1 of 6

**PILOT-SCALE LIMESTONE EMISSION
CONTROL (LEC) PROCESS: A DEVELOPMENT
PROJECT**

Volume 2: Appendix E - Part 1

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OHIO COAL DEV OFFICE**

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**PILOT-SCALE LIMESTONE EMISSION CONTROL (LEC) PROCESS:
A DEVELOPMENT PROJECT**

[Volume 2: Appendix E - Part 1]

Final Report

by

Ohio University

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March 1994

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APPENDIX E - EXPERIMENTAL RUN DATA

Table E-1. RUN NAMING CONVENTION.

Short Form

The run name is 920504A. The "short form" run naming code has the format 'YYMMDDS' where YY = last two digits of the calendar year, MM = month, DD = day, and S = sequence number. Using this naming convention it can be seen that LEC Run No. 920504A was the first experimental trial performed on May 4, 1992. Similarly, LEC Run No. 911121C was the third experimental trial performed on November 21, 1991.

The "short form" is most usually used to name whole runs. The sequence letter is often omitted from the run name if only one experimental trial was performed on that given date.

Long Form

The "long form" name is usually reserved for designating specific samples. An example name would be 920504A1315 Reactor Screw Stone. The "long form" naming code has the format 'YYMMDDShhmm Sampling Point' where YY = last two digits of the calendar year, MM = month, DD = day, S = sequence number, hh = hour (24-hour military time), mm = minute, and Sampling Point is the physical location from which the sample is taken. The sequence number is almost never used in naming a sample. As example, the 920504A1315 Reactor Screw Stone is a sample taken from the sampling point at the reactor screw exiting the bottom of the LEC reactor on May 4, 1992 (first experimental trial of the day) at 1315 hours (1:15PM).

Table E-2. PERCENTAGE LIMESTONE UTILIZATION CALCULATION.

The following assumptions were made in calculating the 'percentage limestone utilization':

- (1) Under the conditions of LEC processing, all calcium-containing compounds present in the limestone react with SO_2 to form $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$.
- (2) Under the conditions of LEC processing, all magnesium-containing compounds present in the limestone react with SO_2 to form $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$.
- (3) The calcium-containing compounds and the magnesium-containing compounds are the only parts of the limestone that react with SO_2 .

Assumptions (1) and (2) have been confirmed with x-ray analysis.

$\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ contains 18.62 wt% sulfur.

$\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ contains 13.01 wt% sulfur.

Based on chemical analysis, Maxville limestone contains $\text{CaCO}_3/\text{MgCO}_3$ in a 4.6/1 mole ratio. Maxville limestone also contains about 15.6 wt% of inert compounds.

Based on the information presented above, Maxville limestone when fully sulfated to $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ and $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ will contain 14.59 wt% sulfur.

Table E-3. Total Sulfur Analysis of Reactivator Screen Dust.

Sample Date	Sample Time	Stone Type	Screen Size	Bed Speed (lb/hr)	Sample ID	Sample Wt. (g)	Total S (wt%)	Utilization (%)
920430	1238	No. 8	No. 6	1460	16	0.2060	0.41	2.8
920501	0830	No. 8	No. 6	1460	17	0.1734	3.05	20.9
920502	1100	No. 8	No. 6	1460	18	0.1320	3.75	25.7
920503	1100	No. 8	No. 6	1460	19	0.1676	6.80	46.6
920503	2000	No. 8	No. 6	1460	38	0.1868	3.99	27.3
920504	1135	No. 8	No. 6	1460	20	0.1136	8.54	58.5
920504	2202	No. 8	No. 6	1460	50	0.1075	7.24	49.6
920505	0108	No. 8	No. 6	1460	21	0.1591	4.70	32.2
920505	0108	No. 8	No. 6	1460	24	0.1574	4.19	28.7
						Average	4.45	30.5
920505	1241	No. 8	No. 6	1460	49	0.1066	6.95	47.6
920505	2148	No. 8	No. 6	1460	22	0.1255	6.18	42.4
920506	PRME	No. 8	No. 6	1460	32	0.2020	0.71	4.9
	PRME = Post-Eliminator Stone.							
920513	1030	No. 8	No. 16	1460	43	0.1141	3.82	26.2
921020	1155	No. 9	No. 16	2707	11	0.1484	0.66	4.5
921021	0710	No. 9	No. 16	2707	27	0.2891	1.18	8.1
921021	0745	No. 9	No. 16	2707	12	0.2080	0.81	5.6

Table E-3. Total Sulfur Analysis of Reactivator Screen Dust (continued).

Sample Date	Sample Time	Stone Type	Screen Size	Bed Speed (lb/hr)	Sample ID	Sample Wt. (g)	Total S (wt%)	Utilization (%)
921021	0938	No. 9	No. 16	2707	53	0.2346	0.83	5.7
921021	2153	No. 9	No. 16	2707	13	0.1890	1.79	12.3
921022	1705	No. 9	No. 16	2707	42	0.1405	0.91	6.2
921022	1930	No. 9	No. 16	2707	41	0.1670	1.64	11.2
921022	2130	No. 9	No. 16	2707	14	0.1623	2.09	14.3
921022	2300	No. 9	No. 16	2707	29	0.1587	1.31	9.0
921030	1315	No. 9	No. 16	2707	52	0.1314	1.77	12.1
921030	1445	No. 9	No. 16	2707	34	0.1252	1.69	11.6
921030	1630	No. 9	No. 16	2707	9	0.1916	2.36	16.2
921103	1630	No. 9	No. 16	2707	10	0.1548	1.47	10.1
921104	1431	No. 9	No. 16	2707	8	0.1190	1.60	11.0
921104	1533	No. 9	No. 16	2707	39	0.1700	0.67	4.6
921104	1600	No. 9	No. 16	2707	35	0.3144	1.30	8.9
921104	1730	No. 9	No. 16	2707	7	0.1873	2.27	15.6
921105	1233	No. 9	No. 16	2707	6	0.1475	2.22	15.2
921105	1405	No. 9	No. 16	2707	4	0.1307	3.30	22.6

Table E-3. Total Sulfur Analysis of Reactivator Screen Dust (continued).

Sample Date	Sample Time	Stone Type	Screen Size	Bed Speed (lb/hr)	Sample ID	Sample Wt. (g)	Total S (wt%)	Utilization (%)
921109	1532	No. 9	No. 16	2707	37	0.2455	2.35	16.1
921110	1621	No. 9	No. 16	2707	31	0.2127	0.93	6.4
921111	1550	No. 9	No. 16	2707	40	0.1317	2.03	13.9
921111	1652	No. 9	No. 16	2707	36	0.1970	2.07	14.2
921111	1749	No. 9	No. 16	2707	30	0.1892	1.73	11.9
921111	2056	No. 9	No. 16	2707	28	0.1741	2.43	16.7
921111	2256	No. 9	No. 16	2707	46	0.1284	1.08	7.4
921112	1100	No. 8	No. 16	1460	51	0.1165	3.46	23.7
921112	1130	No. 9	No. 16	2707	44	0.1305	1.86	12.7
921117	1405	No. 9	No. 24	2707	2	0.2778	0.81	5.6
921117	1405	No. 9	No. 24	2707	5	0.1803	0.83	5.7
						Average	0.82	5.6
921117	1725	No. 9	No. 24	2707	48	0.2327	0.72	4.9
921117	1742	No. 9	No. 24	2707	3	0.1233	1.22	8.4
921117	1742	No. 9	No. 24	2707	6	0.1583	1.21	8.3
						Average	1.22	8.3
921118	1820	No. 9	No. 24	2707	47	0.1515	1.51	10.3
921118	1946	No. 9	No. 24	2707	13	0.1659	2.05	14.1
921118	1946	No. 9	No. 24	2707	16	0.1464	2.04	14.0
						Average	2.05	14.0

Table E-3. Total Sulfur Analysis of Reactivator Screen Dust (continued).

<u>Sample Date</u>	<u>Sample Time</u>	<u>Stone Type</u>	<u>Screen Size</u>	<u>Bed Speed (lb/hr)</u>	<u>Sample ID</u>	<u>Sample Wt. (g)</u>	<u>Total S (wt%)</u>	<u>Utilization (%)</u>
921118	2055	No. 9	No. 24	2707	4	0.2138	1.91	13.1
921118	2055	No. 9	No. 24	2707	1	0.1515	1.84	12.6
						Average	1.88	12.9
921119	1400	No. 9	No. 24	2707	14	0.1806	2.24	15.4
921119	1400	No. 9	No. 24	2707	17	0.1538	2.32	15.9
						Average	2.28	15.6
921124	1658	No. 9	No. 24	2707	15	0.1484	2.12	14.5
921124	1658	No. 9	No. 24	2707	18	0.1584	2.00	13.7
						Average	2.06	14.1

FEED LIMESTONE SIZE DISTRIBUTIONS

SCREEN ANALYSIS - MAXVILLE LIMESTONES

Sample no. LS910601A

AASHTO # 9

(Date: 06/11/91)

<u>Screen Size</u>	<u>Test #01</u>
+ 1/4"	1.5957% (0.90g)
-1/4"+3.5	1.0638% (0.06g)
-3.5 + 4	1.5957% (0.09g)
-4 + 5	4.2553% (24.0g)
-5 + 6	17.28% (97.5g)
-6 + 7	19.50% (110.0g)
-7 + 8	18.08% (102.0g)
-8 +10	11.52% (65.0g)
-10 +12	7.62% (43.0g)
-12 +14	6.38% (36.0g)
-14 +16	2.74% (15.5g)
-16 +18	1.95% (11.0g)
-18 +20	1.42% (8.0g)
-20 +25	0.88% (5.0g)
-30 +35	0.71% (4.0g)
-35 +40	0.354% (2.0g)
-40 +45	0.177% (1.0g)
-45	2.30% (13.0g)

U.S. Standard Screen Sizes.

SCREEN ANALYSIS OF "FRESH" LIMESTONE (#920131)

SCREEN SIZE	MESH OPENING (inches)	WEIGHT (grams)	PERCENT (%)
+ 1/4 inch	0.25	6.3	0.9
+ No. 6	0.132	125.4	17.6
+ No. 8	0.0937	214.8	30.1
+ No. 12	0.0661	153.4	21.5
+ No. 14	0.0555	62.1	8.7
+ No. 16	0.0469	40.1	5.6
+ No. 20	0.0331	43.9	6.2
+ No. 25	0.0278	12.0	1.7
+ No. 30	0.0234	8.0	1.1
+ No. 35	0.0195	7.6	1.1
+ No. 40	0.0165	5.5	0.8
+ No. 45	0.0139	3.6	0.5
+ No. 50	0.0117	2.7	0.4
+ No. 60	0.0098	2.5	0.4
+ No. 70	0.0083	1.3	0.2
+ No. 80	0.0070	1.4	0.2
+ No. 100	0.0059	1.8	0.2
+ No. 140	0.00104	1.1	0.1
+ No. 200	0.0029	1.7	0.2
+ No. 325	0.0017	1.9	0.3
+ No. 400	0.0015	2.0	0.3
- No. 400	NA	13.3	1.8

SCREEN ANALYSIS OF FRESH MAXVILLE NO.8 (L/S#920501)

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	193.8	15.94	0.438	0.3643
+5/16	0.313	241.6	19.87	0.344	0.5776
+1/4	0.250	276.6	22.75	0.282	0.8081
+3.5	0.223	146.8	12.07	0.237	0.5105
+4	0.185	147.2	12.11	0.204	0.5934
+5	0.157	120.0	9.87	0.171	0.5771
+6	0.132	49.0	4.03	0.145	0.2789
+8	0.094	14.7	1.21	0.113	0.1071
+10	0.079	1.5	0.12	0.086	0.0143
+12	0.066	0.2	0.02	0.072	0.0023
+14	0.056	0.4	0.03	0.061	0.0054
+16	0.047	0.4	0.03	0.051	0.0064
+20	0.033	0.6	0.05	0.040	0.0123
+25	0.0278	0.6	0.05	0.030	0.0162
+30	0.0234	0.2	0.02	0.026	0.0064
+35	0.0195	0.2	0.02	0.021	0.0077
+40	0.0165	0.3	0.02	0.018	0.0137
+45	0.0139	0.3	0.02	0.015	0.0162
+50	0.0117	0.7	0.06	0.013	0.0450
+60	0.0098	2.6	0.21	0.011	0.1989
-60		18.3	1.50	0.005	3.0713
Total =		1216.0	100.0		7.2330

Harmonic Mean Diameter (in.) = 0.1383
Weighted Average Diameter (in.) = 0.2797

SCREEN ANALYSIS OF MAXVILLE NO.9 (L/S#920527)

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	0.0	0.00	0.438	0.0000
+5/16	0.313	1.7	0.23	0.344	0.0067
+1/4	0.250	9.3	1.26	0.282	0.0448
+3.5	0.223	3.9	0.53	0.237	0.0223
+4	0.185	6.6	0.89	0.204	0.0438
+5	0.157	32.8	4.44	0.171	0.2599
+6	0.132	415.7	56.33	0.145	3.8981
+8	0.094	110.2	14.93	0.113	1.3232
+10	0.079	30.3	4.11	0.086	0.4763
+12	0.066	36.1	4.89	0.072	0.6756
+14	0.056	26.5	3.59	0.061	0.5906
+16	0.047	14.4	1.95	0.051	0.3811
+20	0.033	28.2	3.82	0.040	0.9553
+25	0.132	17.5	2.37	0.083	0.2873
+30	0.094	1.4	0.19	0.113	0.0168
+35	0.079	0.9	0.12	0.086	0.0141
+40	0.066	0.5	0.07	0.072	0.0094
+45	0.056	0.4	0.05	0.061	0.0089
+50	0.047	0.4	0.05	0.051	0.0106
+60	0.033	0.4	0.05	0.040	0.0136
-60		0.8	0.11	0.017	0.0655
Total =		738.0	100.00		9.1039

Harmonic Mean Diameter (in.) = 0.1098
Weighted Average Diameter (in.) = 0.1275

SCREEN ANALYSIS OF MAXVILLE NO.9 STONE (L/S#920617)

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	0.0	0.00	0.438	0.0000
+5/16	0.313	1.9	0.19	0.344	0.0057
+1/4	0.250	3.4	0.35	0.282	0.0124
+3.5	0.223	1.9	0.19	0.237	0.0082
+4	0.185	5.2	0.53	0.204	0.0261
+5	0.157	39.0	3.99	0.171	0.2333
+6	0.132	140.2	14.34	0.145	0.9926
+8	0.094	318.6	32.59	0.113	2.8882
+10	0.079	119.8	12.26	0.086	1.4218
+12	0.066	91.6	9.37	0.072	1.2943
+14	0.056	72.4	7.41	0.061	1.2182
+16	0.047	32.8	3.36	0.051	0.6554
+20	0.033	54.4	5.57	0.040	1.3913
+25	0.132	14.5	1.48	0.083	0.1797
+30	0.094	9.6	0.98	0.113	0.0870
+35	0.079	9.6	0.98	0.086	0.1139
+40	0.066	7.1	0.73	0.072	0.1003
+45	0.056	4.9	0.50	0.061	0.0824
+50	0.047	4.3	0.44	0.051	0.0859
+60	0.033	8.6	0.88	0.040	0.2199
-60		37.7	3.86	0.017	2.3304
Total =		977.5	100.00		13.3470

Harmonic Mean Diameter (in.) = 0.0749
Weighted Average Diameter (in.) = 0.0985

SCREEN ANALYSIS OF MAXVILLE NO.9 LIMESTONE (L/S#920702)

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	0.0	0.00	0.438	0.0000
+5/16	0.313	0.0	0.00	0.344	0.0000
+1/4	0.250	11.5	1.47	0.282	0.0521
+3.5	0.223	5.5	0.70	0.237	0.0296
+4	0.185	8.1	1.03	0.204	0.0506
+5	0.157	30.0	3.82	0.171	0.2235
+6	0.132	98.4	12.54	0.145	0.8677
+8	0.094	242.5	30.90	0.113	2.7381
+10	0.079	92.9	11.84	0.086	1.3732
+12	0.066	72.2	9.20	0.072	1.2707
+14	0.056	59.9	7.63	0.061	1.2553
+16	0.047	28.0	3.57	0.051	0.6968
+20	0.033	48.9	6.23	0.040	1.5577
+25	0.132	13.6	1.73	0.083	0.2099
+30	0.094	9.4	1.20	0.113	0.1061
+35	0.079	9.1	1.16	0.086	0.1345
+40	0.066	6.9	0.88	0.072	0.1214
+45	0.056	5.3	0.68	0.061	0.1111
+50	0.047	7	0.89	0.051	0.1742
+60	0.033	14.2	1.81	0.040	0.4523
-60		21.4	2.73	0.017	1.6476

Total = 784.8 100.00 13.0727

Harmonic Mean Diameter (in.) = 0.0765
Weighted Average Diameter (in.) = 0.0997

SCREEN ANALYSIS OF MAXVILLE NO.8 (L/S#920805)

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	88.4	15.80	0.438	0.3611
+5/16	0.313	118.3	21.14	0.344	0.6146
+1/4	0.250	127.3	22.75	0.282	0.8083
+3.5	0.223	61.2	10.94	0.237	0.4625
+4	0.185	62.7	11.21	0.204	0.5493
+5	0.157	55.1	9.85	0.171	0.5759
+6	0.132	27.2	4.86	0.145	0.3364
+8	0.094	11.6	2.07	0.113	0.1837
+10	0.079	1.6	0.29	0.086	0.0332
+12	0.066	1.0	0.18	0.072	0.0247
+14	0.056	0.6	0.11	0.061	0.0176
+16	0.047	0.4	0.07	0.051	0.0140
+20	0.033	0.3	0.05	0.040	0.0134
-20		3.8	0.68	0.017	0.4104
Total =		559.5	100.00		4.4052

Harmonic Mean Diameter (in.) = 0.2270

Weighted Average Diameter (in.)= 0.2815

Sample Moisture Data: Tare Wt. (g) = 15.9
 Initial Gross Wt. (g) = 581.6
 Final Gross Wt. (g) = 558.9

Stone Moisture (wt%) = 4.01

RUN DATA AVAILABILITY

Run No: 910529A

Summary: Yes Report: Yes Waste/Fines Log: No
Particle Size Analysis: No

Run No: 910529B

Summary: Yes Report: Yes Waste/Fines Log: No
Particle Size Analysis: No

Run No: 910607A

Summary: Yes Report: No Waste/Fines Log: No
Particle Size Analysis: No

Run No: 910609A

Summary: Yes Report: Yes Waste/Fines Log: No
Particle Size Analysis: No

Run No: 910609B

Summary: Yes Report: Yes Waste/Fines Log: No
Particle Size Analysis: No

Run No: 910611A

Summary: Yes Report: Yes Waste/Fines Log: No
Particle Size Analysis: No

Run No: 910614A

Summary: Yes Report: No Waste/Fines Log: No
Particle Size Analysis: No

Run No: 910615A

Summary: Yes Report: Yes Waste/Fines Log: No
Particle Size Analysis: No

Run No: 910618A

Summary: Yes Report: Yes Waste/Fines Log: No
Particle Size Analysis: No

Run No:	910620A		
	Summary: Yes	Report: Yes	Waste/Fines Log: No
	Particle Size Analysis: No		
Run No:	910621A		
	Summary: Yes	Report: Yes	Waste/Fines Log: No
	Particle Size Analysis: No		
Run No:	910626A		
	Summary: Yes	Report: Yes	Waste/Fines Log: No
	Particle Size Analysis: No		
Run No:	910627A		
	Summary: Yes	Report: Yes	Waste/Fines Log: No
	Particle Size Analysis: No		
Run No:	910628A		
	Summary: Yes	Report: Yes	Waste/Fines Log: No
	Particle Size Analysis: No		
Run No:	910629A		
	Summary: Yes	Report: Yes	Waste/Fines Log: No
	Particle Size Analysis: No		
Run No:	910701A		
	Summary: Yes	Report: Yes	Waste/Fines Log: No
	Particle Size Analysis: No		
Run No:	910702A		
	Summary: Yes	Report: Yes	Waste/Fines Log: No
	Particle Size Analysis: No		
Run No:	910703A		
	Summary: Yes	Report: Yes	Waste/Fines Log: No
	Particle Size Analysis: No		

Run No: 910708A

Summary: Yes Report: Yes Waste/Fines Log: No
Particle Size Analysis: No

Run No: 910716A

Summary: Yes Report: Yes Waste/Fines Log: No
Particle Size Analysis: No

Run No: 910717A

Summary: Yes Report: Yes Waste/Fines Log: No
Particle Size Analysis: No

Run No: 910719A

Summary: Yes Report: Yes Waste/Fines Log: No
Particle Size Analysis: No

Run No: 910721A

Summary: Yes Report: Yes Waste/Fines Log: No
Particle Size Analysis: No

Run No: 910722A

Summary: Yes Report: Yes Waste/Fines Log: No
Particle Size Analysis: No

Run No: 910723A

Summary: Yes Report: Yes Waste/Fines Log: No
Particle Size Analysis: No

Run No: 910724A

Summary: Yes Report: Yes Waste/Fines Log: No
Particle Size Analysis: No

Run No: 910725A

Summary: Yes Report: Yes Waste/Fines Log: No
Particle Size Analysis: No

Run No: 920128A

Summary: No Report: Yes Waste/Fines Log: No
Particle Size Analysis: No

Run No: 920205

Summary: Yes Report: Yes Waste/Fines Log: No
Particle Size Analysis: No

Run No: 920217

Summary: Yes Report: Yes Waste/Fines Log: No
Particle Size Analysis: No

Run No: 920226

Summary: Yes Report: Yes Waste/Fines Log: No
Particle Size Analysis: Dutchman Stone
Mist Eliminator Stone
Fan Paste

Run No: 920304

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: Dutchman Stone (1918)
Undersize Screen Dust

Run No: 920305

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: Dutchman Stone
Undersize Screen Dust (1022)

Run No: 920310

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: No

Run No: 920317, 920318, 920319

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: No

Run No: 920428

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: No

Run No: 920430

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: Feed Screw Stone (1137)
Reactor Stone (1141)

Run No: 920501

Summary: No Report: No Waste/Fines Log: No
Particle Size Analysis: Reactor Stone (0911)
Feed Screw Stone (0912)
Dutchman Stone (1245)
Reactor Stone (1631)

Run No: 920502

Summary: No Report: No Waste/Fines Log: No
Particle Size Analysis: Reactor Stone (0200)
Dutchman Stone (1000)
Reactor Stone (1043)
Dutchman Stone (1414)

Run No: 920503

Summary: No Report: No Waste/Fines Log: No
Particle Size Analysis: Reactor Stone (0238)
Dutchman Stone (1126)

Run No: 920504

Summary: No Report: No Waste/Fines Log: No
Particle Size Analysis: Reactor Stone (0125)
Reactor Stone (0849)
Feed Screw Stone (0849)
Reactor Stone (0857)
Feed Screw Stone (0858)
Dutchman Stone (1325)
Reactor Stone (1500)
Feed Screw Stone (1500)
Reactor Stone (2056)
Feed Screw Stone (2056)
Reactor Stone (2239)
Feed Screw Stone (2223)

Run No: 920505

Summary: No
Particle Size Analysis:

Report: No Waste/Fines Log: No
Reactor Stone (0530)
Reactor Screw Stone (1017)
Feed Screw Stone (1025)
Reactor Stone (1027)
Feed Screw Stone (1033)
Feed Screw Stone (1318)
Feed Screw Stone (1400)
Reactor Stone (1541)
Feed Screw Stone (1544)
Reactor Stone (1918)
Feed Screw Stone (1921)

Run No: 920513

Summary: Yes
Particle Size Analysis:

Report: Yes Waste/Fines Log: Yes
Dutchman Stone (0847)
Reactor Screw Stone (0945)
Feed Screw Stone (0945)
Feed Screw Stone (1015)
Reactor Screw Stone (1200)
Feed Screw Stone (1200)
Dutchman Stone (1310)
Feed Screw Stone (1414)
Feed Screw Stone (1550)
Feed Screw Stone (1711)

Run No: 920515

Summary: Yes
Particle Size Analysis: No

Report: No Waste/Fines Log: No

Run No: 920520

Summary: Yes
Particle Size Analysis:

Report: Yes Waste/Fines Log: Yes
Feed Screw Stone (0920)
Feed Screw Stone (0940)
Reactor Stone (1000)
Feed Screw Stone (1000)
Feed Screw Stone (1015)
Feed Screw Stone (1020)
Reactor Screw Stone (1040)
Feed Screw Stone (1115)
Feed Screw Stone (1130)
Reactor Stone (1355)
Feed Screw Stone (1355)

Run No: 920522

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: No

Run No: 920526

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: No

Run No: 920527

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: Reactor Stone (1540)
Feed Screw Stone (1540)
Dutchman Stone (1600)

Run No: 920528

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: Feed Screw Stone (1310)
Dutchman Stone (1320)
I.D. Fan Stone (1414)
Dutchman Stone (1458)

Run No: 920529

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: Feed Screw Stone (1310)
Feed Screw Stone (1430)
Feed Screw Stone (1500)

Run No: 920601

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: Feed Screw Stone (1400)

Run No: 920602

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: Reactor Stone (1000)
Feed Screw Stone (1000)
Feed Screw Stone (1300)

Run No: 920604

Summary: Yes
Particle Size Analysis:

Report: Yes Waste/Fines Log: Yes
Reactor Stone (1035)
Reactor Stone (1130)
Feed Screw Stone (1130)
Dutchman Stone (1150)
Dutchman Stone (1307)
Dutchman Stone (1307)
Dutchman Stone (1326)

Run No: 920605

Summary: Yes
Particle Size Analysis:

Report: Yes Waste/Fines Log: Yes
Feed Screw Stone (1315)

Run No: 920607

Summary: No
Particle Size Analysis:

Report: No Waste/Fines Log: No
Reactor Screw Stone (1630)
Feed Screw Stone (1630)

Run No: 920609

Summary: No
Particle Size Analysis:

Report: No Waste/Fines Log: No
Reactor Screw Stone (1215)
Feed Screw Stone (1215)
Reactor Screw Stone (1400)
Feed Screw Stone (1400)

Run No: 920611

Summary: No
Particle Size Analysis:

Report: No Waste/Fines Log: No
I.D. Fan Stone (1050)

Run No: 920613

Summary: Yes
Particle Size Analysis:

Report: Yes Waste/Fines Log: Yes
Reactor Stone (1400)
Feed Screw Stone (1552)

Run No: 920616

Summary: Yes
Particle Size Analysis:

Report: Yes Waste/Fines Log: Yes
Dutchman Stone (EOR)

Run No: 920617

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: No

Run No: 920618

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: No

Run No: 920619

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: No

Run No: 920622

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: Dutchman Stone (1330)

Run No: 920623

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: No

Run No: 920624

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: Feed Screw Stone (1720)
Feed Screw Stone (1830)
Feed Screw Stone (2030)

Run No: 920625

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: Reactor Stone (1120)
Feed Screw Stone (1122)
Reactor Stone (1150)
Feed Screw Stone (1327)
Feed Screw Stone (1650)

Run No: 920626

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: Reactor Stone (1100)
Reactor Screw Stone (1600)
Feed Screw Stone (1600)

Run No: 920629

Summary: Yes	Report: Yes	Waste/Fines Log: Yes
Particle Size Analysis:	Dutchman Stone (1414)	
	Feed Screw Stone (1407)	
	Reactor Stone (1600)	
	Feed Screw Stone (1600)	

Run No: 920630

Summary: Yes	Report: Yes	Waste/Fines Log: Yes
Particle Size Analysis:	Feed Screw Stone (1025)	
	Feed Screw Stone (1200)	

Run No: 920702

Summary: Yes	Report: Yes	Waste/Fines Log: Yes
Particle Size Analysis:	No	

Run No: 920706

Summary: Yes	Report: Yes	Waste/Fines Log: Yes
Particle Size Analysis:	No	

Run No: 920709

Summary: Yes	Report: Yes	Waste/Fines Log: Yes
Particle Size Analysis:	No	

Run No: 920714

Summary: Yes	Report: Yes	Waste/Fines Log: Yes
Particle Size Analysis:	Reactor Screw Stone (1550)	
	Feed Screw Stone (1550)	

Run No: 920716

Summary: Yes	Report: Yes	Waste/Fines Log: Yes
Particle Size Analysis:	Reactor Screw Stone (1133)	
	Feed Screw Stone (1133)	
	Reactor Screw Stone (1310)	
	Feed Screw Stone (1310)	
	Reactor Screw Stone (1437)	
	Feed Screw Stone (1437)	
	Reactor Screw Stone (1555)	
	Feed Screw Stone (1555)	

Run No: 920718

Summary: Yes
Particle Size Analysis:

Report: Yes Waste/Fines Log: Yes
Reactor Screw Stone (1210)
Feed Screw Stone (1210)
Reactor Screw Stone (1340)
Feed Screw Stone (1340)
Waste Screw Stone (1410)
Reactor Screw Stone (1440)
Feed Screw Stone (1440)
Reactor Screw Stone (1553)
Feed Screw Stone (1553)

Run No: 920719

Summary: Yes
Particle Size Analysis:

Report: Yes Waste/Fines Log: Yes
Reactor Screw Stone (1500)
Feed Screw Stone (1500)
Feed Screw Stone (1535)
Feed Screw Stone (1610)
Reactor Screw Stone (1615)
Feed Screw Stone (1921)
Feed Screw Stone (2000)

Run No: 920810

Summary: Yes
Particle Size Analysis:

Report: Yes Waste/Fines Log: Yes
Reactor Screw Stone (1500)
Feed Screw Stone (1500)

Run No: 920811

Summary: Yes
Particle Size Analysis:

Report: Yes Waste/Fines Log: Yes
Reactor Screw Stone (1300)
Feed Screw Stone (1300)
Reactor Screw Stone (1354)
Feed Screw Stone (1354)
Waste Dust Stone (1354)
Dutchman Stone (1354)
Dutchman Stone (1504)

Run No: 920812

Summary: Yes
Particle Size Analysis:

Report: Yes Waste/Fines Log: Yes
Reactor Screw Stone (1245)
Feed Screw Stone (1245)
Reactor Screw Stone (1500)
Feed Screw Stone (1500)
Reactor Screw Stone (1600)
Feed Screw Stone (1600)
Reactor Screw Stone (1700)
Feed Screw Stone (1700)
Dutchman Stone (1700)

Run No: 921019

Summary: Yes
Particle Size Analysis:

Report: Yes Waste/Fines Log: Yes
Reactor Screw Stone (1540)
Feed Screw Stone (1540)

Run No: 921020

Summary: Yes
Particle Size Analysis:

Report: Yes Waste/Fines Log: Yes
Reactor Screw Stone (1645)
Feed Screw Stone (1645)
Reactor Screw Stone (1749)
Reactor Screw Stone (2200)
921021 Reactor Screw Stone (0000)
Feed Screw Stone (0000)
Reactor Screw Stone (0300)
Feed Screw Stone (0300)
Reactor Screw Stone (0845)
Feed Screw Stone (0845)
Reactor Screw Stone (1100)
Feed Screw Stone (1100)
Reactor Screw Stone (1300)
Feed Screw Stone (1300)
Reactor Screw Stone (1600)
Feed Screw Stone (1600)
Feed Screw Stone (2010)
921022 Reactor Screw Stone (0400)
Reactor Screw Stone (0400)
Feed Screw Stone (0400)
Reactor Screw Stone (0700)
Feed Screw Stone (0700)
Dutchman Stone (1305)
Reactor Screw Stone (1400)

Run No: 921020 (continued)

Feed Screw Stone (1400)
Reactor Screw Stone (1700)
Feed Screw Stone (1700)
Dutchman Stone (1901)
Reactor Screw Stone (2100)
Feed Screw Stone (2100)
921023 Reactor Screw Stone (0050)
Feed Screw Stone (0050)

Run No: 921029

Summary: Yes Report: No Waste/Fines Log: Yes
Particle Size Analysis: No

Run No: 921030

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: Reactor Screw Stone (1000)
Feed Screw Stone (1000)
Reactor Screw Stone (1200)
Feed Screw Stone (1200)
Reactor Screw Stone (1530)
Feed Screw Stone (1530)
Reactor Screw Stone (1630)
Feed Screw Stone (1630)

Run No: 921103

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: Reactor Screw Stone (1430)
Feed Screw Stone (1430)
Reactor Screw Stone (1600)
Feed Screw Stone (1600)

Run No: 921104

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: Feed Screw Stone (1430)
Reactor Screw Stone (1700)
Reactor Screw Stone (1900)

Run No: 921105

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: Reactor Screw Stone (1400)
Feed Screw Stone (1400)

Run No: 921109

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: No

Run No: 921110

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: No

Run No: 921111

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: Reactor Screw Stone (1340)
Feed Screw Stone (1340)
Reactor Screw Stone (2040)
Feed Screw Stone (2040)
Reactor Screw Stone (2220)
Feed Screw Stone (2220)

Run No: 921112

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: Reactor Screw Stone (1300)
Feed Screw Stone (1300)
Reactor Screw Stone (1500)

Run No: 921116

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: No

Run No: 921117

Summary: Yes Report: Yes Waste/Fines Log: Yes
Particle Size Analysis: Dutchman Stone (1425)
Reactor Screw Stone (1520)
Feed Screw Stone (1520)
Dutchman Stone (1700)

Run No: 921118

Summary: Yes
Particle Size Analysis:

Report: Yes Waste/Fines Log: Yes
Reactor Screw Stone (0920)
Feed Screw Stone (0920)
Reactor Screw Stone (1145)
Feed Screw Stone (1145)
Reactor Screw Stone (1515)
Feed Screw Stone (1515)
Reactor Screw Stone (2000)
Feed Screw Stone (2000)

Run No: 921119

Summary: No
Particle Size Analysis:

Report: No Waste/Fines Log: No
Reactor Screw Stone (1000)
Feed Screw Stone (1000)

Run No: 921124

Summary: Yes
Particle Size Analysis:

Report: Yes Waste/Fines Log: Yes
Reactor Screw Stone (1729)
Feed Screw Stone (1729)
Dutchman Stone (1729)

EXPERIMENTAL RUN DATA

Run Summary: **LEC Run 910529A**

Objective: To determine if the one layer of aluminum screen on the inside of the outlet will solve the limestone carry-over problem.

Total Run Time: 58 minutes minutes (09:16 to 10:04).

SO₂ Removal: 84% (average).

Inlet Gas Rate: 2159 acfm (average).

Bed Δ P: 11.9 in H₂O (average).

Operational Conditions:

 Fresh No.9 limestone

 Single layer of Aluminum screening with 4 braces located on the inside of the outlet louvers.

 In-duct Steam = 0 psig.

 Overhead Sprays = 1.0 gpm.

 Louver Sprays = Not Installed.

 Bed Speed = 20 DT (3995 lb/hr).

 Regeneration Device: None.

 Stone Carry-Over: 0 lbs/min.

 Waste fines: 0 lbs/min.

Comments: - The screen sucessfully held the stone within the reactor.
 - This run was terminated due to excessive water in the stone.

LEC Run 910529a

Starting
05-29-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (ppm)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5' 3' Bed Temp (F)	3' 5' Bed Temp (F)	1' 8' Bed Temp (F)	Blm. Bed Temp (F)	Nox (mV)
C Overhead Sprays at 1.0 gpm. Bed Speed at 20 DT. Damper is set at full														
09:16	859.00	0.19	14.88	14.41	11.61	3101.89	242.80	81.10	82.30	72.80	71.70	67.6	73.00	28.32
09:17	906.00	0.45	14.68	14.29	11.58	3039.28	242.80	82.20	82.30	82.40	82.40	81.4	81.80	28.64
09:18	930.00	0.45	14.64	14.29	11.51	2954.28	242.80	82.30	82.30	87.20	85.50	84.5	82.30	28.99
09:19	962.00	0.43	14.36	14.22	11.61	2801.55	242.80	87.20	83.60	94.40	91.00	92.6	82.40	29.28
09:20	974.00	0.91	14.28	14.29	11.62	2727.81	242.70	108.40	92.80	94.60	97.00	97.9	86.70	29.52
09:21	949.00	6.48	14.31	14.35	11.65	2682.92	242.70	111.70	111.10	97.40	98.70	102.3	92.10	29.70
09:22	966.00	29.61	14.30	14.37	11.64	2666.46	242.70	111.70	110.90	100.60	105.40	107.0	99.70	29.98
09:23	985.00	47.16	14.18	14.30	11.69	2624.24	242.80	111.80	109.30	97.70	110.90	109.2	101.10	30.40
09:24	1000.00	63.50	13.89	14.16	11.83	2545.09	242.70	111.70	108.30	100.60	111.40	108.8	102.80	30.74
09:25	1000.00	79.10	13.77	14.10	11.91	2487.87	242.70	111.70	108.20	100.70	111.70	110.0	103.50	30.81
10 MinAvg	957.60	22.83	14.33	14.28	11.66	2763.14	242.75	99.98	97.11	92.84	96.57	96.1	90.54	29.64
09:26	1000.00	99.90	13.74	14.01	12.31	2061.29	242.70	111.70	111.60	100.90	111.70	109.3	103.10	31.04
09:27	1000.00	124.10	13.74	13.98	5.95	1230.11	242.70	111.70	111.70	102.40	111.70	108.8	105.80	31.41
09:28	990.00	137.00	13.81	14.02	12.30	2231.33	242.70	111.70	111.70	103.40	111.70	109.9	106.60	31.68
09:29	1000.00	158.90	13.78	13.94	12.26	2203.93	242.70	111.70	111.70	103.10	111.70	109.9	111.40	31.85
09:30	1000.00	165.20	13.83	13.96	12.25	2160.72	242.70	111.70	111.70	104.40	111.70	111.3	111.70	32.23
09:31	981.00	173.80	13.91	13.95	12.21	2122.48	242.70	111.70	111.90	105.20	110.40	112.9	111.70	32.31
09:32	973.00	170.80	13.75	13.82	12.21	2096.59	242.70	115.00	111.70	107.60	111.70	111.7	111.70	32.79
09:33	988.00	205.30	13.62	13.65	12.19	2074.94	243.30	111.70	111.70	109.70	111.70	113.2	117.90	33.02
09:34	976.00	212.70	13.64	13.68	12.20	2046.39	242.50	111.50	111.50	108.40	111.50	111.7	116.90	33.25
09:35	974.00	215.20	13.74	13.63	12.20	2027.06	242.80	111.80	111.80	111.20	116.10	125.9	113.60	33.48
10 MinAvg	997.50	166.29	13.76	13.86	11.61	2025.48	242.75	112.02	111.70	105.63	111.99	112.5	111.04	32.31
09:36	959.00	233.50	13.83	13.70	12.20	2003.54	242.80	111.80	111.80	111.80	112.40	141.7	111.80	33.95
09:37	970.00	242.30	13.86	13.64	12.22	1977.99	242.80	111.80	111.80	111.70	111.80	141.8	112.90	34.01
09:38	903.00	245.50	14.03	13.77	12.18	1987.98	242.90	111.90	111.90	111.90	114.30	151.4	118.70	34.33
09:39	937.00	247.50	13.89	13.65	12.22	1988.64	243.00	111.90	111.90	111.90	140.90	154.6	127.30	34.53
09:40	922.00	248.10	13.91	13.70	12.23	1995.03	244.00	113.80	112.00	111.90	147.10	156.1	135.30	34.77
C The NOx monitor is set on the inlet; 100 scale														
09:41	888.00	247.10	13.99	13.69	12.23	1985.71	244.40	112.60	114.00	113.50	137.80	150.7	138.30	35.02
09:42	909.00	249.90	16.02	13.76	12.21	1987.53	249.00	117.10	112.30	114.50	124.40	157.6	139.40	405.10
C The thermocouples are acting up again														
09:43	933.00	254.60	15.82	13.63	12.22		6999.00	6999.00	6999.00	6999.00	6999.00	-70E+04	6999.00	710.00
09:44	934.00	250.80	15.86	13.63	12.20		6999.00	6999.00	6999.00	6999.00	6999.00	-70E+04	6999.00	727.00
09:45	928.00	243.20	15.89	13.67	12.19	1978.01	244.60	113.40	112.30	112.80	151.10	167.0	142.40	747.00

Starting
05-29-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (ppm)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm Bed Temp (F)	Nox (mV)
10 MinAvg	928.30	246.25	14.71	13.68	12.21	1988.05	-1204.45	-1309.37	-1310.00	-1309.80	-1295.82	-13E+04	-1297.19	279.58
09:46	924.00	234.30	15.87	13.69	12.18	1965.21	244.60	113.20	111.40	112.00	147.60	169.0	143.50	766.00
09:47	912.00	229.70	15.88	13.75	12.18	1963.74	245.60	114.10	117.70	113.20	113.90	170.7	142.60	773.00
09:48	914.00	238.00	15.89	13.74	12.15	1954.61	243.60	112.20	111.50	117.40	112.60	170.4	141.50	801.00
09:49	887.00	224.30	15.85	13.75	12.15	1957.37	244.00	120.90	110.60	111.80	112.90	171.7	143.20	819.00
09:50	894.00	229.70	15.85	13.74	12.12	1947.41	243.40	112.40	110.00	112.20	112.50	170.6	141.60	840.00
09:51	887.00	234.10	15.86	13.76	12.11	1940.02	243.40	112.40	110.80	111.80	112.40	167.1	141.60	852.00
09:52	915.00	245.90	15.85	13.80	12.11	1932.60	243.40	112.40	111.60	113.50	115.70	170.3	141.70	874.00
09:53	920.00	260.90	15.88	13.81	12.06	1925.31	250.00	114.40	111.60	113.60	114.90	170.2	141.70	877.00
09:54	889.00	246.70	16.06	13.92	11.93	1895.23	243.60	112.50	111.40	111.50	112.40	154.2	141.60	884.00
09:55	908.00	234.80	16.16	14.05	11.76	1856.78	243.40	112.40	109.90	111.50	112.40	154.2	141.60	884.00
10 MinAvg	905.00	237.84	15.91	13.80	12.07	1933.83	244.50	113.69	111.45	112.92	116.73	167.3	142.06	832.80
09:56	950.00	227.40	16.10	14.19	11.64	1825.27	243.40	112.50	111.20	112.10	112.50	155.4	141.40	886.00
09:57	917.00	217.40	16.15	14.50	11.69	1698.64	244.20	112.60	112.30	112.00	112.50	170.5	138.20	909.00
09:58	854.00	203.70	16.28	14.85	11.65	1654.95	243.50	112.50	112.40	111.10	112.50	172.9	137.40	898.00
C The NOx monitor is set on the outlet; 100 scale														
09:59	854.00	196.90	15.76	15.90	11.58	1637.76	243.60	112.70	110.50	110.30	112.70	171.1	137.50	844.00
10:00	933.00	196.40	14.39	17.13	11.61	1642.68	243.70	112.80	108.40	112.40	112.80	167.9	141.10	751.00
10:01	910.00	192.40	14.49	17.34	11.68	1599.58	243.80	112.80	107.10	112.60	112.80	172.1	116.10	734.00
10:02	902.00	189.30	14.39	17.52	11.65	1597.85	243.80	112.90	109.80	110.30	112.90	167.2	121.10	730.00
10:03	868.00	187.70	14.49	17.73	11.67	1598.53	243.90	112.90	109.80	109.90	112.90	169.2	141.20	723.00
10:04	803.00	179.30	14.62	17.88	11.48	1566.21	244.00	113.00	110.20	110.20	113.00	159.0	130.40	715.00

C
C The run is terminated due to soaked limestone which is clogging the chutes
C

Run Summary: **LEC Run 910529B**

Objective: To dry out the water saturated stone from LEC Run 910529B.

Total Run Time: 105 minutes minutes (12:51 to 17:15).

SO₂ Removal: 55% (average).

Inlet Gas Rate: 2300 acfm (average).

Bed ΔP: 12.1 in H₂O (average).

Operational Conditions:

 Fresh No.9 limestone

 Single layer of Aluminum screening with 4 braces located on the inside of the outlet louvers.

 In-duct Steam = 0 psig.

 Overhead Sprays = 0.0 gpm.

 Louver Sprays = Not Installed.

 Bed Speed = 20 DT (3995 lb/hr).

 Regeneration Device: None.

 Stone Carry-Over: 0 lbs/min.

 Waste fines: 0 lbs/min.

Comments: - The reactor screw became jammed twice during this run.
 - The run was terminated due to reactor stone bridging.

Starting
05-29-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5' 3' Bed Temp (F)	3' 5' Bed Temp (F)	1' 8' Bed Temp (F)	Btm. Bed Temp (F)	Nox (mV)
C The same bed as Run 910529A														
C Overhead Sprays at 0.0 gpm (in order to dry out the limestone): Bed Speed at 0 DT														
C The NOx monitors are on the inlet: 250 scale														
C Note: The -6999's contained in the temperature columns were caused by datalogger error.														
12:51	857.00	239.80	13.90	19.53	13.52		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	70E+04	-6999.00	97.90
12:52	883.00	301.00	13.92	19.52	13.41		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	70E+04	-6999.00	98.30
12:53	897.00	330.50	13.91	19.52	13.30		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	70E+04	-6999.00	99.00
12:54	892.00	350.70	14.55	19.51	13.19		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	70E+04	-6999.00	317.40
12:55	854.00	354.70	16.22	19.15	13.09		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	70E+04	-6999.00	461.90
12:56	857.00	361.40	16.25	14.82	12.99		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	70E+04	-6999.00	434.60
12:57	819.00	360.30	16.37	14.77	12.88		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	70E+04	-6999.00	436.10
12:58	906.00	364.80	16.55	14.78	12.79	2120.65	250.90	120.30	161.30	172.50	173.00	168.9	139.80	413.20
12:59	848.00	370.90	16.54	14.75	12.73		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	70E+04	-6999.00	399.70
13:00	846.00	369.60	16.56	14.80	12.67		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	70E+04	-6999.00	380.30
10 MinAvg	865.90	340.37	15.48	17.12	13.06	2120.65	-6274.01	-6287.07	-6282.97	-6281.85	-6281.80	-63E+04	-6285.12	313.84
C														
C The NOx monitor is set on the outlet: 100 scale														
C														
13:01	876.00	368.00	15.59	15.67	12.60	2085.59	250.60	147.10	162.10	176.30	165.00	176.6	147.20	516.20
13:02	842.00	378.30	14.24	16.76	12.55		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	70E+04	-6999.00	820.00
13:03	781.00	384.00	14.19	16.73	12.53		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	70E+04	-6999.00	800.00
13:04	895.00	392.10	14.08	16.79	12.50		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	70E+04	-6999.00	788.00
13:05	713.00	397.50	14.11	16.77	12.49		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	70E+04	-6999.00	778.00
13:06	760.00	401.30	14.01	16.60	12.45		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	70E+04	-6999.00	772.00
13:07	648.70	416.50	14.03	16.54	12.44		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	70E+04	-6999.00	769.00
13:08	745.00	426.30	14.00	16.47	12.42		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	70E+04	-6999.00	765.00
13:09	680.70	424.00	13.91	16.45	12.38		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	70E+04	-6999.00	759.00
13:10	668.80	424.90	13.99	16.44	12.35		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	70E+04	-6999.00	750.00
10 MinAvg	761.02	401.29	14.22	16.52	12.47	2085.59	-6274.04	-6284.39	-6282.89	-6281.47	-6282.60	-63E+04	-6284.38	751.72
13:11	551.90	430.90	13.96	16.59	12.36	2132.39	330.00	222.50	211.60	123.10	128.90	223.5	220.10	739.00
13:12	852.00	458.10	13.82	16.34	12.34		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	70E+04	-6999.00	752.00
13:13	581.30	446.10	13.77	16.44	12.30		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	70E+04	-6999.00	740.00
13:14	926.00	444.00	13.74	16.32	12.30	2025.80	249.90	159.70	174.20	82.20	84.70	191.6	162.70	735.00
13:15	883.00	448.80	13.66	16.37	12.26	2018.28	249.90	161.90	177.10	84.80	86.20	191.6	162.60	731.00
13:16	962.00	451.10	13.83	16.32	12.25	2010.90	249.90	162.30	177.10	88.30	88.80	191.5	162.60	725.00
C														
C Conveyors are tried to be started, unfortunately the reactor screws are jammed. The fan is shut-off														
C Time passes.....														
C The reactor screws are unjammed with water and the run is restarted														
C														
14:31	785.00	120.70	13.73	17.35	13.40	2317.32	250.20	91.20	92.90	85.50	83.50	102.2	91.20	664.10

LEC Run 910529b

Starting
05-29-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5' 3" Bed Temp (F)	3' 5" Bed Temp (F)	1' 8" Bed Temp (F)	Btm. Bed Temp (F)	Nox (mV)
14:32	0.11E+04	261.00	13.18	15.82	13.25	2309.76	250.30	102.20	111.90	83.30	83.80	119.3	104.20	880.00
14:33	0.11E+04	290.50	13.24	15.82	13.11	2322.26	250.30	114.00	119.40	83.30	81.50	125.5	119.10	869.00
14:34	0.11E+04	300.30	13.25	15.87	12.97	2298.72	250.30	119.30	120.10	86.40	84.70	148.6	119.30	865.00
14:35	0.11E+04	301.70	13.30	16.13	12.84	2268.43	250.30	119.30	136.10	87.60	87.50	156.5	119.30	853.00
14:36	0.11E+04	310.00	13.19	15.83	12.74	2247.00	250.30	119.40	144.00	88.40	86.70	163.0	120.90	863.00
14:37	0.11E+04	322.10	13.25	15.82	12.64	2258.70	250.30	119.40	147.10	89.10	88.60	163.3	136.80	860.00
14:38	0.11E+04	332.10	13.30	15.81	12.55	2267.39	250.30	119.40	148.20	87.70	86.80	169.7	148.20	860.00
14:39	0.11E+04	339.20	13.23	15.75	12.49	2242.18	250.30	119.40	148.10	88.60	87.30	177.1	148.50	877.00
14:40	0.11E+04	344.90	13.10	15.67	12.43	2229.36	250.40	121.50	146.60	88.40	87.40	177.5	148.60	882.00
10 MinAvg	0.11E+04	292.25	13.28	15.99	12.84	2276.11	250.30	114.51	131.44	86.83	85.78	150.3	125.61	847.31
14:41	0.11E+04	351.20	13.01	15.57	12.37	2222.84	250.40	134.30	136.40	89.70	88.20	180.4	148.60	912.00
14:42	0.11E+04	357.90	12.99	15.58	12.30	2209.90	250.50	146.80	134.80	89.50	89.10	189.3	148.70	925.00
14:43	0.11E+04	354.20	12.97	15.62	12.25	2213.71	250.60	148.50	147.30	89.30	86.70	191.1	150.80	931.00
14:44	0.11E+04	350.10	13.04	15.68	12.22	2224.02	250.60	148.80	148.70	89.20	86.90	192.1	156.50	945.00
14:45	0.11E+04	340.40	13.08	15.75	12.26	2232.66	250.60	148.70	148.80	89.90	89.10	192.3	161.30	949.00
14:46	0.11E+04	334.00	13.07	15.99	12.26	2242.89	250.70	148.10	148.80	90.10	88.80	192.3	163.30	959.00
14:47	0.11E+04	332.30	13.18	15.91	12.28	2249.70	250.70	148.60	148.90	89.80	89.90	192.3	163.40	948.00
14:48	0.11E+04	329.20	13.31	15.94	12.28	2243.07	250.70	148.10	148.90	89.90	89.80	192.3	163.40	943.00
14:49	0.11E+04	323.80	13.37	15.97	12.28	2243.07	250.70	148.60	148.90	89.60	89.60	192.3	163.40	916.00
14:50	0.11E+04	326.20	13.26	15.91	12.24	2236.43	250.70	148.90	148.90	89.70	90.30	192.3	163.40	935.00
10 MinAvg	0.11E+04	339.93	13.13	15.79	12.27	2231.83	250.62	146.94	146.04	89.67	88.84	190.7	158.28	936.30
14:51	0.11E+04	328.90	13.31	15.93	12.20	2256.31	252.00	148.90	151.50	89.90	90.00	192.3	163.40	941.00
14:52	0.11E+04	324.10	13.38	15.94	12.12	2249.70	250.70	148.90	161.30	90.30	90.00	192.3	163.40	928.00
14:53	0.11E+04	321.80	13.34	15.94	12.08	2242.89	250.70	148.90	163.30	89.90	89.80	192.3	163.30	947.00
14:54	0.11E+04	321.80	13.30	15.92	12.09	2249.52	250.60	148.80	163.30	90.00	89.80	192.3	163.30	967.00
14:55	0.11E+04	326.00	13.27	16.11	12.07	2249.52	250.60	148.80	163.30	89.60	89.60	192.3	163.30	1011.00
14:56	0.11E+04	324.30	13.37	16.18	12.07	2249.52	250.60	148.80	163.30	88.90	87.80	192.3	163.30	1024.00
14:57	983.00	318.60	13.49	16.17	12.06	2249.52	250.60	148.80	163.30	87.40	87.60	192.2	163.30	1004.00
14:58	0.10E+04	325.70	13.43	16.11	12.03	2243.25	250.60	148.80	163.30	84.50	85.10	192.4	163.50	992.00
14:59	985.00	322.70	13.58	16.19	12.03	2249.70	250.70	151.40	163.60	87.40	86.90	192.5	163.40	957.00
15:00	0.11E+04	327.00	13.54	16.17	11.95	2256.13	250.60	149.60	163.70	88.10	88.70	192.6	163.30	936.00
10 MinAvg	0.10E+04	324.09	13.40	16.07	12.07	2249.61	250.77	149.17	161.99	88.60	88.53	192.4	163.35	970.70
15:01	0.11E+04	321.60	13.54	16.08	11.88	2263.26	250.60	156.90	166.70	89.20	89.30	193.7	163.60	935.00
15:02	0.10E+04	320.20	13.64	16.15	11.82	2270.19	250.60	162.30	171.70	89.10	89.10	194.9	163.80	907.00
15:03	0.10E+04	309.00	13.66	16.07	11.77	2304.98	250.60	163.30	176.30	89.30	89.70	201.5	165.00	893.00
15:04	0.10E+04	282.30	13.68	16.23	11.76	2307.93	250.60	163.30	177.70	89.00	89.40	204.3	166.60	883.00
15:05	0.10E+04	276.60	13.69	16.18	11.68	2360.91	250.50	163.20	177.70	89.50	89.30	203.0	167.50	872.00
15:06	0.10E+04	354.50	13.70	15.79	11.61	2425.65	250.60	163.30	177.90	90.00	88.90	195.9	165.40	885.00
15:07	0.10E+04	444.10	13.78	15.73	11.48	2483.08	250.50	163.20	178.30	89.90	89.90	190.0	163.70	884.00

Starting
05-29-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5 3' Bed Temp (F)	3.5' Bed Temp (F)	1 8' Bed Temp (F)	Btm. Bed Temp (F)	Nox (mV)
15:08	0.10E+04	507.30	13.80	15.73	11.40	2529.79	250.50	163.20	179.50	89.50	89.10	181.9	163.30	875.00
15:09	0.10E+04	545.20	13.83	15.71	11.33	2559.04	250.50	163.20	178.40	89.60	89.60	177.2	163.30	874.00
15:10	0.10E+04	577.60	13.81	15.60	11.21	2604.94	250.50	163.20	180.10	90.00	90.10	165.4	163.20	874.00
10 MinAvg	0.10E+04	393.84	13.71	15.93	11.59	2410.98	250.55	162.51	176.43	89.51	89.44	190.8	164.54	888.20
15:11	991.00	585.00	13.97	15.68	11.07	2655.86	250.50	163.20	180.90	90.10	90.10	163.2	163.20	856.00
15:12	983.00	607.20	14.02	15.71	10.98	2700.31	250.50	163.20	183.50	90.20	90.10	163.2	163.20	841.00
15:13	996.00	637.20	13.95	15.65	10.89	2733.17	250.50	163.20	183.80	90.20	89.70	163.2	163.20	839.00
15:14	0.10E+04	692.80	13.80	15.69	10.87	2733.17	250.50	163.20	185.40	89.60	89.60	163.2	163.20	862.00
15:15	0.10E+04	710.00	13.62	15.56	8.44	2314.55	250.50	163.20	189.60	89.30	89.60	163.2	163.20	877.00
C The reactor screws are jammed again. Restarted screws by flooding them with water.														
C The NOx monitors are set on the inlet														
15:33	756.00	103.10	14.34	17.82	12.00	2556.41	250.60	129.50	153.90	160.30	168.00	164.3	148.20	779.00
15:34	865.00	188.00	14.37	16.51	11.79	2620.13	250.70	148.40	163.40	180.10	188.90	184.1	162.30	1000.00
15:35	954.00	222.20	14.05	16.56	11.66	2633.77	250.70	148.90	164.60	192.20	192.40	192.4	163.40	993.00
15:36	980.00	223.00	14.06	16.62	11.72	2524.10	250.70	148.90	174.10	192.40	192.40	192.4	163.40	967.00
15:37	970.00	207.10	16.43	15.12	11.68	2512.68	250.80	149.00	177.90	193.50	196.10	193.0	163.60	595.90
15:38	969.00	205.50	17.38	14.76	11.63	2509.36	250.80	149.10	178.00	203.20	204.10	200.2	164.90	396.60
15:39	981.00	202.00	17.40	14.70	11.62	2509.80	250.80	150.70	178.00	213.90	211.20	209.4	171.10	396.30
15:40	994.00	229.30	17.41	14.73	11.61	2501.77	250.80	155.90	178.00	218.40	215.50	219.4	176.20	402.00
10 MinAvg	747.27	158.13	16.76	17.85	9.88	2415.66	239.92	137.21	160.83	179.81	181.64	180.1	155.31	582.92
15:41	990.00	262.60	17.40	14.67	11.62	2474.33	250.80	162.80	178.00	220.60	219.00	220.7	177.80	404.30
15:42	0.10E+04	280.80	17.24	14.55	11.61	2449.97	250.90	163.40	178.00	221.40	221.10	221.5	178.00	410.80
15:43	0.10E+04	306.60	17.26	14.52	11.62	2431.43	250.90	163.60	178.10	221.60	221.50	221.6	178.10	419.20
15:44	0.10E+04	324.10	17.21	14.50	11.62	2412.56	250.90	163.60	178.10	221.70	221.40	221.7	178.10	426.90
15:45	0.10E+04	347.10	17.22	14.49	11.63	2380.77	250.90	163.60	178.10	221.70	221.60	221.7	178.10	432.80
15:46	999.00	360.50	17.29	14.54	11.62	2361.49	251.00	163.70	179.50	221.70	221.70	221.5	178.10	437.30
15:47	989.00	366.40	17.41	14.62	11.63	2342.24	251.00	163.70	183.60	221.70	221.60	221.4	178.20	426.50
15:48	980.00	369.50	17.47	14.66	11.62	2329.19	251.00	163.70	185.10	221.80	221.60	221.4	178.20	416.40
15:49	977.00	376.60	17.50	14.66	11.63	2309.48	251.00	163.70	186.30	221.80	221.80	221.3	178.20	410.40
15:50	966.00	379.90	17.58	14.70	11.63	2297.68	251.10	163.80	190.80	221.80	221.70	221.8	179.00	397.20
10 MinAvg	992.00	337.41	17.36	14.59	11.62	2378.91	250.95	163.56	181.56	221.58	221.30	221.5	178.18	418.18
15:51	967.00	385.80	17.55	14.66	11.62	2285.97	251.10	163.80	191.60	221.80	221.80	221.4	179.90	387.80
15:52	973.00	393.00	17.55	14.63	11.63	2278.92	251.10	163.80	191.80	221.80	221.80	221.2	179.70	377.30
15:53	978.00	396.60	17.52	14.59	11.61	2273.63	251.10	163.80	191.80	221.90	221.90	221.4	180.50	371.00
15:54	978.00	397.30	17.51	14.59	11.62	2273.81	251.10	163.80	192.10	221.90	221.90	221.6	180.60	368.20
15:55	981.00	405.40	17.50	14.54	11.60	2277.00	251.10	163.80	192.30	221.80	221.80	221.4	182.40	365.10
15:56	990.00	413.40	17.41	14.44	11.60	2276.29	251.10	163.80	192.20	221.80	221.80	221.7	182.00	364.10

LEC Run 910529b

Starting
05-29-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5' 3' Bed Temp (F)	3' 5' Bed Temp (F)	1' 8' Bed Temp (F)	Btm. Bed Temp (F)	Nox (mV)
15:57	962.00	419.00	17.38	14.42	11.60	2281.43	251.20	163.80	193.00	221.80	222.00	222.2	184.90	365.80
15:58	900.00	424.60	17.37	14.39	11.58	2286.02	249.80	161.20	193.40	223.40	223.90	221.7	187.50	368.60
15:59	969.00	425.70	17.32	14.43	11.58		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	371.70
16:00	995.00	423.80	17.40	14.49	11.61	2267.89	251.10	163.80	192.60	221.80	221.80	221.8	184.90	368.80
10 MinAvg	969.30	408.46	17.45	14.52	11.61	2277.88	-474.03	-552.74	-526.82	-500.10	-500.03	-500.5	-535.66	370.84
16:01	0.10E+04	433.10	17.25	14.43	11.60	2255.31	251.10	163.80	192.60	222.70	221.80	221.7	185.50	372.40
16:02	0.10E+04	434.60	17.32	14.42	11.60	2276.43	251.10	163.80	192.70	223.00	221.80	221.7	185.90	371.80
16:03	0.10E+04	434.60	17.25	14.38	11.59	2284.61	251.10	163.80	192.60	223.00	221.80	221.7	186.70	371.20
16:04	0.10E+04	438.30	17.35	14.40	11.59	2289.76	251.00	163.70	192.70	223.20	221.80	221.5	185.80	364.60
16:05	973.00	438.40	17.35	14.20	11.61	2275.37	251.10	163.70	192.70	224.10	221.80	221.8	185.30	360.50

C
C The NOx monitor is set on the outlet: 100 scale

16:06	855.00	445.20	14.96	15.75	11.59		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	661.90
16:07	920.00	448.90	14.01	16.27	11.58		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	852.00
16:08	925.00	452.30	13.97	16.29	11.59	2285.14	254.50	169.00	198.00	223.80	222.70	223.8	187.00	841.00
16:09	815.00	460.90	13.76	16.27	11.59		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	843.00
16:10	798.00	467.70	13.73	16.21	11.56		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	857.00
10 MinAvg	930.30	445.40	15.69	15.26	11.59	2277.77	-2648.61	-2700.82	-2683.47	-2665.62	-2666.43	-27E+04	-2687.98	589.54
16:11	762.00	477.20	13.74	16.22	11.58		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	880.00
16:12	934.00	490.60	13.58	16.13	11.57		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	923.00
16:13	984.00	482.00	13.49	16.19	11.57		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	956.00
16:14	895.00	488.10	13.53	16.27	11.57		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	972.00
16:15	885.00	480.00	13.62	16.35	11.53		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	986.00
16:16	938.00	480.40	13.63	16.46	11.52		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	994.00
16:17	908.00	479.70	13.77	16.64	11.55		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	1001.00
16:18	664.00	481.30	13.79	16.61	11.52		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	1006.00
16:19	894.00	475.90	13.89	16.70	11.50		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	990.00
16:20	825.00	483.20	13.91	16.73	11.52		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	935.00

C
C The NOx monitor is still on the outlet, but the scale is changed to 250

10 MinAvg	888.90	481.84	13.69	16.43	11.54		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	964.30
16:21	807.00	481.20	13.93	16.78	11.52		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	409.00
16:22	785.00	483.70	13.95	16.85	11.50		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	418.50
16:23	746.00	474.90	14.06	16.98	11.49		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	421.60
16:24	763.00	465.90	14.18	17.19	11.46	2353.81	266.50	178.20	207.70	235.40	236.20	237.0	210.60	420.20
16:25	819.00	458.40	14.31	17.45	11.49		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	415.60
16:26	817.00	455.80	14.26	17.30	11.49		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	415.30
16:27	828.00	467.30	14.28	17.25	11.49		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	418.30

Starting
05-29-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	3tm. Bed Temp (F)	Nox (mV)
16:28	595.80	471.20	14.28	17.28	11.47		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	416.30
16:29	768.00	470.90	14.28	17.29	11.47		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	412.00
16:30	815.00	480.80	14.27	17.26	11.45		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	409.30
10 MinAvg	774.38	471.01	14.18	17.16	11.48	2353.81	-6272.45	-6281.28	-6278.33	-6275.56	-6275.48	-63E+04	-6278.04	415.61
16:31	817.00	480.40	14.32	17.31	11.41		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	406.50
16:32	765.00	477.90	14.27	17.50	11.44		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	402.40
16:33	813.00	487.20	14.25	17.33	11.43		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	401.30
16:34	767.00	493.10	14.26	17.27	11.41		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	405.70
16:35	745.00	494.50	14.23	17.25	11.41		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	406.40
16:36	797.00	499.00	14.23	17.28	11.37		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	410.90
16:37	698.00	496.60	14.30	17.33	11.34	2350.73	259.20	173.60	199.60	234.30	225.90	224.9	201.20	415.30
16:38	873.00	494.30	14.36	17.34	11.35	2346.13	259.30	174.50	203.50	244.40	233.50	233.9	202.40	409.10
16:39	781.00	495.60	14.36	17.57	11.37		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	406.90
16:40	852.00	501.60	14.42	17.41	11.34		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	404.70
10 MinAvg	790.80	492.02	14.30	17.36	11.39	2348.43	-5547.35	-5564.39	-5558.89	5551.33	5553.26	-56E+04	-5558.84	406.92
16:41	840.00	504.40	14.39	17.38	11.33		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	396.80
16:42	843.00	509.10	14.40	17.37	11.34		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	395.00
16:43	825.00	511.40	14.44	17.39	11.33		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	393.00
16:44	857.00	522.20	14.40	17.32	11.31		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	390.30
16:45	902.00	530.70	14.28	17.26	11.31	2364.64	253.80	166.80	196.30	235.60	225.70	224.0	194.10	389.80
16:46	857.00	533.90	14.32	17.49	11.30		-6999.00	-6999.00	-6999.00	-6999.00	-6999.00	-70E+04	-6999.00	386.80
16:47	834.00	541.50	14.26	17.36	11.29	2357.31	252.80	164.80	193.60	238.70	225.50	222.8	193.70	389.20
16:48	912.00	538.10	14.31	17.34	11.29	2342.05	250.90	163.80	192.60	235.90	225.70	221.9	192.60	389.10
16:49	935.00	545.80	14.31	17.34	11.28	2348.70	251.10	163.90	194.40	237.00	223.30	221.8	192.60	386.80
16:50	879.00	547.80	14.28	17.33	11.27	2349.42	251.40	164.50	195.40	239.90	225.10	222.5	193.00	384.50
C The NOx monitor is set on the inlet														
10 MinAvg	868.40	528.49	14.34	17.36	11.31	2352.42	-3373.50	-3417.12	-3402.27	-3380.79	-3386.97	-34E+04	-3402.90	390.13
16:51	945.00	549.60	15.61	15.96	11.29	2350.50	251.70	165.70	196.50	239.70	224.00	223.3	193.60	400.50
16:52	858.00	554.00	16.81	15.14	11.27	2355.68	250.50	163.80	195.80	241.00	223.40	222.7	192.80	417.40
16:53	908.00	550.80	16.82	15.15	11.27	2356.59	251.60	164.40	199.30	242.10	225.30	224.2	193.30	418.60
16:54	912.00	553.20	16.85	15.15	11.27	2342.05	251.00	164.10	199.00	239.50	224.60	224.8	192.60	420.10
16:55	887.00	559.70	16.81	15.14	11.28	2330.31	251.10	164.70	198.80	241.80	225.50	226.7	193.50	417.90
16:56	885.00	563.20	16.80	15.13	11.30	2315.64	251.30	165.20	203.40	242.60	225.30	224.2	192.80	414.80
16:57	914.00	564.10	16.75	15.08	11.31	2302.14	251.00	165.90	204.10	242.80	226.20	227.0	192.80	418.40
16:58	903.00	576.40	16.74	15.01	11.31	2315.11	251.20	165.10	204.40	242.90	225.60	227.5	192.50	421.60
16:59	869.00	568.20	16.82	15.05	11.29	2322.36	251.00	165.90	204.40	244.00	226.90	227.1	192.80	417.00
17:00	904.00	577.00	16.72	15.02	11.29	2301.96	251.20	164.80		242.90	226.00	229.9	192.70	421.70

LEC Run 910529b

Starting
05-29-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5' 3' Bed Temp (F)	3' 5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	Nox (ppmV)
10 MinAvg	898.50	561.62	16.67	15.18	11.29	2329.23	251.16	164.96	200.63	241.93	225.28	225.7	192.94	416.80
17:01	900.00	584.10	16.68	14.98	11.29	2289.96	251.00	165.60	205.70	244.60	224.40	230.3	193.60	429.30
17:02	929.00	575.90	16.76	15.09	11.28	2315.11	250.90	166.30	205.40	243.90	225.90	228.5	192.50	432.20
C The NOx monitor is set on the outlet; 250 scale														
17:03	937.00	579.40	16.59	15.25	11.30	2295.18	251.00	166.00	206.60	244.90	225.90	229.9	192.70	441.40
17:04	854.00	575.30	14.21	17.23	11.27	2308.90	254.00	167.60	206.60	243.30	225.30	229.0	192.80	405.70
17:05	897.00	576.40	14.17	17.19	11.27	2315.29	250.90	168.20	206.50	243.90	225.30	230.9	192.60	409.30
17:06	921.00	579.30	14.15	17.23	11.28	2295.18	251.10	168.90	208.60	244.80	225.80	230.0	192.70	410.50
17:07	954.00	578.20	14.15	17.23	11.26	2302.14	251.20	169.70	209.40	242.60	226.40	231.0	192.80	414.20
17:08	950.00	578.10	14.18	17.43	11.25	2315.82	251.20	170.10	212.20	244.20	225.10	229.6	192.90	413.70
17:09	935.00	575.30	14.09	17.30	11.24	2315.82	251.20	172.00	212.30	243.70	225.30	230.8	192.90	419.30
17:10	904.00	577.50	14.11	17.27	11.25	2315.82	251.20	173.30	211.30	243.80	226.00	231.4	192.90	421.90
10 MinAvg	918.10	577.95	14.91	16.62	11.27	2306.92	251.37	168.77	208.46	243.97	225.54	230.1	192.84	419.75
17:11	908.00	588.20	14.11	17.18	11.23	2315.82	251.20	172.50	216.20	241.50	225.50	231.2	192.90	427.00
17:12	956.00	586.40	14.08	17.22	11.26	2295.53	251.20	174.40	216.50	243.90	226.10	230.7	192.90	425.10
17:13	933.00	586.30	14.09	17.24	11.26	2295.36	251.10	175.90	218.80	244.90	225.80	230.7	192.80	431.20
17:14	960.00	586.50	14.03	17.17	11.23	2309.08	251.20	175.30	219.10	244.30	225.90	233.3	192.90	444.10
17:15	961.00	586.10	14.01	17.21	11.23	2309.08	251.20	176.00	220.60	244.50	226.40	231.1	192.90	448.80

C The run is terminated due to bridging

C Post-Run Bed Inspection:

- 2/3 of the bed is a brick
- 1/3 of the bed is channeling along the roadside

Run Summary: **LEC Run 910607A**

Objective: To remove the excess moisture from the stone.

Total Run Time: 51 minutes minutes.

SO₂ Removal: Not Available.

Inlet Gas Rate: Not Available.

Bed ΔP: Not Available.

Operational Conditions:

Fresh No.9 limestone

Single layer of Aluminum screening with 4 braces located on the inside of the outlet louvers.

In-duct Steam = 0 psig.

Overhead Sprays = 0.0 gpm.

Louver Sprays = Not Installed.

Bed Speed = 20 DT (3995 lb/hr).

Regeneration Device: None.

Stone Carry-Over: 0 lbs/min.

Waste fines: 0 lbs/min.

- Comments:
- The run was terminated by the O.U. heating plant due an excessive amount of dust being produced by the material handling equipment.
 - The run was lost when the power was cut-off from the datalogger after the termination of the run.

Run Summary: LEC Run 910609A

Objective: To repeat LEC Run 920607A.
Total Run Time: 155 minutes minutes (11:39 to 14:21).
SO₂ Removal: 76% to 29% (37% average).
Inlet Gas Rate: 3360 acfm (average).
Bed ΔP: 8.8 in H₂O (average).

Operational Conditions:

No.9 limestone from LEC Run 9210607A (51 minutes of prior exposure).
Single layer of Aluminum screening with 4 braces located on the inside of the outlet louvers.
In-duct Steam = 0 psig.
Overhead Sprays = 0.5 gpm.
Louver Sprays = Not Installed.
Bed Speed = 20 DT (3995 lb/hr).
Regeneration Device: None.
Stone Carry-Over: 0 lbs/min.
Waste fines: 0 lbs/min.

Comments: - Water sprays were turned-off at 14:21 in order to dry-out the limestone for LEC Run 920609B.
 - At the end of the drying phase, the inlet and outlet SO₂ concentrations were equal.

LEC Run 910609A

Starting
06-09-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (ppm)	Outlet O2 (%)	Bed dP (in H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5' 3' Bed Temp (F)	3' 5' Bed Temp (F)	1' 8' Bed Temp (F)	Btm. Bed Temp (F)	Nox (mV)
C Objective: To operate at the same conditions as the last Run 910607A														
C Overhead Sprays at 0.5 gpm; Bed Speed at 20 DT. Full damper: Stone is from Run 910607A which was exposed to flue gas for 51 minutes														
C NOx monitor is set on the outlet: 100 scale														
11:39	624.80	22.73	16.39	14.92	8.40	4200.08	219.70	73.80	62.59	62.10	61.84	60.6	62.47	762.00
11:40	632.10	83.70	16.44	14.97	8.37	4093.46	219.70	80.00	66.36	62.75	64.87	62.4	62.13	780.00
11:41	620.00	141.00	16.52	15.07	8.30	4054.19	220.60	88.60	79.60	80.20	78.90	73.5	73.60	772.00
11:42	610.40	182.60	16.58	15.04	8.21	4033.27	223.10	88.70	88.60	88.70	88.70	87.4	73.90	785.00
11:43	607.90	213.60	16.60	15.06	8.19	4019.31	230.30	88.80	88.80	88.80	88.80	88.8	74.40	791.00
11:44	602.50	233.50	16.66	15.07	8.18	4033.49	229.70	88.80	88.80	88.80	88.80	88.8	81.60	787.00
11:45	595.60	248.20	16.69	15.28	8.15	4048.85	232.70	88.80	88.80	88.80	88.80	88.8	86.60	794.00
11:46	592.20	262.50	16.69	15.09	8.17	4042.20	235.10	88.80	88.80	88.80	88.80	88.8	88.30	791.00
11:47	591.00	278.90	16.71	15.04	8.16	4040.81	235.90	88.90	88.90	88.90	88.90	88.9	88.80	781.00
11:48	593.60	301.30	16.71	15.04	8.18	4014.41	236.50	88.90	88.90	88.90	88.90	88.9	88.70	788.00
10 MinAvg	607.01	196.80	16.60	15.06	8.23	4058.01	228.33	86.41	83.01	82.68	82.73	81.7	78.05	783.10
11:49	585.00	312.40	16.76	15.09	8.21	3988.94	234.40	88.90	88.90	88.90	88.90	88.9	88.90	772.00
11:50	581.70	325.20	16.79	15.16	8.18	3972.12	233.30	89.70	88.90	88.90	88.90	88.9	88.80	773.00
11:51	564.60	331.90	16.89	15.39	8.13	3962.57	226.70	95.10	88.90	88.90	88.90	88.9	88.90	754.00
11:52	557.10	338.90	16.94	15.30	8.15	3943.03	225.70	100.70	89.00	89.00	89.00	89.0	89.00	749.00
11:53	544.00	339.90	17.02	15.37	8.13	3916.34	225.50	107.40	89.00	89.00	89.00	89.0	89.00	734.00
11:54	537.70	344.40	17.09	15.42	8.10	3888.41	222.00	115.60	89.00	89.00	89.00	89.0	88.70	735.00
11:55	525.50	344.60	17.18	15.51	8.07	3875.97	220.90	118.40	89.00	89.00	89.00	89.0	89.00	720.00
11:56	519.70	349.50	17.27	15.77	8.07	3859.02	221.30	118.40	89.00	89.00	89.00	89.0	89.00	713.00
11:57	516.20	359.30	17.25	15.66	8.06	3827.98	220.60	118.40	89.00	89.00	89.00	89.0	88.90	708.00
11:58	522.60	373.50	17.26	15.59	8.07	3800.83	220.70	118.40	89.00	89.00	89.00	89.0	89.00	716.00
10 MinAvg	545.41	341.97	17.05	15.43	8.12	3903.52	225.11	107.10	88.97	88.97	88.97	89.0	88.92	737.40
11:59	522.10	381.90	17.24	15.62	8.10	3776.61	220.70	118.40	89.00	89.00	89.00	89.0	89.00	710.00
12:00	527.60	393.70	17.20	15.59	8.12	3759.22	220.50	118.40	89.00	89.00	89.00	89.0	89.00	722.00
12:01	520.00	396.90	17.25	15.68	8.14	3734.73	220.40	118.40	89.00	89.00	89.00	89.0	89.00	723.00
12:02	523.80	406.30	17.20	15.68	8.14	3721.00	220.90	118.50	89.10	89.10	89.10	89.1	89.10	729.00
12:03	526.60	414.60	17.17	15.61	8.17	3710.41	220.30	118.50	88.80	89.10	89.10	89.1	89.10	726.00
12:04	529.20	426.20	17.19	15.58	8.18	3685.59	220.30	118.50	89.10	89.10	89.10	89.1	89.10	732.00
12:05	521.50	420.00	17.24	15.56	8.32	3653.44	220.30	118.50	89.10	89.10	88.90	89.1	89.10	730.00
C NOx monitor is set on the inlet: 100 scale														
12:06	520.10	420.40	18.28	14.60	8.27	3642.65	220.30	118.50	89.00	89.10	89.10	89.1	89.10	718.00
12:07	516.60	412.30	19.65	13.83	8.29	3617.37	220.60	118.50	89.00	89.10	89.10	89.1	89.10	679.40
12:08	516.00	411.80	19.65	13.76	8.37	3595.88	220.20	118.90	89.20	89.20	89.20	89.2	89.20	678.30

LEC Run 910609A

Starting
06-09-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (ppm)	Outlet O2 (%)	Bed dP (in H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5' 3' Bed Temp (F)	3' 5' Bed Temp (F)	1' 8' Bed Temp (F)	Btm Bed Temp (F)	Nox (mV)
10 MinAvg	522.35	408.41	17.81	15.15	8.21	3689.69	220.45	118.51	89.03	89.08	89.06	89.1	89.08	714.77
12:09	518.00	417.10	19.68	13.74	8.37	3581.18	220.20	119.70	88.90	89.10	89.20	89.2	90.30	679.00
12:10	512.20	417.30	19.69	13.76	8.33	3570.72	220.30	124.70	89.20	89.10	89.20	89.2	93.90	683.40
12:11	517.30	413.80	19.66	13.77	8.39	3547.18	220.30	136.20	89.20	89.10	89.20	89.2	98.20	678.30
12:12	515.90	415.20	19.69	13.73	8.43	3546.16	220.30	146.20	89.20	89.20	89.20	89.2	107.50	683.10
12:13	513.70	406.20	19.70	13.75	8.44	3532.27	220.30	147.50	89.20	89.10	89.20	90.9	114.20	680.20
12:14	515.90	404.60	19.67	13.72	8.44	3526.24	220.30	147.70	89.20	88.90	89.20	104.9	118.60	685.20
12:15	513.30	394.70	19.68	13.72	8.46	3506.59	220.30	147.80	89.20	89.10	89.20	118.4	119.90	684.90
12:16	520.50	398.10	19.62	13.68	8.43	3533.89	220.40	147.80	89.30	89.30	89.30	118.7	138.40	699.90
12:17	515.20	381.40	19.62	13.68	8.47	3539.36	220.40	147.80	89.30	89.30	89.30	132.3	147.20	701.00
12:18	517.10	375.60	19.59	13.65	8.44	3537.30	220.70	147.90	89.40	89.40	101.30	120.6	147.90	698.40
10 MinAvg	515.91	402.40	19.66	13.72	8.42	3542.09	220.35	141.33	89.21	89.16	90.43	104.3	117.61	687.34
12:19	537.60	371.90	19.47	13.56	8.41	3545.49	221.20	147.90	89.40	89.40	119.10	118.7	147.90	718.00
12:20	551.40	368.90	19.36	13.48	8.40	3552.74	222.20	147.90	89.40	89.40	122.30	118.8	151.80	732.00
12:21	564.60	371.60	19.23	13.36	8.38	3564.25	222.10	148.20	89.50	89.50	119.20	118.9	157.20	755.00
12:22	565.70	365.00	19.18	13.33	8.37	3578.78	223.50	148.40	89.50	89.50	118.30	119.4	160.80	757.00
12:23	581.50	355.60	19.08	13.26	8.38	3570.92	224.70	150.30	89.50	89.50	102.00	140.5	162.40	769.00
12:24	593.30	359.90	18.98	13.19	8.38	3570.92	227.30	151.30	89.50	89.50	90.10	152.3	162.40	788.00
12:25	590.50	362.20	18.97	13.19	8.38	3562.59	227.20	154.50	89.50	89.50	91.50	162.6	162.40	797.00
12:26	581.30	355.70	19.05	13.22	8.37	3546.43	230.60	158.80	89.60	89.60	100.00	164.9	162.60	790.00
12:27	579.90	351.70	19.09	13.22	8.40	3542.24	230.30	160.30	89.60	89.60	116.80	169.6	162.60	783.00
12:28	583.50	349.70	19.11	13.22	8.41	3529.62	228.80	158.90	89.60	89.60	123.00	165.3	162.60	780.00

C

C The NOx monitor is set on the outlet

C No water has come out of the mist eliminator yet.

C

10 MinAvg	572.93	361.22	19.15	13.30	8.39	3556.40	225.79	152.65	89.51	89.51	110.23	143.1	159.27	766.90
12:29	573.50	343.20	19.08	13.29	8.46	3512.74	225.90	155.90	89.60	89.60	147.20	162.6	162.60	762.00
12:30	565.80	341.90	17.12	15.25	8.49	3496.05	222.90	152.60	89.70	89.70	148.20	162.7	162.70	777.00
12:31	564.90	340.10	17.03	15.23	8.52	3482.98	221.20	150.80	89.60	89.60	148.90	162.6	162.60	774.00
12:32	559.70	342.40	17.07	15.22	8.57	3470.71	222.10	148.50	89.70	89.80	148.40	162.6	162.80	771.00
12:33	562.70	350.00	17.06	15.20	8.56	3470.16	221.60	148.50	89.60	90.10	148.60	161.8	162.60	784.00
12:34	558.90	350.80	17.03	15.21	8.61	3457.83	221.20	148.90	89.70	90.40	148.20	158.6	162.80	774.00
12:35	549.10	348.50	17.06	15.28	8.62	3449.22	220.90	149.00	89.70	90.80	148.20	148.5	162.80	770.00
12:36	543.00	345.10	17.12	15.41	8.63	3444.35	220.70	148.40	89.60	92.80	148.10	148.1	162.60	761.00
12:37	528.30	345.20	17.19	15.41	8.67	3444.91	220.70	148.40	89.70	96.80	148.20	148.2	162.80	745.00
12:38	538.00	343.70	17.21	15.38	8.67	3444.63	220.80	148.60	89.60	99.10	151.50	148.2	162.70	743.00
10 MinAvg	554.39	345.09	17.30	15.09	8.58	3467.36	221.80	149.96	89.65	91.87	148.55	156.4	162.70	766.10

Starting
06-09-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (ppm)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5' 3" Bed Temp (F)	3' 5" Bed Temp (F)	1' 8" Bed Temp (F)	Blm. Bed Temp (F)	Nox (mV)
12:39	527.90	337.10	17.27	15.45	8.70	3444.63	220.70	148.50	89.70	105.20	161.70	148.2	162.70	738.00
12:40	525.20	339.20	17.25	15.51	8.72	3453.25	220.70	148.30	89.70	103.80	151.60	148.8	162.70	735.00
12:41	518.50	342.30	17.29	15.58	8.70	3461.85	220.70	148.30	92.30	100.70	149.40	148.2	162.70	734.00
12:42	515.50	341.40	17.30	15.52	8.71	3478.99	220.80	148.20	102.20	103.10	148.20	148.2	162.70	736.00
12:43	519.40	347.20	17.26	15.45	8.70	3478.99	220.80	148.20	105.80	104.80	148.20	148.2	162.70	747.00
12:44	518.60	344.80	17.25	15.45	8.70	3487.53	220.80	148.20	110.70	112.00	148.20	148.2	162.70	740.00
12:45	519.80	346.20	17.26	15.45	8.68	3487.53	220.80	148.20	111.50	117.10	143.30	148.1	162.70	737.00
12:46	521.20	344.60	17.25	15.57	8.68	3491.79	220.80	148.20	117.70	119.10	142.60	148.2	162.70	733.00
12:47	518.00	349.90	17.24	15.49	8.66	3487.53	220.80	148.40	119.10	119.10	150.40	148.2	162.70	732.00
12:48	516.90	346.20	17.25	15.47	8.67	3483.26	220.80	148.50	119.10	124.30	162.50	148.2	162.70	745.00
10 MinAvg	520.10	343.89	17.26	15.49	8.69	3475.54	220.77	148.30	105.78	110.92	150.61	148.2	162.70	737.70
12:49	508.60	346.10	17.30	15.50	8.65	3479.27	220.80	148.40	119.00	132.40	149.50	148.3	162.80	743.00
12:50	517.80	347.30	17.24	15.46	8.65	3487.81	220.80	148.50	118.90	140.30	153.00	148.3	162.80	747.00
12:51	522.50	349.80	17.23	15.51	8.63	3496.33	220.80	148.40	119.20	146.80	162.80	148.4	162.80	741.00
12:52	536.80	352.30	17.13	15.43	8.64	3487.81	220.90	148.60	119.20	148.20	165.20	148.6	162.80	756.00
12:53	545.60	362.50	17.06	15.33	8.62	3487.81	220.90	148.60	119.20	148.30	173.00	149.2	162.80	768.00
12:54	553.90	371.50	17.00	15.25	8.61	3483.82	220.90	149.30	119.30	148.60	177.40	151.0	162.90	774.00
12:55	553.30	372.20	16.99	15.29	8.61	3483.82	220.90	149.70	119.30	148.60	177.40	151.4	162.90	778.00
12:56	555.20	366.40	16.97	15.27	8.57	3492.35	220.90	150.20	119.30	148.40	177.40	156.7	162.90	784.00
12:57	555.30	361.70	16.96	15.33	8.54	3488.09	220.90	152.60	119.20	148.40	177.30	156.7	162.90	779.00
12:58	560.10	367.50	16.96	15.27	8.50	3496.61	220.90	155.50	119.20	148.40	177.30	159.6	162.90	772.00
10 MinAvg	540.91	359.73	17.08	15.36	8.60	3488.37	220.87	149.98	119.18	145.84	169.03	151.8	162.85	764.20
12:59	556.90	363.80	17.02	15.27	8.50	3487.81	220.90	158.90	119.20	143.00	177.10	160.8	162.80	767.00
13:00	551.40	356.20	17.01	15.28	8.51	3483.54	220.90	159.30	119.20	132.80	177.30	161.9	162.80	773.00
13:01	552.20	352.00	17.00	15.41	8.51	3479.55	220.90	160.60	119.30	141.60	177.40	162.9	162.90	767.00
13:02	551.70	353.00	16.99	15.32	8.53	3475.55	221.00	160.30	119.40	145.70	176.50	163.0	163.00	766.00
13:03	552.30	350.90	16.98	15.32	8.53	3471.27	221.00	160.90	119.40	143.80	166.50	163.0	163.00	757.00
13:04	550.00	351.00	16.98	15.32	8.50	3466.98	221.00	161.50	119.30	144.90	163.00	163.3	163.00	764.00
13:05	548.10	348.90	16.99	15.42	8.48	3466.98	221.00	161.30	119.40	147.20	163.00	163.8	163.00	750.00
13:06	550.80	355.70	16.97	15.46	8.49	3466.98	221.10	161.80	119.40	148.00	160.70	163.8	163.00	761.00
13:07	547.70	353.70	16.99	15.42	8.47	3462.97	221.20	163.10	119.50	148.10	149.20	163.7	163.10	757.00
13:08	541.30	348.50	17.01	15.44	8.45	3458.67	221.20	163.00	119.50	148.30	148.60	163.3	163.10	757.00
10 MinAvg	550.24	353.37	16.99	15.37	8.50	3472.03	221.02	161.07	119.36	144.34	165.93	162.9	162.97	761.90
13:09	534.50	344.20	17.06	15.48	8.48	3454.92	221.20	163.10	119.50	148.60	148.60	165.1	163.30	750.00
13:10	534.60	347.30	17.09	15.49	8.50	3454.92	221.20	162.40	119.50	148.60	148.60	164.6	163.30	751.00
13:11	533.00	349.30	17.10	15.65	8.51	3446.01	221.20	162.80	119.60	148.70	148.70	163.4	163.20	747.00
13:12	535.70	355.60	17.09	15.51	8.53	3442.80	221.20	163.00	119.50	148.70	148.20	163.2	163.60	753.00
13:13	538.50	362.50	17.09	15.46	8.56	3433.03	221.20	163.20	119.80	148.70	148.60	163.2	163.20	754.00
13:14	541.30	365.70	17.07	15.45	8.55	3425.73	221.30	163.20	119.60	148.70	148.70	161.3	163.70	753.00

LEC Run 910609A

Starting
06-09-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (ppm)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5' 3" Bed Temp (F)	3' 5" Bed Temp (F)	1' 8" Bed Temp (F)	Btm Bed Temp (F)	Nox (mV)
13:15	539.30	365.40	17.05	15.45	8.60	3407.20	221.30	163.20	119.60	148.70	148.70	149.4	163.30	752.00
13:16	534.80	360.30	17.09	15.57	8.61	3386.10	221.30	163.10	119.60	148.70	148.70	148.7	163.60	754.00
13:17	525.60	350.80	17.12	15.57	8.66	3373.70	221.30	163.20	119.60	148.70	148.70	148.7	163.90	742.00
13:18	523.60	350.60	17.18	15.58	8.68	3360.15	221.30	163.20	119.60	148.70	148.70	148.7	163.80	743.00
10 MinAvg	534.09	355.17	17.09	15.52	8.57	3418.46	221.25	163.04	119.59	148.68	148.62	157.6	163.49	749.90
13:19	511.10	337.30	17.27	15.68	8.69	3338.45	221.30	163.20	119.60	148.70	148.70	148.7	164.00	734.00
13:20	512.70	341.60	17.26	15.74	8.71	3318.95	221.30	163.20	119.60	148.40	148.70	148.7	163.40	745.00
13:21	502.70	333.30	17.33	15.84	8.73	3287.41	221.30	163.30	119.60	147.30	148.80	148.8	163.40	733.00
13:22	515.70	337.10	17.25	15.72	8.77	3268.72	221.30	163.20	119.60	145.70	148.70	148.9	163.20	744.00
13:23	433.00	340.70	17.55	15.70	8.81	3246.14	221.30	163.30	119.80	136.40	148.80	149.2	163.30	736.00
13:24	442.30	348.70	17.20	15.64	8.87	3227.75	221.30	163.30	119.70	126.30	148.80	151.1	163.30	738.00
13:25	479.00	354.80	17.12	15.61	8.88	3218.51	221.30	163.30	119.70	121.50	148.80	151.3	163.30	743.00
13:26	501.20	357.30	17.12	15.62	8.92	3204.61	221.30	163.30	119.70	120.90	148.80	149.0	163.30	756.00
13:27	510.00	353.60	17.07	15.58	8.96	3181.30	221.40	163.30	119.70	125.70	148.80	152.2	163.30	752.00
13:28	520.10	353.80	17.13	15.59	9.00	3167.24	221.40	163.30	119.70	131.20	148.80	161.3	163.30	751.00
10 MinAvg	492.78	345.82	17.23	15.67	8.83	3245.91	221.32	163.27	119.67	135.21	148.77	150.9	163.38	743.20
13:29	530.10	355.90	17.10	15.61	9.02	3153.11	221.40	163.20	119.90	128.20	149.50	163.1	163.30	746.00
13:30	539.70	359.20	17.06	15.59	9.05	3143.65	221.30	163.30	120.20	132.90	148.80	163.3	163.30	755.00
13:31	541.20	362.30	17.03	15.59	9.04	3143.65	221.30	163.30	123.80	128.50	148.80	163.3	163.30	747.00
13:32	545.40	363.00	17.03	15.58	9.07	3148.38	221.30	163.30	120.30	128.70	145.80	163.3	163.30	752.00
13:33	550.20	361.80	16.97	15.52	9.08	3148.38	221.30	163.30	120.00	132.20	148.70	163.3	163.30	747.00
13:34	570.40	369.70	16.88	15.42	9.11	3134.17	221.30	163.30	119.80	139.30	148.80	163.3	163.30	765.00
13:35	565.70	371.10	16.87	15.43	9.08	3143.65	221.40	163.30	119.70	145.10	148.70	163.3	163.30	762.00
13:36	568.90	369.80	16.86	15.43	9.09	3134.17	221.40	163.10	119.70	147.20	148.80	155.3	163.30	766.00
13:37	564.70	361.70	16.88	15.48	9.12	3129.42	221.40	163.30	119.70	148.00	148.80	148.8	163.30	753.00
13:38	572.50	364.30	16.87	15.44	9.11	3138.19	221.40	163.20	119.70	148.30	148.80	148.8	164.90	760.00
10 MinAvg	554.88	363.88	16.95	15.51	9.08	3141.68	221.35	163.26	120.28	137.84	148.55	159.6	163.46	755.30
13:39	557.20	353.20	16.97	15.56	9.13	3130.17	221.40	163.40	120.90	146.70	148.90	148.9	163.60	749.00
13:40	557.00	345.10	16.99	15.55	9.13	3139.67	221.40	163.20	123.60	144.00	148.40	148.9	163.60	746.00
13:41	545.30	334.70	17.08	15.65	9.15	3135.17	221.40	163.30	135.00	139.00	148.40	148.8	163.70	733.00
13:42	536.60	328.00	17.12	15.74	9.16	3121.14	221.40	162.90	140.50	135.00	148.90	148.9	163.80	738.00
13:43	526.60	317.00	17.19	15.74	9.19	3120.14	221.30	162.80	140.70	137.20	148.10	148.7	163.40	728.00
13:44	528.20	318.60	17.18	15.72	9.21	3115.12	221.40	161.90	134.70	136.10	136.30	148.8	163.30	729.00
13:45	530.10	321.00	17.18	15.71	9.21	3110.33	221.40	161.50	130.90	136.40	124.60	148.8	163.30	732.00
13:46	533.50	325.80	17.16	15.80	9.23	3110.08	221.30	160.60	130.10	139.90	120.40	148.7	163.20	742.00
13:47	531.00	328.10	17.16	15.72	9.23	3115.12	221.30	159.50	131.90	142.30	119.80	148.8	163.30	737.00
13:48	533.80	327.00	17.13	15.68	9.25	3110.08	221.30	162.30	122.10	147.20	119.60	148.7	163.20	742.00
10 MinAvg	537.93	329.85	17.12	15.69	9.19	3120.70	221.36	162.14	131.04	140.38	136.34	148.8	163.44	737.60

LEC Run 910609A

Starting
06-09-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (ppm)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5' 3' Bed Temp (F)	3' 5' Bed Temp (F)	1' 8' Bed Temp (F)	Btm. Bed Temp (F)	Nox (mV)
13:49	529.50	326.60	17.14	15.66	9.26	3110.33	221.30	157.90	119.90	148.80	119.60	148.8	163.30	734.00
13:50	533.70	332.90	17.14	15.64	9.23	3105.55	221.40	159.80	119.70	148.80	119.70	148.8	163.30	738.00
13:51	534.10	332.40	17.15	15.76	9.28	3105.79	221.40	157.60	120.00	148.90	119.70	148.9	163.40	728.00
13:52	544.10	336.10	17.10	15.69	9.29	3105.55	221.30	156.10	126.90	148.60	119.70	148.8	163.30	738.00
13:53	525.80	333.40	17.16	15.64	9.28	3114.8	221.30	153.80	132.50	148.60	119.60	148.6	163.20	740.00
13:54	532.30	329.00	17.15	15.64	9.30	3105.55	221.30	153.50	127.90	148.80	119.70	148.4	163.30	744.00
13:55	519.60	319.50	17.19	15.68	9.27	3110.33	221.30	153.00	122.00	148.80	120.50	147.7	163.30	741.00
13:56	515.80	314.40	17.26	15.81	9.28	3114.87	221.20	154.10	120.30	148.70	122.80	148.1	163.20	742.00
13:57	507.70	310.40	17.29	15.88	9.27	3124.16	221.20	153.80	125.00	148.60	134.60	148.2	163.10	733.00
13:58	505.80	308.10	17.31	15.82	9.29	3124.16	221.20	151.30	132.70	148.60	147.90	148.4	163.10	732.00
10 MinAvg	524.84	324.28	17.19	15.72	9.28	3112.11	221.29	155.09	124.69	148.72	124.38	148.5	163.25	737.00
13:59	506.30	307.50	17.33	15.79	9.27	3138.41	221.20	155.70	143.80	148.60	148.30	148.0	163.10	727.00
14:00	519.60	312.30	17.31	15.75	9.26	3138.41	221.10	154.60	148.00	148.50	148.20	148.5	163.10	731.00
14:01	513.80	310.50	17.34	15.82	9.27	3143.15	221.20	154.00	148.00	145.70	147.50	148.5	163.10	728.00
14:02	507.30	313.70	17.29	15.80	9.26	3152.60	221.10	153.40	147.00	136.90	148.30	148.3	163.10	735.00
14:03	512.30	316.80	17.30	15.77	9.27	3152.35	221.10	152.50	147.30	125.10	139.30	148.5	163.00	743.00
14:04	516.70	323.30	17.24	15.74	9.25	3157.32	221.20	151.40	148.50	120.50	123.90	148.6	163.10	745.00
14:05	536.70	329.70	17.15	15.64	9.23	3180.79	221.20	151.00	148.30	119.80	119.80	148.6	163.10	748.00
14:06	557.00	343.60	17.02	15.56	9.23	3190.13	221.20	152.20	148.50	121.10	119.50	148.6	163.10	761.00
14:07	464.30	351.00	16.99	15.47	9.21	3199.45	221.20	152.60	148.40	130.20	119.50	148.6	163.10	763.00
14:08	499.90	355.90	16.88	15.44	9.19	3208.99	221.20	151.30	147.70	144.00	119.60	148.7	163.20	770.00
10 MinAvg	513.39	326.43	17.19	15.68	9.24	3166.16	221.17	152.87	147.55	134.04	133.39	148.5	163.10	745.10
14:09	515.00	361.10	16.79	15.37	9.19	3208.99	221.30	151.50	148.40	148.50	119.60	148.7	163.20	766.00
14:10	546.00	369.70	16.76	15.33	9.19	3199.70	221.30	149.90	148.40	148.20	119.60	148.7	163.20	785.00
14:11	535.10	359.60	16.82	15.38	9.18	3204.35	221.30	150.40	148.60	148.50	119.60	148.7	163.20	779.00
14:12	541.10	350.90	16.86	15.42	9.17	3213.88	221.30	149.90	148.70	148.70	119.80	148.8	163.30	772.00
14:13	545.60	352.10	16.88	15.40	9.17	3208.99	221.20	150.60	148.00	148.60	120.40	148.7	163.20	756.00
14:14	554.50	355.60	16.87	15.46	9.16	3213.63	221.20	150.50	148.60	148.20	132.70	148.5	163.20	759.00
14:15	555.80	354.50	16.96	15.42	9.16	3218.25	221.20	154.30	148.30	147.50	141.80	148.3	163.20	756.00
C Water to the overhead sprays is stopped to dry out the bed for Run 910609B. Will run with no water until the SO2 removal goes to zero.														
14:16	544.00	344.00	17.06	15.52	9.17	3213.63	221.30	154.50	148.20	143.00	146.90	148.0	163.20	739.00
14:17	522.00	333.50	17.16	15.60	9.14	3218.25	221.30	153.50	148.60	143.50	148.40	148.6	163.20	734.00
14:18	509.00	321.10	17.22	15.76	9.13	3227.75	221.30	153.40	148.50	148.40	147.10	148.6	163.30	721.00
10 MinAvg	536.93	350.21	16.94	15.47	9.17	3212.74	221.27	151.85	148.43	147.31	131.59	148.6	163.22	756.70
14:19	491.60	314.80	17.32	15.84	9.11	3227.49	221.20	156.80	148.50	148.70	145.10	148.7	163.20	710.00
14:20	491.20	309.40	17.37	15.94	9.14	3218.25	221.20	160.40	148.70	148.70	141.20	148.7	163.20	706.00
14:21	480.20	306.40	17.39	15.97	9.13	3222.87	221.30	158.40	148.70	148.70	144.90	148.6	163.20	703.00

E-45

LEC Run 910609A

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (ppm)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5' 3' Bed Temp (F)	3' 5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	Nox (mV)
14:22	491.70	308.10	17.32	15.86	8.95	3204.35	221.20	155.70	148.50	148.70	145.10	148.7	163.20	710.00
C The top live hopper is a few feet low, so fresh stone is added. Unfortunately, we blew 3 fuses in the bulk screw doing this and the run was temporarily stopped.														
14:42	408.00	111.70	17.21	16.82	9.34	3462.85	220.80	119.20	114.70	119.20	119.20	119.7	132.20	549.60
14:43	594.00	308.10	16.69	15.41	9.26	3438.53	222.90	120.60	119.20	130.00	119.60	143.1	148.30	856.00
14:44	600.90	348.90	16.72	15.39	9.19	3387.62	227.10	140.30	119.10	144.00	119.30	147.6	149.90	858.00
14:45	600.10	368.70	16.72	15.38	9.18	3376.00	229.70	147.80	119.10	135.10	119.40	147.8	161.50	856.00
14:46	601.70	385.80	16.70	15.34	9.17	3352.76	235.60	148.20	119.10	133.50	119.20	147.3	162.70	852.00
14:47	604.50	403.40	16.74	15.30	9.15	3339.43	235.10	148.20	119.40	141.70	119.40	148.2	162.70	851.00
14:48	595.40	409.50	16.79	15.32	9.15	3312.87	234.10	148.30	119.20	138.50	119.30	148.3	162.80	840.00
10 MinAvg	400.33	233.68	18.20	17.11	6.16	3105.76	211.53	123.63	111.11	125.27	115.57	131.6	143.80	607.84
14:49	581.20	418.70	16.81	15.35	9.13	3308.11	230.40	148.20	119.50	124.50	120.80	148.2	162.70	822.00
14:50	590.40	427.60	16.82	15.36	9.15	3290.08	231.50	148.20	120.30	121.20	122.70	148.2	162.70	815.00
14:51	593.00	438.60	16.81	15.31	9.12	3285.56	229.50	148.20	120.90	124.80	119.60	148.2	162.70	819.00
14:52	579.60	444.60	16.84	15.33	9.12	3281.03	227.30	148.50	120.10	127.40	119.10	148.2	162.70	805.00
14:53	570.80	452.40	16.89	15.35	9.15	3263.12	225.90	149.50	119.60	126.30	119.20	148.3	162.80	805.00
14:54	574.40	454.40	16.91	15.36	9.12	3258.29	224.30	153.50	121.50	124.80	119.30	148.2	162.70	796.00
14:55	575.10	456.10	16.90	15.40	9.14	3239.99	223.10	156.70	121.10	120.90	121.00	148.2	162.70	789.00
14:56	566.60	460.90	16.89	15.39	9.14	3239.99	224.00	157.80	120.30	124.90	122.50	148.2	162.70	793.00
14:57	573.20	463.30	16.91	15.41	9.15	3226.19	222.10	158.80	119.20	125.60	120.90	148.2	162.70	791.00
14:58	566.80	468.10	16.91	15.41	9.17	3207.70	221.30	161.00	119.10	124.40	121.10	148.2	162.70	793.00
10 MinAvg	577.11	448.47	16.87	15.37	9.14	3260.01	225.94	153.04	120.16	124.48	120.62	148.2	162.71	802.80
14:59	573.80	475.80	16.88	15.44	9.17	3203.07	221.50	161.80	119.10	121.80	120.10	148.2	162.70	791.00
15:00	555.50	488.50	16.90	15.43	9.14	3207.45	221.40	162.20	119.00	121.10	120.60	148.1	162.60	796.00
15:01	569.70	504.80	16.82	15.39	9.16	3193.51	221.00	162.60	119.00	120.10	119.30	148.0	162.60	805.00
15:02	593.90	517.90	16.75	15.34	9.15	3193.77	220.70	162.70	119.10	119.90	119.80	147.9	162.70	803.00
15:03	595.70	531.60	16.68	15.27	9.14	3198.68	221.10	162.80	119.20	125.40	122.60	148.3	162.80	828.00
15:04	593.60	549.10	16.66	15.21	9.14	3193.77	221.50	162.70	119.10	131.20	125.00	148.2	162.70	835.00
15:05	604.40	558.60	16.61	15.17	9.11	3184.70	220.80	162.80	119.20	133.00	120.40	148.2	162.80	837.00
15:06	607.00	564.30	16.61	15.16	9.12	3170.66	220.80	162.80	119.20	130.90	120.50	148.3	162.80	841.00
15:07	600.00	570.90	16.60	15.15	9.13	3161.26	220.80	162.80	119.20	131.20	127.20	148.3	162.80	831.00
15:08	610.20	578.20	16.58	15.12	9.14	3151.84	220.80	162.80	119.20	137.30	144.90	148.3	162.80	826.00
10 MinAvg	590.38	533.97	16.71	15.27	9.14	3185.87	221.04	162.60	119.13	127.19	124.04	148.2	162.73	819.30
15:09	604.40	579.90	16.56	15.11	9.11	3147.12	220.80	162.80	119.20	140.90	148.20	148.3	162.80	815.00
15:10	604.20	583.10	16.61	15.16	9.12	3142.39	220.80	162.80	119.20	140.60	148.30	148.3	162.80	817.00
15:11	593.40	577.10	16.68	15.22	9.12	3128.16	220.90	162.80	119.20	140.30	148.30	148.3	162.80	816.00
15:12	586.10	572.30	16.71	15.26	9.12	3114.12	220.90	162.90	119.20	141.30	148.40	148.4	162.90	816.00
15:13	576.80	568.30	16.78	15.32	9.11	3094.95	220.90	162.90	119.40	143.80	148.40	148.4	162.90	803.00
15:14	569.80	559.30	16.78	15.39	9.10	3075.67	220.90	162.90	120.60	146.40	148.40	148.4	162.90	795.00

Post-Run Bed Inspection

- Inlet louvers clean
- Screen is wet and partially muddy

Run Summary: **LEC Run 910609B**

Objective: To repeat LEC Run 920609A, except with a higher gas rate.

Total Run Time: 120 minutes minutes (15:15 to 17:15).

SO₂ Removal: 0% to 57% (50% average).

Inlet Gas Rate: 3240 acfm (average).

Bed ΔP: 9.6 in H₂O (average).

Operational Conditions:

No.9 limestone from LEC Run 9210609A (206 minutes of prior exposure).

Damper Setting: Full.

Single layer of Aluminum screening with 4 braces located on the inside of the outlet louvers.

In-duct Steam = 0 psig.

Overhead Sprays = 1.0 gpm.

Louver Sprays = Not Installed.

Bed Speed = 20 DT (3995 lb/hr).

Regeneration Device: None.

Stone Carry-Over: 0 lbs/min.

Waste fines: 0 lbs/min.

Comments: - The run was terminated when the lower portion of the outlet screen tore-off; thus sending a large amount of stone into the fan.

LEC Run 910609b

Starting
06-09-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (ppm)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	Nox (mV)
C														
C Same stone as Run 910609A														
C Overhead Sprays at 1.0 gpm; Bed Speed at 20 DT; Full Damper														
C														
15:16	544.10	572.60	16.84	15.39	9.09	3056.02	220.90	162.80	137.50	146.10	148.30	148.3	162.80	808.00
15:17	553.70	583.30	16.83	15.37	9.09	3041.38	220.90	162.80	147.50	147.50	148.30	148.4	162.80	811.00
15:18	553.80	586.50	16.87	15.39	9.07	3026.68	220.90	162.80	148.10	148.20	148.30	148.4	162.80	808.00
15:19	579.00	586.30	16.85	15.37	9.10	3012.15	220.90	162.90	148.10	148.40	148.40	150.4	162.90	810.00
15:20	561.10	574.70	16.91	15.46	9.08	3002.01	220.90	162.80	147.50	148.30	148.30	153.8	162.80	800.00
15:21	564.60	565.40	16.92	15.47	9.08	2992.09	220.80	162.80	142.60	148.30	148.30	158.9	162.80	800.00
15:22	554.80	563.70	16.93	15.45	9.06	2992.09	220.90	162.80	136.20	148.30	148.30	161.0	162.80	809.00
15:23	555.20	556.10	16.95	15.51	9.09	2992.09	220.80	162.80	136.90	148.30	148.50	161.6	162.80	805.00
15:24	558.50	555.50	16.96	15.46	9.07	2971.90	220.70	162.70	142.70	148.20	149.30	162.7	162.70	812.00
15:25	550.70	552.20	16.87	15.41	9.07	2966.66	220.70	162.90	147.30	148.10	158.50	162.6	162.60	808.00
10 MinAvg	557.55	569.63	16.89	15.43	9.08	3005.31	220.84	162.81	143.44	147.97	149.45	155.6	162.78	807.10
15:26	505.60	550.80	17.27	15.38	9.08	2951.82	220.70	162.70	147.80	147.40	162.50	162.7	162.70	809.00
15:27	501.20	550.30	16.74	15.31	9.08	2936.67	220.70	162.90	148.20	135.60	162.70	162.7	162.70	821.00
15:28	532.10	552.80	16.62	15.22	9.10	2916.35	220.70	163.00	147.30	119.90	162.70	162.7	162.70	834.00
15:29	519.80	549.10	16.57	15.19	9.12	2901.24	220.70	162.80	147.40	119.30	162.70	162.7	162.80	835.00
15:30	523.40	542.20	16.56	15.19	9.13	2896.11	220.70	162.80	144.30	124.80	161.90	162.7	162.80	834.00
15:31	546.70	530.10	16.56	15.21	9.16	2886.06	220.70	162.60	144.40	147.10	156.50	162.6	162.90	827.00
15:32	562.00	512.50	16.61	15.26	9.18	2895.42	220.60	162.50	143.10	154.40	148.10	162.5	162.50	817.00
15:33	565.50	488.20	16.63	15.27	9.14	2906.83	220.70	162.60	147.00	157.80	148.10	162.6	163.00	809.00
15:34	560.70	469.50	16.68	15.30	9.18	2905.90	220.60	162.50	147.50	160.10	148.00	162.8	162.60	808.00
15:35	571.10	461.00	16.71	15.32	9.17	2900.78	220.60	162.60	147.70	162.60	145.90	162.7	162.60	803.00
10 MinAvg	538.81	520.65	16.69	15.26	9.13	2909.72	220.67	162.70	146.47	142.90	155.91	162.7	162.73	819.70
15:36	570.80	449.40	16.76	15.37	9.21	2916.58	220.60	162.60	147.80	161.80	148.40	163.2	162.80	797.00
15:37	555.80	437.80	16.80	15.39	9.22	2916.35	220.60	162.60	146.60	162.60	162.10	162.8	162.70	794.00
15:38	565.80	420.10	16.79	15.54	9.24	2934.19	220.60	162.60	146.70	162.60	163.80	162.7	163.80	787.00
15:39	569.80	415.30	16.81	15.44	9.28	2948.91	220.50	162.50	147.50	162.50	167.30	162.5	163.60	785.00
15:40	566.60	399.50	16.82	15.42	9.34	2967.61	220.50	162.50	147.30	162.50	164.80	162.5	163.00	774.00
15:41	570.60	392.50	16.82	15.36	9.38	2983.57	220.50	162.50	146.30	162.50	162.70	162.7	163.40	782.00
15:42	554.60	387.70	16.84	15.37	9.38	2983.81	220.50	162.50	146.50	162.50	162.70	162.5	163.50	773.00
15:43	547.20	382.70	16.85	15.38	9.34	2994.49	220.50	162.40	145.00	162.40	162.40	162.4	163.80	778.00
15:44	542.00	374.70	16.85	15.53	9.35	2997.54	220.50	162.40	127.50	162.40	162.40	167.5	163.00	775.00
15:45	543.70	370.70	16.85	15.49	9.32	2998.02	220.50	162.40	119.70	156.90	162.60	176.9	163.20	787.00
10 MinAvg	558.69	403.04	16.82	15.43	9.31	2964.10	220.53	162.50	142.09	161.87	161.92	164.6	163.28	783.20
15:46	543.70	355.40	16.83	15.41	9.30	2999.94	220.50	162.30	111.40	148.30	162.60	176.9	164.00	788.00
15:47	553.10	340.90	16.76	15.39	9.30	3019.74	220.50	156.20	93.80	148.00	162.90	176.9	164.00	792.00

Starting
06-09-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (ppm)	Outlet O2 (%)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	Nox (mV)
C C Lost flow to the inlet SO2 monitor														
15:48	523.90	326.00	16.80	15.39	9.29	3012.39	220.60	157.30	94.80	147.40	162.80	177.0	163.00	790.00
15:49	482.00	306.00	16.72	15.46	9.29	3022.01	220.60	152.00	92.00	147.90	162.70	176.4	162.90	775.00
15:50	483.60	292.80	16.71	15.59	9.29	3040.39	220.50	148.20	92.90	143.20	162.10	176.9	164.40	774.00
15:51	471.90	278.40	16.69	15.51	9.27	3043.80	220.50	148.10	89.80	121.80	162.50	176.9	165.80	771.00
15:52	470.40	274.30	16.65	15.50	9.26	3041.20	220.60	148.00	90.00	118.90	162.50	177.1	172.90	770.00
15:53	449.30	265.00	17.18	15.52	9.23	3032.39	220.60	148.10	89.80	120.90	162.60	177.3	171.30	773.00
15:54	444.00	266.50	16.88	15.48	9.24	3049.12	220.60	148.10	90.60	119.40	162.60	177.2	176.20	768.00
C C Regained inlet sample flow														
15:55	487.30	268.80	16.76	15.62	9.24	3042.22	220.70	148.20	91.00	119.00	162.70	178.2	175.40	771.00
10 MinAvg	490.92	297.41	16.80	15.49	9.27	3030.32	220.57	151.65	93.61	133.48	162.63	177.1	167.99	777.20
C C The NOx monitor is set on the inlet, 250 scale														
15:56	520.80	276.70	16.65	15.34	9.26	3041.98	220.70	148.10	91.80	119.00	162.60	184.1	175.30	787.00
15:57	543.50	289.80	16.54	15.20	9.27	3041.05	220.70	148.10	90.60	119.00	162.60	183.6	177.00	802.00
15:58	540.90	290.00	17.72	13.47	9.25	3039.14	220.60	148.10	89.70	118.90	162.30	179.9	176.20	804.00
15:59	568.20	287.60	17.62	13.36	9.29	3048.16	220.60	148.10	89.70	119.00	150.90	179.3	175.80	806.00
16:00	573.40	292.00	17.53	13.32	9.31	3051.04	220.60	148.10	89.60	119.00	148.10	177.6	177.00	807.00
16:01	586.80	286.20	17.41	13.28	9.33	3046.05	220.60	148.00	89.50	118.90	148.00	177.0	177.00	816.00
16:02	589.50	282.70	17.41	13.28	9.35	3036.28	220.60	148.10	89.90	119.00	148.10	177.1	177.10	802.00
16:03	589.60	273.80	17.44	13.32	9.35	3016.01	220.60	148.10	89.60	118.80	148.10	177.0	172.80	787.00
16:04	575.20	270.60	17.48	13.36	9.35	3010.42	220.60	148.00	89.70	117.10	143.20	177.0	176.80	778.00
16:05	587.00	266.80	17.54	13.34	9.36	2988.87	220.60	148.10	89.60	108.90	136.80	175.1	174.10	778.00
10 MinAvg	567.49	281.62	17.33	13.73	9.31	3031.90	220.62	148.08	89.97	117.76	151.07	178.8	175.91	796.70
16:06	584.90	265.80	17.48	13.36	9.39	3004.26	220.60	148.00	89.60	114.50	129.30	170.0	174.20	774.00
16:07	585.60	268.40	17.45	13.32	9.44	2997.23	220.60	148.00	89.50	113.80	119.10	167.1	175.50	782.00
16:08	580.50	283.00	17.43	13.30	9.46	2991.33	220.50	147.70	89.60	112.00	118.90	162.7	173.00	792.00
16:09	592.10	289.00	18.54	13.27	9.47	2983.76	220.50	148.00	89.60	109.70	118.80	162.7	169.80	797.00
16:10	602.80	291.40	18.12	13.27	9.41	3004.57	220.50	146.90	90.30	102.00	118.80	162.5	170.10	805.00
16:11	586.90	296.10	17.90	13.24	9.40	3036.63	220.50	144.90	90.20	97.80	118.80	162.4	171.00	802.00
16:12	597.10	309.80	17.81	13.22	9.37	3037.18	220.50	144.40	90.60	95.80	118.20	162.4	165.10	801.00
16:13	581.80	317.90	17.75	13.17	9.34	3049.45	220.40	145.40	90.50	96.00	117.80	161.7	164.10	805.00
16:14	585.70	325.00	17.68	13.12	9.32	3061.90	220.40	143.90	91.90	98.70	105.90	150.0	165.20	805.00
16:15	612.10	331.50	17.64	13.08	9.30	3072.06	220.50	136.40	93.00	103.40	89.80	147.9	163.40	809.00
10 MinAvg	590.95	297.79	17.78	13.24	9.39	3023.84	220.50	145.36	90.48	104.37	115.54	160.9	169.14	797.20

LEC Run 910609b

Starting
06-09-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (ppm)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	Nox (mV)
16:16	605.30	337.20	17.63	13.06	9.34	3060.64	220.50	129.50	95.20	103.90	92.60	147.9	162.70	802.00
16:17	586.70	332.70	17.65	13.11	9.35	3060.14	220.50	126.70	98.20	111.00	96.20	142.7	162.50	791.00
16:18	606.70	331.80	17.81	13.15	9.37	3060.14	220.40	123.40	99.50	113.00	99.70	133.0	162.50	787.00
16:19	501.10	322.20	17.89	13.19	9.38	3054.79	220.30	119.50	102.00	112.60	101.60	121.2	162.30	758.00
16:20	507.90	319.70	17.88	13.22	9.38	3049.92	220.30	118.80	103.40	106.50	98.00	118.7	162.30	766.00
16:21	508.00	316.80	17.91	13.29	9.41	3054.79	220.40	118.70	103.70	102.90	93.60	118.7	162.30	757.00
16:22	521.70	320.70	17.97	13.28	9.44	3059.90	220.50	118.80	103.00	104.00	90.50	118.8	162.40	754.00
16:23	506.70	319.80	18.06	13.31	9.48	3051.11	220.40	118.80	103.30	101.00	90.90	118.8	160.80	748.00
16:24	514.40	317.30	18.14	13.34	9.48	3004.41	220.40	118.80	103.10	101.80	90.20	118.8	145.80	744.00
16:25	522.30	319.20	18.22	13.34	9.47	3021.86	220.40	118.80	102.40	96.90	89.60	117.9	150.90	748.00
10 MinAvg	538.08	323.74	17.92	13.23	9.41	3047.77	220.41	121.18	101.38	105.36	94.29	125.7	159.45	765.50
16:26	517.80	312.90	18.35	13.39	9.48	3014.80	220.40	118.70	101.50	93.30	91.20	112.9	150.00	742.00
16:27	468.60	303.70	20.21	13.39	9.49	3020.73	220.30	118.70	101.20	94.10	89.80	101.7	148.50	721.00
C NOx monitor is set on the outlet. The inlet sample line is inspected; therefore O2 and SO2 readings could be affected														
16:28	481.00	297.60	17.89	14.82	9.47	3023.80	220.30	118.70	101.10	93.60	89.90	91.0	147.80	771.00
16:29	481.30	293.90	17.11	15.25	9.46	3038.41	220.40	118.70	101.50	91.30	89.30	94.7	147.90	780.00
16:30	498.70	267.50	17.18	16.34	9.43	3067.19	220.50	118.40	100.90	90.80	89.70	97.4	148.00	724.00
16:31	489.20	138.60	17.15	17.09	5.01	3090.77	220.50	117.50	101.20	92.40	90.00	103.9	148.00	463.10
16:32	504.50	266.60	17.15	15.39	9.41	3104.83	220.50	118.90	99.40	90.60	89.50	100.2	148.00	763.00
16:33	505.20	265.40	17.26	15.38	9.45	3116.00	220.40	118.80	96.90	89.90	89.50	100.1	146.90	763.00
16:34	181.60	254.90	19.92	15.40	9.49	3100.82	220.50	110.60	96.50	89.40	89.60	98.7	141.00	761.00
16:35	474.00	250.70	17.22	15.37	9.49	3067.15	220.40	107.20	97.00	89.40	89.40	91.7	122.80	763.00
10 MinAvg	460.19	265.18	17.94	15.18	9.02	3064.45	220.42	116.62	99.72	91.48	89.79	99.2	144.89	725.11
16:36	502.20	243.30	17.16	15.48	9.49	3060.86	220.40	107.80	95.00	89.50	89.30	89.3	118.70	763.00
16:37	513.70	233.90	17.15	15.43	9.51	3083.35	220.40	106.70	94.60	89.40	89.40	89.4	118.70	754.00
16:38	532.40	227.10	16.98	15.29	9.52	3074.64	220.40	101.80	93.20	89.50	89.40	89.4	118.80	769.00
16:39	543.60	226.40	16.88	15.19	9.58	3079.13	220.50	96.10	91.40	89.40	89.40	89.4	118.80	782.00
16:40	576.20	234.30	16.72	15.06	9.69	3083.62	220.50	94.30	90.80	89.50	89.50	89.5	118.80	794.00
16:41	578.70	237.10	16.67	15.16	9.73	3079.40	220.50	93.90	90.60	89.90	89.50	89.5	118.90	803.00
16:42	594.50	227.90	16.55	15.11	9.82	3043.01	220.50	94.20	90.40	89.70	89.40	89.4	118.80	813.00
16:43	593.20	196.30	16.52	14.96	9.89	3024.53	220.30	95.00	90.50	90.10	89.40	89.3	118.70	822.00
16:44	607.40	127.60	16.46	14.87	9.97	3011.05	220.40	93.90	90.60	90.00	89.40	89.4	118.80	836.00
16:45	608.30	115.00	16.43	14.84	9.98	2996.99	220.40	95.50	91.20	90.50	89.50	89.4	118.70	841.00
C Still no water out of the mist eliminator yet.														
10 MinAvg	565.02	206.89	16.75	15.14	9.72	3053.66	220.43	97.92	91.83	89.75	89.42	89.4	118.77	797.70

Starting
06-09-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (ppm)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5' 3' Bed Temp (F)	3' 5' Bed Temp (F)	1' 8' Bed Temp (F)	Btm. Bed Temp (F)	Nox (mV)
16:46	598.10	132.80	16.49	14.90	10.03	2983.38	220.50	96.10	90.70	90.20	89.60	89.4	118.80	828.00
16:47	598.50	155.40	16.51	14.98	10.05	2946.09	220.40	95.10	90.30	89.80	89.40	89.4	118.80	821.00
16:48	585.30	158.80	16.57	15.15	10.11	2917.55	220.40	95.30	90.10	89.80	89.40	89.4	118.70	812.00
16:49	581.80	165.80	16.61	15.06	10.17	2893.78	220.40	95.10	89.40	90.00	89.50	89.4	118.70	803.00
16:50	596.60	161.00	16.56	16.31	10.13	2874.61	220.40	97.50	89.70	90.00	89.70	89.4	118.70	719.00
C Outlet heated sample line is cleaned out and inspected														
16:51	583.50	83.30	16.59	16.45	10.13	2855.32	220.40	97.80	89.30	90.50	89.40	89.3	118.70	526.80
16:52	503.60	170.20	17.10	15.10	10.16	2845.62	220.40	96.00	89.40	90.30	89.40	89.4	118.70	803.00
16:53	518.40	208.70	16.66	15.22	10.16	2823.67	220.40	95.40	90.00	90.70	89.90	89.4	115.70	818.00
16:54	540.10	218.60	16.61	15.02	10.11	2804.81	220.40	94.30	89.40	89.50	89.60	89.4	110.00	824.00
16:55	540.70	237.20	16.58	14.98	10.07	2810.25	220.30	96.30	89.40	90.20	90.10	89.3	116.20	820.00
10 MinAvg	564.66	169.18	16.63	15.32	10.11	2875.51	220.40	95.89	89.77	90.10	89.60	89.4	117.30	777.48
16:56	565.90	251.40	16.49	14.90	10.06	2820.99	220.30	95.20	89.30	89.70	89.90	89.3	118.60	838.00
16:57	571.60	256.40	16.46	14.91	10.02	2809.24	220.30	94.50	89.20	89.50	89.20	89.2	117.80	840.00
16:58	574.90	259.50	16.44	15.04	10.00	2811.18	220.30	95.40	89.20	89.60	89.20	89.2	118.60	832.00
16:59	586.40	251.20	16.48	15.12	9.94	2816.09	220.30	93.50	89.20	89.40	89.40	89.2	118.60	822.00
17:00	588.60	253.10	16.46	15.01	9.98	2831.26	220.40	94.20	89.40	89.50	89.50	89.5	118.80	817.00
17:01	586.10	267.20	16.43	14.95	9.95	2831.26	220.50	92.70	89.50	89.50	89.60	89.6	118.80	817.00
17:02	599.20	275.90	16.45	14.94	9.93	2836.38	220.50	94.40	89.60	89.60	89.70	89.5	118.90	813.00
17:03	605.00	295.30	16.39	14.87	9.91	2846.11	220.50	94.20	89.50	89.70	90.00	89.5	118.90	813.00
17:04	599.80	304.40	16.39	15.06	9.95	2850.97	220.60	93.40	89.50	89.50	89.70	89.5	118.90	813.00
17:05	599.50	309.20	16.44	15.06	9.94	2861.14	220.70	94.60	89.70	89.90	89.90	89.7	119.10	816.00
10 MinAvg	587.70	272.36	16.44	14.99	9.97	2831.46	220.44	94.21	89.41	89.59	89.61	89.4	118.70	822.40
17:06	581.40	303.70	16.52	15.02	9.98	2865.97	220.80	94.30	89.80	89.80	90.90	89.9	119.10	821.00
17:07	587.30	296.40	16.50	14.99	10.00	2880.66	220.80	94.10	89.80	89.90	89.80	89.8	119.20	825.00
17:08	582.70	296.70	16.51	14.89	10.00	2889.99	221.00	94.60	90.20	90.30	90.20	91.0	119.10	828.00
17:09	591.60	292.60	16.52	15.14	10.03	2895.03	221.00	92.90	91.00	90.00	90.20	90.0	119.20	811.00
17:10	594.10	295.30	16.52	15.09	9.99	2895.53	221.00	93.80	93.10	90.10	90.30	90.0	119.40	815.00
17:11	596.50	286.30	16.54	15.07	9.95	2899.05	221.10	93.80	91.40	90.30	90.00	90.2	118.90	813.00
17:12	602.80	295.20	16.53	15.05	9.95	2898.25	221.10	93.00	92.80	90.70	90.20	90.1	114.80	811.00
17:13	600.80	307.00	16.53	15.13	9.93	2883.47	221.10	94.60	94.20	91.80	91.10	90.1	107.10	816.00
17:14	601.40	307.70	16.56	15.07	9.99	2901.94	221.10	94.90	94.00	91.90	90.30	90.1	99.80	821.00
17:15	596.10	301.80	16.55	15.03	9.85	2893.01	221.00	96.30	95.40	95.90	92.30	90.1	94.60	822.00
10 MinAvg	593.47	298.27	16.53	15.05	9.97	2890.29	221.00	94.23	92.17	91.07	90.53	90.1	113.12	818.30

C The limestone is still bone-dry, but the mist eliminator is spitting out mud and the stack is throwing out some large pieces of stone; the outlet louver screen may be torn. The run is terminated due to fan surges; ie. it's full of mud.

Post-run Bed Inspection: The bottom portion of the screen is completely torn off.

Run Summary: **LEC Run 910611A**

Objective: To repeat LEC Run 920609B at a higher water addition rate.

Total Run Time: 267 minutes minutes (12:03 to 16:30).

SO₂ Removal: 61% to 99% (79% average).

Inlet Gas Rate: 4300 to 2000 acfm.

Bed ΔP: 6.62 to 10.4 in H₂O .

Operational Conditions:

 Fresh No.9 limestone.

 Damper Setting: Full.

 Single layer of Aluminum screening with 4 braces located on the inside of the outlet louvers.

 In-duct Steam = 0 psig.

 Overhead Sprays = 1.50 gpm from 12:03 to 12:35.

 0.00 gpm from 12:36 to 12:53.

 1.00 gpm from 12:54 to 14:36.

 1.25 gpm from 14:37 to 15:57.

 1.50 gpm from 15:58 to 16:30.

 Louver Sprays = Not Installed.

 Bed Speed = 20 DT (3995 lb/hr).

 Regeneration Device: None.

 Stone Carry-Over: 0 lbs/min.

 Waste fines: 0 lbs/min.

Comments: - The run was terminated due to fouled outlet screen.

Starting
06-11-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	Nox (mV)
C Initial Conditions: Full damper; overhead sprays at 1.5 gpm; wet, fresh stone														
C NOx monitor on outlet: 100 ppm scale and 1 VDC is full-scale.														
12:03	215.80	0.51	17.69	17.28	6.62	4597.53	206.00	75.50	66.41	71.10	65.17	66.8	66.91	359.80
12:04	605.40	0.61	15.61	14.53	7.18	4520.61	221.60	75.50	60.85	62.22	60.85	61.2	61.85	833.00
12:05	655.00	0.25	15.54	14.39	7.43	4298.25	223.90	79.70	69.32	61.49	61.37	63.0	61.37	844.00
12:06	662.60	0.13	15.52	14.50	7.33	4196.08	229.90	90.10	90.20	76.30	82.00	87.7	75.10	833.00
12:07	660.30	4.89	15.54	14.62	7.23	4209.89	237.00	90.50	90.40	90.40	90.40	90.4	89.80	821.00
12:08	669.90	32.65	15.47	14.56	7.23	4184.01	244.70	90.90	90.40	90.40	90.40	90.4	90.40	821.00
12:09	676.20	71.80	15.44	14.56	7.22	4158.81	245.70	93.30	90.40	90.40	91.00	90.4	90.40	825.00
12:10	694.20	112.80	15.33	14.42	7.24	4133.45	248.70	95.70	90.40	90.50	91.50	90.5	90.40	826.00
10 MinAvg	484.10	22.45	16.82	16.07	5.45	4287.33	198.36	84.19	79.91	78.35	78.33	79.1	77.69	644.43
12:11	697.70	151.70	15.36	14.36	7.33	4095.86	246.40	97.70	90.50	90.40	91.60	90.7	90.60	831.00
12:12	694.50	169.10	15.39	14.38	7.43	4073.33	247.20	99.00	90.40	90.40	91.80	90.9	90.60	819.00
12:13	706.00	186.70	15.27	14.27	7.49	4036.98	246.70	97.80	90.30	90.60	91.90	90.8	91.30	825.00
12:14	699.60	200.00	15.32	14.35	7.54	4007.88	247.50	97.00	90.30	90.30	91.50	91.1	91.40	812.00
12:15	705.00	198.80	15.27	14.23	7.59	3983.38	246.40	93.60	90.30	90.40	91.30	91.0	91.00	807.00
12:16	582.70	125.40	15.75	14.11	7.56	3973.02	245.10	93.00	90.90	90.80	93.10	90.7	91.80	800.00
12:17	611.70	78.10	15.34	14.15	7.66	3999.10	241.80	92.30	90.90	90.60	92.20	90.9	91.70	774.00
12:18	646.50	38.03	15.44	14.13	7.53	4003.81	237.00	92.40	91.60	90.60	93.00	91.7	93.00	767.00
12:19	658.70	14.63	15.44	14.14	7.52	3996.89	237.50	91.20	91.30	90.30	91.30	91.0	92.00	767.00
12:20	668.70	4.90	15.42	14.11	7.42	3953.19	233.50	92.70	92.60	91.00	92.70	92.7	93.70	777.00
10 MinAvg	667.11	116.74	15.40	14.22	7.51	4012.34	242.91	94.67	90.91	90.54	92.04	91.2	91.71	797.90
12:21	664.30	0.25	15.44	14.10	7.24	3916.23	230.90	93.40	93.30	91.10	92.90	93.7	93.70	778.00
12:22	664.50	0.10	15.45	14.14	7.00	3824.68	229.00	94.10	92.40	90.70	92.30	94.5	93.90	778.00
12:23	663.60	0.71	15.45	14.11	6.73	3724.41	227.80	92.30	90.30	90.70	91.50	92.5	92.20	791.00
12:24	659.10	0.68	15.49	14.14	6.52	3663.73	225.30	91.80	90.80	90.50	91.60	90.8	92.20	797.00
12:25	656.20	0.77	15.49	14.05	6.48	3624.22	225.30	93.60	90.50	92.10	92.20	91.7	93.40	809.00
12:26	655.60	0.90	15.49	14.05	6.55	3624.26	223.00	92.00	90.30	90.90	90.40	90.9	92.30	814.00
12:27	654.50	3.63	16.49	13.25	6.52	3602.03	223.30	91.30	90.20	90.80	90.50	90.2	92.20	803.00
C Small stones are coming out of the mist eliminator (ME). In run 910609b, the ME became full of mud after the lower screen broke. Maybe some of the stone exiting the ME is from that run. The NOx monitor is set on the inlet.														
12:28	663.70	7.22	17.43	12.53	6.63	3615.66	223.00	90.70	90.30	90.90	90.30	90.3	91.90	795.00
12:29	669.10	13.50	17.36	12.44	6.72	3633.17	224.00	91.60	90.40	91.00	90.50	90.4	92.80	804.00
12:30	682.20	23.12	17.26	12.39	6.89	3680.68	224.90	91.30	90.50	91.10	90.70	90.5	91.90	818.00
10 MinAvg	663.28	5.09	16.13	13.52	6.73	3690.91	225.65	92.21	90.90	90.98	91.29	91.6	92.65	798.70

Starting
06-11-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	Nox (mV)
12:31	689.50	34.08	17.16	12.36	7.04	3704.12	226.00	91.60	90.50	91.30	91.40	90.9	92.50	825.00
12:32	698.80	47.23	17.12	12.32	7.15	3723.22	226.50	91.20	90.60	90.70	90.60	90.6	90.80	825.00
12:33	701.00	58.95	17.12	12.30	7.29	3714.11	226.70	90.90	90.70	90.90	91.00	90.7	92.30	820.00
12:34	713.00	65.30	17.03	12.22	7.38	3694.31	228.90	91.70	90.80	90.80	91.50	90.8	91.70	827.00
12:35	715.00	71.20	16.99	12.22	7.49	3653.22	228.30	91.60	90.80	90.90	91.10	90.8	91.20	830.00

C
C Turned off the overhead sprays due to excessive mud droplets being sprayed all over the heating plant and me. The fan is being left on to dry out the L/S.

12:36	708.00	79.30	17.03	12.25	7.52	3616.32	227.20	91.50	90.90	90.90	91.00	90.9	92.10	825.00
12:37	705.00	86.90	17.04	12.26	7.57	3610.33	227.30	91.40	90.90	91.10	91.80	90.9	92.50	819.00
12:38	684.70	88.10	17.20	12.32	7.37	3565.08	226.60	93.10	91.00	91.20	91.80	91.0	93.30	804.00

C
C Turned off the fan so the water in the outlet duct can drain out.

12:39	749.00	85.50	16.48	12.31	-0.54		222.00	91.20	91.00	92.30	93.30	92.6	93.00	846.00
12:40	835.00	43.67	16.01	12.60	-1.46		193.90	86.40	91.10	91.10	91.20	91.1	92.20	904.00

10 MinAvg	719.90	66.02	16.92	12.32	5.68	3660.09	223.34	91.06	90.83	91.12	91.47	91.0	92.16	832.70
12:41	574.90	5.56	20.84	16.78	-1.61		193.00	76.30	91.00	91.00	90.90	91.0	90.90	436.80
12:42	172.00	0.57	23.23	17.19	-1.64		193.10	76.40	85.30	84.50	87.10	85.7	87.70	186.70
12:43	56.23	0.18	23.31	17.24	-1.65		192.60	76.40	76.80	76.40	76.80	76.4	80.50	170.00
12:44	13.22	0.67	23.33	17.31	-1.65		189.80	76.50	76.50	76.50	76.50	76.5	76.50	166.00
12:45	0.90	0.50	23.37	17.36	-1.66		186.80	76.50	76.40	75.40	76.40	76.1	74.70	164.60
12:46	0.86	0.85	23.37	17.31	-1.64		179.20	73.10	75.80	74.80	76.20	75.4	71.70	164.00

C
C Restarted the fan after first cleaning it out.
C The limestone coming out of the reactor screws is hot and dry.
C The NOx monitor is now on the outlet; 100 scale

12:47	170.40	0.47	20.63	15.68	6.68	3230.50	212.90	84.90	80.10	83.40	84.00	82.8	83.60	353.90
12:48	611.10	3.73	17.47	12.63	8.90	3636.15	222.50	91.50	89.40	91.50	91.50	91.5	91.50	770.00
12:49	632.60	31.24	17.52	12.66	8.72	3581.73	222.60	91.60	91.10	91.60	91.60	91.6	91.60	793.00
12:50	649.40	60.30	17.43	12.58	8.64	3560.25	222.60	91.60	90.50	91.60	91.90	91.6	91.80	811.00

10 MinAvg	288.16	10.41	21.05	15.67	2.31	3502.16	201.51	81.48	83.29	83.67	84.29	83.9	84.05	401.60
12:51	657.90	93.60	17.38	12.48	8.60	3555.36	222.80	91.70	89.50	91.70	92.40	91.7	94.90	815.00
12:52	667.20	126.90	17.29	12.38	8.58	3562.05	222.80	91.80	87.90	91.80	91.90	91.8	101.70	819.00
12:53	677.30	147.00	17.21	12.31	8.61	3580.51	222.90	91.90	88.70	91.80	91.80	91.9	113.60	821.00

C
C Water is started again at 1.0 gpm to the overhead sprays.
C The dust covers are put in place to curb the excessive dust.

12:54	691.20	162.50	17.10	12.18	8.58	3575.65	223.70	91.90	91.50	91.90	91.90	91.9	114.50	836.00
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Starting
06-11-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm Bed Temp (F)	Nox (mV)
12:55	693.60	162.50	17.12	12.13	8.60	3564.41	224.40	92.60	91.60	91.90	92.10	92.1	119.60	835.00
12:56	689.70	160.20	17.11	12.11	8.59	3554.04	225.80	92.90	91.50	92.00	92.20	92.2	121.30	836.00
12:57	689.10	149.70	17.14	12.15	8.64	3554.35	225.20	93.40	91.80	92.00	92.00	92.6	121.40	833.00
12:58	691.20	143.50	17.13	12.09	8.70	3562.29	225.70	93.90	92.10	92.10	92.40	94.7	124.00	828.00
12:59	681.80	132.50	17.23	12.10	8.74	3576.29	225.80	95.10	92.10	92.10	92.60	96.7	131.20	813.00
13:00	676.20	125.20	17.27	12.09	8.77	3587.95	224.50	93.60	92.20	92.20	92.40	95.6	141.70	809.00
10 MinAvg	681.52	140.36	17.20	12.20	8.64	3567.29	224.36	92.88	90.89	91.95	92.17	93.1	118.39	824.50
13:01	672.20	115.90	17.31	12.21	8.77	3569.46	225.70	94.70	92.30	92.30	92.80	96.3	143.60	815.00
13:02	665.40	108.20	17.36	12.21	8.80	3542.84	224.40	94.20	92.30	92.30	92.40	96.7	144.20	825.00
13:03	656.90	105.30	17.42	12.21	8.82	3550.75	224.30	93.20	92.30	92.30	92.30	100.4	146.90	823.00
13:04	653.20	102.00	17.49	12.23	8.83	3530.47	224.60	93.20	92.30	92.30	92.60	106.0	149.80	826.00
13:05	647.30	96.20	17.55	12.32	8.89	3507.93	223.30	93.10	92.30	92.30	92.30	108.1	150.60	819.00
13:06	646.60	91.60	17.56	12.32	8.95	3500.18	223.70	93.20	92.30	92.30	92.40	111.4	150.80	827.00
13:07	646.20	86.20	17.55	12.32	8.96	3487.66	223.40	93.80	92.30	92.30	92.30	108.1	150.80	822.00
13:08	643.30	88.60	17.61	12.38	9.01	3483.76	223.50	96.50	92.40	92.40	92.50	101.4	150.90	827.00
13:09	640.10	86.40	17.64	12.39	9.09	3496.02	223.70	94.20	92.50	92.50	92.60	92.6	150.80	827.00
13:10	637.30	73.80	17.65	12.30	9.12	3500.47	223.70	93.10	92.50	92.50	92.50	92.5	150.90	831.00
10 MinAvg	650.85	95.42	17.51	12.29	8.92	3516.96	224.03	93.92	92.35	92.35	92.47	101.3	148.93	824.20
13:11	642.20	65.48	17.61	12.23	9.16	3479.29	223.50	94.50	92.50	92.50	92.70	92.5	150.80	838.00
13:12	638.40	62.05	17.64	12.22	9.21	3452.38	223.60	94.20	92.50	92.50	92.50	92.5	144.30	841.00
13:13	633.50	59.82	17.71	12.23	9.22	3429.36	223.50	94.20	92.50	92.50	92.80	92.5	142.10	835.00
13:14	626.80	57.73	17.76	12.23	9.23	3396.64	223.70	93.00	92.50	92.50	92.50	92.5	136.50	837.00
13:15	630.90	57.54	17.72	12.19	9.25	3362.12	224.10	94.10	92.50	92.50	92.70	92.5	128.80	841.00
13:16	628.70	55.06	17.75	12.18	9.26	3352.69	223.70	93.70	92.60	92.60	92.60	92.6	125.50	846.00
13:17	618.80	50.39	17.82	12.19	9.29	3339.07	224.00	94.00	92.60	92.60	92.60	93.1	122.20	843.00
13:18	622.90	44.56	17.78	12.14	9.34	3342.65	224.00	93.30	92.60	92.60	92.60	92.7	122.00	846.00
13:19	626.70	38.73	17.73	12.12	9.30	3334.04	223.70	93.30	92.60	92.60	92.60	92.6	121.90	852.00
13:20	626.10	35.50	17.75	12.15	9.27	3302.02	223.60	92.90	92.60	92.60	92.60	92.6	118.00	852.00
10 MinAvg	629.50	52.69	17.73	12.19	9.25	3379.03	223.74	93.72	92.55	92.55	92.62	92.6	131.21	843.10
13:21	628.40	34.31	17.69	12.09	9.22	3300.69	223.50	92.90	92.60	92.60	92.60	92.6	119.00	856.00
13:22	628.70	33.87	17.70	12.09	9.16	3283.66	223.60	93.20	92.50	92.50	92.50	92.5	114.50	857.00
13:23	634.20	34.11	17.63	12.07	9.05	3262.73	224.00	93.80	92.50	92.50	92.60	92.5	107.20	863.00
13:24	648.10	35.22	17.54	12.02	8.98	3258.52	224.50	95.10	92.50	92.50	92.50	92.5	104.30	878.00
13:25	654.40	39.11	17.50	11.99	8.90	3289.97	225.80	95.00	92.50	92.50	92.80	92.5	103.80	883.00
13:26	658.80	48.72	17.47	12.02	8.85	3291.14	226.40	95.50	92.50	92.50	92.70	92.5	102.80	892.00
13:27	660.80	71.20	17.42	12.08	8.87	3302.81	229.30	96.60	92.50	92.50	93.00	92.5	104.00	895.00
13:28	671.30	78.00	17.36	11.97	8.82	3293.76	229.10	95.50	92.50	92.50	93.40	92.5	105.10	903.00
13:29	673.00	82.20	17.35	11.94	8.66	3281.74	231.30	96.00	92.50	92.50	92.90	92.5	105.20	911.00
13:30	669.90	94.60	17.37	11.98	8.52	3271.19	229.90	96.40	92.50	92.50	92.90	92.5	104.40	922.00

LEC Run 910611

Starting
06-11-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5' 3' Bed Temp (F)	3' 5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	Nox (mV)
10 MinAvg	652.76	55.13	17.50	12.02	8.90	3283.62	226.74	95.02	92.51	92.51	92.79	92.5	107.03	886.00
13:31	656.00	107.30	17.48	12.05	8.45	3283.05	229.20	96.00	92.70	92.50	92.50	92.5	108.50	908.00
13:32	568.40	122.30	17.67	12.04	8.43	3273.48	231.20	96.80	92.50	92.50	92.90	92.5	112.40	866.00
13:33	541.70	135.50	17.29	12.00	8.42	3230.04	229.00	96.10	92.60	92.70	92.70	92.6	113.40	903.00
13:34	596.80	145.90	17.41	12.03	8.40	3211.10	229.30	96.10	92.60	92.60	93.40	92.6	117.30	906.00
13:35	602.10	154.00	17.54	12.09	8.35	3199.13	228.80	95.60	92.60	92.60	93.10	92.6	119.20	913.00
13:36	616.10	165.20	17.61	12.13	8.41	3204.10	230.20	95.50	92.70	92.70	92.90	92.7	121.00	926.00

C
C Disconnected sample lines to check O2 monitors
C

13:37	509.50	179.10	22.26	12.06	8.35	3215.51	230.90	94.60	92.70	92.70	92.80	92.7	122.00	805.00
13:38	2.59	197.60	23.27	12.03	8.32	3220.10	229.60	94.20	92.70	94.30	92.90	92.7	122.10	201.40
13:39	0.75	175.20	22.56	13.49	8.26	3220.10	230.80	94.90	92.80	101.10	93.30	92.8	122.10	190.40
13:40	0.86	7.55	21.53	19.59	8.22	3194.65	232.60	97.50	92.90	99.80	93.20	92.8	122.30	187.50
10 MinAvg	409.48	138.96	19.46	12.95	8.36	3225.13	230.16	95.73	92.68	94.35	92.97	92.7	118.03	680.63
13:41	0.65	0.58	18.23	21.09	8.22	3174.99	230.70	96.70	92.80	94.40	92.90	92.8	123.10	189.40

C
C Reconnected the sample lines
C

13:42	22.74	63.57	16.18	16.39	8.17	3162.98	232.20	98.00	92.80	92.80	93.70	92.8	126.80	317.90
13:43	258.50	185.40	15.27	14.75	8.16	3109.04	232.70	98.00	92.90	92.90	106.70	92.9	130.10	657.50
13:44	634.10	208.70	13.81	14.77	8.15	3137.89	230.60	99.30	92.90	92.90	127.10	93.3	141.10	898.00
13:45	631.30	221.20	14.75	14.79	8.14	3119.08	230.10	100.40	92.90	92.90	155.70	93.0	137.40	901.00
13:46	669.90	222.20	15.24	14.75	8.10	3096.70	231.80	101.00	93.20	93.20	165.70	93.2	141.20	902.00
13:47	675.80	223.00	15.26	14.73	8.05	3054.38	229.20	99.50	92.90	93.00	166.00	93.0	137.40	903.00
13:48	669.20	234.20	15.30	14.78	8.10	3040.38	229.60	101.00	93.00	93.00	165.80	93.5	143.00	888.00
13:49	666.70	230.80	15.19	14.82	8.09	2987.54	228.80	100.60	93.00	93.30	153.40	94.4	135.20	876.00
13:50	664.00	232.10	14.90	14.79	8.02	2948.93	226.20	99.50	92.90	92.90	151.40	95.7	129.30	858.00
10 MinAvg	489.29	182.18	15.41	15.57	8.12	3083.19	230.19	99.40	92.93	93.13	137.84	93.5	134.46	739.08
13:51	670.30	238.20	14.82	14.77	8.04	2945.92	224.80	100.00	92.90	92.90	151.30	100.9	126.20	853.00
13:52	661.90	240.50	14.82	14.84	8.02	2913.08	224.80	100.10	93.00	92.90	151.20	114.0	122.60	837.00
13:53	658.70	236.80	14.86	14.84	7.89	2898.47	224.70	100.90	92.90	93.00	130.10	122.3	122.50	829.00
13:54	662.80	247.20	14.84	14.82	7.87	2879.45	224.10	101.10	92.90	92.90	121.50	143.9	122.60	827.00
13:55	656.90	243.10	14.86	14.84	7.94	2884.78	223.80	101.00	92.90	92.90	117.70	155.8	122.80	821.00
13:56	655.90	236.30	14.88	14.83	7.83	2864.00	223.90	100.80	92.80	92.80	106.20	165.6	126.20	814.00
13:57	659.10	231.80	14.80	14.79	7.90	2864.45	224.70	100.60	93.00	92.80	102.20	166.7	134.50	811.00
13:58	672.30	230.90	14.74	14.67	7.88	2913.17	224.00	101.00	93.10	92.80	99.00	173.9	146.50	827.00
13:59	682.20	231.50	14.64	14.56	7.88	2929.18	224.90	100.50	92.90	92.90	98.00	176.9	151.10	852.00
14:00	701.00	236.40	14.49	14.47	7.84	2913.23	224.50	100.50	93.10	92.90	99.30	170.5	152.80	876.00

LEC Run 910611

Starting
06-11-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5' 3' Bed Temp (F)	3' 5' Bed Temp (F)	1' 8' Bed Temp (F)	Btm. Bed Temp (F)	Nox (mV)
10 MinAvg	668.11	237.27	14.77	14.74	7.91	2900.57	224.42	100.65	92.95	92.88	117.65	149.1	132.78	834.70
14:01	721.00	236.90	14.37	14.40	7.86	2951.98	225.10	101.60	93.20	92.90	100.80	166.9	164.90	897.00
14:02	736.00	255.20	14.22	14.36	7.81	2938.89	224.70	100.10	92.80	93.10	101.90	165.9	165.80	917.00
14:03	756.00	278.30	14.07	14.37	7.72	2923.83	226.50	101.20	92.90	93.10	102.70	165.9	165.90	935.00
14:04	771.00	315.20	13.97	14.39	7.70	2898.39	226.30	100.50	93.00	93.00	98.80	165.7	166.00	942.00
14:05	773.00	339.50	13.94	14.38	7.69	2888.29	227.60	101.40	93.10	93.30	94.50	162.3	166.10	944.00
14:06	769.00	344.30	13.91	14.40	7.76	2867.51	228.90	101.10	93.20	93.20	93.40	153.1	166.10	946.00
14:07	766.00	326.50	13.95	14.45	7.66	2809.58	227.20	101.70	93.20	93.20	93.60	146.9	166.10	947.00
14:08	751.00	279.90	14.08	14.45	7.66	2759.18	225.50	101.10	93.20	93.60	93.70	119.7	155.50	932.00
14:09	737.00	262.70	14.13	14.56	7.59	2691.39	226.10	101.80	93.20	93.30	94.30	109.4	151.60	913.00
14:10	736.00	270.10	14.18	14.44	7.63	2674.17	225.40	101.00	93.20	93.20	93.90	108.4	143.80	905.00
10 MinAvg	751.60	290.86	14.08	14.42	7.71	2840.32	226.33	101.15	93.10	93.19	96.76	146.4	161.18	927.80
14:11	729.00	263.70	14.24	14.39	7.63	2610.38	224.30	101.70	93.20	93.30	94.30	106.8	129.60	896.00
14:12	724.00	253.90	14.28	14.45	7.64	2579.03	224.40	102.00	93.20	93.20	93.80	115.7	135.20	887.00
14:13	718.00	241.50	14.34	14.45	7.68	2593.53	224.20	102.00	93.20	93.20	93.40	122.5	147.10	872.00
14:14	709.00	225.70	14.40	14.54	7.71	2562.68	224.20	102.30	93.20	93.20	93.60	122.5	145.80	859.00
14:15	698.70	215.40	14.45	14.62	7.72	2553.03	224.20	100.50	93.20	93.20	93.40	122.5	149.30	850.00
14:16	695.30	206.50	14.47	14.61	7.69	2498.56	224.20	99.80	93.20	93.20	93.90	122.5	136.90	847.00
14:17	692.70	197.90	14.49	14.69	7.78	2476.67	224.10	98.90	93.20	93.20	94.10	120.2	137.40	838.00
14:18	692.40	189.00	14.51	14.66	7.78	2467.19	224.10	100.00	93.10	93.10	93.30	108.6	138.40	836.00
14:19	684.60	183.00	14.59	14.72	7.87	2474.18	224.10	99.90	93.20	93.20	93.30	108.5	147.50	824.00
14:20	683.20	182.60	14.61	14.78	7.84	2458.67	224.10	99.30	93.10	93.10	93.50	108.0	151.50	824.00
10 MinAvg	702.69	215.92	14.44	14.59	7.73	2527.39	224.19	100.64	93.18	93.19	93.66	115.8	141.87	853.30
14:21	685.50	187.20	14.55	14.77	7.87	2446.76	224.10	97.80	93.10	93.10	93.10	102.8	151.50	827.00
14:22	694.40	188.80	14.55	14.78	7.86	2426.02	224.00	98.60	93.10	93.10	93.20	98.2	147.10	838.00
14:23	690.50	194.00	14.55	14.79	7.93	2394.71	224.00	97.80	93.00	93.00	93.20	93.6	140.40	837.00
14:24	690.70	190.10	14.54	14.80	7.90	2368.15	224.00	97.90	93.00	93.00	93.20	93.9	136.10	836.00
14:25	695.50	192.80	14.52	14.83	7.97	2332.64	224.00	98.80	93.00	93.00	93.10	93.5	127.30	837.00
14:26	701.00	180.40	14.50	14.70	7.95	2323.09	223.90	98.20	92.90	92.90	92.90	94.5	122.50	836.00
14:27	707.00	178.50	14.42	14.76	7.96	2316.89	223.90	98.20	93.00	93.00	93.20	94.9	122.40	841.00
14:28	712.00	181.60	14.43	14.77	7.91	2341.38	223.90	98.40	93.00	93.00	93.10	96.3	122.70	840.00
14:29	713.00	173.40	14.44	14.71	8.07	2323.09	223.90	100.00	92.90	92.90	93.30	97.1	122.50	840.00
14:30	717.00	164.50	14.34	14.63	8.02	2329.26	223.80	99.90	92.90	92.90	92.90	97.6	125.60	842.00
10 MinAvg	700.66	183.13	14.48	14.75	7.94	2360.20	223.95	98.49	92.99	92.99	93.10	96.2	131.81	837.40
14:31	737.00	188.20	14.24	14.73	8.06	2347.33	223.80	100.80	92.80	92.80	93.20	95.9	137.80	857.00
14:32	750.00	197.00	14.13	14.67	7.95	2326.37	223.80	101.50	92.90	92.90	93.60	99.2	139.60	865.00
14:33	764.00	194.60	14.03	14.73	7.93	2312.29	223.90	101.40	92.90	92.90	94.10	104.9	138.70	881.00

LFC Run 910611

Starting
06-11-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dp (in H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5' 3' Bed Temp (F)	3' 5' Bed Temp (F)	1.8' Bed Temp (F)	Btm Bed Temp (F)	Nox (mV)
14:34	757.00	187.60	14.04	14.82	8.04	2329.41	223.90	102.00	92.90	92.90	93.80	109.6	147.60	889.00
14:35	762.00	180.90	13.99	14.71	7.94	2333.24	223.90	101.70	92.90	93.10	93.90	117.4	149.60	900.00
14:36	762.00	181.10	13.97	14.66	7.97	2306.99	223.90	102.90	93.10	92.90	94.80	119.6	142.40	907.00
C Changing the overhead spray flow from 1.0 gpm to 1.25 gpm.														
C Water has been leaking out of the fan for awhile														
14:37	759.00	190.10	13.98	14.66	7.98	2318.83	223.90	102.90	93.00	93.10	94.10	115.2	148.60	909.00
14:38	761.00	199.20	14.00	14.69	8.04	2323.40	223.90	103.50	92.90	93.20	95.60	109.2	151.00	916.00
14:39	757.00	203.60	14.03	14.74	8.03	2292.39	223.90	101.50	93.00	93.20	94.10	108.4	141.30	919.00
14:40	751.00	202.30	14.02	14.73	8.07	2278.24	223.90	101.00	93.00	92.90	94.40	107.3	143.80	924.00
10 MinAvg	756.00	192.46	14.04	14.71	8.00	2316.85	223.88	101.92	92.94	92.99	94.16	108.7	144.04	896.70
14:41	753.00	206.50	13.99	14.72	8.04	2266.27	223.90	100.40	92.90	92.90	94.00	104.1	147.60	927.00
14:42	753.00	202.50	14.03	14.71	8.07	2260.11	223.90	100.60	92.90	92.90	94.00	102.1	144.30	931.00
14:43	752.00	197.00	14.08	14.78	8.09	2244.37	223.80	100.80	92.90	92.90	93.80	99.7	139.30	931.00
14:44	755.00	190.80	14.08	14.78	8.09	2259.83	223.90	101.50	93.00	92.90	94.10	99.7	137.40	937.00
14:45	758.00	195.80	14.13	14.76	8.13	2276.32	223.90	99.90	92.90	92.90	93.60	98.6	132.90	935.00
14:46	758.00	200.70	14.14	14.74	8.07	2259.64	223.80	100.60	93.10	92.90	93.20	98.0	130.70	940.00
14:47	753.00	199.10	14.21	14.74	8.07	2267.85	223.80	100.60	93.10	93.10	93.50	97.1	125.30	935.00
14:48	737.00	197.30	14.31	14.74	8.15	2270.95	223.80	98.70	92.90	92.80	93.30	95.5	126.90	918.00
14:49	719.00	194.60	14.47	14.89	8.05	2236.06	223.80	98.10	93.10	92.90	93.80	95.1	124.90	889.00
14:50	699.40	193.40	14.50	14.93	7.92	2225.38	223.80	98.80	93.30	93.00	93.50	94.9	129.20	870.00
10 MinAvg	743.74	197.77	14.19	14.77	8.07	2256.68	223.84	99.89	93.01	92.92	93.68	98.5	133.85	921.30
14:51	696.70	194.30	14.54	14.96	8.03	2240.84	223.70	99.60	93.20	92.90	93.60	93.4	127.40	862.00
14:52	689.50	186.50	14.59	15.02	7.98	2200.46	223.70	99.50	93.00	92.70	93.20	94.3	122.70	853.00
14:53	686.60	176.10	14.59	15.02	8.04	2205.64	223.70	99.70	93.00	92.70	93.50	93.4	122.10	855.00
14:54	678.90	166.40	14.67	15.03	8.11	2211.93	223.70	100.10	92.80	92.70	93.30	93.0	122.10	853.00
14:55	671.20	162.40	14.72	15.08	7.98	2199.33	223.70	100.60	93.00	92.70	94.20	93.3	122.10	850.00
14:56	676.10	161.00	14.68	15.04	8.02	2198.38	223.70	100.70	92.70	92.70	93.20	92.7	121.60	855.00
14:57	686.30	163.00	14.61	15.05	8.13	2209.90	223.70	100.50	92.70	92.70	93.30	93.5	114.50	858.00
14:58	693.00	165.90	14.58	15.03	8.10	2197.11	223.70	100.60	92.70	92.70	93.40	93.1	104.70	855.00
14:59	701.00	159.30	14.49	14.98	8.07	2198.16	223.70	99.60	92.70	92.70	93.10	92.7	102.10	861.00
15:00	700.00	158.30	14.48	14.97	8.16	2215.42	223.70	99.20	92.70	92.70	92.90	93.1	101.60	863.00
C Lost time and data somehow														
15:56	606.80	109.50	15.07	15.52	10.55	2416.54	224.20	93.20	93.20	93.20	93.20	93.2	93.30	884.00
15:57	591.80	104.70	15.21	15.67	10.45	2405.58	224.20	93.20	93.20	93.20	93.20	93.2	93.30	868.00
C Changed the overhead spray flow from 1.25 gpm to 1.50 gpm														
15:58	577.70	99.20	15.31	15.72	10.39	2411.28	224.20	93.30	93.20	93.20	93.20	93.2	93.40	859.00

LEC Run 910611

Starting
06-11-91

Time	Inlet SO ₂ (ppm)	Outlet SO ₂ (ppm)	Inlet O ₂ (%)	Outlet O ₂ (%)	Bed dp (in. H ₂ O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Bed Temp (F)	Nox (mV)
15:59	570.00	99.10	15.36	15.78	10.41	2416.97	224.20	93.40	93.20	93.20	93.20	93.2	93.50	853.00
16:00	569.00	101.80	15.35	15.81	10.44	2427.88	224.20	93.30	93.30	93.30	93.30	93.3	93.50	857.00
10 MinAvg	605.20	106.18	15.08	15.57	10.14	2360.31	224.14	93.40	93.17	93.17	93.17	93.2	93.30	883.50
C Changed the NOx monitor to the outlet.														
16:01	570.60	103.70	14.80	16.78	10.37	2416.54	224.20	93.30	93.30	93.30	93.30	93.3	93.30	864.00
16:02	571.30	100.50	14.04	18.02	10.37	2405.36	224.20	93.20	93.20	93.20	93.20	93.2	93.20	855.00
16:03	567.80	100.30	14.05	18.07	10.40	2394.35	224.20	93.20	93.20	93.20	93.20	93.2	93.20	855.00
16:04	561.40	99.20	14.07	18.15	10.42	2389.04	224.20	93.20	93.20	93.20	93.20	93.3	93.30	849.00
16:05	557.10	91.80	14.11	18.21	10.38	2355.42	224.20	93.20	93.20	93.20	93.20	93.2	93.20	839.00
16:06	553.20	86.00	14.11	18.26	10.44	2355.42	224.20	93.20	93.20	93.20	93.20	93.2	93.20	848.00
16:07	546.20	85.00	14.14	18.50	10.42	2321.52	224.20	93.20	93.20	93.20	93.20	93.2	93.20	834.00
C Disconnecting sample lines to check O ₂ calibration														
16:08	243.30	79.50	17.92	18.65	10.20	2263.91	224.20	93.20	93.20	93.20	93.20	93.2	93.20	823.00
16:09	420.60	61.46	16.58	20.43	10.35	2263.91	224.20	93.20	93.20	93.20	93.20	93.2	93.20	695.80
16:10	551.20	5.13	16.12	17.97	10.22	2240.45	224.20	93.20	93.20	93.20	93.20	93.2	93.20	383.20
C Reconnected the sample lines														
10 MinAvg	514.27	81.26	14.99	18.30	10.36	2340.59	224.20	93.21	93.21	93.21	93.21	93.2	93.22	784.60
16:11	579.80	33.65	15.90	15.50	10.27	2216.74	224.20	93.20	93.20	93.20	93.20	93.2	93.20	794.00
16:12	602.90	51.10	15.76	15.31	10.39	2210.77	224.20	93.20	93.20	93.20	93.20	93.2	93.20	823.00
16:13	628.30	62.56	15.59	15.23	10.47	2180.69	224.30	93.20	93.20	93.20	93.20	93.2	93.20	853.00
16:14	641.10	68.06	15.46	15.15	10.40	2156.33	224.70	93.30	93.20	93.20	93.20	93.2	93.20	884.00
16:15	660.40	79.50	15.32	15.07	10.40	2137.87	225.20	93.20	93.20	93.20	93.20	93.2	93.20	920.00
16:16	675.70	91.00	15.22	15.03	10.38	2119.25	226.70	93.20	93.20	93.20	93.20	93.2	93.20	953.00
16:17	685.70	99.80	15.14	15.04	10.29	2106.56	229.10	93.10	93.10	93.10	93.10	93.1	93.10	980.00
16:18	699.70	106.50	15.07	14.90	10.33	2093.98	227.80	93.10	93.10	93.10	93.10	93.1	93.10	960.00
16:19	690.70	107.50	15.22	15.03	10.33	2081.52	229.00	93.10	93.10	93.10	93.10	93.1	93.10	936.00
16:20	670.80	105.70	15.32	15.07	10.35	2068.60	226.00	93.10	93.10	93.10	93.10	93.1	93.10	894.00
10 MinAvg	653.51	80.54	15.40	15.13	10.36	2137.23	226.12	93.17	93.16	93.16	93.16	93.2	93.17	925.00
16:21	664.20	109.20	15.42	15.11	10.29	2049.35	226.00	93.10	93.10	93.10	93.10	93.1	93.10	913.00
16:22	656.40	108.70	15.51	15.33	10.28	2042.90	224.80	93.10	93.10	93.10	93.10	93.1	93.10	902.00
16:23	648.00	107.30	15.60	15.33	10.19	2016.88	224.30	93.10	93.10	93.10	93.10	93.1	93.10	884.00
16:24	633.90	107.10	15.73	15.31	10.25	2016.88	224.00	93.10	93.10	93.10	93.10	93.1	93.10	882.00
16:25	625.70	111.00	15.75	15.25	10.25	2029.93	224.10	93.10	93.10	93.10	93.10	93.1	93.10	

LEC Run 910611

Starting
06-11-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	Nox (mV)
16:26	613.40	118.50	15.88	15.29	10.25	2036.43	224.10	93.10	93.10	93.10	93.10	93.1	93.10	871.00
16:27	603.40	124.40	15.92	15.34	10.21	2042.90	224.10	93.10	93.10	93.10	93.10	93.1	93.10	868.00
16:28	596.50	130.20	15.98	15.39	10.29	2068.60	224.10	93.10	93.10	93.10	93.10	93.1	93.10	854.00
16:29	590.20	137.20	16.03	15.26	10.23	2081.33	224.10	93.10	93.10	93.10	93.10	93.1	93.10	855.00
16:30	580.00	134.20	16.08	15.32	10.12	2087.66	224.10	93.10	93.10	93.10	93.10	93.1	93.10	840.00
10 MinAvg	621.17	118.78	15.79	15.29	10.24	2047.29	224.37	93.10	93.10	93.10	93.10	93.1	93.10	879.40

Dr. Prudich Quote: "I have a feeling that the last 30 minutes represent some bed fouling with limestone dust."

Run Summary: **LEC Run 910614A**

Objective: To use the vibrating screen as a dry-method regeneration device.

Total Run Time: 30 seconds.

SO₂ Removal: Not Available.

Inlet Gas Rate: Not available.

Bed ΔP : Not Available.

Operational Conditions:

No.9 limestone from LEC Run 920611A (267 minutes of prior exposure).

Damper Setting: Full.

Single layer of Aluminum screening with 4 braces located on the inside of the outlet louvers.

In-duct Steam = 0 psig.

Overhead Sprays = 0.0 gpm.

Louver Sprays = Not Installed.

Bed Speed = 20 DT (3995 lb/hr).

Regeneration Device: Single deck vibrating screen equipped with a No.30 mesh screen.

Stone Carry-Over: 0 lbs/min.

Waste fines: 0 lbs/min.

Comments: - The run was terminated due when the outlet screen tore-off the braces and became lodged in the reactor screws.

Run Summary: **LEC Run 910615A**

Objective: To use the vibrating screen as a dry-method regeneration device.

Total Run Time: 109 minutes.

SO₂ Removal: 90% to 36% (58% average).

Inlet Gas Rate: 3714 acfm (average).

Bed ΔP : 8.4 in H₂O (average).

Operational Conditions:

 Fresh No.9 limestone.

 Damper Setting: Full.

 Single layer of Aluminum screening with 2 braces located on the inside of the outlet louvers.

