



KOGLER & ASSOCIATES

ENVIRONMENTAL SERVICES

4014 NW THIRTEENTH STREET  
GAINESVILLE, FLORIDA 32609  
904/377-5822 • FAX 377-7158

KA 307-90-01

May 31, 1991

Ms. Patty Adams  
Florida Department of  
Environmental Regulation  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

RECEIVED

JUN 9 - 1991

Bureau of  
Air Regulation

Subject: Florida Crushed Stone Company  
Brooksville, Florida

Dear Patty:

Enclosed are three additional copies of the construction application for Florida Crushed Stone Company's plant in Brooksville and six copies of Attachment 1 which was included in Dr. Koogler's letter to Mr. Fancy dated May 13, 1991.

In order to improve the clarity of the Attachment 1 data pages, it was necessary to retype certain sections. The retyped pages have been signed by either Tom Mountain or José Garcia and are included along with the originally submitted data.

If we can be of any further assistance, please do not hesitate to contact us.

Very truly yours,

KOGLER & ASSOCIATES

*Wendy Auerbach*  
Wendy Auerbach

Enc.



ENVIRONMENTAL SERVICES

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GAINESVILLE, FLORIDA 32609  
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KA 307-90-01

May 13, 1991

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

Subject: Florida Crushed Stone Company  
Tire Derived Fuel Test  
Response to EPA Comments

RECEIVED

MAY 20 1991

Division of Air  
Resources Management

Dear Mr. Fancy:

Under cover of your letter dated May 8, 1991, you forwarded a copy of a letter to you from Jewell Harper, EPA Region IV, commenting on the emission measurements conducted at the Florida Crushed Stone Company plant in Hernando County in September 1990. Two sets of emission measurements were conducted and reported to your office; one set with the plant operating under normal conditions and the second set with the plant utilizing tire derived fuel to supplement coal normally fired to the cement kiln. In the following paragraphs are responses to the EPA comments.

Documentation of Plant Operating Conditions

1. Logbooks or stripcharts of the actual feed rates to and production rates of the portland cement kiln, power plant and lime calciner. In the test report, feed and production rates for each process are only stated as an average over the test period and no actual process data is presented. The report also states that TDF was used to provide up to 15 percent of the total heat input to the cement kiln but did not provide any actual feed rates or analysis of the TDF to substantiate the claim.

In Attachment 1, documentation of plant operating rates, coal feed rates and tire derived fuel feed rates are presented.

2. Logbooks or strip charts which document the operation of the pollution control devices. The type of air pollution control device should also be specified. Based upon the stack temperature, we believe that the pollution control device is an ESP.

The air pollution control device that controls emissions from the power plant, lime plant, and cement plant at the Florida Crushed Stone CPL plant is a baghouse. In Attachment 1, the operating parameters of the baghouse are documented.

In addition to the data from the plant operating records documenting the operation of the baghouse, the total particulate matter emission measurements also provide documentation that the baghouse was operating under similar conditions during the two sets of tests. For example, during the baseline test, the particulate matter emission rate was 56.8 pounds per hour and the particulate matter concentration in the stack gas was 0.0104 grains per dry standard cubic foot. During the tire derived fuel test, the particulate matter mass emission rate and concentration were 52.2 pounds per hour and 0.0103 grains per dry standard cubic foot, respectively.

Comments on Test Methods and Test Data

1. The acetone blank corrections for the Method 5 test results were not performed and the true acetone blank corrections should be obtained. To properly correct the amount of particulate collected in a Method 5 sampling train, the exact volume of acetone used to rinse the front half of the sampling train must be determined as is the volume of the acetone blank. It appears that the analyst evaporated the acetone blanks and samples to dryness without determining their volume. If the volume of acetone for the blank and each sample cannot be determined, small errors in the results (less than  $\pm 5\%$ ) are probable.

The particulate matter samples collected during the baseline test on September 18 and 19, 1990, and the particulate matter samples from the tire derived fuel test conducted on September 20 and 21, 1990, were all processed in our laboratory on September 25, 1990. The acetone used to rinse the sampling train during all tests was from the same batch. As a result, only one acetone blank was run with the six particulate matter samples. The result of this blank analysis was reported only in the baseline test report; however, the same blank was used for both sets of samples. It will be noted on the particulate matter lab data sheets in both test reports that the same blank correction was made (see Attachment 2).

Regarding the volumes of the samples and the acetone blank, it is our practice to adjust the volumes of all samples and the acetone blank to the largest sample volume; whatever this volume may be. The adjustment is made with the acetone that was used for sample train cleanup in the field.

As all samples are adjusted to a constant volume, volume corrections are not necessary when making blank weight corrections on individual samples.

2. The test procedure and documentation of the CO<sub>2</sub> concentrations should be made. With the exception of the three particulate-metal test runs under baseline conditions, no note of the CO<sub>2</sub> measurements were made. Considering the nature of the process, CO<sub>2</sub> can be generated in portland cement plants and the assumption that CO<sub>2</sub> emissions equals 21 minus the O<sub>2</sub> concentration is erroneous. In addition, since combustion equipment was utilized, at a minimum an ORSAT analysis of the stack gas per test run should have been performed.

Carbon dioxide measurements were made using an ORSAT analyzer during each of the three particulate matter/metals test runs for both baseline and tire derived fuel conditions. The carbon dioxide levels measured during the test runs of each set of tests are reported in Table 1 of each report. For the baseline tests, the average carbon dioxide concentration in the stack gas was 9.3 percent and during the tire derived fuel test, the average carbon dioxide concentration was 9.9 percent. The results of the carbon dioxide measurements made during the tire derived fuel test were recorded in the project supervisor's field notebook rather than on the test data sheets.

3. The CO input data to the computer program which calculates the test run results indicate that CO was as high as 32,000 ppm (3.2%) during the second Modified Method 5 test run with TDF firing which conflicts with the highest reported CO test result during TDF firing of 310 ppm. Other CO input data indicate concentrations of 0 to 14000 ppm when firing TDF. These discrepancies need to be explained.

The carbon monoxide levels ranged from 160 to 430 ppm by volume during the baseline tests and from 60 and 310 ppm during the tire derived fuel tests as summarized in Table 1 of each of the two test reports. The carbon monoxide concentrations input to the computer programs for calculating emission rates were an error on the part of the data analyst.

The data entry error would introduce an error in the calculation of the stack gas density and a corresponding error in stack gas flow rates and emission rates. Using the particulate matter and multi-metals tests on tire derived fuel as an example, the average stack gas flow rate reported in our report for the three test runs was 0.15 percent high and the reported averaged emission rate for the three test runs was 0.27 percent high as a result of the error in CO concentrations. The reported particulate matter emission rate was 52.21 pounds per hour while the correct emission rate is 52.07 pounds per hour. It is unfortunate that these errors were introduced into the calculations, however, they make no significant difference in the reported results.

Attachment 3 includes copies of the calculations of stack gas flows and particulate matter emission rates for the tire derived fuel test program using both the corrected and the originally reported carbon monoxide and carbon dioxide levels.

4. We recommend that the dioxan/furan result for the first test run with TDF firing be rejected. The analyst of the sample indicated that the result was in question because of possible sample switching and did not even charge for the analysis of the sample.

In Table 5 of the tire derived fuel report, a note indicates that the dioxin/furan sample from the first test run was lost in the laboratory. The results of this test run were never included in our report.

5. We recommend that FCS be required to retest for benzene emissions during TDF firing because the laboratory could not accurately quantify the amount of benzene due to the high amount of benzene in two of three samples.

When samples for volatile organic compounds are collected in the field, it is difficult to predict the amount of stack gas that must be collected in order to assure that the organic constituents from the gas stream are present in quantifiable amounts; that is, in quantities above the detectable limit but below the upper limit for which the analytical equipment has been calibrated. During both the baseline and the tire derived fuel tests, the samples collected for volatile organic compounds contained benzene and toluene at levels that were near or above the limit

for which the analytical method had been calibrated. The linear range of instrumentation for both benzene and toluene was up to 1,000 ng of sample. Quantities of benzene in the two sets of samples ranged up to 2,000 ng (Run 2 with tire derived fuel) and quantities of toluene ranged up to 4,500 ng (Run 2 with tire derived fuel). The other samples contained toluene in quantities ranging from approximately 100 ng to less than 2,000 ng.

EPA commented that Florida Crushed Stone should be required to retest for benzene during the tire derived fuel firing because of the inaccuracy in the laboratory analysis for benzene. Research Triangle Laboratories was contacted regarding the accuracy of the reported benzene quantities when quantities ranged from the upper end of the linear range (1,000 ng) to 2,000 ng. Mr. Wayne Stollings of Research Triangle Laboratories stated that when their analyses indicated samples quantities above the linear range it was the laboratory's policy to report them as such. Mr. Stollings further stated that when the quantity of sample was between 1,000 and 2,000 ng, no sample drop-out was expected and the reported sample mass represented a good estimate of the quantity of sample actually present.



Mr. C. H. Fancy  
Florida Department  
of Environmental Regulation

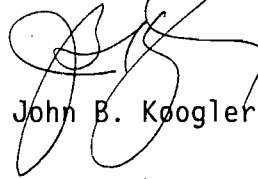
May 13, 1991  
Page 8

Thus, it is our opinion that the reported emission rates of benzene for both the baseline and tire derived fuel tests represent good estimates of emissions that occurred during those times. Regarding the EPA suggestion to conduct additional emission measurements for benzene while firing tire derived fuel, Florida Crushed Stone has no objection to conducting these tests once tire derived fuel firing is initiated.

If there are any questions or if further information is required to respond to matters addressed in the EPA letter, please do not hesitate to contact me.

Very truly yours,

KOGLER & ASSOCIATES



John B. Koogler, Ph.D., P.E.

JBK:wa  
Enc.



