/hr
Limestone Dump	Dumping from Truck	3.46E-04 lb/ton	Material Handling	74400 tons/yr 504 tons/day	0.013 tons/yr 0.007 lb/hr	None	-	0.013 tons/yr 0.007 lb/hr
Limestone Pile	Wind Erosion[a]	3.20E-02 lb/hr	Wind erosion	18 hours/yr 3 hours/day	0.0003 tons/yr 0.0040 lb/hr	None	-	0.0003 tons/yr 0.0040 lb/hr
Unpaved Road	Reclaim by Mobile Loader	4.86E-02 lb/VMT	Unpaved Road	300 VMT/yr 0.85 VMT/day	0.007 tons/yr 0.002 lb/hr	Watering	75%	0.0018 tons/yr 0.0004 lb/hr
Dozer Traps	Mobile Loader to Conveyor	3.46E-04 lb/ton	Material Handling	74400 tons/yr 360 tons/day	0.013 tons/yr 0.005 lb/hr	None	-	0.013 tons/yr 0.005 lb/hr
Limestone Pulverizer[c]	Conveyor to Pulverizer Limestone Pulverizing	3.00E-03 gr/cf	N/A	98000 ACFM 2808 hr/yr 8 hr/day	- -	Dust Collection Dust Collection	- -	3.54 tons/yr 0.84 lb/hr
Storage Bin Vent[c]	Drop into Storage Bins	3.00E-03 gr/cf	N/A	6400 ACFM 2808 hr/yr 8 hr/day	- -	Dust Collection Dust Collection	- -	0.23 tons/yr 0.055 lb/hr

[a] emission factor shown is the emission rate only when wind speeds exceed the wind erosion threshold, as shown under "use rate"
N/A = not applicable
[b] see Table B-10
[c] Correspondence from A. Nawaz, Bechtel, to G. Weidinger, U.S. Generating, 11-13-92

TABLE B-8

Sources, Controls and Calculated TSP/PM-10 Emissions from Ash Handling at the CBCP as Proposed to be Modified[a]

Control Location	Control Method	PM-10 Emission Factor	Flow Rate	Hours of Operation	Controlled TSP & PM-10 Emissions
Bed Ash Hopper	Vent Filter	3.00E-03 gr/cf	670 ACFM	8424 hr/yr 24 hr/day	0.073 tons/yr 0.017 lb/hr
Fly Ash/Bed Ash Silo (Exhauster)	Baghouse Filter	3.00E-03 gr/cf	3000 ACFM	8424 hr/yr 24 hr/day	0.325 tons/yr 0.077 lb/hr
Fly Ash Silo	Vent Filter	3.00E-03 gr/cf	3700 ACFM	8424 hr/yr 24 hr/day	0.401 tons/yr 0.095 lb/hr
Bed Ash Silo	Vent Filter	3.00E-03 gr/cf	1800 ACFM	8424 hr/yr 24 hr/day	0.195 tons/yr 0.046 lb/hr

[a] Correspondence from A. Nawaz, Bechtel, to G. Weidinger, U.S. Generating, 11-13-92

TABLE B-9

Sources, Controls and Calculated Emissions of TSP/PM-10 from Ash Pelletizing at the CBCP as Proposed to be Modified[a]

Control Location	Control Method	PM-10 Emission Factor	Flow Rate	Hours of Operation	Controlled TSP & PM-10 Emissions
Bed Ash Bin	Vent Filter	3.00E-03 gr/cf	4000 ACFM	2920 hr/yr 8 hr/day	0.15 tons/yr 0.034 lb/hr
Fly Ash Bin	Vent Filter	3.00E-03 gr/cf	3800 ACFM	2920 hr/yr 8 hr/day	0.14 tons/yr 0.033 lb/hr
Pelletizing Ash Recycle Tank	Dust Collector	3.00E-03 gr/cf	1000 ACFM	2920 hr/yr 8 hr/day	0.038 tons/yr 0.0086 lb/hr
Pelletizing Recycle Hopper	Dust Collector	3.00E-03 gr/cf	500 ACFM	2920 hr/yr 8 hr/day	0.019 tons/yr 0.0043 lb/hr
Pelletizing Pan (Pelletizer #1 and #2)	Impingement Scrubber	3.00E-03 gr/cf	14740 ACFM	2920 hr/yr 8 hr/day	0.553 tons/yr 0.126 lb/hr
Pellet Recycle Conveyor Discharge	Dust Collector	3.00E-03 gr/cf	1000 ACFM	2920 hr/yr 8 hr/day	0.038 tons/yr 0.0086 lb/hr
Vibratory Screen	Dust Collector	3.00E-03 gr/cf	15000 ACFM	2920 hr/yr 8 hr/day	0.56 tons/yr 0.129 lb/hr
Pellet Curing Silo Outlet Conveyor	Vent Filter	3.00E-03 gr/cf	2100 ACFM	2920 hr/yr 8 hr/day	0.079 tons/yr 0.018 lb/hr
Pellet Hydrator	Venturi Scrubber	3.00E-03 gr/cf	13500 ACFM	2920 hr/yr 8 hr/day	0.507 tons/yr 0.116 lb/hr
Pellet Curing Silo	Impingement Scrubber	3.00E-03 gr/cf	5940 ACFM	2920 hr/yr 8 hr/day	0.223 tons/yr 0.051 lb/hr
Cured Pellet Conveyor	Dust Collector	3.00E-03 gr/cf	4500 ACFM	2920 hr/yr 8 hr/day	0.17 tons/yr 0.039 lb/hr

[a] Correspondence from A. Nawaz, Bechtel, to G. Weldinger, U.S. Generating, 11-13-92

Cedar Bay as Modified with Proposed SKC Package Boilers Producing 375,000 lb/hr Steam (Case 4, AAQS, PSD, NTLs and AQRVs)

1. Same as Case 3 except SKC package boilers considered at full load
2. Tables 1-11 and 1-12 - with package boilers firing natural gas
3. Tables 1-13 and 1-14 - with package boilers firing distillate oil
4. SKC package boilers - gram/sec emissions; Table C-7 (distillate oil and natural gas); all averaging periods: (lb/hr)(3 units)(453.59 g/lb)/(3600 sec/hr) = (g/sec)
5. SKC package boiler modeling parameters (Table 2-7)

TABLE 1-11

Case 4: Maximum Regulated Pollutant Emissions for Cedar Bay as Proposed to be Modified (a) and SKC Package Boilers Firing Natural Gas at 375,000 lb/hr Steam

	CFB		Limestone Dryers (d)		SK Package Boilers (e)		Total
Pollutant	(lb/MMBtu)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	(tons/yr)
SO2	0.20 (b)	2,598.0	5.0	14.6	0.1	1.4	2,614.0
NOx	0.17 (c)	2,208.3	2.4	7.0	34.9	459.1	2,674.4
CO	0.175 (c)	2,273.3	0.6	1.8	62.4	819.9	3,095.0
TSP	0.018	233.8	0.25	0.73	0.87	11.5	246.0
PM-10	0.018	233.8	0.25	0.73	0.87	11.5	246.0
VOC	0.015	194.9	0.05	0.15	0.24	3.2	198.3
Lead (b)	6.03e-05	0.78	1.52e-04	4.44e-04	NA	NA	0.78
Beryllium (b)	8.70e-06	0.11	4.26e-05	1.24e-04	NA	NA	0.11
Mercury (b)	2.89e-05	0.38	5.11e-05	1.49e-04	2.4e-06	3.21e-05	0.38
Fluorides (b)	7.44e-04	9.7	5.45e-04	1.59e-03	NA	NA	9.7
H2SO4 mist	4.66e-04	6.1	0.20	0.58	NA	NA	6.7

Notes:
NA = Not Applicable
(a) Source: Final Order and Certification PA-88-24 (2/11/91) and Amended Petition for Modificaiton of Certification (July 22, 1992 Before the State of Florida, Division of Administrative Hearings, In Re: AES Cedar Bay Cogeneration Project, Power Plant Site Certification Application PA-88-24) plus additional improvements by CBCP.
(b) 12 month running average
(c) 30 day running average
(d) Lb/hr values represent emission limits for each of two limestone dryers
Annual emissions are for both dryers and are based on maximum operation of 8 hours/day each, 365 days/yr
(e) Firing natural gas - lb/hr values for each of three boilers - emissions data from SKC Permit Application

TABLE 1-12

Case 4: Maximum Non-Regulated Pollutant Emissions for Cedar Bay as Proposed to be Modified (a) and SKC Package Boilers Firing Natural Gas at 375,000 lb/hr Steam

Pollutant	CFB		Limestone Dryers (c)		SK Package Boilers (d)		Total (tons/yr)
	(lb/MMBtu) (b)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	
Antimony	1.06e-05	0.14	6.82e-05	1.99e-04	NA	NA	0.14
Arsenic	1.44e-04	1.9	7.16e-05	2.09e-04	NA	NA	1.9
Barium	6.11e-04	7.9	4.60e-05	1.34e-04	NA	NA	7.9
Bromine			1.19e-04	3.47e-04	NA	NA	3.47e-04
Cadmium	3.15e-05	0.41	1.79e-04	5.23e-04	NA	NA	0.41
Cobalt	3.78e-05	0.49	1.07e-03	3.12e-03	NA	NA	0.49
HCl	1.81e-03	23.5	1.12e-02	3.27e-02	NA	NA	23.5
Indium	1.40e-07	1.82e-03	NA	NA	NA	NA	1.82e-03
Chromium VI	1.06e-06	1.38e-02	3.14e-06	9.96e-06	NA	NA	1.38e-02
Copper	8.04e-05	1.0	4.77e-03	1.39e-02	NA	NA	1.0
Formaldehyde	1.30e-04	1.7	6.90e-03	2.01e-02	NA	NA	1.7
Manganese	5.00e-04	6.5	1.79e-04	5.23e-04	NA	NA	6.5
Molybdenum	1.00e-04	1.3	8.32e-04	2.43e-03	NA	NA	1.3
Nickel	8.08e-05	1.0	2.90e-03	8.47e-03	NA	NA	1.0
Phosphorous	3.35e-04	4.4	1.81e-03	5.29e-03	NA	NA	4.4
POM	1.86e-05	0.24	3.83e-04	1.12e-03	NA	NA	0.24
Selenium	1.58e-05	0.21	1.93e-04	5.64e-04	NA	NA	0.21
Tin	3.94e-05	0.51	5.62e-03	1.64e-02	NA	NA	0.53
Vanadium	3.21e-04	4.2	1.28e-02	3.73e-02	NA	NA	4.2

TABLE 1-12 (Cont'd)

Case 4: Maximum Non-Regulated Pollutant Emissions for Cedar Bay as Proposed to be Modified (a) and SKC Package Boilers Firing Natural Gas at 375,000 lb/hr Steam

Pollutant	CFB		Limestone Dryers (c)		SK Package Boilers (d)		Total (tons/yr)
	(lb/MMBtu) (b)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	
Zinc	3.73e-03	48.5	2.56e-03	7.48e-03	NA	NA	48.5
Radionuclides (e)	8.66e-10	0.022	NA	NA	NA	NA	0.022

Notes:
NA - Not applicable
(a) Source: emission factors provided by Bechtel Power (2-2-93)
(b) Annual Average
(c) Lb/hr values represent emission limits for each of two limestone dryers
Annual emissions are for both dryers and are based on maximum operation of 8 hours/day each, 365 days/yr
(d) Firing natural gas - lb/hr values for each of three boilers - emissions data from SKC Permit Application
(e) Emission units expressed as curies

TABLE 1-13

Case 4: Maximum Regulated Pollutant Emissions for Cedar Bay as Proposed to be Modified (a) and SKC Package Boilers Firing Distillate Oil at 375,000 lb/hr Steam

Pollutant	CFB		Limestone Dryers (d)		SK Package Boilers (e)		Total (tons/yr)
	(lb/MMBtu)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	
SO2 (b)	0.20	2,598.0	5.0	14.6	49.35	648.5	3,261.1
NOx (c)	0.17	2,208.3	2.4	7.0	32.9	432.3	2,647.6
CO (c)	0.175	2,273.3	0.6	1.8	61.04	801.9	3,077
TSP	0.018	233.8	0.25	0.73	8.23	108.1	342.6
PM-10	0.018	233.8	0.25	0.73	4.11	54.0	288.5
VOC	0.015	194.9	0.05	0.15	0.24	3.1	198.2
Lead (b)	6.03e-05	0.78	1.52e-04	4.44e-04	1.46e-03	1.9e-02	0.80
Beryllium (b)	8.70e-06	0.11	4.26e-05	1.24e-04	4.11e-04	5.4e-03	0.12
Mercury (b)	2.89e-05	0.38	5.11e-05	1.49e-04	5.59e-04	7.3e-03	0.39
Fluorides (b)	7.44e-04	9.7	5.45e-04	1.59e-03	5.3e-03	7.0e-02	9.8
H2SO4 mist	4.66e-04	6.1	0.20	0.58	2.47	32.4	39.1

(a) Source: Final Order and Certification PA-88-24 (2/11/91) and Amended Petition for Modification of Certification (July 22, 1992 Before the State of Florida, Division of Administrative Hearings, In Re: AES Cedar Bay Cogeneration Project, Power Plant Site Certification Application PA-88-24) plus additional improvements by CBCP.
(b) 12 month running average
(c) 30 day running average
(d) Lb/hr values represent emission limits for each of two limestone dryers
Annual emissions are for both dryers and are based on maximum operation of 8 hours/day each, 365 days/yr
(e) Firing distillate oil - lb/hr values for each of three boilers - emissions data from SKC Permit Application

TABLE 1-14

Case 4: Maximum Non-Regulated Pollutant Emissions for Cedar Bay as Proposed to be Modified (a) and SKC Package Boilers Firing Distillate Oil at 375,000 lb/hr Steam

Pollutant	CFB		Limestone Dryers (c)		SK Package Boilers (d)		Total (tons/yr)
	(lb/MMBtu)(b)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	
Antimony	1.06e-05	0.14	6.82e-05	1.99e-04	6.6e-04(f)	8.6e-03	0.15
Arsenic	1.44e-04	1.9	7.16e-05	2.09e-04	7.0e-04	9.1e-03	1.9
Barium	6.11e-04	7.9	4.60e-05	1.34e-04	4.0e-04	5.8e-03	7.9
Bromine			1.19e-04	3.47e-04	1.2e-03	1.51e-02	0.02
Cadmium	3.15e-05	0.41	1.79e-04	5.23e-04	1.7e-03	2.3e-02	0.43
Cobalt	3.78e-05	0.49	1.07e-03	3.12e-03	1.45e-03(f)	0.02	0.51
HCl	1.81e-03	23.5	1.12e-02	3.27e-02	1.04e-01(f)	1.43	25.0
Indium	1.40e-07	1.82e-03	NA	NA	2.5e-03(f)	3.29e-02	0.03
Chromium VI	1.06e-06	1.38e-02	3.41e-06	9.96e-06	8.0e-05(f)	0.001	0.01
Copper	8.04e-05	1.0	4.77e-03	1.39e-02	4.61e-02	0.61	1.6
Formaldehyde	1.30e-04	1.7	6.90e-03	2.01e-02	6.66e-02(f)	0.88	2.6
Manganese	5.00e-04	6.5	1.79e-04	5.23e-04	1.6e-03	0.02	6.5
Molybdenum	1.00e-04	1.3	8.32e-04	2.43e-03	8.0e-03	0.11	1.4
Nickel	8.08e-05	1.0	2.90e-03	8.47e-03	2.8e-02	0.37	1.4
Phosphorous	3.35e-04	4.4	1.81e-03	5.29e-03	1.74e-02	0.23	4.6
POM	1.86e-05	0.24	3.83e-04	1.12e-03	5.0e-05(f)	6.0e-04	0.24
Selenium	1.58e-05	0.21	1.93e-04	5.64e-04	1.9e-03	0.02	0.23
Tin	3.94e-05	0.51	5.62e-03	1.64e-02	5.43e-02	0.71	1.2
Vanadium	3.21e-04	4.2	1.28e-02	3.73e-02	7.4e-02(f)	0.97	5.2

TABLE 1-14 (Cont'd)

Case 4: Maximum Non-Regulated Pollutant Emissions for Cedar Bay as Proposed to be Modified (a) and SKC Package Boilers Firing Distillate Oil at 375,000 lb/hr Steam

Pollutant	CFB		Limestone Dryers (c)		SK Package Boilers (d)		Total (tons/yr)
	(lb/MMBtu)(b)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	
Zinc	3.73e-03	48.5	2.56e-03	7.48e-03	1.61e-02(f)	0.21	48.7
Radionuclides (e)	8.66e-10	0.022	NA	NA	NA	NA	0.022

Notes:
NA - Not Available
(a) Source: emission factors developed by Bechtel Power
(b) Annual Average
(c) Lb/hr values represent emission limits for each of two limestone dryers
Annual emissions are for both dryers and are based on maximum operation of 8 hours/day each, 365 days/yr
(d) Firing distillate oil - lb/hr values for each of three boilers - emissions data from SKC Permit Application (unless otherwise noted)
(e) Emission units expressed as curies
(f) Firing distillate oil - lb/hr values for each of three boilers - emissions data from ENSR 1993

TABLE C-7

Emission Rates for SKC Package Boilers at 375,000 lb/hr Steam as Used in Modeling Analyses [a]

Pollutant	Package Boiler Emissions			
	Firing Distillate Oil		Firing Natural Gas	
	(lb/hr)	(g/sec)	(lb/hr)	(g/sec)
SO_2	82.25 (short-term) 49.35 (ann. avg.)	31.09 18.65	0.1	3.78e-02 3.78e-02
NO_x	32.90	12.44	34.94	13.21
CO	61.04	23.07	62.4	23.59
TSP	8.23	3.11	0.87	0.33
PM_{10}	4.11	1.55	0.87	0.33
Lead	1.46e-03	5.52e-04	0	0
Mercury	5.59e-04	2.11e-04	2.4e-06	9.07e-07
Beryllium	4.11e-04	1.55e-04	0	0
Fluorides	5.3e-03	2.00e-03	0	0
H_2SO_4 Mist	2.47	0.93	0	0
Antimony	6.6e-04	2.49e-04	0	0
Arsenic	7.0e-04	2.65e-04	0	0
Barium	4.0e-04	1.51e-04	0	0
Bromine	1.2e-03	4.54e-04	0	0
Cadmium	1.7e-03	6.43e-04	0	0
Cobalt	1.45e-03	5.48e-04	0	0
HCl	1.09e-01	4.12e-02	0	0
Chromium VI	8.0e-05	3.02e-05	0	0
Copper	4.61e-02	1.74e-02	0	0
Formaldehyde	6.66e-02	2.52e-02	0	0

TABLE C-7 (Cont'd)

Emission Rates for SKC Package Boilers at 375,000 lb/hr Steam as Used in Modeling Analyses [a]

Pollutant	Package Boiler Emissions			
	Firing Distillate Oil		Firing Natural Gas	
	(lb/hr)	(g/sec)	(lb/hr)	(g/sec)
Indium	2.5e-03	9.45e-04	0	0
Manganese	1.6e-03	6.05e-04	0	0
Molybdenum	8.0e-03	3.02e-03	0	0
Nickel	2.8e-02	1.06e-02	0	0
Phosphorous	1.74e-02	6.58e-03	0	0
POM	5.0e-05	1.89e-05	0	0
Selenium	1.9e-03	7.18e-04	0	0
Tin	5.43e-02	2.05e-02	0	0
Vanadium	7.4e-02	2.80e-02	0	0
Zinc	1.61e-02	6.09e-03	0	0
Total Air Toxics[b]		1.09		9.07e-07