 In-duct Steam = 0 psig.

 Overhead Sprays = 0.0 gpm.

 Louver Sprays = Not Installed.

 Bed Speed = 20 DT (3995 lb/hr).

 Regeneration Device: Single deck vibrating screen equipped with a No.30 mesh screen.

 Stone Carry-Over: 0 lbs/min.

 Waste fines: Not Available.

Comments: - The run was terminated when the waste screw overheated.

LEC RUN 910615A

Starting
06-15-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in H2O)	Bed dP (in H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
Objective: Use the vibrating screen as a dry method of limestone regeneration Initial Conditions: Fresh limestone that is initially soaked due to heavy rain the night before Damper is set on full; Bed speed = 20 DT; Overhead sprays = 0.0 gpm															
13:26	0.72	0.42	20.73	14.20	0.71	8.38		220.30	74.40	61.23	63.97	64.34	65.3	61.10	42.27
13:27	620.70	0.04	15.39	13.76	0.65	8.65		220.30	76.50	67.90	65.66	68.40	71.3	73.80	99.99
13:28	798.00	0.35	14.88	13.75	0.62	8.31		221.50	89.20	88.20	75.10	74.60	75.9	89.00	99.96
13:29	819.00	0.29	14.85	13.72	0.62	8.10		230.30	89.20	89.30	89.00	80.10	87.4	89.20	99.96
13:30	822.00	7.37	14.91	13.76	0.62	8.02		240.90	89.40	93.10	90.40	88.30	89.3	89.50	99.10
13:31	817.00	32.11	14.94	13.85	0.61	8.01		246.10	91.20	92.10	93.00	93.30	89.2	89.70	96.07
13:32	804.00	55.67	15.05	13.99	0.62	7.97		248.60	98.20	94.90	93.90	96.30	89.3	90.20	93.08
13:33	781.00	76.30	15.17	14.10	0.62	7.90		249.20	101.50	92.80	95.70	96.10	91.0	90.20	90.23
13:34	771.00	95.50	15.23	14.17	0.63	7.87		249.40	95.30	92.60	95.40	95.30	92.1	90.30	87.61
13:35	753.00	115.30	15.35	14.38	0.63	7.78		249.40	93.20	93.40	93.70	96.00	92.9	90.60	84.69
10 MinAvg	698.64	38.34	15.65	13.97	0.63	8.10	4621.9	237.60	89.81	86.55	85.58	85.27	84.4	85.36	89.30

L/S coming out of the reactor is dry (no dust yet) Overhead sprays are set at 1.25 gpm.

13:36	739.00	130.30	15.44	14.46	0.64	7.76	4658.4	249.40	94.50	93.90	95.90	95.60	92.9	90.50	82.37
13:37	720.00	147.00	15.54	14.50	0.64	7.72	4658.4	249.30	97.80	94.60	95.20	96.10	93.4	91.40	79.58
13:38	705.00	158.70	15.62	14.60	0.64	7.71	4658.4	249.40	101.70	93.50	95.80	95.10	93.1	90.60	77.49
13:39	694.30	172.90	15.70	14.67	0.65	7.68	4694.6	249.30	103.50	95.20	95.80	96.30	94.3	92.00	75.10
13:40	695.20	189.50	15.64	14.73	0.65	7.69	4694.6	249.30	103.70	95.80	95.40	94.50	93.9	90.60	72.74
13:41	697.50	213.70	15.64	14.65	0.66	7.66	4730.6	249.20	103.20	95.70	95.10	95.70	94.1	90.80	69.36
13:42	683.80	230.40	15.76	14.68	0.66	7.64	4730.6	249.20	103.10	95.20	95.80	95.70	94.4	91.30	66.31
13:43	665.20	246.20	15.85	14.70	0.66	7.57	4730.6	249.30	104.20	95.90	94.40	97.20	93.6	92.30	62.99
13:44	662.90	263.80	15.87	14.76	0.67	7.58	4766.3	249.30	101.90	94.40	95.60	95.90	94.4	91.60	60.21
13:45	660.00	281.80	15.90	14.82	0.67	7.55	4766.3	249.30	106.10	93.60	94.40	95.30	93.9	90.70	57.30
10 MinAvg	692.29	203.43	15.70	14.66	0.66	7.66	4708.4	249.30	101.97	94.78	95.34	95.74	93.8	91.18	70.34
13:46	655.00	301.90	15.91	14.70	0.67	7.55	4766.3	249.30	106.50	95.20	96.30	96.20	95.3	92.60	53.91
13:47	657.20	322.60	15.92	14.63	0.67	7.52	4766.3	249.30	107.50	95.60	95.80	96.10	95.0	93.80	50.91
13:48	659.80	349.40	15.87	14.55	0.66	7.49	4730.6	249.30	115.00	95.40	95.60	96.90	95.1	93.20	47.04
13:49	673.10	368.30	15.83	14.51	0.65	7.53	4694.6	249.20	116.10	99.30	95.60	96.60	94.1	93.30	45.28
13:50	677.80	383.80	15.76	14.45	0.65	7.53	4694.6	249.20	118.10	97.90	95.90	97.90	95.3	93.70	43.38
13:51	678.20	403.00	15.75	14.42	0.65	7.50	4694.6	249.20	118.30	97.00	95.40	97.60	96.2	95.20	40.58
13:52	687.70	428.20	15.67	14.35	0.65	7.51	4694.6	249.10	118.10	96.80	96.20	100.30	95.0	95.20	37.73
Disconnecting sampling lines to recalibrate the O2 monitors.															
13:53	694.20	215.90	15.63	18.62	0.65	7.54	4694.6	249.10	118.20	98.40	98.40	108.80	96.1	95.00	68.90

E-63

LEC RUN 910615A

Starting
06-15-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in H2O)	Bed dP (in H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
13:54	208.40	2.05	20.06	20.81	0.65	7.51	4694.6	249.10	118.20	98.10	95.90	125.00	96.5	94.90	99.02
13:55	17.45	185.90	20.37	15.99	0.65	7.50	4694.6	249.10	118.20	101.70	96.60	147.90	97.2	96.60	-965.33
Reconnected sample lines.															
10 MinAvg	560.89	296.10	16.68	15.70	0.65	7.52	4716.3	249.19	115.42	97.54	96.17	106.33	95.6	94.35	-47.86
13:56	620.10	462.10	15.24	13.95	0.64	7.53		249.10	118.20	106.10	97.20	142.40	100.3	97.90	25.48
13:57	764.00	491.30	14.88	13.87	0.63	7.54		249.10	118.20	107.50	97.90	122.10	101.0	99.40	35.69
Vibrating screen started.															
13:58	783.00	513.50	14.82	13.70	0.62	7.55		249.10	116.50	108.30	98.00	113.60	102.3	99.50	34.42
13:59	785.00	514.90	14.82	13.65	0.61	7.55		249.10	108.80	109.30	100.20	102.70	101.8	100.20	34.41
14:00	789.00	518.20	14.79	13.58	0.60	7.54		249.10	111.00	108.80	104.40	99.60	103.6	102.10	34.32
14:01	794.00	514.00	14.78	13.58	0.59	7.55		249.10	108.00	105.30	106.90	100.10	104.2	100.90	35.26
14:02	785.00	506.40	14.79	13.62	0.57	7.59		249.00	109.10	106.90	107.30	101.00	110.8	102.30	35.49
14:03	797.00	500.00	14.75	13.58	0.56	7.64		249.00	109.80	104.20	109.10	102.50	122.4	102.60	37.26
14:04	795.00	502.90	14.73	13.56	0.54	7.76		249.00	109.80	103.50	109.20	106.80	140.4	100.90	36.74
14:05	803.00	512.90	14.68	13.74	0.53	7.83		249.00	110.50	103.20	108.70	109.90	145.5	102.60	36.13
10 MinAvg	771.51	503.62	14.83	13.68	0.59	7.61	4472.7	249.06	111.99	106.31	103.89	110.07	113.2	100.84	34.52
14:06	808.00	505.50	14.66	13.57	0.51	7.85		249.00	112.40	104.70	109.90	143.50	152.2	103.20	37.44
14:07	818.00	512.20	14.57	13.42	0.51	7.91		249.00	110.20	102.40	111.30	151.70	134.2	103.80	37.38
14:08	821.00	507.30	14.53	13.40	0.50	7.95		249.00	110.40	105.20	111.40	129.20	113.5	103.70	38.21
14:09	828.00	507.30	14.50	13.35	0.49	7.99		249.00	113.30	106.60	110.70	113.20	106.6	102.50	38.73
14:10	828.00	502.10	14.49	13.29	0.49	8.02		249.00	111.70	110.20	109.80	114.40	107.6	102.10	39.36
The stack is throwing a little mud.															
14:11	828.00	492.90	14.48	13.28	0.48	8.03		249.00	113.30	106.90	110.20	124.50	110.5	98.70	40.47
14:12	831.00	479.30	14.44	13.23	0.47	8.10		249.10	111.00	109.00	110.40	140.60	106.9	96.90	42.32
14:13	827.00	462.20	14.44	13.24	0.47	8.13		249.10	111.30	107.00	110.90	136.50	116.4	96.00	44.11
14:14	820.00	458.60	14.48	13.32	0.46	8.24		249.20	114.00	104.80	108.80	134.70	118.1	96.30	44.07
14:15	812.00	441.90	14.50	13.37	0.45	8.30		249.30	113.50	103.60	107.30	116.40	118.4	95.10	45.58
Fines/dust are now coming out of the waste screw.															
10 MinAvg	822.10	486.93	14.51	13.35	0.48	8.05	4034.3	249.07	112.11	106.04	110.07	130.47	118.4	99.83	40.77
14:16	814.00	429.40	14.52	13.39	0.44	8.38		249.20	113.50	102.80	103.20	117.80	141.8	94.40	47.25
14:17	817.00	427.60	14.49	13.38	0.43	8.42		249.30	113.10	103.30	102.30	114.00	147.3	96.10	47.66

LEC RUN 910615A

Starting 06-15-91		Inlet S02 (ppm)	Outlet S02 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Inlet dp (in H2O)	Bed dp (in H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	8tm. Bed Temp (F)	S02 Removal (%)
Time																
14:18		813.00	415.80	14.54	13.45	0.43	8.47		249.40	111.00	103.70	99.50	110.80	129.2	94.60	48.86
14:19		804.00	392.80	14.58	13.43	0.42	8.52		249.50	112.40	102.20	104.20	112.60	135.7	94.50	51.14
14:20		725.00	380.20	14.87	13.37	0.42	8.56		249.60	113.00	103.30	104.90	109.20	141.7	96.20	47.56
14:21		575.20	361.10	14.57	13.65	0.42	8.58		249.70	113.50	103.10	104.50	110.20	118.1	96.70	37.22
14:22		667.80	349.40	14.50	13.47	0.41	8.60		249.90	113.50	101.30	105.00	104.70	125.0	95.70	47.68
14:23		732.00	345.10	14.48	13.52	0.41	8.58		250.00	112.20	100.60	103.40	102.00	122.6	96.60	52.86
14:24		760.00	333.30	14.50	13.54	0.41	8.70		250.10	111.30	101.30	102.70	103.00	134.3	94.60	56.14
14:25		773.00	330.80	14.53	13.55	0.41	8.71		250.10	110.20	100.60	103.70	104.90	113.0	97.20	57.21
10 MinAvg		748.10	376.55	14.56	13.48	0.42	8.55	3773.3	249.68	112.37	102.12	103.34	108.92	130.9	95.66	49.36
14:26		773.00	323.90	14.55	13.59	0.41	8.74		250.20	111.70	101.40	102.30	104.90	117.3	96.60	58.10
14:27		770.00	321.80	14.67	13.69	0.40	8.75		250.20	110.80	102.30	102.50	105.00	111.6	97.20	58.21
14:28		741.00	314.40	14.73	13.74	0.40	8.77		250.30	111.40	99.90	100.40	105.70	112.1	96.10	57.57
14:29		754.00	314.60	14.78	13.78	0.40	8.83		250.30	110.50	98.50	98.20	104.00	111.3	97.30	58.28
14:30		756.00	324.40	14.81	13.77	0.39	8.82		250.30	110.40	98.50	98.00	102.50	108.5	96.80	57.09
14:31		759.00	328.40	14.80	13.81	0.38	8.85		250.30	112.90	97.30	97.80	102.90	109.4	96.50	56.73
14:32		764.00	341.20	14.77	13.85	0.38	8.86		250.30	110.60	97.80	98.20	102.00	109.3	95.80	55.34
14:33		771.00	349.00	14.75	13.77	0.38	8.87		250.30	110.90	97.90	100.40	103.10	107.8	96.60	54.73
14:34		776.00	348.50	14.71	13.77	0.37	8.89		250.40	110.80	98.80	101.50	101.60	108.2	97.60	55.09
14:35		778.00	336.10	14.67	13.80	0.37	8.94		250.30	112.20	99.20	98.80	102.30	107.3	96.90	56.80
10 MinAvg		764.20	330.23	14.72	13.76	0.39	8.83	3636.5	250.29	111.22	99.16	99.81	103.40	110.3	96.74	56.79
14:36		772.00	319.10	14.71	13.99	0.37	8.97		250.40	111.00	99.60	101.60	102.60	101.6	97.10	58.67
14:37		770.00	313.10	14.75	13.93	0.36	9.02		250.40	109.10	98.70	101.50	103.60	99.8	97.20	59.34
14:38		750.00	305.20	14.86	14.01	0.36	9.07		250.40	110.20	98.40	101.70	101.20	99.9	97.60	59.31
14:39		742.00	291.70	14.92	14.06	0.36	9.13		250.40	110.40	97.50	103.80	99.80	98.5	95.90	60.69
14:40		746.00	283.80	14.86	14.04	0.36	9.16		250.40	107.40	97.00	101.80	99.50	99.9	96.50	61.96
14:41		747.00	286.70	14.90	14.09	0.35	9.20		250.40	108.80	100.50	103.50	99.00	101.4	97.30	61.62
14:42		747.00	290.30	14.92	14.08	0.35	9.21		250.50	107.70	99.60	101.50	99.90	101.1	98.40	61.14
14:43		751.00	291.20	14.91	14.03	0.35	9.26		250.50	109.50	100.20	104.10	99.30	100.2	98.30	61.23
14:44		745.00	276.90	14.94	14.05	0.36	9.28		250.50	109.00	100.40	103.90	99.40	99.1	97.90	62.83
14:45		741.00	269.30	14.93	14.02	0.35	9.28		250.50	106.30	98.90	103.90	98.00	99.9	97.50	63.66
10 MinAvg		751.10	292.73	14.87	14.03	0.36	9.16	3493.8	250.44	108.94	99.08	102.73	100.23	100.1	97.37	61.04
14:46		737.00	259.10	14.96	14.08	0.35	9.30		250.50	108.60	101.70	103.10	102.30	99.9	99.80	64.84
14:47		737.00	252.80	14.99	14.02	0.35	9.27		250.50	110.50	99.30	99.80	102.40	94.4	98.00	65.70
14:48		722.00	245.90	15.05	14.11	0.35	9.21		250.50	110.10	100.90	103.80	101.80	97.8	98.60	65.94
14:49		722.00	244.20	15.02	14.09	0.35	9.16		250.50	110.00	100.30	105.60	99.80	96.3	97.50	66.18
14:50		725.00	249.10	15.03	14.04	0.35	9.14		250.60	110.10	99.90	104.80	99.50	97.9	99.10	65.64
14:51		723.00	245.50	15.04	14.03	0.35	9.13		250.70	109.20	100.30	103.20	100.00	97.6	98.90	66.04
14:52		729.00	247.20	14.97	13.99	0.35	9.14		250.80	107.80	101.40	103.20	101.40	99.9	100.30	66.09
14:53		739.00	248.90	14.92	13.96	0.36	9.12		250.70	109.20	102.30	102.40	101.50	100.1	99.30	66.32

LEC RUN 910615A

Starting
06-15-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in H2O)	Bed dP (in H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	1' Bed Temp (F)	5 3' Bed Temp (F)	3 5' Bed Temp (F)	1 8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
14:54	744.00	255.70	14.90	13.97	0.36	9.06		250.80	108.50	100.00	101.30	100.70	98.1	98.70	65.63
14:55	742.00	255.50	14.89	13.95	0.37	8.99		250.80	110.50	99.50	105.50	99.50	97.7	98.90	65.57
10 MinAvg	732.00	250.39	14.98	14.02	0.35	9.15	3444.9	250.64	109.45	100.56	103.27	100.89	98.0	98.91	65.80
14:56	740.00	259.10	14.92	13.92	0.37	8.99		250.70	110.20	99.50	105.80	99.80	96.7	98.20	64.99
14:57	739.00	259.70	14.92	13.88	0.37	8.96		250.70	110.00	102.10	102.90	100.60	98.2	99.10	64.86
14:58	742.00	268.30	14.90	13.83	0.37	8.94		250.80	109.70	101.90	103.20	100.30	99.4	99.00	63.84
14:59	739.00	276.80	14.91	13.86	0.38	8.87		250.70	108.60	101.40	103.00	100.50	100.0	99.50	62.54
15:00	732.00	282.00	14.92	13.85	0.38	8.79		250.70	111.00	102.40	105.30	100.50	99.8	99.30	61.48

Assuming steady-state, increasing the overhead sprays to 1.5 gpm

15:01	740.00	290.40	14.90	13.83	0.38	8.76		250.70	108.90	102.20	104.10	100.70	100.5	100.00	60.76
15:02	735.00	300.30	14.92	13.91	0.39	8.77		250.70	110.40	102.10	105.90	101.00	101.1	100.40	59.14
15:03	745.00	307.10	14.85	13.83	0.39	8.74		250.90	110.70	101.80	105.20	101.40	101.0	100.00	58.78
15:04	750.00	301.00	14.75	13.79	0.40	8.70		251.00	109.30	101.10	105.10	100.70	100.0	99.70	59.87
15:05	759.00	297.20	14.69	13.77	0.40	8.65		251.20	107.50	100.70	104.90	101.00	100.0	100.10	60.84
10 MinAvg	742.10	284.19	14.87	13.85	0.38	8.82	3589.5	250.81	109.63	101.52	104.54	100.65	99.7	99.53	61.71
15:06	759.00	300.30	14.66	13.71	0.40	8.62		251.30	107.10	99.70	104.30	99.50	98.8	99.10	60.43
15:07	758.00	299.60	14.64	13.70	0.40	8.59		251.20	107.80	98.40	103.20	99.30	98.0	98.20	60.47
15:08	758.00	300.30	14.61	13.64	0.40	8.58		251.60	107.30	98.10	101.00	98.90	98.2	98.50	60.38
15:09	757.00	305.80	14.60	13.62	0.40	8.54		251.80	107.50	98.40	102.20	98.10	99.1	98.00	59.60
15:10	753.00	312.50	14.66	13.67	0.40	8.49		251.90	107.70	97.60	100.30	98.10	98.5	97.70	58.50
15:11	746.00	296.60	14.66	13.68	0.39	8.44		251.80	106.70	95.50	98.20	98.80	98.0	95.60	60.24
15:12	751.00	300.00	14.67	13.67	0.38	8.37		252.00	106.90	96.80	98.70	98.40	99.0	96.60	60.05
15:13	742.00	296.10	14.72	13.74	0.38	8.34		251.30	106.80	98.30	99.40	98.30	100.2	97.10	60.09

The waste screw has tripped-off; going to recycle.

15:14	747.00	298.80	14.73	13.77	0.38	8.25		252.00	106.30	97.40	97.90	98.10	98.2	95.50	60.00
15:15	751.00	297.10	14.74	13.88	0.38	8.25		250.90	106.80	96.80	97.90	98.30	99.0	94.90	60.44
10 MinAvg	752.20	300.71	14.67	13.71	0.39	8.45	3636.5	251.58	107.09	97.70	100.31	98.58	98.7	97.12	60.02

The run was terminated since the waste screw motor was extremely hot and could not be restarted. Also a severe T-storm rolled in.

Post-Run Bed Inspection:

- Inlet louvers clear
- Outlet screen intact
- No bridging.

Run Summary: **LEC Run 910618A**

Objective: To use the vibrating screen as a dry-method regeneration device.

Total Run Time: 30 minutes.

SO₂ Removal: 50% to 99% (84% average).

Inlet Gas Rate: 4650 acfm (average).

Bed ΔP: 9.8 in H₂O (average).

Operational Conditions:

 No.9 limestone from LEC Run 920615A (109 minutes of prior exposure).

 Damper Setting: Full.

 Single layer of Aluminum screening with 2 braces located on the inside of the outlet louvers.

 In-duct Steam = 0 psig.

 Overhead Sprays = 0.0 gpm.

 Louver Sprays = Not Installed.

 Bed Speed = 20 DT (3995 lb/hr).

 Regeneration Device: Single deck vibrating screen equipped with a No.30 mesh screen.

 Stone Carry-Over: 0 lbs/min.

 Waste fines: Not Available.

Comments: - The run was terminated when the outlet screen tore loose and became lodged in the reactor screws.

LEC Run 910618A

Time (min)	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Temp. (F)	Outlet Temp. (F)	Inlet Flow (acfm)	7' Temp. (F)	5.3' Temp. (F)	3.5' Temp. (F)	1.8' Temp. (F)	Btm. Temp. (F)	SO2 Removal (%)
C	Initial Conditions: Bed Speed = 20 D.T.; Full Damper; Overhead Sprays = 1.5 gpm; Screen only: L/S from Run 910615A														
C															
15:15	150	75	14.5	14.0	0.783	9.55	262	107	5196	104	106	106	107	107	50
15:20	160	50	14.5	13.0	0.743	9.50	267	112	5079	107	107	107	108	109	69
15:25	165	55	14.5	13.5	0.699	9.65	267	110	4926	108	108	108	109	108	67
15:30	170	0	14.5	13.5	0.681	9.73	266	109	4859	106	108	108	109	109	100
15:35	510	0	14.5	13.5	0.518	10.01	264	110	4232	109	131	110	112	110	100
15:40	510	0	14.5	13.5	0.470	10.22	263	109	4028	106	140	106	111	87	100
15:45	495	0	13.0	13.5	0.470	10.22	260	109	4020	103	119	102	101	99	100

The run was terminated due to excessive sludge in the fan.

The post-run bed inspection revealed that the entire outlet screen had torn away at the two braces. The older style of using three braces for screen support will be used in the future.

Run Summary: **LEC Run 910620A**

Objective: To use the vibrating screen as a dry-method regeneration device.

Total Run Time: 290 minutes.

SO₂ Removal: 99% to 50% (66% average).

Inlet Gas Rate: 3220 acfm (average).

Bed ΔP: 6.3 in H₂O (average).

Operational Conditions:

 Fresh No.9 limestone.

 Damper Setting: Full.

 Single layer of Aluminum screening with 3 braces located on the inside of the outlet louvers.

 In-duct Steam = 0 psig.

 Overhead Sprays = 1.25 gpm from 13:10 to 15:18.

 0.50 gpm from 15:19 to 18:00.

 Louver Sprays = Not Installed.

 Bed Speed = 20 DT (3995 lb/hr).

 Regeneration Device: Single deck vibrating screen equipped with a No.30 mesh screen.

 Stone Carry-Over: 0 lbs/min.

 Waste fines: 1.9 lb/min at 14:01. The vibrating screen was probably fouled early into the run.

- Comments:
- The run was terminated due to low SO₂ removal.
 - 4" of dry/hard stone is fused along the entire discharge side of the reactor.
 - The reactor screw jammed at 16:55 and was restarted at 17:00.

Time (min)	Inlet SO2 (ppm/v)	Outlet SO2 (ppm/v)	Inlet O2 (%)	Outlet O2 (%)	Inlet dp (in. H2O)	Bed dp (in. H2O)	Inlet Temp. (F)	Outlet Temp. (F)	Inlet Flow (acfm)	7' Temp. (F)	5.3' Temp. (F)	3.5' Temp. (F)	1.8' Temp. (F)	Butm. Temp. (F)	SO2 Removal (%)
C Initial Conditions: Overhead sprays at 1.25 gpm, fresh stone, bed speed at 20 DT, full damper, vibrating screen on.															
13:10	590	0	21.0	21.0	0.67	9.52	271	110	4836	106	106	108	108	108	100
13:16	590	80	15.0	13.5	0.67	9.52	271	110	4836	106	106	108	108	108	86
13:21	600	165	15.0	13.5	0.65	9.53	270	112	4612	106	107	108	108	107	73
C Mud is coming out of the mist eliminator.															
13:31	590	300	15.0	13.0	0.61	9.42	271	109	4500	106	109	108	109	107	49
13:41	590	240	15.0	13.5	0.58	9.50	270	109	4497	107	109	109	108	106	59
C Dust is coming out of the vibrating screen, dust collection is started. There is no stone coming out of the stack yet.															
13:51	565	210	15.0	13.5	0.55	9.41	265	110	4364	107	110	107	109	106	63
14:01	570	235	15.0	13.5	0.53	9.47	266	110	4287	105	111	109	108	104	59
C 39.2 lbs of dust is collected in 21 minutes: 1.9 lb/min															
14:11	565	225	15.0	13.5	0.52	9.53	265	110	4243	107	109	109	109	108	60
C Reducing the inlet gas rate to around 2500 acfm, still maintaining 1.25 gpm from the overhead sprays.															
14:28	615	275	15.5	14.0	0.20	5.39	261	110	2624	108	108	108	108	108	55
C Limestone is now a little damp, no dust/fines is being removed by the screen															
14:38	550	265	14.0	13.5	0.20	5.47	263	110	2628	107	107	107	107	108	52
14:48	575	225	15.0	14.0	0.20	5.51	262	110	2626	107	107	107	107	108	61
14:58	715	230	14.5	14.0	0.20	5.57	262	110	2560	107	107	107	107	107	68
C Limestone is moist															
15:08	670	215	14.5	14.0	0.19	5.81	263	109	2561	106	107	107	107	107	68
15:18	730	250	14.5	14.0	0.18	6.12	262	108	2491	106	106	105	105	102	66
C At 15:22 the overhead spray is reduced to 0.5 gpm															
15:28	710	290	14.5	14.0	0.18	6.3	266	108	2498	104	106	107	107	103	59
15:38	645	230	14.5	14.5	0.18	6.19	267	110	2500	105	107	107	107	108	64
15:48	790	225	14.5	14.0	0.21	5.88	267	117	2700	107	108	109	109	108	72
15:58	635	170	15.0	14.5	0.21	5.55	265	123	2696	106	107	108	107	105	73

LEC Run 910620A

Time (min)	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in. H2O)	Bed dP (in. H2O)	Inlet Temp. (F)	Outlet Temp. (F)	Inlet Flow (acfm)	7' Temp. (F)	5.3' Temp. (F)	3.5' Temp. (F)	1.8' Temp. (F)	Btm. Temp. (F)	SO2 Removal (%)
C	The limestone is now wet, but no water is coming from the mist eliminator														
C															
16:08	765	165	14.5	14.5	0.21	5.28	266	125	2698	105	107	107	107	105	78
16:18	685	160	15.0	14.5	0.22	5.13	266	126	2762	105	107	107	107	106	77
16:28	775	200	14.5	14.5	0.22	5.21	270	128	2641	105	119	108	107	107	74
16:38	765	215	14.5	14.5	0.20	5.25	269	130	2639	108	117	107	107	107	72
C															
C	The limestone is dry, but very little dust is being removed by the screen. The screen is probably fouled.														
C															
16:48	800	185	14.5	14.5	0.21	5.35	271	133	2708	111	118	110	107	107	77
C															
C	Reactor screws jammed at 16:55, restarted at 17:00.														
C															
16:58	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17:10	795	185	14.5	14.5	0.21	5.39	270	136	2706	134	125	125	109	109	77
17:20	835	210	14.5	14.0	0.20	5.6	274	138	2648	142	132	125	109	107	75
17:30	815	270	14.5	14.0	0.19	5.72	271	139	2575	140	133	122	110	110	67
17:40	815	335	14.5	14.0	0.19	5.87	270	139	2574	121	139	118	107	110	59
17:50	800	385	14.5	14.5	0.18	5.98	268	138	2502	117	124	116	106	110	52
18:00	765	380	14.5	14.5	0.18	5.97	267	139	2500	113	124	112	106	107	50

The run was terminated due to the following:

- SO₂ removal at 50% and getting worse
- Level of stone in the top live hopper is very low (2')

Post-run Observations:

Reactor internals:

- Inlet louvers are clear
- The outlet screen is in good condition, some stone is trapped in the top screen section since it wasn't caulked during loading
- 4" of dry and hard stone is stuck along the entire roadside bed length
- Outlet screen is wet from the top on down to #5 thermocouple

Misc.:

- It took 1:14:00 to unload the bed at 20DT
- Collected approximately 25 gal. of water from the mist eliminator, but alot of water leaks out from cracks and the door in the mist eliminator

Run Summary: LEC Run 910621A

Objective: To use the vibrating screen as a dry-method regeneration device.

Total Run Time: 92 minutes.

SO₂ Removal: 28% to 99% (64% average).

Inlet Gas Rate: 2500 acfm (average).

Bed ΔP: 6.8 in H₂O (average).

Operational Conditions:

Fresh No.9 limestone.

Damper Setting: Varied to keep inlet flow at 2500 acfm.

Single layer of Aluminum screening with 3 braces located on the inside of the outlet louvers.

In-duct Steam = 0 psig.

Overhead Sprays = 1.00 gpm.

Louver Sprays = Not Installed.

Bed Speed = 20 DT (3995 lb/hr).

Regeneration Device: Single deck vibrating screen equipped with a No.30 mesh screen.

Stone Carry-Over: 0 lbs/min.

Waste fines: Not Available.

- Comments:
- The run was terminated when pieces of the outlet screen became lodged in the reactor screws. The screws were unable to be restarted and the reactor was manually unloaded.
 - 4" of dry/hard stone is fused along the entire discharge side of the reactor.
 - The reactor screw jammed at 16:55 and was restarted at 17:00.

LEC Run 910621A

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
Initial Conditions: Stone is from Run 910620A; Overhead sprays at 1.0 gpm; bed speed of 20 DT; vibrating screen is on; the inlet gas flow will be attempted to be kept around 2500 acfm															
1401	945	450	14	14	6.8	0.23	2795	262	95	99	87		103	90	52.4
1411	780	505	15	14	3.4	0.25	2973	269	151	176	181	187	162	105	35.3
1421	800	570	15	15	2.6	0.25	2970	267	173	209	225	201	127	105	28.8
The reactor is bridged-up. Turning off all conveyors and the fan. Restart at 1500 hrs.															
1503	830	0	15	15	6.7	0.21	2713	267	104	92	95	94	92	95	100.0
There are stones being propelled out of the stack, there must be a small tear in the outlet screen from when the bed broke free.															
1513	850	10	15	15	6.8	0.19	2609	272	109	104	105	107	109	103	98.8
The reactor screws have stopped again. Rocking the motor back and forth get the screws going again.															
1523	795	65	15	14	6.8	0.18	2503	269	108	105	107	107	108	105	91.8
The reactor screws have stopped again. The remainder of the run is in the fixed-bed mode.															
1533	780	180	15	14	7.4	0.18	2488	269	109	107	108	108	108	108	76.9
1543	715	285	15	15	7.4	0.18	2467	267	110	108	109	108	108	108	60.1

Post-Run Bed Inspection:

- Inlet louvers are clean
- Outlet screen is badly torn and parts of it are lodged in the reactor screws. The bed had to be manually dumped.

Run Summary: LEC Run 910626A

Objective: To use the vibrating screen as a dry-method regeneration device.

Total Run Time: 185 minutes (13:47 to 17:00).

SO₂ Removal: 99% to 5% (40% average).

Inlet Gas Rate: 3270 acfm (average).

Bed ΔP: 9.7 in H₂O (average).

Operational Conditions:

 Fresh No.9 limestone.

 Damper Setting: Varied.

 Three layer outlet screen composed of two hardware cloth screens covering one aluminum screen.

 In-duct Steam = 14 psig.

 Overhead Sprays = 1.5 gpm from 13:47 to 15:14.

 2.0 gpm from 15:15 to 15:35.

 0.5 gpm from 15:36 to 16:22.

 1.5 gpm from 16:23 to 17:00.

 Louver Sprays = Not Installed.

 Bed Speed = 20 DT (3995 lb/hr).

 Regeneration Device: Single deck vibrating screen equipped with a No.30 mesh screen.

 Stone Carry-Over: 0 lbs/min.

 Waste fines: 0 lb/min, the screen was fouled during most of the run due to wet limestone.

Comments: - Post-run bed inspection revealed that 1/3 of the reactor is bridged-up along the discharge side.

LEC RUN 910626A

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
C Initial Conditions: Full damper, full steam (14 psig), fresh dry limestone, vibrating screen, overhead sprays at 1.5 gpm, bed speed at 20 DT.															
C First run using two layers of hardware cloth on either side of the aluminium screening.															
C Due to improper scaling settings in the datalogger software, the inlet and outlet temperatures are only estimates until 14:26															
13:46	0.33	0.25	8.36	8.46	-0.02	0.10		0.00	0.00	74.50	74.5	74.40	74.40	74.40	23.72
C Although the stone is dry, no fines are being removed by the screen. It is probably fouled again.															
13:47	23.00	1.00	20.00	20.00	0.55	4.10	2188.39	200.00	100.00	75.70	74.4	77.00	74.40	74.40	95.65
13:48	523.00	1.19	15.00	16.00	0.95	8.00	2899.89	200.00	100.00	86.90	74.7	90.30	74.50	74.50	99.77
13:49	618.00	1.00	16.00	16.00	0.90	8.00	2804.38	200.00	100.00	82.00	74.7	98.20	74.70	75.20	99.84
13:50	635.48	1.00	16.00	16.00	0.86	8.00	2745.80	200.00	100.00	89.30	83.4	93.70	88.60	89.60	99.84
13:51	653.40	1.00	16.00	16.00	0.82	8.00	2685.95	200.00	100.00	89.90	89.8	91.70	89.80	89.80	99.85
13:52	670.16	1.00	16.00	16.00	0.81	8.00	2671.18	200.00	100.00	90.10	89.9	90.40	89.90	89.90	99.85
13:53	678.24	13.00	16.00	16.00	0.81	8.50	2659.65	200.00	100.00	90.00	90.1	90.40	90.00	90.00	98.08
13:54	693.00	28.00	16.00	15.00	0.80	8.50	2648.06	200.00	100.00	90.50	90.1	90.10	90.10	90.10	95.96
13:55	705.80	45.00	16.00	15.00	0.79		2628.07	200.00	100.00	90.40	90.2	90.50	90.20	90.20	93.62
10 MinAvg	520.04	9.24	15.54	15.45	0.73		259.04	180.00	90.00	85.93	83.2	88.67	83.66	83.81	90.62
13:56	718.20	60.00	16.00	15.00	0.77		2597.81	200.00	100.00	90.50	90.4	90.40	90.40	90.40	91.65
13:57	723.60	80.00	16.00	15.00	0.74		2555.17	200.00	100.00	90.70	90.5	90.50	90.50	90.50	88.94
13:58	710.00	95.00	16.00	15.00	0.72	9.25	2515.31	200.00	100.00	90.80	90.6	90.60	90.60	90.60	86.62
13:59	710.40	113.00	16.00	15.00	0.70	9.25	2478.36	200.00	100.00	90.70	90.7	90.70	90.70	90.70	84.09
14:00	695.80	125.00	16.00	15.00	0.68	9.50	2440.85	200.00	100.00	90.80	90.8	90.80	90.80	90.80	82.04
14:01	707.20	138.00	15.00	15.00	0.65	3.82	2410.05	200.00	100.00	90.90	90.9	90.90	90.90	90.90	80.49
14:02	702.60	155.00	15.00	15.00	0.63	3.85	2377.01	200.00	100.00	90.90	90.9	91.00	90.90	90.80	77.94
14:03	701.40	172.50	15.00	15.00	0.62	3.86	2335.99	200.00	100.00	90.80	90.8	90.80	90.80	90.80	75.41
14:04	690.76	195.00	15.00	15.00	0.60	3.86	2298.07	200.00	100.00	90.80	90.8	90.80	90.80	90.80	71.77
14:05	690.64	212.50	15.00	15.00	0.59	3.88	2269.21	200.00	100.00	90.80	90.8	90.80	90.80	90.80	69.23
10 MinAvg	705.06	134.60	15.50	15.00	0.67	6.50	2427.78	200.00	100.00	90.77	90.7	90.73	90.72	90.71	80.82
14:06	687.58	232.00	15.00	15.00	0.57	3.90	2241.94	200.00	100.00	90.90	90.9	91.00	90.90	90.50	66.26
14:07	677.50	247.50	15.00	15.00	0.57	3.92	2232.12	200.00	100.00	91.00	91.0	91.10	91.00	91.00	63.47
14:08	677.40	255.00	15.00	15.00	0.56	3.94	2224.23	200.00	100.00	91.00	91.0	91.40	91.00	91.00	62.36
14:09	667.64	215.00	15.00	15.00	0.56	3.96	2212.35	200.00	100.00	91.00	91.0	91.00	91.00	91.00	67.80
14:10	662.80	152.50	15.00	15.00	0.55	4.00	2194.40	200.00	100.00	91.10	91.0	91.90	91.00	90.80	76.99
14:11	660.76	108.50	15.00	15.00	0.54	4.03	2178.33	200.00	100.00	90.90	90.9	92.00	90.90	90.90	83.58
14:12	660.04	108.00	15.00	15.00	0.53	4.06	2149.90	200.00	100.00	90.80	91.0	92.10	91.00	90.80	83.64
14:13	655.44	117.50	15.00	15.00	0.52	4.09	2129.37	200.00	100.00	90.80	91.3	93.00	90.90	90.80	82.07
14:14	665.40	134.00	15.00	15.00	0.50	4.12	2106.55	200.00	100.00	90.70	92.2	93.30	90.80	90.70	79.86
14:15	667.24	155.00	15.00	15.00	0.49	4.15	2081.37	200.00	100.00	90.60	95.5	91.80	90.70	90.60	76.77
10 MinAvg	668.18	172.50	15.00	15.00	0.54	4.02	2175.06	200.00	100.00	90.88	91.6	91.86	90.92	90.78	74.28

LEC RUN 910626A

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
14:16	677.56	170.00	15.00	15.00	0.48	4.19	2051.60	200.00	100.00	90.50	95.2	92.10	90.50	90.50	74.91
14:17	667.64	175.00	15.00	15.00	0.47	4.22	2023.57	200.00	100.00	90.40	92.6	92.50	90.50	90.30	73.79
14:18	670.40	195.00	15.00	15.00	0.45	4.25	1997.35	200.00	100.00	90.40	93.3	92.80	90.60	90.30	70.91
14:19	672.08	220.00	15.00	15.00	0.44	4.30	1975.23	200.00	100.00	90.40	93.9	92.50	91.00	90.20	67.27
14:20	677.50	245.00	15.00	15.00	0.44	4.31	1955.11	200.00	100.00	90.20	93.3	92.20	91.10	90.20	63.84
14:21	680.80	270.00	15.00	15.00	0.43	4.33	1939.31	200.00	100.00	90.10	94.2	92.60	90.60	90.10	60.34
Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
14:22	682.56	292.00	15.00	15.00	0.42	4.34	1925.67	200.00	100.00	90.10	95.9	92.10	91.40	90.10	57.22
14:23	692.00	317.00	15.00	15.00	0.42	4.36	1921.10	200.00	100.00	90.10	95.5	92.50	90.50	90.00	54.19
14:24	702.50	337.92	15.00	15.00	0.41	4.37	1909.63	200.00	100.00	90.10	95.8	93.40	90.80	89.90	51.90
14:25	710.40	362.76	15.00	15.00	0.41	4.39	1898.09	200.00	100.00	89.90	95.4	93.20	90.40	89.90	48.94
10 MinAvg	683.34	258.47	15.00	15.00	0.44	4.31	1959.67	200.00	100.00	90.22	94.5	92.59	90.74	90.15	62.33
Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
14:26	715.80	392.84	15.00	15.00	0.41	4.38	1898.09	200.00	100.00	90.00	95.6	92.60	90.50	90.00	45.12
14:27	724.00	420.60	15.40	14.57	0.41	10.97	3568.90	195.30	106.20	90.30	96.0	92.50	90.60	90.10	41.91
14:28	725.00	436.20	15.31	14.29	0.41	10.97	3598.62	203.00	104.60	90.30	93.6	92.10	90.50	90.30	39.83
14:29	728.00	448.90	15.35	14.26	0.41	10.96	3568.86	196.90	106.10	90.60	93.9	92.20	91.50	90.40	38.34
14:30	722.00	449.60	15.36	14.28	0.40	10.96	3571.42	201.10	105.30	90.60	95.8	92.30	91.10	90.60	37.73
14:31	711.00	446.80	15.35	14.31	0.40	11.01	3539.79	194.30	104.40	90.90	95.8	93.00	91.00	90.70	37.16
14:32	707.00	438.80	15.37	14.36	0.40	10.97	3565.27	202.10	106.40	90.90	95.0	92.90	91.30	90.70	37.93
14:33	709.00	413.20	15.34	14.40	0.40	10.96	3559.71	198.40	104.80	91.10	94.5	93.00	91.10	90.80	41.72
14:34	704.00	402.20	15.39	14.43	0.41	10.94	3560.70	193.90	105.40	91.10	95.4	93.20	91.50	90.80	42.87
14:35	693.10	411.20	15.47	14.60	0.41	10.94	3576.79	198.20	104.70	91.50	94.2	93.30	91.30	90.80	40.67
10 MinAvg	713.89	426.03	15.33	14.45	0.41	10.31	3400.82	198.32	104.79	90.73	95.0	92.71	91.04	90.52	40.33
Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
14:36	694.30	418.00	15.49	14.54	0.41	10.93	3583.94	196.00	105.60	91.10	94.7	92.20	91.10	90.80	39.80
14:37	700.00	451.50	15.48	14.44	0.41	10.89	3574.93	194.30	105.80	92.10	95.9	95.50	92.20	90.80	35.50
14:38	691.40	465.90	15.55	14.52	0.41	10.89	3589.33	201.20	106.80	91.50	93.7	93.30	91.50	90.70	32.61
14:39	689.20	469.10	15.57	14.53	0.41	10.88	3586.12	195.20	107.10	92.10	94.1	92.90	91.80	90.70	31.94
14:40	688.20	488.20	15.61	14.52	0.41	10.84	3606.61	201.10	106.90	91.30	93.4	92.10	91.80	90.60	29.06
14:41	680.30	491.90	15.66	14.55	0.41	10.81	3591.54	194.00	106.20	92.50	94.1	93.30	91.80	90.50	27.69
14:42	673.80	488.70	15.71	14.71	0.32	8.79	3176.46	208.60	105.70	90.90	91.8	92.40	91.30	90.80	27.47
C Shutdown to reload stone and fix the vibrating screen															
Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
14:43	775.00	440.40	14.82	15.42	-0.02	0.85		223.10	102.30	95.80	99.5	98.00	94.30	93.50	43.17
14:44	799.00	190.50	15.21	16.03	-0.03	0.26		192.40	94.00	94.80	99.6	98.30	98.00	98.90	76.16
14:45	534.10	70.50	18.77	20.29	-0.03	0.15		192.30	79.70	90.70	90.4	91.00	90.40	90.70	86.80
10 MinAvg	692.53	397.47	15.79	15.36	0.27	7.53	3529.85	199.82	102.01	92.28	94.7	93.90	92.42	91.80	43.02

LEC RUN 910626A

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
14:46	169.60	34.96	20.89	20.77	-0.04	0.16		192.20	75.50	90.30	90.3	90.30	90.30	90.30	79.39
14:47	57.40	19.70	20.97	21.10	-0.04	0.16		192.20	75.40	89.30	90.1	90.20	90.20	90.20	65.68
14:48	16.17	12.30	20.98	20.77	-0.04	0.16		192.10	73.40	82.60	89.0	89.70	90.00	89.20	23.93
14:49	1.43	7.89	21.00	20.86	-0.04	0.16		192.10	69.45	78.30	84.9	87.30	85.80	85.00	-449.83
14:50	0.81	4.15	21.01	21.17	-0.04	0.16		192.00	73.60	75.60	77.4	81.00	77.70	78.40	-413.86
14:51	1.02	1.42	21.01	20.82	-0.04	0.16		191.60	75.20	75.20	75.3	76.50	75.30	75.50	-39.72
14:52	0.53	0.92	21.05	20.89	-0.04	0.15		191.40	75.10	74.00	75.1	75.20	75.10	75.20	-73.91
14:53	1.02	0.03	21.05	21.23	-0.04	0.17		191.40	75.00	73.50	75.0	75.00	75.00	75.00	97.25
14:54	1.09	0.17	21.06	20.89	-0.04	0.18		185.10	75.00	72.20	75.0	75.00	74.80	75.00	84.64
C restarted the fan															
14:55	177.30	11.29	18.82	19.11	0.35	8.10	3390.86	218.20	84.70	81.20	84.6	83.00	80.50	82.10	93.63
10 MinAvg	42.64	9.28	20.78	20.76	0.00	0.96	3390.86	193.83	75.24	79.22	81.7	82.32	81.47	81.59	-53.28
14:56	694.90	360.60	15.51	14.98	0.49	11.13	4063.14	241.20	89.70	89.80	90.2	89.70	89.70	89.70	48.11
14:57	724.00	508.90	15.45	14.60	0.48	10.96	3666.59	127.70	94.90	90.00	91.2	90.30	89.70	89.60	29.71
14:58	738.00	536.80	15.38	14.50	0.48	10.84	3878.20	190.70	101.20	90.60	90.9	91.10	89.80	89.70	27.26
14:59	741.00	562.20	15.36	14.44	0.48	10.77	3913.50	202.60	106.30	91.80	93.7	93.40	90.90	90.00	24.13
15:00	740.00	557.50	15.34	14.42	0.48	10.78	3899.99	204.90	119.20	92.70	98.0	93.90	92.90	89.90	24.66
15:01	740.00	556.40	15.32	14.38	0.47	10.78	3884.54	205.20	117.90	91.80	95.5	93.90	92.30	90.00	24.81
15:02	736.00	548.00	15.30	14.37	0.47	10.82	3914.72	217.00	107.00	91.50	94.5	93.30	91.30	90.10	25.54
15:03	734.00	542.50	15.31	14.46	0.47	10.72	3877.49	212.70	105.40	92.10	95.4	94.30	91.30	90.10	26.09
15:04	729.00	544.10	15.32	14.72	0.47	10.66	3897.33	219.60	105.60	91.90	94.7	93.10	91.30	90.20	25.36
15:05	723.00	539.40	15.34	14.47	0.46	10.62	3868.84	218.40	106.10	92.20	94.1	92.60	91.40	90.20	25.39
10 MinAvg	729.99	525.64	15.36	14.53	0.48	10.81	3886.43	204.00	105.33	91.44	93.8	92.56	91.06	89.95	28.11
15:06	725.00	540.50	15.35	14.42	0.46	10.61	3837.63	214.80	106.00	91.80	94.8	92.90	91.30	90.20	25.45
15:07	722.00	538.20	15.38	14.45	0.46	10.61	3845.08	220.40	104.00	91.90	95.3	93.20	91.10	90.10	25.46
15:08	726.00	537.40	15.38	14.46	0.45	10.64	3814.05	215.40	105.90	90.20	93.0	92.40	90.90	90.10	25.98
C The limestone coming out of the screen is wet again															
15:09	731.00	550.50	15.30	14.40	0.45	10.70	3807.42	220.60	106.00	90.80	93.8	92.40	90.40	90.00	24.69
15:10	737.00	555.30	15.33	14.42	0.44	10.74	3781.10	217.30	105.40	90.40	93.2	92.30	90.40	90.00	24.65
15:11	736.00	563.10	15.31	14.59	0.44	10.75	3781.44	220.50	106.30	91.30	95.9	93.70	91.30	90.10	23.49
15:12	740.00	562.80	15.25	14.64	0.43	10.77	3753.64	219.80	105.90	90.70	93.0	92.40	90.30	90.10	23.95
15:13	738.00	574.00	15.30	14.41	0.43	10.78	3734.42	220.70	105.20	90.80	94.9	93.00	91.40	90.00	22.22
15:14	732.00	571.70	15.33	14.43	0.43	10.80	3724.34	220.20	105.80	91.10	94.8	93.10	91.60	90.00	21.90

LEC RUN 910626A

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
C Overhead sprays are increased to 2.0 gpm															
15:15	727.00	572.00	15.36	14.47	0.43	10.83	3708.50	217.60	105.80	90.30	93.6	92.40	91.90	90.10	21.32
10 MinAvg	731.40	556.55	15.33	14.47	0.44	10.72	3778.76	218.73	105.63	90.93	94.2	92.78	91.06	90.07	23.91
15:16	714.00	576.20	15.43	14.49	0.42	10.85	3704.37	220.90	106.00	91.10	95.1	93.50	93.00	90.10	19.30
15:17	709.00	567.70	15.47	14.53	0.42	10.84	3684.17	216.70	105.30	90.90	95.0	93.30	91.70	90.00	19.93
15:18	709.00	574.20	15.48	14.55	0.42	10.87	3686.03	219.00	106.50	90.90	94.4	92.60	91.70	89.80	19.01
15:19	704.00	576.60	15.54	14.87	0.42	10.94	3681.90	219.10	105.80	90.60	95.5	94.00	92.30	89.70	18.10
C the vibrating screen is clogged a gain, going to recycle															
15:20	709.00	582.10	15.55	14.65	0.41	10.94	3661.36	216.40	105.90	90.70	95.2	93.60	92.80	89.90	17.90
15:21	707.00	576.80	15.53	14.58	0.41	10.94	3629.73	219.50	105.40	91.40	96.1	95.10	94.50	90.20	18.42
15:22	709.00	580.30	15.56	14.59	0.40	10.95	3599.30	214.80	105.90	91.40	97.3	94.50	94.40	90.50	18.15
15:23	709.00	586.00	15.57	14.56	0.40	10.94	3586.91	216.90	106.50	91.20	96.3	94.60	92.90	89.70	17.35
C The limestone is wet and is clogging the chutes. Turning down the bed speed to 10 to clean chutes															
15:24	708.00	593.40	15.57	14.58	0.39	10.95	3553.24	212.70	106.50	90.60	97.2	94.50	93.70	89.60	16.19
15:25	714.00	602.10	15.54	14.55	0.39	10.96	3555.35	213.50	107.40	90.50	96.6	95.00	94.10	89.40	15.67
10 MinAvg	709.20	581.54	15.52	14.59	0.41	10.92	3634.24	216.95	106.12	90.93	95.9	94.07	93.11	89.89	18.00
15:26	710.00	605.90	15.57	14.64	0.39	10.97	3555.75	217.10	104.90	90.30	96.9	94.70	92.60	89.30	14.66
15:27	716.00	603.20	15.51	14.78	0.39	11.01	3529.85	210.70	106.10	90.10	96.8	94.90	92.70	89.30	15.75
15:28	717.00	606.90	15.51	14.50	0.39	10.98	3543.26	219.30	107.30	91.60	98.3	94.80	94.60	89.20	15.36
15:29	721.00	620.10	15.48	14.44	0.39	10.98	3524.70	212.20	105.80	91.10	97.1	94.50	93.90	89.10	13.99
15:30	718.00	614.60	15.48	14.44	0.39	10.98	3531.77	214.90	106.80	91.60	97.3	95.20	94.70	89.30	14.40
15:31	725.00	612.10	15.42	14.40	0.39	10.99	3529.77	212.40	106.60	91.40	95.8	94.90	93.40	89.20	15.57
15:32	733.00	613.30	15.35	14.34	0.38	11.02	3508.52	213.00	107.00	91.70	97.7	95.40	94.00	89.50	16.33
15:33	729.00	611.10	15.37	14.36	0.38	11.01	3491.75	215.40	108.20	93.70	98.4	96.50	95.30	89.50	16.17
15:34	734.00	595.40	15.31	14.46	0.37	11.04	3445.16	209.90	108.00	91.10	98.9	95.50	95.10	89.50	18.88
15:35	742.00	593.40	15.26	14.60	0.36	11.05	3429.52	216.60	108.80	90.50	97.3	95.40	93.80	89.40	20.03
10 MinAvg	724.50	607.60	15.43	14.50	0.38	11.00	3509.01	214.15	106.95	91.31	97.5	95.18	94.01	89.33	16.12

LEC RUN 910626A

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
C C Turned water down to 0.5 gpm, maybe the SO ₂ removal will go up like it did in the last run (910621A). Bed speed is back at 200T, stone going to the screen															
C															
15:36	747.00	604.30	15.22	14.32	0.36	11.06	3398.25	211.70	107.20	90.40	96.4	95.00	93.00	89.40	19.10
15:37	751.00	610.60	15.20	14.27	0.36	11.11	3377.31	210.90	106.30	90.40	97.6	95.60	93.80	89.50	18.70
15:38	747.00	601.20	15.21	14.28	0.35	11.11	3353.90	214.90	107.30	90.10	97.5	95.70	92.80	89.50	19.52
15:39	754.00	601.50	15.12	14.22	0.35	11.11	3363.67	216.90	106.90	91.80	97.9	96.20	95.00	89.60	20.23
15:40	746.00	599.70	15.11	14.24	0.35	11.15	3344.50	207.30	110.10	91.10	98.1	95.40	93.80	89.60	19.61
15:41	744.00	583.40	15.16	14.33	0.35	11.22	3367.03	214.40	108.00	90.90	98.9	96.20	94.10	89.70	21.59
15:42	747.00	589.70	15.14	14.33	0.35	11.26	3363.74	215.00	108.70	91.10	97.2	95.90	93.20	89.70	21.06
15:43	742.00	584.20	15.17	14.67	0.35	11.30	3365.03	213.60	109.60	91.20	98.2	96.20	92.30	89.70	21.27
15:44	727.00	585.50	15.25	14.46	0.35	11.39	3369.31	213.40	108.10	90.70	96.9	95.70	91.40	89.60	19.46
15:45	717.00	597.20	15.32	14.43	0.35	11.42	3361.49	206.50	109.70	91.20	96.6	95.10	94.00	89.60	16.71
10 MinAvg	742.20	595.73	15.19	14.36	0.35	11.21	3366.42	212.46	108.19	90.89	97.5	95.70	93.34	89.59	19.72
15:46	708.00	588.50	15.38	14.55	0.35	11.41	3371.77	216.30	107.30	91.10	97.9	96.00	95.30	89.50	16.88
15:47	701.00	580.00	15.42	14.58	0.35	11.45	3354.78	209.50	107.70	90.70	96.5	95.00	94.00	89.50	17.26
15:48	704.00	609.80	15.46	14.55	0.35	11.49	3381.85	214.60	107.90	90.60	97.7	96.00	95.50	89.50	13.38
15:49	703.00	615.70	15.44	14.52	0.35	11.45	3368.56	211.20	108.40	91.30	97.2	96.20	95.20	89.50	12.42
15:50	685.40	604.30	15.57	14.82	0.36	11.50	3384.60	213.80	108.00	91.20	98.1	96.20	95.40	89.50	11.83
15:51	686.40	622.80	15.58	14.80	0.36	11.49	3385.83	212.40	109.10	91.00	97.4	96.00	96.90	89.40	9.27
15:52	679.10	630.20	15.67	14.68	0.36	11.47	3382.24	209.10	111.00	90.30	96.7	95.50	94.00	89.20	7.20
15:53	677.60	628.20	15.70	14.69	0.36	11.46	3400.35	214.40	110.10	90.60	96.2	95.70	93.20	89.20	7.29
15:54	670.70	623.20	15.76	14.74	0.36	11.44	3382.55	211.10	111.50	90.90	96.4	95.60	94.20	89.40	7.08
15:55	651.70	621.90	15.79	14.73	0.36	11.41	3390.37	216.10	116.70	90.80	95.9	95.60	92.10	89.40	4.57
10 MinAvg	686.69	612.46	15.58	14.67	0.36	11.46	3380.29	212.85	109.77	90.85	97.0	95.78	94.58	89.41	10.72
15:56	640.00	616.40	15.71	14.77	0.35	11.40	3364.76	207.80	118.70	91.40	96.6	94.90	93.30	89.30	3.69
15:57	665.10	608.10	15.77	14.91	0.36	11.41	3374.99	208.10	118.80	91.00	96.1	94.80	94.10	89.40	8.57
15:58	667.10	598.70	15.75	15.12	0.36	11.38	3384.82	212.00	118.90	91.30	94.7	95.30	91.60	89.50	10.25
15:59	676.60	588.00	15.68	14.86	0.36	11.36	3370.18	206.20	119.00	92.80	95.1	94.40	93.20	89.90	13.09
16:00	681.60	588.80	15.64	14.86	0.33	10.69	3258.18	213.60	119.10	105.60	96.5	95.70	93.60	90.00	13.62
C C Reducing the inlet gas flow rate to damper position II.															
C															
16:01	735.00	587.70	15.21	14.94	0.19	7.64	2490.35	209.40	119.20	115.00	93.9	95.10	91.90	90.20	20.04
16:02	779.00	599.50	14.95	14.81	0.19	7.61	2507.00	214.90	119.30	114.80	95.6	96.50	92.40	91.10	23.04
16:03	783.00	599.30	14.92	14.80	0.19	7.58	2508.88	219.40	119.40	118.40	96.6	97.10	95.50	95.00	23.46
16:04	794.00	607.20	14.83	14.88	0.19	7.57	2512.19	217.70	119.50	117.80	97.5	97.30	94.70	99.00	23.53
16:05	816.00	619.70	14.66	14.87	0.19	7.56	2503.70	220.10	119.70	118.00	99.2	98.60	95.00	105.50	24.06
10 MinAvg	723.74	601.34	15.31	14.88	0.27	9.42	2927.51	212.92	119.16	105.61	96.2	95.97	93.53	92.89	16.33

LEC RUN 910626A

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
16:06	826.00	626.60	14.60	14.60	0.19	7.54	2503.15	219.80	120.70	119.30	98.2	99.20	96.20	110.60	24.14
16:07	847.00	643.70	14.51	14.48	0.19	7.53	2504.99	220.80	125.10	119.30	99.1	100.90	94.60	112.60	24.00
16:08	856.00	657.20	14.41	14.37	0.19	7.51	2502.96	219.70	135.80	118.80	101.8	103.30	95.30	112.90	23.22
16:09	852.00	661.80	14.46	14.41	0.19	7.50	2496.10	219.50	140.40	119.20	100.3	104.50	96.10	116.80	22.32
16:10	840.00	658.60	14.49	14.44	0.19	7.49	2497.20	220.10	147.70	119.20	100.3	107.00	96.50	118.70	21.60
16:11	846.00	662.80	14.47	14.64	0.19	7.48	2479.23	217.40	148.10	119.30	102.2	108.70	98.50	116.30	21.65
16:12	854.00	665.00	14.44	14.58	0.19	7.48	2485.26	220.70	148.30	119.30	102.7	110.60	98.90	114.10	22.13
16:13	846.00	668.30	14.49	14.42	0.19	7.48	2475.57	215.40	148.20	119.20	102.2	109.40	99.50	114.80	21.00
16:14	831.00	669.30	14.63	14.46	0.19	7.48	2468.51	218.70	148.20	119.10	100.4	109.50	95.80	117.50	19.46
16:15	825.00	669.30	14.67	14.46	0.19	7.50	2455.94	215.40	148.20	119.00	100.7	108.70	96.90	118.70	18.87
10 MinAvg	842.30	658.26	14.52	14.49	0.19	7.50	2486.89	218.75	141.07	119.17	100.8	106.18	96.83	115.30	21.84
16:16	819.00	670.10	14.71	14.48	0.19	7.50	2454.65	211.10	148.10	118.90	101.7	109.20	93.90	118.10	18.18
16:17	801.00	664.20	14.85	14.51	0.19	7.49	2468.33	218.60	148.00	118.90	101.5	109.20	95.70	115.60	17.08
16:18	801.00	663.30	14.87	14.89	0.19	7.49	2445.01	209.40	147.90	118.80	101.3	108.00	95.90	113.80	17.19
16:19	791.00	651.70	14.96	14.73	0.19	7.50	2439.92	210.20	147.80	118.70	102.0	106.90	93.90	113.60	17.61
16:20	775.00	655.40	15.06	14.67	0.19	7.49	2447.38	210.70	147.70	118.60	102.1	107.10	94.10	116.40	15.43
16:21	789.00	650.00	14.94	14.64	0.19	7.50	2433.84	203.30	147.60	118.50	101.3	106.10	94.90	117.80	17.62
16:22	776.00	656.60	15.09	14.71	0.19	7.52	2441.69	214.80	147.60	118.50	101.5	106.60	96.70	116.50	15.39
16:23	777.00	658.90	15.08	14.74	0.19	7.52	2434.44	210.80	147.50	118.30	101.9	107.50	98.70	114.60	15.20
C The limestone is still damp. The vibrating maybe clogged again. Going to 1.5 gpm with the overhead sprays.															
16:24	765.00	652.10	15.17	15.01	0.18	7.53	2433.46	213.90	147.40	118.30	102.9	107.00	103.40	113.60	14.76
16:25	759.00	646.20	15.24	15.12	0.18	7.54	2417.86	212.60	147.40	118.30	102.1	108.30	102.10	117.60	14.86
10 MinAvg	785.30	656.85	15.00	14.75	0.19	7.51	2441.66	211.54	147.70	118.58	101.8	107.59	96.93	115.76	16.33
16:26	758.00	640.70	15.26	14.96	0.18	7.54	2400.24	210.20	147.50	118.50	99.2	109.60	100.00	118.00	15.47
16:27	753.00	639.00	15.29	14.96	0.18	7.55	2408.65	214.90	147.50	118.40	98.3	110.20	99.20	118.40	15.14
16:28	748.00	635.70	15.31	14.97	0.18	7.54	2399.35	206.00	147.50	118.40	99.7	109.60	101.80	118.30	15.01
16:29	742.00	623.70	15.37	15.00	0.18	7.55	2406.50	213.70	147.60	118.60	100.0	110.40	104.00	118.30	15.94
16:30	756.00	628.90	15.25	15.16	0.18	7.57	2406.87	206.50	147.60	118.50	99.9	110.90	103.20	118.10	16.81
16:31	758.00	630.90	15.21	15.17	0.18	7.58	2396.48	208.10	147.70	118.80	99.3	112.80	101.70	118.50	16.77
16:32	759.00	626.20	15.18	14.93	0.18	7.62	2402.41	207.70	147.70	118.70	101.6	112.10	103.70	118.60	17.50
16:33	762.00	628.00	15.13	14.89	0.18	7.65	2395.71	211.40	147.70	119.60	104.8	111.90	104.90	118.60	17.59
16:34	783.00	642.40	15.00	14.79	0.18	7.73	2374.84	211.00	147.70	120.50	105.9	111.80	105.90	118.60	17.96
16:35	798.00	647.20	14.92	14.71	0.17	7.84	2348.57	211.50	147.70	119.00	108.7	110.90	104.20	117.40	18.90
10 MinAvg	761.70	634.27	15.19	14.95	0.18	7.62	2393.96	210.10	147.62	118.90	101.7	111.02	102.86	118.28	16.71

E-80

LEC RUN 910626A

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
16:36	810.00	645.20	14.81	14.71	0.17	8.00	2318.16	209.80	147.80	118.70	107.7	110.20	103.00	112.70	20.35
16:37	811.00	642.40	14.76	14.99	0.17	8.17	2305.93	214.80	147.90	118.30	105.8	109.80	100.30	110.50	20.79
16:38	829.00	632.90	14.67	14.62	0.16	8.39	2249.79	210.80	147.90	113.40	104.6	107.20	101.90	106.80	23.66
16:39	827.00	617.40	14.66	14.52	0.15	8.62	2219.29	218.50	139.10	109.80	105.3	104.50	102.90	101.60	25.34
16:40	842.00	614.00	14.54	14.41	0.15	8.83	2219.29	218.50	119.10	102.40	103.0	103.00	101.60	99.20	27.08
16:41	843.00	592.30	14.56	14.48	0.15	8.89	2202.04	216.90	118.90	99.10	103.1	102.50	101.60	96.50	29.74
16:42	837.00	577.00	14.58	14.58	0.14	8.85	2169.18	219.50	118.80	98.20	103.1	101.60	100.00	95.10	31.06
16:43	847.00	586.90	14.51	14.66	0.14	8.79	2130.51	218.90	116.80	97.90	102.2	101.70	99.20	94.40	30.71
16:44	839.00	585.80	14.59	14.88	0.14	8.69	2093.05	219.50	115.10	96.40	103.0	100.30	98.30	92.70	30.18
16:45	840.00	577.90	14.56	14.67	0.13	8.73	2066.76	217.60	111.90	97.70	102.4	101.30	96.60	91.20	31.20
10 MinAvg	832.50	607.18	14.62	14.65	0.15	8.60	2197.40	216.48	128.33	105.19	104.0	104.21	100.54	100.07	27.01
16:46	823.00	563.30	14.70	14.74	0.13	8.77	2067.83	218.30	112.50	96.40	102.4	101.50	96.70	90.50	31.56
16:47	812.00	545.70	14.72	14.82	0.13	8.83	2077.33	219.40	109.90	95.10	101.8	101.60	93.80	89.80	32.80
16:48	809.00	546.60	14.79	14.82	0.13	8.84	2066.61	217.50	110.80	94.70	102.9	101.60	92.50	89.50	32.44
16:49	797.00	551.10	14.86	14.94	0.13	8.86	2077.18	219.30	111.90	92.70	103.0	100.20	92.30	89.50	30.85
16:50	801.00	542.20	14.85	15.21	0.14	8.90	2090.43	217.80	111.00	92.80	102.6	100.20	96.80	89.60	32.31
16:51	803.00	538.30	14.85	14.93	0.13	8.96	2074.88	217.80	110.70	93.90	102.7	101.40	98.80	89.60	32.96
16:52	799.00	528.20	14.88	14.90	0.13	9.00	2084.97	219.30	111.20	92.30	102.3	99.40	95.00	89.50	33.89
16:53	799.00	522.60	14.84	14.89	0.13	9.03	2062.03	214.50	110.00	91.70	102.6	99.90	93.20	89.50	34.59
16:54	793.00	514.70	14.87	14.95	0.13	9.01	2054.68	220.00	109.10	92.30	101.6	99.60	93.30	89.50	35.09
16:55	795.00	510.50	14.86	15.00	0.13	9.03	2044.50	218.50	110.20	91.60	101.9	101.00	92.70	89.80	35.79
10 MinAvg	803.10	536.32	14.82	14.92	0.13	8.92	2070.04	218.24	110.73	93.35	102.4	100.64	94.51	89.68	33.23
16:56	818.00	521.60	14.69	15.25	0.13	9.04	2035.66	217.90	109.10	94.00	101.5	101.50	94.60	90.40	36.23
16:57	821.00	515.40	14.73	15.03	0.13	9.05	2038.66	219.90	109.30	94.70	100.7	100.80	94.30	90.60	37.22
16:58	813.00	520.60	14.77	14.97	0.13	9.07	2031.13	220.20	108.50	93.90	102.3	101.70	97.40	89.90	35.97
16:59	813.00	515.90	14.75	14.98	0.13	9.10	2022.52	219.80	109.10	93.80	102.5	102.60	97.20	89.70	36.54
17:00	811.00	501.00	14.76	15.05	0.13	9.07	2023.71	220.60	110.20	93.70	101.8	102.00	96.10	90.20	38.22

Post-run Bed Inspection:

1/3 of the bed has bridged up along the entire roadside length. The hardware cloth should be reverse; e.g. put the larger mesh on the inside.

LEC RUN 910626A

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
C															
C Initial Conditions: Full damper, full steam (14 psig), fresh dry limestone, vibrating screen, overhead sprays at 1.5 gpm, bed speed at 20 DT.															
C First run using two layers of hardware cloth on either side of the aluminium screening.															
C Due to improper scaling settings in the datalogger software, the inlet and outlet temperatures are only estimates until 14:26															
C															
13:46	0.33	0.25	8.36	8.46	-0.02	0.10		0.00	0.00	74.50	74.5	74.40	74.40	74.40	23.72
C															
C Although the stone is dry, no fines are being removed by the screen. It is probably fouled again.															
C															
13:47	23.00	1.00	20.00	20.00	0.55	4.10	2188.39	200.00	100.00	75.70	74.4	77.00	74.40	74.40	95.65
13:48	523.00	1.19	15.00	16.00	0.95	8.00	2899.89	200.00	100.00	86.90	74.7	90.30	74.50	74.50	99.77
13:49	618.00	1.00	16.00	16.00	0.90	8.00	2804.38	200.00	100.00	82.00	74.7	98.20	74.70	75.20	99.84
13:50	635.48	1.00	16.00	16.00	0.86	8.00	2745.80	200.00	100.00	89.30	83.4	93.70	88.60	89.60	99.84
13:51	653.40	1.00	16.00	16.00	0.82	8.00	2685.95	200.00	100.00	89.90	89.8	91.70	89.80	89.80	99.85
13:52	670.16	1.00	16.00	16.00	0.81	8.00	2671.18	200.00	100.00	90.10	89.9	90.40	89.90	89.90	99.85
13:53	678.24	13.00	16.00	16.00	0.81	8.50	2659.65	200.00	100.00	90.00	90.1	90.40	90.00	90.00	98.08
13:54	693.00	28.00	16.00	15.00	0.80	8.50	2648.06	200.00	100.00	90.50	90.1	90.10	90.10	90.10	95.96
13:55	705.80	45.00	16.00	15.00	0.79	8.50	2628.07	200.00	100.00	90.40	90.2	90.50	90.20	90.20	93.62
10 MinAvg	520.04	9.24	15.54	15.45	0.73	6.97	2659.04	180.00	90.00	85.93	83.2	88.67	83.66	83.81	90.62
13:56	718.20	60.00	16.00	15.00	0.77	8.75	2597.81	200.00	100.00	90.50	90.4	90.40	90.40	90.40	91.65
13:57	723.60	80.00	16.00	15.00	0.74	9.00	2555.17	200.00	100.00	90.70	90.5	90.50	90.50	90.50	88.94
13:58	710.00	95.00	16.00	15.00	0.72	9.25	2515.31	200.00	100.00	90.80	90.6	90.60	90.60	90.60	86.62
13:59	710.40	113.00	16.00	15.00	0.70	9.25	2478.36	200.00	100.00	90.70	90.7	90.70	90.70	90.70	84.09
14:00	695.80	125.00	16.00	15.00	0.68	9.50	2440.85	200.00	100.00	90.80	90.8	90.80	90.80	90.80	82.04
14:01	707.20	138.00	15.00	15.00	0.65	3.82	2410.05	200.00	100.00	90.90	90.9	90.90	90.90	90.90	80.49
14:02	702.60	155.00	15.00	15.00	0.63	3.85	2377.01	200.00	100.00	90.90	90.9	91.00	90.90	90.80	77.94
14:03	701.40	172.50	15.00	15.00	0.62	3.86	2335.99	200.00	100.00	90.80	90.8	90.80	90.80	90.80	75.41
14:04	690.76	195.00	15.00	15.00	0.60	3.86	2298.07	200.00	100.00	90.80	90.8	90.80	90.80	90.80	71.77
14:05	690.64	212.50	15.00	15.00	0.59	3.88	2269.21	200.00	100.00	90.80	90.8	90.80	90.80	90.80	69.23
10 MinAvg	705.06	134.60	15.50	15.00	0.67	6.50	2427.78	200.00	100.00	90.77	90.7	90.73	90.72	90.71	80.82
14:06	687.58	232.00	15.00	15.00	0.57	3.90	2241.94	200.00	100.00	90.90	90.9	91.00	90.90	90.50	66.26
14:07	677.50	247.50	15.00	15.00	0.57	3.92	2232.12	200.00	100.00	91.00	91.0	91.10	91.00	91.00	63.47
14:08	677.40	255.00	15.00	15.00	0.56	3.94	2224.23	200.00	100.00	91.00	91.0	91.40	91.00	90.70	62.36
14:09	667.64	215.00	15.00	15.00	0.56	3.96	2212.35	200.00	100.00	91.00	91.0	91.00	91.00	91.00	67.80
14:10	662.80	152.50	15.00	15.00	0.55	4.00	2194.40	200.00	100.00	91.10	91.0	91.90	91.00	90.80	76.99
14:11	660.76	108.50	15.00	15.00	0.54	4.03	2178.33	200.00	100.00	90.90	90.9	92.00	90.90	90.90	83.58
14:12	660.04	108.00	15.00	15.00	0.53	4.06	2149.90	200.00	100.00	90.80	91.0	92.10	91.00	90.80	83.64
14:13	655.44	117.50	15.00	15.00	0.52	4.09	2129.37	200.00	100.00	90.80	91.3	93.00	90.90	90.80	82.07
14:14	665.40	134.00	15.00	15.00	0.50	4.12	2106.55	200.00	100.00	90.70	92.2	93.30	90.80	90.70	79.86
14:15	667.24	155.00	15.00	15.00	0.49	4.15	2081.37	200.00	100.00	90.60	95.5	91.80	90.70	90.60	76.77
10 MinAvg	668.18	172.50	15.00	15.00	0.54	4.02	2175.06	200.00	100.00	90.88	91.6	91.86	90.92	90.78	74.28

LEC RUN 910626A

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
14:16	677.56	170.00	15.00	15.00	0.48	4.19	2051.60	200.00	100.00	90.50	95.2	92.10	90.50	90.50	74.91
14:17	667.64	175.00	15.00	15.00	0.47	4.22	2023.57	200.00	100.00	90.40	92.6	92.50	90.50	90.30	73.79
14:18	670.40	195.00	15.00	15.00	0.45	4.25	1997.35	200.00	100.00	90.40	93.3	92.80	90.60	90.30	70.91
14:19	672.08	220.00	15.00	15.00	0.44	4.30	1975.23	200.00	100.00	90.40	93.9	92.50	91.00	90.20	67.27
14:20	677.50	245.00	15.00	15.00	0.44	4.31	1955.11	200.00	100.00	90.20	93.3	92.20	91.10	90.20	63.84
14:21	680.80	270.00	15.00	15.00	0.43	4.33	1939.31	200.00	100.00	90.10	94.2	92.60	90.60	90.10	60.34
Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
14:22	682.56	292.00	15.00	15.00	0.42	4.34	1925.67	200.00	100.00	90.10	95.9	92.10	91.40	90.10	57.22
14:23	692.00	317.00	15.00	15.00	0.42	4.36	1921.10	200.00	100.00	90.10	95.5	92.50	90.50	90.00	54.19
14:24	702.50	337.92	15.00	15.00	0.41	4.37	1909.63	200.00	100.00	90.10	95.8	93.40	90.80	89.90	51.90
14:25	710.40	362.76	15.00	15.00	0.41	4.39	1898.09	200.00	100.00	89.90	95.4	93.20	90.40	89.90	48.94
10 MinAvg	683.34	258.47	15.00	15.00	0.44	4.31	1959.67	200.00	100.00	90.22	94.5	92.59	90.74	90.15	62.33
Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
14:26	715.80	392.84	15.00	15.00	0.41	4.38	1898.09	200.00	100.00	90.00	95.6	92.60	90.50	90.00	45.12
14:27	724.00	420.60	15.40	14.57	0.41	10.97	3568.90	195.30	106.20	90.30	96.0	92.50	90.60	90.10	41.91
14:28	725.00	436.20	15.31	14.29	0.41	10.97	3598.62	203.00	104.60	90.30	93.6	92.10	90.50	90.30	39.83
14:29	728.00	448.90	15.35	14.26	0.41	10.96	3568.86	196.90	106.10	90.60	93.9	92.20	91.50	90.40	38.34
14:30	722.00	449.60	15.36	14.28	0.40	10.96	3571.42	201.10	105.30	90.60	95.8	92.30	91.10	90.60	37.73
14:31	711.00	446.80	15.35	14.31	0.40	11.01	3539.79	194.30	104.40	90.90	95.8	93.00	91.00	90.70	37.16
14:32	707.00	438.80	15.37	14.36	0.40	10.97	3565.27	202.10	106.40	90.90	95.0	92.90	91.30	90.70	37.93
14:33	709.00	413.20	15.34	14.40	0.40	10.96	3559.71	198.40	104.80	91.10	94.5	93.00	91.10	90.80	41.72
14:34	704.00	402.20	15.39	14.43	0.41	10.94	3560.70	193.90	105.40	91.10	95.4	93.20	91.50	90.80	42.87
14:35	693.10	411.20	15.47	14.60	0.41	10.94	3576.79	198.20	104.70	91.50	94.2	93.30	91.30	90.80	40.67
10 MinAvg	713.89	426.03	15.33	14.45	0.41	10.31	3400.82	198.32	104.79	90.73	95.0	92.71	91.04	90.52	40.33
Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
14:36	694.30	418.00	15.49	14.54	0.41	10.93	3583.94	196.00	105.60	91.10	94.7	92.20	91.10	90.80	39.80
14:37	700.00	451.50	15.48	14.44	0.41	10.89	3574.93	194.30	105.80	92.10	95.9	95.50	92.20	90.80	35.50
14:38	691.40	465.90	15.55	14.52	0.41	10.89	3589.33	201.20	106.80	91.50	93.7	93.30	91.50	90.70	32.61
14:39	689.20	469.10	15.57	14.53	0.41	10.88	3586.12	195.20	107.10	92.10	94.1	92.90	91.80	90.70	31.94
14:40	688.20	488.20	15.61	14.52	0.41	10.84	3606.61	201.10	106.90	91.30	93.4	92.10	91.80	90.60	29.06
14:41	680.30	491.90	15.66	14.55	0.41	10.81	3591.54	194.00	106.20	92.50	94.1	93.30	91.80	90.50	27.69
14:42	673.80	488.70	15.71	14.71	0.32	8.79	3176.46	208.60	105.70	90.90	91.8	92.40	91.30	90.80	27.47
C Shutdown to reload stone and fix the vibrating screen															
Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
14:43	775.00	440.40	14.82	15.42	-0.02	0.85		223.10	102.30	95.80	99.5	98.00	94.30	93.50	43.17
14:44	799.00	190.50	15.21	16.03	-0.03	0.26		192.40	94.00	94.80	99.6	98.30	98.00	98.90	76.16
14:45	534.10	70.50	18.77	20.29	-0.03	0.15		192.30	79.70	90.70	90.4	91.00	90.40	90.70	86.80
10 MinAvg	692.53	397.47	15.79	15.36	0.27	7.53	3529.85	199.82	102.01	92.28	94.7	93.90	92.42	91.80	43.02

LEC RUN 910626A

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
14:46	169.60	34.96	20.89	20.77	-0.04	0.16		192.20	75.50	90.30	90.3	90.30	90.30	90.30	79.39
14:47	57.40	19.70	20.97	21.10	-0.04	0.16		192.20	75.40	89.30	90.1	90.20	90.20	90.20	65.68
14:48	16.17	12.30	20.98	20.77	-0.04	0.16		192.10	73.40	82.60	89.0	89.70	90.00	89.20	23.93
14:49	1.43	7.89	21.00	20.86	-0.04	0.16		192.10	69.45	78.30	84.9	87.30	85.80	85.00	-449.83
14:50	0.81	4.15	21.01	21.17	-0.04	0.16		192.00	73.60	75.60	77.4	81.00	77.70	78.40	-413.86
14:51	1.02	1.42	21.01	20.82	-0.04	0.16		191.60	75.20	75.20	75.3	76.50	75.30	75.50	-39.72
14:52	0.53	0.92	21.05	20.89	-0.04	0.15		191.40	75.10	74.00	75.1	75.20	75.10	75.20	-73.91
14:53	1.02	0.03	21.05	21.23	-0.04	0.17		191.40	75.00	73.50	75.0	75.00	75.00	75.00	97.25
14:54	1.09	0.17	21.06	20.89	-0.04	0.18		185.10	75.00	72.20	75.0	75.00	74.80	75.00	84.64
C															
C restarted the fan															
C															
14:55	177.30	11.29	18.82	19.11	0.35	8.10	3390.86	218.20	84.70	81.20	84.6	83.00	80.50	82.10	93.63
10 MinAvg	42.64	9.28	20.78	20.76	0.00	0.96	3390.86	193.83	75.24	79.22	81.7	82.32	81.47	81.59	-53.28
14:56	694.90	360.60	15.51	14.98	0.49	11.13	4063.14	241.20	89.70	89.80	90.2	89.70	89.70	89.70	48.11
14:57	724.00	508.90	15.45	14.60	0.48	10.96	3666.59	127.70	94.90	90.00	91.2	90.30	89.70	89.60	29.71
14:58	738.00	536.80	15.38	14.50	0.48	10.84	3878.20	190.70	101.20	90.60	90.9	91.10	89.80	89.70	27.26
14:59	741.00	562.20	15.36	14.44	0.48	10.77	3913.50	202.60	106.30	91.80	93.7	93.40	90.90	90.00	24.13
15:00	740.00	557.50	15.34	14.42	0.48	10.78	3899.99	204.90	119.20	92.70	98.0	93.90	92.90	89.90	24.66
15:01	740.00	556.40	15.32	14.38	0.47	10.78	3884.54	205.20	117.90	91.80	95.5	93.90	92.30	90.00	24.81
15:02	736.00	548.00	15.30	14.37	0.47	10.82	3914.72	217.00	107.00	91.50	94.5	93.30	91.30	90.10	25.54
15:03	734.00	542.50	15.31	14.46	0.47	10.72	3877.49	212.70	105.40	92.10	95.4	94.30	91.30	90.10	26.09
15:04	729.00	544.10	15.32	14.72	0.47	10.66	3897.33	219.60	105.60	91.90	94.7	93.10	91.30	90.20	25.36
15:05	723.00	539.40	15.34	14.47	0.46	10.62	3868.84	218.40	106.10	92.20	94.1	92.60	91.40	90.20	25.39
10 MinAvg	729.99	525.64	15.36	14.53	0.48	10.81	3886.43	204.00	105.33	91.44	93.8	92.56	91.06	89.95	28.11
15:06	725.00	540.50	15.35	14.42	0.46	10.61	3837.63	214.80	106.00	91.80	94.8	92.90	91.30	90.20	25.45
15:07	722.00	538.20	15.38	14.45	0.46	10.61	3845.08	220.40	104.00	91.90	95.3	93.20	91.10	90.10	25.46
15:08	726.00	537.40	15.38	14.46	0.45	10.64	3814.05	215.40	105.90	90.20	93.0	92.40	90.90	90.10	25.98
C															
C The limestone coming out of the screen is wet again															
C															
15:09	731.00	550.50	15.30	14.40	0.45	10.70	3807.42	220.60	106.00	90.80	93.8	92.40	90.40	90.00	24.69
15:10	737.00	555.30	15.33	14.42	0.44	10.74	3781.10	217.30	105.40	90.40	93.2	92.30	90.40	90.00	24.65
15:11	736.00	563.10	15.31	14.59	0.44	10.75	3781.44	220.50	106.30	91.30	95.9	93.70	91.30	90.10	23.49
15:12	740.00	562.80	15.25	14.64	0.43	10.77	3753.64	219.80	105.90	90.70	93.0	92.40	90.30	90.10	23.95
15:13	738.00	574.00	15.30	14.41	0.43	10.78	3734.42	220.70	105.20	90.80	94.9	93.00	91.40	90.00	22.22
15:14	732.00	571.70	15.33	14.43	0.43	10.80	3724.34	220.20	105.80	91.10	94.8	93.10	91.60	90.00	21.90

LEC RUN 910626A

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
C Overhead sprays are increased to 2.0 gpm															
15:15	727.00	572.00	15.36	14.47	0.43	10.83	3708.50	217.60	105.80	90.30	93.6	92.40	91.90	90.10	21.32
10 MinAvg	731.40	556.55	15.33	14.47	0.44	10.72	3778.76	218.73	105.63	90.93	94.2	92.78	91.06	90.07	23.91
15:16	714.00	576.20	15.43	14.49	0.42	10.85	3704.37	220.90	106.00	91.10	95.1	93.50	93.00	90.10	19.30
15:17	709.00	567.70	15.47	14.53	0.42	10.84	3684.17	216.70	105.30	90.90	95.0	93.30	91.70	90.00	19.93
15:18	709.00	574.20	15.48	14.55	0.42	10.87	3686.03	219.00	106.50	90.90	94.4	92.60	91.70	89.80	19.01
15:19	704.00	576.60	15.54	14.87	0.42	10.94	3681.90	219.10	105.80	90.60	95.5	94.00	92.30	89.70	18.10
C the vibrating screen is clogged a gain, going to recycle															
15:20	709.00	582.10	15.55	14.65	0.41	10.94	3661.36	216.40	105.90	90.70	95.2	93.60	92.80	89.90	17.90
15:21	707.00	576.80	15.53	14.58	0.41	10.94	3629.73	219.50	105.40	91.40	96.1	95.10	94.50	90.20	18.42
15:22	709.00	580.30	15.56	14.59	0.40	10.95	3599.30	214.80	105.90	91.40	97.3	94.50	94.40	90.50	18.15
15:23	709.00	586.00	15.57	14.56	0.40	10.94	3586.91	216.90	106.50	91.20	96.3	94.60	92.90	89.70	17.35
C The limestone is wet and is clogging the chutes. Turning down the bed speed to 10 to clean chutes															
15:24	708.00	593.40	15.57	14.58	0.39	10.95	3553.24	212.70	106.50	90.60	97.2	94.50	93.70	89.60	16.19
15:25	714.00	602.10	15.54	14.55	0.39	10.96	3555.35	213.50	107.40	90.50	96.6	95.00	94.10	89.40	15.67
10 MinAvg	709.20	581.54	15.52	14.59	0.41	10.92	3634.24	216.95	106.12	90.93	95.9	94.07	93.11	89.89	18.00
15:26	710.00	605.90	15.57	14.64	0.39	10.97	3555.75	217.10	104.90	90.30	96.9	94.70	92.60	89.30	14.66
15:27	716.00	603.20	15.51	14.78	0.39	11.01	3529.85	210.70	106.10	90.10	96.8	94.90	92.70	89.30	15.75
15:28	717.00	606.90	15.51	14.50	0.39	10.98	3543.26	219.30	107.30	91.60	98.3	94.80	94.60	89.20	15.36
15:29	721.00	620.10	15.48	14.44	0.39	10.98	3524.70	212.20	105.80	91.10	97.1	94.50	93.90	89.10	13.99
15:30	718.00	614.60	15.48	14.44	0.39	10.98	3531.77	214.90	106.80	91.60	97.3	95.20	94.70	89.30	14.40
15:31	725.00	612.10	15.42	14.40	0.39	10.99	3529.77	212.40	106.60	91.40	95.8	94.90	93.40	89.20	15.57
15:32	733.00	613.30	15.35	14.34	0.38	11.02	3508.52	213.00	107.00	91.70	97.7	95.40	94.00	89.50	16.33
15:33	729.00	611.10	15.37	14.36	0.38	11.01	3491.75	215.40	108.20	93.70	98.4	96.50	95.30	89.50	16.17
15:34	734.00	595.40	15.31	14.46	0.37	11.04	3445.16	209.90	108.00	91.10	98.9	95.50	95.10	89.50	18.88
15:35	742.00	593.40	15.26	14.60	0.36	11.05	3429.52	216.60	108.80	90.50	97.3	95.40	93.80	89.40	20.03
10 MinAvg	724.50	607.60	15.43	14.50	0.38	11.00	3509.01	214.15	106.95	91.31	97.5	95.18	94.01	89.33	16.12

LEC RUN 910626A

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
C C Turned water down to 0.5 gpm, maybe the SO ₂ removal will go up like it did in the last run (910621A). Bed speed is back at 200T, stone going to the screen															
15:36	747.00	604.30	15.22	14.32	0.36	11.06	3398.25	211.70	107.20	90.40	96.4	95.00	93.00	89.40	19.10
15:37	751.00	610.60	15.20	14.27	0.36	11.11	3377.31	210.90	106.30	90.40	97.6	95.60	93.80	89.50	18.70
15:38	747.00	601.20	15.21	14.28	0.35	11.11	3353.90	214.90	107.30	90.10	97.5	95.70	92.80	89.50	19.52
15:39	754.00	601.50	15.12	14.22	0.35	11.11	3363.67	216.90	106.90	91.80	97.9	96.20	95.00	89.60	20.23
15:40	746.00	599.70	15.11	14.24	0.35	11.15	3344.50	207.30	110.10	91.10	98.1	95.40	93.80	89.60	19.61
15:41	744.00	583.40	15.16	14.33	0.35	11.22	3367.03	214.40	108.00	90.90	98.9	96.20	94.10	89.70	21.59
15:42	747.00	589.70	15.14	14.33	0.35	11.26	3363.74	215.00	108.70	91.10	97.2	95.90	93.20	89.70	21.06
15:43	742.00	584.20	15.17	14.67	0.35	11.30	3365.03	213.60	109.60	91.20	98.2	96.20	92.30	89.70	21.27
15:44	727.00	585.50	15.25	14.46	0.35	11.39	3369.31	213.40	108.10	90.70	96.9	95.70	91.40	89.60	19.46
15:45	717.00	597.20	15.32	14.43	0.35	11.42	3361.49	206.50	109.70	91.20	96.6	95.10	94.00	89.60	16.71
10 MinAvg	742.20	595.73	15.19	14.36	0.35	11.21	3366.42	212.46	108.19	90.89	97.5	95.70	93.34	89.59	19.72
15:46	708.00	588.50	15.38	14.55	0.35	11.41	3371.77	216.30	107.30	91.10	97.9	96.00	95.30	89.50	16.88
15:47	701.00	580.00	15.42	14.58	0.35	11.45	3354.78	209.50	107.70	90.70	96.5	95.00	94.00	89.50	17.26
15:48	704.00	609.80	15.46	14.55	0.35	11.49	3381.85	214.60	107.90	90.60	97.7	96.00	95.50	89.50	13.38
15:49	703.00	615.70	15.44	14.52	0.35	11.45	3368.56	211.20	108.40	91.30	97.2	96.20	95.20	89.50	12.42
15:50	685.40	604.30	15.57	14.82	0.36	11.50	3384.60	213.80	108.00	91.20	98.1	96.20	95.40	89.50	11.83
15:51	686.40	622.80	15.58	14.80	0.36	11.49	3385.83	212.40	109.10	91.00	97.4	96.00	96.90	89.40	9.27
15:52	679.10	630.20	15.67	14.68	0.36	11.47	3382.24	209.10	111.00	90.30	96.7	95.50	94.00	89.20	7.20
15:53	677.60	628.20	15.70	14.69	0.36	11.46	3400.35	214.40	110.10	90.60	96.2	95.70	93.20	89.20	7.29
15:54	670.70	623.20	15.76	14.74	0.36	11.44	3382.55	211.10	111.50	90.90	96.4	95.60	94.20	89.40	7.08
15:55	651.70	621.90	15.79	14.73	0.36	11.41	3390.37	216.10	116.70	90.80	95.9	95.60	92.10	89.40	4.57
10 MinAvg	686.69	612.46	15.58	14.67	0.36	11.46	3380.29	212.85	109.77	90.85	97.0	95.78	94.58	89.41	10.72
15:56	640.00	616.40	15.71	14.77	0.35	11.40	3364.76	207.80	118.70	91.40	96.6	94.90	93.30	89.30	3.69
15:57	665.10	608.10	15.77	14.91	0.36	11.41	3374.99	208.10	118.80	91.00	96.1	94.80	94.10	89.40	8.57
15:58	667.10	598.70	15.75	15.12	0.36	11.38	3384.82	212.00	118.90	91.30	94.7	95.30	91.60	89.50	10.25
15:59	676.60	588.00	15.68	14.86	0.36	11.36	3370.18	206.20	119.00	92.80	95.1	94.40	93.20	89.90	13.09
16:00	681.60	588.80	15.64	14.86	0.33	10.69	3258.18	213.60	119.10	105.60	96.5	95.70	93.60	90.00	13.62
C C Reducing the inlet gas flow rate to damper position II.															
16:01	735.00	587.70	15.21	14.94	0.19	7.64	2490.35	209.40	119.20	115.00	93.9	95.10	91.90	90.20	20.04
16:02	779.00	599.50	14.95	14.81	0.19	7.61	2507.00	214.90	119.30	114.80	95.6	96.50	92.40	91.10	23.04
16:03	783.00	599.30	14.92	14.80	0.19	7.58	2508.88	219.40	119.40	118.40	96.6	97.10	95.50	95.00	23.46
16:04	794.00	607.20	14.83	14.88	0.19	7.57	2512.19	217.70	119.50	117.80	97.5	97.30	94.70	99.00	23.53
16:05	816.00	619.70	14.66	14.87	0.19	7.56	2503.70	220.10	119.70	118.00	99.2	98.60	95.00	105.50	24.06
10 MinAvg	723.74	601.34	15.31	14.88	0.27	9.42	2927.51	212.92	119.16	105.61	96.2	95.97	93.53	92.89	16.33

LEC RUN 910626A

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
16:06	826.00	626.60	14.60	14.60	0.19	7.54	2503.15	219.80	120.70	119.30	98.2	99.20	96.20	110.60	24.14
16:07	847.00	643.70	14.51	14.48	0.19	7.53	2504.99	220.80	125.10	119.30	99.1	100.90	94.60	112.60	24.00
16:08	856.00	657.20	14.41	14.37	0.19	7.51	2502.96	219.70	135.80	118.80	101.8	103.30	95.30	112.90	23.22
16:09	852.00	661.80	14.46	14.41	0.19	7.50	2496.10	219.50	140.40	119.20	100.3	104.50	96.10	116.80	22.32
16:10	840.00	658.60	14.49	14.44	0.19	7.49	2497.20	220.10	147.70	119.20	100.3	107.00	96.50	118.70	21.60
16:11	846.00	662.80	14.47	14.64	0.19	7.48	2479.23	217.40	148.10	119.30	102.2	108.70	98.50	116.30	21.65
16:12	854.00	665.00	14.44	14.58	0.19	7.48	2485.26	220.70	148.30	119.30	102.7	110.60	98.90	114.10	22.13
16:13	846.00	668.30	14.49	14.42	0.19	7.48	2475.57	215.40	148.20	119.20	102.2	109.40	99.50	114.80	21.00
16:14	831.00	669.30	14.63	14.46	0.19	7.48	2468.51	218.70	148.20	119.10	100.4	109.50	95.80	117.50	19.46
16:15	825.00	669.30	14.67	14.46	0.19	7.50	2455.94	215.40	148.20	119.00	100.7	108.70	96.90	118.70	18.87
10 MinAvg	842.30	658.26	14.52	14.49	0.19	7.50	2486.89	218.75	141.07	119.17	100.8	106.18	96.83	115.30	21.84
16:16	819.00	670.10	14.71	14.48	0.19	7.50	2454.65	211.10	148.10	118.90	101.7	109.20	93.90	118.10	18.18
16:17	801.00	664.20	14.85	14.51	0.19	7.49	2468.33	218.60	148.00	118.90	101.5	109.20	95.70	115.60	17.08
16:18	801.00	663.30	14.87	14.89	0.19	7.49	2445.01	209.40	147.90	118.80	101.3	108.00	95.90	113.80	17.19
16:19	791.00	651.70	14.96	14.73	0.19	7.50	2439.92	210.20	147.80	118.70	102.0	106.90	93.90	113.60	17.61
16:20	775.00	655.40	15.06	14.67	0.19	7.49	2447.38	210.70	147.70	118.60	102.1	107.10	94.10	116.40	15.43
16:21	789.00	650.00	14.94	14.64	0.19	7.50	2433.84	203.30	147.60	118.50	101.3	106.10	94.90	117.80	17.62
16:22	776.00	656.60	15.09	14.71	0.19	7.52	2441.69	214.80	147.60	118.50	101.5	106.60	96.70	116.50	15.39
16:23	777.00	658.90	15.08	14.74	0.19	7.52	2434.44	210.80	147.50	118.30	101.9	107.50	98.70	114.60	15.20
C The limestone is still damp. The vibrating maybe clogged again. Going to 1.5 gpm with the overhead sprays.															
16:24	765.00	652.10	15.17	15.01	0.18	7.53	2433.46	213.90	147.40	118.30	102.9	107.00	103.40	113.60	14.76
16:25	759.00	646.20	15.24	15.12	0.18	7.54	2417.86	212.60	147.40	118.30	102.1	108.30	102.10	117.60	14.86
10 MinAvg	785.30	656.85	15.00	14.75	0.19	7.51	2441.66	211.54	147.70	118.58	101.8	107.59	96.93	115.76	16.33
16:26	758.00	640.70	15.26	14.96	0.18	7.54	2400.24	210.20	147.50	118.50	99.2	109.60	100.00	118.00	15.47
16:27	753.00	639.00	15.29	14.96	0.18	7.55	2408.65	214.90	147.50	118.40	98.3	110.20	99.20	118.40	15.14
16:28	748.00	635.70	15.31	14.97	0.18	7.54	2399.35	206.00	147.50	118.40	99.7	109.60	101.80	118.30	15.01
16:29	742.00	623.70	15.37	15.00	0.18	7.55	2406.50	213.70	147.60	118.60	100.0	110.40	104.00	118.30	15.94
16:30	756.00	628.90	15.25	15.16	0.18	7.57	2406.87	206.50	147.60	118.50	99.9	110.90	103.20	118.10	16.81
16:31	758.00	630.90	15.21	15.17	0.18	7.58	2396.48	208.10	147.70	118.80	99.3	112.80	101.70	118.50	16.77
16:32	759.00	626.20	15.18	14.93	0.18	7.62	2402.41	207.70	147.70	118.70	101.6	112.10	103.70	118.60	17.50
16:33	762.00	628.00	15.13	14.89	0.18	7.65	2395.71	211.40	147.70	119.60	104.8	111.90	104.90	118.60	17.59
16:34	783.00	642.40	15.00	14.79	0.18	7.73	2374.84	211.00	147.70	120.50	105.9	111.80	105.90	118.60	17.96
16:35	798.00	647.20	14.92	14.71	0.17	7.84	2348.57	211.50	147.70	119.00	108.7	110.90	104.20	117.40	18.90
10 MinAvg	761.70	634.27	15.19	14.95	0.18	7.62	2393.96	210.10	147.62	118.90	101.7	111.02	102.86	118.28	16.71

LEC RUN 910626A

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
16:36	810.00	645.20	14.81	14.71	0.17	8.00	2318.16	209.80	147.80	118.70	107.7	110.20	103.00	112.70	20.35
16:37	811.00	642.40	14.76	14.99	0.17	8.17	2305.93	214.80	147.90	118.30	105.8	109.80	100.30	110.50	20.79
16:38	829.00	632.90	14.67	14.62	0.16	8.39	2249.79	210.80	147.90	113.40	104.6	107.20	101.90	106.80	23.66
16:39	827.00	617.40	14.66	14.52	0.15	8.62	2219.29	218.50	139.10	109.80	105.3	104.50	102.90	101.60	25.34
16:40	842.00	614.00	14.54	14.41	0.15	8.83	2219.29	218.50	119.10	102.40	103.0	103.00	101.60	99.20	27.08
16:41	843.00	592.30	14.56	14.48	0.15	8.89	2202.04	216.90	118.90	99.10	103.1	102.50	101.60	96.50	29.74
16:42	837.00	577.00	14.58	14.58	0.14	8.85	2169.18	219.50	118.80	98.20	103.1	101.60	100.00	95.10	31.06
16:43	847.00	586.90	14.51	14.66	0.14	8.79	2130.51	218.90	116.80	97.90	102.2	101.70	99.20	94.40	30.71
16:44	839.00	585.80	14.59	14.88	0.14	8.69	2093.05	219.50	115.10	96.40	103.0	100.30	98.30	92.70	30.18
16:45	840.00	577.90	14.56	14.67	0.13	8.73	2066.76	217.60	111.90	97.70	102.4	101.30	96.60	91.20	31.20
10 MinAvg	832.50	607.18	14.62	14.65	0.15	8.60	2197.40	216.48	128.33	105.19	104.0	104.21	100.54	100.07	27.01
16:46	823.00	563.30	14.70	14.74	0.13	8.77	2067.83	218.30	112.50	96.40	102.4	101.50	96.70	90.50	31.56
16:47	812.00	545.70	14.72	14.82	0.13	8.83	2077.33	219.40	109.90	95.10	101.8	101.60	93.80	89.80	32.80
16:48	809.00	546.60	14.79	14.82	0.13	8.84	2066.61	217.50	110.80	94.70	102.9	101.60	92.50	89.50	32.44
16:49	797.00	551.10	14.86	14.94	0.13	8.86	2077.18	219.30	111.90	92.70	103.0	100.20	92.30	89.50	30.85
16:50	801.00	542.20	14.85	15.21	0.14	8.90	2090.43	217.80	111.00	92.80	102.6	100.20	96.80	89.60	32.31
16:51	803.00	538.30	14.85	14.93	0.13	8.96	2074.88	217.80	110.70	93.90	102.7	101.40	98.80	89.60	32.96
16:52	799.00	528.20	14.88	14.90	0.13	9.00	2084.97	219.30	111.20	92.30	102.3	99.40	95.00	89.50	33.89
16:53	799.00	522.60	14.84	14.89	0.13	9.03	2062.03	214.50	110.00	91.70	102.6	99.90	93.20	89.50	34.59
16:54	793.00	514.70	14.87	14.95	0.13	9.01	2054.68	220.00	109.10	92.30	101.6	99.60	93.30	89.50	35.09
16:55	795.00	510.50	14.86	15.00	0.13	9.03	2044.50	218.50	110.20	91.60	101.9	101.00	92.70	89.80	35.79
10 MinAvg	803.10	536.32	14.82	14.92	0.13	8.92	2070.04	218.24	110.73	93.35	102.4	100.64	94.51	89.68	33.23
16:56	818.00	521.60	14.69	15.25	0.13	9.04	2035.66	217.90	109.10	94.00	101.5	101.50	94.60	90.40	36.23
16:57	821.00	515.40	14.73	15.03	0.13	9.05	2038.66	219.90	109.30	94.70	100.7	100.80	94.30	90.60	37.22
16:58	813.00	520.60	14.77	14.97	0.13	9.07	2031.13	220.20	108.50	93.90	102.3	101.70	97.40	89.90	35.97
16:59	813.00	515.90	14.75	14.98	0.13	9.10	2022.52	219.80	109.10	93.80	102.5	102.60	97.20	89.70	36.54
17:00	811.00	501.00	14.76	15.05	0.13	9.07	2023.71	220.60	110.20	93.70	101.8	102.00	96.10	90.20	38.22

Post-run Bed Inspection:

1/3 of the bed has bridged up along the entire roadside length. The hardware cloth should be reverse; e.g. put the larger mesh on the inside.

2 of 6

Run Summary: **LEC Run 910627A**

Objective: To use the vibrating screen as a dry-method regeneration device.

Total Run Time: 142 minutes (13:43 to 16:22).

SO₂ Removal: 81% (average).

Inlet Gas Rate: 2370 acfm (average).

Bed ΔP: 8.5 in H₂O.

Operational Conditions:

No.9 limestone from LEC Run 920626A (185 minutes of prior exposure).

Damper Setting: Position II.

Three layer outlet screen composed of two hardware cloth screens covering one aluminum screen.

In-duct Steam = 12 psig.

Overhead Sprays = 0.0 gpm from 13:43 to 14:30.

1.0 gpm from 14:31 to 15:55.

0.5 gpm from 15:56 to 16:22.

Louver Sprays = Not Installed.

Bed Speed = 20 DT (3995 lb/hr).

Regeneration Device: Single deck vibrating screen equipped with a No.30 mesh screen was not used due to excessive stone moisture.

Stone Carry-Over: 0 lbs/min.

Waste fines: None.

Comments: - The run was terminated when the 19' bucket elevator discharge chute became blocked.

Starting
06-27-91

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
C Initial Conditions: Same L/S as Run 910626A; Bed Speed = 20 DT; Full Steam (12 psig); Will use the vibrating screen when the L/S is dry															
C Overhead sprays at 0.5 gpm, Damper in position II, L/S is initially wet and sticky															
13:43	783.00	0.39	14.87	14.79	-0.10	0.00		148.50	77.80	74.40	74.5	74.60	74.60	74.60	99.95
13:44	791.00	0.53	14.84	14.68	-0.10	0.00		189.40	76.30	72.90	73.6	74.50	74.60	74.60	99.93
13:45	791.00	0.38	14.85	14.64	-0.10	0.00		196.20	84.90	77.30	73.8	75.20	74.50	78.90	99.95
13:46	795.00	0.57	14.75	14.56	-0.10	0.00		200.90	89.40	89.00	88.7	89.10	78.30	89.40	99.93
13:47	767.00	0.71	14.79	14.68	-0.10	0.00		204.70	89.40	89.20	95.0	92.20	89.00	89.20	99.91
13:48	803.00	0.65	14.74	14.77	-0.10	0.00		208.80	93.50	89.30	96.4	93.80	90.90	89.70	99.92
13:49	800.00	0.33	14.71	14.74	-0.09	0.09		213.60	100.30	90.50	99.0	93.20	95.80	89.30	99.96
C The pressure transducers are now plugged in.															
13:50	842.00	-0.03	14.76	14.75	0.29	5.49	3061.67	212.20	104.50	91.10	102.9	97.50	101.80	91.60	100.00
13:51	815.00	0.25	14.76	14.78	0.33	5.28	3274.48	218.30	106.10	90.90	101.8	95.60	98.30	91.50	99.97
13:52	800.00	0.64	14.81	14.75	0.33	5.26	3260.84	214.70	109.50	89.80	100.0	94.80	97.50	90.70	99.92
10 MinAvg	798.70	0.44	14.79	14.71	0.03	1.61	3198.99	200.73	93.17	85.44	90.6	88.05	87.53	85.95	99.94
13:53	809.00	0.45	14.89	14.77	0.33	5.26	3255.41	214.50	109.40	91.30	100.2	96.10	99.30	92.10	99.94
13:54	788.00	0.58	14.95	14.78	0.33	5.26	3264.57	218.30	111.10	91.10	101.3	94.80	98.50	91.90	99.93
13:55	773.00	0.54	14.96	14.76	0.33	5.27	3247.81	213.40	110.80	90.70	101.9	94.20	98.00	91.00	99.93
13:56	792.00	0.11	15.00	14.77	0.33	5.26	3249.65	218.30	112.80	92.20	100.7	94.80	93.80	91.10	99.99
13:57	755.00	0.71	14.94	14.74	0.33	5.25	3248.63	215.80	113.00	92.00	102.0	94.70	94.20	91.00	99.91
13:58	783.00	0.15	14.98	14.74	0.33	5.26	3249.89	218.40	113.60	92.00	99.8	92.60	93.60	89.90	99.98
13:59	813.00	0.45	14.92	14.69	0.32	5.28	3235.61	216.60	113.90	92.00	100.4	94.10	92.60	90.40	99.95
14:00	814.00	0.68	14.91	14.69	0.32	5.28	3231.09	216.80	114.30	91.30	101.1	93.70	93.80	90.00	99.92
14:01	817.00	0.49	14.90	14.69	0.32	5.30	3232.76	217.50	114.90	91.90	99.1	95.60	93.70	89.80	99.94
14:02	816.00	0.54	14.92	14.70	0.32	5.33	3226.30	219.00	113.70	90.50	100.7	95.20	96.00	90.10	99.93
10 MinAvg	796.00	0.47	14.94	14.73	0.33	5.27	3244.17	216.86	112.75	91.50	100.7	94.58	95.35	90.73	99.94
14:03	823.00	0.47	14.84	14.66	0.32	5.36	3210.10	212.20	113.80	90.60	97.9	94.30	92.20	89.90	99.94
14:04	822.00	0.78	14.87	14.65	0.32	5.37	3208.17	215.60	113.40	91.30	98.3	94.80	91.90	90.00	99.91
14:05	810.00	6.37	14.95	14.72	0.32	5.40	3194.31	214.00	114.30	90.50	96.4	94.50	91.30	90.00	99.21
14:06	821.00	13.10	14.86	14.68	0.32	5.42	3192.65	213.30	113.80	91.10	95.4	95.20	90.70	90.00	98.40
14:07	813.00	22.91	14.92	14.68	0.31	5.45	3189.52	218.40	114.50	91.40	96.2	95.60	91.30	90.00	97.18
14:08	804.00	33.72	14.98	14.72	0.31	5.48	3179.97	216.50	113.10	90.30	98.5	95.50	91.70	89.80	95.81
14:09	808.00	47.58	14.93	14.72	0.31	5.53	3162.59	215.60	115.00	90.20	97.1	95.40	91.80	90.10	94.11
14:10	802.00	63.37	14.97	14.73	0.31	5.58	3143.99	214.20	115.30	90.40	98.3	95.40	91.40	90.00	92.10
14:11	805.00	83.30	14.96	14.70	0.30	5.63	3117.66	209.50	113.20	90.60	98.8	97.00	91.70	90.20	89.65
14:12	805.00	100.20	14.96	14.69	0.30	5.68	3105.48	210.90	113.20	90.40	99.2	97.00	92.80	90.10	87.55
10 MinAvg	811.30	37.18	14.92	14.69	0.31	5.49	3170.44	214.02	113.96	90.68	97.6	95.47	91.68	90.01	95.39
14:13	806.00	119.70	14.77	14.70	0.30	5.76	3091.58	211.60	114.20	90.80	99.2	97.40	94.10	90.10	85.15
14:14	815.00	142.10	14.91	14.65	0.29	5.80	3067.95	208.10	115.10	90.50	97.8	96.80	96.50	90.00	82.56
14:15	824.00	161.50	14.86	14.60	0.29	5.87	3051.41	210.00	117.60	90.20	97.5	97.50	99.70	89.80	80.40
14:16	830.00	185.80	14.82	14.57	0.29	5.94	3040.23	209.70	118.50	90.30	100.2	98.20	103.60	90.00	77.61
14:17	834.00	208.70	14.78	14.54	0.28	6.01	3022.04	211.00	118.90	90.60	99.9	99.10	106.30	89.90	74.98
14:18	846.00	229.20	14.73	14.52	0.28	6.09	2992.07	209.50	119.10	92.10	100.8	101.90	107.70	89.80	72.91
14:19	843.00	253.10	14.75	14.51	0.27	6.17	2969.33	213.80	119.20	91.80	105.3	102.90	107.30	89.80	69.98

C
 2. Bedplate of water and compound of the Mist eliminator, start vibrating screen

Starting
06-27-91

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
14:20	850.00	277.80	14.68	14.50	0.27	6.29	2940.13	210.40	119.40	92.20	110.5	104.70	108.20	90.00	67.32
14:21	836.00	288.80	14.75	14.57	0.26	6.40	2905.16	206.90	119.40	92.20	116.3	104.80	108.60	90.10	65.45
14:22	830.00	299.10	14.78	14.61	0.26	6.48	2887.76	214.20	119.50	91.70	113.2	102.10	106.50	90.20	63.96
10 MinAvg	831.40	216.58	14.78	14.58	0.28	6.08	2996.77	210.52	118.09	91.24	104.1	100.54	103.85	89.97	74.03
14:23	829.00	317.20	14.77	14.62	0.25	6.55	2852.11	210.60	119.60	91.70	109.0	103.00	106.70	90.30	61.74
14:24	837.00	333.30	14.72	14.63	0.25	6.60	2824.74	211.00	119.70	91.60	107.9	103.00	109.80	90.30	60.18
14:25	836.00	340.70	14.74	14.76	0.25	6.66	2808.63	214.20	119.70	92.50	104.1	104.00	106.10	90.30	59.25
14:26	832.00	347.40	14.76	14.81	0.24	6.71	2773.39	208.30	119.60	93.00	104.5	104.30	105.60	90.30	58.25
14:27	834.00	360.90	14.72	14.82	0.24	6.78	2771.60	218.70	119.70	91.50	105.9	103.50	108.90	90.30	56.73
14:28	849.00	372.20	14.67	14.86	0.23	6.85	2751.36	217.40	119.80	93.60	106.1	104.70	109.30	90.40	56.16
14:29	865.00	387.90	14.56	14.82	0.23	6.92	2732.37	219.70	119.90	93.10	104.2	103.00	106.70	90.60	55.16
C The overhead oprays are increased to 1.0 gpm, damper is still in position II, 1.84 lb of dust collected from vibrating screen															
14:30	864.00	393.40	14.55	14.82	0.23	6.97	2711.10	221.00	120.10	93.50	104.4	102.30	106.00	90.70	54.47
14:31	862.00	393.30	14.52	14.87	0.22	7.02	2684.83	219.90	120.10	94.80	104.7	103.40	106.80	90.80	54.37
14:32	864.00	399.20	14.54	14.82	0.22	7.09	2675.85	221.50	120.10	95.20	103.8	103.30	105.60	90.80	53.80
10 MinAvg	847.20	364.55	14.66	14.78	0.24	6.81	2758.60	216.23	119.83	93.05	105.5	103.45	107.15	90.48	57.01
14:33	863.00	397.60	14.54	14.86	0.22	7.16	2662.87	221.10	120.10	95.30	104.1	104.60	108.50	91.00	53.93
14:34	863.00	399.40	14.53	14.86	0.21	7.22	2638.72	221.30	120.10	95.20	104.7	105.90	106.20	90.80	53.72
14:35	862.00	402.10	14.58	14.93	0.21	7.27	2614.90	221.80	120.10	96.50	103.6	106.00	106.90	91.70	53.35
14:36	859.00	397.80	14.55	14.96	0.21	7.33	2589.50	221.60	120.20	97.60	105.1	105.70	108.50	92.70	53.69
14:37	861.00	394.50	14.52	14.96	0.20	7.38	2564.42	221.70	120.30	99.40	105.2	105.20	108.20	92.30	54.18
14:38	865.00	396.00	14.50	14.95	0.20	7.44	2539.09	221.80	120.40	99.60	104.6	104.30	106.00	91.90	54.22
14:39	868.00	393.50	14.50	14.95	0.19	7.50	2520.15	222.00	120.50	100.40	103.7	103.30	106.80	91.20	54.67
14:40	870.00	399.60	14.47	14.90	0.19	7.58	2513.86	222.10	120.60	101.00	103.6	102.50	104.90	91.20	54.07
14:41	873.00	407.70	14.43	14.81	0.19	7.68	2494.53	222.20	120.70	99.90	103.8	103.20	105.90	91.70	53.30
14:42	881.00	405.70	14.39	14.77	0.19	7.77	2475.41	222.50	120.90	99.10	106.1	104.00	107.60	92.40	53.95
10 MinAvg	866.50	399.39	14.50	14.89	0.20	7.43	2561.35	221.81	120.39	98.40	104.4	104.47	106.95	91.69	53.91
14:43	895.00	390.30	14.33	14.73	0.18	7.88	2449.11	222.60	120.90	99.50	104.4	104.20	105.40	94.10	56.39
14:44	881.00	386.80	14.40	14.76	0.18	7.96	2435.59	222.50	120.90	97.50	105.6	103.40	105.70	92.40	56.10
14:45	882.00	371.90	14.40	14.82	0.18	8.04	2402.08	222.60	121.00	96.30	105.8	105.10	105.70	93.60	57.83
14:46	866.00	358.50	14.46	14.82	0.18	8.11	2402.43	222.80	121.10	97.00	107.4	105.20	104.10	93.30	58.60
14:47	857.00	340.30	14.53	14.86	0.17	8.18	2381.98	222.80	121.20	98.60	107.4	106.60	106.00	93.30	60.29
14:48	852.00	326.80	14.56	14.87	0.17	8.24	2368.08	222.70	121.20	98.30	106.6	107.10	104.40	95.10	61.64
14:49	842.00	312.00	14.63	14.93	0.17	8.31	2354.44	222.80	121.30	98.30	106.0	105.80	103.50	94.00	62.95
C The L/S is bone dry															
14:50	842.00	307.70	14.66	14.94	0.17	8.37	2354.62	222.90	121.40	97.70	105.6	105.40	103.80	93.60	63.46
C 19.2 lb of dust is collected from the vibrating screen															
14:51	839.00	314.60	14.66	14.92	0.17	8.42	2333.75	222.90	121.60	96.40	106.2	105.50	104.60	93.30	62.50
14:52	849.00	313.10	14.61	14.89	0.17	8.46	2320.24	223.20	121.50	96.90	106.7	104.90	104.70	92.40	63.12
10 MinAvg	860.50	342.20	14.52	14.85	0.17	8.20	2380.23	222.78	121.21	97.65	106.2	105.32	104.79	93.51	60.29

Starting
06-27-91

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
14:53	850.00	304.90	14.66	14.87	0.16	8.53	2306.30	223.30	121.70	97.50	106.5	105.80	101.90	93.40	64.13
14:54	853.00	296.80	14.60	14.84	0.16	8.57	2292.28	223.40	121.70	98.30	106.5	104.80	102.40	96.20	65.21
14:55	858.00	288.70	14.59	14.81	0.16	8.61	2277.66	223.20	121.70	97.60	106.4	104.00	101.90	97.60	66.35
14:56	876.00	289.90	14.43	14.72	0.16	8.67	2256.07	223.20	121.70	98.60	106.5	104.70	104.20	96.80	66.91
14:57	888.00	299.90	14.37	14.63	0.15	8.73	2241.24	223.00	121.80	97.70	105.5	101.90	102.00	95.40	66.23
14:58	897.00	305.60	14.29	14.63	0.15	8.78	2219.79	223.30	121.80	98.90	106.2	103.70	103.50	97.30	65.93
14:59	908.00	310.20	14.22	14.57	0.15	8.82	2212.91	223.60	121.90	99.40	107.1	103.70	104.60	98.40	65.84
15:00	910.00	318.00	14.22	14.56	0.15	8.85	2190.83	223.70	122.00	99.70	106.4	102.90	102.50	98.00	65.05
15:01	900.00	312.00	14.25	14.59	0.14	8.89	2175.87	223.70	122.10	99.50	106.4	103.80	101.30	96.30	65.33
15:02	899.00	270.60	14.26	14.67	0.14	8.92	2160.97	223.80	122.20	101.50	107.2	104.40	105.00	96.00	69.90
10 MinAvg	883.90	299.66	14.39	14.69	0.15	8.74	2233.39	223.42	121.86	98.87	106.5	103.97	102.93	96.54	66.09

C

C The L/S is becoming damp again

C

15:03	900.00	197.60	14.27	14.66	0.14	8.94	2130.38	223.70	122.20	99.50	107.0	103.20	102.60	94.20	78.04
15:04	895.00	89.80	14.33	14.58	0.14	8.97	2122.70	223.70	122.20	100.70	106.0	104.40	104.60	96.40	89.97
15:05	880.00	36.93	14.45	14.53	0.14	9.04	2099.50	223.70	121.90	100.40	107.1	104.50	104.90	100.60	95.80
15:06	883.00	17.80	14.46	14.50	0.13	9.09	2091.41	223.50	121.90	101.00	106.5	104.60	104.30	100.80	97.98
15:07	889.00	8.33	14.44	14.58	0.13	9.14	2076.05	223.70	122.10	101.20	106.3	103.90	104.80	97.90	99.06
15:08	891.00	1.69	14.29	14.46	0.13	9.17	2074.98	223.00	121.80	101.30	105.9	103.50	104.70	98.50	99.81
15:09	894.00	0.51	14.40	14.27	0.13	9.22	2051.42	223.10	121.40	101.90	107.1	103.50	106.10	96.80	99.94
15:10	892.00	0.63	14.40	14.22	0.13	9.28	2042.25	222.30	121.30	101.70	106.2	103.90	105.50	97.30	99.93
15:11	912.00	0.54	14.27	14.16	0.13	9.33	2024.16	220.90	121.20	101.30	106.7	103.80	105.60	97.90	99.94
15:12	917.00	0.53	14.24	14.11	0.12	9.30	2003.44	223.30	120.30	102.70	106.4	103.70	104.90	98.00	99.94
10 MinAvg	895.30	35.44	14.36	14.41	0.13	9.15	2071.63	223.09	121.63	101.17	106.5	103.90	104.80	97.84	96.04

C

C The L/S is becoming dry again

C

15:15	921.00	0.53	14.17	14.23	0.12	9.37	1944.74	222.70	119.20	102.00	106.8	102.80	102.80	99.50	99.94
15:16	926.00	0.50	14.15	14.44	0.11	9.41	1927.48	222.40	117.70	102.20	106.0	103.80	104.00	102.10	99.95
15:17	919.00	0.47	14.14	14.43	0.11	9.49	1919.57	222.80	117.10	102.50	105.4	103.20	103.80	101.50	99.95
15:18	925.00	0.46	14.10	14.40	0.11	9.52	1910.91	222.70	117.90	101.50	105.3	102.50	102.40	99.80	99.95
15:19	929.00	0.45	14.10	14.56	0.11	9.53	1894.19	223.00	117.70	101.70	105.6	102.60	104.70	100.60	99.95
15:20	930.00	0.50	14.10	14.56	0.11	9.56	1885.70	223.10	116.80	101.30	106.6	103.80	106.00	100.30	99.95
15:21	931.00	0.95	14.10	14.60	0.11	9.61	1885.29	222.80	116.20	101.40	106.0	103.70	107.70	101.00	99.90
15:22	925.00	0.32	14.15	14.57	0.11	9.64	1876.62	222.80	115.40	101.10	106.9	103.80	107.00	100.30	99.97
10 MinAvg	923.80	0.53	14.14	14.45	0.11	9.48	1918.24	222.67	117.23	101.84	106.2	103.44	104.78	100.49	99.94

15:23	909.00	0.64	14.23	14.82	0.11	9.64	1859.30	222.90	116.20	101.30	106.0	103.00	106.50	98.90	99.93
15:24	912.00	0.43	14.22	14.79	0.11	9.67	1858.75	222.50	115.80	101.40	106.4	105.10	107.10	100.00	99.95
15:25	911.00	0.65	14.23	14.76	0.11	9.70	1859.30	222.90	115.00	101.10	106.6	105.20	106.50	97.90	99.93
15:26	897.00	0.68	14.33	14.82	0.10	9.69	1850.64	223.00	117.40	99.00	107.0	104.90	107.40	95.20	99.92
15:27	890.00	0.38	14.37	14.87	0.10	9.70	1840.32	221.90	113.70	98.90	106.3	105.20	107.10	98.20	99.96

C

C Leak checked the monitors; OK

C

15:28	884.00	0.72	14.41	16.58	0.10	9.69	1841.67	222.90	116.40	99.80	108.0	105.70	107.60	98.60	99.92
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Starting
06-27-91

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
15:29	884.00	0.72	14.39	14.97	0.10	9.71	1832.39	222.60	115.20	100.30	107.4	104.60	107.90	97.20	99.92
C	C The L/S is becoming damp again														
15:30	880.00	1.46	14.46	14.92	0.10	9.74	1824.28	223.20	115.50	99.60	107.0	105.20	107.70	97.70	99.83
15:31	872.00	6.37	14.51	14.95	0.10	9.75	1812.65	221.20	116.00	99.60	108.0	105.60	108.40	97.90	99.27
15:32	870.00	12.03	14.50	14.94	0.10	9.78	1790.40	218.00	114.60	98.90	106.3	105.70	106.70	97.40	98.62
10 MinAvg	890.90	2.41	14.37	15.04	0.10	9.71	1836.97	222.11	115.58	99.99	106.9	105.02	107.33	97.90	99.72
15:33	870.00	18.05	14.53	14.97	0.10	9.80	1779.89	216.90	115.40	98.60	107.0	105.20	106.20	96.20	97.93
15:34	876.00	26.40	14.47	14.89	0.10	9.80	1765.28	212.70	116.30	99.30	107.3	106.00	108.40	97.70	96.99
15:35	878.00	35.28	14.46	14.90	0.09	9.81	1749.58	214.70	116.10	97.90	107.5	106.60	107.10	96.60	95.98
15:36	894.00	48.74	14.34	14.83	0.09	9.79	1741.77	215.80	114.20	97.90	107.4	106.20	107.60	96.20	94.55
15:37	892.00	59.89	14.35	14.82	0.09	9.85	1725.67	210.50	111.80	98.00	107.8	107.20	106.70	98.10	93.29
15:38	894.00	69.60	14.33	14.79	0.09	9.88	1724.77	209.80	112.80	97.40	107.3	107.40	104.40	96.90	92.21
15:39	897.00	76.40	14.33	14.83	0.09	9.86	1716.79	218.20	114.40	95.80	108.1	107.00	105.30	95.50	91.48
15:40	892.00	90.90	14.35	14.85	0.09	9.90	1686.89	209.50	115.10	96.70	110.1	107.90	106.30	95.10	89.81
15:41	881.00	110.00	14.48	14.89	0.09	9.97	1689.91	211.90	113.80	95.70	108.3	107.20	104.20	94.80	87.51
C	C 5 gallons of water collected out of the mist eliminator, increasing damper to position III, 6.34 lb of dust collected														
15:42	879.00	129.60	14.50	14.87	0.09	9.97	1666.09	208.10	112.70	96.80	107.7	106.60	103.80	95.40	85.26
10 MinAvg	885.30	66.49	14.41	14.86	0.09	9.86	1724.66	212.81	114.26	97.41	107.8	106.73	106.00	96.25	92.50
15:43	884.00	142.70	14.43	14.84	0.09	10.01	1660.69	211.50	113.90	94.20	108.8	106.70	104.30	95.40	83.86
15:44	877.00	156.20	14.50	14.83	0.10	10.69	1747.52	206.10	113.20	94.90	109.1	106.70	104.50	95.20	82.19
15:45	874.00	153.60	14.53	14.89	0.10	10.94	1784.36	206.70	113.00	93.30	107.4	106.30	104.30	94.00	82.43
C	C Increasing damper to position IV														
15:46	879.00	144.80	14.53	14.94	0.10	10.92	1765.54	212.90	112.60	94.80	106.8	106.30	102.50	94.00	83.53
15:47	886.00	151.10	14.47	14.85	0.10	11.39	1821.20	207.80	112.40	94.20	107.3	106.10	101.70	93.60	82.95
15:48	882.00	158.60	14.51	14.90	0.10	11.41	1808.05	211.10	113.40	93.50	106.9	105.50	101.80	93.80	82.02
15:49	880.00	165.20	14.51	14.92	0.10	11.35	1780.88	204.10	112.60	95.60	107.7	105.90	102.90	93.70	81.23
15:50	893.00	193.70	14.45	14.84	0.10	11.31	1760.94	209.40	113.50	95.00	107.9	104.10	100.60	93.10	78.31
C	C L/S is damp and sticky, increasing damper to position VII (wide open) in order achieve the high removal gas flow rate														
15:51	895.00	209.20	14.42	14.84	0.10	11.28	1753.02	210.30	113.60	94.20	107.0	104.40	100.90	93.00	76.63
15:52	898.00	209.20	14.37	14.82	0.10	11.26	1751.06	208.80	111.00	94.10	105.5	103.30	99.00	92.90	76.70
10 MinAvg	884.80	168.43	14.47	14.87	0.10	11.06	1763.33	208.87	112.92	94.38	107.4	105.53	102.25	93.87	80.98
15:53	895.00	192.40	14.40	14.82	0.10	11.75	1830.48	208.20	112.20	93.60	105.5	103.90	99.50	93.80	78.50
15:54	893.00	199.60	14.38	14.84	0.11	12.08	1866.67	203.30	112.90	94.00	107.6	103.10	99.10	92.90	77.65
15:55	879.00	214.30	14.48	14.92	0.12	12.41	1916.95	209.10	113.20	93.70	105.8	102.10	97.80	93.20	75.62
C	C Changing overhead sprays to 0.5 gpm, stone is wet and <u>very sticky</u> . The recycle chute is clogged so the bed speed is reduced to 5 DT and returned to 20 DT by 15:58														
15:56	866.00	211.40	14.55	15.04	0.12	12.55	1929.07	206.00	110.60	94.80	105.6	101.40	99.00	93.40	75.59
15:57	866.00	211.70	14.58	15.09	0.12	12.44	1912.65	206.10	110.00	94.90	106.9	102.80	98.50	93.00	75.55

E-93

Starting
06-27-91

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
C	C 5 more gallons of water from the mist eliminator is collected														
15:58	847.00	210.20	14.68	15.20	0.12	12.46	1944.36	216.60	110.50	96.10	105.9	102.10	98.80	93.30	75.18
15:59	847.00	208.40	14.67	15.22	0.12	12.37	1948.60	213.80	111.90	94.10	105.8	101.00	97.30	93.00	75.40
16:00	846.00	210.40	14.67	15.21	0.12	12.44	1950.01	209.10	110.40	95.40	105.7	101.70	98.50	93.00	75.13
16:01	846.00	211.20	14.69	15.22	0.12	12.43	1962.06	217.40	111.00	95.20	105.4	101.10	97.30	93.00	75.04
16:02	844.00	213.80	14.71	15.25	0.12	12.52	1961.32	205.70	110.90	94.30	103.4	100.90	96.50	93.10	74.67
10 MinAvg	862.90	208.34	14.58	15.08	0.12	12.34	1922.22	209.53	111.36	94.61	105.8	102.01	98.23	93.17	75.83
16:03	832.00	214.70	14.80	15.32	0.12	12.54	1968.54	216.20	110.50	95.50	103.1	100.60	98.00	92.90	74.19
16:04	833.00	211.90	14.79	15.34	0.12	12.47	1965.63	214.20	111.10	96.10	102.3	100.10	97.40	92.80	74.56
16:05	836.00	212.10	14.78	15.34	0.12	12.49	1963.08	218.10	114.00	96.40	100.7	100.40	97.10	92.80	74.63
16:06	828.00	218.00	14.85	15.35	0.12	12.57	1975.52	221.00	111.10	94.50	100.0	100.10	94.80	92.90	73.67
16:07	832.00	222.80	14.77	15.34	0.12	12.59	1974.21	220.10	111.20	96.80	101.9	100.80	98.10	92.50	73.22
16:08	840.00	229.50	14.77	15.28	0.12	12.67	2003.44	223.30	111.90	96.50	102.3	101.00	100.00	92.50	72.68
16:09	838.00	228.60	14.79	15.31	0.12	12.71	2009.80	222.10	111.60	96.70	100.3	99.80	96.90	92.70	72.72
16:10	850.00	228.80	14.66	15.24	0.13	12.82	2018.18	222.30	110.70	97.40	98.7	99.40	96.00	92.50	73.08
16:11	862.00	232.20	14.61	15.19	0.13	13.05	2050.52	222.50	109.70	97.40	99.3	100.00	98.80	92.40	73.06
16:12	869.00	234.70	14.59	15.18	0.13	13.12	2066.35	222.50	109.20	97.80	99.6	99.70	98.50	92.30	72.99
10 MinAvg	842.00	223.33	14.74	15.29	0.12	12.70	1999.53	220.23	111.10	96.51	100.8	100.19	97.56	92.63	73.48
16:13	859.00	238.10	14.63	15.21	0.13	13.16	2073.77	222.20	111.20	98.20	99.1	99.20	97.90	92.30	72.28
16:14	851.00	237.50	14.69	15.22	0.13	13.17	2081.15	221.90	110.40	98.80	101.1	99.70	98.40	92.40	72.09
16:15	845.00	243.20	14.70	15.17	0.14	13.21	2105.57	222.60	111.60	99.10	100.8	100.00	100.00	92.50	71.22
16:16	837.00	243.30	14.76	15.22	0.14	13.24	2119.75	221.80	111.60	99.60	100.3	100.20	100.60	92.20	70.93
16:17	837.00	239.70	14.76	15.21	0.14	13.26	2133.18	220.60	111.90	101.10	99.9	99.70	99.00	92.10	71.36
16:18	833.00	244.00	14.78	15.19	0.14	13.27	2136.31	222.60	109.70	99.30	99.4	100.10	100.70	92.00	70.71
16:19	832.00	248.90	14.83	15.17	0.14	13.26	2141.10	220.80	109.80	99.10	100.3	99.80	101.10	92.50	70.08
16:20	833.00	247.50	14.84	15.19	0.14	13.28	2149.47	221.30	112.40	97.90	99.4	100.00	99.00	92.00	70.29
16:21	823.00	246.10	14.87	15.19	0.14	13.31	2156.23	220.80	113.90	98.60	99.5	99.10	101.10	91.90	70.10
16:22	822.00	243.30	14.86	15.22	0.14	13.31	2155.44	220.30	113.20	100.60	101.0	100.20	102.80	92.00	70.40
10 MinAvg	837.20	243.16	14.77	15.20	0.14	13.25	2125.20	221.49	111.57	99.23	100.1	99.80	100.06	92.19	70.95

Run is terminated due to the clogging of the small bucket elevator discharge chute, the stone is very wet.

Post-run Bed inspection: No bridging, but there could be water channelling to the heating plant side of the reactor, will readjust the bed sprays. The first layer of finer hardware cloth is trapping the lime-like substance, next time reverse the screens, but it is holding-up quite well.

Run Summary: **LEC Run 910628A**

Objective: To recreate the 99% removal efficiency conditions of LEC Run 910627A.

Total Run Time: 190 minutes (14:46 to 18:52).

SO₂ Removal: 99% to 66% (77% average).

Inlet Gas Rate: 2170 acfm (average).

Bed ΔP: 11 in H₂O (average).

Operational Conditions:

Fresh No.9 limestone.

Damper Setting: Position II.

Three layer outlet screen composed of two hardware cloth screens covering one aluminum screen.

In-duct Steam = 14 psig.

Overhead Sprays = 0.50 gpm from 14:46 to 16:00.

0.75 gpm from 16:01 to 17:10.

0.50 gpm from 17:01 to 17:30.

0.25 gpm from 17:31 to 18:15.

0.00 gpm from 18:16 to 18:52.

Louver Sprays = Not Installed.

Bed Speed = 20 DT (3995 lb/hr).

Regeneration Device: Single deck vibrating screen equipped with a No.30 mesh screen.

Stone Carry-Over: 0 lbs/min.

Waste fines: Not Available.

Comments: - The reactor screws became immobile at 15:04 and were restarted at 16:00.
 - At 17:55 the stone was dry enough to initiate the regeneration loop.

Starting
06-28-91

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
C Objective: to recreate the 100 efficiency conditions of 910627A															
C Inlet gas rate set at approx. 2000 acfm															
C 0.5 gpm from the overhead sprays, inlet duct steam on full (14 psig), initially damp fresh limestone and the damper is in position II.															
C															
14:46	424.80	0.56	15.96	15.54	0.51	7.95	3877.21	154.80	87.20	74.60	73.5	78.10	79.40	81.30	99.87
14:47	716.00	0.35	14.94	14.57	0.44	7.45	3679.37	187.20	87.30	73.20	72.4	74.00	72.40	79.50	99.95
14:48	758.00	0.46	14.71	14.54	0.35	6.86	3327.43	206.20	87.40	80.20	72.7	82.30	74.30	85.90	99.94
14:49	765.00	0.46	14.65	14.54	0.32	6.80	3228.18	213.50	87.50	87.70	80.4	87.40	87.30	87.40	99.94
14:50	774.00	0.43	14.55	14.53	0.31	6.74	3174.65	216.40	88.40	88.80	87.5	88.10	87.50	88.00	99.94
14:51	778.00	0.61	14.54	14.55	0.31	6.69	3143.71	218.50	111.60	91.80	91.5	95.20	100.40	88.00	99.92
14:52	773.00	0.32	14.60	14.62	0.30	6.66	3139.01	218.70	115.40	94.30	105.4	102.80	107.60	88.40	99.96
14:53	764.00	0.57	14.62	14.62	0.30	6.62	3133.61	218.60	116.40	96.50	108.8	105.70	109.10	88.80	99.93
14:54	762.00	0.68	14.64	14.66	0.30	6.60	3138.78	218.60	116.80	98.30	110.2	106.30	109.00	89.70	99.91
14:55	768.00	0.63	14.71	14.65	0.30	6.61	3138.78	218.60	116.90	98.80	110.5	108.50	108.90	91.30	99.92
10 MinAvg	728.28	0.51	14.79	14.68	0.35	6.90	3298.07	207.11	102.49	88.42	91.3	92.84	93.59	86.83	99.93
C															
14:56	761.00	0.42	14.80	14.67	0.31	6.61	3144.17	218.70	117.00	100.00	113.2	109.80	108.80	90.80	99.95
14:57	770.00	0.52	14.73	14.66	0.31	6.60	3144.17	218.70	117.00	98.80	115.8	108.60	109.50	91.80	99.93
14:58	766.00	0.52	14.75	14.67	0.30	6.63	3139.24	218.80	117.00	98.60	115.8	107.50	110.00	91.70	99.93
14:59	766.00	0.65	14.75	14.67	0.30	6.66	3123.71	218.80	117.10	102.60	116.0	108.00	110.30	91.90	99.91
15:00	758.00	0.42	14.91	14.70	0.30	6.68	3123.71	218.80	117.10	104.20	115.6	109.20	110.50	92.80	99.94
15:01	752.00	0.40	14.94	14.71	0.30	6.69	3118.29	218.70	117.00	107.00	116.2	111.30	109.40	95.10	99.95
15:02	747.00	0.29	14.97	14.72	0.30	6.70	3107.88	218.70	116.90	107.90	116.8	111.50	109.60	95.30	99.96
15:03	741.00	0.74	14.98	14.70	0.31	6.60	3149.78	218.90	117.00	105.80	117.0	110.10	113.20	96.30	99.90
15:04	743.00	3.80	15.05	14.66	0.31	6.49	3185.84	219.00	117.00	108.50	116.9	111.30	115.30	96.80	99.49
C															
C Reactor screws are jammed. The fan and all conveyors are stopped.															
C															
C The reactor screws are cleared and the run is resumed with the overhead sprays increased to 0.75 gpm in order to simulate Run 910627A's 100% removal. The stone															
C is very wet (pre-soup phase) due to the water that was added to the reactor in order to unjam the screws. Will attempt to keep the dP _m at 0.15 in. H2O.															
C															
16:01	188.30	0.63	18.46	18.71	0.25	5.86	2716.38	150.70	89.10	82.90	81.9	87.10	88.40	86.00	99.67
16:02	730.00	0.60	15.02	14.72	0.31	7.81	3157.41	202.70	89.10	80.80	79.6	87.70	87.10	81.20	99.92
16:03	760.00	0.38	15.03	14.77	0.23	6.71	2698.27	211.60	89.20	88.80	89.2	89.20	89.20	88.60	99.95
16:04	827.00	0.50	14.59	14.85	0.15	5.66	2235.82	219.70	89.90	89.30	89.3	89.30	89.30	89.30	99.94
16:05	842.00	0.49	14.61	14.80	0.15	5.85	2192.96	220.40	93.60	89.30	90.9	89.30	89.30	89.20	99.94
10 MinAvg	335.11	0.50	18.29	18.31	0.09	3.32	2600.17	174.29	89.63	87.55	87.5	88.63	88.75	87.90	68.88
C															
16:06	842.00	0.49	14.60	14.79	0.14	6.00	2148.04	220.40	100.40	89.30	90.2	89.60	89.30	89.20	99.94
16:07	834.00	0.40	14.66	14.80	0.14	6.11	2109.73	220.30	104.10	90.10	91.6	89.50	89.30	89.30	99.95
16:08	827.00	0.61	14.63	14.84	0.13	6.24	2078.71	220.30	108.00	91.00	97.4	91.00	89.50	89.20	99.93
16:09	830.00	1.28	14.54	14.82	0.13	6.48	2086.51	220.30	110.80	92.60	99.6	92.10	90.10	89.30	99.85
16:10	831.00	7.08	14.55	14.78	0.15	7.12	2229.86	220.50	113.70	94.60	100.1	94.60	90.30	89.40	99.15
16:11	833.00	15.80	14.50	14.75	0.14	7.08	2171.25	220.80	115.70	93.90	98.8	93.70	91.00	89.70	98.10
16:12	828.00	22.95	14.57	14.70	0.14	7.11	2148.68	220.80	113.40	97.50	104.1	98.70	90.10	89.70	97.23
16:13	830.00	30.37	14.49	14.65	0.14	7.12	2118.20	220.80	113.00	97.00	105.3	99.10	90.10	89.70	96.34
16:14	827.00	37.27	14.49	14.66	0.13	7.16	2071.64	220.80	113.60	95.90	107.5	101.20	91.60	89.70	95.49
16:15	841.00	44.61	14.32	14.54	0.13	7.21	2032.02	220.80	111.10	97.90	105.7	101.30	93.50	89.80	94.70
10 MinAvg	832.30	16.09	14.54	14.73	0.14	6.76	2119.46	220.58	110.38	93.98	100.0	95.08	90.48	89.50	98.07
C															
C The limestone is still very wet															
C															
16:16	848.00	57.88	14.28	14.48	0.14	7.75	2110.66	220.90	112.40	99.20	107.5	101.20	93.90	89.90	93.17

Starting
06-28-91

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
16:18	873.00	87.90	14.08	14.46	0.14	8.00	2095.82	221.30	113.20	99.50	108.5	100.30	92.70	90.30	89.93
16:19	869.00	98.80	14.06	14.51	0.13	8.08	2081.15	221.90	109.30	100.20	108.4	101.90	93.90	90.60	88.63
16:20	879.00	111.80	13.96	14.39	0.13	8.26	2081.00	221.80	111.50	100.60	108.9	101.80	94.20	90.80	87.28
16:21	890.00	131.20	13.84	14.24	0.14	8.68	2143.30	222.20	111.00	100.10	108.3	102.40	94.20	91.00	85.26
16:22	900.00	148.60	13.78	14.24	0.14	8.67	2113.14	222.50	111.90	102.00	107.4	101.40	96.60	91.20	83.49
C C Resetting the O2 monitors with zero gas															
16:23	899.00	156.50	13.81	15.07	0.14	8.79	2116.24	224.50	110.10	101.50	106.9	101.60	93.80	91.30	82.59
16:24	220.40	14.18	19.95	20.90	0.14	8.79	2099.96	224.00	112.90	100.50	108.2	99.50	93.80	91.30	93.57
16:25	598.00	60.83	15.32	16.45	0.13	8.76	2082.06	222.50	110.90	99.00	108.4	98.60	92.00	91.20	89.83
10 MinAvg	783.74	93.98	14.73	15.32	0.14	8.37	2103.43	222.27	111.32	100.05	107.9	100.80	93.76	90.76	88.54
C C Zero gas is removed from the sampling system															
16:26	889.00	185.10	13.99	14.33	0.13	8.66	2046.14	224.90	111.60	100.90	109.3	98.90	91.40	91.30	79.18
16:27	901.00	204.70	13.95	14.30	0.13	8.69	2030.09	224.90	112.50	99.80	109.1	98.40	91.30	91.30	77.28
16:28	906.00	217.60	13.92	14.24	0.13	8.83	2037.09	224.20	110.20	100.60	107.9	99.90	91.40	91.30	75.98
16:29	885.00	225.30	14.08	14.26	0.14	9.51	2153.72	224.00	113.70	98.90	109.8	99.00	91.30	91.30	74.54
16:30	875.00	232.00	14.14	14.29	0.14	9.68	2166.45	222.50	112.90	99.40	108.8	98.80	91.40	91.40	73.49
C C The limestone is slowly drying out, it is free of excess moisture															
16:31	863.00	239.00	14.24	14.31	0.14	9.68	2144.40	222.90	110.10	98.90	106.6	99.50	91.50	91.80	72.31
16:32	845.00	242.20	14.37	14.37	0.14	9.74	2128.67	222.60	111.60	100.00	108.0	98.70	91.30	91.90	71.34
16:33	834.00	245.60	14.43	14.39	0.14	9.80	2120.68	222.40	113.10	99.00	108.1	97.90	91.40	91.90	70.55
16:34	833.00	253.30	14.43	14.41	0.13	9.85	2090.03	222.60	110.60	99.30	107.0	98.50	91.90	93.10	69.59
16:35	830.00	255.60	14.51	14.44	0.13	9.96	2090.03	222.60	112.90	99.20	106.3	99.40	92.10	93.00	69.20
10 MinAvg	866.10	230.04	14.21	14.33	0.14	9.44	2100.73	223.36	111.92	99.60	108.1	98.90	91.50	91.83	73.35
16:36	820.00	261.40	14.60	14.42	0.14	10.42	2166.61	222.60	111.40	100.10	107.0	99.10	92.00	93.30	58.12
16:37	815.00	263.10	14.66	14.43	0.14	10.54	2166.93	222.80	113.20	98.00	107.6	98.40	92.50	92.40	67.72
16:38	776.00	262.00	14.64	14.50	0.14	10.55	2159.71	223.00	112.00	97.60	107.1	101.50	92.40	92.20	66.24
16:39	806.00	248.10	14.66	14.54	0.14	10.55	2152.30	223.10	114.10	99.00	107.0	100.60	93.80	92.10	69.22
16:40	813.00	259.10	14.59	14.43	0.14	10.67	2160.34	223.40	112.90	100.20	107.4	98.70	95.20	92.40	68.13
16:41	808.00	242.40	14.62	14.49	0.15	10.75	2183.20	223.60	114.90	99.40	105.7	100.00	95.40	92.50	70.00
16:42	810.00	242.80	14.59	14.47	0.14	10.70	2168.36	223.70	113.60	97.30	107.7	101.60	95.70	92.60	70.02
16:43	808.00	232.50	14.55	14.48	0.14	10.70	2168.52	223.80	111.10	96.90	105.7	101.50	95.30	92.80	71.23
16:44	817.00	246.60	14.49	14.37	0.14	10.72	2176.19	223.90	110.60	98.20	105.5	100.50	95.40	92.90	69.82
16:45	832.00	245.20	14.41	14.34	0.14	10.71	2168.99	224.10	111.20	97.00	105.2	100.50	96.30	93.10	70.53
10 MinAvg	810.50	250.32	14.58	14.45	0.14	10.63	2167.12	223.40	112.50	98.37	106.6	100.24	94.40	92.63	69.10
C C The limestone is still drying out, it should be able to go to the vibrating screen soon.															
16:46	842.00	227.20	14.30	14.32	0.14	10.74	2176.83	224.30	109.70	97.40	104.8	99.50	95.40	93.90	73.02
16:47	840.00	223.90	14.30	14.32	0.14	10.77	2169.63	224.50	111.30	97.50	102.2	99.00	94.10	93.50	73.35
16:48	853.00	234.80	14.16	14.21	0.14	10.79	2154.82	224.70	110.00	96.70	102.2	98.40	94.90	93.70	72.47
16:49	858.00	231.40	14.15	14.21	0.14	10.81	2147.53	224.90	108.90	96.70	103.2	99.60	94.40	93.90	73.03
16:50	861.00	219.90	14.11	14.22	0.14	10.89	2162.87	225.00	110.40	97.30	104.4	100.80	94.60	94.10	74.46
16:51	861.00	224.10	14.12	14.15	0.14	10.82	2140.22	225.10	109.60	98.90	103.8	101.00	95.50	94.10	73.97
16:52	860.00	229.80	14.11	14.14	0.14	10.80	2140.37	225.20	110.40	97.60	103.3	101.60	95.30	94.20	73.28
16:53	863.00	229.60	14.13	14.11	0.14	10.77	2132.87	225.30	111.70	96.70	103.6	101.30	95.70	94.30	73.40
16:54	860.00	236.00	14.15	14.11	0.14	10.83	2132.87	225.30	110.50	97.30	105.3	102.10	96.70	94.50	72.56

Starting
06-28-91

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
16:55	865.00	241.20	14.13	14.13	0.14	10.87	2125.34	225.40	111.00	99.00	106.1	102.40	96.70	94.50	72.12
10 MinAvg	856.30	229.79	14.17	14.19	0.14	10.81	2148.34	224.97	110.35	97.51	103.9	100.57	95.33	94.07	73.16
16:56	869.00	245.40	14.12	14.07	0.14	10.91	2102.57	225.70	111.50	98.70	106.8	102.90	97.60	94.60	71.76
16:57	870.00	239.00	14.09	14.12	0.13	10.94	2094.62	225.60	110.60	98.80	106.8	102.00	97.50	94.70	72.53
16:58	875.00	238.50	14.07	14.12	0.13	10.98	2071.19	225.70	109.80	97.80	107.2	103.20	97.40	94.70	72.74
16:59	873.00	236.60	14.08	14.16	0.13	11.01	2055.47	225.80	109.80	97.30	105.6	102.80	95.70	94.90	72.90
17:00	868.00	239.20	14.13	14.17	0.13	11.01	2047.93	226.10	110.00	97.20	105.3	102.10	96.50	95.10	72.44
C The limestone is still damp															
17:01	852.00	235.30	14.16	14.21	0.13	11.10	2051.21	228.30	109.80	98.60	106.0	103.90	96.30	95.20	72.38
17:02	865.00	231.40	14.13	14.24	0.14	11.62	2126.74	226.30	110.00	98.00	106.0	104.30	96.20	95.70	73.25
17:03	862.00	227.50	14.18	14.24	0.15	12.15	2217.28	226.30	109.90	96.80	106.8	104.90	95.90	95.60	73.61
17:04	858.00	218.90	14.16	14.26	0.15	12.13	2224.98	226.50	109.70	98.40	105.8	105.30	95.60	95.60	74.49
17:05	855.00	212.70	14.21	14.29	0.15	12.13	2232.33	226.50	110.30	97.80	106.0	104.30	96.10	95.80	75.12
10 MinAvg	864.70	232.45	14.13	14.19	0.14	11.40	2122.43	226.28	110.14	97.94	106.2	103.57	96.48	95.19	73.12
17:06	860.00	213.40	14.18	14.26	0.15	12.15	2217.76	226.60	110.20	98.50	106.2	104.30	96.00	96.40	75.19
17:07	855.00	214.00	14.24	14.26	0.15	12.22	2232.82	226.80	110.10	97.50	105.9	103.90	95.90	96.30	74.97
17:08	853.00	211.60	14.25	14.23	0.15	12.28	2232.82	226.80	110.20	97.60	106.6	104.20	96.00	96.70	75.19
17:09	862.00	214.50	14.22	14.17	0.15	12.26	2218.24	226.90	110.40	98.10	105.0	103.50	96.10	96.40	75.12
17:10	861.00	213.20	14.27	14.19	0.15	12.26	2218.41	227.00	110.10	99.20	108.0	105.00	96.50	97.70	75.24
C Turning the overhead sprays down to 0.5 gpm since the stone is still too damp															
17:11	853.00	213.80	14.30	14.16	0.15	12.29	2211.16	227.10	110.80	98.20	106.6	105.10	96.40	96.60	74.94
17:12	849.00	210.40	14.32	14.23	0.15	12.31	2203.89	227.20	110.90	99.30	106.8	104.50	96.40	96.50	75.22
17:13	858.00	213.80	14.23	14.13	0.15	12.33	2188.95	227.20	110.60	98.50	106.7	104.70	96.30	96.30	75.08
17:14	857.00	217.50	14.25	14.16	0.14	12.35	2174.06	227.30	109.80	98.50	106.0	103.80	96.30	96.50	74.62
17:15	863.00	225.30	14.19	14.11	0.14	12.38	2181.60	227.30	110.00	98.20	108.6	104.30	96.30	96.60	73.89
10 MinAvg	857.10	214.75	14.25	14.19	0.15	12.28	2207.97	227.02	110.31	98.36	106.6	104.33	96.22	96.60	74.95
C I'd swear this limestone is getting wetter!															
17:16	876.00	229.10	14.07	14.04	0.14	12.40	2166.81	227.50	110.30	98.10	107.3	104.10	96.50	97.00	73.85
17:17	883.00	230.00	14.03	14.02	0.14	12.41	2159.07	227.40	109.50	98.20	106.9	103.60	96.60	97.20	73.95
17:18	896.00	233.50	13.94	13.97	0.14	12.43	2143.96	227.50	110.20	97.70	105.9	102.70	96.60	96.80	73.94
17:19	905.00	236.00	13.88	13.93	0.14	12.49	2151.61	227.50	109.80	97.60	104.5	104.10	96.60	96.70	73.92
17:20	923.00	242.00	13.77	13.86	0.14	12.59	2159.07	227.40	109.90	97.90	105.1	102.80	96.50	96.90	73.78
17:21	924.00	245.40	13.76	13.89	0.14	12.60	2151.45	227.40	110.00	97.60	105.2	103.50	96.70	96.80	73.44
17:22	918.00	248.60	13.83	13.92	0.14	12.62	2151.45	227.40	110.40	98.90	106.7	103.50	97.30	97.90	72.92
17:23	907.00	246.00	13.86	13.93	0.14	12.75	2172.64	226.40	110.10	98.10	106.2	103.60	97.40	98.20	72.88
17:24	904.00	234.20	13.94	13.99	0.14	12.81	2174.06	227.30	110.00	99.30	105.2	103.40	97.70	99.30	74.09
17:25	896.00	238.70	13.97	14.00	0.14	12.82	2166.50	227.30	109.90	99.40	104.7	103.30	97.10	98.40	73.36
10 MinAvg	903.20	238.35	13.91	13.95	0.14	12.59	2159.66	227.31	110.01	98.28	105.8	103.46	96.90	97.52	73.61
17:26	885.00	256.60	14.08	13.99	0.14	12.85	2158.75	227.20	110.40	99.80	103.8	103.10	97.00	98.00	71.01
17:27	877.00	261.80	14.16	14.02	0.14	12.87	2150.98	227.10	110.20	99.50	104.4	102.50	97.60	98.30	70.15
17:28	877.00	259.50	14.13	14.00	0.14	13.00	2158.44	227.00	110.80	99.50	105.8	103.60	99.00	100.70	70.41
17:29	866.00	239.00	14.26	14.15	0.14	13.04	2157.97	226.70	110.70	97.20	103.2	102.70	98.10	100.40	72.40
17:30	862.00	233.70	14.30	14.18	0.14	13.04	2150.51	226.80	110.60	98.20	105.7	103.00	100.10	102.80	72.89

Starting
06-28-91

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
C C The limestone still is not drying out, going to 0.25 gpm on the overhead sprays.															
17:31	857.00	251.00	14.37	14.14	0.14	13.05	2142.72	226.70	110.80	101.20	104.5	103.50	100.40	103.60	70.71
17:32	862.00	263.70	14.36	14.10	0.14	13.06	2119.94	226.90	110.80	100.90	106.3	102.50	100.50	105.50	69.41
17:33	855.00	260.60	14.39	14.10	0.13	13.09	2096.60	226.90	110.70	100.60	105.2	102.90	101.00	103.90	69.52
17:34	851.00	259.50	14.43	14.14	0.13	13.11	2080.90	226.90	111.10	100.30	104.4	102.80	101.90	102.70	69.51
17:35	845.00	265.90	14.46	14.16	0.13	13.13	2064.77	226.70	110.90	101.10	105.8	102.60	102.30	103.60	68.53
10 MinAvg	863.70	255.13	14.29	14.10	0.14	13.02	2128.16	226.89	110.70	99.83	104.9	102.92	99.79	101.95	70.45
17:36	838.00	253.50	14.51	14.24	0.13	13.18	2048.83	226.70	110.70	98.50	106.7	103.30	103.40	104.00	69.75
17:37	835.00	242.30	14.51	14.27	0.13	13.22	2024.68	226.70	111.00	97.00	106.0	102.00	101.30	102.40	70.98
17:38	839.00	240.50	14.48	14.25	0.13	13.26	2024.38	226.50	111.20	96.70	106.7	102.20	102.10	101.80	71.33
17:39	838.00	243.80	14.53	14.30	0.12	13.29	2007.24	225.90	110.90	96.40	106.7	103.20	102.50	103.20	70.91
17:40	842.00	251.10	14.50	14.26	0.12	13.31	2007.54	226.10	111.50	95.90	106.6	103.50	101.80	101.40	70.18
17:41	840.00	253.10	14.56	14.26	0.12	13.37	2007.54	226.10	111.50	95.90	107.9	103.70	103.00	104.30	69.87
17:42	847.00	260.00	14.50	14.21	0.12	13.38	2007.68	226.20	112.50	96.80	107.3	103.90	102.80	104.70	69.30
17:43	859.00	261.10	14.42	14.18	0.12	13.40	2007.39	226.00	114.40	96.40	106.7	104.00	100.70	106.60	69.60
17:44	855.00	265.50	14.44	14.17	0.12	13.38	2015.39	225.90	117.10	97.00	108.2	108.20	103.50	105.60	68.95
17:45	851.00	268.40	14.45	14.13	0.13	13.38	2023.50	225.90	120.00	97.90	108.9	118.10	104.50	104.80	68.46
10 MinAvg	844.40	253.93	14.49	14.23	0.12	13.32	2017.42	226.20	113.08	96.85	107.2	105.21	102.56	103.88	69.93
17:46	863.00	272.60	14.35	14.07	0.12	13.36	2015.24	225.80	122.10	98.20	109.0	124.20	104.60	106.80	68.41
17:47	863.00	290.50	14.31	14.01	0.12	13.34	1998.78	225.70	123.90	98.70	108.6	124.10	106.80	106.50	66.34
17:48	869.00	293.00	14.28	14.03	0.12	13.35	1998.78	225.70	124.10	97.30	108.7	124.10	105.40	106.00	66.28
17:49	855.00	284.80	14.39	14.10	0.12	13.30	1998.78	225.70	124.00	96.70	106.6	124.00	105.90	103.80	66.69
17:50	861.00	287.10	14.36	14.12	0.12	13.30	1990.42	225.60	124.00	98.20	108.0	124.00	106.90	104.60	66.66
17:51	863.00	288.20	14.35	14.15	0.12	13.27	1973.90	225.60	124.00	97.70	108.1	124.00	108.70	105.90	66.60
17:52	860.00	287.90	14.36	14.20	0.12	13.28	1973.62	225.40	123.80	97.80	107.8	123.80	108.20	105.60	66.52
17:53	861.00	286.20	14.33	14.17	0.12	13.27	1973.62	225.40	123.80	98.90	108.1	123.90	109.30	106.00	66.76
17:54	857.00	286.40	14.39	14.18	0.12	13.27	1973.47	225.30	123.70	98.60	107.2	123.70	108.70	104.50	66.58
17:55	858.00	280.10	14.36	14.22	0.12	13.25	1981.75	225.30	123.70	98.80	108.0	123.80	108.70	105.90	67.35
10 MinAvg	861.00	285.68	14.35	14.13	0.12	13.30	1987.83	225.55	123.71	98.09	108.0	123.96	107.32	105.56	66.82
C C The limestone is now considered dry enough to start the screen.															
17:56	862.00	279.00	14.36	14.20	0.12	13.24	1981.75	225.30	123.70	100.00	108.9	123.70	109.30	106.00	67.63
17:57	856.00	279.20	14.39	14.21	0.12	13.23	1981.60	225.20	123.60	98.40	107.2	123.60	109.30	104.80	67.38
17:58	858.00	275.10	14.38	14.22	0.12	13.23	1989.84	225.20	123.60	99.80	108.4	123.60	109.30	106.80	67.94
17:59	864.00	276.60	14.36	14.20	0.12	13.23	1989.70	225.10	123.50	99.80	108.4	123.50	109.20	107.10	67.99
18:00	861.00	280.80	14.35	14.23	0.12	13.20	2006.51	225.40	123.40	100.00	108.3	124.20	109.20	107.30	67.39
18:01	864.00	283.30	14.34	14.21	0.12	13.22	2005.93	225.00	123.30	100.80	108.5	125.50	109.10	107.40	67.21
18:02	870.00	282.50	14.27	14.19	0.12	13.19	2014.21	225.10	123.20	100.30	108.1	123.80	108.90	106.70	67.53
18:03	866.00	280.20	14.30	14.18	0.12	13.20	2006.37	225.30	123.10	100.40	108.6	125.80	109.40	106.30	67.64
18:04	863.00	279.70	14.35	14.24	0.12	13.19	2006.80	225.60	123.00	100.70	108.5	129.70	109.10	107.10	67.59
18:05	860.00	277.00	14.40	14.26	0.12	13.18	2006.07	225.10	123.00	100.20	108.6	132.30	109.20	106.80	67.79
10 MinAvg	862.40	279.34	14.35	14.21	0.12	13.21	1998.88	225.23	123.34	100.04	108.3	125.57	109.20	106.63	67.61
18:06	862.00	272.80	14.40	14.29	0.12	13.16	1997.61	224.90	122.90	100.00	108.4	133.50	109.60	106.00	68.35
18:07	860.00	271.50	14.45	14.31	0.12	13.17	1997.61	224.90	122.80	100.00	108.7	132.20	109.20	106.10	68.43
18:08	851.00	269.10	14.50	14.32	0.12	13.18	1988.53	224.30	122.70	99.50	107.8	132.40	109.20	104.40	68.38
18:09	848.00	265.50	14.49	14.35	0.12	13.19	1988.68	224.40	122.70	99.20	108.2	135.10	108.30	105.00	68.69
18:10	851.00	260.70	14.44	14.34	0.12	13.18	1980.59	224.50	122.70	100.80	108.1	132.90	108.30	105.00	69.37

Starting
06-28-91

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
18:11	862.00	262.70	14.41	14.31	0.12	13.19	1980.01	224.10	122.50	101.50	108.0	135.50	108.60	105.40	69.52
18:12	875.00	265.00	14.33	14.24	0.12	13.20	1971.74	224.10	122.60	101.90	108.1	138.50	107.50	105.70	69.71
18:13	876.00	261.90	14.33	14.25	0.12	13.21	1971.60	224.00	122.50	104.20	108.4	137.80	108.40	105.10	70.10
18:14	876.00	262.40	14.30	14.23	0.12	13.20	1971.60	224.00	122.70	106.70	107.7	136.80	108.00	106.70	70.05
18:15	887.00	264.20	14.23	14.21	0.12	13.20	1971.45	223.90	122.30	109.10	107.5	140.60	107.60	105.20	70.21
10 MinAvg	864.80	265.58	14.39	14.29	0.12	13.19	1981.94	224.31	122.64	102.29	108.1	135.53	108.47	105.56	69.28

C

C The stone is damp again, so the screen is rendered ineffective. Setting the overhead sprays to zero.

C

18:16	882.00	262.50	14.30	14.26	0.12	13.19	1971.45	223.90	122.40	112.70	108.1	140.30	107.90	105.40	70.24
18:17	889.00	266.30	14.19	14.21	0.12	13.18	1955.39	224.30	123.30	113.40	108.1	142.00	108.10	106.00	70.04
18:18	890.00	260.70	14.14	14.18	0.12	13.19	1963.44	224.10	123.10	112.80	108.2	141.00	108.60	104.50	70.71
18:19	888.00	260.90	14.16	14.15	0.12	13.19	1954.96	224.00	122.70	113.10	107.9	143.00	108.30	105.20	70.62
18:20	891.00	260.70	14.12	14.16	0.12	13.19	1954.96	224.00	122.90	112.70	108.1	144.80	108.10	105.60	70.74
18:21	884.00	258.90	14.19	14.24	0.12	13.22	1946.59	224.00	123.50	114.20	107.9	147.70	107.80	105.90	70.71
18:22	882.00	260.70	14.17	14.17	0.12	13.22	1946.45	223.90	123.90	112.90	108.4	146.50	108.20	105.10	70.44
18:23	896.00	265.10	14.10	14.13	0.11	13.22	1929.45	223.80	123.50	112.10	109.0	148.30	108.40	104.40	70.41
18:24	887.00	263.50	14.18	14.18	0.11	13.22	1920.97	223.80	123.10	113.80	108.2	149.20	108.40	103.90	70.29
18:25	875.00	262.10	14.24	14.24	0.11	13.22	1920.97	223.80	123.70	113.00	107.3	148.70	107.60	103.50	70.05
10 MinAvg	886.40	262.14	14.18	14.19	0.12	13.20	1946.46	223.96	123.21	113.07	108.1	145.15	108.14	104.95	70.43

C

C The limestone is damp.

C

18:30	880.00	265.10	14.22	14.24	0.11	13.22	1895.02	223.60	126.60	114.40	108.6	147.40	108.10	106.40	69.88
18:31	874.00	267.00	14.27	14.24	0.11	13.23	1877.85	223.70	127.10	113.70	110.2	147.20	109.40	107.40	69.45
18:32	871.00	264.00	14.26	14.23	0.11	13.23	1869.55	224.00	126.10	114.20	110.2	148.60	109.40	107.10	69.69
18:33	868.00	261.40	14.28	14.26	0.11	13.23	1869.69	224.10	125.80	114.30	111.2	149.10	110.90	107.20	69.88
18:34	852.00	256.30	14.33	14.29	0.10	13.21	1852.13	224.10	125.90	113.70	108.8	149.70	108.10	107.70	69.92
18:35	838.00	253.80	14.46	14.39	0.10	13.24	1852.13	224.10	129.30	113.30	108.3	150.00	108.00	107.60	69.71
10 MinAvg	872.30	262.68	14.26	14.25	0.11	13.23	1884.82	223.82	125.85	113.71	109.0	148.99	108.52	106.41	69.88

C

C The limestone is damp.

C

18:36	833.00	251.40	14.52	14.42	0.10	13.24	1843.29	224.10	129.30	113.70	109.7	150.50	108.20	107.20	69.82
18:37	822.00	249.60	14.59	14.47	0.10	13.22	1843.15	224.00	128.30	114.80	110.7	151.20	108.00	106.50	69.64
18:38	819.00	248.80	14.64	14.46	0.10	13.23	1851.99	224.00	129.80	115.10	113.6	151.00	110.50	107.50	69.62
18:39	805.00	249.10	14.77	14.53	0.10	13.24	1843.15	224.00	129.50	114.80	116.8	151.10	109.90	106.00	69.06
18:40	799.00	245.50	14.78	14.57	0.10	13.22	1843.02	223.90	130.30	114.70	121.3	150.70	107.60	106.30	69.27
18:41	796.00	243.60	14.84	14.62	0.10	13.25	1843.02	223.90	131.70	114.60	122.2	149.40	108.90	106.30	69.40
18:42	791.00	242.10	14.85	14.65	0.10	13.23	1843.02	223.90	130.70	114.60	122.0	149.30	112.60	106.30	69.39
18:43	796.00	242.20	14.81	14.60	0.11	13.26	1860.25	223.60	132.40	114.70	121.8	150.40	112.00	107.00	69.57
18:44	800.00	242.70	14.70	14.56	0.11	13.24	1869.55	224.00	132.00	115.40	122.1	149.80	109.00	107.30	69.66
18:45	800.00	238.40	14.74	14.59	0.11	13.23	1877.99	223.80	131.60	115.10	122.4	150.10	108.20	105.40	70.20
10 MinAvg	806.10	245.34	14.72	14.55	0.10	13.24	1851.84	223.92	130.56	114.75	118.3	150.35	109.49	106.58	69.56

C

C The limestone is damp.

C

18:46	818.00	237.70	14.57	14.49	0.11	13.24	1869.82	224.20	132.00	115.40	122.6	150.00	108.40	106.60	70.94
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Starting
06-28-91

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
18:48	846.00	242.50	14.32	14.32	0.11	13.25	1861.06	224.20	132.80	115.40	122.6	149.00	109.10	107.30	71.34
18:49	861.00	245.30	14.21	14.29	0.11	13.24	1870.10	224.40	130.90	115.40	122.7	146.60	109.60	106.00	71.51
18:50	862.00	247.10	14.16	14.26	0.11	13.24	1869.96	224.30	132.20	115.30	122.7	147.10	111.50	106.90	71.33
18:51	876.00	247.10	14.10	14.23	0.11	13.23	1862.02	224.90	133.40	115.80	122.9	148.80	108.60	107.00	71.79
18:52	882.00	247.00	14.00	14.18	0.11	13.25	1864.60	226.80	132.40	115.50	122.9	147.70	111.20	106.40	72.00

Post-Run Bed Inspection:

- Inlet louvers are clear
- Some L/S clumps above the reactor screws discharge side
- Outlet screen is completely wet.

Run Summary: **LEC Run 910629A**

Objective: To use the vibrating screen as a dry-method regeneration device.

Total Run Time: 95 minutes (14:39 to 16:20).

SO₂ Removal: 99% to 81% (91% average).

Inlet Gas Rate: 2830 acfm (average).

Bed ΔP: 9.0 in H₂O (average).

Operational Conditions:

 Fresh No.9 limestone.

 Damper Setting: Varied.

 Three layer outlet screen composed of two hardware cloth screens covering one aluminum screen.

 In-duct Steam = 14 psig.