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JUN 3 - 1991

Bureau of  
Air Regulation

ATTACHMENT 1

SUMMARY OF PLANT AND BAGHOUSE  
OPERATING CONDITIONS

FLORIDA CRUSHED STONE COMPANY  
CEMENT/POWER/LIME PLANT  
BROOKSVILLE, FLORIDA

SEPTEMBER 18-24, 1990



SUMMARY OF PLANT AND BAGHOUSE OPERATING CONDITIONS

FLORIDA CRUSHED STONE COMPANY  
CEMENT/POWER/LIME PLANT  
BROOKSVILLE, FLORIDA

SEPTEMBER 18-24, 1990

Date	Cement Plant			Power Plant		Lime Plant	
	Kiln Feed (tph)	Clinker Prod (tph)	Coal Feed (tph)	Power output (MW/hr)	Boiler Coal Feed (tph)	Calciner Feed (tph)	Coal to Calciner (tph)
<u>Baseline</u>							
9/18/90	127.25	76.35	8.54	114.08	42.1	34.7	10.8
9/19/90	123.64	74.18	8.15	113.92	43.9	30.4	9.3
9/20/90	<u>123.06</u>	<u>73.84</u>	<u>8.23</u>	<u>92.54</u>	<u>42.2</u>	3.29	0 (3)
AVG	124.65	74.79	8.31	106.85	42.7		
<u>IDF</u>							
9/20/90	122.95	73.77	7.82	92.54	42.2	3.29	0 (3)
9/21/90	125.00(1)	75.00(1)	7.20(1)	109.38	46.6	17.41	6.78
9/24/90	<u>113.81</u>	<u>68.29</u>	<u>7.56</u>	<u>115.92</u>	<u>51.8</u>	1.29	0 (3)
AVG	120.59	72.35	7.69	105.95	46.9		

Date	Baghouse			
	Inlet Temp. (°F)	Fan Speed (%)	Fan Current (Amps)	Pressure Drop ("H <sub>2</sub> O)
<u>Baseline</u>				
9/18/90	328.5	34.88	479.33	6.5
9/19/90	327.1	34.73	474.09	6.6
9/20/90	<u>357.2</u>	<u>34.90</u>	<u>470.20</u>	<u>6.3</u>
AVG	337.6	34.83	474.54	6.5
<u>IDF</u>				
9/20/90	337.2	34.95	477.40	6.2
9/21/90	(2)	(2)	(2)	(2)
9/24/90	<u>350.4</u>	<u>33.38</u>	<u>448.90</u>	<u>6.3</u>
AVG	343.8	34.16	463.15	6.3

(1) Data obtained from operator's logbook rather than computer printouts.

(2) Baghouse data not available for this day.

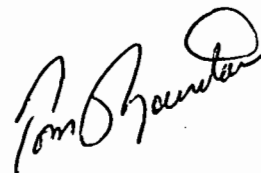
(3) Calciner beds reconditioned.

**CEMENT PLANT PRODUCTION DATA**

19 SEP 90 WEDNESDAY

DAILY OPERATIONS REPORT

H1P01	KILN		KILN
FEEED TOTAL	S1P01	COAL TOTAL	FUEL
	S1P01		
18SEP90	H1P01	S1P01	K1Q04
	TPH	TPH	SMP
8:00	127.50	8.2813	39.50
9:00	127.75	8.3750	43.00
10:00	127.75	8.5938	29.813
11:00	127.50	8.6875	35.750
12:00	126.00	8.6563	50.375
13:00	126.75	8.6250	33.50
14:00	127.50	8.5938	31.50
15:00	127.75	8.5625	30.00
16:00	127.75	8.4375	30.875
17:00	127.75	8.3438	25.813
18:00	127.75	8.4063	21.063
19:00	127.75	8.3125	26.500
20:00	127.75	8.3438	24.563
21:00	127.75	8.3750	21.750
22:00	126.50	8.3750	52.125
23:00	121.25	8.3750	*
19SEP90			
0:00	119.25	8.3125	*
1:00	114.50	8.3438	35.00
2:00	114.50	8.4063	32.625
3:00	114.75	8.4375	21.938
4:00	116.75	8.4375	29.625
5:00	119.75	8.4375	33.875
6:00	123.25	8.3125	21.938
7:00	121.25	8.2813	19.375



Original data on next page.

Kiln Feed / Coal Feed

\* Clunker Production = Kiln feed \* 0.6  
9/18/90

19SEP90 WEDNESDAY

DAILY OPERATIONS REPORT

TREND LOG 7

DAY END

<del>HIF01</del> KILN FEED TOTAL	<del>GIF01</del> COAL TOTAL	KIQ04 SMP	KIF07-S FLOW KILN FUEL OIL GPM
-------------------------------------	--------------------------------	--------------	---

18SEP90	08:00	127.50	8.2813	39.500	*
	09:00	127.75	8.3750	43.000	*
	10:00	127.75	8.5938	29.813	*
	11:00	127.50	8.6075	35.750	*
	12:00	126.00	8.6563	50.375	*
	13:00	126.75	8.6250	33.500	*
	14:00	127.50	8.5938	31.500	*
	15:00	127.75	8.5500	30.000	*
	16:00	127.75	8.4075	30.875	*
	17:00	127.75	8.3438	25.813	*
	18:00	127.75	8.4063	21.063	*
	19:00	127.75	8.3125	26.000	*
	20:00	127.75	8.3750	24.563	*
	21:00	127.75	8.3750	21.750	*
	22:00	126.50	8.3750	52.125	*
	23:00	121.25	8.3750	*	*
19SEP90	00:00	119.75	8.3125	*	*
	01:00	114.50	8.3938	35.000	*
	02:00	114.50	8.4063	32.625	*
	03:00	114.75	8.4375	21.938	*
	04:00	116.75	8.4375	29.625	*
	05:00	119.75	8.4275	33.875	*
	06:00	123.25	8.3750	21.938	*
	07:00	121.25	8.2813	19.375	*

Average Kiln feed = 127.25 tph  
 average clunker production = 127.25 \* 0.6 = 76.35 tph  
 average coal feed = 8.54 tph

20SEP90

THURSDAY

DAILY OPERATIONS REPORT

	H1P01 FEED TOTAL S1P01	KILN COAL TOTAL	K1Q04 KILN FUEL
	H1P01 TPH	S1P01 TPH	K1Q04 SMP %
19SEP90			
8:00	120.75	8.1875	27.938
9:00	120.75	8.0938	23.938
10:00	121.25	8.1875	40.00
11:00	121.50	8.1563	15.344
12:00	122.25	8.4063	34.625
13:00	123.50	8.3438	47.125
14:00	124.25	8.3125	34.00
15:00	125.50	7.8750	30.75
16:00	125.75	7.8750	23.375
17:00	125.75	8.0625	27.250
18:00	125.75	8.1875	28.250
19:00	125.50	8.2813	29.313
20:00	125.75	8.3125	17.625
21:00	125.75	8.3125	29.000
22:00	125.75	8.3438	37.250
23:00	126.50	8.3438	19.688
20SEP90			
0:00	127.75	8.2813	26.688
1:00	127.75	8.1875	36.125
2:00	126.75	8.0938	26.938
3:00	124.75	7.9688	36.125
4:00	120.75	7.9844	56.00
5:00	119.75	8.2813	27.063
6:00	119.75	8.2813	38.750
7:00	122.00	8.2813	41.500

*Tom Bauman*

Original data on next page.

Kiln feed / Coal feed

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\* Clinker Production = Kiln feed \* 0.6

9/19/90

20SEP90 THURSDAY

DAILY OPERATIONS REPORT

TREND LOG

DAY END

	H1P01 FEED	KILN TOTAL	K1Q04		
	S1F01	COAL TOTAL	K1F07-S KILN FUEL OIL	FLOW	
	H1P01	S1F01	K1Q04	K1F07-S	
	TPH	TPH	% SMP	SMP	
19SEP90 108:00	120.75	8.1875	27.935	*	
109:00	120.75	8.0938	23.938	*	
110:00	121.25	8.1875	40.000	*	
111:00	121.50	8.1563	16.314	*	
112:00	122.25	8.4063	34.625	*	
113:00	123.50	8.3438	47.125	*	
114:00	124.25	8.3125	34.000	*	
115:00	125.50	7.8750	30.750	*	
116:00	125.75	7.8750	23.375	*	
117:00	125.75	8.0625	27.250	*	
118:00	125.75	8.1875	28.250	*	
119:00	125.50	8.2813	27.313	*	
120:00	125.75	8.3125	17.625	*	
121:00	125.75	8.3125	29.000	*	
122:00	125.75	8.3438	37.250	*	
123:00	126.50	8.3438	19.638	*	
20SEP90 00:00	127.25	8.2813	26.563	*	
01:00	127.75	8.1875	36.125	*	
02:00	126.75	8.0938	26.938	*	
03:00	124.75	7.7588	36.125	*	
04:00	120.75	7.9244	56.000	*	
05:00	119.75	8.2813	27.063	*	
06:00	119.75	8.2813	38.750	*	
07:00	122.00	8.2813	41.500	*	

average kiln feed = 123.64 tph  
 average clinker production = 74.18 tph  
 average coal feed = 8.15 tph



21SEP90

FRIDAY

DAILY OPERATIONS REPORT

	H1P01	KILN FEED TOTAL	K1Q04
	S1P01	COAL TOTAL	KILN FUEL OIL
	H1P01	S1P01	K1Q04 SMP
	TPH	TPH	%
20SEP90			
8:00	123.25	8.25	35.375
9:00	123.75	8.0938	35.625
10:00	123.75	8.0625	42.625
11:00	123.75	8.0625	42.375
12:00	123.75	8.2813	55.750
13:00	122.50	8.1063	35.00
14:00	121.75	8.4063	33.625
15:00	122.50	8.000	48.250
16:00	123.25	7.8594	26.436
17:00	124.50	7.4633	23.750
18:00	122.50	7.3750	23.000
19:00	119.75	7.7032	40.625
20:00	118.00	8.000	13.625
21:00	115.25	8.1563	7.1563
22:00	114.75	8.2188	29.813
23:00	115.25	8.3438	34.125
21SEP90			
0:00	116.75	8.3438	21.688
1:00	117.50	8.250	28.688
2:00	117.75	8.2188	24.00
3:00	117.75	8.2188	25.75
4:00	115.75	8.2500	50.250
5:00	114.75	8.3438	27.938
6:00	114.00	8.0313	4.8594
7:00	109.75	8.0313	15.594

*Tom Hunter*

Original data on next page.