(a) Derived from data presented in Section 1.

lb/hr values for each of 3 boilers
g/sec values for total of 3 boilers

(b) Non-criteria

ISC Code = PACKG

TABLE 2-7

Design Parameters for New SK Package Boilers - Maximum Steam Capacity (375,000 lb/hr)

Parameter	Units	No. 2 Fuel Oil (per boiler)	Natural Gas (per boiler)
Steam Flow	lb/hr	125,000	125,000
Heat Input	MMBtu/hr	164.5	174.7
Exhaust Gas: Temperature	°K	447	439
Common Stack[a]			
Diameter	m	2.43	2.43
Velocity	m/sec	16.18	16.23
Height	m	60.96	60.96
UTM East	km	441.919	
UTM North	km	3365.538	

[a]All three boilers will exhaust into a common stack. Velocity shown is total all three boilers.
Source: SKC permit application

Other Sources Considered in AAQS and PSD Analyses

1. Retiring SKC sources

   a. PSD baseline emissions

      - Table 3-7; SO_2
      - Table 3-8; PM
      - Table 3-10; NO_x

   b. PSD baseline stack and operating data

      - Table 3-6; applicable to SO_2 and PM
      - Table 3-9; applicable to NO_2

2. Emissions inventories

   a. SO_2 - Table 3-11
   b. TSP/PM_{10} - Table 3-12
   c. NO_x - Table 3-13
   d. "CON" represents increment consuming sources which were modeled for both AAQS and PSD increment compliance determination
   e. "EXP" represents increment expanding sources which were modeled only in the PSD increment compliance analysis
   f. Background source building dimensions used in modeling (Table 3-15)

3. Monitored background air quality used in analysis (Table 3-20)

TABLE 3-7

PSD Baseline SO_2 Emission Data for the Seminole Kraft[a] Facility in Jacksonville, Florida

ISC Code	Unit Description	Fuel Usage	Fuel Type	% Sulfur in Fuel Oil	Hours of Operation	SO_2 Emissions			
						Annual (tons/yr)	Short Term (lb/hr)[b]	Annual (g/s)	Short Term (g/s)
BARK1	Bark Boiler No. 1	1,394,774 121,520	Fuel Oil (gal) Bark (tons)	2.27	8,712	272.8	458.7[c]	7.85	57.80
BARK2	Bark Boiler No. 2	1,696,627 112,480	Fuel Oil (gal) Bark (tons)	2.27	8,064	324.8	458.7[c]	9.34	57.80
POWER1	Power Boiler No. 1	7,935,037	Fuel Oil (gal)	2.27	8,472	1,414.0	333.8	40.68	42.06
POWER2	Power Boiler No. 2	11,610,539	Fuel Oil (gal)	2.27	8,472	2,069.0	488.4	59.52	61.54
POWER3	Power Boiler No. 3	11,569,935	Fuel Oil (gal)	2.27	8,496	2,062.0	485.4	59.32	61.16
REC1	Recovery Boiler No. 1	54,439	Fuel Oil (gal)	2.27	8,304	425.6	102.5	12.24	12.92
REC2	Recovery Boiler No. 2	51,100	Fuel Oil (gal)	2.27	8,328	545.8	131.1	15.70	16.52
REC3	Recovery Boiler No. 3	76,520	Fuel Oil (gal)	2.27	8,448	553.6	131.1	15.92	16.51
SMELT1	Smelt Dissolving Tank No. 1	N/A	N/A	N/A	8,304	12.2	2.9	0.35	0.37
SMELT2	Smelt Dissolving Tank No. 2	N/A	N/A	N/A	8,328	15.6	3.7	0.45	0.47
SMELT3	Smelt Dissolving Tank No. 3	N/A	N/A	N/A	8,448	15.8	3.7	0.46	0.47
LIMEK1	Lime Kiln No. 1	1,817,632	Fuel Oil (gal)	2.27	5,976	19.3	6.5	0.55	0.81
LIMEK2	Lime Kiln No. 2	2,197,217	Fuel Oil (gal)	2.27	7,224	23.3	6.5	0.67	0.81
LIMEK3	Lime Kiln No. 3	2,146,119	Fuel Oil (gal)	2.27	7,056	22.8	6.5	0.66	0.81

Source: 1976/1977 Annual Operating Report submitted to FDER.
[a] Formerly St. Regis Paper Company
[b] Based on total annual hours of operation and annual emissions, unless otherwise indicated.
[c] Maximum short-term emissions for Bark Boilers 1 and 2 are based on 100-percent fuel oil usage at 1,287 gallons/hour.

TABLE 3-8

PSD Baseline PM Emission Data for the Seminole Kraft[a] Facility in Jacksonville, Florida

ISC Code	Unit Description	Basis	Hours of Operation	PM Emissions			
				Annual (TPY)	Short Term (lb/hr)[b]	Annual (g/s)	Short Term (g/s)
BARK1	Bark Boiler No. 1	1977 PM stack test and operating hours	8,712	58.8	13.50	1.69	1.70
BARK2	Bark Boiler No. 2	1977 PM stack test and operating hours	8,064	44.4	11.01	1.28	1.39
POWER1	Power Boiler No. 1	7,935,637 gal fuel oil; 25.7 lb/1000 gal based on AP-42	8,472	102.0	24.08	2.93	3.03
POWER2	Power Boiler No. 2	11,610,539 gal fuel oil; 25.7 lb/1000 gal based on AP-42	8,472	149.2	35.22	4.29	4.44
POWER3	Power Boiler No. 3	11,569,935 gal fuel oil; 25.7 lb/1000 gal based on AP-42	8,496	148.7	35.00	4.28	4.41
REC1	Recovery Boiler No. 1	1977 PM stack test and operating hours	8,304	152.8	36.80	4.40	4.64
REC2	Recovery Boiler No. 2	1977 PM stack test and operating hours	8,328	94.5	22.69	2.72	2.86
REC3	Recovery Boiler No. 3	1977 PM stack test and operating hours	8,448	128.0	30.30	3.68	3.82
SMELT1	Smelt Dissolving Tank No. 1	1977 PM stack test and operating hours	8,304	27.4	6.60	0.79	0.83
SMELT2	Smelt Dissolving Tank No. 2	1977 PM stack test and operating hours	8,328	65.0	15.61	1.90	1.97
SMELT3	Smelt Dissolving Tank No. 3	1977 PM stack test and operating hours	8,448	63.7	15.08	1.83	1.90
LIMEK1	Lime Kiln No. 1	1977 PM stack test and operating hours	5,976	28.4	9.50	0.82	1.20
LIMEK2	Lime Kiln No. 2	1977 PM stack test and operating hours	7,224	30.3	8.39	0.87	1.06
LIMEK3	Lime Kiln No. 3	1977 PM stack test and operating hours	7,056	32.1	9.10	0.92	1.15

[a] Formerly St. Regis Paper Company
[b] Based on total annual hours of operation and annual emissions, unless otherwise indicated.

TABLE 3-10

PSD Baseline NO_x Emission Data for the Seminole Kraft[a] Facility in Jacksonville, Florida

ISC Code	Unit Description	Basis	1989-1990 Hours of Operation	Annual Baseline NO_x Emissions	
				tons/yr	g/s
BARK1	Bark Boiler No. 1	74.1 lb/hr, 1991 stack test	8,169	302.7	8.71
BARK2	Bark Boiler No. 2	45.9 lb/hr, 1991 stack test	7,877	180.8	5.20
POWER1	Power Boiler No. 1	8,129,846 gal/yr, 67 lb/1000 gal[b]	8,255	272.3	7.83
POWER2	Power Boiler No. 2	8,581,041 gal/yr, 67 lb/1000 gal[b]	8,472	287.5	8.27
POWER3	Power Boiler No. 3	8,723,551 gal/yr, 67 lb/1000 gal[b]	8,489	292.2	8.41
REC1	Recovery Boiler No. 1	28.8 lb/hr, 1991 stack test	8,203	118.1	3.40
REC2	Recovery Boiler No. 2	31.8 lb/hr, 1991 stack test	8,023	127.6	3.67
REC3	Recovery Boiler No. 3	34.3 lb/hr, 1991 stack test	8,019	137.5	3.96
LIMEK1	Lime Kiln No. 1	15.3 lb/hr, 1991 stack test	1,781	13.6	0.39
LIMEK2	Lime Kiln No. 2	10.7 lb/hr, 1991 stack test	7,284	39.0	1.12
LIMEK3	Lime Kiln No. 3	14.1 lb/hr, 1991 stack test	7,460	52.6	1.51

Source: 1989/1990 Annual Operating Reports submitted to FDER and stack tests.
[a]Formerly St. Regis Paper Company
[b]Input to AP-42 Emission Factor

TABLE 3-6

SO_2 and TSP PSD Baseline Stack and Operating Data for the Seminole Kraft[a] Facility in Jacksonville, Florida

Unit Description	Stack Height (m)	Stack Diameter (m)	Velocity (m/s)	Temperature (deg K)
Bark Boiler No. 1	41.45[b]	2.46[c]	13.01[c]	332[c]
Bark Boiler No. 2	41.45[b]	2.46[c]	13.01[c]	332[c]
Power Boiler No. 1	32.31[b]	1.83[d]	15.82[e]	450[e]
Power Boiler No. 2	32.31[b]	2.13[f]	18.35[f]	487[f]
Power Boiler No. 3	32.31[b]	2.13[f]	17.22[f]	462[f]
Recovery Boiler No. 1	38.40[b]	2.59[f]	15.67[f]	345[f]
Recovery Boiler No. 2	38.40[b]	2.74[f]	18.41[f]	340[f]
Recovery Boiler No. 3	38.40[b]	2.74[d]	12.80[d]	339[d]
Smelt Dissolving Tank No. 1[b]	32.00	1.07	7.01	350
Smelt Dissolving Tank No. 2[b]	32.92	1.22	7.59	350
Smelt Dissolving Tank No. 3[b]	32.92	1.22	7.59	350
Lime Kiln No. 1	21.03[b]	1.77[b]	5.19[g]	344[d]
Lime Kiln No. 2	22.86[b]	1.42[b]	10.30[d]	347[d]
Lime Kiln No. 3	22.86[b]	1.12[b]	13.72[g]	333[d]

[a] Formerly St. Regis Paper Company
[b] Data from 1974 St. Regis Stack and Operating Data Reports
[c] Data from 1991 SKC Stack Data
[d] Data from 1974 St. Regis Stack Tests
[e] Data from 1974 and 1975 St. Regis Stack Tests (Averaged)
[f] Data from 1975 St. Regis Stack Tests
[g] Calculated from 1974 Stack Test Flow Rate and current stack diameter

TABLE 3-9

NO_x PSD Baseline Stack and Operating Data for the Seminole Kraft[a] Facility in Jacksonville, Florida

Unit Description	Stack Height (m)	Stack Diameter (m)	Velocity (m/s)	Temperature (K)	Basis
Bark Boiler No. 1	41.45	2.46	13.01	332	1991 stack test data
Bark Boiler No. 2	41.45	2.46	13.01	332	1991 stack test data
Power Boiler No. 1	32.31	1.83	14.02	455	1991 stack test data
Power Boiler No. 2	32.31	2.13	14.51	439	1991 stack test data
Power Boiler No. 3	32.31	2.13	14.51	439	1991 stack test data
Recovery Boiler No. 1	38.40	2.59	15.97	341	1991 stack test data
Recovery Boiler No. 2	38.40	2.74	15.61	345	1991 stack test data
Recovery Boiler No. 3	38.40	2.74	14.60	344	1991 stack test data
Lime Kiln No. 1	21.03	1.77	3.11	343	Various stack test data
Lime Kiln No. 2	22.86	1.42	6.52	336	Various stack test data
Lime Kiln No. 3	22.86	1.12	8.17	336	Various stack test data

[a]Formerly St. Regis Paper Company

TABLE 3-11

SO_2 Source Data Used in the Modeling Analysis

ISC Code	APIS Number/Facility	Source Description	APIS Source Number	Stack Data (m)		Operating Data		SO_2 Emissions		SO_2 PSD Source (EXP/CON)	UTM (km)	
				Height	Diameter	Temperature (K)	Velocity (m/sec)	(g/s)	(TPY)		East	North
CELOCRS	31DVL160202 Celotex	Gypsum Crushing System	01	7.6	0.49	321.9	18.90	0.26	9	-	446.4	3362.6
CELOK13		Calcinizing Kettle #1 - #3	07, 11, 12	22.9	0.91	727.4	4.88	0.83	30	-		
CELODK		Wallboard Drying Kilns	08, 13, 14	15.2	0.94	435.8	7.32	20.16	701	-		
USN1241	31DVL160213 U.S. Naval Station - Mayport	Boiler #1 - #3, Bldg. 1241	01, 02, 03	12.2	0.91	544.1	14.33	16.33	544	-	460.4	3362.8
USN250		Boiler #1 - #2, Bldg.250	04, 08	14.0	1.22	560.8	7.92	10.53	351	-		
USNMAY		Carbonaceous Fuel Boiler, Hot Water Boiler	07, 11	18.3	1.52	533.0	7.01	0.62	22	-		
ANHF1	31DVL160005 Anchor Hocking Glass	Glass Melt Furnace #1	01	17.4	0.91	511.3	19.51	2.05	68	-	431.5	3357.5
ANHF2		Glass Melt Furnace #2	02	17.4	0.82	522.4	14.02	2.41	84	-		
ANHF3		Glass Melt Furnace #3	03	33.2	1.71	429.7	11.58	10.40	361	-		
ANHF4		Glass Melt Furnace #4	04	35.7	1.58	510.8	11.89	3.75	131	-		
ANBS14	31DVL160006 Anheuser Busch	Boiler #1 - #4	01 - 04	30.5	1.07	483.0	17.37	72.58	2120	-	437.9	3366.8
ANBSGDRY		Grain Dryer #1, 2	05, 06	21.3	1.68	322.0	9.00	19.78	655	CON		
ANBSB10		Anerobic & Bio Gas Flare	31,32	6.1	2.20	1000.0	15.00	5.66	54	CON		
GLIDU3	31DVL160039 SCM Glidco Organics	Boiler #3 (Retired)	03	12.2	1.10	658.0	10.06	8.49	295	EXP	435.6	3360.7
GLIDU4		Boiler #4	04	12.2	1.10	405.2	14.02	19.91	692	-		
GLIDU5		Boiler #5	05	15.2	1.10	535.8	12.80	20.92	728	-		
GLIDU6		Boiler #6	06	15.2	1.22	513.6	10.36	24.44	850	-		
GLIDU7		Boiler #7	11	13.7	1.22	449.7	5.49	4.01	139	CON		
DUVASPWJ	31DVL160042 Duval Asphalt Products[(a)]	Asphalt Batch Plant	01,02	11.6	0.98	376.3	31.09	36.54	1270	-	426.7	3361.4
JEASJ	31DVL160001 JEA - SJRPP	Units #1 & #2	01, 04	194.2	10.12	328.0	18.29	1175.96	40904	CON	446.9	3366.3

Table 3-11 (Cont'd)

SO_2 Source Data Used in the Modeling Analysis

ISC Code	APIS Number/Facility	Source Description	APIS Source Number	Stack Data (m)		Operating Data		SO_2 Emissions		SO_2 PSD Source (EXP/CON)	UTM (km)	
				Height	Diameter	Temperature (K)	Velocity (m/sec)	(g/s)	(TPY)		East	North
JEANS1	31DVL160045 JEA - Northside	Steam Generator #1	01	73.2	5.03	400.8	23.16	690.35	23998	-	446.9	3364.8
JEANS2		Steam Generator #2	02	88.4	5.12	394.1	13.11	586.78	20398	-	447.7	
JEANS3		Steam Generator #3	03	103.6	7.01	438.6	19.20	1255.59	43647	-		
JEANSCT		Combustion Turbines #3 - #6	06 - 09	10.1	6.55	779.7	18.29	231.60	8050	-		
JEANSAXA		Auxiliary Boiler A	14	73.2	5.03	671.9	1.22	28.60	20	CON		
JEANSAXB		Auxiliary Boiler B	13	76.2	5.03	588.6	0.30	8.47	294	CON		
JEASS12	31DVL160046 JEA - Southside	Steam Generator #1 & #2	01, 02	40.8	2.44	433.0	11.58	105.34	3,664	-	437.7	3353.9
JEASS3		Steam Generator #3	03	40.8	3.05	406.9	10.36	79.76	2,773	-		
JEASS4		Steam Generator #4	04	43.9	3.35	421.9	11.89	110.25	3,833	-		
JEASS5		Steam Generator #5	05	44.2	3.05	416.9	13.72	207.90	7,227	-		
JEASSAX		Auxiliary Boiler	10	6.7	0.49	493.6	17.68	1.31	46	-		
JEAKENCT	31DVL160047 JEA - Kennedy	Combustion Turbine #3 - #6	03 - 06	13.7	2.77	651.9	8.84	191.14	6,646	-	440.0	3359.2
JEAKENU8		Steam Generator #8	07	45.7	3.20	394.1	7.92	74.98	2,607	EXP		
JEAKEN9		Steam Generator #9	08	45.7	3.20	398.0	7.92	74.98	2,607	-		
JEAKEN10		Steam Generator #10	09	41.5	2.74	410.8	15.54	198.95	6,918	-		
JEAKENAX		Auxiliary Boiler	13	10.1	0.49	493.6	17.68	1.22	42	CON		
CCAPB7	31JAX450003 Container Corporation of Amer.	Power Boiler #7	15	103.6	4.42	489.1	13.52	154.40	5,367	CON	456.2	3394.2
CCAPB5		Power Boiler #5	06	78.3	3.35	454.1	15.35	190.40	6,619	CON		
CCARB4		Recovery Boiler #4	07	75.9	3.76	513.0	16.55	35.10	1,220	CON		
CCARB5		Recovery Boiler #5	11	87.8	2.74	495.8	14.36	31.20	1,084	CON		
CCALK4		Lime Kiln #4	21	31.1	1.45	435.8	21.07	3.38	117	CON		

Table 3-11 (Cont'd)