 Overhead Sprays = 0.25 gpm.

 Louver Sprays = Not Installed.

 Bed Speed = 20 DT (3995 lb/hr).

 Regeneration Device: Single deck vibrating screen equipped with a No.30 mesh screen.

 Stone Carry-Over: 0 lbs/min.

 Waste fines: 1.5 lb/min.

- Comments:
- The vibrating screen was started at 15:15.
 - There was no bridging of the limestone within the louvers.
 - The run was terminated due to an overheated waste screw.

Starting
06-29-91

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
C C Initially wet/very damp fresh stone, full steam (approx. 14 psig), 0.25 gpm from the overhead sprays, bed speed of 20 DT. C The dP _m will be tried to be maintained around 0.3 in. H ₂ O.															
14:39	1.25	0.14	21.01	21.18	0.33	4.51	3267.12	217.30	85.60	75.60	77.7	78.40	76.50	77.50	88.92
14:40	0.77	0.71	21.00	21.21	0.32	4.83	3147.12	188.10	85.90	71.60	71.2	71.50	71.30	71.80	7.18
14:41	0.11	0.84	20.97	21.23	0.30	5.13	2995.84	158.20	86.20	81.90	77.2	86.10	79.10	80.80	-653.15
14:42	0.06	0.74	20.95	21.25	0.28	5.18	2934.68	188.70	86.90	87.30	105.1	113.10	86.70	86.70	-1219.64
14:43	188.40	0.19	18.24	17.49	0.26	5.14	2836.07	192.80	102.30	93.00	116.3	115.50	98.00	87.20	99.90
14:44	678.70	0.46	14.76	14.68	0.25	5.08	2780.37	200.70	115.50	97.60	116.7	116.20	109.90	92.10	99.93
14:45	705.00	0.07	14.66	14.63	0.24	5.08	2747.15	201.20	116.90	98.50	116.9	113.00	110.50	97.10	99.99
14:46	705.00	0.50	14.65	14.61	0.26	5.44	2883.15	206.90	117.20	99.30	117.2	115.60	111.30	97.50	99.93
14:47	692.20	0.43	14.72	14.61	0.31	6.08	3140.72	212.80	117.30	98.70	116.1	112.90	109.90	98.10	99.94
14:48	688.60	0.14	14.71	14.59	0.32	6.28	3205.57	212.40	117.50	97.70	116.4	110.80	110.30	98.40	99.98
10 MinAvg	366.01	0.42	17.57	17.55	0.29	5.27	2993.78	197.91	103.13	90.12	103.1	103.31	96.35	88.72	-117.70
14:49	687.50	0.47	14.67	14.55	0.32	6.28	3227.01	219.30	117.80	98.50	116.2	109.70	109.70	100.50	99.93
14:50	689.20	0.65	14.67	14.59	0.32	6.29	3203.89	213.80	117.90	98.10	115.2	109.50	110.10	99.30	99.90
14:51	677.40	-0.03	14.72	14.59	0.32	6.29	3208.82	218.00	118.10	98.70	111.4	109.10	110.80	100.20	100.00
14:52	685.50	0.45	14.67	14.55	0.32	6.29	3199.99	216.40	118.40	98.70	110.7	107.50	109.80	101.40	99.93
14:53	676.90	0.79	14.72	14.58	0.32	6.28	3213.31	219.90	118.60	100.30	110.3	109.10	108.20	99.50	99.88
14:54	677.10	0.78	14.66	14.53	0.32	6.28	3193.99	216.00	118.80	101.00	109.9	109.10	108.60	99.50	99.88
14:55	684.60	0.60	14.62	14.51	0.32	6.28	3215.05	218.50	118.80	102.30	109.4	108.60	108.00	100.10	99.91
14:56	687.70	0.35	14.60	14.47	0.32	6.27	3197.15	215.20	119.00	102.40	108.2	109.20	108.20	101.10	99.95
14:57	690.30	0.63	14.60	14.47	0.31	6.30	3183.40	215.80	119.20	101.10	107.4	109.20	107.90	98.90	99.91
14:58	697.70	0.63	14.52	14.41	0.31	6.34	3188.19	220.00	119.10	99.20	106.4	107.80	107.30	97.10	99.91
10 MinAvg	685.39	0.53	14.65	14.52	0.32	6.29	3203.08	217.29	118.57	100.03	110.5	108.88	108.86	99.76	99.92
14:59	704.00	0.58	14.51	14.38	0.31	6.39	3188.70	215.90	119.30	97.40	107.9	107.20	109.40	93.80	99.92
C C The limestone is still wet															
15:00	698.20	0.31	14.53	14.38	0.32	6.50	3230.57	220.80	119.10	98.10	105.7	106.80	105.80	94.80	99.96
15:01	709.00	-0.11	14.42	14.27	0.32	6.52	3227.49	219.50	119.40	97.90	104.4	107.20	105.40	95.70	100.02
15:02	706.00	-0.35	14.47	14.31	0.32	6.55	3216.94	219.30	119.40	98.90	104.4	106.90	105.80	96.30	100.05
15:03	705.00	0.86	14.47	14.29	0.32	6.57	3216.15	221.10	118.20	98.50	104.9	105.10	107.80	93.00	99.88
15:04	706.00	0.31	14.48	14.31	0.31	6.61	3194.59	218.40	119.40	98.50	105.4	104.00	108.20	91.80	99.96
15:05	699.40	0.61	14.55	14.31	0.32	6.61	3204.61	220.50	119.00	98.20	106.9	104.00	107.40	91.60	99.91
15:06	694.90	0.79	14.56	14.32	0.31	6.62	3187.16	217.40	118.80	98.00	106.2	105.10	105.90	90.70	99.89
15:07	691.70	0.57	14.65	14.37	0.31	6.62	3196.94	219.40	119.50	96.40	105.1	104.50	105.10	90.60	99.92
15:08	694.30	0.11	14.65	14.33	0.31	6.63	3189.99	218.60	118.90	96.80	104.6	105.70	104.90	91.00	99.98
10 MinAvg	700.85	0.37	14.53	14.33	0.32	6.56	3205.31	219.09	119.10	97.87	105.6	105.65	106.57	92.93	99.95
15:09	686.00	0.40	14.72	14.36	0.31	6.67	3159.70	212.20	119.30	96.60	106.9	104.70	108.30	90.70	99.94
15:10	687.70	0.86	14.68	14.33	0.31	6.71	3181.68	219.40	119.70	95.60	109.5	106.30	109.40	91.10	99.87
15:11	694.50	2.22	14.65	14.30	0.31	6.75	3142.56	211.40	119.80	95.00	109.0	105.70	107.10	92.10	99.68
15:12	689.20	4.91	14.70	14.33	0.31	6.77	3140.46	217.10	119.30	96.20	106.6	104.90	106.40	92.50	99.29
15:13	701.00	7.93	14.62	14.27	0.30	6.83	3123.25	211.90	118.70	96.00	106.9	104.80	106.90	93.90	98.87
15:14	709.00	10.66	14.58	14.24	0.30	6.87	3111.96	213.70	118.50	96.20	106.1	106.00	107.00	94.50	98.50
C C The limestone is dry enough for it to be diverted to the vibrating screen. There has been no water coming out of the mist eliminator (ME).															
15:15	706.00	12.88	14.62	14.25	0.30	6.91	3096.76	211.60	119.60	95.30	107.7	106.00	108.90	94.10	98.18
15:16	704.00	17.07	14.61	14.23	0.29	6.95	3064.28	206.50	119.60	96.90	106.7	107.40	107.80	95.20	97.58
15:17	711.00	23.70	14.56	14.18	0.29	7.02	3055.97	209.70	119.50	96.80	107.1	109.30	106.40	94.30	96.67

LEC RUN 910629A
Regeneration via the Vibrating Screen

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
15:18	707.00	29.60	14.56	14.17	0.29	7.09	3041.82	210.40	120.40	96.90	109.8	109.80	108.60	95.70	95.81
10 MinAvg	699.54	11.02	14.63	14.27	0.30	6.86	3111.84	212.39	119.44	96.25	107.6	106.49	107.68	93.41	98.44
15:19	711.00	36.67	14.53	14.15	0.29	7.15	3019.27	205.10	120.50	97.90	110.7	109.40	109.20	95.20	94.84
15:20	708.00	47.70	14.56	14.19	0.28	7.22	3002.29	209.30	121.00	96.70	112.8	109.40	110.80	94.70	93.26
15:21	713.00	61.89	14.49	14.10	0.28	7.28	2975.71	202.20	120.90	97.60	113.6	109.70	111.90	94.60	91.32
15:22	716.00	76.80	14.49	14.12	0.28	7.32	2969.95	209.20	120.70	96.60	116.6	111.70	110.90	92.70	89.27
15:23	716.00	86.60	14.48	14.12	0.27	7.37	2943.88	202.30	120.70	96.30	120.0	116.40	108.70	94.00	87.91
15:24	714.00	94.20	14.50	14.10	0.28	7.58	2973.91	201.40	120.60	97.40	121.2	137.50	107.50	94.40	86.81
15:25	721.00	99.70	14.51	14.05	0.29	7.87	3045.00	204.90	120.80	96.70	121.4	162.70	110.10	95.10	86.17
15:26	730.00	107.70	14.46	13.96	0.29	7.93	3017.22	199.60	120.20	96.80	121.3	159.30	109.30	93.50	85.25
15:27	727.00	116.90	14.50	13.95	0.29	7.95	3014.00	205.10	120.70	97.30	121.2	132.70	110.00	95.20	83.92
15:28	726.00	124.60	14.51	13.92	0.29	8.00	3001.97	199.80	120.80	96.70	121.2	121.20	109.30	94.80	82.84
10 MinAvg	718.20	85.28	14.50	14.07	0.28	7.57	2996.32	203.89	120.69	97.00	118.0	127.00	109.77	94.42	88.16
15:29	730.00	130.10	14.49	13.92	0.28	8.00	3000.35	201.40	121.00	97.00	121.1	121.00	109.90	96.00	82.18
C Dust is coming off the equipment (cover panels are now put in place). Dust is being removed by the screen. Dust collection is initiated.															
15:30	716.00	134.80	14.58	13.97	0.28	8.02	2965.45	195.30	120.90	98.90	121.0	120.50	110.00	99.30	81.17
15:31	711.00	140.10	14.62	14.01	0.28	8.05	2954.52	197.50	120.90	98.60	120.9	120.00	110.20	98.60	80.30
15:32	718.00	146.10	14.62	14.00	0.27	8.07	2922.93	195.30	120.90	99.40	120.9	119.70	108.90	99.40	79.65
15:33	703.00	145.10	14.72	14.06	0.27	8.09	2930.96	196.50	120.90	99.60	122.1	120.50	106.70	100.50	79.36
15:34	697.70	147.30	14.77	14.06	0.27	8.21	2920.91	196.80	120.70	99.20	131.7	118.90	107.80	101.30	78.89
15:35	693.20	143.70	14.86	14.16	0.27	8.31	2888.20	194.20	120.60	100.80	145.8	118.70	107.30	100.80	79.27
15:36	684.70	134.10	14.88	14.19	0.26	8.40	2870.37	201.00	120.50	100.40	146.6	116.60	108.70	100.90	80.41
15:37	691.30	125.40	14.86	14.19	0.25	8.51	2814.04	195.40	120.40	101.40	127.5	119.00	107.00	102.70	81.86
15:38	684.00	119.70	14.91	14.26	0.25	8.64	2782.17	196.20	120.30	99.60	120.3	115.90	110.80	100.30	82.50
10 MinAvg	702.89	136.64	14.73	14.08	0.27	8.23	2904.99	196.96	120.71	99.49	127.8	119.08	108.73	99.98	80.56
15:39	683.90	112.00	14.92	14.25	0.25	8.87	2774.20	195.10	120.30	101.30	120.3	114.00	108.00	101.80	83.62
15:40	695.60	98.80	14.81	14.16	0.24	9.17	2758.47	193.00	120.30	100.40	120.3	114.20	106.50	103.20	85.80
15:41	698.50	89.10	14.78	14.10	0.25	9.64	2824.54	200.30	120.20	99.40	120.2	113.40	107.60	102.70	87.24
15:42	702.00	82.50	14.73	14.08	0.26	10.13	2830.46	195.30	120.20	99.50	120.2	113.60	107.10	103.40	88.25
15:43	713.00	75.70	14.66	14.10	0.25	10.31	2801.19	194.60	120.10	100.50	120.1	111.40	109.60	103.60	89.38
15:44	716.00	66.08	14.66	14.14	0.25	10.42	2784.56	200.00	120.10	100.30	120.1	112.50	106.40	102.70	90.77
15:45	710.00	59.95	14.64	14.13	0.24	10.50	2757.43	197.90	120.10	102.60	120.1	110.80	109.00	102.30	91.56
15:46	719.00	55.07	14.60	14.12	0.24	10.59	2732.12	202.30	120.10	99.70	120.1	112.10	110.40	101.10	92.34
15:47	717.00	51.13	14.60	14.09	0.23	10.67	2704.66	203.10	119.90	101.60	119.6	113.00	111.20	101.50	92.87
15:48	723.00	49.46	14.61	14.05	0.25	11.30	2795.70	202.60	119.90	101.70	119.8	115.80	107.10	103.00	93.16
10 MinAvg	707.80	73.98	14.70	14.12	0.25	10.16	2776.33	198.42	120.12	100.70	120.1	113.08	108.29	102.53	89.50

C

C 29.18 lb of dust is removed by the v. screen in 19 minutes; 1.5 lb/min.

C

15:49	709.00	48.55	14.71	14.11	0.26	11.83	2877.84	207.00	120.00	102.10	120.0	112.80	109.30	100.70	93.15
15:50	708.00	47.93	14.70	14.14	0.25	11.86	2834.82	199.90	120.10	102.60	118.9	112.00	109.10	100.70	93.23
15:51	704.00	49.05	14.70	14.12	0.25	11.90	2826.18	209.00	120.20	102.40	118.2	110.80	108.20	99.10	93.03
15:52	709.00	52.90	14.67	14.08	0.25	11.95	2785.61	200.50	120.20	102.30	118.6	112.20	108.60	95.60	92.54
15:53	710.00	55.74	14.64	14.04	0.24	12.01	2764.32	206.70	120.30	102.00	116.1	112.60	106.00	97.10	92.15
15:54	710.00	56.88	14.62	14.07	0.23	12.06	2733.93	206.00	120.20	100.60	112.4	112.00	107.90	99.40	91.99
15:55	704.00	57.80	14.66	14.10	0.23	12.12	2712.96	204.30	120.20	102.60	114.0	111.60	110.50	99.10	91.79
15:56	702.00	62.93	14.65	14.08	0.23	12.31	2711.38	206.40	120.30	101.30	113.5	112.70	109.70	97.10	91.04
15:57	708.00	68.19	14.60	14.03	0.23	12.69	2724.42	204.20	120.40	101.00	111.5	112.60	107.00	97.30	90.37
15:58	714.00	76.50	14.55	13.98	0.23	12.82	2682.37	200.80	120.70	100.60	113.1	112.70	105.50	97.40	89.29

Regeneration via the Vibrating Screen

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
10 MinAvg	707.80	57.65	14.65	14.07	0.24	12.15	2765.38	204.48	120.26	101.75	115.6	112.20	108.18	98.35	91.86
15:59	730.00	84.60	14.41	13.92	0.22	12.86	2669.98	206.40	120.70	101.00	112.1	112.10	106.10	98.50	88.41
C The waste screw is noticed to be tripped-off due to overheating. This may have occurred a few minutes earlier.															
16:00	757.00	91.40	14.17	13.88	0.22	12.92	2619.31	205.10	120.80	101.70	112.4	110.40	107.60	99.80	87.93
16:01	754.00	98.60	14.16	13.90	0.21	12.95	2577.10	205.40	120.90	102.50	114.5	108.10	108.70	100.00	86.92
16:02	768.00	104.30	14.03	13.94	0.20	13.00	2559.26	212.30	121.00	101.70	114.2	108.70	109.20	97.80	86.42
16:03	767.00	108.80	14.02	13.92	0.20	13.07	2512.16	210.80	121.20	102.30	114.7	107.80	109.00	97.10	85.81
16:04	771.00	115.00	13.96	13.88	0.19	13.18	2483.54	216.20	121.30	103.60	113.1	106.30	107.40	97.10	85.08
16:05	774.00	120.10	13.97	13.84	0.18	13.22	2426.30	213.60	121.40	105.50	114.5	107.70	106.50	95.50	84.48
16:06	762.00	124.70	14.04	13.93	0.17	13.29	2366.24	217.70	121.60	105.70	116.1	108.70	107.30	96.70	83.64
16:07	756.00	125.20	14.08	13.98	0.16	13.34	2294.63	216.40	121.70	107.70	116.2	107.30	107.50	98.40	83.44
C The waste screw motor has now tripped off three times, changing the stone flow to recycle in order to cool-off the 1/4 hp waste screw motor.															
16:08	760.00	128.90	14.07	13.96	0.16	13.37	2241.25	218.60	121.80	110.50	112.2	108.00	106.20	100.10	83.04
10 MinAvg	759.90	110.16	14.09	13.92	0.19	13.12	2474.98	212.25	121.24	104.22	114.0	108.51	107.55	98.10	85.52
16:09	765.00	129.50	14.05	13.96	0.15	13.42	2177.77	220.20	121.80	113.10	112.4	108.60	104.20	97.70	83.07
C Still unable to restart the waste screw motor. It is extremely HOT.															
16:10	761.00	133.90	14.10	13.96	0.14	13.46	2106.03	213.00	121.70	116.50	112.6	108.80	107.10	97.30	82.40
16:11	765.00	136.90	14.06	14.00	0.13	13.52	2057.85	222.10	121.70	117.40	114.3	107.80	106.60	98.30	82.10
16:12	776.00	139.50	14.00	14.00	0.12	13.56	2000.79	221.50	121.70	121.00	113.4	109.00	105.80	99.10	82.02
16:13	786.00	144.10	13.98	13.94	0.11	13.59	1915.20	219.70	121.60	121.50	115.2	118.40	106.50	99.50	81.67
16:14	785.00	143.50	13.97	13.90	0.10	13.63	1832.80	222.90	121.60	121.60	116.3	121.60	107.50	101.50	81.72
C After hosing-off motor with water, it still will not operate for more than 10 seconds without throwing the starter-box heater element breaker. Inspection of the screw shows only a talcum powder type fine dust.															
16:15	789.00	144.00	13.92	13.86	0.09	13.65	1751.02	223.00	121.50	121.40	120.0	122.10	109.30	102.30	81.75
16:16	792.00	145.30	13.93	13.89	0.09	13.70	1664.60	222.60	121.60	121.60	121.1	121.60	110.70	104.20	81.65
16:17	786.00	143.70	13.98	13.94	0.08	13.72	1574.47	223.00	121.60	121.60	121.6	121.60	108.20	106.10	81.72
16:18	795.00	142.50	13.93	13.93	0.07	13.76	1478.42	223.10	121.40	121.40	121.3	121.40	108.70	106.20	82.08
10 MinAvg	780.00	140.29	13.99	13.94	0.11	13.60	1855.89	221.11	121.62	119.71	116.8	116.09	107.46	101.22	82.02
16:19	790.00	146.30	13.94	13.93	0.06	13.78	1398.95	223.00	121.40	121.40	121.4	121.50	112.00	105.90	81.48
16:20	813.00	149.10	13.70	14.19	0.00	7.05	358.58	213.10	121.40	121.40	121.4	121.40	114.90	106.50	81.66
C The run is terminated due to:															
C - waste screw motor is burning-up															
C - unable to maintain inlet gas flow rate															
C Post-Run Bed Inspection:															
C - Inlet louvers are clean															
C - No bridging															
C - The outlet screen needs cleaned															

Run Summary: **LEC Run 910701A**

Objective: To continue LEC Run 910629A without using the waste screw.

Total Run Time: 85 minutes (14:25 to 17:45).

SO₂ Removal: 99% to 74% (83% average).

Inlet Gas Rate: 2841 acfm (average).

Bed ΔP: 8.2 in H₂O (average).

Operational Conditions:

 Fresh No.9 limestone.

 Damper Setting: Varied.

 Three layer outlet screen composed of two hardware cloth screens covering one aluminum screen.

 In-duct Steam = 14 psig.

 Overhead Sprays = 0.25 gpm.

 Louver Sprays = Not Installed.

 Bed Speed = 20 DT (3995 lb/hr).

 Regeneration Device: Single deck vibrating screen equipped with a No.30 mesh screen.

 Stone Carry-Over: 0 lbs/min.

 Waste fines: 2.9 lbs/min (average).

Comments: - The outlet screen was wet down to the #5 thermocouple position and is moderately fouled.
 - No bridging inside of the reactor.

LEC RUN 910701A
Regeneration via the Vibrating Screen

Starting
07-01-91

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in. H2O)	Outlet dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5' Bed Temp. (F)	3' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
C Objective: To continue 910629A without using the waste screw															
C Initial Conditions: Fresh, damp limestone, full steam, overhead sprays at 0.25 gpm, bed speed at 20 DT. Two braces being used to hold reactor screen in place															
C															
14:25	60.11	0.50	20.44	14.17	0.50	5.97	4009.94	220.20	88.90	76.60	77.5	76.90	75.60	77.50	99.16
14:26	59.69	0.64	20.44	13.48	0.47	6.33	3921.57	223.70	88.90	74.90	74.4	75.70	74.40	78.30	98.93
14:27	42.04	0.64	20.53	13.50	0.43	6.51	3713.15	211.40	89.50	87.90	79.7	87.40	85.10	90.70	98.48
14:28	0.85	0.49	20.68	13.62	0.40	6.41	3472.47	177.60	95.50	92.90	94.9	100.40	98.60	99.90	42.59
14:29	0.47	0.56	20.63	13.95	0.09	2.66	1742.31	209.10	101.80	93.30	99.0	101.00	100.10	99.80	-17.51
C															
C Stopping run. The inlet heated sample line is plugged. Restarted at 15:05.															
C															
15:05	0.88	0.70	20.92	20.66	0.15	2.43	2063.68	150.80	94.20	80.00	80.1	80.30	79.90	80.00	20.62
15:06	66.52	0.58	15.32	14.54	0.35	5.22	3183.02	142.70	94.20	80.10	80.1	80.10	80.10	80.10	99.12
15:07	345.90	0.57	14.30	13.91	0.30	5.01	3059.85	193.50	94.50	80.20	80.2	80.20	80.20	80.30	99.83
15:08	462.80	0.49	14.14	13.87	0.28	5.03	2942.76	197.00	95.10	90.60	91.4	90.90	91.10	93.80	99.89
15:09	538.30	0.86	14.00	13.81	0.25	4.92	2823.04	197.00	96.10	95.10	95.1	95.10	95.10	95.10	99.84
15:10	596.30	0.89	13.99	13.82	0.28	5.21	2938.54	197.50	100.50	95.50	96.8	95.90	95.40	95.40	99.85
15:11	636.20	0.72	14.05	13.79	0.28	5.29	2966.03	197.90	106.40	96.10	99.8	98.10	96.10	95.90	99.89
15:12	674.10	0.57	14.09	13.80	0.28	5.30	2961.86	198.40	108.00	96.20	100.7	98.30	95.80	95.70	99.92
15:13	712.00	0.60	14.05	13.72	0.28	5.30	2957.44	198.80	109.60	96.40	101.8	97.60	96.70	95.80	99.92
15:14	736.00	1.00	14.00	13.66	0.28	5.33	2955.42	197.90	111.10	96.80	104.8	98.80	97.20	96.60	99.86
10 MinAvg	476.90	0.70	14.89	14.56	0.27	4.90	2885.16	187.15	100.97	90.70	93.1	91.53	90.76	90.87	91.87
C															
15:15	748.00	0.46	14.09	13.61	0.34	6.13	3309.49	206.70	110.80	97.50	103.4	98.10	97.20	96.00	99.94
15:16	750.00	0.89	14.23	13.62	0.34	6.05	3251.92	201.00	110.70	97.20	104.7	98.50	97.30	96.50	99.88
15:17	759.00	0.26	14.25	13.65	0.32	5.91	3194.95	203.80	111.00	97.70	105.1	98.50	97.30	96.60	99.97
15:18	761.00	0.06	14.26	13.67	0.31	5.84	3166.45	206.50	111.40	97.70	103.1	98.30	96.30	96.30	99.99
15:19	765.00	0.21	14.28	13.68	0.31	5.77	3115.29	199.80	111.70	97.60	102.7	99.50	96.20	96.20	99.97
C The limestone is still damp															
C															
15:20	770.00	0.57	14.25	13.63	0.30	5.69	3109.97	208.40	111.60	96.70	103.7	100.30	96.50	96.50	99.93
15:21	780.00	1.13	14.19	13.58	0.30	5.61	3063.47	203.90	111.20	97.60	105.5	102.40	96.80	96.60	99.86
15:22	796.00	5.85	14.10	13.52	0.29	5.56	3035.89	203.20	111.80	97.10	104.0	101.30	96.90	96.50	99.27
15:23	801.00	10.02	14.10	13.54	0.29	5.54	3027.72	204.20	111.60	97.40	104.5	101.00	97.20	96.60	98.75
15:24	800.00	13.18	14.07	13.49	0.29	5.57	3024.30	202.70	111.90	97.30	105.1	101.50	97.10	96.60	98.35
10 MinAvg	773.00	3.26	14.18	13.60	0.31	5.77	3129.95	204.02	111.37	97.38	104.2	99.94	96.88	96.44	99.59
C															
15:25	800.00	19.70	14.09	13.47	0.29	5.58	3021.97	199.40	112.20	97.90	104.3	99.50	97.30	96.70	97.54
15:26	803.00	28.51	14.05	13.42	0.29	5.60	3026.34	205.90	111.80	97.40	104.4	100.40	97.40	96.60	96.45
15:27	805.00	38.65	14.07	13.43	0.29	5.61	3004.24	200.80	112.00	97.30	103.7	100.30	97.50	96.70	95.20

LEC RUN 910701A
Regeneration via the Vibrating Screen

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in. H2O)	Bed dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
15:28	802.00	48.88	14.13	13.44	0.29	5.61	3015.41	203.40	112.30	97.40	104.5	101.30	100.00	97.30	93.91
15:29	787.00	58.31	14.25	13.47	0.29	5.60	3018.36	204.70	112.10	96.70	106.8	101.90	98.70	97.50	92.59
C The limestone is starting to dry out. Approximately 10% of the stones are dry (white in shade).															
15:30	791.00	69.31	14.24	13.40	0.28	5.63	2998.08	200.40	112.10	97.00	107.6	101.40	98.10	98.60	91.24
15:31	789.00	81.00	14.26	13.37	0.29	5.72	3048.68	208.80	112.80	96.70	106.4	100.30	97.50	98.90	89.73
15:32	790.00	89.20	14.28	13.40	0.29	5.72	3005.16	198.90	112.90	96.70	105.5	101.00	97.00	98.80	88.71
15:33	790.00	97.90	14.33	13.44	0.28	5.76	2999.38	203.30	112.30	96.50	107.4	102.00	98.10	101.20	87.61
15:34	788.00	106.40	14.36	13.46	0.28	5.81	2981.81	200.20	112.20	96.90	107.6	103.10	99.20	102.90	86.50
10 MinAvg	794.50	63.79	14.21	13.43	0.29	5.66	3011.94	202.58	112.27	97.05	105.8	101.12	98.08	98.52	91.95
15:35	794.00	117.90	14.27	13.35	0.29	6.05	3038.71	199.90	112.00	97.60	106.9	104.30	103.80	104.30	85.15
15:36	810.00	137.10	14.20	13.27	0.29	6.08	3022.25	204.10	114.70	97.10	105.3	103.90	103.80	103.20	83.07
15:37	821.00	156.90	14.06	13.14	0.32	6.64	3173.55	201.10	115.60	97.30	105.2	103.30	105.60	103.60	80.89
15:38	832.00	172.50	13.99	13.13	0.28	6.27	2993.30	205.30	113.20	97.70	108.1	106.10	110.10	103.30	79.27
15:39	838.00	177.30	13.88	13.19	0.27	6.24	2939.21	200.20	116.00	97.70	108.6	109.80	110.30	102.70	78.84
15:40	841.00	188.30	13.83	13.14	0.29	6.65	3041.33	203.30	116.20	98.60	110.6	118.50	111.50	103.90	77.61
15:41	832.00	206.70	13.87	13.14	0.30	6.93	3079.45	201.90	117.80	98.80	113.1	125.70	112.30	105.30	75.16
15:42	829.00	216.10	13.89	13.18	0.28	6.68	2944.79	200.30	116.40	99.30	118.3	126.10	111.70	107.20	73.93
15:43	839.00	213.70	13.78	13.16	0.27	6.71	2918.34	200.50	116.90	99.50	120.9	126.00	111.50	107.20	74.53
C Dust is blowing out of the chutes; thus the stone is bone dry. Screen is actuated.															
15:44	835.00	218.50	13.84	13.15	0.30	7.32	3068.97	199.60	118.10	100.10	126.2	125.90	112.00	107.10	73.83
10 MinAvg	827.10	180.50	13.96	13.18	0.29	6.56	3021.99	201.62	115.69	98.37	112.3	114.96	109.26	104.78	78.23
15:45	824.00	221.10	13.92	13.26	0.29	7.40	3053.34	204.00	118.20	100.70	126.3	124.40	111.30	105.00	73.17
15:46	830.00	221.80	13.85	13.26	0.29	7.49	3018.13	200.00	119.20	100.50	126.3	124.40	111.10	104.60	73.28
15:47	831.00	222.10	13.87	13.28	0.28	7.56	2999.67	201.10	120.00	99.80	126.4	121.20	111.80	104.10	73.27
15:48	831.00	220.60	13.83	13.26	0.28	7.64	2964.17	201.80	121.30	99.80	126.4	119.10	110.80	103.60	73.45
15:49	833.00	220.90	13.83	13.26	0.27	7.73	2945.65	203.10	123.20	99.90	126.4	118.50	110.50	102.20	73.48
15:50	832.00	227.70	13.86	13.30	0.27	7.80	2929.00	210.30	123.80	103.00	126.3	114.60	110.10	103.50	72.63
15:51	829.00	228.20	13.87	13.31	0.26	7.88	2892.28	201.00	124.40	101.80	126.1	112.60	110.60	104.00	72.47
C The vibrating screen is misaligned causing it to rotate in a clockwise direction. Stone is put in recycle.															
15:52	831.00	224.00	13.86	13.29	0.26	7.97	2877.05	211.80	125.70	100.70	126.0	111.40	109.60	102.70	73.04
15:53	840.00	222.60	13.82	13.26	0.25	8.05	2836.28	205.80	125.90	101.80	125.9	111.30	109.10	104.60	73.50
C resetting O ₂ monitors with zero gas.															
15:54	847.00	220.20	13.76	13.29	0.25	8.10	2837.35	214.30	125.90	101.40	125.0	110.80	109.40	103.50	74.00

LEC RUN 910701A
Regeneration via the Vibrating Screen

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in. H2O)	Bed dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
10 MinAvg	832.80	222.92	13.85	13.28	0.27	7.76	2935.29	205.32	122.76	100.94	126.1	116.83	110.43	103.78	73.23
15:55	843.00	211.00	13.77	13.33	0.25	8.16	2817.69	215.80	125.80	101.90	122.0	111.00	108.50	103.90	74.97
15:56	350.90	105.80	19.49	18.03	0.24	8.23	2802.33	219.50	125.80	101.00	119.9	110.70	107.50	103.30	69.85
15:57	5.60	0.61	20.95	20.96	0.24	8.31	2784.70	219.40	125.70	101.50	119.0	109.50	109.10	104.30	89.05
C Sample gas is once again entering the monitors.															
15:58	249.90	73.90	17.24	14.97	0.25	8.69	2824.15	218.90	125.50	99.80	116.9	109.70	108.40	103.60	70.43
15:59	803.00	155.90	13.79	13.34	0.29	9.77	3065.44	225.60	125.60	100.60	117.4	109.50	108.40	103.40	80.59
16:00	812.00	157.60	13.89	13.31	0.29	10.17	3099.89	224.40	125.60	101.40	116.6	108.50	108.10	104.70	80.59
16:01	814.00	152.20	13.94	13.35	0.29	10.24	3060.77	225.90	125.60	101.70	113.4	108.00	108.10	104.10	81.30
16:02	817.00	152.80	13.89	13.30	0.28	10.32	3038.40	225.50	125.60	102.10	115.1	108.40	107.70	102.90	81.30
16:03	830.00	151.40	13.79	13.33	0.28	10.48	3030.70	226.90	125.60	102.50	114.4	107.30	107.20	103.70	81.76
16:04	835.00	149.30	13.78	13.35	0.23	9.53	2777.71	227.50	125.60	103.00	111.6	108.50	108.00	104.40	82.12
10 MinAvg	636.04	131.05	15.45	14.73	0.26	9.39	2930.18	222.94	125.64	101.55	116.6	109.11	108.10	103.83	79.20
C Stopped run to in order to help the boys fix the screen. Restarted at 17:18															
17:18	189.00	10.90	17.77	16.95	0.38	10.47	3323.03	156.60	96.60	87.90	96.1	95.10	89.00	92.10	94.23
17:19	729.00	99.40	14.30	13.41	0.36	11.18	3342.89	191.80	96.50	88.80	96.5	96.10	83.40	89.80	86.36
C Started limestone going to the vibrating screen															
17:20	784.00	134.00	14.24	13.32	0.32	11.23	3169.71	199.50	103.60	96.30	96.4	96.40	95.80	96.40	82.91
17:21	795.00	127.60	14.23	13.32	0.30	11.30	3055.16	200.30	110.90	96.60	96.3	96.30	96.30	96.40	83.95
17:22	811.00	119.10	14.25	13.34	0.28	11.46	3009.68	212.60	111.30	97.10	96.8	97.90	96.30	99.30	85.31
17:23	810.00	110.80	14.22	13.35	0.27	11.77	2974.44	218.60	112.80	98.40	97.4	99.50	96.40	104.50	86.32
17:24	818.00	106.30	14.18	13.35	0.26	11.87	2898.17	221.70	115.50	99.60	98.1	100.30	96.40	105.10	87.00
10 MinAvg	493.82	70.97	16.66	16.04	0.21	7.98	3110.44	186.73	103.43	95.01	96.6	97.08	94.11	97.12	69.08
17:25	873.00	106.30	14.18	13.38	0.25	12.16	2872.24	225.50	119.90	100.10	97.5	100.50	98.90	107.70	87.08
17:26	839.00	104.00	14.07	13.34	0.25	12.48	2840.40	221.20	124.00	100.90	101.6	102.80	103.10	108.10	87.45
17:27	832.00	108.00	14.00	13.30	0.24	12.54	2780.36	223.00	125.20	102.80	103.4	103.80	107.20	108.00	87.02
C Collected 26.4 lb of dust; approx. 3.8 lb/min. This high initial dust rate is due to the extended run time in recycle mode when the screen was being fixed.															
17:28	849.00	111.80	13.87	13.30	0.23	12.59	2731.45	225.20	125.40	102.70	103.0	104.20	107.00	107.50	86.83
17:29	859.00	117.90	13.80	13.24	0.22	12.64	2655.69	223.70	125.30	102.70	105.6	106.10	107.20	107.80	86.27
17:30	885.00	121.30	13.56	13.22	0.20	12.70	2588.50	224.40	125.30	103.90	108.3	107.20	109.30	107.80	86.29
C A lot of small stones (the size that would fit through the A1 screen) are coming out of the stack.															
C The damper is in the full position and we still cannot maintain the inlet gas flow.															

LEC RUN 910701A
Regeneration via the Vibrating Screen

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5' 3' Bed Temp. (F)	3' 5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
C															
17:31	912.00	129.30	13.35	13.25	0.20	12.83	2534.16	222.60	125.40	103.40	108.1	107.60	109.50	107.70	85.82
17:32	907.00	136.30	13.36	13.22	0.19	12.93	2476.04	226.50	125.40	103.10	109.1	107.80	109.50	106.50	84.97
17:33	911.00	139.10	13.28	13.24	0.18	13.01	2401.06	225.90	125.50	103.50	109.7	109.20	109.90	108.70	84.73
17:34	916.00	144.20	13.24	13.26	0.17	13.09	2321.43	223.90	125.40	104.80	110.2	109.10	109.90	108.50	84.26
10 MinAvg	872.30	121.82	13.67	13.27	0.21	12.70	2620.13	224.19	124.68	102.79	105.7	105.83	107.15	107.83	86.07
17:35	919.00	154.10	13.21	13.27	0.16	13.16	2262.01	226.80	125.40	105.30	111.1	110.20	110.60	110.00	83.23
17:36	921.00	162.70	13.22	13.25	0.15	13.18	2187.99	226.60	125.30	103.80	111.0	109.50	110.50	109.00	82.33
17:37	915.00	176.20	13.27	13.26	0.14	13.24	2118.09	225.70	125.30	103.90	110.9	110.10	110.50	109.60	80.74
17:38	919.00	189.80	13.25	13.31	0.13	13.28	2056.82	225.70	125.10	104.80	110.3	109.20	109.60	107.20	79.35
17:39	915.00	205.70	13.26	13.31	0.12	13.32	1983.34	226.40	125.00	104.00	110.6	109.90	109.90	107.80	77.52
17:40	905.00	221.00	13.34	13.40	0.11	13.36	1906.68	225.80	125.00	103.60	110.5	110.20	109.60	108.80	75.58
17:41	905.00	229.90	13.40	13.44	0.10	13.38	1819.56	226.40	125.00	104.10	110.3	109.90	110.10	109.60	74.60
C															
C 28.7 lbs. of dust is collected; approx. 2.0 lb/min															
C															
17:42	891.00	231.20	13.47	13.52	0.09	13.43	1736.22	226.10	125.10	104.70	110.6	110.10	110.10	108.80	74.05
17:43	891.00	232.90	13.47	13.58	0.08	13.44	1659.74	226.70	125.10	104.10	110.6	110.30	110.30	108.50	73.86
17:44	895.00	231.60	13.44	13.61	0.07	13.49	1557.93	226.80	125.20	104.30	110.7	109.70	110.10	108.20	74.12
10 MinAvg	907.60	203.51	13.33	13.40	0.11	13.33	1928.84	226.40	125.15	104.26	110.7	109.91	110.13	108.75	77.54
17:45	892.00	227.50	13.46	13.61	0.06	13.25	1448.85	226.80	125.20	105.00	110.7	110.40	110.40	107.50	74.50

C Shutdown run due to low inlet gas flow and general disgust

Post-Run Bed Inspection:

- the inlet louvers are clear as usual
- the reactor screen is wet down to number 5 thermocouple and is moderately fouled
- there is no bridging inside of the reactor

Run Summary: LEC Run 910702A

Objective: To continue LEC Run 920629A without using the waste screw.

Total Run Time: 129 minutes (13:36 to 15:45).

SO₂ Removal: 99% to 75% (90% average).

Inlet Gas Rate: 2540 acfm (average).

Bed ΔP: 11.2 in H₂O (average).

Operational Conditions:

 Fresh No.9 limestone.

 Damper Setting: Varied to maintain 0.3 in H₂O.

 Three layer outlet screen composed of two hardware cloth screens covering one aluminum screen.

 In-duct Steam = 14 psig.

 Overhead Sprays = 0.25 gpm from 13:36 to 15:15.

 0.375 gpm from 15:16 to 15:45.

 Louver Sprays = Not Installed.

 Bed Speed = 20 DT (3995 lb/hr).

 Regeneration Device: Single deck vibrating screen equipped with a No.30 mesh screen.

 Stone Carry-Over: 0 lbs/min.

 Waste fines: 2.0 lb/min (average).

Comments: - The run was halted due to low gas flow.

LEC RUN 910702A
Regeneration via the Vibrating Screen

Starting
07-02-91

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
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C

C Objective: To finally reproduce run 910629A

C Initial Conditions: fresh, wet stone; full steam; bed speed at 20 DT; overhead sprays at 0.25 gpm; try to maintain a dP_m of 0.3 in. H₂O

C

13:36	548.50	0.58	14.79	14.53	0.41	5.44	3486.46	154.80	90.20	76.20	75.7	78.00	76.70	76.40	99.89
13:37	736.00	0.68	14.40	14.00	0.41	5.67	3574.65	194.20	90.00	75.90	75.8	75.80	75.80	75.80	99.91
13:38	754.00	0.42	14.34	13.94	0.37	5.77	3411.94	202.40	90.50	85.20	76.9	84.30	86.40	85.70	99.94
13:39	782.00	0.45	14.16	13.97	0.28	5.10	2975.32	204.40	90.90	96.90	93.9	114.70	111.50	98.20	99.94
13:40	809.00	0.52	13.96	13.85	0.26	5.05	2908.79	211.10	100.90	100.30	111.4	117.60	112.80	99.60	99.94
13:41	824.00	0.56	13.86	13.79	0.28	5.30	2988.06	210.10	114.60	104.10	116.1	117.20	114.40	102.50	99.93
13:42	809.00	0.56	13.94	13.75	0.29	5.52	3089.00	219.60	120.00	104.40	117.8	114.80	115.10	103.80	99.93
13:43	809.00	0.56	13.88	13.67	0.29	5.51	3083.31	217.10	120.10	106.30	116.4	117.00	113.30	107.60	99.93
13:44	824.00	1.00	13.82	13.62	0.29	5.50	3083.51	219.50	120.20	106.60	115.0	115.70	112.90	106.80	99.88
13:45	829.00	0.45	13.70	13.56	0.29	5.49	3080.11	218.00	120.50	106.60	115.4	114.70	113.20	106.60	99.95

C

C The limestone is still wet. Last night there was a lot of rain, so the stone has more water in it than usual.

C

10 MinAvg	772.45	0.58	14.09	13.87	0.32	5.43	3168.11	205.12	105.79	96.25	101.4	104.98	103.21	96.30	99.92
13:46	830.00	0.11	13.72	13.61	0.29	5.49	3081.87	221.10	120.70	106.10	117.0	113.90	113.30	105.20	99.99
13:47	818.00	0.68	13.72	13.62	0.29	5.50	3078.62	222.00	120.90	108.60	116.7	114.30	112.50	105.80	99.92
13:48	813.00	0.70	13.78	13.69	0.29	5.51	3074.10	220.00	121.00	106.50	115.9	114.40	112.40	103.30	99.91
13:49	799.00	0.60	13.86	13.75	0.29	5.53	3072.20	221.50	120.80	106.30	113.1	114.60	111.40	104.50	99.93
13:50	795.00	0.64	13.90	13.79	0.29	5.53	3077.94	221.70	121.00	106.80	113.8	114.30	111.60	102.80	99.92
13:51	789.00	0.58	13.92	13.81	0.29	5.53	3072.42	221.60	120.70	106.10	113.8	113.50	110.50	103.80	99.93
13:52	779.00	0.22	13.98	13.90	0.29	5.54	3069.14	222.50	120.50	105.80	112.1	113.60	108.40	102.40	99.97
13:53	779.00	0.22	13.96	13.87	0.29	5.54	3066.89	221.50	120.60	105.10	110.4	113.30	108.10	102.90	99.97
13:54	789.00	0.79	13.91	13.87	0.29	5.55	3087.86	219.10	120.50	105.10	112.3	114.10	111.30	102.90	99.90
13:55	792.00	0.72	13.92	13.91	0.31	5.70	3157.66	222.30	120.60	106.70	112.8	113.30	111.00	103.40	99.91
10 MinAvg	798.30	0.53	13.87	13.78	0.29	5.54	3083.87	221.33	120.73	106.31	113.8	113.93	111.05	103.70	99.93

C

13:56	792.00	0.50	13.91	13.94	0.31	5.70	3157.89	222.40	120.80	107.50	112.8	112.20	109.50	104.00	99.94
13:57	802.00	0.84	13.83	13.93	0.31	5.70	3168.89	222.70	120.90	107.30	113.8	113.20	111.70	103.10	99.90
13:58	808.00	0.31	13.81	13.93	0.31	5.69	3167.27	222.00	121.00	105.80	113.3	112.30	112.30	103.90	99.96
13:59	807.00	0.15	13.82	13.95	0.31	5.69	3162.35	222.10	120.80	104.30	113.6	112.20	112.90	100.90	99.98
14:00	801.00	0.88	13.85	13.97	0.31	5.69	3168.19	222.40	120.10	107.00	111.6	110.80	110.60	102.10	99.89

C

C The limestone is still damp

C

14:01	798.00	0.67	13.90	14.00	0.31	5.69	3166.10	221.50	120.00	104.80	110.0	110.20	108.90	99.80	99.92
14:02	793.00	0.65	13.92	13.97	0.31	5.70	3168.19	222.40	120.50	104.50	112.6	110.60	111.20	98.40	99.92
14:03	789.00	1.83	13.96	14.03	0.31	5.72	3173.33	222.40	120.70	106.10	112.6	111.20	109.30	96.90	99.77

LEC RUN 910702A
Regeneration via the Vibrating Screen

Time	Inlet S02 (ppmdv)	Outlet S02 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dp (in. H2O)	Bed dp (in. H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	S02 Removal (%)
14:04	790.00	4.99	14.01	14.04	0.31	5.73	3157.66	222.30	120.50	105.10	111.6	113.10	108.40	94.80	99.37
14:05	761.00	7.79	14.32	14.18	0.30	5.76	3147.09	222.20	120.00	102.80	112.4	112.00	112.00	95.10	98.98
10 MinAvg	794.10	1.86	13.93	13.99	0.31	5.71	3163.70	222.24	120.53	105.52	112.4	111.78	110.68	99.90	99.76
14:06	744.00	8.47	14.41	14.20	0.30	5.78	3147.09	222.20	120.30	104.90	111.5	112.40	108.10	97.10	98.86
14:07	746.00	9.43	14.40	14.18	0.30	5.80	3140.99	221.80	120.10	104.10	112.6	110.60	110.70	97.90	98.74
14:08	750.00	12.66	14.38	14.15	0.30	5.83	3126.09	222.10	119.80	103.80	112.6	111.90	109.60	98.20	98.31
14:09	751.00	15.14	14.43	14.20	0.30	5.87	3125.86	222.00	120.00	103.80	111.9	112.70	108.90	96.90	97.98
14:10	745.00	19.29	14.39	14.19	0.30	5.92	3115.20	221.90	120.20	102.30	112.3	112.10	111.70	97.60	97.41
C The limestone is drying out. Approximately 5% of the stones are white.															
14:11	747.00	24.89	14.39	14.15	0.29	5.97	3099.25	221.80	120.20	103.20	112.6	112.70	110.40	96.70	96.67
14:12	760.00	31.64	14.32	14.12	0.29	6.02	3083.45	221.80	120.10	103.60	112.8	111.60	111.30	98.50	95.84
14:13	770.00	39.16	14.22	14.09	0.29	6.08	3076.13	220.90	120.10	102.70	110.7	112.40	108.40	97.80	94.91
14:14	770.00	46.36	14.20	14.06	0.29	6.16	3056.71	221.70	120.10	102.20	111.2	112.20	110.00	99.80	93.98
14:15	780.00	50.65	14.18	14.00	0.28	6.24	3039.58	221.20	120.10	103.80	111.2	113.50	109.30	97.30	93.51
10 MinAvg	756.30	25.77	14.33	14.13	0.30	5.97	3101.04	221.74	120.10	103.44	111.9	112.21	109.84	97.78	96.62
14:16	774.00	56.53	14.17	13.99	0.28	6.25	3039.13	221.00	119.80	104.20	110.3	114.10	108.60	99.10	92.70
14:17	786.00	62.28	14.11	13.97	0.28	6.30	3024.15	221.50	119.70	104.00	112.6	112.60	111.20	100.00	92.08
14:18	793.00	70.80	14.06	13.96	0.28	6.41	3007.74	221.40	119.60	104.10	112.1	112.90	110.00	100.20	91.07
14:19	793.00	78.10	14.13	14.00	0.27	6.51	2975.11	221.40	119.70	103.20	112.5	112.80	111.20	99.30	90.15
14:20	789.00	84.40	14.12	13.99	0.27	6.56	2963.71	221.20	119.70	106.30	114.2	112.90	107.60	99.80	89.30
C The tall bucket elevator's bottom drum has stopped turning. We increased the belt tension and it still would not turn; therefore we gave it some slack and continue C running.															
14:21	796.00	92.40	14.08	13.97	0.27	6.60	2952.93	221.30	119.60	105.20	113.5	113.70	107.90	101.60	88.39
14:22	805.00	102.50	13.98	13.95	0.26	6.65	2924.18	220.80	119.50	105.20	113.7	116.50	109.30	99.90	87.27
14:23	793.00	106.40	14.06	13.93	0.26	6.76	2896.68	221.00	119.40	105.80	113.3	117.20	109.50	99.80	86.58
14:24	808.00	114.70	13.96	13.94	0.25	6.81	2879.37	220.80	119.30	107.40	114.9	117.00	109.10	99.60	85.80
14:25	816.00	121.60	13.95	13.93	0.25	6.84	2861.33	220.30	119.20	108.50	115.1	118.30	111.30	100.90	85.10
10 MinAvg	795.30	88.97	14.06	13.96	0.27	6.57	2952.43	221.07	119.55	105.39	113.2	114.80	109.57	100.02	88.84
14:26	814.00	132.70	13.94	13.95	0.25	6.89	2862.17	220.70	119.20	107.70	114.8	117.50	109.80	101.50	83.70
14:27	803.00	134.80	14.08	13.98	0.29	7.63	3054.47	220.70	119.20	108.70	114.5	117.10	110.80	101.20	83.21
14:28	784.00	131.80	14.20	13.93	0.30	6.04	3130.05	219.30	119.20	108.00	113.7	116.60	111.40	103.00	83.19
14:29	774.00	123.40	14.29	13.98	0.30	8.13	3102.45	220.90	119.20	109.20	114.8	116.60	111.60	103.00	84.06
14:30	776.00	103.00	14.22	13.94	0.29	8.17	3085.78	220.50	119.20	109.40	115.8	116.50	111.90	102.60	86.73
14:31	781.00	91.40	14.20	13.91	0.29	8.21	3059.56	220.60	119.10	108.20	115.4	116.10	110.20	103.00	88.30
C The limestone is dry enough to go to the screen															

LEC RUN 910702A
Regeneration via the Vibrating Screen

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
14:32	778.00	87.50	14.20	13.99	0.28	8.25	3037.79	220.40	119.10	109.50	116.6	115.60	111.40	103.40	88.75
14:33	780.00	78.90	14.16	13.95	0.28	8.31	3021.93	220.50	119.20	110.40	119.2	115.40	112.40	106.30	89.88
14:34	784.00	67.75	14.14	13.92	0.28	8.51	3033.56	220.90	119.20	110.40	118.7	117.10	110.90	106.30	91.36
C The vibrating screen is started up.															
14:35	779.00	62.19	14.14	13.86	0.30	8.92	3108.14	221.10	119.50	108.80	119.5	113.90	112.40	104.70	92.02
10 MinAvg	785.30	101.34	14.16	13.94	0.29	8.11	3049.59	220.56	119.21	109.03	116.3	116.24	111.28	103.50	87.12
14:36	780.00	60.83	14.15	13.84	0.31	9.45	3185.66	221.10	119.70	108.60	119.4	113.40	112.60	104.30	92.20
14:37	779.00	56.50	14.14	13.85	0.30	9.52	3145.25	221.40	119.80	109.00	119.1	113.80	112.80	105.00	92.75
14:38	783.00	58.91	14.12	13.86	0.30	9.57	3138.23	220.60	119.90	107.70	119.3	113.10	112.70	104.40	92.48
14:39	781.00	55.83	14.12	13.85	0.30	9.63	3113.83	221.30	120.10	107.00	119.4	113.60	112.90	105.90	92.85
14:40	782.00	53.52	14.04	13.79	0.30	9.61	3109.05	221.50	120.30	107.10	117.2	114.50	112.40	106.20	93.16
14:41	785.00	46.65	14.02	13.81	0.29	9.65	3066.22	221.20	120.60	109.60	119.0	116.30	112.40	110.00	94.06
14:42	787.00	32.73	13.98	13.77	0.28	9.79	3046.49	221.90	120.90	107.70	117.7	114.40	109.90	108.70	95.84
C 16.9 lbs of dust is collected; 2.1 lb/min															
14:43	785.00	21.59	13.96	13.76	0.28	9.82	3027.31	218.10	121.10	107.90	116.1	114.70	111.70	108.50	97.25
14:44	780.00	15.96	13.96	13.77	0.28	9.86	3016.82	218.20	121.30	106.10	115.2	113.20	113.40	107.40	97.95
14:45	780.00	13.37	13.95	13.76	0.28	9.91	2993.94	217.60	121.50	105.90	115.5	113.90	113.40	106.30	98.29
10 MinAvg	782.20	41.59	14.04	13.81	0.29	9.68	3084.28	220.29	120.52	107.66	117.8	114.09	112.42	106.67	94.68
14:46	781.00	12.73	13.95	13.74	0.28	9.95	2997.26	219.10	121.60	106.10	116.5	113.60	110.60	108.10	98.37
C The fan is dripping water															
14:47	775.00	12.54	13.96	13.69	0.28	9.96	2975.18	214.00	121.70	104.10	116.1	113.40	113.50	106.90	98.38
14:48	771.00	12.58	14.03	13.75	0.27	10.00	2957.19	215.70	121.70	105.60	117.2	114.20	110.80	108.60	98.37
14:49	777.00	13.18	13.99	13.67	0.27	10.03	2949.09	217.00	121.70	104.60	116.4	113.30	111.80	105.60	98.30
C 20.0 lbs of dust is collected; 2.9 lb/min															
14:50	778.00	13.54	14.00	13.67	0.26	10.10	2905.32	209.50	121.80	105.50	117.9	113.50	109.70	107.70	98.26
14:51	778.00	16.30	14.06	13.62	0.29	10.88	3053.68	217.70	121.70	104.90	115.9	113.70	112.10	105.60	97.90
14:52	771.00	19.28	14.20	13.61	0.30	11.11	3099.63	217.10	121.80	104.80	117.2	112.00	110.40	105.90	97.50
14:53	771.00	23.43	14.11	13.56	0.29	11.17	3059.37	208.90	121.80	102.40	115.6	113.60	113.80	105.00	96.96
14:54	770.00	27.33	14.14	13.55	0.29	11.22	3061.42	214.40	121.70	103.90	114.9	112.10	112.70	106.20	96.45
C 20.9 lbs of dust is collected; 4.2 lb/min															
14:55	771.00	31.34	14.15	13.56	0.29	11.25	3038.27	213.50	121.70	105.30	115.4	111.60	108.80	106.10	95.94

LEC RUN 910702A
Regeneration via the Vibrating Screen

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in. H2O)	Bed dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
10 MinAvg	774.30	18.22	14.06	13.64	0.28	10.57	3009.64	213.59	121.72	104.72	116.3	113.10	111.42	106.57	97.64
14:56	765.00	35.16	14.18	13.58	0.29	11.30	3029.15	211.80	121.80	104.40	119.5	112.60	109.30	109.80	95.40
14:57	764.00	41.24	14.20	13.57	0.30	11.75	3107.42	218.50	121.70	104.20	117.2	113.10	112.50	107.80	94.60
14:58	765.00	49.42	14.22	13.59	0.29	11.80	3043.21	208.70	121.70	104.70	119.9	112.80	110.70	107.20	93.54
14:59	762.00	57.83	14.25	13.60	0.29	12.03	3055.74	211.90	121.60	105.10	117.2	112.20	110.80	105.10	92.41
15:00	765.00	69.27	14.23	13.58	0.29	12.14	3030.14	209.90	121.70	104.10	120.9	111.60	108.50	105.10	90.95
C 29.2 lbs of dust is collected; 4.9 lb/min															
C Damper is now wide open															
15:01	765.00	80.70	14.25	13.63	0.28	12.21	2972.00	205.30	121.60	104.50	120.5	111.10	110.50	105.00	89.45
15:02	767.00	92.70	14.26	13.59	0.27	12.25	2947.98	211.50	121.60	103.90	121.3	111.60	110.80	104.90	87.91
15:03	773.00	105.20	14.17	13.56	0.26	12.33	2908.43	208.40	121.70	106.20	121.2	111.60	109.40	105.00	86.39
15:04	777.00	116.00	14.12	13.52	0.26	12.43	2858.18	205.60	121.80	106.00	121.8	111.30	111.50	105.50	85.07
15:05	789.00	128.60	14.05	13.51	0.25	12.62	2830.56	208.40	121.90	105.70	121.9	111.40	113.90	104.90	83.70
10 MinAvg	769.20	77.61	14.19	13.57	0.28	12.09	2978.28	210.00	121.71	104.88	120.1	111.93	110.79	106.03	89.94
15:06	799.00	141.80	13.96	13.51	0.24	12.74	2787.79	209.70	122.00	105.70	122.0	111.60	114.80	107.40	82.25
15:07	808.00	156.30	13.87	13.46	0.23	12.80	2715.41	205.50	122.10	107.40	122.1	110.60	115.40	114.50	80.66
15:08	818.00	164.10	13.78	13.51	0.22	12.86	2640.72	212.90	122.30	110.80	122.3	111.70	120.30	118.90	79.94
15:09	829.00	173.60	13.63	13.45	0.20	12.95	2554.11	209.60	122.40	114.10	122.4	114.40	122.40	121.40	79.06
15:10	853.00	182.60	13.51	13.47	0.19	13.00	2473.97	211.00	122.50	116.40	122.5	116.20	122.50	119.90	78.59
C 31.1 lbs of dust is collected; 3.11 lb/min															
15:11	855.00	189.20	13.47	13.43	0.18	13.09	2415.42	218.70	122.50	120.10	122.5	120.90	122.50	121.40	77.87
15:12	850.00	199.00	13.52	13.48	0.17	13.17	2318.51	210.00	122.40	121.10	122.4	122.40	122.40	122.20	76.59
15:13	854.00	202.70	13.49	13.49	0.15	13.26	2229.89	216.10	122.50	120.30	122.5	122.50	122.50	122.30	76.26
15:14	845.00	201.20	13.56	13.59	0.14	13.36	2124.23	214.90	122.40	120.00	122.5	122.40	125.10	122.40	76.19
C It is apparent to the naked eye that the dust rate is slowing down. Checked the screen and it appears to be OK.															
15:15	841.00	200.10	13.59	13.62	0.13	13.41	2030.85	214.70	122.40	121.10	124.0	122.40	144.10	122.40	76.21
10 MinAvg	835.20	181.06	13.64	13.50	0.19	13.06	2429.09	212.31	122.35	115.70	122.5	117.51	123.20	119.28	78.36
C Increasing overhead bed sprays to 0.375 for laughs															
15:16	841.00	202.90	13.64	13.70	0.12	13.46	1963.80	218.60	122.40	122.40	126.9	122.40	151.50	122.40	75.87
15:17	835.00	202.30	13.66	13.75	0.11	13.48	1875.04	215.40	122.40	122.30	135.4	122.50	153.60	122.40	75.77
15:18	837.00	203.10	13.63	13.79	0.10	13.55	1808.93	218.40	122.30	122.30	142.4	125.50	162.80	124.60	75.73
15:19	846.00	206.20	13.65	13.84	0.09	13.58	1730.14	221.30	122.40	122.40	149.2	143.20	166.00	124.90	75.63
15:20	846.00	213.10	13.65	13.88	0.09	13.59	1661.18	219.80	122.30	122.20	150.8	150.30	165.90	125.60	74.81

LEC RUN 910702A
Regeneration via the Vibrating Screen

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
15:21	840.00	212.10	13.69	13.91	0.08	13.61	1584.79	223.00	122.30	122.30	151.4	151.40	165.90	124.10	74.75
C 21.1 lbs of dust is collected; 1.9 lb/min															
15:22	848.00	211.00	13.64	13.89	0.07	13.60	1522.46	223.60	122.30	122.30	151.2	151.40	165.90	122.60	75.12
15:23	848.00	212.00	13.65	13.91	0.06	13.63	1444.62	222.80	122.20	122.20	148.9	151.30	165.80	122.20	75.00
15:24	855.00	206.40	13.59	13.91	0.06	13.66	1364.13	223.60	122.20	122.00	149.9	151.30	164.00	122.20	75.86
15:25	853.00	194.90	13.59	14.02	0.05	13.65	1290.53	223.80	122.20	122.00	150.2	151.20	161.70	122.20	77.15
10 MinAvg	844.90	206.40	13.64	13.86	0.08	13.58	1624.56	221.03	122.30	122.24	145.6	142.05	162.31	123.32	75.57
15:26	864.00	189.80	13.48	13.98	0.05	13.69	1211.79	223.30	122.10	121.80	148.6	151.00	155.60	122.10	78.03
15:27	871.00	178.90	13.40	13.96	0.04	13.67	1157.02	223.70	122.10	122.00	148.9	150.30	152.30	122.20	79.46
15:28	878.00	174.20	13.39	13.95	0.04	13.68	1100.42	225.30	122.00	121.90	146.9	150.90	151.10	122.00	80.16
15:29	883.00	168.00	13.30	13.89	0.03	13.68	1039.54	225.70	122.00	121.60	147.0	150.00	151.10	122.00	80.97
15:30	892.00	157.50	13.25	13.95	0.03	13.67	993.54	229.00	121.90	121.80	144.9	150.30	151.00	121.90	82.34
15:31	897.00	141.80	13.17	13.96	0.03	13.66	926.68	231.60	121.90	121.30	141.4	150.40	150.40	121.90	84.19
15:32	903.00	124.40	13.08	13.92	0.02	13.55	853.53	233.40	121.90	121.70	133.1	149.90	150.50	121.90	86.22
15:33	914.00	113.70	13.05	13.92	0.02	13.51	793.32	233.60	122.00	121.80	137.1	148.00	149.60	122.00	87.56
15:34	915.00	99.60	12.99	13.91	0.02	13.54	748.24	229.60	122.10	122.10	134.3	147.70	148.60	122.10	89.11
15:35	921.00	89.30	12.96	13.88	0.01	13.54	680.64	232.90	122.20	121.90	133.3	140.50	146.90	122.20	90.30
10 MinAvg	893.80	143.72	13.21	13.93	0.03	13.62	950.47	228.81	122.02	121.79	141.6	148.90	150.71	122.03	83.84
C Pulling zero gas to adjust/check monitors															
15:36	919.00	80.50	13.05	14.08	0.01	13.54	628.92	230.20	122.20	121.90	135.6	132.00	141.00	122.20	91.24
15:37	649.80	12.41	16.43	20.78	0.01	13.53	574.21	230.40	122.20	122.20	134.7	127.70	133.60	122.20	98.09
15:38	33.65	0.51	20.68	20.85	0.01	13.54	514.03	231.60	122.20	121.90	130.2	125.10	124.60	122.20	98.47
C Sample gas is once again flowing into the monitors															
15:39	729.00	25.99	13.66	14.68	0.01	13.52	444.42	229.30	122.00	121.70	128.8	123.50	122.10	122.00	96.43
15:40	921.00	45.18	13.22	13.97	0.00	13.48	313.52	226.10	122.10	122.10	137.8	122.70	122.10	122.10	95.09
15:41	934.00	37.90	13.18	13.96	0.00	13.36	181.03	226.20	122.20	122.00	133.0	122.30	122.00	122.00	95.94
C Stone is coming out of the mist eliminator. Some of the stone appears larger than the aluminum screen mesh.															
C 39.1 lbs of dust is collected; 2.0 lb/min															
C To the naked eye it appears that the dust rate has increased again.															
15:42	934.00	33.54	13.26	13.99	0.00	13.31		227.60	122.00	121.90	129.6	122.00	121.90	121.90	96.41
15:43	945.00	32.01	13.18	13.96	-0.00	13.23		226.30	122.40	121.90	125.4	121.90	121.90	121.90	96.61
15:44	946.00	28.96	13.18	14.05	-0.01	10.95		219.40	123.30	122.10	123.2	122.10	122.10	122.10	96.94
15:45	962.00	26.88	12.93	14.60	-0.03	1.47		173.30	122.30	122.30	123.5	122.30	122.30	122.30	97.21
10 MinAvg	797.35	32.39	14.28	15.49	-0.00	11.99	442.69	222.04	122.29	122.00	130.2	124.16	125.36	122.09	96.24

LEC RUN 910702A
Regeneration via the Vibrating Screen

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
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C
C Run is terminated due to no gas flow and there is a cloud of dust emanating from the stack.
C

Post-Run Bed Inspection:

- No bridging
- Inlet louvers are clean
- Outlet reactor screen is fouled with stone and dust. The upper half is damp and is plugged with dust derived mud.
We are going to remove the lower brace and the first layer of hardware cloth and try this run again. for when we only had the aluminum screen inside of the reactor.
fouling was never a problem.

Run Summary: **LEC Run 910703A**

Objective: To reproduce LEC Run 910629A.

Total Run Time: 52 minutes (10:56 to 11:48).

SO₂ Removal: 99% to 78% (96% average).

Inlet Gas Rate: 3096 acfm (average).

Bed ΔP: 7.1 in H₂O (average).

Operational Conditions:

 Fresh No.9 limestone.

 Damper Setting: Varied to maintain 0.3 in H₂O.

 Two layer outlet screen composed of one hardware cloth screen between the louver and the aluminum screen.

 In-duct Steam = 14 psig.

 Overhead Sprays = 0.25 gpm.

 Louver Sprays = Not Installed.

 Bed Speed = 20 DT (3995 lb/hr).

 Regeneration Device: Single deck vibrating screen equipped with a No.30 mesh screen (not used).

 Stone Carry-Over: 0 lbs/min.

 Waste fines: None.

Comments: - The run was stopped when the reactor screws became jammed with aluminum screening.

LEC RUN 910703A
Regeneration via the Vibrating Screen
with No Extra Screen Bracing and Two Layers of Screen

Starting
07-03-91

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
C Initial Conditions: Overhead Sprays at 0.25 gpm; fresh, damp limestone; full steam; bed speed at 20 DT; dP _{in} at approximately 0.3 in H ₂ O															
C Note: The center screen brace was removed (only top brace remaining) and the outer layer of hardware cloth was removed prior to start-up.															
C The overhead bed sprays were slightly repositioned so water does not hit the outlet side of the top live hopper.															
10:56	783.00	0.60	14.45	14.62	0.11	2.77	1779.01	165.20	70.70	68.34	68.3	68.34	68.34	68.34	99.92
10:57	852.00	0.46	14.23	14.46	0.22	4.45	2626.97	185.10	69.70	68.33	68.3	68.33	68.33	68.33	99.95
10:58	839.00	0.65	14.43	14.30	0.32	6.00	3157.44	186.30	69.68	68.44	68.4	68.44	68.44	68.44	99.92
10:59	795.00	0.65	14.69	14.34	0.31	6.27	3112.08	190.00	78.10	75.20	80.7	73.70	77.20	74.50	99.92
11:00	801.00	0.45	14.59	14.40	0.28	6.11	2946.52	191.60	84.30	84.10	112.7	84.70	106.90	99.20	99.94
11:01	797.00	0.77	14.58	14.44	0.29	6.47	3045.83	198.50	103.70	86.50	113.1	91.60	110.90	106.70	99.90
11:02	770.00	0.36	14.78	14.51	0.31	6.71	3102.10	198.50	112.20	93.10	113.1	99.20	112.70	111.80	99.95
11:03	759.00	0.65	14.85	14.56	0.30	6.69	3086.90	200.70	113.00	96.40	113.0	97.60	111.20	112.70	99.91
11:04	748.00	0.67	14.89	14.60	0.30	6.70	3071.76	200.80	113.00	101.70	113.0	101.10	108.20	111.90	99.91
11:05	741.00	0.00	14.94	14.63	0.30	6.72	3062.44	199.00	113.00	103.40	113.0	105.00	107.80	110.80	100.00
10 MinAvg	788.50	0.53	14.64	14.49	0.27	5.89	2899.11	191.57	92.74	84.55	96.4	85.80	94.00	93.27	99.93
11:06	740.00	0.43	14.97	14.65	0.30	6.72	3062.55	203.50	113.00	104.50	112.9	105.70	110.80	109.80	99.94
11:07	740.00	0.77	14.98	14.70	0.30	6.71	3058.16	201.60	113.00	105.60	113.0	106.50	109.70	110.60	99.90
11:08	734.00	0.57	15.03	14.71	0.29	6.72	3050.43	205.00	113.00	105.40	112.9	106.10	109.60	110.40	99.92
11:09	730.00	0.65	15.05	14.72	0.29	6.74	3043.62	204.30	113.00	106.50	112.5	106.60	111.10	108.10	99.91
C A small piece (2" square) is seen falling through the reactor chute, but the fan still sounds clear of stone.															
11:10	740.00	0.67	15.00	14.69	0.29	6.75	3033.37	202.10	113.00	105.60	113.0	107.10	112.00	105.40	99.91
11:11	740.00	0.79	14.99	14.72	0.29	6.77	3027.03	203.90	113.10	106.70	113.1	110.00	110.90	106.20	99.89
11:12	741.00	0.73	14.96	14.67	0.30	6.92	3067.95	203.60	113.10	106.50	113.1	109.30	112.70	105.50	99.90
11:13	745.00	0.74	14.97	14.61	0.32	7.33	3179.31	203.50	113.00	106.70	112.5	110.00	111.20	110.50	99.90
11:14	744.00	0.63	14.94	14.55	0.32	7.35	3195.98	206.30	113.10	106.30	113.1	108.60	112.50	108.60	99.92
11:15	746.00	0.65	14.91	14.55	0.32	7.34	3203.89	209.60	113.10	106.70	112.5	110.10	111.70	112.50	99.91
C The limestone is still damp.															
C Wet fines are exiting from the mist eliminator.															
C A chunk of mangled screen is taken from the recycle chute, but the fan still sounds clear.															
11 MinAvg	740.00	0.66	14.98	14.66	0.30	6.94	3092.23	204.34	113.04	106.05	112.9	108.00	111.22	108.76	99.91
11:16	748.00	0.67	14.88	14.53	0.32	7.35	3180.51	204.00	113.10	106.50	112.7	111.10	111.10	112.30	99.91
11:17	743.00	0.85	14.89	14.55	0.31	7.37	3173.33	209.40	113.10	106.30	112.7	111.80	111.40	112.90	99.89
11:18	742.00	0.61	14.90	14.61	0.31	7.38	3167.82	209.20	113.30	106.60	113.3	110.00	112.80	111.40	99.92
11:19	735.00	0.73	14.93	14.64	0.31	7.39	3159.52	205.70	113.40	106.80	113.2	110.10	111.90	110.80	99.90
11:20	731.00	0.70	14.98	14.80	0.31	7.43	3165.36	210.30	113.50	106.90	113.5	111.40	112.70	111.60	99.90

LEC RUN 910703A
Regeneration via the Vibrating Screen
with No Extra Screen Bracing and Two Layers of Screen

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in. H2O)	Bed dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5 3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
11:21	727.00	0.96	15.01	14.83	0.31	7.49	3134.14	203.50	113.60	106.30	113.6	111.90	112.10	109.80	99.87
11:22	729.00	4.08	14.99	14.79	0.31	7.48	3144.28	207.80	113.80	106.80	113.8	111.90	112.90	106.90	99.44
11:23	731.00	8.14	14.97	14.76	0.31	7.50	3134.59	208.00	113.80	106.60	113.8	112.20	113.20	108.30	98.89
11:24	731.00	11.33	14.97	14.74	0.31	7.52	3128.25	205.30	113.80	106.30	113.8	112.30	112.10	106.70	98.45
11:25	728.00	13.57	14.93	14.73	0.31	7.54	3135.37	212.70	113.80	106.60	113.8	112.60	112.20	107.50	98.14
10 MinAvg	734.50	4.16	14.95	14.70	0.31	7.44	3152.32	207.59	113.52	106.57	113.4	111.53	112.24	109.82	99.43
11:26	737.00	17.29	14.90	14.67	0.31	7.56	3123.40	205.40	113.70	106.30	113.6	112.50	111.80	106.70	97.65
11:27	740.00	23.22	14.92	14.67	0.31	7.58	3122.29	207.10	113.60	106.30	113.6	110.40	111.10	105.90	96.86
11:28	739.00	29.42	14.91	14.61	0.31	7.59	3120.65	206.40	113.60	106.70	113.6	113.60	109.20	106.40	96.02
11:29	748.00	37.46	14.84	14.51	0.31	7.60	3124.81	206.00	113.60	106.50	113.6	113.20	109.80	107.10	94.99
11:30	751.00	42.69	14.85	14.46	0.31	7.58	3141.85	211.10	113.60	107.60	113.6	113.40	112.90	106.50	94.32
C The limestone is drying out. Approximately 2% of the stones are white															
11:31	749.00	49.39	14.87	14.44	0.31	7.57	3144.75	208.00	113.60	107.10	113.6	113.40	112.00	106.60	93.41
11:32	755.00	56.46	14.80	14.37	0.31	7.54	3155.67	206.20	113.50	107.30	113.5	113.50	110.00	106.70	92.52
11:33	780.00	64.20	14.57	14.23	0.31	7.52	3174.20	211.90	113.60	106.90	113.6	113.50	107.90	105.90	91.77
11:34	818.00	73.90	14.36	14.12	0.31	7.52	3180.43	212.40	113.70	106.60	113.7	112.60	109.30	105.60	90.97
11:35	847.00	79.50	14.09	14.14	0.32	7.48	3196.44	214.90	113.60	106.80	113.6	113.30	110.60	105.10	90.61
10 MinAvg	766.40	47.35	14.71	14.42	0.31	7.55	3148.45	208.94	113.61	106.81	113.6	112.94	110.46	106.25	93.91
11:36	855.00	86.70	14.10	14.25	0.32	7.46	3207.46	215.30	113.60	105.80	113.6	110.90	110.50	103.30	89.86
11:37	835.00	93.20	14.15	14.25	0.32	7.45	3207.22	215.20	113.50	106.20	113.5	113.00	113.20	104.70	88.84
11:38	825.00	102.50	14.36	14.26	0.32	7.41	3227.03	215.10	113.60	107.80	113.6	113.60	110.30	104.80	87.58
11:39	838.00	114.50	14.17	13.88	0.33	7.38	3250.70	214.60	113.60	107.40	113.6	113.00	108.80	100.50	86.34
11:40	893.00	127.50	13.70	13.78	0.32	7.44	3207.46	215.30	113.50	106.80	113.5	113.50	112.90	100.50	85.72
11:41	863.00	129.00	14.11	14.11	0.32	7.52	3197.39	215.30	113.60	109.10	113.6	113.40	107.40	98.10	85.05
11:42	835.00	123.90	14.28	14.21	0.31	7.62	3171.83	215.20	113.60	107.60	113.6	113.60	110.60	105.60	85.16
C Water is dripping out of the mist eliminator															
11:43	815.00	125.40	14.42	14.25	0.31	7.63	3161.89	215.30	113.60	108.70	113.6	113.60	109.90	105.50	84.61
11:44	814.00	136.30	14.46	14.19	0.31	7.63	3151.67	215.30	113.60	110.10	113.6	113.60	111.00	106.10	83.26
C Reactor screws have stopped and can not be restarted. It is probably full of screen.															
11:45	821.00	151.40	14.38	14.09	0.31	7.62	3141.65	215.40	113.60	110.70	113.6	113.60	111.30	106.70	81.56
10 MinAvg	839.40	119.04	14.21	14.13	0.32	7.52	3192.43	215.20	113.58	108.02	113.6	113.18	110.59	103.58	85.80

Regeneration via the Vibrating Screen
with No Extra Screen Bracing and Two Layers of Screen

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in.H2O)	Bed dP (in.H2O)	Inlet Flow (acfm)	Inlet Temp. (F)	Outlet Temp. (F)	7' Bed Temp. (F)	5.3' Bed Temp. (F)	3.5' Bed Temp. (F)	1.8' Bed Temp. (F)	Btm. Bed Temp. (F)	SO2 Removal (%)
11:46	841.00	156.80	14.22	14.05	0.31	7.66	3136.52	215.40	113.60	112.40	113.6	113.60	111.90	106.40	81.36
11:47	854.00	169.30	14.13	14.00	0.30	7.70	3115.88	215.40	113.60	113.30	113.6	113.60	111.90	106.70	80.18
11:48	841.00	185.30	14.20	13.97	0.30	7.70	3105.51	215.40	113.70	113.70	113.7	113.70	112.60	106.50	77.97

C
C Run is terminated due to jammed reactor screws
C

Post-Run Bed Inspection: Bed was manually dumped by opening the lower reactor access panel.
 - The entire aluminum screen was torn off and a large section of it was trapped in the twin screws.
 - The reactor chute needs cleaning (2" of dried fines/dust on lower section)
 - The reactor screws discharge chute also needs purged of hardened stone

Run Summary: LEC Run 910708A

Objective: To use the vibrating screen as a dry-method regeneration device.
Total Run Time: 180 minutes (10:55 to 13:55).
SO₂ Removal: 99% to 41% (70% average).
Inlet Gas Rate: 1100 acfm (average).
Bed ΔP: 6 in H₂O. (average)

Operational Conditions:

No.9 limestone from LEC Run 920702A (129 minutes of prior exposure).

Damper Setting: Varied to maintain 3000 acfm.

Three layer outlet screen composed of two hardware cloth screens covering one aluminum screen.

In-duct Steam = 14 psig.

In-duct Spray = 0.3 gpm from 10:55 to 12:30

0.0 gpm from 12:31 to 13:55

Overhead Sprays = 0.25 gpm.

Louver Sprays = Not Installed.

Bed Speed = 20 DT (3995 lb/hr).

Regeneration Device: Single deck vibrating screen equipped with a No.30 mesh screen.

Stone Carry-Over: 0 lbs/min.

Waste fines: 0.7 lb/min (average).

Comments: - The run is terminated due to low inlet gas flow.

LEC Run 910708A

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	8tm. Bed Temp (F)	SO2 Removal (%)
C Initial Conditions: Used stone from 9107??A: Bed Speed = 20 DT: Overhead sprays = 0.25 gpm; Induct sprays = 0.3 gpm; Induct steam = 14 psig (full): Damper will try to be maintained at 3000 acfm															
C 3 layer screen is being used with no center bracing: the vibrating screen is on.															
10:55	910	0	15	14	4.7	0.16	2345	242	90	98	81	89	102	105	100.0
11:00	900	0	15	14	5.4	0.21	2400	244	100	103	100	105	107	107	100.0
11:05	820	0	15	14	5.5	0.23	2770	245	106	105	107	108	108	108	100.0
11:10	825	50	15	14	5.2	0.23	2796	248	108	105	109	108	108	108	93.9
11:15	860	115	15	14	5.8	0.29	3149	249	109	105	109	109	108	107	86.6
C The limestone is still wet															
11:20	890	270	15	13	5.8	0.30	3172	251	109	104	109	108	109	104	69.7
C The limestone is approx. 20% white in color															
11:25	790	315	15	14	6.2	0.28	3085	251	109	103	109	108	108	104	60.1
11:30	800	365	15	14	6.4	0.27	3051	250	109	103	110	107	107	104	54.4
11:35	740	380	15	14	8.1	0.35	3435	251	109	102	109	106	106	104	48.6
11:40	845	545	15	14	7.8	0.31	3233	252	111	103	110	108	108	107	35.5
C The 19' bucket elevator's discharge chute is clogged. The run is restarted at 11:55															
11:55	865	505	15	14	7.6	0.29	3030	212	114	106	112	111	112	108	41.6
12:00	830	490	15	14	7.4	0.29	3094	225	114	107	112	112	110	108	41.0
12:05	775	440	15	14	7.3	0.28	3039	222	115	106	112	112	110	109	43.2
C 16.4 lbs of dust is collected at 12:05 from the vibrating screen = 0.27 lb/min															
12:10	805	435	15	14	7.1	0.28	2986	215	117	107	113	113	112	109	46.0
12:15	865	440	15	14	7.0	0.27	2943	221	118	108	114	114	112	111	49.1
12:20	870	470	15	14	6.8	0.23	2759	219	121	108	117	114	113	112	46.0
12:25	955	485	15	14	6.7	0.23	2764	222	124	109	122	115	110	111	49.2
12:30	1030	525	14	14	6.6	0.20	2529	224	126	108	128	126	113	112	49.0
12:35	1020	525	14	14	6.5	0.13	2057	221	128	109	135	125	116	113	48.5
C The limestone is dark grey, but still dry to the touch.															
12:40	950	475	14	14	6.4	0.09	1734	221	129	109	138	130	117	113	50.0
12:45	870	450	14	14	6.4	0.07	1451	217	130	109	138	131	119	113	48.3
12:50	890	445	14	14	6.3	0.04	1162	226	131	110	135	127	118	113	50.0
C Dust has started coming out of the vibrating screen, the undersize outlet chute is plugged.															
C 33.2 lbs of dust collected = 0.74 lb/min															

LEC Run 910708A

Time	Inlet S02 (ppm)	Outlet S02 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dp (in. H2O)	Inlet dp (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5' Bed Temp (F)	3.5' Bed Temp (F)	1' 8' Bed Temp (F)	Btm. Bed Temp (F)	S02 Removal (%)
12:55	1005	395	14	14	6.2	0.02	889	226	131	109	132	122	117	111	60.7
13:00	920	365	15	14	6.1	0.02	753	225	131	109	128	120	116	110	60.3
13:05	920	315	14	14	6.0	0.01	646	223	131	109	125	119	115	110	65.8
13:10	905	260	14	14	6.0	0.01	553	224	130	108	123	118	115	111	71.3
13:15	870	215	14	14	5.9	0.01	553	224	129	108	122	117	116	112	75.3
13:20	870	155	14	15	5.9	0.01	552	221	128	109	121	117	116	112	82.2
13:25	890	145	14	14	5.8	0.01	584	220	128	109	121	117	116	112	83.7
13:30	885	140	14	14	5.8	0.01	583	217	127	109	119	117	116	112	84.2
13:35	1020	135	13	14	5.7	0.01	583	219	126	109	119	117	116	110	86.8
13:40	935	100	14	14	5.7	0.01	515	216	125	109	118	115	114	108	89.3
13:45	845	70	14	15	5.6	0.01	438	216	125	109	118	115	114	107	91.7
13:50	635	60	14	15	5.6	0.01	438	216	123	109	117	114	113	105	90.6
13:55	885	60	14	15	5.5	0.00	395	220	123	108	116	112	111	104	93.2

C The run is terminated at 13:59 due to low flow and the stone was very sticky. It was close to clogging some of the chutes

C Post-Run Bed Inspection:

- Inlet Louvers are clear
- No bridging
- Outlet screen is wet and completely clogged

Run Summary: **LEC Run 910716A**

Objective: To use the vibrating screen as a dry-method regeneration device.

Total Run Time: 255 minutes (14:05 to 18:20).

SO₂ Removal: 99% to 81% (97% average).

Inlet Gas Rate: 2900 acfm to 243 acfm.

Bed ΔP: 6.5 in H₂O (average).

Operational Conditions:

 Fresh No.9 limestone.

 Three layer outlet screen composed of two hardware cloth screens covering one aluminum screen.

 In-duct Steam = 14 psig.

 In-Duct Spray = 0.30 gpm from 14:05 to 14:40.

 Overhead Sprays = 0.25 gpm from 14:05 to 14:40.

 Louver Sprays = 0.72 gpm from 14:05 to 14:40.

 0.30 gpm from 14:41 to 18:20.

 Bed Speed = 20 DT (3995 lb/hr).

 Regeneration Device: Single deck vibrating screen equipped with a No.30 mesh screen.

 Stone Carry-Over: 0 lbs/min.

 Waste fines: 0.7 lb/min.

Comments: - The run is stopped due to a fouled vibrating screen and low gas flow.

LEC Run 910716A

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
C	Initial Conditions: Fresh, damp stone; Bed Speed = 20 DT; Overhead sprays = 0.25 gpm; Induct spray = 0.3 gpm; louver spray = 0.72 gpm; Induct steam = 14 psig (full)														
C															
C															
1405	870	0	14	16	3.1	0.13	2083	221	106	100	107	107	102	102	100.0
1420	835	0	14	16	4.0	0.26	2924	217	111	106	111	109	109	108	100.0
C	Limestone is still damp														
C															
1430	765	10	14	16	6.6	0.24	2824	228	111	108	108	109	109	108	98.7
C	The limestone appears to be wetter														
C															
1440	795	0	14	16	6.6	0.21	2597	221	109	108	109	109	111	106	100.0
C	Turning off the overhead sprays and the induct spray. Louver sprays are at 0.3 gpm.														
C	The mist eliminator is trickling water.														
C															
1445	700	0	14	16	6.8	0.31	3178	223	109	106	108	108	108	104	100.0
1500	815	0	14	16	6.7	0.28	3053	234	108	104	109	108	108	104	100.0
C	Vapor is still coming out of the stack. The limestone is beginning to dry. it now about 10% white.														
C															
1510	720	0	14	16	6.6	0.28	3006	226	111	111	108	108	108	108	100.0
C	The vibrating screen is started, the dust covers are on. There is now longer any water coming out of the mist eliminator.														
C															
1525	790	0	14	16	6.6	0.21	2604	225	111	106	109	109	109	108	100.0
C	1535 Leak checked the monitors and reversed the sample lines; everything is OK. Collected 31.3 lbs of dust = 1.3 lb/min														
C															
1545	565	0	14	16	6.5	0.14	2138	228	111	106	108	108	108	108	100.0
C	The mist eliminator had a surge of outlet water at >5 gpm for approx. 2 minutes and then slowed to the normal trickle. The dust is more humid														
C															
1550	835	135	14	16	6.5	0.14	2193	235	113	108	109	109	109	109	83.8
C	The damper is now on full (position VII). The stone is about 40% white, vapor is still coming out of the stack.														
C	The vibrating screen is OK (no clogs), but the dust is damp and very little is being removed.														
C															
1600	845	160	14	16	6.5	0.12	1963	234	106	108	109	108	108	108	81.1
C	The oversize coming off the vibrating screen is about 20% white. The top pressure seal needs more stone, it is about 2" above platform.														
C															
1615	830	140	14	16	6.5	0.09	1734	230	113	108	109	109	109	109	83.1
C															

LEC Run 910716A

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
C The limestone is oscillating between 40% white and bone dry.															
1630	850	50	14	15	6.4	0.06	1458	235	113	108	108	109	109	108	94.1
C Collected 36.7 lbs of dust at 1633 = 0.6 lb/min. Added approx. 800 lbs of fresh stone															
1650	885	60	14	14	6.4	0.04	1173	239	109	109	109	109	109	109	93.2
1700	855	40	14	14	6.4	0.03	998	239	108	108	109	109	109	109	95.3
C Collected 30.3 lbs of dust at 1708 = 0.9 lb/min.															
1710	865	15	14	14	6.3	0.02	738	244	115	111	109	111	109	109	98.3
C Collected 5 gal. of mist eliminator water = 0.06 gpm and the dripping continues.															
1720	910	5	14	14	6.3	0.01	657	248	115	108	109	109	109	108	99.5
1730	875	0	14	14	6.3	0.01	561	244	115	108	109	109	109	109	100.0
1740	920	0	14	14	6.2	0.01	562	246	115	108	109	109	109	109	100.0
1800	730	0	14	14	6.2	0.01	560	241	115	108	108	109	111	109	100.0
C The limestone is dark but still dry to the touch. The vibrating screen is no longer producing fines.															
1820	760	0	14	14	6.1	0.00	92.9	243	117	108	109	109	109	109	100.0
C Terminating run due to a clogged vibrating screen and low gas flow.															
C Post-Run Bed Inspection:															
- Inlet louvers are clear															
- No bridging															
- Outlet screen is caked and wet															

Objective for tomorrow: Try running at a lower gas rate and maybe the gas will not entrain the water and penetrate the outlet screen.

Run Summary: **LEC Run 910717A**

Objective: Use a reduced gas flow rate in an attempt to keep the outlet screen mesh dry and therefore clean.

Total Run Time: 240 minutes (10:17 to 14:17).

SO₂ Removal: 99% to 91% (96% average).

Inlet Gas Rate: 2100 acfm to <400 acfm (1400 acfm average).

Bed ΔP: 3.4 in H₂O to 5.8 in H₂O.

Operational Conditions:

 No.9 limestone from LEC Run 920716A (255 minutes of prior exposure).

 Damper Setting: Position I (closed).

 Three layer outlet screen composed of two hardware cloth screens covering one aluminum screen.

 In-duct Steam = 10 psig.

 Overhead Sprays = 0.0 gpm from 10:17 to 12:25.

 0.25 gpm from 12:26 to 12:37.

 Louver Sprays = 0.60 gpm from 10:17 to 10:52.

 0.36 gpm from 10:53 to 11:17.

 0.00 gpm from 11:18 to 12:30.

 0.60 gpm from 12:31 to 12:37.

 0.30 gpm from 12:38 to 13:27.

 0.60 gpm from 13:28 to 14:17.

 Bed Speed = 20 DT (3995 lb/hr).

 Regeneration Device: Single deck vibrating screen equipped with a No.30 mesh screen.

 Stone Carry-Over: 0 lbs/min.

 Waste fines: 1.0 lb/min.

Comments: - The outlet screen was wet and completely fouled at the end of the run.

LEC Run 910717A

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dp (in. H2O)	Inlet dp (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm Bed Temp (F)	SO2 Removal (%)
C Initial Conditions: Used stone from 910716A: Bed Speed = 20 DT: Overhead sprays = 0.0 gpm: Induct. sprays = 0.0 gpm: Louver sprays = 0.6 gpm: Induct steam = 10 psig (full): Damper is closed (Position 1)															
10:17	680	0	14	N/A	3.4	0.23	2761	220	81	73	72	73	74	74	100.0
10:22	785	0	14	N/A	3.7	0.14	2137	233	105	107	111	111	109	105	100.0
10:27	765	0	14	N/A	3.6	0.12	1995	236	110	109	113	113	112	111	100.0
10:32	755	0	14	N/A	3.7	0.11	1927	229	112	111	113	113	113	110	100.0
C The limestone is still damp: white vapor has been coming out of the stack from the start.															
10:37	800	0	13	N/A	3.9	0.11	1894	233	113	110	113	114	114	110	100.0
10:42	750	0	14	N/A	4.1	0.10	1846	235	112	110	113	112	113	109	100.0
10:47	765	0	14	N/A	4.4	0.09	1768	239	113	109	113	109	113	109	100.0
C Limestone is still damp.															
10:52	810	0	N/A	18	4.6	0.09	1745	238	113	110	113	109	113	110	100.0
C The louver sprays are reduced to 0.36 gpm															
10:57	800	0	N/A	18	4.6	0.09	1704	241	114	110	113	111	114	111	100.0
11:02	780	0	N/A	18	4.7	0.08	1647	241	113	110	113	111	113	111	100.0
C The limestone is still damp															
11:07	795	0	N/A	18	4.8	0.08	1648	242	113	110	113	112	113	111	100.0
11:12	800	0	N/A	18	4.9	0.08	1611	240	113	109	113	112	113	111	100.0
C The limestone is becoming wetter															
11:17	860	0	N/A	18	5.1	0.07	1570	246	114	110	114	112	113	112	100.0
C The louver sprays are reduced to 0.0 gpm: the mist eliminator has been leaking water from the start.															
11:22	850	0	N/A	18	4.8	0.07	1573	249	114	109	113	112	111	112	100.0
11:27	885	0	N/A	18	4.6	0.08	1604	254	113	110	113	111	113	113	100.0
11:32	840	0	N/A	18	4.7	0.07	1584	248	113	110	112	111	113	112	98.9
11:37	925	10	N/A	18	4.7	0.07	1569	246	114	111	113	112	114	113	
C The limestone is still damp.															
11:42	975	20	N/A	18	4.7	0.07	1562	250	114	111	113	113	114	111	97.9
11:47	1015	30	N/A	18	4.8	0.07	1569	256	114	112	114	113	113	112	97.0
11:52	925	25	N/A	17	4.7	0.07	1581	245	114	113	112	112	112	113	97.3

LEC Run 910717A

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
C The limestone is still damp.															
11:57	860	25	N/A	18	4.8	0.07	1559	247	113	112	113	112	113	114	97.1
12:02	780	25	N/A	19	5.0	0.07	1515	253	114	112	113	112	112	113	96.8
12:07	765	20	N/A	19	5.3	0.06	1487	264	113	111	113	112	112	113	97.4
C The limestone is becoming dry.															
12:12	730	30	N/A	19	5.4	0.06	1474	264	113	111	112	112	112	110	95.9
12:17	785	45	N/A	19	5.4	0.07	1502	266	114	111	113	111	112	113	94.3
C The limestone is dry enough to start screen. Started screen at 12:18															
12:22	785	35	N/A	19	5.4	0.06	1457	260	114	112	114	112	112	114	95.5
C The overhead sprays are increased to 0.25 gpm at 12:26 in order to see if the removal can be increased.															
12:27	840	20	N/A	18	5.4	0.07	1491	255	115	111	113	112	112	114	97.6
C The louver sprays are increased to 0.6 gpm at 12:30.															
12:32	765	15	N/A	18	5.4	0.06	1414	258	117	115	116	115	115	115	98.0
12:37	905	5	N/A	18	5.5	0.05	1262	251	119	116	119	116	117	116	99.4
C The overhead sprays are turned off, the louver sprays are reduced to 0.3 gpm															
12:42	905	0	N/A	18	5.5	0.04	1149	249	119	116	122	117	118	115	100.0
C 23.2 lbs of dust is collected at 12:42 = 0.97 lb/min															
12:47	900	0	N/A	18	5.5	0.03	1049	258	119	116	121	116	116	114	100.0
12:52	845	15	N/A	18	5.5	0.03	1010	255	118	118	121	114	116	114	98.2
C 28.5 lbs of dust is collected at 12:55 = 2.2 lb/min															
12:57	790	30	N/A	18	5.6	0.03	934	263	119	116	120	114	116	114	96.2
13:02	755	55	14	N/A	5.6	0.02	773	262	119	115	119	114	116	115	92.7
13:07	755	60	14	N/A	5.6	0.01	666	268	119	115	118	115	114	115	92.1
C The limestone is becoming dry (approx. 60% white); the louver sprays are increased to 0.45 gpm.															
13:12	750	65	14	N/A	5.7	0.01	601	261	118	114	117	115	114	114	91.3
C Damper adjustment is made.															

LEC Run 910717A

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
C															
13:17	740	65	14	N/A	5.8	0.01	494	261	118	114	117	114	113	115	91.2
C	22.1 lbs of dust is collected = 1.0 lb/min														
C															
13:22	725	75	14	N/A	5.8	0.00	<400	262	119	116	119	117	115	116	89.7
C	The damper is at full (Position VII).														
C															
13:27	710	80	14	N/A	5.8	0.00	<400	255	120	114	119	117	115	116	88.7
C	Increasing the louver sprays to 0.6 gpm to see if removal can be increased.														
C															
13:32	715	70	14	N/A	5.8	0.00	<400	261	122	115	120	119	116	114	90.2
C	The limestone is bone-dry. alot of fines are being produced by the vibrating screen.														
C															
13:37	715	60	13	N/A	5.8	0.00	<400	255	121	115	119	118	116	114	91.6
13:42	735	55	13	N/A	5.8	0.00	<400	239	122	116	119	119	114	113	92.5
C	The limestone is completely damp. the vibrating screen is by-passed. going to recycle.														
C	11.0 lbs of dust is collected before vibrating screen shut-down = 0.44 lb/min														
13:47	735	45	13	N/A	5.8	0.00	<400	229	121	115	119	118	114	112	93.9
C	The limestone is wet														
C															
13:52	740	40	13	N/A	5.8	0.00	<400	227	121	115	119	118	112	110	94.6
C	The inlet sample port is opened for pitot traverse.														
C															
13:57	745	30	13	N/A	5.8	0.00	<400	226	121	115	119	118	109	108	96.0
14:02	740	20	13	N/A	5.8	0.00	<400	226	120	115	119	117	110	104	97.3
14:07	740	5	13	N/A	5.8	0.00	<400	220	120	112	118	113	108	103	99.3
C	The limestone is completely wet and slightly sloppy. It is starting to clog the chutes.														
C															
14:12	740	0	13	N/A	5.8	0.00	<400	225	119	117	118	117	105	104	100.0
14:17	730	0	13	N/A	5.8	0.00	<400	226	119	115	119	118	108	107	100.0
C	The run is terminated due to low flow and sloppy stone														
C	Post-Run Bed Inspection:														
	- Inlet louvers are clear														
	- No bridging														
	- Outlet screen is wet and completely clogged														

Run Summary: **LEC Run 910719A**

Objective: To use the vibrating screen as a dry-method regeneration device.
Total Run Time: 264 minutes (09:35 to 13:59).
SO₂ Removal: 99% to 66% (+ 90% average).
Inlet Gas Rate: 1500 acfm (average).
Bed ΔP: 4 in H₂O (average).

Operational Conditions:

No.9 limestone from LEC Run 910717A (495 minutes of prior exposure).

Damper Setting: Initially closed.

Three layer outlet screen composed of two hardware cloth screens covering one aluminum screen.

In-duct Steam = 14 psig.

In-duct Spray = 0.0 gpm.

Overhead Sprays = 0.0 gpm.

Louver Sprays = 0.3 gpm.

Bed Speed = 20 DT (3995 lb/hr).

Regeneration Device: Single deck vibrating screen equipped with a No.30 mesh screen.

Stone Carry-Over: 0 lbs/min.

Waste fines: 1.7 lbs/min when the screen was operational.

Comments: - The run was terminated due to low gas flow and the stone was too wet for regeneration.

LEC Run 910719A

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
C	Initial Conditions: Used stone from 910717A; Bed Speed = 20 DT; Overhead sprays = 0.0 gpm; Induct sprays = 0.0 gpm; louver sprays = 0.3 gpm														
C	Induct steam = 14 psig (full); Damper is fully closed (Position I)														
C	3 layer screen is being used with no center bracing; the vibrating screen is on.														
09:35	940	0	13	N/A	2.55	0.11	1885	234	102	100	108	109	99	90	100.0
09:40	955	0	13	N/A	2.62	0.08	1610	239	115	111	113	113	111	113	100.0
C	No water has come out of the mist eliminator, stone is dark grey and has no excess surface moisture (dry to the touch)														
C	There is a small vapor plumb coming out of the stack														
09:50	925	0	13	N/A	2.68	0.08	1588	241	117	111	115	115	115	113	100.0
C	Going to 1/2 steam (7 psig)														
10:00	925	0	13	N/A	2.72	0.07	1572	237	117	111	115	115	115	111	100.0
C	The limestone is still dark grey, no water out of the mist eliminator														
10:10	905	0	N/A	17	2.84	0.07	1556	223	115	109	113	113	113	111	100.0
C	The limestone is drying out, its approximately 40% white.														
10:20	920	15	N/A	17	2.94	0.07	1524	226	117	111	115	115	113	111	98.4
C	The limestone is still about 40% white, reducing the louver sprays to 0.2 gpm														
10:30	950	0	N/A	17	N/A	0.07	1530	232	117	111	117	115	113	111	100.0
C	The limestone is becoming wetter, increasing the damper to maintain proper flow														
10:35	940	5	N/A	17	3.57	0.08	1614	243	117	111	117	115	113	111	99.5
C	The limestone is wet and sticky														
10:40	950	10	N/A	17	3.64	0.08	1612	241	117	111	113	109	113	113	98.9
C	Reducing the louver sprays to 0.0 gpm, since the chutes are becoming clogged														
10:50	985	5	N/A	16	3.47	0.08	1654	237	117	111	113	115	113	111	99.5
10:55	1040	15	N/A	16	3.43	0.09	1682	232	118	111	115	115	115	113	98.6
C	The limestone is dark grey in color once again, but damp														
11:00	1015	15	N/A	16	3.38	0.09	1729	271	118	111	115	115	115	113	98.5

LEC Run 910719A

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
C	The limestone is still dark grey, but is dry to the touch														
11:05	1025	25	N/A	16	3.31	0.09	1702	230	118	111	118	113	113	113	97.6
C	The limestone is 20% white														
11:10	1010	30	N/A	16	3.28	0.09	1702	230	118	111	117	115	113	113	97.0
11:20	995	55	N/A	16	3.30	0.09	1735	239	118	111	113	113	113	113	94.5
C	The limestone is approx. 95% white, starting stone to the vibrating screen														
11:25	1015	80	N/A	16	3.45	0.09	1733	246	118	111	113	113	113	111	92.1
C	The limestone is 20% white.														
11:30	1060	100	N/A	16	3.62	0.09	1742	253	118	111	113	113	113	111	90.6
C	The limestone is bone-dry and very dusty.														
11:35	1020	75	N/A	16	3.85	0.09	1671	223	118	111	113	113	111	111	92.6
C	17.05 lbs of dust is collected at 11:43 = 1.3 lb/min														
11:45	1115	60	N/A	16	4.30	0.08	1630	246	120	111	113	113	111	111	94.6
11:50	1200	80	N/A	15	4.47	0.08	1642	246	120	111	113	113	111	111	93.3
C	I believe that all of this dust from the bone-dry limestone is caking-up the outlet louver screen.														
C	Increasing the induct steam to 10 psig in order to save the outlet screen.														
12:00	1085	90	N/A	16	5.01	0.07	1508	246	122	115	115	115	113	113	91.7
C	27.06 lbs of dust is collected at 12:06 = 1.2 lb/min														
12:15	965	285	N/A	17	5.48	0.08	1689	257	122	115	115	111	111	111	70.5
12:20	980	330	N/A	17	5.55	0.04	1159	262	124	120	124	120	115	113	66.3
C	30.68 lbs of dust is collected at 12:22 = 2.6 lb/min. The limestone is still bone dry.														
12:30	970	320	N/A	17	5.68	0.01	568	262	126	118	113	113	122	113	67.0
C	30.38 lbs of dust is collected at 12:40 = 1.7 lb/min														
12:45	1015	205	N/A	17	5.63	0.00	<400	261	133	120	127	129	122	118	79.8
12:50	1020	125	N/A	17	5.62	0.00	<400	241	133	118	126	126	124	118	87.7

LEC Run 910719A

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
C	30.02 lbs of dust is collected at 12:57 = 1.8 lb/min														
C	13:00	1080	60	N/A	16	5.60	0.00	<400	230	135	122	127	126	122	94.4
C	13:10	1030	25	N/A	16	5.60	0.00	<400	226	136	124	127	126	122	97.6
C	The limestone has stopped making the airborne dust, but it is still 100% white														
C	13:15	1055	10	N/A	16	5.60	0.00	<400	226	136	124	127	126	122	99.1
C	The limestone is turning slightly dark.														
C	23.72 lbs of dust is collected at 13:19 = 1.1 lb/min														
C	13:20	985	0	N/A	16	5.56	0.00	<400	219	133	124	126	124	126	100.0
C	13:30	980	0	N/A	16	5.57	0.00	<400	219	131	124	126	120	122	100.0
C	The limestone is now only 50% white.														
C	13:40	965	0	N/A	16	5.56	0.00	<400	219	129	122	124	120	122	100.0
C	The run is terminated at 13:59 due to low flow and the stone is too wet for the vibrating screen to operate														

Post-Run Bed Inspection:

- Inlet louvers are clear
- No bridging
- Outlet screen is wet and completely clogged, but the Al screen is clean. As usual, the outlet screen had a layer of thick dust on the outside, cementing in a layer of stone trapped inside the area between the first layer of hardware cloth and the aluminum screen. This multi-layer cake is easily removed by a few mild rapps.

Run Summary: **LEC Run 910721A**

Objective: To use the vibrating screen as a dry-method regeneration device.
Total Run Time: 113 minutes (09:52 to 11:45).
SO₂ Removal: 99% to 43% (~60% average).
Inlet Gas Rate: ~2400 acfm (average).
Bed ΔP: ~5.5 in H₂O (average).

Operational Conditions:

No.9 limestone from LEC Run 920719A (759 minutes of prior exposure).

Damper Setting: Varied to maintain 3000 acfm.

Three layer outlet screen composed of two hardware cloth screens covering one aluminum screen.

In-duct Steam = 14 psig.

Overhead Sprays = 0.0 gpm.

Louver Sprays = 0.3 gpm.

Bed Speed = 20 DT (3995 lb/hr).

Regeneration Device: Single deck vibrating screen equipped with a No.30 mesh screen.

Stone Carry-Over: 0 lbs/min.

Waste fines: Not Available.

Comments: - The run is ended when the reactor screws become immobile.

LEC Run 910721A

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
C Initial Conditions: Used stone from 910719A (wet); Bed Speed = 20 DT; Overhead sprays = 0.0 gpm; Induct sprays = 0.0 gpm; louver sprays = 0.3 gpm C Induct steam = 14 psig (full); Damper will be adjusted during the run to try to maintain an inlet gas flow of 3000 acfm; C 3 layer screen is being used with no center bracing; the vibrating screen is on.															
09:52	910	0	14	N/A	N/A	0.10	1863	232	89	80	80	80	81	80	100.0
09:57	925	0	14	N/A	N/A	0.08	1679	239	101	95	87	107	91	100	100.0
10:00	805	0	14	N/A	5.67	0.25	2858	232	115	109	111	109	111	108	100.0
C Damper adjustment is made.															
10:05	835	0	14	N/A	5.65	0.23	2779	239	117	111	115	111	111	106	100.0
C At 10:08 the louver sprays are reduced to 0.0 gpm and the steam is reduced to 5 psig. This is done since the stone chutes are beginning to plug-up very badly.															
10:15	735	45	N/A	18	5.68	0.31	3242	243	115	108	115	111	111	106	93.9
10:22	770	170	N/A	18	5.59	0.26	2935	241	115	109	111	109	111	106	77.9
C The limestone is approx 20% white and no is longer sticky															
10:31	750	290	N/A	18	5.55	0.29	3130	246	115	108	111	113	111	108	61.3
C The limestone is bone-dry and slightly dusty; diverting the stone to the vibrating screen.															
C Increasing the steam to 14 psig (full).															
10:35	805	325	N/A	18	5.55	0.24	2854	246	117	106	111	111	111	109	59.6
10:40	815	365	N/A	18	5.57	0.21	2677	241	118	106	113	113	113	115	55.2
C The limestone is still bone-dry and becoming very dusty															
10:50	860	415	N/A	17	5.54	0.18	2486	241	122	109	115	113	115	115	51.7
10:55	875	430	N/A	17	5.54	0.18	2424	241	122	109	113	113	113	111	50.9
11:00	870	405	N/A	17	5.54	0.15	2253	241	124	109	113	113	113	111	53.4
11:15	840	455	N/A	18	5.56	0.08	1628	255	127	111	113	113	113	117	45.8
11:20	875	500	N/A	17	5.56	0.04	1235	255	131	113	113	115	115	118	42.9
11:30	915	450	N/A	17	5.62	0.00	354	255	131	117	115	118	118	124	50.8
11:40	980	435	N/A	17	5.60	0.00	<400	255	131	117	115	120	118	115	55.6
11:45	930	380	N/A	17	5.59	0.00	<400	257	131	115	118	120	118	115	59.1
C The run is terminated due to jammed reactor screws															
C Post-Run Bed Inspection															
- Inlet louvers clear															
- Some limestone chunks (about fist size)															
- Outlet screen is completely fouled															

Run Summary: **LEC Run 910722A**

Objective: To use the vibrating screen as a dry-method regeneration device.

Total Run Time: 103 minutes (09:57 to 11:40).

SO₂ Removal: 99% to 81%.

Inlet Gas Rate: 1750 acfm (average).

Bed ΔP : 4.6 in H₂O (average).

Operational Conditions:

 Fresh No.9 limestone.

 Damper Setting: Varied to maintain 1800 acfm.

 Three layer outlet screen composed of two hardware cloth screens covering one aluminum screen.

 In-duct Steam = 14 psig.

 Overhead Sprays = 0.0 gpm.

 Louver Sprays = 0.3 gpm.

 Bed Speed = 20 DT (3995 lb/hr).

 Regeneration Device: Single deck vibrating screen equipped with a No.30 mesh screen.

 Stone Carry-Over: 0 lbs/min.

 Waste fines: 1.4 lb/min when the screen was operational.

Comments: - The run is ended when the reactor screws become immobile.
 - The stone was too wet to operate the vibrating screen at the end of the run.

LEC Run 910722A

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in. H2O)	Inlet dP (in. H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
C Initial Conditions: Fresh. damp stone; Bed Speed = 20 DT; Overhead sprays = 0.0 gpm; Induct sprays = 0.0 gpm; louver sprays = 0.3 gpm															
C Induct steam = 14 psig (full); try to keep damper adjusted to around 1800 acfm.															
09:57	1005	0	14	N/A	4.66	0.123	2009	226	86	78	77	76	77	77	100.0
10:05	935	0	14	N/A	4.61	0.072	1560	248	116	107	114	114	112	116	100.0
C Adjusting the damper															
10:10	910	0	14	N/A	4.66	0.107	1898	244	117	110	115	115	113	112	100.0
10:15	920	0	14	N/A	4.59	0.106	1893	247	117	109	115	114	113	111	100.0
10:20	925	0	13	N/A	4.61	0.105	1884	248	117	110	115	112	115	113	100.0
10:25	925	10	14	N/A	4.61	0.099	1834	250	117	110	115	114	116	112	98.9
C The limestone is still damp															
10:30	925	25	14	N/A	4.54	0.100	1845	250	118	110	116	113	114	112	97.3
10:35	955	10	13	N/A	4.51	0.032	1055	266	119	110	117	113	115	114	99.0
C There is a sudden drop in flow. readjusting the damper															
C Started the vibrating screen at 10:39															
10:40	980	35	13	N/A	4.59	0.098	1821	248	119	112	117	117	114	115	96.4
10:45	960	65	13	N/A	4.59	0.099	1832	248	119	112	118	116	115	115	93.2
10:50	1080	105	13	N/A	4.54	0.099	1832	248	120	113	119	117	115	116	90.3
C Collected 15.58 lbs of dust = 1.4 lb/min															
10:55	1005	120	13	N/A	4.54	0.094	1775	245	120	114	119	115	116	116	88.1
11:00	980	115	13	N/A	4.54	0.090	1750	251	121	114	119	115	116	115	88.3
C The stone is wet															
11:10	980	110	14	N/A	4.53	0.079	1640	255	120	114	118	114	116	114	88.8
C At 11:11. the stone is put to recycle since it is too wet for the vibrating screen.															
11:20	1050	145	13	N/A	4.54	0.074	1590	253	118	118	115	116	115	114	86.2
C Damper adjustment															
11:30	1295	215	12	N/A	4.61	0.086	1708	254	123	115	121	117	118	117	83.4
11:40	975	190	13	N/A	4.68	0.069	1489	217	124	116	116	125	129	130	80.5
C The run is terminated due to jammed reactor screws.															
C Post-Run Bed Inspection															
- Inlet louvers clear															
- Outlet screen is partially fouled															

Run Summary: LEC Run 910723A

Objective: To reproduce a modified LEC Run 910717A.

Total Run Time: 247 minutes (09:53 to 14:00).

SO₂ Removal: 99% to 85% (95% average).

Inlet Gas Rate: 1327 acfm (average).

Bed ΔP: 3 in H₂O to 13.5 in H₂O.

Operational Conditions:

 Fresh No.9 limestone.

 Damper Setting: Varied to maintain 1800 acfm.

 Three layer outlet screen composed of two hardware cloth screens covering one aluminum screen.

 In-duct Steam = 14 psig from 09:53 to 10:33.

 5 psig from 10:34 to

 In-duct Spray = 0.3 gpm from 09:53 to 10:33.

 0.0 gpm from 10:34 to 10:37.

 0.3 gpm from 10:38 to 11:02.

 0.15 gpm from 11:03 to 11:26.

 0.23 gpm from 11:27 to 12:11.

 0.30 gpm from 12:12 to 14:00.

 Overhead Sprays = 0.0 gpm from 09:53 to 12:50.

 0.25 gpm from 12:51 to 14:00.

 Louver Sprays = 0.6 gpm from 09:53 to 10:14.

 0.3 gpm from 10:15 to 10:28.

 0.0 gpm from 10:29 to 14:00.

 Bed Speed = 20 DT (3995 lb/hr).

 Regeneration Device: Single deck vibrating screen equipped with a No.30 mesh screen.

 Stone Carry-Over: 0 lbs/min.

 Waste fines: 0.6 lb/min.

Comments: - The run was terminated due to low gas flow.

Starting
07-23-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in H2O)	Bed dP (in H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
C Objective: To reproduce a modified LEC Run 910717A															
C Initial Conditions: Fresh, damp limestone; Bed speed = 20 DT, Overhead sprays = 0.0 gpm; Louver sprays = 0.6 gpm; In-duct spray = 0.3 gpm; in-duct steam = 14 psig															
09:53	0.93	0.77	21.23	20.68	0.01	1.19	490.57	169.90	89.00	75.90	75.60	76.00	75.9	76.50	17.99
09:54	0.73	0.70	21.23	20.68	0.02	1.42	830.84	228.30	89.90	75.70	75.60	75.60	75.6	76.00	3.86
09:55	1.31	0.73	21.23	20.71	0.02	1.46	840.08	243.70	90.30	75.70	75.70	75.70	75.8	75.90	44.66
09:56	1.02	0.78	21.23	20.67	0.02	1.53	758.91	210.00	90.50	75.70	75.70	75.70	75.7	75.70	23.30
09:57	108.00	0.74	18.15	20.66	0.02	1.60	721.41	221.10	90.50	75.80	75.80	75.80	75.8	75.80	99.32
09:58	849.00	0.89	13.33	17.96	0.01	1.66	698.55	221.20	90.60	75.90	75.90	75.90	75.9	75.90	99.89
09:59	0.11E+04	0.85	13.15	13.96	0.01	1.71	698.86	221.80	90.50	75.90	75.90	75.80	75.9	75.90	99.92
10:00	0.11E+04	0.86	13.11	13.96	0.01	1.76	650.65	221.90	90.90	76.10	76.10	75.90	76.1	76.10	99.92
10 MinAvg	313.11	0.78	18.51	19.06	0.01	1.30	711.23	188.88	89.65	75.93	75.73	76.02	76.1	76.30	38.11

C

C The limestone still looks like the original (damp); checked the dP_{bed} with the digital manometer and its OK.

C

10:01	0.11E+04	0.42	13.17	14.06	0.01	1.80	598.43	221.70	90.90	76.10	76.10	76.00	76.1	76.90	99.96
10:02	0.11E+04	0.86	13.25	13.92	0.01	1.80	510.49	222.10	91.00	79.50	76.20	76.20	75.7	86.90	99.92
10:03	0.11E+04	0.91	13.32	13.98	0.00	1.80	360.97	222.10	92.40	91.10	82.20	76.70	89.5	91.10	99.92
10:04	0.11E+04	0.67	13.35	14.03	0.00	1.80	312.63	222.20	105.20	98.20	91.90	78.50	92.4	91.30	99.94

C

C Damper adjustment, trying for a dP_m of 0.1 in. H₂O

C

10:05	0.11E+04	0.65	13.45	14.03	0.00	1.80		222.30	115.30	107.90	104.90	84.60	98.5	92.70	99.94
10:06	0.11E+04	0.78	13.52	13.91	0.00	1.79		222.50	119.90	110.50	111.80	90.50	110.1	96.70	99.93
10:07	0.11E+04	1.12	13.61	13.96	-0.00	1.80		222.50	120.90	113.20	114.40	91.40	118.7	102.50	99.90
10:08	0.11E+04	0.58	13.69	14.03	0.03	2.46	1002.69	219.10	120.90	114.10	115.30	91.50	120.4	104.50	99.95
10:09	0.10E+04	0.42	13.90	14.02	0.11	3.95	1873.51	214.30	121.00	115.00	117.60	94.00	120.9	107.60	99.96
10:10	0.10E+04	0.96	13.96	13.89	0.11	3.92	1868.23	210.50	121.10	115.10	119.80	113.30	121.1	111.70	99.91
10 MinAvg	0.11E+04	0.74	13.52	13.98	0.03	2.29	932.42	219.93	109.86	102.07	101.02	87.27	102.3	96.19	99.93

C

10:11	0.10E+04	0.68	14.06	13.97	0.11	3.94	1858.39	209.60	121.20	114.50	118.80	117.20	121.2	111.20	99.93
10:12	0.10E+04	0.70	14.16	13.98	0.11	3.96	1856.38	214.40	121.20	115.60	114.50	116.00	120.6	108.70	99.93
10:13	989.00	0.86	14.23	13.88	0.09	3.64	1682.14	213.30	121.20	115.20	112.80	115.40	120.2	105.50	99.91
10:14	988.00	0.13	14.25	14.05	0.09	3.65	1670.31	219.30	121.20	113.80	115.00	114.50	120.6	107.00	99.99

C

C Turning down the louver sprays to 0.3 gpm due to a wet, difficult to convey limestone exiting the reactor

C

10:15	983.00	0.88	14.30	13.96	0.09	3.67	1660.94	219.60	121.30	114.00	115.40	115.70	120.7	104.40	99.91
10:16	979.00	1.04	14.27	13.85	0.09	3.68	1656.65	216.10	121.40	112.50	114.10	116.00	119.5	103.30	99.89
10:17	^A^C^A(^C11^A^R1^A														

12:55	0.11E+04	130.50	13.32	14.08	0.06	6.00	1388.46	224.20	125.00	100.50	98.50	106.50	109.3	102.20	88.45
12:56	0.12E+04	130.50	13.27	14.18	0.06	6.07	1357.63	217.10	124.40	102.20	99.00	105.30	107.5	103.90	88.74
12:57	0.12E+04	130.50	13.29	14.10	0.06	6.13	1351.20	210.70	125.80	102.60	99.80	105.10	107.4	103.10	88.70
12:58	0.11E+04	130.50	13.28	14.01	0.06	6.17	1347.65	219.10	125.80	102.60	98.60	105.40	109.3	103.20	88.47
12:59	0.11E+04	130.50	13.27	14.14	0.05	6.21	1339.49	223.10	126.00	103.30	99.00	105.50	109.1	105.10	88.15
13:00	0.11E+04	130.50	13.24	14.05	0.05	6.24	1334.19	217.70	124.20	102.50	99.10	105.60	109.9	104.60	88.20

Starting
07-23-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in H2O)	Bed dP (in H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
10 MinAvg	0.11E+04	130.50	13.25	14.08	0.06	6.01	1374.14	218.55	124.28	101.76	98.84	105.46	108.5	103.49	88.61
13:01	0.11E+04	130.50	13.18	14.07	0.05	6.28	1316.63	212.20	125.10	101.10	98.80	106.00	109.1	104.50	88.54
13:02	0.12E+04	130.50	13.16	14.11	0.05	6.33	1318.68	214.30	123.30	103.30	99.10	106.50	110.4	105.40	88.75
13:03	0.11E+04	130.50	13.20	14.06	0.05	6.44	1287.97	208.00	124.10	102.70	100.00	106.30	108.1	104.70	88.34
C															
C Switching the stone from recycle to the vibrating screen															
C															
13:04	0.11E+04	130.50	13.36	14.05	0.05	6.57	1258.42	203.20	125.90	101.50	98.10	105.10	106.6	103.40	88.50
13:05	0.11E+04	130.50	13.26	14.13	0.05	6.68	1219.90	203.00	126.60	103.20	99.70	105.20	106.5	104.60	88.50
13:06	0.11E+04	130.50	13.28	13.99	0.05	6.81	1193.39	202.70	126.60	102.70	100.40	105.80	109.3	104.70	88.51
13:07	0.12E+04	64.06	13.28	13.98	0.04	6.95	1176.38	213.90	126.40	101.30	101.20	107.40	110.0	106.70	94.49
13:08	0.11E+04	127.20	13.30	14.04	0.04	7.33	1170.08	206.70	127.00	97.70	97.70	105.00	112.4	105.00	88.32
13:09	0.11E+04	120.20	13.43	14.03	0.04	7.40	1153.63	219.70	126.80	103.40	102.00	108.40	112.0	108.80	89.02
13:10	0.11E+04	104.50	13.41	14.07	0.04	7.50	1115.67	208.30	127.00	104.00	103.90	107.80	112.4	109.70	90.66
10 MinAvg	0.11E+04	119.90	13.29	14.05	0.05	6.83	1221.08	209.20	125.88	102.09	100.09	106.35	109.7	105.75	89.36
13:11	0.11E+04	89.60	13.59	13.94	0.04	7.64	1070.54	206.60	126.80	103.70	104.10	110.30	114.1	109.70	92.06
13:12	0.11E+04	75.20	13.50	14.04	0.04	7.76	1061.01	213.50	127.10	104.80	106.20	112.90	116.1	109.90	93.35
13:13	0.11E+04	63.97	13.62	14.03	0.03	7.86	1009.76	207.20	126.80	104.30	108.80	116.30	113.1	111.50	94.23
13:14	0.11E+04	53.75	13.75	13.97	0.03	8.05	1006.66	203.10	126.90	103.90	108.40	118.00	114.0	111.00	95.02
13:15	0.11E+04	45.77	13.47	14.04	0.03	8.21	974.03	202.20	127.20	104.70	106.40	119.10	114.4	111.50	95.91
13:16	0.11E+04	40.50	13.55	14.05	0.03	8.38	959.90	205.30	127.10	106.20	108.50	120.20	113.5	111.40	96.39
13:17	0.11E+04	37.22	13.46	14.05	0.03	8.53	966.44	214.40	127.30	105.10	110.60	120.20	114.1	112.00	96.67
13:18	0.11E+04	34.66	13.47	14.03	0.03	8.62	927.18	206.70	127.10	105.20	109.30	120.30	115.0	111.40	96.92
13:19	0.11E+04	31.47	13.56	14.02	0.03	8.72	928.85	209.10	127.00	104.00	108.60	120.90	113.8	111.40	97.14
13:20	0.11E+04	29.64	13.61	14.00	0.03	8.83	909.51	206.20	126.90	104.40	110.60	119.90	114.3	112.10	97.31
10 MinAvg	0.11E+04	50.18	13.56	14.02	0.03	8.26	981.39	207.43	127.02	104.63	108.15	117.81	114.2	111.19	95.50
13:21	0.11E+04	29.03	13.50	14.00	0.03	8.92	890.51	204.20	126.60	104.70	110.60	120.60	113.4	112.00	97.39
13:22	0.11E+04	31.62	13.49	14.02	0.02	9.01	877.62	212.00	127.10	105.30	111.20	119.80	113.2	112.70	97.18
13:23	0.11E+04	35.03	13.54	14.03	0.02	9.12	854.72	205.10	126.70	104.00	112.10	120.40	113.4	113.40	96.85
13:24	0.11E+04	38.30	13.36	13.97	0.02	9.22	838.32	208.90	127.00	102.90	113.00	120.10	114.6	115.20	96.58
13:25	0.11E+04	40.14	13.28	13.99	0.02	9.33	839.51	210.80	127.00	102.00	112.70	120.00	114.0	116.10	96.44
13:26	0.12E+04	43.18	13.19	14.01	0.02	9.45	829.39	225.90	126.80	101.90	112.80	119.90	113.8	115.50	96.29
13:27	0.12E+04	46.72	13.18	14.03	0.02	9.57	825.02	218.70	126.90	101.40	114.40	119.80	115.4	117.80	96.03
13:28	0.12E+04	48.09	13.19	14.00	0.02	9.75	805.20	218.80	127.00	100.20	113.80	119.90	115.7	118.10	95.87
13:29	0.12E+04	51.01	13.12	14.00	0.02	9.96	800.98	211.70	127.00	100.50	113.80	119.70	115.6	118.00	95.67
13:30	0.12E+04	53.95	13.11	14.02	0.02	10.17	779.88	210.30	127.00	100.30	113.00	119.70	114.1	118.40	95.47
10 MinAvg	0.11E+04	41.71	13.30	14.01	0.02	9.45	834.11	212.64	126.91	102.32	112.74	119.99	114.3	115.72	96.38
13:31	0.12E+04	56.02	13.05	14.01	0.02	10.36	782.67	215.10	126.90	99.50	112.70	118.90	116.2	118.90	95.29
13:32	0.12E+04	59.44	13.07	13.97	0.02	10.44	742.74	219.50	126.90	99.80	111.70	118.50	116.7	116.60	94.92
13:33	0.12E+04	61.92	13.15	13.97	0.01	10.54	699.43	222.90	127.00	102.20	113.50	116.70	116.0	117.10	94.75
13:34	0.12E+04	66.22	13.19	14.02	0.01	10.62	653.60	228.10	127.00	99.90	112.10	117.40	114.2	118.00	94.29
13:35	0.12E+04	70.90	13.27	14.00	0.01	10.71	599.35	223.80	126.90	100.50	110.70	116.80	117.8	116.70	93.85
13:36	0.12E+04	75.00	13.24	14.10	0.01	10.78	542.53	224.80	127.00	104.40	110.40	114.20	118.3	115.50	93.50
13:37	0.12E+04	79.90	13.20	14.05	0.01	10.86	474.18	212.60	127.00	104.30	107.90	114.10	118.3	117.10	93.15
13:38	0.12E+04	85.00	13.13	14.06	0.00	10.94	404.88	226.50	126.90	104.20	108.50	113.00	119.3	116.30	92.81
13:39	0.12E+04	89.00	13.10	14.09	0.00	11.00	313.23	224.80	127.00	103.80	108.30	112.50	120.5	117.20	92.55

C
C The limestone is still bone dry

Starting
07-23-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in H2O)	Bed dP (in H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
10 MinAvg	0.12E+04	73.66	13.15	14.02	0.01	10.73	539.33	222.16	126.97	102.28	110.43	115.45	117.8	117.16	93.74
13:41	0.12E+04	98.20	13.03	14.12	0.01	12.68	543.67	227.70	127.10	105.40	108.40	112.00	120.4	118.20	91.83
13:42	0.12E+04	103.30	13.02	13.98	0.01	13.47	596.36	217.00	127.20	107.80	110.10	111.70	120.6	117.40	91.33
13:43	0.12E+04	108.10	12.92	13.96	0.01	13.64	542.64	225.10	127.30	108.10	110.50	111.00	121.4	116.20	91.08
C C The damper is now wide open. The outlet louver screen must be completely fouled															
13:44	0.12E+04	113.00	12.90	13.98	0.01	13.68	478.39	224.60	127.40	106.20	112.70	111.30	123.7	115.70	90.78
13:45	0.12E+04	117.90	12.79	14.01	0.00	13.73	402.93	219.90	127.60	105.90	114.00	111.40	127.3	116.20	90.18
13:46	0.12E+04	121.50	12.80	14.03	0.00	13.68	312.61	222.10	127.50	105.30	112.80	109.20	127.5	115.50	89.85
13:47	0.12E+04	125.00	12.81	13.97	0.00	13.66		218.50	127.70	102.90	111.40	108.90	127.7	117.10	89.75
13:48	0.12E+04	127.90	12.80	14.08	0.00	13.65		217.80	127.70	103.30	109.80	108.80	127.7	118.80	89.62
13:49	0.12E+04	132.40	12.72	14.11	-0.00	13.65		219.50	127.70	104.20	111.70	109.40	127.7	119.20	89.38
13:50	0.13E+04	139.10	12.62	14.08	-0.00	13.63		219.70	127.80	104.90	112.20	110.10	127.9	118.60	88.93
10 MinAvg	0.12E+04	118.64	12.84	14.03	0.00	13.55	479.43	221.19	127.50	105.40	111.36	110.38	125.2	117.29	90.27
13:51	0.13E+04	143.00	12.65	14.00	-0.01	13.62		220.20	127.80	103.70	112.80	112.40	129.6	118.50	88.59
13:52	0.12E+04	148.00	12.59	13.98	-0.01	13.63		218.50	127.90	103.60	112.50	111.20	130.1	119.40	88.12
13:53	0.13E+04	154.60	12.53	13.90	-0.01	13.62		210.80	127.90	104.70	112.80	111.90	130.5	119.60	87.78
13:54	0.13E+04	156.50	12.58	14.05	-0.01	13.60		220.50	127.90	105.00	112.50	111.70	132.0	118.90	87.72
13:55	0.13E+04	159.50	12.62	14.03	-0.01	13.57		212.90	127.90	106.00	112.70	112.00	130.9	119.40	87.39
13:56	0.13E+04	163.70	12.56	14.03	-0.01	13.56		215.80	127.90	106.70	112.30	112.90	130.2	118.50	87.12
13:57	0.13E+04	167.90	12.60	14.03	-0.01	13.57		209.40	127.90	105.60	112.20	111.10	130.0	120.50	86.90
13:58	0.13E+04	170.60	12.67	14.04	-0.02	13.55		210.30	127.90	106.70	112.60	112.70	131.7	120.40	86.47
13:59	0.12E+04	174.80	12.65	13.99	-0.02	13.54		214.70	127.90	108.60	113.10	112.70	131.4	120.60	

Run Summary: LEC Run 910724A

Objective: To check the SO₂ removal with the SO₂ monitor on the 100 ppm scale as per B&W's request.

Total Run Time: 141 minutes (14:46 to 17:07).

SO₂ Removal: (97% average).

Inlet Gas Rate: 1450 acfm (average).

Bed ΔP: 1.7 in H₂O to 12.3 in H₂O.

Operational Conditions:

Fresh No.9 limestone.

Damper Setting: Varied to maintain 1500 acfm.

Three layer outlet screen composed of two hardware cloth screens covering one aluminum screen.

In-duct Steam = 10 psig.

Overhead Sprays = 0.0 gpm.

Louver Sprays = 0.3 gpm.

Bed Speed = 20 DT (3995 lb/hr).

Regeneration Device: Single deck vibrating screen equipped with a No.30 mesh screen.

Stone Carry-Over: 0 lbs/min.

Waste fines: Not Available.

Comments: - The run was terminated when the reactor screws became inoperative.

Starting
07-24-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in H2O)	Bed dP (in H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
C Objective: To test the outlet SO2 monitor on the 100 ppm scale after being calibrated with 49.96 ppm cal. gas															
C Initial Conditions: Fresh, damp limestone; Overhead sprays = 0.0 gpm; louvers sprays = 0.3 gpm; In-duct spray = 0.0 gpm; In-duct steam injection = 10 psig;															
C Bed speed = 20 DT															
C Note: The outlet O2 monitor is broken. The inlet monitor is on the inlet sample line initially.															
14:46	485.20	0.18	15.06	21.36	0.03	1.72	1018.20	218.40	89.30	74.10	74.50	74.10	74.1	74.40	99.96
14:47	756.00	0.44	14.47	21.19	0.03	1.76	987.03	220.00	89.30	74.20	74.10	72.20	72.2	74.60	99.94
14:48	841.00	0.68	14.35	21.24	0.03	1.79	953.78	220.30	89.50	70.60	73.30	68.21	71.7	72.90	99.92
14:49	874.00	0.97	14.38	21.18	0.03	1.83	919.35	220.70	89.60	69.42	73.10	66.81	71.3	72.50	99.89
14:50	905.00	0.90	14.27	21.14	0.02	1.86	882.70	219.80	89.50	69.09	73.20	65.85	70.6	73.80	99.90
10 MinAvg	391.80	0.28	17.54	21.10	0.02	1.53	996.61	188.39	89.15	74.17	75.70	73.25	75.6	75.85	100.29
14:51	909.00	0.81	14.30	21.31	0.02	1.87	845.49	220.40	89.60	69.54	72.60	66.05	72.8	75.50	99.91
14:52	912.00	0.77	14.28	21.39	0.02	1.87	785.97	220.80	89.70	74.00	74.50	71.00	73.5	86.00	99.92
14:53	923.00	0.83	14.23	21.39	0.02	1.85	721.15	220.60	89.70	87.50	82.30	85.30	79.9	89.60	99.91
14:54	923.00	0.82	14.18	21.22	0.01	1.83	649.98	220.50	90.70	89.70	89.70	89.80	89.7	89.70	99.91
14:55	934.00	0.86	14.14	21.11	0.01	1.82	598.03	220.80	95.80	90.00	89.70	90.80	89.7	89.70	99.91
14:56	938.00	0.93	14.11	21.29	0.01	1.82	570.03	220.40	99.50	91.40	89.80	94.30	90.1	89.80	99.90
14:57	945.00	0.93	14.04	21.16	0.01	1.81	540.34	219.30	107.50	91.60	89.90	95.00	91.4	90.00	99.90
C Louver sprays are increased to 0.3 gpm, the in-duct spray is increased to 0.3 gpm. the damper is being adjusted.															
14:58	943.00	0.82	14.02	21.32	0.01	1.82	509.74	220.10	111.80	90.90	91.20	97.30	96.1	90.50	99.91
14:59	946.00	0.86	14.00	21.25	0.02	1.97	720.09	218.60	114.90	89.90	94.50	97.10	98.0	89.80	99.91
15:00	937.00	0.76	14.13	21.31	0.03	2.19	919.15	220.40	114.90	90.40	101.20	98.80	104.3	90.00	99.92
10 MinAvg	931.00	0.84	14.14	21.27	0.02	1.88	686.00	220.19	100.41	86.49	87.54	88.54	88.6	88.06	99.91
15:01	940.00	0.73	14.07	21.23	0.02	2.20	881.47	217.90	117.10	89.90	106.30	100.90	106.0	90.10	99.92
15:02	951.00	0.72	14.04	21.11	0.02	2.21	881.34	217.70	114.60	94.20	105.20	102.10	105.6	90.10	99.92
15:03	954.00	0.71	14.03	21.20	0.02	2.24	858.25	210.60	116.00	95.20	106.20	104.00	108.3	90.70	99.93
15:04	958.00	0.79	13.97	21.23	0.02	2.26	861.76	216.10	118.50	96.30	105.50	105.00	108.4	89.90	99.92
15:05	969.00	0.68	13.95	21.22	0.06	3.02	1386.82	200.20	119.00	102.70	105.20	104.70	108.5	90.00	99.93
C Damper setting is completed.															
15:06	970.00	0.71	13.94	21.07	0.07	3.22	1479.74	195.00	118.60	103.90	108.80	104.50	108.8	92.80	99.93
15:07	970.00	0.75	14.32	21.08	0.07	3.26	1471.04	196.70	119.20	106.00	111.30	113.60	115.1	93.10	99.92
C The inlet O2 monitor is now reading the outlet gas sample															
C The limestone is getting a little wet															
15:08	968.00	0.71	16.92	21.35	0.07	3.29	1465.77	192.00	119.40	103.20	108.60	113.10	113.1	97.70	99.93
15:09	967.00	0.73	16.90	21.24	0.07	3.33	1465.99	192.20	119.70	97.70	108.70	111.90	115.1	96.10	99.92
15:10	965.00	0.72	16.98	21.29	0.07	3.38	1456.89	193.60	119.40	98.80	106.70	108.40	110.3	94.60	99.92
10 MinAvg	961.20	0.72	14.91	21.20	0.05	2.84	1220.91	203.20	118.15	98.79	107.25	106.82	109.9	92.51	99.92
15:11	994.00	0.83	16.86	21.21	0.07	3.41	1458.34	194.90	119.70	98.80	106.40	107.60	108.2	93.70	99.92
15:12	0.10E+04	0.74	16.81	21.24	0.07	3.45	1460.01	196.40	119.50	97.10	105.90	108.00	108.3	93.70	99.93
15:13	0.10E+04	0.78	16.79	21.08	0.07	3.48	1467.55	203.20	119.40	95.90	106.40	107.30	109.3	92.10	99.92
15:14	0.10E+04	0.82	16.86	21.08	0.07	3.51	1449.68	196.80	119.10	95.00	107.60	107.50	110.2	91.90	99.92
15:15	0.10E+04	0.82	16.94	21.29	0.07	3.53	1441.55	199.30	118.20	96.60	109.20	105.60	111.9	93.90	99.92
C The limestone is still wet to the touch															

LEC RUN 910724A

Starting
07-24-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in H2O)	Bed dP (in H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
15:16	989.00	0.81	17.04	21.19	0.06	3.55	1435.25	203.60	118.90	97.50	110.00	104.70	112.4	93.40	99.92
15:17	959.00	0.84	17.14	21.24	0.06	3.60	1430.16	198.90	118.10	97.50	105.60	106.90	109.9	93.50	99.91
15:18	950.00	0.92	17.17	21.21	0.06	3.63	1417.50	197.40	118.10	97.40	108.70	106.00	110.4	92.20	99.90
15:19	932.00	0.87	17.39	21.35	0.06	3.67	1415.12	205.60	117.70	98.70	110.10	104.00	113.6	93.20	99.91
15:20	938.00	0.78	17.28	21.16	0.06	3.71	1396.44	198.60	117.90	98.00	108.60	103.60	113.5	92.70	99.92
10 MinAvg	982.20	0.82	17.03	21.21	0.07	3.55	1437.16	199.47	118.66	97.45	107.85	106.12	110.8	93.03	99.92
15:21	934.00	0.91	17.37	21.20	0.06	3.76	1401.84	203.70	116.50	98.90	106.10	103.30	108.9	94.90	99.90
C															
C The SO2 out taken from the back of the SO2 monitor is 0.010 VDC which equates to 1.0 ppm.															
C The limestone is getting even wetter, its almost too wet for the chutes															
C															
15:22	925.00	0.95	17.47	21.20	0.06	3.81	1401.52	203.40	118.90	97.40	108.40	101.60	111.7	94.20	99.90
15:23	941.00	1.02	17.46	21.20	0.06	3.87	1401.03	213.80	117.40	97.20	106.60	100.70	108.3	94.70	99.89
15:24	940.00	0.94	17.53	21.23	0.06	3.91	1419.26	220.30	118.20	98.30	107.10	100.10	108.1	93.50	99.90
15:25	941.00	0.93	17.52	21.19	0.06	3.93	1401.03	213.80	117.50	96.40	106.10	101.20	108.1	93.70	99.90
15:26	912.00	0.91	17.70	21.24	0.06	3.97	1418.64	219.70	118.00	95.90	109.10	99.70	111.1	94.70	99.90
15:27	900.00	0.83	17.75	21.18	0.06	4.03	1399.99	212.80	117.00	95.40	107.70	101.20	108.5	93.10	99.91
15:28	907.00	0.74	17.66	21.28	0.06	4.08	1399.47	212.30	118.00	95.10	107.50	99.60	107.5	92.30	99.92
C															
C The louver sprays have been turned off due to the water ladened stone is making the 19' bucket elevator miss more than half of its throws.															
C															
15:29	909.00	0.67	17.60	21.43	0.06	4.13	1388.05	212.40	116.40	95.50	106.70	99.20	106.0	93.20	99.93
15:30	931.00	0.96	17.48	21.42	0.06	4.14	1393.00	217.20	115.20	97.90	106.20	101.50	106.7	94.10	99.90
10 MinAvg	924.00	0.89	17.55	21.26	0.06	3.96	1402.38	212.94	117.31	96.80	107.15	100.81	108.5	93.84	99.90
15:31	960.00	0.85	17.36	21.32	0.06	4.19	1394.13	218.30	116.50	98.00	107.30	102.30	107.3	93.60	99.91
15:32	988.00	0.85	17.17	21.36	0.06	4.25	1392.28	216.50	116.50	94.10	107.10	100.60	108.6	91.80	99.91
15:33	0.10E+04	0.81	17.03	21.38	0.06	4.30	1383.18	219.00	116.80	92.80	106.30	102.70	106.9	92.10	99.92
15:34	0.10E+04	0.83	16.93	21.33	0.06	4.33	1363.61	211.30	117.90	91.90	106.50	104.20	108.6	93.30	99.92
15:35	0.10E+04	0.89	16.92	21.22	0.04	3.70	1093.74	217.00	117.70	94.20	107.90	104.80	108.3	94.70	99.91
C															
C The 19' bucket elevator motor has tripped off due to the wet limestone. Stopped the fan and the water. Going to zero gas for the monitors.															
C															
15:36	0.10E+04	0.59	16.96	21.31	-0.03	1.03		172.20	114.10	90.80	107.30	103.60	107.8	92.00	99.94
15:37	0.11E+04	0.83	17.83	21.22	-0.03	0.48		154.80	111.90	90.70	94.70	97.30	100.5	90.40	99.93
15:38	592.50	0.54	22.37	21.38	-0.03	0.32		148.80	90.60	90.70	91.20	93.20	93.7	92.90	99.91
15:39	76.10	0.29	23.97	21.32	-0.03	0.27		148.80	84.50	90.30	90.30	90.50	90.3	90.30	99.62
15:40	35.38	0.11	24.05	21.39	-0.03	0.26		149.00	82.40	90.40	90.40	90.40	90.4	90.40	99.69
10 MinAvg	784.20	0.66	19.06	21.32	0.01	2.31	1325.39	185.57	106.89	92.39	100.90	98.96	102.2	92.15	99.87
15:41	26.77	0.14	24.10	21.42	-0.03	0.26		149.10	89.00	90.10	90.40	90.00	90.4	90.30	99.46
15:42	21.72	0.15	24.16	21.32	-0.03	0.26		148.80	90.00	90.00	90.10	89.70	90.0	89.20	99.31
15:43	19.10	0.13	24.16	21.30	-0.03	0.26		148.70	89.50	89.40	88.70	87.60	89.4	84.00	99.32
15:44	18.96	0.06	24.13	21.30	-0.04	0.26		148.80	89.90	86.40	84.80	82.90	84.4	79.00	99.70
15:45	16.71	0.08	24.06	21.25	-0.03	0.52		150.00	89.50	81.30	78.60	79.90	78.7	77.10	99.55
C															
C Restarted the fan, reconnected the sample lines. The louver sprays are at 0.0 gpm, the in-duct spray = 0.15 gpm and the bed speed has been reduced to 10 DT.															
C															
15:46	15.62	0.14	23.97	21.22	0.07	4.37	1482.52	216.80	92.20	89.90	89.90	90.20	90.7	89.70	99.13
15:47	15.80	0.04	23.83	21.34	0.06	4.29	1433.71	223.20	107.90	92.30	99.20	99.40	103.0	91.50	99.72
15:48	169.50	0.16	20.29	21.32	0.06	4.26	1438.95	228.20	116.70	92.10	97.90	99.80	106.0	91.80	99.90
15:49	97.00	0.43	16.84	21.19	0.06	4.26	1444.16	233.20	114.80	90.30	90.60	97.30	102.6	91.00	99.95

Starting
07-24-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in H2O)	Bed dP (in H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
10 MinAvg	219.32	0.18	22.24	21.29	0.02	2.30	1452.10	188.53	99.17	89.22	90.06	91.10	93.2	87.42	99.60
15:51	975.00	0.54	16.99	21.16	0.06	4.29	1476.51	242.30	110.60	90.50	90.50	91.80	93.8	90.50	99.94
15:52	957.00	0.58	17.14	21.14	0.06	4.34	1377.25	160.60	107.90	90.50	90.50	90.80	90.9	90.50	99.94
15:53	936.00	0.48	17.38	21.29	0.06	4.38	1408.30	199.20	106.70	90.70	90.70	91.30	90.9	90.70	99.95
15:54	908.00	0.77	17.54	21.19	0.06	4.43	1409.74	211.20	106.70	90.70	90.70	91.80	92.8	90.70	99.92
15:55	898.00	0.77	17.66	21.25	0.06	4.44	1388.05	212.40	108.10	90.80	92.90	95.00	99.7	91.20	99.91
15:56	879.00	0.69	17.78	21.52	0.06	4.43	1390.63	214.90	111.20	93.70	97.90	96.30	103.3	92.60	99.92
15:57	873.00	0.72	17.87	21.30	0.06	4.42	1379.10	215.00	112.90	96.70	100.90	98.90	105.3	93.30	99.92
15:58	866.00	0.79	17.93	21.32	0.06	4.42	1385.92	221.70	116.40	94.80	104.20	99.50	108.3	93.30	99.91
15:59	871.00	0.76	17.92	21.23	0.06	4.42	1386.03	221.80	116.00	95.50	103.90	100.20	107.7	95.90	99.91
16:00	868.00	0.75	17.98	21.28	0.06	4.40	1396.60	220.70	115.90	93.70	105.40	101.70	108.1	95.70	99.91
10 MinAvg	903.10	0.68	17.62	21.27	0.06	4.40	1399.81	211.98	111.24	92.76	96.76	95.73	100.1	92.44	99.92
16:01	860.00	0.78	17.97	21.37	0.06	4.39	1397.01	221.10	117.20	95.60	109.20	100.20	109.3	94.70	99.91
C Bed speed is increased to 20 DT, louvers sprays = 0.3 gpm and the damper is adjusted to achieve around 3000 acfm															
C The limestone is dry to the touch															
16:02	867.00	0.88	17.87	21.19	0.06	4.38	1408.29	220.80	115.70	96.70	107.10	100.80	107.9	96.70	99.90
16:03	891.00	0.74	17.73	21.41	0.15	6.76	2189.33	213.60	118.10	98.80	105.40	99.70	107.3	96.40	99.92
16:04	871.00	0.96	17.21	21.35	0.31	11.04	3122.23	204.90	119.10	98.30	106.10	99.20	108.6	97.00	99.89
16:05	860.00	1.17	17.02	21.25	0.31	11.07	3134.35	207.90	117.90	95.70	103.90	97.10	106.7	96.60	99.86
16:06	871.00	2.53	16.90	21.35	0.32	11.38	3175.76	204.10	117.90	94.00	103.00	96.20	105.7	95.70	99.71
16:07	881.00	4.74	16.79	21.30	0.31	11.42	3170.01	208.00	116.80	92.60	100.20	96.20	105.3	94.50	99.46
16:08	886.00	7.76	16.71	21.09	0.31	11.49	3135.56	204.10	116.10	93.90	98.40	96.30	104.2	92.80	99.12
16:09	878.00	10.38	16.70	21.28	0.30	11.55	3116.20	213.30	116.70	92.80	99.00	96.20	103.8	93.50	98.82
16:10	888.00	12.33	16.67	21.40	0.29	11.62	3049.20	202.20	116.20	95.70	99.40	95.90	103.9	94.10	98.61
C The limestone is now wet, turning off the louver sprays															
10 MinAvg	875.30	4.23	17.16	21.30	0.24	9.51	2689.79	210.00	117.17	95.41	103.17	97.83	106.3	95.20	99.52
16:11	892.00	13.85	16.60	21.18	0.29	11.68	3041.82	210.40	115.60	93.10	101.00	96.40	103.7	93.10	98.45
16:12	900.00	15.78	16.57	21.31	0.28	11.75	2985.29	204.10	117.10	91.50	101.50	97.80	103.2	94.20	98.25
16:13	901.00	18.99	16.55	21.41	0.28	11.80	2956.16	203.00	115.90	91.80	103.90	97.80	103.7	92.90	97.89
16:14	906.00	21.64	16.49	21.35	0.27	11.85	2931.34	201.50	117.10	91.70	103.20	98.30	102.3	91.40	97.61
16:15	917.00	24.59	16.43	21.38	0.27	11.85	2933.56	202.50	117.50	91.30	102.00	98.80	101.3	90.50	97.32
16:16	917.00	28.64	16.42	21.38	0.27	11.84	2924.84	201.00	117.70	91.30	102.10	99.20	101.0	90.60	96.88
16:17	956.00	31.26	16.25	21.27	0.27	11.85	2924.74	203.40	117.30	92.30	104.30	101.60	104.1	90.90	96.73
16:18	981.00	33.80	16.18	21.33	0.27	11.86	2932.66	207.00	116.10	94.20	104.10	101.10	104.6	91.70	96.55
16:19	978.00	37.36	16.12	21.33	0.27	11.85	2893.61	194.20	116.40	93.90	104.90	101.60	105.2	92.30	96.18
16:20	960.00	40.39	16.10	21.32	0.26	11.86	2887.90	199.00	117.80	91.90	102.50	101.00	103.8	91.10	95.79
10 MinAvg	930.80	26.63	16.37	21.33	0.27	11.82	2941.19	202.61	116.85	92.30	102.95	99.34	103.3	91.87	97.17
16:21	945.00	44.29	16.12	21.27	0.26	11.87	2871.27	193.90	118.30	91.30	101.20	100.00	104.9	91.10	95.31
16:22	941.00	47.63	16.19	21.30	0.23	10.91	2711.63	200.80	116.90	92.80	103.60	101.80	105.4	92.30	94.94
C The bulk screw conveyor discharge is clogged, everything is turned off.															
16:23	967.00	50.20	16.92	21.38	-0.02	1.74		213.20	112.20	92.50	103.30	100.10	104.6	91.60	94.81
16:24	0.11E+04	35.14	17.66	21.39	-0.03	0.49		170.60	109.10	90.70	96.40	96.70	99.1	91.40	96.74
16:25	813.00	19.72	19.22	21.35	-0.03	0.27		163.50	90.10	91.20	90.70	91.70	92.3	90.80	97.57
16:26	458.50	14.16	23.50	21.28	-0.04	0.20		163.60	79.00	90.60	90.60	90.90	90.7	90.60	96.91

LEC RUN 910724A

Starting
07-24-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in H2O)	Bed dP (in H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
16:27	258.90	10.34	23.70	21.33	-0.04	0.18		163.70	77.00	90.70	90.70	90.70	90.7	90.70	96.01
16:28	163.00	7.91	23.71	21.21	-0.04	0.19		163.70	86.00	90.60	90.60	90.70	90.7	90.70	95.15
16:29	114.30	6.43	23.71	21.37	-0.04	0.18		163.70	89.20	90.70	90.00	90.10	90.1	90.60	94.37
16:30	87.30	5.43	23.71	21.36	-0.04	0.17		163.80	90.50	88.90	87.00	85.60	88.1	87.60	93.78
10 MinAvg	582.50	24.13	20.44	21.32	0.02	2.62	2791.45	176.05	96.83	91.00	94.41	93.83	95.7	90.74	95.56
16:31	69.56	4.79	23.70	21.18	-0.04	0.18		163.70	89.90	84.10	78.80	79.90	81.2	81.20	93.11
16:32	57.99	4.20	23.68	21.18	-0.04	0.17		163.70	89.70	78.40	75.90	77.40	77.1	78.40	92.76
16:33	50.75	3.70	23.66	21.46	-0.04	0.18		163.40	89.50	76.90	76.00	76.70	76.1	76.30	92.70
16:34	43.51	3.30	23.65	21.33	-0.04	0.18		163.60	89.50	76.00	76.00	76.00	76.0	76.50	92.41
16:35	39.41	2.94	23.64	21.35	-0.04	0.17		160.00	90.30	76.00	76.00	76.00	76.0	76.30	92.55
16:36	35.20	2.74	23.62	21.37	-0.04	0.18		156.10	90.40	76.00	76.00	76.00	76.0	76.00	92.22
C Restarting run, bed speed is equal to 20 DT.															
16:37	87.40	2.45	22.29	21.45	0.22	9.13	2679.56	214.20	90.60	82.70	83.10	84.60	85.2	83.60	97.19
16:38	746.00	8.23	16.74	21.24	0.30	11.85	3196.49	250.80	95.40	90.80	90.80	90.80	90.8	90.80	98.90
16:39	888.00	35.76	16.22	21.27	0.30	11.77	3211.71	250.50	102.40	90.90	90.90	90.90	91.0	90.90	95.97
16:40	892.00	50.11	16.22	21.36	0.30	11.82	3105.63	213.20	102.10	90.90	90.90	90.90	90.9	90.90	94.38
10 MinAvg	290.98	11.82	21.34	21.32	0.09	4.56	3048.35	189.92	92.98	82.27	81.44	81.92	82.0	82.09	94.22
16:41	882.00	54.60	16.28	21.37	0.30	11.83	3017.61	182.00	105.30	91.00	91.00	91.00	91.5	91.00	93.81
16:42	884.00	58.62	16.19	21.46	0.29	11.81	3019.70	193.90	108.70	91.30	94.10	92.50	94.0	91.10	93.37
16:43	881.00	63.16	16.18	21.32	0.29	11.78	3017.69	202.10	112.10	91.70	97.20	95.30	95.4	91.20	92.83
16:44	881.00	66.24	16.18	21.38	0.29	11.77	3006.53	199.50	114.80	92.90	97.90	97.50	97.3	91.40	92.48
16:45	877.00	69.87	16.13	21.35	0.28	11.77	3012.57	206.80	115.50	92.50	98.90	96.60	97.9	91.50	92.03
16:46	887.00	73.60	16.02	21.19	0.28	11.76	3002.32	204.60	115.10	92.00	100.90	98.50	98.0	93.20	91.70
16:47	894.00	77.30	15.98	21.38	0.28	11.77	2990.28	208.70	116.80	92.90	102.90	97.80	98.3	92.00	91.35
16:48	907.00	79.40	15.94	21.40	0.28	11.78	2959.73	202.20	116.30	94.40	103.80	99.50	101.6	93.90	91.25
16:49	916.00	82.00	15.93	21.32	0.27	11.81	2938.50	202.30	116.40	93.70	105.40	100.20	102.1	93.10	91.05
16:50	932.00	83.50	15.85	21.41	0.27	11.85	2926.80	211.80	117.70	95.90	107.50	99.40	101.3	94.40	91.04
10 MinAvg	894.10	70.83	16.07	21.36	0.28	11.79	2989.17	201.39	113.87	92.83	99.96	96.83	97.7	92.28	92.09
16:51	961.00	87.10	15.82	21.46	0.26	11.89	2876.23	203.70	118.20	95.30	108.50	100.70	102.9	95.50	90.94
16:52	986.00	90.40	15.66	21.53	0.26	11.94	2872.98	209.90	118.80	95.50	109.80	100.20	103.8	93.20	90.85
16:53	998.00	98.60	15.59	21.10	0.25	11.96	2817.40	202.20	118.50	95.00	106.60	102.50	104.3	95.30	90.12
16:54	995.00	100.50	15.59	21.23	0.25	12.02	2780.97	198.30	119.20	96.00	106.60	106.70	104.7	92.90	89.90
C Switching the outlet SO2 monitor to the 1000 scale. When switching to a new scale, the reading will jump for a short time.															
16:55	980.00	253.40	15.75	21.01	0.22	12.09	2677.34	207.10	120.00	90.60	112.70	112.70	105.3	90.60	74.14
16:56	978.00	135.40	15.81	21.19	0.23	12.11	2696.40	193.40	119.70	94.30	110.10	110.10	106.2	97.70	86.16
16:57	968.00	113.90	15.87	21.29	0.23	12.12	2676.28	200.70	119.80	96.60	110.00	110.00	107.0	96.60	88.23
16:58	951.00	115.00	16.00	21.21	0.22	12.18	2649.05	201.90	119.70	96.20	108.30	110.80	105.4	96.10	87.91
16:59	954.00	117.60	16.04	21.23	0.22	12.20	2616.47	200.60	120.00	93.90	108.90	112.40	105.4	97.30	87.67
17:00	950.00	119.60	16.21	21.28	0.21	12.24	2599.10	204.10	119.70	94.00	110.90	112.40	107.4	96.70	87.41
10 MinAvg	972.10	123.15	15.83	21.25	0.24	12.07	2726.22	202.19	119.36	94.74	109.24	107.85	105.2	95.19	87.33
17:01	943.00	123.20	16.33	21.05	0.21	12.27	2590.18	205.80	118.10	91.90	107.10	112.40	105.9	97.90	86.94
17:02	934.00	124.60	16.45	21.10	0.21	12.26	2574.79	207.40	120.00	91.10	107.30	112.90	104.3	96.90	86.66
17:03	920.00	127.00	16.63	21.31	0.21	12.28	2578.26	209.20	119.80	91.30	107.00	113.00	105.3	96.00	86.20
17:04	912.00	129.00	16.75	21.37	0.21	12.28	2574.79	207.40	120.20	93.10	105.90	116.40	103.8	94.60	85.86

Starting
07-24-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in H2O)	Bed dP (in H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
17:06	868.00	139.60	17.01	21.49	0.20	12.29	2550.32	210.90	119.60	93.40	105.30	117.30	104.1	93.90	83.92
17:07	842.00	138.80	17.15	21.40	0.20	12.29	2565.29	218.80	120.50	93.10	105.60	118.60	105.4	91.50	83.52

C

C Run is terminated due to jammed reactor screws

C

Post-Run Bed Inspection:

- About 80% of the limestone was bone dry when dumped
- Outlet screen is slightly fouled
- No bridging

Run Summary: **LEC Run 910725**

Objective: To empirically determine if 99% removal is possible at 3000 acfm
 (superficial velocity = 1.5 ft/s, ie. will kinetics become a factor?)

Total Run Time: 130 minutes (14:35 to 16:45).

SO₂ Removal: 99% to 89% (97% average).

Inlet Gas Rate: 2780 acfm (average).

Bed ΔP : 1.7 in H₂O to 13.3 in H₂O.

Operational Conditions:

Fresh No.9 limestone.

Damper Setting: Varied to maintain +3000 acfm.

Three layer outlet screen composed of two hardware cloth screens covering one
aluminum screen.

In-duct Steam = 10 psig from 14:35 to 16:07.

0 psig from 16:08 to 16:45.

In-duct Spray = 0.15 gpm from 14:35 to 16:07.

0.0 gpm from 16:08 to 16:45.

Overhead Sprays = 0.0 gpm.

Louver Sprays = 0.6 gpm from 14:35 to 14:59.

0.72 gpm from 15:00 to 15:10.

0.84 gpm from 15:11 to 15:24.

0.92 gpm from 15:25 to 15:57.

0.60 gpm from 15:58 to 16:07.

0.0 gpm from 16:08 to 16:45.

Bed Speed = 20 DT (3995 lb/hr).

Regeneration Device: Single deck vibrating screen equipped with a No.30 mesh
screen.

Stone Carry-Over: 0 lbs/min.

Waste fines: Not Available.

- Comments:
- The vibrating screen became fouled at 16:07.
 - The run was stopped after +3000 acfm of inlet gas flow was no longer possible.
 - 99% removal is not possible at a superficial velocity of 1.5 ft/s.