Kiln feed / coal feed

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Clunker Production = Kiln feed  
x 0.6

9/20/90

21SEP90 FRIORY

DAILY OPERATIONS REPORT

TREND LOG 7

HIP01 KILN K1004  
FEED TOTAL

SIF01 COAL KIF07-S FLSW  
TOTAL NICK FUEL OIL

HIP01 SIF01 K1004 KIF07-S  
IPH GPR

	HIP01	SIF01	K1004	KIF07-S	
20SEP90 08:00	123.25	8.2500	35.375	*	
09:00	123.75	8.0938	35.625	*	
10:00	123.75	8.0625	35.625	*	
11:00	123.75	8.0525	35.375	*	
12:00	123.75	8.2813	35.750	*	
13:00	122.50	8.2063	35.000	*	
14:00	121.75	8.2063	35.625	*	
15:00	122.50	8.0000	35.250	*	
16:00	123.25	7.8571	26.438	*	
17:00	124.50	7.8371	23.750	*	
18:00	122.50	7.2750	23.000	*	
19:00	119.75	7.1032	10.625	*	
20:00	118.00	8.0000	13.625	*	
21:00	115.25	8.1843	7.1875	*	
22:00	114.75	8.2396	29.813	*	
23:00	115.25	8.2438	34.125	*	
21SEP90 00:00	116.75	8.3438	21.688	*	
01:00	117.50	8.2500	29.688	*	
02:00	117.75	8.2188	24.000	*	
03:00	117.75	8.2188	25.750	*	
04:00	115.75	8.7500	50.250	*	
05:00	114.75	8.3438	27.938	*	
06:00	114.00	8.0313	4.8594	*	
07:00	109.75	8.0313	10.594	*	

average Kiln feed = 123.06 tph  
average Clunker production = 73.84 tph  
average coal feed = 8.23 tph

average Kiln feed = 122.95 tph  
average Clunker production = 73.77 tph  
average coal feed = 7.92 tph

Baseline average Kiln feed = 124.65 tph  
Baseline average Clunker Production = 74.79 tph  
Baseline average coal feed = 8.31 tph

Time	KILN FEED WITHDRAWAL						Kiln Feed Bin Level			Kiln Feed Control Valve			KIT02	KIP02	Meal Temp	Kiln Inlet Temp	Kiln Inlet Press.	O <sub>2</sub>	CO	NOx	Fan Temp	Feedrate	Mill Amps	Fan Amps	Fan Dischar. Press.	Preclal %	Preclal Press.	COOLER			Discharge Temp	Hood Draft				
	C3S Silo 1	IA	IB	C3S Silo 2	2A	2B	PV	SP	OUT	PV	SP	OUT																PREHEATER						COAL		
7:00	05	-	-	53	-	37	37	28	110	110	34	13.5	1300	1320	1670	58	6.3	149	16.8	7.5	224	241	14.5						16.5	18	52	447	-17	-15	65	
8:00	05	-	-	44	-	37	37	21	110	110	32	12.8	1292	1630	93	4.58	35	16.8	7.5	223	242	15.0						17.8	15	66	353	-16	-15	52		
9:00	05	-	-	50	-	37	37	23	114	114	36	13.5	1306	1685	106	5.50	147	16.8	7.5	226	237	14.7						15.7	18	55	352	-10	-15	56		
10:00	05	-	-	55	-	37	37	38	115	115	36	13.6	1304	1685	113	6.4	170	16.8	7.7	226	240	14.7						16.8	18	53	392	-13	-15	56		
11:00	05	-	-	54	-	37	37	29	115	115	34	14.6	1308	1704	124	5.5	159	16.7	7.6	223	247	15.2						17.3	18	60	350	-19	-15	52		
12:00	05	-	-	50	-	37	37	26	115	115	34	14.7	1347	1966	171	5.5	202	16.7	7.7	221	242	15.1						16.5	18	50	500	-14	-15	86		
13:00	05	-	-	51	-	37	37	26	115	115	34	15.9	1351	1961	165	5.1	170	16.7	6.8	218	242	15.0						18.5	18	50	373	-18	-15	68		
14:00	05	-	-	47	-	37	37	22	118	118	36	17.0	1300	1896	152	5.1	184	16.8	6.8	221	244	15.1						17.5	18	54	373	-17	-15	66		
15:00																																				
16:00	05	-	-	45	-	37	37	28.4	100	100	28.6	16.4	125	1320	1864	142	5.1	157	200	16.6	7.6	225	245	15.0					17.6	19	56	480	-14	-15	84	
17:00	05	-	-	50	-	37	37	24.6	100	100	28.6	16.5	764	1275	1786	142	4.9	105	237	16.8	7.4	222	244	15.0					17.3	17.5	59	489	-13	-15	87	
18:00	05	-	-	44	-	37	37	20.0	100	100	29.5	17.6	760	1295	1907	152	4.1	250	166	16.8	7.4	220	244	14.8					16.8	17.7	54	476	-20	-15	80	
19:00	05	-	-	50	-	37	37	22.0	95	95	29.0	18.9	736	1232	1669	138	5.2	260	203	16.8	6.8	221	239	14.9					18.4	17.5	65	441	-10	-15	77	
20:00																																				
21:00	Kiln feed flow control valve settings of 29% low and a high of 36% is an average of about 120 tons per hour.																		Reading on coal feed rate, tons per hour.																	
22:00																																				
23:00																			Coal feed rate = 7.20 tph																	
24:00																			Kiln feed rate = 125 tph																	
1:00																			Clinker production = 75 tph																	
2:00																																				
3:00																																				
4:00																																				
5:00																																				
6:00																																				

24SEP90

MONDAY

DAILY OPERATIONS REPORT

	H1P01	KILN FEED TOTAL	KIQ04
	S1P01	COAL TOTAL	KILN FUEL OIL
	H1P01 TPH	S1P01 TPH	K1Q04 SMP %
23SEP90			
8:00	5.2969	-.0461	17.563
9:00	5.4219	-.0462	4.8433
10:00	5.3750	-.0463	3.000
11:00	5.2032	-.0461	4.6563
12:00	5.2813	-.0461	3.4141
13:00	5.3232	-.0461	2.0860
14:00	5.4219	-.0469	1.6329
15:00	5.4844	-.0468	1.5000
16:00	5.5313	-.0474	1.4375
17:00	22.000	0.4952	2.7266
18:00	85.000	4.5000	3.8047
19:00	95.250	4.3125	23.313
20:00	88.000	5.3907	7.5313
21:00	116.25	8.2500	14.188
22:00	122.50	8.5625	27.938
23:00	127.25	8.5625	21.875
24SEP90			
0:00	131.00	8.5313	25.250
1:00	131.50	8.3125	44.625
2:00	131.00	8.500	*
3:00	124.75	8.7813	*
4:00	125.75	8.8125	25.750
5:00	131.50	8.5000	26.125
6:00	131.50	8.2813	25.813
7:00	132.00	8.1563	26.625

*Tom Hunter*

Original data on next page.

9/24/90

Kiln feed / Coal feed

Clinker Production = Kiln feed \* 0.6

23SEP90 08:00:00

DAILY OPERATIONAL REPORT

TREND LOG

H1P01 KILN K1004  
FEED TOTAL

K1004'S FLUX  
KILN FEED DIL

H1P01 SIF01 K1004 K1004

24SEP90 08:00

1 09:00

2 10:00

3 11:00

4 12:00

5 13:00

6 14:00

7 15:00

8 16:00

9 17:00

10 18:00

11 19:00

12 20:00

13 21:00

14 22:00

15 23:00

16 00:00

17 01:00

18 02:00

19 03:00

20 04:00

21 05:00

22 06:00

23 07:00

24 08:00

25 09:00

26 10:00

27 11:00

28 12:00

29 13:00

30 14:00

31 15:00

32 16:00

33 17:00

34 18:00

35 19:00

36 20:00

37 21:00

38 22:00

39 23:00

Time	H1P01	SIF01	K1004	K1004
08:00			36.500	
09:00			36.500	
10:00	119.75	8.5000	31.543	
11:00	120.25	8.7373	23.935	
12:00	121.75	8.2188	27.725	
13:00				
14:00			24.063	
15:00	137.50	6.1688	22.250	
16:00	128.00	7.7657	19.750	
17:00	109.00	6.7169	19.313	
18:00			29.250	
19:00			22.188	
20:00	4.6558	-0.0489	1.000	
21:00	4.2344	-0.0489	3.500	
22:00	3.8130	-0.0489	2.000	
23:00			28.250	
00:00			28.000	
01:00	2.7354	-0.0489	52.200	
02:00	2.7354	-0.0489	30.573	
03:00	3.3137	-0.0487	57.273	
04:00			59.750	
05:00				
06:00	4.7082	-0.0481		

Average Kiln feed = 113.81 t/h  
Average Clinker Production = 68.29 t/h  
Average Coal feed = 7.56 t/h