SO_2 Source Data Used in the Modeling Analysis

ISC Code	APIS Number/Facility	Source Description	APIS Source Number	Stack Data (m)		Operating Data		SO_2 Emissions		SO_2 PSD Source (EXP/CON)	UTM (km)	
				Height	Diameter	Temperature (K)	Velocity (m/sec)	(g/s)	(TPY)		East	Nort
CCASDT4	31JAX450003 Container Corporation of Amer. (cont'd)	Smelt Dissolving Tank #4	14	75.9	1.83	339.7	5.16	0.71	25	CON		
CCASDT5		Smelt Dissolving Tank #5	14	87.8	1.22	345.0	16.77	0.71	25	CON		
CCAPB34B		Power Boiler #3 & #4	05	69.2	2.44	483.0	16.86	144.70	5,030	EXP		
CCAPB5B		Power Boiler #5	06	69.2	3.35	479.7	16.25	169.97	5,910	EXP		
CCARB4B		Recovery Boiler #4	07	75.9	3.51	493.0	18.78	35.10	1,220	EXP		
CCARB3B		Recovery Boiler #3	??	40.8	2.74	389.7	13.26	10.50	365	EXP		
CCALK2B		Lime Kiln #2	??	13.4	1.07	360.8	12.25	1.30	45	EXP		
CCALK3B		Lime Kiln #3	??	13.4	1.37	359.7	17.59	1.30	45	EXP		
CCASDT3B		Smelt Dissolving Tank #4	??	69.5	1.83	349.7	5.21	0.20	7	EXP		
CCASDT4B		Smelt Dissolving Tank #3	??	33.2	0.61	359.7	5.82	0.70	24	EXP		
JSPB10	31DVL160003 Jefferson Smurfit	Power Boiler #10	11	61.0	3.05	341.5	9.70	36.48	1,265	CON	439.9	3359.3
JSRB9		Recovery Boiler #9	05	53.3	3.20	409.8	22.86	5.52	834	CON		
JSSDT		Smelt Dissolving Tank #9	04	53.3	1.65	362.0	4.32	0.48	17	-		
JSLK12B		Lime Kiln #1, 2	06, 07	15.8	1.45	347.0	6.7	0.68	34	EXP		
JSLK3		Lime Kiln #3	23	60.7	1.37	340.2	12.22	1.31	37	CON		
JSPBSB		Power Boilers	??	76.2	3.75	455.4	8.04	36.48	1,268	EXP		
JSRB9B		Recovery Boiler #9	05	53.3	3.20	389.8	11.56	16.81	584	EXP		
GPBLR1	31DVL160069 Georgia Pacific	Boiler	01	11.6	0.61	477.4	9.14	2.58	90	-	440.1	3368.3
GPBLR2		Boiler	02	4.9	0.61	505.2	6.40	3.36	117	-		
USGPM2	31DVL160072 U.S. Gypsum	Wallboard Kiln #2	33	13.7	1.07	421.9	28.96	12.60	416	-	438.9	3361.2
USGPM17		Calcining Kettles #1 - #7	36	28.3	1.07	505.2	0.91	18.38	607	-		
USGPMHT		Dowtherm Heater	41	20.7	0.91	733.0	6.40	1.22	40	-		

Table 3-11 (Cont'd)

SO_2 Source Data Used in the Modeling Analysis

ISC Code	APIS Number/Facility	Source Description	APIS Source Number	Stack Data (m)		Operating Data		SO_2 Emissions		SO_2 PSD Source (EXP/CON)	UTM (km)	
				Height	Diameter	Temperature (K)	Velocity (m/sec)	(g/s)	(TPY)		East	North
USGPMRK	31DVL160072 U.S. Gypsum (cont'd)	Rotary Kiln	48	26.8	0.49	339.1	59.13	4.08	137	-		
OCBLR	31DVL160148 Occidental Chemical	Bulk Ship Loading Conveyor, Phosphate Railcar Unloading	01, 02	3.7	0.91	298.0	52.12	4.38	152	-	439.3	3359.8
OCHW12		Hot Water Boiler #1 & #2	03, 04	6.1	0.30	355.2	11.89	4.23	148	-		
OCSTM		Steam Boilers	05	18.3	0.91	427.4	10.06	3.86	134	-		
JWBLR13	31DVL160146 J. W. Swisher	Boilers #1 - #3	01	18.3	1.22	505.2	0.61	4.26	148	-	437.9	3357.9
JWBLR46		Boiler #4 - 6	02, 03, 04	9.1	0.30	477.4	7.01	4.21	144	-		
BAPTMED	31DVL160010 Baptist Medical Center	Turbines, Reciprocative Engine	03, 05, 06, 07, 08, 12	15.2	1.07	435.8	24.69	13.89	483	-	435.4	3352.0
MAXHS1	31DVL160004 Maxwell House	Boiler #1	03	45.7	0.98	606.9	0.61	3.96	138	-	439.7	3350.0
MAXHS2		Boiler #2	04	45.7	0.43	396.9	67.97	7.52	261	-		
MAXHOUSE		Boiler #2 (Retired)	13	15.2	0.91	402.4	20.73	2.44	85	EXP		
GULFI12	31DVL160155 Gulf Life Insurance	Boilers #1 & #2	01	18.3	0.91	421.9	2.74	7.82	91	-	436.2	3354.1
GULFIDL		Duel Fuel Engine	02	18.3	0.30	852.4	56.08	0.97	12	-		
DUVASP	31DVL160043 Duval Asphalt Products	Asphalt Batch Plant	01	11.6	0.98	376.3	31.09	11.06	384	-	443.2	3344.0
ITTPBS	31DVL450004 ITT Rayonier	Power Boilers #1 - #3	01 - 03	55.0	3.05	329.0	9.75	173.88	5,532	CON	454.7	3392.2
ITTRB		Recovery Boiler	06	76.2	2.29	324.7	17.37	40.60	1,352	-		
ITTPBSB		Power Boilers #1 - #3	01 - 03	37.2	3.05	329.0	9.75	173.88	1,383	EXP		
UNCAMP1	31DVL160071 Union Camp	Waste Product Incinerator	01	16.2	1.07	699.7	9.45	9.69	337	-	427.6	3357.3
UNCAMP2		Boilers, Myrcene Units	03, 04, 05, 06, 07, 14, 26	20.1	1.22	585.8	11.58	8.03	278	-		
ESMETAL1	31DVL160198 E S Metals		02	25.6	0.91	324.7	15.24	18.77	651	EXP	431.8	3358.3
ESMETAL2			03	24.4	1.22	355.2	3.96	5.38	187	EXP		

Table 3-11 (Cont'd)

SO_2 Source Data Used in the Modeling Analysis

ISC Code	APIS Number/Facility	Source Description	APIS Source Number	Stack Data (m)		Operating Data		SO_2 Emissions		SO_2 PSD Source (EXP/CON)	UTM (km)	
				Height	Diameter	Temperature (K)	Velocity (m/sec)	(g/s)	(TPY)		East	North
GILMAN1	GA Gilman Paper Company	Power Boiler No. 3		83.8	4.30	450.2	2.82	87.29	3034	CON	448.2	3401.3
GILMAN2		Coal Fired Boiler		45.7	3.05	326.3	7.77	88.75	3085	CON		
GILMAN3		Recovery Boiler No. 2, 3		54.9	2.13	424.7	16.76	15.20	528	CON		
GILMAN4		Recovery Boiler No. 4		76.2	2.59	410.8	12.19	15.80	549	CON		
GILMAN5		Lime Kiln		30.5	1.52	350.2	11.64	2.13	74	CON		
GILMAN1B		Power Boilers No. 1 - 3		83.8	4.30	449.7	7.28	281.01	9768	EXP		
GILMAN2B		Power Boiler No. 4		36.6	1.80	699.7	19.99	59.90	2082	EXP		
GILMAN3B		Recovery Boiler No. 2		47.2	2.30	425.8	13.11	7.60	264	EXP		
GILMAN4B		Recovery Boiler No. 3		53.3	1.60	394.1	25.21	7.60	264	EXP		
GILMAN5B		Recovery Boiler No. 4		76.2	2.60	427.4	22.10	15.80	549	EXP		

(a) Formerly Wiley Jackson Company

TABLE 3-12

TSP/PM-10 Source Data Used in the Modeling Analysis

ISC Code	APIS Number/Facility	Source Description	APIS Source Number	Stack Data (m)		Operating Data		PM Emissions		PM PSD Source (EXP/CON)	UTM (km)	
				Height	Diameter	Temperature (K)	Velocity (m/sec)	(g/s)	(TPY)		East	North
CELOCRS	31DVL160202 Celotex	Gypsum Crushing System	01	7.6	0.49	321.9	18.90	0.63	21	-	446.4	3362.6
CELOK13		Calcinizing Kettle #1 - #3	07, 11, 12	22.9	0.91	727.4	4.88	0.42	14	-		
CELODK		Wallboard Drying Kilns	08, 13, 14	15.2	0.94	435.8	7.32	0.32	11	-		
CELKETT		Calcining Kettle	03	27.4	1.00	344.2	24.69	4.96	172	-		
CELMS		Material Equipment Storage	04	11.3	0.21	294.2	132.0	0.63	22	-		
CELWET		Wallboard End Trim System	05	18.3	0.49	294.2	26.8	0.63	21	-		
ANHF1	31DVL160005 Anchor Hocking Glass	Glass Melt Furnace #1	01	17.4	0.91	511.3	19.51	1.28	45	-	431.5	3357.5
ANHF2		Glass Melt Furnace #2	02	17.4	0.82	522.4	14.02	1.32	46	-		
ANHF3		Glass Melt Furnace #3	03	33.2	1.71	429.7	11.58	2.04	71	-		
ANHF4		Glass Melt Furnace #4	04	35.7	1.58	510.8	11.89	1.83	64	-		
GLIDU3	31DVL160039 SCM Glidco Organics	Boiler #3 (Retired)	03	12.2	1.10	658.0	10.06	0.31	18	EXP	435.6	3360.7
GLIDU4		Boiler #4	04	12.2	1.10	405.2	14.02	1.22	42	-		
GLIDU5		Boiler #5	05	15.2	1.10	535.8	12.80	1.27	44	-		
GLIDU6		Boiler #6	06	15.2	1.22	513.6	10.36	1.50	52	-		
GLIDU7		Boiler #7	11	13.7	1.22	449.7	5.49	0.78	10	CON		
GLIDRYER		Dryer	07	12.5	1.22	310.9	2.74	0.12	1	-		
GLIDSAD1		Sodium Acetate Dryer #1	08	12.2	1.22	314.2	6.70	0.12	11	-		
GLIDSAD2		Sodium Acetate Dryer #2	09	12.5	1.22	310.9	2.44	0.12	11	-		
JEASJ	31DVL160001 JEA - SJRPP	Units #1 & #2	01, 04	194.2	10.12	328.0	18.29	46.44	1615	CON	446.9	3366.3
JEANS1	31DVL160045 JEA - Northside	Steam Generator #1	01	73.2	5.03	400.8	23.16	34.86	1061	-	446.9	3364.8
JEANS2		Steam Generator #2	02	88.4	5.12	394.1	13.11	29.64	901	-		
JEANS3		Steam Generator #3	03	103.6	7.01	438.6	19.20	190.24	827	-		
JEANSCT		Combustion Turbines #3 - #6	06 - 09	10.1	6.55	779.7	18.29	9.02	572	-		

TABLE 3-12 (Cont'd)

TSP/PM-10 Source Data Used in the Modeling Analysis (cont'd)

ISC Code	APIS Number/Facility	Source Description	APIS Source Number	Stack Data (m)		Operating Data		PM Emissions		PM PSD Source (EXP/CON)	UTM (km)	
				Height	Diameter	Temperature (K)	Velocity (m/sec)	(g/s)	(TPY)		East	North
JEANSAXA		Auxiliary Boiler A	14	73.2	5.03	671.9	1.22	1.46	1	CON		
JEANSAXB		Auxiliary Boiler B	13	76.2	5.03	588.6	0.30	0.44	15	CON		
JEASS12	31DVL160046 JEA - Southside	Steam Generator #1 & #2	01, 02	40.8	2.44	433.0	11.58	9.58	414	-	437.7	3353.9
JEASS3		Steam Generator #3	03	40.8	3.05	406.9	10.36	7.26	315	-		
JEASS4		Steam Generator #4	04	43.9	3.35	421.9	11.89	10.03	305	-		
JEASS5		Steam Generator #5	05	44.2	3.05	416.9	13.72	18.90	821	-		
JEASSAX		Auxiliary Boiler	10	6.7	0.49	493.6	17.68	0.04	1	-		
JEAKENCT	31DVL160047 JEA - Kennedy	Combustion Turbine #4	04	13.7	2.80	651.9	8.84	9.37	326*	-	440.0	3359.2
JEASG8		Steam Generator #8	07	45.7	3.20	394.1	7.92	6.82	296	EXP		
JEAKEN9		Steam Generator #9	08	45.7	3.20	398.0	7.92	6.82	296	-		
JEAKEN10		Steam Generator #10	09	41.5	2.74	410.8	15.54	16.82	731	-		
JEAKENAX		Auxiliary Boiler	13	10.1	0.49	493.6	17.68	0.04	1	CON		
JSPB10	31DVL160003 Jefferson Smurfit	Power Boiler #10	11	61.0	3.05	341.5	9.70	5.56	152	CON	439.9	3359.3
JSRB9		Recovery Boiler #9	05	53.3	3.20	409.8	22.86	15.12	526	-		
JSSDT		Smelt Dissolving Tank #9	04	53.3	1.65	362.0	4.32	4.59	160	-		
JSLK1		Lime Kiln #1	06	15.8	1.45	347.0	6.70	2.65	92	EXP		
JSLK2		Lime Kiln #2	07	15.8	1.45	347.0	6.70	2.65	93	EXP		
JSLK3		Lime Kiln #3	23	60.7	1.37	340.2	12.22	2.65	92	CON		
JSCB1		Coal Bark Boiler #1	12	53.3	1.65	366.5	3.96	4.59	160	-		
JSCB2		Coal Bark Boiler #2	13	61.0	3.05	334.8	10.67	5.56	152	-		
JSCCH		Coal Handling Silo #1, #2	21, 22, 20	32.9	0.30	298.1	7.01	0.14	4	-		
JSCLSC		Line Storage Silo	24	27.4	0.52	338.7	2.13	0.02	0.66	-		

TABLE 3-12 (Cont'd)

TSP/PM-10 Source Data Used in the Modeling Analysis (cont'd)

ISC Code	APIS Number/Facility	Source Description	APIS Source Number	Stack Data (m)		Operating Data		PM Emissions		PM PSD Source (EXP/CON)	UTM (km)	
				Height	Diameter	Temperature (K)	Velocity (m/sec)	(g/s)	(TPY)		East	North
USGPM2	31DVL160072 U.S. Gypsum	Wallboard Kiln #2	33	13.7	1.07	421.9	28.96	0.77	25	-	438.9	3361.2
USGPM17		Calcining Kettles #1 - #7	36	28.3	1.07	505.2	0.91	1.47	46	-		
USGPMHT		Dowtherm Heater	41	20.7	0.91	733.0	6.40	0.23	8	-		
USGPMRK		Rotary Kiln	48	26.8	0.49	339.1	59.13	0.20	6	-		
USGCT		Combustion Turbine #1 - #2	68.69	36.6	1.01	346.9	24.99	0.15	6	-		
USGAV1		Ambient Vents #1	5, 36, 40, 73, 78	3.0	1.06	298.1	11.89	0.34	10	-		
USGAV2		Ambient Vents #2	34, 35, 42, 70, 71, 72	6.1	0.70	294.2	8.84	1.40	29	-		
USGAV3		Ambient Vents #3	37, 44, 54, 62, 63, 64, 65, 66	0.9	0.61	316.5	8.23	1.17	39	-		
USGSTB		Stucco Bin No. 3 & No. 4	6, 7	18.3	0.46	344.2	8.53	0.08	6	-		
USGSF		Stucco & Feed Bin	8, 9	21.9	0.30	344.2	19.20	0.07	4	-		
USGKETT		Kettles	39, 46, 47, 55	22.9	1.22	363.7	3.05	1.18	40	-		
USGSB		Storage Bins	43, 58	26.5	0.61	310.4	7.92	0.37	12	-		
USGTMD		Tube Mill Discharge	45	20.7	0.24	298.7	72.20	0.03**	1.0	-		
USG5		#5 Raymond Mill	60	26.8	0.15	331.5	49.68	0.05	2	-		
USGADDF		Additive Feed System	61	28.9	0.46	344.2	4.27	0.05	2	-		
USGCAL		Calcium Carbonate Storage	67	10.1	0.15	305.4	15.24	7.56×10^{-3}	0.2	-		
MAXAGL	31DVL160004 Maxwell House	Agglom. Process	1, 10, 30, 31	14.6	1.0	374.8	15.55	1.14	40	-	439.7	3350.0
MAXSCRA		Scrap Paper Cyclone	26, 27, 28, 29	21.3	0.03	298	0.61	0.22	8	-		
MAXTHERM		Thermalo Afterburner	60, 61	27.4	0.49	793	18.98	0.14	5	-		
MAXDOWD		Powder Airveyor	21, 22, 18, 20, 52	27.4	0.61	298.1	0.91	0.13	4	-		
MAXCR		Continuous Roaster	5, D4, 12, 16	27.4	0.61	311.5	19.81	0.58	20	-		
MAXHS2		Boiler #2	4	45.7	0.43	396.9	67.97	0.72	25	-		

TABLE 3-12 (Cont'd)

TSP/PM-10 Source Data Used in the Modeling Analysis (cont'd)

ISC Code	APIS Number/Facility	Source Description	APIS Source Number	Stack Data (m)		Operating Data		PM Emissions		PM PSD Source (EXP/CON)	UTM (km)	
				Height	Diameter	Temperature (K)	Velocity (m/sec)	(g/s)	(TPY)		East	North
MAXGCS		Green Coffee Silo	F0, F1, F2, F3, F4, F5, 53, 55, 56, 57, 58, 59, 23, 24, 25, 54	27.4	0.31	306.5	14.33	0.40	14	-		
MAXCC		Cooling Carts	32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51	30.5	0.18	310.9	18.29	1.84	64	-		
MAXTR1		Thermalo Roaster #1	7	45.7	0.79	844.2	9.75	0.75	26	-		
MAXRA		Roaster Afterburner	D3	27.4	2.29	811.5	3.66	0.31	11	-		
MAXSCS		Soluble Coffee Spray Dryer	6, 8, 9	47.2	1.07	383.7	18.59	2.20	76	-		
MAXDRY		Dryer	D5, D6, D7, D8, E0, E1, D2, 14, 15, 17	23.2	1.49	327.6	7.93	0.64	22	-		
MAXPB1		Boiler #1	D1, 98, 2, 3	45.7	0.98	606.9	0.61	0.42	14	-		
MAXAFT		Probat Afterburners	E2, E3, E4, E5, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86	27.4	1.0	737.6	7.93	1.24	43	-		
MAXTHERM1		Thermalo Stoner Cyclone	64, 65, 62, 63, 66, 87, 89, 90, 88, Z9, E6, E7, E8, E9, 97, B1, B2, B3, B4-B9, C1-C9, 67-76, 91-96, D9, F6, A1, A2, A3, A4, A5, A7, A8, A9	27.4	0.61	308.1	7.93	4.46	156	-		

* Calculated based on allowable lb/hr of particulates permitted.
** Annual TPY allowable were given, calculated lb/hr.