LEC RUN 910725A

Starting
07-25-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in H2O)	Bed dP (in H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
C															
C Objective: To see what the maximum removal is at 3000 acfm with fresh limestone; ie. will kinetics become a factor?															
C Initial Conditions: Fresh, damp limestone; In-duct sprays = 0.15 gpm; Louver sprays = 0.6 gpm; Overhead sprays = 0.0 gpm; In-duct steam = 10 psig;															
C Bed speed = 20															
C Note: The outlet SO2 monitor is on the 100 ppm scale. The outlet O2 monitor is "non-functional".															
C															
14:35	3.39	0.10	19.58	21.17	0.04	1.67	1123.38	235.40	83.00	69.58	68.46	69.45	70.3	70.60	96.90
14:36	545.60	0.39	15.71	21.04	0.03	1.71	1067.03	241.20	83.20	68.32	68.32	68.57	68.4	69.31	99.93
14:37	839.00	0.45	15.64	21.11	0.03	1.76	1052.87	243.40	83.40	68.56	68.56	68.56	68.6	68.56	99.95
14:38	852.00	0.40	15.73	21.19	0.43	6.43	3788.13	243.70	83.40	68.78	68.78	68.78	68.8	68.78	99.95
14:39	769.00	0.53	15.63	21.11	0.41	6.85	3636.87	220.50	83.40	69.02	69.02	68.90	69.0	70.40	99.93
14:40	778.00	0.59	15.75	21.13	0.29	5.77	2967.99	182.70	84.10	81.20	81.40	79.40	74.9	83.70	99.92
10 MinAvg	379.25	0.28	17.31	20.09	0.12	2.68	2103.56	176.41	83.19	72.84	73.07	72.74	73.3	73.76	97.74
C															
14:41	814.00	0.80	15.76	21.12	0.29	6.10	3054.95	204.70	93.40	85.20	88.40	95.90	93.3	84.90	99.90
14:42	803.00	0.69	15.79	21.08	0.28	6.09	3005.20	210.60	112.60	94.00	104.10	106.30	112.0	92.30	99.91
14:43	794.00	0.85	15.78	21.06	0.37	7.44	3468.34	213.50	114.20	101.10	110.90	110.60	113.9	99.10	99.89
14:44	772.00	0.97	15.62	21.09	0.44	8.40	3758.95	215.50	114.30	102.40	111.40	110.50	114.3	103.20	99.87
14:45	754.00	1.53	15.65	21.11	0.38	7.72	3497.40	215.80	114.40	102.70	109.80	110.10	114.3	104.00	99.80
14:46	770.00	3.86	15.62	21.00	0.36	7.55	3423.80	216.20	114.60	101.50	112.50	109.00	114.6	103.10	99.50
14:47	795.00	6.76	15.52	21.06	0.36	7.57	3409.87	216.30	114.70	102.10	108.80	110.30	114.3	103.20	99.15
14:48	798.00	10.50	15.48	21.12	0.36	7.62	3391.63	216.60	114.90	104.40	111.50	109.00	114.9	103.60	98.68
C															
C The limestone exiting the reactor is cold and wet. The 1.8' bed thermocouple is high. Maybe the center of the bed is dryer than the rest.															
C															
14:49	807.00	14.66	15.41	21.11	0.35	7.65	3372.77	216.70	115.00	105.00	108.90	111.60	114.5	103.70	98.18
14:50	800.00	19.08	15.41	21.11	0.35	7.69	3344.64	217.00	115.20	106.80	113.40	109.90	115.2	106.30	97.61
10 MinAvg	790.70	5.97	15.60	21.09	0.35	7.38	3372.75	214.29	112.33	100.52	107.97	108.32	112.1	100.34	99.25
C															
14:51	792.00	23.57	15.42	21.11	0.34	7.72	3325.25	217.00	115.40	109.10	111.00	113.30	115.1	105.60	97.02
14:52	788.00	26.93	15.42	21.08	0.34	7.78	3306.48	217.30	115.60	108.30	113.00	108.80	115.5	106.90	96.58
14:53	786.00	30.81	15.45	21.17	0.33	7.82	3280.72	216.80	115.60	110.50	113.60	111.60	115.4	107.10	96.08
14:54	777.00	32.80	15.47	21.13	0.33	7.89	3255.28	216.50	115.70	109.80	111.70	108.90	115.0	106.50	95.78
14:55	773.00	35.45	15.53	21.05	0.33	7.95	3246.06	216.80	115.70	110.40	110.00	110.00	114.4	106.10	95.41
C															
C The limestone exiting the reactor is still cold and wet															
C															
14:56	776.00	37.21	15.51	21.04	0.32	8.02	3234.17	216.00	115.80	108.10	110.10	107.70	114.0	104.80	95.20
14:57	788.00	38.77	15.49	21.11	0.32	8.07	3216.52	217.00	115.90	107.30	114.30	108.20	115.1	106.10	95.08

LBC RUN 910725A

Starting
07-25-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in H2O)	Bed dP (in H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
14:58	796.00	41.11	15.51	21.07	0.32	8.12	3197.39	215.30	116.10	107.10	110.30	107.60	111.3	102.40	94.84
14:59	796.00	43.83	15.50	21.00	0.32	8.16	3198.48	217.90	116.20	105.90	114.00	107.20	113.6	104.50	94.49
C															
C The limestone is slightly drier and warmer, increasing the louver sprays to 0.72 gpm															
C															
15:00	789.00	46.46	15.58	21.13	0.32	8.20	3198.48	217.90	116.30	103.70	110.20	107.50	112.0	100.90	94.11
10 MinAvg	786.10	35.69	15.49	21.09	0.33	7.97	3245.88	216.85	115.83	108.02	111.82	109.08	114.1	105.09	95.46
15:01	782.00	49.09	15.63	21.06	0.31	8.28	3177.23	217.50	116.30	102.90	109.70	106.00	109.9	103.10	93.72
15:02	782.00	50.61	15.62	21.08	0.31	8.31	3163.32	218.10	116.40	105.30	114.10	106.60	113.1	103.30	93.53
15:03	788.00	51.48	15.61	21.10	0.30	8.32	3132.23	218.00	116.40	102.60	111.90	108.00	112.2	104.50	93.47
15:04	792.00	51.78	15.64	21.08	0.30	8.34	3111.94	218.20	116.40	105.80	111.10	108.90	110.7	104.80	93.46
15:05	789.00	51.80	15.63	21.15	0.29	8.38	3085.36	218.00	116.40	105.60	114.00	107.80	114.1	104.30	93.43
15:06	770.00	51.29	15.68	21.10	0.29	8.45	3052.14	217.30	116.30	104.20	112.00	107.80	112.4	103.20	93.34
15:07	757.00	46.54	15.71	21.11	0.29	8.60	3047.06	217.40	116.30	106.50	114.70	107.60	114.9	105.30	93.85
C															
C Adjusting the damper. The limestone is dry to the touch and is dark grey in color (still has a very small water film on the surface)															
C															
15:08	748.00	43.55	15.72	21.14	0.30	9.05	3126.13	217.60	116.10	106.20	114.70	107.60	113.9	104.00	94.18
15:09	742.00	41.56	15.72	21.14	0.30	9.06	3112.77	216.30	116.20	105.30	110.90	106.40	110.9	101.90	94.40
15:10	738.00	40.80	15.75	21.10	0.30	9.09	3099.92	217.50	115.70	102.10	112.60	102.20	112.4	99.60	94.47
C															
C Increasing the louver sprays to 0.84 gpm. I'm not sure if the outlet screen is becoming fouled or the clamp on the damper is moving for the reason that I can															
C not maintain a constant dP _{in} = 0.30?															
C															
10 MinAvg	768.80	47.85	15.67	21.11	0.30	8.59	3110.81	217.59	116.25	104.65	112.57	106.89	112.5	103.40	93.79
15:11	748.00	40.15	15.72	21.15	0.29	9.16	3078.74	217.40	115.90	103.50	110.40	99.60	111.4	99.90	94.63
15:12	776.00	40.15	15.63	21.06	0.29	9.37	3090.14	217.80	115.70	109.60	109.70	99.20	110.6	99.70	94.83
15:13	793.00	40.73	15.59	21.13	0.29	9.48	3074.39	217.80	115.70	108.30	111.10	99.80	112.5	101.00	94.86
15:14	804.00	41.20	15.53	21.12	0.28	9.51	3025.08	217.10	116.00	104.00	110.80	98.10	111.9	102.30	94.88
C															
C The limestone is getting becoming dry (approx. 5% white), the fan is leaking water.															
C															
15:15	781.00	39.89	15.55	21.08	0.28	9.66	3026.42	217.70	116.10	105.70	112.80	99.60	113.8	100.70	94.89
C															
C The damper clamp is removed and it is bolted into the IV position.															
C															
15:16	770.00	38.26	15.44	21.14	0.30	10.34	3126.59	217.80	115.70	104.70	110.00	97.50	111.0	100.70	95.03

LRC RUN 910725A

Starting
07-25-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in H2O)	Bed dP (in H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Bottom Bed Temp (F)	SO2 Removal (%)
15:17	770.00	37.02	15.35	21.13	0.30	10.63	3130.84	217.40	115.80	100.20	110.70	98.70	113.0	100.30	95.19
15:18	767.00	35.73	15.32	21.14	0.30	10.68	3106.28	218.00	116.20	99.10	109.50	98.50	111.5	100.20	95.34
15:19	775.00	34.07	15.32	21.17	0.29	10.76	3089.92	217.70	116.10	100.00	109.40	98.50	112.7	101.20	95.60
15:20	792.00	32.90	15.20	21.08	0.29	10.82	3063.39	217.60	116.50	101.30	109.00	99.60	110.7	98.80	95.85
C															
C The damper is moved to position V															
C															
10 MinAvg	777.60	38.01	15.47	21.12	0.29	10.04	3081.18	217.63	115.97	103.64	110.34	98.91	111.9	100.48	95.11
15:21	799.00	32.47	15.13	21.05	0.29	10.95	3053.71	218.00	116.30	103.40	112.10	99.70	113.3	99.40	95.94
15:22	810.00	31.46	15.11	21.01	0.28	10.97	3036.42	217.40	116.20	104.60	110.40	100.50	112.3	99.80	96.12
15:23	808.00	30.58	14.97	20.94	0.30	11.57	3122.10	218.10	116.00	106.20	109.50	100.90	110.3	101.90	96.22
15:24	815.00	30.36	14.79	21.02	0.30	11.63	3100.77	215.60	116.60	107.00	109.70	101.40	111.2	101.50	96.27
C															
C 10% of the stones are white, the louvers sprays are increased to 0.92 gpm															
C															
15:25	826.00	29.55	14.74	21.04	0.29	11.69	3092.20	218.70	116.90	107.90	111.70	101.40	113.7	103.30	96.42
15:26	824.00	28.47	14.76	21.07	0.29	11.72	3073.94	217.60	116.80	109.10	110.60	104.90	114.6	105.10	96.54
C															
C The damper is now in position VI															
C															
15:27	821.00	28.00	14.75	20.97	0.29	11.75	3044.44	218.60	116.40	108.90	110.00	107.20	111.5	105.40	96.59
15:28	824.00	27.15	14.71	20.90	0.29	11.91	3044.44	218.60	116.90	107.60	110.70	107.50	112.5	103.50	96.71
15:29	836.00	26.49	14.64	21.00	0.28	12.01	3024.85	217.00	117.10	107.70	113.30	107.40	114.7	104.40	96.83
15:30	871.00	25.46	14.54	21.02	0.28	12.00	3017.48	218.50	117.30	109.30	114.80	109.10	116.5	105.90	97.08
C															
C 50% of the stones are white, routing the stone to the vibrating screen.															
C The mist eliminator outlet is unplugged via a screw driver and + 5 gallons of water gushes out.															
C															
10 MinAvg	823.40	29.00	14.81	21.00	0.29	11.61	3061.04	217.81	116.65	107.17	111.28	104.00	113.1	103.02	96.47
15:31	915.00	25.26	14.34	21.03	0.27	12.03	2980.10	218.70	117.00	108.80	111.40	110.80	113.6	105.30	97.24
15:32	934.00	25.87	14.26	21.09	0.27	12.04	2934.89	213.00	117.10	108.60	111.10	108.80	113.3	105.00	97.23
15:33	912.00	25.64	14.38	21.00	0.26	12.03	2901.25	215.30	117.40	109.30	113.00	108.70	115.8	105.90	97.19
15:34	868.00	24.50	14.54	20.92	0.25	12.12	2865.16	214.10	117.00	110.00	114.50	109.20	117.2	108.00	97.18
15:35	839.00	23.03	14.72	21.13	0.25	12.19	2832.67	209.40	117.30	110.00	111.70	110.40	114.1	107.60	97.26
C															
C The limestone is bone dry, the damper is now wide open (position VII)															
C															
15:36	810.00	21.16	14.85	21.02	0.25	12.23	2809.05	214.40	117.10	107.30	110.00	108.80	112.1	105.40	97.39

LBC RUN 910725A

Starting
07-25-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in H2O)	Bed dP (in H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
15:37	822.00	19.25	14.84	21.20	0.24	12.25	2778.79	213.70	117.30	108.20	111.40	108.30	115.9	106.10	97.66
15:38	838.00	17.64	14.84	21.02	0.24	12.37	2764.93	218.30	117.60	109.40	113.80	110.00	116.6	106.80	97.89
15:39	843.00	15.90	14.84	21.11	0.23	12.43	2742.81	219.00	116.60	108.30	109.40	111.10	112.1	104.30	98.11
15:40	849.00	14.25	14.91	21.14	0.23	12.43	2707.11	219.00	117.60	107.00	110.40	110.30	112.6	101.50	98.32
10 MinAvg	863.00	21.25	14.65	21.07	0.25	12.21	2831.68	215.49	117.20	108.69	111.67	109.64	114.3	105.59	97.55
15:41	825.00	12.79	15.08	21.14	0.22	12.43	2684.23	219.60	117.20	107.30	110.40	109.60	114.4	102.00	98.45
15:42	819.00	11.19	15.18	21.05	0.22	12.50	2659.74	219.50	116.90	104.70	109.90	109.90	110.7	100.30	98.63
15:43	811.00	9.82	15.20	21.15	0.22	12.53	2647.71	219.60	117.80	100.50	109.90	109.20	113.2	98.10	98.79
C C The limestone is still bone dry															
15:44	820.00	8.75	15.16	21.19	0.21	12.54	2640.85	222.40	116.90	101.50	107.70	109.40	111.3	99.50	98.93
15:45	838.00	7.88	15.09	21.23	0.21	12.54	2632.33	224.40	115.30	100.30	108.20	109.50	111.2	98.40	99.06
15:46	856.00	6.93	15.02	21.20	0.21	12.60	2631.97	221.00	117.60	98.70	110.30	109.60	112.1	98.40	99.19
15:47	860.00	6.52	15.07	21.17	0.21	12.71	2606.56	220.70	116.40	99.00	108.40	110.00	113.9	100.30	99.24
15:48	844.00	5.85	15.06	21.13	0.20	12.75	2579.41	219.60	117.40	100.10	110.10	110.00	112.3	98.60	99.31
15:49	845.00	5.33	15.02	21.18	0.20	12.82	2554.12	219.60	117.40	100.30	108.50	109.60	114.4	99.70	99.37
15:50	841.00	4.89	14.98	21.21	0.20	12.84	2547.76	219.60	116.30	102.40	109.60	110.20	111.7	102.60	99.42
10 MinAvg	835.90	7.99	15.09	21.16	0.21	12.63	2618.47	220.60	116.92	101.48	109.30	109.70	112.5	99.79	99.04
15:51	858.00	4.52	14.83	21.16	0.20	12.81	2521.41	219.20	116.80	103.40	108.60	110.60	113.0	100.70	99.47
15:52	887.00	4.14	14.78	21.13	0.19	12.79	2508.88	219.40	116.40	101.70	109.60	110.50	110.8	101.60	99.53
C C 5 more gallons of water is collected out of the mist eliminator; approx.=0.23 gal/min															
15:53	891.00	3.85	14.73	21.20	0.19	12.77	2495.73	219.30	117.50	101.50	110.50	110.60	112.4	101.50	99.57
C C 22.5 lbs of dust collected; 0.98 lb/min															
15:54	890.00	3.68	14.69	21.28	0.19	12.84	2467.96	218.40	117.80	101.90	109.90	109.50	113.9	101.80	99.59
15:55	904.00	3.51	14.64	21.22	0.19	12.83	2468.51	218.70	116.90	103.20	109.80	111.30	111.5	102.50	99.61
15:56	891.00	3.27	14.64	21.36	0.18	12.86	2439.95	217.50	117.90	101.10	110.80	110.20	114.3	101.00	99.63
15:57	878.00	3.26	14.76	21.09	0.18	12.86	2421.27	214.50	117.60	103.30	111.90	109.80	114.8	103.20	99.63
C C Limestone is now dark grey, reducing the louver sprays to 0.6 gpm															
15:58	867.00	3.14	14.78	21.10	0.18	12.86	2419.98	217.50	117.70	102.30	111.60	109.90	114.3	102.70	99.64
15:59	858.00	3.30	14.83	21.15	0.18	12.84	2404.61	216.40	117.60	99.80	111.30	109.70	114.9	102.00	99.62
16:00	850.00	3.35	14.84	21.15	0.18	12.88	2422.12	218.70	117.40	100.90	108.80	110.20	112.5	101.40	99.61

LRC RUN 910725A

Starting
07-25-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in H2O)	Bed dP (in H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
10 MinAvg	877.40	3.60	14.75	21.18	0.19	12.83	2457.04	217.96	117.36	101.91	110.28	110.23	113.2	101.84	99.59
16:01	868.00	3.49	14.73	21.27	0.18	12.87	2409.05	218.90	117.10	103.40	106.60	110.30	109.5	98.80	99.60
16:02	891.00	3.98	14.74	21.27	0.18	12.94	2407.10	217.80	117.20	105.20	107.40	110.60	111.5	100.00	99.55
16:03	880.00	4.57	14.79	21.33	0.18	13.00	2416.13	219.10	115.70	102.10	105.80	109.70	108.7	99.20	99.48
16:04	873.00	5.16	14.82	21.09	0.18	13.03	2416.31	219.20	117.10	101.40	109.70	109.00	110.6	99.40	99.41
16:05	859.00	5.79	14.92	21.08	0.18	13.07	2410.12	219.50	116.00	99.30	107.00	108.80	109.5	97.70	99.33
16:06	855.00	6.52	14.94	21.14	0.18	13.10	2396.79	219.60	115.30	98.80	107.00	104.80	108.8	97.70	99.24
16:07	845.00	7.39	15.06	21.11	0.18	13.14	2390.19	219.70	114.50	98.90	107.60	105.40	107.6	97.50	99.13
C															
C The vibrating screen is plugged (the L/S became to wet for it to handle), going to recycle															
C The limestone is wet to the touch, louvers sprays are turned off, steam is turned off, In-duct sprays are turned off in order to dry out the bed for easy emptying															
C of the bed															
C															
16:08	837.00	8.14	15.09	21.09	0.17	13.20	2368.51	219.00	114.40	99.90	107.90	103.80	107.8	96.40	99.03
16:09	828.00	8.72	15.14	21.11	0.17	13.24	2355.99	219.70	114.20	98.50	109.10	102.50	108.0	96.50	98.95
16:10	834.00	10.03	15.15	21.10	0.17	13.26	2340.79	218.90	115.10	99.90	106.10	104.10	104.6	95.00	98.80
10 MinAvg	857.00	6.38	14.94	21.16	0.18	13.08	2391.10	219.14	115.66	100.74	107.42	106.90	108.7	97.82	99.25
16:11	831.00	12.00	15.21	21.13	0.17	13.28	2323.82	217.10	114.60	98.70	109.60	103.90	107.0	95.40	98.56
16:12	828.00	13.86	15.19	21.21	0.17	13.26	2317.02	217.20	113.50	100.40	106.10	104.90	102.4	94.80	98.33
16:13	828.00	15.39	15.16	21.23	0.17	13.31	2324.21	213.30	111.90	100.40	106.60	104.20	101.3	95.30	98.14
16:14	830.00	18.12	15.15	21.11	0.17	13.32	2331.80	217.70	113.20	101.50	109.40	101.80	104.1	94.60	97.82
16:15	844.00	19.53	15.11	21.20	0.17	13.26	2362.05	235.40	110.00	101.60	106.10	104.50	101.8	94.60	97.69
16:16	862.00	21.33	14.99	21.13	0.17	13.22	2413.43	249.10	111.30	99.70	107.90	101.40	99.6	93.00	97.53
16:17	856.00	23.20	14.99	21.19	0.18	13.25	2455.17	249.10	106.70	96.30	105.70	97.80	95.2	91.60	97.29
16:18	871.00	26.82	14.90	21.23	0.18	13.28	2482.60	249.10	103.60	92.90	99.20	98.10	93.6	90.40	96.92
16:19	843.00	30.08	15.00	21.07	0.19	13.33	2516.29	249.00	100.70	89.40	89.80	95.80	90.4	89.10	96.43
16:20	841.00	32.32	15.03	21.27	0.19	13.37	2536.40	249.00	97.30	88.70	89.10	94.70	89.7	89.30	96.16
10 MinAvg	843.40	21.26	15.07	21.18	0.17	13.29	2406.28	234.60	108.28	96.96	102.95	100.71	98.5	92.81	97.49
16:21	842.00	34.10	15.13	21.16	0.19	13.38	2556.34	249.00	94.50	88.70	88.70	92.30	88.8	88.70	95.95
16:22	837.00	36.54	15.16	21.19	0.20	13.41	2582.88	249.10	91.30	88.80	88.80	90.10	88.9	88.80	95.63
16:23	832.00	39.12	15.23	21.19	0.20	13.41	2602.47	249.10	91.90	88.80	88.80	90.70	88.8	88.80	95.30
16:24	826.00	38.85	15.27	21.21	0.20	13.41	2628.37	249.10	90.40	88.80	88.80	88.90	88.8	88.80	95.30
16:25	820.00	40.48	15.27	21.21	0.21	13.42	2660.38	249.10	89.80	88.80	88.80	89.10	88.8	88.80	95.06
16:26	794.00	43.00	15.39	21.16	0.21	13.41	2685.91	249.20	89.30	88.80	88.80	88.80	88.8	88.80	94.58
16:27	774.00	42.72	15.38	21.18	0.22	13.41	2717.25	249.20	89.00	88.90	88.90	88.90	88.9	88.90	94.48

C

C Limestone is dry grey, slightly damp to the touch and is tacky

E 155

LBC RUN 910725A

Starting
07-25-91

Time	Inlet SO2 (ppm)	Outlet SO2 (ppm)	Inlet O2 (%)	Outlet O2 (%)	Inlet dP (in H2O)	Bed dP (in H2O)	Inlet Flow (acfm)	Inlet Temp (F)	Outlet Temp (F)	7' Bed Temp (F)	5.3' Bed Temp (F)	3.5' Bed Temp (F)	1.8' Bed Temp (F)	Btm. Bed Temp (F)	SO2 Removal (%)
16:28	777.00	41.73	15.37	21.21	0.22	13.39	2729.88	249.30	89.10	89.00	89.00	89.00	89.0	89.00	94.63
16:29	775.00	42.07	15.42	21.16	0.22	13.40	2742.45	249.40	89.50	89.00	89.00	89.00	89.0	89.00	94.57
16:30	782.00	44.44	15.35	21.06	0.22	13.36	2754.78	249.40	89.30	89.00	89.00	89.00	89.0	89.00	94.32
10 MinAvg	805.90	40.31	15.30	21.17	0.21	13.40	2666.07	249.19	90.41	88.86	88.86	89.58	88.9	88.86	94.98
16:31	806.00	44.37	15.29	21.22	0.23	13.37	2767.05	249.40	89.10	89.10	89.10	89.10	89.1	89.10	94.50
16:32	833.00	42.87	15.16	21.18	0.23	13.37	2779.46	249.50	89.20	89.20	89.20	89.20	89.2	89.20	94.85
16:33	856.00	44.82	15.04	21.23	0.23	13.36	2785.75	249.60	89.90	89.30	89.30	89.40	89.3	89.30	94.76
16:34	860.00	46.88	14.96	21.18	0.23	13.35	2791.82	249.60	90.40	89.30	89.30	89.30	89.3	89.30	94.55
16:35	873.00	45.86	14.87	21.23	0.23	13.34	2804.13	249.70	90.90	89.30	89.30	89.30	89.3	89.30	94.75
16:36	877.00	45.38	14.79	21.18	0.23	13.33	2816.19	249.70	90.70	89.40	89.40	89.50	89.4	89.40	94.83
16:37	873.00	43.63	14.72	21.08	0.24	13.32	2828.40	249.80	93.30	89.50	89.50	89.60	89.5	89.50	95.00
16:38	886.00	44.33	14.69	21.26	0.24	13.32	2840.56	249.90	93.90	89.60	89.60	89.70	89.6	89.60	95.00
16:39	887.00	45.45	14.60	21.29	0.24	13.29	2846.52	249.90	95.60	89.50	89.50	89.70	89.5	89.70	94.88
16:40	889.00	46.12	14.60	21.19	0.24	13.30	2852.27	249.80	99.40	89.60	89.50	90.00	89.5	89.50	94.81
10 MinAvg	864.00	44.97	14.87	21.20	0.23	13.33	2811.22	249.69	92.24	89.38	89.37	89.48	89.4	89.39	94.79
16:41	883.00	47.07	14.59	21.29	0.24	13.29	2864.13	249.80	100.70	89.50	89.60	89.70	89.5	89.50	94.67
C	C The stone is 5% white exiting the reactor														
16:42	894.00	47.45	14.49	21.18	0.24	13.27	2870.04	249.80	101.30	89.50	89.50	90.00	89.5	89.50	94.69
16:43	898.00	47.61	14.41	21.29	0.24	13.27	2870.04	249.80	104.70	89.40	89.40	89.70	89.4	89.40	94.70
16:44	897.00	47.02	14.37	21.07	0.24	13.29	2858.00	249.70	106.80	89.40	89.40	89.50	89.4	89.40	94.76
16:45	894.00	46.87	14.39	21.08	0.24	13.28	2858.00	249.70	105.70	89.40	89.50	89.80	89.4	89.40	94.76

C
C Run is terminated since the stone is now dry enough to be removed easily
C

Post-Run SO2 Monitor Calibration Check:

Both sampling systems passed leak check

Zero Calibration:

- Inlet = 5.9 ppm
- Outlet = 0.4 ppm

Span Calibration:

- Inlet (2620 ppm) = 2590 ppm
- Outlet (49.96 ppm) = 49.9 ppm

Post-Run Bed Inspection:

- Inlet louvers are clean
- +50% of the outlet louver screen is fouled
- No bridging
- The vibrating screen is really stuffed full of wet stone

LEC-OHIO: PHASE II
Experimental Run: 920128A
Bed Speed = 2020 lb/hr, No water or steam

Starting
01-28-92

Time	Outlet SO2 (ppmdv)	Inlet Temp. (F)	Outlet Temp. (F)	Inlet Flow (acfm)	Bed Delta P (In H2O)	SO2 Removal (%)
13:51	100.70	258.60	53.40	3303.50	10.87	93.7
13:52	120.20	289.40	55.23	3436.61	11.57	92.5
13:53	107.78	289.90	55.32	3358.72	11.65	93.3
13:54	110.32	290.10	55.41	3294.56	11.70	93.1
13:55	111.12	290.80	55.46	3230.17	11.70	93.1
13:56	108.20	292.80	55.98	3155.71	11.64	93.2
13:57	108.24	299.00	66.46	3110.95	11.56	93.2
13:58	107.85	301.10	70.40	3050.41	11.44	93.3
13:59	106.00	302.40	70.40	3004.93	11.32	93.4
14:00	144.90	303.20	76.40	2957.62	11.21	90.9
14:01	168.70	303.40	83.80	2920.79	11.11	89.5
14:02	187.10	304.10	85.00	2878.09	11.03	88.3
14:03	197.20	304.20	85.10	2852.81	10.97	87.7
14:04	212.10	303.70	85.10	2819.72	10.91	86.7
14:05	223.10	303.90	85.10	2820.09	10.86	86.1
14:06	234.50	304.40	85.20	2795.02	10.82	85.3
14:07	241.40	303.40	86.00	2786.65	10.80	84.9
14:08	240.90	304.50	88.60	2775.54	10.78	84.9
14:09	259.60	304.30	93.70	2768.59	10.77	83.8
14:10	276.50	304.20	100.50	2755.19	10.76	82.7
14:11	292.70	303.80	110.40	2741.20	10.76	81.7
14:12	308.60	304.10	112.70	2728.39	10.75	80.7
14:13	324.00	304.30	114.30	2715.34	10.75	79.8
14:14	338.30	304.60	114.50	2709.14	10.73	78.9
14:15	358.60	304.30	114.60	2701.87	10.72	77.6
14:16	372.30	304.90	114.80	2689.38	10.71	76.7
14:17	388.00	304.70	114.90	2689.03	10.70	75.8
14:18	407.00	304.40	115.20	2668.05	10.68	74.6
14:19	426.40	304.80	115.40	2661.90	10.67	73.4
14:20	435.00	297.00	106.80	1075.57	4.10	72.8

The fan is turned to check the amount of stone in "Dutchman".
None was found.

14:21	323.00	233.90	86.30	0.40	0.00
14:22	138.30	242.20	86.30	0.08	0.00
14:23	43.19	235.70	74.60	0.07	0.00
14:24	27.58	221.60	57.60	0.24	0.00

The fan is turned back on.

LEC-OHIO: PHASE II
 Experimental Run: 920128A
 Bed Speed = 2020 lb/hr, No water or steam

Starting
 01-28-92

Time	Outlet SO2 (ppmdv)	Inlet Temp. (F)	Outlet Temp. (F)	Inlet Flow (acfm)	Bed Delta P (In H2O)	SO2 Removal (%)
14:25	28.43	291.80	85.50	2706.35	10.93	98.2
14:26	177.00	293.90	91.10	2663.22	10.77	88.9
14:27	351.60	298.60	108.60	2657.91	10.70	78.0
14:28	432.70	299.90	115.80	2639.65	10.65	73.0
14:29	469.30	300.40	116.20	2619.81	10.63	70.7
14:30	496.10	302.30	116.20	2609.16	10.61	69.0
14:31	519.70	304.70	116.20	2563.89	10.71	67.5
14:32	522.20	301.90	116.20	2537.77	10.72	67.4
14:33	530.40	301.20	116.20	2500.52	10.79	66.9

The run was terminated due to severe bridging of the reactor. The po removal was a result of: 1) extremely wet stone and 2) large void spaces we formed from non-uniform stone movement inside of the bed.

Run Summary:

LEC Run 920205

Objective: Start-up of new bed configuration.

Total Run Time: 47 minutes

SO₂ Removal: +99.9%

Inlet Gas Rate: 2700 to 1622 acfm
(2335 acfm average)

Operational Conditions:

Fresh, damp stone (L/S#920131)

In-duct Steam: 0 psig

Overhead Sprays: 0.0 gpm

Louver Sprays: 0.5 gpm

Bed Speed: 10 DT (2195 lb/hr)

Regeneration Device: None.

Comments: - The run was terminated due to the jamming of the reactor screws.
We were not able to restart the reactor screws.

LEC Run 920205

Starting
02-05-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	Inlet Flow (acfm)	SO2 Removal (%)
C Initial Conditions: Fresh Limestone (L\S # 920128); Louvers Sprays at 0.15 gpm, Bed Speed at 4040 lb/hr									
13:53	0.16E+04	0.00	12.12	11.85	7.97	281.00	46.22	2326.87	100.0
13:54	0.15E+04	0.00	12.12	11.84	7.54	281.00	55.34	2296.25	100.0
13:55	0.15E+04	0.00	12.05	11.87	6.73	281.00	61.01	2265.22	100.0
13:56	0.15E+04	0.00	12.11	11.88	5.73	281.50	60.91	2250.30	100.0
13:57	0.15E+04	0.00	12.12	11.81	5.10	283.50	63.07	2253.33	100.0
13:58	0.15E+04	0.00	12.19	11.86	4.84	284.50	74.50	2223.09	100.0
13:59	0.15E+04	0.00	12.23	11.85	4.73	287.20	75.80	2186.69	100.0
14:00	0.15E+04	0.00	12.45	11.82	4.69	290.60	83.40	2158.70	100.0
14:01	0.15E+04	0.00	12.52	11.80	4.92	292.80	91.10	2136.77	100.0
14:02	0.15E+04	0.00	12.44	11.82	4.91	294.50	97.50	2113.77	100.0
10 MinAvg	0.15E+04	0.00	12.24	11.84	5.72	285.76	70.88	2221.10	100.0
14:03	0.15E+04	0.00	12.38	11.77	5.08	292.40	99.30	2059.12	100.0
14:04	0.15E+04	0.00	12.27	11.71	5.28	292.20	103.20	2014.76	100.0
14:05	0.15E+04	0.00	12.22	11.73	5.64	293.40	103.00	1971.25	100.0
14:06	0.15E+04	0.00	12.15	11.82	6.14	295.40	101.50	1908.83	100.0
14:07	0.15E+04	0.00	12.09	11.88	6.61	294.50	98.20	1869.53	100.0
14:08	0.15E+04	0.00	12.09	11.90	7.18	293.10	95.80	1779.04	100.0
14:09	0.15E+04	0.01	11.98	11.81	7.90	292.30	91.00	1695.34	100.0
14:10	0.15E+04	0.00	11.94	11.80	7.76	290.80	91.60	1693.65	100.0
14:11	0.15E+04	0.00	11.89	11.78	7.76	293.30	93.20	1675.13	100.0
14:12	0.14E+04	0.00	11.87	11.77	7.74	293.90	91.90	1654.17	100.0
10 MinAvg	0.15E+04	0.00	12.09	11.80	6.71	293.13	96.87	1832.08	100.0
14:13	0.14E+04	0.00	11.89	11.83	7.74	294.00	91.20	1632.37	100.0
14:14	0.14E+04	0.00	11.90	11.78	7.81	294.80	91.50	1622.16	100.0
14:15	0.14E+04	0.00	11.90	11.83	10.37	299.80	94.50	2213.27	100.0
14:16	0.14E+04	0.00	11.84	11.85	10.29	299.50	95.80	2301.22	100.0
14:17	0.15E+04	0.00	11.75	11.81	9.84	301.80	99.10	2374.67	100.0
14:18	0.14E+04	0.00	11.84	11.79	9.05	303.00	102.70	2539.60	100.0
14:19	0.14E+04	0.00	11.84	11.82	8.83	304.40	104.10	2577.59	100.0
14:20	0.14E+04	0.00	11.88	11.80	8.67	304.10	104.70	2584.15	100.0
14:21	0.14E+04	0.00	11.98	11.79	8.66	305.60	105.00	2579.61	100.0
14:22	0.14E+04	0.01	11.97	11.83	8.89	307.20	105.20	2575.20	100.0

Starting
02-05-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	Inlet Flow (acfm)	SO2 Removal (%)
10 MinAvg	0.14E+04	0.00	11.88	11.81	9.01	301.42	99.38	2299.98	100.0
14:23	0.14E+04	0.00	11.93	11.85	8.77	306.50	105.40	2595.27	100.0
14:24	0.14E+04	0.00	12.06	11.81	8.71	306.40	105.40	2580.96	100.0
14:25	0.14E+04	0.01	12.09	11.81	8.60	307.60	105.40	2554.43	100.0
14:26	0.14E+04	0.01	12.11	11.80	8.50	306.40	105.30	2559.60	100.0
14:27	0.14E+04	0.00	12.15	11.84	8.43	304.50	105.30	2570.66	100.0
14:28	0.12E+04	0.00	12.20	11.80	8.38	304.60	105.10	2577.92	100.0
14:29	0.11E+04	0.00	12.17	11.90	8.37	-6999.00	-6999.00		100.0
14:30	0.14E+04	0.00	12.23	11.98	8.32	-6999.00	-6999.00		100.0
14:31	0.14E+04	0.00	12.23	11.85	8.32	304.80	105.30	2613.44	100.0
14:32	0.14E+04	0.01	12.31	11.91	8.13	307.70	105.30	2632.35	100.0
10 MinAvg	0.13E+04	0.00	12.15	11.86	8.45	-1154.95	-1315.55	2585.58	100.0
14:33	0.14E+04	0.01	12.24	11.89	2.18	274.60	104.00	529.77	100.0
14:34	928.00	0.00	15.53	15.95	0.44	113.00	69.96		100.0
14:35	221.70	0.01	19.30	20.90	0.31	104.70	60.06		100.0
14:36	234.10	0.01	18.08	18.93	5.04	208.40	80.70	1865.30	100.0
14:37	0.12E+04	0.00	12.55	11.94	7.36	285.40	104.30	2727.63	100.0
14:38	0.14E+04	0.00	12.04	11.86	7.30	293.80	104.20	2736.38	100.0
14:39	0.14E+04	0.01	12.00	11.88	7.24	297.40	105.90	2736.31	100.0
14:40	0.14E+04	0.01	12.03	11.89	6.68	299.80	112.90	2625.69	100.0

C The run was terminated due to jammed reactor screws.

General Notes:

- 1) The Dutchman bucket was emptied at 14:04 with 22 lbs. of whole L/S being removed. After this initial loss of limestone from the reactor, only fines were found in the fine at the end of the run.
- 2) After the run, voltage anomalies in the reactor screw controller were reported to P.T.Automation.

Run Summary:

LEC Run 920217

Objective: Start-up of new bed configuration.

Total Run Time: 35 minutes

SO₂ Removal: +99.9%

Inlet Gas Rate: 3600 to 400 acfm

Operational Conditions:

No.9 limestone from LEC Run 920205 (47 minutes prior exposure).

In-duct Steam: 0 psig

Overhead Sprays: 0.0 gpm

Louver Sprays: 0.3 gpm

Bed Speed: 10 DT (2195 lb/hr)

Comments: - The run was terminated when the ID fan and the outlet ductwork became filled with whole stone and fines. The fines mixed with water from the saturated outlet gas and formed a paste which coated the fan housing and blade.

LEC Run 920217

Starting
02-17-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	Inlet Flow (acfm)	SO2 Removal (%)
C	C Initial Conditions: Same limestone as Run 920205 and it is initially wet, louver sprays at 0.25 gpm.								
C	Bed speed was 2020 lb/hr.								
C	C The fan is making a LOT of noise.								
13:22	232.00	-0.40	19.78	20.58	8.30	203.5	57.3	2930.4	100.17
C	C								
13:23	1346.00	-0.09	13.99	20.51	10.87	278.6	58.5	3558.5	100.01
13:24	1159.00	1.10	13.84	20.61	11.15	-6999.0	-6999.0		99.90
13:25	1475.00	0.04	13.88	20.63	11.60	-6999.0	-6999.0		100.00
13:26	1480.00	0.00	13.83	20.50	12.07	293.2	58.7	3150.8	100.00
13:27	1493.00	0.06	13.84	20.60	12.32	293.2	59.0	2925.9	100.00
13:28	1473.00	0.03	13.78	20.56	12.43	293.1	69.1	2661.8	100.00
13:29	1462.00	0.11	13.97	20.59	12.45	293.2	73.6	2414.0	99.99
13:30	1445.00	0.09	13.87	20.56	12.47	293.2	78.6	2211.8	99.99
C	C There is nothing in the dutchman bucket.								
C	C								
13:31	1448.00	0.05	13.85	20.61	12.35	293.1	87.3	2060.1	100.00
10 MinAvg	1301.30	0.10	14.46	20.58	11.60	-1175.7	-1345.6	2739.2	100.01
13:32	1444.00	0.05	13.99	20.59	12.14	293.1	88.3	1961.7	100.00
13:33	1443.00	0.02	14.05	20.55	11.94	293.0	88.3	1915.2	100.00
13:34	1433.00	0.17	14.13	20.56	11.75	293.1	88.4	1828.9	99.99
13:35	1305.00	0.34	14.16	20.67	11.56	-6999.0	-6999.0		99.97
13:36	1066.00	1.05	14.20	20.61	11.34	-6999.0	-6999.0		99.90
13:37	1027.00	1.30	14.28	20.59	11.14	-6999.0	-6999.0		99.87
13:38	869.00	1.31	14.18	20.58	11.03	-6999.0	-6999.0		99.85
13:39	1448.00	0.19	14.03	20.69	11.42	-6999.0	-6999.0		99.99
13:40	1456.00	0.01	14.13	20.60	11.59	292.9	88.2	1528.8	100.00
13:41	1461.00	0.13	14.01	20.58	11.52	292.8	88.0	1468.7	99.99
10 MinAvg	1295.20	0.46	14.12	20.60	11.54	-3353.0	-3455.4	1740.7	99.96
C	C The damper is jammed and a white plume is being emitted from the outlet stack.								
C	C								
13:42	1461.00	0.05	13.98	20.57	11.39	292.6	87.8	1504.8	100.00
13:43	1458.00	0.12	13.85	20.47	11.28	292.4	88.0	1504.6	99.99

LEC Run 920217

Starting
02-17-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	Inlet Flow (acfm)	SO2 Removal (%)
13:44	1455.00	0.18	13.95	20.64	11.13	292.2	87.6	1418.3	99.99
13:45	1423.00	0.10	14.01	20.67	11.15	292.1	87.8	1405.5	99.99
13:46	1399.00	0.04	14.12	20.73	11.09	291.9	88.4	1366.5	100.00
13:47	1390.00	0.12	14.21	20.53	11.05	291.7	91.0	1298.9	99.99
13:48	1349.00	0.07	14.49	20.54	10.82	291.5	92.2	1242.3	100.00
13:49	1336.00	0.15	14.55	20.50	10.80	291.4	93.3	1183.0	99.99
13:50	1309.00	0.20	14.56	20.43	10.80	291.2	91.6	1104.4	99.98
13:51	1304.00	0.19	14.54	20.59	10.70	291.1	89.9	1071.4	99.99
10 MinAvg	1388.40	0.12	14.23	20.57	11.02	291.8	89.8	1310.0	99.99
13:52	1291.00	0.12	14.57	20.53	10.66	290.9	89.2	927.7	99.99
13:53	1297.00	0.19	14.37	20.48	10.54	290.7	87.6	733.3	99.99
13:54	1298.00	0.26	14.42	20.57	10.45	290.6	87.0	568.0	99.98
13:55	1295.00	0.17	14.30	20.60	10.34	290.6	86.7	598.7	99.99
13:56	1301.00	0.13	14.00	20.54	10.01	290.5	85.9	463.7	99.99
13:57	1307.00	0.14	13.97	20.65	9.75	290.5	86.1	423.3	99.99

The run was terminated when the fan became completely filled with a limestone paste. The paste is a combination of water and limestone fines (pictures and a sample were taken). The 32' bucket elevator tripped- off and the recycle chute became clogged during the run.

Run Summary:

LEC Run 920226

Objective: Start-up of new bed configuration.

Total Run Time: 135 minutes

SO₂ Removal: +99.9% to 76%

Inlet Gas Rate: 3900 to 2900 acfm

Operational Conditions:

Fresh, damp stone (L/S#920131)

In-duct Steam: 0 psig

Overhead Sprays: 0.0 gpm

Louver Sprays: 0.3 gpm

Bed Speed: 10 DT (2195 lb/hr)

Fines Removal: 0.0 lbs/min

Stone Carry-over: Extreme.

Comments: - The run was terminated when the ID fan housing became filled with whole limestone. The mist eliminator was also full of fines. Size analyses of solids samples removed from the mist eliminator, dutchman, and I.D. fan.

LEC Run 920226

Starting
02-26-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Outlet Temp (F)	Inlet Flow (acfm)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
C C Initial Conditions: Fresh limestone (L/S # 920131); Bed speed = 2020 lb/hr (100T); louver sprays have 1/4TG3 nozzles.															
13:01	0.65	0.37	22.93	21.07		0.18	28.0	28.2	28.0	28.0	117.5	28.0	28.0	28.0	44.27
13:02	404.90	0.44	19.00	20.99	3208.0	6.58	197.0	32.6	28.0	28.0	117.5	28.0	28.0	28.0	99.89
13:03	1410.00	0.26	13.76	21.03	3948.7	8.61	277.0	36.7	28.0	28.0	117.5	28.0	28.0	28.0	99.98
13:04	1432.00	0.14	13.80	21.00	3908.8	8.72	282.3	37.0	27.9	27.9	117.4	27.9	27.9	27.9	99.99
13:05	1443.00	0.06	13.76	20.93	3881.2	8.91	291.0	40.5	27.6	27.6	117.1	27.6	27.6	27.6	100.00
13:06	1460.00	0.02	13.71	21.02	3786.2	9.10	292.3	49.8	49.4	53.2	113.8	27.6	31.3	27.6	100.00
C C Small L/S particles and a small vapor plume are exiting the exhaust stack.															
13:07	1473.00	0.10	13.61	20.97	3566.5	8.91	292.4	61.1	83.7	78.6	63.0	30.8	62.9	27.5	99.99
13:08	1478.00	0.40	13.61	21.03	3396.2	8.77	292.4	72.7	87.6	90.5	50.8	80.7	85.0	27.5	99.97
13:09	1464.00	0.25	13.64	20.98	3294.2	8.71	292.4	85.5	88.6	103.5	38.2	98.1	87.6	27.5	99.98
C C The sample lines are switched															
13:10	802.00	270.10	16.77	20.69	3250.2	8.68	292.4	87.6	89.1	108.7	32.6	111.9	89.7	27.5	
10 MinAvg	1136.76	27.21	15.46	20.97	3582.2	7.72	253.7	53.2	53.8	57.4	88.5	48.9	49.6	27.7	91.04
13:11	20.90	1272.00	15.45	19.35	3177.6	8.36	292.4	87.6	95.0	117.0	27.5	117.0	87.6	27.5	
13:12	18.86	1274.00	15.39	19.33	3161.0	8.30	292.6	87.6	89.0	114.0	27.8	115.9	90.6	27.5	
13:13	14.74	1288.00	15.25	19.30	3122.8	8.20	293.5	87.6	92.2	109.8	31.6	114.2	95.7	37.8	
13:14	11.89	1279.00	15.30	19.34	3093.2	8.06	293.2	88.3	92.3	108.7	33.6	112.7	100.3	57.8	
13:15	13.07	1278.00	15.39	19.39	3077.0	8.06	293.8	88.4	94.3	110.6	34.8	110.2	99.5	57.8	
13:16	17.53	1272.00	15.36	19.40	3077.8	8.05	294.2	88.4	90.5	114.6	35.5	107.8	101.7	70.2	
13:17	24.64	1285.00	15.14	19.28	3075.4	7.93	295.9	90.5	89.2	110.0	31.8	107.6	101.0	73.9	
13:18	32.50	1306.00	15.18	19.17	3066.9	7.80	297.5	89.8	86.6	109.3	28.3	110.9	98.4	84.8	
13:19	39.89	1315.00	15.10	19.05	3042.4	7.70	297.1	91.2	86.2	108.5	26.2	113.2	103.4	86.2	
13:20	53.98	1322.00	14.86	18.93	3035.1	7.62	299.4	94.0	85.9	108.9	26.1	112.9	104.2	85.9	
C C Louver sprays set at 0.3 gpm (5 psig)															
10 MinAvg	24.80	1289.10	15.24	19.25	3092.9	8.01	295.0	89.3	90.1	111.1	30.3	112.2	98.2	60.9	98.08

E-166

LEC Run 920226

Starting
02-26-92

Time	Outlet SO2 (ppmdv)	Inlet SO2 (ppmdv)	Outlet O2 (%)	Inlet O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Outlet Temp (F)	Inlet Flow (acfm)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
13:21	63.76	1349.00	14.86	18.74	3017.1	7.52	299.4	95.4	85.8	111.6	25.5	113.0	106.8	86.7	
C	C 16 lbs. of limestone is removed from the dutchman bucket and is reinserted back into the system.														
13:22	73.50	1361.00	14.81	18.57	3011.3	7.46	299.5	98.7	87.1	112.2	25.3	114.2	106.8	92.6	
13:23	90.10	1368.00	14.63	18.43	3035.5	7.37	299.6	104.6	111.9	114.7	25.1	114.7	107.5	100.5	
13:24	100.40	1380.00	14.27	18.30	3007.6	7.24	300.7	111.0	114.5	114.4	24.9	114.5	112.1	105.1	
13:25	114.90	1395.00	13.96	18.13	2983.8	7.20	300.9	112.3	114.4	114.4	24.8	114.1	112.5	106.6	
13:26	123.00	1398.00	13.86	18.10	2974.5	7.06	299.3	113.7	114.3	114.3	24.7	114.3	110.3	108.8	
13:27	128.20	1400.00	13.78	18.04	2976.1	6.87	300.1	113.2	111.2	114.3	24.7	114.2	109.0	108.5	
13:28	117.10	1392.00	13.86	18.07	2974.3	6.71	302.3	112.9	111.0	114.3	24.6	114.3	111.6	112.8	
C	C The dutchman bucket is reinstalled. A <u>large</u> vapor plume is just noticed from the exhaust stack.														
13:29	103.50	1377.00	13.83	18.04	2947.6	6.75	301.2	113.1	110.3	114.2	24.5	114.2	111.9	112.8	
13:30	101.70	1375.00	13.71	17.96	2938.1	6.84	302.7	113.0	108.7	114.1	24.5	114.0	112.0	113.7	
10 MinAvg	101.62	1379.50	14.16	18.24	2986.6	7.10	300.6	108.8	106.9	113.8	24.9	114.2	110.1	104.8	92.63
13:31	109.60	1392.00	13.57	17.84	2932.3	6.77	302.9	113.8	101.4	114.0	24.4	113.8	111.8	113.9	
13:32	117.20	1401.00	13.54	17.80	2937.0	6.73	302.1	113.2	96.2	114.0	24.3	113.8	109.9	113.8	
13:33	118.30	1388.00	13.47	17.79	2938.3	6.60	302.8	112.2	96.6	113.9	24.2	113.9	111.9	113.9	
13:34	131.90	1401.00	13.41	17.73	2945.1	6.53	303.1	113.1	105.3	113.8	24.2	113.8	112.1	113.7	
13:35	155.90	1419.00	13.29	17.57	2951.8	6.38	303.4	112.6	107.5	113.7	24.1	113.7	111.7	113.7	
13:36	174.80	1436.00	13.30	17.45	2944.9	6.25	303.0	113.3	109.6	113.7	24.0	113.7	109.8	113.7	
13:37	208.50	1438.00	13.26	17.45	2938.3	6.15	302.8	113.5	112.9	113.6	23.9	113.6	109.9	113.6	
13:38	235.60	1438.00	13.05	17.39	2932.7	5.95	303.1	113.1	111.6	113.6	23.9	113.6	113.1	113.6	
13:39	239.50	1438.00	13.15	17.42	2932.9	6.31	303.2	113.7	108.7	113.7	24.1	113.7	109.8	113.7	
13:40	242.40	1440.00	13.19	17.41	2932.3	6.61	302.9	113.8	112.9	113.9	24.2	113.9	109.7	113.9	
10 MinAvg	173.37	1419.10	13.32	17.59	2938.5	6.43	302.9	113.2	106.3	113.8	24.1	113.8	111.0	113.8	87.78

E-167

LEC Run 920226

Starting
02-26-92

Time	Outlet SO2 (ppmdv)	Inlet SO2 (ppmdv)	Outlet O2 (%)	Inlet O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Outlet Temp (F)	Inlet Flow (acfm)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
13:41	229.20	1434.00	13.19	17.48	2934.0	6.84	303.8	113.7	111.6	114.0	24.3	114.0	109.2	114.0	
13:42	238.30	1456.00	13.10	17.41	2950.9	7.07	302.9	114.0	112.3	114.0	24.4	114.0	108.5	114.0	
13:43	267.40	1463.00	13.14	17.42	2969.7	7.23	303.1	114.1	110.9	114.1	24.4	114.1	109.1	114.1	
13:44	301.30	1455.00	13.19	17.40	2982.2	7.41	303.2	114.1	111.4	114.1	24.5	114.1	108.1	114.1	

C

The limestone coming out of the recycle chute is cold and damp.

C

13:45	353.80	1455.00	13.14	17.43	2982.4	7.53	303.3	114.2	113.6	114.2	24.5	114.2	112.1	114.2	
13:46	369.30	1462.00	13.09	17.39	2969.7	7.76	303.1	114.1	112.7	114.1	24.5	114.1	111.2	114.1	
13:47	375.80	1460.00	13.01	17.36	2982.0	7.81	303.1	114.0	113.6	114.0	24.3	114.0	111.3	114.0	
13:48	405.90	1474.00	12.87	17.30	2988.7	7.92	303.4	113.8	113.3	113.8	24.1	113.8	111.4	113.8	
13:49	481.90	1488.00	12.55	17.16	2981.8	7.94	303.0	113.5	113.1	113.5	23.8	113.5	113.4	113.5	
13:50	509.70	1491.00	12.46	17.16	2987.9	8.01	303.0	113.2	112.3	113.2	23.6	113.2	110.2	113.2	

10 MinAvg	353.26	1463.80	12.97	17.35	2972.9	7.55	303.2	113.9	112.5	113.9	24.2	116.0	110.4	113.9	75.87
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E-168

13:51	547.50	1513.00	12.34	17.02	2975.8	8.05	303.1	113.1	112.3	113.1	9.8	162.0	109.5	113.1	
13:52	568.40	1514.00	12.30	16.96	2945.1	8.27	303.1	112.8	110.5	112.8	18.8	179.8	109.3	112.7	
13:53	580.70	1495.00	12.40	17.02	2938.1	8.69	302.7	112.6	111.5	112.6	-4.4	187.1	112.2	112.6	
13:54	561.50	1501.00	12.35	16.91	2919.8	8.85	302.9	112.3	112.2	112.3	-7.9	196.7	112.3	112.3	
13:55	561.40	1496.00	12.23	16.85	2797.7	8.74	302.3	112.1	112.1	112.1	-3.8	212.4	112.1	112.1	
13:56	539.60	1502.00	12.16	16.75	2449.8	8.80	301.6	110.2	111.9	111.9	22.1	213.4	111.9	111.9	
13:57	486.20	1508.00	12.94	16.65	2690.9	8.64	301.9	111.7	110.8	111.7	21.9	217.8	111.7	111.7	
13:58	435.40	1541.00	13.38	16.50	983.4	4.56	290.0	111.6	109.8	111.6	21.8	222.6	111.6	111.6	

C

The fan is turned off in order to check its condition (the motor is surging slightly). The dutchman bucket and elbow are full of "whole" stone.

70 lbs. of L/S was removed from the dutchman and damper. There is an approximate 1" coating of paste located on the inner lip of the fan housing. Samples were

taken of the paste and the stone for size analysis.

C

LEC Run 920226

Starting
02-26-92

Time	Outlet SO2 (ppmdv)	Inlet SO2 (ppmdv)	Outlet O2 (%)	Inlet O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Outlet Temp (F)	Inlet Flow (acfm)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
C	C The dutchman, damper and fan have been cleaned of stone and paste.														
15:07	1.12	112.50	20.76	21.11	3807.9	7.72	257.8	45.6	30.7	37.4	112.4	38.3	35.0	56.7	-9989.69
15:08	0.28	1053.00	15.11	20.28	4350.2	8.35	290.5	61.0	41.5	47.5	94.1	59.6	57.3	56.8	-.38E+06
15:09	116.90	1296.00	14.38	19.69	4593.5	6.74	291.4	78.8	56.4	56.8	83.7	73.0	69.7	59.8	-1008.64
15:10	479.90	1318.00	14.38	19.76	4659.7	6.09	291.5	93.2	56.9	57.1	73.1	71.8	80.6	70.7	-174.64
10 MinAvg	60.32	381.62	19.95	20.75	4352.8	2.06	208.8	43.6	35.7	43.6	105.6	40.1	40.5	58.4	-39231.23
15:11	707.00	1321.00	14.56	19.84	4621.0	5.80	291.5	116.1	60.4	65.0	71.8	76.5	86.5	79.5	-86.85
15:12	827.00	1316.00	14.19	19.93	4491.1	5.83	291.5	116.2	71.4	71.9	71.9	86.6	86.7	89.1	-59.13
15:13	879.00	1301.00	14.20	20.05	4467.3	5.88	291.6	116.2	71.9	72.5	71.9	86.8	87.1	128.0	-48.01
15:14	936.00	1307.00	14.15	20.06	4410.7	5.96	291.6	116.2	72.0	82.4	68.3	87.7	88.9	150.5	-39.64
15:15	971.00	1314.00	14.13	19.92	1585.2	2.94	281.1	116.1	71.8	86.5	58.0	88.1	113.9	149.3	-35.32

C
C The run is halted due to an excessive amount of limestone coming out of the exhaust stack.

Post-Run Bed Inspection:

- 4 inches of dry limestone is stuck to the heating plant side of the reactor.
- 62 lbs. of stone was removed from the mist eliminator. Visually, this stone is larger than the particle size found in the paste but is smaller than the whole stone.
- 90% of the stone located in the reactor at the end of the run was bone dry.

Miscellaneous Note: The O2 monitor that is usually on the outlet is not working properly.

SCREEN ANALYSIS OF THE "DUTCHMAN" STONE
FROM LEC RUN 920226

SCREEN SIZE	MESH OPENING (inches)	WEIGHT (grams)	PERCENT (%)
+ 1/4 inch	0.25	6.2	0.6
+ No. 6	0.132	161.2	16.0
+ No. 8	0.0937	312.7	31.0
+ No. 12	0.0661	229.3	22.7
+ No. 14	0.0555	92.8	9.2
+ No. 16	0.0469	57.2	5.7
+ No. 20	0.0331	54.9	5.4
+ No. 25	0.0278	13.2	1.3
+ No. 30	0.0234	7.5	0.7
+ No. 35	0.0195	6.6	0.7
+ No. 40	0.0165	4.8	0.5
+ No. 45	0.0139	3.9	0.4
+ No. 50	0.0111	4.0	0.4
+ No. 60	0.00	8.0	0.8
+ No. 70	0.0083	38.3	3.8
+ No. 80	0.0070	0.6	0.1
+ No. 100	0.0059	5.5	0.5
+ No. 140	0.00104	1.2	0.1
+ No. 200	0.0029	0.5	0.05
+ No. 325	0.0017	0.4	0.04
+ No. 400	0.0015	0.1	0.01
- No. 400	NA	0.1	0.01

SCREEN ANALYSIS OF MIST ELIMINATOR STONE
FROM LEC RUN 920226

SCREEN SIZE	MESH OPENING (inches)	WEIGHT (grams)	PERCENT (%)
+ No. 8	0.0937	81.1	17.6
+ No. 12	0.0661	82.4	17.9
+ No. 14	0.0555	57.9	12.6
+ No. 16	0.0469	49.6	10.8
+ No. 20	0.0331	73.5	16.0
+ No. 25	0.0278	29.1	6.3
+ No. 30	0.0234	19.3	4.2
+ No. 35	0.0195	18.5	4.0
- No. 35	NA	48.7	10.6

SCREEN ANALYSIS OF "FAN PASTE"
FROM LEC RUN 920226

SCREEN SIZE	MESH OPENING (inches)	WEIGHT (grams)	PERCENT (%)
+ No. 8	0.0937	7.5	4.3
+ No. 12	0.0661	14.6	8.4
+ No. 14	0.0555	12.6	7.2
+ No. 16	0.0469	12.7	7.3
+ No. 20	0.0331	20.5	11.7
+ No. 25	0.0278	10.2	5.8
+ No. 30	0.0234	7.4	4.2
+ No. 35	0.0195	4.6	2.6
+ No. 40	0.0165	8.0	4.6
+ No. 45	0.0139	6.5	3.7
+ No. 50	0.0117	7.0	4.0
+ No. 60	0.0098	7.7	4.4
+ No. 70	0.0083	5.6	3.2
+ No. 80	0.0070	5.6	3.2
+ No. 100	0.0059	6.0	3.4
+ No. 140	0.00104	7.8	4.5
+ No. 200	0.0029	6.0	3.4
+ No. 325	0.0017	6.8	3.9
+ No. 400	0.0015	2.2	1.3
- No. 400	NA	19.8	11.3

Run Summary: **LEC Run 920304**

Objective: Pre-screening of limestone.

Total Run Time: 44 minutes.

SO₂ Removal: +99.9%

Inlet Gas Rate: 1830 to 1780 acfm

Operations Conditions:

Fresh No.9 limestone (pre-screened for 140 minutes).

In-duct Steam: 0 psig

Overhead Sprays: 0.0 gpm

Louver Sprays: 0.0 gpm

Bed Speed: 12 DT (2555 lb/hr)

Regeneration Device: A single deck vibrating screen equipped with a 30 mesh screen.

Waste Fines: 1.19 lb/min.

Carry-over: 1.82 lbs/min.

Comments: - LEC run 920305 continued the empirical studies started with run 920304. During this run the fan was operated for 2.5 hours at this minimum damper setting. The recorded inlet flue gas flow rate was generally less than 500 acfm ($V_{bed} = 0.46$ ft/s; $V_{louvers} = 2.0$ ft/s; $V_{duct} = 4.8$ ft/s). Only a small amount of stone left the bed during this time. After 2.5 hours of "stone-free" operation, the damper was slowly opened to the No. 2 position. This increased the inlet flue gas flow rate to greater than 1000 acfm. The run was terminated after three minutes of operation when the ID fan and the outlet duct work became filled with whole stone and fines. The fines mixed with water from the saturated outlet gas and formed a paste which coated the fan housing and blade. 295 pounds of limestone were collected in the dutchman assembly and 66 pounds of fines were collected from the mist eliminator.

LEC Run 920304

Starting
03-04-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
C	Pre-screening of the limestone for 140 minutes through a 30 mesh vibrating screen. The bed speed was set at 12 DT (2555 lb/hr) which allowed the stone cycle through the reactor once. 101.4 lbs of -No. 30 dust was removed during the screening.														
C	The conveyors are started at 19:10 with a bed speed of 10 DT (2590 lb/hr). The vibrating screen is being used.														
19:11	1.03	0.65	20.68	NA		0.18	65	65	65	65	65	65	65	65	36.47
19:12	0.85	0.71	20.63	NA		0.18	65	65	65	65	65	65	65	65	16.47
C	The fan is started with at the minimum damper setting. No water is to be added, since when the stone is "dry" the minimum gas velocity through the bed is achieved.														
19:13	0.92	0.75	20.63	NA	813	3.00	142	65	65	65	65	65	65	65	18.17
19:14	227.40	0.63	16.24	NA	1513	5.34	225	67	65	65	65	65	65	65	99.72
C	A large quantity of fines are coming out of the exhaust stack. A dust plume is also visible.														
19:15	738.00	0.72	13.93	NA	1436	5.52	225	67	65	65	65	65	65	65	99.90
19:16	878.00	0.82	13.82	NA	1378	5.63	225	68	65	65	65	65	65	65	99.91
19:17	929.00	0.89	13.74	NA	1329	5.68	225	68	65	65	65	65	65	65	99.90
19:18	961.00	0.81	13.66	NA	809	4.18	225	66	64	64	64	64	64	64	99.92
C	The fan is stopped and 13.32 lbs of stone is removed from the dutchman and a portion removed for screen analysis.														
19:19	1027.00	0.57	13.24	NA		0.62	184	64	64	64	64	64	64	64	99.94
19:20	538.70	0.67	17.31	NA		0.17	147	64	64	64	64	64	64	64	99.88
10 MinAvg	530.19	0.72	16.39		1213	3.05	173	66	65	65	65	65	65	65	77.03
19:21	160.00	0.85	20.07	NA		0.13	140	64	64	64	64	64	64	64	99.47
19:22	84.90	0.85	20.18	NA		0.13	134	64	64	64	64	64	64	64	99.00
19:23	61.50	0.75	20.18	NA		0.13	127	64	64	64	64	64	64	64	98.78
19:24	47.12	0.81	20.16	NA		0.13	123	64	64	64	64	64	64	64	98.29
19:25	36.34	0.74	20.15	NA		0.13	123	64	64	64	64	64	64	64	97.97
19:26	29.47	0.81	20.12	NA		0.20	123	64	64	64	64	64	64	64	97.26
C	Restarted the fan.														
19:27	114.10	0.77	18.18	NA	676	3.02	178	67	64	64	64	64	64	64	99.33
19:28	749.00	0.82	13.61	NA	1291	5.02	224	75	64	64	64	64	64	64	99.89
19:29	900.00	0.72	13.57	NA	1171	4.88	224	77	63	63	63	63	63	63	99.92
19:30	942.00	0.74	13.66	NA	1069	4.79	224	78	63	63	63	67	63	63	99.92
10 MinAvg	312.44	0.79	17.99		1052	1.86	162	68	64	64	64	64	64	64	98.98
C	Instrumentation sample lines are switched														
19:31	791.00	109.80	15.72	NA	1038	4.80	224	78	63	63	78	80	63	63	86.12
19:32	327.70	727.00	15.27	NA	1006	4.78	224	78	63	64	88	93	67	63	-121.85
19:33	208.40	806.00	14.85	NA	921	4.63	224	78	66	65	93	93	76	63	-286.76
19:34	182.50	812.00	15.01	NA	885	4.61	224	81	77	72	93	93	78	63	-344.93
C	No fines are exiting the exhaust stack, no dust plume.														
19:35	154.40	808.00	15.26	NA	866	4.59	224	85	78	77	93	93	83	72	-423.32
19:36	127.70	801.00	15.52	NA	847	4.52	224	90	79	77	93	93	92	78	-527.25

E-174

LEC Run 920304

Starting
03-04-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Outlet O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
C	Stopped the fan.														
19:37	105.70	859.00	15.58	NA	181	3.28	223	89	84	79	92	92	92	83	-712.68
C	13.32 lbs of stone is removed from the dutchman bucket														
19:38	87.80	1015.00	15.94	NA		0.76	197	79	83	86	92	92	92	81	-1056.04
19:39	77.30	981.00	16.09	NA		0.27	165	77	78	84	86	91	78	77	-1169.08
19:40	74.40	483.80	16.12	NA		0.15	165	77	66	80	77	77	63	77	-550.27
10 MinAvg	213.69	740.26	15.54		821	3.24	209	81	74	75	88	90	78	72	-510.60
19:41	73.00	190.50	16.81	NA		0.14	165	77	62	79	74	76	62	75	-160.96
19:42	69.93	92.70	17.67	NA		0.14	165	76	62	77	65	72	62	72	-32.56
19:43	66.40	49.33	18.13	NA		0.14	165	74	62	77	63	68	62	70	25.71
19:44	64.07	27.59	18.48	NA		0.14	165	72	62	77	63	65	62	69	56.94
19:45	61.70	17.01	18.77	NA		0.14	164	73	62	77	63	64	62	70	72.43
C	Conveyors are shut-down														
19:46	57.05	11.14	18.93	NA		0.14	164	69	62	77	62	63	62	67	80.47
19:47	52.36	7.74	19.03	NA		0.14	164	66	62	76	62	62	62	66	85.22
19:48	29.15	3.04	19.31	NA		0.14	158	66	61	76	62	62	61	63	89.58
19:49	7.94	0.79	19.36	NA		0.14	153	64	61	76	62	62	61	64	90.00
19:50	5.89	0.68	19.33	NA		0.14	156	64	61	76	61	63	61	64	88.42
10 MinAvg	48.75	40.05	18.58			0.14	162	70	62	77	64	66	62	68	39.53
19:51	3.94	0.70	19.32	NA		0.14	150	63	61	76	61	62	61	64	82.34
19:52	2.95	0.77	19.30	NA		0.14	149	62	61	76	61	61	61	62	74.06
19:53	1.85	0.81	19.27	NA		0.14	149	62	61	76	61	62	61	62	56.37
19:54	1.27	0.61	19.26	NA		0.37	91	64	61	76	61	62	61	62	51.62
19:55	0.89	0.68	19.24	NA		0.43	76	69	62	75	64	69	61	62	23.46

E-175

SCREEN ANALYSIS OF "DUTCHMAN" STONE
FROM LEC RUN 920304 AT 1918

SCREEN SIZE	MESH OPENING (inches)	WEIGHT (grams)	PERCENT (%)
+ 1/4 inch	0.25	11.8	1.1
+ No. 6	0.132	155.3	15.1
+ No. 8	0.0937	270.0	26.3
+ No. 12	0.0661	213.9	20.8
+ No. 14	0.0555	102.1	9.9
+ No. 16	0.0469	73.6	7.2
+ No. 20	0.0331	94.1	9.2
+ No. 25	0.0278	26.3	2.6
+ No. 30	0.0234	17.2	1.7
+ No. 35	0.0195	15.7	1.5
+ No. 40	0.0165	11.0	1.1
+ No. 45	0.0139	5.8	0.6
+ No. 50	0.0117	3.3	0.3
+ No. 60	0.0098	2.7	0.3
+ No. 70	0.0083	1.7	0.2
+ No. 80	0.0070	14.0	1.4
+ No. 100	0.0059	3.1	0.3
+ No. 140	0.00104	1.7	0.2
+ No. 200	0.0029	1.2	0.1
+ No. 325	0.0017	1.0	0.1
+ No. 400	0.0015	0.4	0.0
- No. 400	NA	0.9	0.1

SCREEN ANALYSIS OF UNDERSIZE SCREEN DUST
FROM LEC RUN 920304

SCREEN SIZE	MESH OPENING (inches)	WEIGHT (grams)	PERCENT (%)
+ 1/4 inch	0.25	0.0	0.0
+ No. 6	0.132	0.0	0.0
+ No. 8	0.0937	0.0	0.0
+ No. 12	0.0661	0.0	0.0
+ No. 14	0.0555	0.0	0.0
+ No. 16	0.0469	0.0	0.0
+ No. 20	0.0331	0.0	0.0
+ No. 25	0.0278	0.1	0.01
+ No. 30	0.0234	0.2	0.03
+ No. 35	0.0195	0.2	0.03
+ No. 40	0.0165	10.4	1.3
+ No. 45	0.0139	81.5	10.0
+ No. 50	0.0117	129.2	15.9
+ No. 60	0.0098	129.5	15.9
- No. 60	0.0083	456.7	56.2

LEC RUN 920304

Waste Production

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Dust Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
01:40 PM	20	28.1	1.40
02:00 PM	20	20.0	1.00
02:20 PM	20	20.1	1.01
02:40 PM	20	14.5	0.73
03:15 PM	35	18.7	0.53
03:40 PM	Material handling equipment was stopped.		
07:27 PM	Material handling equipment was restarted.		
07:45 PM	18	44.5	2.47
Total:		145.9	
Average:			1.19

LEC RUN 920304

Carry-over Production

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Stone Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
07:13 PM	Fan is started.		
07:18 PM	5	13.3	2.66
07:18 PM	Fan is stopped.		
07:27 PM	Fan is restarted.		
07:37 PM	10	9.8	0.98
Total:		23.1	
Average:			1.82

Run Summary:

LEC Run 920305

Objective: Empirical observation of dry stone fluidization velocities.

Total Run Time: 180 minutes

SO₂ Removal: +99.9%

Inlet Gas Rate: 1830 to 1780 acfm

Operations Conditions:

No.9 limestone from LEC Run 920304 (44 minutes of prior exposure time).

In-duct Steam: 0 psig

Overhead Sprays: 0.0 gpm

Louver Sprays: 0.3 gpm from 9:32 to 14:00

Bed Speed: 10 DT (2195 lb/hr)

Regeneration Device: A single deck vibrating screen equipped with a 30 mesh screen.

Fines Removal: 0.52 lbs/hr

Carry-over: 0.12 lbs/hr

Comments: - LEC run 920305 continued the empirical studies started with run 920304. During this run the fan was operated for 2.5 hours at this minimum damper setting. The recorded inlet flue gas flow rate was generally less than 500 acfm ($V_{bed} = 0.46$ ft/s; $V_{louvers} = 2.0$ ft/s; $V_{duct} = 4.8$ ft/s). Only a small amount of stone left the bed during this time. After 2.5 hours of "stone-free" operation, the damper was slowly opened to the No. 2 position. This increased the inlet flue gas flow rate to greater than 1000 acfm. The run was terminated after three minutes of operation when the ID fan and the outlet duct work became filled with whole stone and fines. The fines mixed with water from the saturated outlet gas and formed a paste which coated the fan housing and blade. 295 pounds of limestone were collected in the dutchman assembly and 66 pounds of fines were collected from the mist eliminator.

LEC Run 920305

Starting
03-05-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
C	Purpose: Emperical observation of dry stone fluidization velocities.														
C	30.6 lbs of -No.30 fines are removed in the 2 hours prior to starting the run.														
C	Initial conditions: Bed speed is 2590 lb/hr, no water addition.														
09:32	0.73	1.56		810	1818	2.92	226	56	54	54	54	54	54	54	-115.45
C	No stone is exiting the exhaust stack and the fan sounds clear.														
09:33	0.57	1.49		795	1831	3.00	236	64	53	53	53	53	53	53	-160.84
09:34	0.24	1.41		877	1877	3.25	240	67	53	53	53	53	53	53	-494.09
09:35	0.84	0.82		951	1898	3.46	241	67	53	53	53	53	53	53	1.67
09:36	0.78	1.39		898	1879	3.44	243	68	53	53	53	53	53	53	-78.49
09:37	1.20	0.93		860	1872	3.46	243	68	53	53	53	53	53	53	22.10
09:38	0.93	1.12		860	1872	3.50	243	68	53	53	53	53	53	53	-19.38
09:39	0.22	1.42		859	1872	3.54	243	68	53	53	53	53	53	53	-537.67
09:40	0.86	1.09		755	1871	3.38	243	68	53	53	55	53	53	53	-25.93
C	Checking the Dutchman bucket														
09:41	445.90	0.86		859	1851	3.63	243	68	53	61	69	53	55	53	99.81
10 MinAvg	45.23	1.21		852	1864	3.36	240	66	53	54	55	53	53	53	-130.83
09:42	1174.00	0.99		819	1837	3.62	243	67	53	67	82	60	67	52	99.92
09:43	1203.00	1.05		755	1830	3.53	243	67	53	80	82	70	67	52	99.91
C	2.54 lbs of stone is removed from the dutchman and returned to the feed screw.														
09:44	1219.00	0.98		709	1830	3.49	243	67	54	82	82	82	72	52	99.92
C	Switching the sample lines.														
09:45	830.00	1.09		685	1831	3.48	243	68	54	82	83	82	79	52	99.87
09:46	50.05	382.50		685	1832	3.49	242	72	54	82	86	82	82	52	-664.24
09:47	23.26	1210.00		660	1850	3.48	242	79	56	82	90	82	82	52	-5102.06
09:48	13.08	1318.00		660	1847	3.46	242	81	61	83	98	82	82	52	-9976.45
C	Switching the samples lines back to the original configuration.														
09:49	256.10	961.00		634	1848	3.45	242	82	63	83	99	84	82	59	-275.24
09:50	1199.00	100.60		607	1848	3.42	242	82	66	84	99	88	82	67	91.61
09:51	1243.00	19.77		607	1841	3.42	242	82	65	88	104	91	82	67	98.41
10 MinAvg	721.05	399.60		682	1839	3.48	242	75	58	81	90	80	78	56	-1542.84
09:52	1257.00	6.08		579	1841	3.41	242	82	63	85	102	92	82	67	99.52
09:53	1264.00	1.39		607	1840	3.42	242	81	62	93	107	92	81	67	99.89
09:54	1273.00	1.05		607	1847	3.43	242	81	62	92	104	96	81	71	99.92
09:55	1290.00	1.09		607	1847	3.44	242	81	61	92	103	98	81	81	99.92
09:56	1270.00	0.96		607	1840	3.44	242	81	60	90	104	99	81	81	99.92
09:57	1244.00	1.13		579	1840	3.45	242	81	60	89	104	100	81	81	99.91
09:58	1225.00	0.85		549	1834	3.41	242	82	62	85	104	103	82	82	99.93
09:59	1202.00	1.21		549	1834	3.41	242	82	58	88	104	104	82	82	99.90

E-120

LEC Run 920305

Starting
03-05-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10:00	1193.00	0.93		549	1834	3.44	242	82	61	87	104	101	82	82	99.92
C	No stone is coming out of the stack and the fan sounds clear. 1.02 lbs of stone is removed from the dutchman.														
10:01	1181.00	1.14		607	1827	3.53	242	82	61	86	103	100	82	82	99.90
10 MinAvg	1239.90	1.58		584	1838	3.44	242	82	61	89	104	99	82	78	99.87
10:02	1170.00	1.14		607	1820	3.54	242	82	57	84	104	99	82	82	99.90
10:03	1185.00	0.91		608	1821	3.56	243	82	58	84	104	99	82	82	99.92
10:04	1184.00	0.86		518	1827	3.45	243	82	57	85	102	100	82	82	99.93
C	The dutchman assembly is now in-place.														
10:05	1172.00	1.41		518	1828	3.46	243	82	59	85	102	99	82	82	99.88
10:06	1163.00	1.00		518	1828	3.47	243	82	62	84	103	98	82	85	99.91
10:07	1162.00	0.50		518	1829	3.48	243	83	61	85	103	98	83	87	99.96
10:08	1162.00	0.50		518	1829	3.49	243	83	64	84	104	97	83	90	99.94
10:09	1156.00	0.65		485	1829	3.50	243	83	63	84	103	98	83	88	99.91
10:10	1151.00	1.02		485	1836	3.51	243	83	63	84	101	98	83	92	99.91
10:11	1148.00	1.07		485	1836	3.51	243	83	63	84	101	98	83	92	99.91
10:11	1144.00	0.93		485	1830	3.52	243	83	61	84	102	95	83	97	99.92
10 MinAvg	1163.50	0.95		526	1828	3.50	243	83	60	84	103	98	82	87	99.92
10:12	1141.00	1.28		485	1829	3.53	243	83	60	84	101	97	83	93	99.89
C	Switching the sample lines														
10:13	761.00	1.13		485	1828	3.53	243	83	60	83	101	98	83	97	99.85
10:14	33.24	1.21		485	1836	3.55	243	83	59	84	99	99	83	97	96.35
10:15	17.90	0.67		485	1828	3.57	243	83	61	84	102	97	83	100	96.26
C	No stone is coming out of the stack and the fan sounds clear. 1.02 lbs of stone is removed from the dutchman.														
10:16	14.57	138.60		485	1836	3.58	243	83	60	83	99	95	83	102	-851.27
10:17	8.99	968.00		485	1828	3.60	243	83	59	84	100	100	83	101	-.11E+05
10:18	6.39	1136.00		485	1831	3.61	243	84	56	83	100	101	82	101	-.18E+05
10:19	3.63	1168.00		449	1823	3.58	243	84	61	84	101	100	82	102	-.32E+05
10:20	3.18	1189.00		449	1829	3.60	243	83	60	83	98	98	82	103	-.37E+05
10:21	2.16	1190.00		449	1830	3.61	243	84	61	83	97	97	82	103	-.55E+05
10 MinAvg	199.20	579.39		474	1830	3.57	243	83	60	83	100	98	82	100	X-15320.76
10:22	1.05	1194.00		449	1823	3.62	243	84	60	83	98	99	82	104	-.11E+06
C	28.26 lbs of dust is collected from the vibrating screen (0.5 lbs/min)														
10:23	0.70	1195.00		449	1830	3.63	243	83	62	83	98	97	82	104	-.17E+06
10:24	0.45	1191.00		449	1825	3.64	243	85	59	82	97	99	82	104	-.27E+06
10:25	0.47	1178.00		449	1824	3.64	243	84	59	82	94	98	82	104	-.25E+06
10:26	1.48	1171.00		449	1823	3.65	243	84	62	83	99	92	83	105	-.79E+05

E-181

LEC Run 920305

Starting
03-05-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10:27	1.63	1173.00		449	1824	3.66	243	84	60	83	98	88	83	105	-.72E+05
10:28	1.99	1170.00		449	1825	3.66	243	85	62	83	97	87	83	104	-.59E+05
10:29	397.80	722.00		410	1825	3.68	244	85	58	83	94	86	83	105	-81.50
10:30	1080.00	97.60		410	1825	3.69	244	85	59	83	91	85	83	104	90.96
10:31	1099.00	29.24		410	1824	3.69	244	84	64	84	89	86	83	103	97.34
10 MinAvg	258.46	912.08		437	1825	3.66	243	84	61	83	96	92	83	104	-.10E+06
10:32	1089.00	11.96		410	1824	3.71	244	84	61	83	90	86	83	101	98.90
10:33	1076.00	3.81		410	1823	3.72	244	84	59	83	89	86	83	101	99.65
10:34	1067.00	1.53		410	1831	3.73	244	84	56	84	88	85	84	102	99.86
10:35	1064.00	1.46		410	1832	3.74	244	85	55	84	89	85	84	102	99.86
10:36	1072.00	1.16		367	1830	3.74	244	84	58	84	89	84	84	99	99.89
10:37	1066.00	0.89		367	1823	3.76	244	84	55	84	91	84	84	102	99.92
10:38	1061.00	1.27		367	1824	3.77	244	84	55	84	89	84	84	102	99.88
10:39	1051.00	1.52		367	1823	3.78	244	84	56	84	88	84	84	103	99.86
10:40	1070.00	0.96		367	1831	3.80	244	84	59	84	87	84	84	102	99.91
10:41	1066.00	0.63		367	1824	3.80	245	84	59	84	86	84	84	104	99.94
10 MinAvg	1068.20	2.52		384	1826	3.76	244	84	57	84	89	84	84	102	99.77
10:42	1045.00	1.39		318	1825	3.81	245	85	61	84	86	84	84	106	99.87
10:43	1019.00	0.99		318	1824	3.82	245	84	62	84	85	84	84	107	99.90
10:44	1021.00	1.03		318	1825	3.81	245	85	58	85	87	85	85	107	99.90
10:45	1013.00	0.43		318	1825	3.80	245	85	66	85	86	85	85	107	99.96
10:46	1019.00	0.53		260	1818	3.80	245	85	61	85	86	85	85	107	99.95
10:47	1013.00	0.89		260	1825	3.81	245	85	59	85	85	85	85	107	99.91
10:48	1000.00	0.80		260	1826	3.82	246	86	57	85	86	85	85	108	99.92
10:49	992.00	0.91		260	1833	3.82	246	86	62	85	86	85	85	111	99.91
10:50	979.00	1.48		260	1819	3.81	246	85	58	85	86	85	85	113	99.85
10:51	979.00	1.32		184	1819	3.79	246	85	60	85	85	85	85	114	99.86
10 MinAvg	1008.00	0.98		275	1824	3.81	245	85	60	85	86	85	85	109	99.90
10:52	983.00	1.25		184	1819	3.80	246	86	59	85	86	85	85	114	99.87
10:53	969.00	0.96		184	1818	3.80	246	85	60	85	85	85	85	115	99.90
10:54	968.00	1.13		184	1819	3.80	246	85	64	85	85	85	85	115	99.88
10:55	963.00	1.27		184	1819	3.80	246	86	68	85	85	85	85	115	99.87
10:56	948.00	0.73		184	1818	3.80	246	85	65	85	85	85	85	115	99.92
10:57	939.00	0.57		184	1811	3.79	246	85	65	85	85	85	85	115	99.94
10:58	933.00	1.28			1812	3.79	246	86	67	85	85	85	85	115	99.86
10:59	912.00	0.96			1812	3.79	246	85	69	85	85	85	85	115	99.89

E-182

LEC Run 920305

Starting
03-05-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
11:00	922.00	1.23			1812	3.79	246	86	67	85	86	85	85	115	99.87
C	Switching the samples and recalibrating the O2 monitor.														
11:01	925.00	0.91			1812	3.80	246	85	70	85	85	85	85	115	99.90
10 MinAvg	946.20	1.03		184	1815	3.80	246	85	65	85	85	85	85	115	99.89
11:02	349.60	1.14			1812	3.80	246	86	70	85	85	85	85	115	99.67
11:03	20.63	1.41			1813	3.80	246	86	68	85	85	85	85	115	93.17
11:04	21.86	88.00			1804	3.82	246	85	69	85	85	85	85	116	-302.56
11:05	11.92	658.70			1812	3.82	246	86	68	85	85	85	85	115	-5426.01
C	3.12 lbs of stone is removed from the dutchman elbow.														
11:06	7.67	797.00		260	1805	3.90	246	86	70	86	86	86	86	120	-.10E+05
11:07	8.63	836.00		318	1805	4.01	246	86	70	86	86	86	86	126	-.16E+05
11:08	5.26	869.00		318	1805	4.03	246	86	70	86	86	86	86	136	-.19E+05
11:09	4.66	901.00		318	1805	4.03	246	86	69	86	86	86	86	136	-.28E+05
11:10	3.07	848.00		318	1798	4.03	246	86	69	86	86	86	86	137	-4291.56
11:11	4.26	187.30		318	1801	4.04	246	88	69	86	86	86	86	137	-4291.56
10 MinAvg	43.76	518.76		308	1806	3.93	246	86	69	85	85	85	85	123	-9295.17
11:12	7.43	39.70		260	1801	4.04	246	88	70	86	86	86	86	137	-434.32
C	Lost inlet sample flow														
11:13	11.11	15.05		260	1804	4.05	246	89	70	86	86	86	86	140	-35.46
11:14	13.94	4.67		260	1801	4.06	246	88	70	86	86	86	86	144	66.51
11:15	17.35	1.39		260	1803	4.06	247	89	71	86	86	86	86	145	91.97
11:16	19.25	1.30		260	1794	4.07	247	88	71	86	86	86	86	145	93.27
11:17	22.29	0.77		260	1796	4.07	247	89	71	86	86	86	86	145	96.56
11:18	24.34	1.46		260	1800	4.09	247	92	71	86	86	86	86	145	93.99
11:19	25.51	1.35		260	1795	4.09	247	89	72	86	86	86	86	145	94.70
11:20	44.45	1.03		184	1799	4.09	247	91	72	87	87	87	87	145	97.68
11:21	892.00	1.44		184	1802	4.11	247	93	72	87	87	87	87	145	99.84
10 MinAvg	107.77	6.82		245	1800	4.07	247	90	71	86	86	86	86	144	26.47
11:22	984.00	1.09		184	1803	4.10	247	94	72	87	87	87	87	145	99.89
11:23	341.10	1.50		184	1807	4.12	247	96	72	87	87	87	87	145	99.56
11:24	977.00	0.98		184	1807	4.14	247	96	72	87	87	87	87	145	99.90
C	Fixed the inlet sample flow and reinstalled the dutchman bucket.														
11:25	1002.00	1.48			1808	4.15	246	96	72	87	87	87	87	146	99.85
11:26	993.00	1.20			1800	4.14	245	96	72	87	87	87	87	149	99.88
11:27	951.00	0.86			1812	4.06	245	95	72	87	87	87	87	146	99.91
11:28	857.00	0.88			1808	4.03	244	92	72	87	87	87	87	149	99.90

E-183

3 of 6

LEC Run 920305

Starting
03-05-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
11:29	850.00	1.30			1809	4.03	244	93	73	87	87	87	87	153	99.85
11:30	844.00	1.35			1809	4.05	245	93	73	88	88	88	88	152	99.84
11:31	842.00	1.42			1810	4.04	245	93	73	88	88	88	88	152	99.83
10 MinAvg	864.11	1.21		184	1807	4.09	246	94	72	87	87	87	87	148	99.84
11:32	836.00	1.44			1805	4.05	245	95	73	88	88	88	88	154	99.83
11:33	903.00	1.52			1809	4.06	248	93	73	88	88	88	88	151	99.83
11:34	882.00	1.44			1809	4.08	247	92	73	88	88	88	88	154	99.84
C	Switched the sample lines. Inlet O2 = 15%; Outlet O2 = 18.5%														
11:35	88.30	12.39			1801	4.06	247	92	73	88	88	88	88	151	85.97
11:36	21.99	611.60			1797	4.06	249	90	73	88	88	88	88	150	-2681.26
11:37	14.76	744.00			1800	4.08	249	92	73	88	88	88	88	152	-4940.65
11:38	10.76	128.70			1797	4.08	249	90	73	88	88	88	88	147	-1096.10
11:39	6.89	420.20			1798	4.08	249	90	74	88	88	88	88	147	-6003.12
11:40	7.37	897.00			1798	4.11	249	91	74	88	89	89	89	147	-.12E+05
C	Switching the sample lines back to the original configuration.														
11:41	220.00	578.40			1799	4.12	248	91	74	89	89	89	89	147	-162.91
10 MinAvg	299.11	339.67			1801	4.08	248	92	73	88	88	88	88	150	-2656.95
11:42	925.00	73.20			1792	4.13	248	91	74	89	89	89	89	147	92.09
11:43	936.00	25.42			1795	4.14	248	93	74	88	89	89	89	147	97.28
11:44	933.00	8.88			1792	4.16	247	91	74	88	89	89	89	147	99.05
11:45	941.00	1.45			1791	4.19	249	90	74	89	89	89	89	145	99.85
C	29.3 lbs of dust is collected from the vibrating screen.														
11:46	955.00	0.92			1783	4.22	249	90	74	89	89	89	89	124	99.90
11:47	969.00	0.96			1786	4.21	250	92	74	89	89	89	89	122	99.90
11:48	959.00	1.14			1785	4.20	249	91	74	89	89	89	89	122	99.88
11:49	961.00	1.42			1784	4.18	250	95	75	89	89	89	89	124	99.85
11:50	939.00	1.14			1776	4.20	250	90	75	88	89	89	89	134	99.88
11:51	915.00	1.56			1781	4.23	249	94	75	88	89	89	89	119	99.83
10 MinAvg	943.30	11.61			1787	4.19	249	92	74	89	89	89	89	133	98.75
11:52	889.00	1.10			1778	4.26	248	92	75	87	89	90	90	119	99.88
C	Sample lines are switched														
11:53	871.00	1.42			1781	4.27	248	93	75	87	90	90	90	119	99.84
11:54	252.40	93.90			1778	4.29	248	91	75	85	89	90	90	119	62.80
11:55	38.28	628.80			1770	4.31	247	92	75	84	90	90	90	119	-1542.63
11:56	22.95	730.00			1770	4.34	247	91	75	84	90	90	90	119	-3080.83
11:57	20.75	747.00			1776	4.34	247	91	75	83	90	90	90	119	-3500.00

E-184

Starting
03-05-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
11:58	17.14	748.00			1768	4.34	247	90	76	83	90	90	90	122	-4264.06
11:59	17.89	766.00			1769	4.36	247	91	75	82	89	90	90	131	-4181.72
12:00	18.49	785.00			1663	3.35	240	91	76	84	90	90	90	126	-4145.54
12:01	18.17	805.00			1450	0.89	200	90	78	83	89	90	90	120	-4330.38
10 MinAvg	216.61	530.62			1730	3.87	242	91	75	84	90	90	90	121	-2478.27

C The fan is shut-off and make-up stone is added to the reactor.

C

C The fan is restarted The damper set to the No. 2 position.

13:49	337.10	1.39	20.88		1784	3.76	190	82	70	68	68	68	68	69	99.59
13:50	770.00	1.03	21.04		1822	4.17	211	83	82	69	69	68	69	69	99.87
13:51	802.00	1.16	21.01		1815	4.22	221	83	83	71	75	69	72	69	99.86
13:52	809.00	1.27	20.99		1822	4.29	225	83	83	77	83	74	82	68	99.84
13:53	814.00	1.21	20.98		1823	4.34	227	84	83	81	83	81	83	68	99.85
13:54	804.00	4.14	21.02		1820	4.52	228	86	84	83	83	83	83	69	99.49
13:55	805.00	10.03	20.93		1822	4.60	229	88	87	83	84	83	83	71	98.75
13:56	797.00	13.48	20.96		1828	4.59	229	91	87	83	84	83	83	81	98.31
13:57	803.00	20.56	20.99		1830	4.50	229	92	86	83	85	83	83	83	97.44

C The damper is slowly set to the No. 2 position.

13:58	785.00	40.20	20.92	1295	2121	8.93	229	97	85	84	94	96	92	83	94.88
13:59	781.00	65.21	21.19	831	1862	7.55	229	98	87	88	96	98	98	84	91.65
14:00	783.00	72.40	21.11	480	1774	6.75	229	98	88	88	97	98	98	84	90.75

C The fan is turned off to empty stone out of the dutchman, fan and the mist eliminator.

C Approximately 295 lbs. of L/S is removed from the dutchman elbow and 66 lbs of fines are removed from the mist eliminator.

Outlet sample line integrity check:

14:01	Hooked-up the 103 ppm cal gas to the inlet of the outlet sample line.														
14:02	SO2 outlet = 75.2 ppmdv and turned off the cal gas.														
14:03	Blocked the outlet sample line inlet in order to leak due a manual leak check. Outlet lines passes this "manual" leak check.														
14:30	103 ppm cal gas is reinserted to the outlet sample line.														
15:13	SO2 outlet monitor reads 104 ppmdv.														
15:24	Pure N2 is hooked-up to the inlet of the outlet sample line. The O2 monitor reads 0.112% via the datalogger.														

SCREEN ANALYSIS OF "DUTCHMAN" STONE
FROM LEC RUN 920305PM

SCREEN SIZE	MESH OPENING (inches)	WEIGHT (grams)	PERCENT (%)
+ 1/4 inch	0.25	2.2	0.1
+ No. 6	0.132	41.2	2.4
+ No. 8	0.0937	162.6	9.5
+ No. 12	0.0661	288.2	16.9
+ No. 14	0.0555	211.8	12.4
+ No. 16	0.0469	181.3	10.6
+ No. 20	0.0331	269.2	15.8
+ No. 25	0.0278	93.4	5.5
+ No. 30	0.0234	74.3	4.3
+ No. 35	0.0195	76.4	4.5
+ No. 40	0.0165	57.7	3.4
+ No. 45	0.0139	41.7	2.47
+ No. 50	0.0117	36.0	2.1
+ No. 60	0.0098	32.6	1.9
+ No. 70	0.0083	20.2	1.2
+ No. 80	0.0070	22.5	1.3
+ No. 100	0.0059	18.3	1.1
+ No. 140	0.00104	32.7	1.9
+ No. 200	0.0029	12.5	0.7
+ No. 325	0.0017	13.6	0.8
+ No. 400	0.0015	0.2	0.0
- No. 400	NA	20.5	1.2

SCREEN ANALYSIS OF UNDERSIZE SCREEN DUST
FROM LEC RUN 920305 AT 1022

SCREEN SIZE	MESH OPENING (inches)	WEIGHT (grams)	PERCENT (%)
+ 1/4 inch	0.25	0.0	0.0
+ No. 6	0.132	0.0	0.0
+ No. 8	0.0937	0.0	0.0
+ No. 12	0.0661	0.0	0.0
+ No. 14	0.0555	0.0	0.0
+ No. 16	0.0469	0.0	0.0
+ No. 20	0.0331	0.0	0.0
+ No. 25	0.0278	0.3	0.03
+ No. 30	0.0234	0.0	0.0
+ No. 35	0.0195	0.3	0.03
+ No. 40	0.0165	15.4	1.4
+ No. 45	0.0139	129.8	11.7
+ No. 50	0.0117	207.2	18.7
+ No. 60	0.0098	201.1	18.1
+ No. 70	0.0083	127.8	11.5
+ No. 80	0.0070	115.8	10.4
+ No. 100	0.0059	76.4	6.9
+ No. 140	0.00104	102.2	9.2
+ No. 200	0.0029	46.4	4.2
+ No. 325	0.0017	40.0	3.6
+ No. 400	0.0015	5.2	0.5
- No. 400	NA	40.8	3.7

LEC RUN 920305

Waste Production

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Dust Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
07:27 AM	Material handling equipment was restarted		
07:47 AM	20	5.9	0.30
08:07 AM	20	2.2	0.11
09:20 AM	13	7.3	0.56
10:22 AM	62	28.3	0.46
11:45 AM	83	29.3	0.35
12:00 PM	Material handling equipment shut-down.		
01:43 PM	Material handling equipment is restarted		
02:03 PM	80	7.1	0.09
Total:		80.1	
Average:			0.288

LEC RUN 920305

Carry-over Production

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Stone Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
09:31 AM	Fan is started.		
09:43 AM	12	2.5	0.21
10:00 AM	17	1.0	0.06
11:05 AM	65	3.1	0.05
12:01 PM	Fan is stopped.		
13:49 PM	Fan is restarted.		
14:00 PM	11	295	26.8
Total:		301.6	
Average:			6.8

Run Summary: **LEC Run 920310**

Objective: to empirically determine the extent of wet limestone fluidization velocities within the outlet louvers.

Total Run Time: 240 minutes

SO₂ Removal: +99.9% to 76%

Inlet Gas Rate: 1500 to 0 acfm

Operations Conditions:

No.9 limestone from LEC Run 920305 (224 minutes of prior exposure time).

In-duct Steam: 10 psig

Overhead Sprays: 0.0 gpm

Louver Sprays: 0.3 gpm

Bed Speed: 10 DT (2195 lb/hr)

Regeneration Device: A single deck vibrating screen equipped with a 30 mesh screen.

Waste Removal: 0.38 lbs/hr

Carry-over: 1.7 lbs/hr

Comments: - The run was terminated due to loss of gas flow.

LEC Run 920310

Starting
03-10-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
C	Purpose: To empirically determine the extent of wet limestone stone fluidization within the LEC reactor														
C	Pre-Run Operations: Pre-screening of dry limestone from LEC Runs 920304, 920305 and 920306 was passed over the No.30 mesh screen at a rate of 47.2 ft ³ /min.														
C	79 lbs of - No. 30 mesh dust was removed during the 1.8 hour period that the vibrating screen was operated.														
C	The usual leak and bias check of the outlet sample line was also completed prior to the run.														
C	Initial Conditions: Bed speed = 27 ft ³ /hr; Steam at 10 psig; vibrating screen (No. 30 mesh) is on.														
12:51	172.60	1.43	23.56o	1253	1921	6.85	185	62	61	62	62	62	62	62	99.17
C	An initial dust plume exits the exhaust stack, but it disappeared in less than 2 minutes.														
12:52	879.00	1.39	22.43o	1456	1985	7.87	223	62	61	62	62	62	62	62	99.84
12:53	1018.00	1.24	19.73o	1422	1984	7.90	223	62	62	62	62	62	62	62	99.88
12:54	1067.00	0.64	19.19o	1398	1965	8.02	223	62	58	62	62	62	62	62	99.94
12:55	1089.00	1.02	19.01o	1387	1958	8.11	222	62	59	62	62	62	62	62	99.91
12:56	1113.00	1.24	18.96o	1324	1946	8.21	173	62	61	61	61	61	61	61	99.89
12:57	1129.00	1.39	18.87o	1351	1941	8.41	177	63	61	61	61	61	61	61	99.88
12:58	1121.00	1.09	18.75o	1376	1923	8.49	190	63	69	61	63	72	62	61	99.90
C	40 lbs of L/S is removed from the dutchman assembly; A 4 ft high vapor plume is now exiting the exhaust stack.														
12:59	1120.00	1.27	18.67o	1355	1924	8.46	192	71	77	61	82	87	75	61	99.89
13:00	1129.00	1.29	18.57o	1318	1926	8.37	189	76	88	69	90	91	77	61	99.89
10 MinAvg	983.76	1.20	19.77o	1364	1947	8.07	200	64	66	62	67	68	64	62	99.82
13:01	1125.00	1.18	18.49o	1284	1913	8.20	191	76	91	77	91	91	87	61	99.89
13:02	1111.00	1.29	18.47o	1258	1922	8.10	189	81	91	90	91	91	91	61	99.88
13:03	1108.00	1.55	18.49o	1059	1918	7.30	193	90	91	91	93	92	91	75	99.86
13:04	1136.00	1.63	18.38o	864	1898	6.72	191	90	90	90	95	94	90	80	99.86
13:05	1145.00	1.39	18.22o	882	1918	6.65	191	90	90	90	94	94	90	61	99.88
13:06	1145.00	1.03	18.13o	882	1931	6.62	191	90	90	90	96	96	90	61	99.91
13:07	1159.00	1.20	18.23o	882	1952	6.57	192	90	91	90	97	101	90	63	99.90
13:08	1172.00	1.32	18.21o	864	1938	6.55	191	90	91	90	97	101	90	70	99.89
C	Switching sample lines.														
13:09	566.60	51.00	18.22	899	1951	6.51	192	90	90	90	99	103	90	75	91.00
13:10	89.70	728.00	15.31	899	1938	6.48	191	90	90	90	98	102	90	75	-711.59
10 MinAvg	975.73	78.96		977	1928	6.97	191	88	90	89	95	96	90	68	17.85
13:11	41.15	1056.00	14.77i	916	1944	6.45	191	90	90	90	99	103	90	80	-2466.22
13:12	25.67	1152.00	14.58i	916	1951	6.43	191	90	90	90	100	103	90	89	-4387.73
C	Switching the sample lines back to the original configuration. SO2 _{out} is 0 ppmv (on the inlet monitor).														
13:13	115.70	1087.00	16.00	916	1944	6.40	190	90	90	90	101	104	90	90	-839.50
13:14	961.00	426.70	20.54	916	1944	6.37	190	89	89	90	99	104	89	89	55.60
13:15	1146.00	122.60	18.22	933	1950	6.37	191	89	89	90	100	104	90	89	89.30
13:16	1183.00	40.09	17.71o	933	1950	6.32	190	89	89	96	105	107	91	89	96.61
13:17	1225.00	14.78	17.37o	864	1910	6.09	191	89	89	98	105	107	93	90	98.79

E-190

LEC Run 920310

Starting
03-10-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
C	28.7 lbs of L/S is removed from the dutchman assembly.														
13:18	1223.00	6.26	17.28o	864	1923	6.07	191	89	89	97	106	105	92	93	99.49
13:19	1244.00	1.70	17.47o	862	1909	6.11	189	89	89	101	109	107	93	94	99.86
13:20	1265.00	1.42	17.35o	845	1911	6.09	190	90	89	103	109	107	92	97	99.89
10 MinAvg	842.95	390.85		896	1934	6.27	190	89	89	94	103	105	91	90	-705.39
13:21	1284.00	1.35	17.26o	787	1909	6.01	189	89	89	102	107	108	93	100	99.89
13:22	1303.00	1.23	17.09o	788	1902	6.06	190	89	89	102	109	107	93	100	99.91
13:23	1308.00	1.10	17.00o	744	1895	6.07	185	89	90	101	109	109	93	103	99.92
13:24	1333.00	1.23	16.94o	748	1895	6.10	190	89	90	104	111	109	96	103	99.91
13:25	1329.00	1.43	16.85o	726	1868	6.16	189	89	90	110	112	113	95	104	99.89
13:26	1326.00	1.30	16.84o	726	1868	6.21	188	89	90	111	111	112	99	105	99.90
13:27	1321.00	1.17	16.90o	725	1875	6.22	188	89	89	115	113	114	97	106	99.91
13:28	1324.00	1.24	16.96o	703	1883	6.21	187	90	90	116	112	114	96	107	99.91
13:29	1328.00	1.16	16.98o	726	1883	6.17	190	90	90	115	113	113	97	107	99.91
13:30	1311.00	1.32	17.01o	727	1883	6.18	191	90	90	116	115	115	96	106	99.90
C	The outlet stack traverse port is opened and a olfactory check of the exhaust gas is done. Result: smelled clean!														
10 MinAvg	1316.70	1.25	16.98o	740	1886	6.14	189	89	90	109	111	111	95	104	99.90
13:31	1278.00	1.14	17.13o	704	1899	6.17	189	91	90	117	117	114	97	107	99.91
13:32	1293.00	1.13	17.25o	682	1878	6.15	190	91	90	117	119	114	98	108	99.91
13:33	1309.00	1.32	17.20o	682	1891	6.13	190	90	90	118	119	114	98	107	99.90
13:34	1301.00	1.14	17.20o	682	1827	6.08	190	90	90	119	119	114	97	110	99.91
13:35	1291.00	1.43	17.26o	682	1063	6.03	189	90	89	119	119	113	98	109	99.89
13:36	1283.00	0.84	17.33o	684	324	6.02	192	90	86	119	120	114	97	108	99.93
13:37	1271.00	1.42	17.37o	661	843	6.00	193	91	81	120	120	115	96	108	99.89
13:38	1246.00	1.37	17.48o	660	1572	5.97	192	90	79	119	120	114	92	110	99.89
13:39	1240.00	1.07	17.53o	683	1835	5.94	192	91	82	119	120	110	97	110	99.91
13:40	1237.00	1.45	17.77o	683	1709	5.98	192	91	78	117	120	112	96	110	99.88
10 MinAvg	1274.90	1.23	17.35o	680	1484	6.05	191	91	85	118	119	113	97	109	99.90
C	Switched sample lines														
13:41	520.60	7.36	21.07	749	1311	6.08	192	94	78	116	120	112	96	108	98.59
C	The L/S exiting the reactor is becoming very dry (dusty).														
13:42	64.67	584.30	15.73i	749	949	6.05	193	95	80	117	120	113	98	112	-803.51
13:43	30.30	1055.00	14.64i	728	781	6.00	194	95	81	113	120	109	94	112	-3381.85
13:44	18.61	1169.00	14.65i	727	1018	5.98	192	97	82	109	120	107	93	112	-6181.57
13:45	12.12	1161.00	14.81i	707	1185	5.96	193	95	78	110	120	109	92	111	-9479.21
13:46	8.92	1128.00	15.00i	726	1239	5.90	190	94	77	108	120	110	91	112	-.13E+05

E-191

LEC Run 920310

Starting
03-10-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
13:47	6.42	1130.00	14.97i	727	934	5.79	192	94	76	108	120	113	91	109	-.17E+05
13:48	4.54	1125.00	15.01i	727	746	5.72	191	95	76	105	120	115	91	110	-.25E+05
13:49	4.36	1129.00	14.96i	706	780	5.65	192	94	76	105	119	116	91	109	-.26E+05
13:50	2.77	1126.00	15.01i	703	860	5.81	186	93	76	105	120	118	91	108	-.41E+05
10 MinAvg	67.33	961.47	15.58	725	980	5.89	191	95	78	110	120	112	93	110	X-14074.95
13:51 C	1.74	1112.00	15.10i	706	1732	5.84	193	96	76	104	118	120	91	110	-.64E+05
13:52	18.88	1101.00	15.43	703	1536	5.77	187	95	77	105	115	120	91	107	-5731.57
13:53 C	741.00	555.70	20.27	705	1392	5.76	191	96	77	104	117	117	91	106	25.01
13:54	1195.00	144.20	18.69	705	1186	5.72	190	96	76	104	117	117	91	107	87.93
13:55	1235.00	49.06	18.23	704	1344	5.71	189	97	76	103	114	118	91	106	96.03
13:56	1241.00	21.74	18.15	728	1448	5.70	192	96	76	103	116	119	91	106	98.25
13:57	1251.00	10.55	18.11o	704	1429	5.68	188	96	76	105	117	120	91	107	99.16
13:58	1254.00	6.90	18.10o	705	1412	5.68	190	97	76	104	118	118	91	106	99.45
13:59	1270.00	9.40	18.09o	704	1273	5.70	189	96	76	104	117	119	91	107	99.26
14:00	1221.00	4.08	17.99o	705	1070	5.66	190	98	76	105	116	118	90	106	99.67
10 MinAvg	942.86	301.46	17.82	707	1382	5.72	190	96	76	104	116	119	91	107	-6876.15
14:01	1204.00	1.10	18.18o	727	1564	5.64	190	97	76	104	115	119	90	108	99.91
14:02	1192.00	1.37	18.19o	728	1748	5.63	194	96	75	104	113	119	90	109	99.89
14:03	1155.00	1.34	18.30o	750	1580	5.64	195	96	75	107	109	119	90	108	99.88
14:04	1132.00	1.16	18.36o	731	1319	5.61	198	100	75	105	105	119	91	108	99.90
14:05	1091.00	0.95	18.42o	729	1479	5.57	195	99	75	105	99	119	91	109	99.91
14:06	1058.00	1.31	18.43o	708	1831	5.56	195	97	75	104	95	119	90	108	99.88
14:07	1038.00	1.49	18.44o	708	1994	5.53	196	95	75	103	94	118	90	107	99.86
14:08	1039.00	1.17	18.46o	692	2372	5.42	208	93	75	104	94	118	90	106	99.89
14:09	1073.00	1.35	18.45o	596	2340	5.22	216	91	75	102	92	118	90	108	99.87
14:10	1071.00	1.03	18.36o	673	2329	5.34	217	91	74	105	94	117	90	107	99.90
10 MinAvg	1105.30	1.23	18.36o	704	1856	5.52	201	96	75	104	101	118	90	108	99.89
14:11	1057.00	1.39	18.46o	743	1967	5.44	220	95	74	107	97	117	90	110	99.87
14:12	1030.00	1.28	18.56o	743	1588	5.44	220	96	74	106	98	118	91	111	99.88
14:13	998.00	0.77	18.65o	743	1044	5.43	219	97	74	104	101	118	93	111	99.92
14:14	969.00	1.23	18.72o	650	1301	5.25	220	94	74	104	97	118	93	112	99.87
14:15	939.00	1.03	18.75o	624	1414	5.16	220	91	74	103	97	118	92	114	99.89
14:16	901.00	1.43	18.78o	674	1595	5.25	220	89	74	104	92	118	93	116	99.84
14:17	884.00	1.42	18.88o	699	1606	5.33	221	91	73	104	93	117	95	118	99.84

E-192

LEC Run 920310

Starting
03-10-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
14:18	878.00	0.85	18.91o	679	1638	5.25	229	91	73	104	97	115	96	118	99.90
14:19	868.00	1.21	18.86o	628	2016	5.15	227	89	73	104	98	115	97	117	99.86
14:20	848.00	1.32	18.96o	603	1901	5.15	231	88	73	104	98	116	93	117	99.84
10 MinAvg	937.20	1.19	18.75o	678	1607	5.29	223	92	74	105	97	117	93	114	99.87
14:21	880.00	1.48	19.00o	604	2040	5.17	234	88	73	106	97	117	100	117	99.83
14:22	903.00	1.18	18.92o	608	2052	5.18	243	88	73	106	94	115	102	117	99.87
14:23	941.00	1.09	18.82o	606	2229	5.18	239	88	73	103	93	116	104	117	99.88
14:24	950.00	0.56	18.72o	608	1764	5.14	243	88	73	105	102	117	106	119	99.94
14:25	971.00	1.28	18.69o	609	1491	5.15	246	87	72	109	105	117	101	129	99.87
14:26	978.00	1.25	18.58o	610	1438	5.18	247	88	73	108	110	116	101	138	99.87
14:27	936.00	1.16	18.59o	581	1658	5.17	247	88	73	109	112	117	106	139	99.88
C	Sample lines are switched														
14:28	175.40	26.29	19.44	581	2003	5.17	247	89	74	109	114	116	107	141	85.01
14:29	43.18	542.60	16.42i	581	2097	5.16	247	92	74	112	115	116	108	142	-1156.60
14:30	36.96	783.00	16.18i	581	2157	5.18	247	94	73	111	115	116	108	145	-2018.51
10 MinAvg	681.45	135.99		597	1893	5.17	244	89	73	108	106	116	104	130	-239.10
C	Sample lines are switched back to the original configuration.														
14:31	100.80	760.00	17.42	687	1940	5.39	247	99	74	113	116	116	107	145	-653.97
14:32	974.00	266.20	18.43	662	1539	5.39	247	103	79	113	116	116	110	145	72.67
14:33	1054.00	69.33	18.07	520	851	5.16	246	102	76	115	115	116	108	149	93.42
C	39.2 lbs of -No.30 mesh fines are collected from the vibrating screen.														
C	Turned off fan in order to inspect the housing for stone/paste build-up.														
C	The fan is clean except for an approximate 1/4 inch layer of paste located only on the inner lower half of the fan.														
C															
C	The small bucket elevator's charging chute became clogged and overloaded the elevator's boot section. It was cleaned-out and restarted.														
C	The fan and conveyors are started; bed speed = 27 ft ³ /hr, steam = 10 psig, louver sprays = 0.3 gpm														
15:55	380.40	0.95	23.15o	900	1943	4.22	218	53	53	53	53	53	53	67	99.75
15:56	981.00	0.71	21.28o	1164	1839	5.29	232	53	53	53	53	53	55	54	99.93
15:57	1005.00	1.38	19.54o	1129	1653	5.55	224	55	53	53	53	59	59	68	99.86
15:58	1009.00	0.93	19.43o	1084	1735	5.73	243	65	53	55	55	61	68	68	99.91
15:59	1002.00	1.16	19.59o	1053	1688	5.88	243	68	53	58	62	64	78	68	99.88
16:00	1020.00	0.88	19.64o	1037	1995	5.99	244	68	56	64	68	72	83	68	99.91
10 MinAvg	539.98	1.04	20.89o	1061	1725	3.39	190	58	53	55	56	58	61	66	348.72
16:01	1017.00	0.85	19.61o	957	2073	5.98	251	69	64	67	75	83	83	68	99.92
16:02	1013.00	1.48	19.54o	847	1951	5.81	256	79	68	68	82	90	82	68	99.85
16:03	1002.00	0.95	19.46o	807	1842	5.83	258	82	68	73	87	103	82	68	99.91

E-193

LEC Run 920310

Starting
03-10-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
16:04	985.00	1.21	19.31o	694	2036	5.68	261	82	67	82	94	109	82	68	99.88
C	40 lbs of stone is removed from the dutchman assembly.														
16:05	975.00	3.71	19.32o	669	2141	5.68	262	82	70	86	105	112	84	78	99.62
16:06	968.00	1.21	19.12o	647	2188	5.64	270	82	80	102	110	111	94	82	99.87
16:07	959.00	1.27	19.05o	618	2140	5.63	266	82	81	111	111	111	103	82	99.87
16:08	954.00	1.13	18.98o	559	1937	5.63	267	82	82	111	111	111	110	83	99.88
16:09	950.00	0.63	18.95o	528	1958	5.61	269	82	82	111	111	111	108	94	99.93
16:10	948.00	0.99	18.94o	494	2180	5.64	271	84	82	111	111	111	109	103	99.90
10 MinAvg	977.10	1.34	19.23o	682	2044	5.71	263	81	74	92	100	105	94	79	99.86
16:11	936.00	1.27	18.91o	453	2173	5.68	271	87	82	111	111	111	109	106	99.86
16:12	926.00	1.10	18.87o	417	2290	5.73	269	95	81	111	111	111	111	110	99.88
16:13	924.00	1.35	18.93o	418	2297	5.78	271	95	81	111	111	111	111	111	99.85
16:14	915.00	0.88	18.94o	373	2166	5.84	270	101	81	111	111	111	111	111	99.90
C	30 lbs of stone is removed from the dutchman assembly.														
16:15	918.00	1.41	18.97o	418	2173	6.02	272	109	81	110	110	110	110	110	99.85
16:16	911.00	0.96	18.90o	323	2311	5.99	268	108	81	110	110	110	110	110	99.89
16:17	905.00	0.91	18.91o	187	2270	5.98	274	108	81	110	110	110	110	110	99.90
16:18	907.00	0.93	18.92o		2133	6.04	270	110	80	110	110	110	110	110	99.90
16:19	915.00	1.07	18.86o		2106	6.07	275	110	80	110	110	110	110	110	99.88
16:20	917.00	1.18	18.80o		2213	6.08	273	110	80	110	110	110	110	110	99.87
10 MinAvg	917.40	1.11	18.90o	371	2203	5.92	271	103	81	110	110	110	110	110	99.88
16:21	906.00	0.84	18.74o		1952	6.13	276	110	80	110	110	110	110	110	99.91
16:22	908.00	1.14	18.62o		2119	6.20	272	110	80	110	110	110	110	110	99.87
16:23	907.00	1.34	18.58o		2182	6.24	272	110	80	110	110	110	110	110	99.85
16:24	916.00	0.67	19.01o		2119	6.27	275	110	80	110	110	110	110	110	99.93
16:25	903.00	1.32	18.96o		2047	6.30	277	110	80	110	110	110	110	110	99.85
16:26	903.00	1.49	18.74o		1888	6.45	278	110	80	110	110	110	110	110	99.83
C	30 lbs of stone is removed from the dutchman assembly.														
16:27	895.00	0.79	18.66o		2125	6.60	274	110	80	110	110	110	110	110	99.91
16:28	899.00	1.34	18.60o		2125	6.36	277	110	80	110	110	110	110	110	99.85
16:29	892.00	0.91	18.57o		2100	6.38	281	110	80	110	110	110	110	110	99.90
16:30	886.00	1.38	18.50o		1945	6.40	280	110	80	110	110	110	110	110	99.84
10 MinAvg	901.50	1.12	18.70o		2060	6.33	276	110	80	110	110	110	110	110	99.88
16:31	893.00	1.18	18.49o		1829	6.41	282	110	80	110	110	110	110	110	99.87
16:32	887.00	0.89	18.57o		1880	6.39	281	110	79	110	110	110	110	113	99.90
16:33	815.00	0.98	18.63o		1730	6.41	284	110	79	110	110	110	110	122	99.88

E-194

LEC Run 920310

Starting
03-10-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
C	Sample lines are switched														
16:34	90.20	2.90	20.81		2007	6.40	284	110	80	110	110	110	110	110	96.79
16:35	31.16	410.90	17.45i		1986	6.46	284	110	80	110	110	110	110	110	-1218.68
16:36	16.39	648.50	17.37i		2041	6.69	285	110	80	110	110	110	110	110	-3856.68
16:37	10.86	678.60	17.31i		2054	6.71	285	110	80	110	110	110	110	110	-6148.62
16:38	7.44	685.00	17.32i		1784	6.70	285	110	80	110	110	110	110	110	-9106.99
C	The inlet pressure lines are checked for blockage (lines are clear)*														
16:39	4.66	684.60	17.33i	1161*	1633	6.71	283	110	80	110	110	110	110	110	-15E+05
C	120 lbs of stone is removed from the dutchman assembly.														
16:40	3.29	697.60	17.30i		1658	6.95	281	110	80	110	110	110	110	110	-21E+05
10 MinAvg	275.90	381.12	18.06	1161*	1860	6.58	283	110	80	110	110	110	110	110	-5565.14
16:41	1.07	701.00	17.29i		1746	6.75	283	110	80	110	110	110	110	110	-65E+05
16:42	1.76	711.00	17.19i		1738	6.65	278	110	80	110	110	110	110	110	-40E+05

C The run is terminated due to lack of inlet gas flow.

Post-Run Bed Inspection:

- 75% of the bed is "very damp" (wet to the touch, but no excess moisture running off).
- Approximately 30% of the outlet louvers are blocked with stone, but this still doesn't explain the loss of flow. A pitot traverse of the inlet should have been done at the end of the run but wasn't.

LEC RUN 920310

Carry-over Production

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Stone Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
12:50 PM	Fan is started.		
12:58 PM	8	40.0	5.00
01:17 PM	19	28.7	1.51
01:53 PM	36	100.0	2.78
02:16 PM	23	100.0	4.35
02:40 PM	24	46.8	1.95
04:00 PM	Fan was stopped and restarted.		
04:14 PM	14	55.0	3.93
04:26 PM	12	45.0	3.75
04:40 PM	14	45.0	3.21
Total:		460.5	
Average:			3.69

Run Summary:

LEC Runs 920317, 920318 and 920319

Purpose: Quality Assurance/Quality Control (QA/QC) of the sampling system.

Total Run Time: + 16 hours

SO₂ Removal: + 99.9% to 0%

Inlet Gas Rate: 1500 to 500 acfm

Operations Conditions:

No.9 limestone from LEC Run 920310.

In-duct Steam: 10 psig to 0 psig

Overhead Sprays: 0.0 gpm

Louver Sprays: 0.6 gpm to 0.0 gpm

Bed Speed: 10 DT (2195 lb/hr)

Comments: - These QA/QC runs proved that the sampling system in use is valid and therefore, the previously collected data are also valid. Also, using the different outlet sampling points has shown that the air in-leakage is mostly coming from the upper pressure seal.

LEC Run 920317

Starting
03-17-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
C	Purpose: To recheck the inlet and outlet orifice plate calibrations and check the outlet sampling line at different positions up the outlet plenum.														
C	Initial Conditions: Fixed-Bed, Louver sprays = 0.6 gpm, damper set at #1, outlet sample position #2. Inlet O2 = 14%.														
15:14	117.90	0.79	21.25		1949	4.51	166	64	55	55	55	55	56	55	99.33
15:15	643.10	1.32	17.04	402	2102	5.72	216	69	55	55	55	55	55	55	99.79
C	Opened the inlet traverse port														
15:16	761.00	1.19	17.91	393	2044	5.69	187	70	55	55	55	55	55	55	99.84
15:17	791.00	1.03	17.75	260	2056	5.79	249	70	55	55	55	55	55	55	99.87
15:18	792.00	1.21	16.99	258	2057	5.88	238	70	55	55	55	55	55	55	99.85
15:19	757.00	1.07	17.37	317	2057	6.10	243	70	55	55	55	55	55	55	99.86
C	4.78 lbs of dry stone is removed from the dutchman assembly.														
15:20	780.00	1.22	16.61	530	2056	6.62	277	70	55	55	55	55	55	55	99.84
10 MinAvg	464.52	0.98	19.06	360	1645	4.11	174	66	55	55	55	55	55	55	81.68
15:21	797.00	1.07	16.45	497	2050	6.73	279	70	55	55	55	55	55	55	99.87
15:22	803.00	1.00	16.49	461	2057	6.77	281	70	55	55	55	55	55	55	99.88
15:23	810.00	1.20	16.47		2063	6.40	282	70	55	55	55	55	55	55	99.85
15:24	813.00	1.16	16.46		2062	6.50	286	70	55	55	55	56	56	55	99.86
15:25	806.00	1.41	16.46		2062	6.55	286	70	55	55	55	68	56	55	99.82
15:26	807.00	1.13	16.48		2062	6.60	284	70	55	55	55	70	57	55	99.86
15:27	812.00	1.31	16.48		2056	6.72	287	70	55	59	55	70	61	55	99.84
C	1.18 lbs of dry stone is removed from the dutchman assembly.														
15:28	814.00	1.30	16.48	267	2031	7.11	288	70	57	68	55	70	63	55	99.84
15:29	827.00	1.28	16.44	189	2031	7.13	289	70	56	70	55	73	68	55	99.85
15:30	838.00	1.27	16.45		2050	6.78	289	70	58	70	55	76	70	55	99.85
10 MinAvg	812.70	1.21	16.47	353	2053	6.73	285	70	56	60	55	65	60	55	99.85
15:31	834.00	1.25	16.44		2050	6.72	287	70	65	70	55	80	70	55	99.85
15:32	829.00	1.30	16.63		2051	6.73	248	71	69	70	55	84	70	55	99.84
15:33	821.00	1.33	17.24		2049	6.74	246	73	70	70	55	85	70	55	99.84
15:34	830.00	1.28	17.59		2057	6.66	187	77	70	71	56	85	70	55	99.85
15:35	833.00	1.25	18.06		2066	6.45	238	79	70	72	60	85	70	55	99.85
15:36	831.00	1.42	17.25		2055	6.65	245	83	70	76	69	85	74	55	99.83
15:37	821.00	1.45	16.77		2076	6.22	285	84	70	80	70	85	80	55	99.82
C	16.30 lbs of extremely wet stone is removed from the dutchman assembly.														
15:38	821.00	1.45	16.51		2106	5.66	281	80	70	77	70	85	83	55	99.82
15:39	811.00	1.32	16.46		2052	6.86	290	84	70	84	74	85	85	55	99.84
15:40	823.00	1.16	16.46		2078	6.77	290	85	70	85	78	85	85	55	99.86
10 MinAvg	825.40	1.32	16.94		2064	6.55	260	79	69	75	64	84	76	55	99.84

E-198

LEC Run 920317

Starting
03-17-92

03-17-92																
Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.9 ft Bed Temp (F)	SO2 Removal (%)	
15:41	816.00	1.27	16.48		2097	6.63	289	85	70	85	81	85	85	55	99.84	
15:42	826.00	1.27	16.46		2091	6.64	290	85	70	85	82	85	85	55	99.85	
15:43	821.00	1.23	16.45		2091	6.59	290	85	70	85	82	85	85	55	99.85	
15:44	819.00	1.30	16.43		2091	6.60	290	85	70	85	84	85	85	55	99.84	
15:45	818.00	1.37	16.44		2085	6.55	289	85	70	85	83	85	85	55	99.83	
15:46	824.00	1.09	16.45		2066	6.55	290	85	71	85	84	85	85	55	99.87	
15:47	834.00	1.27	16.44		2047	6.55	290	85	71	85	85	85	85	55	99.85	
C	13.64 lbs of extremely wet stone is removed from the dutchman assembly, also 1.5 gallons of water is dumped out of the collection bucket.															
15:48	832.00	1.29	16.44		2034	6.52	290	85	71	85	85	85	85	55	99.85	
15:49	835.00	1.41	16.40		2066	6.41	290	85	71	85	85	85	85	55	99.83	
15:50	832.00	1.34	17.82		2072	6.33	290	85	71	85	85	85	85	55	99.84	
10 MinAvg	825.70	1.28	16.58		2074	6.54	290	85	70	85	84	85	85	55	99.84	
E-109	15:51	833.00	0.97	19.60		2072	6.32	290	85	76	85	85	85	55	99.88	
	15:52	830.00	1.23	16.88		2066	6.36	290	85	78	85	85	85	64	99.85	
	15:53	832.00	1.10	16.61		2066	6.38	290	85	84	85	85	85	70	99.87	
	15:54	833.00	1.12	16.63		2034	6.47	290	85	84	85	85	85	70	99.87	
	C	16.00 lbs of extremely wet stone is removed from the dutchman assembly, also 2.0 gallons of water is dumped out of the collection bucket.														
	15:55	836.00	1.08	16.66		2040	6.51	290	85	85	85	85	85	70	99.87	
	15:56	838.00	1.15	16.64		2034	6.53	290	85	84	85	85	85	70	99.86	
	15:57	840.00	1.14	16.64		2066	6.40	290	85	84	85	85	85	70	99.86	
	15:58	836.00	1.18	16.64		2072	6.33	290	85	84	85	85	85	85	82	99.86
	15:59	829.00	1.20	16.65		2072	6.29	290	85	85	85	85	85	85	84	99.86
	16:00	836.00	1.14	16.72		2066	6.25	290	85	85	85	85	85	85	85	99.86
	10 MinAvg	834.30	1.13	16.97		2059	6.38	290	85	83	85	85	85	85	72	99.86
	16:01	832.00	1.15	16.76		2066	6.23	290	85	85	85	85	85	85	85	99.86
16:02	838.00	1.19	16.75		2034	6.28	290	85	85	85	85	85	85	85	99.86	
16:03	835.00	1.14	16.71		2040	6.28	290	85	85	85	85	85	85	85	99.86	
C	0.06 lbs of extremely wet stone is removed from the dutchman assembly, also 1.0 gallons of water is dumped out of the collection bucket.															
16:04	841.00	1.24	16.64		2040	6.41	290	85	85	85	85	85	85	85	99.85	
16:05	836.00	1.08	16.60		2040	6.50	290	85	85	85	85	85	85	85	99.87	
16:06	840.00	1.08	16.62		2072	6.35	290	85	85	85	85	85	85	85	99.87	
16:07	845.00	1.24	16.58		2091	6.28	290	85	85	85	85	85	85	85	99.85	
16:08	845.00	1.19	16.56		2091	6.16	290	85	85	85	85	85	85	85	99.86	
16:09	844.00	1.36	16.63		2091	6.07	289	85	85	85	85	85	85	85	99.84	
16:10	842.00	1.19	16.65		2084	6.07	289	85	85	85	85	85	85	85	99.86	
10 MinAvg	839.80	1.18	16.65		2065	6.26	290	85	85	85	85	85	85	85	99.86	

LEC Run 920317

**Starting
03-17-92**

E-200

LEC Run 920318

Starting
03-18-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
C	Purpose: QA/QC run for the LEC sampling equipment.														
C	Initial Conditions: Bed is cold and wet; Same stone as LEC Run 920317; Bed speed = 0.0; No water is going to be added; Outlet sampling position is #3;														
C	new inlet orifice plate calibration (920317) is being used.														
11:24	594.00	1.23	19.21	184	2832	3.45	248	47	27	27	27	27	27	27	99.79
11:25	938.00	1.15	16.56	586	2601	3.84	258	53	27	27	27	27	27	27	99.88
11:26	975.00	1.22	16.31	1478	2320	7.25	278	55	27	27	27	27	27	27	99.88
11:27	974.00	1.12	16.28	1558	2313	7.72	288	56	27	27	27	27	27	27	99.89
11:28	1028.00	1.17	16.20	1127	2426	5.73	278	53	27	27	27	27	27	27	99.89
11:29	1043.00	1.14	16.15	839	2468	4.73	277	54	27	27	27	27	27	27	99.88
11:30	1035.00	1.23	16.32		2493	3.26	267	54	27	27	27	27	27	27	96.66
10 MinAvg	659.04	0.87	18.56	962	2293	3.91	213	46	27	27	27	27	27	27	99.88
11:31	1034.00	1.25	16.41	1391	2244	7.43	291	57	27	27	27	27	27	27	99.89
11:32	1071.00	1.21	16.14	264	2444	3.48	271	57	27	27	27	27	29	27	99.90
11:33	1086.00	1.13	16.16	677	2385	4.47	278	58	27	27	27	27	33	27	99.87
11:34	1045.00	1.31	16.28	1179	2262	6.46	286	58	27	27	27	27	39	27	99.83
C	Switching the inlet and outlet sample lines (Inlet SO2 monitor is on the 5000 ppm scale and the outlet SO2 monitor is on the 50 ppm scale).														
11:35	744.00	1.25	19.50	980	2290	5.62	285	58	28	27	27	27	48	28	76.04
11:36	162.30	38.88	19.36	904	2284	5.34	285	58	34	28	27	27	55	27	10.34
11:37	72.60	65.09	16.33	704	2306	4.66	281	58	50	29	28	28	58	28	-20.81
C	Outlet SO2 monitor is above full scale (pegged out).														
11:38	53.87	65.08	16.33	651	2311	4.49	279	58	56	32	29	31	57	28	-45.59
11:39	44.70	65.08	16.18	375	2338	3.85	274	58	58	47	28	42	58	28	-70.86
11:40	38.09	65.08	16.11	1103	2185	6.42	289	58	58	58	29	57	58	28	44.85
10 MinAvg	535.16	30.54	16.88	823	2305	5.22	282	58	39	33	28	32	46	28	-79.93
11:41	36.17	65.08	16.18	1036	2191	6.11	289	58	58	58	30	58	58	28	-121.29
C	Switching the inlet and outlet sample lines back to the original configuration.														
11:42	29.41	65.08	18.80	945	2202	5.75	287	58	58	58	31	58	58	28	92.33
11:43	848.00	65.08	17.25	1152	2116	6.92	290	58	61	58	36	58	60	28	95.72
C	The fan is stopped in order for the O.U. Tunnel Maintenance welders to remove their equipment.														
11:44	962.00	41.19	16.22		2202	3.39	272	58	72	58	45	61	63	28	98.22
11:45	1143.00	20.37	16.84		2105	4.92	280	58	67	59	54	62	69	28	98.89
11:46	1175.00	13.00	16.51		2241	2.53	261	58	61	59	58	59	72	28	99.22
11:47	1189.00	9.22	16.80		2208	3.06	262	58	61	60	58	62	73	28	99.39
11:48	1192.00	7.28	16.63		2219	2.70	256	58	72	66	58	62	73	28	99.50
11:49	1190.00	5.97	16.74		2105	4.74	275	58	65	69	58	67	73	28	99.55
11:50	1190.00	5.36	16.33		1589	2.73	261	58	63	72	58	72	73	28	

E-201

LEC Run 920318

Starting
03-18-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10 MinAvg	895.46	29.76	16.83		2118	4.29	273	58	64	62	49	62	67	28	58.16
11:51	1128.00	4.56	17.34		1407	0.83	178	58	66	65	58	64	68	28	99.60
11:52	709.00	3.89	18.94		1612	2.30	188	58	59	59	58	58	59	29	99.45
C	Restarted the fan.														
11:53	1076.00	3.80	18.45	961	2028	6.43	284	59	68	71	58	72	72	29	99.65
11:54	1165.00	3.52	16.28	965	2035	6.41	290	63	73	73	58	73	73	28	99.70
11:55	1176.00	3.39	16.12	946	2040	6.39	289	68	73	73	60	73	73	29	99.71
11:56	1165.00	3.05	16.20	928	2043	6.38	291	73	73	73	63	74	74	29	99.74
11:57	1157.00	3.20	16.26	908	2056	6.25	291	73	73	73	71	78	76	29	99.72
11:58	1164.00	3.07	16.36	624	2107	5.05	280	71	73	73	72	79	75	29	99.74
11:59	1165.00	2.86	16.26	888	2049	6.32	291	73	73	73	73	86	78	29	99.75
12:00	1177.00	2.64	16.13	889	2049	6.26	292	73	73	73	73	87	83	32	99.78
10 MinAvg	1108.20	3.40	16.83	888	1943	5.26	267	67	70	71	64	74	73	29	99.68
12:01	1181.00	2.50	16.10	889	2042	6.23	292	72	72	73	72	87	86	34	99.79
12:02	1182.00	2.45	16.04	889	2042	6.21	292	73	73	76	73	87	87	34	99.79
12:03	1194.00	2.60	15.98	868	2036	6.18	292	73	73	77	73	87	87	36	99.78
12:04	1216.00	2.46	15.90	868	2036	6.13	292	73	73	78	73	87	87	39	99.80
12:05	1219.00	2.31	15.82	869	2036	6.10	292	73	73	78	73	87	87	41	99.81
12:06	1219.00	2.29	15.81	868	2042	6.11	291	73	73	79	73	87	87	45	99.81
12:07	1217.00	2.17	15.80	868	2042	6.09	291	73	73	80	73	88	87	52	99.82
12:08	1235.00	2.30	15.72	868	2036	6.07	292	73	73	82	73	88	88	56	99.81
12:09	1233.00	2.16	15.69	868	2038	6.07	292	74	73	84	75	88	87	58	99.82
12:10	1223.00	2.00	15.71	848	2033	6.05	292	74	73	87	77	88	88	58	99.84
10 MinAvg	1211.90	2.32	15.86	870	2038	6.13	292	73	73	79	73	87	87	45	99.81
12:11	1207.00	2.12	15.76	826	2031	6.08	292	73	73	86	78	88	88	58	99.82
12:12	1208.00	2.13	15.76	826	2034	6.04	292	75	73	86	78	88	88	58	99.82
12:13	1210.00	2.04	15.75	826	2033	6.01	292	74	73	87	80	88	87	58	99.83
12:14	1218.00	1.82	15.74	826	2034	6.03	291	75	73	87	81	88	88	59	99.85
12:15	1211.00	1.86	15.75	826	2030	6.02	292	76	73	87	83	88	88	65	99.85
12:16	1204.00	2.05	15.76	826	2034	6.05	292	78	73	88	86	88	88	72	99.83
12:17	1211.00	1.89	15.80	803	2044	6.05	291	80	73	87	85	88	88	73	99.84
12:18	1205.00	1.82	15.82	804	2042	6.06	292	79	73	88	85	88	88	73	99.85
12:19	1212.00	1.77	15.82	803	2045	6.07	291	80	73	88	87	88	88	73	99.85
12:20	1212.00	1.66	15.86	803	2046	6.07	290	81	73	88	87	88	88	73	99.86
10 MinAvg	1209.80	1.92	15.78	817	2037	6.05	291	77	73	87	83	88	88	66	99.84

E-202

LEC Run 920318

Starting
03-18-92

E-203

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
12:21	1217.00	1.81	15.87	803	2049	6.08	290	83	73	88	86	88	88	73	99.85
12:22	1222.00	1.85	15.89	780	2048	6.07	290	86	73	88	88	88	88	73	99.85
12:23	1219.00	1.57	15.90	532	2097	5.10	280	79	73	87	88	88	88	76	99.87
12:24	1216.00	1.48	15.99	803	2030	6.34	289	83	73	88	88	88	88	75	99.88
12:25	1215.00	1.60	15.86	803	2033	6.40	290	85	73	88	88	88	88	77	99.87
12:26	1227.00	1.49	15.80	780	2010	6.45	290	86	73	88	88	88	88	80	99.88
12:27	1231.00	1.64	15.75	802	2012	6.44	288	87	73	88	88	88	88	85	99.87
12:28	1229.00	1.60	15.73	779	2013	6.45	288	87	73	88	88	88	88	87	99.87
12:29	1237.00	1.66	15.74	780	2013	6.39	290	88	73	88	88	88	88	88	99.87
12:30	1238.00	1.68	15.71	780	2010	6.42	289	86	74	88	88	88	88	88	99.86
10 MinAvg	1225.10	1.64	15.82	764	2032	6.22	288	85	73	88	88	88	88	80	99.87
12:31	1245.00	1.64	15.65	780	2023	6.34	289	86	73	88	88	88	88	88	99.87
12:32	1243.00	1.46	15.68	779	2019	6.24	288	87	74	88	88	88	88	88	99.88
12:33	1239.00	1.64	15.68	757	2019	6.22	290	87	74	88	88	88	88	88	99.87
12:34	1244.00	1.47	15.69	756	2019	6.23	288	87	74	88	88	88	88	88	99.88
12:35	1259.00	1.44	15.65	756	2026	6.20	289	88	74	88	88	88	88	88	99.89
12:36	1260.00	1.54	15.64	779	2019	6.24	287	87	74	88	88	88	89	88	99.88
12:37	1269.00	1.55	15.65	755	2020	6.24	286	88	74	89	89	89	89	88	99.88
12:38	1275.00	1.55	15.59	779	2021	6.23	288	88	74	89	89	89	89	89	99.88
12:39	1269.00	1.61	15.61	758	2027	6.22	291	88	74	89	89	89	89	88	99.87
12:40	1253.00	1.48	15.66	625	2074	5.68	284	86	79	89	89	89	91	89	99.88
10 MinAvg	1255.60	1.54	15.65	752	2027	6.18	288	87	74	88	88	88	89	88	99.88
12:41	1257.00	1.56	15.74	732	2027	6.36	287	88	74	89	88	89	93	89	99.88
12:42	1253.00	1.53	15.72	733	2033	6.32	290	88	74	89	89	89	95	89	99.88
12:43	1238.00	1.45	15.77	732	2034	6.24	289	88	74	89	89	89	96	89	99.88
12:44	1238.00	1.44	15.83	734	2034	6.18	291	88	74	89	89	89	96	89	99.88
12:45	1248.00	1.49	15.84	733	2035	6.13	289	89	74	89	89	89	98	89	99.88
12:46	1246.00	1.47	15.86	734	2028	6.14	292	88	74	89	89	89	95	89	99.88
12:47	1248.00	1.57	15.85	733	2033	6.18	291	88	74	89	89	89	96	89	99.87
12:48	1236.00	1.61	15.87	732	2035	6.17	289	89	74	89	89	89	97	89	99.87
12:49	1228.00	1.45	15.89	733	2035	6.15	290	89	74	89	89	89	101	89	99.88
12:50	1221.00	1.58	15.94	733	2035	6.16	291	89	75	89	89	89	102	89	99.87
10 MinAvg	1241.30	1.51	15.83	733	2033	6.20	290	88	74	89	89	89	97	89	99.88
12:51	1216.00	1.86	15.96	733	2035	6.15	291	89	74	89	89	89	99	89	99.85
12:52	1220.00	1.81	16.00	709	2035	6.13	292	89	75	89	89	89	101	89	99.85
12:53	1219.00	1.76	16.03	734	2035	6.13	293	89	76	89	89	89	104	89	99.86

LEC Run 920318

Starting
03-18-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
12:54	1210.00	1.78	16.07	710	2029	6.13	293	89	79	89	89	89	102	89	99.85
12:55	1203.00	2.02	16.06	710	2035	6.11	293	89	84	89	89	89	102	89	99.83
12:56	1198.00	1.98	16.09	709	2035	6.11	292	89	87	89	89	89	103	89	99.83
12:57	1203.00	2.28	16.14	710	2029	6.13	294	89	88	89	89	89	108	89	99.81
12:58	1208.00	2.53	16.13	709	2035	6.11	293	89	89	89	89	89	110	89	99.79
12:59	1212.00	2.62	16.15	710	2042	6.11	294	89	88	89	89	89	113	89	99.78
13:00	1198.00	3.17	16.19	710	2049	6.12	294	89	89	89	89	89	114	89	99.74
10 MinAvg	1208.70	2.18	16.08	714	2036	6.12	293	89	83	89	89	89	106	89	99.82
13:01	1202.00	3.69	16.18	710	2055	6.13	294	89	89	89	89	89	115	89	99.69
13:02	1199.00	4.56	16.19	710	2048	6.13	294	89	89	89	89	89	118	89	99.62
13:03	1195.00	5.42	16.18	710	2049	6.15	294	89	89	89	89	89	115	89	99.55
13:04	1200.00	7.26	16.19	710	2049	6.15	294	89	89	89	89	89	116	89	99.39
13:05	1189.00	9.59	16.26	710	2042	6.14	294	89	89	89	89	89	118	89	99.19
13:06	1191.00	12.52	16.31	684	2049	6.12	294	89	89	89	89	89	118	89	98.95
13:07	1199.00	16.38	16.32	684	2042	6.11	294	89	89	89	89	89	119	89	98.63
13:08	1201.00	20.90	16.33	684	2049	6.13	294	89	90	90	90	90	119	90	98.26
13:09	1203.00	26.96	16.29	684	2043	6.17	294	90	90	90	90	90	119	90	97.76
13:10	1209.00	34.31	16.29	684	2042	6.15	293	89	89	89	89	89	119	89	97.16

C Flow to the outlet SO2 monitor has dropped from 8 scfh to 3 scfh. The outlet monitor scale is increased from 50 ppm to 500 ppm scale.

10 MinAvg	1198.80	14.16	16.25	697	2047	6.14	294	89	89	89	89	89	117	89	98.82
13:11	1214.00	43.26	16.26	684	2042	6.14	294	89	89	89	89	89	119	89	96.44
13:12	1226.00	70.10	16.22	684	2036	6.13	294	89	89	89	89	89	119	89	94.28
13:13	1234.00	71.00	16.23	657	2036	6.14	294	89	89	97	89	89	119	89	94.25
13:14	1222.00	77.30	16.20	684	2036	6.14	294	89	89	95	89	90	119	89	93.67
13:15	1211.00	90.30	16.23	684	2036	6.14	294	89	89	97	89	91	119	89	92.54
13:16	1206.00	103.70	16.23	684	2036	6.17	294	89	89	97	89	96	119	89	91.40
13:17	1213.00	116.80	16.24	684	2036	6.20	294	90	90	100	90	103	119	90	90.37
13:18	1213.00	129.30	16.26	684	2036	6.18	294	90	90	105	90	112	119	90	89.34
13:19	1217.00	143.90	16.28	684	2036	6.21	294	90	90	108	90	119	119	90	88.18
13:20	1217.00	157.60	16.25	657	2030	6.21	294	90	90	110	90	119	119	90	87.05
10 MinAvg	1217.30	100.33	16.24	679	2036	6.17	294	89	89	99	89	100	119	89	91.75

C Removed the outlet sample line connection and opened it to ambient air.

13:21	1215.00	148.70	19.31	657	2030	6.17	293	90	90	109	90	119	119	90	87.76
13:22	1219.00	81.40	21.77	657	2036	6.18	294	90	90	110	90	119	119	90	93.32

C Changing the outlet position to #4.

E-204

LEC Run 920318

Starting
03-18-92

E-205

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
13:23	1215.00	76.20	18.10	657	2030	6.19	294	90	90	111	90	119	119	90	93.73
13:24	1220.00	198.80	16.96	657	2030	6.19	294	90	90	113	90	119	119	90	83.70
13:25	1216.00	283.10	16.84	657	2030	6.22	293	90	90	114	90	119	119	90	76.72
13:26	1210.00	327.60	16.76	657	2024	6.23	294	90	90	117	90	119	119	90	72.93
13:27	1222.00	355.80	16.82	657	2030	6.15	294	90	90	116	90	119	120	90	70.88
13:28	1216.00	379.70	16.78	629	2030	6.17	294	90	90	119	90	119	123	90	68.77
13:29	1214.00	402.10	16.78	629	2030	6.14	294	90	90	119	90	122	129	90	66.88
13:30	1212.00	422.40	16.82	629	2030	6.15	293	90	90	119	90	132	134	90	65.15
10 MinAvg	1215.90	267.58	17.69	649	2030	6.18	294	90	90	115	90	120	122	90	77.98
13:31	1216.00	441.60	16.77	657	2024	6.16	292	90	92	119	90	141	142	90	63.68
13:32	1216.00	463.40	16.72	422	2093	5.28	287	90	96	119	90	146	145	90	61.89
13:33	1226.00	475.60	16.77	498	2065	5.72	282	88	119	119	90	148	143	90	61.21
13:34	1226.00	471.50	16.84	629	2030	6.24	293	90	117	119	90	148	146	90	61.54
13:35	1236.00	499.50	16.77	629	2024	6.20	293	90	115	119	90	148	145	90	59.59
13:36	1244.00	522.40	16.74	629	2031	6.17	294	90	117	119	90	148	148	90	58.01
c	The outlet SO2 monitor scale is increased from 500 ppm to 5000 ppm														
13:37	1249.00	690.50	16.73	629	2024	6.19	292	90	119	119	90	148	148	90	70.66
13:38	1252.00	692.50	16.68	628	2024	6.16	292	90	119	119	90	148	148	90	77.88
13:39	1250.00	708.20	16.70	627	2024	6.13	289	90	119	119	90	148	148	90	77.34
13:40	1250.00	717.80	16.71	627	2024	6.13	287	90	119	119	90	149	149	90	76.98
10 MinAvg	1236.50		16.74	597	2036	6.04	290	90	113	119	90	147	146	90	66.88
13:41	1248.00	733.50	16.74	626	2024	6.13	287	90	119	119	90	149	149	90	76.49
13:42	1244.00	748.30	16.63	626	2025	6.08	287	90	120	120	90	149	149	90	75.94
13:43	1242.00	761.25	16.66	597	2025	6.07	286	90	120	120	90	149	149	90	75.48
13:44	1245.00	773.20	16.65		2178	4.11	268	86	120	120	90	149	149	90	75.16
13:45	1247.00	757.50	16.60	626	2024	6.30	286	90	119	119	90	149	149	90	76.02
13:46	1255.00	768.50	16.31	624	2017	6.29	282	90	119	119	90	153	148	90	75.51
13:47	1260.00	802.80	16.24	626	2017	6.24	287	90	119	119	90	157	148	90	74.54
13:48	1268.00	818.25	16.20	626	2017	6.17	286	90	119	119	90	161	148	90	74.19
13:49	1263.00	831.50	16.16	626	2017	6.11	287	90	119	119	90	163	148	90	73.67
13:50	1264.00	840.25	16.16	627	2011	6.12	289	90	119	121	90	163	150	90	73.41
10 MinAvg	1253.60	782.40	16.44	623	2035	5.96	284	89	119	119	90	154	149	90	75.04
13:51	1264.00	847.75	16.18	597	2017	6.13	287	90	119	127	91	163	149	90	73.17
13:52	1268.00	856.75	15.90	597	2010	6.13	287	90	119	134	92	163	153	90	72.97
13:53	1282.00	865.25	16.07	598	2011	6.19	288	90	119	135	92	163	156	90	73.00
13:54	1268.00	873.00	16.03	598	2017	6.17	288	90	119	142	92	163	155	90	72.46

LEC Run 920318

Starting
03-18-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
13:55	1255.00	881.75	16.08	598	2017	6.09	288	90	120	144	93	163	156	90	71.90
13:56	1244.00	883.50	16.16	598	2011	6.01	290	90	119	148	96	163	157	90	71.59
13:57	1240.00	883.75	16.31	599	2011	6.03	291	90	119	148	96	163	160	90	71.49
13:58	1230.00	883.75	16.37	599	2011	6.01	291	90	119	148	98	163	159	90	71.26
13:59	1219.00	886.50	16.44	598	2011	6.01	288	90	119	148	98	163	161	90	70.91
14:00	1216.00	890.75	16.50	598	2011	6.02	289	90	119	148	100	163	163	90	70.70
10 MinAvg	1248.60	875.28	16.20	598	2013	6.08	289	90	119	142	95	163	157	90	71.95
14:01	1214.00	896.50	16.51	598	2011	6.05	288	90	119	148	101	163	163	90	70.46
14:02	1203.00	898.00	16.54	598	2011	6.01	290	90	120	149	102	163	163	90	70.14
14:03	1198.00	901.50	16.59		2138	4.32	276	90	128	149	105	163	163	90	69.90
14:04	1201.00	885.75	16.72	565	2018	6.16	281	90	141	148	106	163	163	90	70.50
14:05	1204.00	867.50	16.69	598	2011	6.20	288	90	120	149	108	163	163	90	71.18
14:06	1192.00	898.50	16.66	598	2005	6.11	289	90	120	149	109	163	163	90	69.85
14:07	1191.00	906.75	16.70	567	2011	6.08	288	90	120	149	111	163	163	90	69.55
14:08	1174.00	911.75	16.75	567	2005	6.16	288	90	120	149	113	163	163	90	68.94
14:09	1163.00	908.50	16.80	567	2005	6.12	289	90	120	149	112	163	163	90	68.75
14:10	1165.00	904.50	16.88	567	2005	6.02	289	90	120	149	116	163	163	90	68.94
10 MinAvg	1190.50	897.93	16.68	580	2022	5.92	286	90	123	149	108	163	163	90	69.82
14:11	1162.00	910.25	16.91	568	1999	5.99	290	90	120	149	114	163	163	90	68.67
14:12	1169.00	913.25	16.93	569	1999	5.98	292	90	120	149	119	164	163	90	68.75
14:13	1157.00	920.25	16.92	568	1999	5.94	291	90	120	149	119	163	163	90	68.18
14:14	1155.00	923.50	16.92	569	1999	5.90	294	91	120	149	118	164	163	91	68.02
14:15	1157.00	925.75	16.95	569	1999	5.92	293	91	120	150	119	164	164	91	67.99
14:16	1149.00	931.00	16.95	568	1999	5.93	290	91	120	150	120	164	164	91	67.59
14:17	1146.00	931.00	16.99	568	1999	5.90	291	91	120	153	120	164	164	91	67.50
14:18	1144.00	935.25	17.00	568	1999	5.93	292	91	120	154	120	165	164	91	67.30
14:19	1152.00	936.75	17.02	569	1999	5.86	292	91	120	153	120	166	164	91	67.47
14:20	1151.00	944.25	17.00	569	1993	5.82	293	91	120	151	120	166	164	91	67.19
10 MinAvg	1154.20	927.13	16.96	568	1998	5.92	292	90	120	151	119	164	163	90	67.87
14:21	1148.00	944.25	17.04	536	1993	5.83	293	91	120	151	120	168	164	91	67.01
14:22	1142.00	950.75	17.11	537	1993	5.80	295	91	120	152	120	170	164	91	66.70
14:23	1144.00	955.50	17.11	537	1993	5.82	294	91	120	154	120	173	164	91	66.59
14:24	1152.00	959.75	17.08	379	2045	5.18	292	91	121	157	120	176	164	91	66.68
C	The outlet SO2 monitor is taken off-line due to low flow occurring from a bad diaphragm pump. The O2 monitor is also off-line.														
14:25	1149.00				2233	2.46	255	87	155	150	120	168	164	91	91.45
14:26	1152.00				2245	1.95	251	76	164	149	120	164	164	91	100.00

E-206

LEC Run 920318

Starting
03-18-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
14:27	1149.00				2251	2.00	251	76	164	149	120	164	164	91	100.00
14:28	1141.00				2257	2.10	251	76	164	149	120	164	164	91	100.00
14:29	1151.00				2254	2.13	251	74	167	149	120	164	164	91	100.00
14:30	1163.00				2246	2.11	250	71	169	149	120	164	164	91	100.00
10 MinAvg	1149.10			497	2151	3.54	268	82	146	151	120	167	164	91	85.84
14:31	1185.00				2239	2.15	250	68	168	149	120	164	164	91	100.00
14:32	1189.00				2233	2.21	250	64	173	149	120	164	164	91	100.00
14:33	1198.00				2223	2.22	249	63	172	149	120	164	164	91	100.00
14:34	1205.00				2229	2.19	244	63	168	149	120	164	164	91	100.00
14:35	1208.00				2223	2.12	243	63	170	149	120	164	164	91	100.00
14:36	1217.00				2228	2.08	245	63	169	149	120	164	164	91	100.00
14:37	1221.00				2226	2.15	242	61	168	149	120	164	164	91	100.00
14:38	1230.00				2178	2.90	253	68	164	149	120	164	164	91	100.00
14:39	1235.00				2222	2.14	245	62	164	149	120	164	164	91	100.00
14:40	1245.00				2223	2.12	246	62	164	149	120	164	164	91	100.00
10 MinAvg	1213.30				2222	2.23	247	64	168	149	120	164	164	91	100.00
C	The damper is increased to position #2.														
14:41	1249.00				2487	2.68	247	62	164	149	120	164	164	91	100.00
14:42	1260.00			797	2681	7.02	279	74	159	150	120	168	164	91	100.00
14:43	1270.00			845	2644	7.19	287	84	149	149	120	175	164	91	100.00
14:44	1281.00			188	2955	5.10	280	76	139	149	120	178	164	91	100.00
C	The damper is increased to position #3.														
14:45	1281.00			905	3254	7.57	286	76	121	149	120	178	164	91	100.00
14:46	1271.00			1531	2935	11.90	295	88	120	149	120	178	164	91	87.82
14:47	1274.00			1577	2698	12.33	295	90	120	149	121	180	167	91	99.94
14:48	1259.00			1543	2765	12.14	295	90	134	149	124	185	169	90	99.97
14:49	1271.00			1554	2688	12.23	295	90	149	159	133	184	174	90	68.81
14:50	1279.00			1542	2688	12.16	295	92	148	162	145	191	177	90	59.45
10 MinAvg	1269.50			1165	2780	9.03	285	82	140	151	124	178	167	91	91.60
14:51	1289.00			1530	2695	12.00	295	97	148	163	148	191	177	90	74.07
14:52	1288.00			1530	2714	11.87	295	105	148	161	148	192	177	90	85.10
14:53	1282.00			1531	2726	11.78	295	110	148	162	148	192	177	90	100.00
C	Switching the outlet sample line to the inlet SO2 monitor.														
14:54	1059.00			1519	2734	11.77	295	113	156	162	148	192	178	90	100.00
14:55	194.10			1519	2737	11.73	295	117	163	162	148	192	177	90	61.57
14:56	315.80			1519	2737	11.67	295	119	163	163	148	192	178	90	99.99

E-207

LEC Run 920318

Starting
03-18-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
14:57	532.70			1507	2738	11.68	294	119	163	163	148	192	177	90	100.00
14:58	695.20			1507	2738	11.71	295	119	163	163	148	192	177	90	100.00
14:59	802.00			1507	2738	11.73	294	119	163	163	148	192	177	90	100.00
15:00	869.00			1519	2763	11.79	295	119	173	163	148	192	178	90	100.00
10 MinAvg	832.68			1519	2732	11.77	295	114	159	162	148	192	177	90	92.07
15:01	904.00			1518	2753	11.78	294	119	177	163	148	192	177	90	100.00
15:02	920.00			1507	2738	11.70	295	119	177	163	148	200	177	90	100.00
15:03	921.00			1470	2822	11.46	294	119	177	169	148	205	181	90	100.00
15:04	921.00			1494	2758	11.63	294	119	177	176	149	206	185	91	100.00
15:05	921.00			1495	2763	11.70	294	119	177	175	150	207	185	90	100.00
15:06	914.00			1495	2758	11.64	295	122	177	175	150	211	187	91	100.00
15:07	907.00			1494	2768	11.63	294	130	177	175	152	212	190	92	100.01
15:08	910.00			1494	2779	11.58	294	132	177	176	156	216	191	93	100.00
15:09	905.00			1481	2791	11.51	293	140	177	177	162	215	190	93	100.00
15:10	903.00			1481	2796	11.54	293	142	177	177	163	217	191	94	89.68
10 MinAvg	912.60			1493	2773	11.62	294	126	177	173	153	208	185	91	98.97
15:11	903.00			1481	2792	11.57	293	140	177	177	163	218	191	96	99.18
15:12	902.00			1479	2792	11.52	291	140	177	177	163	219	191	96	100.00
15:13	895.00			1465	2796	11.48	289	142	177	177	163	219	192	97	100.00
15:14	891.00			1478	2796	11.47	290	144	178	177	163	220	192	98	100.00
15:15	879.00			1479	2806	11.52	291	144	178	177	163	220	192	100	88.42
15:16	870.00			1467	2799	11.46	291	145	180	177	163	220	191	99	75.51
15:17	864.00			1464	2815	11.40	289	148	182	177	163	220	192	101	78.23
15:18	859.00			1455	2811	11.42	292	148	181	177	163	220	192	100	80.55
15:19	853.00			1456	2810	11.49	292	148	183	177	163	220	192	101	82.64
15:20	843.90			1456	2805	11.45	293	148	184	177	163	220	192	104	84.31
10 MinAvg	875.90			1468	2802	11.48	291	145	180	177	163	220	191	99	88.88
15:21	837.00			1468	2810	11.43	292	148	185	177	163	220	192	104	85.83
15:22	837.00			1469	2805	11.52	293	148	186	177	163	221	192	105	87.29
15:23	828.00			1469	2805	11.54	294	148	190	177	163	221	192	107	88.37
15:24	826.00			1470	2800	11.54	294	148	191	177	163	221	192	107	89.44
15:25	823.00			1470	2800	11.51	294	148	190	177	163	221	192	106	90.34
15:26	820.00			1457	2800	11.48	294	148	191	177	163	221	192	108	91.21
C	Changing the outlet sample port from #4 to #1.														
15:27	819.00			1470	2800	11.42	294	148	191	177	163	221	192	109	98.77
15:28	815.00			1470	2805	11.36	294	148	191	177	163	221	192	106	100.00

E-208

Starting 03-18-92	Inlet S02 (ppm)	Outlet S02 (ppm)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dp (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	S02 Removal (%)
Time															
15:29	804.00			1470	2810	11.36	294	148	191	178	162	221	191	109	100.00
15:30	793.00			1470	2805	11.37	294	148	191	179	163	221	192	111	100.00
10 MinAvg	820.20			1468	2804	11.45	294	148	190	177	163	221	192	107	93.12
15:31	773.00			1470	2800	11.35	294	148	191	179	162	221	191	110	100.00
15:32	721.00			1470	2795	11.32	294	148	191	179	163	220	191	111	100.00
15:33	701.00			1458	2799	11.34	294	148	191	183	163	220	191	111	100.00
15:34	702.00			1458	2799	11.35	294	148	191	185	163	220	191	113	100.00
15:35	708.00			1470	2794	11.39	294	148	191	188	164	220	191	112	100.01
15:36	741.00			1458	2799	11.44	294	148	191	189	165	220	191	112	100.00
15:37	816.00			1457	2794	11.46	294	148	191	189	172	220	191	114	100.00
15:38	837.00			1457	2794	11.48	294	148	191	190	174	220	191	117	97.80
15:39	845.00			1457	2794	11.41	294	148	191	190	176	220	191	118	98.16
15:40	840.00			1457	2788	11.36	294	148	191	189	177	220	191	118	100.00
10 MinAvg	768.40			1461	2796	11.39	294	148	191	186	168	220	191	114	99.60
15:41	828.00			1457	2799	11.34	294	148	191	190	177	220	191	118	97.40
15:42	833.00			1457	2767	11.39	294	147	191	190	176	220	191	118	92.23
15:43	834.00			1457	2794	11.38	294	148	191	191	176	220	191	118	93.21
15:44	838.00			1458	2799	11.32	294	147	191	191	176	220	191	118	100.01
15:45	823.00			1459	2798	11.34	295	147	191	191	176	220	191	118	100.00
15:46	841.00			1459	2793	11.35	296	147	191	191	176	220	191	118	100.00
15:47	860.00			1459	2788	11.34	296	148	191	191	176	221	191	118	100.00
15:48	852.00			1462	2788	11.43	298	147	191	191	176	222	191	118	100.00
15:49	848.00			1462	2789	11.44	299	150	191	191	176	221	191	118	100.00
15:50	850.00			1450	2781	11.37	300	149	191	191	177	222	191	118	100.00
10 MinAvg	840.70			1458	2790	11.37	296	148	191	191	176	221	191	118	98.28
15:51	842.00			1451	2783	11.38	300	150	191	191	177	225	191	118	100.00
15:52	843.00			1464	2797	11.34	301	153	191	191	177	227	191	118	100.00
15:53	842.00			1452	2797	11.36	301	154	191	191	179	224	191	118	99.99
15:54	843.00			1453	2779	11.32	302	153	191	191	182	227	191	118	100.00
15:55	841.00			1452	2785	11.29	301	151	191	191	186	227	191	118	100.00
15:56	821.00			1439	2794	11.25	300	155	191	191	186	226	195	118	100.00
15:57	837.00			1438	2808	11.26	300	161	191	191	186	229	197	118	100.00
15:58	849.00			1436	2795	11.28	297	155	191	191	189	229	200	118	100.00
15:59	852.00			1437	2789	11.27	298	155	191	191	190	231	199	118	100.00
16:00	830.00			1436	2789	11.24	297	157	191	191	190	231	200	118	99.99

LEC Run 920318

Starting
03-18-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10 MinAvg	840.00			1446	2792	11.30	300	154	191	191	184	228	194	118	100.00
16:01	835.00			1421	2797	11.25	295	158	191	191	191	233	203	118	99.99
16:02	874.00			1420	2800	11.39	294	159	191	191	190	236	204	122	99.99
16:03	882.00			1420	2803	11.38	294	161	191	191	191	236	202	123	100.01
16:04	884.00			1420	2803	11.39	294	161	191	191	191	239	200	127	100.00
16:05	899.00			1419	2786	11.39	293	160	191	191	191	239	202	135	100.00
16:06	896.00			1419	2766	11.38	293	156	191	191	191	241	203	138	100.00
16:07	905.00			1407	2763	11.36	293	157	191	191	191	243	206	139	100.00
16:08	919.00			1407	2753	11.39	293	153	191	191	191	243	204	144	100.00
16:09	923.00			1419	2752	11.39	293	152	191	191	191	244	204	146	100.00
16:10	912.00			1419	2761	11.31	293	154	191	191	191	245	206	147	100.00
10 MinAvg	892.90			1417	2778	11.36	294	157	191	191	190	240	203	134	100.00
16:11	910.00			1407	2755	11.23	293	156	191	191	191	244	209	147	100.00
16:12	930.00			1406	2763	11.22	293	157	190	190	190	246	208	147	100.00
16:13	937.00			1406	2764	11.24	293	158	190	190	190	244	210	147	99.20
16:14	949.00			1406	2781	11.21	293	161	190	190	190	247	210	147	98.19
16:15	945.00			1406	2791	11.23	293	160	190	190	190	246	211	147	100.00
C	Opening the slide gate on the dutchman assembly.														
16:16	937.00			1406	2795	11.32	293	160	191	190	190	247	211	147	100.00
16:17	970.00			1406	2809	11.41	293	161	193	190	190	247	211	147	100.00
16:18	985.00			1393	2860	11.42	293	161	193	190	190	248	213	147	100.00
16:19	989.00			1393	2883	11.35	293	160	191	191	190	247	214	146	100.00
16:20	965.00			1393	2888	11.33	293	159	192	192	190	248	214	146	100.00
10 MinAvg	951.70			1402	2809	11.30	293	159	191	191	190	246	211	147	99.74
16:21	968.00			1393	2871	11.28	293	159	193	194	190	247	214	149	100.00
16:22	995.00			1393	2868	11.25	292	155	191	191	190	248	214	151	100.00
16:23	995.00			1393	2870	11.20	293	154	190	191	190	248	218	154	100.01
16:24	994.00			1406	2873	11.19	293	153	191	195	190	248	217	158	100.00
16:25	981.00			1393	2867	11.15	292	152	192	196	190	248	217	157	100.00
16:26	950.00			1393	2875	11.15	293	154	196	195	190	248	215	159	100.00
16:27	943.00			1393	2871	11.20	293	154	195	193	190	248	218	161	100.00
16:28	963.00			1393	2878	11.25	292	157	193	197	190	248	218	161	100.00
16:29	976.00			1393	2873	11.28	292	155	193	197	190	248	218	161	100.00
16:30	991.00			1406	2871	11.19	292	154	196	198	190	248	218	161	100.00
C	Moving the outlet sampling position to port #2.														
10 MinAvg	975.60			1396	2872	11.21	292	155	193	195	190	248	217	157	100.00

E210

LEC Run 920318

Starting
03-18-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
16:31	958.00			1393	2879	11.14	292	160	197	201	193	248	218	161	100.00
16:32	964.00			1406	2881	11.13	292	159	197	203	192	248	218	161	100.00
16:33	886.00			1405	2895	11.11	292	160	198	201	197	248	218	160	100.00
16:34	505.50			1393	2880	11.12	292	160	201	203	201	248	218	160	100.00
C	Completed moving the outlet sample line.														
16:35	819.00			1393	2879	11.15	292	160	198	202	198	248	218	160	100.00
16:36	936.00			1392	2880	11.11	292	160	200	204	202	248	218	160	100.00
16:37	968.00			1392	2890	11.14	292	160	197	204	201	248	218	160	100.00
16:38	1002.00			1405	2895	11.27	292	160	200	204	202	248	218	160	100.00
16:39	1003.00			1392	2885	11.40	292	160	198	204	203	248	218	160	100.00
16:40	1004.00			1405	2877	11.46	292	159	200	206	204	248	218	160	100.00
10 MinAvg	904.55			1398	2884	11.20	292	160	198	203	199	248	218	160	100.00
16:41	1017.00			1392	2877	11.40	292	159	198	206	204	248	218	160	100.00
16:42	1007.00			1392	2871	11.37	292	159	198	206	204	248	218	160	100.00
C	Moving the outlet sampling position to port #3.														
16:43	989.00			1392	2883	11.29	292	160	202	207	205	248	218	160	100.00
16:44	660.00			1392	2864	11.22	292	160	203	208	205	247	218	160	100.00
16:45	319.20			1392	2874	11.15	292	160	199	207	207	247	218	160	99.99
16:46	315.70			1392	2874	11.10	292	160	198	209	208	247	218	160	100.02
C	Completed moving the outlet sample line.														
16:47	566.00			1392	2879	11.15	292	160	198	206	208	247	218	161	100.00
16:48	730.00			1392	2874	11.18	292	160	197	208	210	247	218	161	100.00
16:49	784.00			1392	2874	11.20	292	160	198	211	209	247	218	162	100.00
16:50	813.00			1392	2879	11.23	292	160	198	211	211	247	218	163	100.00
10 MinAvg	720.09			1392	2875	11.23	292	160	199	208	207	247	218	161	100.00
16:51	835.00			1392	2879	11.21	292	160	196	207	212	247	218	166	100.00
16:52	853.00			1405	2879	11.16	292	160	197	206	214	247	218	165	100.00
16:53	862.00			1392	2879	11.14	292	160	196	207	214	247	218	166	100.00
16:54	873.00			1405	2884	11.14	291	160	196	207	215	247	218	167	100.00
16:55	887.00			1405	2879	11.08	291	160	196	206	215	247	218	173	100.00
16:56	895.00			1405	2884	11.11	291	160	196	207	215	247	218	172	100.00
C	Switching the inlet sample lines back to the inlet SO2 monitor.														
16:57	766.00			1405	2879	11.08	291	160	196	207	215	247	218	173	100.00
16:58	1089.00			1405	2879	11.08	291	160	196	209	214	247	218	171	100.00
16:59	1155.00			1392	2879	11.08	291	160	195	206	216	247	218	174	100.00
17:00	1160.00			1405	2879	11.08	291	160	192	207	217	247	218	174	100.00

E-211

LEC Run 920318

Starting
03-18-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10 MinAvg	937.50			1401	2880	11.12	291	160	196	207	215	247	218	170	100.00
17:01	1151.00			1405	2873	11.12	291	160	189	205	217	247	218	174	100.00
17:02	1146.00			1405	2884	11.14	291	160	191	204	217	247	218	174	100.00
17:03	1143.00			1392	2879	11.19	291	160	191	205	217	247	217	174	100.00
17:04	1147.00			1405	2884	11.19	291	160	189	201	218	247	218	174	100.00
17:05	1156.00			1405	2884	11.15	291	160	189	201	217	247	218	174	100.00

LEC Run 920319

Startir;
03-19-92

Time	In/Out SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)
C	Purpose: QA/QC run for the LEC sampling equipment.												
C	Initial Conditions: Bed is cold and wet; Same stone as LEC Run 920318; Bed speed = 0.0; No water is going to be added; The outlet												
C	SO2 monitor is unoperational and the inlet SO2 monitor is at full span reading 2587 ppm using 2620 ppm calibration gas.												
C	Damper is on the #2 position, the inlet sample line is being monitored.												
10:59	1398.00	14.06	1093	2003	6.34	276	29	26	26	26	26	26	26
11:00	1389.00	13.98	2025	2694	11.17	287	38	26	26	26	26	26	26
11:01	1383.00	13.97	2003	2694	11.18	290	45	25	26	28	25	25	25
11:02	1378.00	13.99	1985	2687	11.19	290	49	25	27	29	25	26	26
C	The monitors are now sampling the #3 outlet position.												
11:03	1194.00	15.78	1994	2635	11.33	290	56	25	26	32	25	37	25
11:04	289.20	16.12	1958	2616	11.32	290	56	32	28	37	26	53	26
11:05	490.60	15.05	1921	2602	11.28	290	55	54	38	46	47	55	27
10 MinAvg	818.36	16.67	1854	2562	7.38	233	41	29	28	31	28	33	26
11:06	523.40	15.08	1893	2587	11.20	290	55	55	55	55	55	55	30
11:07	524.80	15.05	1864	2573	11.13	290	55	66	55	55	67	58	28
11:08	518.70	15.04	1835	2564	11.05	290	59	70	64	56	70	70	30
11:09	513.50	15.08	1795	2577	10.96	290	69	72	70	67	70	70	30
11:10	511.50	15.10	1775	2571	10.88	290	70	80	70	70	73	70	31
11:11	523.00	15.05	1755	2566	10.84	290	70	84	70	70	83	73	32
11:12	536.30	15.04	1745	2566	10.79	290	70	85	71	70	85	78	35
11:13	540.80	15.06	1724	2561	10.73	290	70	85	73	70	85	84	40
11:14	556.30	15.01	1715	2546	10.70	291	70	85	79	71	85	85	44
11:15	576.00	14.93	1715	2542	10.70	291	71	85	81	73	85	85	55
10 MinAvg	532.43	15.04	1782	2565	10.90	290	66	77	69	66	76	73	35
11:16	596.00	14.90	1694	2547	10.75	291	73	85	83	76	85	85	55
11:17	609.60	14.93	1683	2542	10.73	291	75	85	85	80	85	85	55
11:18	629.60	14.89	1673	2557	10.73	291	81	85	85	83	85	85	56
11:19	646.00	14.89	1662	2555	10.74	291	83	85	84	84	85	85	64
11:20	660.10	14.90	1651	2548	10.78	291	84	85	85	84	85	85	70
11:21	659.40	15.52	1640	2549	10.79	291	84	85	85	85	85	85	70
C	Opened outlet sample line to ambient air.												
11:22	129.80	21.24	1641	2555	10.80	292	84	85	85	84	85	85	70
11:23	12.56	21.41	1629	2540	10.83	291	85	85	85	85	85	85	70
11:24	1.56	21.41	1618	2540	10.82	291	85	85	85	85	85	85	70
11:25	1.02	21.39	1630	2540	10.73	292	85	85	85	85	85	85	70
10 MinAvg	394.56	17.55	1652	2547	10.77	291	82	85	85	83	85	85	65

E-213

LEC Run 920319

Starting
03-19-92

Time	In/Out SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)
11:26	0.73	21.39	1619	2529	10.71	292	85	85	85	85	85	85	70
11:27	0.68	21.37	1597	2520	10.79	292	85	85	85	85	85	85	70
11:28	0.82	21.35	1596	2525	10.67	291	85	85	85	85	85	85	71
C	Moved outlet sample line to the #1 position.												
11:29	65.56	18.04	1599	2514	10.43	295	85	85	85	85	85	85	73
11:30	415.40	14.31	1588	2509	10.40	295	85	85	85	85	85	85	77
11:31	440.60	13.97	1586	2504	10.39	293	85	84	85	85	85	85	78
11:32	420.90	13.94	1576	2499	10.55	294	85	85	85	85	85	85	81
11:33	383.10	14.16	1552	2493	10.49	293	85	76	84	85	85	85	83
11:34	386.10	13.98	1551	2488	10.40	292	85	70	85	85	85	85	82
11:35	411.70	13.84	1551	2483	10.33	292	85	70	85	85	85	86	84
10 MinAvg	252.56	16.63	1582	2506	10.52	293	85	81	85	85	85	85	77
11:36	422.50	14.09	1555	2488	10.38	296	85	72	85	85	85	92	84
11:37	436.60	14.08	1541	2493	10.46	294	85	71	85	85	85	98	84
11:38	482.90	13.78	1527	2487	10.57	292	84	74	84	84	84	106	84
11:39	523.50	13.68	1516	2482	10.65	292	84	76	84	84	85	111	84
11:40	545.70	13.64	1515	2481	10.48	291	84	79	84	84	89	109	84
11:41	574.50	13.64	1517	2482	10.58	293	84	82	84	84	98	111	84
11:42	589.70	13.61	1505	2497	10.55	293	84	83	84	84	112	113	84
11:43	609.30	13.54	1492	2487	10.42	292	84	83	84	84	114	113	84
11:44	641.90	13.48	1491	2487	10.43	291	84	84	84	84	114	114	84
11:45	662.00	13.41	1478	2476	10.40	290	84	84	84	84	113	113	84
10 MinAvg	548.86	13.70	1514	2485	10.49	292	84	79	84	84	98	108	84
11:46	675.10	13.46	1479	2481	10.34	291	84	84	84	84	113	113	84
11:47	692.20	13.45	1469	2486	10.30	293	84	84	93	84	113	113	84
11:48	666.70	13.46	1456	2481	10.27	293	84	84	109	84	115	113	84
11:49	545.80	13.43	1459	2470	10.21	296	84	84	113	84	132	113	84
11:50	530.40	13.47	1457	2470	10.18	294	84	84	113	84	142	113	84
11:51	568.90	13.55	1445	2470	10.21	294	84	84	113	84	143	113	84
11:52	627.90	13.55	1445	2465	10.10	294	84	85	113	84	143	113	84
11:53	689.10	13.61	1433	2450	10.10	295	84	97	113	84	143	113	84
11:54	738.00	13.53	1419	2449	10.10	293	84	109	113	85	148	117	84
11:55	786.00	13.53	1421	2465	10.27	295	84	113	113	89	156	132	84
C	The dutchman assembly is checked and 1 lb of stone is removed.												
10 MinAvg	652.01	13.50	1448	2469	10.21	294	84	91	108	84	135	116	84
11:56	827.00	13.54	1382	2481	10.28	295	84	113	113	92	157	142	84

E214

LEC Run 920319

Starting
03-19-92

Time	In/Out SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)
11:57	858.00	13.57	1398	2449	10.33	298	84	113	115	100	157	142	84
11:58	897.00	13.58	1382	2449	10.31	295	84	113	124	106	157	142	84
11:59	924.00	13.62	1382	2449	10.19	295	84	113	137	109	157	142	84
12:00	955.00	13.63	1354	2496	10.25	293	84	113	142	113	157	143	84
12:01	988.00	13.64	1341	2491	10.10	293	84	113	142	113	157	144	84
12:02	1010.00	13.68	1340	2491	10.14	292	84	113	142	113	157	150	84
12:03	1036.00	13.72	1326	2486	9.99	292	84	113	143	113	157	154	84
C	Increased the damper to the #3 position.												
12:04	1067.00	13.71	1587	2728	12.19	293	85	114	143	113	157	157	84
12:05	1104.00	13.70	1599	2747	12.33	294	87	130	148	113	160	157	84
10 MinAvg	966.60	13.64	1409	2527	10.61	294	84	115	135	109	157	147	84
12:06	1139.00	13.62	1603	2761	12.21	298	92	142	153	113	170	157	84
12:07	1144.00	13.64	1606	2760	12.15	301	96	142	155	113	171	157	84
12:08	1147.00	13.65	1592	2778	12.08	298	103	142	157	113	171	157	84
12:09	1155.00	13.63	1582	2782	11.99	300	107	142	157	120	171	157	84
12:10	1163.00	13.60	1582	2779	11.96	300	109	142	157	130	171	157	84
12:11	1175.00	13.59	1567	2782	12.11	297	111	142	157	138	171	157	84
12:12	1183.00	13.54	1567	2777	12.06	297	113	142	157	142	172	159	84
12:13	1189.00	13.58	1554	2783	12.02	295	113	142	157	142	177	164	84
12:14	1191.00	13.62	1554	2788	12.01	295	113	142	157	142	185	168	84
12:15	1177.00	13.66	1540	2773	11.93	293	113	142	157	142	185	171	84
10 MinAvg	1166.30	13.61	1575	2776	12.05	297	107	142	156	130	174	160	84
12:16	1180.00	13.66	1540	2783	11.87	292	113	142	159	143	186	171	84
12:17	1190.00	13.66	1544	2778	11.83	296	113	142	158	144	186	171	84
12:18	1199.00	13.65	1530	2778	12.01	294	113	143	162	154	186	171	84
12:19	1215.00	13.55	1530	2773	11.98	295	113	146	166	157	186	171	84
12:20	1232.00	13.48	1519	2773	11.88	295	113	149	169	157	186	172	84
12:21	1237.00	13.47	1517	2783	11.87	293	113	154	170	157	186	176	84
12:22	1246.00	13.43	1518	2773	11.89	294	113	151	171	157	190	184	84
12:23	1240.00	13.46	1503	2769	11.85	291	113	155	171	157	198	185	84
12:24	1230.00	13.51	1502	2773	11.82	290	113	155	171	157	200	185	84
12:25	1227.00	13.51	1490	2769	11.77	290	113	157	171	157	200	186	84
10 MinAvg	1219.60	13.54	1519	2775	11.88	293	113	149	167	154	190	177	84
12:26	1228.00	13.48	1490	2769	11.76	290	113	157	172	157	201	186	84
12:27	1248.00	13.49	1491	2764	11.72	290	113	157	172	157	203	186	84
12:28	1248.00	13.49	1492	2764	11.71	291	113	157	172	157	212	186	84