TDF Average Kiln feed = 120.59 t/h

TDF Average Clinker Production = 72.35 t/h

TDF Average Coal feed rate = 7.69 t/h

POWER PLANT PRODUCTION DATA  
AND  
LIME PLANT PRODUCTION DATA

BEST AVAILABLE COPY

Sep 17, 1990

PRINTED  
23:58:00  
18-SEP-90

REPORT FOR  
17-SEP-90  
MONDAY

CENTRAL POWER AND LINE INC.  
POWER PLANT  
DAILY REPORT

PAGE 05

PLANT INTEGRATORS

NET GENERATION

STM FLOW TO HP TURBINE	129516.0KLB	SERV WATER MAKE-UP FLOW	9484KLB	0000	114MW
FW FLOW TO SH ATTEMP 1A	50831.0KLB	TOTAL COAL TO CALCINER	2782.4KLB	0100	114MW
FW FLOW TO SH ATTEMP 1B	5910.6KLB	TOTAL AIR TO CALCINER	33298.0KLB	0200	114MW
FW FLOW TO RH ATTEMP 1A	10297.0KLB	TOTAL SEC AIR TO CMP1 1A	7027KLB	0300	114MW
FW FLOW TO RH ATTEMP 1B	5712.1KLB	TOTAL SEC AIR TO CMP1 1B	43480KLB	0400	114MW
FW FLOW TO EAST ECON	26340KLB	TOTAL SEC AIR TO CMP1 1C	6034KLB	0500	114MW
FW FLOW TO WEST ECON	961424KLB	TOTAL SEC AIR TO CMP1 1D	62916KLB	0600	113MW
BFP A SUCTION FLOW	101KLB	S-U BURNER AIR FLOW	8307KCF	0700	116MW
BFP B SUCTION FLOW	4539KLB	TOTAL COAL // STEAM PROD	0KLB	0800	115MW
BFP C SUCTION FLOW	4137KLB	LIMESTONE FEED TO CALCINER	38745TONS	0900	113MW
PULV 1A COAL FLOW	25392KLB	F B DRYER TOTALIZER	40908TONS	1000	115MW
PULV 1B COAL FLOW	29069KLB	DIO HOUR-RPTER	1248HRS	1100	114MW
PULV 1C COAL FLOW	22299KLB	OIL FLOW TO BOILER	179865AL	1200	115MW
PULV 1D COAL FLOW	30108KLB	OIL FLOW FROM BOILER	143706AL	1300	114MW
TOTAL COAL TO BOILER	106868KLB	NET OIL FLOW	3611.06AL	1400	115MW
TOTAL AIR TO BOILER	401KLB	TOTAL GENERATION	114.2MWHR	1500	116MW
STEAM FLOW TO FGRE	970KLB	NET GENERATION	116MWHR	1600	115MW
TOTAL COAL // STEAM PROD	0KLB	SUMMARY LOAD	19.8MWHR	1700	116MW
MAKE-UP FLOW TO COND	101092KLB	XPMR 4 (REPURCHASE)	18.01MWHR	1800	116MW
DUMP FLOW TO STORAGE TANK	104932KLB	XPMR 5 (POWER PLANT)	0.08MWHR	1900	117MW
COND FLOW TO DEAERATOR	649512KLB	CEMENT PLANT	17.72MWHR	2000	115MW
TOTAL DEMIN WATER PRO	KLB			2100	115MW
				2200	114MW
				2300	112MW
				TOTAL	2747MW

FEED RATE FOR COAL

MW FOR POWER PLANT

114.46 MW

Total coal to boiler = 106,868 KLB

Total coal to calciner = 2,782.4 KLB

Limestone feed to calciner = 38,748 Tons

Total MW for power plant = 2,747 MW

Sept 18, 1990

PRINTED  
23:58:04  
19-SEP-90

REPORT FOR  
18-SEP-90  
TUESDAY

CENTRAL POWER AND LIGHT INC.  
POWER PLANT  
DAILY REPORT

PAGE 65

PLANT INTEGRATORS

NET GENERATION

STM FLOW TO HP TURBINE	130336.0KLB	SERV WATER MAKE-UP FLOW	9454KLB	0000	115MW
FW FLOW TO SH ATTEMP 1A	41650.0KLB	TOTAL COAL TO CALCINER	3299.1KLB	0100	114MW
FW FLOW TO SH ATTEMP 1B	6147.0KLB	TOTAL ATR TO CALCINER	37022.0KLB	0200	114MW
FW FLOW TO RH ATTEMP 1A	15688.8KLB	TOTAL SEC AIR TO CMPT 1A	8438KLB	0300	113MW
FW FLOW TO RH ATTEMP 1B	6841.1KLB	TOTAL SEC AIR TO CMPT 1B	44684KLB	0400	114MW
FW FLOW TO EAST ECON	37089KLB	TOTAL SEC AIR TO CMPT 1C	6967KLB	0500	113MW
FW FLOW TO WEST ECON	971136KLB	TOTAL SEC AIR TO CMPT 1D	63810KLB	0600	114MW
BFP A SUCTION FLOW	2092KLB	S-U BURNER ATR FLOW	2329KCF	0700	114MW
BFP B SUCTION FLOW	6779KLB	TOTAL COAL // STEAM PROD	0KLB	0800	115MW
BFP C SUCTION FLOW	4701KLB	LIMESTONE FEED TO CALCINER	39578 TONS	0900	116MW
PULV 1A COAL FLOW	26898KLB	E-B DRYER TOTALIZER	41714 TONS	1000	114MW
PULV 1B COAL FLOW	29692KLB	D10 HOUR METER	1269 HRS	1100	114MW
PULV 1C COAL FLOW	22763KLB	OIL FLOW TO BOILER	17986 GAL	1200	114MW
PULV 1D COAL FLOW	32628KLB	OIL FLOW FROM BOILER	14376 GAL	1300	115MW
TOTAL AIR TO BOILER	7187KLB	NET OIL FLOW	3611.0 GAL	1400	114MW
STEAM FLOW TO FGRE	187KLB	TOTAL GENERATION	117.6 MWHR	1500	115MW
TOTAL COAL // STEAM PROD	108890KLB	NET GENERATION	114 MWHR	1600	115MW
MAKE-UP FLOW TO COND	101898KLB	AUXILIARY LOAD	19.8 MWHR	1700	114MW
DUMP FLOW TO STORAGE TANK	166004KLB	XFRM A (REPURCHASE)	18.2 MWHR	1800	114MW
COND FLOW TO DEAERATOR	668920KLB	XFRM B (POWER PLANT)	20.08 MWHR	1900	114MW
TOTAL DEMIN WATER PRO	KLB	CEMENT PLANT	18.06 MWHR	2000	114MW
				2100	114MW
				2200	114MW
				2300	111MW

FEED RATE FOR COAL

MW FOR POWER PLANT

114.08 MW

Total coal to boiler = 108,890 KLB

Total coal to calciner = 3,299.1 KLB

Limestone feed to calciner = 39,578 Tons

Total MW for power plant = 2,738 MW



Sept 19, 1990

PRINTED  
23:58:05  
20-SEP-90

REPORT FOR  
19 SEP 90  
WEDNESDAY

CENTRAL POWER AND LIGHT INC.  
POWER PLANT  
DAILY REPORT

PAGE 65

PLANT INTEGRATORS

NET GENERATION

STM FLOW TO HP TURBINE	171080.0KLB	SERV WATER MAKE-UP FLOW	9454KLB	0000	114MW
FW FLOW TO SH ATTEMP 1A	62323.0KLB	TOTAL COAL TO CALCINER	3746.1KLB	0100	115MW
FW FLOW TO SH ATTEMP 1B	6400.9KLB	TOTAL ATR TO CALCINER	44339.0KLB	0200	113MW
FW FLOW TO RH ATTEMP 1A	16094.3KLB	TOTAL SEC AIR TO CMPT 1A	9643KLB	0300	115MW
FW FLOW TO RH ATTEMP 1B	5986.1KLB	TOTAL SEC AIR TO CMPT 1B	46006KLB	0400	114MW
FW FLOW TO EAST ECON	547790KLB	TOTAL SEC AIR TO CMPT 1C	7763KLB	0500	114MW
FW FLOW TO WEST ECON	980782KLB	TOTAL SEC AIR TO CMPT 1D	54750KLB	0600	113MW
BFP A SUCTION FLOW	4082KLB	S-H BURNER AIR FLOW	6278KCF	0700	114MW
BFP B SUCTION FLOW	9019KLB	TOTAL COAL // STEAM PROD	0KLB	0800	114MW
BFP C SUCTION FLOW	6263KLB	LIMESTONE FEED TO CALCINER	40308TONS	0900	114MW
PULV 1A COAL FLOW	26410KLB	F B DRYER TOTALIZER	42290TONS	1000	114MW
PULV 1B COAL FLOW	30143KLB	D/O HOUR-METER	1280HRS	1100	115MW
PULV 1C COAL FLOW	23254KLB	OIL FLOW TO BOILER	1736GAL	1200	114MW
PULV 1D COAL FLOW	3113KLB	OIL FLOW FROM BOILER	14370GAL	1300	115MW
TOTAL COAL TO BOILER	110998KLB	NET OIL FLOW	36170GAL	1400	114MW
TOTAL ATR TO BOILER	8017KLB	TOTAL GENERATION	116.7MWHR	1500	114MW
STEAM FLOW TO FARE	689KLB	NET GENERATION	114MWHR	1600	114MW
TOTAL COAL //STEAM PROD	111098KLB	AUXILIARY LOAD	115.8MWHR	1700	114MW
MAKE-UP FLOW TO COND	102706KLB	XFR 4 (REPURCHASE)	18.03MWHR	1800	228MW
DUMP FLOW TO STORAGE TANK	167076KLB	XFR 6 (POWER PLANT)	0.08MWHR	1900	2MW
COND FLOW TO DEAERATOR	683264KLB	CEMENT PLANT	17.60MWHR	2000	113MW
TOTAL DEMIN WATER PRO	KLB			2100	113MW
				2200	114MW
				2300	110MW