TABLE 3-13

NO_x Source Data Used in the Modeling Analysis

ISC Code	APIS Number/Facility	Source Description	APIS Source Number	Stack Data (m)		Operating Data		NO_x Emissions		NO_x PSD Source (EXP/CON)	UTM (km)	
				Height	Diameter	Temperature (K)	Velocity (m/sec)	(g/s)	(TPY)		East	North
USN1241	31DVL160213 U.S. Naval Station - Mayport	Boiler #1 - #3, Bldg. 1241	01, 02, 03	12.2	0.91	544.1	14.33	9.67	336	-	460.4	3362.8
USN250		Boiler #1 - #2, Bldg.250	04, 08	14.0	1.22	560.8	7.92	5.58	194	-		
USNMAY		Hot Water Boiler B-1	11	15.5	0.24	477.4	7.32	9.69×10^{-3}	.337	-		
ANHF2	31DVL160005 Anchor Hocking Glass	Glass Melt Furnace #2	02	17.4	0.82	522.4	14.02	5.00	174	-	431.5	3357.5
ANHF3		Glass Melt Furnace #3	03	33.2	1.71	429.7	11.58	8.91	310	-		
ANHF4		Glass Melt Furnace #4	04	35.7	1.58	510.8	11.89	6.84	238	-		
ANBS14	31DVL160006 Anheuser Busch	Boiler #1 - #4	01 - 04	30.5	1.07	483.0	17.37	9.78	340	-	437.9	3366.8
ANBSGDR		Grain Dryers #1 & #2	05, 06	21.3	1.68	322.0	9.00	3.59	125	-		
ANBSWAST		Wastewater Boiler	30	12.19	0.52	477.6	5.49	0.15	5.3	-		
ANBSBIO		Anerobic & Bio Gas Flare	31,32	6.1	2.20	1000.0	15.00	1.20	41.6	-		
GLIDU4	31DVL160039 SCM Glidco Organics	Boiler #4	04	12.2	1.10	405.2	14.02	1.64	57 (P)	-	435.6	3360.7
GLIDU7		Boiler #7	11	13.7	1.22	449.7	5.49	0.92	32	-		
JEANS1	31DVL160045 JEA - Northside	Steam Generator #1	01	73.2	5.03	400.8	23.16	187.10	6504 (P)	-	446.9	3364.8
JEANS2		Steam Generator #2	02	88.4	5.12	394.1	13.11	130.86	4549 (P)	-		
JEANS3		Steam Generator #3	03	103.6	7.01	438.6	19.20	190.24	6613	-		
JEANCT		Combustion Turbines #3 - #6	06 - 09	10.1	6.55	779.7	18.29	72.17	2509 (Δ)	-		
JEANAXA		Auxiliary Boiler A	14	73.2	5.03	671.9	1.22	8.26	287 (P)	-		
JEANAXB		Auxiliary Boiler B	13	76.2	5.03	588.6	0.30	0.58	20 (P)	-		
JEASJ	31DVL16001 JEA - SJRPP	Units #1 & #2	01, 04	194.2	10.12	328.0	18.29	928.97	32293	-	446.9	3366.3
JEASSAX	31DVL160046 JEA - Southside	Auxiliary Boiler	10	6.7	0.49	493.6	17.68	0.09	3	-	437.7	3353.9
JEAKENCT	31DVL160047 JEA - Kennedy	Combustion Turbines #3 - #6	03 - 06	13.7	2.77	651.9	8.84	5.81	202 (Δ)	-	440.0	3359.2
JEAKEN10		Steam Generator #10	09	41.5	2.74	410.8	15.54	115.63	4019.5 (Δ)	-		
JEAKENAX		Auxiliary Boiler	13	10.1	0.49	493.6	17.68	0.34	11.78 (P)	-		

TABLE 3-13 (Cont'd)

NO_x Source Data Used in the Modeling Analysis

ISC Code	APIS Number/Facility	Source Description	APIS Source Number	Stack Data (m)		Operating Data		NO_x Emissions		NO_x PSD Source (EXP/CON)	UTM (km)	
				Height	Diameter	Temperature (K)	Velocity (m/sec)	(g/s)	(TPY)		East	North
JSPB10	31DVL160003 Jefferson Smurfit	Power Boiler #10	11	61.0	3.05	341.5	9.70	38.89	1352	-	439.9	3359.3
JSRB9		Recovery Boiler #9	05	53.3	3.20	409.8	22.86	4.32	150	-		
JSBC		Bark/Coal Boiler	13	60.96	3.05	334.8	10.67	38.89	1352	-		
USGPM2	31DVL160072 U.S. Gypsum	Wallboard Kiln #2	33	13.7	1.07	421.9	28.96	0.98	34 (P)	-	438.9	3361.2
USGPM17		Calcining Kettles #1 - #7	36	28.3	1.07	505.2	0.91	4.43	154	-		
USGPMHT		Dowtherm Heater	41	20.7	0.91	733.0	6.40	0.29	10 (P)	-		
USGPMRK		Rotary Kiln	48	26.8	0.49	339.1	59.13	0.98	34	-		
USGWALL		Wall Board Kiln #3	59	29.0	2.04	369.1	1.52	2.70	94	-		
USGCT12		Combustion Turbine #1 - #2	68.69	36.6	1.01	346.9	24.99	3.05	106	-		
RVT104	31DVL160215 Naval Air Station - Roosevelt	Bldg. #104 Boiler	01	13.72	1.40	505.4	11.58	4.11	143	-	434.2	3342.8
RVTPP2		Power Plant #2 Boilers	02	39.62	2.13	505.4	3.66	0.76	26.3 (P)	-		
RVTPP3		Power Plant #3 Boilers	05	13.72	1.37	505.4	8.23	0.35	11.6 (P)	-		
RVTC789		Enoine Test Cells 7, 8, 9	07	3.66	3.81	310.9	6.10	0.18	6.26 (P)	-		
RVTC1112		Enoine Test Cells 11 & 12	10	7.62	4.82	505.4	17.07	5.24	182	-		

(P) Denotes potential emissions used when allowable were not available.
(Δ) Denotes calculated tons per year from lb/hr data.

TABLE 3-15

Background Source Building Dimensions[a]

Facility Name	Distance from Cedar Bay (km)	Building Dimensions		
		Stack	Height (m)	MPW* (m)
Anheuser Busch	3.92	Boilers #1-4	28.65	67.97
US Gypsum	5.12	Cal. Kettles #1-7	6.98	110.00**
		Board Kiln #2	6.98	110.00**
		Rotary Rock Dryer	6.98	110.00**
		Dowtherm Heater	6.98	110.00**
JEA-Northside	5.32	#1,2,&3 Steam Generators	31.70	176.80
JEA-SJRPP	5.34	Steam Gen #1&2	81.20	32.00
Celotex	5.62	Wallboard Drying Kiln	9.14	259.08
		Cal. Kettle Burners #1-3	15.24	49.94
Jefferson Smurfit	6.47	#9 Smelt Dissolving Tank	32.00	28.40
		#10 Bark/Coal Boiler	48.50	24.90
		Recovery Boiler	32.00	28.40
JEA-Kennedy	6.64	Boilers #8,9,10A & 10B	22.60	101.80**
SCM Glidco	7.72	Boilers #4-7	9.14	39.93
JEA-Southside	12.41	Boilers #3,4,5A & 5B, Aux Boiler #1	25.00	157.10**
Union Camp	16.25	Boilers #2 & 3, Incinerator	7.37	28.65
US Naval Station-Mayport	18.99	Boilers #1 & 2, Bldg 250	7.62	21.95
		Boilers #1,2 & 3, Bldg 1241	8.23	29.57
		Carbonaceous Fuel Boiler	13.41	54.86

*Maximum projected width
**Calculated from building length and width provided by the City of Jacksonville
a) Provided by City of Jacksonville RESD Air Quality Division (AQD). Fax from Lori Tilly (AQD) to J. Yuhas (ENSR), 12/4/92

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TABLE 3-20

Background Concentrations Used in the AAQS Compliance Evaluation

Site	Location	Pollutant	Period	Concentration ($\mu g/m^3$)
1960-080	1605 Minerva St.	SO_2	3H 24H Annual	68 28 5
1960-032	Kooker Park	NO_2	Annual	25
1960-053 1960-004	Sewage Treatment Plant 1070 E. Adams St.	PM_{10}	24H Annual	32 28

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SCREEN/Cavity Region - Limestone Dryers
Results and Conversions

1. Maximum normalized cavity region concentration was calculated to be 158 $\mu g/m^3$ per limestone dryer for a total normalized cavity region concentration of 316 $\mu g/m^3$. Associated SCREEN output files are provided.

2. Normalized cavity concentration was scaled by emissions for short- and long-term averaging periods from Table C-5 and appropriate averaging period scaling factors as follows:

   - 1-hr to 3-hr: 0.9
   - 1-hr to 8-hr: 0.7
   - 1-hr to 24-hr: 0.4
   - 1-hr to annual: 0.1

3. Example calculation: 24-hour SO_2

   - From Table C-5, 24-hr SO_2 emission rate is 0.21 g/sec
   - Cavity concentration is then calculated as follows:

     $(316)(0.21)(0.4) = 26.5\ \mu g/m^3$

4. AAQS and PSD increment compliance for cavity region impacts are provided in Tables 3-22 and 3-23, respectively.

01-21-93
09:39:58

*** SCREEN-1.1 MODEL RUN ***
*** VERSION DATED 88300 ***

USG Cedar Bay Cogen Project 5404-027 : Cavity Analysis LSD#1 ; FV = 10 deg

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	1.000
STACK HEIGHT (M)	=	19.21
STK INSIDE DIAM (M)	=	1.27
STK EXIT VELOCITY (M/S)	=	18.26
STK GAS EXIT TEMP (K)	=	355.00
AMBIENT AIR TEMP (K)	=	293.00
RECEPTOR HEIGHT (M)	=	.00
IOPT (1=URB,2=RUR)	=	2
BUILDING HEIGHT (M)	=	49.07
MIN HORIZ BLDG DIM (M)	=	86.00
MAX HORIZ BLDG DIM (M)	=	86.00

BUOY. FLUX = 12.61 M**4/S**3; MOM. FLUX = 110.97 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	.0000	0	.0	.0	.0	.0	.0	.0	NA
100.	.0000	0	.0	.0	.0	.0	.0	.0	NA
200.	111.9	5	1.0	1.3	5000.0	28.9	46.1	34.6	SS
300.	91.56	5	1.0	1.3	5000.0	28.9	52.8	40.7	SS
400.	75.14	5	1.0	1.3	5000.0	28.9	59.5	46.8	SS
500.	60.68	5	1.0	1.3	5000.0	28.9	67.2	53.8	SS
600.	56.44	5	1.0	1.3	5000.0	28.9	71.7	54.3	SS
700.	52.73	5	1.0	1.3	5000.0	28.9	76.1	54.9	SS
800.	49.45	5	1.0	1.3	5000.0	28.9	80.6	55.5	SS
900.	46.54	5	1.0	1.3	5000.0	28.9	85.0	56.0	SS
1000.	43.94	5	1.0	1.3	5000.0	28.9	89.4	56.6	SS
MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:									
148.	123.8	5	1.0	1.3	5000.0	28.9	42.7	31.4	SS

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

*** CAVITY CALCULATION - 1 ***			*** CAVITY CALCULATION - 2 ***		
CONC (UG/M**3)	=	158.0	CONC (UG/M**3)	=	158.0
CRIT WS @10M (M/S)	=	1.57	CRIT WS @10M (M/S)	=	1.57
CRIT WS @ HS (M/S)	=	1.78	CRIT WS @ HS (M/S)	=	1.78

DILUTION WS (M/S)	=	1.00	DILUTION WS (M/S)	=	1.00
CAVITY HT (M)	=	57.11	CAVITY HT (M)	=	57.11
CAVITY LENGTH (M)	=	77.87	CAVITY LENGTH (M)	=	77.87
ALONGWIND DIM (M)	=	86.00	ALONGWIND DIM (M)	=	86.00

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)	
SIMPLE TERRAIN	123.8	148.	0.	
BUILDING CAVITY-1	158.0	78.	--	(DIST = CAVITY LENGTH)
BUILDING CAVITY-2	158.0	78.	--	(DIST = CAVITY LENGTH)

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

01-21-93
09:41:23

*** SCREEN-1.1 MODEL RUN ***
*** VERSION DATED 88300 ***

USG Cedar Bay Cogen Project 5404-027 : Cavity Analysis LSD#1 ; FV = 20 deg

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	1.000
STACK HEIGHT (M)	=	19.21
STK INSIDE DIAM (M)	=	1.27
STK EXIT VELOCITY (M/S)	=	18.26
STK GAS EXIT TEMP (K)	=	355.00
AMBIENT AIR TEMP (K)	=	293.00
RECEPTOR HEIGHT (M)	=	.00
IOPT (1=URB,2=RUR)	=	2
BUILDING HEIGHT (M)	=	49.07
MIN HORIZ BLDG DIM (M)	=	88.09
MAX HORIZ BLDG DIM (M)	=	88.09

BUOY. FLUX = 12.61 M**4/S**3; MOM. FLUX = 110.97 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	.0000	0	.0	.0	.0	.0	.0	.0	NA
100.	.0000	0	.0	.0	.0	.0	.0	.0	NA
200.	110.1	5	1.0	1.3	5000.0	28.7	47.1	34.6	SS
300.	90.14	5	1.0	1.3	5000.0	28.7	53.8	40.7	SS
400.	74.07	5	1.0	1.3	5000.0	28.7	60.5	46.8	SS
500.	59.90	5	1.0	1.3	5000.0	28.7	68.2	53.8	SS
600.	55.77	5	1.0	1.3	5000.0	28.7	72.7	54.3	SS
700.	52.15	5	1.0	1.3	5000.0	28.7	77.1	54.9	SS
800.	48.95	5	1.0	1.3	5000.0	28.7	81.6	55.5	SS
900.	46.10	5	1.0	1.3	5000.0	28.7	86.0	56.0	SS
1000.	43.54	5	1.0	1.3	5000.0	28.7	90.4	56.6	SS
MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:									
148.	121.6	5	1.0	1.3	5000.0	28.7	43.7	31.4	SS

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

*** CAVITY CALCULATION - 1 ***			*** CAVITY CALCULATION - 2 ***		
CONC (UG/M**3)	=	154.2	CONC (UG/M**3)	=	154.2
CRIT WS @10M (M/S)	=	1.62	CRIT WS @10M (M/S)	=	1.62
CRIT WS @ HS (M/S)	=	1.85	CRIT WS @ HS (M/S)	=	1.85

DILUTION WS (M/S)	=	1.00	DILUTION WS (M/S)	=	1.00
CAVITY HT (M)	=	56.68	CAVITY HT (M)	=	56.68
CAVITY LENGTH (M)	=	77.88	CAVITY LENGTH (M)	=	77.88
ALONGWIND DIM (M)	=	88.09	ALONGWIND DIM (M)	=	88.09

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)	
SIMPLE TERRAIN	121.6	148.	0.	
BUILDING CAVITY-1	154.2	78.	--	(DIST = CAVITY LENGTH)
BUILDING CAVITY-2	154.2	78.	--	(DIST = CAVITY LENGTH)

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

01-21-93
09:39:44

*** SCREEN-1.1 MODEL RUN ***
*** VERSION DATED 88300 ***

USG Cedar Bay Cogen Project 5404-027 : Cavity Analysis LSD#1 ; FV = 30 deg

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	1.000
STACK HEIGHT (M)	=	19.21
STK INSIDE DIAM (M)	=	1.27
STK EXIT VELOCITY (M/S)	=	18.26
STK GAS EXIT TEMP (K)	=	355.00
AMBIENT AIR TEMP (K)	=	293.00
RECEPTOR HEIGHT (M)	=	.00
IOPT (1=URB,2=RUR)	=	2
BUILDING HEIGHT (M)	=	49.07
MIN HORIZ BLDG DIM (M)	=	88.20
MAX HORIZ BLDG DIM (M)	=	88.20

BUOY. FLUX = 12.61 M**4/S**3; MOM. FLUX = 110.97 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	.0000	0	.0	.0	.0	.0	.0	.0	NA
100.	.0000	0	.0	.0	.0	.0	.0	.0	NA
200.	110.0	5	1.0	1.3	5000.0	28.7	47.2	34.6	SS
300.	90.07	5	1.0	1.3	5000.0	28.7	53.9	40.7	SS
400.	74.02	5	1.0	1.3	5000.0	28.7	60.6	46.8	SS
500.	59.86	5	1.0	1.3	5000.0	28.7	68.2	53.8	SS
600.	55.74	5	1.0	1.3	5000.0	28.7	72.7	54.3	SS
700.	52.12	5	1.0	1.3	5000.0	28.7	77.2	54.9	SS
800.	48.92	5	1.0	1.3	5000.0	28.7	81.6	55.5	SS
900.	46.07	5	1.0	1.3	5000.0	28.7	86.0	56.0	SS
1000.	43.52	5	1.0	1.3	5000.0	28.7	90.4	56.6	SS
MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:									
148.	121.5	5	1.0	1.3	5000.0	28.7	43.8	31.4	SS

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

*** CAVITY CALCULATION - 1 ***			*** CAVITY CALCULATION - 2 ***		
CONC (UG/M**3)	=	154.0	CONC (UG/M**3)	=	154.0
CRIT WS @10M (M/S)	=	1.62	CRIT WS @10M (M/S)	=	1.62
CRIT WS @ HS (M/S)	=	1.85	CRIT WS @ HS (M/S)	=	1.85

DILUTION WS (M/S)	=	1.00	DILUTION WS (M/S)	=	1.00
CAVITY HT (M)	=	56.66	CAVITY HT (M)	=	56.66
CAVITY LENGTH (M)	=	77.88	CAVITY LENGTH (M)	=	77.88
ALONGWIND DIM (M)	=	88.20	ALONGWIND DIM (M)	=	88.20

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)	
SIMPLE TERRAIN	121.5	148.	0.	
BUILDING CAVITY-1	154.0	78.	--	(DIST = CAVITY LENGTH)
BUILDING CAVITY-2	154.0	78.	--	(DIST = CAVITY LENGTH)

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

01-21-93
09:39:29

*** SCREEN-1.1 MODEL RUN ***
*** VERSION DATED 88300 ***

USG Cedar Bay Cogen Project 5404-027 : Cavity Analysis LSD#1 ; FV = 40 deg

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	1.000
STACK HEIGHT (M)	=	19.21
STK INSIDE DIAM (M)	=	1.27
STK EXIT VELOCITY (M/S)	=	18.26
STK GAS EXIT TEMP (K)	=	355.00
AMBIENT AIR TEMP (K)	=	293.00
RECEPTOR HEIGHT (M)	=	.00
IOPT (1=URB,2=RUR)	=	2
BUILDING HEIGHT (M)	=	49.07
MIN HORIZ BLDG DIM (M)	=	87.50
MAX HORIZ BLDG DIM (M)	=	87.50

BUOY. FLUX = 12.61 M**4/S**3; MOM. FLUX = 110.97 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	.0000	0	.0	.0	.0	.0	.0	.0	NA
100.	.0000	0	.0	.0	.0	.0	.0	.0	NA
200.	110.6	5	1.0	1.3	5000.0	28.8	46.8	34.6	SS
300.	90.54	5	1.0	1.3	5000.0	28.8	53.5	40.7	SS
400.	74.37	5	1.0	1.3	5000.0	28.8	60.2	46.8	SS
500.	60.12	5	1.0	1.3	5000.0	28.8	67.9	53.8	SS
600.	55.96	5	1.0	1.3	5000.0	28.8	72.4	54.3	SS
700.	52.31	5	1.0	1.3	5000.0	28.8	76.9	54.9	SS
800.	49.09	5	1.0	1.3	5000.0	28.8	81.3	55.5	SS
900.	46.22	5	1.0	1.3	5000.0	28.8	85.7	56.0	SS
1000.	43.65	5	1.0	1.3	5000.0	28.8	90.1	56.6	SS
MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:									
148.	122.2	5	1.0	1.3	5000.0	28.8	43.4	31.4	SS