E-215

LEC Run 920319

Starting
03-19-92

Time	In/Out SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)
12:29	1253.00	13.48	1493	2769	11.70	293	113	157	172	157	214	186	84
12:30	1249.00	13.50	1494	2764	11.70	293	113	157	172	158	215	186	84
12:31	1251.00	13.56	1480	2769	11.64	292	113	157	172	162	215	186	84
12:32	1245.00	13.59	1481	2769	11.64	293	113	157	173	166	215	186	84
12:33	1247.00	13.59	1482	2764	11.63	294	116	157	175	172	215	186	84
12:34	1243.00	13.64	1470	2779	11.61	294	124	157	178	172	215	186	85
12:35	1242.00	13.69	1469	2802	11.62	293	131	157	183	172	215	187	86
10 MinAvg	1245.40	13.55	1484	2771	11.67	292	116	157	174	163	212	186	84
C	Opened the dutchman assembly and 1 lb of stone was removed.												
12:36	1242.00	13.70	1459	2821	11.69	296	141	157	186	172	215	187	90
12:37	1231.00	13.73	1470	2823	11.71	294	143	157	186	172	215	189	95
12:38	1230.00	13.74	1458	2824	11.72	294	143	157	185	172	215	191	98
12:39	1220.00	13.78	1471	2819	11.70	296	143	157	186	172	215	193	104
12:40	1218.00	13.84	1458	2824	11.62	295	143	157	185	172	216	195	106
12:41	1218.00	13.84	1458	2813	11.56	294	143	157	186	174	221	198	106
12:42	1209.00	13.90	1445	2819	11.55	294	143	157	186	178	225	195	106
12:43	1212.00	13.88	1442	2813	11.54	291	143	157	186	182	230	198	107
12:44	1216.00	13.85	1457	2730	11.60	293	143	157	186	185	234	201	110
12:45	1219.00	13.83	1456	2736	11.65	293	143	157	186	185	236	201	113
10 MinAvg	1221.50	13.81	1458	2802	11.63	294	143	157	186	176	222	195	103
12:46	1230.00	13.82	1468	2736	11.63	292	143	157	186	186	237	201	113
12:47	1211.00	13.87	1458	2780	11.60	295	144	157	186	186	239	201	113
12:48	1206.00	13.88	1455	2816	11.56	292	144	157	186	186	240	203	113
12:49	1204.00	13.87	1447	2815	11.60	296	143	157	186	186	241	204	113
12:50	1201.00	13.85	1445	2814	11.61	294	143	157	186	186	243	208	114
12:51	1197.00	13.89	1447	2818	11.51	296	145	157	186	186	244	211	113
12:52	1193.00	13.87	1444	2819	11.46	293	147	157	186	186	244	213	113
12:53	1190.00	13.88	1447	2822	11.44	296	149	157	186	186	244	214	113
12:54	1193.00	13.87	1445	2822	11.47	294	148	157	186	186	244	214	114
12:55	1194.00	13.87	1445	2835	11.45	294	150	157	186	186	244	214	115
10 MinAvg	1201.90	13.87	1450	2808	11.53	294	146	157	186	186	242	208	114
12:56	1187.00	13.88	1445	2834	11.48	293	151	157	186	186	244	215	119
12:57	1184.00	13.91	1447	2825	11.43	296	150	157	186	186	244	214	126
12:58	1176.00	13.92	1445	2830	11.40	294	150	157	186	186	244	215	134
12:59	1176.00	13.91	1447	2832	11.42	295	153	157	186	186	244	215	136
13:00	1178.00	13.87	1445	2830	11.41	294	152	157	186	186	244	215	140

E-216

LEC Run 920319

Starting
03-19-92

Time	In/Out SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)
13:01	1165.00	13.95	1434	2837	11.40	295	155	157	186	186	245	215	143
13:02	1165.00	13.95	1432	2840	11.41	293	157	157	186	190	245	215	143
13:03	1152.00	14.01	1434	2833	11.43	295	156	157	186	190	245	215	143
13:04	1152.00	14.01	1432	2840	11.52	293	157	157	187	192	245	215	143
13:05	1159.00	13.95	1435	2835	11.49	297	157	157	186	192	245	215	143
10 MinAvg	1169.40	13.94	1439	2834	11.44	295	154	157	186	188	244	215	137
13:06	1162.00	14.00	1434	2841	11.47	295	157	157	187	193	245	215	143
13:07	1161.00	14.00	1434	2835	11.46	295	157	157	187	194	245	215	144
13:08	1150.00	14.04	1436	2837	11.44	297	157	157	187	194	245	215	147
13:09	1141.00	14.03	1434	2831	11.37	295	157	157	188	194	245	215	149
13:10	1136.00	14.07	1434	2837	11.33	296	157	157	189	194	245	215	150
13:11	1137.00	14.07	1434	2837	11.36	296	157	157	188	194	245	216	151
13:12	1132.00	14.11	1421	2837	11.34	295	157	157	188	196	245	216	154
13:13	1135.00	14.11	1421	2837	11.32	295	157	157	188	199	245	216	156
13:14	1140.00	14.11	1421	2842	11.30	295	157	157	188	200	245	216	157
13:15	1138.00	14.13	1422	2837	11.34	296	158	158	187	201	245	216	158
10 MinAvg	1143.20	14.07	1429	2837	11.37	295	157	157	188	196	245	215	151
13:16	1136.00	14.15	1435	2837	11.34	296	158	158	187	201	245	216	158
13:17	1139.00	14.14	1423	2832	11.40	298	158	158	190	202	245	216	158
13:18	1150.00	14.08	1435	2837	11.45	296	158	158	191	204	245	216	158
13:19	1154.00	14.07	1420	2837	11.47	294	158	158	192	205	245	216	158
13:20	1148.00	14.08	1434	2838	11.45	296	158	158	192	205	245	216	158
13:21	1146.00	14.10	1425	2838	11.38	299	158	158	191	208	245	216	158
13:22	1135.00	14.14	1422	2832	11.36	296	158	158	190	207	245	216	158
13:23	1129.00	14.17	1422	2838	11.35	296	158	158	189	209	245	216	158
13:24	1134.00	14.16	1421	2832	11.32	295	158	158	191	209	245	216	158
13:25	1138.00	14.17	1421	2833	11.36	295	158	158	190	211	245	216	158
10 MinAvg	1140.90	14.13	1426	2835	11.39	296	158	158	190	206	245	216	158
13:26	1131.00	14.22	1418	2838	11.37	292	158	158	192	209	245	216	158
13:27	1125.00	14.25	1422	2833	11.35	296	158	158	191	212	245	216	158
13:28	1129.00	14.23	1421	2833	11.31	295	158	158	190	213	245	216	158
13:29	1127.00	14.26	1407	2833	11.33	293	158	158	188	210	245	216	158
13:30	1118.00	14.27	1406	2828	11.29	292	158	158	189	212	245	216	159
13:31	1124.00	14.28	1422	2833	11.35	296	158	158	190	214	245	216	160
13:32	1128.00	14.23	1421	2833	11.38	295	158	158	194	214	245	216	166
13:33	1124.00	14.28	1408	2833	11.43	295	158	158	190	213	245	216	171

LEC Run 920319

Starting
03-19-92

Time	In/Out SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)
13:34	1121.00	14.31	1409	2833	11.45	295	158	158	190	213	245	216	171
13:35	1112.00	14.36	1420	2838	11.48	294	158	158	192	214	245	216	172
10 MinAvg	1123.90	14.27	1415	2833	11.37	294	158	158	190	212	245	216	163
13:36	1113.00	14.38	1408	2828	11.45	295	158	158	189	214	245	216	173
13:37	1104.00	14.41	1408	2833	11.39	295	158	158	189	215	245	216	173
13:38	1105.00	14.42	1408	2833	11.35	294	158	158	189	216	245	216	173
13:39	1117.00	14.39	1408	2833	11.31	294	158	158	190	215	245	216	173
13:40	1114.00	14.43	1409	2833	11.29	296	158	158	189	215	245	216	173
13:41	1117.00	14.44	1407	2834	11.30	294	158	159	191	216	245	216	173
13:42	1109.00	14.49	1407	2834	11.30	294	158	158	189	216	245	216	173
13:43	1109.00	14.54	1407	2834	11.32	294	158	158	192	216	245	216	173
13:44	1097.00	14.61	1407	2834	11.31	294	158	158	193	216	245	216	173
13:45	1095.00	14.62	1407	2839	11.29	294	158	158	191	216	245	216	173
10 MinAvg	1108.00	14.47	1408	2833	11.33	294	158	158	190	215	245	216	173
13:46	1093.00	14.63	1405	2834	11.34	291	158	158	193	216	245	216	173
13:47	1096.00	14.65	1405	2834	11.37	292	158	158	192	216	246	216	173
13:48	1098.00	14.64	1405	2834	11.40	292	158	158	191	216	246	216	173
13:49	1097.00	14.65	1406	2834	11.36	292	158	158	190	216	246	216	173
13:50	1119.00	14.56	1419	2839	11.32	293	158	158	190	216	246	216	173
C	No stone was found in the dutchman assembly.												
13:51	1116.00	14.54	1407	2829	11.33	294	158	159	192	216	246	216	173
13:52	1119.00	14.53	1406	2834	11.34	293	158	159	190	216	246	216	173
13:53	1107.00	14.59	1405	2834	11.30	292	158	159	190	216	246	216	173
13:54	1107.00	14.59	1406	2808	11.28	293	158	159	189	216	246	216	174
13:55	1110.00	14.56	1419	2760	11.34	293	158	158	192	216	246	216	173
10 MinAvg	1106.20	14.59	1408	2824	11.34	292	158	158	191	216	246	216	173
13:56	1107.00	14.57	1405	2749	11.34	291	158	159	190	216	246	216	174
13:57	1117.00	14.52	1405	2749	11.38	291	158	158	189	216	245	216	175
13:58	1110.00	14.55	1405	2749	11.35	291	158	159	193	216	245	216	176
13:59	1107.00	14.55	1406	2749	11.35	292	158	158	190	216	245	216	177
14:00	1105.00	14.52	1406	2749	11.38	293	158	158	192	216	245	216	181
14:01	1109.00	14.48	1392	2743	11.35	292	158	158	193	216	245	216	183
14:02	1122.00	14.44	1406	2743	11.46	292	158	159	190	216	245	216	183
14:03	1126.00	14.37	1406	2749	11.53	292	158	158	192	216	245	216	185
14:04	1134.00	14.12	1405	2754	11.50	292	158	158	194	216	245	216	185
14:05	1128.00	14.33	1406	2749	11.48	293	158	158	194	216	245	216	185

E-218

LEC Run 920319

Starting
03-19-92

Time	In/Out SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)
10 MinAvg	1116.50	14.45	1404	2748	11.41	292	158	158	191	216	245	216	181
14:06	1120.00	14.33	1406	2749	11.46	293	158	158	191	216	245	216	186
14:07	1123.00	14.29	1405	2749	11.49	291	158	158	193	216	245	216	187
C	Switching the sample line to monitor the inlet.												
14:08	994.00	15.09	1418	2749	11.45	292	158	158	192	216	245	216	187
14:09	1289.00	13.31	1403	2743	11.42	290	158	158	194	216	245	216	187
14:10	1303.00	13.30	1404	2749	11.37	291	158	158	192	216	245	216	187
14:11	1303.00	13.30	1403	2749	11.33	290	158	158	194	216	245	216	187
14:12	1302.00	13.28	1404	2749	11.35	291	158	158	194	216	245	216	187
14:13	1306.00	13.27	1391	2743	11.42	290	158	158	194	216	245	216	187
14:14	1322.00	13.26	1391	2744	11.42	290	158	158	193	216	245	216	187
14:15	1319.00	13.23	1404	2749	11.40	290	158	158	191	216	246	216	187
10 MinAvg	1238.10	13.67	1403	2747	11.41	291	158	158	193	216	245	216	187
14:16	1327.00	13.17	1404	2749	11.45	290	158	158	194	216	246	216	187
14:17	1343.00	13.11	1404	2750	11.49	290	158	158	191	216	246	216	187
14:18	1339.00	13.08	1391	2744	11.43	290	158	158	190	216	246	217	187
14:19	1341.00	13.09	1391	2766	11.37	290	158	158	191	217	246	217	187
14:20	1336.00	13.12	1391	2845	11.30	290	158	158	193	217	246	217	187
14:21	1338.00	13.12	1378	2840	11.32	290	159	159	189	217	246	217	188
14:22	1329.00	13.17	1391	2839	11.35	290	158	159	190	216	246	216	187
14:23	1337.00	13.12	1391	2839	11.29	290	158	159	193	216	246	216	187
14:24	1335.00	13.18	1378	2839	11.28	290	158	158	190	216	246	216	187
14:25	1340.00	13.15	1391	2839	11.25	290	158	158	192	216	246	216	187
10 MinAvg	1336.50	13.13	1391	2805	11.35	290	158	158	191	216	246	216	187
14:26	1344.00	13.13	1391	2845	11.22	290	158	158	191	217	246	217	187
C	Opened the sample line to pull ambient air.												
14:27	869.00	17.43	1391	2845	11.32	290	159	159	192	216	246	217	188
14:28	34.06	21.50	1378	2845	11.36	290	159	159	192	216	246	217	188
14:29	11.47	21.54	1378	2845	11.42	290	159	159	192	216	246	217	188
14:30	6.82	21.57	1378	2845	11.49	290	159	159	192	217	246	217	188
14:31	1.25	21.59	1378	2840	11.44	290	159	159	191	217	246	217	188
14:32	0.99	21.60	1378	2845	11.44	290	159	159	189	217	246	217	188
14:33	0.54	21.58	1391	2845	11.45	290	158	159	189	216	246	216	187
14:34	0.89	21.53	1391	2850	11.41	290	158	158	192	216	246	216	187
C	Monitors are now sampling from the #2 outlet position.												
14:35	641.70	15.93	1391	2844	11.40	290	158	158	192	216	246	216	187

E-219

LEC Run 920319

Starting
03-19-92

Time	In/Out SO2 (ppmvd)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)
10 MinAvg	291.07	19.74	1384	2845	11.40	290	158	159	191	216	246	217	187
14:36	1232.00	13.77	1378	2850	11.30	290	158	159	189	216	246	216	187
14:37	1260.00	13.79	1378	2845	11.25	290	158	159	190	216	246	216	187
14:38	1250.00	13.78	1378	2845	11.29	290	158	158	193	216	246	216	187
14:39	1247.00	13.81	1391	2844	11.29	290	158	158	190	216	246	216	187
14:40	1231.00	13.89	1391	2850	11.27	290	158	158	189	216	246	216	187
14:41	1227.00	13.87	1378	2844	11.26	290	158	158	191	216	246	216	187
14:42	1228.00	13.85	1391	2849	11.25	290	158	158	192	216	246	216	187
14:43	1223.00	13.86	1391	2844	11.30	290	158	158	191	216	246	216	188
14:44	1228.00	13.77	1391	2844	11.30	290	158	158	190	216	246	216	188
14:45	1224.00	13.79	1391	2844	11.29	290	158	158	194	216	246	216	188
10 MinAvg	1235.00	13.82	1386	2846	11.28	290	158	158	191	216	246	216	187
14:46	1221.00	13.78	1391	2844	11.35	290	158	158	190	216	246	216	189
14:47	1219.00	13.76	1391	2844	11.41	290	158	158	188	216	246	216	192
14:48	1212.00	13.80	1391	2844	11.41	290	158	158	191	216	246	216	191
14:49	1206.00	13.80	1403	2850	11.34	290	158	158	191	216	246	216	191
14:50	1227.00	13.63	1391	2844	11.29	290	158	158	192	216	246	216	195
14:51	1243.00	13.58	1391	2850	11.29	290	158	158	192	216	246	216	196
14:52	1230.00	13.62	1391	2844	11.24	290	158	158	190	216	246	216	197
14:53	1207.00	13.70	1391	2850	11.24	290	158	158	192	216	246	216	200
14:54	1201.00	13.76	1391	2844	11.23	290	158	158	192	216	246	216	197
14:55	1192.00	13.83	1378	2850	11.32	290	158	158	190	216	246	216	198
10 MinAvg	1215.80	13.73	1391	2846	11.31	290	158	158	191	216	246	216	195
14:56	1189.00	13.88	1391	2844	11.30	290	158	158	190	216	246	216	200
14:57	1172.00	13.99	1391	2850	11.25	290	158	158	188	216	246	216	200
14:58	1163.00	14.05	1391	2839	11.35	290	158	158	191	216	246	216	200
14:59	1159.00	14.06	1391	2849	11.38	290	158	158	189	216	246	216	201
15:00	1151.00	14.11	1391	2844	11.40	290	158	158	188	216	246	216	201
15:01	1146.00	14.16	1391	2849	11.44	290	158	158	189	216	245	216	202
15:02	1130.00	14.25	1403	2844	11.46	290	158	158	191	216	245	216	202
15:03	1118.00	14.29	1403	2844	11.43	290	158	158	192	216	245	216	202
15:04	1103.00	14.33	1403	2844	11.45	290	158	158	192	216	245	216	202
15:05	1097.00	14.36	1403	2849	11.41	290	158	158	189	216	245	216	202
10 MinAvg	1142.80	14.15	1396	2846	11.39	290	158	158	190	216	245	216	201

E-220

LEC Run 920319

Starting
03-19-92

Time	In/Out SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)
15:06	1084.00	14.42	1403	2844	11.41	290	158	158	187	216	245	216	202
C	Moving outlet sample line to position #3.												
15:07	1075.00	14.45	1403	2849	11.42	290	158	158	191	216	245	216	202
15:08	917.00	16.45	1403	2844	11.36	290	158	158	191	216	245	216	202
15:09	156.10	20.95	1403	2854	11.32	290	158	158	190	216	245	216	202
15:10	46.73	21.04	1403	2854	11.30	290	158	158	187	216	245	216	201
15:11	35.14	20.75	1416	2843	11.35	290	158	158	188	216	245	216	202
C	Completed connecting the outlet sample line to position #3.												
15:12	225.80	18.85	1416	2843	11.31	290	158	159	187	216	245	216	202
15:13	864.00	15.32	1416	2849	11.34	290	158	159	189	216	245	216	202
15:14	956.00	15.24	1416	2843	11.33	290	158	158	189	216	245	216	204
15:15	961.00	15.24	1416	2838	11.31	290	158	158	187	216	245	216	202
10 MinAvg	632.08	17.27	1410	2846	11.34	290	158	158	188	216	245	216	202
15:16	963.00	15.22	1416	2843	11.38	290	158	158	187	216	245	216	203
15:17	956.00	15.26	1416	2848	11.44	290	158	159	187	216	245	216	203
15:18	950.00	15.30	1416	2843	11.47	290	158	158	187	216	245	216	202
15:19	939.00	15.37	1428	2843	11.44	290	158	158	187	216	245	216	202
15:20	935.00	15.38	1416	2843	11.40	290	158	158	188	216	245	216	202
15:21	919.00	15.44	1416	2843	11.41	290	158	158	187	216	245	216	207
15:22	919.00	15.44	1416	2843	11.35	290	158	158	187	216	245	216	204
15:23	912.00	15.48	1416	2843	11.31	290	158	158	187	216	245	216	206
15:24	914.00	15.46	1417	2843	11.31	291	158	158	188	216	245	216	208
15:25	915.00	15.46	1417	2843	11.30	291	158	159	187	216	245	216	210
10 MinAvg	932.20	15.38	1417	2844	11.38	290	158	158	187	216	245	216	205
15:26	913.00	15.47	1417	2843	11.38	290	158	158	187	216	245	216	208
15:27	918.00	15.49	1416	2843	11.37	290	158	158	187	216	245	216	207
15:28	924.00	15.42	1416	2843	11.39	290	158	158	187	216	245	216	208
15:29	926.00	15.40	1403	2843	11.37	290	158	158	187	216	245	216	209
15:30	937.00	15.32	1416	2843	11.36	290	158	158	187	216	245	216	211
15:31	937.00	15.28	1416	2837	11.34	290	158	158	187	216	245	216	210
15:32	929.00	15.34	1417	2837	11.36	290	158	158	187	216	245	216	213
15:33	921.00	15.32	1417	2843	11.37	291	158	158	187	216	245	216	212
15:34	929.00	15.29	1419	2843	11.46	293	158	158	187	215	245	216	214
15:35	828.00	15.92	1404	2837	11.48	291	158	158	187	216	245	216	212
C	Switching the monitors to the inlet sample line.												
10 MinAvg	916.20	15.43	1414	2841	11.39	291	158	158	187	216	245	216	210

E-221

LEC Run 920319

Starting
03-19-92

Time	In/Out SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)
15:36	1001.00	14.06	1417	2832	11.43	291	158	158	187	216	245	216	212
15:37	1145.00	13.86	1404	2838	11.40	291	158	158	187	215	245	216	212
15:38	1166.00	13.76	1418	2838	11.41	292	158	158	187	215	245	216	213
15:39	1164.00	13.76	1419	2843	11.38	293	158	158	187	215	245	216	213
15:40	1171.00	13.77	1418	2838	11.40	292	158	158	187	216	245	216	215
15:41	1149.00	13.86	1418	2833	11.38	291	158	158	187	215	245	216	215
15:42	1145.00	13.90	1406	2838	11.35	293	158	158	187	216	245	216	216
15:43	1133.00	13.94	1404	2843	11.32	291	158	158	187	216	245	216	214
15:44	1145.00	13.93	1405	2838	11.33	291	158	158	187	215	245	216	215
15:45	1143.00	13.94	1404	2833	11.33	291	158	158	187	216	245	216	212
10 MinAvg	1136.20	13.88	1411	2837	11.37	292	158	158	187	215	245	216	214
15:46	1139.00	14.01	1405	2838	11.29	292	158	158	187	216	245	216	213
15:47	1145.00	13.98	1406	2844	11.32	292	158	158	187	216	245	216	214
15:48	1145.00	13.98	1405	2839	11.43	292	158	158	187	216	245	216	213
15:49	1139.00	14.04	1405	2834	11.47	292	158	158	187	216	245	216	214
15:50	1137.00	14.06	1406	2839	11.50	292	158	158	187	215	245	216	214
15:51	1137.00	14.08	1407	2839	11.44	293	158	158	187	216	245	216	214
15:52	1147.00	14.04	1395	2849	11.33	295	158	158	187	215	245	216	214
15:53	1137.00	14.08	1408	2839	11.32	295	158	158	187	216	245	216	215
15:54	1103.00	14.45	1406	2839	11.32	293	158	158	187	216	245	216	213
C	Monitors are now connected into the outlet sampling line at position #4.												
15:55	817.00	16.08	1395	2833	11.39	294	158	158	187	216	245	216	215
15:56	842.00	16.06	1394	2834	11.35	293	158	158	187	216	245	216	212
15:57	852.00	16.06	1407	2839	11.39	293	158	158	187	216	245	216	215
15:58	848.00	16.05	1407	2839	11.38	294	158	158	187	216	245	216	216
15:59	842.00	16.10	1406	2834	11.38	293	158	158	187	216	246	216	215
16:00	845.00	16.11	1395	2834	11.37	294	158	158	187	215	246	216	214
16:01	837.00	16.15	1406	2839	11.48	292	158	158	187	215	246	216	215
16:02	845.00	16.15	1392	2834	11.44	292	158	158	187	215	245	216	215
16:03	835.00	16.18	1405	2839	11.48	292	158	158	187	216	245	216	216
16:04	846.00	16.12	1406	2839	11.47	292	158	158	187	213	245	216	215
16:05	843.00	16.12	1406	2834	11.41	293	158	158	187	215	245	216	215
10 MinAvg	843.50	16.11	1402	2836	11.42	293	158	158	187	215	245	216	215
16:06	839.00	16.15	1394	2834	11.33	294	158	158	187	216	245	216	216
16:07	837.00	16.19	1394	2834	11.37	293	158	158	187	213	245	216	216
16:08	837.00	16.21	1393	2834	11.40	292	158	158	187	215	246	216	214
16:09	843.00	16.24	1394	2834	11.35	293	158	158	187	216	246	216	215

E-222

Starting
03-19-92

Time	In/Out SO ₂ (ppmdv)	In/Out O ₂ (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H ₂ O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)
16:10	845.00	16.22	1393	2834	11.37	293	158	158	187	215	246	216	214
16:11	844.00	16.21	1406	2829	11.35	293	158	158	187	215	246	216	215
16:12	839.00	16.22	1393	2834	11.34	293	158	158	187	212	246	216	215
16:13	839.00	16.23	1394	2834	11.36	293	158	159	187	212	246	216	216
16:14	846.00	16.18	1393	2834	11.37	293	158	158	187	212	246	216	216
16:15	844.00	16.21	1394	2834	11.41	293	158	158	187	215	246	216	216
10 MinAvg	841.30	16.21	1395	2833	11.36	293	158	158	187	214	246	216	215
16:16	857.00	16.17	1392	2834	11.41	291	158	158	187	213	246	216	216
16:17	853.00	16.20	1393	2834	11.36	293	158	159	187	215	246	216	216
16:18	852.00	16.20	1393	2829	11.44	292	158	158	187	215	246	216	215
16:19	851.00	16.18	1380	2829	11.47	293	158	159	187	212	246	216	216
16:20	850.00	16.19	1379	2834	11.41	292	158	158	187	213	246	217	216
16:21	845.00	16.13	1379	2834	11.43	292	158	158	188	215	246	217	216
Monitors are connected into the inlet sample line.													
16:22	1137.00	14.42	1379	2829	11.36	292	159	159	188	216	246	217	216
16:23	1152.00	14.44	1378	2834	11.36	291	159	159	188	214	246	217	215
16:24	1157.00	14.42	1379	2829	11.33	291	159	159	188	214	246	217	216
16:25	1158.00	14.43	1379	2829	11.35	291	159	159	188	215	246	217	216
10 MinAvg	971.20	15.48	1383	2832	11.39	292	158	158	187	214	246	216	216
16:26	1167.00	14.44	1378	2829	11.35	290	159	159	188	215	246	217	216
Monitors are now pulling ambient air.													
16:27	517.00	19.52	1378	2829	11.34	290	159	159	188	215	246	217	216
16:28	44.35	21.96	1392	2840	11.35	291	159	159	188	213	246	217	217
16:29	29.63	21.99	1378	2840	11.36	291	159	159	188	213	246	217	217
16:30	21.25	22.01	1378	2835	11.37	290	159	159	188	214	246	217	217
16:31	16.84	22.03	1378	2835	11.34	290	159	159	188	213	246	217	216
16:32	13.21	22.03	1378	2835	11.34	290	159	159	188	212	246	217	217
16:33	10.98	22.04	1378	2835	11.30	290	159	159	188	211	246	217	216
16:34	8.38	22.06	1378	2835	11.45	290	159	159	188	212	246	217	217
16:35	7.02	22.06	1379	2840	11.49	291	159	159	188	212	246	217	217
10 MinAvg	183.57	21.01	1380	2835	11.37	290	159	159	188	213	246	217	216
16:36	6.06	22.08	1378	2835	11.51	291	159	159	188	211	246	217	217
16:37	5.24	22.09	1378	2830	11.43	291	159	159	188	210	246	217	217
16:38	4.45	22.10	1365	2840	11.42	291	159	159	188	213	246	217	217
16:39	3.11	22.10	1378	2830	11.38	291	159	159	188	211	246	217	217
16:40	2.47	22.11	1365	2830	11.38	291	159	159	188	210	246	217	217

LEC RUN 920317

Carry-over Production

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Stone Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
03:14 PM	Fan is started.		
03:19 PM	5	4.8	0.96
03:27 PM	8	1.2	0.15
03:37 PM	10	16.3	1.63
03:47 PM	10	13.6	1.36
03:54 PM	7	16.0	2.29
04:03 PM	9	0.1	0.01
04:11 PM	8	0.3	0.04
04:19 PM	8	0.3	0.04
04:27 PM	8	23.0	2.87
04:35 PM	8	12.6	1.58
Total:		88.2	
Average:			1.09

Run Summary: **LEC Run 920428**

Total Run Time: 305 minutes
SO₂ Removal: 95% to 85%
Inlet Gas Rate: 2200 to 1450 acfm

Operational Conditions:

Fresh No.8 stone (L/S#920319)

In-duct Steam: 12 psig (full)

Overhead Sprays: 0.0 gpm

Fines Removal: 6 lbs/min

Carry-over: 0.0 lbs/min

Louver Sprays: 0.43 gpm

Bed Speed: 10 DT (1462 lb/hr).

Regeneration Device: A single deck vibrating screen equipped with a No.6 mesh screen.

Waste Fines: 5.5 lbs/min.

Stone Carry-over: None.

Comments: - The run was terminated due to the reactor screws becoming jammed. The screws could not be restarted so the run was aborted.

LEC Run 920428

Starting
04-28-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
Initial Conditions: Fresh Maxville No.8 limestone (L/S#920319); Bed Speed = 15DT (3030 lb/hr); No. 6 mesh screen used in the vibrating screen. The fresh stone was too wet to be pre-screened before the run. A two man crew with one engineer was used to operate the material handling equipment.															
15:21	1.12	-0.00	18.3	1769	2701	1.99	164	67	54	54	54	54	54	71	100.27
15:22	1.02	0.00	18.3	2186	3003	2.45	245	69	54	54	54	54	54	125	100.00
15:23	1.13	-0.00	18.3	2177	2990	2.24	259	69	54	54	54	54	54	148	100.35
15:24	1.24	0.00	18.3	2174	2970	1.57	273	82	54	54	54	54	70	95	100.00
15:25	1.37	0.00	18.3	2183	2983	1.58	274	83	54	54	54	55	94	69	99.71
15:26	1.46	0.33	18.6	2161	2975	1.56	276	84	54	54	54	59	82	67	77.17
15:27	1.39	-0.98	19.2	2193	2982	1.79	281	83	54	54	54	117	84	62	170.44
15:28	1.12	-0.08	19.1	2201	2964	2.10	280	75	54	54	55	93	83	57	107.53
15:29	0.95	-0.07	19.1	2137	2942	2.12	281	73	54	54	72	104	84	55	107.49
15:30	-0.22	-0.17	19.1	2072	2940	2.15	283	80	54	61	100	113	84	56	25.56
10 MinAvg	1.06	-0.10	18.7	2125	2945	1.95	262	76	54	55	60	76	74	80	98.85
15:31	-738.00	-0.10	19.1	2038	2928	2.15	284	84	54	83	113	113	86	55	99.99
15:32	-82.30	-0.07	19.1	2026	2919	2.13	287	84	62	99	113	113	89	56	99.92
15:33	0.99	-0.01	19.3	1999	2919	2.11	287	84	67	113	113	114	89	55	101.52
15:34	1.04	0.01	19.3	1990	2915	2.08	287	84	69	114	114	114	91	60	99.14
15:35	0.95	-0.05	19.3	1969	2910	2.04	285	84	69	114	114	114	94	68	104.75
15:36	0.93	-0.02	19.4	1970	2915	2.01	286	84	74	113	114	114	107	69	102.14
15:37	0.96	0.19	19.4	1962	2913	2.01	287	85	84	113	113	113	107	69	80.67
15:38	0.84	0.79	19.4	1962	2913	1.99	287	89	84	113	113	113	109	69	6.10
15:39	0.92	3.30	19.4	1951	2936	1.96	285	94	84	113	113	113	111	69	-258.59
15:40	0.92	9.63	19.4	1964	2948	1.94	288	97	84	114	114	114	108	70	-946.74
C	Sample lines are connected to the instrumentation.														
10 MinAvg	-81.27	1.37	19.3	1983	2922	2.04	286	87	73	109	113	113	99	64	-51.11
15:41	63.37	17.65	15.4	1952	2947	1.92	286	100	84	113	114	114	109	83	72.15
15:42	535.60	24.81	12.0	1955	2953	1.91	288	100	84	114	114	114	108	84	95.37
15:43	667.70	36.68	11.9	1955	2955	1.91	288	101	84	114	114	114	109	84	94.51
15:44	753.00	42.68	12.0	1936	2960	1.91	287	101	84	114	114	114	106	84	94.33
15:45	824.00	46.76	12.0	1891	2918	1.87	289	101	84	114	114	114	107	84	94.33
15:46	895.00	53.46	12.0	1522	2663	1.55	286	94	84	114	114	114	107	84	94.03
15:47	936.00	59.77	12.0	1323	2661	1.41	289	85	84	114	114	114	102	84	93.61
15:48	983.00	58.25	12.1	1602	2608	1.62	287	88	84	114	114	114	100	84	94.07
15:49	1016.00	60.44	12.1	1531	2549	1.56	284	91	84	114	114	114	104	84	94.05
15:50	1025.00	76.90	12.3	1548	2551	1.56	289	92	69	114	114	114	92	84	92.50

E-226

Starting
04-28-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10 MinAvg	769.87	47.74	12.4	1722	2776	1.72	287	95	83	114	114	114	104	84	91.89
15:51	1026.00	62.57	12.2	1533	2542	1.55	286	90	77	113	114	114	103	84	93.90
15:52	1026.00	69.46	12.2	1532	2554	1.55	284	95	74	114	114	114	96	84	93.23
15:53	1028.00	76.40	12.2	1519	2565	1.54	283	95	76	113	114	114	95	84	92.57
15:54	1039.00	72.20	12.2	1517	2563	1.54	282	95	72	113	114	114	93	84	93.05
15:55	1046.00	70.00	12.2	1518	2571	1.54	282	96	70	113	114	114	94	84	93.31
15:56	1059.00	68.39	11.9	1466	2564	1.57	243	95	69	113	113	113	94	84	93.54
15:57	1059.00	78.30	12.1	1411	2573	1.59	223	101	69	109	114	114	98	84	92.61
15:58	1064.00	71.60	12.1	1433	2580	1.61	245	107	69	94	114	114	103	84	93.27
15:59	1075.00	65.08	12.1	1434	2590	1.62	246	111	69	84	114	114	105	84	93.95
16:00	1069.00	58.05	12.1	1436	2593	1.62	248	113	69	89	114	114	106	84	94.57
C	38.3 lbs of fines are removed from the vibrating screen.														
10 MinAvg	1049.10	69.21	12.1	1480	2569	1.57	262	100	71	106	114	114	99	84	93.40
16:01	1075.00	49.67	12.1	1422	2584	1.63	246	113	64	85	114	114	113	85	95.38
16:02	1077.00	42.35	12.1	1422	2586	1.62	246	114	61	78	114	114	111	87	96.07
16:03	1085.00	36.03	12.1	1422	2591	1.62	246	114	64	72	114	114	112	94	96.68
16:04	1075.00	31.48	12.1	1423	2586	1.64	247	114	62	80	114	114	113	104	97.07
16:05	1071.00	29.71	12.1	1410	2564	1.64	245	114	64	76	114	114	114	110	97.23
16:06	1070.00	26.92	12.1	1361	2574	1.63	245	114	58	74	114	114	114	112	97.48
16:07	1069.00	25.92	12.1	2052	3167	2.29	245	114	57	84	114	114	114	114	97.58
16:08	1069.00	26.27	12.1	2068	3189	2.30	245	114	58	84	114	114	114	114	97.54
16:09	1068.00	25.55	12.2	2060	3189	2.15	245	114	64	96	114	114	114	114	97.61
16:10	1059.00	24.24	12.2	2068	3185	2.33	245	114	69	113	114	114	114	114	97.71
10 MinAvg	1071.80	31.81	12.1	1671	2821	1.88	245	114	62	84	114	114	113	105	97.03
16:11	1061.00	24.28	12.2	2060	3180	2.33	245	114	69	114	114	114	114	114	97.71
16:12	1061.00	24.80	12.2	2156	3270	2.22	245	114	70	114	114	114	113	114	97.66
16:13	1056.00	26.55	12.2	2187	3303	2.07	245	114	70	114	114	114	111	114	97.49
16:14	1052.00	24.63	12.3	2187	3299	2.38	245	114	72	113	114	114	114	114	97.66
16:15	878.00	91.20	13.9	2187	3295	2.33	245	114	75	92	114	114	114	114	89.61
C	55 lbs of fines are removed from the vibrating screen.														
C	Switching sample lines to determine outlet oxygen. The outlet O2 = 14.3%.														
16:16	501.60	129.60	14.9	2195	3299	2.23	245	114	82	85	114	114	114	114	74.16
16:17	798.00	120.90	12.9	2179	3287	2.21	245	114	80	80	114	114	114	114	84.85
16:18	1041.00	56.07	12.3	2187	3287	2.40	245	114	73	70	114	114	113	114	94.61
16:19	1046.00	29.67	12.2	2202	3283	2.54	245	114	77	71	114	114	111	114	97.16
16:20	1047.00	15.15	12.3	2210	3275	2.55	245	114	85	83	114	114	113	114	98.55
C	38.9 lbs of fines are removed from the vibrating screen.														

E-227

LEC Run 920428

Starting 04-28-92	Inlet S02 (ppmdv)	Outlet S02 (ppmdv)	Inlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dp (in. H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	S02 Removal (%)
10 MinAvg	954.16	54.29	12.7	2175	3278	2.33	245	114	75	93	114	114	113	114	92.95
16:21	1040.00	10.20	12.3	2210	3271	2.57	245	114	85	85	114	114	114	114	99.02
16:22	1040.00	9.97	12.3	2210	3266	2.57	245	114	85	85	114	114	114	114	99.04
16:23	1033.00	12.00	12.3	2218	3266	2.58	245	114	85	85	114	114	114	114	98.84
16:24	1036.00	14.30	12.3	2225	3266	2.60	245	114	85	85	114	114	114	114	98.62
16:25	1034.00	16.43	12.3	2225	3262	2.61	245	114	82	93	114	114	113	114	98.41
16:26	1038.00	18.31	12.3	2218	3258	2.61	245	114	77	109	114	114	114	114	98.24
16:27	1034.00	19.68	12.4	2218	3250	2.61	245	114	70	113	114	114	112	114	98.10
16:28	1031.00	19.15	12.3	2210	3241	2.61	245	114	74	111	114	114	114	114	98.14
C	48 lbs of fines are removed from the vibrating screen.														
16:29	1030.00	20.87	12.4	2210	3233	2.62	245	114	75	111	114	114	113	114	97.97
16:30	1025.00	21.80	12.4	2210	3229	2.63	245	114	74	109	114	114	114	114	97.87
10 MinAvg	1034.10	16.27	12.3	2215	3254	2.60	245	114	79	99	114	114	113	114	98.43
16:31	1043.00	23.76	12.3	2202	3229	2.63	245	114	80	111	114	114	113	114	97.72
C	38.1 lbs of fines are removed from the vibrating screen.														
16:32	1032.00	24.49	12.4	2195	3224	2.64	245	114	84	111	114	114	114	114	97.63
16:33	1032.00	26.18	12.3	2195	3220	2.65	245	114	85	107	114	114	114	114	97.46
16:34	1044.00	25.58	12.3	2179	3203	2.66	245	114	85	101	114	114	114	114	97.55
16:35	1036.00	24.75	12.3	2210	3199	2.69	245	114	84	107	114	114	114	114	97.61
16:36	1057.00	27.09	12.2	2233	3194	2.70	246	114	85	109	114	114	114	114	97.44
16:37	1058.00	27.47	12.2	2248	3182	2.71	245	114	85	110	114	114	114	114	97.40
16:38	1058.00	29.94	12.2	2248	3190	2.71	245	114	85	113	114	114	114	114	97.17
16:39	1058.00	33.60	12.1	2233	3186	2.70	245	114	85	113	114	114	114	114	96.82
16:40	1055.00	37.89	12.2	2233	3182	2.69	245	114	85	109	114	114	114	114	96.41
10 MinAvg	1047.30	28.08	12.2	2218	3201	2.68	245	114	84	109	114	114	114	114	97.32
16:41	1068.00	43.60	12.1	2242	3182	2.69	247	114	85	110	114	114	114	114	95.92
16:42	1072.00	56.59	12.1	2234	3173	2.69	246	114	85	110	114	114	114	114	94.72
16:43	1076.00	61.90	12.1	2237	3169	2.68	248	114	85	112	114	114	114	114	94.25
C	28.6 lbs of fines are removed from the vibrating screen.														
16:44	1081.00	63.22	12.1	2227	3160	2.68	247	114	85	112	114	114	114	114	94.15
C	Slowing down the bed speed to 1010 lbs/hr in order to add make-up stone. 250 lbs of fresh stone is added through 16:58														
16:45	1085.00	67.33	12.0	2207	3160	2.67	248	114	85	111	114	114	114	114	93.79
16:46	1090.00	74.10	12.0	2204	3156	2.69	247	114	85	110	114	114	114	114	93.20
16:47	1092.00	83.70	12.0	2203	3147	2.70	245	114	85	109	114	114	114	114	92.34
16:48	1093.00	93.60	12.0	2195	3143	2.71	246	114	85	107	114	114	114	114	91.44
16:49	1099.00	99.00	11.9	2179	3138	2.71	245	114	86	107	114	114	114	114	90.99
16:50	1104.00	107.60	12.0	2180	3138	2.71	246	114	87	109	114	114	114	114	90.25

LEC Run 920428

Starting
04-28-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
C	Louver sprays are set at 5 psig (0.3 gpm); Stone exiting the bed is dry.														
10 MinAvg	1086.00	75.06	12.0	2211	3156	2.69	246	114	85	110	114	114	125	122	93.11
16:51	1101.00	118.90	12.0	2165	3125	2.72	246	114	95	108	114	114	143	144	89.20
16:52	1103.00	128.20	11.9	2156	3125	2.73	245	114	105	109	114	114	143	144	88.38
16:53	1114.00	127.80	11.9	2164	3103	2.73	245	114	114	114	114	114	144	144	88.53
16:54	1108.00	124.30	11.9	2117	3107	2.73	245	114	114	114	114	114	144	144	88.78
16:55	1104.00	124.50	11.9	2124	3112	2.74	245	114	114	114	114	114	144	144	88.72
16:56	1099.00	128.90	12.0	2132	3098	2.74	245	114	114	114	114	114	144	144	88.27
16:57	1091.00	140.20	12.0	2117	3103	2.75	245	114	114	114	114	114	145	144	87.15
16:58	1079.00	145.30	12.1	2109	3103	2.76	245	114	114	113	114	114	144	148	86.53
16:59	1078.00	143.50	12.1	2117	3103	2.77	245	114	114	114	114	114	144	153	86.69
17:00	1070.00	139.50	12.2	2109	3099	2.78	246	114	114	114	114	114	150	155	86.96
10 MinAvg	1094.70	132.11	12.0	2131	3108	2.75	245	114	111	113	114	114	144	146	87.92
C	42.3 lbs of fines are removed from the vibrating screen.														
C	The feed screw has overheated and the boot on the small bucket elevator has become overloaded. Stone flow is halted.														
17:01	1065.00	144.20	12.2	2093	3099	2.78	245	115	114	114	114	114	153	158	86.46
17:02	1050.00	160.00	12.4	2093	3094	2.79	245	114	114	114	114	133	158	158	84.76
17:03	1047.00	167.70	12.4	2076	3092	2.80	245	115	114	114	114	156	158	158	83.98
17:04	1032.00	180.80	12.5	2076	3091	2.81	245	115	114	111	114	158	158	158	82.48
17:05	1032.00	191.90	12.5	2068	3089	2.82	245	116	114	114	114	158	158	158	81.41
17:06	1021.00	197.50	12.5	2060	3102	2.82	245	121	114	114	114	161	158	158	80.66
17:07	1015.00	202.70	12.6	2052	3105	2.83	245	125	114	114	114	173	158	158	80.03
17:08	1030.00	203.60	12.5	2060	3119	2.84	245	129	114	114	114	173	158	158	80.23
17:09	1033.00	204.80	12.5	2052	3130	2.84	245	135	114	114	114	172	158	158	80.17
17:10	1042.00	208.60	12.4	2052	3143	2.84	245	139	114	114	114	173	158	158	79.98
10 MinAvg	1036.70	186.18	12.4	2068	3106	2.82	245	122	114	114	114	157	157	158	82.02
17:11	1048.00	215.30	12.4	2052	3145	2.83	245	140	114	114	114	184	158	158	79.46
17:12	1053.00	225.60	12.3	2052	3157	2.83	245	143	114	112	124	186	158	158	78.58
17:13	1067.00	226.70	12.3	1752	3253	2.43	247	132	114	114	125	178	158	158	78.75
17:14	1071.00	226.50	12.2	1343	3309	1.95	252	115	114	114	122	171	158	158	78.85
17:15	1074.00	222.00	12.2	1968	3141	2.75	245	132	114	114	141	172	158	158	79.33
17:16	1080.00	211.20	12.1	2010	3139	2.84	245	142	113	114	143	172	158	158	80.44
17:17	1089.00	216.80	12.1	1985	3140	2.86	245	142	114	112	144	173	158	158	80.09
17:18	1086.00	218.90	12.1	1959	3134	2.87	245	143	97	112	150	162	158	158	79.84
17:19	1075.00	214.60	12.1	1960	3139	2.88	245	143	89	114	158	158	158	158	80.04
17:20	1078.00	223.30	12.1	1951	3134	2.89	245	143	90	113	158	158	161	158	79.29

E-229

Starting
04-28-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dp (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10 MinAvg	1072.10	220.09	12.2	1903	3169	2.71	246	138	107	113	138	171	158	158	79.47
17:21	1084.00	225.80	12.1	1951	3139	2.89	245	143	102	114	158	165	172	158	79.17
17:22	1082.00	232.00	12.2	1951	3134	2.89	245	143	113	114	158	180	172	158	78.56
17:23	1085.00	228.40	12.2	1942	3134	2.89	245	143	114	114	158	185	172	158	78.95
17:24	1082.00	235.90	12.2	1942	3134	2.90	245	143	114	114	158	175	172	158	78.20
17:25	1092.00	245.90	12.1	1942	3134	2.90	245	143	114	114	170	195	172	158	77.48
17:26	1102.00	258.30	12.1	1942	3130	2.91	245	143	114	114	172	202	175	158	76.56
17:27	1111.00	249.40	12.0	1934	3130	2.92	246	143	114	114	172	207	185	158	77.55
17:28	1126.00	246.70	11.9	1936	3130	2.92	247	143	114	114	172	197	186	158	78.09
17:29	1140.00	240.10	11.8	1934	3130	2.93	246	143	114	114	172	154	185	158	78.94
17:30	1149.00	258.40	11.7	1903	3097	2.86	249	143	114	114	174	141	184	158	77.51

The feed screw and small elevator are back on line and the bed speed is set at 10 DT (2020 lb/hr).

10 MinAvg	1105.30	242.09	12.0	1938	3129	2.90	246	143	113	114	166	180	178	158	78.10
17:31	1148.00	261.70	11.7	1866	3093	2.85	248	143	114	114	172	158	176	158	77.20
17:32	1168.00	260.10	11.6	1846	3093	2.85	247	143	114	114	167	157	172	158	77.73
17:33	1163.00	270.50	11.6	1844	3093	2.85	245	143	114	114	158	146	165	158	76.74
17:34	1175.00	249.90	11.6	1810	3093	2.88	247	143	109	114	160	155	158	158	78.73
17:35	1181.00	220.40	11.5	1808	3093	2.90	245	143	107	114	165	157	158	158	81.34
17:36	1178.00	206.70	11.5	1826	3094	2.89	246	144	105	114	172	146	158	158	82.45
17:37	1171.00	219.50	11.5	1835	3093	2.89	245	143	99	111	172	143	158	158	81.26
C	Increasing the damper to position II and increasing the louver sprays to 10 psig.														
17:38	1165.00	239.90	11.6	1872	3166	2.99	246	143	87	96	171	143	158	158	79.41
C	29.1 lbs of fines are removed from the vibrating screen.														
17:39	1159.00	223.20	11.6	2010	3352	3.30	245	143	85	88	160	143	158	158	80.74
17:40	1143.00	209.60	11.7	1899	3256	3.21	246	143	85	85	158	144	158	158	81.66

Stone is entering the fan, so the damper is being returned to position I.

C	Stone is entering the fan, so the damper is being returned to position I.														
10 MinAvg	1165.10	236.15	11.6	1862	3142	2.96	246	143	102	106	165	149	162	158	79.73
17:41	1135.00	188.70	11.8	1872	3225	3.20	245	143	79	85	157	144	158	158	83.37
17:42	1124.00	188.40	11.8	1837	3198	3.17	247	143	78	91	148	156	158	158	83.24
17:43	1123.00	189.80	11.8	1791	3176	3.13	247	143	84	102	144	158	158	161	83.10
17:44	1111.00	172.60	11.9	1799	3153	3.16	246	143	78	105	143	158	158	165	84.46
17:45	1111.00	173.10	12.0	1853	3144	3.19	245	144	78	111	143	158	158	170	84.42
17:46	1109.00	178.00	12.0	1872	3144	3.21	245	144	84	114	143	158	151	170	83.95
17:47	1104.00	166.50	12.0	1871	3139	3.23	245	143	85	114	143	157	153	172	84.92
17:48	1092.00	165.60	12.1	802	2140	1.61	249	143	85	114	143	157	156	166	84.84
C	The reactor screws are jammed, everything is shut-off.														

LEC Run 920428

Starting
04-28-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
17:49	1080.00	159.20	12.5		1432	0.66	185	137	85	114	143	150	156	160	85.26
17:50	594.70	158.70	17.9		1335	0.47	172	106	85	92	124	143	143	158	73.31
10 MinAvg	1058.37	174.06	12.6	1712	2709	2.50	233	139	82	104	143	154	155	164	83.09
17:51	274.20	73.60	19.8		1280	0.43	172	85	85	85	114	124	120	158	73.16
17:52	82.80	6.88	20.0		1259	0.41	172	85	84	85	114	114	114	158	91.70
17:53	40.50	2.75	20.0		1259	0.42	172	85	84	85	114	114	114	158	93.20
17:54	18.38	1.64	20.0		1260	0.42	172	85	85	88	114	114	114	158	91.07
17:55	5.05	1.27	20.0		1259	0.42	172	84	84	96	114	114	114	158	74.79
17:56	1.12	1.00	20.0		1259	0.42	172	84	84	94	114	114	114	158	10.76
17:57	0.74	0.77	20.1		1254	0.42	172	80	85	88	113	114	104	158	-4.60
17:58	1.17	0.85	20.1		1249	0.42	172	76	84	85	104	112	89	157	27.07
17:59	1.10	0.58	20.1		1244	0.42	172	71	84	85	96	99	85	157	47.05
18:00	1.09	0.54	20.1		1243	0.42	172	70	85	85	91	89	85	152	50.14
10 MinAvg	42.61	8.99	20.0		1257	0.42	172	80	84	87	109	111	105	157	55.43
18:01	1.09	0.46	20.1		1233	0.42	172	70	83	85	86	85	85	152	58.05
18:02	1.00	0.53	20.0		1242	0.42	172	70	84	85	85	85	85	148	47.46
18:03	1.07	0.43	20.0		1232	0.42	172	70	81	85	85	85	85	146	60.11
18:04	0.99	0.54	20.0		1232	0.42	172	70	71	85	85	85	85	144	45.50
18:05	0.91	0.44	20.0		1242	0.42	172	70	70	85	85	85	85	144	51.88
18:06	1.06	0.32	20.0		1232	0.42	172	70	70	84	85	85	85	144	69.59
18:07	1.02	0.44	20.0		1232	0.42	172	70	70	84	85	85	85	144	56.54
18:08	1.03	0.41	20.0		1242	0.41	172	70	70	84	85	85	85	143	60.52
18:09	1.10	0.45	20.0		1263	0.41	172	70	70	82	85	85	85	140	59.22
C	Reactor screws are back on line, everything is restarted.														
18:10	1.14	0.40	20.0	985	2352	1.65	240	81	70	75	85	85	85	142	64.65
10 MinAvg	1.04	0.44	20.0	985	1350	0.54	179	71	74	83	85	85	85	145	57.35
18:11	1.07	0.31	20.0	528	2065	1.32	269	85	70	80	87	95	85	143	70.92
18:12	0.92	0.25	20.0	458	2065	1.31	271	85	70	72	85	103	85	144	72.93
18:13	1.13	0.17	20.0	260	2077	1.30	248	94	70	70	85	109	95	145	85.03
18:14	1.04	0.15	20.0		2098	1.27	236	109	70	70	85	114	107	145	85.55
18:15	12.50	0.18	19.4		2101	1.21	216	111	70	69	86	114	109	143	98.58
18:16	942.00	18.07	12.4		2107	1.17	216	110	70	68	86	114	113	144	98.08
18:17	1212.00	45.30	11.7		2106	1.16	216	110	70	65	87	114	110	146	96.26
18:18	1219.00	46.26	11.6		2107	1.16	216	110	70	68	87	114	111	155	96.21
18:19	1224.00	40.64	11.6	312	2352	1.36	220	114	70	65	91	114	113	156	96.68
18:20	1227.00	41.20	11.6	1610	3477	2.53	245	114	70	61	101	114	114	158	96.64

E-231

LEC Run 920428

Starting
04-28-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10 MinAvg	584.07	19.25	15.8	633	2256	1.38	235	104	70	69	88	110	104	148	89.69
18:21	1220.00	62.20	11.6	1578	3421	2.47	245	114	70	63	104	114	114	158	94.90
18:22	1217.00	81.90	11.6	1589	3421	2.42	245	114	70	64	112	114	114	158	93.27
18:23	1220.00	100.40	11.6	1589	3413	2.37	245	114	80	64	114	114	114	158	91.77
18:24	1216.00	114.50	11.6	1599	3376	2.43	245	114	84	66	114	114	114	158	90.58
18:25	1209.00	127.30	11.6	1578	3348	2.55	245	114	84	67	114	114	114	158	89.47
18:26	1210.00	127.90	11.6	1040	2745	1.87	247	114	84	69	114	114	114	158	89.43
C	The discharge end of the feed screw is clogged and the bottom boot of the tall bucket elevator is "stuffed".														
18:27	1042.00	97.70	13.6		1467	0.67	147	103	75	72	105	108	107	158	90.62
18:28	159.20	51.24	19.5		1330	0.46	130	85	70	70	77	84	84	158	67.81
18:29	54.84	33.84	19.9		1289	0.41	143	75	70	70	78	84	84	158	38.29
18:30	14.76	28.40	19.9		1262	0.39	131	70	70	70	79	84	84	158	-92.41
10 MinAvg	856.28	82.54	14.2	1496	2507	1.60	202	102	76	67	101	104	104	158	65.37
18:31	1.88	25.32	19.8		1262	0.39	117	70	70	70	79	84	84	158	-1245.38
18:32	1.49	22.76	20.0		1262	0.39	114	70	70	70	76	84	84	158	-1426.49
18:33	0.33	19.78	20.0		1262	0.39	114	70	70	70	77	84	84	158	-5822.16
18:34	1.12	17.74	20.0		1262	0.39	118	70	70	70	77	85	85	155	-1491.03
18:35	1.41	15.85	20.0		1262	0.39	121	70	70	70	77	85	84	150	-1025.71
18:36	1.28	14.25	20.0		1262	0.39	117	70	70	70	76	85	84	145	-1011.54
18:37	1.31	13.16	20.0		1262	0.40	137	70	70	70	75	84	84	144	-904.58
18:38	1.17	12.07	20.0		1262	0.40	141	70	70	70	73	82	80	143	-930.74
18:39	1.14	11.32	20.0		1262	0.40	142	70	70	70	75	83	78	143	-890.38
18:40	0.86	10.18	20.1		1252	0.40	136	69	70	70	72	78	74	143	-1078.24
10 MinAvg	1.20	16.24	20.0		1261	0.39	126	70	70	70	76	83	82	150	-1582.63
18:41	0.78	9.56	20.1		1261	0.40	127	68	70	70	70	75	71	143	-1125.64
18:42	0.98	8.72	20.1		1261	0.40	123	69	70	70	70	74	71	143	-793.44
18:43	1.13	8.39	20.1		1252	0.40	116	70	70	70	70	72	70	143	-643.14
18:44	1.25	7.80	20.1		1254	0.40	114	63	70	70	70	70	70	143	-522.01
18:45	0.81	7.29	20.1		1250	0.40	114	68	70	70	70	70	70	143	-802.23
18:46	0.89	7.10	20.1		1249	0.40	114	67	70	70	70	70	70	143	-695.96
18:47	0.74	6.61	20.1		1247	0.39	114	65	70	70	70	70	70	141	-794.32
18:48	0.86	6.20	20.1		1252	0.39	114	69	70	70	70	70	70	138	-617.71
18:49	0.78	5.88	20.1		1247	0.39	114	65	70	70	70	70	70	133	-653.39
18:50	0.93	5.57	20.1		1245	0.39	114	63	70	70	70	70	70	123	-496.90
10 MinAvg	0.92	7.31	20.1		1252	0.40	116	67	70	70	70	71	70	139	-714.47

E-232

LEC Run 920428

Starting
04-28-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
18:51	1.12	5.34	20.1		1245	0.39	117	63	70	70	70	70	70	119	-378.48
18:52	1.49	5.19	20.1		1245	0.39	114	63	70	70	70	70	70	115	-248.22
18:53	1.56	5.19	20.1		1241	0.39	114	60	70	70	70	70	70	114	-232.67
18:54	0.86	5.01	20.1		1245	0.39	119	63	70	70	70	70	70	114	-480.44
18:55	1.31	4.78	20.1		1252	0.39	116	69	70	70	70	70	70	114	-264.81
18:56	0.98	4.87	20.1		1253	0.40	114	62	70	70	70	70	70	114	-398.67
18:57	312.00	4.73	16.6		1999	1.13	200	70	70	70	70	70	70	114	98.48
C	Restarted the fan and some stone is coming into the fan. The stone is dry.														
18:58	1122.00	7.63	12.1	369	2083	1.23	251	75	69	70	70	70	70	114	99.32
18:59	1172.00	11.27	12.1	371	2095	1.24	259	81	69	70	70	70	70	118	99.04
19:00	1180.00	13.04	12.0	321	2100	1.22	260	83	70	70	70	70	70	118	98.89
10 MinAvg	379.33	6.70	17.3	353	1576	0.72	166	69	70	70	70	70	70	115	-160.75
19:01	1178.00	15.06	12.0	321	2096	1.19	260	84	68	70	70	70	70	119	98.72
19:02	1174.00	22.46	12.0	321	2097	1.16	260	85	69	69	70	70	70	119	98.09
19:03	1171.00	31.17	12.0	321	2091	1.13	260	85	70	70	70	70	70	115	97.34
19:04	1171.00	40.73	12.1	371	2084	1.12	260	85	70	70	70	70	70	116	96.52
19:05	1174.00	49.62	12.0	253	2084	1.13	212	85	70	70	70	70	74	119	95.77
19:06	1169.00	53.07	12.1		2078	1.14	198	85	70	70	70	70	83	116	95.46
19:07	1179.00	52.46	12.0		2066	1.14	230	85	70	65	75	73	82	115	95.55
19:08	1168.00	50.23	12.1	903	2488	1.49	224	85	71	70	83	82	83	115	95.70
19:09	1168.00	64.09	12.1	543	2258	1.27	225	85	81	71	84	85	85	115	94.51
19:10	1157.00	62.73	12.1		2072	1.12	216	85	83	71	85	85	85	114	94.58
10 MinAvg	1170.90	44.16	12.1	433	2141	1.19	234	85	72	69	75	74	77	116	96.22
19:11	1161.00	49.85	12.1		2066	1.12	216	85	83	70	84	85	85	115	95.71
C	39.5 lbs of fines are removed from the vibrating screen. Increasing the fan damper with some stone entering the fan.														
19:12	1153.00	45.06	12.1	1591	3206	2.13	237	88	83	79	84	85	88	115	96.09
19:13	1141.00	76.30	12.2	1760	3430	2.34	245	97	85	87	88	91	111	118	93.31
19:14	1130.00	116.40	12.2	1731	3437	2.32	245	105	98	107	113	104	114	121	89.70
19:15	1132.00	147.20	12.2	1712	3440	2.31	245	108	113	105	114	106	114	124	87.00
19:16	1139.00	180.30	12.2	1702	3437	2.26	245	111	114	107	114	109	114	125	84.17
19:17	1137.00	212.00	12.2	1692	3439	2.26	245	113	114	110	114	113	114	126	81.35
19:18	1138.00	230.30	12.2	1652	3404	2.22	245	114	114	114	114	114	114	128	79.76
19:19	1130.00	243.10	12.2	1610	3354	2.15	245	113	114	114	114	114	114	128	78.49
19:20	1134.00	257.30	12.2	1600	3349	2.13	245	114	114	114	114	114	114	129	77.31
10 MinAvg	1139.50	155.78	12.2	1672	3256	2.12	242	105	103	101	105	104	108	123	86.29
19:21	1124.00	264.20	12.2	1579	3337	2.09	245	114	125	114	114	114	114	128	76.49

E-233

LEC Run 920428

Starting
04-28-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
19:22	1131.00	281.00	12.2	1568	3328	2.09	245	114	144	114	114	114	114	125	75.15
19:23	1132.00	288.30	12.2	1568	3325	2.09	245	114	141	114	114	114	114	124	74.53
19:24	1130.00	298.40	12.2	1557	3320	2.10	245	114	130	114	114	114	114	121	73.59
19:25	1124.00	296.30	12.2	1546	3316	2.09	245	114	140	114	114	-6999	114	124	73.64
19:26	1114.00	306.50	12.3	1547	3320	2.09	245	114	144	114	114	114	114	120	72.49
19:27	1112.00	318.70	12.3	1546	3316	2.08	245	114	145	114	114	114	114	120	71.34
19:28	1106.00	334.40	12.3	1547	3308	2.13	245	114	141	114	114	114	114	117	69.76
19:29	1103.00	349.10	12.3	1525	3312	2.15	245	114	124	115	114	114	114	119	68.35
19:30	1098.00	354.20	12.3	1514	3312	2.14	245	114	120	114	114	114	114	119	67.74
10 MinAvg	1117.40	309.11	12.3	1550	3320	2.11	245	114	135	114	114	-597	114	122	72.31
19:31	1101.00	363.40	12.3	1513	3312	2.14	245	114	118	114	114	114	114	119	66.99
19:32	1101.00	367.90	12.3	1513	3308	2.17	245	114	117	114	114	114	114	120	66.58
19:33	1098.00	374.20	12.3	1502	3300	2.21	245	114	114	114	114	114	114	119	65.92
19:34	1105.00	378.20	12.3	1491	3291	2.26	245	114	114	114	114	114	114	117	65.77
19:35	1098.00	373.90	12.4	1480	3287	2.26	245	114	114	114	114	114	114	120	65.95
19:36	1098.00	380.80	12.3	1480	3287	2.26	245	114	114	114	114	114	114	118	65.32
19:37	1108.00	382.50	12.3	1468	3287	2.26	245	114	114	114	114	114	114	119	65.48
19:38	1120.00	388.10	12.3	1468	3287	2.27	245	114	114	114	114	114	114	119	65.35
19:39	1128.00	395.90	12.2	1480	3283	2.28	246	114	114	114	114	114	114	121	64.90
19:40	1126.00	400.70	12.2	1470	3291	2.28	247	114	114	114	114	114	114	119	64.41
10 MinAvg	1108.30	380.56	12.3	1487	3293	2.24	245	114	115	114	114	114	114	119	65.67
19:41	1127.00	406.80	12.1	1470	3278	2.29	247	114	114	114	114	114	114	118	63.90
19:42	1123.00	408.10	12.2	1469	3283	2.26	246	114	114	114	114	114	114	119	63.66
19:43	1128.00	406.70	12.1	1482	3282	2.26	247	114	114	114	114	114	114	120	63.95
19:44	1120.00	405.30	12.2	1474	3282	2.26	251	114	114	114	114	114	114	119	63.81
19:45	1084.00	381.30	12.5	1461	3278	2.27	249	114	114	114	114	114	116	118	64.82
19:46	1075.00	367.80	12.5	1464	3278	2.27	252	114	114	114	114	114	118	121	65.79
19:47	1102.00	386.90	12.3	1468	3278	2.31	256	114	114	114	114	114	117	120	64.89
19:48	1111.00	389.70	12.3	736	2489	1.50	249	114	114	114	114	114	114	120	64.92
C	The fan is stopped due to the feed screw becoming jammed at its discharge end.														
19:49	798.00	235.70	15.4		1437	0.62	153	102	109	112	103	114	95	119	70.46
19:50	95.70	91.30	19.8		1330	0.46	158	85	85	86	84	112	85	119	4.60
10 MinAvg	976.37	347.96	13.3	1378	2822	1.85	231	110	111	111	110	114	110	119	59.08
19:51	35.85	66.62	20.0		1280	0.43	158	76	85	95	84	106	85	122	-85.83
19:52	11.82	58.97	20.0		1262	0.41	158	70	85	93	84	88	85	117	-398.90
19:53	1.92	45.92	20.0		1262	0.41	158	70	85	87	83	85	85	115	-2287.94

E-234

LEC Run 920428

Starting
04-28-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
19:54	1.17	36.75	20.0		1262	0.41	158	70	85	87	84	85	85	114	-3038.34
19:55	1.38	30.33	20.0		1262	0.41	158	70	85	85	84	85	85	114	-2097.83
19:56	1.49	25.96	20.0		1262	0.41	158	70	85	85	85	85	85	114	-1641.11
19:57	1.30	23.60	19.9		1262	0.40	156	70	85	85	85	85	84	114	-1720.99
19:58	0.77	21.47	19.9		1257	0.41	150	65	80	80	78	80	79	110	-2699.22
19:59	1.17	19.37	19.9		1262	0.41	152	70	84	84	80	84	80	114	-1554.14
20:00	1.37	17.16	19.9		1262	0.41	145	70	84	84	80	84	80	114	-1156.22
10 MinAvg	5.82	34.62	19.9		1264	0.41	155	70	84	87	83	86	83	115	-1668.05
20:01	0.93	15.12	19.9		1252	0.41	144	70	84	84	78	84	73	114	-1518.84
20:02	1.12	14.11	19.9		1252	0.41	143	69	84	84	77	84	72	114	-1165.47
20:03	1.02	13.05	19.9		1252	0.41	143	69	84	83	76	82	71	114	-1183.19
20:04	1.07	12.17	19.9		1251	0.41	143	68	83	76	74	79	70	114	-1034.20
20:05	1.03	11.25	19.9		1250	0.40	143	67	83	73	72	77	70	114	-991.17
20:06	1.14	10.82	19.9		1249	0.39	143	67	79	70	71	73	69	114	-846.63
20:07	1.07	9.84	19.9		1249	0.38	143	67	76	69	70	70	69	114	-817.06
20:08	1.13	9.32	19.8		1256	0.38	136	64	72	69	70	70	69	114	-725.51
20:09	0.91	8.65	19.8		1256	0.37	125	64	69	69	72	69	69	114	-854.75
20:10	1.00	7.93	19.8		1245	0.37	116	63	69	69	74	69	69	113	-690.63
10 MinAvg	1.04	11.23	19.9		1251	0.39	138	67	78	75	73	76	70	114	-982.74
20:11	1.12	7.29	19.8		1242	0.39	136	61	69	69	74	69	69	113	-553.81
20:12	1.00	6.64	19.8		1230	0.40	145	59	69	69	69	69	69	111	-561.52
20:13	1.14	6.36	19.8		1244	0.39	153	63	69	69	69	69	69	104	-456.52
C	Everything is restarted														
20:14	209.40	6.39	17.4	1375	2810	2.35	211	67	69	78	71	72	69	109	96.95
C	41.6 lbs of fines are removed from the vibrating screen.														
20:15	1078.00	42.60	12.4	1742	3271	2.73	262	79	69	85	77	80	69	113	96.05
20:16	1146.00	132.20	12.1	1733	3290	2.56	272	84	69	84	83	84	78	113	88.46
20:17	1155.00	197.40	12.1	1695	3279	2.50	274	84	69	84	84	84	84	113	82.91
20:18	1163.00	258.10	12.0	1450	3011	2.15	274	84	69	83	84	84	84	113	77.81
20:19	1168.00	225.50	11.9	592	2285	1.41	274	84	69	82	86	84	83	113	80.69
20:20	1165.00	157.70	11.9	562	2274	1.40	274	84	69	83	95	84	83	113	86.46
10 MinAvg	708.77	104.02	14.9	1307	2394	1.63	227	75	69	79	79	78	76	112	-96.25
20:21	1167.00	131.70	11.9	562	2256	1.39	274	84	69	84	110	84	84	113	88.71
20:22	1157.00	113.20	11.9	530	2250	1.38	274	84	69	84	113	84	83	113	90.22
20:23	1153.00	96.30	11.9	1139	2701	1.81	274	84	69	84	113	86	84	113	91.65

E-235

LEC Run 920428

Starting
04-28-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Inlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
20:24	1142.00	110.20	12.0	1213	3468	1.88	274	84	69	84	113	105	84	113	90.35
20:25	1140.00	115.30	12.0	1351	3411	2.05	275	84	69	82	113	111	84	113	89.89
20:26	1136.00	128.20	12.0	1046	2613	1.81	279	84	69	82	113	113	84	113	88.71

C Reactor screws are jammed and the small bucket elevator boot is "stuffed".

C The run attempt was terminated at 21:30.

POST-RUN BED INSPECTION:

- The vertical road-side half of the bed is rock-hard and dry.
- The outlet louvers and duct are clean.
- The dutchman assembly collected 20 lbs. of whole stone

LEC RUN 920428

Waste Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Dust Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
04:00 PM	30	42.3	1.41
04:15 PM	15	60.0	4.00
04:20 PM	5	42.9	8.58
04:28 PM	8	52.0	6.50
04:32 PM	4	43.1	10.78
04:43 PM	11	33.6	3.05
05:01 PM	18	47.3	2.63
05:39 PM	38	34.1	0.90
07:12 PM	33	44.5	1.35
08:15 PM	3	46.1	15.37
Run Total:		445.9	
Run Average:			5.46

LEC RUN 920428

Carry-Over Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Stone Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
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No stone carry-over occurred.

Run Summary: **LEC Run 920430**

Total Run Time: 134 hours.
SO₂ Removal: 85% to 60%
Inlet Gas Rate: 2200 to 1700 acfm

Operational Conditions:

Fresh No.8 damp stone (L/S#920429)
In-duct Steam: 10 psig (full)
Overhead Sprays: 0.0 gpm
Louver Sprays: 0.33 gpm
Bed Speed: 10 DT (1462 lb/hr)
Regeneration device: Single deck vibrating screen equipped with a No. 6 mesh screen.
Waste Fines: 1.2 lbs/min.
Stone Carry-over: 1.5 lbs/min.

Comments: - This run is the longest continuous run made on the LEC unit to date. The SO₂ removal is low due to the larger size of the limestone (when compared to No. 9) and to the low water addition rate used. The water addition was kept low in order to insure that the stone leaving the bed would be dry. This helps guarantee the continuous operation of the materials handling equipment.

Extended Run
LEC Run 920430

Starting
04-30-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
Initial Conditions: Fresh dry No. 8 Maxville limestone (L/S#920429) was loaded on 4/30/92 and was pre-screened for 4 hours through the No.6 market grade mesh.															
08:00-09:00			17.9	1838	2643	1.14	199	90	72	92	92	96	92	68	69.69
09:00-10:00	1192.61	361.33	14.2	1766	3574	1.59	225	128	81	111	112	207	173	126	66.57
10:00-11:00	1169.98	391.02	14.1	2011	3509	1.99	212	156	101	112	160	197	180	166	66.62
11:00-12:00	1066.57	354.93	14.7	2026	3479	2.15	209	141	103	116	155	150	159	165	65.68
12:00-13:00	996.67	342.30	15.3	2035	3443	2.24	199	120	94	121	157	152	162	135	65.15
13:00-14:00	1034.50	361.17	14.8	2038	3449	2.31	204	120	106	137	151	149	157	149	58.97
14:00-15:00	1032.08			2001	3423	2.20	198	120	94	133	153	143	158	149	58.10
15:00-16:00	1042.00	416.15	16.1	2033	3464	2.15	194	120	94	120	155	150	162	149	58.74
16:00-17:00	1064.87	446.02	16.4	2027	3464	2.14	196	120	93	120	154	150	164	149	57.08
17:00-18:00	1114.05	459.68	17.0	2060	3447	2.27	204	119	103	119	151	151	159	148	58.57
18:00-19:00	1066.68	457.65	14.9	2066	3409	2.37	216	120	106	119	153	147	147	148	51.54
19:00-20:00	1063.00	440.07	15.3	2066	3417	2.30	217	119	102	119	148	124	132	148	62.65
20:00-21:00	885.60	415.45	15.5	2047	3397	2.38	216	120	96	127	156	156	153	151	60.89
21:00-22:00	1144.23*	437.68	15.8	2015	3397	2.44	213	122	97	130	156	156	153	152	44.78
22:00-23:00	1124.46*	439.77	15.8	2015	3386	2.44	213	124	97	124	153	145	153	152	
23:00-00:00	822.15	443.45	15.0	1992	3352	2.49	211	118	103	118	152	144	147	148	

05-01-92

00:00-01:00	1016.13	449.08	14.5	1925	3360	2.41	215	116	112	116	153	152	149	151	55.79
01:00-02:00	932.48	427.26	14.2	1926	3342	2.37	209	118	112	123	155	144	156	153	54.17
02:00-03:00	919.27	421.95	14.2	1956	3331	2.40	199	122	111	129	149	141	154	146	59.14
03:00-04:00	1069.07	435.77	14.2	1930	3301	2.32	201	115	97	114	143	133	144	148	63.34
04:00-05:00	1184.48	433.91	15.3	1951	3343	2.10	206	117	88	117	135	118	143	147	63.32
05:00-06:00	1213.97	445.31	15.4	1965	3365	1.99	204	119	90	119	143	120	148	159	63.19
06:00-07:00	1367.63	503.15	14.8	1986	3374	1.95	216	119	90	119	146	122	148	160	60.35
07:00-08:00	1446.38	572.86	13.8	2039	3355	1.98	233	117	88	117	146	133	147	156	60.82
08:00-09:00	1433.70	555.31	14.0	2038	3348	2.00	246	119	91	119	150	146	150	158	59.00
09:00-10:00	1306.39	534.37	16.0	2034	3342	2.15	250	125	103	120	157	147	161	162	62.99
10:00-11:00	1082.60	400.90	16.6	1990	3318	2.36	244	120	93	120	151	135	151	163	66.33
11:00-12:00	1048.25	352.59	17.4	1948	3307	2.45	226	121	92	121	151	156	151	152	66.00
12:00-13:00	878.34	282.62	18.3	1942	3332	2.45	221	124	94	113	154	155	152	152	64.12
13:00-14:00	987.18	354.13	16.0	1945	3318	2.51	223	125	96	124	157	154	154	156	64.73
14:00-15:00	888.88	313.79	15.9	1916	3320	2.44	220	128	99	120	146	138	151	156	65.61
15:00-16:00	999.43	343.67	16.0	1896	3305	2.36	229	129	100	127	135	129	154	158	62.19
16:00-17:00	928.27	350.17	16.4	1881	3294	2.27	231	130	102	130	144	144	159	159	60.27
17:00-18:00	903.48	358.93	16.3	1873	3297	2.26	232	131	103	130	157	131	159	167	61.44
18:00-19:00	896.38	350.28	19.1	1927	3337	2.29	233	132	103	127	154	144	157	159	69.80
19:00-20:00	909.54	274.99	17.8	1928	3344	2.37	234	133	104	130	154	137	160	160	

E-239

Extended Run
LEC Run 920430

Starting
04-30-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
20:00-21:00	797.30	204.27	18.5	1889	3311	2.47	234	133	111	133	165	171	162	161	74.37
21:00-22:00	792.47	217.78	18.0	1880	3298	2.56	233	133	117	132	164	172	161	161	72.52
22:00-23:00	766.80	212.56	17.7	1874	3265	2.65	230	129	113	129	160	161	158	158	72.28
23:00-00:00	685.79	190.31	17.8	1870	3240	2.64	222	127	108	124	163	162	156	156	72.28

05-02-92

00:00-01:00	670.11	200.13	17.2	1883	3247	2.49	226	130	117	147	155	140	154	155	70.11
01:00-02:00	723.21	202.62	16.7	1919	3317	2.44	225	137	120	128	154	140	152	159	71.87
02:00-03:00	766.90	211.22	16.4	1919	3290	2.40	223	129	119	121	156	150	150	153	72.45
03:00-04:00	749.73	211.88	16.5	1912	3252	2.35	222	121	114	129	151	139	149	157	71.74
04:00-05:00	776.33	218.80	16.6	1919	3261	2.26	222	121	111	121	150	136	150	163	71.83
05:00-06:00	767.38	214.49	16.3	1955	3283	2.24	221	119	116	119	150	136	148	163	72.04
06:00-07:00	750.32	215.52	16.1	1949	3286	2.24	220	123	118	129	159	143	148	155	71.27
07:00-08:00	759.43	221.26	16.3	1933	3301	2.24	221	132	118	142	156	147	156	160	70.87
08:00-09:00	795.38	219.35	17.0	1935	3268	2.29	223	122	115	135	153	130	152	165	72.40
09:00-10:00	866.80	268.35	16.6	1933	3260	2.31	224	127	118	135	148	137	153	162	69.05
10:00-11:00	924.93	309.63	16.0	1934	3287	2.34	242	145	117	124	157	143	157	160	66.51
11:00-12:00	824.40	164.14	17.8	1903	3260	2.31	232	128	121	124	165	158	159	154	80.64
12:00-13:00	890.87	271.82	18.1	1890	3262	2.37	230	129	115	129	166	165	158	158	69.61
13:00-14:00	857.87	291.21	17.4	1876	3238	2.53	230	129	111	129	172	171	158	158	65.90
14:00-15:00	823.20	291.24	16.9	1956	3309	2.84	226	126	117	126	168	166	155	155	64.63
15:00-16:00	793.20	274.45	16.8	1939	3288	2.89	221	124	114	124	166	155	153	153	65.41
16:00-17:00	783.45	249.12	16.7	1965	3296	2.93	223	123	107	123	164	128	152	152	68.21
17:00-18:00	820.40	292.61	16.4	1977	3311	2.91	223	122	117	140	156	119	151	151	64.32
18:00-19:00	747.60	307.09	16.2	1971	3316	2.78	217	122	119	137	157	131	150	150	58.92
19:00-20:00	830.65	277.11	16.1	1990	3321	2.66	212	119	118	124	154	134	148	151	66.67
20:00-21:00	804.88	278.56	15.9	1973	3371	2.64	204	117	116	118	150	139	146	152	65.47
21:00-22:00	747.65	226.68	16.8	1959	3582	2.72	195	121	108	122	150	128	151	155	69.68
22:00-23:00	769.83	242.12	16.9	1970	3583	2.68	205	124	107	124	153	125	153	154	68.55
23:00-00:00	788.11	252.08	17.0	1968	3594	2.70	213	126	108	126	155	132	155	155	67.99

05-03-92

00:00-01:00	812.15	250.01	16.9	1933	3445	2.83	198	124	106	124	159	147	154	154	69.22
01:00-02:00	871.05	249.61	16.5	1947	3641	2.95	203	122	96	122	166	142	150	151	71.34
02:00-03:00	905.75	270.27	15.9	1967	3607	2.95	212	120	93	120	163	149	148	150	70.13
03:00-04:00	829.45	264.60	16.5	1945	3627	2.94	203	121	92	120	164	149	146	150	68.12
04:00-05:00	818.23	254.29	16.2	1922	3609	2.95	194	120	90	119	159	142	135	149	68.90
05:00-06:00	910.95	289.37	16.3	1932	3609	2.95	201	121	92	120	162	126	129	150	68.15
06:00-07:00	854.95	263.34	17.1	1917	3627	2.88	202	123	93	116	165	126	150	152	69.22

E-240

Extended Run
LEC Run 920430

Starting
04-30-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
07:00-08:00	889.97	281.60	17.0	1931	3656	2.82	196	124	94	115	162	138	150	152	68.38
08:00-09:00	989.94	325.07	16.8	1946	3667	2.74	203	122	92	120	158	145	150	151	67.13
09:00-10:00	992.18	275.43	15.9	1933	3460	2.78	207	121	92	121	164	148	150	150	72.23
10:00-11:00	980.52	285.84	16.6	1915	3286	2.85	198	125	95	118	157	138	153	152	70.83
11:00-12:00	978.85	276.23	17.2	1999	3442	3.14	201	128	97	113	160	133	138	150	71.78
12:00-13:00	898.00	267.98	17.5	2004	3505	3.23	201	128	99	108	163	118	128	148	64.32
13:00-14:00	910.13	241.60	17.6	2021	3582	3.26	202	128	100	106	156	106	113	148	73.49
14:00-15:00	872.22	221.57	17.8	2031	3554	3.42	202	126	100	119	148	116	106	141	74.60
15:00-16:00	842.85	224.62	18.2	2012	3538	3.48	202	128	101	120	155	113	106	137	73.31
16:00-17:00	842.50	186.22	18.0	2031	3515	3.57	202	127	100	114	145	110	103	141	77.90
17:00-18:00	867.15	212.10	17.3	2031	3769	3.52	199	125	103	126	148	120	118	148	75.53
18:00-19:00	906.85	258.54	16.5	2056	3750	3.56	200	123	118	124	151	124	122	153	71.47
19:00-20:00	989.28	232.72	16.6	2065	3738	3.63	204	120	115	120	142	120	119	149	75.37
20:00-21:00	1055.70	362.23	15.5	2028	3653	3.72	201	121	115	-8	139	129	124	151	64.99
21:00-22:00	1020.90	340.27	15.5	2000	3479	3.78	196	121	112	121	154	121	128	149	66.71
22:00-23:00	977.68	307.82	15.7	1973	3471	3.78	194	121	106	121	160	121	123	150	68.51
23:00-00:00	1025.25	293.29	15.1	2001	3456	3.59	200	119	110	119	151	119	110	148	70.90

05-04-92

00:00-01:00	995.83	302.98	14.7	2035	3457	3.53	215	116	113	116	139	116	140	145	69.55
01:00-02:00	998.52	337.02	14.2	2025	3431	3.53	210	114	113	113	136	118	136	148	66.27
02:00-03:00	954.30	290.16	15.1	2032	3481	3.60	205	115	112	115	140	129	140	145	69.58
03:00-04:00	996.02	302.64	16.0	2007	3491	3.57	196	120	97	120	126	131	135	147	69.60
04:00-05:00	1069.62	380.34	15.5	1964	3456	3.75	199	121	95	121	161	121	128	149	64.46
05:00-06:00	1166.48	338.09	15.1	1317	2728	2.32	217	120	92	120	158	121	124	149	71.01
06:00-07:00	1335.80	337.03	14.7	1154	2529	1.88	223	119	94	119	149	119	119	148	74.78
07:00-08:00	1345.57	386.77	14.3	1691	3000	2.44	219	113	90	113	140	117	119	147	71.38
08:00-09:00	1321.98	414.54	13.5	1901	3245	3.06	215	113	100	113	157	115	131	146	68.78
09:00-10:00	1046.02	257.64	14.2	1896	3290	3.22	211	113	88	113	157	113	117	145	75.40
10:00-11:00	1084.37	305.34	14.4	1858	3265	3.32	203	116	86	115	157	133	134	145	71.79
11:00-12:00	1279.08	339.31	16.8	1870	3227	2.12	199	114	109	114	156	115	136	146	73.58
12:00-13:00	1230.29	311.89	17.9	1846	3283	2.83	206	118	96	107	138	119	121	148	74.58
13:00-14:00	1169.02	376.27	17.7	1893	3361	3.23	197	119	94	101	128	123	123	129	67.77
14:00-15:00	1232.55	431.04	17.2	1917	3399	3.26	205	123	95	109	135	124	130	147	65.04
15:00-16:00	1171.58	455.62	16.4	1920	3388	3.57	217	120	93	116	144	120	143	128	61.12
16:00-17:00	1102.97	394.84	16.3	1891	3328	4.19	218	119	92	118	149	119	123	119	64.13
17:00-18:00	1166.83	386.36	16.6	1852	3232	4.49	220	119	93	118	153	119	142	137	66.92
18:00-19:00	1157.20	355.18	16.8	1947	3283	4.70	221	119	93	118	138	119	133	143	69.34
19:00-20:00	1101.71	349.50	16.9	1776	2938	1.88	227	119	100	119	143	120	141	130	67.52
20:00-21:00	1103.97	327.07	17.3	1485	2854	1.88	222	121	107	121	149	139	150	124	70.40

E-241

Extended Run
LEC Run 920430

Starting
04-30-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (ecfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
21:00-22:00	1126.72	306.46	17.9	1422	2807	3.46	217	122	103	122	141	134	150	150	72.50
22:00-23:00	1279.02	256.88	19.3	1524	3033	3.62	213	121	93	111	125	122	128	125	79.30
23:00-00:00	1225.05	309.65	16.9	1676	3096	3.40	209	116	106	115	136	117	144	126	74.03

05-05-92

00:00-01:00	1381.03	376.30	14.7	1719	2917	3.40	222	106	81	108	120	124	125	125	72.72
01:00-02:00	1278.85	318.27	15.8	1657	2885	3.07	235	112	84	113	126	147	140	137	75.16
02:00-03:00	1315.58	320.63	17.3	1573	2835	3.15	223	116	89	115	119	164	122	128	75.64
03:00-04:00	1389.10	351.23	17.0	1402	2613	2.98	233	113	90	113	122	122	123	134	74.75
04:00-05:00	1370.05	316.83	17.3	1225	2417	2.34	233	109	91	119	121	150	125	137	76.93
05:00-06:00	1374.38	300.71	17.9	1196	2444	2.29	225	98	90	117	123	152	123	144	78.10
06:00-07:00	1453.78	325.09	17.8	1192	2578	2.06	226	98	91	115	124	133	124	146	77.64
07:00-08:00	1481.28	365.14	16.9	1440	2787	1.72	241	110	89	117	125	155	128	149	75.35
08:00-09:00	1483.33	369.04	17.7	1627	3095	3.06	252	119	91	115	150	165	151	158	75.12
09:00-10:00	1473.76	413.20	18.4	1633	3192	3.63	256	124	95	113	157	160	154	167	71.96
10:00-11:00	1329.44	318.63	17.7	1575	3051	3.88	252	121	100	121	161	141	162	155	76.04
11:00-12:00	1312.28	269.46	18.3	1542	3000	4.02	253	122	101	122	150	123	154	150	79.43
12:00-13:00	1256.95	257.21	18.8	1578	2890	3.73	253	122	95	114	125	141	151	128	79.55
13:00-14:00	1084.37	280.13	17.9	1615	2906	3.69	250	118	91	113	129	152	149	120	73.38
14:00-15:00	749.98*	277.98	18.2	1576	3006	2.97	252	108	89	110	131	126	142	121	62.85
15:00-16:00	1109.35	295.85	17.8	1605	3032	3.17	254	118	91	117	153	147	150	15	68.15
16:00-17:00	1898.73*	258.25	18.0	1543	2883	3.64	254	119	90	110	149	146	156	147	86.36
17:00-18:00	2006.13*	267.82	18.3	1500	2797	3.81	256	121	94	120	161	167	164	153	86.64
18:00-19:00	2030.58*	247.00	17.0	1507	2901	3.89	261	116	113	115	159	154	159	148	87.86
19:00-20:00	1738.60*	227.23	16.8	1533	2912	3.77	254	114	113	113	149	145	157	152	84.34
20:00-21:00	1133.98	277.31	16.1	1512	2819	3.61	242	117	111	116	155	166	155	155	75.50
21:00-22:00	1085.08	277.57	16.8	1482	2697	3.69	244	117	113	121	156	159	157	151	74.42

E-242

SCREEN ANALYSIS OF 9204301137 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	6.5	0.42	0.500	0.0084
+3/8	0.375	318.7	20.47	0.438	0.4679
+5/16	0.313	421.6	27.08	0.344	0.7872
+1/4	0.250	352.0	22.61	0.282	0.8032
+3/5	0.223	145.7	9.36	0.237	0.3957
+4	0.185	134.4	8.63	0.204	0.4232
+5	0.157	97.3	6.25	0.171	0.3655
+6	0.132	43.9	2.82	0.145	0.1951
+8	0.094	18.7	1.20	0.113	0.1064
+10	0.079	1.5	0.10	0.086	0.0112
+12	0.066	1.0	0.06	0.072	0.0089
+14	0.056	0.5	0.03	0.061	0.0053
+16	0.047	0.7	0.04	0.051	0.0088
+20	0.033	0.7	0.04	0.040	0.0112
-20		13.6	0.87	0.017	0.5278
Total =		1556.8	100.00		4.1259

Harmonic Mean Diameter (in.) = 0.2424
Weighted Average Diameter (in.) = 0.3047

SCREEN ANALYSIS OF 9204301141 REACTOR STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	1.4	0.06	0.500	0.0012
+3/8	0.375	327.1	13.46	0.438	0.3078
+5/16	0.313	510.0	20.99	0.344	0.6103
+1/4	0.250	548.7	22.59	0.282	0.8024
+3.5	0.223	261.7	10.77	0.237	0.4555
+4	0.185	289.3	11.91	0.204	0.5838
+5	0.157	241.1	9.92	0.171	0.5804
+6	0.132	126.1	5.19	0.145	0.3592
+8	0.094	64.1	2.64	0.113	0.2338
+10	0.079	7.3	0.30	0.086	0.0349
+12	0.066	5.1	0.21	0.072	0.0290
+14	0.056	3.9	0.16	0.061	0.0264
+16	0.047	1.6	0.07	0.051	0.0129
+20	0.033	4.0	0.16	0.040	0.0412
+25	0.0278	3.6	0.15	0.030	0.0487
+30	0.0234	0.7	0.03	0.026	0.0113
+35	0.0195	0.7	0.03	0.021	0.0134
+40	0.0165	0.5	0.02	0.018	0.0114
+45	0.0139	0.4	0.02	0.015	0.0108
+50	0.0117	2.3	0.09	0.013	0.0740
+60	0.0098	2.1	0.09	0.011	0.0804
-60		27.6	1.14	0.005	2.3186
Total =		2429.3	100.0		6.6472

Harmonic Mean Diameter (in.) = 0.1504
Weighted Average Diameter (in.) = 0.2730

LEC RUN 920430

Waste Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Dust Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
4/30/92			
08:40 AM	25	40.8	1.63
08:56 AM	16	33.0	2.06
09:17 AM	21	31.5	1.50
09:55 AM	38	65.0	1.71
10:18 AM	23	35.4	1.54
11:03 AM	45	36.4	0.81
11:28 AM	25	26.0	1.04
11:52 AM	24	26.0	1.08
12:38 PM	46	57.0	1.24
01:14 PM	36	43.1	1.20
03:08 PM	54	35.9	0.67
03:45 PM	37	37.4	1.01
04:26 PM	41	46.1	1.12
04:49 PM	23	25.4	1.11
05:27 PM	38	55.6	1.46
06:00 PM	33	42.5	1.29
07:22 PM	22	40.8	1.85
08:14 PM	52	41.6	0.80
09:08 PM	54	34.2	0.63
10:13 PM	65	47.3	0.73
11:09 PM	56	41.6	0.74
Daily Total:		842.6	
Daily Average:			1.20

5/1/92			
12:20 AM	10	43.1	4.31
02:00 AM	100	57.6	0.58
03:25 AM	85	44.3	0.52
04:49 AM	84	41.7	0.50
06:06 AM	77	37.1	0.48
07:12 AM	66	37.6	0.57
08:30 AM	78	15.5	0.20
10:00 AM	90	36.6	0.41
10:51 AM	51	26.3	0.52
11:30 AM	39	17.7	0.45
12:45 PM	75	24.9	0.33
02:08 PM	83	41.1	0.50
02:47 PM	39	22.5	0.58
04:44 PM	117	68.0	0.58
06:26 PM	102	68.4	0.67
08:02 PM	96	71.0	0.74
09:21 PM	19	53.0	2.79
10:37 PM	76	30.5	0.40
11:59 PM	82	36.4	0.44

LEC RUN 920430

Waste Production Log

<u>Time</u> <u>Collected</u>	<u>Collection</u> <u>Time (min)</u>	<u>Dust Collected</u> <u>(lbs)</u>	<u>Mass Rate</u> <u>(lbs/min)</u>
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5/1/92

Daily Total: 773.2

Daily Average: 0.82

5/2/92

01:33 AM	33	40.3	1.22
02:37 AM	64	42.3	0.66
03:43 AM	66	33.7	0.51
05:03 AM	80	35.5	0.44
06:23 AM	80	36.5	0.46
07:30 AM	67	27.3	0.41
08:35 AM	65	26.3	0.40
09:50 AM	75	13.5	0.18
11:00 AM	70	28.6	0.41
12:45 PM	45	40.3	0.90
02:43 PM	118	35.8	0.30
04:40 PM	117	45.4	0.39
07:04 PM	144	42.3	0.29
08:49 PM	105	50.3	0.48
10:37 PM	108	39.0	0.36

Daily Total: 537.2

Daily Average: 0.49

5/3/92

12:08 AM	90	29.1	0.32
02:08 AM	120	25.2	0.21
04:08 AM	120	22.6	0.19
09:18 AM	310	32.5	0.10
11:42 AM	84	27.8	0.33
02:05 PM	143	32.6	0.23
04:08 PM	63	36.3	0.58
05:21 PM	73	43.7	0.60
07:05 PM	104	37.2	0.36
08:02 PM	57	15.9	0.28
10:00 PM	118	33.6	0.28
11:50 PM	50	43.7	0.87

Daily Total: 380.0

Daily Average: 0.36

5/4/92

01:31 AM	40	37.8	0.95
02:50 AM	19	38.3	2.01

LEC RUN 920430

Waste Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Dust Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
5/4/92			
04:03 AM	13	29.3	2.26
06:58 AM	55	28.5	0.52
11:35 AM	37	18.1	0.49
02:30 PM	55	72.0	1.31
03:51 PM	21	33.7	1.61
05:53 PM	2	42.6	21.29
07:12 PM	19	31.6	1.66
08:24 PM	12	37.7	3.14
10:02 PM	38	36.4	0.96
11:30 PM	28	30.2	1.08
Daily Total:		436.2	
Daily Average:			3.11
5/5/92			
01:08 AM	37	43.9	1.19
01:47 AM	39	32.0	0.82
02:33 AM	46	28.0	0.61
04:04 AM	31	37.9	1.22
05:27 AM	23	32.2	1.40
06:35 AM	8	33.8	4.22
07:45 AM	10	28.7	2.87
08:50 AM	5	23.6	4.71
10:19 AM	29	23.4	0.81
10:53 AM	34	22.3	0.65
12:41 PM	48	22.7	0.47
03:39 PM	58	36.3	0.63
05:17 PM	38	53.9	1.42
07:04 PM	47	55.8	1.19
08:19 PM	15	51.5	3.43
09:48 PM	29	58.3	2.01
Daily Total:		584.1	
Daily Average:			1.73
Run Total:		3553.3	
Run Average:			1.24

LEC RUN 920430
Carry-Over Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Stone Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
4/30/92			
11:30 AM	3	2.0	0.67
5/1/92			
01:23 PM	1493	2.0	NA
5/2/92			
12:45 PM	1478	2.0	0.00
02:14 PM	89	2.0	0.02
Daily Total:		4.0	
Daily Average:			0.01
5/3/92			
12:35 PM	1365	2.0	0.00
01:21 PM	46	15.0	0.33
02:01 PM	40	15.0	0.38
02:12 PM	11	25.0	2.27
02:35 PM	23	40.3	1.75
02:58 PM	23	39.8	1.73
03:10 PM	12	22.2	1.85
03:28 PM	18	33.5	1.86
03:43 PM	15	9.4	0.62
04:06 PM	23	32.2	1.40
05:00 PM	54	47.5	0.88
05:20 PM	20	30.4	1.52
05:43 PM	23	32.3	1.40
05:54 PM	11	19.2	1.75
06:22 PM	28	39.1	1.40
06:47 PM	25	33.5	1.34
07:01 PM	14	23.9	1.71
07:15 PM	14	24.5	1.75
07:36 PM	21	28.4	1.35
07:58 PM	22	34.7	1.58
08:28 PM	30	34.4	1.15
08:55 PM	27	45.5	1.69
09:27 PM	32	48.3	1.51
09:47 PM	20	43.0	2.15
10:00 PM	13	36.5	2.81
10:17 PM	17	35.5	2.09
10:32 PM	15	33.6	2.24
10:46 PM	14	35.1	2.50
11:01 PM	15	41.8	2.79
11:10 PM	9	47.8	5.32
11:31 PM	21	32.0	1.52
11:46 PM	15	29.4	1.96

LEC RUN 920430
Carry-Over Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Stone Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
5/3/92			
Daily Total:		1011.0	
Daily Average:			1.71
5/4/92			
12:01 AM	13	33.6	2.58
12:15 AM	14	37.0	2.64
12:30 AM	15	53.6	3.57
12:45 AM	15	32.8	2.18
01:00 AM	15	16.8	1.12
01:15 AM	15	31.5	2.10
01:30 AM	15	32.7	2.18
01:45 AM	15	20.5	1.37
02:00 AM	15	21.2	1.41
02:15 AM	15	17.6	1.17
02:30 AM	15	18.4	1.23
02:45 AM	15	16.5	1.10
03:00 AM	15	26.6	1.77
03:15 AM	15	20.4	1.36
03:30 AM	15	27.1	1.80
03:45 AM	15	48.6	3.24
04:00 AM	15	36.8	2.45
04:15 AM	15	41.0	2.73
04:30 AM	15	50.0	3.33
04:45 AM	15	63.7	4.25
05:00 AM	15	46.8	3.12
05:05 AM	5	41.6	8.32
05:15 AM	10	30.2	3.02
07:37 AM	82	31.1	0.38
08:45 AM	68	17.8	0.26
09:05 AM	20	28.7	1.43
09:15 AM	10	15.3	1.53
09:30 AM	15	34.0	2.27
09:45 AM	15	25.4	1.69
10:56 AM	71	14.9	0.21
11:56 AM	60	29.8	0.50
12:19 PM	23	31.1	1.35
12:43 PM	24	17.3	0.72
01:06 PM	23	19.7	0.85
01:25 PM	19	13.7	0.72
01:37 PM	12	7.2	0.60
02:02 PM	25	25.0	1.00
02:47 PM	45	12.2	0.27
03:17 PM	30	8.1	0.27
03:49 PM	32	24.0	0.75
04:16 PM	27	30.8	1.14
04:40 PM	24	43.5	1.81
05:07 PM	27	42.6	1.58

LEC RUN 920430
Carry-Over Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Stone Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
5/4/92			
05:31 PM	24	36.3	1.51
05:52 PM	21	34.1	1.62
06:17 PM	25	36.3	1.45
06:32 PM	15	59.4	3.96
08:53 PM	81	30.7	0.38
10:01 PM	68	27.5	0.40
10:32 PM	31	18.5	0.60
11:13 PM	41	42.2	1.03
Daily Total:		1522.0	
Daily Average:			1.73
5/5/92			
12:00 AM	46	9.7	0.21
03:12 AM	132	31.5	0.24
03:20 AM	8	33.9	4.24
08:50 AM	270	27.2	0.10
09:22 AM	32	17.7	0.55
09:43 AM	21	15.4	0.73
09:56 AM	13	25.0	1.92
10:03 AM	7	18.2	2.60
10:19 AM	16	21.6	1.35
10:37 AM	18	30.8	1.71
10:53 AM	16	17.0	1.06
11:07 AM	14	13.2	0.94
11:22 AM	15	17.9	1.20
11:35 AM	13	20.8	1.60
11:52 AM	17	14.6	0.86
12:27 PM	35	25.5	0.73
01:10 PM	43	28.6	0.66
01:31 PM	21	19.2	0.91
02:10 PM	39	18.8	0.48
02:48 PM	38	16.0	0.42
04:19 PM	31	23.0	0.74
05:14 PM	55	43.7	0.79
05:58 PM	44	37.4	0.85
06:44 PM	46	40.1	0.87
07:16 PM	32	37.6	1.17
07:47 PM	31	38.5	1.24
08:18 PM	31	23.0	0.74
09:01 PM	43	27.8	0.65
09:46 PM	45	25.9	0.58
Daily Total:		719.3	
Daily Average:			1.04
Run Total:		3260.3	
Run Average:			1.50

SCREEN ANALYSIS OF 9205010911 REACTOR STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	144.4	11.81	0.438	0.2698
+5/16	0.313	257.6	21.06	0.344	0.6122
+1/4	0.250	305.6	24.98	0.282	0.8875
+3.5	0.223	136.5	11.16	0.237	0.4719
+4	0.185	154.5	12.63	0.204	0.6192
+5	0.157	126.2	10.32	0.171	0.6033
+6	0.132	69.6	5.69	0.145	0.3938
+8	0.094	23.6	1.93	0.113	0.1710
+10	0.079	1.6	0.13	0.086	0.0152
+12	0.066	0.4	0.03	0.072	0.0045
+14	0.056	0.1	0.01	0.061	0.0013
+16	0.047	0.0	0.00	0.051	0.0000
+20	0.033	0.0	0.00	0.040	0.0000
-20		3.1	0.25	0.017	0.1531
Total =		1223.2	100.00		4.2028

Harmonic Mean Diameter (in.) = 0.2379
Weighted Average Diameter (in.) = 0.2748

SCREEN ANALYSIS OF 9205010912 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	341.0	17.32	0.438	0.3959
+5/16	0.313	599.7	30.46	0.344	0.8856
+1/4	0.250	501.4	25.47	0.282	0.9048
+3.5	0.223	177.5	9.02	0.237	0.3812
+4	0.185	160.5	8.15	0.204	0.3997
+5	0.157	119.5	6.07	0.171	0.3550
+6	0.132	51.7	2.63	0.145	0.1817
+8	0.094	13.1	0.67	0.113	0.0590
+10	0.079	0.6	0.03	0.086	0.0035
+12	0.066	0.5	0.03	0.072	0.0035
+14	0.056	0.0	0.00	0.061	0.0000
+16	0.047	0.2	0.01	0.051	0.0020
+20	0.033	0.3	0.02	0.040	0.0038
-20		2.6	0.13	0.017	0.0798
Total =		1968.6	100.00		3.6555

Harmonic Mean Diameter (in.) = 0.2736
Weighted Average Diameter (in.) = 0.3052

SCREEN ANALYSIS OF 9205011245 DUTCHMAN STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	0.0	0.00	0.438	0.0000
+5/16	0.313	3.9	0.41	0.344	0.0121
+1/4	0.250	17.8	1.89	0.282	0.0673
+3.5	0.223	41.3	4.39	0.237	0.1858
+4	0.185	118.3	12.59	0.204	0.6170
+5	0.157	227.6	24.22	0.171	1.4161
+6	0.132	404.0	42.98	0.145	2.9746
+8	0.094	0.0	0.00	0.113	0.0000
+10	0.079	14.8	1.57	0.086	0.1827
+12	0.066	14.0	1.49	0.072	0.2057
+14	0.056	17.4	1.85	0.061	0.3045
+16	0.047	10.7	1.14	0.051	0.2223
+20	0.033	25.6	2.72	0.040	0.6809
+25	0.0278	9.1	0.97	0.030	0.3180
+30	0.0234	8.0	0.85	0.026	0.3325
+35	0.0195	7.0	0.74	0.021	0.3472
+40	0.0165	5.6	0.60	0.018	0.3310
+45	0.0139	3.6	0.38	0.015	0.2520
+50	0.0117	2.7	0.29	0.013	0.2244
+60	0.0098	2.0	0.21	0.011	0.1979
-60		6.5	0.69	0.005	1.4114
Total =		939.9	100.0		10.2834

Harmonic Mean Diameter (in.) = 0.0972
Weighted Average Diameter (in.) = 0.1525

SCREEN ANALYSIS OF 9205011631 REACTOR STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	81.9	9.90	0.438	0.2263
+5/16	0.313	164.4	19.87	0.344	0.5776
+1/4	0.250	174.1	21.04	0.282	0.7475
+3.5	0.223	97.4	11.77	0.237	0.4978
+4	0.185	112.3	13.57	0.204	0.6653
+5	0.157	97.4	11.77	0.171	0.6884
+6	0.132	89.6	10.83	0.145	0.7494
+8	0.094	0.0	0.00	0.113	0.0000
+10	0.079	1.4	0.17	0.086	0.0196
+12	0.066	1.3	0.16	0.072	0.0217
+14	0.056	0.8	0.10	0.061	0.0159
+16	0.047	0.9	0.11	0.051	0.0212
+20	0.033	0.7	0.08	0.040	0.0212
-20		5.2	0.63	0.017	0.3797
Total =		827.4	100.00		4.6316
Harmonic Mean Diameter (in.) =			0.2159		
Weighted Average Diameter (in.) =			0.2627		

SCREEN ANALYSIS OF 9205020200 REACTOR STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	61.0	13.43	0.438	0.3070
+5/16	0.313	74.1	16.31	0.344	0.4743
+1/4	0.250	100.7	22.17	0.282	0.7876
+3.5	0.223	60.2	13.25	0.237	0.5604
+4	0.185	63.6	14.00	0.204	0.6864
+5	0.157	54.3	11.96	0.171	0.6991
+6	0.132	24.3	5.35	0.145	0.3702
+8	0.094	10.9	2.40	0.113	0.2127
+10	0.079	0.7	0.15	0.086	0.0179
+12	0.066	0.6	0.13	0.072	0.0182
+14	0.056	0.0	0.00	0.061	0.0000
+16	0.047	0.5	0.11	0.051	0.0215
+20	0.033	0.4	0.09	0.040	0.0220
-20	0.0278	2.9	0.64	0.030	0.2097
Total =		454.2	100.0		4.3870

Harmonic Mean Diameter (in.) = 0.2279
Weighted Average Diameter (in.) = 0.2686

SCREEN ANALYSIS OF 9205021000 DUTCHMAN STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	1.6	0.26	0.438	0.0059
+5/16	0.313	2.0	0.32	0.344	0.0093
+1/4	0.250	20.7	3.31	0.282	0.1177
+3.5	0.223	35.0	5.60	0.237	0.2370
+4	0.185	75.7	12.12	0.204	0.5942
+5	0.157	146.4	23.44	0.171	1.3709
+6	0.132	142.1	22.75	0.145	1.5747
+8	0.094	99.1	15.87	0.113	1.4062
+10	0.079	10.2	1.63	0.086	0.1895
+12	0.066	10.1	1.62	0.072	0.2234
+14	0.056	12.4	1.99	0.061	0.3266
+16	0.047	8.7	1.39	0.051	0.2721
+20	0.033	22.8	3.65	0.040	0.9127
+25	0.0278	9.1	1.46	0.030	0.4785
+30	0.0234	6.3	1.01	0.026	0.3941
+35	0.0195	6.4	1.02	0.021	0.4778
+40	0.0165	5.1	0.82	0.018	0.4537
+45	0.0139	3.5	0.56	0.015	0.3687
+50	0.0117	2.6	0.42	0.013	0.3253
+60	0.0098	1.4	0.22	0.011	0.2085
-60		3.3	0.53	0.005	1.0784
Total =		624.5	100.0		11.0251

Harmonic Mean Diameter (in.) = 0.0907
Weighted Average Diameter (in.) = 0.1476

SCREEN ANALYSIS OF 9205021043 REACTOR STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	76.0	8.49	0.438	0.1942
+5/16	0.313	194.0	21.68	0.344	0.6303
+1/4	0.250	216.9	24.24	0.282	0.8612
+3.5	0.223	104.9	11.72	0.237	0.4958
+4	0.185	113.7	12.71	0.204	0.6229
+5	0.157	106.3	11.88	0.171	0.6948
+6	0.132	57.8	6.46	0.145	0.4471
+8	0.094	19.0	2.12	0.113	0.1882
+10	0.079	0.6	0.07	0.086	0.0078
+12	0.066	0.3	0.03	0.072	0.0046
+14	0.056	0.1	0.01	0.061	0.0018
+16	0.047	0.3	0.03	0.051	0.0065
+20	0.033	0.1	0.01	0.040	0.0028
-20		4.7	0.53	0.017	0.3174
Total =		894.7	100.00		4.4755

Harmonic Mean Diameter (in.) = 0.2234
Weighted Average Diameter (in.) = 0.2659

SCREEN ANALYSIS OF 9205021414 DUTCHMAN STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	0.0	0.00	0.438	0.0000
+5/16	0.313	4.3	0.48	0.344	0.0139
+1/4	0.250	40.7	4.52	0.282	0.1605
+3.5	0.223	73.1	8.12	0.237	0.3432
+4	0.185	136.2	15.12	0.204	0.7413
+5	0.157	215.5	23.93	0.171	1.3993
+6	0.132	337.0	37.42	0.145	2.5896
+8	0.094	0.0	0.00	0.113	0.0000
+10	0.079	11.7	1.30	0.086	0.1507
+12	0.066	12.3	1.37	0.072	0.1886
+14	0.056	14.3	1.59	0.061	0.2612
+16	0.047	9.4	1.04	0.051	0.2039
+20	0.033	19.8	2.20	0.040	0.5496
-20		26.3	2.92	0.017	1.7645
Total =		900.6	100.00		8.3664

Harmonic Mean Diameter (in.) = 0.1195
Weighted Average Diameter (in.) = 0.1644

SCREEN ANALYSIS OF 9205030238 REACTOR STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	60.0	13.47	0.438	0.3078
+5/16	0.313	80.4	18.05	0.344	0.5246
+1/4	0.250	104.6	23.52	0.282	0.6357
+3/5	0.223	54.1	12.14	0.237	0.5135
+4	0.185	56.7	12.73	0.204	0.6239
+5	0.157	47.8	10.73	0.171	0.6275
+6	0.132	30.5	6.85	0.145	0.4738
+8	0.094	9.4	2.11	0.113	0.1870
+10	0.079	0.0	0.00	0.086	0.0000
+12	0.066	0.0	0.00	0.072	0.0000
+14	0.056	0.3	0.07	0.061	0.0111
+16	0.047	0.0	0.00	0.051	0.0000
+20	0.033	0.0	0.00	0.040	0.0000
-20		1.5	0.34	0.017	0.2034
Total =		445.5	100.00		4.3082

Harmonic Mean Diameter (in.) = 0.2321
 Weighted Average Diameter (in.) = 0.2726

SCREEN ANALYSIS OF 9205031126 DUTCHMAN STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	14.1	0.84	0.438	0.0191
+5/16	0.313	85.7	5.08	0.344	0.1476
+1/4	0.250	261.1	15.47	0.282	0.5495
+3.5	0.223	205.0	12.15	0.237	0.5135
+4	0.185	324.1	19.20	0.204	0.9412
+5	0.157	384.8	22.80	0.171	1.3332
+6	0.132	408.9	24.23	0.145	1.6765
+8	0.094	0.0	0.00	0.113	0.0000
+10	0.079	2.0	0.12	0.086	0.0137
+12	0.066	1.1	0.07	0.072	0.0090
+14	0.056	0.3	0.02	0.061	0.0029
+16	0.047	0.1	0.01	0.051	0.0012
+20	0.033	0.1	0.01	0.040	0.0015
-20		0.6	0.04	0.017	0.0215
Total =		1687.9	100.00		5.2305

Harmonic Mean Diameter (in.) = 0.1912
Weighted Average Diameter (in.) = 0.2067

SCREEN ANALYSIS OF 9205040125 REACTOR STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	41.1	8.88	0.438	0.2029
+5/16	0.313	86.0	18.58	0.344	0.5401
+1/4	0.250	110.2	23.81	0.282	0.8457
+3.5	0.223	51.3	11.08	0.237	0.4686
+4	0.185	55.8	12.05	0.204	0.5909
+5	0.157	61.4	13.26	0.171	0.7757
+6	0.132	41.3	8.92	0.145	0.6174
+8	0.094	12.3	2.66	0.113	0.2355
+10	0.079	0.4	0.09	0.086	0.0100
+12	0.066	0.3	0.06	0.072	0.0090
+14	0.056	0.1	0.02	0.061	0.0036
+16	0.047	0.2	0.04	0.051	0.0084
+20	0.033	0.3	0.06	0.040	0.0162
-20		2.2	0.48	0.017	0.2872
Total =		462.9	100.00		4.6111

Harmonic Mean Diameter (in.) = 0.2169
Weighted Average Diameter (in.) = 0.2594

SCREEN ANALYSIS OF 9205040849 REACTOR STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	1.2	0.10	0.500	0.0019
+3/8	0.375	173.4	13.78	0.438	0.3149
+5/16	0.313	286.2	22.74	0.344	0.6610
+1/4	0.250	321.2	25.52	0.282	0.9065
+3.5	0.223	137.5	10.92	0.237	0.4619
+4	0.185	141.3	11.23	0.204	0.5503
+5	0.157	111.6	8.87	0.171	0.5185
+6	0.132	64.2	5.10	0.145	0.3530
+8	0.094	14.6	1.16	0.113	0.1028
+10	0.079	0.3	0.02	0.086	0.0028
+12	0.066	0.2	0.02	0.072	0.0022
+14	0.056	0.2	0.02	0.061	0.0026
+16	0.047	0.2	0.02	0.051	0.0031
+20	0.033	0.3	0.02	0.040	0.0060
-20		6.3	0.50	0.017	0.3024
Total =		1258.7	100.00		4.1898

Harmonic Mean Diameter (in.) = 0.2387
Weighted Average Diameter (in.) = 0.2835

SCREEN ANALYSIS OF 9205040849 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	2.1	0.15	0.500	0.0030
+3/8	0.375	237.6	17.08	0.438	0.3905
+5/16	0.313	371.2	26.69	0.344	0.7758
+1/4	0.250	357.2	25.68	0.282	0.9123
+3.5	0.223	141.0	10.14	0.237	0.4286
+4	0.185	133.7	9.61	0.204	0.4712
+5	0.157	96.2	6.92	0.171	0.4045
+6	0.132	41.5	2.98	0.145	0.2065
+8	0.094	6.1	0.44	0.113	0.0389
+10	0.079	0.2	0.01	0.086	0.0017
+12	0.066	0.1	0.01	0.072	0.0010
+14	0.056	0.1	0.01	0.061	0.0012
+16	0.047	0.1	0.01	0.051	0.0014
+20	0.033	0.2	0.01	0.040	0.0036
-20		3.6	0.26	0.017	0.1564
Total =		1390.9	100.00		3.7965

Harmonic Mean Diameter (in.) = 0.2634
Weighted Average Diameter (in.) = 0.2999

SCREEN ANALYSIS OF 9205040857 REACTOR STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	4.0	0.50	0.500	0.0100
+3/8	0.375	96.1	12.01	0.438	0.2746
+5/16	0.313	174.7	21.84	0.344	0.6349
+1/4	0.250	205.6	25.70	0.282	0.9131
+3.5	0.223	92.7	11.59	0.237	0.4900
+4	0.185	97.8	12.23	0.204	0.5993
+5	0.157	72.6	9.08	0.171	0.5308
+6	0.132	39.2	4.90	0.145	0.3391
+8	0.094	11.6	1.45	0.113	0.1285
+10	0.079	0.6	0.08	0.086	0.0087
+12	0.066	0.3	0.04	0.072	0.0052
+14	0.056	0.3	0.04	0.061	0.0062
+16	0.047	0.3	0.04	0.051	0.0073
+20	0.033	0.2	0.03	0.040	0.0063
-20		3.9	0.49	0.017	0.2946
Total =		799.9	100.00		4.2486
Harmonic Mean Diameter (in.) =			0.2354		
Weighted Average Diameter (in.) =			0.2794		

SCREEN ANALYSIS OF 9205040858 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	89.4	9.36	0.438	0.2140
+5/16	0.313	199.8	20.93	0.344	0.6084
+1/4	0.250	194.4	20.36	0.282	0.7234
+3.5	0.223	120.0	12.57	0.237	0.5315
+4	0.185	138.0	14.45	0.204	0.7086
+5	0.157	126.3	13.23	0.171	0.7736
+6	0.132	69.6	7.29	0.145	0.5045
+8	0.094	14.1	1.48	0.113	0.1309
+10	0.079	0.3	0.03	0.086	0.0036
+12	0.066	0.3	0.03	0.072	0.0043
+14	0.056	0.2	.02	0.061	0.0034
+16	0.047	0.1	0.01	0.051	0.0020
+20	0.033	0.4	0.04	0.040	0.0105
-20		1.8	0.19	0.017	0.1139
Total =		954.7	100.00		4.3327

Harmonic Mean Diameter (in.) = 0.2308
Weighted Average Diameter (in.) = 0.2644

SCREEN ANALYSIS OF 9205041325 DUTCHMAN STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	159.6	10.37	0.438	0.2370
+5/16	0.313	320.1	20.79	0.344	0.6045
+1/4	0.250	328.4	21.33	0.282	0.7578
+3.5	0.223	168.0	10.91	0.237	0.4615
+4	0.185	209.6	13.62	0.204	0.6674
+5	0.157	197.2	12.81	0.171	0.7491
+6	0.132	112.8	7.33	0.145	0.5071
+8	0.094	36.6	2.38	0.113	0.2107
+10	0.079	2.3	0.15	0.086	0.0173
+12	0.066	1.0	0.06	0.072	0.0090
+14	0.056	0.6	0.04	0.061	0.0064
+16	0.047	0.2	0.01	0.051	0.0025
+20	0.033	0.2	0.01	0.040	0.0032
-20		2.8	0.18	0.017	0.1099
Total =		1539.4	100.00		4.3435

Harmonic Mean Diameter (in.) = 0.2302
Weighted Average Diameter (in.) = 0.2659

SCREEN ANALYSIS OF 9205041500 REACTOR STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	56.8	6.05	0.438	0.1383
+5/16	0.313	146.9	15.65	0.344	0.4549
+1/4	0.250	223.9	23.85	0.282	0.8472
+3.5	0.223	128.6	13.70	0.237	0.5792
+4	0.185	135.8	14.47	0.204	0.7091
+5	0.157	133.6	14.23	0.171	0.8322
+6	0.132	80.0	8.52	0.145	0.5897
+8	0.094	22.1	2.35	0.113	0.2086
+10	0.079	1.9	0.20	0.086	0.0235
+12	0.066	0.0	0.00	0.072	0.0000
+14	0.056	0.6	0.06	0.061	0.0105
+16	0.047	0.5	0.05	0.051	0.0104
+20	0.033	0.4	0.04	0.040	0.0107
-20	0.0278	7.7	0.82	0.030	0.2694
Total =		938.8	100.0		4.6836

Harmonic Mean Diameter (in.) = 0.2135
Weighted Average Diameter (in.) = 0.2492

SCREEN ANALYSIS OF 9205041500 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	108.5	10.96	0.438	0.2506
+5/16	0.313	236.1	23.86	0.344	0.6936
+1/4	0.250	262.3	26.51	0.282	0.9416
+3.5	0.223	131.4	13.28	0.237	0.5614
+4	0.185	118.0	11.92	0.204	0.5845
+5	0.157	79.7	8.05	0.171	0.4710
+6	0.132	30.3	3.06	0.145	0.2119
+8	0.094	18.3	1.85	0.113	0.1639
+10	0.079	0.7	0.07	0.086	0.0082
+12	0.066	0.2	0.02	0.072	0.0028
+14	0.056	0.0	0.00	0.061	0.0000
+16	0.047	0.0	0.00	0.051	0.0000
+20	0.033	0.5	0.05	0.040	0.0126
-20		3.6	0.36	0.017	0.2198
Total =		989.6	100.00		4.1219

Harmonic Mean Diameter (in.) = 0.2426
 Weighted Average Diameter (in.) = 0.2808

SCREEN ANALYSIS OF 9205042056 REACTOR STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	92.4	9.34	0.438	0.2134
+5/16	0.313	172.8	17.46	0.344	0.5076
+1/4	0.250	217.9	22.02	0.282	0.7822
+3.5	0.223	102.4	10.35	0.237	0.4375
+4	0.185	109.7	11.09	0.204	0.5434
+5	0.157	105.2	10.63	0.171	0.6217
+6	0.132	60.3	6.09	0.145	0.4217
+8	0.094	14.4	1.46	0.113	0.1289
+10	0.079	5.5	0.56	0.086	0.0645
+12	0.066	0.9	0.09	0.072	0.0126
+14	0.056	0.5	0.05	0.061	0.0083
+16	0.047	0.4	0.04	0.051	0.0079
+20	0.033	0.4	0.04	0.040	0.0101
-20		2.3	0.23	0.017	0.1404
Total =		885.1	89.44		3.9002

Harmonic Mean Diameter (in.) = 0.2564
 Weighted Average Diameter (in.) = 0.2393

SCREEN ANALYSIS OF 9205042056 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	146.0	15.22	0.438	0.3478
+5/16	0.313	249.6	26.01	0.344	0.7562
+1/4	0.250	232.5	24.23	0.282	0.8608
+3.5	0.223	96.4	10.05	0.237	0.4248
+4	0.185	99.5	10.37	0.204	0.5083
+5	0.157	80.8	8.42	0.171	0.4925
+6	0.132	38.7	4.03	0.145	0.2791
+8	0.094	10.8	1.13	0.113	0.0997
+10	0.079	0.3	0.03	0.086	0.0036
+12	0.066	0.2	0.02	0.072	0.0029
+14	0.056	0.1	0.01	0.061	0.0017
+16	0.047	0.1	0.01	0.051	0.0020
+20	0.033	0.0	0.00	0.040	0.0000
-20		4.5	0.47	0.017	0.2834
Total =		959.5	100.00		4.0629

Harmonic Mean Diameter (in.) = 0.2461
Weighted Average Diameter (in.) = 0.2908

SCREEN ANALYSIS OF 9205042239 REACTOR STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	87.7	9.96	0.438	0.2278
+5/16	0.313	161.0	18.29	0.344	0.5318
+1/4	0.250	204.6	23.25	0.282	0.8258
+3.5	0.223	115.9	13.17	0.237	0.5568
+4	0.185	111.4	12.66	0.204	0.6204
+5	0.157	103.0	11.70	0.171	0.6844
+6	0.132	62.4	7.09	0.145	0.4906
+8	0.094	20.2	2.30	0.113	0.2034
+10	0.079	2.7	0.31	0.086	0.0356
+12	0.066	0.6	0.07	0.072	0.0094
+14	0.056	1.3	0.15	0.061	0.0250
+16	0.047	1.2	0.14	0.051	0.0266
+20	0.033	1.3	0.15	0.040	0.0369
-20		6.8	0.77	0.017	0.4668
Total =		880.1	100.00		4.7414

Harmonic Mean Diameter (in.) = 0.2109
Weighted Average Diameter (in.) = 0.2624

SCREEN ANALYSIS OF 9205042223 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	100.9	10.97	0.438	0.2507
+5/16	0.313	245.8	26.71	0.344	0.7766
+1/4	0.250	236.5	25.70	0.282	0.9131
+3.5	0.223	107.6	11.69	0.237	0.4945
+4	0.185	99.4	10.80	0.204	0.5296
+5	0.157	74.1	8.05	0.171	0.4710
+6	0.132	52.0	5.65	0.145	0.3911
+8	0.094	2.6	0.28	0.113	0.0250
+10	0.079	0.3	0.03	0.086	0.0038
+12	0.066	0.2	0.02	0.072	0.0030
+14	0.056	0.1	0.01	0.061	0.0018
+16	0.047	0.0	0.00	0.051	0.0000
+20	0.033	0.0	0.00	0.040	0.0000
-20		0.6	0.07	0.017	0.0394
Total =		920.1	100.00		3.8995

Harmonic Mean Diameter (in.) = 0.2564
Weighted Average Diameter (in.) = 0.2842

SCREEN ANALYSIS OF 9205050630 REACTOR STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	46.8	8.76	0.438	0.2002
+5/16	0.313	79.1	14.81	0.344	0.4304
+1/4	0.250	107.1	20.05	0.282	0.7122
+3.5	0.223	70.6	13.22	0.237	0.5588
+4	0.185	77.4	14.49	0.204	0.7102
+5	0.157	82.8	15.50	0.171	0.9064
+6	0.132	51.0	9.55	0.145	0.6607
+8	0.094	14.1	2.64	0.113	0.2339
+10	0.079	1.3	0.24	0.086	0.0282
+12	0.066	0.0	0.00	0.072	0.0000
+14	0.056	0.3	0.06	0.061	0.0092
+16	0.047	0.2	0.04	0.051	0.0073
+20	0.033	0.4	0.07	0.040	0.0187
-20		3.1	0.58	0.017	0.3506
Total =		534.2	100.00		4.8271

Harmonic Mean Diameter (in.) = 0.2072
Weighted Average Diameter (in.) = 0.2502

SCREEN ANALYSIS OF 9205051017 REACTOR SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	89.0	10.85	0.438	0.2480
+5/16	0.313	167.8	20.45	0.344	0.5946
+1/4	0.250	183.6	22.38	0.282	0.7950
+3.5	0.223	96.6	11.77	0.237	0.4979
+4	0.185	110.0	13.41	0.204	0.6573
+5	0.157	90.9	11.08	0.171	0.6480
+6	0.132	75.1	9.15	0.145	0.6335
+8	0.094	4.5	0.55	0.113	0.0486
+10	0.079	0.4	0.05	0.086	0.0057
+12	0.066	0.0	0.00	0.072	0.0000
+14	0.056	0.0	0.00	0.061	0.0000
+16	0.047	0.0	0.00	0.051	0.0000
+20	0.033	0.0	0.00	0.040	0.0000
-20		2.5	0.30	0.017	0.1841
Total =		820.4	100.00		4.3125
Harmonic Mean Diameter (in.) =			0.2319		
Weighted Average Diameter (in.) =			0.2689		

SCREEN ANALYSIS OF 9205051025 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	2.1	0.08	0.500	0.0015
+3/8	0.375	350.6	12.93	0.438	0.2955
+5/16	0.313	599.8	22.11	0.344	0.6429
+1/4	0.250	645.1	23.79	0.282	0.8449
+3.5	0.223	312.1	11.51	0.237	0.4866
+4	0.185	324.2	11.95	0.204	0.5860
+5	0.157	268.1	9.88	0.171	0.5781
+6	0.132	148.6	5.48	0.145	0.3792
+8	0.094	50.9	1.88	0.113	0.1663
+10	0.079	4.3	0.16	0.086	0.0184
+12	0.066	1.9	0.07	0.072	0.0097
+14	0.056	0.2	0.01	0.061	0.0012
+16	0.047	1.2	0.04	0.051	0.0086
+20	0.033	0.6	0.02	0.040	0.0055
-20		2.5	0.09	0.017	0.0557
Total =		2712.2	100.00		4.0800

Harmonic Mean Diameter (in.) = 0.2451
Weighted Average Diameter (in.) = 0.2787

SCREEN ANALYSIS OF 9205051027 REACTOR STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	4.6	0.15	0.500	0.0029
+3/8	0.375	324.3	10.27	0.438	0.2348
+5/16	0.313	641.0	20.30	0.344	0.5902
+1/4	0.250	808.4	25.60	0.282	0.9095
+3.5	0.223	378.5	11.99	0.237	0.5069
+4	0.185	389.8	12.35	0.204	0.6052
+5	0.157	331.3	10.49	0.171	0.6136
+6	0.132	187.7	5.94	0.145	0.4114
+8	0.094	63.7	2.02	0.113	0.1788
+10	0.079	4.0	0.13	0.086	0.0147
+12	0.066	2.8	0.09	0.072	0.0122
+14	0.056	2.7	0.09	0.061	0.0141
+16	0.047	2.5	0.08	0.051	0.0155
+20	0.033	5.1	0.16	0.040	0.0404
-20		11.0	0.35	0.017	0.2105
Total =		3157.4	100.00		4.3606

Harmonic Mean Diameter (in.) = 0.2293
 Weighted Average Diameter (in.) = 0.2703

SCREEN ANALYSIS OF 9205051033 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	142.1	13.86	0.438	0.3168
+5/16	0.313	249.6	24.34	0.344	0.7077
+1/4	0.250	246.4	24.03	0.282	0.8537
+3.5	0.223	111.6	10.88	0.237	0.4602
+4	0.185	105.4	10.28	0.204	0.5039
+5	0.157	86.7	8.46	0.171	0.4945
+6	0.132	66.5	6.49	0.145	0.4489
+8	0.094	13.2	1.29	0.113	0.1141
+10	0.079	0.0	0.00	0.086	0.0000
+12	0.066	0.9	0.09	0.072	0.0121
+14	0.056	0.0	0.00	0.061	0.0000
+16	0.047	0.0	0.00	0.051	0.0000
+20	0.033	0.1	0.01	0.040	0.0024
-20		2.8	0.27	0.017	0.1650
Total =		1025.3	100.00		4.0793

Harmonic Mean Diameter (in.) = 0.2451
Weighted Average Diameter (in.) = 0.2841

SCREEN ANALYSIS OF 9205051318 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	31.8	11.32	0.438	0.2589
+5/16	0.313	64.0	22.79	0.344	0.6626
+1/4	0.250	54.1	19.27	0.282	0.6844
+3.5	0.223	38.1	13.57	0.237	0.5737
+4	0.185	41.0	14.60	0.204	0.7157
+5	0.157	28.7	10.22	0.171	0.5977
+6	0.132	18.7	6.66	0.145	0.4609
+8	0.094	3.2	1.14	0.113	0.1010
+10	0.079	0.2	0.07	0.086	0.0083
+12	0.066	0.0	0.00	0.072	0.0000
+14	0.056	0.0	0.00	0.061	0.0000
+16	0.047	0.0	0.00	0.051	0.0000
+20	0.033	0.0	0.00	0.040	0.0000
-20		1.0	0.36	0.017	0.2152
Total =		280.8	100.00		4.2783

Harmonic Mean Diameter (in.) = 0.2337
Weighted Average Diameter (in.) = 0.2726

4 of 6

SCREEN ANALYSIS OF 9205051400 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	2.3	1.05	0.500	0.0210
+3/8	0.375	25.2	11.51	0.438	0.2630
+5/16	0.313	56.6	25.84	0.344	0.7513
+1/4	0.250	37.3	17.03	0.282	0.6050
+3.5	0.223	26.8	12.24	0.237	0.5174
+4	0.185	26.6	12.15	0.204	0.5954
+5	0.157	24.2	11.05	0.171	0.6462
+6	0.132	14.0	6.39	0.145	0.4424
+8	0.094	3.8	1.74	0.113	0.1538
+10	0.079	0.3	0.14	0.086	0.0159
+12	0.066	0.4	0.18	0.072	0.0252
+14	0.056	0.2	0.09	0.061	0.0150
+16	0.047	0.1	0.05	0.051	0.0089
+20	0.033	0.2	0.09	0.040	0.0228
-20		1.0	0.46	0.017	0.2759
Total =		219.0	100.00		4.3594

Harmonic Mean Diameter (in.) = 0.2294
Weighted Average Diameter (in.) = 0.2767

SCREEN ANALYSIS OF 9205051541 REACTOR STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	65.4	9.63	0.438	0.2202
+5/16	0.313	144.3	21.26	0.344	0.6180
+1/4	0.250	145.4	21.42	0.282	0.7609
+3.5	0.223	88.9	13.10	0.237	0.5538
+4	0.185	87.0	12.82	0.204	0.6283
+5	0.157	78.2	11.52	0.171	0.6737
+6	0.132	51.2	7.54	0.145	0.5220
+8	0.094	12.5	1.84	0.113	0.1632
+10	0.079	0.5	0.07	0.086	0.0085
+12	0.066	0.0	0.00	0.072	0.0000
+14	0.056	0.0	0.00	0.061	0.0000
+16	0.047	0.0	0.00	0.051	0.0000
+20	0.033	0.0	0.00	0.040	0.0000
-20		5.4	0.80	0.017	0.4807
Total =		678.8	100.00		4.6293

Harmonic Mean Diameter (in.) = 0.2160
Weighted Average Diameter (in.) = 0.2656

SCREEN ANALYSIS OF 9205051544 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	2.4	0.24	0.500	0.0049
+3/8	0.375	109.3	11.15	0.438	0.2549
+5/16	0.313	230.6	23.53	0.344	0.6840
+1/4	0.250	233.3	23.81	0.282	0.8457
+3.5	0.223	129.0	13.16	0.237	0.5566
+4	0.185	113.9	11.62	0.204	0.5697
+5	0.157	91.9	9.38	0.171	0.5484
+6	0.132	50.8	5.18	0.145	0.3587
+8	0.094	12.1	1.23	0.113	0.1094
+10	0.079	0.5	0.05	0.086	0.0059
+12	0.066	0.0	0.00	0.072	0.0000
+14	0.056	0.0	0.00	0.061	0.0000
+16	0.047	0.3	0.03	0.051	0.0060
+20	0.033	0.2	0.02	0.040	0.0051
-20		5.7	0.58	0.017	0.3514
Total =		980.0	100.00		4.3008

Harmonic Mean Diameter (in.) = 0.2325
Weighted Average Diameter (in.) = 0.2779

SCREEN ANALYSIS OF 9205051918 REACTOR STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	95.4	10.70	0.438	0.2445
+5/16	0.313	182.2	20.43	0.344	0.5938
+1/4	0.250	241.6	27.09	0.282	0.9623
+3.5	0.223	121.0	13.57	0.237	0.5736
+4	0.185	124.2	13.93	0.204	0.6826
+5	0.157	100.9	11.31	0.171	0.6616
+6	0.132	15.9	1.78	0.145	0.1234
+8	0.094	1.3	0.15	0.113	0.0129
+10	0.079	0.0	0.00	0.086	0.0000
+12	0.066	0.5	0.06	0.072	0.0077
+14	0.056	0.6	0.07	0.061	0.0111
+16	0.047	0.6	0.07	0.051	0.0131
+20	0.033	0.4	0.04	0.040	0.0112
-20		7.3	0.82	0.017	0.4945
Total =		891.9	100.00		4.3924

Harmonic Mean Diameter (in.) = 0.2277
Weighted Average Diameter (in.) = 0.2762

SCREEN ANALYSIS OF 9205051921 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	112.6	11.48	0.438	0.2624
+5/16	0.313	219.8	22.41	0.344	0.6513
+1/4	0.250	228.9	23.33	0.282	0.8289
+3.5	0.223	122.8	12.52	0.237	0.5293
+4	0.185	117.9	12.02	0.204	0.5891
+5	0.157	102.8	10.48	0.171	0.6128
+6	0.132	58.7	5.98	0.145	0.4141
+8	0.094	13.4	1.37	0.113	0.1210
+10	0.079	0.7	0.07	0.086	0.0083
+12	0.066	0.0	0.00	0.072	0.0000
+14	0.056	0.0	0.00	0.061	0.0000
+16	0.047	0.0	0.00	0.051	0.0000
+20	0.033	0.4	0.04	0.040	0.0102
-20		3.0	0.31	0.017	0.1848
Total =		981.0	100.00		4.2122

Harmonic Mean Diameter (in.) = 0.2374
Weighted Average Diameter (in.) = 0.2753

Run Summary:

LEC Run 920513

Objective: To use the limestone produced from LEC Run 920430 at an increased water rate in order to produce greater SO₂ removal efficiency.

Total Run Time: 9 hours 8 minutes

SO₂ Removal: 65% to 85%

Inlet Gas Rate: 3500 to 1700 acfm; the majority of the run was conducted at 2400 acfm.

Operational Conditions:

No.8 limestone from LEC Run 920430 (134 hrs. of prior exposure time).

In-duct Steam: 10 psig (full)

Overhead Sprays: 0.0 gpm

Louver Sprays: 0.33 gpm from 08:06 to 10:10.

0.43 gpm from 10:11 to 12:30.

0.51 gpm from 12:31 to 14:50.

0.61 gpm from 14:50 to 16:10.

0.73 gpm from 16:11 to 17:14.

Bed Speed: 10 DT (1462 lb/hr).

Regeneration device: Twin deck vibrating screen equipped with a No.6 and No.16 mesh screens.

Waste Production: 0.7 lbs/min (average).

Carry-over Production: 4.0 lbs/min (average).

Comments: - The run was terminated when the stone became too wet and "sticky" to operate the material handling equipment safely.

LEC Run 920513

Starting
05-13-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
Objective: To use the limestone produced from LEC Run 920430 at an increased water rate in order to produce greater SO ₂ removal efficiency. Initial Conditions: No.8 limestone from LEC Run 920430; a single deck vibrating screen configuration is used with No.6 mesh screen; In-duct steam injection = 10 psig (full); Louver sprays = 0.33 gpm; damper is to be varied in order to maintain approx. 2500 acfm.															
08:06	499.40	6.27	20.3			2.15									99.26
08:07	872.00	8.84	18.2	2063	3109	2.39	195	64	64	68	64	64	64	70	98.99
08:08	895.00	47.40	18.3	2496	3601	2.96	199	64	65	67	69	64	64	64	94.70
08:09	891.00	98.50	18.4			2.88									88.95
08:10	902.00	129.30	18.5	2404	3596	2.74	184	72	68	71	70	72	76	65	85.67
5 MinAvg	406.46	24.25	20.7	2321	3435	1.31	126	65	65	66	65	65	65	65	444.41
08:11	923.00	158.50	18.5	2338	3616	2.64	146	79	80	86	89	85	79	65	82.83
08:12	927.00	179.20	18.5	2327	3622	2.52	153	80	83	96	102	102	82	65	80.67
08:13	965.00	197.10	18.4	2315	3638	2.41	153	81	87	104	105	109	92	65	79.58
08:14	1009.00	218.90	18.3	2302	3659	2.31	153	85	88	106	106	109	97	65	78.31
08:15	1026.00	234.10	18.3	2290	3682	2.27	153	88	87	106	108	110	100	65	77.18
08:16	1011.00	241.50	18.4	2316	3762	2.29	154	96	91	107	110	110	105	65	76.11
08:17	1015.00	249.50	18.4	2297	3783	2.28	154	100	108	110	109	110	108	65	75.42
08:18	1009.00	252.00	18.5	2285	3784	2.30	154	104	100	110	110	110	109	65	75.02
08:19	1003.00	256.10	18.6	2285	3791	2.31	154	103	95	110	110	110	106	66	74.47
08:20	989.00	257.70	18.7	2274	3790	2.32	155	106	88	110	110	110	108	74	73.94
10 MinAvg	987.70	224.46	18.5	2303	3713	2.36	153	92	91	104	106	106	98	66	77.35
08:21	973.00	260.00	18.7	2262	3795	2.29	156	107	86	110	110	110	109	80	73.28
08:22	969.00	261.50	18.8	2274	3797	2.18	155	107	82	110	110	110	109	81	73.01
08:23	964.00	264.50	18.8	2270	3803	2.10	156	108	81	110	110	110	109	81	72.56
08:24	970.00	264.60	18.9	2271	3800	2.01	157	108	81	110	110	110	109	81	72.72
08:25	984.00	266.60	19.0	2275	3798	1.89	159	109	81	111	111	111	110	81	72.91
08:26	993.00	268.90	19.1	2244	3772	1.82	160	110	82	111	111	111	110	81	72.92
08:27	989.00	264.00	19.2	2253	3766	1.76	165	110	83	111	111	111	110	81	73.31
08:28	978.00	260.50	19.3	2247	3775	1.71	162	111	84	111	111	111	110	81	73.36
08:29	972.00	257.60	19.3	2248	3765	1.66	166	110	85	111	111	111	109	81	73.50
08:30	970.00	258.60	19.3	2240	3763	1.64	165	110	87	111	111	111	111	82	73.34
10 MinAvg	976.20	262.68	19.0	2258	3783	1.91	160	109	83	111	111	111	110	81	73.09
08:31	960.00	256.00	19.4	2214	3763	1.67	166	110	85	111	111	111	111	82	73.33
08:32	962.00	254.40	19.4	2227	3770	1.62	169	110	86	111	111	111	111	82	73.56
08:33	950.00	255.10	19.5	2223	3770	1.52	167	111	83	111	111	111	111	82	73.15
08:34	957.00	256.20	19.5	2208	3766	1.91	166	111	86	111	111	111	111	82	73.23

E-285

LEC Run 920513

Starting
05-13-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
08:35	954.00	253.90	19.6	2197	3753	2.49	164	112	84	112	112	112	112	82	73.39
08:36	942.00	259.20	19.6	2186	3742	2.56	165	112	85	112	112	112	112	82	72.48
08:37	952.00	261.00	19.6	2197	3749	2.53	168	112	84	112	112	112	112	82	72.58
08:38	763.00	277.50	19.7	2183	3746	2.45	164	112	85	112	112	112	112	82	63.63
08:39	23.53	476.60	19.2	2180	3743	2.35	166	112	86	112	112	112	112	82	-1925.50
08:40	416.50	243.60	18.9	2177	3743	2.26	164	112	84	112	112	112	112	82	41.51
10 MinAvg	788.00	279.35	19.4	2199	3754	2.13	166	111	85	112	112	112	111	82	-130.86
08:41	904.00	172.70	15.3	2181	3747	2.19	167	112	86	112	112	112	112	83	80.90
08:42	921.00	265.70	15.7	2175	3747	2.00	167	112	84	112	112	112	112	83	71.15
08:43	949.00	285.00	15.8	2179	3744	1.83	169	114	87	112	113	112	112	89	69.97
08:44	911.00	275.70	16.0	3231	5054	3.12	170	116	85	112	112	112	112	87	69.74
08:45	849.00	256.60	16.2	3475	5406	3.25	171	112	83	112	112	112	112	105	69.78
08:46	846.00	261.20	16.3	3443	5427	4.28	172	117	83	112	113	112	112	112	69.13
08:47	847.00	275.80	16.2	3419	5405	4.49	171	114	84	112	113	113	113	113	67.44
08:48	851.00	284.40	16.3	3401	5386	4.37	171	113	88	113	113	113	113	113	66.58
08:49	882.00	301.90	16.2	2482	4245	5.23	163	113	86	112	113	113	113	113	65.77
08:50	934.00	315.80	16.1	2418	4092	5.17	159	113	86	112	113	113	113	113	66.19
10 MinAvg	889.40	269.48	16.0	2840	4625	3.59	168	114	85	112	112	112	112	101	69.66
08:51	931.00	323.50	16.1	2415	4095	4.95	160	113	84	113	113	113	113	113	65.25
08:52	933.00	322.80	16.2	2417	4082	4.72	161	113	87	113	113	113	113	114	65.40
08:53	940.00	326.10	16.2			4.54									65.31
08:54	956.00	334.00	16.1	2392	4113	4.35	167	113	84	113	113	113	113	125	65.06
08:55	952.00	338.50	16.1	2404	4080	4.24	167	113	86	113	113	113	113	128	64.44
08:56	948.00	342.70	16.2	2401	4100	4.05	165	113	88	113	113	113	114	136	63.85
08:57	939.00	333.00	16.2	2400	4071	3.87	162	114	91	113	113	114	114	143	64.54
08:58	936.00	330.40	16.3	2407	4088	3.92	165	114	90	113	114	114	114	143	64.70
08:59	939.00	335.90	16.2	2400	4085	3.77	162	114	86	114	114	114	114	143	64.23
09:00	944.00	337.00	16.3	2415	4089	3.23	166	114	91	114	114	114	114	143	64.30
10 MinAvg	941.80	332.39	16.2	2406	4089	4.16	164	113	87	113	113	113	113	132	64.71
09:01	956.00	341.70	16.2	2405	4099	2.94	165	114	90	114	113	115	114	143	64.26
09:02	954.00	339.20	16.2	2407	4083	2.99	165	114	85	114	114	114	114	143	64.44
09:03	953.00	333.60	16.3			3.00									64.99
09:04	973.00	334.00	16.3	2403	4060	2.99	166	114	90	115	113	114	114	140	65.67
09:05	971.00	329.00	16.4	2400	4051	2.97	168	115	87	113	112	115	117	140	66.12
09:06	969.00	322.80	16.4	2389	4069	2.96	162	116	87	117	114	115	115	126	66.69
09:07	977.00	308.10	16.5	2375	4058	2.95	158	115	86	114	114	120	118	122	68.46

E-286

LEC Run 920513

Starting
05-13-92

Time	Inlet SO2 (ppmvd)	Outlet SO2 (ppmvd)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dp (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
09:08	976.00	305.70	16.5	2378	4065	2.94	160	115	86	114	114	115	115	120	68.68
09:09	1011.00	305.10	16.5	2376	4065	2.93	159	115	87	113	119	115	115	115	69.82
09:10	1001.00	314.40	16.5	2385	4076	2.93	160	115	88	110	114	115	115	115	68.59
10 MinAvg	974.10	323.36	16.4	2391	4069	2.96	163	115	87	114	114	115	115	129	66.77
09:11	988.00	316.80	16.5	2387	4057	2.92	161	115	86	112	115	115	115	116	67.94
09:12	998.00	310.10	16.5	2376	4073	2.92	159	115	86	110	114	115	115	115	68.93
09:13	995.00	276.30	16.6	2376	4060	2.90	159	115	86	113	115	115	115	116	72.23
09:14	997.00	301.20	16.6	2377	4064	2.90	160	115	86	114	117	115	115	115	69.79
09:15	995.00	313.40	16.6	2372	4067	2.90	160	115	86	114	118	115	115	115	68.50
09:16	997.00	330.10	16.6	2362	4061	2.89	161	116	87	114	116	116	116	116	66.89
09:17	998.00	333.70	16.6	2376	4068	2.91	162	116	87	114	116	116	116	116	66.56
09:18	990.00	328.90	16.6	2367	4058	2.91	161	116	87	113	116	116	116	116	66.78
09:19	986.00	336.20	16.6	2378	4075	2.90	163	116	88	111	116	116	116	116	65.90
09:20	1001.00	332.90	16.6	2375	4049	2.88	162	116	90	111	116	116	116	116	66.74
10 MinAvg	994.50	317.96	16.6	2375	4063	2.90	161	116	87	113	116	115	115	116	68.03
09:21	1015.00	336.10	16.6	2372	4046	2.88	160	116	88	113	116	116	116	116	66.89
09:22	1022.00	329.90	16.6	2379	4087	2.88	161	123	87	113	116	116	116	116	67.72
09:23	1034.00	331.20	16.6	2359	4083	2.85	163	116	87	114	116	116	116	116	67.97
09:24	1048.00	326.80	16.7	2378	4057	2.87	163	116	88	116	116	117	116	116	68.82
09:25	1062.00	325.20	16.7	2377	4043	2.87	163	116	87	114	116	116	116	116	69.38
09:26	1062.00	334.60	16.6	2370	4070	2.86	166	116	87	114	116	116	116	116	68.49
09:27	1074.00	343.80	16.6	2384	4071	2.85	170	116	87	115	126	116	117	116	67.99
09:28	1062.00	349.50	16.6	2377	4064	2.85	169	117	88	115	117	117	117	117	67.09
09:29	1050.00	351.20	16.6	2367	4064	2.85	164	117	88	115	117	117	117	117	66.55
09:30	1063.00	345.30	16.6	2376	4068	2.84	172	117	88	115	117	117	117	117	67.52
10 MinAvg	1049.20	337.36	16.6	2374	4065	2.86	165	117	87	114	117	116	116	116	67.84
09:31	1044.00	342.40	16.6	2369	4044	2.85	169	117	90	115	117	117	117	117	67.20
09:32	1039.00	349.00	16.6	2371	4041	2.86	166	117	90	116	117	117	117	121	66.41
09:33	1037.00	354.70	16.6	2384	4038	2.88	167	117	90	116	117	117	117	122	65.80
09:34	1024.00	351.40	16.6	2351	4042	2.84	162	117	89	115	117	117	117	118	65.68
09:35	1038.00	353.90	16.6	2362	4049	2.86	161	117	88	114	117	117	117	117	65.91
09:36	1044.00	362.30	16.5	2415	4117	2.96	163	117	88	115	117	117	117	125	64.92
09:37	1041.00	365.20	16.5	2404	4124	2.94	161	117	89	121	117	117	117	128	65.29
09:38	1034.00	358.90	16.5	2406	4137	2.95	161	117	92	116	119	117	118	129	65.66
09:39	1028.00	353.00	16.5	2406	4137	2.95	161	117	89	114	117	117	117	133	64.29
09:40	1020.00	364.20	16.6	2407	4134	2.94	162	117							

LEC Run 920513

Starting
05-13-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10 MinAvg	1034.90	355.50	16.6	2385	4081	2.90	164	117	89	116	117	117	117	123	65.65
09:41	1027.00	364.70	16.6	2405	4141	2.96	161	117	88	113	117	120	120	133	64.49
09:42	1034.00	367.80	16.5	2405	4135	2.95	161	117	88	114	117	117	124	135	64.43
09:43	1022.00	376.60	16.5	2399	4135	2.96	161	118	89	114	118	118	122	136	63.15
09:44	1024.00	375.60	16.5	2399	4132	2.95	161	118	90	116	118	118	118	137	63.32
09:45	1037.00	377.40	16.5	2393	4129	2.95	161	118	91	115	118	118	124	139	63.61
09:46	1039.00	373.20	16.1	2375	4136	2.93	161	118	91	115	118	118	130	139	64.08
09:47	1049.00	380.50	15.9	2393	4129	2.95	161	118	89	116	118	118	120	137	63.73
09:48	1035.00	381.70	15.9	2387	4130	2.94	161	118	90	114	118	118	125	140	63.12
09:49	1025.00	379.90	15.9	2387	4123	2.95	161	118	89	114	118	118	128	135	62.94
09:50	1019.00	367.90	16.0	2381	4123	2.95	162	118	89	112	118	118	120	127	63.90
10 MinAvg	1031.10	374.53	16.3	2392	4131	2.95	161	118	89	114	118	118	123	136	63.68
09:51	1013.00	376.60	16.0	2387	4120	2.95	162	118	89	114	118	118	118	124	62.82
09:52	1002.00	379.00	16.0	2381	4130	2.94	162	118	89	113	118	118	120	126	62.18
09:53	1010.00	383.00	16.0	2406	4179	2.94	178	134	113	124	129	128	143	132	62.08
09:54	1041.00	385.10	16.0	2382	4124	2.95	162	118	89	113	118	118	131	125	63.01
09:55	1085.00	388.70	15.9	2382	4124	2.94	162	118	89	110	118	118	130	119	64.18
09:56	1098.00	386.30	15.9	2382	4131	2.95	162	118	89	112	118	118	125	120	64.82
09:57	1121.00	390.90	15.9	2444	4205	3.05	162	118	91	110	118	118	119	121	65.13
09:58	1111.00	389.80	15.9	2462	4221	3.09	162	119	91	109	119	119	119	121	64.91
09:59	1094.00	377.10	16.0	2450	4208	3.05	162	119	90	108	119	119	119	120	65.53
10:00	1079.00	374.20	16.1	2451	4186	3.06	163	119	92	109	119	119	119	122	65.32
10 MinAvg	1065.40	383.07	16.0	2413	4163	2.99	164	120	92	112	119	119	124	123	64.00
10:01	1052.00	375.40	16.1	2450	4192	3.06	162	119	90	103	119	119	119	124	64.32
10:02	1020.00	371.10	16.2	2444	4209	3.07	162	119	90	109	119	119	119	124	63.62
10:03	1011.00	356.50	16.2	2444	4196	3.08	163	119	90	110	119	119	119	120	64.74
10:04	1014.00	358.60	16.3	2444	4203	3.07	163	119	90	110	119	119	119	120	64.64
10:05	1010.00	360.60	16.3	2445	4213	3.08	163	119	90	108	119	119	118	119	64.30
10:06	1024.00	361.70	16.3	2440	4207	3.10	163	119	90	111	119	119	118	119	64.68
10:07	1022.00	359.30	16.3	2443	4207	3.09	165	119	90	111	119	119	118	119	64.84
10:08	1027.00	354.70	16.3	2453	4191	3.08	167	119	90	111	119	119	105	119	65.46
10:09	1036.00	351.70	16.4	2439	4188	3.04	169	119	90	114	119	119	99	119	66.05
10:10	1042.00	353.80	16.4	2439	4191	3.04	172	119	90	114	119	119	101	119	66.05
c	Louver sprays are increased to 0.43 psig.														
10 MinAvg	1025.80	360.34	16.3	2444	4200	3.07	165	119	90	110	119	119	113	120	64.87

E-288

LEC Run 920513

Starting
05-13-92

Time	Inlet SO2 (ppmvd)	Outlet SO2 (ppmvd)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10:11	1037.00	346.80	16.4	2453	4192	3.06	173	119	90	115	119	119	99	119	66.56
10:12	1037.00	334.30	16.4	2447	4179	3.06	173	120	90	115	120	120	98	120	67.76
10:13	982.00	325.60	16.5	2434	4176	3.06	173	120	90	114	120	120	96	120	66.84
10:14	982.00	333.60	16.5	2465	4206	3.12	170	120	90	117	120	120	94	120	66.03
10:15	981.00	336.90	16.5	2462	4196	3.12	169	120	90	117	120	120	94	120	65.66
10:16	980.00	326.50	16.5	2459	4203	3.13	167	120	90	115	120	120	95	120	66.68
10:17	1022.00	322.10	16.5	2464	4196	3.14	170	120	90	117	120	120	93	120	68.48
10:18	1036.00	323.20	16.5	2459	4213	3.15	170	120	91	117	120	120	95	120	68.80
10:19	1006.00	323.30	16.5	2458	4226	3.14	172	120	91	118	121	120	92	120	67.86
10:20	1002.00	316.20	16.6	2466	4210	3.15	177	120	91	118	126	120	92	120	68.44
10 MinAvg	1006.50	328.85	16.5	2457	4200	3.11	171	120	90	116	120	120	95	120	67.31
10:21	1002.00	315.40	16.6	2465	4211	3.15	176	120	91	120	120	120	93	120	68.52
10:22	993.00	316.80	16.6	2471	4195	3.15	176	120	91	120	120	120	94	120	68.10
10:23	1003.00	323.60	16.6	2476	4182	3.17	175	120	91	120	120	120	94	120	67.74
10:24	1030.00	333.30	16.6	2468	4185	3.19	171	120	92	120	120	120	94	120	67.64
10:25	1036.00	331.60	16.6	2461	4205	3.19	174	120	91	120	120	120	93	120	67.99
10:26	1030.00	337.20	16.6	2452	4196	3.20	173	121	91	119	121	120	93	121	67.26
10:27	1010.00	332.00	16.6	2434	4189	3.20	167	121	91	120	121	121	93	121	67.13
10:28	994.00	331.50	16.6	2424	4196	3.21	165	121	91	121	121	120	93	121	66.65
10:29	968.00	333.40	16.7	2427	4203	3.21	166	121	92	120	121	121	92	121	65.56
10:30	984.00	339.20	16.7	2426	4193	3.22	166	121	91	121	121	121	93	121	65.53
10 MinAvg	1005.00	329.40	16.6	2450	4195	3.19	171	120	91	120	120	120	93	120	67.21
10:31	987.00	343.80	16.6	2436	4193	3.23	167	121	94	121	121	120	93	121	65.17
10:32	1001.00	336.80	16.6	2399	4210	3.24	165	121	92	121	121	121	92	121	66.35
10:33	1001.00	332.00	16.7	2418	4167	3.24	165	121	92	121	121	120	95	121	66.83
10:34	995.00	336.20	16.7	2412	4178	3.24	165	121	92	121	121	120	95	121	66.21
10:35	1004.00	339.40	16.7	2414	4181	3.25	166	121	92	121	121	120	93	121	66.20
10:36	991.00	347.40	16.7	2413	4178	3.25	165	121	92	121	123	121	94	121	64.94
10:37	1004.00	349.20	16.6	2419	4181	3.24	165	121	92	121	122	119	96	121	65.22
10:38	1007.00	348.20	16.5	2418	4185	3.24	165	121	95	121	122	121	95	121	65.42
10:39	1009.00	351.40	16.6	2412	4192	3.24	165	121	92	121	126	120	96	121	65.17
10:40	1018.00	345.60	16.6	2406	4179	3.25	165	121	93	121	123	119	101	121	66.05
10 MinAvg	1001.70	343.00	16.6	2415	4184	3.24	165	121	92	121	122	120	95	121	65.76
10:41	1028.00	344.10	16.6	2406	4169	3.25	165	121	92	121	122	119	105	121	66.53
10:42	1038.00	354.30	16.6	2406	4162	3.26	165	121	92	121	121	120	106	121	65.87
10:43	1021.00	357.70	16.6	2400	4169	3.28	165	122	92	122	122	119	106	122	64.97

LEC Run 920513

Starting
05-13-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Outlet Temp (F)	Inlet Temp (F)	Bed dp (in.H2O)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10:44	1024.00	355.10	16.6	2388	4176	122	165	3.25	122	92	122	122	121	106	122	65.32
10:45	1024.00	357.40	16.6	2407	4166	122	165	3.26	122	92	122	122	121	108	122	65.10
10:46	1022.00	364.60	16.6	2394	4150	122	165	3.27	122	92	122	123	121	103	122	64.32
10:47	1027.00	360.90	16.6	2407	4160	122	165	3.27	122	92	122	123	121	99	122	64.86
10:48	1013.00	360.60	16.6	2394	4147	122	165	3.28	122	94	122	122	121	99	122	64.40
10:49	997.00	366.40	16.6	2395	4167	122	165	3.28	122	93	122	122	122	103	122	63.25
10:50	992.00	365.20	16.6	2395	4157	122	165	3.29	122	93	122	132	119	106	122	63.19
10 MinAvg	1018.60	358.63	16.6	2399	4162	122	165	3.27	122	93	122	123	120	104	122	64.78
10:51	994.00	360.70	16.6	2388	4157	122	165	3.30	122	96	122	130	119	108	122	63.71
10:52	985.00	349.90	16.7	2388	4144	122	165	3.31	122	93	122	136	121	112	122	64.48
10:53	1001.00	355.50	16.6	2388	4140	122	165	3.31	122	93	122	122	121	118	122	64.49
10:54	999.00	357.00	16.6	2389	4174	122	166	3.31	122	93	122	122	120	115	122	64.26
10:55	1009.00	353.40	16.6	2389	4174	122	166	3.31	122	93	122	122	120	121	122	64.98
10:56	1009.00	347.00	16.6	2395	4158	122	166	3.34	122	93	122	122	121	122	122	65.61
10:57	1031.00	340.00	16.6	2395	4165	122	166	3.34	122	93	122	123	120	122	122	67.02
10:58	1046.00	352.10	16.6	2395	4165	122	166	3.35	122	93	122	122	121	124	122	66.34
10:59	1036.00	371.60	16.5	2395	4165	122	166	3.36	122	93	122	122	121	122	122	64.13
11:00	1040.00	361.60	16.6	2389	4162	122	166	3.37	122	95	122	122	120	122	122	65.23
10 MinAvg	1015.00	354.88	16.6	2391	4160	122	166	3.33	122	93	122	125	120	118	122	65.02
11:01	1044.00	356.40	16.6	2395	4159	122	166	3.38	122	93	122	122	118	122	122	65.86
11:02	1021.00	353.20	16.7	2395	4139	122	166	3.38	122	93	122	122	118	122	122	65.41
11:03	1025.00	355.40	16.7	2395	4152	122	166	3.39	122	94	122	122	117	122	122	65.33
11:04	1036.00	362.70	16.7	2396	4162	122	166	3.39	122	93	122	122	118	122	122	64.99
11:05	1057.00	355.60	16.7	2396	4149	122	166	3.40	122	94	122	122	114	122	122	66.36
11:06	1057.00	357.20	16.7	2402	4139	122	166	3.40	122	94	122	122	114	122	122	66.21
11:07	1074.00	362.20	16.6	2402	4149	122	166	3.41	122	95	122	122	116	122	122	66.28
11:08	1062.00	368.30	16.6	2396	4163	122	166	3.42	122	94	123	122	116	122	122	65.32
11:09	1079.00	362.20	16.6	2396	4163	123	166	3.43	123	96	123	123	116	123	122	66.43
11:10	1064.00	350.30	16.7	2402	4156	123	166	3.43	123	95	123	123	116	123	123	67.08
10 MinAvg	1051.90	358.35	16.7	2398	4153	122	166	3.40	122	94	122	122	116	122	122	65.93
11:11	1065.00	356.90	16.7	2396	4147	123	166	3.43	123	95	123	123	115	123	123	66.49
11:12	1044.00	363.50	16.7	2396	4137	123	166	3.45	123	95	123	123	114	123	123	65.18
11:13	1034.00	364.70	16.8	2397	4147	123	167	3.46	123	94	123	123	115	123	123	64.73
11:14	1042.00	364.20	16.7	2397	4147	123	167	3.47	123	93	123	123	113	123	123	65.05
11:15	1037.00	360.50	16.8	2403	4130	123	167	3.47	123	93	123	123	112	123	123	65.24
11:16	1032.00	361.10	16.8	2390	4124	123	166	3.48	123	94	123	123	111	123	123	65.01

LEC Run 920513

Starting
05-13-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
11:17	1047.00	364.40	16.7	2390	4131	3.49	166	123	95	123	123	112	123	123	65.20
11:18	1046.00	359.00	16.8	2390	4137	3.51	166	123	94	123	123	112	123	123	65.68
11:19	1039.00	355.50	16.8	2391	4138	3.53	167	123	96	124	123	110	121	123	65.78
11:20	1045.00	343.60	16.8	2391	4151	3.54	167	123	96	124	123	111	123	123	67.12
10 MinAvg	1043.10	359.34	16.8	2394	4139	3.48	166	123	95	123	123	112	123	123	65.55
11:21	1028.00	341.50	16.8	2392	4144	3.52	167	123	95	126	123	111	123	123	66.78
11:22	1033.00	350.70	16.8	2399	4138	3.51	167	123	95	124	123	112	123	123	66.05
11:23	1029.00	358.80	16.8	2394	4125	3.53	168	123	95	123	123	112	120	123	65.13
11:24	1049.00	364.10	16.8	2392	4121	3.54	167	123	94	123	123	111	98	123	65.29
11:25	1054.00	364.20	16.8	2391	4121	3.55	167	123	95	124	123	112	94	123	65.45
11:26	1052.00	363.90	16.8	2397	4133	3.55	167	123	95	123	123	113	95	123	65.41
11:27	1067.00	368.00	16.8	2391	4155	3.55	167	123	95	124	123	112	99	123	65.51
11:28	1083.00	372.90	16.7	2405	4142	3.57	167	123	95	123	123	114	100	123	65.57
11:29	1051.00	371.40	16.8	2405	4122	3.57	174	123	96	123	123	114	103	123	64.66
11:30	1021.00	364.10	16.8	2394	4112	3.59	168	123	98	123	123	114	108	123	64.34
10 MinAvg	1046.70	361.96	16.8	2396	4132	3.55	168	123	95	124	123	112	106	123	65.42
11:31	1070.00	375.20	16.7	2392	4129	3.59	167	123	94	123	123	113	108	123	64.93
11:32	1113.00	385.40	16.6	2393	4142	3.60	171	123	94	124	123	113	105	123	65.37
11:33	1051.00	368.90	16.8	2388	4126	3.60	168	123	94	124	123	113	111	123	64.90
11:34	1028.00	357.30	16.9	2387	4119	3.60	168	123	95	124	123	115	105	123	65.24
11:35	1033.00	356.10	16.8	2374	4133	3.58	168	123	96	123	123	115	105	123	65.53
11:36	1084.00	357.90	16.6	2379	4146	3.61	167	124	95	124	124	113	106	124	66.98
11:37	1121.00	359.00	16.6	2386	4136	3.64	167	124	94	124	124	113	104	124	67.98
11:38	1140.00	368.30	16.6	2386	4123	3.64	167	124	98	124	124	112	104	124	67.69
11:39	1136.00	384.90	16.5	2394	4140	3.64	168	124	96	124	124	114	99	124	66.12
11:40	1078.00	392.50	16.4			3.66									63.59
10 MinAvg	1085.40	370.55	16.7	2386	4133	3.62	168	123	95	124	123	113	105	123	65.83
11:41	1152.00	402.20	16.5	2393	4141	3.65	168	124	95	124	124	115	95	124	65.09
11:42	1149.00	399.40	16.4	2393	4114	3.66	168	124	96	124	124	114	95	124	65.24
11:43	1170.00	408.40	16.4	2392	4124	3.67	168	124	95	124	124	112	96	124	65.09
11:44	1208.00	402.10	16.4	2382	4145	3.68	169	124	95	124	124	112	101	124	66.71
11:45	1244.00	404.30	16.4	2394	4138	3.68	168	124	95	124	124	112	105	124	67.50
11:46	1220.00	401.90	16.5	2387	4142	3.69	168	124	96	124	124	112	101	124	67.06
11:47	1183.00	386.10	16.5	2380	4139	3.70	168	124	96	124	124	114	102	124	67.36
11:48	1169.00	381.30	16.5	2380	4149	3.71	168	124	95	124	124	112	108	124	67.38
11:49	1134.00	382.80	16.5	2381	4139	3.70	168	124	95	124	124	113	105	124	66.24

E-291

LEC Run 920513

Starting
05-13-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
11:50	1112.00	380.60	15.8	2381	4143	3.71	168	124	95	124	124	111	97	124	65.77
10 MinAvg	1174.10	394.91	16.4	2386	4137	3.69	168	124	95	124	124	113	100	124	66.35
11:51	1094.00	380.40	15.8	2399	4126	3.76	168	124	95	124	124	111	96	124	65.23
11:52	1102.00	382.70	15.8	2387	4119	3.71	168	124	96	124	124	111	96	124	65.27
11:53	1108.00	382.60	15.8	2381	4133	3.72	168	124	96	124	124	111	98	124	65.47
11:54	1134.00	384.50	15.7	2375	4113	3.74	168	124	95	124	124	110	99	124	66.09
11:55	1162.00	387.90	15.7	2381	4129	3.75	168	124	96	124	124	110	103	124	66.62
11:56	1156.00	386.70	15.7	2393	4137	3.76	168	125	98	125	124	110	104	125	66.55
11:57	1141.00	393.50	15.7			3.77									65.51
11:58	1136.00	401.70	15.7	2394	4154	3.74	168	125	96	125	124	109	108	125	64.64
11:59	1119.00	390.20	15.8	2394	4144	3.73	168	125	96	125	124	109	119	125	65.13
12:00	1105.00	391.60	15.8	2381	4154	3.76	168	125	96	125	125	110	125	125	64.56
10 MinAvg	1125.70	388.18	15.8	2387	4134	3.74	168	124	96	124	124	110	105	124	65.51
12:01	1099.00	387.80	15.8	2382	4154	3.78	168	125	96	125	124	108	125	125	64.71
12:02	1090.00	376.40	15.9	2382	4155	3.79	168	125	96	125	125	108	125	125	65.47
12:03	1085.00	374.50	15.9	2382	4155	3.78	169	125	96	125	125	107	125	125	65.48
12:04	1083.00	367.90	15.9	2376	4159	3.78	169	125	96	125	125	109	125	125	66.03
12:05	1084.00	366.90	15.9	2382	4139	3.76	169	125	96	125	125	108	125	125	66.15
12:06	1110.00	362.40	16.0	2376	4146	3.74	169	125	96	125	125	108	125	125	67.35
12:07	1100.00	349.50	16.0	2383	4160	3.74	169	125	96	125	125	108	125	125	68.23
12:08	1115.00	349.90	16.0	2389	4160	3.74	169	125	98	125	125	108	125	125	68.62
12:09	1124.00	356.60	16.0	2383	4143	3.73	169	126	100	126	126	108	126	126	68.27
12:10	1119.00	354.80	16.0	2377	4167	3.74	169	126	97	126	126	107	126	126	68.29
10 MinAvg	1100.90	364.67	15.9	2381	4154	3.76	169	125	97	125	125	108	125	125	66.86
12:11	1092.00	350.10	16.0	2385	4161	3.72	170	126	98	126	126	108	126	126	67.94
12:12	1089.00	352.90	16.1	2383	4154	3.72	169	126	103	126	125	107	125	126	67.59
12:13	1054.00	353.40	16.1	2392	4158	3.70	170	126	103	126	126	105	124	126	66.47
12:14	1013.00	348.20	16.1			3.69									65.63
12:15	1062.00	350.40	16.1			3.70									67.01
12:16	1054.00	350.10	16.1	2401	4134	3.71	172	127	101	126	126	104	109	132	66.78
12:17	1084.00	346.80	16.1	2393	4151	3.69	171	126	98	126	126	104	97	126	68.01
12:18	1082.00	341.30	16.1	2401	4147	3.70	172	126	102	126	126	106	98	126	68.46
12:19	1057.00	341.20	16.1	2402	4133	3.70	173	125	98	125	125	106	98	125	67.72
12:20	1088.00	336.70	16.1	2400	4116	3.70	171	125	106	125	125	106	97	125	69.05
10 MinAvg	1067.50	347.11	16.1	2395	4144	3.71	171	126	101	126	126	106	109	126	67.47