FEED RATE FOR COAL

MW FOR POWER PLANT ~~113.92 MW~~ 113.92 MW

Total coal to boiler = 110,998 KLB

Total coal to calciner = 3,746.1 KLB

Limestone feed to calciner = 40,308 Tons

Total MW for power plant = 2,734 MW

*[Handwritten signature]*

Sept 20, 1990

PRINTED 23:58:04 21-SEP-90  
 REPORT FOR CENTRAL POWER AND BTH INC. PAGE 65  
 POWER PLANT  
 DAILY REPORT

PLANT INTEGRATORS

NET GENERATION

STM FLOW TO HP TURBINE	199320.0KLB	SERV WATER MAKE-UP FLOW	1255.4KLB	0000	113MW
FW FLOW TO SH ATTEMP 1A	52580.0KLB	TOTAL COAL TO CALCINER	3746.1KLB	0100	115MW
FW FLOW TO SH ATTEMP 1B	16481.4KLB	TOTAL ATR TO CALCINER	4178.0KLB	0200	114MW
FW FLOW TO RH ATTEMP 1A	16136.3KLB	TOTAL SEC ATR TO CMPT 1A	9691KLB	0300	114MW
FW FLOW TO RH ATTEMP 1B	5994.6KLB	TOTAL SEC ATR TO CMPT 1B	46059KLB	0400	115MW
FW FLOW TO EAST ECON	56848KLB	TOTAL SEC AIR TO CMPT 1C	7947KLB	0500	114MW
FW FLOW TO WEST ECON	78892KLB	TOTAL SEC AIR TO CMPT 1D	64898KLB	0600	112MW
BFP A SUCTION FLOW	4620KLB	S-U BURNER AIR FLOW	6150KCF	0700	111MW
BFP B SUCTION FLOW	7474KLB	TOTAL COAL TO STEAM PROD	113000KLB	0800	106MW
BFP C SUCTION FLOW	5837KLB	LIMESTONE FEED TO CALCINER	40387TONS	0900	87MW
PULV 1A COAL FLOW	26698KLB	F B DRYER TOTALIZER	42513TONS	1000	61MW
PULV 1B COAL FLOW	30730KLB	DIG HOUR-METER	1290HRS	1100	51MW
PULV 1C COAL FLOW	23769KLB	OIL FLOW TO BOILER	18818GAL	1200	69MW
PULV 1D COAL FLOW	31821KLB	OIL FLOW FROM BOILER	14076GAL	1300	69MW
TOTAL COAL TO BOILER	113022KLB	NET OIL FLOW	37607GAL	1400	76MW
TOTAL WATER TO BOILER	1208KLB	TOTAL GENERATION	112.22MWHR	1500	80MW
STEAM FLOW TO FGRE	1064KLB	NET GENERATION	109MWHR	1600	80MW
TOTAL COAL TO STEAM PROD	113022KLB	AUXILIARY LOAD	1.9MWHR	1700	80MW
MAKE-UP FLOW TO COND	103416KLB	XFMR 1 (REPURCHASE)	0.82MWHR	1800	76MW
DUMP FLOW TO STORAGE TANK	108148KLB	XFMR 2 (POWER PLANT)	0.08MWHR	1900	77MW
COND FLOW TO DEAERATOR	697324KLB	CEMENT PLANT	9.40MWHR	2000	83MW
TOTAL DEMIN WATER PRO	KLB			2100	103MW
				2200	108MW
				2300	105MW

FEED RATE FOR COAL

MW FOR POWER PLANT

92.54 MW

Total coal to boiler = 113,022 KLB

Total coal to calciner = 3,746.1 KLB

Limestone feed to calciner = 40,387 Tons

Total MW for power plant = 2,221 MW

Sept 21, 1990

PRINTED 23:58:04 REPORT FOR 21-SEP-90 CENTRAL POWER AND LIGHT, INC. PAGE 88  
 22-SEP-90 WEEKDAY POWER PLANT DAILY REPORT

PLANT INTEGRATORS

NET GENERATION

STM FLOW TO HP TURBINE	20216.0KLB	SERV WATER MAKE UP FLOW	232454KLB	0000	109MW
FW FLOW TO SH ATTEMP 1A	83280.0KLB	TOTAL COAL TO CALCINER	4070.7KLB	0100	109MW
FW FLOW TO SH ATTEMP 1B	8689.0KLB	TOTAL AIR TO CALCINER	48480.0KLB	0200	108MW
FW FLOW TO RH ATTEMP 1A	18407.0KLB	TOTAL SEC AIR TO CMPT 1A	10193KLB	0300	106MW
FW FLOW TO RH ATTEMP 1B	8130.8KLB	TOTAL SEC AIR TO CMPT 1B	46887KLB	0400	105MW
FW FLOW TO EAST ECON	67118KLB	TOTAL SEC AIR TO CMPT 1C	8726KLB	0500	109MW
FW FLOW TO WEST ECON	778289KLB	TOTAL SEC AIR TO CMPT 1D	58829KLB	0600	87MW
BFP A SUCTION FLOW	7960KLB	S-U BURNER AIR FLOW	2601RCH	0700	70MW
BFP B SUCTION FLOW	71816KLB	TOTAL COAL // STEAM PROD	0KLB	0800	94MW
BFP C SUCTION FLOW	4603KLB	LIMESTONE FEED TO CALCINER	40805 TONS	0900	116MW
PULV 1A COAL FLOW	27272KLB	F B DRYER TOTALIZER	42518 TONS	1000	118MW
PULV 1B COAL FLOW	31319KLB	D/O HOUR METER	1290HRS	1100	115MW
PULV 1C COAL FLOW	24217KLB	OIL FLOW TO BOILER	27018 GAL	1200	116MW
PULV 1D COAL FLOW	32426KLB	D/O FLOW FROM BOILER	213036 GAL	1300	117MW
TOTAL COAL TO BOILER	115260KLB	NET OIL FLOW	6718.5 GAL	1400	115MW
TOTAL AIR TO BOILER	8883KLB	TOTAL GENERATION	118.8 MWHR	1500	117MW
STEAM FLOW TO HGRE	1484KLB	NET GENERATION	1.7 MWHR	1600	116MW
TOTAL COAL // STEAM PROD	0KLB	AUXILIARY LOAD	14.0 MWHR	1700	114MW
MAKE-UP FLOW TO COND	104248KLB	XFMTR 2 (REPURCHASE)	11.97 MWHR	1800	114MW
DUMP FLOW TO STORAGE TANK	169216KLB	XFMTR 1 (POWER PLANT)	0.08 MWHR	1900	114MW
COND FLOW TO DEAERATOR	714876KLB	CEMENT PLANT	12.13 MWHR	2000	115MW
TOTAL DEMIN WATER PRO	0KLB			2100	117MW
				2200	117MW
				2300	111MW

FEED RATE FOR COAL

MW FOR POWER PLANT

109.38 MW

Total coal to boiler = 115,260 KLB

Total coal to calciner = 4,070.7 KLB

Limestone feed to calciner = 40,805 Tons

Total MW for power plant = 2625 MW

BEST AVAILABLE COPY

Sept 23, 1990

PRINTED  
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24-SEP-90

REPORT FOR CENTRAL POWER AND TIME INC.  
23-SEP-90  
SUNDAY  
POWER PLANT  
DAILY REPORT

PAGE 65

PLANT INTEGRATORS

NET GENERATION

SIM FLOW TO HP TURBINE	250376.0KLB	VERY WATER MAKEUP FLOW	9484KLB	0000	115MW
FW FLOW TO SH ATTEMP 1A	54489.0KLB	TOTAL COAL TO CALCINER	4603.1KLB	0100	114MW
FW FLOW TO SH ATTEMP 1B	6906.5KLB	TOTAL WATER TO CALCINER	54819.0KLB	0200	115MW
FW FLOW TO RH ATTEMP 1A	16899.0KLB	TOTAL SEC AIR TO CMPT 1A	11278KLB	0300	114MW
FW FLOW TO RH ATTEMP 1B	6257.4KLB	TOTAL SEC AIR TO CMPT 1B	47634KLB	0400	114MW
FW FLOW TO EAST ECON	89080KLB	TOTAL SEC AIR TO CMPT 1C	10366KLB	0500	115MW
FW FLOW TO WEST ECON	18195KLB	TOTAL SEC AIR TO CMPT 1D	37379KLB	0600	113MW
BFP A SUCTION FLOW	2612KLB	S-U BURNER AIR FLOW	8791KCF	0700	112MW
BFP B SUCTION FLOW	26889KLB	TOTAL COAL // STEAM PROD	0KLB	0800	113MW
BFP C SUCTION FLOW	6318KLB	LIMESTONE FEED TO CALCINER	41641TONS	0900	115MW
PULV 1A COAL FLOW	28647KLB	F/B DRYER TOTALIZER	1360TONS	1000	118MW
PULV 1B COAL FLOW	32511KLB	DIG HOUR METER	1317HRS	1100	119MW
PULV 1C COAL FLOW	25304KLB	DTL FLOW TO BOTLER	27016GAL	1200	120MW
PULV 1D COAL FLOW	28455KLB	DTL FLOW FROM BOTLER	21303GAL	1300	117MW
TOTAL COAL TO BOILER	200366KLB	NET DTL FLOW	57123GAL	1400	116MW
TOTAL AIR TO BOTLER	4064KLB	TOTAL GENERATION	120.7MWHR	1500	117MW
STEAM FLOW TO FGRE	2437KLB	NET GENERATION	117MWHR	1600	117MW
TOTAL COAL //STEAM PROD	0KLB	AUXILIARY LOAD	14.0MWHR	1700	117MW
MAKE-UP FLOW TO COND	105876KLB	XFMR 42 (REPURCHASE)	6.218MWHR	1800	118MW
DUMP FLOW TO STORAGE TANK	161360KLB	XFMR 0 (POWER PLANT)	0.08MWHR	1900	116MW
COND FLOW TO DEAERATOR	749336KLB	CEMENT PLANT	9.29MWHR	2000	114MW
TOTAL DEMIN WATER PRO	KLB			2100	115MW
				2200	118MW
				2300	113MW