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

*** CAVITY CALCULATION - 1 ***			*** CAVITY CALCULATION - 2 ***		
CONC (UG/M**3)	=	155.3	CONC (UG/M**3)	=	155.3
CRIT WS @10M (M/S)	=	1.57	CRIT WS @10M (M/S)	=	1.57
CRIT WS @ HS (M/S)	=	1.78	CRIT WS @ HS (M/S)	=	1.78

DILUTION WS (M/S)	=	1.00	DILUTION WS (M/S)	=	1.00
CAVITY HT (M)	=	56.80	CAVITY HT (M)	=	56.80
CAVITY LENGTH (M)	=	77.88	CAVITY LENGTH (M)	=	77.88
ALONGWIND DIM (M)	=	87.50	ALONGWIND DIM (M)	=	87.50

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)	
SIMPLE TERRAIN	122.2	148.	0.	
BUILDING CAVITY-1	155.3	78.	--	(DIST = CAVITY LENGTH)
BUILDING CAVITY-2	155.3	78.	--	(DIST = CAVITY LENGTH)

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

TABLE C-5

Emission Rates for Cedar Bay as Modified Limestone Dryers as Used in Modeling Analyses [a]

Pollutant	Limestone Dryer Emissions		
	Short-Term		Long-Term
	lb/hr	(g/sec)	(g/sec)
SO_2	5.0	0.63	0.21
NO_x	2.4	0.30	0.10
CO	0.6	7.56e-02	2.52e-02
TSP	0.25	---	1.05e-02
PM_{10}	0.25	---	1.05e-02
Lead	1.52e-04	1.92e-05	6.38e-06
Mercury	5.11e-05	6.44e-06	2.15e-06
Beryllium	4.26e-05	5.37e-06	1.79e-06
Fluorides	5.45e-04	6.87e-05	2.29e-05
H_2SO_4 Mist	0.20	2.52e-02	8.40e-03
Antimony	6.82e-05	8.59e-06	2.86e-06
Arsenic	7.16e-05	9.02e-06	3.01e-06
Barium	4.60e-05	5.80e-06	1.93e-06
Bromine	1.19e-04	1.50e-05	5.01e-06
Cadmium	1.79e-04	2.26e-05	7.52e-06
Cobalt	1.07e-03	1.35e-04	4.49e-05
HCl	1.12e-02	1.42e-03	4.72e-04
Indium	-	-	-
Chromium VI	3.41e-06	4.30e-07	1.43e-07
Copper	4.77e-03	6.01e-04	2.00e-04
Formaldehyde	6.90e-03	8.69e-04	2.90e-04

TABLE C-5 (Cont'd)

Emission Rates for Cedar Bay as Modified Limestone Dryers as Used in Modeling Analyses [a]

Pollutant	Limestone Dryer Emissions		
	Short-Term		Long-Term
	lb/hr	(g/sec)	(g/sec)
Manganese	1.79e-04	2.26e-05	7.52e-06
Molybdenum	8.32e-04	1.05e-04	3.49e-05
Nickel	2.90e-03	3.65e-04	1.22e-04
Phosphorous	1.81e-03	2.28e-04	7.60e-05
POM	3.83e-04	4.83e-05	1.61e-05
Selenium	1.93e-04	2.43e-05	8.11e-06
Tin	5.62e-03	7.08e-04	2.36e-04
Vanadium	1.28e-02	1.61e-03	5.37e-04
Zinc	2.56e-03	3.22e-04	1.07e-04
Pyridine, Phenol, Acetic Acid[c]	1.70e-01	2.14e-02	7.14e-03
Total Air Toxics[b]		5.32e-02	1.77e-02

(a) Derived from emissions data presented in Section 1. Short-term values used for all averaging periods of 8-hours or less. Values represent emission limits for each of two limestone dryers. Annual emissions assume each dryer operates 8 hr/day 365 days/year.

(b) non-criteria

(c) The 1.70e-01 lb/hr emission rate represents a total organics emissions rate. Pyridine, phenol and acetic acid represent an unknown percentage of this total. However, this emission rates was conservatively assumed for these substances in the modeling analyses in Sections 2 and 3.

TABLE 3-22

AAQS Compliance Evaluation For Impacts in CFB Boiler Housing Cavity Region

			Predicted Concentrations ($\mu g/m^3$)				
			Modeled Total[(a)(b)]	Limestone Dryers Impact	Background	Total	AAQS
SO_2	3-hr	1983	406.0	179.2	68	653.2	1300
		1984	406.2			653.4	
		1985	528.4			775.6	
		1986	330.5			577.7	
		1987	349.0			596.2	
	24-hr	1983	122.7	26.5	28	177.2	260
		1984	132.3			186.8	
		1985	132.0			186.5	
		1986	110.5			165.0	
		1987	140.1			194.6	
	Annual	1983	32.0	6.64	5	43.6	60
		1984	31.5			43.1	
		1985	34.7			46.3	
		1986	31.1			42.7	
		1987	29.4			41.0	
PM_{10}	24-hr	1983	18.3	8.01	32	58.3	150
		1984	20.8			60.8	
		1985	21.1			61.1	
		1986	18.9			58.9	
		1987	17.2			57.2	
	Annual	1983	5.38	1.94	28	35.3	50
		1984	5.53			35.5	
		1985	6.03			36.0	
		1986	5.87			35.8	
		1987	5.42			35.4	

TABLE 3-22 (Cont'd)

AAQS Compliance Evaluation For Impacts in CFB Boiler Housing Cavity Region

			Predicted Concentrations ($\mu g/m^3$)				
			Modeled Total[(a)(b)]	Limestone Dryers Impact	Background	Total	AAQS
NO_2	Annual	1983	6.53	3.16	25	34.7	100
		1984	6.41			34.6	
		1985	7.01			35.2	
		1986	5.93			34.1	
		1987	5.74			33.9	

[(a)]Highest Second-High for 3 and 24-hour, Highest Annual
[(b)]From all sources other than CBCP Limestone Dryers

TABLE 3-23

PSD Increment Compliance Evaluation for Impacts in CFB Boiler Housing Cavity Region

			Predicted Concentrations ($\mu g/m^3$)			
			Modeled Total Increment Consumption[a][b]	Limestone Dryers Impact	Total	Allowable PSD Class II Increment
SO_2	3-hr	1983	105.5	179.2	284.7	512
		1984	112.5		291.7	
		1985	99.2		278.4	
		1986	106.6		283.8	
		1987	116.7		295.9	
	24-hr	1983	29.4	26.5	55.9	91
		1984	27.8		54.3	
		1985	29.2		55.7	
		1986	26.1		52.6	
		1987	25.9		52.4	
	Annual	1983	2.23	6.64	8.87	20
		1984	1.64		8.28	
		1985	2.19		8.83	
		1986	1.42		8.06	
		1987	1.82		8.46	
TSP	24-hr	1983	17.2	8.01	25.2	37
		1984	19.0		27.0	
		1985	21.1		29.1	
		1986	17.7		25.7	
		1987	17.4		25.4	
	Annual	1983	3.86	1.94	5.80	19
		1984	3.59		5.53	
		1985	3.92		5.86	
		1986	3.98		5.92	
		1987	3.92		5.86	

TABLE 3-23 (Cont'd)

PSD Increment Compliance Evaluation for Impacts in CFB Boiler Housing Cavity Region

			Predicted Concentrations (μg/m³)			
			Modeled Total Increment Consumption[a][b]	Limestone Dryers Impact	Total	Allowable PSD Class II Increment
NO_x	Annual	1983	3.16	3.16	3.16	25
		1984	3.16		3.16	
		1985	3.16		3.16	
		1986	3.16		3.16	
		1987	3.16		3.16	

[a]Highest Second-High for 3, 24-hour, Highest Annual
[b]From all PSD sources other than CBCP Limestone Dryers and SKC Sources (Cavity on SKC Property)

Receptor Grids

1. 25-km Polar Receptor Grid (includes receptors on CBCP property) - Used in Case Comparisons (Section 2)

2. 25-km Receptor Grid - Ambient Air Receptors - CBCP SIA determinations

3. 5-km Receptor Grid - Ambient Air Receptors - Source interaction modeling

4. On Seminole Kraft Property Receptor Grid - Source interaction but no credit taken for retiring SKC sources for PSD

5. Class I Area receptors (including Timucuan)

6. Cavity Region Receptor Grid

7. Formula for converting UTM to r, Θ:

$$r\,(m) = \sqrt{(N\,(m) - 3365540)^2 + (E\,(m) - 441610)^2}$$

$$\Theta_{deg} = \tan^{-1}\left(\frac{E\,(m) - 441610}{N\,(m) - 3365540}\right) * \frac{180}{\pi}\text{, (Need to check Quadrant)}$$

The Lotus 1-2-3 formula for determining Θ:

Θ_{deg} = @ATAN2((N(m)-3365540,(E(m)-441610))*180/@PI

(This gives an azimuth angle in the range of -180° → 180°, where -90° = W)

8. Formula for converting r, Θ to UTM

$N(m) = 3365540 + r\cos\Theta_{rad}$
$E(m) = 441610 + r\sin\Theta_{rad}$

NOTE: $\Theta_{rad} = \dfrac{\Theta_{deg} * \pi}{180}$

25km Polar Receptor Grid (includes receptors on CBCP Property)
Used in Case Comparisons

```
RE STARTING
   GRIDPOLR POL1 STA
            POL1 ORIG 441610. 3365540.
            POL1 DIST 100. 200. 300. 400. 500. 600. 700. 800. 900. 1000.
            POL1 DIST 1250. 1500. 1750. 2000. 2500. 3000. 3500. 4000.
            POL1 DIST 4500. 5000. 6000. 7000. 8000. 9000. 10000. 15000.
            POL1 DIST 20000. 25000.
            POL1 GDIR 36    10.  10.
            POL1 END

RE FINISHED
```

```
25 km Receptor Grid
Ambient Air Receptors

RE STARTING

** Polar Grid Receptors (400m and Beyond)
RE GRIDPOLR IN STA
             IN ORIG 441610 3365540
             IN DIST  400.  500.  600.  700.  800.  900. 1000.
             IN DIST 1250. 1500. 1750. 2000. 2500. 3000. 3500. 4000.
             IN DIST 4500. 5000. 6000. 7000. 8000. 9000. 10000. 15000.
             IN DIST 20000. 25000.
             IN GDIR 36 10 10
RE GRIDPOLR IN END

** CBCP Property Line
**   UTMs        E(m)        N(m)
RE DISCCART   441612.90 3365912.20
RE DISCCART   441696.00 3365861.60
RE DISCCART   441744.40 3365777.40
RE DISCCART   441696.80 3365737.60
RE DISCCART   441700.20 3365672.90
RE DISCCART   441761.10 3365602.90
RE DISCCART   441766.00 3365523.40
RE DISCCART   441751.60 3365439.60
RE DISCCART   441654.30 3365405.20
RE DISCCART   441512.10 3365489.50
RE DISCCART   441450.50 3365635.20
RE DISCCART   441471.20 3365743.80
RE DISCCART   441551.90 3365779.70
RE DISCCART   441548.90 3365883.40
RE DISCCART   441622.30 3365913.00
RE DISCCART   441717.90 3365835.50
RE DISCCART   441736.00 3365770.10
RE DISCCART   441684.00 3365725.60
RE DISCCART   441715.30 3365651.10
RE DISCCART   441743.10 3365589.60
RE DISCCART   441740.50 3365502.20
RE DISCCART   441728.30 3365421.10
RE DISCCART   441608.20 3365431.00
RE DISCCART   441480.70 3365540.50
RE DISCCART   441439.80 3365666.20
RE DISCCART   441485.90 3365772.90
RE DISCCART   441550.60 3365804.90
RE DISCCART   441552.80 3365905.70
RE DISCCART   441653.70 3365909.60
RE DISCCART   441736.00 3365808.80
RE DISCCART   441723.50 3365762.20
RE DISCCART   441668.80 3365713.70
RE DISCCART   441727.80 3365635.60
RE DISCCART   441725.70 3365574.10
RE DISCCART   441719.10 3365482.70
RE DISCCART   441710.00 3365406.90
RE DISCCART   441576.40 3365450.00
RE DISCCART   441469.20 3365574.50
RE DISCCART   441445.80 3365696.70
RE DISCCART   441506.50 3365788.60
RE DISCCART   441550.80 3365831.60
RE DISCCART   441586.60 3365910.80
RE DISCCART   441676.50 3365886.80
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RE DISCCART    441734.80 3365790.80
RE DISCCART    441709.00 3365750.20
RE DISCCART    441682.60 3365695.50
RE DISCCART    441742.80 3365619.50
RE DISCCART    441745.40 3365549.40
RE DISCCART    441736.10 3365461.10
RE DISCCART    441686.00 3365404.60
RE DISCCART    441555.60 3365476.80
RE DISCCART    441461.20 3365602.30
RE DISCCART    441459.00 3365720.30
RE DISCCART    441533.80 3365789.30
RE DISCCART    441549.70 3365856.70

** Polar Grid Receptors (100m - 300m) not on CBCP Property
**                      R(m)   Azimuth
RE DISCPOLR CFB         100     210
RE DISCPOLR CFB         100     220
RE DISCPOLR CFB         100     230
RE DISCPOLR CFB         200      30
RE DISCPOLR CFB         200      40
RE DISCPOLR CFB         200      50
RE DISCPOLR CFB         200      60
RE DISCPOLR CFB         200      70
RE DISCPOLR CFB         200      80
RE DISCPOLR CFB         200      90
RE DISCPOLR CFB         200     100
RE DISCPOLR CFB         200     110
RE DISCPOLR CFB         200     120
RE DISCPOLR CFB         200     130
RE DISCPOLR CFB         200     140
RE DISCPOLR CFB         200     150
RE DISCPOLR CFB         200     160
RE DISCPOLR CFB         200     170
RE DISCPOLR CFB         200     180
RE DISCPOLR CFB         200     190
RE DISCPOLR CFB         200     200
RE DISCPOLR CFB         200     210
RE DISCPOLR CFB         200     220
RE DISCPOLR CFB         200     230
RE DISCPOLR CFB         200     240
RE DISCPOLR CFB         200     250
RE DISCPOLR CFB         200     260
RE DISCPOLR CFB         200     270
RE DISCPOLR CFB         200     280
RE DISCPOLR CFB         200     290
RE DISCPOLR CFB         200     300
RE DISCPOLR CFB         300      30
RE DISCPOLR CFB         300      40
RE DISCPOLR CFB         300      50
RE DISCPOLR CFB         300      60
RE DISCPOLR CFB         300      70
RE DISCPOLR CFB         300      80
RE DISCPOLR CFB         300      90
RE DISCPOLR CFB         300     100
RE DISCPOLR CFB         300     110
RE DISCPOLR CFB         300     120
RE DISCPOLR CFB         300     130
RE DISCPOLR CFB         300     140
RE DISCPOLR CFB         300     150
RE DISCPOLR CFB         300     160
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```
RE DISCPOLR CFB        300     170
RE DISCPOLR CFB        300     180
RE DISCPOLR CFB        300     190
RE DISCPOLR CFB        300     200
RE DISCPOLR CFB        300     210
RE DISCPOLR CFB        300     220
RE DISCPOLR CFB        300     230
RE DISCPOLR CFB        300     240
RE DISCPOLR CFB        300     250
RE DISCPOLR CFB        300     260
RE DISCPOLR CFB        300     270
RE DISCPOLR CFB        300     280
RE DISCPOLR CFB        300     290
RE DISCPOLR CFB        300     300
RE DISCPOLR CFB        300     310
RE DISCPOLR CFB        300     320
RE DISCPOLR CFB        300     330
RE DISCPOLR CFB        300     340
RE FINISHED
```

```
5 km Receptor Grid
Ambient Air Receptors

RE STARTING

** Polar Grid Receptors (400m and Beyond)
RE GRIDPOLR IN STA
             IN ORIG 441610 3365540
             IN DIST  400.  500.  600.  700.  800.  900. 1000.
             IN DIST 1250. 1500. 1750. 2000. 2500. 3000. 3500. 4000.
             IN DIST 4500. 5000.
             IN GDIR 36 10 10
RE GRIDPOLR IN END

** CBCP Property Line
**   UTMs        E(m)        N(m)
RE DISCCART   441612.90 3365912.20
RE DISCCART   441696.00 3365861.60
RE DISCCART   441744.40 3365777.40
RE DISCCART   441696.80 3365737.60
RE DISCCART   441700.20 3365672.90
RE DISCCART   441761.10 3365602.90
RE DISCCART   441766.00 3365523.40
RE DISCCART   441751.60 3365439.60
RE DISCCART   441654.30 3365405.20
RE DISCCART   441512.10 3365489.50
RE DISCCART   441450.50 3365635.20
RE DISCCART   441471.20 3365743.80
RE DISCCART   441551.90 3365779.70
RE DISCCART   441548.90 3365883.40
RE DISCCART   441622.30 3365913.00
RE DISCCART   441717.90 3365835.50
RE DISCCART   441736.00 3365770.10
RE DISCCART   441684.00 3365725.60
RE DISCCART   441715.30 3365651.10
RE DISCCART   441743.10 3365589.60
RE DISCCART   441740.50 3365502.20
RE DISCCART   441728.30 3365421.10
RE DISCCART   441608.20 3365431.00
RE DISCCART   441480.70 3365540.50
RE DISCCART   441439.80 3365666.20
RE DISCCART   441485.90 3365772.90
RE DISCCART   441550.60 3365804.90
RE DISCCART   441552.80 3365905.70
RE DISCCART   441653.70 3365909.60
RE DISCCART   441736.00 3365808.80
RE DISCCART   441723.50 3365762.20
RE DISCCART   441668.80 3365713.70
RE DISCCART   441727.80 3365635.60
RE DISCCART   441725.70 3365574.10
RE DISCCART   441719.10 3365482.70
RE DISCCART   441710.00 3365406.90
RE DISCCART   441576.40 3365450.00
RE DISCCART   441469.20 3365574.50
RE DISCCART   441445.80 3365696.70
RE DISCCART   441506.50 3365788.60
RE DISCCART   441550.80 3365831.60
RE DISCCART   441586.60 3365910.80
RE DISCCART   441676.50 3365886.80
RE DISCCART   441734.80 3365790.80
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RE DISCCART    441709.00 3365750.20
RE DISCCART    441682.60 3365695.50
RE DISCCART    441742.80 3365619.50
RE DISCCART    441745.40 3365549.40
RE DISCCART    441736.10 3365461.10
RE DISCCART    441686.00 3365404.60
RE DISCCART    441555.60 3365476.80
RE DISCCART    441461.20 3365602.30
RE DISCCART    441459.00 3365720.30
RE DISCCART    441533.80 3365789.30
RE DISCCART    441549.70 3365856.70

** Polar Grid Receptors (100m - 300m) not on CBCP Property
**                        R(m)   Azimuth
RE DISCPOLR CFB           100     210
RE DISCPOLR CFB           100     220
RE DISCPOLR CFB           100     230
RE DISCPOLR CFB           200      30
RE DISCPOLR CFB           200      40
RE DISCPOLR CFB           200      50
RE DISCPOLR CFB           200      60
RE DISCPOLR CFB           200      70
RE DISCPOLR CFB           200      80
RE DISCPOLR CFB           200      90
RE DISCPOLR CFB           200     100
RE DISCPOLR CFB           200     110
RE DISCPOLR CFB           200     120
RE DISCPOLR CFB           200     130
RE DISCPOLR CFB           200     140
RE DISCPOLR CFB           200     150
RE DISCPOLR CFB           200     160
RE DISCPOLR CFB           200     170
RE DISCPOLR CFB           200     180
RE DISCPOLR CFB           200     190
RE DISCPOLR CFB           200     200
RE DISCPOLR CFB           200     210
RE DISCPOLR CFB           200     220
RE DISCPOLR CFB           200     230
RE DISCPOLR CFB           200     240
RE DISCPOLR CFB           200     250
RE DISCPOLR CFB           200     260
RE DISCPOLR CFB           200     270
RE DISCPOLR CFB           200     280
RE DISCPOLR CFB           200     290
RE DISCPOLR CFB           200     300
RE DISCPOLR CFB           300      30
RE DISCPOLR CFB           300      40
RE DISCPOLR CFB           300      50
RE DISCPOLR CFB           300      60
RE DISCPOLR CFB           300      70
RE DISCPOLR CFB           300      80
RE DISCPOLR CFB           300      90
RE DISCPOLR CFB           300     100
RE DISCPOLR CFB           300     110
RE DISCPOLR CFB           300     120
RE DISCPOLR CFB           300     130
RE DISCPOLR CFB           300     140
RE DISCPOLR CFB           300     150
RE DISCPOLR CFB           300     160
RE DISCPOLR CFB           300     170
```

```
RE DISCPOLR CFB        300     180
RE DISCPOLR CFB        300     190
RE DISCPOLR CFB        300     200
RE DISCPOLR CFB        300     210
RE DISCPOLR CFB        300     220
RE DISCPOLR CFB        300     230
RE DISCPOLR CFB        300     240
RE DISCPOLR CFB        300     250
RE DISCPOLR CFB        300     260
RE DISCPOLR CFB        300     270
RE DISCPOLR CFB        300     280
RE DISCPOLR CFB        300     290
RE DISCPOLR CFB        300     300
RE DISCPOLR CFB        300     310
RE DISCPOLR CFB        300     320
RE DISCPOLR CFB        300     330
RE DISCPOLR CFB        300     340

RE FINISHED
```