E-292

LEC Run 920513

Starting 05-13-92	Inlet S02 (ppmdv)	Outlet S02 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dp (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	S02 Removal (%)
Time															
12:21	1091.00	347.00	16.2	2396	4160	3.69	169	125	108	125	125	107	99	125	68.19
12:22	1090.00	349.40	16.1	2395	4159	3.70	172	125	109	126	125	107	97	125	67.94
12:23	1107.00	348.20	16.1	2407	4149	3.71	178	125	109	126	123	108	99	125	68.55
12:24	1111.00	347.90	16.1	2406	4135	3.69	178	125	111	126	125	108	105	125	68.69
12:25	1116.00	352.30	16.0	2408	4128	3.70	179	125	109	125	125	109	110	125	68.43
12:26	1141.00	365.50	16.0	2387	4141	3.74	170	125	109	127	124	108	110	125	67.97
12:27	1127.00	366.50	16.0	2378	4137	3.72	171	125	107	128	122	109	111	125	67.48
12:28	1130.00	375.10	15.9	2417	4117	3.75	177	125	109	127	124	110	123	125	66.81
12:29	1140.00	376.60	15.9	2425	4157	3.78	178	125	107	130	124	108	125	125	66.96
12:30	1153.00	375.80	15.9	2409	4120	3.80	176	125	117	129	124	108	124	124	67.41
C	Lower sprays are increased to 0.51 gpm.														
10 MinAvg	1120.60	360.43	16.0	2403	4140	3.73	175	125	109	127	124	108	110	125	67.84
12:31	1166.00	375.90	15.9	2407	4116	3.82	175	124	110	128	124	107	121	124	67.76
12:32	1149.00	376.70	15.9	2408	4146	3.80	176	124	113	128	124	109	110	124	67.21
12:33	1139.00	380.40	15.8	2397	4126	3.79	170	124	112	127	122	110	110	124	66.60
12:34	1132.00	376.80	15.9	2397	4122	3.82	173	124	110	128	123	109	102	124	66.71
12:35	1125.00	371.60	15.9	2398	4129	3.82	170	124	113	129	122	110	104	124	66.97
12:36	1114.00	367.40	15.8	2392	4108	3.83	174	124	114	128	123	110	106	124	67.02
12:37	1149.00	368.90	15.8	2382	4098	3.86	169	124	111	130	123	109	103	124	67.89
12:38	1157.00	372.30	15.8	2383	4114	3.85	169	124	113	130	123	111	104	124	67.82
12:39	1140.00	369.50	15.8	2381	4104	3.86	168	124	113	130	124	111	105	124	67.59
12:40	1141.00	359.00	15.7	2373	4124	3.86	167	124	114	132	124	112	106	124	68.54
10 MinAvg	1141.20	371.85	15.8	2392	4119	3.83	171	124	112	129	123	110	107	124	67.41
12:41	1131.00	328.70	15.7	2381	4137	3.85	168	124	113	133	124	110	106	124	70.94
12:42	1128.00	293.90	15.7	2373	4123	3.85	167	124	113	140	124	111	104	124	73.95
12:43	1154.00	283.80	15.7	2367	4109	3.89	168	124	112	131	123	111	106	124	75.41
12:44	1164.00	265.00	15.7	2367	4095	3.88	167	123	112	135	123	112	104	123	77.23
12:45	1157.00	257.40	15.7	2373	4116	3.87	167	123	112	140	123	112	105	123	77.75
12:46	1192.00	265.20	15.6	2375	4132	3.84	168	123	114	146	123	112	102	123	77.75
12:47	1202.00	275.30	15.7	2381	4112	3.85	168	123	112	136	123	113	103	123	77.10
12:48	1210.00	275.90	15.6	2377	4108	3.87	169	123	114	136	123	113	104	123	77.20
12:49	1216.00	276.70	15.6	2390	4125	3.86	173	123	116	137	123	113	104	123	77.25
12:50	1209.00	267.80	15.6	2385	4138	3.86	170	123	115	140	123	115	104	123	77.85
10 MinAvg	1176.30	278.97	15.7	2377	4120	3.86	169	123	113	137	123	112	104	123	76.24
12:51	1202.00	251.40	15.6	2394	4134	3.87	175	123	113	138	123	112	104	123	79.08
12:52	1211.00	243.80	15.6	2394	4128	3.88	175	123	114	141	123	112	107	123	79.87

LEC Run 920513

Starting
05-13-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dp (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
12:53	1204.00	244.90	15.6	2392	4124	3.89	174	123	113	138	123	113	107	123	79.66
12:54	1191.00	236.80	15.7	2381	4107	3.88	175	123	116	138	123	114	107	123	80.12
12:55	1176.00	237.10	15.7	2375	4110	3.89	169	123	114	142	123	113	107	123	79.84
12:56	1157.00	230.20	15.7	2392	4120	3.89	178	123	116	141	123	114	108	123	80.10
12:57	1163.00	225.50	15.7	2389	4116	3.90	176	123	113	139	123	114	113	123	80.61
12:58	1160.00	215.80	15.8	2382	4102	3.91	175	123	114	144	123	114	122	123	81.40
12:59	1171.00	220.90	15.7	2383	4082	3.89	176	123	115	147	123	114	123	123	81.14
13:00	1179.00	219.70	15.7	2385	4078	3.91	177	122	114	146	122	113	122	122	81.37
10 MinAvg	1181.40	232.61	15.7	2387	4110	3.89	175	123	114	141	123	113	112	123	80.32
13:01	1186.00	222.70	15.7	2370	4088	3.91	172	122	116	145	122	113	122	122	81.22
13:02	1173.00	216.00	15.8	2363	4092	3.92	172	122	116	145	122	112	109	122	81.59
13:03	1175.00	222.10	15.8	2364	4095	3.93	176	122	115	143	122	110	109	122	81.10
13:04	1167.00	218.30	15.8	2376	4115	3.93	179	122	119	144	122	112	107	122	81.29
13:05	1167.00	218.00	15.8	2377	4098	3.93	180	122	119	142	122	111	105	122	81.32
13:06	1162.00	222.80	15.8	2368	4057	3.90	178	122	118	149	122	112	104	122	80.83
13:07	1150.00	216.60	15.8	2384	4101	3.89	176	122	120	140	122	114	102	122	81.17
13:08	1132.00	229.90	15.6	2384	4118	3.90	177	122	119	143	122	113	103	122	79.69
13:09	1143.00	249.10	15.2	2402	4117	3.97	179	122	118	140	122	114	103	122	78.21
13:10	1151.00	267.80	15.1	2395	4131	3.97	179	122	119	132	122	113	107	122	76.73
10 MinAvg	1160.60	228.33	15.6	2378	4101	3.93	177	122	118	142	122	112	107	122	80.31
13:11	1151.00	278.40	15.1	2391	4114	3.97	177	122	121	131	122	112	112	122	75.81
13:12	1148.00	271.10	15.2	2393	4120	3.99	174	122	120	139	122	112	122	122	76.39
13:13	1171.00	283.70	15.1	2391	4120	3.99	177	122	115	148	122	112	122	122	75.77
13:14	1167.00	291.00	14.9	2400	4113	3.97	178	122	119	141	122	113	122	122	75.06
13:15	1171.00	303.30	14.9	2395	4109	3.96	179	122	118	131	122	112	122	122	74.10
13:16	1171.00	318.80	14.9	2382	4103	3.96	179	122	116	127	122	112	122	122	72.78
13:17	1182.00	323.60	14.9	2388	4106	3.96	178	122	119	134	122	113	122	122	72.62
13:18	1177.00	296.80	15.1	2396	4117	3.96	180	122	120	145	122	112	122	122	74.78
13:19	1157.00	272.90	15.2	2396	4130	3.97	179	122	116	148	122	112	122	122	76.41
13:20	1136.00	264.50	15.3	2397	4110	3.98	180	122	117	137	122	112	122	122	76.72
10 MinAvg	1163.10	290.41	15.1	2393	4114	3.97	178	122	118	138	122	112	121	122	75.04
13:21	1134.00	247.50	15.4	2384	4107	4.00	180	122	116	137	122	112	122	122	78.17
13:22	1125.00	239.00	15.4	2397	4120	3.99	180	122	116	137	122	113	122	122	78.76
13:23	1123.00	232.70	15.3	2403	4100	4.01	180	122	116	141	122	110	104	122	79.28
13:24	1139.00	248.40	15.2	2395	4113	4.01	179	122	120	140	122	111	100	122	78.19
13:25	1139.00	263.20	15.2	2397	4117	4.06	180	122	119	143	122	111	104	122	76.89

LEC Run 920513

Starting
05-13-92

Time	Inlet S02 (ppm/v)	Outlet S02 (ppm/v)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dp (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	S02 Removal (%)
13:26	1109.00	274.10	15.1	2390	4146	4.07	180	122	119	142	122	110	109	122	75.28
13:27	1100.00	273.20	15.2	2403	4082	4.05	180	122	116	138	122	112	118	122	75.16
13:28	1099.00	267.20	15.4	2403	4109	4.05	180	122	116	137	122	111	122	122	75.69
13:29	1117.00	230.00	15.7	2411	4126	4.03	180	122	121	139	122	112	122	122	79.41
13:30	1117.00	229.20	15.8	2419	4146	4.02	185	122	120	140	122	110	122	122	79.48
10 MinAvg	1120.20	250.45	15.4	2400	4117	4.03	180	122	118	139	122	111	114	122	77.63
13:31	1111.00	160.80	16.6	2415	4133	4.00	180	122	120	146	122	112	122	122	85.53
13:32	1074.00	121.20	16.7	2415	4123	3.96	179	122	120	140	122	112	122	122	88.72
13:33	1047.00	117.50	16.5	2440	4113	4.00	180	122	119	145	122	111	122	122	88.78
13:34	1039.00	157.80	16.2	2440	4120	4.01	179	122	120	144	122	113	122	123	84.81
13:35	1023.00	175.50	16.2	2412	4136	3.96	178	122	120	150	122	112	122	125	82.84
13:36	1013.00	187.60	16.2	2402	4133	3.98	176	122	119	151	122	111	122	122	81.48
13:37	1001.00	184.30	16.2	2400	4130	3.98	178	122	120	151	122	112	122	122	81.59
13:38	987.00	194.20	16.2	2394	4106	3.98	175	122	121	149	122	111	122	122	80.32
13:39	991.00	194.30	16.3	2396	4134	3.86	176	122	119	149	122	112	122	122	80.39
13:40	1006.00	198.00	16.2	2388	4150	3.69	175	122	120	147	122	112	122	122	80.32
10 MinAvg	1029.20	169.12	16.3	2410	4128	3.94	178	122	120	147	122	112	122	122	83.48
13:41	1013.00	212.60	16.1	2395	4090	3.60	172	122	121	149	122	111	122	122	79.01
13:42	1010.00	221.00	16.1	2393	4096	3.92	175	122	119	148	122	112	122	122	78.12
13:43	1021.00	214.30	16.1	2386	4114	3.88	168	122	121	149	122	113	122	122	79.01
13:44	1030.00	208.00	16.1	2385	4120	3.86	167	122	121	149	122	112	122	122	79.81
13:45	1040.00	220.10	16.0	2388	4110	3.77	165	122	120	147	122	114	122	122	78.84
13:46	1071.00	229.20	16.0	2389	4106	3.87	166	122	117	145	122	112	122	122	78.60
13:47	1081.00	236.60	16.0	2382	4113	3.90	165	122	120	150	122	114	122	122	78.11
13:48	1107.00	244.30	16.0	2378	4120	3.75	166	122	117	151	122	113	122	122	77.93
13:49	1113.00	240.00	16.0	2370	4096	3.74	165	122	115	150	122	113	122	122	78.44
13:50	1087.00	234.40	16.0	2363	4096	3.72	165	122	115	151	122	113	122	122	78.44
10 MinAvg	1057.30	226.05	16.1	2383	4106	3.80	167	122	118	149	122	113	122	122	78.63
13:51	1060.00	224.80	16.1	2363	4096	3.76	165	122	115	148	122	113	122	122	78.79
13:52	1044.00	228.40	16.1	2357	4093	3.77	165	122	117	148	122	112	122	122	78.12
13:53	1046.00	233.60	16.1	2369	4113	3.64	165	122	115	149	122	113	122	122	77.67
13:54	1034.00	236.20	16.1	2369	4106	3.54	165	122	114	142	122	113	122	122	77.16
13:55	1029.00	235.50	16.1	2369	4092	3.57	165	122	114	147	122	112	122	122	77.11
13:56	1024.00	235.60	16.1	2376	4096	3.69	165	122	117	146	122	114	122	122	76.99
13:57	1019.00	240.50	16.1	2375	4099	3.78	165	122	115	151	122	112	121	122	76.40
13:58	1032.00	232.50	16.1	2375	4109	3.75	165	122	113	151	122	116	121	122	77.47

LEC Run 920513

Starting
05-13-92

E-296

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
13:59	1039.00	225.20	16.1	2394	4126	3.67	165	122	111	150	122	112	122	122	78.33
14:00	1063.00	235.40	16.1	2388	4123	3.65	165	122	116	150	122	112	122	122	77.86
10 MinAvg	1039.00	232.77	16.1	2374	4105	3.68	165	122	115	148	122	113	122	122	77.59
14:01	1078.00	236.10	16.1	2402	4123	3.62	166	122	115	150	122	115	122	122	78.10
14:02	1073.00	239.20	16.1	2403	4119	3.66	167	122	113	151	122	113	122	122	77.71
14:03	1076.00	228.20	16.2	2408	4102	3.74	166	122	111	150	122	113	122	122	78.79
14:04	1064.00	219.80	16.3	2403	4129	3.88	166	121	113	148	121	112	121	121	79.34
14:05	1050.00	211.80	16.3	2402	4132	3.84	166	121	112	149	121	110	121	121	79.83
14:06	1054.00	211.50	16.3	2414	4132	3.82	166	121	109	150	121	110	121	121	79.93
14:07	1063.00	214.80	16.3	2407	4129	3.71	169	121	108	150	121	110	116	121	79.79
14:08	1065.00	213.80	16.3	2403	4135	3.57	166	121	108	149	121	110	107	121	79.92
14:09	1042.00	211.20	16.4	2404	4142	3.39	167	121	105	143	121	110	107	121	79.73
14:10	1028.00	210.70	16.4	2421	4122	3.37	166	121	105	149	121	111	107	121	79.50
10 MinAvg	1059.30	219.71	16.3	2407	4126	3.66	166	121	110	149	121	111	117	121	79.27
14:11	1027.00	212.80	16.4	2412	4122	3.44	165	121	106	149	121	111	112	121	79.28
14:12	1027.00	210.70	16.3	2414	4118	3.53	166	121	107	148	121	111	114	121	79.48
14:13	1024.00	210.60	16.3	2408	4118	3.62	166	121	108	147	121	111	119	121	79.43
14:14	1022.00	216.30	16.3	2406	4121	3.62	165	121	102	140	121	111	110	121	78.84
14:15	1030.00	220.90	16.2	2413	4124	3.63	165	121	103	138	121	110	104	121	78.55
14:16	1027.00	220.40	16.2	2406	4131	3.55	165	121	100	139	121	111	106	121	78.54
14:17	1027.00	220.70	16.3	2412	4131	3.49	165	121	104	134	121	112	106	121	78.51
14:18	1028.00	220.10	16.2	2418	4134	3.45	165	121	106	123	121	111	106	121	78.59
14:19	1020.00	219.80	16.2	2412	4144	3.26	165	121	107	122	121	110	106	121	78.45
14:20	1016.00	221.40	16.2	2413	4117	3.24	165	121	99	121	121	111	106	121	78.21
10 MinAvg	1024.80	217.37	16.3	2411	4126	3.48	165	121	104	136	121	111	109	121	78.79
14:21	1011.00	222.10	16.2	2424	4137	3.22	165	121	99	121	121	111	107	121	78.03
14:22	1007.00	222.00	16.2	2342	4153	3.19	164	121	101	121	121	111	106	121	77.95
14:23	1009.00	225.40	16.1	2336	4206	3.18	165	121	101	121	121	112	114	121	77.66
14:24	1027.00	225.30	16.2	2411	4130	3.12	164	121	103	121	121	113	107	121	78.06
14:25	1021.00	223.70	16.2	2405	4123	3.06	164	121	97	121	121	112	98	121	78.09
14:26	1020.00	219.80	16.2	2405	4116	3.02	164	121	99	121	121	112	101	121	78.45
14:27	1022.00	220.20	16.2	2405	4126	3.05	164	121	95	121	121	112	102	121	78.45
14:28	1029.00	228.50	16.2	2405	4129	2.92	164	121	97	121	121	112	101	121	77.79
14:29	1031.00	230.40	16.1	2405	4122	2.82	164	120	100	120	120	112	102	120	77.65
14:30	1026.00	222.40	16.2	2404	4122	2.74	164	120	96	120	120	113	103	120	78.32

LEC Run 920513

Starting
05-13-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10 MinAvg	1020.30	223.98	16.2	2394	4136	3.03	164	121	99	121	121	112	104	121	78.05
14:31	1026.00	215.10	16.1	2279	4185	2.84	165	120	99	120	120	113	103	120	79.04
14:32	1021.00	215.80	16.1	2417	4125	2.63	164	120	98	120	120	114	101	120	78.86
14:33	1018.00	231.00	16.1	2410	4115	2.60	164	120	98	120	120	113	104	120	77.31
14:34	1009.00	230.70	16.1	2410	4111	2.60	164	120	98	120	120	113	105	120	77.14
14:35	1001.00	224.00	16.1	2411	4134	2.57	164	120	96	120	120	114	103	120	77.62
14:36	1004.00	224.60	16.1	2398	4111	2.37	164	120	96	120	120	114	103	120	77.63
14:37	989.00	221.80	16.1	2397	4127	2.29	164	120	97	120	120	114	103	120	77.57
14:38	991.00	227.10	16.1	2404	4114	2.13	164	120	105	120	120	113	103	120	77.08
14:39	982.00	234.80	16.1	2397	4100	2.20	164	120	105	120	120	112	103	120	76.09
14:40	993.00	237.70	16.1	2404	4110	2.20	164	120	93	120	120	113	104	120	76.06
10 MinAvg	1003.40	226.26	16.1	2393	4123	2.44	164	120	98	120	120	113	103	120	77.44
14:41	1005.00	236.20	16.0	2409	4093	2.20	163	120	91	120	120	114	103	120	76.50
14:42	1027.00	241.30	16.0	2397	4062	2.43	164	120	95	120	120	112	104	120	76.50
14:43	1036.00	236.10	16.0	2391	4096	2.66	163	120	103	120	120	111	105	120	77.21
14:44	1048.00	239.50	16.0	2391	4099	2.50	163	120	99	120	120	112	104	120	77.15
14:45	1050.00	252.20	16.0	2391	4089	2.40	164	120	98	120	120	113	102	120	75.98
14:46	1037.00	255.00	15.9	2391	4106	2.25	164	120	104	120	120	114	105	120	75.41
14:47	1035.00	250.50	15.9	2384	4102	2.14	163	120	106	120	120	114	106	120	75.80
14:48	1027.00	235.10	16.0	2384	4108	2.13	163	119	105	119	119	113	108	119	77.11
14:49	1023.00	250.20	15.9	2384	4102	2.05	163	119	102	119	119	114	114	119	75.54
14:50	1022.00	258.90	15.9	2359	4067	2.09	163	119	107	119	119	113	114	119	74.67
C	Louver sprays are increased from 0.51 gpm to 0.61 gpm.														
10 MinAvg	1031.00	245.50	16.0	2388	4092	2.28	163	120	101	120	120	113	106	120	76.19
14:51	1019.00	258.10	15.9	2269	4108	2.25	163	119	104	119	119	115	117	119	74.67
14:52	1011.00	242.10	15.9	2365	4053	2.19	163	119	101	119	119	116	110	119	76.05
14:53	997.00	235.40	15.9	2365	4081	2.13	163	119	100	119	119	115	112	119	76.39
14:54	1006.00	233.30	15.9	2365	4098	1.92	163	119	103	119	119	114	116	119	76.81
14:55	1007.00	230.40	15.9	2359	4074	1.77	163	119	105	122	118	117	116	119	77.12
14:56	1011.00	227.80	15.9	2346	4064	1.68	163	119	101	124	110	116	105	119	77.47
14:57	1019.00	220.30	15.9	2359	4047	1.56	163	119	98	121	109	116	104	119	78.38
14:58	1027.00	208.40	15.9	2352	4047	1.52	163	119	106	126	108	115	104	119	79.71
14:59	1050.00	204.40	15.9	2358	4047	1.48	166	119	107	123	110	115	104	119	80.53
15:00	1079.00	224.30	15.6	2370	4030	1.43	169	119	109	125	113	116	104	119	79.21
10 MinAvg	1022.60	228.45	15.9	2351	4065	1.79	164	119	103	122	115	116	109	119	77.63

E-297

LEC Run 920513

Starting
05-13-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
15:01	1138.00	259.00	15.4	2365	4070	1.24	173	120	111	127	115	117	108	119	77.24
15:02	1042.00	263.80	15.4			1.08									74.68
15:03	1213.00	258.20	15.5	2385	4043	1.01	177	119	112	131	119	117	109	119	78.71
15:04	1225.00	267.10	15.4	2366	4029	0.96	177	119	111	132	119	119	106	119	78.20
15:05	1223.00	261.90	15.4	2379	4001	0.92	177	119	109	125	119	118	104	119	78.59
15:06	1225.00	259.40	15.4	2379	4018	0.96	177	119	110	127	119	118	109	119	78.82
15:07	1234.00	255.30	15.4	2371	4029	0.89	176	119	107	130	119	118	106	119	79.31
15:08	1229.00	252.60	15.4	2372	4022	0.75	177	119	107	140	119	118	104	119	79.45
15:09	1220.00	251.70	15.4	2374	4029	0.63	178	119	111	139	119	118	106	119	79.37
15:10	1230.00	250.70	15.4	2379	4022	0.64	177	119	109	135	119	119	108	119	79.62
10 MinAvg	1197.90	257.97	15.4	2374	4029	0.91	177	119	110	132	119	118	107	119	78.40
15:11	1236.00	262.70	15.4	2373	3949	3.09	177	119	110	124	119	118	105	119	78.75
15:12	1219.00	261.10	15.5	2379	3991	3.30	177	119	109	124	119	119	107	119	78.58
15:13	1215.00	252.80	15.5	2381	4005	3.12	178	119	109	126	119	117	104	119	79.19
15:14	1215.00	249.00	15.5	2367	4022	2.92	178	119	107	126	119	119	104	119	79.51
15:15	1214.00	248.90	15.6	2382	3956	2.93	179	119	106	119	119	118	104	119	79.50
15:16	1210.00	244.30	15.6	2366	4015	2.94	181	119	105	119	119	119	105	119	79.81
15:17	1215.00	247.70	15.6	2370	4026	3.15	179	119	107	119	119	118	104	119	79.61
15:18	1211.00	248.10	15.6	2367	4009	3.29	181	119	107	120	119	119	106	119	79.51
15:19	1204.00	244.60	15.5	2378	3998	3.16	180	119	112	120	119	118	105	119	79.68
15:20	1192.00	250.20	15.6			2.98									79.01
10 MinAvg	1213.10	250.94	15.5	2374	3997	3.09	179	119	108	122	119	118	105	119	79.32
15:21	1207.00	238.50	15.6	2381	4006	2.81	185	119	110	119	119	119	106	119	80.24
15:22	1213.00	233.50	15.6	2371	3988	3.23	183	119	111	120	119	118	104	119	80.75
15:23	1197.00	232.70	15.6	2391	3999	3.10	187	119	108	119	119	119	105	119	80.56
15:24	1203.00	236.50	15.6	2397	4006	3.32	191	119	109	120	119	119	105	119	80.34
15:25	1205.00	240.60	15.7	2390	4020	3.49	190	119	111	119	119	118	106	119	80.03
15:26	1190.00	241.70	15.7	2386	4009	3.40	188	119	110	119	119	118	105	119	79.69
15:27	1181.00	238.70	15.7	2383	3999	3.37	186	119	110	119	119	119	105	119	79.79
15:28	1163.00	232.30	15.8	2385	4002	3.40	187	119	111	119	119	118	105	119	80.03
15:29	1141.00	230.30	15.7	2365	4016	3.34	191	119	108	119	119	118	104	119	79.82
15:30	1140.00	235.40	15.6	2369	4040	3.18	189	119	109	120	119	119	106	119	79.35
10 MinAvg	1184.00	236.02	15.7	2382	4009	3.27	188	119	109	119	119	118	105	119	80.06
15:31	1174.00	242.60	15.7	2398	4006	3.07	191	120	105	120	120	119	107	120	79.34
15:32	1177.00	247.30	15.7	2399	4017	2.96	188	120	112	120	120	118	107	120	78.99
15:33	1184.00	252.30	15.6	2412	4048	2.94	192	120	107	120	120	118	105	120	78.69

E-298

LEC Run 920513

Starting
05-13-92

E-299

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
15:34	1207.00	254.00	15.6	2411	3962	3.27	191	120	110	120	120	118	106	120	78.96
15:35	1228.00	251.20	15.6	2418	4021	3.33	191	120	112	120	120	117	108	120	79.54
15:36	1236.00	254.00	15.6	2420	3993	3.27	192	120	108	120	120	118	108	120	79.45
15:37	1247.00	252.20	15.5	2407	3980	3.39	192	120	109	120	120	117	109	120	79.78
15:38	1247.00	254.60	15.5	2425	4008	3.39	192	120	108	120	120	117	109	120	79.58
15:39	1243.00	252.10	15.5	2420	4032	3.09	192	120	108	120	120	118	109	120	79.72
15:40	1243.00	253.20	15.5	2426	4008	2.95	192	120	112	120	120	118	107	120	79.63
10 MinAvg	1218.60	251.35	15.6	2414	4007	3.17	191	120	109	120	120	118	108	120	79.37
15:41	1252.00	251.90	15.5	2352	3994	2.96	191	120	114	120	120	118	106	120	79.88
15:42	1257.00	257.20	15.5	2409	3984	3.24	190	120	115	120	120	119	109	120	79.54
15:43	1237.00	254.20	15.6	2402	3963	3.41	186	120	112	120	120	119	110	120	79.45
15:44	1196.00	244.50	15.6	2400	3967	3.21	185	120	112	120	120	118	110	120	79.56
15:45	1181.00	249.20	15.5	2408	3995	3.09	186	120	114	120	120	118	108	120	78.90
15:46	1147.00	254.20	15.6	2417	4027	2.89	187	120	109	120	120	117	107	120	77.84
15:47	1135.00	217.00	16.0	2421	3975	3.24	189	120	112	120	120	118	108	120	80.88
15:48	1129.00	240.50	15.8	2403	3975	3.33	183	121	115	121	121	120	110	121	78.70
15:49	1094.00	244.40	15.8	2421	3976	3.18	186	121	112	121	121	118	110	121	77.66
15:50	1083.00	253.00	15.8	2398	3986	3.05	191	121	111	121	121	118	110	121	76.64
10 MinAvg	1171.10	246.61	15.7	2403	3984	3.16	187	120	112	120	120	118	109	120	78.90
15:51	1104.00	248.10	15.8	2406	3969	3.01	188	121	113	121	121	119	112	121	77.53
15:52	1099.00	244.00	15.8	2404	3926	2.90	187	121	111	121	121	118	106	121	77.80
15:53	1087.00	248.60	15.8	2402	3923	2.94	190	121	114	121	121	119	106	121	77.13
15:54	1096.00	242.40	15.8	2389	3933	2.87	190	121	111	121	121	118	108	121	77.88
15:55	1092.00	251.40	15.8	2386	3930	3.05	188	121	113	121	121	119	107	121	76.98
15:56	1097.00	248.80	15.8	2395	3923	3.09	186	121	113	121	121	119	109	121	77.32
15:57	1090.00	251.30	15.8	2390	3909	3.04	187	121	111	121	121	120	108	121	76.94
15:58	1101.00	258.10	15.8	2379	3909	3.00	184	121	110	121	121	120	114	121	76.56
15:59	1112.00	248.20	15.8	2370	3926	2.85	183	121	111	121	121	119	109	121	77.68
16:00	1098.00	242.70	15.8	2389	3913	2.75	190	121	107	121	121	119	120	121	77.90
C	Louver spray pressure was checked. It had dropped down to 0.54 gpm; thus the sprays were returned to 0.61 gpm.														
10 MinAvg	1097.60	248.36	15.8	2391	3926	2.95	187	121	111	121	121	119	110	121	77.37
16:01	1111.00	238.90	15.8	2404	3913	3.17	191	121	112	121	121	118	121	123	78.50
16:02	1104.00	238.00	15.8	2394	3905	3.38	189	121	111	121	121	117	121	127	78.44
16:03	1094.00	248.20	15.8	2402	3877	3.37	189	121	113	121	121	119	121	141	77.31
16:04	1089.00	245.20	15.8	2388	3866	3.41	185	121	113	121	121	119	121	141	77.48
16:05	1097.00	248.00	15.8	2386	3888	3.44	185	121	110	121	121	120	121	142	77.39

LEC Run 920513

Starting
05-13-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
16:06	1090.00	253.90	15.9	2382	3909	3.29	186	121	110	121	121	120	121	128	76.71
16:07	1101.00	248.40	15.9	2379	3884	3.10	184	121	113	121	121	120	121	121	77.44
16:08	1113.00	254.40	15.8	2380	3888	3.09	185	121	114	121	121	119	121	121	77.14
16:09	1104.00	247.90	15.8	2378	3870	3.11	187	121	115	120	121	119	121	121	77.55
16:10	1095.00	233.50	15.9	2372	3866	3.17	184	121	114	121	121	120	121	121	78.68
10 MinAvg	1099.80	245.64	15.8	2387	3887	3.25	186	121	112	121	121	119	121	129	77.66
C	Louver sprays are increased to 0.74 gpm.														
16:11	1083.00	224.70	15.9	2375	3873	3.04	182	121	114	121	121	121	120	121	79.25
16:12	1072.00	234.10	15.9	2367	3841	3.13	181	121	114	119	121	120	118	121	78.16
16:13	1069.00	229.10	15.9	2362	3837	3.16	182	121	111	120	121	119	120	121	78.57
16:14	1056.00	220.90	15.9	2360	3838	3.13	181	121	112	120	121	120	121	121	79.08
16:15	1055.00	218.60	15.9	2349	3831	3.23	185	121	114	120	121	120	114	121	79.28
16:16	1045.00	211.30	15.9	2338	3812	3.19	180	121	111	120	121	121	112	129	79.78
16:17	1041.00	219.70	15.9	2346	3802	3.30	180	121	108	121	121	120	108	133	78.90
16:18	1044.00	211.60	15.9	2339	3791	3.35	180	121	107	121	121	120	108	130	79.73
16:19	1046.00	205.50	15.9	2340	3787	3.34	180	121	111	121	121	120	109	124	80.35
16:20	1056.00	199.00	15.9	2337	3809	3.24	179	121	113	119	121	119	109	124	81.16
10 MinAvg	1056.70	217.45	15.9	2351	3822	3.21	181	121	112	120	121	120	114	124	79.43
16:21	1072.00	198.90	15.9	2350	3853	3.09	179	121	107	121	121	121	110	121	81.45
16:22	1084.00	202.60	15.9	2325	3876	2.89	179	116	112	120	121	120	107	122	81.31
16:23	1086.00	203.90	15.9	2331	3904	3.11	179	118	108	120	121	120	107	121	81.22
16:24	1087.00	206.20	15.9	2325	3890	3.43	180	119	109	120	121	120	106	121	81.03
16:25	1103.00	202.00	15.9	2329	3878	3.37	182	120	105	121	121	120	107	121	81.69
16:26	1111.00	201.90	15.9	2321	3825	3.02	181	119	106	120	121	120	106	121	81.83
16:27	1112.00	199.80	15.9	2322	3810	3.11	181	120	106	119	121	119	105	122	82.03
16:28	1110.00	201.00	15.9	2324	3829	3.29	179	120	101	120	121	120	104	121	81.89
16:29	1101.00	193.30	16.0	2324	3860	3.23	179	120	103	120	121	120	105	122	82.44
16:30	1096.00	188.70	16.0	2333	3844	3.23	181	120	104	119	121	120	106	124	82.78
10 MinAvg	1096.20	199.83	15.9	2329	3857	3.18	180	119	106	120	121	120	106	121	81.77
16:31	1098.00	184.80	16.0	2331	3867	3.23	179	117	107	117	121	119	106	130	83.17
16:32	1117.00	177.70	16.0	2322	3882	3.01	182	113	104	119	121	119	106	132	84.09
16:33	1110.00	181.00	16.0	2329	3820	3.06	182	116	101	119	121	120	107	139	83.69
16:34	1115.00	183.50	16.0	2336	3770	3.05	185	113	104	119	121	119	106	137	83.54
16:35	1133.00	186.00	16.0	2430	4051	3.52	187	116	94	120	120	119	106	141	83.58
16:36	1140.00	185.40	16.0	2471	4307	3.36	189	115	94	118	120	118	108	141	83.74
16:37	1156.00	193.30	16.0	2489	4455	3.73	189	113	96	118	120	119	106	139	83.28

E-300

LEC Run 920513

Starting
05-13-92

E-301

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
16:38	1103.00	196.50	16.0			3.66									82.18
16:39	685.30	196.60	16.1			3.65									71.31
16:40	977.00	195.40	16.0			3.51									80.00
10 MinAvg	1063.43	188.02	16.0	2387	4022	3.38	185	115	100	119	120	119	106	137	81.86
16:41	1186.00	193.70	16.0	2458	4766	3.32	189	116	91	119	119	119	108	149	83.67
16:42	1188.00	183.20	16.1	2486	4734	3.42	190	115	93	116	120	118	109	149	84.58
16:43	1177.00	181.00	16.0	2460	4737	3.48	190	113	98	116	120	118	108	149	84.62
16:44	1188.00	179.50	16.0	2457	4765	3.45	192	112	94	118	120	115	108	149	84.89
16:45	1201.00	184.80	15.9	2445	4829	3.44	192	113	99	117	120	116	106	149	84.61
16:46	1214.00	186.30	15.9	2439	4914	3.36	192	112	102	117	120	115	106	149	84.65
16:47	1221.00	195.50	15.9	2433	4900	3.24	192	112	103	117	120	116	106	149	83.99
16:48	1210.00	191.00	16.0	2457	4864	3.14	192	113	98	118	120	114	107	149	84.21
C	Damper is reduced to Position I (lowest setting).														
16:49	1202.00	193.40	15.8	1989	4989	0.84	192	112	98	115	120	114	108	149	83.91
16:50	1231.00	197.50	15.7	1712	4998	-1.07	193	113	96	119	120	117	109	149	83.96
10 MinAvg	1201.80	188.59	15.9	2334	4850	2.66	191	113	97	117	120	116	107	149	84.31
16:51	1260.00	191.90	15.7	1729	4832	-0.98	192	115	101	119	120	118	108	149	84.77
16:52	1267.00	197.30	15.7	1738	4923	-1.00	192	115	102	120	120	119	107	149	84.43
16:53	1279.00	195.30	15.7	1747	4921	-1.11	192	114	106	119	120	118	106	149	84.73
16:54	1279.00	193.80	15.7	1756	4925	-1.13	192	116	104	120	120	119	110	149	84.85
16:55	1268.00	189.40	15.7	1747	4914	-1.09	192	117	98	120	120	119	116	148	85.06
16:56	1253.00	188.60	15.7	1756	4905	-1.05	192	116	97	120	120	120	120	149	84.95
16:57	1233.00	193.20	15.6	1756	4886	-1.04	192	115	94	119	120	120	120	148	84.33
16:58	1234.00	190.10	15.7	1756	4886	-1.05	192	115	97	119	120	120	120	147	84.59
16:59	1251.00	182.30	15.7	1756	4859	-0.87	192	116	100	119	120	120	120	148	85.43
17:00	1257.00	183.80	15.7	1765	4811	-0.65	192	116	99	120	120	120	120	149	85.38
10 MinAvg	1258.10	190.57	15.7	1751	4886	-1.00	192	115	100	119	120	119	114	148	84.85
17:01	1262.00	187.30	15.6	1782	4790	-0.58	192	117	98	120	120	120	120	149	85.16
17:02	1263.00	187.30	15.6	1774	4793	-0.61	192	116	102	120	120	120	120	149	85.17
17:03	1263.00	181.60	15.6	1773	4787	-0.60	192	118	101	119	120	119	119	149	85.62
17:04	1277.00	182.60	15.6	1773	4765	-0.64	192	114	110	119	119	119	119	149	85.70
17:05	1281.00	187.60	15.6	1773	4796	-0.78	192	118	109	119	119	119	119	149	85.36
17:06	1286.00	194.80	15.6	1773	4773	-0.75	192	115	105	119	120	119	120	149	84.85
17:07	1291.00	196.60	15.5	1773	4779	-0.83	192	116	107	119	120	119	119	149	84.77
17:08	1303.00	199.00	15.6	1773	4781	-0.88	192	117	110	119	123	119	119	149	84.73
17:09	1286.00	194.80	15.6	1773	4764	-0.79	192	117	108	119	144	119	119	149	84.85

LEC Run 920513

Starting
05-13-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
17:10	1280.00	194.60	15.6	1764	4761	-0.77	192	118	106	119	141	119	119	149	84.80
10 MinAvg	1279.20	190.62	15.6	1773	4779	-0.72	192	117	105	119	125	119	119	149	85.10
17:11	1291.00	189.40	15.6	1851	4733	-0.67	192	118	107	119	146	119	119	149	85.33
17:12	1294.00	187.20	15.6	2245	4723	-0.66	208	118	102	119	142	119	119	148	85.53
17:13	1269.00	191.10	15.7	2301	4711	-0.71	250	117	101	119	123	119	119	149	84.94
17:14	1262.00	205.00	15.5	759	4686	-0.80	250	113	110	120	120	120	120	149	83.76

E-302

**SCREEN ANALYSIS OF 9205130847 DUTCHMAN STONE
(+3000 ACFM)**

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	80.0	6.51	0.438	0.1488
+5/16	0.313	223.4	18.18	0.344	0.5285
+1/4	0.250	290.7	23.66	0.282	0.8405
+3.5	0.223	148.9	12.12	0.237	0.5124
+4	0.185	172.7	14.06	0.204	0.6890
+5	0.157	162.6	13.23	0.171	0.7739
+6	0.132	103.2	8.40	0.145	0.5813
+8	0.094	40.5	3.30	0.113	0.2921
+10	0.079	1.9	0.15	0.086	0.0179
+12	0.066	1.0	0.08	0.072	0.0112
+14	0.056	0.5	0.04	0.061	0.0067
+16	0.047	0.3	0.02	0.051	0.0048
+20	0.033	0.2	0.02	0.040	0.0041
-20		2.8	0.23	0.017	0.1377
Total =		1228.7	100.00		4.5489

Harmonic Mean Diameter (in.) = 0.2198
 Weighted Average Diameter (in.) = 0.2537

SCREEN ANALYSIS OF 9205130945 REACTOR SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	82.0	8.81	0.438	0.2014
+5/16	0.313	152.9	16.43	0.344	0.4777
+1/4	0.250	221.6	23.82	0.282	0.8460
+3.5	0.223	206.0	22.14	0.237	0.9361
+4	0.185	111.0	11.93	0.204	0.5848
+5	0.157	71.1	7.64	0.171	0.4468
+6	0.132	62.8	6.75	0.145	0.4671
+8	0.094	17.2	1.85	0.113	0.1638
+10	0.079	0.2	0.02	0.086	0.0025
+12	0.066	0.2	0.02	0.072	0.0030
+14	0.056	0.3	0.03	0.061	0.0053
+16	0.047	0.1	0.01	0.051	0.0021
+20	0.033	0.2	0.02	0.040	0.0054
-20		4.9	0.53	0.017	0.3182
Total =		930.5	100.00		4.4601

Harmonic Mean Diameter (in.) = 0.2242
Weighted Average Diameter (in.) = 0.2639

SCREEN ANALYSIS OF 9205130945 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	143.3	14.61	0.438	0.3341
+5/16	0.313	252.6	25.76	0.344	0.7489
+1/4	0.250	269.4	27.48	0.282	0.9760
+3.5	0.223	107.6	10.97	0.237	0.4640
+4	0.185	88.1	8.99	0.204	0.4405
+5	0.157	71.1	7.25	0.171	0.4241
+6	0.132	35.5	3.62	0.145	0.2506
+8	0.094	8.7	0.89	0.113	0.0786
+10	0.079	0.1	0.01	0.086	0.0012
+12	0.066	0.1	0.01	0.072	0.0014
+14	0.056	0.1	0.01	0.061	0.0017
+16	0.047	0.0	0.00	0.051	0.0000
+20	0.033	0.1	0.01	0.040	0.0025
-20		3.8	0.39	0.017	0.2342
Total =		980.5	100.00		3.9577

Harmonic Mean Diameter (in.) = 0.2527

Weighted Average Diameter (in.) = 0.2929

SCREEN ANALYSIS OF 9205131015 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	106.5	17.18	0.438	0.3927
+5/16	0.313	170.0	27.42	0.344	0.7972
+1/4	0.250	153.4	24.75	0.282	0.8791
+3.5	0.223	63.5	10.24	0.237	0.4331
+4	0.185	54.8	8.84	0.204	0.4333
+5	0.157	39.9	6.44	0.171	0.3764
+6	0.132	19.5	3.15	0.145	0.2177
+8	0.094	6.9	1.11	0.113	0.0986
+10	0.079	0.0	0.00	0.086	0.0000
+12	0.066	0.0	0.00	0.072	0.0000
+14	0.056	0.5	0.08	0.061	0.0133
+16	0.047	0.0	0.00	0.051	0.0000
+20	0.033	0.2	0.03	0.040	0.0081
-20		4.7	0.76	0.017	0.4581
Total =		619.9	100.00		4.1076

Harmonic Mean Diameter (in.) = 0.2434

Weighted Average Diameter (in.) = 0.2984

SCREEN ANALYSIS OF 9205131200 REACTOR SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	77.1	9.32	0.438	0.2129
+5/16	0.313	152.4	18.41	0.344	0.5353
+1/4	0.250	196.9	23.79	0.282	0.8452
+3.5	0.223	88.8	10.73	0.237	0.4537
+4	0.185	117.7	14.22	0.204	0.6971
+5	0.157	98.3	11.88	0.171	0.6946
+6	0.132	57.6	6.96	0.145	0.4817
+8	0.094	27.5	3.32	0.113	0.2944
+10	0.079	2.0	0.24	0.086	0.0280
+12	0.066	1.7	0.21	0.072	0.0284
+14	0.056	0.8	0.10	0.061	0.0159
+16	0.047	0.4	0.05	0.051	0.0094
+20	0.033	0.6	0.07	0.040	0.0181
-20		5.8	0.70	0.017	0.4235
Total =		827.6	100.00		4.7383

Harmonic Mean Diameter (in.) = 0.2110
Weighted Average Diameter (in.) = 0.2602

SCREEN ANALYSIS OF 9205131200 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	0.0	0.00	0.438	0.0000
+5/16	0.313	112.6	12.92	0.344	0.3755
+1/4	0.250	206.7	23.71	0.282	0.8423
+3.5	0.223	206.4	23.68	0.237	1.0011
+4	0.185	111.7	12.81	0.204	0.6281
+5	0.157	100.1	11.48	0.171	0.6715
+6	0.132	118.5	13.59	0.145	0.9407
+8	0.094	12.4	1.42	0.113	0.1260
+10	0.079	0.2	0.02	0.086	0.0027
+12	0.066	0.0	0.00	0.072	0.0000
+14	0.056	0.0	0.00	0.061	0.0000
+16	0.047	0.0	0.00	0.051	0.0000
+20	0.033	0.3	0.03	0.040	0.0086
-20		2.9	0.33	0.017	0.2010
Total =		871.8	100.00		4.7973

Harmonic Mean Diameter (in.) = 0.2085
Weighted Average Diameter (in.) = 0.2343

SCREEN ANALYSIS OF 9205131310 DUTCHMAN STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	39.5	4.85	0.438	0.1109
+5/16	0.313	110.5	13.58	0.344	0.3947
+1/4	0.250	170.0	20.89	0.282	0.7421
+3.5	0.223	108.7	13.36	0.237	0.5648
+4	0.185	125.3	15.40	0.204	0.7548
+5	0.157	128.9	15.84	0.171	0.9263
+6	0.132	81.7	10.04	0.145	0.6948
+8	0.094	33.0	4.06	0.113	0.3593
+10	0.079	2.4	0.29	0.086	0.0342
+12	0.066	1.8	0.22	0.072	0.0306
+14	0.056	1.5	0.18	0.061	0.0303
+16	0.047	1.0	0.12	0.051	0.0240
+20	0.033	1.8	0.22	0.040	0.0553
-20		7.7	0.95	0.017	0.5717
Total =		813.8	100.00		5.2937

Harmonic Mean Diameter (in.) = 0.1889
Weighted Average Diameter (in.) = 0.2368

SCREEN ANALYSIS OF 9205131414 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	160.0	17.38	0.438	0.3973
+5/16	0.313	235.7	25.60	0.344	0.7443
+1/4	0.250	234.4	25.46	0.282	0.9045
+3.5	0.223	94.7	10.29	0.237	0.4350
+4	0.185	90.7	9.85	0.204	0.4830
+5	0.157	59.1	6.42	0.171	0.3754
+6	0.132	39.0	4.24	0.145	0.2932
+8	0.094	6.2	0.67	0.113	0.0597
+10	0.079	0.1	0.01	0.086	0.0013
+12	0.066	0.1	0.01	0.072	0.0015
+14	0.056	0.0	0.00	0.061	0.0000
+16	0.047	0.1	0.01	0.051	0.0021
+20	0.033	0.0	0.00	0.040	0.0000
-20		0.5	0.05	0.017	0.0328
Total =		920.6	100.00		3.7299
Harmonic Mean Diameter (in.) =			0.2681		
Weighted Average Diameter (in.) =			0.2981		

SCREEN ANALYSIS OF 9205131550 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	71.5	9.48	0.438	0.2167
+5/16	0.313	178.6	23.69	0.344	0.6886
+1/4	0.250	208.0	27.59	0.282	0.9800
+3.5	0.223	77.0	10.21	0.237	0.4318
+4	0.185	80.3	10.65	0.204	0.5221
+5	0.157	60.7	8.05	0.171	0.4708
+6	0.132	51.0	6.76	0.145	0.4681
+8	0.094	22.5	2.98	0.113	0.2644
+10	0.079	0.6	0.08	0.086	0.0092
+12	0.066	0.4	0.05	0.072	0.0073
+14	0.056	0.2	0.03	0.061	0.0044
+16	0.047	0.3	0.04	0.051	0.0078
+20	0.033	0.6	0.08	0.040	0.0199
-20		2.3	0.31	0.017	0.1843
Total =		754.0	100.00		4.2754

Harmonic Mean Diameter (in.) = 0.2339
Weighted Average Diameter (in.)= 0.2736

SCREEN ANALYSIS OF 9205131711 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	104.4	14.23	0.438	0.3252
+5/16	0.313	154.7	21.08	0.344	0.6128
+1/4	0.250	157.7	21.49	0.282	0.7635
+3.5	0.223	78.6	10.71	0.237	0.4529
+4	0.185	84.6	11.53	0.204	0.5651
+5	0.157	78.9	10.75	0.171	0.6288
+6	0.132	40.9	5.57	0.145	0.3857
+8	0.094	15.9	2.17	0.113	0.1920
+10	0.079	1.3	0.18	0.086	0.0206
+12	0.066	1.2	0.16	0.072	0.0226
+14	0.056	1.0	0.14	0.061	0.0224
+16	0.047	0.6	0.08	0.051	0.0160
+20	0.033	1.2	0.16	0.040	0.0409
-20		12.8	1.74	0.017	1.0540
Total =		733.8	100.00		5.1024

Harmonic Mean Diameter (in.) = 0.1960
Weighted Average Diameter (in.) = 0.2738

LEC RUN 920513

Waste Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Dust Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
09:56 AM	51	27.7	0.54
10:29 AM	33	23.7	0.72
10:55 AM	26	37.9	1.46
11:30 AM	35	30.9	0.88
12:07 PM	37	20.4	0.55
12:30 PM	23	16.8	0.73
12:53 PM	23	9.5	0.41
01:27 PM	34	16.0	0.47
03:00 PM	33	25.7	0.78
03:48 PM	48	21.6	0.45
04:29 PM	41	16.6	0.40
05:06 PM	37	26.5	0.72
Total:		273.4	0.68
Average:			

LEC RUN 920513

Carry-Over Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Stone Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
08:47 AM	42	35.0	0.83
10:23 AM	36	1.7	0.05
11:51 AM	28	14.3	0.51
12:29 PM	38	36.2	0.95
12:47 PM	18	20.1	1.12
01:09 PM	22	41.5	1.88
01:22 PM	13	35.6	2.74
01:37 PM	15	25.1	1.67
01:41 PM	4	21.5	5.37
01:50 PM	9	21.6	2.40
01:59 PM	9	21.4	2.38
02:10 PM	11	37.4	3.40
02:22 PM	12	40.0	3.34
02:30 PM	8	30.0	3.76
02:41 PM	11	40.8	3.71
02:50 PM	9	44.9	4.99
02:57 PM	7	27.4	3.92
03:06 PM	9	46.3	5.14
03:10 PM	4	23.0	5.75
03:14 PM	4	28.3	7.07
03:19 PM	5	22.6	4.52
03:22 PM	3	22.4	7.48
03:25 PM	3	17.9	5.98
03:29 PM	4	24.3	6.08
03:34 PM	5	17.2	3.44
03:38 PM	4	26.3	6.58
03:41 PM	3	17.9	5.96
03:44 PM	3	15.3	5.11
03:47 PM	3	17.2	5.74
03:50 PM	3	16.2	5.39
03:57 PM	7	23.1	3.30
04:03 PM	6	27.3	4.54
04:09 PM	6	14.3	2.39
04:15 PM	6	19.8	3.29
04:21 PM	6	22.5	3.75
04:26 PM	5	20.4	4.08
04:31 PM	5	21.9	4.38
04:37 PM	6	38.1	6.35
04:43 PM	6	43.2	7.20
04:48 PM	5	35.6	7.12
05:00 PM	12	4.0	0.33
Total:		1059.9	
Average:			4.00

Run Summary:

LEC Run 920515

Objective: To use the limestone produced from LEC Run 920430 at an increased water rate in order to produce greater SO₂ removal efficiency.

Total Run Time: 32 minutes

SO₂ Removal: not available

Inlet Gas Rate: 2400 acfm

Operational Conditions:

No.8 limestone from LEC Run 920513 (143.1 hrs of prior exposure time).

In-duct Steam: 10 psig (full)

Overhead Sprays: 0.0 gpm

Louver Sprays: 0.50 gpm

Bed Speed: 10 DT (1462 lb/hr)

Regeneration device: No.6 and No.16 mesh vibrating screen

Comments: - The run was started at 1030 after an early morning loading. At 1102 stone overflowed the top pressure leg indicating an obstruction in the reactor. The run was terminated.

Run Summary:

LEC Run 920520

Objective: To use the limestone produced from LEC Run 920430 at an increased water rate in order to produce greater SO₂ removal efficiency.

Total Run Time: 475 minutes

SO₂ Removal: 94% to 73% (outlet sample system failed post-run leak check)

Inlet Gas Rate: 2000 acfm (average).

Operational Conditions:

No.8 limestone from LEC Run 920515 (143.6 hrs of prior exposure time).

In-duct Steam: 10 psig (full).

Overhead Sprays: 0.0 gpm.

Louver Sprays: 0.33 gpm.

Bed Speed: 10 DT (1462 lb/hr).

Waste Fines: 0.3 lbs/min.

Stone Carry-over: 0.001 lbs/min.

Regeneration device: Twin deck vibrating screen equipped with a No.6 and a No.16 mesh screen.

Comments: - The outlet sampling system failed the post-run leak check indicating that the high SO₂ removals obtained in this run are suspect. Also, the vibrating screen frequently became inoperable due to the wet condition of the limestone. When the stone is wet, it not only cements-over the screen openings, but also causes the fine particles to cling to the oversize stone, thus greatly reducing the screen efficiency.

LEC Run 920520

Starting
05-20-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
Initial Conditions: Wet limestone from LEC Run 920513 (original L/S from 920430 is wet from rain). The vibrating screen is set-up with the No.6 and No. 16 mesh; The in-duct steam injection = 10 psig; louver sprays = 0.33 gpm. Note: The datalogger is "bouncing" severely, so the SO2 data is also being collected by hand.															
09:05	612.70		21.9	2441	3692	NA	197	85	65	69	71	69	67	64	
09:06	622.40		21.6	2445	3837		206	86	69	75	73	69	70	65	
09:07	622.20		21.6	2412	3918		210	89	68	84	85	72	72	63	
09:08	622.50		21.6	2377	3874		212	84	71	92	87	73	77	64	
09:09	624.20		21.6	2335	3855		216	85	79	97	88	74	81	65	
09:10	630.30		21.6	2285	3895		206	94	78	98	88	79	85	64	
10 MinAvg	622.00		21.7	2383	3845		208	87	69	78	75	71	71	64	
09:11	627.40		21.6	2171	3865		127	91	80	97	88	87	86	66	
09:12	630.80		21.6	2228	3867		170	94	80	97	88	88	88	65	
09:13	630.70		21.6	2193	3834		173	92	88	98	89	89	88	64	
09:14	632.70		21.6	2197	3776		176	96	92	101	89	90	89	66	
09:15	668.10		13.4	2142	3871		176	125	89	111	103	89	96	74	
09:16	628.70		13.4	2170	3852		176	103	90	107	102	93	92	75	
09:17	607.50		13.4	2164	4013		177	106	92	108	104	94	91	71	
09:18	811.00		13.4	2170	3912		176	89	96	104	104	104	96	74	
09:19	778.00		13.4	2157	4007		177	111	93	107	107	100	92	76	
09:20	775.00		13.4	2150	4063		177	104	88	107	108	102	93	79	
10 MinAvg	678.99		16.7	2174	3906		171	101	89	104	98	93	91	71	
09:21	740.00		13.4	2136	4082		177	111	87	105	106	102	94	81	
09:22	760.00		13.4	2142	3948		177	107	90	107	107	105	92	84	
09:23	765.00		13.4	2143	4017		177	112	89	106	107	112	95	86	
09:24	753.00		13.4	2158	4007		186	139	100	124	105	116	95	89	
09:25	740.00		15.0	2154	3951		183	137	105	129	106	118	95	91	
09:26	743.00		15.2	2133	3906		180	140	103	118	108	118	96	92	
09:27	798.00		15.3	2147	3919		188	139	111	126	108	119	95	91	
09:28	790.00		15.3	2151	3951		190	150	114	123	107	118	96	92	
09:29	778.00		15.3	2142	4133		185	163	121	131	108	119	96	90	
09:30	773.00	40.00	15.3	2126	4166		188	143	116	135	109	119	96	94	94.83
10 MinAvg	764.00	40.00	14.5	2143	4008		183	134	104	121	107	115	95	89	94.83
09:31	780.00	40.00	15.3	2124	4209		192	146	107	142	107	119	98	95	94.87
09:32	782.00	45.00	15.4	2125	4102		187	181	109	121	104	119	94	91	94.25
09:33	753.00	49.00	15.3	2091	3663		176	119	101	114	104	119	97	95	93.49
09:34	786.00	48.00	15.4	2094	3527		178	135	95	112	104	119	94	93	93.89

E-317

LEC Run 920520

Starting
05-20-92

E-318

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.9 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
09:35	772.00	51.00	15.3	2092	3988		177	135	95	106	104	119	93	93	93.39
09:36	797.00	51.00	15.3	2085	3983		177	118	93	110	104	119	95	94	93.60
09:37	796.00	53.00	15.3	2096	3738		179	148	99	108	104	119	93	91	93.34
09:38	776.00	55.00	15.3	2072	3977		178	110	97	104	106	119	95	94	92.91
09:39	764.00	55.00	15.4	2080	4108		178	125	96	104	104	120	94	92	92.80
09:40	832.00	50.00	15.5	2087	4305		178	124	94	103	103	120	95	90	93.99
10 MinAvg	783.80	49.70	15.4	2095	3960		180	134	98	112	104	119	95	93	93.65
09:41	799.00	50.22	15.5	2080	4251		178	119	94	105	102	120	95	92	93.71
09:42	829.00	50.42	15.5	2080	4311		178	118	93	102	101	120	94	91	93.92
09:43	807.00	50.88	15.6	2080	4136		178	112	92	102	98	120	93	91	93.70
09:44	856.00	51.25	15.6	2087	3932		178	136	94	109	100	120	94	92	94.01
09:45	790.00	50.82	15.6	2111	3847		193	149	125	138	104	118	98	102	93.57
09:46	835.00	51.55	15.5	2107	3908		190	149	115	125	101	118	95	97	93.83
09:47	822.00	52.48	15.5	2097	3784		184	147	100	106	99	119	94	96	93.62
09:48	809.00	59.66	15.5	2089	3967		179	121	94	103	104	118	94	95	92.63
09:49	812.00	60.68	15.6	2089	3938		179	109	94	102	102	118	94	98	92.53
09:50	840.00	60.74	15.6	2088	4030		179	113	92	103	101	115	96	97	92.77
10 MinAvg	819.90	53.87	15.5	2091	4010		181	127	99	110	101	119	95	95	93.43
09:51	862.00	60.74	15.7	2083	3867		180	110	93	102	101	116	94	98	92.95
09:52	818.00	60.10	15.7	2090	3683		179	123	93	104	99	118	95	100	92.65
09:53	868.00	60.80	15.7	2081	4205		179	128	94	102	102	119	93	97	93.00
09:54	827.00	60.97	15.8	2090	4084		180	110	92	101	102	118	94	100	92.63
09:55	809.00	60.86	15.7	2062	3955		181	119	94	101	101	115	94	98	92.48
09:56	898.00	60.76	15.7	2092	3896		181	105	95	101	101	114	95	102	93.23
09:57	879.00	60.93	15.7	2083	3669		180	106	95	100	101	114	96	103	93.07
09:58	866.00	60.26	15.8	2091	3720		180	128	94	102	99	114	95	102	93.04
09:59	904.00	60.37	15.8	2094	4030		182	105	95	100	100	117	95	105	93.32
10:00	848.00	60.50	15.8	2085	4441		181	107	94	103	99	116	97	102	92.87
10 MinAvg	857.90	60.63	15.7	2085	3955		180	114	94	102	100	116	95	101	92.92
10:01	900.00	55.79	15.8	2085	4238		181	106	96	100	101	117	98	105	93.80
10:02	902.00	65.17	15.8	2085	4311		181	108	95	100	100	116	97	103	92.77
10:03	842.00	60.91	16.0	2077	3947		181	112	96	101	101	117	97	106	92.77
10:04			15.4	2139	4533		215	236	155	120	100	118	102	108	
10:05			15.3	2141	4447		221	208	147	209	113	128	139	196	
10:06			15.4	2194	4125		255	206	138	223	109	119	126	176	
10:07	648.00	74.30	16.5	2163	4401		245	219	163	229	111	117	126	174	88.53

LEC Run 920520

Starting
05-20-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10:08	771.00	71.50	15.8	2266	4528		303	350	268	205	107	121	127	142	90.73
10:09	870.00	62.89	15.8	2186	4446		255	245	191	253	113	122	127	143	92.77
10:10	746.00	72.70	15.8	2077	4180		185	120	138	128	104	113	118	163	90.25
10 MinAvg	811.29	66.18	15.7	2141	4316		222	191	149	167	106	119	116	141	91.66
10:11	814.00	65.49	15.8	2149	4573		231	184	158	186	101	113	106	126	91.95
10:12	843.00	78.30	15.8	2110	4646		206	165	111	248	104	115	130	199	90.71
10:13	709.00	80.80	15.7	2073	4748		187	219	127	130	104	106	109	173	88.60
10:14	835.00	73.70	15.8	2141	4534		236	222	171	192	107	107	115	159	91.17
10:15	764.00	73.90	15.8	2189	4496		262	230	197	183	100	105	116	165	90.33
10:16	824.00	74.30	15.8	2151	4406		237	243	178	168	103	103	109	136	90.98
10:17	765.00	80.20	15.8	2121	3967		223	196	159	211	102	106	118	181	89.52
10:18	844.00	82.10	15.8	2136	4417		227	255	173	152	102	102	109	136	90.27
10:19	819.00	84.90	15.8	2170	4726		254	263	216	198	102	105	120	151	89.63
10:20	828.00	86.90	15.8	2102	4365		230	221	174	200	109	108	131	197	89.50
10 MinAvg	804.50	78.06	15.8	2134	4488		229	220	166	187	103	107	116	162	90.27
10:21	839.00	84.50	15.9	2124	4092		225	186	174	172	100	105	122	183	89.93
10:22	807.00	86.30	15.9	2171	3795		261	238	180	187	102	103	109	138	89.31
10:23	875.00	80.80	16.0	2186	4177		271	275	220	200	100	103	121	173	90.77
10:24	885.00	83.90	15.9	2146	3827		249	229	196	208	102	103	113	134	90.52
10:25	826.00	90.40	15.9	2131	3621		239	221	190	219	103	108	127	198	89.06
10:26	709.00	94.30	15.9	2061	3323		194	197	111	179	101	102	109	173	86.70
10:27	861.00	85.00	16.0	2091	3081		218	187	125	201	99	103	115	154	90.13
10:28	867.00	80.20	16.0	2131	3695		244	216	161	232	101	103	117	159	90.75
10:29	733.00	93.50	16.0	2045	3958		189	191	112	134	102	102	109	152	87.24
10:30	846.00	85.50	16.1	2034	4154		191	137	110	157	101	101	113	137	89.89
10 MinAvg	824.80	86.44	16.0	2112	3772		228	208	158	189	101	103	116	160	89.43
10:31	682.90	90.80	16.1	2022	3737		179	120	116	127	97	102	106	124	86.70
10:32	790.00	89.80	16.1	2020	3695		183	158	113	125	97	102	100	118	88.63
10:33	904.00	91.60	16.1	2014	3626		174	161	106	115	96	101	102	115	89.87
10:34	697.40	91.40	16.1	2018	3929		176	116	96	118	101	103	102	108	86.89
10:35	817.00	95.90	16.0	2022	4300		179	129	106	126	98	102	106	116	88.26
10:36	772.00	101.00	16.0	2048	3574		191	140	104	146	100	103	104	109	86.92
10:37	814.00	99.40	16.0	2020	3508		178	149	98	101	97	102	110	122	87.79
10:38	871.00	99.80	16.1	2031	4104		180	131	103	107	96	103	103	123	88.54
10:39	836.00	95.60	16.1	2049	4713		191	190	118	132	101	104	109	125	88.56
10:40	905.00	97.00	16.1	2032	4281		185	137	125	123	98	107	111	130	89.28

E-319

LEC Run 920520

Starting
05-20-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10 MinAvg	808.93	95.23	16.1	2028	3947		181	143	109	122	98	103	105	119	88.15
10:41	862.00	98.60	16.1	2027	3985		187	173	113	110	100	107	103	125	88.56
10:42	859.00	104.80	16.1	2006	2771		178	134	102	103	99	105	103	125	87.80
10:43	872.00	96.80	16.1	2007	2067		179	149	117	116	99	107	111	128	88.90
10:44	859.00	99.80	16.1	2011	2389		181	137	107	109	99	110	113	127	88.38
10:45	843.00	100.80	16.1	2005	3151		178	131	101	101	98	109	114	125	88.04
10:46	848.00	102.80	16.1	2007	2788		179	136	99	99	97	109	118	126	87.88
10:47	856.00	107.70	16.0	2001	1529		175	123	100	102	97	112	117	124	87.42
10:48	859.00	108.20	16.0	2008	1921		175	130	104	103	96	115	114	124	87.40
10:49	853.00	105.90	16.0	2023	2751		180	131	101	102	98	117	112	125	87.58
10:50	916.00	110.10	15.9	2021	3334		178	112	100	101	100	122	115	124	87.98
10 MinAvg	862.70	103.55	16.0	2012	2668		179	135	104	105	98	111	112	125	87.99
10:51	959.00	112.30	16.0	2022	3394		179	106	100	100	104	123	119	122	88.29
10:52	962.00	116.40	15.9	2023	3313		179	108	100	100	109	123	120	121	87.90
10:53	939.00	119.40	15.9	2026	3713		181	107	101	101	113	123	121	120	87.28
10:54	936.00	121.80	15.9	2026	4055		181	113	99	100	123	123	118	119	86.99
10:55	967.00	121.50	15.9	2024	3904		180	107	102	101	123	123	116	119	87.44
10:56	943.00	114.10	16.0	2026	3969		181	108	101	101	123	123	120	118	87.90
10:57	970.00	110.30	16.0	2026	4521		182	106	101	101	123	123	122	117	88.63
10:58	908.00	103.90	16.0	2026	4808		182	124	102	105	123	123	121	117	88.56
10:59	892.00	101.00	16.0	2019	4623		182	123	104	104	123	123	121	118	88.68
11:00	805.00	99.90	16.0	2025	4773		185	180	105	106	123	123	121	113	87.59
10 MinAvg	928.10	112.06	16.0	2024	4107		181	118	101	102	119	123	120	118	87.93
11:01	872.00	98.70	16.1	2021	4561		183	129	115	111	123	123	120	118	88.68
11:02	765.00	104.00	16.0	2020	4124		183	128	123	103	123	123	123	119	86.41
11:03	868.00	107.60	16.0	2021	2991		183	129	127	120	123	123	122	119	87.60
11:04	897.00	113.00	16.0	2025	2992		186	159	135	126	123	123	122	117	87.40
11:05	833.00	107.80	16.0	2022	3398		193	168	138	150	123	123	122	124	87.06
11:06	856.00	111.50	15.9	2030	4117		193	144	143	147	124	123	122	122	86.97
11:07	829.00	114.30	15.9	2073	4618		192	154	132	146	125	123	121	125	86.21
11:08	822.00	115.20	16.0	2126	4574		193	153	127	156	128	123	121	132	85.99
11:09	850.00	110.30	16.0	2135	4842		203	174	162	156	126	123	124	128	87.02
11:10	809.00	110.40	16.0	2137	5021		204	181	156	156	132	123	125	120	86.35
10 MinAvg	840.10	109.28	16.0	2061	4124		191	152	136	137	125	123	122	122	86.97
11:11	879.00	116.00	15.9	2109	4601		191	168	148	147	130	123	124	124	86.80

E-320

LEC Run 920520

Starting
05-20-92

E-321

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
11:12	867.00	111.00	15.9	2095	3935		187	175	134	155	131	123	123	122	87.20
11:13	872.00	120.80	15.9	2099	3459		185	165	135	134	139	123	123	118	86.15
11:14	853.00	117.30	15.9	2091	3165		185	162	126	134	131	123	124	119	86.25
11:15	865.00	120.00	15.9	2071	2586		177	141	121	140	130	123	123	117	86.13
11:16	851.00	116.60	15.9	2102	2617		192	158	144	168	130	123	124	132	86.30
11:17	897.00	117.10	15.9	2118	3261		206	175	161	199	127	123	120	127	86.95
11:18	883.00	126.60	15.9	2096	3255		188	163	144	160	128	123	125	117	85.66
11:19	888.00	127.30	15.9	2061	2325		176	152	123	136	126	123	123	114	85.66
11:20	870.00	125.30	15.9	2058	1162		178	154	140	143	136	123	122	117	85.60
10 MinAvg	872.50	119.80	15.9	2090	3037		186	161	137	152	131	123	123	121	86.27
11:21	858.00	124.90	15.9	2061			175	162	125	141	127	123	123	114	85.44
11:22	861.00	124.60	15.9												85.53
11:23	868.00	121.10	15.9	2081			183	160	126	147	132	123	122	114	86.05
11:24	896.00	113.40	15.9	2123	1716		210	196	176	191	129	123	123	119	87.34
11:25	928.00	118.80	15.9	2109	2511		196	187	143	171	126	123	126	117	87.20
11:26	902.00	127.80	15.9	2096	2469		184	148	125	144	125	123	129	118	85.83
11:27	994.00	136.00	15.8	2096	1627		183	136	131	151	127	122	127	118	86.32
11:28	835.00	143.60	15.9	2088			178	132	103	142	133	123	130	115	82.80
11:29	954.00	139.90	15.8	2107			181	116	105	138	133	122	128	117	85.34
11:30	1004.00	149.90	15.7						-6999					-6999	85.07
10 MinAvg	910.00	130.00	15.8	2095	2081		186	155	-663	153	129	123	126	-674	85.69
11:31	956.00	155.90	15.7	2112			180	137	99	122	127	122	130	112	83.69
11:32	972.00	150.10	15.8	2118			179	124	100	127	133	122	130	112	84.56
11:33	921.00	151.40	15.7	2114			181	129	106	121	128	122	127	115	83.56
11:34	1053.00	166.40	15.6	2114			181	130	97	119	128	122	127	115	84.20
11:35	842.00	176.40	15.6	2112			180	149	96	118	135	122	127	109	79.05
11:36	1029.00	178.20	15.6	2105	1272		180	167	96	124	131	122	124	112	82.68
11:37	965.00	180.00	15.6												81.35
11:38	956.00	169.80	15.6	2141	3485		221	157	115	149	130	122	127	129	82.24
11:39	909.00	160.60	15.6	2192	3857		254	207	155	245	137	136	165	236	82.33
11:40	949.00	154.70	15.7	2312	4340		328	311	233	311	152	147	154	198	83.70
10 MinAvg	955.20	164.35	15.6	2147	3239		209	168	122	160	133	126	134	138	82.74
11:41	1019.00	155.00	15.6	2377	4733		391	425	293	357	165	168	189	233	84.79
11:42	989.00	166.30	15.6											-6999	83.19
11:43	987.00	171.20	15.6	2198	3736		289	265	218	245	147	144	160	205	82.65
11:44	1027.00	170.60	15.6	2144	3056		258	196	161	230	136	129	149	162	83.39

LEC Run 920520

Starting
05-20-92

E-322

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
11:45	997.00	187.30	15.6	2118	3276		246	170	137	190	138	130	149	218	81.21
11:46	963.00	179.50	15.6	2138	4071		265	213	177	210	136	135	147	181	81.36
11:47	940.00	174.80	15.6	2152	4451		280	267	202	215	132	127	140	165	81.40
11:48	918.00	177.40	15.6	2184	3976		308	258	204	248	124	127	139	178	80.68
11:49	919.00	194.80	15.6	2096	3940		248	241	150	124	123	125	125	131	78.80
11:50	982.00	197.30	15.6	2081	3919		237	210	120	122	124	126	124	125	79.91
10 MinAvg	974.10	177.42	15.6	2165	3906		280	249	185	216	136	135	147	-540	81.74
11:51	1055.00	199.50	15.6	2131	4111		266	276	166	121	124	126	127	128	81.09
11:52	1042.00	193.00	15.6	2095	3536		247	165	142	177	128	130	137	160	81.48
11:53	1100.00	185.70	15.5	2148	3786		289	230	221	145	123	131	125	144	83.12
11:54	939.00	199.90	15.5	2055	3605		226	180	94	146	123	135	127	135	78.71
11:55	1109.00	197.40	15.5	2080	3579		242	201	119	159	121	135	125	130	82.20
11:56	1131.00	203.50	15.5	2022	4125		214	116	95	124	121	135	126	135	82.01
11:57	1118.00	204.40	15.5	2045	4372		224	168	117	133	120	139	126	134	81.72
11:58	965.00	196.30	15.5	2033	4008		222	164	112	118	124	140	125	138	79.66
11:59	1004.00	201.00	15.6	2022	4149		219	178	110	132	137	141	127	135	79.98
12:00	997.00	197.40	15.6	2028	4052		224	143	96	128	149	142	127	138	80.20
10 MinAvg	1046.00	197.81	15.5	2066	3932		237	182	127	138	127	135	127	138	81.02
12:01	908.00	188.40	15.5	2032	4361		226	156	138	119	160	138	125	145	79.25
12:02	931.00	197.30	15.6	2024	4122		221	134	115	109	164	139	130	140	78.81
12:03	987.00	194.50	15.6	2017	3366		216	132	90	97	165	139	131	136	80.29
12:04	855.00	201.90	15.5	2013	3264		219	172	93	96	166	138	130	133	76.39
12:05	989.00	190.60	15.6	2013	3444		219	155	92	95	172	138	131	136	80.73
12:06	950.00	185.00	15.6	2015	3886		220	149	97	97	175	138	133	138	80.53
12:07	1010.00	190.20	15.6	1996	3888		219	136	101	96	176	136	136	139	81.17
12:08	988.00	193.00	15.6	2027	3822		223	151	97	109	175	137	136	141	80.47
12:09	931.00	196.60	15.6	2013	4077		224	164	104	100	177	134	138	140	78.88
12:10	972.00	192.00	15.6	1999	3830		220	132	98	100	176	132	136	141	80.25
10 MinAvg	952.10	192.95	15.6	2015	3806		221	148	103	102	171	137	132	139	79.68
12:11	908.00	191.50	15.6	2009	3686		221	148	102	102	172	134	137	143	78.91
12:12	921.00	193.10	15.6	2010	3873		228	201	108	105	166	136	137	143	79.03
12:13	965.00	198.70	15.6	2004	3402		218	134	102	114	164	136	137	142	79.41
12:14	999.00	197.00	15.5	2011	3353		223	158	103	110	163	145	137	141	80.28
12:15	939.00	196.60	15.5	2008	3719		221	155	100	106	156	146	138	140	79.06
12:16	950.00	190.10	15.5	1925	3881		227	155	112	110	152	149	137	143	79.99
12:17	921.00	222.40	15.2		3117		215	170	109	119	149	149	136	142	75.85

LEC Run 920520

Starting
05-20-92

E-323

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
12:18	1128.00	219.30	15.5		1627		191	156	108	122	147	149	129	142	80.56
12:19					1384		189	130	104	126	129	149	120	149	
12:20					1867		196	143	108	113	120	149	115	143	
10 MinAvg	966.38	201.09	15.5	1995	2991		213	155	106	113	152	144	132	143	79.14
12:21					1742		187	102	109	99	119	149	113	144	
12:22					1434		187	100	89	112	113	148	106	148	
12:23					542		184	98	80	101	106	145	100	143	
12:24					1036		188	102	88	103	105	147	95	135	
12:25					1023		177	88	83	97	102	142	95	138	
12:26					1613		177	85	79	91	94	144	91	141	
12:27					1139		172	83	78	91	95	139	91	140	
12:28					1052		170	79	74	94	91	140	90	131	
12:29					1470		169	79	71	89	91	137	90	131	
12:30					1754		169	77	67	88	91	135	90	130	
10 MinAvg					1281		178	89	82	96	101	143	96	138	
12:31					1429		167	75	73	87	90	133	90	130	
12:32					1512		165	78	71	87	90	129	90	133	
12:33					1486		164	78	70	85	90	128	90	132	
12:34					1626		163	77	71	85	90	126	89	133	
12:35					1892		164	75	68	85	90	124	89	132	
12:36					2014		163	74	69	85	90	123	88	131	
12:37					2129		163	70	69	83	90	121	87	125	
12:38					1873		164	76	67	83	89	121	87	131	
12:39					1713		164	75	73	82	88	121	85	124	
12:40					1894		163	77	73	83	88	120	84	128	
10 MinAvg					1757		164	75	70	84	90	125	88	130	
12:41					1141		163	75	71	82	88	119	84	123	
12:42					768		163	77	69	82	88	119	85	127	
12:43							163	76	66	81	89	120	84	125	
12:44					227		163	79	66	83	87	119	83	122	
12:45					1474		163	76	67	82	86	119	83	120	
12:46					1186		163	76	67	82	87	119	81	121	
12:47					1058		163	73	70	82	86	119	80	118	
12:48					422		163	74	66	82	85	119	81	117	
12:49					973		163	75	71	82	85	119	80	118	
12:50					1707		163	75	69	81	82	119	80	114	

LEC Run 920520

Starting
05-20-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10 MinAvg					995		163	75	68	82	86	119	82	120	
12:51					1821		163	74	73	82	82	119	78	117	
12:52					1336		163	74	66	81	83	119	79	113	
12:53					1311		163	77	67	82	82	119	79	115	
12:54					931		163	74	69	80	82	119	77	113	
12:55					1620		163	74	70	79	79	119	77	116	
12:56					1338		163	75	64	80	81	119	79	112	
12:57					1206		163	74	75	81	80	119	76	116	
12:58					1254		163	71	67	79	80	119	78	113	
12:59							163	69	63	76	77	119	77	111	
13:00					730		163	71	64	76	77	119	77	111	
10 MinAvg					1283		163	73	68	80	80	119	78	114	
13:01					1503							119	76	108	
13:02					1726							116	81	99	
13:03					1796							115	82	100	
13:04					569							113	81	100	
13:05					1121							111	81	99	
13:06					1234							109	77	103	
13:07					1357							108	75	105	
13:08					1800							102	79	100	
13:09					1478							102	77	105	
13:10					1465							99	76	102	
10 MinAvg					1405							109	78	102	
13:11					2087							97	75	106	
13:12					1775							97	75	104	
13:13					1083							95	76	99	
13:14					731							95	76	100	
13:15					1363							92	75	107	
13:16					1556							93	75	104	
13:17					1977							90	75	104	
13:18					1619							90	75	99	
13:19					1031							90	75	96	
13:20					1543							90	75	103	
10 MinAvg					1477							93	75	102	
13:21					1672							90	75	101	

E-324

LEC Run 920520

Starting
05-20-92

E-325

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
13:22					1905							90	75	98	
13:23					1258							90	75	97	
13:24					1705							90	75	97	
13:25					1523							90	75	98	
13:26					918							90	75	99	
13:27												90	75	96	
13:28					1023							90	75	97	
13:29					1466							90	75	97	
13:30					1120							90	75	95	
10 MinAvg					1399							90	75	97	
13:31					1568							90	75	95	
13:32					1852							90	75	95	
13:33					1198							90	75	94	
13:34					1653							90	75	94	
13:35					1609							90	75	93	
13:36					1412							90	75	93	
13:37					998							89	75	91	
13:38					974							89	75	93	
13:39					1218							90	75	92	
13:40												89	75	91	
10 MinAvg					1387							90	75	93	
13:41					1291							90	75	91	
13:42					619							90	75	89	
13:43					1371							90	75	92	
13:44					1293							89	75	90	
13:45					1511							89	75	90	
13:46				1381	1887		174	76	72	77	75	89	75	90	
13:47				2340	3500		214	82	68	75	82	90	77	93	
13:48	857.00	64.04	14.9	2323	3971		221	85	67	73	90	91	81	99	92.53
13:49	951.00	121.00	14.9	2180	3506		140	89	71	75	90	101	87	97	87.28
13:50	1016.00	150.20	14.9	2236	3437		174	91	67	81	90	115	89	96	85.22
10 MinAvg	941.33	111.75	14.9	2092	2239		185	85	69	76	85	93	78	93	88.34
13:51	1030.00	173.70	14.9	2222	3810		182	93	76	84	90	119	90	99	83.14
13:52	1038.00	182.90	15.0	2216	3822		187	94	86	90	90	119	90	103	82.38
13:53	1046.00	184.40	15.0	2195	3690		187	97	92	90	90	119	90	98	82.37
13:54	1057.00	180.00	15.1	2196	3713		187	98	94	90	90	119	90	101	82.97

LEC Run 920520

Starting
05-20-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
13:55	1099.00	181.30	15.1	2194	3548		191	96	97	92	90	119	90	96	83.50
13:56	1101.00	186.40	15.1	2182	3344		192	103	96	96	90	119	90	96	83.07
13:57	1122.00	193.10	15.1	2173	3347		191	100	96	98	90	119	91	97	82.79
13:58	1114.00	200.90	15.0	2159	3585		191	102	93	100	90	119	91	98	81.97
13:59	1094.00	203.30	15.0	2149	3763		189	106	92	103	90	119	94	95	81.42
14:00	1119.00	210.30	15.0	2152	4030		191	104	95	103	90	119	99	94	81.21
10 MinAvg	1082.00	189.63	15.0	2184	3665		189	99	92	95	90	119	91	98	82.48
14:01	1124.00	215.90	15.0	2138	4127		191	103	94	101	91	119	104	100	80.79
14:02	1097.00	215.10	15.0	2131	3999		191	106	92	103	92	119	110	98	80.39
14:03	1092.00	216.30	15.0	2121	3836		190	109	92	103	92	119	113	99	80.19
14:04	1075.00	214.50	15.1	2102	3692		192	110	92	105	94	119	115	100	80.05
14:05	1052.00	208.90	15.1	2099	3619		190	109	91	104	95	119	118	103	80.14
14:06	1053.00	203.70	15.1	2101	3697		191	111	91	106	96	119	117	101	80.66
14:07	1051.00	207.50	15.1	2093	3649		190	111	92	104	97	119	119	104	80.26
14:08	1044.00	209.50	15.1	2084	3859		190	114	91	105	97	119	119	103	79.93
14:09	1040.00	213.70	15.1	2080	3821		187	115	90	105	98	120	120	104	79.45
14:10	1033.00	223.20	15.1	2063	3642		186	116	91	102	100	120	120	105	78.39
10 MinAvg	1066.10	212.83	15.1	2101	3794		190	110	91	104	95	119	115	102	80.03
14:11	1013.00	228.60	15.0	2056	3648		182	117	90	101	102	120	120	107	77.43
14:12	1034.00	231.80	15.0	2055	3748		186	117	89	99	104	120	120	109	77.58
14:13	1047.00	236.40	15.0	2044	3818		183	118	89	100	104	120	120	106	77.42
14:14	1026.00	237.00	14.9	2034	3884		182	119	89	97	105	119	119	110	76.90
14:15	1018.00	240.60	14.9	2034	3777		182	119	90	96	106	120	120	111	76.37
14:16	1031.00	244.50	14.9	2031	3159		185	121	88	95	107	119	119	111	76.29
14:17	1037.00	245.20	14.9	2022	3383		179	120	88	93	109	119	119	117	76.35
14:18	1032.00	242.70	14.9	2021	3373		178	121	88	95	109	119	119	115	76.48
14:19	1021.00	242.40	14.9	2014	3661		178	121	89	94	110	119	119	115	76.26
14:20	1024.00	242.30	14.9	1998	3913		178	122	91	94	110	119	119	118	76.34
10 MinAvg	1028.30	239.15	14.9	2031	3636		181	119	89	96	107	119	119	112	76.74
14:21	1050.00	248.10	14.7	2012	3747		177	122	90	94	109	119	119	119	76.37
14:22	1081.00	254.20	14.8	2004	3656		177	123	91	93	112	119	119	124	76.48
14:23	1086.00	259.60	14.8	2005	3864		178	123	91	94	113	119	119	122	76.10
14:24	1076.00	264.50	14.7	2004	3947		177	125	91	94	115	119	119	127	75.42
14:25	1077.00	266.10	14.8	1997	3972		178	126	92	93	113	119	119	125	75.29
14:26	1061.00	268.10	14.8	1990	3722		178	127	93	95	114	119	119	133	74.73
14:27	1027.00	262.90	14.8	1997	3484		177	126	92	94	113	119	119	137	74.40

E-326

LEC Run 920520

Starting
05-20-92

E-327

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
14:28	1008.00	253.80	14.8	1981	3301		177	128	91	93	113	119	119	137	74.82
14:29	969.00	246.80	14.9	1981	3733		177	128	90	93	119	119	119	137	74.53
14:30	952.00	238.30	14.9	1980	3982		177	129	90	95	124	119	119	142	74.97
10 MinAvg	1038.70	256.24	14.8	1995	3741		177	126	91	94	115	119	119	130	75.31
14:31	963.00	238.60	14.9	1973	4069		177	131	93	93	148	119	119	143	75.22
14:32	958.00	238.70	14.9	1981	3961		177	133	90	95	154	119	119	143	75.08
14:33	979.00	239.80	14.9	1966	3739		178	131	91	93	163	119	119	151	75.51
14:34	988.00	242.40	14.9	1973	3508		177	134	90	94	163	119	121	150	75.47
14:35	1001.00	244.30	14.9	1973	3490		177	133	91	95	162	119	122	155	75.59
14:36	988.00	246.40	14.9	1973	3753		177	133	91	94	166	119	125	155	75.06
14:37	983.00	244.00	14.9	1974	3719		178	136	92	92	169	119	129	158	75.18
14:38	952.00	249.20	14.8	1974	3299		178	136	90	98	172	119	131	155	73.82
14:39	948.00	250.10	14.9	1968	3824		179	139	90	94	176	119	136	157	73.62
14:40	1000.00	252.70	14.9	1969	3991		179	137	91	94	176	119	139	161	74.73
10 MinAvg	976.00	244.62	14.9	1973	3735		178	134	91	94	165	119	126	153	74.93
14:41	992.00	246.50	14.9	1970	3933		180	135	91	95	177	119	142	161	75.15
14:42	999.00	246.60	14.9	1967	3942		183	139	92	95	174	119	145	161	75.32
14:43	986.00	243.40	14.9	1967	3684		183	138	93	95	170	119	147	161	75.31
14:44	987.00	245.40	14.9	1976	3894		184	138	92	97	167	119	147	163	75.14
14:45	987.00	242.60	14.9	1973	3895		187	139	93	96	164	119	147	162	75.42
14:46	971.00	242.40	14.9	1971	3657		186	138	92	97	164	119	148	165	75.04
14:47	997.00	238.20	14.9	1971	3405		186	143	93	99	163	119	148	163	76.11
14:48	1007.00	238.90	14.9	1973	3442		187	139	92	98	162	119	148	167	76.28
14:49	1018.00	243.60	14.9	1965	3759		187	139	93	101	163	124	148	166	76.07
14:50	1015.00	234.80	15.0	1963	4136		186	139	93	100	163	134	148	167	76.87
10 MinAvg	995.90	242.24	14.9	1970	3775		185	139	92	97	167	121	147	164	75.67
14:51	1009.00	213.60	15.1	1969	4150		189	145	96	98	163	146	148	169	78.83
14:52	1029.00	216.60	15.1	1970	3869		190	143	95	100	165	148	148	169	78.95
14:53	1039.00	217.80	15.1	1971	3678		191	143	95	103	166	148	148	166	79.04
14:54	1043.00	223.40	15.1	1978	3604		191	145	95	102	170	152	148	169	78.58
14:55	1021.00	219.40	15.1	1963	3676		191	145	93	105	166	162	149	166	78.51
14:56	1026.00	219.10	15.1	1961	3516		190	145	97	105	167	162	150	165	78.65
14:57	1009.00	217.10	15.1	1962	3988		190	144	99	103	172	162	150	171	78.48
14:58	973.00	222.10	15.1	1976	4213		199	172	107	111	168	162	149	168	77.17
14:59	839.00	223.70	15.1	2071	4534		264	263	218	148	173	163	154	195	73.34
15:00	877.00	218.20	15.1	2069	4206		257	294	271	170	168	166	165	191	75.12

LEC Run 920520

Starting
05-20-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10 MinAvg	986.50	219.10	15.1	1989	3944		205	174	127	115	168	157	151	173	77.67
15:01	918.00	209.20	15.1	2010	3683		228	192	179	205	173	171	159	221	77.21
15:02	911.00	209.60	15.1	2047	3810		254	250	255	251	183	181	173	241	76.99
15:03	1056.00	207.70	14.8	2072	4211		271	247	231	208	169	179	168	224	80.33
15:04	1063.00	275.60	14.7	1974	4282		198	191	124	145	164	177	152	176	74.07
15:05	1207.00	272.00	14.7	1960	3982		194	160	132	140	165	177	155	172	77.46
15:06	1139.00	284.00	14.7	1945	4069		195	173	111	116	163	178	154	167	75.07
15:07	1218.00	281.60	14.6	1961	3847		195	147	113	109	164	179	158	172	76.88
15:08	1108.00	281.80	14.6	1969	3931		200	155	112	109	162	181	160	175	74.57
15:09	1176.00	279.00	14.7	1964	3859		202	155	103	112	162	181	155	170	76.28
15:10	1178.00	276.80	14.7	1960	4016		205	175	106	115	162	180	155	166	76.50
10 MinAvg	1097.40	257.73	14.8	1986	3969		214	184	146	151	167	178	159	188	76.54
15:11	1274.00	275.80	14.6	1943	3985		204	148	111	116	162	182	158	171	78.35
15:12	1150.00	276.40	14.7	1948	3915		208	154	116	119	162	183	160	173	75.97
15:13	1110.00	265.30	14.7	1954	3953		212	164	110	121	162	184	157	170	76.10
15:14	1292.00	267.70	14.6	1953	3860		217	154	119	119	162	185	159	170	79.28
15:15	1185.00	263.70	14.6	1966	4112		232	212	163	149	164	187	160	168	77.75
15:16	1286.00	237.40	14.7	2075	4092		298	277	199	379	188	224	198	183	81.54
15:17	1103.00	247.60	14.8	2230	4169		263	202	185	211	163	186	159	183	77.55
15:18	1151.00	229.40	14.9	2200	4303		234	187	158	191	162	186	157	174	80.07
15:19	1202.00	230.60	14.9	2168	4077		233	193	150	174	161	186	157	172	80.82
15:20	1206.00	241.10	14.8	2133	4211		215	166	131	150	160	185	157	172	80.01
10 MinAvg	1195.90	253.50	14.7	2057	4068		232	186	144	173	165	189	162	174	78.74
15:21	1167.00	236.50	14.8	2124	4195		215	162	129	132	160	185	154	171	79.73
15:22	1171.00	236.70	14.8	2119	3976		217	172	133	132	161	184	155	173	79.79
15:23	1128.00	245.50	14.8	2105	3917		212	164	142	130	161	184	156	175	78.24
15:24	1230.00	249.40	14.8	2100	3341		209	152	111	121	157	184	155	172	79.72
15:25	1036.00	253.10	14.8	2103	3142		211	153	111	121	157	183	152	174	75.57
15:26	1036.00	256.90	14.8	2093	3637		209	184	119	121	161	182	159	172	75.20
15:27	1089.00	256.40	14.8	2099	4099		213	175	116	123	158	181	159	173	76.46
15:28	1279.00	257.90	14.8	2101	4180		215	167	116	121	159	178	156	172	79.84
15:29	1304.00	255.20	14.8	2084	4090		209	147	115	121	156	177	156	174	80.43
15:30	1204.00	254.60	14.7	2085	3818		214	153	113	121	156	176	151	170	78.85
10 MinAvg	1164.40	250.22	14.8	2101	3840		212	163	120	124	158	181	155	173	78.38
15:31	1324.00	254.50	14.7	2084	3353		214	145	116	121	154	174	151	172	80.78

E-328

LEC Run 920520

Starting
05-20-92

E-329

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
15:32	1329.00	256.70	14.7	2082	3357		207	144	118	122	153	169	152	173	80.68
15:33	1345.00	257.40	14.7	2080	3812		211	144	117	122	152	164	155	171	80.86
15:34	1353.00	261.40	14.6	2079	4227		211	145	116	122	157	162	158	175	80.68
15:35	1358.00	254.70	14.7	2069	4000		209	152	121	133	159	162	155	173	81.24
15:36	1289.00		16.6	2101	4043		230	185	184	188	157	162	156	174	
15:37	1167.00		16.3	2096	4119		227	209	191	142	161	161	156	176	
15:38	1118.00		16.0	2101	4463		225	230	156	135	160	162	150	171	
15:39	1224.00		16.1	2098	4569		228	232	153	141	161	161	154	174	
15:40	1154.00		15.1	2137	4123		259	214	166	276	172	169	158	193	
10 MinAvg	1266.10	256.94	15.4	2093	4007		222	180	144	150	159	164	154	175	80.85
15:41			14.6	2144	3933		264	225	227	228	171	172	169	196	
15:42			14.5												
15:43			14.6	2073	3859		211	176	154	136	154	160	149	189	
15:44			14.6	2090	3887		227	158	146	138	156	161	142	183	
15:45			14.6												
15:46			14.6											-6999	
15:47			14.8												
15:48			14.8												
15:49			14.8												
15:50			14.8	2544	4968		567	610	382	359	152	152	-6999 138	174	
10 MinAvg			14.6	2213	4162		317	292	227	215	158	161	-1280	-1251	
15:51	1263.00		14.9	2279	4473		364	362	278	364	169	168	149	186	
15:52	1326.00		14.9	2157	4233		278	273	228	405	176	175	158	198	
15:53	1153.00		14.8												
15:54	1218.00	199.10	14.9	2101	3996		240	202	156	262	158	158	147	215	83.65
15:55	1256.00	170.50	14.9	2191	4396		296	272	265	279	163	160	155	201	86.43
15:56	1151.00	190.70	14.9	2183	4444		296	306	257	248	166	164	149	221	83.43
15:57	1239.00	173.90	14.9	2163	4120		288	258	256	300	169	156	140	216	85.96
15:58	1200.00	183.50	14.9	2254	4398		294	296	277	317	165	161	148	189	84.71
15:59	1186.00	170.70	14.8	2220	4167		282	227	247	255	159	155	151	183	85.61
16:00	1340.00	175.80	14.9	2191	4273		263	264	231	291	158	155	151	180	86.88
10 MinAvg	1233.20	180.60	14.9	2193	4278		289	273	244	302	165	161	150	199	85.24
16:01	1334.00	156.30	14.9	2219	4185		282	249	224	275	161	153	150	180	88.28
16:02	1092.00	180.00	14.8	2155	4082		245	173	203	193	163	151	150	194	83.52
16:03	1171.00	177.70	14.9	2175	4281		258	243	188	245	160	153	149	180	84.82
16:04	1238.00	174.10	14.8	2224	4207		296	274	253	262	164	153	151	187	85.94

LEC Run 920520

Starting
05-20-92

E-330

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
16:05	1208.00	152.80	14.8	2254	4329		323	308	319	303	165	154	152	194	87.35
16:06	1057.00	178.80	14.8	2160	4088		258	229	305	218	161	152	150	205	83.08
16:07	1184.00	176.20	14.8	2126	3969		241	189	209	210	162	150	150	197	85.12
16:08	1310.00	168.10	14.8	2263	4391		340	328	260	288	161	154	139	186	87.17
16:09	1149.00	173.20	14.8	2175	4374		274	274	266	262	159	157	147	196	84.93
16:10	1070.00	187.00	14.9	2154	4386		260	304	255	173	160	152	143	191	82.52
10 MinAvg	1181.30	172.42	14.8	2191	4229		278	257	248	243	162	153	148	191	85.27
16:11	1094.00	181.50	14.8	2164	4544		272	307	243	181	159	154	139	172	83.41
16:12	1226.00	165.30	14.9	2182	4240		290	260	263	246	161	152	140	194	86.52
16:13	1189.00	155.60	15.0	2147	3891		266	237	175	279	160	153	122	210	86.91
16:14	1238.00	156.10	15.0	2206	4536		307	353	300	233	160	147	140	177	87.39
16:15	1168.00	154.20	14.9	2171	4201		276	244	240	255	163	148	130	190	86.80
16:16	1284.00	159.10	14.9	2133	4211		256	234	209	236	163	147	122	183	87.61
16:17	1359.00	154.40	14.9	2113	3781		243	165	167	225	164	147	113	173	88.64
16:18	1342.00	161.60	14.9	2083	4004		228	152	156	193	161	147	111	171	87.96
16:19	1073.00	171.50	14.9	2077	3711		224	164	196	151	161	147	115	167	84.02
16:20	1097.00	164.00	14.9	2099	3812		239	177	219	152	161	147	118	168	85.05
10 MinAvg	1207.00	162.33	14.9	2137	4093		260	229	217	215	161	149	125	180	86.43
16:21	1091.00	166.80	14.9	2087	3820		231	174	206	148	161	147	118	164	84.71
16:22	1252.00	170.40	14.9	2079	3986		226	155	162	177	156	147	135	165	86.39
16:23	1330.00	173.30	14.9	2087	3988		226	194	161	180	157	147	147	162	86.97
16:24	1203.00	164.60	14.9	2075	4117		223	165	164	155	160	147	147	165	86.32
16:25	1162.00	167.40	14.9	2069	3612		224	183	138	158	161	146	147	161	85.59
16:26	1252.00	162.40	14.9	2071	3208		226	158	157	167	161	147	146	162	87.03
16:27	1118.00	152.40	14.9	2096	3649		231	167	202	153	160	146	145	162	86.37
16:28	1174.00	159.50	14.9					-6999				-6999	-6999	-6999	86.41
16:29	1337.00	164.70	14.9	2089	3923		227	147	147	164	161	144	141	160	87.68
16:30	1273.00	163.10	14.9	2102	4055		231	240	168	159	161	144	137	160	87.19
10 MinAvg	1219.20	164.46	14.9	2084	3818		227	-542	167	162	160	-568	-574	-554	86.47
16:31	1229.00	155.10	14.9	2106	3543		228	160	165	159	161	144	138	161	87.38
16:32	1388.00	165.30	14.9	2149	3597		257	278	204	186	161	145	146	159	88.09
16:33	1231.00	166.20	14.9	2103	3404		221	169	140	156	161	145	147	160	86.50
16:34	1339.00	169.90	14.9	2130	3730		249	151	153	149	161	143	147	159	87.31
16:35	1231.00	167.50	14.9	2125	3872		251	153	158	145	161	142	147	161	86.39
16:36	1317.00	182.60	14.9	2141	4133		257	172	148	167	161	139	147	156	86.14
16:37	1347.00	182.50	14.9	2190	4155		284	234	187	200	161	137	147	156	86.45

LEC Run 920520

Starting
05-20-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
16:38	1284.00	181.10	14.9	2175	3922		274	251	179	169	160	134	147	156	85.90
16:39	1345.00	182.40	14.9	2188	3893		282	208	180	215	152	132	147	157	86.44
16:40	1325.00	186.00	14.9	2190	4085		284	215	173	197	153	129	148	156	85.96
10 MinAvg	1303.60	173.86	14.9	2150	3833		259	199	169	174	159	139	146	158	86.66
16:41	1313.00	183.30	14.9	2144	3940		253	149	138	187	155	129	149	156	86.04
16:42	1144.00	172.50	14.9	2154	4008		265	180	189	180	159	128	147	161	84.92
16:43	1290.00	151.50	14.9	2174	3960		278	193	161	251	153	132	147	163	88.26
16:44	1238.00	153.90	14.9	2219	3772		304	217	230	251	151	131	147	162	87.57
16:45	1021.00	181.90	14.9	2160	3646		269	156	201	180	149	130	148	175	82.18
16:46	1050.00	167.30	14.9	2257	4246		330	254	338	173	147	134	147	162	84.07
16:47			14.9	2216	4486		296	244	208	210	148	137	149	161	
16:48			14.9	2204	4419		299	263	263	281	150	138	150	168	
16:49			14.9	2276	4551		343	294	279	318	148	145	155	176	
16:50			14.8	2263	4394		340	281	261	261	155	145	152	174	
10 MinAvg	1176.00	168.40	14.9	2207	4142		298	223	227	229	152	135	149	166	85.51
16:51			14.8	2254	4135		334	256	227	345	153	145	153	165	
16:52			14.8	2214	4262		306	228	252	217	148	143	154	177	
16:53			14.9	2215	4360		318	284	275	260	166	157	165	194	
16:54			14.9	2331	4475		396	364	330	317	170	166	173	191	
16:55			15.1												
16:56			16.1	2283	4067		373	316	199	249	141	137	147	154	
16:57			16.2	2152	3804		280	185	274	216	151	147	159	162	
16:58			16.4	2244	4182		345	278	200	220	162	141	160	164	
16:59			16.4	2089	4132		308	252	214	229	163	144	158	164	
17:00				263	3230							146		162	
10 MinAvg			15.5	2005	4072		333	270	246	257	157	147	159	170	

E-331

SCREEN ANALYSIS OF 9205200920 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	21.0	7.39	0.438	0.1688
+5/16	0.313	60.0	21.10	0.344	0.6135
+1/4	0.250	69.5	24.45	0.282	0.8684
+3.5	0.223	33.8	11.89	0.237	0.5027
+4	0.185	41.2	14.49	0.204	0.7104
+5	0.157	33.3	11.71	0.171	0.6850
+6	0.132	16.0	5.63	0.145	0.3895
+8	0.094	6.5	2.29	0.113	0.2026
+10	0.079	0.8	0.28	0.086	0.0326
+12	0.066	0.2	0.07	0.072	0.0097
+14	0.056	0.2	0.07	0.061	0.0116
+16	0.047	0.1	0.04	0.051	0.0069
+20	0.033	0.1	0.04	0.040	0.0088
-20		1.6	0.56	0.017	0.3401
Total =		284.3	100.00		4.5505

Harmonic Mean Diameter (in.) = 0.2198
Weighted Average Diameter (in.) = 0.2626

SCREEN ANALYSIS OF 9205200940 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	2.7	0.94	0.500	0.0188
+3/8	0.375	30.5	10.64	0.438	0.2432
+5/16	0.313	64.6	22.53	0.344	0.6550
+1/4	0.250	80.1	27.94	0.282	0.9925
+3.5	0.223	31.4	10.95	0.237	0.4631
+4	0.185	26.4	9.21	0.204	0.4514
+5	0.157	28.5	9.94	0.171	0.5813
+6	0.132	14.5	5.06	0.145	0.3500
+8	0.094	5.2	1.81	0.113	0.1607
+10	0.079	0.4	0.14	0.086	0.0162
+12	0.066	0.1	0.03	0.072	0.0048
+14	0.056	0.0	0.00	0.061	0.0000
+16	0.047	0.0	0.00	0.051	0.0000
+20	0.033	0.1	0.03	0.040	0.0087
-20		2.2	0.77	0.017	0.4637
Total =		286.7	100.00		4.4094

Harmonic Mean Diameter (in.) = 0.2268
Weighted Average Diameter (in.) = 0.2787

SCREEN ANALYSIS OF 9205201000 REACTOR STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	82.2	9.96	0.438	0.2276
+5/16	0.313	183.7	22.25	0.344	0.6469
+1/4	0.250	168.4	20.40	0.282	0.7247
+3.5	0.223	101.1	12.25	0.237	0.5178
+4	0.185	101.3	12.27	0.204	0.6015
+5	0.157	89.8	10.88	0.171	0.6362
+6	0.132	52.5	6.36	0.145	0.4401
+8	0.094	25.2	3.05	0.113	0.2705
+10	0.079	3.2	0.39	0.086	0.0450
+12	0.066	2.8	0.34	0.072	0.0468
+14	0.056	1.7	0.21	0.061	0.0339
+16	0.047	1.7	0.21	0.051	0.0402
+20	0.033	2.4	0.29	0.040	0.0727
-20		9.5	1.15	0.017	0.6954
Total =		825.5	100.00		4.9993

Harmonic Mean Diameter (in.) = 0.2000
Weighted Average Diameter (in.) = 0.2639

SCREEN ANALYSIS OF 9205201000 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	93.0	11.52	0.438	0.2633
+5/16	0.313	169.5	20.99	0.344	0.6103
+1/4	0.250	193.4	23.95	0.282	0.8509
+3.5	0.223	93.9	11.63	0.237	0.4918
+4	0.185	100.2	12.41	0.204	0.6083
+5	0.157	79.1	9.80	0.171	0.5729
+6	0.132	46.7	5.78	0.145	0.4003
+8	0.094	18.0	2.23	0.113	0.1976
+10	0.079	1.5	0.19	0.086	0.0216
+12	0.066	1.3	0.16	0.072	0.0222
+14	0.056	0.9	0.11	0.061	0.0183
+16	0.047	0.9	0.11	0.051	0.0218
+20	0.033	1.5	0.19	0.040	0.0464
-20		7.5	0.93	0.017	0.5613
Total =		807.4	100.00		4.6869

Harmonic Mean Diameter (in.) = 0.2134
Weighted Average Diameter (in.) = 0.2711

SCREEN ANALYSIS OF 9205201015 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	35.6	13.20	0.438	0.3018
+5/16	0.313	55.8	20.70	0.344	0.6017
+1/4	0.250	63.9	23.70	0.282	0.8420
+3.5	0.223	30.8	11.42	0.237	0.4831
+4	0.185	29.4	10.91	0.204	0.5346
+5	0.157	26.1	9.68	0.171	0.5661
+6	0.132	16.7	6.19	0.145	0.4287
+8	0.094	6.4	2.37	0.113	0.2104
+10	0.079	0.9	0.33	0.086	0.0387
+12	0.066	0.6	0.22	0.072	0.0307
+14	0.056	0.3	0.11	0.061	0.0183
+16	0.047	0.5	0.19	0.051	0.0362
+20	0.033	0.7	0.26	0.040	0.0649
-20		1.9	0.70	0.017	0.4258
Total =		269.6	100.00		4.5830

Harmonic Mean Diameter (in.) = 0.2182
Weighted Average Diameter (in.) = 0.2740

SCREEN ANALYSIS OF 9205201020 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	44.4	15.68	0.438	0.3584
+5/16	0.313	67.4	23.80	0.344	0.6918
+1/4	0.250	70.0	24.72	0.282	0.8781
+3.5	0.223	36.5	12.89	0.237	0.5450
+4	0.185	28.8	10.17	0.204	0.4985
+5	0.157	21.0	7.42	0.171	0.4336
+6	0.132	10.5	3.71	0.145	0.2566
+8	0.094	2.8	0.99	0.113	0.0876
+10	0.079	0.4	0.14	0.086	0.0164
+12	0.066	0.1	0.04	0.072	0.0049
+14	0.056	0.0	0.00	0.061	0.0000
+16	0.047	0.1	0.04	0.051	0.0069
+20	0.033	0.1	0.04	0.040	0.0088
-20		1.1	0.39	0.017	0.2347
Total =		283.2	100.00		4.0212

Harmonic Mean Diameter (in.) = 0.2487
Weighted Average Diameter (in.)= 0.2907

SCREEN ANALYSIS OF 9205201040 REACTOR SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	8.4	3.07	0.438	0.0703
+5/16	0.313	16.4	6.00	0.344	0.1744
+1/4	0.250	30.7	11.23	0.282	0.3990
+3.5	0.223	33.9	12.40	0.237	0.5245
+4	0.185	45.5	16.65	0.204	0.8161
+5	0.157	52.6	19.25	0.171	1.1255
+6	0.132	39.4	14.42	0.145	0.9977
+8	0.094	26.3	9.62	0.113	0.8527
+10	0.079	3.8	1.39	0.086	0.1613
+12	0.066	3.8	1.39	0.072	0.1920
+14	0.056	3.2	1.17	0.061	0.1926
+16	0.047	1.9	0.70	0.051	0.1358
+20	0.033	2.9	1.06	0.040	0.2653
-20		4.5	1.65	0.017	0.9949
Total =		273.3	100.00		6.9021

Harmonic Mean Diameter (in.) = 0.1449
Weighted Average Diameter (in.) = 0.1976

SCREEN ANALYSIS OF 9205201115 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	28.2	11.47	0.438	0.2622
+5/16	0.313	38.7	15.74	0.344	0.4577
+1/4	0.250	51.1	20.79	0.282	0.7385
+3.5	0.223	31.3	12.73	0.237	0.5384
+4	0.185	32.0	13.02	0.204	0.6382
+5	0.157	29.0	11.80	0.171	0.6900
+6	0.132	19.4	7.89	0.145	0.5462
+8	0.094	7.8	3.17	0.113	0.2812
+10	0.079	1.1	0.45	0.086	0.0519
+12	0.066	0.9	0.37	0.072	0.0506
+14	0.056	0.7	0.28	0.061	0.0468
+16	0.047	1.1	0.45	0.051	0.0874
+20	0.033	1.2	0.49	0.040	0.1221
-20		3.3	1.34	0.017	0.8112
Total =		245.8	100.00		5.3224

Harmonic Mean Diameter (in.) = 0.1879
 Weighted Average Diameter (in.) = 0.2562

SCREEN ANALYSIS OF 9205201130 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	4.3	1.31	0.500	0.0261
+3/8	0.375	48.0	14.59	0.438	0.3336
+5/16	0.313	65.3	19.85	0.344	0.5772
+1/4	0.250	71.5	21.74	0.282	0.7723
+3.5	0.223	41.2	12.53	0.237	0.5297
+4	0.185	32.4	9.85	0.204	0.4829
+5	0.157	33.1	10.06	0.171	0.5885
+6	0.132	16.4	4.99	0.145	0.3451
+8	0.094	9.0	2.74	0.113	0.2425
+10	0.079	1.0	0.30	0.086	0.0353
+12	0.066	1.0	0.30	0.072	0.0420
+14	0.056	0.6	0.18	0.061	0.0300
+16	0.047	0.3	0.09	0.051	0.0178
+20	0.033	0.4	0.12	0.040	0.0304
-20		4.4	1.34	0.017	0.8083
Total =		328.9	100.00		4.8616

Harmonic Mean Diameter (in.) = 0.2057
Weighted Average Diameter (in.) = 0.2780

SCREEN ANALYSIS OF 9205201355 REACTOR STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	43.8	7.59	0.438	0.1734
+5/16	0.313	88.8	15.38	0.344	0.4471
+1/4	0.250	104.8	18.15	0.282	0.6448
+3.5	0.223	64.1	11.10	0.237	0.4694
+4	0.185	86.2	14.93	0.204	0.7318
+5	0.157	87.4	15.14	0.171	0.8852
+6	0.132	58.7	10.17	0.145	0.7035
+8	0.094	30.5	5.28	0.113	0.4681
+10	0.079	3.4	0.59	0.086	0.0683
+12	0.066	2.5	0.43	0.072	0.0598
+14	0.056	1.0	0.17	0.061	0.0285
+16	0.047	0.7	0.12	0.051	0.0237
+20	0.033	0.7	0.12	0.040	0.0303
-20		4.8	0.83	0.017	0.5023
Total =		577.4	100.00		5.2362

Harmonic Mean Diameter (in.) = 0.1910

Weighted Average Diameter (in.) = 0.2416

SCREEN ANALYSIS OF 9205201355 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	77.0	8.96	0.438	0.2049
+5/16	0.313	174.0	20.26	0.344	0.5888
+1/4	0.250	234.7	27.32	0.282	0.9706
+3.5	0.223	102.2	11.90	0.237	0.5031
+4	0.185	113.9	13.26	0.204	0.6500
+5	0.157	85.4	9.94	0.171	0.5814
+6	0.132	44.3	5.16	0.145	0.3569
+8	0.094	18.6	2.17	0.113	0.1919
+10	0.079	1.5	0.17	0.086	0.0203
+12	0.066	0.7	0.08	0.072	0.0113
+14	0.056	0.2	0.02	0.061	0.0038
+16	0.047	0.2	0.02	0.051	0.0045
+20	0.033	0.2	0.02	0.040	0.0058
-20		6.1	0.71	0.017	0.4291
Total =		859.0	100.00		4.5223

Harmonic Mean Diameter (in.) = 0.2211

Weighted Average Diameter (in.) = 0.2683

LEC RUN 920520

Waste Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Dust Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
09:43 AM	39	5.0	0.13
10:17 AM	34	1.0	0.03
02:55 PM	38	17.3	0.46
03:40 PM	45	16.2	0.36
04:28 PM	48	18.8	0.39
Total:		58.3	
Average:			0.27

LEC RUN 920520

Carry-Over Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Stone Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
03:56 PM	306	1.0	0.003
04:30 PM	1474	0.5	0.000
Total:		1.5	
Average:			0.001

Run Summary:

LEC Run 920522

Objective: To use the limestone produced from LEC Run 920430 at an increased water rate in order to produce greater SO₂ removal efficiency.

Total Run Time: 196 minutes

SO₂ Removal: 0% to 25%

Inlet Gas Rate: 1920 to 2200 acfm

Operational Conditions:

No.8 limestone from LEC Run 920520 (151.5 hrs of prior exposure time).

In-duct Steam: 10 psig (full)

Overhead Sprays: 0.0 gpm

Louver Sprays: 0.27 gpm from 12:32 to 13:08

0.38 gpm from 13:09 to 15:48

Bed Speed: 10 DT (1462 lb/hr)

Waste Fines: 0.3 lbs/min (average).

Stone Carry-over: None.

Regeneration device: No. 16 mesh vibrating screen

Comments: - Difficulties were experienced with the outlet sampling system.

LEC Run 920522

Starting
05-22-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
Initial Conditions: Limestone is from LEC Run 920520 (dry); No.16 mesh is being used in the vibrating screen; The inlet SO2 monitors output is "bouncing" due the datalogger grounding; the damper is on its minimum setting; steam injection = 10 psig; louver sprays are set at 0.27 gpm and 0.38 gpm at 13:08 and 14:08, respectively.															
12:32	438.20			2413	3529	1.13	217.40	86.80	73.30	73.30	73	73	73	73	73
12:33	430.60			2308	3752	1.13	156.10	87.80	73.20	73.20	73	73	73	73	73
12:34	299.90			2306	3732	1.11	172.60	88.10	73.50	73.30	78	73	80	73	73
12:35	300.00			2274	3672	1.06	177.20	88.10	83.40	73.30	88	75	88	73	73
12:36	306.10			2232	3661	0.99	179.70	88.20	87.70	80.20	88	87	88	73	73
12:37	283.60			2204	3762	0.94	183.60	90.70	88.10	88.10	89	88	88	73	73
12:38	270.70			2193	3707	0.90	185.80	95.50	88.10	90.00	90	92	88	73	73
12:39	214.00			2181	3717	0.88	186.80	102.80	88.40	92.50	91	113	88	73	73
12:40	389.70			2168	3761	0.85	187.80	107.40	88.40	92.30	96	117	88	73	73
12:41	350.50			2171	3693	0.85	189.20	109.90	88.30	94.00	99	118	88	74	74
10 MinAvg	328.33			2245	3698	0.98	183.62	94.53	83.24	83.02	87	92	84	73	73
12:42	427.10			2172	3664	0.85	190.00	110.30	88.40	94.50	99	118	88	74	74
12:43	188.30			2165	3692	0.83	190.00	110.80	88.40	91.30	100	118	89	74	74
12:44	303.80			2157	3724	0.86	189.70	112.70	88.40	92.70	98	118	89	74	74
12:45	362.10			2157	3749	0.87	189.70	112.50	88.50	94.20	98	118	89	79	79
12:46	271.40			2158	3799	0.88	190.30	113.50	88.50	94.80	96	118	89	85	85
12:47	387.00			2157	3787	0.88	189.70	114.20	88.50	94.60	97	118	89	88	88
12:48	205.20			2151	3672	0.89	190.50	112.80	88.50	95.20	96	118	89	88	88
12:49	167.40			2144	3566	0.91	190.30	111.50	88.40	94.60	97	117	89	88	88
12:50	248.30			2136	3598	0.90	190.20	114.40	88.40	93.60	96	118	88	88	88
12:51	431.10			2143	3733	0.91	189.70	114.30	88.40	95.50	98	118	88	88	88
10 MinAvg	299.17			2154	3698	0.88	190.01	112.70	88.44	94.10	97	118	89	83	83
12:52	476.00			2137	3693	0.92	190.30	113.50	88.50	96.10	97	117	88	88	88
12:53	467.30			2136	3658	0.93	190.00	113.10	88.30	98.00	100	117	88	88	88
12:54	450.00			2129	3680	0.93	190.20	113.00	88.30	98.20	100	116	89	88	88
12:55	488.00			2129	3730	0.93	190.20	112.30	88.30	101.10	99	115	90	88	88
12:56	491.10			2122	3661	0.94	190.30	112.80	88.30	100.60	101	113	90	88	88
12:57	332.50			2115	3631	0.93	190.30	115.30	88.30	98.80	108	114	90	88	88
12:58	229.30			2115	3714	0.95	190.30	116.50	88.20	97.80	117	115	91	88	88
12:59	297.70			2107	3690	0.95	190.20	117.20	88.20	99.10	118	117	96	88	88
13:00	426.50			2092	3661	0.95	190.00	117.40	88.10	104.30	118	117	107	88	88
13:01	427.70		22.8	2085	3717	0.96	190.00	117.50	88.10	110.90	140	117	114	88	88
10 MinAvg	408.61		22.8	2117	3684	0.94	190.18	114.86	88.26	100.49	110	116	94	88	88
13:02	432.80		22.8	2077	3887	0.95	190.00	117.40	88.00	116.80	147	117	117	88	88

E-345

LEC Run 920522

Starting
05-22-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
13:03	441.40		22.8	2070	3877	0.94	190.00	117.40	88.00	117.40	147	117	117		88
13:04	444.20		22.8	2055	3827	0.95	190.00	117.40	88.00	117.40	152	117	117		88
13:05	443.90		22.7	2047	3581	0.94	189.90	117.30	87.90	117.30	158	117	117		88
13:06	446.60		22.7	2024	3553	0.93	189.90	117.20	87.80	117.00	161	117	117		88
13:07	436.80		22.7	2016	3498	0.94	189.70	117.20	87.80	116.60	161	117	117		89
13:08	363.70		22.6	2016	3656	0.93	189.80	117.10	88.20	115.60	161	117	117		92
13:09	440.10		22.7	2008	3789	0.92	189.70	117.10	88.80	114.30	161	117	117		108
13:10	442.20		22.6	1993	3712	0.93	189.70	117.10	88.90	111.50	161	117	117		117
13:11	444.20		22.6	1985	3738	0.92	189.60	117.10	88.40	110.70	161	117	126		117
10 MinAvg	433.59		22.7	2029	3712	0.94	189.83	117.23	88.18	115.46	157	117	118		96
13:12	445.30		22.6	1985	3782	0.92	189.70	117.10	92.30	114.20	161	117	136		117
13:13	437.60		22.6	1946	3713	0.92	189.70	117.30	101.50	114.60	163	117	146		117
13:14	427.80		22.5	1937	3751	0.90	189.60	120.00	116.70	117.00	162	117	146		117
13:15	421.00		22.5	1937	3808	0.92	189.60	132.00	116.80	116.90	170	117	146		117
13:16	416.70		22.5	1921	3733	0.90	189.60	141.50	115.80	116.90	175	117	146		117
13:17	405.90		22.5	1921	3551	0.91	189.50	141.40	115.20	116.90	175	117	146		124
C	The outlet sample line is hooked-in to the inlet monitor since the outlet SO2 monitor is undergoing repair.														
13:18	297.70		22.5	1913	3792	0.90	189.50	145.70	112.70	116.90	175	118	146		142
13:19	222.50		22.5	1913	3900	0.89	189.40	145.60	111.10	116.70	176	135	143		146
13:20	378.70		22.5	1913	3668	0.90	189.40	145.90	110.60	116.80	178	143	146		146
13:21	375.20		22.5	1905	3608	0.90	189.40	145.90	111.80	116.80	185	146	146		146
10 MinAvg	382.84		22.5	1929	3731	0.91	189.54	135.24	110.45	116.37	172	124	145		129
13:22	366.30		22.5	1905	3664	0.90	189.40	145.80	108.60	116.80	186	146	146		146
13:23	356.40		22.5	1897	3742	0.90	189.40	145.90	109.90	116.80	185	146	146		146
13:24	351.60		22.5	1905	3864	0.90	189.40	145.90	113.10	116.60	186	146	146		146
13:25	306.00		22.5	1905	3664	0.91	189.30	145.80	109.10	116.70	177	150	146		149
13:26	270.60		22.5	1905	3796	0.91	189.30	145.80	106.00	116.60	175	158	146		155
13:27	230.30		22.5	1897	3730	0.91	189.30	145.80	110.00	116.60	175	160	146		158
13:28	246.40		22.5	1897	3711	0.92	189.30	145.80	110.60	116.70	175	160	146		160
13:29	326.50		22.5	1905	3974	0.87	189.30	145.80	106.40	116.70	175	160	146		160
13:30	329.70		22.5	1897	3826	0.95	189.30	145.80	105.60	116.50	174	160	146		160
13:31	334.00		22.5	1905	3845	0.95	189.40	145.70	106.10	116.60	167	160	150		160
10 MinAvg	311.78		22.5	1902	3782	0.91	189.34	145.81	108.54	116.66	178	155	146		154
13:32	334.50		22.5	1913	3941	0.94	189.50	145.70	104.20	116.60	161	160	147		160
13:33	340.00		22.4	1906	3734	0.94	189.90	145.70	103.40	115.50	162	161	148		160
13:34	342.40		22.4	1905	3753	0.95	189.40	145.70	103.50	115.60	160	164	149		160

E-346

LEC Run 920522

Starting
05-22-92

E-347

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
13:35	331.00		22.4	1913	3837	0.94	189.20	145.70	101.10	116.00	160	169	149	160	
13:36	326.00		22.4	1905	3753	0.96	189.30	145.70	97.00	116.20	160	175	158	160	
13:37	332.60		22.4	1913	3600	0.95	189.20	145.70	102.90	116.40	160	175	160	160	
13:38	334.90		22.4	1905	3772	0.94	189.20	145.70	105.00	116.60	160	175	157	160	
13:39	330.60		22.4	1905	3814	0.96	189.20	145.70	106.50	116.20	160	175	156	160	
13:40	330.40		22.4	1913	3792	0.95	189.20	145.70	106.70	116.50	160	175	147	160	
13:41	293.60		22.4	1913	3765	0.96	189.10	145.60	107.50	116.40	160	175	146	160	
10 MinAvg	329.60		22.4	1909	3776	0.95	189.32	145.69	103.78	116.20	160	170	152	160	
13:42	255.00		22.4	1913	3746	0.97	189.10	145.70	108.40	116.10	160	175	146	160	
13:43	295.90		22.4	1913	3699	0.96	189.30	145.80	105.30	116.10	159	175	148	160	
13:44	332.20		22.4	1913	3632	0.97	189.40	145.90	105.50	116.40	148	175	146	160	
13:45	339.40		22.5	1913	3731	0.97	189.20	145.90	93.60	116.70	146	175	146	161	
13:46	344.40		22.5	1912	3785	0.98	189.00	145.90	97.10	115.30	139	175	146	161	
13:47	344.90		22.5	1913	3552	0.98	189.40	145.90	97.90	115.80	121	175	146	162	
13:48	349.40		22.5	1920	3727	0.98	188.90	145.90	101.00	115.50	117	175	146	164	
13:49	354.60		22.5	1921	3750	0.99	189.30	145.90	105.80	116.10	117	175	146	165	
13:50	353.30		22.5	1921	3819	0.99	189.30	146.00	105.20	116.70	117	175	146	164	
13:51	354.20		22.5	1921	3715	0.99	189.50	146.00	97.00	116.90	117	175	146	169	
10 MinAvg	332.33		22.5	1916	3716	0.98	189.24	145.89	101.68	116.16	134	175	146	163	
13:52	354.80		22.5	1921	3676	0.99	189.40	146.00	93.60	116.80	117	175	146	168	
13:53	353.80		22.5	1921	3735	0.99	189.40	146.10	94.40	116.70	117	175	146	173	
13:54	353.50		22.5	1920	3565	1.01	188.60	146.10	107.40	117.00	117	175	146	172	
13:55	351.60		22.5	1928	3766	1.00	188.30	146.10	100.00	117.00	117	175	146	173	
13:56	348.20		22.5	1921	3731	1.01	189.10	146.10	100.30	116.90	117	175	146	172	
13:57	347.60		22.4	1919	3727	1.01	188.00	146.10	96.70	116.90	117	175	146	173	
13:58	354.20		22.4	1929	3684	1.01	189.00	146.00	91.80	116.90	117	175	148	175	
13:59	352.80		22.4	1928	3593	1.02	188.70	146.00	99.10	116.90	117	175	146	175	
14:00	353.00		22.4	1928	3715	1.03	188.90	146.00	97.10	116.80	117	175	146	175	
14:01	348.80			1936	3457	1.02	188.50	145.90	91.40	116.80	117	175	146	175	
10 MinAvg	351.83		22.4	1925	3665	1.01	188.79	146.04	97.18	116.87	117	175	146	173	
14:02	351.10			1943	3609	1.03	188.10	146.00	90.50	116.80	117	175	147	175	
14:03	354.60			1936	3661	0.96	188.40	146.00	93.40	117.10	117	175	146	175	
14:04	323.30			1934	3743	1.02	187.40	146.00	94.00	116.80	117	175	146	175	
C	The outlet sampling system is back on-line														
14:05	434.10	383.10	16.4	1937	3742	1.05	189.30	145.70	98.30	116.90	117	175	146	175	11.75
14:06	437.00	391.50	16.3	1945	3716	1.09	189.50	146.10	96.10	117.00	117	175	146	175	10.41

LEC Run 920522

Starting
05-22-92

E-348

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
14:07	434.40	392.10	16.3	1945	3747	1.08	189.30	146.20	97.00	117.00	117	175	146	175	9.74
14:08	440.60	389.30	16.4	1937	3637	1.08	189.30	146.00	93.30	117.10	127	175	146	175	11.64
14:09	445.40	393.00	16.3	1937	3624	1.08	189.50	145.90	91.40	117.40	134	175	147	175	11.76
14:10	445.20	393.00	16.3	1938	3583	1.08	189.70	145.50	89.50	117.20	136	175	147	175	11.73
14:11	440.20	390.60	16.3	1938	3709	1.09	189.70	146.30	91.30	122.50	146	172	148	175	11.27
10 MinAvg	410.59	390.37	16.3	1939	3677	1.06	189.02	145.97	93.48	117.58	124	175	147	175	11.19
14:12	443.60	388.10	16.3	1938	3740	1.09	190.00	146.30	90.60	120.30	146	170	147	176	12.51
14:13	444.10	386.40	16.4	1881	3676	1.07	189.80	144.50	98.10	130.20	147	167	147	176	12.99
14:14	444.40	381.10	16.4	1938	3637	1.09	190.10	146.00	96.90	127.80	144	165	148	176	14.24
14:15	446.10	383.70	16.4	1930	3729	1.10	190.10	146.50	94.70	126.20	144	162	148	176	13.99
14:16	431.00	376.10	16.5	1930	3763	1.11	190.20	146.40	97.40	134.70	147	161	147	176	12.74
14:17	433.20	372.30	16.5	1930	3487	1.10	190.20	146.10	99.10	132.70	147	161	147	176	14.06
14:18	434.90	373.20	16.4	1946	3606	1.11	190.20	146.50	98.50	123.50	147	161	147	176	14.19
14:19	443.20	375.20	16.4	1939	3764	1.12	190.30	146.60	94.80	125.40	147	161	147	176	15.34
14:20	452.00	380.00	16.4	1939	3773	1.13	190.30	144.60	100.80	142.10	147	161	147	176	15.93
14:21	453.60	378.40	16.3	1939	3672	1.14	190.40	144.50	98.70	145.90	147	161	147	176	16.58
10 MinAvg	442.61	379.45	16.4	1931	3685	1.11	190.16	145.80	96.96	130.88	146	163	147	176	14.26
14:22	452.30	376.70	16.4	1939	3535	1.13	190.50	145.60	96.70	142.50	147	162	147	176	16.71
14:23	450.80	376.40	16.3	1939	3467	1.14	190.50	143.50	98.20	136.60	147	162	147	176	16.50
14:24	448.80	374.60	16.4	1939	3606	1.15	190.30	141.20	100.90	131.60	147	162	147	176	16.53
14:25	457.50	372.90	16.4	1947	3468	1.15	190.50	138.20	103.40	144.20	148	162	147	176	18.49
14:26	441.10	367.20	16.5	1939	3448	1.15	190.50	137.00	97.70	146.80	148	162	147	176	16.75
14:27	442.80	362.20	16.5	1939	3672	1.14	190.50	138.10	94.60	146.30	150	162	147	176	18.20
14:28	441.20	360.10	16.5	1947	3767	1.16	190.70	136.80	94.60	147.10	148	162	147	176	18.38
14:29	446.30	361.50	16.5	1947	3617	1.18	190.60	135.40	100.30	147.10	148	161	147	176	19.00
14:30	444.40	359.20	16.5	1947	3569	1.17	190.70	136.60	99.80	147.20	147	157	147	176	19.17
14:31	428.50	346.10	16.7	1939	3642	1.18	190.70	134.90	101.60	147.30	147	149	147	176	19.23
10 MinAvg	445.37	365.69	16.5	1942	3579	1.15	190.55	138.73	98.78	143.67	148	160	147	176	17.90
14:32	427.10	342.10	16.7	1947	3860	1.18	190.80	134.20	104.90	147.40	147	148	147	176	19.90
14:33	427.90	344.30	16.7	1947	3591	1.18	190.80	132.00	103.30	147.60	147	148	147	176	19.54
14:34	425.00	342.40	16.8	1939	3527	1.20	190.90	130.80	106.90	147.40	147	147	147	175	19.44
14:35	439.10	344.60	16.6	1939	3713	1.18	190.80	132.80	109.30	147.40	147	147	147	176	21.52
14:36	440.00	347.60	16.6	1948	3740	1.19	191.00	134.20	106.60	148.00	148	148	148	177	21.00
14:37	440.10	345.20	16.6	1948	3672	1.20	191.10	133.20	108.90	147.60	148	148	148	176	21.56
14:38	449.80	350.40	16.5	1948	3616	1.20	191.10	131.40	110.10	148.00	148	148	148	175	22.10
14:39	449.90	349.30	16.5	1948	3624	1.18	191.10	132.60	110.60	148.30	148	148	148	173	22.36

LEC Run 920522

Starting
05-22-92

E 349

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
14:40	452.80	348.80	16.4	1948	3652	1.20	191.20	131.80	111.00	148.80	148	148	148	170	22.97
14:41	453.80	352.00	16.4	1940	3681	1.21	191.20	131.10	111.00	148.20	148	148	148	169	22.43
10 MinAvg	440.55	346.67	16.6	1945	3668	1.19	191.00	132.41	108.26	147.87	148	148	148	175	21.28
14:42	452.90	344.90	16.4	1940	3539	1.21	191.20	130.70	111.40	147.70	148	148	148	166	23.85
14:43	451.60	346.10	16.4	1940	3627	1.20	191.20	133.60	111.40	147.90	148	148	148	164	23.36
14:44	457.10	348.90	16.4	1940	3509	1.21	191.20	132.80	111.20	155.20	148	148	148	163	23.67
14:45	455.80	344.80	16.4	1940	3504	1.19	191.20	128.40	115.20	152.10	148	148	148	162	24.35
14:46	458.00	345.70	16.4	1939	3592	1.13	190.70	128.70	118.00	151.30	148	148	148	162	24.52
14:47	460.80	345.90	16.4	1932	3709	1.26	191.20	127.90	118.20	156.30	148	148	148	162	24.93
14:48	460.10	345.80	16.3	1932	3763	1.25	191.20	128.40	118.00	156.80	148	148	148	162	24.84
14:49	463.40	348.00	16.3	1932	3721	1.25	191.20	131.70	116.30	155.10	148	148	148	162	24.90
14:50	454.10	345.70	16.4	1932	3637	1.24	191.10	131.80	118.30	152.20	148	148	148	162	23.87
14:51	456.50	340.70	16.4	1931	3418	1.24	190.80	129.40	118.50	151.10	148	148	148	162	25.37
10 MinAvg	457.03	345.65	16.4	1936	3602	1.22	191.10	130.34	115.65	152.57	148	148	148	163	24.37
14:52	454.50	337.90	16.4	1932	3289	1.24	191.00	128.40	118.50	152.60	148	148	148	162	25.65
14:53	461.10	346.30	16.3	1932	3425	1.23	191.10	130.40	118.40	153.50	148	148	148	162	24.90
14:54	465.30	348.60	16.3	1932	3600	1.23	191.00	129.80	118.50	150.90	148	148	148	162	25.08
14:55	470.00	350.60	16.3	1932	3737	1.23	191.10	130.60	118.50	151.20	148	148	148	162	25.40
14:56	467.40	348.70	16.3	1939	3708	1.24	190.80	129.90	118.50	151.60	148	148	148	162	25.40
14:57	476.20	355.30	16.2	1939	3597	1.23	190.90	132.70	118.50	152.20	148	148	148	162	25.39
14:58	471.50	355.70	16.3	1939	3418	1.23	190.80	133.60	118.50	152.60	148	148	148	159	24.56
14:59	469.70	356.10	16.3	1931	3560	1.24	190.60	131.00	118.50	153.30	148	148	148	151	24.19
15:00	470.70	356.50	16.3	1931	3695	1.23	190.50	130.80	118.60	152.10	148	148	148	148	24.26
15:01	466.50	351.20	16.4	1932	3636	1.23	191.10	132.90	118.70	149.80	148	148	148	146	24.72
10 MinAvg	467.29	350.69	16.3	1934	3566	1.23	190.89	131.01	118.52	151.98	148	148	148	158	24.95
15:02	468.30	354.60	16.4	1922	3576	1.24	189.80	133.80	118.80	153.50	148	148	148	145	24.28
15:03	464.00	350.60	16.4	1923	3729	1.23	190.50	133.00	118.80	153.30	148	148	148	138	24.44
15:04	467.40	352.60	16.4	1912	3748	1.24	189.00	135.40	118.80	153.50	148	148	148	128	24.56
15:05	462.70	353.10	16.5	1923	3454	1.24	191.00	134.80	118.70	153.70	147	148	148	130	23.69
15:06	470.40	353.30	16.4	1930	3518	1.24	190.20	135.70	118.70	151.80	145	148	148	123	24.89
15:07	470.50	361.50	16.4	1920	3620	1.23	188.80	136.60	118.70	152.80	140	148	148	119	23.17
15:08	472.30	350.70	16.4	1929	3650	1.25	189.50	137.50	118.70	153.60	137	148	148	119	25.75
15:09	471.10	358.50	16.4	1922	3745	1.25	190.30	139.50	118.70	152.40	141	148	148	119	23.90
15:10	472.60	360.70	16.4	1918	3749	1.25	187.20	135.70	118.70	153.60	147	148	148	119	23.68
15:11	470.10	365.90	16.4	1918	3605	1.26	187.20	136.80	118.60	153.90	148	148	148	119	22.17

LEC Run 920522

Starting
05-22-92

E-350

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10 MinAvg	468.94	356.15	16.4	1922	3639	1.24	189.35	135.88	118.72	153.21	145	148	148	126	24.05
15:12	463.40	362.70	16.5	1916	3649	1.21	186.00	137.10	118.60	154.10	147	148	148	119	21.73
15:13	465.70	361.50	16.5	1920	3610	1.29	188.60	139.70	118.50	153.80	141	148	148	119	22.37
15:14	465.30	360.80	16.5	1918	3551	1.28	187.20	138.70	118.50	153.40	132	148	148	119	22.46
15:15	468.40	370.30	16.5	1920	3680	1.27	188.80	139.40	118.50	152.10	126	148	148	119	20.94
15:16	464.70	365.50	16.5	1920	3655	1.27	188.50	140.40	118.50	151.20	130	148	148	119	21.35
15:17	463.60	366.10	16.5	1919	3658	1.27	187.70	141.20	118.50	152.50	141	148	148	119	21.03
15:18	462.60	364.60	16.6	1920	3661	1.27	188.90	142.10	118.50	152.50	134	148	148	119	21.18
15:19	465.90	368.10	16.5	1920	3746	1.27	188.60	142.10	118.60	152.50	120	148	148	119	20.99
15:20	465.90	367.40	16.5	1913	3632	1.26	189.70	144.30	118.60	153.90	121	148	148	119	21.14
15:21	470.60	376.30	16.5	1914	3405	1.25	190.20	143.80	118.50	152.30	122	148	148	119	20.04
10 MinAvg	465.61	366.33	16.5	1918	3625	1.26	188.42	140.88	118.53	152.83	131	148	148	119	21.32
15:22	462.20	378.20	16.6	1914	3495	1.25	190.20	141.80	118.50	152.60	123	148	148	119	18.17
15:23	467.40	378.60	16.6	1919	3457	1.23	188.10	141.40	118.50	151.20	132	148	148	119	19.00
15:24	460.50	375.90	16.6	1920	3610	1.25	188.90	139.60	118.50	150.70	133	148	148	119	18.37
15:25	461.30	374.80	16.6	2255	3838	1.64	209.70	137.70	118.50	151.30	120	147	148	119	18.75
15:26	457.10	392.30	16.5	2322	4339	1.79	220.30	138.20	118.60	151.30	127	147	147	119	14.18
15:27	454.10	401.60	16.6	2315	4229	1.79	220.30	138.30	118.60	151.50	124	147	147	119	11.56
15:28	454.10	411.60	16.6	2329	4309	1.75	220.40	139.20	118.70	150.80	128	146	147	119	9.36
15:29	458.50	419.60	16.6	2336	4309	1.74	220.30	135.30	118.70	150.90	121	145	147	119	8.48
15:30	461.20	425.50	16.6	2329	4064	1.70	220.40	136.40	118.70	150.00	119	144	147	119	7.74
15:31	465.00	432.90	16.6	2343	4166	1.66	220.40	136.70	118.80	151.30	120	141	146	119	6.90
10 MinAvg	460.14	399.10	16.6	2198	3982	1.58	209.90	138.46	118.61	151.16	125	146	147	119	13.25
15:32	465.50	441.60	16.5	2330	4307	1.63	220.50	137.70	118.80	150.10	120	140	145	119	5.13
15:33	457.10	438.10	16.6	2323	4140	1.60	220.50	133.20	118.80	148.20	124	139	147	119	4.16
15:34	467.30	444.10	16.6	2330	4151	1.61	220.50	137.50	118.80	148.00	133	139	147	119	4.96
15:35	462.90	445.60	16.6	2316	4101	1.60	220.50	135.80	118.80	148.10	135	136	143	119	3.74
15:36	466.00	448.70	16.6	2316	4106	1.61	220.50	135.40	118.80	148.00	131	136	142	119	3.71
15:37	469.30	454.10	16.6	2309	4154	1.60	220.80	132.30	118.80	147.70	144	139	142	123	3.24
15:38	478.80	462.50	16.6	2302	4178	1.59	220.70	135.20	118.90	144.20	148	139	143	135	3.40
15:39	462.50	465.60	16.6	2295	4053	1.61	220.60	136.10	118.90	134.70	148	142	143	146	-0.67
15:40	460.00	462.10	16.8	2281	4173	1.59	220.70	132.00	118.40	122.90	148	142	137	144	-0.46
15:41	457.90	462.60	16.7	2282	4085	1.60	221.40	131.20	115.00	118.90	148	140	133	145	-1.03
10 MinAvg	464.73	452.50	16.6	2308	4145	1.60	220.67	134.64	118.40	141.08	138	139	142	129	2.62
15:42	452.90	465.90	16.7	2267	4065	1.61	221.00	131.40	109.90	118.70	148	144	130	148	-2.87

LEC Run 920522

Starting
05-22-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
15:43	475.30	460.40	16.8	2259	4219	1.60	220.90	124.20	105.80	118.60	148	146	123	148	3.13
15:44	465.80	459.00	16.8	2239	4049	1.60	221.60	122.80	92.40	118.60	148	147	120	148	1.46
15:45	457.40	452.60	16.9	2215	4118	1.60	220.60	121.20	89.30	118.30	148	147	119	148	1.05
15:46	460.20	446.10	17.0	2179	4025	1.60	221.00	120.90	89.10	113.10	148	148	119	148	3.06
15:47	454.60	435.50	17.1	2134	4172	1.59	220.90	121.40	89.10	104.70	136	148	119	149	4.20
15:48	435.60	425.60	17.3	2073	4102	1.58	221.50	118.60	88.60	95.90	119	148	119	154	2.30

E-351

LEC RUN 920522

Waste Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Dust Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
01:25 PM	54	13.9	0.26
01:59 PM	34	15.5	0.46
02:30 PM	31	11.8	0.38
02:56 PM	26	7.4	0.28
03:36 PM	40	3.2	0.08
Total:		51.7	
Average:			0.29

LEC RUN 920522

Carry-Over Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Stone Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
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No stone carry-over occurred.

Run Summary:

LEC Run 920526

Objective: To use the limestone produced from LEC Run 920430 at an increased water rate in order to produce greater SO₂ removal efficiency.

Total Run Time: 400 minutes

SO₂ Removal: 50% to 10%

Inlet Gas Rate: 2100 acfm

Operational Conditions:

No.8 limestone from LEC Run 920522 (154.8 hrs of prior exposure time).

In-duct Steam: 10 psig (full)

Overhead Sprays: 0.0 gpm

Louver Sprays: 0.0 gpm from 11:40 to 12:39.

0.27 gpm from 12:40 to 16:08.

0.0 gpm from 16:09 to 16:20.

Bed Speed: 10 DT (1462 lb/hr)

Regeneration device: No. 6. mesh screen above a No. 16 mesh vibrating screen.

Waste Fines: 0.4 lbs/min.

Stone Carry-over: None.

LEC Run 920526

Starting
05-26-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
Initial Conditions: Used No.8 limestone from LEC Run 920522; No.6 and No.16 mesh screens in the vibrating screen (regeneration device); Datalogger bounce is still a problem; Steam is at 10 psig; louver sprays at 0.0 gpm; Damper is set on position #1 (minimum setting). The outlet O2 monitor is off-line until 15:00.															
11:40	338.80	7.87		2677	3578	2.10	234.50	63.66	58.67	58.42	59	58	58	58	97.68
11:41	591.30	38.54		2704	3947	2.15	248.60	69.66	58.57	58.57	58	59	58	58	93.48
11:42	453.00	110.70		2691	3679	2.08	248.60	68.69	58.47	58.60	58	58	58	58	75.56
11:43	565.00	182.30		2476	3485	1.96	148.50	73.20	58.39	58.64	58	62	65	58	67.73
11:44	393.00	216.60		2484	3660	1.83	173.20	73.30	58.46	58.34	58	74	73	58	44.89
11:45	454.20	254.90		2478	3811	1.71	185.90	73.50	60.44	58.32	62	88	74	58	43.88
11:46	444.10	269.20		2448	3934	1.59	190.20	81.10	65.94	59.58	80	88	86	58	39.38
11:47	424.10	276.80		2441	4000	1.50	189.60	87.40	72.70	76.80	88	88	88	58	34.73
11:48	375.80	289.70		2440	3969	1.42	189.20	88.00	73.40	88.30	88	88	88	58	22.91
11:49	423.30	308.50		2429	3967	1.36	190.10	88.30	77.70	88.30	88	89	88	59	27.12
11:50	463.30	309.30		2404	3961	1.33	190.40	88.40	88.30	93.20	88	88	88	59	33.24
10 MinAvg	458.71	225.65		2499	3841	1.69	195.43	79.16	67.24	69.86	73	78	77	58	48.29
11:51	284.80	309.10		2399	3881	1.31	191.30	88.50	88.50	108.90	89	89	89	59	-8.53
11:52	635.50	352.20		2397	3810	1.32	193.60	88.60	88.60	116.50	89	89	89	65	44.58
11:53	497.60	369.30		2381	3975	1.33	192.40	88.70	88.70	117.70	89	89	89	74	25.78
11:54	564.50	375.30		2376	3858	1.35	192.90	88.80	88.80	118.20	89	89	89	74	33.52
11:55	435.40	393.00		2356	3660	1.33	193.20	88.90	88.90	118.30	90	89	89	74	9.74
11:56	520.40	415.50		2359	3334	1.36	191.10	89.10	88.90	118.20	91	89	89	74	20.16
11:57	797.00	399.70		2351	3350	1.40	190.40	89.00	89.00	118.40	96	89	89	74	49.85
11:58	819.00	411.50		2353	3424	1.38	191.10	89.10	89.10	118.50	101	89	89	75	49.76
11:59	817.00	413.80		2361	3436	1.39	191.90	89.40	89.20	118.60	106	91	89	78	49.35
12:00	813.00	431.90		2341	3757	1.29	191.80	89.50	89.30	118.60	108	99	89	77	46.88
10 MinAvg	618.42	387.13		2367	3649	1.35	191.97	88.96	88.90	117.19	95	90	89	72	32.11
12:01	826.00	478.20		2336	3809	1.37	193.20	89.50	89.40	118.70	110	102	89	77	42.11
12:02	828.00	465.40		2281	4294	1.41	192.10	90.80	89.50	118.90	111	105	90	76	43.79
12:03	828.00	435.30		2266	4513	1.40	191.90	91.10	89.70	118.90	113	111	90	76	47.43
12:04	821.00	459.40		2254	4328	1.40	192.70	94.70	89.70	119.00	112	115	90	76	44.04
12:05	814.00	469.30		2252	4208	1.40	191.70	93.30	90.00	119.10	115	118	90	76	42.35
12:06	823.00	498.90		2253	4583	1.36	192.20	94.70	90.50	119.20	116	117	90	78	39.38
12:07	831.00	509.30		2245	4682	1.36	191.50	96.50	90.00	119.10	117	116	90	81	38.71
12:08	832.00	527.50		2233	4627	1.33	192.70	100.40	89.70	118.80	118	114	92	84	36.60
12:09	840.00	535.30		2225	4085	1.33	192.20	105.30	89.60	118.80	114	114	98	86	36.27
12:10	851.00	532.40		2224	3537	1.29	191.60	107.00	89.50	117.30	114	115	115	88	37.44
10 MinAvg	829.40	491.10		2257	4267	1.37	192.18	96.33	89.76	118.78	114	113	93	80	40.81

E-354

Starting
05-26-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
12:11	852.00	541.70		2218	3130	1.30	192.10	108.20	89.30	114.30	116	114	119	89	36.42
12:12	864.00	543.20		2218	2894	1.27	191.80	111.10	89.10	112.30	111	113	119	89	37.13
12:13	864.00	555.80		2209	2923	1.25	190.70	115.40	89.10	108.70	115	118	119	89	35.67
12:14	862.00	559.30		2202	2938	1.26	190.90	117.50	89.00	106.90	104	117	118	89	35.12
12:15	853.00	560.10		2194	2373	1.24	190.00	118.20	88.90	101.30	109	118	118	89	34.34
12:16	849.00	567.50		2192	2229	1.22	189.40	118.20	88.80	94.80	109	118	118	89	33.16
12:17	848.00	571.40		2195	1711	1.21	190.70	118.00	88.60	90.90	106	118	118	89	32.62
12:18	835.00	569.20		2186	1628	1.18	189.50	117.90	88.50	92.20	109	118	133	89	31.83
12:19	830.00	582.20		2179	1186	1.20	189.60	117.80	88.40	92.00	110	135	147	92	29.86
12:20	823.00	587.10		2171		1.18	189.00	117.80	88.40	93.50	114	144	147	105	28.66
10 MinAvg	848.00	563.75		2196	2335	1.23	190.37	116.01	88.81	100.69	110	121	126	91	33.48
12:21	814.00	587.40		2169	830	1.15	188.30	117.60	88.20	92.70	113	121	147	116	27.84
12:22	825.00	576.10		2177	1677	1.16	188.50	117.50	88.10	94.50	114	118	147	118	30.17
12:23	854.00	593.10		2171	1773	1.15	189.50	117.40	88.00	96.00	116	117	147	117	30.55
12:24	878.00	602.40		2171	2551	1.13	189.10	117.20	87.80	94.60	114	117	146	117	31.39
12:25	883.00	605.20		2172	1709	1.13	189.70	117.10	87.70	95.70	114	117	147	117	31.46
12:26	871.00	611.30		2165	1863	1.13	189.80	117.00	87.60	95.60	113	117	146	117	29.82
12:27	856.00	600.30		2157	2377	1.13	189.40	117.00	87.60	96.20	110	117	146	117	29.87
12:28	857.00	595.60		2157	2997	1.01	189.60	117.10	87.70	98.10	109	117	146	119	30.50
12:29	855.00	581.70		2142	3506	1.14	189.40	117.10	95.70	111.10	106	117	146	129	31.96
12:30	853.00	578.40		2136	3664	1.16	189.80	117.20	97.40	117.20	99	117	146	144	32.19
10 MinAvg	854.60	593.15		2162	2295	1.13	189.31	117.22	89.58	99.17	111	118	146	121	30.58
12:31	851.00	581.70		2129	3978	1.13	190.10	117.20	95.80	117.20	105	117	147	146	31.65
12:32	851.00	584.90		2129	3898	1.13	189.80	117.30	96.40	117.30	116	117	146	146	31.27
12:33	851.00	578.10		2129	4013	1.12	190.10	117.30	88.30	117.30	117	118	150	147	32.07
12:34	854.00	577.10		2129	3841	1.11	189.90	117.40	90.10	117.40	117	125	147	147	32.42
12:35	871.00	576.00		2122	3881	1.11	190.50	117.50	88.20	117.50	118	132	148	147	33.87
12:36	871.00	573.60		2124	3959	1.11	191.30	117.70	88.60	117.60	118	128	149	147	34.14
12:37	868.00	568.00		2116	3703	1.09	190.90	117.70	89.40	117.70	118	128	155	148	34.56
12:38	842.00	563.10		2115	3715	1.10	190.50	117.90	88.40	117.80	118	145	148	153	33.12
12:39	844.00	554.70		2109	3582	1.09	191.20	117.90	88.40	117.80	118	145	153	155	34.28
12:40	850.00	558.30		2110	3815	1.08	191.70	118.20	88.50	117.90	140	147	156	159	34.32
10 MinAvg	855.30	571.55		2121	3838	1.11	190.60	117.61	90.21	117.55	118	130	150	149	33.17
12:41	855.00	556.00		2117	4007	1.08	192.00	118.60	88.60	118.00	147	147	148	162	34.97
12:42	859.00	556.20		2118	4006	1.10	192.10	118.40	88.80	118.00	147	147	147	162	35.25
12:43	854.00	552.80		2112	4084	1.07	193.20	119.10	89.20	118.10	147	147	148	162	35.27

E-355

LEC Run 920526

Starting
05-26-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
12:44	843.00	548.00		2113	3967	1.09	193.50	121.30	88.80	118.00	147	148	147	162	34.99
12:45	849.00	548.70		2122	3610	1.08	194.90	119.50	88.90	114.50	147	150	148	162	35.37
12:46	875.00	548.70		2113	3749	1.11	193.70	119.40	89.00	117.80	148	150	148	162	37.29
12:47	894.00	557.90		2115	3825	1.08	194.80	121.30	89.10	114.80	147	161	148	162	37.60
12:48	920.00	565.60		2121	3907	1.09	198.70	120.10	89.20	112.10	136	158	148	162	38.52
12:49	926.00	570.30		2119	4214	1.09	192.80	122.90	89.20	113.60	119	162	148	162	38.41
12:50	901.00	573.70		2111	4243	1.08	192.80	122.60	89.30	113.60	119	162	148	162	36.33
10 MinAvg	877.60	557.79		2116	3961	1.09	193.85	120.32	89.01	115.85	140	153	148	162	36.40
12:51	895.00	584.10		2103	3968	1.10	191.90	124.60	89.40	115.20	119	162	149	162	34.74
12:52	888.00	580.50		2112	3755	1.08	193.10	124.70	89.50	118.00	119	163	148	163	34.63
12:53	883.00	582.90		2116	3912	1.10	191.30	126.90	89.50	118.90	119	163	148	163	33.99
12:54	886.00	585.10		2112	3968	1.10	192.90	126.60	89.50	118.20	119	163	148	163	33.96
12:55	909.00	596.90		2110	3753	1.11	191.80	127.40	89.60	118.90	119	163	148	163	34.33
12:56	887.00	609.20		2111	4031	1.10	192.50	128.60	89.60	119.00	119	163	150	163	31.32
12:57	885.00	611.70		2119	4067	1.08	193.00	131.00	90.20	119.10	119	163	148	163	30.88
12:58	876.00	615.10		2110	3913	1.07	191.70	131.50	94.70	119.10	119	163	149	163	29.78
12:59	896.00	619.30		2111	3940	1.11	192.30	131.00	89.80	119.20	119	163	149	163	30.88
13:00	992.00	647.20		2119	3993	1.11	193.20	134.20	89.90	119.30	119	163	154	163	34.76
10 MinAvg	899.70	603.20		2112	3930	1.10	192.37	128.65	90.17	118.49	119	163	149	163	32.93
13:01	1025.00	662.80		2120	4071	1.09	193.30	132.10	90.00	119.30	119	163	159	163	35.34
13:02	1026.00	658.90		2120	4216	1.09	193.70	132.80	90.00	119.40	119	163	160	163	35.78
13:03	1013.00	656.10		2118	4056	1.09	192.50	132.90	92.20	119.50	120	163	159	163	35.23
13:04	990.00	652.00		2117	3961	1.09	191.50	134.10	92.20	119.60	120	163	162	163	34.14
13:05	956.00	647.00		2111	3715	1.10	192.30	133.30	91.90	119.70	121	163	163	163	32.32
13:06	944.00	649.80		2110	3692	1.10	192.10	128.60	90.40	119.80	146	163	163	164	31.17
13:07	956.00	641.30		2112	3641	1.10	192.90	126.90	91.20	119.90	148	159	164	164	32.92
13:08	956.00	654.80		2111	3658	1.09	192.50	127.50	92.50	119.90	149	149	164	164	31.51
13:09	962.00	662.50		2112	3875	1.08	193.20	127.60	91.20	120.00	149	149	164	164	31.13
13:10	974.00	655.30		2111	4038	1.09	192.80	128.60	93.10	120.10	149	149	164	164	32.72
10 MinAvg	980.20	654.05		2114	3892	1.09	192.68	130.44	91.47	119.72	134	158	162	163	33.23
13:11	979.00	651.60		2112	4139	1.00	193.10	131.10	91.90	120.10	149	148	164	165	33.44
13:12	969.00	658.70		2111	3906	1.13	192.70	129.40	91.10	120.20	149	149	164	167	32.02
13:13	980.00	659.50		2112	3977	1.12	192.90	127.30	91.30	120.30	149	148	164	166	32.70
13:14	1005.00	668.40		2112	4153	1.14	193.30	130.20	91.00	120.30	150	128	164	168	33.49
13:15	1052.00	673.90		2113	4006	1.13	194.00	133.60	91.90	120.40	150	126	164	175	35.94
13:16	1068.00	679.50		2113	3850	1.10	193.50	133.60	91.50	120.50	150	121	164	172	36.38

E-356

LEC Run 920526

Starting
05-26-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
13:17	1058.00	677.40		2113	3534	1.11	193.70	130.40	92.30	120.50	150	121	164	173	35.97
13:18	1033.00	662.70		2106	3464	1.09	193.80	127.00	91.60	120.60	150	121	159	170	35.85
13:19	1014.00	652.10		2105	3629	1.11	193.20	124.30	91.80	120.60	150	121	159	170	35.69
13:20	1001.00	638.70		2105	3699	1.09	193.30	123.60	92.20	120.70	150	121	157	169	36.19
10 MinAvg	1015.90	662.25		2110	3836	1.10	193.35	129.05	91.66	120.42	150	130	162	170	34.77
13:21	990.00	623.00		2105	3865	1.12	193.70	122.50	92.00	120.80	148	121	152	167	37.07
13:22	992.00	616.60		2106	3807	1.10	194.00	122.60	91.60	120.80	149	121	151	167	37.84
13:23	992.00	622.90		2114	3511	1.09	194.20	122.70	91.50	120.90	144	121	150	165	37.21
13:24	992.00	620.10		2098	3650	1.10	193.60	121.20	91.60	120.90	147	121	150	165	37.49
13:25	991.00	626.80		2092	3818	1.09	194.40	121.50	91.60	121.00	133	121	150	165	36.75
13:26	997.00	626.80		2100	3946	1.09	194.80	121.30	91.60	121.00	136	121	151	165	37.13
13:27	1008.00	632.60		2095	3729	1.08	196.20	121.30	91.80	120.70	148	121	150	165	37.24
13:28	1006.00	625.40		2094	3537	1.10	195.80	122.10	91.50	120.80	150	121	150	165	37.83
13:29	995.00	619.00		2086	3917	1.09	195.20	121.00	91.60	120.80	150	121	150	165	37.79
13:30	991.00	613.80		2095	3890	1.08	196.70	121.30	91.70	119.40	150	121	150	165	38.06
10 MinAvg	995.40	622.70		2098	3767	1.09	194.86	121.75	91.65	120.71	146	121	150	165	37.44
13:31	1012.00	616.60		2099	3865	1.08	198.80	121.40	91.60	121.00	150	121	150	165	39.07
13:32	1019.00	614.90		2105	3767	1.09	202.70	121.50	91.70	121.00	149	121	150	165	39.66
13:33	1038.00	606.50		2100	3788	1.10	199.70	121.20	91.70	121.10	150	121	150	165	41.57
13:34	1034.00	613.40		2095	3825	1.08	200.90	121.40	91.80	120.10	150	121	149	165	40.68
13:35	1007.00	613.90		2096	3801	1.06	202.00	121.80	91.80	120.80	141	121	142	165	39.04
13:36	1012.00	603.30		2098	3855	1.10	198.40	121.60	91.90	121.10	134	121	139	165	40.39
13:37	994.00	605.30		2086	3799	1.08	195.20	121.30	91.90	121.30	130	121	129	165	39.10
13:38	1006.00	611.20		2096	3685	1.09	201.50	121.50	91.90	121.30	148	121	142	165	39.24
13:39	1006.00	615.90		2087	3538	1.10	196.40	121.20	91.80	121.20	143	121	149	165	38.78
13:40	1007.00	627.40		2085	3803	1.10	195.00	121.30	91.80	121.20	124	121	149	165	37.70
10 MinAvg	1013.50	612.84		2095	3773	1.09	199.06	121.42	91.79	121.01	142	121	145	165	39.52
13:41	1005.00	626.10		2086	4037	1.04	195.30	121.50	91.90	121.20	139	121	137	165	37.70
13:42	1011.00	627.20		2087	4095	1.12	195.30	121.30	91.90	120.80	142	121	136	165	37.96
13:43	1022.00	633.50		2087	3950	1.13	196.30	121.30	92.00	121.20	146	121	131	165	38.01
13:44	1020.00	633.30		2095	3986	1.13	196.30	121.50	92.00	121.30	145	121	123	165	37.91
13:45	1037.00	644.30		2086	4048	1.12	195.60	121.60	92.10	121.50	133	122	127	165	37.87
13:46	1025.00	640.80		2085	3887	1.12	194.80	121.50	92.30	121.50	129	122	136	165	37.48
13:47	1001.00	635.50		2077	3851	1.13	194.50	121.60	92.20	121.60	140	122	123	165	36.51
13:48	994.00	630.10		2085	3678	1.13	195.10	121.70	92.50	121.60	141	122	123	165	36.61
13:49	997.00	632.40		2085	3694	1.14	195.10	121.80	92.30	121.70	141	122	123	165	36.57

E-357

LEC Run 920526

Starting
05-26-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
13:50	986.00	630.60		2085	3652	1.14	194.80	121.70	92.50	121.70	140	122	137	165	36.04
10 MinAvg	1009.80	633.38		2086	3888	1.12	195.41	121.55	92.17	121.41	140	121	130	165	37.27
13:51	961.00	634.60		2087	3644	1.13	196.10	121.80	93.10	121.80	134	122	140	165	33.96
13:52	931.00	624.40		2086	3781	1.13	195.30	122.30	92.80	121.90	125	122	147	166	32.93
13:53	902.00	615.30		2085	3867	1.13	194.70	122.00	92.60	121.90	137	122	137	166	31.78
13:54	896.00	602.50		2077	3802	1.14	194.80	122.00	93.60	122.00	127	122	141	165	32.76
13:55	881.00	609.00		2077	3903	1.15	194.60	122.00	92.90	122.00	124	122	148	166	30.87
13:56	897.00	611.80		2079	3794	1.15	195.60	122.00	92.70	122.00	124	122	138	166	31.79
13:57	893.00	612.90		2078	3910	1.14	195.20	122.00	94.30	122.00	129	122	133	166	31.37
13:58	887.00	613.70		2078	3991	1.09	195.50	122.10	94.10	122.10	144	122	138	166	30.81
13:59	884.00	612.20		2077	4036	1.14	194.80	122.10	94.10	122.10	148	122	149	166	30.75
14:00	888.00	609.10		2071	4054	1.18	195.80	122.30	92.80	122.10	147	122	150	165	31.41
10 MinAvg	902.00	614.55		2080	3878	1.14	195.24	122.06	93.30	121.99	134	122	142	165	31.84
14:01	874.00	602.20		2070	3868	1.18	195.10	122.20	93.10	122.20	143	122	142	158	31.10
14:02	874.00	594.10		2077	3875	1.17	194.80	122.40	93.70	122.20	142	122	144	157	32.03
14:03	872.00	586.10		2071	3814	1.17	195.30	122.30	92.90	122.30	143	122	150	152	32.79
14:04	873.00	581.50		2070	3788	1.19	195.00	122.30	93.20	122.30	151	122	143	154	33.39
14:05	893.00	581.70		2077	3714	1.16	194.70	122.40	93.00	122.40	152	122	130	152	34.86
14:06	903.00	583.60		2078	3836	1.18	195.00	122.40	93.20	122.40	152	122	126	152	35.37
14:07	912.00	585.80		2070	3894	1.19	194.90	122.50	93.10	124.80	152	123	136	152	35.77
14:08	909.00	577.60		2065	3858	1.18	196.50	122.50	93.20	137.10	152	123	132	152	36.46
14:09	920.00	578.40		2070	3763	1.18	195.10	122.60	93.20	146.90	152	123	127	152	37.13
14:10	915.00	576.10		2071	3696	1.19	195.70	122.60	93.30	147.00	152	123	132	152	37.04
10 MinAvg	894.50	584.71		2072	3811	1.18	195.21	122.42	93.19	128.96	149	122	136	153	34.59
14:11	906.00	567.70		2063	3822	1.17	195.40	122.70	93.30	150.30	152	123	144	152	37.34
14:12	880.00	560.20		2063	4059	1.19	195.50	122.70	93.60	151.80	152	123	131	152	36.34
14:13	863.00	550.80		2063	4007	1.18	195.50	122.80	93.40	151.90	152	123	145	152	36.18
14:14	853.00	550.30		2063	3848	1.17	195.40	122.80	93.50	151.90	152	123	151	152	35.49
14:15	856.00	549.70		2056	3724	1.18	195.50	123.00	93.70	152.00	152	123	149	152	35.78
14:16	851.00	544.80		2063	3739	1.18	195.50	123.00	93.90	152.10	152	123	151	152	35.98
14:17	854.00	545.00		2056	3610	1.18	195.40	123.10	93.70	152.00	152	123	152	152	36.18
14:18	859.00	545.40		2056	3731	1.19	195.50	122.90	94.60	152.00	152	123	152	152	36.51
14:19	863.00	538.20		2056	3693	1.19	195.40	122.90	94.70	152.00	152	123	152	152	37.64
14:20	858.00	535.40		2048	3715	1.20	195.30	122.70	94.60	154.00	154	123	152	152	37.60
10 MinAvg	864.30	548.75		2059	3795	1.18	195.44	122.86	93.90	152.00	152	123	148	152	36.50

E-358

LEC Run 920526

Starting
05-26-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
14:21	875.00	536.00		2047	3654	1.20	195.00	122.50	94.10	151.90	164	123	152	151	38.74
14:22	865.00	528.60		2040	3596	1.21	195.00	122.40	95.40	151.80	166	122	152	152	38.89
14:23	856.00	532.70		2040	3719	1.23	194.90	122.70	94.80	151.50	166	122	151	151	37.77
14:24	870.00	530.60		2040	3811	1.24	194.90	122.50	94.90	151.90	166	122	151	151	39.01
14:25	870.00	533.30		2041	3878	1.23	195.70	122.20	99.20	152.80	163	122	151	151	38.70
14:26	873.00	539.50		2039	3824	1.22	194.80	122.20	95.10	151.60	166	122	151	151	38.20
14:27	886.00	536.30		2039	3730	1.24	194.70	122.80	98.60	151.20	166	122	151	151	39.47
14:28	890.00	536.50		2047	3962	1.18	194.90	122.90	100.20	151.30	166	122	151	151	39.72
14:29	890.00	544.10		2040	4022	1.27	195.00	122.10	101.30	151.90	166	122	151	151	38.87
14:30	899.00	544.30		2032	4062	1.27	194.70	122.70	102.10	152.60	165	122	151	151	39.45
10 MinAvg	877.40	536.19		2040	3826	1.23	194.96	122.50	97.57	151.85	165	122	151	151	38.88
14:31	896.00	546.60		2039	3998	1.26	194.40	123.20	96.00	153.30	165	122	151	151	39.00
14:32	885.00	545.40		2039	3892	1.26	194.30	123.20	95.20	151.70	165	122	151	150	38.37
14:33	899.00	543.40		2038	3649	1.27	194.10	123.40	99.20	153.80	165	122	151	149	39.56
14:34	898.00	539.40		2031	3876	1.26	194.40	123.60	98.90	153.00	165	122	151	150	39.93
14:35	880.00	539.10		2031	3909	1.25	194.30	122.90	104.80	151.40	165	122	151	149	38.74
14:36	866.00	532.40		2031	3774	1.27	194.10	122.40	104.40	150.90	164	122	151	150	38.52
14:37	865.00	528.70		2031	3876	1.26	194.30	123.60	104.80	151.10	154	122	151	150	38.88
14:38	874.00	533.50		2038	3930	1.28	194.10	123.80	106.20	151.00	151	122	151	149	38.96
14:39	881.00	536.10		2031	3896	1.27	194.40	123.10	104.30	152.10	151	122	151	145	39.15
14:40	877.00	524.80		2031	3563	1.27	194.40	122.80	102.00	155.60	152	122	151	145	40.16
10 MinAvg	882.10	536.94		2034	3836	1.27	194.28	123.20	101.58	152.39	160	122	151	149	39.13
14:41	889.00	529.40		2031	3410	1.26	194.20	122.60	105.10	152.10	151	127	151	144	40.45
14:42	888.00	532.70		2023	3645	1.26	194.10	123.10	112.30	151.30	151	131	151	147	40.01
14:43	894.00	538.30		2031	3367	1.26	194.30	123.30	110.90	151.30	151	124	151	148	39.79
14:44	904.00	536.60		2031	3629	1.27	194.40	122.90	107.60	152.80	151	124	151	147	40.64
14:45	915.00	539.80		2031	3731	1.28	194.40	123.00	105.40	152.80	152	122	151	144	41.01
14:46	906.00	530.40		2031	3776	1.29	194.20	122.00	112.60	151.80	151	123	151	148	41.46
14:47	902.00	538.80		2037	3890	1.28	193.50	122.60	110.30	154.50	152	123	151	149	40.27
14:48	902.00	532.80		2030	3876	1.27	193.90	122.60	113.00	155.10	151	122	151	151	40.93
14:49	894.00	531.80		2031	3704	1.28	194.50	122.60	114.20	154.00	152	122	151	151	40.51
14:50	892.00	522.70		2039	3770	1.29	194.50	122.40	111.80	154.00	151	125	151	150	41.40
10 MinAvg	898.60	533.33		2032	3680	1.27	194.20	122.71	110.32	152.97	151	124	151	148	40.65
14:51	894.00	516.30		2039	3803	1.29	194.60	122.40	107.40	154.50	151	126	151	146	42.25
14:52	895.00	526.40		2039	3843	1.28	194.70	122.40	111.20	156.20	151	131	151	149	41.18

E-359

LEC Run 920526

Starting
05-26-92

E-360

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
14:53	879.00	526.00		2039	3670	1.28	194.60	122.70	114.50	154.60	151	148	151	149	40.16
14:54	892.00	535.60		2039	3581	1.30	194.70	122.40	112.30	155.90	151	142	151	147	39.96
14:55	896.00	542.50		2039	3832	1.30	194.60	122.20	105.00	158.70	151	150	151	145	39.45
14:56	905.00	542.20		2039	3917	1.28	194.50	122.10	111.00	156.50	151	148	151	143	40.09
14:57	911.00	545.70		2039	3850	1.29	194.60	122.20	111.60	155.80	161	141	151	149	40.10
14:58	906.00	557.40		2039	3713	1.31	194.40	122.10	111.90	151.90	165	132	151	148	38.48
14:59	898.00	551.20		2039	3784	1.29	194.50	122.30	107.20	153.00	165	130	151	147	38.62
15:00	890.00	543.20		2039	3733	1.28	194.50	122.30	108.50	153.20	164	123	151	147	38.97
10 MinAvg	896.60	538.65		2039	3773	1.29	194.57	122.31	110.06	155.03	156	137	151	147	39.92
15:01	881.00	547.10		2038	3758	1.31	193.80	122.20	108.90	152.50	158	126	151	145	37.90
15:02	880.00	541.60		2032	3795	1.31	194.80	122.30	110.30	151.50	163	125	151	147	38.45
15:03	860.00	536.00		2039	3943	1.29	194.80	122.30	113.70	151.40	162	123	151	145	37.67
15:04	865.00	529.00		2040	4047	1.33	194.90	122.40	110.20	151.70	154	123	152	147	38.84
15:05	871.00	527.10		2032	3940	1.32	195.00	122.40	111.00	152.50	160	123	152	147	39.48
15:06	857.00	70.80		2032	3822	1.30	194.90	122.60	111.10	152.40	156	123	152	148	91.74
15:07	864.00	6.40		2032	3940	1.29	195.00	122.50	111.20	158.30	153	123	152	151	99.26
15:08	855.00	3.45		2032	4021	1.31	195.00	122.60	114.30	156.60	152	123	152	150	99.60
15:09	850.00	31.10		2025	3905	1.31	195.00	122.70	108.80	157.30	152	123	152	152	96.34
15:10	850.00	451.30	16.0	2032	3390	1.35	195.20	122.70	111.60	157.10	152	123	152	152	46.91
10 MinAvg	863.30	324.38	16.0	2033	3856	1.32	194.86	122.47	111.11	154.13	156	123	152	148	62.62
15:11	846.00	505.40	16.0	2032	3374	1.35	195.30	122.70	109.70	157.40	152	123	152	152	40.26
15:12	846.00	504.90	16.1	2031	3700	1.37	194.40	122.80	109.50	156.50	152	123	152	152	40.32
15:13	854.00	512.80	16.0	2032	3563	1.35	195.10	122.80	108.90	154.20	152	123	152	151	39.95
15:14	854.00	516.40	16.0	2032	3613	1.37	195.20	122.90	114.00	153.30	152	123	152	150	39.53
15:15	859.00	519.90	16.0	2024	3735	1.37	195.00	122.90	112.10	153.60	152	123	152	151	39.48
15:16	852.00	517.10	16.1	2032	3870	1.35	195.10	122.90	115.30	152.10	152	123	152	151	39.31
15:17	839.00	515.30	16.1	2033	3913	1.37	195.40	123.00	111.50	152.50	152	123	152	151	38.58
15:18	838.00	512.60	16.1	2040	3856	1.37	195.10	123.00	109.50	152.90	152	123	152	151	38.83
15:19	838.00	502.10	16.2	2039	3571	1.36	194.40	123.00	109.40	158.50	152	123	152	152	40.08
15:20	838.00	510.90	16.2	2032	3595	1.35	195.30	123.10	112.60	160.60	152	123	152	151	39.03
10 MinAvg	846.40	511.74	16.1	2033	3679	1.36	195.03	122.91	111.25	155.16	152	123	152	151	39.54
15:21	847.00	512.20	16.2	2033	3834	1.37	195.70	123.10	112.50	160.40	152	123	152	150	39.53
15:22	854.00	518.30	16.1	2040	3878	1.35	195.00	123.20	111.50	156.60	152	123	152	150	39.31
15:23	880.00	519.50	16.0	2041	3871	1.36	195.80	123.20	115.30	157.90	152	123	152	144	40.97
15:24	885.00	523.20	16.0	2033	3618	1.37	195.40	123.30	112.90	157.30	152	123	152	140	40.88
15:25	891.00	523.80	16.0	2040	3702	1.35	195.20	123.30	106.80	165.70	152	123	152	136	41.21

LEC Run 920526

Starting
05-26-92

E-361

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
15:26	891.00	516.50	16.1	2033	3766	1.35	195.60	123.40	110.10	165.40	153	123	153	130	42.03
15:27	887.00	515.30	16.1	2041	3687	1.36	196.00	123.40	109.20	164.70	153	123	153	127	41.91
15:28	899.00	524.50	16.1	2041	3453	1.31	196.10	123.50	107.70	167.00	153	124	153	124	41.66
15:29	899.00	520.40	16.2	2040	3638	1.39	195.50	123.60	109.90	166.80	153	124	153	124	42.11
15:30	910.00	512.10	16.3	2040	3722	1.39	195.40	123.60	112.60	164.90	153	124	153	124	43.73
10 MinAvg	884.30	518.58	16.1	2038	3717	1.36	195.57	123.36	110.85	162.67	152	123	152	135	41.33
15:31	937.00	536.60	15.9	2049	3646	1.38	195.90	123.60	109.60	164.40	153	124	153	125	42.73
15:32	957.00	537.40	15.9	2041	3646	1.36	195.80	123.60	110.00	167.20	152	124	153	125	43.85
15:33	946.00	528.60	16.0	2041	3843	1.37	196.10	123.60	110.10	165.50	152	124	153	125	44.12
15:34	929.00	520.00	16.1	2041	3955	1.37	196.00	123.70	107.40	163.10	153	124	153	124	44.03
15:35	924.00	508.30	16.4	2049	3782	1.35	196.20	123.70	109.40	167.00	153	124	153	124	44.99
15:36	927.00	514.90	16.3	2049	3711	1.38	196.30	123.70	104.60	166.90	153	124	153	124	44.46
15:37	945.00	515.70	16.2	2042	3800	1.38	196.30	123.80	103.90	167.10	153	136	153	124	45.43
15:38	941.00	514.90	16.2	2050	3763	1.35	196.40	123.80	103.30	166.90	153	126	153	124	45.28
15:39	922.00	521.40	16.2	2049	3793	1.30	196.30	123.90	101.50	167.10	153	124	153	124	43.45
15:40	916.00	516.20	16.2	2049	3830	1.35	196.30	123.90	102.10	167.50	153	124	153	124	43.65
10 MinAvg	934.40	521.40	16.1	2046	3777	1.36	196.16	123.73	106.19	166.27	153	125	153	124	44.20
15:41	916.00	524.40	16.1	2057	3844	1.42	196.50	123.90	103.00	167.40	153	124	153	124	42.75
15:42	937.00	526.40	16.1	2049	3578	1.40	196.30	124.00	99.90	167.60	153	124	153	124	43.82
15:43	958.00	528.60	16.0	2057	3757	1.40	196.60	124.00	96.20	167.50	153	124	153	124	44.82
15:44	950.00	526.20	16.0	2050	3838	1.39	196.60	124.10	99.30	167.70	153	124	153	124	44.61
15:45	950.00	524.50	16.0	2065	3956	1.39	196.70	124.10	100.00	167.60	153	124	153	124	44.79
15:46	977.00	534.10	15.9	2057	3942	1.37	196.50	124.20	101.90	167.20	153	124	153	124	45.33
15:47	968.00	529.90	16.0	2057	3903	1.39	196.40	124.20	95.50	167.40	153	124	153	124	45.26
15:48	944.00	525.20	16.0	2057	3853	1.38	196.60	124.30	97.00	166.60	153	124	153	124	44.36
15:49	955.00	522.40	16.0	2057	3679	1.36	196.30	124.30	95.70	167.70	153	124	153	124	45.30
15:50	946.00	515.90	15.9	2065	3739	1.37	196.80	124.30	96.50	166.90	153	124	153	124	45.47
10 MinAvg	950.10	525.76	16.0	2057	3809	1.39	196.53	124.14	98.50	167.36	153	124	153	124	44.65
15:51	919.00	513.50	16.1	2066	3713	1.35	196.90	124.30	97.80	164.90	153	124	153	124	44.12
15:52	907.00	519.80	16.1	2058	3746	1.35	196.90	124.30	96.70	161.80	154	124	153	124	42.69
15:53	899.00	514.80	16.2	2066	4078	1.32	196.90	124.40	96.60	166.40	153	124	153	124	42.74
15:54	908.00	509.30	16.2	2058	4143	1.35	196.70	124.40	96.20	167.50	154	124	154	124	43.91
15:55	923.00	516.90	16.0	2066	3992	1.33	196.90	124.40	96.40	166.80	154	124	153	124	44.00
15:56	916.00	516.90	16.1	2058	3739	1.34	196.90	124.30	95.90	165.40	163	132	153	124	43.57
15:57	919.00	516.80	16.2	2065	3842	1.33	196.60	124.30	96.50	160.10	155	128	153	124	43.76
15:58	929.00	523.50	16.0	2058	3910	1.31	196.90	124.30	96.50	155.90	153	130	153	124	43.65

LEC Run 920526

Starting
05-26-92

E-362

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
15:59	931.00	520.10	16.0	2058	3853	1.34	196.90	124.30	95.40	153.80	153	125	153	124	44.14
16:00	912.00	522.30	15.9	2066	3728	1.32	196.90	124.40	95.00	153.60	153	126	153	124	42.73
10 MinAvg	916.30	517.39	16.1	2062	3875	1.33	196.85	124.34	96.30	161.62	155	126	153	124	43.53
16:01	918.00	530.00	15.9	2065	3329	1.31	196.70	124.40	95.20	153.50	154	126	154	124	42.27
16:02	890.00	519.90	16.0	2058	3476	1.31	196.90	124.40	95.20	153.50	154	125	154	124	41.58
16:03	874.00	517.80	16.0	2065	3709	1.32	196.70	124.40	95.10	153.50	154	124	154	124	40.76
16:04	869.00	516.20	16.0	2066	3706	1.31	197.00	124.50	95.20	153.40	154	125	154	125	40.60
16:05	871.00	513.70	16.1	2058	3645	1.30	196.70	124.50	95.30	153.30	154	125	154	125	41.02
16:06	839.00	497.30	16.2	2058	3668	1.32	197.10	124.50	95.20	153.30	154	125	154	125	40.73
16:07	838.00	498.20	16.2	2058	3729	1.30	197.10	124.60	95.30	152.10	154	125	154	125	40.55
16:08	834.00	498.80	16.2	2057	3861	1.21	196.50	124.70	95.40	150.10	154	125	154	125	40.19
16:09	839.00	495.50	16.2	2058	3912	1.34	197.20	124.70	95.40	147.40	153	127	154	125	40.94
16:10	841.00	496.30	16.2	2311	3774	1.55	234.50	124.70	95.40	142.70	154	128	154	125	40.99
10 MinAvg	861.30	508.37	16.1	2085	3681	1.33	200.64	124.54	95.27	151.28	154	125	154	125	40.96
16:11	830.00	510.60	16.2	2586	4017	1.86	254.30	124.60	95.30	140.60	154	125	154	125	38.48
16:12	829.00	519.00	16.2	2607	4223	1.91	255.40	124.50	95.10	142.60	153	140	154	125	37.39
16:13	837.00	525.00	16.2	2620	4423	1.89	255.00	124.30	95.00	146.80	151	130	153	124	37.28
16:14	846.00	538.30	16.2	2633	4501	1.88	255.20	124.20	94.90	139.90	143	127	153	124	36.37
16:15	862.00	551.30	16.1	2639	4469	1.88	255.10	124.10	94.80	132.00	130	124	153	124	36.04
16:16	867.00	543.20	16.1	2639	4300	1.88	255.00	124.00	94.70	126.40	125	124	153	124	37.35
16:17	867.00	551.70	16.1	2639	4392	1.88	254.80	123.80	94.40	126.30	126	124	153	124	36.37
16:18	862.00	548.00	16.1	2639	4439	1.89	254.70	123.70	94.00	123.80	124	124	153	124	36.43
16:19	886.00	563.80	16.0	2632	4292	1.89	254.50	123.60	94.00	124.10	124	124	153	124	36.37
16:20	895.00	571.50	15.9	2638	4216	1.87	254.40	123.40	93.90	123.40	123	123	153	124	36.15
10 MinAvg	858.10	542.24	16.1	2627	4327	1.88	254.84	124.02	94.61	132.59	135	126	153	124	36.82

LEC RUN 920526

Waste Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Dust Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
12:55 PM	16	9.2	0.57
01:23 PM	28	8.2	0.29
01:58 PM	35	10.2	0.29
02:30 PM	32	12.3	0.38
02:57 PM	27	12.0	0.44
03:30 PM	33	8.5	0.26
Total:		60.3	
Average:			0.37

LEC RUN 920526

Carry-Over Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Stone Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
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No stone carry-over occurred.