FEEDRATE FOR COAL

MW FOR POWER PLANT ~~2771 MW~~ 115.45 MW

Total coal to boiler = 120,016 KLB

Total coal to calciner = 4,603.1 KLB

Limestone feed to calciner = 41,641 Tons

Total MW for power plant = 2771 MW

Sept 24, 1990

PRINTED  
23:58:08  
25-SEP-90

REPORT FOR  
MONDAY

CENTRAL POWER AND LIME INC.  
POWER PLANT  
DAILY REPORT

PAGE 65

PLANT INTEGRATIONS

NET GENERATION

STM FLOW TO HP TURBINE	271378.0KLB	SEW WATER MAKE-UP FLOW	946.4KLB	0000	117MW
FW FLOW TO SH ATTEMP 1A	35199.0KLB	TOTAL COAL TO CALCINER	4603.1KLB	0100	116MW
FW FLOW TO SH ATTEMP 1B	6906.8KLB	TOTAL AIR TO CALCINER	66073.0KLB	0200	117MW
FW FLOW TO RH ATTEMP 1A	17052.0KLB	TOTAL SEC AIR TO CMPT 1A	11278KLB	0300	116MW
FW FLOW TO RH ATTEMP 1B	6268.8KLB	TOTAL SEC AIR TO CMPT 1B	47634KLB	0400	118MW
FW FLOW TO EAST ECON	39998KLB	TOTAL SEC AIR TO CMPT 1C	10515KLB	0500	118MW
FW FLOW TO WEST ECON	28093KLB	TOTAL SEC AIR TO CMPT 2D	67475KLB	0600	115MW
BFP A SUCTION FLOW	2924KLB	S-B BURNER AIR FLOW	8751KCF	0700	115MW
BFP B SUCTION FLOW	9040KLB	TOTAL COAL TO STEAM PROD	0KLB	0800	116MW
BFP C SUCTION FLOW	3073KLB	LIMESTONE FEED TO CALCINER	41672 TONS	0900	116MW
PULV 1A COAL FLOW	29209KLB	F B DRYER TOTALIZER	4368 TONS	1000	118MW
PULV 1B COAL FLOW	33130KLB	DIG HOUR-METER	1317 HRS	1100	118MW
PULV 1C COAL FLOW	26843KLB	OIL FLOW TO HOTEL	27066 GAL	1200	119MW
PULV 1D COAL FLOW	34318KLB	OIL FLOW FROM BOILER	21303 GAL	1300	117MW
TOTAL COAL TO BOILER	122500 KLB	NET OIL FLOW	5712 GAL	1400	115MW
TOTAL AIR TO BOILER	3780 KLB	TOTAL GENERATION	119.8 MWHR	1500	116MW
STEAM FLOW TO EGRE	2822 KLB	NET GENERATION	117 MWHR	1600	116MW
TOTAL COAL // STEAM PROD	122500 KLB	AUXILIARY LOAD	13.8 MWHR	1700	114MW
MAKE-UP FLOW TO COND	106672 KLB	XPR 4 (REPURCHASE)	9.79 MWHR	1800	113MW
DUMP FLOW TO STORAGE TANK	162432 KLB	XPR 5 (POWER PLANT)	0.08 MWHR	1900	115MW
COND FLOW TO DEAERATOR	76680 KLB	CEMENT PLANT	8.96 MWHR	2000	114MW
TOTAL DEMIN WATER PRO	KLB			2100	115MW
				2200	116MW
				2300	113MW

FEEDRATE FOR COAL

MW OF POWER PLANT

115.92 MW

1.6

Total coal to boiler = 122,500 KLB

Total coal to calciner = 4,603.1 KLB

Limestone feed to calciner = 41,672 Tons

Total MW for power plant = 2,782 MW

**BAGHOUSE OPERATING DATA**

19SEP90 WEDNESDAY

RAW MILL LOG 1.1

E1T11 BAG-  
HOUSE INLET TEMP.

E1T04 BAG-  
HOUSE FAN AMPS

E1S01 BAG-  
HOUSE FAN SPEED

E1P06 BAG-  
HOUSE DIFF PRES

DATE	TIME	E1T11 DEG F	E1S01 %	E1T04 AMPS	E1P06 "H2O
18SEP90	07:14	291.00	34.875	496.00	6.2813
	08:14	298.00	34.875	486.00	6.4375
	09:14	304.00	34.875	484.00	6.6844
	10:14	313.00	34.875	493.00	6.6469
	11:14	309.00	34.875	486.00	6.4688
	12:14	319.00	34.875	488.00	6.7032
	13:14	322.00	34.875	473.00	6.8782
	14:14	336.00	34.875	481.00	6.2813
	15:14	335.00	34.875	469.00	6.4844
	16:14	327.00	34.875	475.00	6.3282
	17:14	332.00	35.000	490.00	6.6875
	18:14	317.00	34.875	476.00	6.7657
	19:14	324.00	34.875	483.00	6.6407
	20:14	329.00	34.875	467.00	6.8438
	21:14	303.00	34.875	483.00	6.3126
	22:14	308.00	34.875	475.00	6.7500
	23:14	329.00	34.875	472.00	6.9375
19SEP90	00:14	319.00	34.875	488.00	6.8750
	01:14	335.00	35.000	469.00	6.8594
	02:14	330.00	34.875	477.00	6.7813
	03:14	326.00	34.875	466.00	6.9532
	04:14	321.00	34.875	478.00	6.6250
	05:14	318.00	34.875	469.00	6.5000
	06:14	319.00	34.875	472.00	6.7813



Original data on next page.

Baghouse Data

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9/18/90

19SEP90 WEDNESDAY

RAW MILL LOG 1.1

TREND LOG 2

DRY END

<del>E1111</del>		<del>E1104</del>		<del>E1001</del>		<del>E1003</del>		<del>SOX</del>	
<del>HOUSE INLET TMP</del>		<del>HOUSE FAN AMPS</del>		<del>STACK OPACTY</del>		<del>STACK SOX</del>			
<del>E1601</del>		<del>E1005</del>		<del>E1002</del>		<del>E1004</del>		<del>O2</del>	
<del>HOUSE FAN SPEED%</del>		<del>HOUSE DDP PRES</del>		<del>STACK NOX</del>		<del>STACK O2</del>			
	E1111	E1601	E1104	E1605	E1001	E1002	E1003	E1004	
	SMP	SMP	SMP	SMP	MAX	SMP	SMP	SMP	
	DEG F	%	AMPS	"H2O	%	%	%	%	
18SEP90 07:14	291.00	34.875	496.00	6.2813	32.600	216.50	204.50	7.8125	
08:14	298.00	34.875	486.00	6.4375	32.125	201.50	226.50	7.9532	
09:14	304.00	34.875	484.00	6.4844	16.063	170.50	217.50	7.9219	
10:14	313.00	34.875	493.00	6.0469	16.313	164.00	204.50	7.5157	
11:14	309.00	34.875	485.00	6.4683	14.844	200.50	200.00	7.5625	
12:14	319.00	34.875	486.00	6.7032	15.094	255.50	193.50	7.3125	
13:14	322.00	34.875	473.00	6.5782	15.125	236.50	221.00	7.7188	
14:14	336.00	34.875	481.00	6.2813	14.719	255.50	194.00	7.8125	
15:14	335.00	34.875	469.00	6.4844	14.281	266.00	186.50	7.4375	
16:14	327.00	34.875	475.00	6.3282	15.125	235.50	171.00	7.6875	
17:14	332.00	34.875	490.00	6.6875	16.313	211.00	197.00	7.4532	
18:14	317.00	36.000	476.00	6.4683	14.594	249.00	196.00	7.4063	
19:14	324.00	34.875	483.00	6.6107	16.125	290.00	217.50	7.2969	
20:14	329.00	34.875	467.00	6.8438	17.063	226.00	194.00	7.4532	
21:14	303.00	34.875	483.00	6.3125	17.188	172.50	165.50	7.9844	
22:14	308.00	34.875	475.00	6.7500	17.188	168.00	203.00	8.2188	
23:14	329.00	34.875	472.00	6.9375	17.563	118.25	197.00	7.4688	
19SEP90 00:14	319.00	34.875	488.00	6.8750	17.750	134.00	202.50	7.7344	
01:14	335.00	35.000	469.00	6.6594	16.750	158.50	203.00	7.5000	
02:14	330.00	34.875	477.00	6.7813	17.250	143.50	180.50	7.6094	
03:14	326.00	34.875	466.00	6.9532	17.313	217.00	202.50	7.5938	
04:14	321.00	34.875	478.00	6.6250	18.438	242.50	181.50	7.5000	
05:14	318.00	34.875	469.00	6.5000	18.313	203.00	189.00	7.6250	
06:14	319.00	34.875	472.00	6.7813	19.500	122.75	149.00	7.7188	

Baghouse Inlet Temp = 328.5 °F  
 Baghouse Fan Speed = 34.875%  
 Baghouse Fan Current = 479.33 Amps  
 Baghouse Pressure drop = 6.5105" H<sub>2</sub>O



20SEP90 THURSDAY

RAW MILL LOG 1.1

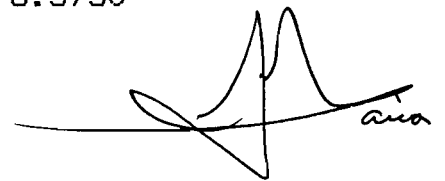
E1T11 BAG-  
HOUSE INLET TEMP.

E1T04 BAG-  
HOUSE FAN AMPS

E1S01 BAG-  
HOUSE FAN SPEED

E1P06 BAG-  
HOUSE DIFF PRES

DATE	TIME	E1T11 DEG F	E1S01 %	E1T04 AMPS	E1P06 "H2O
19SEP90	07:14	318.00	34.875	483.00	6.7032
	08:14	317.00	34.875	471.00	6.8282
	09:14	322.00	35.000	480.00	6.5157
	10:14	336.00	34.875	471.00	6.6875
	11:14	325.00	34.125	468.00	6.2344
	12:14	319.00	34.125	455.00	6.4063
	13:14	342.00	34.500	463.00	6.4688
	14:14	329.00	34.875	473.00	6.9063
	15:14	322.00	34.875	482.00	6.9219
	16:14	330.00	35.000	483.00	6.7969
	17:14	326.00	34.875	476.00	6.7344
	18:14	330.00	34.875	488.00	6.4375
	19:14	328.00	35.000	471.00	6.8282
	20:14	328.00	35.000	481.00	6.6407
	21:14	314.00	35.000	489.00	6.6875
	22:14	319.00	34.875	477.00	6.4532
	23:14	325.00	35.000	494.00	6.2813
20SEP90	00:14	325.00	34.875	465.00	6.7657
	01:14	403.00	34.875	473.00	6.5626
	02:14	415.00	35.250	466.00	6.9063
	03:14	351.00	35.750	467.00	7.0313
	04:14	419.00	35.750	477.00	6.8282
	05:14	421.00	35.750	462.00	6.6363
	06:14	323.00	35.750	496.00	6.3750

A handwritten signature in black ink, appearing to be 'ava', is located in the lower right quadrant of the page. The signature is stylized and somewhat cursive.