On Seminole Kraft Property Receptor Grid

```
RE STARTING
** Cedar Bay - Seminole Kraft Property Line
**   UTMs       E(m)          N(m)
RE DISCCART 441548.90  3365883.40
RE DISCCART 441552.80  3365905.70
RE DISCCART 441586.60  3365910.80
RE DISCCART 441612.90  3365912.20
RE DISCCART 441622.30  3365913.00
RE DISCCART 441653.70  3365909.60
RE DISCCART 441676.50  3365886.80
RE DISCCART 441696.00  3365861.60
RE DISCCART 441668.80  3365713.70
RE DISCCART 441717.90  3365835.50
RE DISCCART 441684.00  3365725.60
RE DISCCART 441696.80  3365737.60
RE DISCCART 441682.60  3365695.50
RE DISCCART 441736.00  3365808.80
RE DISCCART 441709.00  3365750.20
RE DISCCART 441734.80  3365790.80
RE DISCCART 441723.50  3365762.20
RE DISCCART 441736.00  3365770.10
RE DISCCART 441744.40  3365777.40
RE DISCCART 441700.20  3365672.90
RE DISCCART 441715.30  3365651.10
RE DISCCART 441727.80  3365635.60
RE DISCCART 441742.80  3365619.50
RE DISCCART 441761.10  3365602.90
RE DISCCART 441743.10  3365589.60
RE DISCCART 441725.70  3365574.10
RE DISCCART 441745.40  3365549.40
RE DISCCART 441766.00  3365523.40
RE DISCCART 441740.50  3365502.20
RE DISCCART 441719.10  3365482.70
RE DISCCART 441736.10  3365461.10
RE DISCCART 441751.60  3365439.60
RE DISCCART 441728.30  3365421.10
RE DISCCART 441710.00  3365406.90
** Polar Grid Receptors Falling on Seminole Kraft Property Line
**                      R(m)      Azimuth
RE DISCPOLR CFB       400         0
RE DISCPOLR CFB       500         0
RE DISCPOLR CFB       600         0
RE DISCPOLR CFB       700         0
RE DISCPOLR CFB       800         0
RE DISCPOLR CFB       900         0
RE DISCPOLR CFB      1000         0
RE DISCPOLR CFB      1250         0
RE DISCPOLR CFB       400        10
RE DISCPOLR CFB       500        10
RE DISCPOLR CFB       600        10
RE DISCPOLR CFB       700        10
RE DISCPOLR CFB       800        10
RE DISCPOLR CFB       900        10
RE DISCPOLR CFB      1000        10
RE DISCPOLR CFB      1250        10
RE DISCPOLR CFB       200        20
RE DISCPOLR CFB       400        20
```

RE	DISCPOLR	CFB	500	20
RE	DISCPOLR	CFB	600	20
RE	DISCPOLR	CFB	700	20
RE	DISCPOLR	CFB	800	20
RE	DISCPOLR	CFB	900	20
RE	DISCPOLR	CFB	1000	20
RE	DISCPOLR	CFB	200	30
RE	DISCPOLR	CFB	300	30
RE	DISCPOLR	CFB	400	30
RE	DISCPOLR	CFB	500	30
RE	DISCPOLR	CFB	600	30
RE	DISCPOLR	CFB	700	30
RE	DISCPOLR	CFB	800	30
RE	DISCPOLR	CFB	200	40
RE	DISCPOLR	CFB	300	40
RE	DISCPOLR	CFB	400	40
RE	DISCPOLR	CFB	500	40
RE	DISCPOLR	CFB	600	40
RE	DISCPOLR	CFB	700	40
RE	DISCPOLR	CFB	800	40
RE	DISCPOLR	CFB	200	50
RE	DISCPOLR	CFB	300	50
RE	DISCPOLR	CFB	400	50
RE	DISCPOLR	CFB	500	50
RE	DISCPOLR	CFB	600	50
RE	DISCPOLR	CFB	700	50
RE	DISCPOLR	CFB	200	60
RE	DISCPOLR	CFB	300	60
RE	DISCPOLR	CFB	400	60
RE	DISCPOLR	CFB	500	60
RE	DISCPOLR	CFB	600	60
RE	DISCPOLR	CFB	700	60
RE	DISCPOLR	CFB	800	60
RE	DISCPOLR	CFB	200	70
RE	DISCPOLR	CFB	300	70
RE	DISCPOLR	CFB	400	70
RE	DISCPOLR	CFB	500	70
RE	DISCPOLR	CFB	600	70
RE	DISCPOLR	CFB	700	70
RE	DISCPOLR	CFB	800	70
RE	DISCPOLR	CFB	900	70
RE	DISCPOLR	CFB	1000	70
RE	DISCPOLR	CFB	1250	70
RE	DISCPOLR	CFB	200	80
RE	DISCPOLR	CFB	300	80
RE	DISCPOLR	CFB	400	80
RE	DISCPOLR	CFB	500	80
RE	DISCPOLR	CFB	600	80
RE	DISCPOLR	CFB	700	80
RE	DISCPOLR	CFB	800	80
RE	DISCPOLR	CFB	900	80
RE	DISCPOLR	CFB	1000	80
RE	DISCPOLR	CFB	1250	80
RE	DISCPOLR	CFB	200	90
RE	DISCPOLR	CFB	300	90
RE	DISCPOLR	CFB	400	90
RE	DISCPOLR	CFB	500	90
RE	DISCPOLR	CFB	600	90
RE	DISCPOLR	CFB	700	90
RE	DISCPOLR	CFB	800	90

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RE DISCPOLR CFB      900       90
RE DISCPOLR CFB     1000       90
RE DISCPOLR CFB     1250       90
RE DISCPOLR CFB     1500       90
RE DISCPOLR CFB      200      100
RE DISCPOLR CFB      300      100
RE DISCPOLR CFB      400      100
RE DISCPOLR CFB      500      100
RE DISCPOLR CFB      600      100
RE DISCPOLR CFB      700      100
RE DISCPOLR CFB      800      100
RE DISCPOLR CFB      900      100
RE DISCPOLR CFB     1000      100
RE DISCPOLR CFB     1250      100
RE DISCPOLR CFB      200      110
RE DISCPOLR CFB      300      110
RE DISCPOLR CFB      400      110
RE DISCPOLR CFB      500      110
RE DISCPOLR CFB      600      110
RE DISCPOLR CFB      700      110
RE DISCPOLR CFB      800      110
RE DISCPOLR CFB      900      110
RE DISCPOLR CFB      200      120
RE DISCPOLR CFB      300      120
RE DISCPOLR CFB      400      120
RE DISCPOLR CFB      500      120
RE DISCPOLR CFB      600      120
RE DISCPOLR CFB      700      120
RE DISCPOLR CFB      800      120
RE DISCPOLR CFB      200      130
RE DISCPOLR CFB      300      130
** Seminole Kraft Property Line
**                    R(m)     Azimuth
RE DISCPOLR CFB      390      350
RE DISCPOLR CFB      523      353
RE DISCPOLR CFB      728      355
RE DISCPOLR CFB     1111      357
RE DISCPOLR CFB     1332        4
RE DISCPOLR CFB     1344       14
RE DISCPOLR CFB      831       31
RE DISCPOLR CFB      850       39
RE DISCPOLR CFB      745       49
RE DISCPOLR CFB      692       57
RE DISCPOLR CFB      663       64
RE DISCPOLR CFB      808       61
RE DISCPOLR CFB      646       69
RE DISCPOLR CFB      716       68
RE DISCPOLR CFB     1197       65
RE DISCPOLR CFB     1592       64
RE DISCPOLR CFB      637       74
RE DISCPOLR CFB      705       74
RE DISCPOLR CFB     1353       72
RE DISCPOLR CFB      633       79
RE DISCPOLR CFB      701       79
RE DISCPOLR CFB     1411       80
RE DISCPOLR CFB      634       84
RE DISCPOLR CFB      698       85
RE DISCPOLR CFB     1509       88
RE DISCPOLR CFB      640       89
RE DISCPOLR CFB      714       91
```

```
RE DISCPOLR CFB      1398        95
RE DISCPOLR CFB       653        95
RE DISCPOLR CFB       734        97
RE DISCPOLR CFB      1226       102
RE DISCPOLR CFB       677       102
RE DISCPOLR CFB       838       105
RE DISCPOLR CFB       982       107
RE DISCPOLR CFB       933       114
RE DISCPOLR CFB       880       121
RE DISCPOLR CFB       624       121
RE DISCPOLR CFB       508       121
RE DISCPOLR CFB       446       124
RE DISCPOLR CFB       394       126
RE DISCPOLR CFB       347       130
RE DISCPOLR CFB       297       131
RE DISCPOLR CFB       249       133
RE DISCPOLR CFB       203       135
RE DISCPOLR CFB       156       139
RE DISCPOLR CFB       110       131

RE FINISHED
```

Class I Area Receptors (including Timucuan)

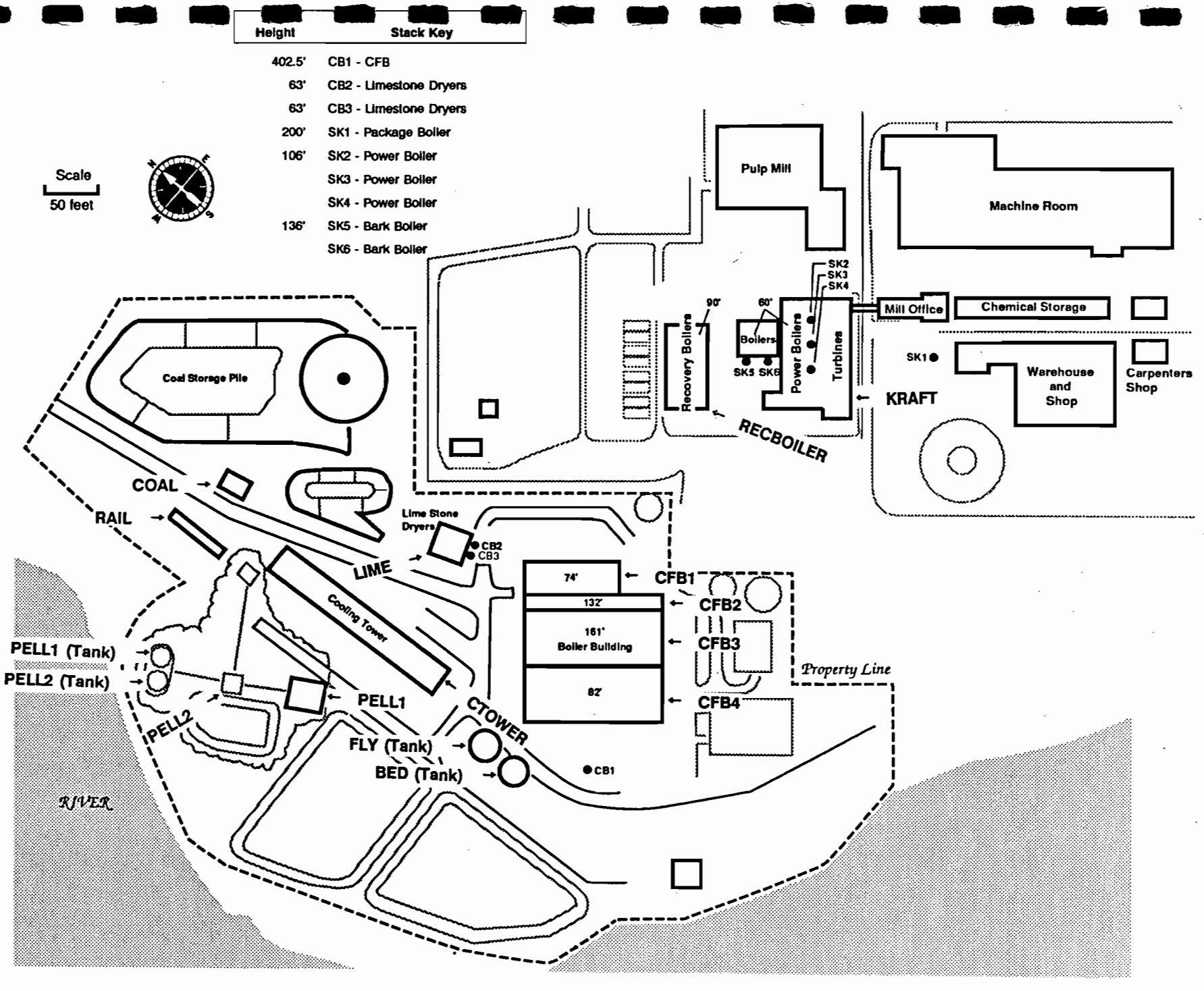
```
RE STARTING
**   UTM's        E(m)          N(m)
RE DISCCART    470500.00  3459000.00     Wolf Island
RE DISCCART    391000.00  3417000.00     Okefenokee Swamp
RE DISCCART    390000.00  3410000.00     Okefenokee Swamp
RE DISCCART    392000.00  3400000.00     Okefenokee Swamp
RE DISCCART    390000.00  3395000.00     Okefenokee Swamp
RE DISCCART    391000.00  3390000.00     Okefenokee Swamp
RE DISCCART    390000.00  3384000.00     Okefenokee Swamp
RE DISCCART    383000.00  3382000.00     Okefenokee Swamp
RE DISCCART    378000.00  3382000.00     Okefenokee Swamp
RE DISCCART    374000.00  3383000.00     Okefenokee Swamp
RE DISCCART    370000.00  3383000.00     Okefenokee Swamp
RE DISCCART    446700.00  3363400.00     Timucuan
RE FINISHED
```

Cavity Region Receptor Grid

```
RE STARTING
** Cedar Bay - Seminole Kraft Property Line
**              E(m)        N(m)
RE DISCCART 441668.80  3365713.70
RE DISCCART 441684.00  3365725.60
RE DISCCART 441682.60  3365695.50
RE DISCCART 441700.20  3365672.90
RE DISCCART 441715.30  3365651.10
RE DISCCART 441727.80  3365635.60
** Polar Grid Receptors Falling on Seminole Kraft Property Line
**                     R(m)    Azimuth
RE DISCPOLR CFB       200        20
RE DISCPOLR CFB       200        30
RE DISCPOLR CFB       200        40

RE FINISHED
```

Bowman GEP Input and Output Files



M921002

FIGURE 2-1
STACK AND BUILDING CONFIGURATION

1. Input/Output files for Material Handling Sources