Run Summary:

LEC Run 920527

Objective: (1) to verify that we can still reach high (>98%) SO₂ removals and (2) to dry out the limestone for use in LEC Run 920528.

Total Run Time: 128 minutes

SO₂ Removal: +99% to 25%

Inlet Gas Rate: 1775 to 1400 acfm

Operational Conditions:

Initially wet Maxville No. 9 limestone consisting of a mixture of L/S#920131 and L/S#920527.

In-duct Steam: 0 psig (off)

Overhead Sprays: 0.0 gpm

Louver Sprays: 0.0 gpm

Bed Speed: 10 DT (2195 lb/hr)

Regeneration device: No. 6. mesh screen above a No. 16 mesh vibrating screen.

Waste Fines: 1.4 lbs/min (average).

Stone Carry-over: 0.5 lbs/min (average).

Comments: - The datalogger was inadvertently unplugged at 16:18. This resulted in the data from 16:18 to 17:00 being destroyed. There was no SO₂ removal at the end of the run since all of the water film was removed from the stone granule.

LEC Run 920527

Starting
05-27-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
Purpose: 1) To see if high removals are possible anymore; 2) Dry-out the No.9 L/S#920527 Initial Conditions: Fresh and very wet No. 9 limestone (1/2 L/S#920131 & 1/2 L/S#920527); No water is added via steam or louver spray; Vibrating screen is equipped with No.6 and No.16 mesh screens.															
14:52	877.00	15.62	15.4	1403	2861	3.36	250.90	91.00	95.60	94.90	96	95	91	61	98.22
14:53	895.00	12.11	15.3	1777	2929	4.20	251.10	91.00	97.00	96.80	97	97	91	61	98.65
14:54	911.00	10.98	15.1	1768	2786	4.12	251.20	90.90	97.60	96.90	97	97	91	62	98.79
14:55	934.00	9.28	14.9	1748	2915	4.07	251.10	90.80	97.20	97.10	98	97	91	64	99.01
14:56	957.00	8.92	14.7	1719	2823	3.98	251.10	90.80	97.20	99.10	99	99	91	72	99.07
14:57	975.00	8.18	14.6	1719	3056	3.95	251.00	90.80	99.20	98.20	100	100	91	76	99.16
14:58	974.00	8.00	14.5	1699	2879	3.97	251.20	90.80	98.10	99.40	99	99	91	77	99.18
14:59	976.00	7.68	14.4	1699	3082	3.94	251.10	90.80	98.70	102.80	100	102	91	83	99.21
15:00	984.00	7.28	14.4	1699	3207	3.93	251.10	90.80	99.00	104.70	101	101	91	89	99.26
10 MinAvg	934.30	10.99	14.9	1692	2948	3.55	251.07	90.87	97.46	98.22	98	98	91	71	98.80
15:01	971.00	6.77	14.5	1689	3082	3.90	251.10	90.90	100.40	102.80	103	103	91	91	99.30
15:02	968.00	6.95	14.5	1689	2960	3.88	251.10	90.90	101.20	102.70	104	103	91	91	99.28
15:03	983.00	6.13	14.4	1679	3064	3.85	251.10	90.80	98.70	102.00	103	103	91	91	99.38
15:04	986.00	6.10	14.4	1679	3043	3.84	251.10	91.00	97.90	105.10	104	105	91	91	99.38
15:05	991.00	6.21	14.3	1679	3121	3.81	251.10	91.30	97.70	106.80	106	105	91	91	99.37
15:06	997.00	5.68	14.3	1679	3189	3.78	251.10	91.80	98.30	103.30	107	105	91	91	99.43
15:07	1000.00	5.75	14.2	1679	3325	3.77	251.20	92.60	99.30	103.50	108	105	91	91	99.43
15:08	997.00	5.70	14.3	1669	3430	3.75	251.10	92.50	99.20	102.60	111	106	92	91	99.43
15:09	968.00	5.64	14.5	1668	2745	3.72	250.80	91.80	98.40	104.80	111	107	92	91	99.42
15:10	966.00	5.79	14.5	1668	2149	3.68	250.60	92.40	98.70	105.20	110	108	94	90	99.40
10 MinAvg	982.70	6.07	14.4	1678	3011	3.80	251.03	91.60	98.98	103.88	107	105	91	91	99.38
15:11	975.00	5.54	14.4	1678	1829	3.65	250.60	91.30	99.50	106.00	112	109	93	90	99.43
15:12	974.00	5.51	14.5	1678	2682	3.62	250.70	91.80	100.90	105.40	110	110	96	91	99.43
15:13	961.00	5.33	14.6	1668	3113	3.59	250.80	91.50	100.80	106.40	109	110	95	91	99.44
15:14	954.00	5.19	14.6	1678	3172	3.53	250.70	91.70	98.80	107.90	111	111	99	91	99.46
15:15	955.00	5.20	14.6	1678	2876	3.46	250.70	91.60	103.30	106.40	110	111	99	91	99.46
15:16	958.00	5.26	14.6	1688	2687	3.45	250.60	91.60	99.20	109.40	111	109	100	91	99.45
15:17	968.00	5.04	14.5	1688	2397	3.42	250.50	91.80	97.90	110.60	110	110	101	91	99.48
15:18	977.00	4.90	14.4	1688	2630	3.43	250.50	93.00	100.60	110.70	111	112	102	91	99.50
15:19	960.00	5.17	14.6	1678	2980	3.37	250.00	93.30	100.10	110.20	111	110	102	91	99.46
15:20	951.00	4.80	14.6	1678	3433	3.50	250.40	93.30	98.20	110.30	111	110	103	92	99.50
10 MinAvg	963.30	5.19	14.6	1680	2780	3.50	250.55	92.09	99.93	108.33	111	110	99	91	99.46
15:21	954.00	4.96	14.6	1678	3607	3.49	250.00	93.80	97.30	108.50	112	110	106	92	99.48

E-365

LEC Run 920527

Starting
05-27-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
15:22	968.00	5.11	14.5	1686	3453	3.51	248.80	92.30	94.00	111.60	113	110	101	92	99.47
15:23	971.00	5.23	14.5	1676	3532	3.50	248.80	94.50	93.00	110.80	114	112	103	91	99.46
15:24	967.00	5.32	14.5	1678	3315	3.49	250.20	94.60	91.10	109.70	115	114	102	91	99.45
15:25	987.00	5.14	14.4	1678	3025	3.47	250.40	95.30	90.40	110.30	115	114	103	92	99.48
15:26	1006.00	5.16	14.2	1678	2569	3.47	250.50	94.80	90.20	108.20	113	114	100	94	99.49
15:27	1016.00	5.14	14.1	1667	2569	3.49	250.00	95.00	90.10	109.20	114	112	102	96	99.49
15:28	1002.00	5.05	14.3	1668	3053	3.47	250.30	94.40	90.10	109.60	113	114	98	97	99.50
15:29	999.00	4.84	14.3	1657	3227	3.46	250.10	97.60	90.10	111.70	111	111	103	99	99.52
15:30	991.00	4.88	14.3	1647	2944	3.45	250.30	96.80	90.10	111.80	110	112	104	99	99.51
10 MinAvg	986.10	5.08	14.4	1671	3129	3.48	249.94	94.91	91.64	110.14	113	112	102	94	99.48
15:31	993.00	4.90	14.3	1657	2607	3.45	249.80	96.10	90.10	111.90	110	112	100	99	99.51
15:32	989.00	5.05	14.3	1648	3020	3.43	250.70	96.70	89.80	112.90	110	109	99	99	99.49
15:33	989.00	5.10	14.3	1637	3393	3.43	250.30	95.40	89.60	115.20	110	112	98	99	99.48
15:34	986.00	4.92	14.4	1626	3893	3.43	250.10	96.70	89.90	115.00	110	113	99	101	99.50
15:35	984.00	4.80	14.4	1627	4246	3.48	250.30	98.40	90.20	115.10	109	113	101	101	99.51
15:36	986.00	4.68	14.4	1627	4163	3.48	250.70	97.40	90.30	116.50	106	111	101	105	99.53
15:37	995.00	4.86	14.3	1616	4010	3.46	250.30	95.70	90.50	113.90	108	112	98	102	99.51
15:38	992.00	5.10	14.3	1616	4336	3.38	250.50	96.00	90.50	114.50	109	106	96	101	99.49
15:39	986.00	4.98	14.4	1606	4185	3.36	250.50	94.80	90.40	111.00	107	108	96	102	99.50
15:40	988.00	5.01	14.4	1584	3783	3.31	250.40	93.80	88.90	108.30	108	109	95	103	99.49
10 MinAvg	988.80	4.94	14.3	1624	3764	3.42	250.36	96.10	90.02	113.43	109	110	98	101	99.50
15:41	980.00	4.96	14.4	1563	4087	3.39	250.90	95.10	89.30	99.50	106	109	97	104	99.49
15:42	977.00	4.92	14.5	1552	4425	3.37	250.70	95.50	89.40	101.20	106	107	96	104	99.50
15:43	964.00	9.00	14.5	1552	4608	3.35	250.50	94.50	89.20	101.10	105	107	97	105	99.07
15:44	965.00	15.00	14.5	1541	4876	3.30	250.70	94.90	85.30	95.40	102	108	93	107	98.45
15:45	963.00	17.00	14.5	1530	5007	3.31	250.50	93.10	84.80	93.20	104	107	93	106	98.23
15:46	961.00	23.00	14.5	1531	5144	3.33	251.10	92.50	85.30	92.90	102	107	94	106	97.61
15:47	972.00	26.00	14.4	1519	4926	3.36	250.40	92.30	82.00	91.10	102	105	93	108	97.33
15:48	970.00	26.00	14.5	1520	4408	3.35	251.20	91.20	80.20	92.50	101	103	92	108	97.32
15:49	970.00	29.00	14.5	1496	4150	3.31	249.90	92.20	82.70	92.20	102	106	93	110	97.01
15:50	964.00	31.00	14.5	1496	3770	3.32	250.20	92.10	80.30	92.00	101	105	91	110	96.78
10 MinAvg	968.60	18.59	14.5	1530	4540	3.34	250.61	93.34	84.85	95.11	103	106	94	107	98.08
15:51	965.00	33.00	14.5	1485	3642	3.34	250.10	91.20	81.30	92.00	98	104	91	113	96.58
15:52	954.00	35.00	14.6	1473	3875	3.33	249.50	91.70	81.00	91.80	97	102	91	114	96.33
15:53	948.00	47.50	14.6	1473	3884	3.29	249.80	92.20	83.20	92.90	98	105	92	114	94.99
15:54	944.00	56.00	14.7	1473	3940	3.27	250.10	91.90	80.90	93.80	99	105	91	118	94.07

E-366

LEC Run 920527

Starting
05-27-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
15:55	939.00	75.30	14.7	1462	4152	3.26	250.40	92.00	79.30	94.20	98	103	92	116	91.98
15:56	936.00	80.00	14.7	1461	4429	3.25	249.60	91.40	79.70	91.00	100	101	91	118	91.45
15:57	921.00	89.00	14.9	1436	4576	3.29	247.80	91.60	82.70	96.50	98	100	91	118	90.34
15:58	905.00	92.00	15.0	1437	4616	3.31	248.80	91.50	81.80	94.90	100	99	91	118	89.83
15:59	901.00	98.00	15.0	1437	4651	3.34	248.90	91.70	83.50	95.80	100	100	98	119	89.12
16:00	899.00	100.00	15.1	1438	4657	3.35	249.80	91.70	86.50	91.40	101	98	102	118	88.88
10 MinAvg	931.20	70.58	14.8	1457	4242	3.30	249.48	91.69	81.99	93.43	99	102	93	116	92.36
16:01	912.00	111.00	15.0	1437	4250	3.37	249.00	91.30	89.80	91.00	101	97	103	118	87.83
16:02	901.00	141.90	15.1	1437	3845	3.41	249.10	90.90	90.80	91.80	103	100	101	119	84.25
16:03	908.00	207.00	15.0	1412	3633	3.36	247.10	90.50	88.40	92.10	103	101	101	118	77.20
16:04	905.00	279.90	15.1	1412	3252	3.33	247.60	91.00	84.50	93.10	105	100	101	119	69.07
16:05	912.00	351.60	15.0	1414	3421	3.37	249.90	90.80	84.30	91.60	105	100	99	120	61.45
16:06	923.00	429.40	14.9	1402	3175	3.40	250.10	91.20	88.80	92.50	106	103	102	120	53.48
16:07	904.00	489.90	15.0	1402	2400	3.43	249.20	90.90	82.20	93.60	107	102	107	120	45.81
16:08	888.00	527.10	15.1	1401	2000	3.45	248.80	90.90	87.20	92.30	105	103	118	120	40.64
16:09	898.00	556.70	15.0	1403	1460	3.48	250.20	90.80	84.90	93.50	103	103	120	120	38.01
16:10	907.00	592.90	15.0	1402	1404	3.48	249.80	90.70	78.00	94.70	97	102	120	120	34.63
10 MinAvg	905.80	368.74	15.0	1412	2884	3.41	249.08	90.90	85.89	92.62	103	101	107	119	59.24
16:11	899.00	597.40	15.0	1391	1452	3.42	250.70	91.60	78.00	94.70	99	102	120	120	33.55
16:12	904.00	565.60	15.0	1403	2213	3.39	250.70	91.30	76.10	96.30	95	100	120	120	37.43
16:13	911.00	561.10	14.9	1391	2711	3.40	250.70	91.60	75.80	97.10	93	101	120	120	38.41
16:14	906.00	589.40	15.0	1391	2749	3.42	250.70	91.50	76.10	95.60	91	102	120	120	34.94
16:15	904.00	631.70	15.0	1391	2559	3.51	250.80	90.70	75.40	94.10	91	100	120	120	30.12
16:16	915.00	689.70	14.9	1391	2072	3.48	250.80	91.40	75.60	95.20	91	100	120	120	24.62
16:17	916.00	688.50	14.9	864	2115	2.18	250.70	90.80	74.80	94.20	91	100	120	120	24.84

This run lasted until 17:00, but the CR10WP was unplugged inadvertently and that data was lost.

E-367

SCREEN ANALYSIS OF 9205271540 REACTOR STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	12.9	1.49	0.500	0.0298
+3/8	0.375	0.0	0.00	0.438	0.0000
+5/16	0.313	2.0	0.23	0.344	0.0067
+1/4	0.250	11.3	1.31	0.282	0.0464
+3.5	0.223	9.1	1.05	0.237	0.0444
+4	0.185	12.1	1.40	0.204	0.0685
+5	0.157	30.3	3.50	0.171	0.2047
+6	0.132	103.4	11.94	0.145	0.8266
+8	0.094	244.6	28.25	0.113	2.5037
+10	0.079	97.4	11.25	0.086	1.3052
+12	0.066	85.7	9.90	0.072	1.3673
+14	0.056	79.6	9.19	0.061	1.5123
+16	0.047	37.8	4.37	0.051	0.8528
+20	0.033	67.6	7.81	0.040	1.9522
+25	0.132	14.9	1.72	0.083	0.2085
+30	0.094	8.9	1.03	0.113	0.0911
+35	0.079	8	0.92	0.086	0.1072
+40	0.066	5.6	0.65	0.072	0.0893
+45	0.056	3.8	0.44	0.061	0.0722
+50	0.047	5.4	0.62	0.051	0.1218
+60	0.033	5.8	0.67	0.040	0.1675
-60		19.5	2.25	0.017	1.3610
Total =		865.7	100.00		12.9394

Harmonic Mean Diameter (in.) = 0.0773
Weighted Average Diameter (in.) = 0.1053

SCREEN ANALYSIS OF 9205271540 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	2.0	0.22	0.438	0.0051
+5/16	0.313	1.8	0.20	0.344	0.0058
+1/4	0.250	13.1	1.46	0.282	0.0518
+3.5	0.223	8.4	0.94	0.237	0.0396
+4	0.185	13.8	1.54	0.204	0.0754
+5	0.157	32.3	3.60	0.171	0.2104
+6	0.132	101.5	11.31	0.145	0.7826
+8	0.094	261.1	29.09	0.113	2.5776
+10	0.079	105.1	11.71	0.086	1.3584
+12	0.066	92.6	10.32	0.072	1.4249
+14	0.056	88.1	9.82	0.061	1.6143
+16	0.047	42.5	4.73	0.051	0.9248
+20	0.033	75.5	8.41	0.040	2.1028
+25	0.132	15.5	1.73	0.083	0.2092
+30	0.094	8.3	0.92	0.113	0.0819
+35	0.079	7.1	0.79	0.086	0.0918
+40	0.066	5.0	0.56	0.072	0.0769
+45	0.056	2.9	0.32	0.061	0.0531
+50	0.047	3.0	0.33	0.051	0.0653
+60	0.033	4.8	0.53	0.040	0.1337
-60		13.2	1.47	0.017	0.8886
Total =		897.6	100.00		12.7740

Harmonic Mean Diameter (in.) = 0.0783
Weighted Average Diameter (in.) = 0.1001

SCREEN ANALYSIS OF 9205271600 DUTCHMAN STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	0.0	0.00	0.438	0.0000
+5/16	0.313	0.7	0.09	0.344	0.0025
+1/4	0.250	3.0	0.37	0.282	0.0131
+3.5	0.223	3.9	0.48	0.237	0.0203
+4	0.185	7.0	0.86	0.204	0.0423
+5	0.157	34.0	4.19	0.171	0.2453
+6	0.132	113.6	14.01	0.145	0.9697
+8	0.094	273.2	33.70	0.113	2.9862
+10	0.079	108.7	13.41	0.086	1.5555
+12	0.066	87.1	10.74	0.072	1.4840
+14	0.056	76.3	9.41	0.061	1.5480
+16	0.047	33.3	4.11	0.051	0.8023
+20	0.033	34.9	4.30	0.040	1.0762
+25	0.132	7.8	0.96	0.083	0.1166
+30	0.094	3.4	0.42	0.113	0.0372
+35	0.079	2.7	0.33	0.086	0.0386
+40	0.066	1.7	0.21	0.072	0.0290
+45	0.056	1.2	0.15	0.061	0.0243
+50	0.047	2.4	0.30	0.051	0.0578
+60	0.033	2.8	0.35	0.040	0.0863
-60		13.0	1.60	0.017	0.9689
	Total =	810.7	100.00		12.1041

Harmonic Mean Diameter (in.) = 0.0826
Weighted Average Diameter (in.) = 0.1009

LEC RUN 920527

Waste Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Dust Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
03:01 PM	9	29.9	3.32
03:39 PM	38	10.6	0.28
04:00 PM	21	13.8	0.66
04:27 PM	27	23.6	0.87
06:47 PM	20	33.5	1.67
Total:		111.3	
Average:			1.36

LEC RUN 920527

Carry-Over Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Stone Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
03:23 PM	31	11.8	0.38
04:00 PM	37	60.0	1.62
05:00 PM	60	0.0	0.00
Total:		71.8	
Average:			0.53

Run Summary:

LEC Run 920528

Objective: To reduce No.9 stone louver fluidization by decreasing the amount of fines contained within the bed while maintaining high SO₂ removal. This was done by increasing the screen mesh size from No.30 to a No.16.

Total Run Time: 126 minutes

SO₂ Removal: +99% to 80%

Inlet Gas Rate: 2200 to 1100 acfm

Operational Conditions:

No.9 limestone from LEC Run 920527 (128 min of prior exposure time).

In-duct Steam: 5 psig (0757 to 0920)

10 psig (0920 to 1458)

Overhead Sprays: 0.0 gpm

Louver Sprays: 0.00 gpm from 07:57 to 09:20

0.27 gpm from 09:20 to 13:40

0.38 gpm from 13:40 to 14:04

0.43 gpm from 14:49 to 14:58

Bed Speed: 10 DT (2195 lb/hr)

Regeneration device: No. 6. mesh screen above a No. 16 mesh vibrating screen.

Waste Fines: 2.1 lbs/min (average).

Stone Carry-over: 108.4 lbs/min (average).

Comments: - This run achieved high SO₂ removals, but most of the outlet louvers were completely plugged with stone causing excessive outlet flue gas velocities in the clear louvers resulting in large amounts of stone being pulled from the bed (>90 lb/min).

LBC Run 920528

Starting
05-28-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
Initial Conditions: Used No.9 limestone (dry) from LEC Run 920527; Vibrating screen is outfitted with a No.6 and No.16 mesh screens; In-duct steam at 5 psig and louver sprays at 0.27 gpm; damper is on position #1 (minimum setting); stone movement is 2020 lb/hr (10DT)															
07:57	208.10	1.45	22.0	1859	1781	4.04	163.60	50.71	50.34	50.46	50	50	50	52	99.70
07:58	960.00	8.71	15.3	2305	3011	6.16	227.00	55.77	50.63	50.38	51	50	51	55	99.09
07:59	1028.00	77.50	14.6	1603	3086	4.00	158.60	60.71	50.18	50.81	50	53	62	55	92.46
08:00	1201.00	85.40	14.5		2157	-0.13	161.70	55.64	50.00	50.50	50	61	65	51	92.89

I.D. fan and water addition is stopped due jammed reactor screw jam.

Restarted fan with same water addition as initially used.

08:53	488.70	1.85	21.3	2204	2277	5.69	231.90	57.16	51.90	51.90	52	52	52	52	99.62
08:54	948.00	13.59	16.1	2102	3170	6.00	191.70	55.78	52.14	52.02	52	52	52	52	98.57
08:55	1054.00	54.80	15.6	2086	3254	6.43	177.10	61.60	52.84	52.59	52	52	52	52	94.80
08:56	1083.00	96.50	15.6	2047	3339	6.43	190.00	65.87	55.37	52.37	52	52	65	52	91.09
08:57	1086.00	140.40	15.4	2000	3271	6.40	199.20	67.00	67.87	61.63	52	52	69	52	87.07
08:58	1058.00	158.50	15.4	1939	3240	6.25	201.70	67.01	82.90	67.01	56	60	82	54	85.02
08:59	1082.00	197.10	15.4	1736	3171	6.28	184.10	74.50	104.00	67.01	82	89	82	67	81.78
09:00	1064.00	188.10	15.5	1777	3170	6.16	194.30	79.50	107.20	67.04	82	106	82	67	82.32
09:01	1250.00	177.10	15.5	1747	3180	6.11	192.30	81.60	95.40	71.30	92	111	84	67	85.83
09:02	1255.00	200.80	15.3	1691	2962	5.94	198.20	82.00	93.70	81.50	110	111	101	69	84.00
09:03	1222.00	210.50	15.2	1671	3040	5.84	196.90	82.00	97.10	85.50	112	112	110	77	82.77
09:04	1312.00	208.90	15.1	1155	3027	3.64	221.00	82.00	103.20	105.60	112	112	111	81	84.08
09:05	1326.00	185.80	15.1	1579	3270	5.16	209.70	82.00	110.70	103.70	112	112	112	82	85.99
09:06	1303.00	204.90	15.3	1358	3062	4.35	205.90	82.30	111.50	109.80	112	112	112	82	84.27
09:07	1307.00	209.90	15.1	1536	2831	5.15	189.80	88.60	104.80	111.60	112	112	112	82	83.94
09:08	1321.00	241.80	15.0	1552	2789	5.13	203.50	97.90	102.90	111.60	112	112	112	82	81.70
09:09	1332.00	260.50	15.0	1538	2676	5.12	209.00	103.90	98.40	111.60	112	112	112	82	80.44
09:10	1341.00	266.30	14.9	1505	2830	5.01	208.20	106.60	90.70	111.50	112	112	112	82	80.14
09:11	1300.00	257.80	15.1	1509	2830	5.16	202.30	108.50	82.10	111.60	112	112	112	86	80.17
09:12	1287.00	271.60	14.9	1462	2823	5.01	208.40	109.60	91.20	111.60	112	112	112	90	78.90
09:13	1301.00	271.20	15.0	1412	2684	4.90	202.50	105.10	86.10	111.60	112	112	112	90	79.15
09:14	1353.00	287.30	14.7	1440	2982	5.13	208.20	111.10	82.10	111.60	112	112	112	94	78.77
09:15	1362.00	278.20	14.7	1243	3058	4.34	214.30	104.30	82.20	111.70	112	112	112	95	79.57
09:16	1363.00	285.40	14.7	1323	3103	4.85	206.30	111.30	82.20	111.70	112	112	112	90	79.06
09:17	1313.00	270.20	14.9	1286	3063	4.76	218.50	106.30	82.10	111.70	112	112	112	89	79.42
09:18	1276.00	228.70	15.1	1263	3344	4.74	221.70	109.80	82.10	111.70	112	112	112	89	82.08
09:19	1286.00	208.90	15.3	1244	3384	4.75	230.00	109.60	82.10	111.80	112	112	112	89	83.76
09:20	1294.00	182.10	15.3	1308	3087	5.16	228.60	111.70	81.60	111.90	112	112	112	96	85.93
09:21	1303.00	174.20	15.4	1305	2755	5.22	225.30	111.90	81.90	111.90	112	112	112	99	86.63
09:22	1217.00	212.30	15.5	1289	2711	5.27	222.30	112.00	82.40	112.00	112	112	112	106	82.56

E-373

5 of 6

LBC Run 920528

Starting
05-28-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
09:23	1215.00	218.30	15.6	1291	3088	5.28	223.80	112.00	81.60	112.00	112	112	112	110	82.03
09:24	1173.00	221.50	15.8	1274	3043	5.33	219.40	112.10	81.60	112.10	112	112	112	110	81.12
09:25	1140.00	226.60	16.0	1266	3053	5.36	224.60	112.20	82.50	112.20	112	112	112	112	80.12
09:26	1118.00	216.70	16.1	1252	3197	5.33	223.60	112.40	82.70	112.40	112	112	112	111	80.62
09:27	1101.00	204.40	16.3	1255	3504	5.41	227.50	112.60	80.30	112.60	113	113	113	111	81.44
09:28	1087.00	200.00	16.5	1229	3357	5.31	227.10	112.90	82.00	112.90	113	113	113	113	81.60
09:29	1068.00	182.20	16.8	1244	2611	5.45	229.70	113.10	83.60	113.10	113	113	113	113	82.94
09:30	1097.00	158.50	17.0	1222	2668	5.37	235.30	113.20	83.40	113.20	113	113	113	113	85.55
09:31	1129.00	157.40	17.1	1197	2764	5.40	237.80	113.40	83.40	113.40	113	113	113	113	86.06
09:32	1053.00	180.00	17.2	1189	2684	5.57	228.30	113.50	82.80	113.50	114	114	114	114	82.91
09:33	1040.00	185.20	17.5	1178	2720	5.53	232.10	113.60	82.80	113.60	114	114	114	114	82.19
09:34	1027.00	187.10	17.6	1149	2872	5.60	231.50	113.80	82.10	113.80	114	114	114	114	81.78
09:35	980.00	193.80	17.8	1129	2824	5.67	224.00	114.00	83.40	114.00	114	114	114	114	80.22
09:36	946.00	175.40	18.0	1054	3120	5.57	223.60	114.10	83.40	114.10	114	114	114	114	81.46
09:37	925.00	147.90	18.3	1085	3232	5.65	224.30	114.20	82.20	114.20	114	114	114	114	84.01
09:38	952.00	158.90	18.2	1057	3241	5.59	227.50	114.30	81.50	114.30	114	114	114	114	83.31
09:39	948.00	167.80	18.3	1084	2926	5.86	223.70	114.40	82.60	114.40	114	114	114	114	82.30
09:40	964.00	185.50	18.2	1075	3027	5.74	230.80	114.30	84.40	114.40	114	114	114	114	80.76
09:41	992.00	187.70	18.2	1009	2640	5.42	227.90	114.50	84.60	114.50	115	115	115	115	81.08

Stopped fan to reload upper pressure seal and to manually wet the stone since the stone is very dry. Approximately 101 lbs/min of stone was exiting the reactor through the outlet louvers during the above run times.

The fan is restarted with the louver sprays being increased to 3.0 gpm with the in-duct steam increased to 10 psig (full).

13:00	82.30	1.90	22.5	501		1.01	123.90	64.30	64.30	64.30	64	64	64	64	97.69
13:01	1011.00	0.38	16.7	1426	1770	3.66	216.00	65.03	64.28	64.28	64	64	64	64	99.96
13:02	1135.00	0.50	15.1	1458	2983	3.96	225.10	65.00	64.26	64.26	64	64	64	64	99.96
13:03	1166.00	0.45	15.0	1449	3147	4.12	227.20	64.97	64.34	64.34	64	64	64	64	99.96
13:04	1182.00	1.34	15.0	1432	3026	4.21	232.40	65.39	64.39	64.39	64	64	64	64	99.89
13:05	1194.00	0.69	15.0	1388	3097	4.37	170.00	67.19	65.58	64.46	64	64	64	64	99.94
13:06	1174.00	2.36	15.1	1352	2742	4.42	167.40	71.80	76.50	72.90	65	65	65	65	99.80
13:07	1211.00	6.29	15.0	1358	2674	4.56	183.30	76.70	79.60	80.00	65	65	65	65	99.48
13:08	1233.00	11.70	14.9	1358	2476	4.59	194.60	79.50	82.80	90.40	67	65	66	65	99.05
13:09	1249.00	14.33	14.8	1312	2568	4.51	195.60	79.50	93.70	94.30	78	65	66	65	98.85
13:10	1251.00	13.58	14.7	1289	2528	4.53	196.10	79.50	94.30	94.30	93	66	69	65	98.91
10 MinAvg	1180.60	5.16	15.1	1382	2701	4.29	200.77	71.46	74.98	75.36	69	65	65	64	99.58
13:11	1249.00	14.23	14.7	1264	3031	4.45	195.80	80.30	94.20	94.30	95	87	79	64	98.86
13:12	1255.00	16.07	14.7	1226	2799	4.36	195.60	86.90	94.30	94.80	101	94	85	65	98.72
13:13	1246.00	18.69	14.7	1239	2891	4.41	196.40	93.90	95.60	95.80	108	100	94	66	98.50
13:14	1258.00	21.58	14.7	1214	2942	4.36	196.60	94.30	95.60	96.20	109	104	95	70	98.28

E-374

LBC Run 920528

Starting
05-28-92

E-375

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
13:15	1236.00	20.52	14.7	1227	2772	4.31	197.00	94.70	100.40	101.10	110	108	98	76	98.34
13:16	1212.00	18.37	14.8	1214	2907	4.34	196.80	94.80	101.70	98.90	110	108	96	80	98.48
13:17	1205.00	17.34	14.8	1227	2758	4.36	196.70	94.80	99.60	99.40	110	109	99	81	98.56
13:18	1211.00	19.37	14.7	1228	2907	4.25	197.70	94.70	99.30	95.50	112	109	98	89	98.40
13:19	1222.00	21.59	14.8	1215	2939	4.20	197.60	94.80	99.50	95.50	111	108	97	95	98.23
13:20	1197.00	20.00	14.8	1215	2431	4.13	197.20	94.90	101.70	96.90	111	109	98	95	98.33
10 MinAvg	1229.10	18.78	14.7	1227	2838	4.32	196.74	92.41	98.19	96.84	108	104	94	78	98.47
13:21	1176.00	19.86	14.9	1214	3029	4.13	197.10	95.10	102.50	96.30	110	109	97	95	98.31
13:22	1173.00	18.78	14.9	1243	3264	4.18	200.10	95.10	102.60	97.10	109	109	99	95	98.40
13:23	1157.00	20.06	15.0	1229	3248	4.20	199.40	95.00	103.60	96.00	111	108	97	95	98.27
13:24	1160.00	19.40	15.2	1241	2516	4.19	198.30	94.50	102.50	95.30	112	108	96	95	98.33
13:25	1183.00	18.39	15.2	1231	2300	4.17	201.10	94.00	102.80	95.20	117	109	97	94	98.45
13:26	1139.00	20.40	15.4	1230	1602	4.17	199.90	94.20	101.80	94.50	119	109	96	94	98.21
13:27	1115.00	19.46	15.7	1230	1848	4.15	199.60	94.40	99.50	94.30	119	110	96	95	98.25
13:28	1111.00	17.13	15.7	1230	2689	4.14	199.60	94.60	97.40	94.30	122	110	95	95	98.46
13:29	1129.00	18.74	15.7	1242	2402	4.20	199.40	94.20	95.10	94.00	123	111	94	95	98.34
13:30	1119.00	15.66	15.7	1245	3096	4.17	202.10	94.30	95.10	94.00	122	111	94	95	98.60
10 MinAvg	1146.20	18.79	15.4	1234	2599	4.17	199.66	94.54	100.29	95.10	116	109	96	95	98.36
13:31	1132.00	15.22	15.7	1242	3192	4.20	199.10	94.10	94.00	94.00	120	110	94	98	98.66
13:32	1128.00	16.07	15.7	1245	2799	4.16	202.20	94.20	94.00	94.00	121	111	95	101	98.58
13:33	1151.00	17.71	15.6	1244	2177	4.11	201.60	94.20	94.00	94.00	122	111	95	101	98.46
13:34	1127.00	14.01	15.6	1259	1217	4.18	204.30	93.80	93.80	93.80	122	113	94	102	98.76
13:35	1158.00	13.54	15.5	1259	1812	4.20	203.40	94.20	93.90	93.90	121	110	95	106	98.83
13:36	1180.00	22.96	15.4	1256	2290	4.19	200.80	94.40	93.80	93.90	120	111	94	107	98.05
13:37	1206.00	34.81	15.3	1256	2597	4.17	200.70	93.90	93.30	93.80	120	115	94	109	97.11
13:38	1208.00	46.14	15.2	1241	2623	4.22	198.00	93.90	93.70	93.70	121	118	94	109	96.18
13:39	1204.00	52.50	15.1	1264	2932	4.29	196.30	93.70	93.70	93.70	122	121	94	111	95.64
13:40	1231.00	57.63	15.0	1228	2672	4.21	197.40	93.60	93.50	93.50	122	122	95	114	95.32
10 MinAvg	1172.50	29.06	15.4	1249	2431	4.19	200.38	94.00	93.77	93.83	121	114	94	106	97.56
13:41	1214.00	54.18	15.0	1254	2444	4.33	198.90	93.50	93.30	93.40	122	122	98	112	95.54
13:42	1223.00	54.03	15.0	1228	2783	4.28	197.70	93.50	93.30	94.00	122	123	99	114	95.58
13:43	1209.00	45.45	15.0	1229	2941	4.36	199.10	94.00	93.60	93.60	122	123	101	114	96.24
13:44	1209.00	42.69	15.0	1204	3225	4.34	199.40	94.00	93.80	93.90	122	123	104	115	96.47
13:45	1190.00	39.52	15.0	1217	3314	4.36	200.10	94.30	93.80	93.80	123	123	103	116	96.68
13:46	1197.00	40.03	14.9	1203	2987	4.34	198.50	94.50	93.70	93.70	123	123	102	117	96.66
13:47	1174.00	37.99	15.0	1205	3082	4.43	200.80	95.50	93.90	94.40	123	123	102	117	96.76
13:48	1206.00	31.35	15.1	1205	2787	4.42	200.60	95.10	94.00	94.30	122	123	103	117	97.40

Starting
05-28-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
13:49	1179.00	30.17	15.1	1193	2875	4.41	202.40	94.90	94.00	94.10	123	123	101	117	97.44
13:50	1164.00	29.66	15.2	1162	2973	4.53	197.80	95.90	93.60	94.00	123	123	104	121	97.45
10 MinAvg	1196.50	40.51	15.0	1210	2941	4.38	199.53	94.52	93.70	93.92	122	123	102	116	96.62
13:51	1139.00	23.69	15.3	1167	2947	4.62	202.80	96.10	94.00	94.00	123	123	105	123	97.92
13:52	1135.00	18.35	15.3	1162	2541	4.66	197.30	96.40	94.10	94.20	123	123	106	122	98.38
13:53	1126.00	17.09	15.3	1151	2273	4.61	200.00	94.80	93.40	94.10	123	123	105	122	98.48
13:54	1120.00	18.13	15.2	1161	2453	4.71	196.60	95.10	93.70	94.20	122	124	106	121	98.38
13:55	1132.00	20.09	15.1	1135	1813	4.62	197.70	94.80	94.00	94.10	123	123	107	119	98.23
13:56	1133.00	18.80	15.2	1122	2527	4.80	199.40	94.70	94.20	94.20	123	124	107	121	98.34
13:57	1143.00	17.13	15.2	1109	3353	4.94	200.20	95.30	93.40	94.20	122	124	108	118	98.50
13:58	1153.00	16.02	15.2	1108	3183	4.91	199.70	95.40	93.10	94.10	120	123	105	119	98.61
13:59	1157.00	16.20	15.1	1122	2849	4.99	198.80	95.30	94.10	94.10	119	123	103	120	98.60
14:00	1142.00	16.92	15.2	1136	2819	5.06	199.00	96.70	94.00	94.10	119	124	102	118	98.52
10 MinAvg	1138.00	18.24	15.2	1137	2676	4.79	199.15	95.46	93.80	94.13	122	123	105	120	98.40
14:01	1162.00	17.29	15.2	1136	2678	5.14	199.00	98.20	94.30	94.30	118	124	103	119	98.51
14:02	1179.00	17.33	15.2	1136	2380	5.20	199.50	97.00	94.40	94.40	117	124	100	121	98.53
14:03	1180.00	17.96	15.2	1107	1848	5.07	198.30	98.90	94.50	94.50	115	124	99	121	98.48
14:04	1195.00	17.26	15.2	1053	2016	4.81	203.30	99.80	94.50	94.50	111	123	98	120	98.56

The stone has bridged-up inside of the dutchman elbow sending a large quantity of stone into the I.D. fan. The rate of fluidized stone was at 6.7 lbs/min at 13:30 and steadily increased to 40 lbs/min at 14:03 when the bridging occurred.

The fan and elbow is cleaned and the fan is restarted.

14:49	253.80	1.64	19.8	1517	1217	4.80	209.60	65.48	65.23	65.60	65	65	65	67	99.85
14:50	741.00	1.92	15.7	1573	2576	5.57	171.50	68.15	65.05	65.05	65	65	66	71	99.74
14:51	889.00	6.25	15.6	1375	2693	5.40	139.90	73.00	66.25	65.26	66	65	71	75	99.30
14:52	959.00	5.72	15.7	1351	2515	5.44	187.80	78.30	66.99	66.61	66	74	76	79	99.40
14:53	1015.00	7.08	15.7	1349	2142	5.77	196.90	79.90	71.30	68.47	78	80	80	81	99.30
14:54	1058.00	7.36	15.7	1289	2220	5.93	196.70	80.30	69.37	71.10	82	88	81	93	99.30
14:55	1077.00	7.11	15.7	1227	2463	5.93	197.10	80.40	75.40	77.00	95	95	89	95	99.34
14:56	1109.00	6.43	15.7	1181	2778	5.88	203.60	83.90	72.60	82.70	96	95	95	95	99.42
14:57	1149.00	5.40	15.7	1167	2861	5.87	203.30	91.30	72.60	93.90	96	95	95	95	99.53
14:58	1137.00	5.16	15.7	1128	2862	5.93	206.30	95.00	76.50	95.30	97	95	95	96	99.55

The run is stopped after the fluidized stone rate was at least 160 lb/min for the above 10 minutes.

Post-Run Bed Inspection: Almost all of the outlet louvers are blocked with stone and the top 8 inlet louvers are also blocked with stone.

SCREEN ANALYSIS OF 9205281310 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	0.0	0.00	0.438	0.0000
+5/16	0.313	3.7	0.67	0.344	0.0196
+1/4	0.250	6.2	1.13	0.282	0.0401
+3.5	0.223	4.2	0.77	0.237	0.0324
+4	0.185	6.9	1.26	0.204	0.0616
+5	0.157	22.8	4.16	0.171	0.2430
+6	0.132	69.3	12.63	0.145	0.8740
+8	0.094	172.4	31.42	0.113	2.7842
+10	0.079	74.4	13.56	0.086	1.5730
+12	0.066	59.1	10.77	0.072	1.4877
+14	0.056	51.7	9.42	0.061	1.5497
+16	0.047	25.5	4.65	0.051	0.9077
+20	0.033	33.0	6.01	0.040	1.5036
-20		19.5	3.55	0.017	2.1473
Total =		548.7	100.00		13.2240

Harmonic Mean Diameter (in.) = 0.0756

Weighted Average Diameter (in.) = 0.1013

SCREEN ANALYSIS OF 9205281320 DUTCHMAN STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	0.0	0.00	0.438	0.0000
+5/16	0.313	0.8	0.09	0.344	0.0026
+1/4	0.250	3.6	0.41	0.282	0.0145
+3.5	0.223	3.2	0.36	0.237	0.0153
+4	0.185	5.7	0.65	0.204	0.0317
+5	0.157	30.1	3.41	0.171	0.1994
+6	0.132	98.2	11.13	0.145	0.7700
+8	0.094	276.3	31.31	0.113	2.7741
+10	0.079	120.7	13.68	0.086	1.5865
+12	0.066	101.3	11.48	0.072	1.5853
+14	0.056	91.1	10.32	0.061	1.6977
+16	0.047	42.7	4.84	0.051	0.9449
+20	0.033	63.9	7.24	0.040	1.8100
+25	0.132	9.7	1.10	0.083	0.1331
+30	0.094	5.4	0.61	0.113	0.0542
+35	0.079	4.6	0.52	0.086	0.0605
+40	0.066	3.3	0.37	0.072	0.0516
+45	0.056	2.1	0.24	0.061	0.0391
+50	0.047	2.1	0.24	0.051	0.0465
+60	0.033	2.5	0.28	0.040	0.0708
-60		15.3	1.73	0.017	1.0474
	Total =	882.6	100.00		12.9352

Harmonic Mean Diameter (in.) = 0.0773
Weighted Average Diameter (in.) = 0.0956

SCREEN ANALYSIS OF 9205281414 I.D. FAN STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	0.0	0.00	0.438	0.0000
+5/16	0.313	0.0	0.00	0.344	0.0000
+1/4	0.250	0.0	0.00	0.282	0.0000
+3.5	0.223	0.0	0.00	0.237	0.0000
+4	0.185	0.0	0.00	0.204	0.0000
+5	0.157	0.0	0.00	0.171	0.0000
+6	0.132	2.4	0.14	0.145	0.0094
+8	0.094	18.8	1.06	0.113	0.0940
+10	0.079	17.5	0.99	0.086	0.1146
+12	0.066	26.5	1.50	0.072	0.2066
+14	0.056	48.3	2.73	0.061	0.4483
+16	0.047	41.1	2.32	0.051	0.4530
+20	0.033	217.8	12.29	0.040	3.0730
+25	0.132	204.2	11.52	0.083	1.3960
+30	0.094	215.8	12.18	0.113	1.0792
+35	0.079	263.6	14.88	0.086	1.7258
+40	0.066	208.9	11.79	0.072	1.6284
+45	0.056	158.2	8.93	0.061	1.4685
+50	0.047	124.0	7.00	0.051	1.3668
+60	0.033	74.9	4.23	0.040	1.0568
-60		149.9	8.46	0.017	5.1117
Total =		1771.9	100.00		19.2321

Harmonic Mean Diameter (in.) = 0.0520
Weighted Average Diameter (in.) = 0.0678

SCREEN ANALYSIS OF 9205281458 DUTCHMAN STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	0.0	0.00	0.438	0.0000
+5/16	0.313	0.0	0.00	0.344	0.0000
+1/4	0.250	1.5	0.24	0.282	0.0085
+3.5	0.223	1.1	0.17	0.237	0.0074
+4	0.185	3.2	0.51	0.204	0.0249
+5	0.157	13.1	2.08	0.171	0.1218
+6	0.132	40.0	6.36	0.145	0.4401
+8	0.094	165.0	26.23	0.113	2.3245
+10	0.079	84.4	13.42	0.086	1.5566
+12	0.066	78.8	12.53	0.072	1.7304
+14	0.056	77.3	12.29	0.061	2.0213
+16	0.047	39.0	6.20	0.051	1.2110
+20	0.033	73.0	11.61	0.040	2.9014
+25	0.132	16.3	2.59	0.083	0.3139
+30	0.094	8.7	1.38	0.113	0.1226
+35	0.079	7.7	1.22	0.086	0.1420
+40	0.066	4.8	0.76	0.072	0.1054
+45	0.056	3.1	0.49	0.061	0.0811
+50	0.047	2.3	0.37	0.051	0.0714
+60	0.033	1.7	0.27	0.040	0.0676
-60		8.0	1.27	0.017	0.7685
Total =		629.0	100.00		14.0203

Harmonic Mean Diameter (in.) = 0.0713
Weighted Average Diameter (in.) = 0.0865

LEC RUN 920528

Carry-Over Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Stone Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
09:13 AM	18	48.3	2.69
01:20 PM	187	43.0	0.23
01:33 PM	13	45.0	3.46
01:37 PM	4	35.5	8.88
01:41 PM	4	33.6	8.41
01:43 PM	2	35.1	17.53
01:45 PM	2	41.8	20.92
01:47 PM	2	47.8	23.92
01:49 PM	2	32.0	16.00
01:51 PM	2	29.4	14.72
01:53 PM	8	33.6	4.20
01:55 PM	2	37.0	18.49
01:56 PM	1	53.6	53.58
01:58 PM	1	32.8	32.76
02:00 PM	2	16.8	8.41
02:01 PM	1	31.5	31.52
02:03 PM	1	32.7	32.68
02:04 PM	1	20.5	20.52
02:55 PM	2	21.2	10.58
02:56 PM	1	17.6	17.58
02:57 PM	1	18.4	18.42
02:58 PM	1	16.5	16.54
02:58 PM	0.25	45.0	180.0
02:58 PM	0.25	45.0	180.0
02:58 PM	0.25	45.0	180.0
02:59 PM	0.25	45.0	180.0
02:59 PM	0.25	45.0	180.0
02:59 PM	0.25	45.0	180.0
02:59 PM	0.25	45.0	180.0
02:59 PM	0.25	45.0	180.0
03:00 PM	0.25	45.0	180.0
03:00 PM	0.25	45.0	180.0
03:00 PM	0.25	45.0	180.0
03:00 PM	0.25	45.0	180.0
03:01 PM	0.25	45.0	180.0
03:01 PM	0.25	45.0	180.0
03:01 PM	0.25	45.0	180.0
03:01 PM	0.25	45.0	180.0
03:02 PM	0.25	45.0	180.0
03:02 PM	0.25	45.0	180.0
03:02 PM	0.25	45.0	180.0
03:02 PM	0.25	45.0	180.0
03:03 PM	0.25	45.0	180.0
03:03 PM	0.25	45.0	180.0
03:03 PM	0.25	45.0	180.0
03:03 PM	0.25	45.0	180.0
03:03 PM	0.25	45.0	180.0
03:04 PM	0.25	45.0	180.0

LEC RUN 920528

Carry-Over Production Log (Continued)

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Stone Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
03:04 PM	0.25	45.0	180.0
03:04 PM	0.25	45.0	180.0
03:04 PM	0.25	45.0	180.0
Total:		1983.8	
Average:			108.4

LEC RUN 920528

Waste Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Dust Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
09:14 AM	19	41.7	2.19
09:24 AM	10	20.8	2.08
09:36 AM	12	23.1	1.93
09:45 AM	9	18.8	2.09
Total:		104.4	
Average:			2.07

Run Summary:

LEC Run 920529

Objective: To reduce No.9 stone louver fluidization by decreasing the amount of fines contained within the bed while maintaining high SO₂ removal. This was done by using a 50/50 mix of No.9 and No.8 limestones.

Total Run Time: 170 minutes

SO₂ Removal: 30 to 62%

Inlet Gas Rate: 2200 to 1300 acfm

Operational Conditions:

A 50/50 (volume) mix of Maxville No. 9 stone from LEC Run 920528 and Maxville No. 8 limestone from LEC Run 920526.

In-duct Steam: 10 psig (full)

Overhead Sprays: 0.0 gpm

Louver Sprays: 0.27 gpm from 13:08 to 14:14

0.43 gpm from 14:14 to 15:05

0.50 gpm from 15:05 to 15:48

Bed Speed: 10 DT (2195 lb/hr)

Regeneration device: No. 6. mesh screen above a No. 16 mesh vibrating screen.

Waste Fines: 0.5 lbs/min (average).

Carry-over: 5.9 lbs/min (average).

Comments: - The SO₂ removal was unexpectedly low considering the amount of fines available in the stone. The increase in louver spray rate at 14:14 stopped a downward SO₂ removal trend and increased removals from 32% to 45%. The subsequent louver spray increase at 15:05 resulted in an SO₂ removal increase to 60%.

LEC Run 920529

Starting
05-29-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
Initial Conditions: A 50/50 mix of No.9 limestone from LEC Run 920528 and No.8 LEC Run 920526; Bed Speed = 2020 lb/hr (10DT); Damper set on #1 (minimum setting); In-duct Steam Injection = 10 psig (Full); Louver Sprays = 0.27 gpm; Inlet O2 = 13.4%															
13:08	1189.00	5.55	15.1	2279	3059	3.19	176.00	68.11	57.25	57.00	57	57	57	57	99.53
13:09	1224.00	50.35	15.1	2297	3095	3.33	193.70	70.70	57.34	57.21	57	57	58	57	95.89
13:10	1256.00	122.80	15.1	2220	3111	3.35	197.40	72.00	64.26	67.12	69	61	72	57	90.22
13:11	1291.00	188.60	15.0	2086	3124	3.15	200.40	72.20	72.20	84.90	89	83	86	57	85.39
13:12	1313.00	225.40	15.0	2027	3061	3.11	201.50	74.60	84.00	107.40	115	97	87	57	82.83
13:13	1313.00	254.00	14.8	1981	3077	3.18	203.00	86.00	88.60	115.60	117	117	88	57	80.65
13:14	1314.00	279.80	14.7	1981	2941	3.17	202.90	87.30	90.60	116.60	117	117	109	58	78.71
13:15	1326.00	313.00	14.6	1979	2870	3.17	206.50	87.40	90.20	116.60	117	117	117	58	76.40
13:16	1429.00	337.50	14.4	1970	2964	3.19	206.40	87.50	88.80	116.80	117	117	117	58	76.38
13:17	1465.00	366.80	14.3	1970	3115	3.09	211.70	87.50	87.50	116.80	117	117	113	58	74.96
10 MinAvg	1312.00	214.38	14.8	2079	3042	3.19	199.95	79.33	78.07	95.60	97	94	90	57	84.10
13:18	1533.00	420.20	14.2	1945	3119	2.88	211.60	95.10	109.80	117.10	117	110	117	73	72.59
13:19	1519.00	420.40	14.2	1916	3129	3.10	208.10	88.00	115.60	117.20	117	109	117	72	72.32
13:20	1506.00	426.80	14.3	1950	3025	3.17	209.40	90.50	109.60	117.30	117	112	117	73	71.66
13:21	1526.00	447.40	14.1	1950	3035	3.04	209.10	94.10	109.30	117.40	117	115	117	80	70.68
13:22	1541.00	475.00	14.0	1941	3220	3.21	214.60	101.00	111.70	117.40	117	115	117	88	69.18
13:23	1596.00	499.60	13.9	1949	3054	3.33	213.80	106.20	103.60	117.40	118	117	118	88	68.70
13:24	1580.00	534.30	13.8	1942	2994	3.25	215.30	110.40	110.90	117.50	118	116	117	88	66.18
13:25	1583.00	549.60	13.8	1933	2715	3.38	214.60	113.90	107.70	117.60	118	118	117	88	65.28
13:26	1610.00	571.50	13.7	1933	2667	3.40	214.60	113.00	109.90	117.80	118	118	117	90	64.50
13:27	1671.00	622.50	13.6	1928	2927	3.44	216.60	114.90	109.40	117.90	118	118	118	92	62.75
10 MinAvg	1566.50	496.73	14.0	1939	2988	3.22	212.77	102.71	109.75	117.46	117	115	117	83	68.38
13:28	1686.00	651.90	13.6	1921	3011	3.41	218.10	115.10	112.70	118.00	118	118	118	95	61.33
13:29	1669.00	659.80	13.7	1922	3192	3.54	218.40	116.80	113.30	118.00	118	118	118	98	60.47
13:30	1675.00	693.10	13.6	1915	2938	3.55	219.90	117.40	110.00	118.10	118	118	118	101	58.62
13:31	1649.00	698.70	13.8	1908	2867	3.59	220.80	117.50	110.00	118.30	118	118	118	100	57.63
13:32	1622.00	685.70	14.0	1900	3082	3.64	220.70	118.10	105.40	118.40	118	118	118	105	57.73
13:33	1601.00	674.80	14.1	1882	3023	3.63	220.10	118.20	105.70	118.50	119	119	119	107	57.85
13:34	1571.00	691.60	14.2	1894	2911	3.65	223.20	117.80	108.30	118.60	119	119	119	110	55.98
13:35	1534.00	702.00	14.5	1885	2988	3.67	222.70	116.90	108.60	118.60	119	119	119	111	54.24
13:36	1479.00	691.60	14.8	1883	2809	3.72	220.80	117.60	100.00	118.70	119	119	119	112	53.24
13:37	1434.00	649.00	15.2	1865	2925	3.77	221.00	116.20	90.30	118.80	119	119	119	112	54.74
10 MinAvg	1592.00	679.82	14.2	1898	2975	3.62	220.57	117.16	106.43	118.40	118	118	118	105	57.18
13:38	1384.00	610.90	15.6	1867	2977	3.83	221.80	114.50	101.40	118.90	119	119	119	111	55.86

E-384

LEC Run 920529

Starting
05-29-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
13:39	1385.00	608.60	16.1	1862	3061	3.85	224.80	115.50	111.10	119.00	119	119	119	111	56.06
13:40	1358.00	594.20	16.0	1856	3122	3.87	226.60	114.80	111.20	119.10	119	119	119	111	56.24
13:41	1321.00	616.20	16.0	1841	3117	3.88	222.70	114.60	110.30	119.30	138	119	119	109	53.35
13:42	1287.00	635.20	16.1	1831	2996	3.88	221.30	114.60	113.20	119.30	149	119	119	109	50.64
13:43	1293.00	619.70	16.3	1822	2956	3.98	221.20	113.70	110.50	119.40	155	120	119	106	52.07
13:44	1302.00	612.50	16.6	1803	2959	3.93	220.40	112.80	107.30	119.60	163	142	120	105	52.96
13:45	1318.00	639.20	16.8	1783	2732	3.89	218.90	112.60	96.90	119.60	163	156	120	104	51.50
13:46	1338.00	684.20	16.2	1784	2580	3.94	220.00	111.10	107.50	119.70	163	163	120	103	48.86
13:47	1333.00	655.40	16.3	1792	2840	3.98	219.20	112.50	108.90	119.80	163	169	123	103	50.83
C	17.64 lbs of L/S extracted from the dutchman elbow (0.4 lbs/min).														
10 MinAvg	1331.90	627.61	16.2	1824	2934	3.90	221.69	113.67	107.83	119.37	145	134	120	107	52.84
13:48	1357.00	631.40	16.4	1766	2749	3.96	220.20	113.40	111.70	119.70	163	178	129	100	53.47
13:49	1383.00	728.00	15.9	1755	2709	3.96	219.00	113.50	110.30	119.70	163	178	142	100	47.36
13:50	1417.00	778.00	15.8	1746	2791	3.92	218.70	114.30	108.20	119.60	163	178	148	99	45.10
13:51	1382.00	746.00	15.8	1763	2846	3.95	218.30	112.90	108.20	119.50	165	178	149	101	46.02
13:52	1376.00	730.00	15.9	1747	2758	3.97	212.50	114.90	103.80	119.60	173	178	149	100	46.95
13:53	1281.00	733.00	16.0	1741	2806	3.95	215.40	114.60	99.70	119.50	178	178	149	101	42.78
13:54	1315.00	709.00	16.0	1730	2861	3.88	214.00	117.00	107.30	119.70	178	178	149	99	46.08
13:55	1306.00	718.00	16.1	1710	2737	4.03	212.80	116.60	106.90	118.90	176	178	149	99	45.02
C	13.80 lbs of L/S extracted from the dutchman elbow (1.7 lbs/min).														
13:56	1357.00	750.00	15.9	1719	3081	4.07	219.60	116.20	109.00	117.90	178	178	149	104	44.73
13:57	1387.00	793.00	15.8	1698	3145	3.99	218.20	118.50	107.60	118.20	168	178	149	107	42.83
10 MinAvg	1356.10	731.64	16.0	1737	2848	3.97	216.87	115.19	107.27	119.23	171	178	146	101	46.03
13:58	1365.00	834.00	16.2	1690	2760	4.03	219.40	118.00	110.00	119.50	163	178	149	109	38.90
13:59	1379.00	816.00	16.1	1667	2596	4.01	216.50	118.20	109.10	119.40	163	178	149	112	40.83
14:00	1348.00	817.00	16.0	1657	2722	3.98	216.50	118.90	106.10	119.50	163	178	149	114	39.39
14:01	1347.00	853.00	15.8	1652	2928	3.98	212.00	119.20	108.70	119.60	163	181	149	116	36.67
14:02	1328.00	912.00	15.6	1641	2818	3.97	210.90	119.30	107.60	119.50	163	178	149	117	31.33
14:03	1310.00	910.00	15.6	1637	2851	3.90	208.30	119.10	103.90	118.70	163	178	149	118	30.53
14:04	1360.00	908.00	15.5	1632	2979	4.03	212.10	119.00	103.70	119.20	163	177	149	117	33.24
14:05	1373.00	881.00	15.6	1630	2948	4.05	210.00	119.70	104.40	119.40	163	178	149	119	35.83
14:06	1352.00	828.00	15.7	1617	2843	4.06	207.50	119.70	103.30	119.20	163	181	149	118	38.76
14:07	1343.00	812.00	15.6	1614	2873	4.07	205.00	119.90	102.30	119.90	164	191	149	120	39.54
10 MinAvg	1350.50	857.10	15.8	1644	2832	4.01	211.82	119.10	105.91	119.39	163	180	149	116	36.50
14:08	1365.00	859.00	15.5	1615	2949	4.09	206.20	119.90	105.30	119.90	164	193	149	120	37.07
14:09	1377.00	900.00	15.3	1606	2719	4.10	207.00	120.00	106.90	119.90	164	193	151	120	34.64

E-385

LEC Run 920529

Starting
05-29-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
14:10	1373.00	914.00	15.3	1580	2684	4.11	201.70	120.00	110.60	120.00	164	194	153	120	33.43
C	23.86 lbs of L/S extracted from the dutchman elbow (4.8 lbs/min).														
14:11	1374.00	890.00	15.3	1572	2765	4.13	203.60	120.10	111.30	120.10	164	206	150	120	35.23
14:12	1409.00	906.00	15.2	1571	2825	4.09	202.20	120.10	111.80	120.10	158	207	149	120	35.70
14:13	1405.00	924.00	15.1	1560	2897	4.10	202.00	120.10	111.30	120.10	149	206	149	122	34.23
14:14	1438.00	950.00	15.0	1570	3202	4.07	201.50	120.10	108.10	120.10	149	193	149	135	33.38
C	Increased the louver sprays to 0.43 gpm														
C	Stone exiting the bottom of the reactor is bone-dry.														
14:15	1425.00	968.00	15.0	1548	3127	4.20	200.60	120.10	104.90	119.90	149	193	149	149	32.07
14:16	1425.00	949.00	14.8	1552	2684	4.17	203.60	120.10	109.50	120.00	149	189	149	149	33.40
14:17	1464.00	966.00	14.7	1556	2800	4.15	206.90	120.10	103.90	120.10	149	189	149	149	34.02
10 MinAvg	1405.50	923.40	15.1	1573	2865	4.12	203.53	120.06	108.36	120.02	156	196	150	130	34.32
14:18	1482.00	984.00	14.6	1545	2557	4.16	206.10	120.20	110.40	120.10	146	192	156	149	33.60
14:19	1486.00	1018.00	14.4	1533	2664	4.18	204.60	120.30	109.90	120.30	132	190	164	149	31.49
14:20	1470.00	1017.00	14.6	1525	2879	4.20	207.20	120.30	112.00	120.30	134	181	163	150	30.82
14:21	1466.00	979.00	14.7	1522	2705	4.25	204.80	120.30	110.70	120.30	130	180	150	151	33.22
14:22	1452.00	948.00	14.9	1537	2926	4.29	208.20	120.30	111.40	120.30	125	180	153	156	34.71
14:23	1440.00	935.00	15.0	1517	2796	4.26	209.30	120.40	111.70	120.40	123	179	150	156	35.07
14:24	1433.00	876.00	15.3	1535	3128	4.31	216.20	120.40	112.60	120.40	120	179	150	156	38.87
14:25	1435.00	815.00	15.5	1529	3163	4.33	219.60	120.40	110.30	120.20	120	178	150	164	43.21
14:26	1411.00	808.00	15.6	1529	2932	4.27	220.10	120.60	107.40	120.60	121	167	150	164	42.74
14:27	1409.00	812.00	15.6	1541	2786	4.22	221.00	120.60	108.40	119.90	121	164	163	164	42.37
10 MinAvg	1448.40	919.20	15.0	1531	2854	4.25	211.71	120.38	110.48	120.28	127	179	155	156	36.61
14:28	1359.00	818.00	15.7	1541	2690	4.16	221.50	120.70	108.40	118.90	121	164	164	164	39.81
14:29	1312.00	815.00	16.0	1540	2459	4.26	220.70	120.80	106.70	115.70	121	161	164	164	37.88
14:30	1304.00	777.00	16.2	1551	2515	4.27	220.70	120.90	107.90	112.60	121	151	165	165	40.41
C	27.26 lbs of very wet L/S is extracted from the dutchman elbow (1.4 lbs/min).														
14:31	1291.00	724.00	16.4	1549	2802	4.30	219.00	121.00	104.30	117.40	121	150	165	165	43.92
14:32	1251.00	695.60	16.5	1539	2747	4.25	219.60	120.90	102.70	118.40	121	150	165	165	44.40
14:33	1267.00	679.30	16.5	1535	2881	4.25	216.30	121.20	100.00	111.60	121	131	163	165	46.39
14:34	1281.00	684.40	16.4	1550	2876	4.26	219.80	121.10	102.70	112.70	121	125	151	165	46.57
14:35	1308.00	705.00	16.3	1549	2707	4.23	219.20	121.30	104.00	119.50	121	144	150	165	46.10
14:36	1351.00	718.00	16.2	1546	2140	4.23	216.20	121.30	102.70	115.70	121	122	151	165	46.85
14:37	1384.00	790.00	15.9	1545	2500	4.21	215.50	121.50	100.10	115.40	122	122	150	165	42.92
10 MinAvg	1310.80	740.63	16.2	1545	2632	4.24	218.85	121.07	103.95	115.79	121	142	159	165	43.53
14:38	1377.00	794.00	15.9	1536	2981	4.38	217.00	121.50	100.50	117.40	122	122	151	165	42.34

LEC Run 920529

Starting
05-29-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
14:39	1370.00	778.00	16.0	1535	2793	4.44	215.50	121.30	101.80	117.50	122	137	151	165	43.21
14:40	1353.00	786.00	16.0	1524	2403	4.42	215.60	121.40	100.40	114.80	122	150	152	165	41.91
14:41	1374.00	793.00	15.9	1530	2396	4.42	211.90	120.80	101.30	118.20	122	151	163	165	42.29
14:42	1383.00	788.00	15.9	1531	2728	4.47	212.30	121.50	102.10	118.30	122	151	165	165	43.02
14:43	1370.00	771.00	16.0	1533	2764	4.49	214.30	121.70	100.10	114.90	122	151	165	165	43.72
14:44	1378.00	761.00	16.0	1519	2628	4.51	211.00	120.80	101.60	109.40	122	148	166	166	44.78
14:45	1389.00	756.00	16.0	1519	2615	4.49	211.30	119.70	100.30	108.10	122	144	163	166	45.57
C	Very spotty lumps of wet limestone is exiting the bottom of the reactor														
14:46	1382.00	780.00	15.9	1519	2669	4.62	210.60	120.40	100.20	116.30	122	128	166	166	43.56
14:47	1415.00	786.00	15.8	1509	2509	4.64	211.20	120.90	104.20	114.80	122	122	164	166	44.45
10 MinAvg	1379.10	779.30	15.9	1526	2649	4.49	213.07	121.00	101.25	114.97	122	140	160	165	43.48
14:48	1384.00	781.00	15.9	1497	2866	4.64	210.60	121.20	104.40	119.50	122	122	164	166	43.57
14:49	1370.00	780.00	15.8	1495	3005	4.64	208.90	121.70	104.70	119.50	122	122	157	166	43.07
14:50	1367.00	784.00	15.7	1484	2838	4.63	208.20	121.60	109.40	115.50	122	122	151	166	42.65
14:51	1376.00	802.00	15.6	1484	2723	4.55	208.40	121.40	102.90	118.60	122	122	151	166	41.72
14:52	1361.00	835.00	15.4	1482	2808	4.60	206.40	121.40	103.10	117.80	122	122	151	166	38.65
14:53	1356.00	829.00	15.4	1481	2334	4.71	205.60	121.80	106.00	116.70	122	122	151	166	38.86
14:54	1347.00	844.00	15.4	1475	2598	4.75	200.40	121.60	104.50	114.90	122	126	147	166	37.34
14:55	1332.00	842.00	15.5	1487	2819	4.79	201.50	121.90	101.20	117.30	122	122	151	166	36.79
C	40.22 lbs of moisture over-saturated L/S extracted from the dutchman elbow (1.6 lbs/min).														
C	Stone exiting the bottom of the reactor is approx. 20% wet.														
14:56	1338.00	830.00	15.4	1476	2646	4.69	200.70	121.60	100.70	120.60	122	122	151	166	37.97
14:57	1321.00	832.00	15.4	1461	2803	4.56	197.60	121.20	106.20	118.40	122	122	151	166	37.02
10 MinAvg	1355.20	815.90	15.6	1482	2744	4.66	204.83	121.54	104.31	117.88	122	122	153	166	39.76
14:58	1308.00	783.00	15.4	1461	2609	4.43	197.60	121.60	104.40	121.40	122	122	143	166	40.14
14:59	1309.00	774.00	15.4	1438	2636	4.49	196.20	122.00	106.00	115.90	122	126	147	166	40.87
15:00	1375.00	767.00	15.2	1451	2604	4.51	198.00	121.90	104.50	116.90	122	127	123	166	44.22
15:01	1465.00	796.00	15.0	1446	2732	4.53	203.20	121.00	100.90	119.20	122	122	122	165	45.67
15:02	1487.00	820.00	14.9	1454	2744	4.52	200.80	121.60	106.60	119.90	122	122	122	165	44.86
15:03	1457.00	784.00	15.1	1450	2560	4.54	197.30	121.40	109.90	117.90	122	122	122	165	46.19
15:04	1398.00	755.00	15.2	1461	2697	4.53	197.20	121.50	105.50	119.50	122	122	122	165	45.99
15:05	1367.00	743.00	15.2	1439	2842	4.59	197.00	121.30	103.60	118.20	122	122	122	165	45.65
C	Increased louver sprays to 0.50 gpm														
15:06	1333.00	724.00	15.3	1438	2554	4.46	195.90	121.10	101.50	120.70	122	125	122	165	45.69
15:07	1303.00	780.00	15.2	1449	2947	4.41	195.90	121.20	99.30	120.70	121	121	121	165	40.14
10 MinAvg	1380.20	772.60	15.2	1449	2692	4.50	197.91	121.46	104.22	119.03	122	123	126	165	43.94

E-387

LEC Run 920529

Starting
05-29-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
15:08	1316.00	770.00	15.1	1429	3008	4.41	197.70	121.20	100.30	120.10	121	121	121	165	41.49
C	36.96 lbs of wet L/S is extracted from the dutchman elbow (2.8 lbs/min).														
15:09	1312.00	719.00	15.1	1439	2772	4.46	197.20	120.90	101.90	117.00	121	121	121	165	45.20
15:10	1290.00	695.90	15.2	1427	2787	4.47	196.20	121.00	98.70	109.60	122	122	121	165	46.05
15:11	1290.00	668.60	15.2	1428	2990	4.45	197.30	121.20	95.90	116.60	122	122	121	165	48.17
15:12	1284.00	640.90	15.3	1441	2861	4.20	199.00	121.20	95.40	120.10	122	122	121	165	50.09
15:13	1260.00	616.80	15.5	1431	2598	4.02	199.50	121.60	96.10	119.10	122	122	121	165	51.05
C	26.08 lbs of wet L/S extracted from the dutchman elbow (5.2 lbs/min).														
15:14	1257.00	611.50	15.6	1433	2575	4.12	201.50	120.90	93.30	115.30	122	122	118	165	51.35
15:15	1253.00	613.90	15.7	1428	2707	4.10	207.20	121.10	92.60	116.20	122	122	117	165	51.01
15:16	1243.00	598.30	16.0	1429	2506	4.11	207.90	119.40	92.40	115.20	122	122	115	164	51.87
15:17	1234.00	550.00	16.2	1409	2599	4.00	210.90	119.70	92.20	112.70	122	122	112	165	55.43
10 MinAvg	1273.90	648.49	15.5	1429	2740	4.23	201.44	120.82	95.88	116.19	122	122	119	165	49.17
15:18	1215.00	529.20	16.3	1412	2538	4.39	213.00	119.10	92.00	112.60	121	121	108	165	56.44
15:19	1212.00	521.20	16.4	1417	2375	4.46	217.80	119.20	91.80	109.60	121	121	110	164	57.00
15:20	1222.00	508.10	16.6	1419	2763	4.45	220.50	119.20	91.80	109.70	121	121	111	163	58.42
15:21	1223.00	501.40	16.6	1454	2876	4.41	220.90	117.50	91.80	105.10	121	121	111	163	59.00
15:22	1169.00	487.20	16.8	1450	2702	4.42	217.10	116.70	91.90	102.40	121	121	109	163	58.32
C	45 lbs of wet L/S extracted from the dutchman elbow (5.0 lbs/min).														
15:23	1142.00	465.10	17.0	1451	2397	4.39	218.40	115.70	91.90	101.60	121	121	110	161	59.27
15:24	1105.00	457.10	17.1	1445	2508	4.38	212.70	115.00	92.00	97.70	121	121	110	160	58.63
15:25	1102.00	447.40	17.1	1422	2238	4.38	211.70	113.30	92.00	105.80	121	121	110	158	59.40
15:26	1125.00	458.80	17.0	1429	2588	3.84	207.70	112.30	92.10	102.90	121	121	109	158	59.22
15:27	1160.00	458.70	16.9	1433	2908	4.49	212.10	113.10	92.10	107.30	122	122	108	156	60.46
10 MinAvg	1167.50	483.42	16.8	1433	2589	4.36	215.19	116.11	91.94	105.47	121	121	110	161	58.62
15:28	1177.00	470.00	16.8	1432	2841	4.44	210.90	114.90	92.20	110.20	122	122	110	156	60.07
15:29	1192.00	474.90	16.6	1432	2632	4.46	210.50	113.20	92.30	106.60	122	122	111	157	60.16
15:30	1217.00	484.60	16.6	1411	2713	4.40	212.70	113.10	92.30	106.80	121	122	112	156	60.18
C	45 lbs of wet L/S is extracted from the dutchman elbow (5.6 lbs/min).														
15:31	1236.00	491.50	16.5	1413	2887	4.30	214.00	113.90	92.40	107.40	121	122	112	152	60.23
15:32	1249.00	504.60	16.4	1396	2620	4.39	208.80	112.70	92.50	107.30	121	122	118	156	59.60
15:33	1264.00	506.80	16.3	1401	2643	4.29	213.80	113.80	92.60	114.40	120	122	118	155	59.91
15:34	1258.00	521.30	16.2	1401	2890	4.32	213.90	111.60	92.70	102.20	121	122	120	153	58.56
15:35	1277.00	532.30	16.2	1378	2819	4.37	213.50	111.90	92.70	97.10	121	122	115	151	58.32
15:36	1289.00	528.80	16.3	1379	2166	4.39	214.60	111.10	92.60	99.20	121	122	120	152	58.98
15:37	1312.00	506.00	16.2	1368	2071	4.46	215.70	112.00	92.30	99.70	121	122	121	151	61.43
10 MinAvg	1247.10	502.08	16.4	1401	2628	4.38	212.84	112.82	92.46	105.09	121	122	116	154	59.74

LE
CO

LEC Run 920529

Starting
05-29-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
15:38	1337.00	497.80	16.1	1358	2617	4.36	217.30	111.20	92.00	103.80	121	121	121	151	62.77
15:39	1353.00	513.70	16.1	1368	2472	4.39	215.40	113.70	91.80	101.90	121	121	121	150	62.03
15:40	1344.00	531.60	16.1	1390	2170	4.46	213.90	113.40	91.80	103.00	121	121	121	150	60.45
C	45 lbs of wet L/S extracted from the dutchman elbow (4.5 lbs/min).														
15:41	1351.00	506.60	16.0	1368	2674	4.36	215.60	113.50	92.00	103.50	121	121	121	150	62.50
15:42	1344.00	510.70	16.0	1369	2933	4.28	216.80	113.70	92.10	107.50	121	121	121	151	62.00
C	45 lbs of wet L/S extracted from the dutchman elbow (22.5 lbs/min).														
15:43	1347.00	514.50	16.0	1393	2778	4.20	217.50	115.20	92.20	107.20	122	122	121	151	61.80
15:44	1389.00	541.70	15.8	1381	2441	4.13	216.40	115.10	92.30	101.60	122	122	122	151	61.00
15:45	1428.00	571.10	15.6	1389	2276	4.30	213.60	113.90	92.50	104.00	122	122	119	151	60.01
C	45 lbs of wet L/S extracted from the dutchman elbow (15.0 lbs/min).														
15:46	1399.00	581.20	15.6	1392	2667	4.25	216.20	115.20	98.10	109.10	122	122	119	151	58.46
15:47	1400.00	595.40	15.5	1386	2674	4.24	210.00	113.70	97.90	106.00	122	122	122	152	57.47
10 MinAvg	1369.20	536.43	15.9	1379	2570	4.29	215.27	113.86	93.27	104.76	121	122	121	151	60.85
15:48	1379.00	615.10	15.5	1377	2694	3.84	212.90	113.30	97.20	109.00	122	122	122	151	55.40
15:49	1348.00	609.70	15.7	1365	2648	4.38	212.40	115.70	99.20	111.00	122	122	122	152	54.77
15:50	1340.00	592.90	15.7	1359	2588	4.42	207.20	114.60	100.20	109.90	122	122	122	151	55.75
C	45 lbs of wet L/S extracted from the dutchman elbow (9.0 lbs/min).														
15:51	1313.00	580.10	15.7	1359	2551	4.21	207.00	115.10	98.80	115.90	122	122	122	153	55.82
15:52	1300.00	578.20	15.7	1348	2684	4.32	207.20	115.60	95.80	115.50	122	122	122	152	55.52
15:53	1320.00	578.50	15.8	1335	2431	4.35	206.20	115.80	93.20	115.10	122	122	122	153	56.17
15:54	1365.00	571.10	15.7	1340	2427	4.34	211.10	116.20	95.70	112.70	122	122	122	156	58.16
15:55	1377.00	507.40	15.6	1370	2418	4.37	206.40	114.80	95.60	117.00	122	122	122	152	63.15
15:56	1348.00	479.90	15.7	1408	2570	4.55	209.60	116.40	92.90	117.70	122	122	122	156	64.40
15:57	1401.00	480.80	15.6	1420	2610	4.58	209.80	119.80	93.40	119.30	122	122	122	158	65.68
10 MinAvg	1349.10	559.37	15.7	1368	2562	4.34	208.98	115.73	96.20	114.31	122	122	122	154	58.48
15:58	1420.00	482.40	15.6	1317	2531	4.15	212.30	120.90	96.10	120.20	122	122	122	157	66.03
C	45 lbs of wet L/S extracted from the dutchman elbow (5.0 lbs/min).														

Post-Run Bed Inspection: The top 1/3 of the outlet louvers are completely blocked.

SCREEN ANALYSIS OF 9205291310 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	51.6	5.42	0.438	0.1239
+5/16	0.313	127.4	13.39	0.344	0.3892
+1/4	0.250	153.0	16.08	0.282	0.5712
+3.5	0.223	85.5	8.98	0.237	0.3799
+4	0.185	91.5	9.62	0.204	0.4713
+5	0.157	99.7	10.48	0.171	0.6127
+6	0.132	100.5	10.56	0.145	0.7309
+8	0.094	140.8	14.80	0.113	1.3111
+10	0.079	39.6	4.16	0.086	0.4828
+12	0.066	27.0	2.84	0.072	0.3919
+14	0.056	18.7	1.97	0.061	0.3232
+16	0.047	7.7	0.81	0.051	0.1580
+20	0.033	6.0	0.63	0.040	0.1576
-20		2.6	0.27	0.017	0.1651
Total =		951.6	100.00		6.2689

Harmonic Mean Diameter (in.) = 0.1595

Weighted Average Diameter (in.) = 0.2133

SCREEN ANALYSIS OF 9205291430 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	2.1	0.22	0.500	0.0044
+3/8	0.375	58.3	6.11	0.438	0.1396
+5/16	0.313	134.0	14.04	0.344	0.4082
+1/4	0.250	168.6	17.67	0.282	0.6276
+3.5	0.223	93.3	9.78	0.237	0.4134
+4	0.185	87.8	9.20	0.204	0.4510
+5	0.157	87.6	9.18	0.171	0.5368
+6	0.132	98.6	10.33	0.145	0.7150
+8	0.094	141.2	14.80	0.113	1.3111
+10	0.079	35.3	3.70	0.086	0.4291
+12	0.066	22.1	2.32	0.072	0.3199
+14	0.056	14.1	1.48	0.061	0.2430
+16	0.047	5.1	0.53	0.051	0.1044
+20	0.033	3.8	0.40	0.040	0.0995
-20		2.4	0.25	0.017	0.1520
Total =		954.3	100.00		5.9551

Harmonic Mean Diameter (in.) = 0.1679
Weighted Average Diameter (in.) = 0.2213

SCREEN ANALYSIS OF 9205291500 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	1.4	0.15	0.500	0.0029
+3/8	0.375	56.4	5.88	0.438	0.1345
+5/16	0.313	138.0	14.40	0.344	0.4185
+1/4	0.250	150.1	15.66	0.282	0.5562
+3.5	0.223	73.0	7.62	0.237	0.3220
+4	0.185	90.6	9.45	0.204	0.4633
+5	0.157	96.6	10.08	0.171	0.5893
+6	0.132	99.2	10.35	0.145	0.7162
+8	0.094	135.6	14.15	0.113	1.2535
+10	0.079	41.1	4.29	0.086	0.4974
+12	0.066	30.2	3.15	0.072	0.4351
+14	0.056	22.6	2.36	0.061	0.3878
+16	0.047	10.3	1.07	0.051	0.2099
+20	0.033	9.9	1.03	0.040	0.2582
-20		3.6	0.38	0.017	0.2269
Total =		958.6	100.00		6.4716

Harmonic Mean Diameter (in.) = 0.1545
Weighted Average Diameter (in.) = 0.2139

LEC RUN 920529

Waste Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Dust Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
01:47 PM	40	24.2	0.60
02:55 PM	68	34.9	0.51
03:33 PM	38	14.3	0.38
Total:		73.3	
Average:			0.50

LEC RUN 920529

Carry-Over Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Stone Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
01:47 PM	40	17.6	0.44
01:55 PM	8	13.8	1.73
02:10 PM	15	23.9	1.59
02:30 PM	20	27.3	1.36
02:55 PM	25	40.2	1.61
03:08 PM	13	37.0	2.84
03:13 PM	5	26.1	5.22
03:22 PM	9	45.0	5.00
03:30 PM	7	45.0	6.43
03:40 PM	10	45.0	4.50
03:42 PM	2	45.0	22.50
03:45 PM	3	45.0	15.00
03:50 PM	5	45.0	9.00
03:59 PM	9	45.0	5.00
Total:		500.8	
Average:			5.87

Run Summary: **LEC Run 920601**

Objective: To determine the maximum removal of No.8 limetone with damper set in Position I (no choker).

Total Run Time: 166 minutes.

SO₂ Removal: 60.0% from 13:55 to 14:40
 45.0% from 14:41 to 15:14
 42.1% from 15:15 to 15:54
 40.0% from 15:55 to 16:34

Inlet Gas Rate: 2902 acfm to 2248 acfm

Operational Conditions:

 Fresh, damp No.8 limestone (L/S#920501)

 In-duct Steam = 10 psig (full)

 Overhead Sprays = 0.0 gpm

 Louver Sprays = 0.00 gpm from 13:55 to 14:40
 0.33 gpm from 14:40 to 15:16
 0.43 gpm from 15:16 to 16:00
 0.54 gpm from 16:00 to 16:26
 0.00 gpm from 16:26 to 16:41

 Bed Speed = 10 DT (1462 lb/hr)

 Regeneration Device: Twin deck vibrating screen equipped with 1/4" and No.16 mesh screens.

 Stone Carry-Over: 0.0 lbs/min

 Waste Fines: 0.58 lbs/min (average)

Comments: - The stone exiting the reactor was mostly dry for the duration of the run. The water addition was halted at 16:26 with a increase in inlet gas flow rate in order to dry-out the stone for easier unloading.

LEC Run 920601

Starting
06-01-92

Time	Inlet S02 (ppmdv)	Outlet S02 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	S02 Removal (%)
Initial Conditions: Fresh, dry No.8 Maxville limestone (L/S#920501); Damper on minimum (Position #1); In-duct Steam Injection = 10psig; 1/4" mesh and No.16 mesh are being used in a twin deck configuration on the vibrating screen.															
Note: The pressure transducers were not powered-up until 14:08; therefore there is no flow data until that time.															
13:55	929.00	4.37	17.0				191.80	76.20	64.98	64.98	65	65	65	65	99.53
13:56	947.00	20.76	16.9				195.80	79.40	69.63	65.16	65	65	68	65	97.81
13:57	950.00	55.34	16.9				196.40	80.00	88.80	82.90	65	65	90	65	94.17
13:58	961.00	103.10	16.9				196.50	82.90	94.80	94.80	71	74	95	65	89.27
13:59	957.00	149.70	17.0				196.70	93.80	94.90	95.10	92	95	95	65	84.36
14:00	974.00	191.70	17.0				196.80	94.90	95.10	99.50	96	95	95	65	80.32
14:01	973.00	229.10	17.1				196.60	94.90	95.80	100.80	97	97	95	65	76.45
14:02	982.00	261.00	17.0				196.80	94.90	96.30	101.40	100	97	95	65	73.42
14:03	1126.00	297.40	16.9				196.60	94.70	94.70	94.70	95	95	95	73	73.59
14:04	1124.00	306.90	16.9				196.60	94.70	94.70	99.70	97	96	95	70	72.70
10 MinAvg	992.30	161.94	17.0				196.06	88.64	88.97	89.90	84	84	89	66	84.16
14:05	1141.00	300.30	16.9				196.30	94.70	94.70	96.70	99	95	96	78	73.68
14:06	1156.00	321.40	16.9				196.80	94.80	94.80	96.50	98	95	95	80	72.20
14:07	1172.00	351.10	16.9				196.70	94.80	94.80	96.70	98	96	95	80	70.04
14:08	1185.00	380.90	16.9	2486	3476	1.32	196.70	94.90	94.90	97.50	102	98	95	82	67.86
14:09	1193.00	393.10	17.0	2516	3608	1.26	196.40	95.10	89.30	96.80	101	98	95	85	67.05
14:10	1203.00	402.80	17.1	2511	3663	1.20	196.90	95.30	92.00	96.40	101	98	95	87	66.52
14:11	1186.00	418.30	17.2	2511	3593	1.25	197.00	95.00	84.00	96.10	100	98	95	88	64.73
14:12	1199.00	433.00	17.1	2505	3546	1.25	197.00	95.60	87.60	96.60	102	100	95	93	63.89
14:13	1190.00	448.20	17.1	2505	3689	1.24	197.10	95.50	88.60	97.80	101	99	95	93	62.34
14:14	1181.00	455.10	17.2	2506	3711	1.23	197.70	95.60	87.40	97.70	102	98	95	94	61.46
10 MinAvg	1180.60	390.42	17.0	2506	3612	1.25	196.86	95.13	90.81	96.88	100	97	95	86	66.98
14:15	1167.00	470.50	17.3	2493	3490	1.08	197.10	95.70	85.80	96.60	99	99	95	95	59.68
14:16	1152.00	479.80	17.3	2499	3317	1.07	196.90	95.20	87.80	96.90	99	100	95	95	58.35
14:17	1131.00	498.60	17.3	2499	3424	1.02	197.00	95.50	89.20	98.20	101	101	95	95	55.92
14:18	1129.00	508.20	17.2	2492	3530	1.12	196.90	95.20	86.00	98.30	99	103	95	95	54.99
14:19	1130.00	506.40	17.3	2480	3493	1.15	197.10	95.50	82.20	99.70	100	103	95	95	55.19
14:20	1163.00	519.50	17.3	2480	3460	1.05	197.30	95.70	83.10	100.70	99	103	95	95	55.33
14:21	1168.00	548.60	17.3	2481	3673	1.20	197.50	96.00	88.10	111.70	101	101	96	95	53.03
14:22	1160.00	552.10	17.4	2462	3599	1.19	197.50	96.90	90.40	116.60	102	101	96	96	52.41
14:23	1150.00	555.00	17.5	2462	3371	1.28	197.60	97.30	90.00	116.70	101	100	96	96	51.74
14:24	1140.00	568.50	17.6	2456	3714	1.25	197.70	96.60	93.10	108.30	101	99	96	96	50.13
10 MinAvg	1149.00	520.72	17.3	2480	3507	1.14	197.26	95.96	87.57	104.37	100	101	95	95	54.68

E-395

LEC Run 920601

Starting
06-01-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
14:25	1150.00	562.80	17.7	2443	3525	1.33	197.70	96.00	94.10	106.70	100	99	96	96	51.06
14:26	1127.00	575.80	17.8	2437	3290	1.25	197.80	96.80	95.40	107.90	98	119	98	96	48.91
14:27	1126.00	575.10	17.9	2430	3442	1.24	197.80	97.60	95.80	109.60	101	131	122	96	48.93
14:28	1131.00	580.00	17.9	2417	3632	1.09	197.70	99.00	95.70	110.80	101	149	125	96	48.72
14:29	1122.00	590.80	18.0	2398	3511	1.26	198.00	97.60	95.30	113.20	103	148	125	96	47.34
14:30	1134.00	586.90	18.0	2398	3504	1.26	197.90	100.00	94.90	109.90	106	153	125	96	48.25
14:31	1119.00	595.20	18.0	2397	3510	1.23	197.70	103.20	96.10	116.20	109	155	125	96	46.81
14:32	1127.00	587.30	18.1	2378	3452	1.24	197.90	105.80	96.10	110.60	106	150	125	96	47.89
14:33	1127.00	590.80	18.0	2378	3613	1.18	197.90	108.30	95.70	114.90	107	126	139	96	47.58
14:34	1126.00	597.50	18.0	2371	3445	1.10	197.80	111.20	95.90	115.30	102	125	146	96	46.94
10 MinAvg	1128.90	584.22	17.9	2405	3492	1.22	197.82	101.55	95.50	111.51	103	135	123	96	48.24
14:35	1158.00	605.10	18.1	2365	3346	1.33	197.70	114.50	95.60	115.40	105	147	154	96	47.75
14:36	1180.00	628.00	17.9	2364	3401	1.21	197.60	116.70	95.50	118.10	107	154	154	95	46.78
14:37	1196.00	637.10	17.7	2351	3512	1.15	197.50	119.00	95.70	114.20	108	154	154	95	46.73
14:38	1203.00	642.10	17.7	2344	3403	1.21	197.70	122.80	95.80	117.00	108	135	154	96	46.63
14:39	1223.00	660.30	17.6	2331	3432	1.18	197.70	122.90	95.90	123.20	112	125	162	96	46.01
14:40	1228.00	654.70	17.7	2325	3514	1.11	197.90	125.10	96.10	121.20	111	125	169	96	46.69
C	Louwer sprays are turned on and set at 0.33 gpm.														
14:41	1235.00	664.40	17.6	2304	3538	1.18	197.80	125.20	96.10	122.70	110	125	168	96	46.20
14:42	1230.00	666.10	17.6	2300	3542	1.14	199.30	125.20	95.80	125.20	111	125	169	96	45.85
14:43	1232.00	655.00	17.6	2290	3558	1.25	197.70	125.10	95.80	125.10	110	125	169	96	46.83
14:44	1231.00	660.30	17.6	2292	3458	1.16	198.40	125.10	95.80	125.10	110	125	177	96	46.36
10 MinAvg	1211.60	647.31	17.7	2327	3470	1.19	197.93	122.16	95.81	120.72	109	134	163	96	46.58
C	Bone-dry L/S has been exiting the bottom of the reactor for several minutes.														
14:45	1230.00	662.10	17.6	2284	3486	1.25	198.00	125.10	95.80	122.70	110	126	169	97	46.17
14:46	1238.00	667.40	17.6	2277	3487	1.09	197.70	125.20	95.90	123.70	111	146	169	101	46.09
14:47	1255.00	673.70	17.6	2277	3620	1.21	197.80	125.20	95.90	123.80	116	154	169	113	46.32
14:48	1254.00	687.00	17.5	2263	3426	1.11	197.80	125.30	96.00	123.40	118	138	172	118	45.22
14:49	1244.00	687.30	17.6	2270	3495	1.11	198.10	125.30	96.00	122.00	116	125	169	119	44.75
14:50	1245.00	696.10	17.6	2270	3451	1.29	198.20	125.30	96.00	124.10	117	125	169	124	44.09
14:51	1244.00	685.20	17.6	2270	3499	1.14	197.90	125.40	96.00	121.10	115	125	173	125	44.92
14:52	1225.00	671.00	17.7	2264	3578	1.18	198.70	125.40	96.10	116.90	111	125	184	125	45.22
14:53	1234.00	658.30	17.7	2264	3683	1.15	198.20	125.50	96.20	114.40	111	125	187	126	46.65
14:54	1229.00	663.90	17.8	2270	3683	1.12	198.10	125.50	95.30	116.30	112	124	188	126	45.98
10 MinAvg	1239.80	675.20	17.6	2271	3541	1.16	198.05	125.32	95.92	120.84	114	131	175	117	45.54
14:55	1218.00	658.50	17.8	2264	3747	1.26	198.70	125.50	96.20	117.60	111	125	183	126	45.94

E-396

Starting
06-01-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
14:56	1220.00	666.60	17.8	2264	3532	1.11	198.40	125.60	96.20	117.90	111	125	183	126	45.36
14:57	1218.00	656.90	17.8	2265	3488	1.20	198.90	125.70	96.10	118.20	111	122	172	126	46.07
14:58	1228.00	651.50	17.8	2273	3583	1.22	199.70	125.70	96.30	114.10	111	117	169	126	46.95
14:59	1231.00	653.20	17.8	2265	3504	1.07	199.10	125.60	96.30	114.60	111	115	167	131	46.94
15:00	1234.00	667.30	17.8	2273	3488	1.06	199.80	125.70	96.40	117.60	112	114	169	140	45.92
15:01	1238.00	675.10	17.7	2272	3540	1.31	199.20	125.70	96.40	117.20	112	124	166	147	45.47
15:02	1212.00	677.00	17.9	2271	3269	1.17	198.70	125.70	96.40	112.70	112	126	169	150	44.14
15:03	1222.00	669.80	17.8	2278	3403	1.27	198.70	125.70	96.20	113.30	114	126	169	153	45.19
15:04	1221.00	694.50	17.6	2284	3354	1.20	198.30	125.80	95.50	112.70	115	126	170	154	43.12
10 MinAvg	1224.20	667.04	17.8	2271	3491	1.19	198.95	125.67	96.20	115.59	112	122	172	138	45.51
15:05	1242.00	689.30	17.6	2278	3548	1.07	198.70	125.80	96.20	111.70	116	126	169	155	44.50
15:06	1240.00	704.00	17.5	2279	3687	1.31	199.30	125.80	96.30	112.90	113	126	170	155	43.23
15:07	1251.00	699.00	17.6	2285	3436	1.21	198.40	125.90	96.50	116.50	111	126	169	155	44.12
15:08	1265.00	704.00	17.6	2278	3399	1.30	198.50	125.90	96.60	116.20	112	126	171	155	44.35
15:09	1267.00	710.00	17.5	2285	3485	1.15	198.50	126.00	96.70	115.90	112	126	170	155	43.96
15:10	1268.00	696.80	17.6	2278	3437	1.29	198.60	126.00	96.70	110.40	112	126	170	156	45.05
15:11	1272.00	697.30	17.6	2278	3492	1.25	198.40	125.80	96.50	114.60	111	126	169	155	45.18
15:12	1262.00	708.00	17.5	2278	3512	1.20	198.50	125.80	96.50	110.60	110	126	166	157	43.90
15:13	1253.00	703.00	17.6	2285	3521	1.30	198.40	125.90	96.50	110.40	112	126	170	158	43.89
15:14	1248.00	706.00	17.6	2285	3489	1.26	198.50	126.00	96.60	105.40	111	126	170	160	43.43
10 MinAvg	1256.80	701.74	17.6	2281	3501	1.23	198.58	125.89	96.51	112.46	112	126	169	156	44.16
15:15	1230.00	704.00	17.7	2285	3445	1.11	198.60	126.00	96.20	111.70	109	126	170	162	42.76
15:16	1231.00	712.00	17.6	2285	3473	1.32	198.60	126.10	96.80	113.00	111	126	170	163	42.16
C	19.30 lbs of -No.16 fines are collected at the vibrating screen.														
C	Louvers are increased to 0.43 gpm														
15:17	1223.00	714.00	17.6	2285	3465	1.29	198.60	126.10	96.70	107.30	111	126	170	165	41.62
15:18	1210.00	715.00	17.6	2278	3465	1.15	198.60	126.00	96.60	107.80	112	128	172	165	40.91
15:19	1205.00	705.00	17.6	2285	3529	1.35	198.40	126.10	96.70	107.60	114	126	181	168	41.49
15:20	1202.00	708.00	17.6	2285	3553	1.23	198.70	126.10	96.80	108.30	116	126	174	169	41.10
15:21	1197.00	707.00	17.6	2285	3616	1.23	198.80	126.20	96.90	112.50	115	126	175	169	40.94
15:22	1197.00	710.00	17.5	2285	3620	1.33	198.80	126.30	97.00	111.80	116	126	180	170	40.69
15:23	1214.00	714.00	17.6	2285	3647	1.37	198.90	126.30	97.00	113.30	116	126	171	170	41.19
15:24	1215.00	718.00	17.6	2279	3490	1.35	198.90	126.40	97.10	115.30	114	126	170	170	40.91
10 MinAvg	1212.40	710.70	17.6	2284	3530	1.27	198.69	126.16	96.78	110.86	113	126	173	167	41.38
15:25	1203.00	731.00	17.5	2278	3240	1.31	198.80	126.30	96.90	113.10	117	128	172	170	39.24
15:26	1201.00	737.00	17.5	2285	3363	1.37	198.60	126.10	96.80	115.50	116	149	170	170	38.63

E-397

LEC Run 920601

Starting
06-01-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
15:27	1188.00	710.00	17.6	2278	3404	1.22	198.60	126.10	96.80	113.60	117	127	170	170	40.24
15:28	1179.00	702.00	17.6	2278	3465	1.43	198.70	126.10	96.80	114.10	118	126	170	170	40.46
15:29	1176.00	712.00	17.5	2278	3596	1.31	198.60	126.20	96.80	113.40	116	126	170	170	39.46
15:30	1173.00	714.00	17.6	2285	3577	1.31	198.80	126.30	97.00	113.40	115	126	170	170	39.13
15:31	1167.00	700.00	17.7	2285	3417	1.44	198.90	126.30	97.00	113.00	113	126	170	170	40.02
15:32	1168.00	697.60	17.7	2292	3254	1.35	198.80	126.40	97.10	111.60	115	126	170	170	40.27
15:33	1170.00	716.00	17.6	2292	3482	1.36	198.90	126.40	97.10	111.50	114	126	170	170	38.80
15:34	1168.00	707.00	17.6	2285	3474	1.28	198.80	126.40	97.10	112.40	114	126	170	170	39.47
10 MinAvg	1179.30	712.66	17.6	2284	3427	1.34	198.75	126.26	96.94	113.16	116	129	170	170	39.57
15:35	1175.00	699.30	17.6	2299	3478	1.47	198.90	126.40	97.10	114.80	113	126	170	170	40.49
15:36	1169.00	692.20	17.7	2299	3510	1.28	198.90	126.30	97.00	114.20	112	126	170	170	40.79
C	14.20 lbs of -No.16 fines is collected at the vibrating screen.														
C	The limestone exiting the bottom of the reactor is still bone-dry.														
15:37	1174.00	691.20	17.7	2285	3581	1.37	198.80	126.30	97.00	110.60	113	126	170	170	41.12
15:38	1168.00	677.60	17.8	2292	3462	1.38	198.80	126.30	97.00	112.90	113	126	170	170	41.99
15:39	1174.00	686.20	17.7	2285	3498	1.38	198.80	126.30	97.00	111.50	112	126	172	170	41.55
15:40	1174.00	670.00	17.8	2285	3681	1.40	198.80	126.30	97.00	111.00	115	131	174	170	42.93
15:41	1168.00	658.30	17.9	2292	3581	1.38	198.70	126.20	96.90	110.30	112	127	173	170	43.64
15:42	1175.00	649.20	17.9	2292	3380	1.21	198.70	126.20	96.90	112.20	112	126	183	170	44.75
15:43	1175.00	663.90	17.8	2299	3367	1.46	198.70	126.20	96.90	110.70	113	126	179	170	43.50
15:44	1170.00	666.30	17.9	2285	3466	1.40	198.80	126.20	96.90	110.60	112	126	183	170	43.05
10 MinAvg	1172.20	675.42	17.8	2291	3500	1.37	198.79	126.27	96.97	111.88	113	127	174	170	42.38
15:45	1177.00	671.80	17.8	2299	3569	1.36	198.80	126.30	97.00	111.60	112	126	170	170	42.92
15:46	1182.00	673.00	17.7	2292	3541	1.39	198.70	126.20	96.90	111.70	112	126	170	170	43.06
15:47	1189.00	675.40	17.8	2285	3521	1.27	198.60	126.10	96.80	112.50	113	126	170	170	43.20
15:48	1203.00	664.60	17.9	2292	3461	1.45	198.70	126.10	96.80	110.80	114	126	170	170	44.75
15:49	1217.00	658.10	17.9	2285	3549	1.38	198.70	126.20	96.90	110.40	116	126	170	170	45.92
15:50	1217.00	651.80	17.9	2278	3404	1.40	198.70	126.20	96.90	110.40	117	124	170	170	46.44
15:51	1216.00	659.30	17.8	2292	3417	1.47	198.80	126.20	96.90	111.50	115	120	170	170	45.78
15:52	1228.00	659.80	17.8	2292	3506	1.44	198.70	126.20	96.90	112.40	114	121	170	170	46.27
15:53	1228.00	660.00	17.7	2299	3561	1.42	198.70	126.20	96.90	112.70	116	119	169	170	46.25
15:54	1221.00	660.80	17.8	2292	3658	1.46	198.80	126.30	97.00	110.80	119	118	165	170	45.88
10 MinAvg	1207.80	663.46	17.8	2291	3519	1.40	198.72	126.20	96.90	111.48	115	123	169	170	45.05
15:55	1209.00	672.80	17.7	2299	3534	1.42	198.80	126.30	97.10	111.70	122	112	167	170	44.35
15:56	1200.00	667.60	17.7	2299	3401	1.32	198.90	126.30	97.10	111.60	120	112	169	170	44.37
15:57	1187.00	651.20	17.8	2299	3577	1.57	198.90	126.40	97.10	111.70	118	112	160	170	45.14

E-398

LEC Run 920601

Starting
06-01-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
15:58	1187.00	669.60	17.6	2292	3300	1.47	198.80	126.30	97.00	112.10	122	112	156	170	43.59
15:59	1197.00	679.30	17.6	2299	3506	1.53	198.90	126.30	97.00	115.40	121	114	155	170	43.25
16:00	1195.00	685.20	17.5	2299	3566	1.48	198.90	126.40	97.10	114.70	117	113	155	170	42.66
C	19.66 lbs of -No.16 fines are collected at the vibrating screen														
C	Louwer sprays are increased to 0.54 gpm.														
16:01	1192.00	689.40	17.5	2299	3550	1.52	198.90	126.40	97.10	113.70	117	113	155	169	42.16
16:02	1200.00	709.00	17.3	2292	3554	1.38	198.90	126.40	97.10	112.50	118	112	154	166	40.92
16:03	1190.00	687.00	17.5	2293	3474	1.60	199.00	126.40	97.10	117.40	117	113	147	163	42.27
16:04	1201.00	701.00	17.3	2293	3651	1.61	199.00	126.50	97.20	113.30	119	112	151	158	41.63
10 MinAvg	1195.80	681.21	17.5	2296	3511	1.49	198.90	126.37	97.09	113.41	119	112	157	168	43.03
16:05	1188.00	726.00	17.1	2286	3621	1.54	199.00	126.50	97.50	115.90	121	112	141	156	38.89
16:06	1197.00	723.00	17.1	2286	3491	1.65	199.00	126.50	97.50	119.10	117	112	127	156	39.60
16:07	1202.00	722.00	17.1	2279	3450	1.63	199.00	126.50	97.20	120.20	121	115	127	156	39.93
16:08	1219.00	723.00	17.0	2279	3388	1.56	199.00	126.40	97.20	118.40	124	120	126	156	40.69
16:09	1222.00	731.00	16.9	2285	3396	1.62	198.70	126.10	96.90	121.10	121	123	126	155	40.18
16:10	1239.00	732.00	16.9	2278	3461	1.52	198.60	126.10	97.00	121.30	124	125	126	155	40.92
16:11	1256.00	724.00	16.9	2285	3457	1.58	198.70	126.20	97.40	123.40	126	120	126	155	42.36
16:12	1242.00	723.00	16.9	2278	3421	1.58	198.70	126.10	96.80	123.60	126	121	112	155	41.79
16:13	1245.00	725.00	16.8	2285	3420	1.66	198.40	125.90	96.60	124.20	126	126	111	155	41.77
16:14	1247.00	747.00	16.7	2285	3572	1.57	198.40	125.90	96.70	125.00	126	125	112	155	40.10
10 MinAvg	1225.70	727.60	17.0	2282	3468	1.59	198.75	126.22	97.08	121.22	123	120	123	155	40.62
16:15	1245.00	745.00	16.7	2264	3596	1.60	198.50	126.00	97.10	125.10	126	120	112	155	40.16
16:16	1237.00	749.00	16.7	2271	3473	1.68	198.60	126.00	97.70	124.60	126	112	111	155	39.45
16:17	1220.00	764.00	16.7	2264	3324	1.66	198.30	125.80	97.40	124.50	126	120	111	155	37.38
16:18	1211.00	755.00	16.7	2264	3516	1.61	198.30	125.80	96.50	125.20	126	124	110	155	37.65
16:19	1199.00	645.70	18.4	2264	3549	1.66	198.50	126.00	98.20	123.40	126	115	111	155	46.15
16:20	1180.00	552.40	18.1	2264	3565	1.70	198.70	126.10	97.00	125.60	126	112	112	154	53.19
C	There is less than a 1" strip of moist stone exiting the outlet side of the reactor screw conveyor.														
16:21	1165.00	709.00	17.0	2264	3592	1.67	198.70	126.20	97.30	125.10	126	112	110	152	39.14
16:22	1143.00	718.00	17.0	2250	3647	1.67	198.70	126.20	97.50	123.90	126	112	110	153	37.18
16:23	1140.00	704.00	17.0	2250	3445	1.69	198.70	126.20	98.10	125.20	126	112	109	152	38.25
16:24	1144.00	711.00	17.0	2250	3157	1.74	198.70	126.20	98.00	123.40	126	112	107	150	37.85
MinAvg	1188.40	705.31	17.1	2261	3486	1.67	198.57	126.05	97.48	124.60	126	115	110	154	40.64
16:25	1152.00	731.00	17.0	2251	3308	1.72	198.80	126.20	97.80	124.90	126	112	107	149	36.55
16:26	1170.00	736.00	16.9	2248	3184	1.73	201.20	126.30	97.10	125.80	126	111	106	148	37.09

E-399

LEC Run 920601

Starting
06-01-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
C	Turned off all water to the system and increased the damper to the #2 position in order to dry out the stone for overnight in-situ storage.														
16:27	1170.00	737.00	17.0	2699	3470	2.35	246.10	126.20	97.40	125.40	126	111	100	148	37.01
16:28	1135.00	757.00	17.0	2902	4089	2.55	253.70	125.60	97.00	124.50	126	107	97	148	33.30
16:29	1140.00	767.00	17.1	2892	4200	2.48	254.90	125.30	97.00	120.30	126	99	97	145	32.72
16:30	1150.00	756.00	17.1	2877	4024	2.59	256.10	122.50	96.90	119.40	126	98	97	140	34.26
16:31	1140.00	772.00	17.1	2867	4000	2.58	256.90	120.70	96.30	118.20	126	97	97	135	32.28
16:32	1145.00	795.00	17.0	2879	4143	2.57	257.30	120.60	96.40	117.10	126	97	97	130	30.57
16:33	1165.00	794.00	17.1	2861	3972	2.66	257.20	120.50	95.20	118.30	126	104	97	129	31.85
16:34	1188.00	801.00	17.1	2855	3874	2.60	257.10	122.10	95.00	118.10	127	112	97	130	32.58
10 MinAvg	1155.50	764.60	17.0	2733	3826	2.38	243.93	123.60	96.61	121.20	126	105	99	140	33.82
16:35	1203.00	817.00	17.1	2837	3839	2.68	257.40	121.10	95.10	119.50	126	110	97	129	32.09
16:36	1207.00	843.00	17.0	2844	3902	2.63	257.40	120.60	96.10	122.00	126	109	97	128	30.16
16:37	1219.00	868.00	16.9	2831	4056	2.67	257.40	121.80	95.80	126.10	126	111	97	133	28.79
16:38	1231.00	888.00	16.9	2813	3906	2.66	257.30	122.90	96.30	126.40	126	112	97	139	27.86
16:39	1234.00	886.00	16.9	2807	3916	2.67	257.20	122.80	96.00	126.30	123	121	97	147	28.20
16:40	1242.00	903.00	16.9	2800	3911	2.63	257.10	123.40	96.30	126.20	124	123	97	150	27.29
16:41	1300.00	919.00	16.8	1726	3646	1.26	257.20	123.60	96.30	126.30	126	117	97	154	29.31

E-400

SCREEN ANALYSIS OF 9206011400 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	95.2	14.40	0.438	0.3290
+5/16	0.313	105.7	15.98	0.344	0.4646
+1/4	0.250	133.8	20.23	0.282	0.7188
+3.5	0.223	73.7	11.14	0.237	0.4712
+4	0.185	61.4	9.28	0.204	0.4551
+5	0.157	56.9	8.60	0.171	0.5032
+6	0.132	31.0	4.69	0.145	0.3244
+8	0.094	33.6	5.08	0.113	0.4502
+10	0.079	9.6	1.45	0.086	0.1684
+12	0.066	8.9	1.35	0.072	0.1859
+14	0.056	8.4	1.27	0.061	0.2089
+16	0.047	5.0	0.76	0.051	0.1477
+20	0.033	7.9	1.19	0.040	0.2987
+25	0.132	1.7	0.26	0.083	0.0311
+30	0.094	1.3	0.20	0.113	0.0174
+35	0.079	1.4	0.21	0.086	0.0246
+40	0.066	1.3	0.20	0.072	0.0272
+45	0.056	1.1	0.17	0.061	0.0274
+50	0.047	1.5	0.23	0.051	0.0443
+60	0.033	3.6	0.54	0.040	0.1361
-60		18.3	2.77	0.017	1.6721
	Total =	661.3	100.00		6.7063

Harmonic Mean Diameter (in.) = 0.1491
Weighted Average Diameter (in.) = 0.2530

LEC RUN 920601

Waste Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Dust Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
01:54 PM	RUN IS STARTED		
03:16 PM	82	19.3	0.23
03:36 PM	20	14.2	0.70
04:00 PM	24	19.7	0.82
Total:		53.2	
Average:			0.58

LEC RUN 920601

Carry-Over Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Stone Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
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No stone carry-over occurred.

Run Summary:

LEC Run 920602

Objective: To determine the maximum removal of No.8 limetone with damper set in Position I (no choker).

Total Run Time: 442 minutes.

SO₂ Removal: 40.3% from 8:17 to 12:30
46.3% from 12:31 to 14:00
47.8% from 14:01 to 15:00
39.3% from 15:01 to 15:37

Inlet Gas Rate: 1694 acfm (average)

Operational Conditions:

No.8 limestone from LEC Run 920601

In-duct Steam = 10 psig (full)

Overhead Sprays = 0.0 gpm

Louver Sprays = 0.43 gpm from 08:17 to 12:30

0.33 gpm from 12:30 to 14:00

0.50 gpm from 14:00 to 15:00

0.00 gpm from 15:00 to 15:39

Bed Speed = 10 DT (1462 lb/hr)

Regeneration Device: Twin deck vibrating screen equipped with 1/4" and No.16 mesh screens.

Stone Carry-Over: 1.0 lbs/min (average)

Waste fines: 0.52 lbs/min (average)

Comments: - The stone exiting the reactor was very moist at 15:00. The water addition was halted at 15:00 with in order to dry-out the stone for easier unloading, but the run was halted at 15:39 when the moist stone built-up in both the vibrating screen and the large bucket elevator charging chute.

LBC Run 920602

Starting
06-02-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
Initial Conditions: The No.8 limestone is the same bed and stone as LBC Run 920601; In-duct Steam Injection = 10 psig; Louver Sprays = 0.43 gpm; Damper is at its minimum setting (Position #1); Vibrating screen is equipped with a 1/4" and a No.16 mesh screens															
08:17	930.0	228.5	14.7	2625	3186	1.32	233.8	60.9	60.9	60.9	60.9	60.9	60.9	60.9	75.43
08:18	1000.0	499.0	14.5	2599	3282	1.31	236.5	60.9	60.9	60.9	60.9	60.9	60.9	60.9	50.10
08:19	1018.0	605.4	14.5	2433	3275	1.53	163.0	61.0	61.3	61.1	62.6	61.3	61.0	61.0	40.53
08:20	1038.0	658.6	14.6	2404	3187	1.52	167.2	61.2	66.5	72.8	76.1	74.9	70.6	61.1	36.55
4 MinAvg	996.5	497.9	14.6	2515	3233	1.42	200.1	60.7	62.4	63.9	65.1	64.5	63.4	61.0	50.65
08:21	1005.0	681.7	14.9	2385	3180	1.47	191.1	68.2	76.0	81.5	89.6	83.8	83.6	61.1	32.17
08:22	1014.0	704.0	14.9	2336	3211	1.72	193.1	75.6	78.4	95.7	101.1	94.4	94.6	61.2	30.57
08:23	1117.0	708.0	15.2	2289	3273	1.70	193.1	91.1	98.4	105.8	105.8	98.4	98.4	61.3	36.62
08:24	1120.0	709.0	15.2	2270	3277	1.71	194.0	87.2	102.4	105.8	105.8	105.8	104.8	61.3	36.70
08:25	1134.0	706.0	15.3	2252	3256	1.73	195.8	90.8	104.3	105.9	105.9	105.9	105.9	61.4	37.74
08:26	1168.0	706.0	15.3	2243	3216	1.76	198.5	93.9	99.8	106.0	106.0	106.0	106.0	61.5	39.55
08:27	1159.0	718.0	15.3	2233	3264	1.76	200.7	99.1	103.7	106.2	106.0	106.0	106.0	61.5	38.05
08:28	1156.0	724.0	15.3	2225	3276	1.78	200.3	101.7	106.1	107.7	106.1	106.1	106.1	61.6	37.37
08:29	1153.0	708.0	15.4	2209	3265	1.80	203.7	105.0	100.5	106.2	106.2	106.2	106.2	62.0	38.59
08:30	1167.0	695.9	15.5	2212	3238	1.82	205.4	105.8	104.1	106.3	106.3	106.3	106.3	69.5	40.37
10 MinAvg	1119.3	706.1	15.2	2266	3246	1.72	197.6	91.8	97.4	102.7	103.9	101.9	101.8	62.2	36.77
08:31	1161.0	683.2	15.6	2207	3187	1.84	206.7	105.8	106.2	106.4	106.3	106.3	106.3	75.6	41.15
08:32	1158.0	688.7	15.6	2195	3168	1.86	208.4	106.4	104.3	106.6	106.4	106.4	106.4	76.6	40.53
08:33	1160.0	680.9	15.7	2186	3181	1.86	207.0	106.5	101.6	106.5	106.5	106.5	106.5	77.1	41.30
08:34	1147.0	671.6	15.8	2164	3185	1.86	206.9	106.6	105.5	106.6	106.6	106.6	106.6	78.4	41.45
08:35	1115.0	670.0	15.8	2144	3298	1.87	203.8	106.6	101.5	106.6	106.6	106.6	106.6	77.3	39.91
08:36	1095.0	666.4	15.9	2135	3303	1.87	203.1	106.7	106.1	106.8	106.7	106.7	106.7	77.1	39.14
08:37	1093.0	659.2	15.9	2122	3253	1.88	203.8	106.8	106.8	106.8	106.8	106.8	106.8	78.2	39.69
08:38	1112.0	665.6	15.9	2120	3186	1.88	207.3	106.9	106.9	106.9	106.9	106.9	106.9	78.0	40.14
08:39	1115.0	679.8	15.8	2105	3169	1.88	202.9	106.9	106.9	106.9	106.9	106.9	106.9	77.5	39.03
08:40	1103.0	693.3	15.8	2082	3122	1.88	197.9	107.0	107.0	107.2	107.0	107.0	107.0	78.5	37.14
10 MinAvg	1125.9	675.9	15.8	2146	3205	1.87	204.8	106.6	105.3	106.7	106.7	106.7	106.7	77.4	39.95
08:41	1134.0	708.0	15.7	2073	3096	1.88	197.0	107.1	107.1	107.3	107.1	107.1	107.1	78.2	37.57
08:42	1155.0	710.0	15.7	2065	3157	1.89	201.7	107.2	107.2	107.2	107.2	107.2	107.2	79.8	38.53
08:43	1170.0	721.0	15.7	2059	3183	1.89	202.3	107.3	107.3	107.4	107.3	107.3	107.3	80.1	38.38
08:44	1198.0	723.0	15.6	2059	3183	1.89	202.5	107.4	107.4	107.5	107.4	107.4	107.4	78.6	39.65
08:45	1224.0	728.0	15.6	2055	3171	1.90	204.7	107.5	107.5	107.5	107.5	107.5	107.5	79.6	40.52
08:46	1253.0	745.0	15.5	2051	2959	1.90	202.0	107.6	107.6	108.0	107.6	107.6	107.6	81.0	40.54
08:47	1229.0	768.0	15.5	2046	3067	1.89	203.9	107.6	107.6	107.9	107.6	107.6	107.6	80.2	37.51

E-404

Starting
06-02-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
08:48	1248.0	769.0	15.5	2047	3098	1.90	204.9	107.7	107.7	108.6	107.7	107.7	107.7	81.9	38.38
08:49	1219.0	745.0	15.7	2026	3076	1.88	201.2	107.8	107.8	107.8	107.8	107.8	107.8	81.7	38.88
08:50	1208.0	752.0	15.7	2023	3081	1.85	198.9	107.9	107.9	107.9	107.9	107.9	107.9	82.6	37.75
10 MinAvg	1203.8	736.9	15.6	2050	3107	1.89	201.9	107.5	107.5	107.7	107.5	107.5	107.5	80.4	38.77
08:51	1175.0	754.0	15.8	2015	3121	1.86	199.3	108.0	108.0	108.0	108.0	108.0	108.0	83.1	35.83
08:52	1159.0	754.0	15.7	2001	3185	1.82	200.3	108.1	108.1	108.5	108.1	108.1	108.1	83.4	34.94
08:53	1145.0	754.0	15.8	2005	3186	1.52	197.5	108.2	108.2	108.7	108.2	108.2	108.2	85.9	34.15
08:54	1123.0	752.0	15.9	1997	3203	1.55	197.5	108.2	108.2	108.5	108.2	108.2	108.2	86.0	33.04
08:55	1099.0	734.0	16.0	2012	3152	1.52	196.9	108.3	108.3	108.3	108.3	108.3	108.3	87.2	33.21
08:56	1111.0	746.0	15.9	2007	3130	1.65	199.2	108.4	108.4	108.6	108.4	108.4	108.4	88.8	32.85
08:57	1112.0	746.0	16.0	2005	3174	1.59	197.4	108.5	108.5	108.5	108.5	108.5	108.5	90.5	32.91
08:58	1146.0	754.0	16.0	2008	3135	1.62	199.4	108.6	108.6	108.6	108.6	108.6	108.6	99.6	34.21
08:59	1156.0	764.0	16.0	2016	3149	1.53	199.9	108.7	108.7	108.7	108.7	108.7	108.7	106.8	33.91
09:00	1166.0	759.0	16.0	2007	3110	1.66	198.9	108.8	108.8	108.8	108.8	108.8	108.8	108.7	34.91
10 MinAvg	1139.2	751.7	15.9	2007	3154	1.63	198.6	108.4	108.4	108.5	108.4	108.4	108.4	92.0	34.00
09:01	1179.0	766.0	16.1	2005	3149	1.88	203.1	108.9	108.9	108.9	108.9	108.9	108.9	108.9	35.03
09:02	1164.0	755.0	16.2	2003	3179	1.90	201.4	109.0	109.0	109.0	109.0	109.0	109.0	109.0	35.14
09:03	1149.0	752.0	16.3	1993	3235	1.89	199.9	109.1	108.6	109.1	109.1	109.1	109.1	109.1	34.55
09:04	1153.0	736.0	16.4	2007	3049	1.90	204.3	109.2	108.4	109.2	109.6	109.2	109.2	109.2	36.17
09:05	1158.0	739.0	16.4	2007	3040	1.88	204.0	109.3	107.7	109.3	110.1	109.3	109.3	109.3	36.18
09:06	1160.0	740.0	16.4	2006	3045	1.88	203.4	109.4	109.2	109.4	109.6	109.4	109.4	109.4	36.21
09:07	1187.0	748.0	16.4	2010	3129	1.87	206.3	109.6	107.9	109.6	109.8	109.6	109.6	109.6	36.98
09:08	1180.0	750.0	16.5	1999	3220	1.88	203.9	109.7	107.9	109.7	110.6	109.7	109.7	109.7	36.44
09:09	1185.0	742.0	16.5	1998	3245	1.88	198.4	109.8	105.5	109.8	115.4	109.8	109.8	111.7	37.38
09:10	1165.0	744.0	16.6	1995	3135	1.88	201.5	109.9	108.5	109.9	117.2	109.9	109.9	114.6	36.14
10 MinAvg	1168.0	747.2	16.4	2002	3143	1.89	202.6	109.4	108.2	109.4	110.9	109.4	109.4	110.1	36.02
09:11	1141.0	726.0	16.8	1994	3178	1.89	201.0	110.0	110.0	110.0	111.5	110.0	110.0	114.0	36.37
09:12	1132.0	714.0	16.8	2006	3212	1.84	203.3	110.1	109.5	110.1	112.4	110.1	110.1	116.7	36.93
09:13	1161.0	730.0	16.7	2007	3325	1.90	204.2	110.2	110.1	110.2	117.5	110.2	110.2	119.5	37.12
09:14	1195.0	751.0	16.6	2006	3263	1.88	208.7	110.3	110.3	110.3	121.4	110.3	110.3	123.6	37.15
09:15	1226.0	760.0	16.6	2016	3179	1.88	210.0	110.5	110.5	110.5	123.7	110.5	110.5	124.8	38.01
09:16	1249.0	767.0	16.5	2007	3162	1.89	209.7	110.6	110.6	110.6	121.3	110.6	110.6	126.9	38.59
09:17	1241.0	771.0	16.5	1998	3040	1.88	208.5	110.7	110.7	110.7	122.4	110.7	110.7	132.3	37.87
09:18	1240.0	780.0	16.5	2001	3080	1.89	210.4	110.7	110.5	110.7	124.3	110.7	110.7	136.3	37.10
09:19	1256.0	782.0	16.5	2002	3137	1.86	211.6	110.9	110.9	110.9	119.9	110.9	110.9	139.6	37.74
09:20	1229.0	770.0	16.7	1992	3168	1.89	209.8	111.0	111.0	111.0	119.9	111.0	111.0	140.2	37.35

E-405

LRC Run 920602

Starting
06-02-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10 MinAvg	1207.0	755.1	16.6	2003	3174	1.88	207.7	110.5	110.4	110.5	119.4	110.5	110.5	127.4	37.42
09:21	1200.0	760.0	16.8	1985	3107	1.89	211.0	111.1	109.7	111.1	125.0	111.1	111.1	140.5	36.67
09:22	1199.0	772.0	16.7	1981	3032	1.91	207.9	111.3	111.3	111.3	132.0	111.3	111.3	141.0	35.61
09:23	1166.0	756.0	16.8	1972	3001	1.91	207.3	111.4	111.4	111.4	140.6	111.4	111.4	140.9	35.16
09:24	1185.0	762.0	16.8	1968	3204	1.88	205.0	111.6	111.6	111.6	139.0	111.6	111.6	141.5	35.70
09:25	1188.0	762.0	16.9	1963	3200	1.89	206.5	111.7	111.6	111.7	130.2	111.7	111.7	142.7	35.86
09:26	1175.0	750.0	17.0	1952	3114	1.93	204.9	111.9	111.9	111.9	139.1	111.9	111.9	143.9	36.17
09:27	1154.0	734.0	17.1	1937	3088	1.90	205.9	112.0	111.9	112.0	124.8	112.0	112.0	145.1	36.40
09:28	1190.0	749.0	16.9	1941	3048	1.89	208.3	112.1	111.0	112.1	129.9	112.1	116.5	146.8	37.06
09:29	1216.0	776.0	16.8	1929	3062	1.89	206.0	112.2	110.9	112.2	129.3	112.2	121.2	148.2	36.18
09:30	1214.0	787.0	16.7	1926	3044	1.90	203.6	112.3	112.3	112.3	124.3	112.3	122.8	148.2	35.17
10 MinAvg	1188.7	760.8	16.9	1955	3090	1.90	206.6	111.8	111.4	111.8	131.4	111.8	114.2	143.9	36.00
09:31	1231.0	780.0	16.8	1917	3150	1.91	203.1	112.4	112.4	112.4	117.1	112.4	122.6	149.0	36.64
09:32	1200.0	780.0	16.8	1910	3232	1.92	204.2	112.6	112.6	112.6	113.1	112.6	122.8	149.8	35.00
09:33	1240.0	795.0	16.6	1920	3241	1.87	205.5	112.7	106.8	112.7	112.7	112.7	119.7	153.0	35.89
09:34	1261.0	805.0	16.6	1910	3121	1.85	204.4	112.8	109.6	112.8	112.9	112.8	118.4	155.4	36.16
09:35	1275.0	812.0	16.6	1911	3117	1.89	205.0	112.9	106.8	112.9	112.9	112.9	113.0	155.9	36.31
09:36	1286.0	815.0	16.6	1909	3117	2.02	203.8	113.0	109.6	113.0	113.1	113.0	113.4	155.2	36.63
09:37	1286.0	837.0	16.4	1907	3143	2.00	202.4	113.1	108.1	113.1	113.1	113.1	117.0	156.1	34.91
09:38	1292.0	839.0	16.3	1897	3170	2.01	200.9	113.3	108.1	113.3	113.5	113.3	120.1	154.7	35.06
09:39	1305.0	859.0	16.2	1898	3069	1.99	201.5	113.4	111.7	113.4	114.7	113.4	120.9	154.6	34.18
09:40	1294.0	864.0	16.3	1897	2951	2.01	200.8	113.6	110.2	113.6	117.7	113.6	116.9	156.0	33.23
10 MinAvg	1267.0	818.6	16.5	1908	3131	1.95	203.2	113.0	109.6	113.0	114.1	113.0	118.5	154.0	35.40
09:41	1270.0	844.0	16.5	1897	3057	2.02	200.9	113.8	111.5	113.7	113.9	113.7	121.5	155.9	33.54
09:42	1283.0	851.0	16.4	1889	3150	2.00	201.2	113.8	112.5	113.8	114.0	113.8	116.9	156.3	33.67
09:43	1299.0	867.0	16.3	1898	3150	2.03	201.8	114.0	112.0	114.0	115.9	114.0	118.1	156.8	33.26
09:44	1289.0	867.0	16.4	1889	3071	2.01	201.5	114.1	109.0	114.1	114.1	114.1	120.3	156.7	32.74
09:45	1282.0	853.0	16.5	1889	3129	2.04	201.5	114.3	111.6	114.3	114.3	114.3	114.8	155.7	33.46
09:46	1262.0	868.0	16.5	1881	3151	2.04	201.8	114.4	106.8	114.4	114.4	114.4	114.4	156.5	31.22
09:47	1225.0	839.0	16.8	1882	2902	2.03	201.9	114.6	108.2	114.6	114.9	114.6	114.6	156.1	31.51
09:48	1197.0	826.0	16.8	1873	3113	2.02	201.8	114.7	112.7	114.7	117.7	114.7	114.7	157.4	30.99
09:49	1166.0	813.0	17.0	1882	3135	1.98	202.2	114.9	114.7	114.9	116.3	114.9	114.9	157.5	30.27
09:50	1137.0	800.0	17.0	1872	3096	2.00	201.1	115.0	114.4	115.0	115.0	115.0	115.0	157.8	29.64
10 MinAvg	1241.0	842.8	16.6	1885	3095	2.02	201.6	114.4	111.3	114.3	115.1	114.3	116.5	156.7	32.03
09:51	1124.0	793.0	17.1	1874	3132	2.09	202.4	115.2	110.3	115.2	119.7	115.2	115.2	157.9	29.45
09:52	1110.0	789.0	17.2	1874	3145	2.06	202.4	115.3	115.1	115.3	127.5	115.3	115.3	158.3	28.92

E-406

LBC Run 920602

Starting
06-02-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
09:53	1099.0	781.0	17.4	1866	2979	2.09	202.8	115.5	110.1	115.5	124.7	115.5	115.5	158.9	28.94
09:54	1092.0	765.0	17.5	1857	2929	2.09	202.5	115.6	111.0	115.6	115.6	115.6	115.6	159.3	29.95
09:55	1093.0	757.0	17.6	1874	2882	2.10	202.7	115.8	113.1	115.8	116.5	115.8	115.8	159.0	30.74
09:56	1096.0	751.0	17.7	1865	2843	2.09	202.0	115.8	112.5	115.8	120.8	115.8	115.8	159.0	31.48
09:57	1091.0	737.0	17.8	1866	3080	2.05	202.6	115.7	113.8	115.7	117.6	115.7	115.7	158.2	32.45
09:58	1079.0	727.0	18.0	1857	2770	2.05	202.3	115.8	112.0	115.8	130.9	115.8	115.8	158.3	32.62
09:59	1055.0	714.0	18.1	1857	3013	2.12	202.3	116.0	107.9	116.0	141.0	116.0	116.0	159.2	32.32
10:00	1074.0	713.0	18.1	1858	3108	2.18	203.1	116.1	109.5	116.1	127.7	116.1	116.1	158.7	33.61
10 MinAvg	1091.3	752.7	17.6	1865	2988	2.09	202.5	115.7	111.5	115.7	124.2	115.7	115.7	158.7	31.05
10:01	1105.0	708.0	18.2	1858	3014	2.17	202.9	116.3	102.6	116.3	119.5	116.3	116.3	156.7	35.93
10:02	1112.0	697.0	18.3	1858	3064	1.88	203.3	116.5	99.8	116.5	121.8	116.5	116.5	155.9	37.32
10:03	1136.0	694.6	18.4	1859	3033	1.85	203.8	116.6	107.9	116.6	116.8	116.6	116.6	159.0	38.86
10:04	1153.0	694.0	18.4	1860	3005	1.85	204.4	116.6	108.7	116.6	117.0	116.6	116.6	157.5	39.81
10:05	1159.0	693.4	18.4	1842	2950	2.10	203.9	116.8	92.7	116.8	118.4	116.8	116.8	158.0	40.17
10:06	1133.0	688.6	18.4	1851	3096	2.17	204.0	116.9	93.9	116.9	116.9	116.9	116.9	155.5	39.22
10:07	1146.0	689.5	18.5	1851	3119	2.17	204.5	117.0	102.6	117.0	117.0	117.0	117.0	154.8	39.83
10:08	1169.0	691.5	18.4	1852	3092	2.17	204.8	117.1	101.5	117.1	117.1	117.1	117.1	156.0	40.85
10:09	1173.0	702.0	18.4	1853	2847	2.15	205.7	117.3	98.8	117.3	117.4	117.3	117.3	156.3	40.15
10:10	1190.0	699.8	18.4	1843	3003	2.15	204.8	117.4	95.5	117.4	117.6	117.4	117.4	154.7	41.19
10 MinAvg	1147.6	695.8	18.4	1853	3022	2.07	204.2	116.8	100.4	116.8	117.9	116.8	116.8	156.4	39.33
10:11	1208.0	718.0	18.2	1846	3263	2.17	206.8	117.5	96.9	117.5	120.1	117.5	117.5	156.3	40.56
10:12	1202.0	716.0	18.2	1844	3233	2.15	205.1	117.6	101.5	117.6	120.6	117.6	117.6	156.9	40.43
10:13	1189.0	715.0	18.3	1834	3026	2.13	204.8	117.6	96.9	117.6	119.0	117.6	117.6	155.6	39.87
10:14	1199.0	728.0	18.2	1825	2990	2.11	204.5	117.7	94.7	117.7	118.2	117.7	117.7	154.6	39.28
10:15	1182.0	728.0	18.3	1835	2943	2.23	204.9	117.7	96.6	117.7	121.0	117.7	117.7	155.6	38.41
10:16	1181.0	724.0	18.3	1825	2901	2.22	204.3	117.8	98.2	117.8	119.4	117.8	117.8	156.6	38.70
10:17	1186.0	728.0	18.3	1824	2949	2.23	203.4	118.0	95.4	118.0	118.1	118.0	118.0	158.1	38.62
10:18	1182.0	730.0	18.3	1824	3170	2.22	203.7	118.1	94.7	118.1	118.1	118.1	118.1	156.2	38.24
10:19	1180.0	720.0	18.5	1826	2916	2.12	204.7	118.2	89.9	118.2	118.2	118.2	118.1	156.8	38.98
10:20	1185.0	716.0	18.5	1826	2945	1.98	205.1	118.4	95.1	118.4	118.4	118.4	118.4	156.2	39.58
10 MinAvg	1189.4	722.3	18.3	1831	3034	2.16	204.7	117.9	96.0	117.9	119.1	117.9	117.8	156.3	39.27
10:21	1175.0	711.0	18.6	1818	3051	1.98	205.1	118.4	108.9	118.4	118.4	118.4	118.4	156.4	39.49
10:22	1161.0	701.0	18.7	1818	3074	2.13	205.2	118.6	95.5	118.6	118.6	118.6	118.6	155.9	39.62
10:23	1180.0	697.7	18.7	1819	3029	2.09	206.0	118.7	97.0	118.7	118.7	118.7	118.7	158.1	40.87
10:24	1174.0	702.0	18.8	1818	3155	2.13	205.6	118.8	101.3	118.8	118.8	118.8	118.8	156.9	40.20
10:25	1184.0	706.0	18.8	1809	3025	2.20	205.4	118.9	107.1	118.9	118.9	118.9	118.9	156.5	40.37
10:26	1198.0	715.0	18.8	1819	3026	2.17	205.9	119.1	102.2	119.1	119.1	119.1	119.1	156.6	40.32

E-407

LBC Run 920602

Starting
06-02-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10:27	1215.0	711.0	18.7	1819	3094	2.00	206.5	119.2	92.4	119.2	119.2	119.2	119.2	156.0	41.48
10:28	1195.0	716.0	18.7	1819	3156	2.02	206.4	119.3	90.1	119.3	119.3	119.3	119.3	156.1	40.08
10:29	1209.0	722.0	18.7	1811	3098	2.14	206.7	119.3	90.6	119.3	119.3	119.3	119.3	155.8	40.28
10:30	1190.0	723.0	18.7	1810	2896	2.18	206.3	119.4	90.0	119.4	119.4	119.4	119.4	155.4	39.24
10 MinAvg	1188.1	710.5	18.7	1816	3060	2.10	205.9	119.0	97.5	119.0	119.0	119.0	119.0	156.4	40.20
10:31	1185.0	721.0	18.6	1805	2910	2.18	202.1	119.5	91.2	119.5	119.5	119.5	119.5	155.1	39.16
10:32	1197.0	733.0	18.5	1808	3045	2.33	204.5	119.7	94.7	119.7	119.7	119.7	119.7	155.1	38.76
10:33	1185.0	730.0	18.6	1793	2839	2.29	199.9	119.8	96.5	119.8	119.8	119.8	119.8	155.7	38.40
10:34	1213.0	736.0	18.6	1796	2764	2.29	202.1	119.7	94.1	119.7	119.7	119.7	119.7	155.0	39.32
10:35	1232.0	752.0	18.5	1787	2867	2.32	202.4	119.7	94.1	119.7	119.7	119.7	119.7	154.6	38.96
10:36	1248.0	756.0	18.4	1787	2986	2.30	202.1	119.9	98.0	119.9	119.9	119.9	119.9	156.5	39.42
10:37	1266.0	758.0	18.4	1775	3010	2.31	200.0	120.0	95.9	120.0	120.0	120.0	120.0	154.6	40.13
10:38	1276.0	764.0	18.4	1787	2849	2.31	201.8	120.1	100.9	120.1	120.1	120.1	120.1	150.1	40.13
10:39	1284.0	775.0	18.4	1778	3078	2.34	201.8	120.2	93.2	120.2	120.2	120.2	120.2	149.3	39.64
10:40	1283.0	774.0	18.4	1769	3181	2.35	201.8	120.4	95.9	120.4	120.4	120.4	120.4	149.4	39.67
10 MinAvg	1236.9	749.9	18.5	1788	2953	2.30	201.9	119.9	95.5	119.9	119.9	119.9	119.9	153.5	39.36
10:41	1308.0	782.0	18.3	1775	3215	2.36	206.4	120.4	97.4	120.4	120.4	120.4	120.4	149.2	40.21
10:42	1284.0	788.0	18.4	1764	3275	2.36	204.9	120.5	99.0	120.5	120.5	120.5	120.5	147.9	38.63
10:43	1265.0	776.0	18.4	1765	2726	2.38	198.9	120.6	98.3	120.6	120.6	120.6	120.6	140.0	38.66
10:44	1315.0	777.0	18.4	1762	2742	2.41	203.3	120.8	96.5	120.8	120.8	120.8	120.8	130.6	40.91
10:45	1311.0	785.0	18.4	1760	2767	2.41	202.1	120.9	98.2	120.9	120.9	120.9	120.9	129.9	40.12
10:46	1282.0	782.0	18.4	1753	3165	2.32	203.7	121.0	98.1	121.0	121.0	121.0	121.0	126.8	39.00
10:47	1260.0	780.0	18.4	1762	3239	2.37	203.2	121.1	103.2	121.1	121.1	121.1	121.1	125.9	38.10
10:48	1232.0	774.0	18.5	1775	3117	2.40	206.2	121.1	105.0	121.1	121.1	121.1	121.1	127.0	37.18
10:49	1210.0	774.0	18.5	1781	2773	2.41	203.9	121.1	95.6	121.1	121.1	121.1	121.1	128.1	36.03
10:50	1224.0	778.0	18.5	1786	3196	2.45	201.5	121.1	97.4	121.1	121.1	121.1	121.1	125.5	36.44
10 MinAvg	1269.1	779.6	18.4	1768	3021	2.39	203.4	120.9	98.9	120.9	120.9	120.9	120.8	133.1	38.53
10:51	1212.0	768.0	18.5	1782	3273	2.47	204.8	121.2	100.0	121.2	121.2	121.2	121.2	125.9	36.63
10:52	1188.0	764.0	18.6	1781	3174	2.47	204.1	121.3	103.5	121.3	121.3	121.3	121.3	125.1	35.69
10:53	1177.0	750.0	18.7	1747	3032	2.32	205.6	121.5	101.0	121.5	121.5	121.5	121.5	125.2	36.28
10:54	1187.0	752.0	18.7	1738	3032	2.33	205.5	121.6	102.1	121.6	121.6	121.6	121.5	124.2	36.65
10:55	1183.0	747.0	18.7	1736	3069	2.39	204.5	121.7	98.5	121.7	121.7	121.7	121.6	124.0	36.86
10:56	1176.0	739.0	18.8	1739	3087	2.39	206.8	121.7	95.3	121.6	121.7	121.7	121.6	123.9	37.16
10:57	1155.0	729.0	18.9	1723	2630	2.39	201.4	121.6	94.3	121.6	121.6	121.6	121.6	124.1	36.88
10:58	1164.0	718.0	19.0	1719	3113	2.35	197.9	121.5	96.7	121.0	121.5	121.5	121.5	123.6	38.32
10:59	1164.0	703.0	19.1	1718	3046	2.32	197.8	121.6	95.4	121.6	121.6	121.6	121.6	123.2	39.60
11:00	1183.0	701.0	19.2	1722	2986	2.32	200.7	121.8	95.2	121.7	121.8	121.8	121.8	125.5	40.74

E-408

Starting
06-02-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10 MinAvg	1178.9	737.1	18.8	1741	3044	2.38	202.9	121.6	98.2	121.5	121.6	121.6	121.5	124.5	37.48
11:01	1186.0	707.0	19.1	1705	3101	2.27	201.9	121.9	96.0	121.8	121.9	121.9	121.9	125.2	40.39
11:02	1200.0	712.0	19.3	1684	2978	2.28	207.1	122.0	95.0	122.0	122.0	122.0	122.0	124.5	40.67
11:03	1189.0	703.0	19.4	1694	2322	2.26	207.5	121.9	92.8	121.8	121.9	121.9	121.9	124.5	40.87
11:04	1179.0	693.8	19.5	1691	2582	2.28	204.9	121.5	92.3	121.3	121.5	121.5	121.5	124.1	41.15
11:05	1199.0	694.4	19.5	1692	2949	2.22	206.2	121.7	93.1	121.7	121.7	121.7	121.7	124.0	42.09
11:06	1210.0	697.4	19.6	1695	3284	2.26	208.2	121.9	96.0	121.8	121.9	121.9	121.9	123.1	42.36
11:07	1179.0	692.8	19.7	1687	3088	2.31	209.2	122.1	93.7	121.5	122.1	122.1	122.1	122.2	41.24
11:08	1208.0	677.8	19.7	1687	2830	2.29	209.7	122.3	93.2	122.3	122.3	122.3	122.3	122.4	43.89
11:09	1259.0	679.3	19.5	1703	2684	2.29	214.5	122.4	93.0	122.0	122.4	122.4	122.4	122.4	46.04
11:10	1275.0	689.2	19.5	1689	2535	2.30	211.4	122.5	95.5	121.4	122.5	122.5	122.5	122.5	45.95
10 MinAvg	1208.4	694.7	19.5	1693	2835	2.28	208.1	122.0	94.1	121.8	122.0	122.0	122.0	123.5	42.47
11:11	1277.0	681.4	19.5	1693	2791	2.31	214.5	122.4	95.3	121.9	122.5	122.5	122.5	122.5	46.64
11:12	1257.0	673.6	19.6	1688	2850	2.32	217.7	122.5	96.2	120.8	122.7	122.7	122.7	122.7	46.41
11:13	1235.0	665.6	19.7	1695	2780	2.35	216.1	122.3	96.0	122.4	122.9	122.9	122.9	122.9	46.11
11:14	1242.0	669.9	19.7	1682	2874	2.26	213.5	122.5	95.1	120.8	123.0	123.0	123.0	123.0	46.06
11:15	1246.0	667.1	19.7	1670	2589	2.37	210.9	122.5	94.0	123.0	123.1	123.1	123.1	123.2	46.46
11:16	1246.0	663.7	19.8	1680	2779	2.40	211.4	121.6	95.1	122.0	123.2	123.2	123.2	123.2	46.73
11:17	1241.0	669.1	19.8	1678	2966	2.37	217.3	121.2	95.2	121.9	123.3	123.3	123.3	123.3	46.08
11:18	1241.0	662.0	19.8	1668	2648	2.34	217.8	122.7	94.7	119.4	123.3	123.3	123.3	123.3	46.66
11:19	1228.0	659.8	19.8	1661	2513	2.33	211.5	122.4	95.3	121.4	123.3	123.3	123.3	123.3	46.27
11:20	1244.0	660.9	19.8	1653	2742	2.32	212.8	122.9	94.0	122.0	123.3	123.3	123.3	123.5	46.87
10 MinAvg	1245.7	667.3	19.7	1677	2753	2.34	214.4	122.3	95.1	121.6	123.1	123.1	123.1	123.1	46.43
11:21	1246.0	653.3	19.8	1649	2567	2.33	210.2	122.0	94.0	122.1	123.3	123.3	123.3	124.3	47.57
11:22	1259.0	657.8	19.8	1652	2802	2.25	212.1	121.0	94.9	120.7	123.4	123.4	123.4	124.0	47.75
11:23	1278.0	667.0	19.7	1660	3147	2.30	218.8	120.9	95.0	120.5	123.6	123.6	123.6	124.2	47.81
11:24	1243.0	674.1	19.8	1646	3433	2.39	215.7	120.7	94.3	120.6	123.6	123.6	123.6	123.6	45.77
11:25	1184.0	644.7	20.2	1645	3128	2.41	214.6	122.2	94.3	121.9	123.6	123.6	123.6	123.6	45.55
11:26	1179.0	638.9	20.1	1635	2032	2.38	206.6	120.3	95.9	119.6	123.6	123.5	123.6	123.6	45.81
11:27	1301.0	678.1	19.6	1657	2604	2.36	216.7	119.6	95.0	120.9	123.7	123.7	123.7	124.0	47.88
11:28	1325.0	706.0	19.5	1641	2998	2.32	219.6	119.2	94.6	118.6	123.9	123.7	123.9	124.3	46.72
11:29	1255.0	672.9	19.9	1646	3051	2.40	215.3	121.7	94.7	118.4	124.0	124.0	124.0	124.1	46.38
11:30	1270.0	667.1	19.9	1643	2849	2.35	213.0	118.1	95.6	119.3	124.1	123.9	124.1	124.1	47.47
10 MinAvg	1254.0	666.0	19.8	1648	2861	2.35	214.3	120.6	94.8	120.3	123.7	123.6	123.7	124.0	46.87
11:31	1306.0	682.9	19.6	1650	2824	2.35	210.8	117.8	96.4	120.7	124.1	123.9	124.1	124.1	47.71
11:32	1366.0	729.0	19.2	1640	3092	2.34	210.5	117.1	94.9	118.7	124.2	124.1	124.2	124.2	46.63

E-409

LBC Run 920602

Starting
06-02-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10 MinAvg	1178.9	737.1	18.8	1741	3044	2.38	202.9	121.6	98.2	121.5	121.6	121.6	121.5	124.5	37.48
11:33	1355.0	736.0	19.2	1637	2973	2.42	208.1	118.4	95.1	119.7	124.3	123.6	124.3	124.3	45.68
11:34	1347.0	738.0	19.3	1648	3019	2.36	209.3	118.3	95.7	120.2	124.5	124.2	124.5	124.5	45.21
11:35	1373.0	753.0	19.1	1645	3032	2.30	206.9	119.7	95.8	119.3	124.5	124.4	124.5	124.5	45.16
11:36	1395.0	763.0	19.1	1636	3231	2.42	207.6	119.9	95.9	120.5	124.6	124.4	124.6	124.6	45.30
11:37	1416.0	772.0	19.1	1646	2925	2.44	207.7	118.1	98.4	121.8	124.7	124.5	124.7	124.7	45.48
11:38	1461.0	796.0	18.8	1653	2955	2.41	213.0	120.6	96.7	121.2	124.8	124.8	124.8	124.8	45.52
11:39	1501.0	814.0	18.6	1650	2808	2.34	218.5	119.4	95.9	120.0	124.8	124.5	124.8	124.8	45.77
11:40	1469.0	803.0	18.8	1644	2785	2.37	213.6	120.1	97.8	118.8	124.9	124.9	124.9	124.9	45.34
10 MinAvg	1398.9	758.7	19.1	1645	2965	2.37	210.6	118.9	96.3	120.1	124.5	124.3	124.5	124.5	45.78
11:41	1453.0	804.0	18.8	1644	2688	2.37	214.1	119.7	95.7	122.0	124.9	124.2	124.9	124.9	44.67
11:42	1436.0	796.0	18.9	1649	2912	2.42	209.5	118.4	96.2	119.8	125.0	124.7	124.6	125.1	44.57
11:43	1423.0	785.0	18.9	1643	2894	2.44	212.9	118.7	97.8	119.3	124.9	124.4	123.2	125.0	44.83
11:44	1424.0	786.0	18.9	1636	3042	2.36	207.5	118.4	98.1	120.9	124.9	123.8	124.9	125.0	44.80
11:45	1401.0	792.0	18.9	1633	2676	2.44	205.1	119.1	96.8	120.3	124.9	124.8	124.9	124.9	43.47
11:46	1350.0	791.0	18.9	1619	2723	2.42	201.3	119.5	97.9	120.8	125.0	124.9	125.0	125.0	41.41
11:47	1337.0	781.0	18.9	1620	3000	2.38	201.9	121.5	96.6	119.0	125.1	124.9	125.1	125.3	41.59
11:48	1310.0	778.0	18.9	1606	2348	2.28	198.3	119.9	96.6	121.3	125.1	125.0	125.1	125.1	40.61
11:49	1334.0	776.0	18.9	1596	2376	2.34	198.2	119.3	96.2	120.3	124.9	124.9	124.9	124.9	41.83
11:50	1412.0	774.0	18.9	1612	2737	2.42	203.8	118.9	96.9	117.0	125.0	125.0	124.3	125.0	45.18
10 MinAvg	1388.0	786.3	18.9	1626	2740	2.39	205.3	119.3	96.9	120.1	125.0	124.7	124.7	125.0	43.30
11:51	1483.0	776.0	18.8	1618	3033	2.42	208.7	120.2	95.9	119.0	125.1	125.0	123.0	125.2	47.67
11:52	1466.0	801.0	18.8	1612	3038	2.49	211.7	120.5	95.8	120.0	125.1	124.8	123.8	125.2	45.36
11:53	1452.0	819.0	18.8	1601	2912	2.39	211.3	118.5	96.5	118.2	125.2	124.7	125.1	125.4	43.60
11:54	1430.0	807.0	18.9	1605	2802	2.40	213.9	116.7	100.1	118.2	125.2	124.8	125.1	125.3	43.57
11:55	1432.0	790.0	18.9	1595	2599	2.43	214.4	117.2	98.0	121.0	125.3	125.3	125.3	125.3	44.83
11:56	1398.0	776.0	19.1	1605	2677	2.38	214.1	119.2	96.3	121.6	125.3	124.8	125.3	125.3	44.49
11:57	1377.0	756.0	19.3	1594	2610	2.30	213.2	117.6	97.2	119.9	125.3	124.3	125.3	125.3	45.10
11:58	1329.0	734.0	19.5	1601	2722	2.35	219.3	116.8	96.3	121.5	125.4	124.6	125.4	125.4	44.77
11:59	1331.0	702.0	19.7	1604	2359	2.40	222.1	116.8	96.2	119.1	125.5	124.6	125.5	125.6	47.26
12:00	1350.0	714.0	19.6	1597	2492	2.31	216.3	115.5	96.2	120.4	125.4	124.2	122.8	125.4	47.11
10 MinAvg	1404.8	767.5	19.1	1603	2724	2.39	214.5	117.9	96.9	119.9	125.3	124.7	124.7	125.3	45.38
12:01	1354.0	725.0	19.7	1577	2555	2.42	215.9	116.7	96.1	121.0	125.4	124.5	117.6	125.4	46.45
12:02	1375.0	721.0	19.7	1611	2744	2.44	210.8	115.6	96.1	119.2	125.5	123.7	118.0	125.6	47.56
12:03	1378.0	709.0	19.7	1630	2658	2.44	218.6	115.5	96.4	118.8	125.5	122.3	119.4	125.7	48.55
12:04	1388.0	713.0	19.6	1597	2630	2.41	215.8	114.9	96.6	118.0	125.5	121.0	116.1	125.5	48.63

E410

LBC Run 920602

Starting
06-02-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
12:05	1335.0	699.6	19.8	1593	2822	2.32	204.1	113.1	96.4	124.0	125.4	120.3	110.9	125.5	47.60
12:06	1310.0	682.5	19.8	1594	2814	2.33	205.0	111.8	96.3	123.7	125.5	118.0	109.9	125.6	47.90
12:07	1307.0	683.9	19.8	1590	3009	2.30	202.0	112.8	96.3	119.5	125.6	115.7	111.8	125.6	47.67
12:08	1302.0	679.8	19.7	1578	3053	2.35	200.2	112.4	96.4	121.3	125.7	116.4	106.8	125.7	47.79
12:09	1304.0	689.1	19.7	1566	2923	2.45	198.7	111.4	96.4	122.9	125.7	113.8	106.3	125.7	47.15
12:10	1302.0	702.0	19.7	1566	2669	2.45	198.5	111.6	96.3	122.2	125.6	115.1	107.1	125.6	46.08
10 MinAvg	1335.5	700.5	19.7	1590	2788	2.39	207.0	113.6	96.3	121.1	125.5	119.1	112.4	125.6	47.54
12:11	1321.0	714.0	19.6	1570	3040	2.42	201.7	110.9	96.4	120.3	125.7	113.6	109.7	125.7	45.95
12:12	1337.0	724.0	19.5	1572	3067	2.38	203.4	111.0	96.5	122.8	125.8	118.2	109.1	125.8	45.85
12:13	1341.0	732.0	19.5	1574	3161	2.33	204.7	111.5	96.6	119.3	125.9	118.7	110.4	126.0	45.41
12:14	1344.0	736.0	19.4	1587	3150	2.34	207.9	113.9	96.6	124.6	125.9	123.1	109.1	126.4	45.24
12:15	1326.0	738.0	19.4	1579	3031	2.32	201.2	114.4	96.6	123.5	125.8	123.4	110.7	126.0	44.34
12:16	1356.0	740.0	19.3	1572	2659	2.45	203.7	116.0	96.5	121.3	125.8	125.3	110.2	125.8	45.43
12:17	1336.0	748.0	19.2	1568	2689	2.35	199.7	113.7	96.6	120.3	125.9	124.9	109.2	126.0	44.01
12:18	1327.0	741.0	19.2	1556	2430	2.31	198.6	114.9	96.7	121.2	126.0	124.1	110.4	126.0	44.16
12:19	1405.0	773.0	19.0	1556	2387	2.41	198.5	113.6	97.1	119.7	125.9	123.0	110.7	125.9	44.98
12:20	1436.0	789.0	18.9	1547	2612	2.32	199.0	113.8	97.4	114.6	126.0	121.1	110.4	126.1	45.06
10 MinAvg	1352.9	743.5	19.3	1568	2823	2.36	201.8	113.4	96.7	120.8	125.9	121.5	110.0	126.0	45.04
12:21	1434.0	790.0	18.8	1556	2486	2.33	198.7	112.6	96.7	118.5	126.0	123.8	108.0	126.0	44.91
12:22	1425.0	801.0	18.8	1556	2447	2.34	198.4	112.4	97.1	120.1	125.9	125.1	110.3	125.9	43.79
12:23	1365.0	788.0	19.0	1556	2726	2.45	198.2	114.3	96.3	121.4	125.6	125.2	109.7	125.8	42.27
12:24	1360.0	770.0	19.0	1545	2459	2.44	198.0	112.9	96.4	119.6	125.4	124.1	110.7	125.8	43.38
12:25	1318.0	758.0	19.1	1545	2482	2.41	198.0	113.2	96.2	118.2	125.5	124.9	110.4	125.5	42.49
12:26	1338.0	752.0	19.1	1546	2614	2.34	198.2	114.8	96.3	121.0	125.6	125.5	110.0	125.8	43.80
12:27	1336.0	757.0	19.1	1536	2537	2.42	198.4	113.5	98.3	119.7	125.8	125.6	109.4	125.9	43.34
12:28	1341.0	755.0	19.1	1536	2669	2.32	198.4	113.5	101.2	121.7	125.8	125.6	110.8	126.3	43.70
12:29	1339.0	754.0	19.2	1525	2807	2.37	198.4	112.7	98.3	122.7	125.8	125.7	110.6	126.6	43.69
12:30	1329.0			1546	2447	2.44	198.3	112.5	96.6	124.9	125.8	125.5	110.8	126.9	
C	Louver sprays are decreased from 0.42 gpm to 0.33 gpm														
C	Ambient air is introduced into the outlet sampling system in order to recalibrate the outlet O2 monitor.														
10 MinAvg	1358.5	769.4	19.0	1545	2567	2.39	198.3	113.2	97.3	120.8	125.7	125.1	110.1	126.1	43.48
12:31	1307.0			1525	2600	2.33	198.3	113.0	96.5	124.3	125.8	125.8	109.9	128.4	
12:32	1329.0			1525	2838	2.32	198.4	111.8	97.2	125.2	125.8	125.6	109.8	128.3	
12:33	1307.0			1536	2947	2.47	198.5	111.9	96.8	125.2	125.8	125.5	107.7	127.2	
12:34	1300.0			1546	2845	2.38	198.5	112.5	96.7	123.0	125.8	124.9	108.7	126.6	