Original data on next page.

# Baghouse Data

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9/19/90

20SEP90 THURSDAY

RAW MILL LOG 1.1

TREND LOG 2

DAY END

	E1111	BAG- HOUSE INLET TMP	E1104	BAG- HOUSE FAN AMPS	E1101	NOX STACK OPACITY	E1103	SUX STACK SUX	
	E1501	BAG- HOUSE FAN SPEED	E1105	BAG- HOUSE DIFF PRES	E1102	NOX STACK NOX	E1104	OZ STACK OZ	
	E1111	E1501	E1104	E1105	E1101	E1102	E1103	E1104	
	DEG F	%	AMPS	"H <sub>2</sub> O	%	%	%	%	
	SMP	SMP	SMP	SMP	MAX	SMP	SMP	SMP	
19SEP90 07:14	318.00	34.875	439.00	6.7032	32.625	195.00	169.00	7.7813	
08:14	317.00	34.875	471.00	6.6282	20.125	224.00	161.50	7.6407	
09:14	322.00	35.000	430.00	6.5157	21.875	227.50	162.00	7.5938	
10:14	326.00	34.875	473.00	6.6075	21.750	171.00	179.50	7.9582	
11:14	325.00	34.125	468.00	6.2344	23.653	175.50	186.50	7.8125	
12:14	319.00	34.725	455.00	6.4063	24.436	-12.18	192.50	7.6719	
13:14	322.00	34.500	463.00	6.4635	24.813	-9.781	181.00	7.7344	
14:14	329.00	34.875	478.00	6.9053	32.250	-8.063	200.00	7.8907	
15:14	322.00	34.875	482.00	6.9219	19.125	-5.750	192.00	7.7657	
16:14	330.00	35.000	483.00	6.7969	19.750	13.50	184.00	7.8407	
17:14	326.00	34.875	476.00	6.7344	34.125	-9.250	177.50	7.8750	
18:14	330.00	34.875	485.00	6.5375	24.313	-9.781	159.00	7.8594	
19:14	323.00	35.000	471.00	6.8282	18.625	-9.251	190.50	7.2657	
20:14	328.00	35.000	481.00	6.6907	20.513	-11.31	143.50	7.8125	
21:14	314.00	35.000	439.00	6.6575	26.125	-13.19	146.50	7.4063	
22:14	319.00	34.875	477.00	6.4532	20.875	-13.50	176.00	7.2557	
23:14	325.00	35.000	494.00	6.2813	17.875	-10.31	130.50	7.4644	
20SEP90 00:14	325.00	34.875	465.00	6.7657	18.000	-13.84	161.00	7.1407	
01:14	403.00	34.875	475.00	6.5625	17.125	-10.13	110.50	7.3707	
02:14	415.00	35.750	466.00	6.9063	13.906	-1.164	186.00	7.9582	
03:14	381.00	35.750	457.00	7.0313	14.344	-12.66	192.00	7.9063	
04:14	419.00	35.750	477.00	6.8282	12.750	-12.66	184.50	7.6563	
05:14	421.00	35.750	462.00	6.8563	13.594	-12.34	193.50	7.2513	
06:14	323.00	35.750	495.00	6.3750	12.250	-13.50	131.00	7.7557	

Baghouse Inlet Temp = 327.09°F  
 Baghouse Fan Speed = 34.727%  
 Baghouse Fan Current = 474.09 Amps  
 Baghouse Pressure drop = 6.6307" H<sub>2</sub>O

21SEP90 FRIDAY

RAW MILL LOG 1.1

E1T11 BAG-  
HOUSE INLET TEMP.

E1T04 BAG-  
HOUSE FAN AMPS

E1S01 BAG-  
HOUSE FAN SPEED

E1P06 BAG-  
HOUSE DIFF PRES

DATE	TIME	E1T11 DEG F	E1S01 %	E1T04 AMPS	E1P06 "H2O
20SEP90	07:14	407.00	34.875	454.00	6.6694
	08:14	409.00	34.875	459.00	6.4844
	09:14	413.00	35.000	448.00	6.4315
	10:14	403.00	34.875	449.00	6.5625
	11:14	323.00	34.875	482.00	6.0625
	12:14	319.00	34.875	480.00	6.2344
	13:14	323.00	34.875	492.00	6.3594
	14:14	337.00	35.000	470.00	6.1563
	15:14	334.00	34.875	466.00	6.2969
	16:14	336.00	35.000	473.00	6.1719
	17:14	333.00	35.000	472.00	6.2344
	18:14	346.00	34.875	487.00	6.1719
	19:14	361.00	34.875	468.00	6.2969
	20:14	378.00	34.875	487.00	6.0000
	21:14	373.00	34.875	459.00	6.1094
	22:14	366.00	35.250	474.00	5.8750
	23:14	337.00	35.000	484.00	6.1094
21SEP90	00:14	346.00	34.875	489.00	6.0157
	01:14	348.00	34.875	484.00	5.9219
	02:14	363.00	34.875	482.00	6.4532
	03:14	323.00	34.875	488.00	6.2138
	04:14	321.00	34.875	466.00	6.2969
	05:14	286.00	34.125	481.00	5.4219
	06:14	287.00	34.125	486.00	5.5625



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Case line average (total)

Baghouse Inlet Temp. = 337.6°F  
 Baghouse Fan Speed = 34.834 %  
 Baghouse Fan Current = 474.54 Amps  
 Baghouse Pressure Drop = 6.4908" H<sub>2</sub>O

Baghouse Inlet Temp. = 357.20°F  
 Baghouse Fan Speed = 34.90 %  
 Baghouse Fan Current = 470.33 Amps  
 Baghouse Pressure Drop = 6.5105" H<sub>2</sub>O

Baghouse Data

9/20/90

TIME	E1101 HOUSE INLET TEMP	E1501 HOUSE FAN SPEED	E1104 HOUSE FAN AMPERAGE	E1105 HOUSE DTR PRESSURE	E1101 STACK OPACITY	E1102 NOX	E1103 STACK SO <sub>2</sub>	E1104 STACK O <sub>2</sub>
	SMP	%	AMP	"H <sub>2</sub> O	%	SMP	%	SMP
20SEP90 07:14	407.00	34.875	454.00	6.5594	32.250	-14.19	116.00	7.6094
08:14	409.00	34.875	459.00	6.4844	11.344	-13.66	138.50	7.6250
09:14	413.00	35.000	449.00	6.4375	9.3435	-13.66	134.00	7.1407
10:14	408.00	34.875	449.00	6.5625	10.250	-13.00	199.50	7.2813
11:14	323.00	34.875	432.00	6.0625	10.306	-9.433	196.00	7.1344
12:14	319.00	34.875	480.00	6.2344	10.281	-3.359	197.50	7.8907
13:14	323.00	34.875	492.00	6.3594	10.150	4.359	132.00	7.3574
14:14	337.00	35.000	470.00	6.1563	10.844	-5.906	168.50	7.6782
15:14	334.00	34.875	450.00	6.2969	10.594	-3.503	177.50	7.5197
16:14	336.00	35.000	473.00	6.1719	10.906	-5.219	158.50	7.4688
17:14	333.00	35.000	472.00	6.2344	11.125	-6.043	153.50	7.4532
18:14	346.00	34.875	487.00	6.1719	10.813	-5.219	159.50	7.4544
19:14	361.00	34.875	465.00	6.2969	10.433	-2.003	199.00	7.5625
20:14	378.00	34.875	487.00	6.0000	10.959	-1.500	178.00	7.4532
21:14	375.00	34.875	459.00	6.1094	11.500	0.0235	130.00	7.4844
22:14	366.00	35.375	474.00	5.8750	11.750	-7.344	168.50	7.6719
23:14	367.00	35.375	484.00	6.1094	11.156	-3.195	207.50	8.2500
21SEP90 00:14	346.00	35.250	489.00	6.0157	11.313	0.0235	224.00	8.0938
01:14	348.00	35.000	434.00	5.9219	11.375	-3.164	171.50	8.0938
02:14	363.00	34.875	482.00	6.4532	11.669	-4.464	273.00	7.9688
03:14	323.00	34.875	433.00	6.2138	12.219	0.1914	209.50	7.9688
04:14	321.00	34.875	465.00	6.2969	11.688	0.8672	210.50	8.0000
05:14	286.00	34.125	431.00	5.4219	12.344	0.6993	217.50	7.9844
06:14	287.00	34.125	486.00	5.5675	12.781	-0.8743	208.00	8.0625

→ Baghouse Inlet Temp = 337.20°F  
 Baghouse Fan Speed = 34.95 %  
 Baghouse Fan Current = 477.40 Amps  
 Baghouse pressure drop = 6.2063" H<sub>2</sub>O

25SEP90 TUESDAY

RAW MILL LOG 1.1

E1T11 BAG-  
HOUSE INLET TEMP.