```
        0 1  1.00    2       10     4    25     .000 3                 M
   7    5    5    5    5    5    5    5    5    5
     22.56CFB1
     -2.57      74.58     110.59      92.58     107.16      47.15      -2.57
     46.48     108.97      64.01      48.77      31.24     -14.48      46.48
     24.99CFB2
     -1.71      56.58     106.30      47.15      -1.71
     46.48      92.96      30.48     -14.48      46.48
     49.07CFB3
     24.00      49.72     100.30      73.72      24.00
     67.06      88.39      26.67       5.33      67.06
     40.23CFB4
     23.15      55.72     106.30      73.72      23.15
     67.06      92.96      31.24       6.10      67.06
     41.80PELL
    -81.44     -66.01     -57.44     -72.87     -81.44
    157.73     166.88     152.40     142.49     157.73
     10.70LIME
     38.58      58.29      60.86      42.01      38.58
    160.02     166.88     155.45     149.35     160.02
     19.20COAL
     -4.29       5.14       9.43        .00      -4.29
    267.46     270.51     257.56     254.51     267.46
     10.97RAIL
    -37.71     -38.55     -31.92     -31.08     -37.71
    243.98     272.53     272.89     244.34     243.98
     14.94CTower
    -22.65     -25.95      -9.51      -6.21     -22.65
     98.19     213.89     214.60      98.93      98.19
     15.54PELL2
    -90.87     -95.15     -86.58     -82.30     -90.87
    184.40     192.02     197.36     188.98     184.40
    -28.29      54.10      42.06      15.24FLY
    -28.29      31.24      31.70      12.19BED
   -102.01     228.60      24.38      10.67PELL1
   -121.73     223.27      24.38      10.67PELL2
```

101	3.43	262.89	3.66	CP1
102	64.29	76.96	43.28	CP2
201	57.44	61.72	27.43	LIDRY1 and LIDRY2
301	41.15	84.58	8.53	AP1
302	-28.29	54.10	10.67	AP2
303	-28.29	54.10	42.06	AP3
304	-28.29	31.24	31.70	AP4
305	-67.72	153.92	38.10	AP5
306	-67.72	153.92	39.01	AP6
307	-67.72	153.92	36.58	AP7
308	-67.72	153.92	35.05	AP8
309	-67.72	153.92	9.14	AP9
310	-67.72	153.92	4.57	AP10
311	-89.15	190.50	7.62	AP11
312	-89.15	190.50	25.91	AP12
313	-111.44	230.89	33.53	AP13
314	-111.44	230.89	25.91	AP14
315	-32.58	224.03	12.19	AP15
501	-17.49	205.97	14.94	COOL1
502	-17.02	189.44	14.94	COOL2
503	-16.55	172.92	14.94	COOL3
504	-16.08	156.39	14.94	COOL4
505	-15.61	139.87	14.94	COOL5
506	-15.14	123.35	14.94	COOL6

ISC CODE

507 -14.66 106.82 14.94 COOL7

SO	BUILDHGT	101	42.06	42.06	41.80	19.20	19.20	19.20
SO	BUILDHGT	101	19.20	19.20	19.20	19.20	19.20	19.20
SO	BUILDHGT	101	19.20	19.20	19.20	19.20	19.20	19.20
SO	BUILDHGT	101	19.20	19.20	19.20	19.20	19.20	19.20
SO	BUILDHGT	101	19.20	19.20	19.20	19.20	19.20	19.20
SO	BUILDHGT	101	19.20	19.20	49.07	49.07	49.07	49.07
SO	BUILDWID	101	139.10	138.93	24.00	16.92	16.70	15.98
SO	BUILDWID	101	14.77	15.49	16.39	16.79	16.81	16.67
SO	BUILDWID	101	16.05	14.95	13.39	11.42	12.80	14.53
SO	BUILDWID	101	15.81	16.62	16.92	16.92	16.70	15.98
SO	BUILDWID	101	14.77	15.49	16.39	16.79	16.81	16.67
SO	BUILDWID	101	16.05	14.95	52.08	63.25	72.49	76.99
SO	BUILDHGT	102	49.07	49.07	49.07	49.07	49.07	49.07
SO	BUILDHGT	102	49.07	49.07	49.07	49.07	49.07	49.07
SO	BUILDHGT	102	49.07	49.07	49.07	49.07	49.07	49.07
SO	BUILDHGT	102	49.07	49.07	49.07	49.07	49.07	49.07
SO	BUILDHGT	102	49.07	49.07	49.07	49.07	49.07	49.07
SO	BUILDHGT	102	49.07	49.07	49.07	49.07	49.07	49.07
SO	BUILDWID	102	84.15	86.22	86.33	85.67	82.51	85.42
SO	BUILDWID	102	86.46	86.44	84.84	80.65	74.02	65.14
SO	BUILDWID	102	54.27	41.76	52.08	63.25	72.49	79.53
SO	BUILDWID	102	84.15	86.22	86.33	85.67	82.51	85.42
SO	BUILDWID	102	86.46	86.44	84.84	80.65	74.02	65.14
SO	BUILDWID	102	54.27	41.76	52.08	63.25	72.49	79.53
SO	BUILDHGT	201	49.07	49.07	49.07	49.07	49.07	49.07
SO	BUILDHGT	201	49.07	49.07	49.07	49.07	49.07	49.07
SO	BUILDHGT	201	49.07	49.07	49.07	49.07	49.07	49.07
SO	BUILDHGT	201	49.07	49.07	49.07	49.07	49.07	49.07
SO	BUILDHGT	201	49.07	49.07	49.07	49.07	49.07	49.07
SO	BUILDHGT	201	49.07	49.07	49.07	49.07	49.07	49.07
SO	BUILDWID	201	84.15	86.22	86.33	85.67	82.51	85.42
SO	BUILDWID	201	86.46	86.44	84.84	80.65	74.02	65.14
SO	BUILDWID	201	54.27	41.76	52.08	63.25	72.49	79.53
SO	BUILDWID	201	84.15	86.22	86.33	85.67	82.51	85.42
SO	BUILDWID	201	86.46	86.44	84.84	80.65	74.02	65.14
SO	BUILDWID	201	54.27	41.76	52.08	63.25	72.49	79.53
SO	BUILDHGT	301	49.07	49.07	49.07	49.07	49.07	49.07
SO	BUILDHGT	301	49.07	49.07	49.07	49.07	49.07	49.07
SO	BUILDHGT	301	49.07	49.07	49.07	49.07	49.07	49.07
SO	BUILDHGT	301	49.07	49.07	49.07	49.07	49.07	49.07
SO	BUILDHGT	301	49.07	49.07	49.07	49.07	49.07	49.07
SO	BUILDHGT	301	49.07	49.07	49.07	49.07	49.07	49.07
SO	BUILDWID	301	84.15	86.22	86.33	85.67	82.51	85.42
SO	BUILDWID	301	86.46	86.44	84.84	80.65	74.02	65.14
SO	BUILDWID	301	54.27	41.76	52.08	63.25	72.49	79.53
SO	BUILDWID	301	84.15	86.22	86.33	85.67	82.51	85.42
SO	BUILDWID	301	86.46	86.44	84.84	80.65	74.02	65.14
SO	BUILDWID	301	54.27	41.76	52.08	63.25	72.49	79.53
SO	BUILDHGT	302	42.06	42.06	42.06	42.06	49.07	49.07
SO	BUILDHGT	302	49.07	49.07	49.07	49.07	49.07	49.07
SO	BUILDHGT	302	49.07	42.06	42.06	42.06	42.06	42.06
SO	BUILDHGT	302	42.06	42.06	42.06	42.06	49.07	49.07
SO	BUILDHGT	302	49.07	49.07	49.07	49.07	49.07	49.07
SO	BUILDHGT	302	49.07	42.06	42.06	42.06	42.06	42.06
SO	BUILDWID	302	139.10	138.93	135.75	128.69	81.80	85.42
SO	BUILDWID	302	86.46	86.44	84.84	80.65	74.02	65.14
SO	BUILDWID	302	54.27	88.54	112.57	124.73	133.33	138.11
SO	BUILDWID	302	139.10	138.93	135.75	128.69	81.80	85.42
SO	BUILDWID	302	86.46	86.44	84.84	80.65	74.02	65.14
SO	BUILDWID	302	54.27	88.54	112.57	124.73	133.33	138.11

SO	BUILDHGT	303	42.06	42.06	42.06	42.06	49.07	49.07
SO	BUILDHGT	303	49.07	49.07	49.07	49.07	49.07	49.07
SO	BUILDHGT	303	49.07	42.06	42.06	42.06	42.06	42.06
SO	BUILDHGT	303	42.06	42.06	42.06	42.06	49.07	49.07
SO	BUILDHGT	303	49.07	49.07	49.07	49.07	49.07	49.07
SO	BUILDHGT	303	49.07	42.06	42.06	42.06	42.06	42.06
SO	BUILDWID	303	139.10	138.93	135.75	128.69	81.80	85.42
SO	BUILDWID	303	86.46	86.44	84.84	80.65	74.02	65.14
SO	BUILDWID	303	54.27	88.54	112.57	124.73	133.33	138.11
SO	BUILDWID	303	139.10	138.93	135.75	128.69	81.80	85.42
SO	BUILDWID	303	86.46	86.44	84.84	80.65	74.02	65.14
SO	BUILDWID	303	54.27	88.54	112.57	124.73	133.33	138.11
SO	BUILDHGT	304	42.06	42.06	49.07	49.07	49.07	49.07
SO	BUILDHGT	304	49.07	49.07	49.07	49.07	49.07	49.07
SO	BUILDHGT	304	42.06	42.06	42.06	42.06	42.06	42.06
SO	BUILDHGT	304	42.06	42.06	49.07	49.07	49.07	49.07
SO	BUILDHGT	304	49.07	49.07	49.07	49.07	49.07	49.07
SO	BUILDHGT	304	42.06	42.06	42.06	42.06	42.06	42.06
SO	BUILDWID	304	139.10	138.93	85.99	85.67	82.51	85.42
SO	BUILDWID	304	86.46	86.44	84.84	80.65	74.02	65.14
SO	BUILDWID	304	87.03	88.54	112.57	124.73	133.33	138.11
SO	BUILDWID	304	139.10	138.93	85.99	85.67	82.51	85.42
SO	BUILDWID	304	86.46	86.44	84.84	80.65	74.02	65.14
SO	BUILDWID	304	87.03	88.54	112.57	124.73	133.33	138.11
SO	BUILDHGT	305	41.80	41.80	41.80	41.80	41.80	41.80
SO	BUILDHGT	305	41.80	41.80	41.80	41.80	42.06	42.06
SO	BUILDHGT	305	42.06	41.80	41.80	41.80	42.06	41.80
SO	BUILDHGT	305	41.80	41.80	41.80	41.80	41.80	41.80
SO	BUILDHGT	305	41.80	41.80	41.80	41.80	49.07	49.07
SO	BUILDHGT	305	49.07	49.07	42.06	42.06	42.06	41.80
SO	BUILDWID	305	24.58	24.56	24.00	22.72	20.74	19.21
SO	BUILDWID	305	21.78	23.70	24.90	25.33	71.67	80.45
SO	BUILDWID	305	81.95	22.10	19.61	21.80	131.91	24.37
SO	BUILDWID	305	24.58	24.56	24.00	22.72	20.74	19.21
SO	BUILDWID	305	21.78	23.70	24.90	25.33	70.72	65.14
SO	BUILDWID	305	54.27	41.76	112.57	124.73	131.91	24.37
SO	BUILDHGT	306	41.80	41.80	41.80	41.80	41.80	41.80
SO	BUILDHGT	306	41.80	41.80	41.80	41.80	42.06	42.06
SO	BUILDHGT	306	42.06	41.80	41.80	41.80	42.06	41.80
SO	BUILDHGT	306	41.80	41.80	41.80	41.80	41.80	41.80
SO	BUILDHGT	306	41.80	41.80	41.80	41.80	49.07	49.07
SO	BUILDHGT	306	49.07	49.07	42.06	42.06	42.06	41.80
SO	BUILDWID	306	24.58	24.56	24.00	22.72	20.74	19.21
SO	BUILDWID	306	21.78	23.70	24.90	25.33	71.67	80.45
SO	BUILDWID	306	81.95	22.10	19.61	21.80	131.91	24.37
SO	BUILDWID	306	24.58	24.56	24.00	22.72	20.74	19.21
SO	BUILDWID	306	21.78	23.70	24.90	25.33	70.72	65.14
SO	BUILDWID	306	54.27	41.76	112.57	124.73	131.91	24.37
SO	BUILDHGT	307	41.80	41.80	41.80	41.80	41.80	41.80
SO	BUILDHGT	307	41.80	41.80	41.80	41.80	42.06	42.06
SO	BUILDHGT	307	42.06	41.80	41.80	41.80	42.06	41.80
SO	BUILDHGT	307	41.80	41.80	41.80	41.80	41.80	41.80
SO	BUILDHGT	307	41.80	41.80	41.80	41.80	49.07	49.07
SO	BUILDHGT	307	49.07	49.07	42.06	42.06	42.06	41.80
SO	BUILDWID	307	24.58	24.56	24.00	22.72	20.74	19.21
SO	BUILDWID	307	21.78	23.70	24.90	25.33	71.67	80.45
SO	BUILDWID	307	81.95	22.10	19.61	21.80	131.91	24.37
SO	BUILDWID	307	24.58	24.56	24.00	22.72	20.74	19.21
SO	BUILDWID	307	21.78	23.70	24.90	25.33	70.72	65.14
SO	BUILDWID	307	54.27	41.76	112.57	124.73	131.91	24.37

SO	BUILDHGT	308	41.80	41.80	41.80	41.80	41.80	41.80
SO	BUILDHGT	308	41.80	41.80	41.80	41.80	42.06	42.06
SO	BUILDHGT	308	42.06	41.80	41.80	41.80	42.06	41.80
SO	BUILDHGT	308	41.80	41.80	41.80	41.80	41.80	41.80
SO	BUILDHGT	308	41.80	41.80	41.80	41.80	49.07	49.07
SO	BUILDHGT	308	49.07	49.07	42.06	42.06	42.06	41.80
SO	BUILDWID	308	24.58	24.56	24.00	22.72	20.74	19.21
SO	BUILDWID	308	21.78	23.70	24.90	25.33	71.67	80.45
SO	BUILDWID	308	81.95	22.10	19.61	21.80	131.91	24.37
SO	BUILDWID	308	24.58	24.56	24.00	22.72	20.74	19.21
SO	BUILDWID	308	21.78	23.70	24.90	25.33	70.72	65.14
SO	BUILDWID	308	54.27	41.76	112.57	124.73	131.91	24.37
SO	BUILDHGT	309	41.80	41.80	41.80	41.80	41.80	41.80
SO	BUILDHGT	309	41.80	41.80	41.80	41.80	42.06	42.06
SO	BUILDHGT	309	42.06	41.80	41.80	41.80	42.06	41.80
SO	BUILDHGT	309	41.80	41.80	41.80	41.80	41.80	41.80
SO	BUILDHGT	309	41.80	41.80	41.80	41.80	49.07	49.07
SO	BUILDHGT	309	49.07	49.07	42.06	42.06	42.06	41.80
SO	BUILDWID	309	24.58	24.56	24.00	22.72	20.74	19.21
SO	BUILDWID	309	21.78	23.70	24.90	25.33	71.67	80.45
SO	BUILDWID	309	81.95	22.10	19.61	21.80	131.91	24.37
SO	BUILDWID	309	24.58	24.56	24.00	22.72	20.74	19.21
SO	BUILDWID	309	21.78	23.70	24.90	25.33	70.72	65.14
SO	BUILDWID	309	54.27	41.76	112.57	124.73	131.91	24.37
SO	BUILDHGT	310	41.80	41.80	41.80	41.80	41.80	41.80
SO	BUILDHGT	310	41.80	41.80	41.80	41.80	42.06	42.06
SO	BUILDHGT	310	42.06	41.80	41.80	41.80	42.06	41.80
SO	BUILDHGT	310	41.80	41.80	41.80	41.80	41.80	41.80
SO	BUILDHGT	310	41.80	41.80	41.80	41.80	49.07	49.07
SO	BUILDHGT	310	49.07	49.07	42.06	42.06	42.06	41.80
SO	BUILDWID	310	24.58	24.56	24.00	22.72	20.74	19.21
SO	BUILDWID	310	21.78	23.70	24.90	25.33	71.67	80.45
SO	BUILDWID	310	81.95	22.10	19.61	21.80	131.91	24.37
SO	BUILDWID	310	24.58	24.56	24.00	22.72	20.74	19.21
SO	BUILDWID	310	21.78	23.70	24.90	25.33	70.72	65.14
SO	BUILDWID	310	54.27	41.76	112.57	124.73	131.91	24.37
SO	BUILDHGT	311	41.80	15.54	15.54	15.54	14.94	14.94
SO	BUILDHGT	311	14.94	15.54	15.54	15.54	41.80	41.80
SO	BUILDHGT	311	41.80	41.80	41.80	41.80	41.80	41.80
SO	BUILDHGT	311	41.80	15.54	15.54	15.54	14.94	14.94
SO	BUILDHGT	311	14.94	15.54	15.54	15.54	41.80	49.07
SO	BUILDHGT	311	49.07	49.07	42.06	42.06	42.06	41.80
SO	BUILDWID	311	24.51	50.92	53.62	54.45	127.87	231.15
SO	BUILDWID	311	239.40	56.52	55.86	53.47	25.07	25.00
SO	BUILDWID	311	23.91	22.10	19.61	21.80	23.44	24.37
SO	BUILDWID	311	24.51	50.92	53.62	54.45	127.87	231.15
SO	BUILDWID	311	239.78	56.52	55.86	53.47	25.07	61.01
SO	BUILDWID	311	54.27	41.76	112.57	124.73	126.74	24.37
SO	BUILDHGT	312	41.80	15.54	15.54	15.54	14.94	14.94
SO	BUILDHGT	312	14.94	15.54	15.54	15.54	41.80	41.80
SO	BUILDHGT	312	41.80	41.80	41.80	41.80	41.80	41.80
SO	BUILDHGT	312	41.80	15.54	15.54	15.54	14.94	14.94
SO	BUILDHGT	312	14.94	15.54	15.54	15.54	41.80	49.07
SO	BUILDHGT	312	49.07	49.07	42.06	42.06	42.06	41.80
SO	BUILDWID	312	24.51	50.92	53.62	54.45	127.87	231.15
SO	BUILDWID	312	239.40	56.52	55.86	53.47	25.07	25.00
SO	BUILDWID	312	23.91	22.10	19.61	21.80	23.44	24.37
SO	BUILDWID	312	24.51	50.92	53.62	54.45	127.87	231.15
SO	BUILDWID	312	239.78	56.52	55.86	53.47	25.07	61.01
SO	BUILDWID	312	54.27	41.76	112.57	124.73	126.74	24.37

SO	BUILDHGT	313	24.38	24.38	24.38	24.38	24.38	24.38
SO	BUILDHGT	313	24.38	24.38	24.38	24.38	24.38	24.38
SO	BUILDHGT	313	24.38	24.38	24.38	24.38	24.38	24.38
SO	BUILDHGT	313	24.38	24.38	24.38	24.38	24.38	24.38
SO	BUILDHGT	313	24.38	24.38	24.38	24.38	24.38	49.07
SO	BUILDHGT	313	49.07	42.06	42.06	42.06	41.80	24.38
SO	BUILDWID	313	29.85	28.34	26.29	23.77	20.85	17.61
SO	BUILDWID	313	14.17	14.26	17.70	20.92	23.83	26.35
SO	BUILDWID	313	28.38	29.88	30.79	31.10	31.10	30.78
SO	BUILDWID	313	29.85	28.34	26.29	23.77	20.85	17.61
SO	BUILDWID	313	14.17	14.26	17.70	20.92	23.83	54.27
SO	BUILDWID	313	54.27	88.54	112.57	122.57	21.80	30.78
SO	BUILDHGT	314	24.38	24.38	24.38	24.38	24.38	24.38
SO	BUILDHGT	314	24.38	24.38	24.38	24.38	24.38	24.38
SO	BUILDHGT	314	24.38	24.38	24.38	24.38	24.38	24.38
SO	BUILDHGT	314	24.38	24.38	24.38	24.38	24.38	24.38
SO	BUILDHGT	314	24.38	24.38	24.38	24.38	24.38	49.07
SO	BUILDHGT	314	49.07	42.06	42.06	42.06	41.80	24.38
SO	BUILDWID	314	29.85	28.34	26.29	23.77	20.85	17.61
SO	BUILDWID	314	14.17	14.26	17.70	20.92	23.83	26.35
SO	BUILDWID	314	28.38	29.88	30.79	31.10	31.10	30.78
SO	BUILDWID	314	29.85	28.34	26.29	23.77	20.85	17.61
SO	BUILDWID	314	14.17	14.26	17.70	20.92	23.83	54.27
SO	BUILDWID	314	54.27	88.54	112.57	122.57	21.80	30.78
SO	BUILDHGT	315	42.06	41.80	41.80	41.80	14.94	14.94
SO	BUILDHGT	315	.00	24.38	24.38	24.38	24.38	14.94
SO	BUILDHGT	315	14.94	14.94	14.94	14.94	14.94	14.94
SO	BUILDHGT	315	14.94	19.20	19.20	19.20	19.20	19.20
SO	BUILDHGT	315	.00	.00	14.94	14.94	14.94	14.94
SO	BUILDHGT	315	22.56	49.07	49.07	49.07	49.07	42.06
SO	BUILDWID	315	138.78	24.56	24.00	22.72	127.87	127.27
SO	BUILDWID	315	.00	14.26	17.70	20.92	21.53	154.49
SO	BUILDWID	315	123.68	95.79	93.26	119.85	129.75	146.66
SO	BUILDWID	315	87.89	16.62	16.92	16.92	16.70	15.98
SO	BUILDWID	315	.00	.00	223.27	223.27	206.61	154.49
SO	BUILDWID	315	117.91	39.33	52.08	63.25	66.23	138.11
SO	BUILDHGT	501	42.06	14.94	41.80	41.80	41.80	41.80
SO	BUILDHGT	501	14.94	15.54	24.38	24.38	24.38	24.38
SO	BUILDHGT	501	14.94	14.94	14.94	14.94	14.94	14.94
SO	BUILDHGT	501	19.20	19.20	19.20	19.20	14.94	14.94
SO	BUILDHGT	501	14.94	14.94	14.94	14.94	14.94	14.94
SO	BUILDHGT	501	22.56	49.07	49.07	49.07	49.07	42.06
SO	BUILDWID	501	139.10	197.05	23.80	22.72	20.74	18.13
SO	BUILDWID	501	239.78	56.52	17.70	20.92	23.83	24.11
SO	BUILDWID	501	123.68	95.79	93.26	119.85	129.75	149.08
SO	BUILDWID	501	15.81	16.62	16.92	16.92	228.01	231.15
SO	BUILDWID	501	239.78	239.51	233.87	223.27	206.61	154.49
SO	BUILDWID	501	133.80	39.33	52.08	63.25	70.81	138.11
SO	BUILDHGT	502	42.06	42.06	14.94	41.80	41.80	41.80
SO	BUILDHGT	502	41.80	41.80	15.54	24.38	24.38	24.38
SO	BUILDHGT	502	40.23	42.06	14.94	14.94	14.94	19.20
SO	BUILDHGT	502	42.06	42.06	19.20	14.94	14.94	14.94
SO	BUILDHGT	502	14.94	14.94	14.94	14.94	14.94	14.94
SO	BUILDHGT	502	40.23	49.07	49.07	49.07	49.07	42.06
SO	BUILDWID	502	139.10	138.93	210.80	22.55	20.74	19.21
SO	BUILDWID	502	21.78	22.22	55.86	20.92	23.83	26.35
SO	BUILDWID	502	94.50	88.06	93.26	119.85	129.75	14.53
SO	BUILDWID	502	139.08	138.93	16.72	221.66	228.01	231.15
SO	BUILDWID	502	239.78	239.51	233.87	223.27	206.61	154.49
SO	BUILDWID	502	94.50	39.33	52.08	63.25	69.94	138.11

SO	BUILDHGT	503	42.06	42.06	14.94	14.94	41.80	41.80
SO	BUILDHGT	503	41.80	41.80	41.80	41.80	24.38	24.38
SO	BUILDHGT	503	49.07	42.06	14.94	14.94	49.07	42.06
SO	BUILDHGT	503	42.06	42.06	14.94	14.94	14.94	14.94
SO	BUILDHGT	503	14.94	41.80	41.80	41.80	15.54	22.56
SO	BUILDHGT	503	49.07	49.07	49.07	49.07	49.07	42.06
SO	BUILDWID	503	139.10	138.93	210.80	221.66	18.98	19.21
SO	BUILDWID	503	21.78	23.70	24.90	25.04	23.83	26.35
SO	BUILDWID	503	49.45	88.54	93.26	119.85	69.04	138.11
SO	BUILDWID	503	139.10	138.93	210.80	221.66	228.01	231.15
SO	BUILDWID	503	239.78	23.70	24.90	25.04	46.31	128.77
SO	BUILDWID	503	49.45	41.76	52.08	63.25	69.04	138.11
SO	BUILDHGT	504	42.06	42.06	14.94	14.94	14.94	14.94
SO	BUILDHGT	504	41.80	41.80	41.80	41.80	41.80	49.07
SO	BUILDHGT	504	49.07	42.06	49.07	49.07	49.07	42.06
SO	BUILDHGT	504	42.06	42.06	14.94	14.94	14.94	14.94
SO	BUILDHGT	504	41.80	41.80	41.80	41.80	41.80	49.07
SO	BUILDHGT	504	49.07	49.07	49.07	49.07	49.07	42.06
SO	BUILDWID	504	139.10	138.93	210.80	221.66	228.01	231.15
SO	BUILDWID	504	21.78	23.70	24.90	25.33	25.34	58.84
SO	BUILDWID	504	54.27	88.54	52.08	63.25	68.13	138.11
SO	BUILDWID	504	139.10	138.93	210.80	221.66	228.01	231.15
SO	BUILDWID	504	21.78	23.70	24.90	25.33	25.34	58.84
SO	BUILDWID	504	54.27	41.76	52.08	63.25	68.13	138.11
SO	BUILDHGT	505	42.06	42.06	42.06	14.94	14.94	14.94
SO	BUILDHGT	505	14.94	41.80	41.80	41.80	49.07	49.07
SO	BUILDHGT	505	49.07	49.07	49.07	49.07	49.07	42.06
SO	BUILDHGT	505	42.06	42.06	42.06	14.94	14.94	14.94
SO	BUILDHGT	505	14.94	41.80	41.80	41.80	49.07	49.07
SO	BUILDHGT	505	49.07	49.07	49.07	49.07	49.07	42.06
SO	BUILDWID	505	139.10	138.93	135.75	221.66	228.01	231.15
SO	BUILDWID	505	239.78	23.70	24.90	25.33	68.02	65.14
SO	BUILDWID	505	54.27	41.76	52.08	63.25	66.24	138.11
SO	BUILDWID	505	139.10	138.93	135.75	221.66	228.01	231.15
SO	BUILDWID	505	239.78	23.70	24.90	25.33	68.02	65.14
SO	BUILDWID	505	54.27	41.76	52.08	63.25	66.23	138.11
SO	BUILDHGT	506	42.06	42.06	42.06	14.94	14.94	14.94
SO	BUILDHGT	506	14.94	14.94	22.56	49.07	49.07	49.07
SO	BUILDHGT	506	49.07	49.07	49.07	49.07	49.07	42.06
SO	BUILDHGT	506	42.06	42.06	42.06	14.94	14.94	14.94
SO	BUILDHGT	506	14.94	14.94	22.56	49.07	49.07	49.07
SO	BUILDHGT	506	49.07	49.07	49.07	49.07	49.07	42.06
SO	BUILDWID	506	139.10	138.93	135.75	221.66	228.01	231.15
SO	BUILDWID	506	239.78	239.51	125.37	78.28	74.02	65.14
SO	BUILDWID	506	54.27	41.76	52.08	63.25	64.26	138.11
SO	BUILDWID	506	139.10	138.93	135.75	221.66	228.01	231.15
SO	BUILDWID	506	239.78	239.51	125.37	78.28	74.02	65.14
SO	BUILDWID	506	54.27	41.76	52.08	63.25	64.26	138.11
SO	BUILDHGT	507	42.06	42.06	42.06	42.06	42.06	14.94
SO	BUILDHGT	507	14.94	49.07	49.07	49.07	49.07	49.07
SO	BUILDHGT	507	49.07	49.07	49.07	49.07	42.06	42.06
SO	BUILDHGT	507	42.06	42.06	42.06	42.06	42.06	14.94
SO	BUILDHGT	507	14.94	49.07	49.07	49.07	49.07	49.07
SO	BUILDHGT	507	49.07	49.07	49.07	49.07	42.06	42.06
SO	BUILDWID	507	139.10	138.93	135.75	128.69	117.94	231.15
SO	BUILDWID	507	239.78	84.84	84.84	80.65	74.02	65.14
SO	BUILDWID	507	54.27	41.76	52.08	60.08	133.33	138.11
SO	BUILDWID	507	139.10	138.93	135.75	128.69	117.94	231.15
SO	BUILDWID	507	239.78	84.84	84.84	80.65	74.02	65.14
SO	BUILDWID	507	54.27	41.76	52.08	60.08	133.33	138.11

2. Input/Output files for SKC Power and Bark Boilers