E1T04 BAG-  
HOUSE FAN AMPS

E1S01 BAG-  
HOUSE FAN SPEED

E1P06 BAG-  
HOUSE DIFF PRES

DATE	TIME	E1T11 DEG F	E1S01 %	E1T04 AMPS	E1P06 "H2O
24SEP90	07:14	317.00	32.625	450.00	5.6250
	08:14	324.00	33.375	442.00	6.1719
	09:14	310.00	33.375	462.00	5.9219
	10:14	332.00	33.375	432.00	6.0932
	11:14	343.00	33.375	447.00	6.4063
	12:14	340.00	33.375	449.00	6.6719
	13:14	339.00	33.375	442.00	6.3694
	14:14	332.00	33.375	439.00	6.6719
	15:14	336.00	33.375	432.00	6.0632
	16:14	340.00	33.375	438.00	6.2657
	17:14	426.00	33.375	442.00	6.6250
	18:14	407.00	33.375	422.00	5.6750
	19:14	321.00	33.375	422.00	6.9129
	20:14	269.00	33.375	432.00	6.7651
	21:14	237.00	33.375	430.00	5.6607
	22:14	223.00	33.375	499.00	5.8282
	23:14	220.00	33.375	496.00	5.6469
25SEP90	00:14	208.00	32.250	469.00	5.3907
	01:14	203.00	32.250	469.00	5.6000
	02:14	194.00	32.250	462.00	5.8190
	03:14	178.00	32.250	484.00	5.2969
	04:14	178.00	32.250	481.00	5.1875
	05:14	173.00	31.063	454.00	5.1663
	06:14	173.00	32.063	433.00	5.7150



Original data on next page.

9/24/90

Baghouse Data

Z551090 TUESDAY 004 MUL LOG 1.1 TEND LOG 2

E1111 BAS E1104 BAS E1101 E1102 E1103 E1104

HOUSE INLET TMP HOUSE FAN AMPS STACK OPACITY STACK SOX

HOUSE FAN SPEED HOUSE DASH BOARD

E1111 E1101 E1102 E1103 E1104 E1105 E1106 E1107

SPR SPR SPR SPR SPR SPR SPR

DEB F 01:14 317.00 33.375 450.00 5.7419 10.000 169.00 216.00 8.0728

02:14 324.00 33.375 472.00 5.7719 10.000 175.00 217.00 8.0728

07:14 310.00 33.375 452.00 5.7419 10.000 169.00 216.00 8.0728

10:14 332.00 33.375 482.00 5.8098 10.000 221.00 207.00 8.0728

13:14 340.00 33.375 447.00 5.7653 10.000 201.00 210.00 8.0728

16:14 327.00 33.375 477.00 5.7924 10.000 222.00 205.00 8.0728

19:14 332.00 33.375 489.00 5.8117 11.013 230.00 231.00 8.0728

20:14 333.00 33.375 492.00 5.8256 11.000 231.00 230.00 8.0728

21:14 340.00 33.375 485.00 5.7857 7.133 180.00 221.00 8.0728

22:14 223.00 33.375 497.00 5.8287 9.0748 100.00 232.00 8.0728

23:14 220.00 33.375 496.00 5.8469 9.2813 108.00 233.00 8.7500

23:51:50 00:14 208.00 32.250 469.00 5.3207 9.2800 100.00 217.00 8.0728

01:14 209.00 32.100 459.00 5.0000 9.7193 113.00 210.00 8.0728

02:14 173.00 32.100 467.00 5.1128 9.1636 108.00 210.00 8.0728

03:14 176.00 32.250 484.00 5.1759 9.2172 94.00 240.00 8.0728

04:14 178.00 32.250 481.00 5.1815 9.3700 99.00 234.00 8.0728

05:14 142.00 31.663 433.00 4.1253 8.3000 103.00 225.00 8.0728

06:14 178.00 31.000 488.00 5.1100 8.7000 110.00 211.00 8.0728

Baghouse Inlet temp = 350.4 °F  
 Baghouse Fan Speed = 33.375 %  
 Baghouse Fan current = 448.90 Amps  
 Baghouse pressure drop = 6.3136" H2O

**TDF AND COAL SPECIFICATIONS**

**HEATING VALUES FOR TDF TEST SEPTEMBER 18-24, 1991**

<b>COAL</b>	<b>12630 btu/lb</b>
<b>TDF</b>	<b>14000 btu/lb (Average based on values given by the supplier)</b>
<b>TDF FEED RATE</b>	<b>1.134 T/Hr</b>

**METHOD:**

Shredded tires were fed into the bottom of the Preheater. The tires were fed into a small bin and then discharged into the Preheater by way of a tipping valve. A five gallon bucket, holding 18.9 lbs. of feed, was used to fill the bin at a rate of 2 buckets/min., or 1.134 T/Hr. The tipping valve was operated manually to try to get a uniform feed rate.



# Best Available Copy

## FLORIDA CRUSHED STONE CEMENT/POWER/LINE COAL TRAIN ANALYSIS 1990

DATE RECEIVED	C.P.L. WESTMORE.		ASH CONTENT	AVG. SULFUR	AVG. CHLORINE	HARDGROVE GRIND.	TONS
	AS REC'D B.T.U.	AS REC'D B.T.U.					
1-6-90	13456	12855	8.41	0.761	0.09		8737
1-15-90	13032	12819	9.49	0.714	0.08	46	8641
1-24-90	12875	12996	8.26	0.777	0.09		8737
MONTH AVG:	13138	12890	8.72	0.751	0.09	46	26115
2-4-90	13108	12876	7.57	0.738	0.09	47	8311
2-13-90	12602	12941	7.91	0.683	0.09		8693
2-19-90	12430	12724	8.87	0.867	0.09		8933
2-26-90	12321	12598	9.05	0.705	0.08	45	7299
MONTH AVG:	12615	12785	8.35	0.748	0.09	46	33236
3-7-90	12621	12767	9.42	0.660	0.09		8743
3-16-90	12715	12594	8.68	0.687	0.08	45	8737
3-27-90	12521	12612	9.19	0.749	0.09	45	8693
MONTH AVG:	12619	12658	9.10	0.699	0.09	45	26173
4-7-90	12628	12718	8.05	0.820	0.09	45	8742
4-17-90	12770	12819	7.79	0.712	0.08		8722
4-26-90	12781	12756	7.97	0.794	0.08		8743
4-29-90	12646	12758	7.81	0.696	0.09		7287
MONTH AVG:	12756	12763	7.91	0.756	0.09	45	33494
5-5-90	12712	12745	8.14	0.741	0.09	45	8645
5-7-90	12767	12663	9.36	0.836	0.08		7307
5-9-90	12652	12831	8.15	0.735	0.08		7314
5-14-90	12929	13072	7.79	0.761	0.09		8837
5-21-90	12681	12833	9.39	0.788	0.08	44	7265
5-23-90	12721	12679	9.17	0.738	0.08	45	8762
5-31-90	12761	12863	7.73	0.739	0.08	45	7149
MONTH AVG:	12735	12812	8.53	0.763	0.08	45	55279
6-10-90	12789	12687	8.05	0.817	0.08	45	8555
6-16-90	12874	12562	6.93	0.652	0.09		8692
6-24-90	12685	12518	8.84	0.682	0.08	45	8704
MONTH AVG:	12783	12589	7.94	0.717	0.08	45	25951
1/1-8/28	12774	12749	8.42	0.739	0.09	45	200248

DATE RECEIVED	C.P.L. WESTMORE.		ASH CONTENT	AVG. SULFUR	AVG. CHLORINE	HARDGROVE GRIND.	TONS
	AS REC'D B.T.U.	AS REC'D B.T.U.					
7-5-90	12714	12841	7.99	0.734	0.08	45	8632
7-12-90	12789	12739	8.13	0.748	0.09	45	8701
7-20-90	12743	12873	8.23	0.722	0.08	45	8744
7-29-90	12794	12876	10.18	0.738	0.09	44	8659
MONTH AVG:	12760	12832	8.63	0.736	0.09	45	34786
8-7-90	12623	12667	8.21	0.720	0.08	45	8659
8-19-90	12678	12649	8.56	0.702	0.08	45	8680
8-28-90	12729	12857	9.01	0.721	0.08	45	8692
MONTH AVG:	12677	12724	8.59	0.714	0.08	45	26031
9-8-90	12734	12567	8.49	0.660	0.09	45	8790
9-16-90	12842	12635	8.70	0.686	0.08		8170
9-24-90	12851	12683	8.64	0.692	0.08	45	8692
MONTH AVG:	12809	12628	8.61	0.679	0.08	45	25652
10-3-90	12807	12594	9.55	0.664	0.09		8600
10-10-90	12741	12699	10.16	0.783	0.09		8597
10-18-90	*****	12537	9.12	0.691	0.08	44	8731
10-25-90	12625	12513	8.00	0.699	0.08	45	8739
MONTH AVG:	9543	12586	9.21	0.709	0.09	45	34667
11-2-90	12910	12820	8.28	0.735	0.08	47	7962
11-10-90	12531	12555	8.42	0.753	0.09	46	3346
11-19-90	12661	12714	8.35	0.742	0.09		8838
11-29-90	12683	12801	8.11	0.721	0.08	46	8353
MONTH AVG:	12696	12723	8.29	0.738	0.09	46	33495
12-6-90	12551	12576	9.39	0.691	0.09		8745
12-13-90	12916	12936	8.83	0.727	0.08	46	8745
12-20-90	12731	12696	9.00	0.696	0.09	45	8741
MONTH AVG:	12733	12736	9.07	0.705	0.09	46	26231
7/5-12/20	12203	12705	8.73	0.713	0.08	45	180866

\*\* DID NOT RECEIVE SAMPLE ON 10-18-90 TRAIN \*\* RESULTS ARE FROM WESTMORELAND FOR 10-18-90

### YEARLY AVERAGES

DATES COVERED	C.P.L. WESTMORE.		ASH CONTENT	AVG. SULFUR	AVG. CHLORINE	HARDGROVE GRIND.	TOTAL TONS
	AS REC'D B.T.U.	AS REC'D B.T.U.					
1/1-12/20	12489	12727	8.58	0.726	0.98	45	381114

1. Heating value for Coal - Avg. for 1990