```
      0 1  1.00    2        3     0     5     .000 2                 M
5  13    9
  27.43RECBOILER
-120.87   -137.16   -100.30    -84.87   -120.87
  18.29     36.58     67.06     48.01     18.29
  18.29KRAFT
-102.01    -96.01    -89.15    -76.30    -90.87    -72.01    -56.58    -47.15
  -6.86     -1.52     -8.38      2.29     20.57     36.58     17.53     25.91
  21.95PULPMILL
  -1.71    -15.43      2.57    -29.15      8.57     46.29     17.15     24.86
  14.48     32.00     47.24     86.11    115.82     69.34     45.72     35.81
5       -88.30     10.67     41.50     BARK1
6       -81.44      3.81     41.50     BARK2
7       -66.01    -15.24     32.30     POWER1     ISC CODES
8       -54.86     -6.10     32.30     POWER2
9       -43.72      3.81     32.30     POWER3
```

SO BUILDHGT 5	27.43	27.43	27.43	21.95	18.29	18.29
SO BUILDHGT 5	18.29	27.43	27.43	27.43	27.43	27.43
SO BUILDHGT 5	27.43	27.43	27.43	27.43	27.43	27.43
SO BUILDHGT 5	27.43	27.43	27.43	21.95	21.95	21.95
SO BUILDHGT 5	21.95	27.43	27.43	27.43	27.43	27.43
SO BUILDHGT 5	27.43	27.43	27.43	27.43	27.43	27.43
SO BUILDWID 5	51.09	47.55	42.56	133.16	112.01	116.21
SO BUILDWID 5	137.68	46.79	50.38	52.43	52.93	52.89
SO BUILDWID 5	51.75	49.39	52.22	53.47	53.52	53.09
SO BUILDWID 5	51.09	47.55	42.56	133.16	77.12	87.50
SO BUILDWID 5	95.23	46.79	50.38	52.43	52.93	52.89
SO BUILDWID 5	51.75	49.39	52.22	53.47	53.52	53.09
SO BUILDHGT 6	27.43	18.29	21.95	21.95	18.29	18.29
SO BUILDHGT 6	18.29	18.29	27.43	27.43	27.43	27.43
SO BUILDHGT 6	27.43	27.43	27.43	27.43	27.43	27.43
SO BUILDHGT 6	27.43	18.29	21.95	21.95	21.95	21.95
SO BUILDHGT 6	21.95	21.95	27.43	27.43	27.43	27.43
SO BUILDHGT 6	27.43	27.43	27.43	27.43	27.43	27.43
SO BUILDWID 6	51.09	123.52	138.76	133.16	112.01	116.21
SO BUILDWID 6	137.68	156.79	50.38	52.43	52.93	52.89
SO BUILDWID 6	51.75	49.39	52.22	53.47	53.52	53.09
SO BUILDWID 6	51.09	123.52	138.76	133.16	77.12	87.50
SO BUILDWID 6	95.23	100.06	50.38	52.43	52.93	52.89
SO BUILDWID 6	51.75	49.39	52.22	53.47	53.52	53.09
SO BUILDHGT 7	18.29	18.29	21.95	21.95	18.29	18.29
SO BUILDHGT 7	18.29	18.29	18.29	18.29	27.43	27.43
SO BUILDHGT 7	27.43	27.43	27.43	27.43	27.43	27.43
SO BUILDHGT 7	21.95	21.95	21.95	21.95	21.95	21.95
SO BUILDHGT 7	21.95	18.29	18.29	18.29	27.43	27.43
SO BUILDHGT 7	27.43	18.29	27.43	27.43	27.43	27.43
SO BUILDWID 7	141.09	123.52	138.76	133.16	112.01	116.21
SO BUILDWID 7	137.68	156.79	171.14	180.28	52.93	52.89
SO BUILDWID 7	51.75	49.39	52.22	53.47	53.52	53.09
SO BUILDWID 7	77.25	77.21	138.76	133.16	77.12	87.50
SO BUILDWID 7	94.58	156.79	171.14	180.28	52.93	52.89
SO BUILDWID 7	51.75	71.59	52.22	53.47	53.52	53.09
SO BUILDHGT 8	21.95	21.95	21.95	21.95	18.29	18.29
SO BUILDHGT 8	18.29	21.95	18.29	27.43	27.43	27.43
SO BUILDHGT 8	27.43	27.43	27.43	27.43	18.29	18.29
SO BUILDHGT 8	21.95	21.95	21.95	21.95	21.95	21.95
SO BUILDHGT 8	21.95	21.95	18.29	27.43	27.43	27.43
SO BUILDHGT 8	21.95	18.29	27.43	27.43	18.29	18.29
SO BUILDWID 8	77.28	77.21	138.76	133.16	112.01	116.21
SO BUILDWID 8	137.68	97.89	171.14	52.43	52.93	52.89
SO BUILDWID 8	51.75	49.39	52.22	53.40	162.97	154.38
SO BUILDWID 8	77.28	77.21	138.76	133.16	77.12	87.50
SO BUILDWID 8	95.23	97.89	171.14	52.43	52.93	52.89
SO BUILDWID 8	159.22	71.59	52.22	53.40	162.97	154.38
SO BUILDHGT 9	21.95	21.95	21.95	21.95	21.95	21.95
SO BUILDHGT 9	21.95	21.95	27.43	27.43	27.43	27.43
SO BUILDHGT 9	27.43	27.43	27.43	18.29	18.29	21.95
SO BUILDHGT 9	21.95	21.95	21.95	21.95	21.95	21.95
SO BUILDHGT 9	21.95	21.95	27.43	27.43	27.43	21.95
SO BUILDHGT 9	21.95	18.29	27.43	18.29	18.29	21.95
SO BUILDWID 9	77.28	77.21	138.76	133.16	77.12	87.50
SO BUILDWID 9	95.23	100.06	50.38	52.43	52.93	52.89
SO BUILDWID 9	51.75	49.39	51.00	166.61	162.97	76.61
SO BUILDWID 9	77.28	77.21	138.76	133.16	77.12	87.50
SO BUILDWID 9	95.23	100.06	50.38	52.43	52.93	154.14
SO BUILDWID 9	159.22	71.59	51.00	166.61	162.97	76.61

3. Input/Output files for CFB, Limestone Dryers and SKC Package Boilers

```
      0 1  1.00   2       7    0    4    .000 2                M
 5   5   5   7   5  13   9
   49.07CFB1
-252.03   -303.47   -277.75   -225.46   -252.03
 -57.15      6.10     27.43    -35.05    -57.15
   40.23CFB2
-252.89   -303.47   -271.75   -219.46   -252.89
 -56.39      6.10     32.00    -30.48    -56.39
   24.99CFB3
-278.61   -330.04   -271.75   -219.46   -278.61
 -77.72    -15.24     32.00    -30.48    -77.72
   22.56CFB4
-278.61   -330.04   -252.89   -216.03   -234.89   -219.46   -278.61
 -77.72    -15.24     48.01      3.81    -12.19    -30.48    -77.72
   27.43RECBOILER
-120.87   -137.16   -100.30    -84.87   -120.87
  18.29     36.58     67.06     48.01     18.29
   18.29KRAFT
-102.01    -96.01    -89.15    -76.30    -90.87    -72.01    -56.58    -47.15
  -6.86     -1.52     -8.38      2.29     20.57     36.58     17.53     25.91
   21.95PULPMILL
  -1.71    -15.43      2.57    -29.15      8.57     46.29     17.15     24.86
  14.48     32.00     47.24     86.11    115.82     69.34     45.72     35.81
1      -327.47    -62.48    122.71    CFB
2      -277.75     76.96     19.21    LIDRY1
3      -269.18     79.25     19.21    LIDRY2        ISC CODES
4       -18.00    -64.77     61.00    PACKG
```

SO BUILDHGT 1	49.07	49.07	49.07	49.07	49.07	49.07
SO BUILDHGT 1	49.07	49.07	49.07	49.07	24.99	24.99
SO BUILDHGT 1	.00	.00	.00	24.99	24.99	49.07
SO BUILDHGT 1	49.07	49.07	49.07	49.07	49.07	49.07
SO BUILDHGT 1	49.07	49.07	49.07	49.07	24.99	24.99
SO BUILDHGT 1	.00	.00	.00	24.99	24.99	49.07
SO BUILDWID 1	86.00	88.09	88.20	87.50	84.26	87.53
SO BUILDWID 1	88.40	88.35	86.50	82.02	107.76	102.34
SO BUILDWID 1	.00	.00	.00	102.87	108.83	81.30
SO BUILDWID 1	86.00	88.09	88.20	87.50	84.26	87.53
SO BUILDWID 1	88.40	88.35	86.50	82.02	107.76	102.34
SO BUILDWID 1	.00	.00	.00	102.87	108.83	81.30
SO BUILDHGT 2	49.07	49.07	49.07	49.07	.00	.00
SO BUILDHGT 2	.00	.00	.00	.00	.00	22.56
SO BUILDHGT 2	22.56	40.23	49.07	49.07	49.07	49.07
SO BUILDHGT 2	49.07	49.07	49.07	49.07	.00	.00
SO BUILDHGT 2	.00	.00	.00	.00	.00	22.56
SO BUILDHGT 2	22.56	40.23	49.07	49.07	49.07	49.07
SO BUILDWID 2	86.00	88.09	88.20	87.50	.00	.00
SO BUILDWID 2	.00	.00	.00	.00	.00	120.06
SO BUILDWID 2	117.74	47.84	53.31	64.70	74.13	81.30
SO BUILDWID 2	86.00	88.09	88.20	87.50	.00	.00
SO BUILDWID 2	.00	.00	.00	.00	.00	120.06
SO BUILDWID 2	117.74	47.84	53.31	64.70	74.13	81.30
SO BUILDHGT 3	49.07	49.07	49.07	49.07	.00	.00
SO BUILDHGT 3	.00	.00	.00	.00	.00	.00
SO BUILDHGT 3	22.56	22.56	49.07	49.07	49.07	49.07
SO BUILDHGT 3	49.07	49.07	49.07	49.07	.00	.00
SO BUILDHGT 3	.00	.00	27.43	27.43	.00	27.43
SO BUILDHGT 3	22.56	22.56	49.07	49.07	49.07	49.07
SO BUILDWID 3	86.00	88.09	88.20	87.50	.00	.00
SO BUILDWID 3	.00	.00	.00	.00	.00	.00
SO BUILDWID 3	108.31	107.09	53.31	64.70	74.13	81.30
SO BUILDWID 3	86.00	88.09	88.20	87.50	.00	.00
SO BUILDWID 3	.00	.00	50.38	51.39	.00	52.81
SO BUILDWID 3	108.31	107.09	53.31	64.70	74.13	81.30
SO BUILDHGT 4	18.29	18.29	18.29	.00	.00	.00
SO BUILDHGT 4	.00	.00	49.07	49.07	49.07	40.23
SO BUILDHGT 4	27.43	27.43	27.43	27.43	21.95	21.95
SO BUILDHGT 4	21.95	21.95	21.95	.00	.00	.00
SO BUILDHGT 4	.00	.00	.00	18.29	18.29	21.95
SO BUILDHGT 4	21.95	.00	.00	18.29	18.29	18.29
SO BUILDWID 4	141.09	123.52	103.70	.00	.00	.00
SO BUILDWID 4	.00	.00	86.17	82.02	75.04	72.46
SO BUILDWID 4	51.75	49.39	52.22	52.27	73.69	76.61
SO BUILDWID 4	77.28	77.21	75.46	.00	.00	.00
SO BUILDWID 4	.00	.00	.00	180.28	183.95	154.14
SO BUILDWID 4	159.22	.00	.00	166.28	162.97	154.38

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