E-411

LBC Run 920602

Starting
06-02-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
12:35	1304.0			1546	2727	2.29	198.6	110.5	97.2	122.8	125.9	122.6	108.3	126.1	
12:36	1283.0			1547	2809	2.33	199.4	111.7	97.0	118.8	126.0	121.5	104.1	126.0	
12:37	1290.0			1548	2962	2.43	199.9	110.5	97.6	118.9	126.1	120.2	104.3	126.1	
12:38	1298.0			1546	2952	2.38	198.7	110.1	96.9	115.0	126.2	116.3	105.1	126.3	
12:39	1293.0			1538	2750	2.34	200.3	109.7	96.9	116.6	126.2	115.3	103.4	126.2	
12:40	1286.0			1548	2608	2.32	200.2	109.5	96.8	115.3	126.1	113.7	103.4	126.1	
10 MinAvg	1299.7			1541	2804	2.36	199.1	111.1	97.0	120.5	126.0	121.1	106.5	126.7	
12:41	1298.0	664.4	15.4	1549	2707	2.41	200.8	108.1	96.7	115.7	126.0	113.3	105.9	126.0	48.81
12:42	1286.0	662.7	15.4	1537	2969	2.45	199.3	108.0	96.8	117.4	125.8	113.0	108.5	125.9	48.47
12:43	1295.0	665.1	15.4	1546	2902	2.46	198.5	108.8	96.8	116.4	125.6	111.9	111.6	125.6	48.64
12:44	1303.0	659.1	15.4	1547	2756	2.47	199.0	108.2	98.8	114.8	125.5	112.0	117.9	125.5	49.42
12:45	1311.0	659.6	15.4	1537	3039	2.44	199.4	108.9	98.4	115.7	125.4	112.4	125.4	125.4	49.69
12:46	1311.0	664.0	15.3	1544	3240	2.37	205.5	109.5	97.8	115.2	125.3	111.4	125.3	125.3	49.35
12:47	1315.0	664.9	15.3	1561	3098	2.36	211.1	110.9	96.7	116.0	125.1	111.5	125.1	125.1	49.44
12:48	1303.0	664.2	15.2	1551	2453	2.50	211.2	109.9	99.6	112.2	124.9	111.0	124.9	124.9	49.03
12:49	1314.0	667.0	15.2	1544	2694	2.48	206.0	109.2	95.4	115.8	124.7	115.3	124.7	124.7	49.24
12:50	1287.0	666.9	15.2	1532	2777	2.44	204.4	108.7	96.1	115.7	124.5	116.0	124.5	124.5	48.18
10 MinAvg	1302.3	663.8	15.3	1545	2864	2.44	203.5	109.0	97.3	115.5	125.3	112.8	119.4	125.3	49.03
12:51	1299.0	671.1	15.3	1522	2400	2.44	204.3	111.7	95.3	113.9	124.2	114.9	124.2	124.4	48.34
12:52	1336.0	667.4	15.1	1528	2374	2.43	209.8	112.7	95.0	119.0	124.0	116.4	124.0	124.2	50.04
12:53	1342.0	680.2	15.1	1526	2728	2.42	217.6	110.8	94.9	118.9	123.9	117.3	123.9	125.2	49.31
12:54	1309.0	679.7	15.2	1508	2999	2.30	210.6	110.7	95.8	119.3	123.8	119.7	123.8	125.9	48.07
12:55	1307.0	670.3	15.2	1500	2934	2.24	213.1	110.4	95.9	119.9	123.7	120.8	123.7	127.2	48.71
12:56	1323.0	677.9	15.1	1493	2956	2.43	216.0	111.7	94.6	119.4	123.6	120.3	123.6	132.5	48.76
12:57	1312.0	673.8	15.1	1479	2221	2.32	213.2	110.9	96.2	117.9	123.5	120.1	123.5	139.4	48.64
12:58	1306.0	681.5	15.1	1471	2147	2.16	206.2	110.9	97.5	120.4	123.3	121.3	123.3	144.0	47.82
12:59	1316.0	680.5	15.1	1478	2766	2.18	213.1	112.3	97.6	119.4	123.1	122.6	123.1	146.1	48.29
13:00	1316.0	685.4	15.1	1500	2995	2.36	213.1	112.5	98.0	121.1	123.1	122.7	123.1	147.5	47.92
10 MinAvg	1316.6	676.8	15.1	1500	2652	2.33	211.7	111.5	96.1	118.9	123.6	119.6	123.6	133.6	48.59
13:01	1352.0	678.0	15.0	1263	3044	1.81	221.7	105.8	98.1	121.0	123.1	122.9	123.1	148.5	49.85
13:02	1318.0	663.4	14.9	1566	3340	2.38	215.6	112.6	100.0	116.0	123.0	123.0	123.0	148.4	49.67
13:03	1315.0	685.1	14.9	1580	3171	2.35	218.9	116.8	103.2	120.1	122.8	122.8	122.8	147.6	47.90
13:04	1320.0	692.2	14.9	1577	3032	2.47	216.0	117.9	99.1	119.6	122.7	122.7	122.7	149.2	47.56
13:05	1305.0	692.8	14.9	1585	3078	2.40	214.4	120.1	94.6	115.8	122.7	122.7	122.7	147.0	46.91
13:06	1319.0	705.0	14.9	1585	3076	2.40	222.9	119.4	94.7	116.9	122.7	122.7	122.7	146.0	46.55
13:07	1299.0	702.0	14.9	1579	3107	2.53	218.1	120.7	94.2	116.4	122.7	122.7	122.7	145.0	45.96
13:08	1314.0	702.0	14.8	1553	2818	2.40	222.4	119.3	94.8	116.5	122.7	122.7	122.7	145.5	46.58

E-412

LBC Run 920602

Starting
06-02-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
13:09	1336.0	706.0	14.7	1539	2469	2.34	219.1	120.2	94.7	117.2	122.6	122.6	122.6	144.4	47.16
13:10	1337.0	719.0	14.6	1538	2594	2.33	218.8	119.7	99.1	117.3	122.6	122.6	122.6	144.6	46.22
10 MinAvg	1321.5	694.5	14.9	1536	2973	2.34	218.8	117.3	97.3	117.7	122.8	122.7	122.8	146.6	47.44
13:11	1323.0	723.0	14.6	1537	2847	2.50	217.5	119.2	102.1	118.5	122.6	122.6	122.6	140.0	45.35
13:12	1320.0	732.0	14.6	1536	3089	2.46	216.4	119.3	102.1	118.7	122.7	122.5	122.5	130.5	44.55
13:13	1327.0	742.0	14.5	1525	3038	2.41	216.4	120.3	100.8	118.9	122.4	122.4	122.4	126.3	44.08
13:14	1338.0	750.0	14.4	1523	1971	2.44	214.3	120.9	100.7	121.9	122.3	122.3	122.3	124.9	43.95
13:15	1360.0	763.0	14.4	1523	2344	2.45	214.7	121.0	103.6	121.5	122.3	122.3	122.3	122.8	43.90
13:16	1370.0	761.0	14.3	1539	2751	2.42	219.2	120.6	101.8	121.5	122.3	122.3	122.3	122.3	44.45
13:17	1392.0	758.0	14.3	1542	2890	2.34	221.8	121.1	102.4	120.5	122.2	122.2	122.2	122.2	45.55
13:18	1392.0	766.0	14.4	1518	2592	2.50	219.2	121.4	102.2	120.3	122.2	122.2	122.2	122.3	44.97
13:19	1399.0	757.0	14.3	1531	2707	2.39	221.7	121.2	105.4	118.6	122.1	122.1	122.1	122.1	45.89
13:20	1391.0	754.0	14.3	1529	2650	2.48	219.8	121.2	103.4	120.6	122.0	122.0	122.0	122.2	45.79
10 MinAvg	1361.2	750.6	14.4	1530	2688	2.44	218.1	120.6	102.5	120.1	122.3	122.3	122.3	125.6	44.85
13:21	1386.0	752.0	14.3	1527	2235	2.42	218.5	121.1	104.5	121.3	122.3	122.0	122.0	122.1	45.74
13:22	1354.0	750.0	14.3	1511	2319	2.35	213.7	120.3	101.1	121.8	121.9	121.9	121.9	121.9	44.61
13:23	1364.0	746.0	14.3	1531	2891	2.38	212.5	121.5	99.9	121.8	121.9	121.9	121.9	121.9	45.31
13:24	1373.0	752.0	14.2	1539	2976	2.39	219.6	121.4	101.5	121.2	121.8	121.8	121.8	121.8	45.23
13:25	1381.0	754.0	14.2	1530	2957	2.39	221.1	121.1	101.3	121.7	121.7	121.7	121.7	121.7	45.40
13:26	1387.0	756.0	14.2	1543	2772	2.30	222.9	121.0	102.8	121.6	121.7	121.7	121.7	121.7	45.49
13:27	1382.0	760.0	14.2	1532	2640	2.38	222.2	121.5	102.7	121.7	131.9	121.7	121.7	121.9	45.01
13:28	1377.0	758.0	14.2	1533	2634	2.51	223.2	121.2	99.8	121.7	130.3	121.7	121.7	121.7	44.95
13:29	1380.0	749.0	14.2	1532	2576	2.45	222.7	121.5	99.9	121.6	126.0	121.6	121.6	121.6	45.72
13:30	1391.0	756.0	14.2	1531	1943	2.34	221.9	121.1	101.2	121.6	121.7	121.6	121.6	121.6	45.65
10 MinAvg	1377.5	753.3	14.2	1531	2594	2.39	219.8	121.2	101.5	121.6	124.1	121.8	121.8	121.8	45.31
13:31	1395.0	770.0	14.1	1530	2666	2.41	220.8	121.3	100.3	121.6	121.7	121.6	121.6	121.6	44.80
13:32	1389.0	766.0	14.2	1528	2939	2.51	219.0	121.5	99.8	121.4	121.5	121.5	121.5	121.5	44.85
13:33	1387.0	756.0	14.2	1530	2852	2.41	221.2	121.3	99.8	121.5	121.5	121.5	121.5	121.6	45.49
13:34	1378.0	748.0	14.2	1519	2948	2.43	220.9	121.3	99.6	121.5	121.5	121.5	121.5	121.7	45.72
13:35	1378.0	743.0	14.2	1532	3082	2.44	222.7	121.4	101.0	120.9	121.4	121.4	121.4	124.0	46.08
13:36	1379.0	757.0	14.2	1531	2871	2.54	221.8	121.2	102.3	121.0	121.4	121.4	121.4	129.0	45.11
13:37	1379.0	755.0	14.2	1532	2587	2.53	222.9	121.3	103.0	121.1	121.4	121.4	121.4	131.0	45.25
13:38	1368.0	753.0	14.2	1529	2613	2.51	220.0	121.3	102.6	121.1	121.4	121.4	121.4	135.5	44.96
13:39	1368.0	757.0	14.2	1529	3012	2.51	220.2	120.9	101.5	120.8	121.4	121.4	121.4	134.8	44.66
13:40	1373.0	765.0	14.2	1542	3303	2.50	221.9	121.2	99.6	120.6	121.3	121.3	121.3	134.9	44.28
10 MinAvg	1379.4	757.0	14.2	1530	2887	2.48	221.1	121.3	100.9	121.2	121.5	121.4	121.4	127.6	45.12

E413

LBC Run 920602

Starting
06-02-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
13:41	1366.0	766.0	14.1	1532	2676	2.48	222.5	121.3	99.3	121.3	121.3	121.3	121.3	129.0	43.92
13:42	1367.0	763.0	14.2	1530	1978	2.48	221.0	121.3	98.7	121.3	122.5	121.3	121.3	129.8	44.18
13:43	1347.0	756.0	14.2	1537	2127	2.36	218.0	121.0	97.5	121.1	130.6	121.2	121.2	131.5	43.88
13:44	1342.0	731.0	14.3	1537	2107	2.32	217.7	121.1	96.0	120.9	126.6	121.1	121.1	131.4	45.53
13:45	1340.0	725.0	14.3	1538	2203	2.39	218.5	120.9	98.8	121.1	127.3	121.1	121.1	133.2	45.90
13:46	1339.0	729.0	14.3	1548	2778	2.45	218.1	121.1	101.8	120.8	125.1	121.1	121.1	127.5	45.56
13:47	1348.0	738.0	14.2	1531	2802	2.32	221.5	120.9	102.4	121.0	123.3	121.0	121.0	128.4	45.25
13:48	1360.0	740.0	14.2	1542	2492	2.23	222.0	120.3	103.9	120.9	122.9	120.9	120.9	127.0	45.59
13:49	1374.0	741.0	14.1	1561	2487	2.32	220.7	120.7	100.9	120.9	123.0	120.9	120.9	125.9	46.07
13:50	1359.0	743.0	14.1	1549	2705	2.32	219.3	120.5	99.3	120.9	125.4	120.9	120.9	122.7	45.33
10 MinAvg	1354.2	743.2	14.2	1541	2436	2.37	219.9	120.9	99.9	121.0	124.8	121.1	121.1	128.6	45.12
13:51	1343.0	740.0	14.2	1561	2735	2.34	220.7	120.0	100.5	120.9	122.5	120.9	120.9	123.0	44.90
13:52	1344.0	746.0	14.2	1552	2846	2.35	221.8	120.8	99.6	120.8	122.2	120.8	120.8	121.7	44.49
13:53	1357.0	743.0	14.2	1553	2849	2.38	222.1	120.2	101.6	120.0	122.6	120.8	120.8	123.3	45.25
13:54	1361.0	740.0	14.2	1562	2547	2.32	220.9	120.6	100.3	120.3	121.0	120.7	120.7	122.9	45.63
13:55	1348.0	734.0	14.2	1559	2795	2.38	218.4	120.2	99.8	120.6	120.8	120.7	120.7	122.5	45.55
13:56	1337.0	739.0	14.2	1551	3146	2.40	220.8	120.6	97.2	120.0	120.6	120.6	120.6	124.1	44.73
13:57	1341.0	730.0	14.2	1553	3006	2.37	222.1	120.5	99.0	120.5	120.6	120.6	120.6	125.3	45.56
13:58	1351.0	738.0	14.2	1563	3203	2.46	222.0	120.6	97.8	120.6	120.6	120.6	120.6	124.6	45.37
13:59	1333.0	731.0	14.2	1563	2877	2.42	222.3	119.5	95.1	120.6	120.6	120.6	120.6	122.3	45.16
C	Louver sprays are increased to 0.50 gpm.														
14:00	1328.0	726.0	14.2	1563	2975	2.47	222.0	119.0	97.4	120.6	120.6	120.6	120.6	123.7	45.33
10 MinAvg	1344.3	736.7	14.2	1558	2898	2.39	221.3	120.2	98.8	120.5	121.2	120.7	120.7	123.3	45.20
14:01	1300.0	722.0	14.3	1552	2820	2.45	221.6	120.4	97.7	120.5	120.5	120.5	120.5	123.2	44.46
14:02	1289.0	724.0	14.3	1551	2761	2.57	220.8	120.3	97.1	120.4	120.4	120.4	120.4	127.2	43.83
14:03	1283.0	721.0	14.2	1542	2922	2.60	221.9	120.3	96.5	120.3	120.3	120.3	120.3	124.7	43.80
14:04	1270.0	718.0	14.2	1531	3042	2.60	221.7	120.3	98.5	120.3	120.3	120.3	120.3	125.6	43.46
14:05	1239.0	712.0	14.2	1530	2825	2.59	221.0	120.2	98.2	120.2	120.2	120.2	120.2	127.1	42.53
14:06	1219.0	716.0	14.2	1529	2673	2.51	219.5	120.1	96.9	120.1	120.1	120.1	120.1	125.3	41.26
14:07	1210.0	713.0	14.2	1525	2491	2.44	216.6	120.0	94.5	120.0	120.0	120.0	120.0	127.3	41.07
14:08	1178.0	707.0	14.3	1509	2518	2.48	211.5	119.9	97.3	119.9	119.9	119.9	119.9	127.0	39.98
14:09	1158.0	692.6	14.3	1521	2336	2.33	212.8	119.9	96.0	119.9	119.9	119.9	119.9	128.9	40.19
14:10	1134.0	667.5	14.4	1506	2662	2.40	209.0	119.8	93.0	119.8	119.8	119.8	119.8	129.9	41.14
10 MinAvg	1228.0	709.3	14.3	1530	2705	2.50	217.6	120.1	96.6	120.1	120.1	120.1	120.1	126.6	42.17
14:11	1138.0	661.7	14.4	1522	2734	2.47	213.3	119.8	92.1	119.8	119.8	119.8	119.6	129.4	41.85
14:12	1167.0	669.2	14.4	1528	3192	2.57	218.6	119.7	93.3	119.7	119.7	119.7	119.6	133.1	42.66
14:13	1221.0	670.7	14.4	1518	2995	2.60	219.5	119.7	90.3	119.6	119.8	119.7	119.7	136.0	45.07

E-414

LBC Run 920602

Starting
06-02-92

E-415

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
14:14	1238.0	647.1	14.4	1520	2920	2.56	221.3	119.7	92.0	119.7	119.8	119.7	118.0	139.7	47.73
14:15	1260.0	603.8	14.4	1531	2713	2.50	221.3	119.6	92.2	119.6	123.4	119.6	118.6	139.8	52.08
14:16	1252.0	581.6	14.4	1530	2518	2.52	221.0	119.6	93.1	119.6	144.6	119.6	119.3	139.2	53.55
14:17	1223.0	569.6	14.5	1530	2169	2.48	221.0	119.5	94.9	119.5	146.2	119.5	116.9	134.3	53.43
14:18	1225.0	543.4	14.5	1540	2299	2.46	220.7	119.4	93.3	119.4	138.9	119.4	119.2	135.3	55.64
14:19	1214.0	544.2	14.4	1541	2872	2.42	220.8	119.4	92.8	119.4	131.3	119.4	118.7	138.4	55.17
14:20	1211.0	523.5	14.4	1541	2999	2.51	220.9	119.4	92.0	119.4	133.7	119.4	119.3	136.3	56.77
10 MinAvg	1214.9	601.5	14.4	1530	2741	2.51	219.8	119.6	92.6	119.6	129.7	119.6	118.9	136.2	50.39
14:21	1229.0	510.4	14.3	1540	2713	2.39	220.3	119.4	91.0	119.4	130.1	119.4	118.8	138.0	58.47
14:22	1251.0	571.8	14.2	1562	2456	2.35	220.9	119.3	92.8	119.3	123.6	119.3	117.8	136.8	54.29
14:23	1263.0	594.5	14.2	1571	2500	2.19	220.3	119.3	94.7	119.3	125.2	119.3	112.7	136.5	52.93
14:24	1267.0	571.2	14.2	1562	2566	2.24	220.9	119.3	95.4	119.3	130.7	119.3	116.7	137.2	54.92
14:25	1251.0	587.9	14.1	1570	2593	2.23	219.0	119.3	97.8	119.3	131.9	119.3	117.3	136.9	53.01
14:26	1259.0	607.4	14.1	1569	2143	2.18	218.6	119.3	97.3	119.3	124.5	119.3	114.4	136.0	51.76
14:27	1250.0	612.9	14.1	1555	2484	2.15	215.1	119.2	97.1	119.2	132.1	119.2	113.0	137.0	50.97
14:28	1259.0	604.6	14.1	1563	2852	2.14	213.2	119.2	100.9	119.2	134.3	119.2	112.5	137.5	51.98
14:29	1281.0	611.2	14.0	1565	2656	2.14	214.4	119.1	99.9	119.1	126.9	119.1	112.9	138.3	52.29
14:30	1267.0	610.8	14.1	1557	2581	2.17	216.4	119.0	97.4	119.0	121.2	119.0	114.0	135.7	51.79
10 MinAvg	1257.7	588.3	14.1	1561	2554	2.22	217.9	119.2	96.4	119.2	128.1	119.2	115.0	137.0	53.24
14:31	1273.0	612.5	14.1	1554	2571	2.17	213.8	118.9	97.2	118.9	119.1	118.9	111.6	131.8	51.89
14:32	1272.0	616.5	14.1	1556	2644	2.14	216.1	118.8	95.3	118.8	118.8	118.8	113.1	132.4	51.53
14:33	1274.0	618.6	14.1	1546	2665	2.12	216.2	118.8	94.1	118.8	118.8	118.8	113.8	131.7	51.44
14:34	1293.0	637.2	14.0	1547	2623	2.16	217.5	118.7	96.1	118.7	118.7	118.7	113.6	133.7	50.72
14:35	1299.0	653.1	13.9	1559	2841	2.22	218.4	118.7	96.5	118.7	118.7	118.7	116.0	131.1	49.72
14:36	1300.0	665.2	13.9	1548	2951	2.40	218.4	118.7	93.4	118.7	118.7	118.7	117.2	128.6	48.83
14:37	1316.0	674.7	13.9	1549	2821	2.16	218.8	118.6	95.8	118.6	118.6	118.6	116.9	130.2	48.73
14:38	1323.0	679.9	13.8	1549	2806	2.16	218.6	118.5	96.1	118.5	118.5	118.5	117.3	127.8	48.61
14:39	1338.0	696.1	13.8	1549	2716	2.05	219.2	118.5	96.9	118.5	118.5	118.5	117.2	124.7	47.97
14:40	1344.0	709.0	13.7	1554	2558	2.16	214.6	118.3	96.6	118.3	118.5	118.3	117.5	126.0	47.25
10 MinAvg	1303.2	656.3	13.9	1551	2720	2.17	217.2	118.7	95.8	118.7	118.7	118.7	115.4	129.8	49.67
14:41	1321.0	703.0	13.8	1556	2654	2.04	215.8	118.3	94.8	118.3	118.3	118.3	118.0	123.5	46.78
14:42	1351.0	728.0	13.7	1558	2617	2.09	217.8	118.2	96.1	118.2	118.2	118.2	118.0	123.1	46.11
14:43	1337.0	733.0	13.7	1556	2553	2.06	216.3	118.1	96.4	118.1	118.1	118.1	117.7	124.1	45.18
14:44	1356.0	744.0	13.6	1557	2785	2.13	216.9	118.1	96.6	118.1	118.1	118.1	117.7	123.6	45.13
14:45	1339.0	750.0	13.6	1554	2720	2.11	214.6	118.1	96.3	118.1	118.2	118.1	117.7	124.4	43.99
14:46	1355.0	751.0	13.6	1547	2735	2.13	217.5	118.0	94.4	118.0	118.0	118.0	118.0	123.0	44.58
14:47	1365.0	759.0	13.5	1556	2689	2.13	215.6	118.0	99.3	118.0	118.0	118.0	118.0	122.0	44.40

LBC Run 920602

Starting
06-02-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
14:48	1347.0	751.0	13.5	1553	2574	2.23	213.4	118.0	101.6	118.0	118.0	118.0	118.0	121.5	44.25
14:49	1352.0	754.0	13.4	1542	2725	2.18	213.1	118.0	97.3	118.0	118.0	118.0	118.0	120.4	44.23
14:50	1359.0	760.0	13.4	1540	2627	2.32	210.7	118.0	100.6	118.0	118.0	118.0	118.0	120.7	44.08
10 MinAvg	1348.2	743.3	13.6	1552	2668	2.14	215.2	118.1	97.3	118.1	118.1	118.1	117.9	122.6	44.87
14:51	1351.0	775.0	13.3	1534	2563	2.19	214.8	118.1	105.6	118.1	118.1	118.1	118.1	119.6	42.64
14:52	1341.0	777.0	13.3	1530	2907	2.24	211.5	118.1	101.0	118.1	118.1	118.1	118.1	119.4	42.06
14:53	1343.0	754.0	13.2	1527	2720	2.26	208.7	118.0	102.9	118.0	118.0	118.0	118.0	122.3	43.86
14:54	1378.0	741.0	13.2	1516	2785	2.20	208.7	118.0	97.3	118.0	118.1	118.0	118.0	121.4	46.23
14:55	1415.0	732.0	13.1	1535	2780	2.19	215.9	117.9	107.1	117.9	117.9	117.9	117.9	123.9	48.27
14:56	1431.0	720.0	13.0	1539	2897	2.20	219.1	117.9	97.0	117.9	117.9	117.9	117.9	127.9	49.69
14:57	1450.0	710.0	13.0	1538	2981	2.08	218.6	117.8	102.5	117.8	117.8	117.8	117.8	133.2	51.03
14:58	1432.0	745.0	13.0	1538	2779	2.15	218.8	117.7	100.0	117.7	117.7	117.7	117.7	136.9	47.97
14:59	1434.0	772.0	13.0	1547	2600	2.10	217.1	117.7	107.4	117.7	117.7	117.7	117.6	137.0	46.16
15:00	1405.0	776.0	13.0	1547	3045	2.13	217.4	117.7	104.2	117.7	117.7	117.7	117.7	136.1	44.77
C	In-duct steam injection and the louver sprays are turned-off in order to dry out the stone for ease of unloading.														
10 MinAvg	1398.0	750.2	13.1	1535	2806	2.17	215.1	117.9	102.5	117.9	117.9	117.9	117.9	127.8	46.27
15:01	1401.0	785.0	13.0	1538	2867	2.23	218.9	117.6	102.2	117.6	117.6	117.6	117.6	132.7	43.97
15:02	1383.0	800.0	13.0	1524	2862	2.05	215.7	117.6	104.8	117.6	117.6	117.6	117.6	129.7	42.15
15:03	1354.0	804.0	13.1	1527	2994	2.20	218.3	117.6	109.1	117.6	117.6	117.6	117.6	123.2	40.62
15:04	1362.0	791.0	13.1	1527	2853	2.15	218.1	117.6	114.4	117.6	117.6	117.6	117.6	124.2	41.92
15:05	1381.0	794.0	13.0	1527	2754	2.02	218.1	117.6	105.8	117.6	117.6	117.6	117.5	123.0	42.51
15:06	1400.0	800.0	13.0	1538	2657	2.15	218.2	117.6	101.2	117.6	117.6	117.6	117.6	125.0	42.86
15:07	1390.0	809.0	13.0	1549	2583	2.02	219.1	117.5	98.8	117.5	117.5	117.5	117.3	131.2	41.80
15:08	1393.0	816.0	13.0	1549	2744	2.07	218.9	117.5	94.5	117.5	117.5	117.5	117.3	135.9	41.42
15:09	1395.0	816.0	13.1	1539	2764	1.96	219.1	117.4	94.7	117.4	117.4	117.4	116.1	137.0	41.51
15:10	1394.0	804.0	13.3	1537	2203	1.96	217.6	117.3	95.2	117.5	117.5	117.5	116.4	140.5	42.32
10 MinAvg	1385.3	801.9	13.1	1536	2728	2.08	218.2	117.5	102.1	117.6	117.6	117.6	117.3	130.2	42.11
C	Ambient air is introduced into the outlet sampling system in order to recalibrate the outlet O2 monitor.														
15:11	1391.0			1549	2457	2.06	219.1	117.4	97.3	117.4	117.4	117.4	116.2	139.3	
15:12	1366.0			1549	2773	1.97	219.0	117.3	98.7	117.3	117.3	117.3	114.7	140.6	
15:13	1359.0	790.0	14.7	1549	2738	1.95	218.9	117.3	96.8	117.3	117.3	117.3	115.5	140.1	41.87
15:14	1351.0	814.0	14.7	1538	2641	1.89	218.8	117.1	94.8	117.1	117.1	117.1	115.6	140.5	39.75
15:15	1333.0	816.0	14.9	1538	2625	1.75	218.5	117.1	92.0	117.1	117.1	117.1	114.5	144.5	38.78
15:16	1322.0	805.0	14.9	1528	2692	1.88	218.6	117.0	91.6	117.0	117.0	117.0	115.5	145.8	39.11
15:17	1305.0	806.0	14.9	1528	2728	1.93	218.7	117.0	91.7	117.0	117.0	117.0	116.3	145.9	38.24
15:18	1302.0	801.0	15.0	1527	2359	1.98	218.2	116.9	88.7	116.9	116.9	116.9	116.9	145.5	38.48
15:19	1278.0	807.0	15.0	1517	2571	1.94	218.4	116.8	87.4	116.8	116.8	116.8	116.8	145.9	36.85

E-416

Starting
06-02-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
15:20	1265.0	809.0	15.0	1517	2860	1.96	218.5	116.8	89.2	116.8	116.8	116.8	116.8	145.9	36.05
10 MinAvg	1327.2	806.0	14.9	1534	2645	1.93	218.7	117.1	92.8	117.1	117.1	117.1	115.9	143.4	38.64
15:21	1294.0	820.0	15.0	1506	2737	1.90	218.4	116.7	87.3	116.7	116.7	116.7	116.7	145.9	36.63
15:22	1304.0	824.0	15.0	1506	2787	1.26	218.4	116.7	87.5	116.7	116.7	116.7	116.7	145.8	36.81
15:23	1321.0	821.0	15.0	1506	2855	1.51	218.4	116.7	87.5	116.7	116.7	116.7	116.7	145.8	37.85
15:24	1315.0	821.0	15.0	1495	2777	1.15	218.3	116.6	87.6	116.6	116.6	116.6	116.6	145.8	37.57
15:25	1321.0	819.0	15.1	1495	2528	1.37	218.3	116.6	87.2	116.6	116.6	116.6	116.6	145.7	37.51
15:26	1317.0	823.0	15.1	1484	2603	1.39	218.3	116.6	87.2	116.8	116.6	116.6	116.6	145.7	37.59
15:27	1330.0	830.0	15.1	1473	2701	1.24	218.2	116.5	87.1	128.4	116.5	116.5	116.5	145.7	36.65
15:28	1315.0	833.0	15.1	1473	2576	1.29	218.2	116.5	87.1	145.7	116.5	116.5	116.5	145.7	36.71
15:29	1302.0	824.0	15.1	1451	2747	1.38	218.3	116.6	87.2	142.1	116.6	116.6	116.7	145.7	36.71
15:30	1299.0	816.0	15.2	1440	2777	1.22	218.3	116.6	87.2	143.9	116.6	116.6	116.6	145.8	37.18
10 MinAvg	1311.8	823.1	15.1	1483	2709	1.37	218.3	116.6	87.3	126.0	116.6	116.6	116.6	145.8	37.25
15:31	1300.0	815.0	15.2	1429	2787	1.42	218.4	116.7	87.3	143.0	116.7	116.7	116.8	145.8	37.31
15:32	1314.0	815.0	15.2	1417	2797	1.41	218.4	116.7	87.3	128.6	116.7	116.7	116.7	145.9	37.98
15:33	1308.0	815.0	15.2	1406	2969	1.55	218.4	116.7	87.2	117.6	116.7	116.7	117.3	146.0	37.69
15:34	1321.0	811.0	15.2	1395	2879	2.18	219.2	116.8	87.4	116.8	116.8	116.8	116.8	145.9	38.61
15:35	1295.0	802.0	15.2	1383	2851	2.16	218.5	116.8	87.3	124.4	116.8	116.8	117.1	146.0	38.07
15:36	1291.0	803.0	15.3	1383	3047	2.04	218.6	116.9	87.2	145.8	116.9	116.9	119.7	146.0	37.80
15:37	1292.0	797.0	15.3	1373	2983	2.17	220.3	116.9	84.8	148.0	116.9	116.9	119.1	146.0	38.31

E-417

Shutdown was brought about by the feed screw discharge became blocked. Also the 1/4" (upper-deck) screen was completely blocked with hardened L/S.

Post-Run Bed Inspection: The top outlet louvers were blocked and a hardened chunk of limestone on the discharge side of the reactor extended from the bottom of the top pressure seal down to the 14th louver. It was approx. 1 ft thick from the top down to the 6th louver and then diminished linearly, terminating at the 14th louver.

SCREEN ANALYSIS OF 9206021000 REACTOR STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	115.7	12.07	0.438	0.2759
+5/16	0.313	132.9	13.86	0.344	0.4030
+1/4	0.250	164.5	17.16	0.282	0.6096
+3.5	0.223	76.2	7.95	0.237	0.3361
+4	0.185	93.6	9.76	0.204	0.4786
+5	0.157	75.4	7.87	0.171	0.4600
+6	0.132	44.7	4.66	0.145	0.3227
+8	0.094	31.3	3.27	0.113	0.2893
+10	0.079	7.0	0.73	0.086	0.0847
+12	0.066	5.6	0.58	0.072	0.0807
+14	0.056	5.2	0.54	0.061	0.0892
+16	0.047	2.8	0.29	0.051	0.0570
+20	0.033	3.8	0.40	0.040	0.0991
-20		6.5	0.68	0.017	0.4097
Total =		765.2	79.82		3.9958

Harmonic Mean Diameter (in.) = 0.2503
 Weighted Average Diameter (in.) = 0.2132

SCREEN ANALYSIS OF 9206021000 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	123.2	13.79	0.438	0.3151
+5/16	0.313	169.8	19.00	0.344	0.5523
+1/4	0.250	177.8	19.89	0.282	0.7067
+3.5	0.223	98.0	10.97	0.237	0.4637
+4	0.185	103.0	11.53	0.204	0.5650
+5	0.157	96.1	10.75	0.171	0.6288
+6	0.132	100.0	11.19	0.145	0.7744
+8	0.094	21.4	2.39	0.113	0.2122
+10	0.079	0.6	0.07	0.086	0.0078
+12	0.066	0.0	0.00	0.072	0.0000
+14	0.056	0.0	0.00	0.061	0.0000
+16	0.047	0.0	0.00	0.051	0.0000
+20	0.033	0.0	0.00	0.040	0.0000
-20		3.8	0.43	0.017	0.2569
Total =		893.7	100.00		4.4829

Harmonic Mean Diameter (in.) = 0.2231
Weighted Average Diameter (in.) = 0.2685

SCREEN ANALYSIS OF 9206021300 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	1.8	0.33	0.500	0.0067
+3/8	0.375	104.1	19.37	0.438	0.4428
+5/16	0.313	156.1	29.05	0.344	0.8444
+1/4	0.250	124.6	23.19	0.282	0.8236
+3.5	0.223	57.3	10.66	0.237	0.4508
+4	0.185	44.7	8.32	0.204	0.4077
+5	0.157	27.1	5.04	0.171	0.2949
+6	0.132	10.2	1.90	0.145	0.1314
+8	0.094	3.6	0.67	0.113	0.0594
+10	0.079	0.5	0.09	0.086	0.0108
+12	0.066	0.0	0.00	0.072	0.0000
+14	0.056	0.0	0.00	0.061	0.0000
+16	0.047	0.0	0.00	0.051	0.0000
+20	0.033	0.0	0.00	0.040	0.0000
-20		7.4	1.38	0.017	0.8320
Total =		537.4	100.00		4.3045
Harmonic Mean Diameter (in.) =			0.2323		
Weighted Average Diameter (in.) =			0.3062		

LEC RUN 920602

Waste Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Dust Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
09:17 AM	60	9.9	0.17
09:51 AM	34	8.2	0.24
10:15 AM	24	4.1	0.17
10:30 AM	15	4.1	0.27
10:45 AM	15	5.4	0.36
11:15 AM	30	7.6	0.25
11:45 AM	30	7.8	0.26
12:15 PM	30	3.8	0.13
12:30 PM	15	45.0	3.00
01:45 PM	15	14.5	0.96
02:15 PM	30	7.0	0.23
02:45 PM	30	7.7	0.26
Total:		125.0	
Average:			0.52

LEC RUN 920602

Carry-Over Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Stone Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
10:00 AM	103	11.3	0.11
10:45 AM	28	45.0	1.61
11:00 AM	43	19.2	0.45
11:15 AM	58	39.3	0.68
11:45 AM	28	32.4	1.16
12:00 PM	43	35.6	0.83
12:30 PM	13	45.0	3.46
01:00 PM	43	35.0	0.81
01:45 PM	28	44.9	1.60
02:15 PM	58	44.3	0.76
02:30 PM	73	40.0	0.55
02:45 PM	88	21.8	0.25
03:15 PM	118	40.0	0.34
Total:		442.5	
Average:			1.04

Run Summary:

LEC Run 920604

Objective: To use a 50/50 (vol.) mixture of fresh No.9 and No.8 limestone in order to observe its SO₂ removal and stone carry-over properties.

Total Run Time: 201 minutes.

SO₂ Removal: 62.1% from 10:33 to 11:00
51.7% from 11:01 to 12:00
46.0% from 12:01 to 13:00
54.1% from 13:01 to 13:40

Inlet Gas Rate: 1893 acfm (average)

Operational Conditions:

50/50 volume mix of No.8 limestone (L/S#920501) and No.9 limestone L/S#920527)

In-duct Steam = 0 psig from 10:33 to 11:04
13 psig from 11:04 to 13:54

Overhead Sprays = 0.0 gpm

Louver Sprays = 0.00 gpm from 10:33 to 11:04
0.27 gpm from 11:04 to 12:00
0.33 gpm from 12:00 to 13:00
0.43 gpm from 13:00 to 13:38
0.50 gpm from 13:38 to 13:54

Bed Speed = 15 DT (3052 lb/hr)

Regeneration Device: Twin deck vibrating screen equipped with 1/4" and No.16 mesh screens.

Stone Carry-Over: 7.5 lbs/min (average)

Waste fines: 7.4 lbs/min (average)

Comments: - There was standing water in the dutchman collection bucket and the run was terminated after the dutchman drop-out elbow became blocked with stone.

LEC Run 920604

Starting
06-04-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
Initial Conditions: Fresh, very wet mixture of 1/2 No.8 (L/S#920501) and 1/2 No.9 (L/S#920527); Vibrating screen is equipped with 1/4" and No.16 mesh screens; Damper is on minimum (Position #1); In-duct steam injection = 0 psig (off); louver sprays = 0 gpm; Bed speed = 3052 lb/hr (15DT; 65 minutes of active residence time)															
10:33			14.2	2262	2919	2.79	245.1	75.9	62.4	65.0	62.6	64.2	62.1	67.0	
10:34			13.6	2302	3023	2.79	251.3	76.1	65.0	62.2	62.2	63.0	63.8	66.9	
10:35			13.7	2302	2997	2.52	251.3	76.0	70.4	63.9	62.2	63.2	65.2	67.6	
10:36			13.7	2342	3036	2.52	253.6	76.0	77.2	79.4	63.4	68.5	68.1	68.2	
10:37			13.6	2309	3019	2.28	260.2	77.5	90.5	98.3	71.6	70.7	81.7	67.1	
10:38			13.5	2295	3037	2.13	265.5	88.8	90.8	115.3	86.5	86.6	100.1	67.4	
10:39			13.5	2288	3106	2.01	265.7	90.6	91.7	118.5	114.7	99.9	110.7	67.1	
10:40	1566.0	552.4	13.5	2295	3064	1.85	265.8	90.7	90.7	120.1	120.1	120.1	112.7	68.4	64.73
10 MinAvg	1566.0	552.4	13.7	2299	3025	2.36	257.3	81.4	79.8	90.3	80.4	79.5	83.1	67.5	64.73
10:41	1570.0	553.0	13.5	2288	3060	1.79	265.8	90.7	98.0	120.0	120.0	116.4	112.7	68.4	64.78
10:42	1570.0	551.3	13.6	2265	2973	1.78	265.8	91.0	98.5	119.4	119.7	116.8	114.1	67.3	64.89
10:43	1569.0	557.9	13.6	2274	3148	1.73	266.6	93.4	96.4	118.8	119.2	118.8	114.5	67.7	64.44
10:44	1574.0	561.0	13.6	2245	3166	1.71	268.0	95.4	91.7	117.2	119.0	119.9	115.7	72.6	64.36
10:45	1567.0	578.0	13.6	2236	3155	1.73	272.3	95.7	90.6	117.7	118.7	120.2	111.5	76.1	63.11
10:46	1569.0	593.1	13.6	2236	3224	1.74	277.3	98.1	90.7	114.7	119.2	120.2	111.4	88.2	62.20
10:47	1551.0	590.5	13.7	2217	3137	1.76	280.1	99.9	85.5	116.5	117.7	120.3	108.6	90.8	61.93
10:48	1525.0	568.2	13.9	2232	3129	1.75	279.8	101.8	82.0	111.9	119.1	120.2	109.5	91.0	62.74
10:49	1509.0	562.2	13.9	2234	3019	1.40	280.9	103.0	80.6	112.6	119.9	119.2	111.8	91.0	62.74
10:50	1493.0	582.6	14.1	2226	3089	0.22	280.9	104.5	79.7	115.7	119.7	119.4	109.8	91.0	60.98
10 MinAvg	1549.7	569.8	13.7	2245	3110	1.56	273.7	97.3	89.4	116.4	119.2	119.1	112.0	80.4	63.22
10:51	1466.0	606.0	14.1	2194	3138	0.86	281.0	104.9	78.1	116.1	117.3	119.0	108.7	91.1	58.66
10:52	1456.0	608.9	14.2	2210	3081	-0.26	280.9	103.1	76.7	114.1	118.8	115.6	108.4	91.1	58.18
10:53	1446.0	605.1	14.3	2202	3036	-0.90	281.2	104.2	78.3	115.6	117.8	115.9	110.0	91.1	58.15
10:54	1429.0	589.8	14.4	2201	3127	-1.30	280.7	101.1	76.7	117.1	115.9	114.0	109.4	91.1	58.73
10:55	1406.0	575.4	14.5	2192	3131	-1.44	279.6	99.2	76.4	117.3	114.7	115.3	109.2	91.2	59.08
10:56	1420.0	579.1	14.4	2194	3240	-1.58	281.0	100.6	76.8	118.3	114.8	116.4	114.5	91.8	59.22
10:57	1412.0	578.1	14.5	2194	3097	-1.68	281.2	99.3	81.2	119.6	114.1	118.7	112.4	95.4	59.06
10:58	1415.0	581.0	14.4	2202	3096	-1.72	281.4	100.7	85.5	119.0	117.4	118.1	113.8	97.5	58.94
10:59	1418.0	611.1	14.3	2203	3042	-1.60	281.8	99.9	89.6	118.8	119.7	119.5	111.4	99.7	56.90
11:00	1418.0	617.5	14.3	2202	3093	-1.69	281.0	101.2	85.3	114.9	119.7	118.3	113.2	99.6	56.45
10 MinAvg	1428.6	595.2	14.3	2199	3108	-1.13	281.0	101.4	80.5	117.1	117.0	117.1	111.1	94.0	58.34
11:01	1424.0	631.4	14.3	2210	3140	-1.73	280.8	101.0	87.5	117.0	119.0	116.4	110.9	98.7	55.66
11:02	1427.0	645.4	14.3	2210	3142	-1.73	280.8	100.3	90.6	115.4	121.0	114.9	112.2	95.2	54.77
11:03	1434.0	651.3	14.3	2210	3183	-1.72	281.4	101.3	91.6	116.4	120.7	117.7	110.0	92.4	54.58

E-423

LEC Run 920604

Starting
06-04-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
11:04 C	1440.0	672.0	14.3	2192	3047	-1.69	279.9	105.3	91.6	110.9	120.9	115.2	111.9	92.9	53.33
In-duct Steam injection is turned on to 13 psig (full) Louver Sprays are turned on to 0.27 gpm															
11:05 C	1442.0	705.0	14.2	2184	3120	-1.71	280.1	104.8	91.7	113.0	121.2	120.3	113.8	92.0	51.11
11:06	1454.0	719.0	14.1	2177	3134	-1.71	280.3	106.6	91.1	115.2	121.0	155.1	121.0	91.9	50.55
11:07	1460.0	724.0	14.1	2113	3106	-1.68	232.7	107.6	89.7	118.0	121.0	165.2	121.3	91.9	50.41
11:08	1457.0	724.0	14.1	2085	3125	-1.63	214.5	112.9	85.3	116.4	119.9	167.6	121.3	92.1	50.31
11:09	1453.0	717.0	14.1	2081	3085	-1.65	222.0	116.0	77.9	117.7	119.8	157.1	121.7	98.1	50.65
11:10	1462.0	693.4	14.1	2073	3195	-1.68	226.9	119.1	77.3	120.6	121.3	130.2	146.2	110.0	52.57
10 MinAvg	1445.3	688.3	14.2	2154	3128	-1.69	257.9	107.5	87.4	116.1	120.6	136.0	119.0	95.5	52.40
11:11	1478.0	683.7	14.1	2061	3119	-1.68	224.4	120.2	78.6	121.4	121.5	121.5	146.1	112.2	53.74
11:12	1491.0	693.1	14.1	2058	3004	-1.58	227.3	121.5	78.4	121.6	121.6	121.6	140.8	114.4	53.51
11:13	1485.0	718.0	14.0	2044	3139	-1.54	228.7	121.3	78.1	121.6	121.6	121.6	156.5	115.7	51.65
11:14	1468.0	724.0	14.0	2051	3136	-1.59	233.9	121.6	78.0	121.7	121.7	121.7	165.9	117.7	50.68
11:15	1495.0	730.0	13.9	2044	3127	-1.68	234.5	121.6	78.1	121.7	121.7	121.7	178.3	119.8	51.17
11:16	1509.0	756.0	13.9	2051	3069	-1.60	239.2	121.6	77.9	121.7	121.7	121.7	189.6	121.6	49.90
11:17	1513.0	752.0	13.9	2030	2930	-1.44	235.6	121.6	78.7	121.6	121.6	121.6	194.2	121.6	50.30
11:18	1495.0	758.0	13.9	2028	3014	-1.45	234.4	121.6	80.6	121.3	121.6	121.6	195.1	121.6	49.30
11:19	1504.0	752.0	13.9	2015	2981	-1.44	231.5	121.6	81.3	121.6	121.6	121.6	199.9	121.6	50.00
11:20	1516.0	724.0	13.9	2016	3073	-1.52	237.3	121.6	81.6	121.6	121.6	121.6	194.2	121.6	52.24
10 MinAvg	1495.4	729.1	14.0	2040	3059	-1.55	232.7	121.4	79.1	121.6	121.6	121.6	176.1	118.8	51.25
11:21	1519.0	728.0	13.8	2010	3122	-1.62	233.2	121.5	78.6	121.5	121.5	121.5	177.3	121.5	52.07
11:22	1530.0	715.0	13.8	2014	3050	-1.55	236.5	121.6	78.4	121.6	121.6	121.6	162.1	121.6	53.27
11:23	1561.0	697.9	13.8	1998	2986	-1.50	236.5	121.6	79.7	121.2	121.6	121.6	153.2	122.3	55.29
11:24	1521.0	679.1	13.9	2002	3069	-1.51	233.7	121.6	81.3	121.3	121.6	121.6	150.7	128.9	55.35
11:25	1522.0	692.0	13.8	1994	3055	-1.54	228.4	121.6	81.3	121.6	121.6	121.6	140.9	135.2	54.53
11:26	1549.0	723.0	13.6	2039	3223	-1.02	236.7	121.7	80.0	121.5	121.7	121.7	128.1	140.0	53.32
11:27	1575.0	741.0	13.4	2007	3193	1.87	237.2	121.7	80.2	121.7	121.7	121.7	121.8	131.2	52.95
11:28	1568.0	757.0	13.5	2002	2972	2.16	239.1	121.7	78.9	121.7	121.7	121.7	121.7	129.9	51.72
11:29	1568.0	735.0	13.5	1985	2939	2.31	233.6	121.6	79.4	121.6	121.6	121.6	121.6	138.4	53.13
11:30	1548.0	734.0	13.5	1991	2976	2.24	232.0	121.5	80.3	121.5	121.5	121.5	127.7	147.4	52.58
10 MinAvg	1546.1	720.2	13.7	2004	3059	-0.02	234.7	121.6	79.8	121.5	121.6	121.6	140.5	131.6	53.42
11:31	1560.0	716.0	13.4	1988	3073	2.34	229.6	121.4	80.1	121.4	121.4	121.4	148.1	150.6	54.10
11:32	1587.0	730.0	13.3	1999	3031	2.30	237.0	121.3	78.5	121.3	121.3	121.3	149.3	150.7	54.00
11:33	1602.0	749.0	13.3	1998	2985	2.42	236.8	121.2	79.9	121.2	121.2	121.2	143.2	156.0	53.25
11:34	1613.0	751.0	13.2	1992	3095	2.43	238.3	121.3	82.8	121.3	121.3	121.3	131.7	161.7	53.44

E-424

LEC Run 920604

Starting
06-04-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
11:35	1611.0	726.0	13.2	2004	2976	2.44	240.9	121.3	84.6	121.3	121.3	121.3	123.9	164.6	54.93
11:36	1604.0	719.0	13.2	2001	2953	2.45	238.4	121.4	83.6	121.4	121.4	121.4	121.4	165.0	55.17
11:37	1620.0	707.0	13.2	1999	3009	2.46	237.0	121.4	84.9	121.4	121.4	121.4	121.5	165.0	56.36
11:38	1615.0	716.0	13.1	1990	2948	2.30	230.7	121.5	86.1	121.5	121.5	121.5	141.4	164.2	55.67
11:39	1612.0	736.0	13.1	1997	3013	2.53	230.3	121.5	86.3	121.5	121.5	121.5	150.5	159.4	54.34
11:40	1619.0	764.0	13.1	2000	3041	2.50	232.5	121.6	86.9	121.6	121.6	121.6	143.6	154.3	52.81
10 MinAvg	1604.3	731.4	13.2	1997	3012	2.42	235.1	121.4	83.4	121.4	121.4	121.4	137.5	159.1	54.41
11:41	1626.0	787.0	13.1	1995	3149	2.48	234.6	121.6	85.6	121.6	121.6	121.6	122.6	150.7	51.60
11:42	1618.0	805.0	13.1	1996	3109	2.39	240.7	121.7	90.4	121.7	121.7	121.7	121.7	150.8	50.25
11:43	1612.0	808.0	13.1	1987	2935	2.49	234.7	121.7	90.9	121.7	121.7	121.7	121.7	150.7	49.88
11:44	1599.0	814.0	13.1	2036	2939	2.58	239.9	121.7	91.2	121.7	121.7	121.7	121.7	150.8	49.09
C	Increased damper to slightly to an approximate Position #1.5														
C	The stone exiting the bottom of the reactor is dry.														
11:45	1628.0	829.0	13.0	2052	3037	2.62	245.2	121.7	91.0	121.7	121.7	121.7	121.7	150.1	49.08
11:46	1655.0	847.0	12.9	2060	3105	2.64	251.0	121.7	92.0	121.4	121.7	121.7	121.7	150.7	48.82
11:47	1636.0	844.0	13.0	2044	2991	2.74	245.6	121.8	92.2	121.6	121.8	121.8	121.8	150.4	48.41
11:48	1622.0	847.0	13.0	2046	3056	2.74	247.0	121.9	92.3	121.6	121.9	121.9	121.9	150.9	47.78
11:49	1618.0	817.0	13.1	2030	2978	2.72	241.2	122.0	91.3	120.6	122.0	122.0	122.0	150.7	49.51
11:50	1592.0	778.0	13.1	2053	2987	2.71	246.0	122.0	92.3	120.2	122.0	122.0	122.0	150.9	51.13
C	10 lbs. of fines are collected from the Dutchman bucket (sampled).														
10 MinAvg	1620.6	817.6	13.1	2030	3029	2.61	242.6	121.8	90.9	121.4	121.8	121.8	121.9	150.7	49.55
11:51	1589.0	801.0	13.1	2039	3056	2.82	248.1	122.1	92.5	117.1	122.1	122.1	122.1	151.2	49.59
11:52	1587.0	805.0	13.2	2028	2973	2.87	246.2	122.0	92.6	117.0	122.0	122.0	122.0	152.7	49.28
11:53	1595.0	829.0	13.1	2037	2940	3.01	251.9	122.0	92.6	113.5	121.6	122.0	121.5	151.1	48.03
11:54	1631.0	832.0	13.0	2046	3132	2.96	252.5	121.9	92.7	118.5	121.9	121.9	121.7	151.0	48.99
11:55	1610.0	814.0	13.1	2028	3163	2.95	252.0	121.8	92.6	116.9	121.8	121.8	121.7	150.7	49.44
11:56	1597.0	802.0	13.2	2013	3180	3.09	252.7	121.9	93.2	116.6	121.9	121.9	121.9	147.7	49.78
11:57	1557.0	792.0	13.4	2012	3083	3.11	252.6	122.0	97.0	117.2	122.0	122.0	121.1	140.1	49.13
11:58	1568.0	783.0	13.4	2004	3047	3.08	252.6	122.0	97.2	117.9	122.0	122.0	120.3	135.0	50.06
11:59	1579.0	791.0	13.3	1996	2954	3.23	253.1	122.1	98.1	114.4	122.0	122.1	119.4	140.5	49.91
C	Louver Sprays are increased to 0.33 gpm.														
12:00	1570.0	797.0	13.4	1988	2810	3.23	253.1	122.2	96.9	112.1	122.1	122.2	120.6	144.1	49.24
10 MinAvg	1588.3	804.6	13.2	2019	3034	3.04	251.5	122.0	94.5	116.1	121.9	122.0	121.2	146.4	49.34
12:01	1569.0	803.0	13.4	1988	2854	3.17	253.2	122.2	96.9	119.4	121.9	122.2	120.1	149.2	48.82
12:02	1563.0	797.0	13.4	1978	3006	3.30	252.5	122.3	99.1	118.4	119.1	122.3	119.7	147.3	49.01
12:03	1545.0	766.0	13.6	1979	2988	3.29	253.3	122.4	99.8	115.1	122.1	122.4	118.7	145.7	50.42

E-425

LEC Run 920604

Starting
06-04-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
12:04 C	1524.0	762.0	13.6	1979	2913	3.35	253.2	122.4	101.4	110.0	122.2	122.4	120.9	141.7	50.00
12:05	1529.0	757.0	13.6	1979	2884	3.37	252.8	122.4	102.3	104.7	122.2	122.3	119.5	143.3	50.49
12:06	1540.0	762.0	13.6	1970	2830	3.31	252.7	122.3	106.4	104.8	121.8	122.3	116.8	145.3	50.52
12:07	1544.0	780.0	13.6	1970	2959	3.47	252.8	122.0	111.5	112.6	121.9	122.0	117.6	147.9	49.48
12:08	1538.0	791.0	13.6	1952	2940	3.54	252.4	121.9	107.5	119.2	121.3	121.9	116.7	147.6	48.57
12:09	1544.0	784.0	13.6	1950	2809	3.57	251.1	121.8	104.6	121.1	120.9	121.8	117.2	148.2	49.22
12:10	1550.0	798.0	13.6	1944	2872	3.60	252.6	121.7	109.7	120.4	121.7	121.7	117.7	149.3	48.52
10 MinAvg	1544.6	780.0	13.5	1969	2906	3.40	252.7	122.1	103.9	114.6	121.5	122.1	118.5	146.6	49.51
12:11	1547.0	796.0	13.6	1943	2977	3.59	252.0	121.6	102.8	121.5	121.6	121.6	116.3	150.3	48.55
12:12	1555.0	802.0	13.6	1934	3004	3.62	252.3	121.6	99.6	121.6	121.6	121.6	116.4	150.4	48.42
12:13	1553.0	802.0	13.6	1925	2963	3.69	252.1	121.7	99.3	121.7	121.7	121.7	117.9	150.3	48.36
12:14	1558.0	811.0	13.5	1917	2963	3.70	252.2	121.8	99.4	121.8	121.8	121.8	118.1	150.9	47.95
12:15	1554.0	819.0	13.5	1898	2916	3.71	251.4	121.8	97.6	121.8	121.8	121.6	115.4	150.7	47.30
C	16.9 lbs of stone is collected from the dutchman bucket.														
12:16	1548.0	820.0	13.5	1898	3051	3.65	251.3	121.8	96.0	121.8	121.8	121.6	118.1	150.9	47.03
12:17	1540.0	826.0	13.6	1881	3055	3.79	252.3	121.8	97.9	121.8	121.8	121.8	115.1	150.9	46.36
12:18	1522.0	820.0	13.7	1872	2887	3.76	252.7	121.9	99.2	121.9	121.7	121.9	117.4	151.1	46.12
12:19	1518.0	818.0	13.7	1882	2921	3.76	252.8	121.9	98.2	121.9	121.5	121.9	114.8	152.5	46.11
12:20	1516.0	822.0	13.7	1861	2972	3.78	250.8	121.8	99.1	121.6	119.9	121.7	116.7	154.7	45.78
10 MinAvg	1541.1	813.6	13.6	1901	2971	3.71	252.0	121.8	98.8	121.7	121.5	121.7	116.6	151.3	47.20
C	24 lbs of stone is collected in the dutchman bucket (looks like No.9)														
12:21	1510.0	823.0	13.7	1863	2954	3.86	252.4	121.8	98.1	121.6	121.6	121.8	120.1	157.2	45.50
12:22	1491.0	810.0	13.8	1868	2794	3.89	249.6	121.8	94.1	121.8	118.4	121.8	114.5	157.7	45.67
12:23	1505.0	821.0	13.7	1870	2834	3.83	251.2	121.8	93.5	121.7	118.1	121.8	113.9	158.5	45.45
12:24	1488.0	821.0	13.8	1863	2995	3.95	252.4	121.6	93.9	120.3	117.5	121.8	114.6	159.0	44.83
12:25	1494.0	826.0	13.7	1863	3056	4.01	252.8	121.9	92.8	120.0	117.1	121.9	117.5	158.6	44.71
12:26	1502.0	829.0	13.6	1845	3047	3.99	252.9	121.9	92.6	120.8	113.8	121.9	115.0	158.4	44.81
12:27	1490.0	833.0	13.7	1845	2829	4.03	252.6	122.0	92.7	121.9	114.6	122.0	114.4	158.7	44.09
12:28	1474.0	818.0	13.8	1825	2869	4.10	251.7	122.1	92.7	121.7	113.6	122.1	112.9	158.7	44.50
12:29	1476.0	814.0	13.8	1814	2935	4.06	250.6	122.0	92.8	122.2	114.5	122.2	114.5	158.4	44.85
12:30	1489.0	812.0	13.8	1808	2849	4.08	252.8	122.1	92.9	120.5	114.2	122.1	114.9	157.9	45.47
10 MinAvg	1491.9	820.7	13.7	1846	2916	3.98	251.9	121.9	93.6	121.3	116.3	121.9	115.2	158.3	44.99
12:31	1479.0	802.0	13.9	1807	2983	4.06	252.2	122.2	93.0	120.7	113.9	120.6	114.6	157.5	45.77
12:32	1484.0	802.0	13.8	1799	3025	4.10	253.1	122.4	93.0	120.5	117.3	121.3	118.4	156.2	45.96
12:33	1509.0	830.0	13.7	1816	2810	4.19	252.3	122.3	93.1	116.6	115.7	122.1	119.8	155.7	45.00

E-426

LEC Run 920604

Starting
06-04-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
C	33.9 lbs of stone is collected in the dutchman bucket, it is now wet to the touch.														
C	stone exiting the bottom of the reactor is still dry.														
12:34	1514.0	839.0	13.7	1798	2765	4.18	252.6	122.3	93.2	111.2	115.9	122.5	121.6	152.3	44.58
12:35	1532.0	851.0	13.6	1797	2791	4.22	252.1	122.5	93.2	118.2	115.9	122.5	121.9	152.6	44.45
12:36	1543.0	871.0	13.5	1805	3007	4.19	250.6	122.6	93.2	118.2	119.6	122.5	122.5	152.6	43.55
12:37	1554.0	863.0	13.5	1798	2874	4.25	252.9	122.5	93.7	120.7	122.2	122.6	122.6	152.1	44.47
12:38	1566.0	874.0	13.5	1790	2889	4.32	253.4	122.7	95.4	119.4	116.0	122.7	122.7	152.2	44.19
12:39	1550.0	873.0	13.5	1778	2831	4.26	251.9	122.7	96.0	119.7	115.7	122.7	122.7	151.8	43.68
12:40	1549.0	878.0	13.5	1775	2674	4.32	249.0	122.6	97.7	117.7	114.9	122.6	122.7	151.8	43.32
10 MinAvg	1528.0	848.3	13.6	1796	2865	4.21	252.0	122.5	94.2	118.3	116.7	122.2	120.9	153.5	44.50
12:41	1560.0	883.0	13.5	1757	2761	4.38	250.6	122.6	97.8	119.3	116.9	122.7	122.7	151.8	43.40
12:42	1595.0	877.0	13.3	1755	2951	4.41	249.1	122.7	94.1	118.9	116.7	122.7	122.8	152.0	45.02
C	35 lbs of stone is collected from the dutchman bucket.														
12:43	1602.0	869.0	13.3	1749	2865	4.39	251.9	122.8	97.1	116.3	116.5	122.8	122.8	151.9	45.76
12:44	1607.0	898.0	13.2	1741	2865	4.46	253.4	122.7	100.7	120.6	115.4	122.7	122.8	151.9	44.12
12:45	1594.0	908.0	13.4	1742	2947	4.40	253.8	122.9	100.5	121.6	118.7	122.9	122.9	152.1	43.04
12:46	1579.0	894.0	13.5	1731	2938	4.49	253.2	122.9	102.4	119.6	117.5	122.9	122.9	152.6	43.38
12:47	1633.0	892.0	13.3	1742	2904	4.43	253.8	122.8	104.0	121.2	121.7	122.9	122.9	153.5	45.38
12:48	1640.0	910.0	13.3	1732	2826	4.39	253.6	122.8	105.3	121.4	118.2	122.1	122.8	155.7	44.51
12:49	1635.0	915.0	13.3	1732	2889	4.42	253.8	122.7	103.8	120.4	118.0	119.2	122.9	158.5	44.04
12:50	1639.0	922.0	13.2	1721	2732	4.41	252.7	123.0	100.3	120.5	120.6	121.5	123.0	159.5	43.75
10 MinAvg	1608.4	896.8	13.3	1740	2868	4.42	252.6	122.8	100.6	120.0	118.0	122.2	122.8	153.9	44.24
12:51	1636.0	935.0	13.2	1712	3040	4.37	253.8	123.0	102.4	122.3	118.4	122.2	123.0	162.4	42.85
12:52	1626.0	937.0	13.3	1722	2952	4.45	253.4	123.1	103.2	122.7	117.8	123.1	123.1	165.7	42.37
C	41 lbs of stone is collected from the dutchman bucket. This stone is becoming larger and wetter.														
12:53	1628.0	929.0	13.3	1742	2670	4.47	254.1	123.1	107.3	122.8	116.6	123.1	123.1	166.2	42.94
12:54	1622.0	918.0	13.4	1682	2938	4.42	253.9	123.1	112.1	123.1	114.7	123.1	123.1	166.6	43.40
12:55	1628.0	907.0	13.4	1672	2757	4.42	253.8	123.0	109.9	123.0	114.3	123.0	123.0	166.6	44.29
12:56	1642.0	908.0	13.4	1662	2816	4.51	253.7	122.7	114.6	122.9	116.0	122.7	122.9	166.3	44.70
12:57	1647.0	909.0	13.4	1662	2782	4.36	253.8	122.8	116.5	122.8	118.9	122.8	122.7	166.4	44.81
12:58	1660.0	895.0	13.4	1661	3017	4.47	253.4	122.8	111.8	122.6	118.9	122.8	122.8	166.4	46.08
12:59	1670.0	882.0	13.4	1651	2975	4.47	253.7	122.7	104.1	122.8	118.8	122.8	122.8	166.4	47.19
C	Louver sprays are increased to 0.43 gpm														
13:00	1681.0	883.0	13.4	1651	2966	4.46	253.7	122.8	102.6	122.8	117.9	122.8	122.8	166.4	47.47
10 MinAvg	1644.0	910.3	13.4	1682	2891	4.44	253.7	122.9	108.4	122.8	117.2	122.8	122.9	165.9	44.61
13:01	1683.0	898.0	13.2	1641	2856	4.50	253.7	122.8	108.0	122.8	119.7	122.5	122.8	166.3	46.64

E-427

LEC Run 920604

Starting
06-04-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
13:02	1695.0	876.0	13.3	1651	2816	4.47	253.5	122.7	110.1	122.7	119.9	122.4	122.7	166.1	48.32
13:03	1692.0	886.0	13.3	1651	3039	4.57	253.3	122.6	112.9	122.6	121.0	122.6	122.6	165.9	47.64
C	Approximately 45 lbs of stone is collected in the dutchman bucket.														
13:04	1710.0	880.0	13.3	1651	2684	4.50	253.5	122.6	111.5	122.6	120.8	122.6	122.6	163.3	48.54
13:05	1696.0	877.0	13.3	1651	2730	4.50	253.4	122.5	115.8	122.5	119.8	122.5	122.5	160.2	48.29
13:06	1703.0	892.0	13.3	1630	2689	4.53	253.3	122.4	117.4	122.4	120.2	122.4	122.4	158.7	47.62
13:07	1685.0	885.0	13.4	1620	2735	4.52	253.3	122.3	117.3	122.3	119.7	122.3	122.3	157.7	47.48
C	Approximately 45 lbs of stone is collected in the dutchman bucket. (A sample is taken)														
13:08	1687.0	881.0	13.3	1598	2699	4.41	253.3	122.4	113.5	122.4	120.7	122.4	121.8	154.4	47.78
13:09	1669.0	875.0	13.3	1598	2992	4.46	253.3	122.3	121.1	122.3	122.2	122.3	121.7	153.0	47.57
13:10	1643.0	861.0	13.4	1598	3034	4.43	253.1	122.3	120.3	122.3	122.0	122.3	119.9	152.4	47.60
10 MinAvg	1686.3	881.1	13.3	1629	2828	4.49	253.4	122.5	114.8	122.5	120.6	122.4	122.1	159.8	47.75
13:11	1579.0	851.0	13.5	1576	3093	4.30	252.9	122.4	119.6	122.4	120.7	122.4	119.7	152.1	46.11
C	Approximately 45 lbs of stone is collected in the dutchman bucket.														
13:12	1621.0	850.0	13.4	1598	2781	4.35	253.0	122.4	122.2	122.4	122.2	122.4	121.3	152.9	47.56
13:13	1614.0	833.0	13.4	1630	2974	4.35	253.5	122.5	118.4	122.5	121.6	122.5	120.1	152.2	48.39
13:14	1616.0	844.0	13.4	1630	3230	4.29	253.5	122.6	114.4	122.6	120.9	122.6	120.5	153.4	47.77
13:15	1606.0	827.0	13.5	1641	3085	4.34	253.4	122.6	103.2	122.6	121.5	122.6	121.9	154.5	48.51
13:16	1581.0	802.0	13.6	1651	2993	4.27	253.6	122.7	99.9	122.7	118.9	122.7	120.5	153.2	49.27
C	Approximately 45 lbs of stone is collected in the dutchman bucket.														
C	The vibrating screen is making excessive dust, the reactor stone is very dry.														
13:17	1546.0	779.0	13.7	1682	2904	4.28	253.6	122.7	100.0	122.7	118.9	122.7	119.1	153.2	49.61
13:18	1509.0	744.0	13.8	1692	2831	4.14	253.6	122.6	100.2	122.6	120.1	122.6	119.6	154.6	50.70
13:19	1500.0	729.0	13.9	1672	2751	4.18	253.5	122.5	99.7	122.5	117.9	122.5	119.6	153.1	51.40
13:20	1429.0	702.0	14.1	1651	2781	4.17	253.4	122.5	100.5	122.5	119.7	122.5	117.5	152.6	50.87
C	Approximately 45 lbs of stone is collected in the dutchman bucket.														
10 MinAvg	1560.1	796.1	13.6	1642	2942	4.27	253.4	122.6	107.8	122.6	120.2	122.6	120.0	153.2	49.02
13:21	1411.0	666.5	14.1	1672	2870	4.20	253.5	122.5	99.7	122.5	121.7	122.5	121.0	152.0	52.76
13:22	1408.0	648.1	14.2	1702	2941	4.44	253.5	122.5	100.7	122.5	119.0	122.5	119.6	151.8	53.97
13:23	1379.0	625.2	14.3	1651	2979	4.29	253.4	122.5	99.5	122.5	121.6	122.5	121.6	151.6	54.66
13:24	1382.0	612.7	14.4	1671	2830	4.26	253.3	122.4	104.4	122.4	120.8	122.4	121.3	151.6	55.67
13:25	1378.0	595.5	14.4	1692	2874	4.39	253.3	122.4	108.0	122.4	120.0	122.4	121.3	151.6	56.79
13:26	1363.0	579.5	14.5	1671	2791	4.28	253.4	122.4	105.5	121.4	118.9	122.4	118.9	151.7	57.48
C	Approximately 45 lbs of stone is collected in the dutchman bucket (A sample is taken).														
C	Ambient air is introduced to the outlet sampling system in order to check the O2 monitors calibration.														
13:27	1368.0			1661	2922	4.21	253.3	122.4	103.3	121.4	117.5	122.4	118.5	151.6	
13:28	1333.0			1651	2668	4.22	253.1	122.2	104.8	122.2	117.4	122.2	118.2	154.6	
C	Approximately 45 lbs of stone is collected in the dutchman bucket.														

E-428

Starting
06-04-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
13:29	1308.0			1661	2800	4.40	253.1	122.2	102.4	122.2	117.8	122.2	118.3	158.0	
13:30	1328.0			1661	2800	4.39	253.1	122.2	107.4	122.0	118.1	122.2	118.0	159.0	
10 MinAvg	1365.8	621.3	14.3	1669	2848	4.31	253.3	122.4	103.6	122.2	119.3	122.4	119.7	153.4	55.22
13:31	1332.0			1661	2883	4.39	253.0	122.2	112.0	121.7	121.2	122.2	117.9	162.5	
13:32	1330.0			1671	2720	4.50	253.1	122.2	112.8	122.0	121.3	122.2	116.6	164.3	
C	Approximately 45 lbs of stone is collected in the dutchman bucket.														
13:33	1336.0			1640	3010	4.38	253.1	122.1	111.9	122.0	122.1	122.0	118.0	165.5	
13:34	1333.0			1630	2755	4.40	253.0	122.1	113.8	121.5	122.1	122.1	117.0	165.2	
13:35	1330.0			1640	2744	4.57	253.0	122.0	113.0	121.7	122.0	122.0	117.9	165.6	
13:36	1321.0			1619	2878	4.60	253.0	122.1	115.0	120.3	122.1	122.1	116.3	165.6	
13:37	1307.0			1640	2978	4.57	253.1	122.1	115.1	122.0	122.1	122.1	117.7	165.7	
C	Approximately 45 lbs of stone is collected in the dutchman bucket.														
13:38	1301.0	434.2	14.8	1619	2921	4.54	253.1	122.1	117.0	122.2	122.2	122.1	114.9	165.8	66.63
C	Louwer sprays are increased to 0.50 gpm.														
13:39	1289.0	468.3	14.6	1619	2673	4.51	253.1	122.2	120.0	122.2	122.2	122.2	118.4	165.8	63.67
13:40	1307.0	473.9	14.6	1619	3001	4.51	253.1	122.2	121.3	122.2	122.2	122.2	118.8	165.8	63.74
10 MinAvg	1318.6	458.8	14.7	1636	2856	4.50	253.1	122.1	115.2	121.8	121.9	122.1	117.4	165.2	64.68
13:41	1323.0	494.9	14.4	1629	2805	4.64	252.5	122.1	118.2	122.1	122.1	122.1	117.5	165.7	62.59
C	Approximately 45 lbs of stone is collected in the dutchman bucket.														
13:42	1333.0	505.3	14.3	1608	2784	4.44	252.8	121.9	119.2	121.9	121.9	121.9	117.7	165.5	62.09
13:43	1322.0	494.0	14.2	1576	2959	4.36	252.8	121.9	121.2	121.9	121.9	121.9	120.1	165.5	62.63
C	Approximately 45 lbs of stone is collected in the dutchman bucket.														
13:44	1333.0	476.1	14.2	1608	3033	4.56	252.0	121.9	121.5	121.9	121.9	121.9	120.2	165.5	64.28
13:45	1368.0	464.4	14.2	1630	2673	4.54	252.9	122.0	120.2	122.0	121.4	122.0	118.4	165.6	66.05
13:46	1377.0	457.8	14.2	1630	2907	4.49	252.9	122.0	111.3	122.0	121.2	122.0	117.4	165.6	66.75
C	The stone in the dutchman elbow has bridged over.														
13:47	1387.0	448.8	14.2	1629	2916	4.50	252.7	122.0	108.7	122.0	120.1	122.0	116.5	165.6	67.64
13:48	1391.0	443.8	14.2	1629	2785	4.58	252.8	122.0	115.4	122.0	118.6	122.0	117.4	165.2	68.09
13:49	1400.0	448.5	14.2	1618	2512	4.58	251.7	122.0	113.1	122.0	119.4	122.0	117.9	165.3	67.96
13:50	1418.0	447.6	14.2	1616	2672	4.59	250.6	121.9	114.7	121.9	119.7	121.9	117.4	164.5	68.43
10 MinAvg	1365.2	468.1	14.2	1617	2805	4.53	252.4	122.0	116.3	122.0	120.8	122.0	118.1	165.4	65.65
13:51	1428.0	446.3	14.2	1613	2667	4.55	247.4	121.9	117.0	121.9	121.7	121.9	120.5	165.5	68.75
13:52	1430.0	447.1	14.2	1610	2977	4.67	244.6	121.8	107.9	121.8	118.3	121.8	117.4	164.0	68.73
13:53	1440.0	442.4	14.1	1603	2935	4.68	247.7	121.7	106.3	121.7	121.1	121.7	118.7	164.1	69.28
13:54	1443.0	438.8	14.1	1441	2916	4.24	241.7	121.7	110.9	121.7	120.9	121.7	116.3	160.4	69.59
C	The run is terminated due to excessive amounts of stone in the I.D. Fan.														

Post-Run Bed Inspection:

- 8 to 12 inches of limestone is affixed to the discharge side reactor wall.
- Outlet louvers are partially blocked (see post-run bed inspection sheet for individual louver condition)

SCREEN ANALYSIS OF 9206041035 REACTOR STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	2.3	0.18	0.500	0.0036
+3/8	0.375	100.3	7.86	0.438	0.1796
+5/16	0.313	145.0	11.36	0.344	0.3301
+1/4	0.250	163.1	12.77	0.282	0.4538
+3.5	0.223	90.4	7.08	0.237	0.2994
+4	0.185	89.6	7.02	0.204	0.3440
+5	0.157	93.1	7.29	0.171	0.4264
+6	0.132	130.0	10.18	0.145	0.7046
+8	0.094	243.8	19.09	0.113	1.6920
+10	0.079	73.6	5.76	0.086	0.6687
+12	0.066	54.2	4.24	0.072	0.5863
+14	0.056	38.4	3.01	0.061	0.4947
+16	0.047	14.0	1.10	0.051	0.2142
+20	0.033	14.0	1.10	0.040	0.2741
+25	0.132	18.2	1.43	0.083	0.1727
+30	0.094	0.2	0.02	0.113	0.0014
+35	0.079	0.5	0.04	0.086	0.0045
+40	0.066	0.6	0.05	0.072	0.0065
+45	0.056	0.4	0.03	0.061	0.0052
+50	0.047	1.8	0.14	0.051	0.0275
+60	0.033	1.4	0.11	0.040	0.0274
-60		1.9	0.15	0.017	0.0899
	Total =	1276.8	100.00		7.0066

Harmonic Mean Diameter (in.) = 0.1427
Weighted Average Diameter (in.) = 0.2024

SCREEN ANALYSIS OF 9206041130 REACTOR STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	90.6	9.92	0.438	0.2268
+5/16	0.313	102.2	11.19	0.344	0.3254
+1/4	0.250	101.0	11.06	0.282	0.3930
+3.5	0.223	45.0	4.93	0.237	0.2084
+4	0.185	45.8	5.02	0.204	0.2459
+5	0.157	52.6	5.76	0.171	0.3369
+6	0.132	79.0	8.65	0.145	0.5988
+8	0.094	163.9	17.95	0.113	1.5908
+10	0.079	58.8	6.44	0.086	0.7471
+12	0.066	47.0	5.15	0.072	0.7110
+14	0.056	38.9	4.26	0.061	0.7008
+16	0.047	16.8	1.84	0.051	0.3594
+20	0.033	27.4	3.00	0.040	0.7503
+25	0.132	5.9	0.65	0.083	0.0783
+30	0.094	3.9	0.43	0.113	0.0379
+35	0.079	3.6	0.39	0.086	0.0457
+40	0.066	3.0	0.33	0.072	0.0454
+45	0.056	2.1	0.23	0.061	0.0378
+50	0.047	3.4	0.37	0.051	0.0727
+60	0.033	8.7	0.95	0.040	0.2382
-60		13.4	1.47	0.017	0.8868
	Total =	913.0	100.00		8.6375

Harmonic Mean Diameter (in.) = 0.1158
Weighted Average Diameter (in.) = 0.1941

SCREEN ANALYSIS OF 9206041130 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	84.1	8.07	0.438	0.1844
+5/16	0.313	119.5	11.47	0.344	0.3333
+1/4	0.250	115.1	11.04	0.282	0.3923
+3.5	0.223	56.2	5.39	0.237	0.2280
+4	0.185	58.7	5.63	0.204	0.2761
+5	0.157	71.4	6.85	0.171	0.4006
+6	0.132	110.6	10.61	0.145	0.7344
+8	0.094	209.7	20.12	0.113	1.7830
+10	0.079	70.4	6.75	0.086	0.7836
+12	0.066	50.7	4.86	0.072	0.6719
+14	0.056	40.0	3.84	0.061	0.6313
+16	0.047	16.7	1.60	0.051	0.3130
+20	0.033	21.0	2.01	0.040	0.5037
-20		18.1	1.74	0.017	1.0494
Total =		1042.2	100.00		8.2851

Harmonic Mean Diameter (in.) = 0.1207
 Weighted Average Diameter (in.) = 0.1934

SCREEN ANALYSIS OF 9206041150 DUTCHMAN STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	0.0	0.00	0.438	0.0000
+5/16	0.313	1.0	0.12	0.344	0.0036
+1/4	0.250	7.5	0.93	0.282	0.0329
+3.5	0.223	7.2	0.89	0.237	0.0376
+4	0.185	13.1	1.62	0.204	0.0794
+5	0.157	20.2	2.50	0.171	0.1461
+6	0.132	45.9	5.68	0.145	0.3928
+8	0.094	149.8	18.52	0.113	1.6414
+10	0.079	95.0	11.75	0.086	1.3628
+12	0.066	99.2	12.27	0.072	1.6943
+14	0.056	111.4	13.78	0.061	2.2657
+16	0.047	65.4	8.09	0.051	1.5795
+20	0.033	124.5	15.40	0.040	3.8488
+25	0.132	24.7	3.05	0.083	0.3700
+30	0.094	12.9	1.60	0.113	0.1414
+35	0.079	9.5	1.17	0.086	0.1363
+40	0.066	4.7	0.58	0.072	0.0803
+45	0.056	2.3	0.28	0.061	0.0468
+50	0.047	1.5	0.19	0.051	0.0362
+60	0.033	3.4	0.42	0.040	0.1051
-60		9.5	1.17	0.017	0.7098
Total =		808.7	100.00		14.7107

Harmonic Mean Diameter (in.) = 0.0680
Weighted Average Diameter (in.) = 0.0859

SCREEN ANALYSIS OF 9206041307 DUTCHMAN STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	5.9	0.92	0.438	0.0211
+5/16	0.313	28.1	4.39	0.344	0.1275
+1/4	0.250	43.8	6.84	0.282	0.2429
+3.5	0.223	40.0	6.24	0.237	0.2640
+4	0.185	50.0	7.81	0.204	0.3826
+5	0.157	59.7	9.32	0.171	0.5450
+6	0.132	82.6	12.89	0.145	0.8923
+8	0.094	168.9	26.37	0.113	2.3364
+10	0.079	57.6	8.99	0.086	1.0431
+12	0.066	46.1	7.20	0.072	0.9940
+14	0.056	32.4	5.06	0.061	0.8319
+16	0.047	12.4	1.94	0.051	0.3781
+20	0.033	9.8	1.53	0.040	0.3825
-20		3.3	0.52	0.017	0.3113
Total =		640.6	100.00		8.7525

Harmonic Mean Diameter (in.) = 0.1143
Weighted Average Diameter (in.) = 0.1511

SCREEN ANALYSIS OF 9206041307 DUTCHMAN STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	6.0	1.73	0.438	0.0395
+5/16	0.313	15.8	4.55	0.344	0.1322
+1/4	0.250	30.1	8.67	0.282	0.3079
+3.5	0.223	24.6	7.08	0.237	0.2995
+4	0.185	33.8	9.73	0.204	0.4771
+5	0.157	35.7	10.28	0.171	0.6011
+6	0.132	40.2	11.58	0.145	0.8010
+8	0.094	85.0	24.47	0.113	2.1688
+10	0.079	29.1	8.38	0.086	0.9720
+12	0.066	21.7	6.25	0.072	0.8630
+14	0.056	14.3	4.12	0.061	0.6772
+16	0.047	5.5	1.58	0.051	0.3093
+20	0.033	4.0	1.15	0.040	0.2879
-20		1.5	0.43	0.017	0.2610
Total =		347.3	100.00		8.1976

Harmonic Mean Diameter (in.) = 0.1220
 Weighted Average Diameter (in.) = 0.1617

Sample Moisture Data: Tare Wt. (g) = 15.7
 Initial Gross Wt. (g) = 365.2
 Final Gross Wt. (g) = 347.6

 Stone Moisture (wt%) = 5.04

SCREEN ANALYSIS OF 9206041326 DUTCHMAN STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	62.2	8.23	0.438	0.1881
+5/16	0.313	101.9	13.48	0.344	0.3919
+1/4	0.250	99.2	13.13	0.282	0.4663
+3.5	0.223	49.1	6.50	0.237	0.2747
+4	0.185	45.9	6.07	0.204	0.2977
+5	0.157	59.4	7.86	0.171	0.4596
+6	0.132	76.1	10.07	0.145	0.6968
+8	0.094	140.6	18.60	0.113	1.6485
+10	0.079	42.4	5.61	0.086	0.6508
+12	0.066	29.8	3.94	0.072	0.5446
+14	0.056	21.3	2.82	0.061	0.4635
+16	0.047	8.6	1.14	0.051	0.2222
+20	0.033	9.6	1.27	0.040	0.3175
-20		9.7	1.28	0.017	0.7755
Total =		755.8	100.00		7.3977

Harmonic Mean Diameter (in.) = 0.1352
 Weighted Average Diameter (in.) = 0.2068

LEC Run 920604

Waste Production Log

<u>Time</u> <u>Collected</u>	<u>Collection</u> <u>Time (min)</u>	<u>Dust Collected</u> <u>(lbs)</u>	<u>Mass Rate</u> <u>(lbs/min)</u>
11:35 AM	5	37.0	7.40
11:45 AM	10	26.0	2.60
11:55 AM	10	30.6	3.06
12:05 PM	10	38.1	3.81
12:12 PM	7	25.8	3.69
12:15 PM	3	16.9	5.63
12:38 PM	23	41.3	1.80
12:45 PM	7	18.6	2.66
01:19 PM	34	53.1	1.56
01:27 PM	8	22.2	2.78
01:37 PM	10	24.0	2.40
01:46 PM	9	17.0	1.89
Total:		933.3	7.40
Average:			

LEC Run 920604

Carry-Over Production Log

<u>Time</u> <u>Collected</u>	<u>Collection</u> <u>Time (min)</u>	<u>Stone Collected</u> <u>(lbs)</u>	<u>Mass Rate</u> <u>(lbs/min)</u>
11:27 AM	57	1.0	0.02
11:50 AM	23	10.0	0.43
12:05 PM	15	12.1	0.80
12:21 PM	16	24.0	1.50
12:33 PM	12	33.9	2.83
12:42 PM	9	35.0	3.88
12:52 PM	10	41.0	4.10
01:00 PM	8	45.0	5.63
01:03 PM	3	45.0	15.00
01:07 PM	4	45.0	11.25
01:11 PM	4	45.0	11.25
01:16 PM	5	45.0	9.00
01:29 PM	13	45.0	3.46
01:32 PM	3	45.0	15.00
01:37 PM	5	45.0	9.00
01:41 PM	4	45.0	11.25
01:43 PM	2	45.0	22.50
01:46 PM	3	Dutchman Bridged	0.00
Total:		606.9	7.46
Average:			

Run Summary:

LEC Run 920605

Objective: To continue LEC Run 920604.

Total Run Time: 147 minutes.

SO₂ Removal: 66% (average)

Inlet Gas Rate: 1820 acfm (average)

Operational Conditions:

50/50 volume mix of No.8 and No.9 limestone from LEC Run 920604 (201 minutes of prior exposure time).

In-duct Steam = 10 psig from 12:33 to 14:40

0 psig from 14:40 to 15:00

Overhead Sprays = 0.0 gpm

Louver Sprays = 0.42 gpm from 12:33 to 12:55

0.50 gpm from 12:55 to 13:30

0.73 gpm from 13:30 to 14:05

0.42 gpm from 14:05 to 14:40

0.00 gpm from 14:40 to 15:00

Bed Speed = 15DT (3052 lb/hr) from 12:33 to 12:55

20DT (4113 lb/hr) from 12:55 to 14:05

10DT (1830 lb/hr) from 14:05 to 15:00

Regeneration Device: Twin deck vibrating screen equipped with 1/4" and No.16 mesh screens.

Stone Carry-Over: 1.7 lbs/min (average)

Waste fines: 1 lbs/min (average)

Comments: - There was standing water in the dutchman. The bed speed was reduced from 4110 lbs/hr at 14:05 due to overloading occurring with the material handling equipment.

LEC Run 920605

Starting
06-05-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
Initial Conditions: Dry 50/50 stone mixture from LEC Run 920604; Bed Speed = 15DT (3052 lb/hr; Total Stone Residence Time (TSRT) = 2 hrs; Active Stone Residence Time (ASRT) = 67 min; Steam In-duct Injection = 10 psig; Louver Sprays = 0.42 gpm; Note: The bed speed has been elevated in an attempt to stop louver blockage and bridging.															
12:33				2455	3035	3.35	245.2	78.6	68.7	68.6	68.6	68.4	68.6	68.6	
12:34	1217.0		13.8	2443	3360	3.74	258.2	79.8	68.8	70.8	68.3	68.3	68.7	68.6	
12:35	1291.0		13.8	2407	3281	3.71	258.1	81.8	70.1	92.2	83.5	68.3	69.7	68.6	
12:36	1327.0		13.8	2342	3390	3.72	258.1	83.1	77.2	98.0	98.0	68.4	77.3	68.7	
12:37	1332.0	20.2	13.8	2217	3484	3.60	212.5	84.2	82.2	99.4	99.4	79.7	89.4	68.3	98.48
12:38	1329.0	116.6	13.8	2190	3445	3.53	200.7	93.6	81.0	101.2	100.4	92.0	98.0	68.4	91.23
12:39	1320.0	184.2	13.8	2240	3308	3.50	226.5	97.6	80.4	107.2	111.2	98.5	98.0	68.5	86.05
12:40	1314.0	234.8	13.7	2214	2888	3.33	229.0	98.0	81.2	112.1	112.7	107.8	98.4	68.5	82.13
8 MinAvg	1304.3	139.0	13.8	2314	3274	3.56	236.0	87.1	76.2	93.7	92.8	81.4	83.5	68.5	89.47
E-439 12:41	1315.0	260.4	13.7	2183	2925	3.39	228.2	98.1	83.1	114.5	113.5	111.4	100.8	72.2	80.20
12:42	1304.0	286.6	13.8	2170	3314	3.27	229.3	98.1	82.1	122.4	112.9	112.2	106.0	80.8	78.02
12:43	1302.0	307.4	13.8	2163	3464	3.33	230.2	98.2	85.0	124.7	113.4	112.8	108.5	87.9	76.39
12:44	1296.0	329.2	13.8	2175	3116	3.33	232.5	98.4	89.1	122.0	113.0	113.1	111.0	98.1	74.60
12:45	1297.0	354.7	13.7	2174	3078	3.29	236.8	99.0	92.3	120.5	113.8	114.2	108.0	98.3	72.65
C	Bed speed is increased to 20 DT (4110 lb/hr; TSRT = 92 min; ASRT = 50 min)														
12:46	1310.0	382.4	13.6	2154	3119	3.25	239.2	99.5	87.9	118.1	116.0	115.4	108.4	98.4	70.81
12:47	1302.0	400.3	13.6	2139	3120	3.19	244.2	100.0	89.6	118.2	120.6	113.6	107.9	98.4	69.25
12:48	1296.0	411.5	13.8	2112	3139	3.29	236.7	100.5	92.9	114.8	122.7	113.1	106.3	98.5	68.25
12:49	1294.0	402.2	13.8	2089	2952	3.16	237.7	101.6	87.9	116.3	118.8	113.1	104.6	98.6	68.92
12:50	1299.0	410.6	13.8	2046	3126	3.20	241.4	102.0	81.5	120.8	116.0	113.2	102.8	99.5	68.39
10 MinAvg	1301.5	354.5	13.7	2140	3135	3.27	235.6	99.5	87.1	119.2	116.1	113.2	106.4	93.1	72.75
12:51	1305.0	419.9	13.8	2036	3122	3.17	245.9	102.4	77.8	120.1	113.9	113.9	102.9	98.9	67.82
12:52	1304.0	432.1	13.8	2029	3238	3.10	246.9	102.8	75.1	115.3	114.7	114.4	100.8	100.8	66.86
12:53	1308.0	435.3	13.9	2026	3206	3.22	250.0	101.8	73.4	100.3	112.9	113.7	99.2	103.7	66.72
12:54	1313.0	431.5	13.9	2006	3097	3.23	247.9	102.4	73.5	110.5	112.2	112.9	98.9	107.3	67.14
C	The louver sprays are increased to 0.50 gpm.														
12:55	1305.0	448.2	13.9	1998	3237	3.20	248.1	104.1	76.5	114.6	112.8	113.4	99.7	112.2	65.66
12:56	1299.0	452.8	13.9	1980	3116	3.34	247.5	104.9	76.6	113.1	113.4	113.3	101.8	114.4	65.14
12:57	1294.0	479.4	13.8	1960	3000	3.29	251.9	104.4	77.5	118.1	113.5	112.1	105.3	115.0	62.95
12:58	1291.0	487.7	13.8	1955	3161	3.39	248.6	105.4	80.8	119.1	113.1	112.2	104.5	115.4	62.22
12:59	1289.0	472.8	13.9	1942	3071	3.35	245.2	104.1	83.9	120.3	112.4	110.4	102.6	118.7	63.32
13:00	1294.0	460.3	13.9	1955	3168	3.40	248.5	104.8	84.2	119.6	111.8	111.7	101.4	118.7	64.43
10 MinAvg	1300.2	452.0	13.9	1989	3142	3.27	248.1	103.7	77.9	115.1	113.1	112.8	101.7	110.5	65.23

LEC Run 920605

Starting
06-05-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
13:01	1295.0	447.3	14.0	1944	3153	3.39	246.5	107.2	84.0	114.5	111.9	113.0	100.6	119.8	65.46
13:02	1274.0	466.6	14.0	1927	3239	3.45	246.8	107.7	83.8	113.9	112.5	113.2	105.9	119.4	63.38
13:03	1277.0	453.3	14.1	1915	3134	3.45	251.0	108.2	83.8	114.7	112.3	110.3	103.7	119.6	64.50
13:04	1258.0	457.0	14.1	1917	3006	3.43	245.7	108.1	84.0	111.6	113.0	113.1	103.9	117.7	63.67
C	Increasing the damper slightly in an attempt to maintain an inlet approx. to 2000 acfm.														
13:05	1252.0	469.9	14.1	1896	3071	3.43	243.8	106.0	84.1	103.8	113.0	112.3	103.9	119.5	62.47
13:06	1240.0	469.9	14.2	1917	3145	3.52	246.0	108.9	92.1	111.3	111.9	113.5	109.3	119.7	62.10
13:07	1225.0	465.2	14.2	1985	3157	3.70	244.9	108.5	89.8	107.2	112.3	113.8	110.5	120.1	62.02
13:08	1210.0	443.4	14.2	1972	3211	3.58	247.8	109.5	93.2	108.5	113.7	113.7	108.1	121.1	63.36
13:09	1214.0	447.8	14.2	1968	3156	3.68	245.3	108.4	96.8	104.3	112.5	113.3	108.8	121.6	63.11
13:10	1197.0	448.8	14.4	1954	3087	3.64	247.7	108.6	99.0	108.5	111.8	113.5	110.7	121.1	62.51
10 MinAvg	1244.2	456.9	14.1	1939	3136	3.53	246.6	108.1	89.1	109.8	112.5	113.0	106.5	120.0	63.26
E-440	13:11	1186.0	443.0	14.4	1925	3018	3.72	239.3	98.8	106.3	112.0	113.7	111.4	121.4	62.65
13:12	1186.0	445.0	14.4	1925	3040	3.75	239.4	109.0	99.2	111.9	111.9	113.9	113.0	122.9	62.48
13:13	1177.0	443.6	14.4	1925	2778	3.73	245.4	109.1	99.2	103.4	110.1	113.9	114.1	126.1	62.31
13:14	1154.0	431.9	14.5	1912	2930	3.73	242.3	108.8	99.2	100.1	110.4	112.0	111.4	128.5	62.57
13:15	1149.0	417.1	14.5	1902	3277	3.83	241.4	109.2	99.3	104.6	108.6	113.4	114.3	128.6	63.70
13:16	1136.0	425.4	14.5	1908	3305	3.72	245.9	110.5	99.4	107.0	109.4	113.9	117.1	128.6	62.55
13:17	1127.0	432.5	14.5	1913	2860	3.83	249.6	109.0	99.4	105.2	112.1	114.0	126.1	128.7	61.62
13:18	1102.0	428.1	14.7	1903	3218	3.89	242.2	110.8	99.4	102.2	111.4	114.1	128.5	128.7	61.15
13:19	1088.0	419.5	14.8	1836	3435	3.75	246.0	109.3	99.4	104.9	110.7	114.0	128.7	128.7	61.44
13:20	1095.0	420.4	14.7	1828	2973	3.72	246.9	109.3	99.5	104.9	109.3	113.8	128.8	128.8	61.61
10 MinAvg	1140.0	430.6	14.5	1898	3083	3.77	243.8	109.4	99.3	105.1	110.6	113.7	119.3	127.1	62.21
13:21	1096.0	404.4	14.7	1834	2708	3.86	251.2	108.6	99.6	103.5	111.2	114.0	128.8	128.8	63.10
13:22	1102.0	391.8	14.7	1849	2838	3.83	249.0	109.7	99.6	102.4	112.5	112.7	127.1	128.8	64.45
13:23	1100.0	389.8	14.6	1861	2840	3.90	251.2	108.8	99.6	102.1	112.1	110.4	126.7	129.1	64.56
13:24	1088.0	400.3	14.7	1839	2965	3.96	241.4	109.8	99.7	101.3	113.5	106.1	128.6	129.2	63.21
13:25	1094.0	405.1	14.6	1850	2707	3.98	242.3	110.4	99.7	100.9	111.5	107.4	128.9	129.9	62.97
13:26	1099.0	409.6	14.6	1826	2908	4.02	238.4	109.2	99.7	100.8	110.7	110.4	128.8	136.1	62.73
13:27	1104.0	404.1	14.6	1826	3182	4.13	237.9	109.9	99.7	101.5	112.0	112.4	128.2	149.8	63.40
13:28	1112.0	388.0	14.5	1826	3147	4.09	245.1	109.8	99.7	105.2	113.5	111.0	128.7	150.5	65.11
13:29	1116.0	411.0	14.4	1815	2825	4.08	244.2	110.4	99.6	103.4	114.3	104.4	128.8	150.2	63.17
13:30	1128.0	411.8	14.3	1807	2979	4.09	252.1	110.1	99.6	105.5	114.3	104.4	128.9	149.8	63.49
C	Increasing lower sprays to 0.73 gpm.														
10 MinAvg	1103.9	401.6	14.6	1833	2910	3.99	245.3	109.7	99.7	102.7	112.6	109.3	128.4	138.2	63.62
13:31	1136.0	409.4	14.3	1793	2968	4.06	248.3	113.0	99.5	109.5	113.8	107.6	128.8	150.7	63.96

LEC Run 920605

Starting
06-05-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
13:32	1142.0	392.0	14.3	1782	3251	4.01	247.7	111.9	99.5	108.8	114.1	105.6	128.7	153.9	65.67
13:33	1146.0	380.5	14.3	1782	3354	4.03	247.5	113.0	99.4	108.1	114.3	107.2	128.7	156.0	66.80
13:34	1161.0	357.9	14.3	1772	2893	4.01	239.4	112.6	99.3	112.5	114.2	110.8	128.6	157.6	69.17
13:35	1162.0	355.0	14.3	1765	2659	4.02	234.3	114.0	99.3	114.6	114.4	113.3	128.6	157.6	69.45
13:36	1165.0	353.1	14.3	1771	2744	4.00	238.9	113.5	99.2	117.8	114.2	111.2	128.5	157.5	69.69
13:37	1174.0	339.3	14.2	1765	2849	3.95	233.9	114.1	99.1	114.9	115.7	113.2	128.4	157.4	71.10
13:38	1198.0	353.2	14.2	1774	2962	4.00	240.8	114.0	99.1	113.8	115.9	113.7	128.3	157.4	70.52
13:39	1214.0	354.4	14.0	1761	2897	4.07	238.5	114.5	99.0	113.7	117.7	116.1	128.3	157.6	70.81
13:40	1231.0	363.9	13.9	1772	2793	4.06	246.7	115.1	98.9	114.6	115.3	124.9	128.2	157.4	70.44
10 MinAvg	1172.9	365.9	14.2	1774	2937	4.02	241.6	113.6	99.2	112.8	115.0	112.4	128.5	156.3	68.76
13:41	1238.0	368.3	13.8	1756	2786	4.11	241.7	114.1	98.8	113.0	115.8	128.1	128.1	158.8	70.25
13:42	1244.0	362.5	13.8	1729	3048	4.10	243.7	113.9	98.7	111.2	114.4	128.0	128.0	158.9	70.86
13:43	1247.0	375.8	13.9	1730	2771	4.10	244.2	114.2	98.7	113.4	115.3	127.9	127.9	161.9	69.86
C	The tall bucket elevator is jammed, Stone flow is halted.														
13:44	1253.0	384.8	13.8	1724	2927	4.07	239.0	114.9	99.2	113.6	118.0	127.8	127.8	163.4	69.29
13:45	1262.0	397.3	13.8	1712	3199	4.12	237.2	114.5	98.9	117.2	115.9	127.8	127.8	163.1	68.52
13:46	1279.0	415.9	13.7	1718	3111	4.02	242.2	117.2	98.6	111.7	117.1	127.8	127.8	162.6	67.48
13:47	1293.0	436.7	13.6	1711	3129	4.16	244.6	117.4	98.7	112.9	116.7	127.7	127.7	164.6	66.23
13:48	1314.0	448.1	13.5	1706	3125	4.08	248.7	115.9	98.7	112.6	121.4	127.7	127.7	164.8	65.90
13:49	1307.0	428.2	13.4	1694	2976	3.92	247.1	116.0	98.4	114.6	123.2	127.7	127.7	165.3	67.24
13:50	1306.0	411.2	13.4	1725	2982	3.91	248.3	116.5	100.5	117.9	122.7	127.6	127.6	165.9	68.51
10 MinAvg	1274.3	402.9	13.7	1721	3005	4.06	243.7	115.5	98.9	113.8	118.1	127.8	127.8	162.9	68.41
13:51	1326.0	436.6	13.3	1724	3130	4.11	247.1	117.9	106.2	114.7	120.7	127.6	128.0	165.2	67.07
13:52	1327.0	472.3	13.2	1721	3114	4.15	244.8	116.7	102.7	113.3	118.4	127.6	142.2	162.8	64.41
13:53	1315.0	493.2	13.3	1706	2976	4.14	240.4	119.7	105.3	116.4	117.6	127.5	137.9	163.3	62.49
13:54	1329.0	500.8	13.2	1708	2851	4.12	242.2	119.0	101.9	114.6	118.5	127.4	136.1	161.9	62.32
13:55	1343.0	502.6	13.2	1705	2973	4.01	239.4	120.1	102.4	118.3	115.8	127.3	137.6	163.3	62.58
13:56	1342.0	508.5	13.1	1704	3001	3.95	239.0	118.5	104.5	118.2	115.8	127.2	132.6	161.6	62.11
13:57	1363.0	509.3	13.1	1690	2811	4.09	235.4	120.6	103.5	116.9	118.4	127.2	127.3	161.0	62.63
13:58	1369.0	503.3	13.1	1696	2578	4.13	248.2	120.0	106.7	114.1	117.6	127.1	127.1	159.9	63.24
13:59	1398.0	504.2	13.0	1707	2683	4.03	249.7	119.8	106.3	120.4	120.2	127.0	127.0	159.7	63.93
14:00	1389.0	521.3	13.1	1694	2396	4.06	247.2	120.8	101.9	117.6	118.2	126.9	130.8	161.5	62.47
C	Stone flow is restarted at 200T.														
10 MinAvg	1350.1	495.2	13.2	1705	2851	4.08	243.3	119.3	104.1	116.4	118.1	127.3	132.7	162.0	63.33
14:01	1364.0	534.2	13.2	1691	2737	4.11	244.5	118.7	98.8	116.2	116.1	126.8	143.3	161.8	60.84
C	Ambient air is introduced to the outlet sampling system to check the outlet O2 monitor.														

E-441

LEC Run 920605

Starting
06-05-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
14:02	1356.0			1696	2850	4.11	248.5	118.7	98.2	118.2	117.5	126.7	129.5	162.9	
14:03	1352.0			1701	2652	4.11	252.6	120.0	97.7	116.3	119.7	126.6	126.2	162.8	
14:04	1340.0		13.4	1704	2869	4.11	255.4	118.2	97.2	116.6	121.9	126.5	125.0	161.0	
14:05	1323.0		13.3	1691	3062	4.15	252.9	119.0	97.1	125.1	120.6	126.4	124.5	156.4	
C	Louwer sprays are reduced to 0.42 gpm, L/S is becoming too wet														
14:06	1306.0	425.3	13.3	1693	2906	3.98	254.7	119.6	97.1	126.0	123.3	126.4	119.2	155.9	67.43
14:07	1300.0	404.4	13.4	1702	2674	4.14	253.4	117.9	97.0	125.0	124.6	126.3	117.8	155.4	68.89
14:08	1290.0	402.6	13.4	1708	2904	4.16	249.9	117.1	96.9	122.8	124.3	126.2	115.9	156.3	68.79
14:09	1277.0	429.9	13.5	1714	2868	4.17	255.7	118.1	96.8	116.3	122.9	126.2	115.5	155.5	66.34
14:10	1277.0	422.2	13.5	1714	2671	4.16	255.3	116.9	96.8	118.5	120.3	126.1	116.7	155.6	66.94
C	Bed speed is reduced to 100T (1830 lb/hr) due to overflow occuring at the hangar bearing.														
10 MinAvg	1318.5	416.9	13.4	1701	2819	4.12	252.3	118.4	97.4	120.1	121.1	126.4	123.4	158.4	67.68
E-442 14:11	1266.0	385.2	13.5	1716	2561	4.26	256.7	114.6	96.7	112.7	122.1	126.0	121.3	157.1	69.57
14:12	1250.0	403.2	13.6	1725	2640	4.28	255.9	114.6	96.6	113.1	123.1	125.9	125.1	156.5	67.74
14:13	1239.0	419.0	13.6	1723	2682	4.32	254.5	115.0	96.5	113.3	123.4	125.8	120.8	157.2	66.18
14:14	1236.0	423.7	13.7	1715	2977	4.27	255.9	116.5	97.0	114.5	124.1	125.7	115.4	159.5	65.72
14:15	1223.0	425.3	13.8	1725	3136	4.34	256.4	113.7	97.9	112.5	125.0	125.6	117.7	160.0	65.22
14:16	1205.0	435.9	13.8	1725	3015	4.29	255.9	115.1	96.6	112.0	124.9	125.5	116.3	162.1	63.83
14:17	1200.0	455.6	13.8	1715	2903	4.36	255.8	112.9	96.1	109.8	124.2	125.4	115.9	161.4	62.03
14:18	1194.0	458.9	13.9	1704	2739	4.38	255.3	115.4	97.8	112.9	122.1	125.3	116.1	161.7	61.57
14:19	1191.0	452.8	13.9	1705	2454	4.43	255.9	115.8	96.0	115.3	122.1	125.3	118.1	162.3	61.98
14:20	1185.0	445.6	13.9	1705	2102	4.34	255.9	114.7	97.6	114.0	123.4	125.2	118.0	163.2	62.40
10 MinAvg	1218.9	430.5	13.8	1716	2721	4.33	255.8	114.8	96.9	113.0	123.4	125.6	118.5	160.1	64.62
14:21	1186.0	440.2	13.9	1685	2649	4.39	255.9	114.1	98.7	111.2	123.3	125.2	118.6	162.7	62.88
14:22	1193.0	428.4	13.9	1684	2591	4.34	255.4	116.1	97.6	112.3	122.7	125.1	116.3	163.3	64.09
14:23	1194.0	412.5	13.9	1694	1962	4.39	255.3	116.0	96.1	110.8	121.9	125.1	120.9	163.2	65.45
14:24	1195.0	423.2	14.0	1695	2540	4.29	255.9	115.0	96.7	111.0	123.7	125.0	123.5	161.8	64.59
14:25	1162.0	417.9	14.2	1683	3300	4.37	254.2	117.4	95.9	108.9	121.4	124.9	124.9	163.3	64.04
14:26	1143.0	415.5	14.2	1681	3449	4.33	252.5	116.6	95.7	111.2	118.2	124.9	124.9	161.4	63.65
14:27	1198.0	435.2	14.0	1691	3343	4.39	253.2	114.9	96.7	116.4	118.8	124.8	123.8	162.4	63.67
14:28	1201.0	431.0	13.9	1682	3005	4.29	253.4	118.3	98.7	113.1	121.6	124.7	119.1	163.0	64.11
14:29	1214.0	440.8	13.9	1671	2609	4.39	252.8	119.5	101.1	112.3	124.4	124.6	122.4	162.0	63.69
14:30	1234.0	438.3	13.8	1670	2420	4.40	251.8	118.6	105.9	112.5	124.3	124.5	118.9	161.8	64.48
10 MinAvg	1192.0	428.3	14.0	1683	2787	4.36	254.0	116.7	98.3	112.0	122.0	124.9	121.3	162.5	64.07
14:31	1261.0	452.5	13.7	1670	2563	4.34	251.9	117.8	108.4	115.3	123.6	124.5	118.6	163.0	64.12
14:32	1262.0	456.5	13.6	1670	2936	4.42	252.3	120.4	103.1	117.7	124.2	124.4	117.6	160.4	63.83

LEC Run 920605

Starting
06-05-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	Outlet O2 (%)	Inlet Flow (acfm)	Outlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
14:33	1273.0	479.7	13.5	1655	3266	4.40	248.3	121.5	104.2	116.9	123.5	124.3	117.5	159.7	62.32
14:34	1262.0	491.0	13.5	1669	3223	4.51	243.1	120.1	107.0	119.5	120.9	124.3	120.3	159.0	61.09
14:35	1270.0	495.9	13.5	1648	3401	4.41	251.1	120.8	106.6	117.8	122.7	124.3	119.9	156.6	60.95
14:36	1264.0	494.9	13.4	1642	3614	4.48	245.9	122.0	105.2	116.8	122.3	124.3	119.9	153.9	60.85
14:37	1249.0	508.9	13.4	1635	3356	4.44	239.7	122.3	111.7	116.3	120.6	124.2	117.7	155.8	59.26
14:38	1289.0	501.7	13.3	1627	2818	4.52	241.4	121.3	105.1	114.5	117.3	124.1	119.3	157.1	61.08
14:39	1262.0	509.6	13.4	1628	2845	4.49	242.5	120.5	102.6	116.9	116.2	124.0	116.7	158.2	59.62
14:40	1271.0	516.0	13.3	1654	2974	4.42	265.3	122.5	105.8	116.2	117.9	124.1	117.8	158.8	59.40
C	All moisture addition is turned-off to dry-out the stone for the emptying of the reactor.														
10 MinAvg	1266.3	490.7	13.5	1650	3100	4.44	248.1	120.9	106.0	116.8	120.9	124.2	118.5	158.3	61.25
14:41	1276.0	512.6	13.4	1665	3100	4.32	265.7	119.8	102.9	115.2	122.7	124.0	113.1	159.3	59.89
14:42	1246.0	510.8	13.4	1680	3218	4.32	260.9	116.7	101.4	112.8	122.9	123.6	111.2	160.4	59.00
14:43	1228.0	519.6	13.4	1680	3030	4.37	260.5	115.5	100.5	109.8	122.2	123.7	115.4	160.8	57.69
14:44	1218.0	532.0	13.4	1678	3057	4.38	259.4	113.7	95.9	109.2	118.7	123.0	113.5	158.0	56.32
14:45	1214.0	540.6	13.4	1692	2934	4.32	262.2	114.2	95.6	109.9	117.1	122.0	118.3	157.5	55.47
14:46	1259.0	555.0	13.3	1704	2833	4.41	263.4	111.6	94.6	109.9	113.6	123.0	118.6	158.4	55.92
14:47	1257.0	568.1	13.3	1702	2526	4.38	262.3	110.9	94.5	105.1	112.2	121.7	121.2	160.5	54.81
14:48	1242.0	567.8	13.4	1690	2649	4.32	260.2	111.9	94.4	108.1	112.9	123.1	123.1	163.0	54.28
14:49	1219.0	557.9	13.4	1713	2840	4.44	262.9	110.7	94.4	102.8	109.5	122.5	123.7	160.3	54.23
14:50	1207.0	549.0	13.5	1688	2775	4.34	258.6	109.7	94.3	105.6	109.4	121.0	123.7	161.8	54.52
10 MinAvg	1236.8	541.3	13.4	1689	2896	4.36	261.6	113.5	96.8	108.8	116.1	122.8	118.2	160.0	56.21
14:51	1213.0	551.6	13.5	1682	2690	4.36	262.1	109.8	94.3	107.8	109.5	121.1	123.6	163.8	54.53
14:52	1235.0	562.1	13.5	1682	2672	4.31	262.2	108.6	94.3	104.0	109.8	123.1	123.6	161.1	54.49
14:53	1238.0	562.7	13.5	1687	2487	4.42	267.1	110.4	94.3	100.1	111.2	123.1	123.6	161.1	54.55
14:54	1225.0	556.1	13.7	1688	2261	4.38	267.5	109.2	94.4	103.0	110.4	122.2	123.6	160.6	54.60
14:55	1188.0	544.2	13.8	1689	2596	4.43	268.7	108.9	94.3	100.7	111.9	123.1	123.6	164.7	54.19
14:56	1184.0	537.5	13.9	1700	2824	4.41	268.8	110.0	94.2	100.1	110.5	122.7	123.5	162.9	54.60
14:57	1185.0	539.8	13.8	1699	2955	4.37	268.6	108.0	94.2	99.3	109.1	119.5	123.5	159.8	54.45
14:58	1202.0	542.3	13.8	1700	2762	4.47	269.1	108.4	94.2	98.6	110.7	116.4	123.5	157.9	54.88
14:59	1201.0	540.5	13.8	1700	2752	4.47	269.2	108.2	94.1	100.4	109.8	111.8	123.5	159.5	55.00
15:00	1196.0	538.1	13.8	1595	1853	4.16	269.5	106.2	94.1	98.7	111.3	111.2	123.5	159.2	55.01
10 MinAvg	1206.7	547.5	13.7	1682	2585	4.38	267.3	108.8	94.2	101.3	110.4	119.4	123.6	161.1	54.63

Post-Run Notes:

- Stone exiting the dutchman was super-saturated (standing water w/stone) for most of the run.
- The bed was emptied on 6/6/92, so the post-run louver inspection may be misleading.

E-443

SCREEN ANALYSIS OF 9206051315 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	75.5	7.97	0.438	0.1821
+5/16	0.313	134.1	14.15	0.344	0.4113
+1/4	0.250	115.6	12.20	0.282	0.4333
+3.5	0.223	74.6	7.87	0.237	0.3328
+4	0.185	67.0	7.07	0.204	0.3465
+5	0.157	71.0	7.49	0.171	0.4381
+6	0.132	88.3	9.32	0.145	0.6447
+8	0.094	166.8	17.60	0.113	1.5595
+10	0.079	50.1	5.29	0.086	0.6132
+12	0.066	37.7	3.98	0.072	0.5494
+14	0.056	27.4	2.89	0.061	0.4755
+16	0.047	11.2	1.18	0.051	0.2308
+20	0.033	12.2	1.29	0.040	0.3218
-20		16.3	1.72	0.017	1.0391
Total =		947.8	100.00		7.5781

Harmonic Mean Diameter (in.) = 0.1320
Weighted Average Diameter (in.) = 0.2076

LEC Run 920605

Waste Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Dust Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
12:57 PM	27	5.0	0.19
01:24 PM	27	60.0	2.22
01:43 PM	19	10.4	0.55
Total:		75.5	
Average:			0.99

LEC Run 920605

Carry-Over Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Stone Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
01:05 PM	35	11.3	0.32
01:40 PM	35	45.0	1.29
02:15 PM	35	45.0	1.29
02:28 PM	13	45.0	3.46
02:50 PM	22	45.0	2.05
Total:		191.3	
Average:			1.68

SCREEN ANALYSIS OF 9206071630 REACTOR SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	3.2	0.36	0.438	0.0082
+5/16	0.313	7.5	0.84	0.344	0.0245
+1/4	0.250	10.7	1.20	0.282	0.0427
+3.5	0.223	7.8	0.88	0.237	0.0371
+4	0.185	15.3	1.72	0.204	0.0843
+5	0.157	44.0	4.95	0.171	0.2894
+6	0.132	152.2	17.12	0.145	1.1845
+8	0.094	319.1	35.89	0.113	3.1800
+10	0.079	112.1	12.61	0.086	1.4625
+12	0.066	85.4	9.60	0.072	1.3265
+14	0.056	65.9	7.41	0.061	1.2189
+16	0.047	27.4	3.08	0.051	0.6018
+20	0.033	23.6	2.65	0.040	0.6635
-20		15.0	1.69	0.017	1.0193
Total =		889.2	100.00		11.1435

Harmonic Mean Diameter (in.) = 0.0897
Weighted Average Diameter (in.) = 0.1124

SCREEN ANALYSIS OF 9206071630 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	0.0	0.00	0.438	0.0000
+5/16	0.313	10.6	1.15	0.344	0.0334
+1/4	0.250	16.1	1.74	0.282	0.0619
+3.5	0.223	12.9	1.40	0.237	0.0591
+4	0.185	25.4	2.75	0.204	0.1348
+5	0.157	85.2	9.23	0.171	0.5396
+6	0.132	208.9	22.62	0.145	1.5656
+8	0.094	391.8	42.43	0.113	3.7599
+10	0.079	83.1	9.00	0.086	1.0440
+12	0.066	45.8	4.96	0.072	0.6851
+14	0.056	26.0	2.82	0.061	0.4631
+16	0.047	8.3	0.90	0.051	0.1756
+20	0.033	6.1	0.66	0.040	0.1652
-20		3.2	0.35	0.017	0.2094
Total =		923.4	100.00		8.8966
Harmonic Mean Diameter (in.) =			0.1124		
Weighted Average Diameter (in.) =			0.1280		

SCREEN ANALYSIS OF 9206091215 REACTOR SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	0.0	0.00	0.438	0.0000
+5/16	0.313	4.2	0.45	0.344	0.0131
+1/4	0.250	7.6	0.82	0.282	0.0290
+3.5	0.223	4.4	0.47	0.237	0.0200
+4	0.185	9.3	1.00	0.204	0.0490
+5	0.157	35.8	3.85	0.171	0.2252
+6	0.132	109.6	11.79	0.145	0.8157
+8	0.094	322.8	34.72	0.113	3.0764
+10	0.079	126.4	13.59	0.086	1.5771
+12	0.066	105.5	11.35	0.072	1.5672
+14	0.056	88.7	9.54	0.061	1.5690
+16	0.047	38.6	4.15	0.051	0.8108
+20	0.033	45.2	4.86	0.040	1.2153
-20		31.7	3.41	0.017	2.0600
Total =		929.8	100.00		13.0280
Harmonic Mean Diameter (in.) =			0.0768		
Weighted Average Diameter (in.) =			0.1002		

SCREEN ANALYSIS OF 9206091215 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	0.0	0.00	0.438	0.0000
+5/16	0.313	5.0	0.51	0.344	0.0148
+1/4	0.250	6.9	0.70	0.282	0.0249
+3.5	0.223	7.6	0.77	0.237	0.0327
+4	0.185	12.8	1.30	0.204	0.0639
+5	0.157	36.9	3.76	0.171	0.2196
+6	0.132	147.9	15.05	0.145	1.0417
+8	0.094	389.9	39.68	0.113	3.5162
+10	0.079	137.1	13.95	0.086	1.6187
+12	0.066	103.8	10.56	0.072	1.4591
+14	0.056	76.6	7.80	0.061	1.2822
+16	0.047	30.6	3.11	0.051	0.6082
+20	0.033	24.5	2.49	0.040	0.6233
-20		3.0	0.31	0.017	0.1845
Total =		982.6	100.00		10.6898

Harmonic Mean Diameter (in.) = 0.0935
Weighted Average Diameter (in.) = 0.1082

SCREEN ANALYSIS OF 9206091400 REACTOR SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	4.7	0.61	0.438	0.0140
+5/16	0.313	2.7	0.35	0.344	0.0102
+1/4	0.250	3.9	0.51	0.282	0.0181
+3.5	0.223	3.1	0.40	0.237	0.0171
+4	0.185	7.4	0.97	0.204	0.0473
+5	0.157	27.1	3.54	0.171	0.2069
+6	0.132	91.5	11.94	0.145	0.8265
+8	0.094	288.1	37.61	0.113	3.3324
+10	0.079	102.8	13.42	0.086	1.5567
+12	0.066	82.1	10.72	0.072	1.4802
+14	0.056	65.9	8.60	0.061	1.4148
+16	0.047	27.2	3.55	0.051	0.6934
+20	0.033	32.2	4.20	0.040	1.0508
-20		27.4	3.58	0.017	2.1611
Total =		766.1	100.00		12.8296

Harmonic Mean Diameter (in.) = 0.0779
 Weighted Average Diameter (in.) = 0.1026

SCREEN ANALYSIS OF 9206091400 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	2.1	0.22	0.438	0.0050
+5/16	0.313	3.5	0.36	0.344	0.0106
+1/4	0.250	9.3	0.97	0.282	0.0344
+3.5	0.223	5.4	0.56	0.237	0.0238
+4	0.185	10.5	1.09	0.204	0.0535
+5	0.157	39.5	4.11	0.171	0.2403
+6	0.132	136.4	14.19	0.145	0.9820
+8	0.094	355.2	36.95	0.113	3.2746
+10	0.079	135.5	14.10	0.086	1.6354
+12	0.066	100.3	10.43	0.072	1.4413
+14	0.056	81.0	8.43	0.061	1.3860
+16	0.047	34.0	3.54	0.051	0.6909
+20	0.033	35.6	3.70	0.040	0.9259
-20		12.9	1.34	0.017	0.8109
Total =		961.2	100.00		11.5146

Harmonic Mean Diameter (in.) = 0.0868
 Weighted Average Diameter (in.) = 0.1061

SCREEN ANALYSIS OF 9206111050 I.D.FAN STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	0.0	0.00	0.438	0.0000
+5/16	0.313	0.0	0.00	0.344	0.0000
+1/4	0.250	0.0	0.00	0.282	0.0000
+3.5	0.223	0.0	0.00	0.237	0.0000
+4	0.185	0.0	0.00	0.204	0.0000
+5	0.157	0.1	0.01	0.171	0.0005
+6	0.132	2.7	0.22	0.145	0.0156
+8	0.094	48.9	4.07	0.113	0.3608
+10	0.079	58.4	4.86	0.086	0.5641
+12	0.066	94.6	7.88	0.072	1.0879
+14	0.056	145.8	12.14	0.061	1.9965
+16	0.047	108.0	8.99	0.051	1.7562
+20	0.033	283.0	23.56	0.040	5.8904
+25	0.132	73.9	6.15	0.083	0.7453
+30	0.094	67.3	5.60	0.113	0.4965
+35	0.079	75.2	6.26	0.086	0.7263
+40	0.066	57.2	4.76	0.072	0.6578
+45	0.056	27.9	2.32	0.061	0.3821
+50	0.047	32.7	2.72	0.051	0.5317
+60	0.033	33.8	2.81	0.040	0.7035
-60		91.6	7.63	0.017	4.6081
Total =		1201.1	100.00		20.5232

Harmonic Mean Diameter (in.) = 0.0487
Weighted Average Diameter (in.) = 0.0617

Run Summary:

LEC Run 920613

Objective: To yield recent high removal values for up-coming LEC paper.

Total Run Time: 195 minutes.

SO₂ Removal: 99%

Inlet Gas Rate: 600 acfm (The orifice plates were recalibrated after the run data was collected).

Operational Conditions:

4" choker in damper.

No.9 Maxville limestone mix of 75% of L/S#920527 and 25% from LEC Run 920319

In-duct Steam = 5 psig

Overhead Sprays = 0.0 gpm

Louver Sprays = 0.00

Bed Speed = 10DT (2195 lb/hr)

Regeneration Device: Twin deck vibrating screen equipped with 1/4" and No.16 mesh screens.

Stone Carry-Over: 0.0 lbs/min

Waste fines: 1.7 lbs/min (average)

Comments: - The run was terminated when the vibrating screen became inoperable due to misassembly.

LEC Run 920613

Starting
06-13-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
Purpose: To give Dr. Prudich a +3 hour run with high removal. Initial Conditions: Slightly damp Maxville No.9 limestone consisting of 75% L/S#920527 and 25% of used stone from LEC Run 920319; 4" choker on damper; damper is on full; In-duct steam = 5 psig; louver sprays are off; Vibrating screen has 1/4" and No.16 mesh screens; bed speed = 2020 lb/hr (100T).															
13:47		1.8	14.4	407	0.56	235.4	74.8	74.8	74.8	74.8	74.8	74.8	74.8	74.8	99.86
13:48	1080.0	1.5	14.4	410	0.44	244.2	87.8	74.8	74.8	74.8	74.8	74.8	74.8	74.8	99.91
13:49	1107.0	1.0	14.5	411	0.49	247.9	89.1	74.9	74.9	74.9	74.9	74.9	74.9	74.9	99.92
13:50	1111.0	0.9	14.5	412	0.49	249.9	89.8	75.1	75.1	75.1	75.1	75.1	75.1	75.1	99.92
10 MinAvg	1099.3	1.3	14.4	410	0.49	244.4	85.4	74.9	74.9	74.9	74.9	74.9	74.9	74.9	99.90
13:51	1099.0	0.9	14.4	409	0.48	241.4	90.0	75.3	75.3	75.3	75.3	75.3	75.3	75.3	99.92
13:52	1100.0	0.8	14.4	404	0.45	224.4	90.2	75.6	75.6	75.6	75.6	75.6	75.6	75.6	99.92
13:53	1105.0	0.9	14.3	410	0.56	242.5	90.4	75.7	75.7	75.7	75.7	75.7	75.7	75.7	99.92
13:54	1112.0	1.0	14.5	412	0.62	251.1	90.7	75.9	75.9	75.9	75.9	75.9	75.9	75.9	99.91
13:55	1107.0	1.2	14.5	411	0.62	246.0	90.7	75.9	75.9	75.9	75.9	75.9	75.9	75.9	99.89
13:56	1140.0	1.2	14.4	409	0.54	240.2	90.8	76.0	76.0	76.0	76.0	76.0	76.0	76.0	99.90
13:57	1160.0	1.4	14.5	410	0.53	245.7	91.0	76.2	76.2	76.2	76.2	76.4	76.2	76.2	99.88
13:58	1168.0	1.5	14.6	410	0.63	243.6	91.2	76.4	76.4	76.4	76.4	88.7	76.4	76.4	99.87
13:59	1164.0	1.5	14.7	408	0.63	238.3	91.4	76.5	76.4	76.5	77.6	91.2	79.6	76.5	99.87
14:00	1167.0	1.6	14.8	408	0.54	237.7	91.5	76.7	76.6	76.7	88.4	91.5	90.0	76.7	99.86
10 MinAvg	1132.2	1.2	14.5	409	0.56	241.1	90.8	76.0	76.0	76.0	77.3	80.2	77.7	76.0	99.89
14:01	1182.0	1.9	14.9	409	0.59	240.0	91.7	76.9	76.9	76.9	89.6	91.8	91.7	76.9	99.84
14:02	1194.0	2.0	15.0	407	0.57	235.3	91.8	76.9	76.9	76.9	92.5	106.2	91.8	76.9	99.83
14:03	1197.0	1.9	15.2	407	0.50	233.0	91.9	77.1	77.1	77.1	102.1	114.9	95.8	77.1	99.84
14:04	1210.0	2.0	15.2	406	0.60	230.3	92.0	77.2	77.2	77.3	120.8	120.0	108.2	77.2	99.83
14:05	1215.0	2.1	15.5	404	0.48	225.0	92.1	77.3	77.3	86.8	121.5	121.1	119.1	77.3	99.83
14:06	1226.0	1.8	15.5	403	0.51	221.4	92.2	77.4	77.4	92.2	121.6	121.1	119.4	77.4	99.85
14:07	1225.0	1.8	15.6	405	0.55	228.1	92.4	77.5	77.5	94.6	121.7	121.2	120.5	77.5	99.85
14:08	1231.0	1.8	15.6	404	0.48	223.6	92.5	77.7	77.7	116.7	121.8	121.8	121.4	77.7	99.85
14:09	1227.0	1.9	15.7	404	0.55	221.9	92.8	77.8	77.8	122.0	122.0	119.7	121.3	77.8	99.85
14:10	1221.0	1.7	15.7	403	0.46	221.5	93.6	78.0	78.0	122.2	122.2	122.0	122.2	78.5	99.86
C	L/S is becoming lighter in color (drying), but it is still cool to the touch.														
10 MinAvg	1212.8	1.9	15.4	405	0.53	228.0	92.3	77.4	77.4	94.3	113.6	116.0	111.1	77.4	99.84
14:11	1225.0	1.7	15.7	404	0.44	223.3	94.7	78.1	78.1	122.3	122.3	120.3	120.7	86.7	99.86
14:12	1216.0	1.7	15.8	404	0.51	223.1	94.2	78.2	78.2	122.4	122.4	118.1	122.4	92.9	99.86
14:13	1225.0	1.7	15.8	404	0.40	224.2	97.3	78.8	78.3	122.5	122.5	115.3	122.2	93.1	99.86
14:14	1256.0	1.7	15.8	404	0.50	224.4	98.6	81.6	78.5	122.7	122.7	112.2	121.9	93.3	99.86
14:15	1254.0	1.6	15.9	404	0.41	224.6	99.7	81.6	78.8	122.8	122.8	117.2	120.6	93.4	99.87

E-454

LEC Run 920613

Starting
06-13-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
14:16	1242.0	1.5	15.8	404	0.52	224.5	100.9	84.5	82.8	122.9	122.9	117.0	120.7	93.5	99.88
14:17	1264.0	1.4	15.9	403	0.42	220.6	102.3	84.3	89.2	122.9	122.9	122.3	119.8	94.1	99.89
14:18	1274.0	1.6	15.9	403	0.53	221.5	105.2	86.9	93.1	122.8	122.8	119.3	120.6	96.1	99.88
14:19	1288.0	1.4	15.8	404	0.43	223.9	108.4	85.8	93.5	122.8	122.8	121.0	120.6	99.6	99.89
14:20	1307.0	1.4	15.8	404	0.48	222.3	110.1	79.6	93.5	122.8	122.8	122.6	121.0	106.0	99.89
10 MinAvg	1255.1	1.6	15.8	404	0.46	223.2	101.1	81.9	84.4	122.7	122.7	118.5	121.1	94.9	99.87
14:21	1312.0	1.2	15.7	403	0.54	221.7	111.7	79.3	95.2	122.8	122.8	122.4	121.6	113.4	99.91
14:22	1337.0	1.3	15.7	404	0.54	223.3	113.7	78.9	104.4	122.8	122.8	122.8	121.8	117.9	99.90
14:23	1338.0	1.2	15.7	404	0.55	222.7	113.5	78.6	95.9	122.8	122.8	122.8	122.3	117.1	99.91
14:24	1350.0	1.2	15.8	404	0.55	221.9	115.0	78.7	109.1	122.8	122.8	122.8	122.2	117.0	99.91
14:25	1345.0	1.3	15.7	404	0.47	221.9	117.0	78.6	121.5	122.7	122.7	122.7	121.8	120.6	99.90
14:26	1345.0	1.3	15.8	404	0.53	222.0	117.2	78.8	122.7	122.7	122.7	122.7	121.7	120.6	99.90
14:27	1354.0	1.3	15.7	403	0.54	218.8	117.2	78.5	122.7	122.7	122.7	122.7	121.8	120.8	99.90
14:28	1356.0	1.2	15.7	403	0.48	221.8	117.2	78.6	122.6	122.6	122.6	122.6	122.5	121.5	99.91
14:29	1359.0	1.2	15.7	404	0.55	222.1	117.2	78.4	122.6	122.6	122.6	122.6	122.5	121.0	99.91
14:30	1363.0	1.2	15.8	404	0.46	222.2	117.2	78.4	122.6	122.6	122.6	122.6	120.9	121.7	99.91
C	Dark and light spots are forming in the L/S in the reactor screws.														
10 MinAvg	1345.9	1.3	15.7	403	0.52	221.8	116.5	78.7	113.9	122.7	122.7	122.6	121.8	119.0	99.91
14:31	1368.0	1.2	15.8	404	0.55	223.2	119.6	79.9	122.6	122.6	122.6	122.6	122.1	122.2	99.92
14:32	1370.0	1.3	15.9	404	0.56	221.9	120.3	78.9	122.6	122.6	122.6	122.6	122.5	122.5	99.90
14:33	1375.0	1.3	15.8	404	0.55	222.7	120.7	82.2	122.6	122.6	122.6	122.6	122.4	122.3	99.90
14:34	1340.0	1.3	16.0	403	0.47	221.1	120.8	85.0	122.5	122.5	122.5	122.5	121.9	122.4	99.91
14:35	1338.0	1.2	16.0	403	0.57	220.0	120.5	87.7	122.4	122.4	122.4	122.4	122.1	122.3	99.91
14:36	1355.0	1.3	16.0	404	0.57	222.2	121.7	87.8	122.4	122.4	122.4	122.4	122.4	122.3	99.91
14:37	1343.0	1.3	16.0	404	0.47	223.6	121.6	89.3	122.3	122.3	122.3	122.3	122.3	122.3	99.90
14:38	1346.0	1.4	16.1	403	0.58	219.7	121.7	89.5	122.3	122.3	122.3	122.1	122.3	122.0	99.90
14:39	1357.0	1.5	16.0	403	0.58	220.0	121.7	89.7	122.2	122.2	122.2	122.2	122.2	122.2	99.89
14:40	1353.0	1.3	16.1	401	0.58	214.8	122.0	90.5	122.1	122.1	122.1	122.1	122.1	122.1	99.91
10 MinAvg	1354.5	1.3	16.0	403	0.55	220.9	121.1	86.1	122.4	122.4	122.4	122.4	122.2	122.3	99.90
14:41	1325.0	1.3	16.0	403	0.49	219.0	121.9	91.1	122.1	122.1	122.1	122.1	122.1	122.1	99.90
14:42	1353.0	1.4	15.9	402	0.58	217.4	121.6	92.2	122.0	122.0	122.0	122.0	122.0	122.0	99.90
14:43	1377.0	1.6	15.9	403	0.58	221.2	121.4	90.2	121.9	121.9	121.9	121.7	121.8	121.9	99.89
14:44	1370.0	1.5	15.9	402	0.59	217.9	121.6	90.0	121.8	121.8	121.8	121.8	121.7	121.8	99.89
14:45	1356.0	1.5	16.0	403	0.49	219.5	121.7	90.9	121.8	121.8	121.8	121.8	121.8	121.8	99.89
14:46	1345.0	1.5	15.9	402	0.59	218.3	121.6	91.1	121.7	121.7	121.7	121.7	121.7	121.7	99.89
14:47	1370.0	1.5	15.9	402	0.59	217.2	121.4	86.4	121.7	121.7	121.7	121.7	121.7	121.7	99.89

E-455

LEC Run 920613

Starting
06-13-92

E-456

LEC Run 920613

Starting
06-13-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in. H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10 MinAvg	1347.7	4.9	15.8	399	0.54	208.0	120.4	90.4	120.4	120.4	120.4	120.4	120.4	120.4	99.63
15:21	1331.0	4.8	16.0	401	0.54	211.9	120.1	89.2	120.1	120.1	120.1	120.1	120.1	120.1	99.64
15:22	1322.0	4.0	16.0	399	0.54	207.0	120.1	89.0	120.1	120.1	120.1	120.1	120.1	120.1	99.70
15:23	1324.0	3.1	16.0	401	0.54	212.8	120.1	89.3	120.1	120.1	120.1	120.1	120.1	120.1	99.76
15:24	1331.0	2.7	15.9	400	0.54	211.6	120.1	89.1	120.1	120.1	120.1	120.1	120.1	120.1	99.79
15:25	1352.0	2.0	15.9	403	0.54	218.9	120.1	89.2	120.1	120.1	120.1	120.1	120.1	120.1	99.85
15:26	1338.0	1.9	15.9	402	0.44	216.7	120.1	88.1	120.1	120.1	120.1	120.1	120.1	120.1	99.86
15:27	1318.0	1.8	15.9	403	0.54	218.6	120.1	90.1	120.1	120.1	120.1	120.1	120.1	120.1	99.86
15:28	1338.0	1.9	15.8	402	0.54	217.5	120.0	89.4	120.0	120.0	120.0	120.0	120.0	120.0	99.86
15:29	1481.0	1.6	14.7	403	0.54	219.8	120.0	88.0	120.0	120.0	120.0	120.0	120.0	120.0	99.90
15:30	1560.0	1.8	14.5	403	0.54	219.6	119.9	87.1	119.9	119.9	119.9	119.9	119.9	119.9	99.89
10 MinAvg	1369.5	2.5	15.7	402	0.53	215.4	120.1	88.8	120.1	120.1	120.1	120.1	120.1	120.1	99.81
C	Reactor screw is approximately 60% damp.														
15:31	1576.0	1.9	14.5	401	0.54	214.7	119.9	89.2	119.9	119.9	119.9	119.9	119.9	119.9	99.88
15:32	1561.0	2.1	14.6	403	0.53	219.8	119.8	88.1	119.8	119.8	119.8	119.8	119.8	119.8	99.87
15:33	1547.0	2.5	14.6	403	0.45	219.8	119.8	85.5	119.8	119.8	119.8	119.8	119.8	119.8	99.84
15:34	1513.0	2.7	14.8	403	0.51	221.1	119.8	87.7	119.8	119.8	119.8	119.8	119.8	119.8	99.82
15:35	1512.0	2.9	14.8	403	0.54	221.2	119.8	88.4	119.8	119.8	119.8	119.8	119.8	119.8	99.81
15:36	1499.0	3.2	15.0	403	0.54	220.5	119.8	87.1	119.8	119.8	119.8	119.8	119.8	119.8	99.79
15:37	1462.0	3.5	15.2	402	0.54	218.4	119.8	87.9	119.8	119.8	119.8	119.8	119.8	119.8	99.76
15:38	1397.0	3.7	15.7	402	0.54	216.7	119.9	88.8	119.9	119.9	119.9	119.9	119.9	119.9	99.73
15:39	1338.0	3.4	16.0	403	0.54	219.1	119.9	90.2	119.9	119.9	119.9	119.9	119.9	119.9	99.74
15:40	1308.0	3.4	16.2	403	0.54	220.9	120.0	89.5	120.0	120.0	120.0	120.0	120.0	120.0	99.74
10 MinAvg	1471.3	2.9	15.1	403	0.53	219.2	119.8	88.2	119.8	119.8	119.8	119.8	119.8	119.8	99.80
15:41	1246.0	3.3	16.6	403	0.52	220.5	120.0	88.4	120.0	120.0	120.0	120.0	120.0	120.0	99.73
15:42	1235.0	3.1	16.6	403	0.45	219.0	120.0	88.6	120.0	120.0	120.0	120.0	120.0	120.0	99.75
15:43	1231.0	3.0	16.7	403	0.54	221.6	119.9	89.0	119.9	119.9	119.9	119.9	119.9	119.9	99.75
15:44	1221.0	2.7	16.7	403	0.54	221.0	119.8	89.3	119.8	119.8	119.8	119.8	119.8	119.8	99.78
15:45	1212.0	2.5	16.7	403	0.54	219.8	119.7	89.9	119.7	119.7	119.7	119.7	119.7	119.7	99.80
15:46	1208.0	2.0	16.5	406	0.54	229.4	119.6	90.0	119.6	119.6	119.6	119.5	119.6	119.6	99.83
15:47	1241.0	1.9	16.4	404	0.54	223.8	119.5	89.7	119.5	119.5	119.5	119.5	119.5	119.5	99.85
15:48	1269.0	1.7	16.7	404	0.53	222.8	119.6	89.8	119.6	119.6	119.6	119.6	119.6	119.6	99.86
C	Opened the outlet sample line to ambient air to check O2 monitor's calibration. O2 monitor reads 23.6; therefore its recalibrated.														
C	Switched sample lines; Inlet O2 = 14.3%; Outlet monitor goes off scale above 1000 ppmdv														
15:49	1298.0			405	0.41	227.5	119.6	90.1	119.6	119.6	119.6	119.6	119.6	119.6	
15:50	854.0			405	0.54	228.3	119.5	89.9	119.5	119.5	119.5	119.5	119.5	119.5	

E-457

LEC Run 920613

Starting
06-13-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10 MinAvg	1201.5	2.5	16.6	404	0.51	223.4	119.7	89.5	119.7	119.7	119.7	119.7	119.7	119.7	99.79
15:51	383.9			403	0.54	221.7	119.5	89.9	119.5	119.5	119.5	119.5	119.5	119.5	
15:52	248.8			403	0.53	220.2	119.5	89.9	119.5	119.5	119.5	119.5	119.5	119.5	
15:53	183.2			403	0.54	221.3	119.5	89.4	119.5	119.5	119.5	119.5	119.5	119.5	
15:54	142.3			403	0.54	220.8	119.5	90.0	119.5	119.5	119.5	119.5	119.5	119.5	
15:55	18.6			403	0.41	219.3	119.5	89.7	119.5	119.5	119.5	119.5	119.5	119.5	
15:56	2.7			403	0.54	219.5	119.5	89.8	119.5	119.5	119.5	119.5	119.5	119.5	
C	Sample lines are switched back to original configuration.														
15:57	272.0			403	0.54	219.2	119.5	90.0	119.5	119.5	119.5	119.5	119.5	119.5	
15:58	877.0			402	0.54	216.5	119.5	89.6	119.5	119.5	119.5	119.5	119.5	119.5	
15:59	1049.0	7.1	14.5	402	0.54	215.7	119.4	89.9	119.4	119.4	119.4	119.4	119.4	119.4	99.33
16:00	1102.0	4.4	14.6	403	0.47	220.4	119.4	89.5	119.4	119.4	119.4	119.4	119.4	119.4	99.60
10 MinAvg	428.0	5.7	14.6	403	0.52	219.5	119.5	89.8	119.5	119.5	119.5	119.5	119.5	119.5	99.46
16:01	1134.0	3.3	14.7	403	0.50	221.0	119.3	89.7	119.3	119.3	119.3	119.3	119.3	119.3	99.71
16:02	1136.0	2.6	14.7	403	0.55	220.4	119.2	89.7	119.2	119.2	119.2	119.2	119.2	119.2	99.77
16:03	1158.0	2.3	14.7	403	0.55	219.4	119.2	89.5	119.2	119.2	119.2	119.2	119.2	119.2	99.80
16:04	1180.0	2.0	14.6	403	0.55	221.1	119.2	89.8	119.2	119.2	119.2	119.2	119.2	119.2	99.83
16:05	1229.0	2.0	14.5	403	0.55	220.9	119.1	89.5	119.1	119.1	119.1	119.1	119.1	119.1	99.83
16:06	1277.0	1.8	14.4	403	0.53	219.9	119.1	89.3	119.1	119.1	119.1	119.1	119.1	119.1	99.86
16:07	1306.0	1.8	14.3	403	0.46	219.7	119.0	89.6	119.0	119.0	119.0	119.0	119.0	119.0	99.86
16:08	1332.0	1.6	14.3	403	0.55	220.1	119.0	89.2	119.0	119.0	119.0	119.0	119.0	119.0	99.88
16:09	1361.0	1.5	14.2	405	0.55	227.0	118.9	89.6	118.9	118.9	118.9	118.9	118.9	118.9	99.89
16:10	1384.0	1.7	14.1	405	0.56	227.8	118.9	89.5	118.9	118.9	118.9	118.9	118.9	118.9	99.88
10 MinAvg	1249.7	2.1	14.4	403	0.53	221.7	119.1	89.5	119.1	119.1	119.1	119.1	119.1	119.1	99.83
16:11	1387.0	1.9	14.1	405	0.56	226.3	118.8	89.2	118.8	118.8	118.8	118.8	118.8	118.8	99.86
16:12	1384.0	2.0	14.1	403	0.50	220.4	118.8	89.3	118.8	118.8	118.8	118.8	118.8	118.8	99.86
16:13	1350.0	1.9	14.2	402	0.50	217.6	118.7	89.1	118.7	118.7	118.7	118.7	118.7	118.7	99.86
16:14	1368.0	1.9	14.1	403	0.56	219.0	118.7	89.3	118.7	118.7	118.7	118.7	118.7	118.7	99.86
16:15	1368.0	1.7	14.1	403	0.56	220.3	118.6	89.1	118.6	118.6	118.6	118.6	118.6	118.6	99.87
16:16	1346.0	1.4	14.1	402	0.57	218.4	118.5	88.9	118.5	118.5	118.5	118.5	118.5	118.5	99.89
16:17	1317.0	1.5	14.2	403	0.57	218.8	118.5	89.1	118.5	118.5	118.5	118.5	118.5	118.5	99.88
16:18	1305.0	1.7	14.3	403	0.57	219.4	118.5	88.7	118.5	118.5	118.5	118.5	118.5	118.5	99.87
16:19	1314.0	1.8	14.2	403	0.56	218.7	118.5	89.1	118.5	118.5	118.5	118.5	118.5	118.5	99.86
16:20	1307.0	2.0	14.2	400	0.46	210.4	118.5	89.1	118.5	118.5	118.5	118.5	118.5	118.5	99.85
10 MinAvg	1344.6	1.8	14.1	403	0.54	218.9	118.6	89.1	118.6	118.6	118.6	118.6	118.6	118.6	99.87

E-458

LEC Run 920613

Starting
06-13-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
16:21	1285.0	2.0	14.3	403	0.57	218.6	118.5	89.1	118.5	118.5	118.5	118.5	118.5	118.5	99.84
16:22	1283.0	2.0	14.3	402	0.57	217.4	118.4	89.0	118.4	118.4	118.4	118.4	118.4	118.4	99.84
16:23	1277.0	2.0	14.3	403	0.57	219.9	118.3	89.0	118.3	118.3	118.3	118.3	118.3	118.3	99.84
16:24	1311.0	2.2	14.3	402	0.58	215.9	118.3	88.9	118.3	118.3	118.3	118.3	118.3	118.3	99.83
16:25	1372.0	2.5	14.1	402	0.58	218.2	118.3	88.9	118.3	118.3	118.3	118.3	118.3	118.3	99.82
16:26	1399.0	2.9	14.0	403	0.57	218.5	118.3	88.9	118.3	118.3	118.3	118.3	118.3	118.3	99.79
16:27	1392.0	3.0	14.1	403	0.57	219.8	118.3	88.9	118.3	118.3	118.3	118.3	118.3	118.3	99.78
16:28	1392.0	3.1	14.0	402	0.46	215.7	118.2	88.8	118.2	118.2	118.2	118.2	118.2	118.2	99.77
16:29	1402.0	3.4	14.1	402	0.58	217.0	118.2	88.8	118.2	118.2	118.2	118.2	118.2	118.2	99.76
16:30	1396.0	3.6	14.1	403	0.58	219.7	118.1	88.7	118.1	118.1	118.1	118.1	118.1	118.1	99.74
10 MinAvg	1350.9	2.7	14.2	402	0.56	218.1	118.3	88.9	118.3	118.3	118.3	118.3	118.3	118.3	99.80
16:31	1390.0	3.6	14.2	403	0.58	219.2	118.1	88.7	118.1	118.1	118.1	118.1	118.1	118.1	99.74
16:32	1394.0	3.8	14.2	403	0.58	219.2	118.1	88.7	118.1	118.1	118.1	118.1	118.1	118.1	99.73
16:33	1393.0	4.1	14.2	403	0.58	220.0	118.1	88.7	118.1	118.1	118.1	118.1	118.1	118.1	99.70
16:34	1403.0	4.3	14.2	403	0.58	218.9	118.1	88.7	118.1	118.1	118.1	118.1	118.1	118.1	99.69
16:35	1423.0	4.5	14.1	403	0.56	219.5	118.1	88.7	118.1	118.1	118.1	118.1	118.1	118.1	99.68
16:36	1425.0	5.0	14.1	403	0.49	221.3	118.0	88.6	118.0	118.0	118.0	118.0	118.0	118.0	99.65
16:37	1416.0	5.1	14.1	403	0.57	219.8	118.0	88.6	118.0	118.0	118.0	118.0	118.0	118.0	99.64
16:38	1427.0	5.6	14.1	403	0.57	220.1	117.9	88.6	117.9	117.9	117.9	117.9	117.9	117.9	99.61
16:39	1423.0	6.6	14.1	404	0.57	224.4	117.9	88.5	117.9	117.9	117.9	117.9	117.9	117.9	99.54
16:40	1432.0	6.5	14.1	404	0.57	223.4	117.9	88.5	117.9	117.9	117.9	117.9	117.9	117.9	99.55
10 MinAvg	1412.6	4.9	14.1	403	0.57	220.6	118.0	88.6	118.0	118.0	118.0	118.0	118.0	118.0	99.65
16:41	1417.0	6.8	14.1	404	0.57	222.2	117.8	88.5	117.8	117.8	117.8	117.8	117.8	117.8	99.52
16:42	1420.0	7.3	14.1	404	0.46	222.8	117.8	88.4	117.8	117.8	117.8	117.8	117.8	117.8	99.48
16:43	1431.0	6.7	14.0	408	0.57	236.7	117.8	88.4	117.8	117.8	117.8	117.8	117.8	117.8	99.53
16:44	1467.0	7.5	13.9	406	0.57	231.7	117.8	88.4	117.8	117.8	117.8	117.8	117.8	117.8	99.49
16:45	1485.0	8.8	13.9	407	0.57	232.6	117.8	88.4	117.8	117.8	117.8	117.8	117.8	117.8	99.41
16:46	1488.0	8.6	13.8	407	0.58	235.0	117.9	88.5	117.9	117.9	117.9	117.9	117.9	117.9	99.42
16:47	1477.0	8.1	13.8	404	0.58	225.0	117.9	88.5	117.9	117.9	117.9	117.9	117.9	117.9	99.45
16:48	1487.0	7.9	13.8	407	0.58	235.0	117.9	88.5	117.9	117.9	117.9	117.9	117.9	117.9	99.47
16:49	1493.0	8.7	13.8	406	0.49	229.7	117.9	88.5	117.9	117.9	117.9	117.9	117.9	117.9	99.41
16:50	1489.0	9.0	13.9	403	0.59	220.1	117.8	88.4	117.8	117.8	117.8	117.8	117.8	117.8	99.39
10 MinAvg	1465.4	8.0	13.9	406	0.56	229.1	117.8	88.4	117.8	117.8	117.8	117.8	117.8	117.8	99.46
16:51	1481.0	9.5	13.9	404	0.59	223.2	117.8	88.4	117.8	117.8	117.8	117.8	117.8	117.8	99.36
16:52	1472.0	9.7	13.9	403	0.59	219.5	117.7	88.3	117.7	117.7	117.7	117.7	117.7	117.7	99.34
16:53	1454.0	10.0	13.9	402	0.59	217.5	117.6	88.2	117.6	117.6	117.6	117.6	117.6	117.6	99.31

E-459

LEC Run 920613

Starting
06-13-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
16:54	1430.0	10.0	13.8	402	0.59	216.8	117.6	89.1	117.6	117.6	117.6	117.6	117.6	117.6	99.30
16:55	1437.0	9.9	13.8	402	0.60	216.5	117.6	90.7	117.6	117.6	117.6	117.6	117.6	117.6	99.31
16:56	1437.0	11.0	13.8	402	0.60	217.5	117.5	98.9	117.5	117.5	117.5	117.5	117.5	117.5	99.23
16:57	1454.0	11.9	13.7	402	0.57	218.0	117.4	105.0	117.4	117.4	117.4	117.4	117.4	117.4	99.18
16:58	1465.0	13.7	13.6	403	0.46	219.3	117.4	106.2	117.4	117.4	117.4	117.4	117.4	117.4	99.07
16:59	1465.0	14.9	13.6	403	0.57	220.3	117.4	99.3	117.4	117.4	117.4	117.4	117.4	117.4	98.98
17:00	1488.0	14.5	13.5	402	0.57	218.4	117.5	101.4	117.5	117.5	117.5	117.5	117.5	117.5	99.02
10 MinAvg	1458.3	11.5	13.7	403	0.57	218.7	117.6	95.6	117.6	117.6	117.6	117.6	117.6	117.6	99.21
17:01	1481.0	14.2	13.5	394	0.57	191.3	117.6	96.9	117.6	117.6	117.6	117.6	117.6	117.6	99.04
17:02	1469.0	15.4	13.5	395	0.57	193.7	117.6	92.9	117.6	117.6	117.6	117.6	117.6	117.6	98.96

C Limestone was drying out, but the vibrating screen broke-down before the water addition could be increased.

SCREEN ANALYSIS OF 9206131400 REACTOR STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	1.8	0.23	0.438	0.0052
+5/16	0.313	2.1	0.27	0.344	0.0077
+1/4	0.250	6.3	0.80	0.282	0.0283
+3.5	0.223	4.1	0.52	0.237	0.0219
+4	0.185	5.4	0.68	0.204	0.0334
+5	0.157	22.7	2.87	0.171	0.1677
+6	0.132	74.5	9.41	0.145	0.6514
+8	0.094	228.0	28.81	0.113	2.5526
+10	0.079	99.6	12.58	0.086	1.4598
+12	0.066	86.9	10.98	0.072	1.5165
+14	0.056	79.3	10.02	0.061	1.6479
+16	0.047	40.7	5.14	0.051	1.0043
+20	0.033	76.7	9.69	0.040	2.4226
+25	0.132	18.2	2.30	0.083	0.2786
+30	0.094	10.9	1.38	0.113	0.1220
+35	0.079	10.0	1.26	0.086	0.1466
+40	0.066	5.7	0.72	0.072	0.0995
+45	0.056	2.8	0.35	0.061	0.0582
+50	0.047	2.1	0.27	0.051	0.0518
+60	0.033	1.7	0.21	0.040	0.0537
-60		12.0	1.52	0.017	0.9161
	Total =	791.5	100.00		13.2457

Harmonic Mean Diameter (in.) = 0.0755
Weighted Average Diameter (in.) = 0.0949

SCREEN ANALYSIS OF 9206131552 FEED SCREW STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	0.0	0.00	0.438	0.0000
+5/16	0.313	0.0	0.00	0.344	0.0000
+1/4	0.250	16.6	1.97	0.282	0.0699
+3.5	0.223	10.4	1.23	0.237	0.0521
+4	0.185	14.0	1.66	0.204	0.0814
+5	0.157	45.1	5.35	0.171	0.3126
+6	0.132	134.0	15.88	0.145	1.0993
+8	0.094	314.4	37.27	0.113	3.3025
+10	0.079	110.3	13.07	0.086	1.5168
+12	0.066	84.0	9.96	0.072	1.3753
+14	0.056	63.2	7.49	0.061	1.2322
+16	0.047	24.4	2.89	0.051	0.5649
+20	0.033	21.4	2.54	0.040	0.6342
-20		5.8	0.69	0.017	0.4154
Total =		843.6	100.00		10.6566

Harmonic Mean Diameter (in.) = 0.0938
Weighted Average Diameter (in.) = 0.1116

LEC RUN 920613

Waste Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Dust Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
02:06 PM	79	25.5	0.32
02:16 PM	10	23.4	2.34
02:26 PM	10	24.0	2.40
02:36 PM	10	24.0	2.40
02:46 PM	10	24.0	2.40
03:14 PM	28	25.0	0.89
03:30 PM	16	24.0	1.50
03:50 PM	20	28.0	1.40
04:02 PM	12	24.0	2.00
04:18 PM	16	24.0	1.50
04:31 PM	13	25.0	1.92
Total:		270.9	
Average:			1.73

LEC RUN 920613

Carry-Over Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Stone Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
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No stone carry-over occurred.

Run Summary:

LEC Run 920616

Objective: EPA Method 5 testing on the outlet stack.

Total Run Time: 21 minutes.

SO₂ Removal: 96% (average)

Inlet Gas Rate: 1363 acfm (average)

Operational Conditions:

No.9 Maxville limestone from LEC Run 920613

In-duct Steam = 10 psig

Overhead Sprays = 0.0 gpm

Louver Sprays = 0.33 gpm from 15:23 to 15:32

Bed Speed = 10DT (2195 lb/hr)

Regeneration Device: Twin deck vibrating screen equipped with 1/4" and No.16 mesh screens.

Stone Carry-Over: +180 lbs/min.

Waste fines: Not Available, all man-power was manually transferring carry-over stone to the feed screw conveyor.

Comments: - The run was terminated due to the excessive amount of stone being fluidized in the outlet louvers. The EPA Reference Method 5 testing that was being conducted on the outlet stack during this run was stopped due to fouling of the sampling equipment caused by the excessive amounts of stone being propelled out of the ID fan.

LEC Run 920616

Starting
06-16-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
EPA Reference Method 5 sampling system is set-up on the outlet stack. Initial Conditions: Same dry No.9 limestone as LEC Run 920613 and it was loaded on 6/15/92; 8" damper choker with the damper on Position #1; Bed speed = 2020 lb/hr (100T)															
15:10	127.8	0.2	19.9	1325	3.39	196.4	87.7	83.6	83.6	83.6	83.6	83.6	83.6	80.8	99.85
15:11	1091.0	0.5	13.3	1728	5.57	258.6	91.3	83.5	83.6	81.8	83.6	83.6	83.7	81.8	99.96
15:12	1253.0	0.3	13.0	1698	5.84	258.6	92.1	81.9	83.6	77.9	83.6	85.2	83.5	81.6	99.97
15:13	1323.0	1.2	13.0	1667	6.07	258.6	93.5	79.9	83.3	73.0	83.7	83.3	83.7	80.3	99.91
15:14	1365.0	15.7	12.9	1636	6.04	258.6	96.2	83.2	83.2	71.8	92.6	83.5	83.7	80.3	98.85
15:15	1386.0	26.1	12.9	1604	6.00	258.6	98.2	82.7	83.7	71.7	98.4	91.4	83.7	81.8	98.12
15:16	1403.0	31.4	12.9	1523	5.92	233.6	98.5	80.9	84.6	81.1	98.5	98.3	86.2	80.9	97.76
15:17	1403.0	37.8	12.9	1392	5.86	174.0	98.5	82.1	91.8	83.7	99.8	98.5	96.1	79.5	97.30
15:18	1399.0	47.6	12.9	1416	5.89	228.2	98.5	85.2	98.2	91.9	106.8	98.5	98.5	78.5	96.60
15:19	1401.0	49.1	12.9	1370	5.79	229.2	98.4	87.7	98.7	98.4	114.3	103.5	98.4	81.8	96.49
15:20	1368.0	49.8	13.0	1311	5.62	231.8	100.8	90.0	102.3	100.7	116.3	113.1	100.8	83.2	96.36
10 MinAvg	1339.2	25.9	13.0	1534	5.86	239.0	96.6	83.7	89.3	83.2	97.8	93.7	89.8	81.0	98.13
15:21	1381.0	47.8	13.0	1292	5.57	239.3	102.1	94.3	102.6	112.4	115.2	113.6	106.9	83.7	96.54
15:22	1387.0	54.5	13.0	1263	5.53	235.7	104.2	97.8	105.0	113.5	115.4	113.2	105.9	92.3	96.07
C	Louver sprays are turned on to 0.33 gpm and the in-duct steam is turn on full (10 psig)														
15:23	1379.0	62.9	13.1	1254	5.59	240.4	108.2	97.4	105.6	113.3	113.4	112.7	108.1	98.3	95.44
15:24	1373.0	76.2	13.1	1227	5.56	240.7	108.1	98.4	108.8	113.0	113.0	112.4	109.1	98.4	94.45
15:25	1387.0	80.5	13.0	1243	5.63	243.0	109.8	98.3	106.0	113.5	113.0	111.9	110.2	98.3	94.20
15:26	1400.0	87.1	13.0	1206	5.60	248.7	111.5	98.5	105.5	113.2	112.8	111.1	110.5	100.5	93.78
15:27	1406.0	95.0	13.0	1203	5.62	245.2	112.1	98.7	109.3	112.9	112.9	110.6	110.6	109.3	93.24
15:28	1419.0	105.3	13.0	1194	5.58	251.2	111.8	98.2	105.9	112.8	112.9	109.2	111.4	111.8	92.58
15:29	1420.0	106.4	13.0	1177	5.49	248.1	111.9	98.2	106.0	112.6	112.9	112.3	112.4	114.1	92.51
15:30	1405.0	101.6	13.1	1179	5.55	250.5	112.8	98.2	107.7	112.6	113.0	113.8	111.7	113.9	92.77
10 MinAvg	1395.7	81.7	13.0	1224	5.57	244.3	109.3	97.8	106.2	113.0	113.4	112.1	109.7	102.1	94.16
15:31	1419.0	104.0	13.1	1181	5.59	252.5	112.9	98.1	108.2	112.6	113.2	115.1	111.4	114.6	92.67
15:32	1403.0	112.2	13.2	1151	5.48	250.9	112.7	98.1	109.1	112.8	113.2	114.1	110.6	116.6	92.00
C	The run is ended when the Method 5 filter and probe fill-up with stone particles.														

Run Comments:

- A bucket brigade was used during the entire due to the excessive amount of limestone exiting the dutchman assembly. Greater than 180 lbs/min of stone was exiting the bed through the outlet louvers (4 buckets/min). A sample of this stone taken.
- A very large and dark dust plumb was being emitted by the outlet stack during the run (especially during the first 10 minutes).

SCREEN ANALYSIS OF 920616 END-O-RUN DUTCHMAN STONE

NOMINAL SCREEN SIZE	MESH OPENING (inches)	SAMPLE WEIGHT (grams)	WEIGHT PERCENT (%)	MEAN OPENING (inches)	(Xi/Dpi)
+1/2	0.500	0.0	0.00	0.500	0.0000
+3/8	0.375	2.0	0.20	0.438	0.0046
+5/16	0.313	0.0	0.00	0.344	0.0000
+1/4	0.250	7.2	0.72	0.282	0.0255
+3.5	0.223	7.5	0.75	0.237	0.0316
+4	0.185	10.5	1.05	0.204	0.0513
+5	0.157	30.2	3.01	0.171	0.1761
+6	0.132	107.6	10.73	0.145	0.7423
+8	0.094	324.5	32.35	0.113	2.8666
+10	0.079	143.4	14.30	0.086	1.6584
+12	0.066	126.5	12.61	0.072	1.7418
+14	0.056	121.4	12.10	0.061	1.9905
+16	0.047	56.8	5.66	0.051	1.1059
+20	0.033	60.6	6.04	0.040	1.5103
-20		4.9	0.49	0.017	0.2952
Total =		1003.1	100.00		12.2002
Harmonic Mean Diameter (in.) =			0.0820		
Weighted Average Diameter (in.) =			0.0982		

LEC RUN 920616

Waste Production Log

<u>Time</u> <u>Collected</u>	<u>Collection</u> <u>Time (min)</u>	<u>Dust Collected</u> <u>(lbs)</u>	<u>Mass Rate</u> <u>(lbs/min)</u>
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No dust was collected, since available labor was manually transferring the carry-over stone from the dutchman elbow to the feed screw conveyor.

LEC RUN 920616

Carry-Over Production Log

<u>Time</u> <u>Collected</u>	<u>Collection</u> <u>Time (min)</u>	<u>Stone Collected</u> <u>(lbs)</u>	<u>Mass Rate</u> <u>(lbs/min)</u>
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The stone carry-over is estimated at over 180 lbs/min. A crew of three was used in a "bucket brigade" in order to convey this large amount of stone.

An extreme amount of stone was also exiting through the outlet stack. The stone flow through the stack was so great that it fouled the method 5 sampling equipment used to test the outlet stack.

Run Summary:

LEC Run 920617

Objective: EPA Method 5 testing with No.9 limestone at a reduced gas flowrate.

Total Run Time: 447 minutes.

SO₂ Removal: 94% (average)

Inlet Gas Rate: 600 acfm (average).

Operational Conditions:

4" damper choker with the damper fully open.

No.9 Maxville limestone from LEC Run 920616

In-duct Steam = 10 psig

Overhead Sprays = 0.0 gpm

Louver Sprays = 0.00 gpm from 10:20 to 14:10

0.27 gpm from 14:10 to 16:10

0.00 gpm from 16:10 to 17:47

Bed Speed = 10DT (2195 lb/hr)

Regeneration Device: Twin deck vibrating screen equipped with 1/4" and No.16 mesh screens.

Stone Carry-Over: 0.0 lbs/min

Waste fines: 1.37 lbs/min (average)

Comments: - EPA Reference Method 5 testing was conducted on the outlet stack during this run.

6 of 6

LEC Run 920617

Starting
06-17-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
EPA Method 5 sampling system is set-up on the outlet stack. 3 M5 runs were conducted during this experiment. Initial Conditions: Used No.9 Maxville Limestone from LEC Run 920616; 4" damper choker with the damper on full; bed speed = 100T; In-duct steam injection = 10psig (full); Louver sprays = 0.0 gpm; vibrating screen is equipped with 1/4" and No.16 mesh screens.															
10:20	957.0	1.6	13.0	397	1.81	198.5	81.7	74.1	74.1	74.1	74.1	74.1	74.1	74.1	99.83
C	The L/S exiting the reactor is pure white (dry).														
10:21	995.0	1.7	13.0	399	1.86	206.7	83.0	74.1	74.1	74.1	74.1	74.1	74.1	74.1	99.83
10:22	1013.0	1.6	13.1	399	1.77	207.5	85.2	74.2	74.3	74.2	74.2	74.2	74.2	74.2	99.85
10:23	1020.0	1.7	13.2	401	1.76	212.1	86.7	74.4	74.3	74.3	74.3	74.3	74.3	74.3	99.84
10:24	1038.0	1.7	13.2	401	1.73	214.4	87.3	74.7	74.3	74.3	74.3	74.3	74.3	74.3	99.84
10:25	1037.0	1.9	13.2	402	1.68	217.5	89.0	74.6	74.4	74.4	74.4	74.4	74.4	74.4	99.82
10:26	1048.0	1.9	13.1	403	1.67	219.6	88.2	75.4	74.5	74.4	74.4	74.4	74.4	74.4	99.82
10:27	1040.0	2.1	13.3	403	1.61	219.6	89.0	75.3	74.7	74.4	74.4	74.4	74.4	74.4	99.80
10:28	1038.0	2.1	13.4	402	1.57	217.6	88.7	74.9	74.6	74.4	74.4	74.4	74.4	74.4	99.80
10:29	1050.0	2.2	13.2	403	1.65	219.6	89.2	74.9	75.1	74.5	74.5	74.5	74.5	74.5	99.79
10:30	1048.0	2.2	13.2	403	1.65	219.9	89.4	75.0	74.8	74.7	74.5	74.5	74.5	74.5	99.79
10 MinAvg	1032.7	1.9	13.2	402	1.69	215.4	87.6	74.8	74.5	74.4	74.3	74.3	74.3	74.3	99.82
10:31	1050.0	2.5	13.2	403	1.61	220.3	89.4	75.6	75.1	74.6	74.6	74.6	74.6	74.6	99.77
10:32	1053.0	2.6	13.2	403	1.59	220.1	89.5	76.5	76.6	74.9	74.7	75.0	74.7	74.7	99.76
10:33	1044.0	2.6	13.3	403	1.59	220.5	89.6	77.1	80.8	76.7	74.7	82.9	77.1	74.7	99.75
10:34	1042.0	2.6	13.4	403	1.56	220.6	89.6	79.6	84.6	78.5	74.9	88.3	87.5	74.8	99.75
10:35	1061.0	2.7	13.4	403	1.50	220.7	89.7	81.7	88.0	81.3	75.6	89.3	89.7	74.9	99.75
10:36	1081.0	2.7	13.4	403	1.48	220.9	89.8	83.2	89.0	86.1	78.5	89.8	93.1	74.9	99.75
10:37	1107.0	2.7	13.3	403	1.45	220.9	89.8	83.2	89.5	88.6	87.8	89.8	98.1	75.0	99.76
10:38	1128.0	2.9	13.2	403	1.42	220.9	89.8	87.6	89.8	89.8	89.8	89.8	114.3	75.0	99.74
10:39	1135.0	3.0	13.2	403	1.34	219.9	90.2	89.7	89.6	89.6	89.9	91.0	118.4	75.8	99.74
10:40	1140.0	3.1	13.1	403	1.32	221.0	91.0	89.4	89.8	89.9	94.4	100.4	119.1	83.1	99.73
10 MinAvg	1084.1	2.7	13.3	403	1.49	220.6	89.8	82.4	85.3	83.0	81.5	87.1	94.7	75.7	99.75
10:41	1149.0	3.1	13.1	403	1.23	220.9	92.8	89.3	89.9	89.9	111.1	111.0	119.3	89.8	99.73
10:42	1145.0	3.0	13.1	403	1.16	221.0	99.2	89.6	89.9	89.9	115.0	114.1	119.3	89.9	99.74
10:43	1155.0	2.9	13.0	403	1.08	221.0	104.9	89.9	89.9	90.0	119.3	113.9	119.3	90.0	99.75
10:44	1163.0	2.9	13.0	403	1.02	221.0	109.4	89.9	92.0	96.2	119.3	113.4	119.3	100.0	99.75
10:45	1166.0	2.9	13.1	403	0.98	221.0	113.1	92.0	107.0	99.7	119.3	119.1	119.3	112.6	99.75
10:46	1176.0	2.8	13.1	403	0.92	221.0	114.8	98.3	92.6	92.1	119.3	119.3	119.3	118.3	99.76
10:47	1186.0	2.6	12.9	403	0.93	221.0	117.7	106.6	110.9	89.9	119.3	118.7	119.3	119.2	99.78
10:48	1205.0	2.6	12.7	403	0.91	221.0	117.4	109.1	114.3	96.2	119.3	119.3	119.3	119.3	99.78
10:49	1204.0	2.6	12.7	403	0.90	220.8	117.9	108.3	118.8	103.0	119.3	119.3	119.3	119.3	99.78
10:50	1226.0	2.3	12.6	403	0.92	221.0	118.9	100.2	117.5	114.3	119.4	119.4	119.4	119.4	99.81

E-469

LEC Run 920617

Starting 06-17-92																
Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)	
10 MinAvg	1177.5	2.8	12.9	403	1.01	221.0	110.6	97.3	102.3	96.1	118.1	116.8	119.3	107.8	99.76	
10:51	1236.0	2.2	12.6	403	0.92	221.1	119.3	97.1	119.4	118.1	119.4	119.4	119.4	119.4	99.83	
10:52	1242.0	2.3	12.6	403	0.93	221.2	119.2	90.8	119.5	117.8	119.5	119.5	119.5	119.5	99.82	
10:53	1261.0	2.1	12.5	403	0.93	221.3	119.4	90.2	119.6	119.4	119.6	119.6	119.6	119.6	99.83	
10:54	1268.0	2.0	12.4	403	0.93	221.3	119.6	90.3	119.6	119.6	119.6	119.6	119.6	119.6	99.84	
10:55	1271.0	2.1	12.4	403	0.93	221.3	119.7	90.3	119.7	119.7	119.7	119.7	119.7	119.7	99.84	
10:56	1300.0	2.1	12.3	403	0.91	221.2	119.6	90.2	119.6	119.6	119.6	119.6	119.6	119.6	99.84	
10:57	1320.0	2.0	12.2	403	0.91	221.3	119.6	90.2	119.6	119.6	119.6	119.6	119.6	119.6	99.85	
10:58	1328.0	1.9	12.1	403	0.91	221.2	119.5	90.2	119.5	119.5	119.5	119.5	119.5	119.5	99.86	
10:59	1340.0	2.0	12.2	403	0.91	221.4	119.5	90.1	119.5	119.5	119.5	119.5	119.5	119.5	99.85	
11:00	1329.0	1.8	12.2	403	0.91	221.1	119.4	90.1	119.4	119.4	119.4	119.4	119.4	119.4	99.86	
10 MinAvg	1289.5	2.0	12.4	403	0.92	221.2	119.5	90.9	119.5	119.2	119.5	119.5	119.5	119.5	99.84	
11:01	1320.0	1.8	12.3	403	0.92	221.1	119.4	95.1	119.4	119.4	119.4	119.4	119.4	119.4	99.86	
11:02	1311.0	1.6	12.4	403	0.91	221.1	119.3	97.5	119.4	119.4	119.4	119.4	119.4	119.4	99.88	
11:03	1295.0	1.8	12.5	403	0.92	221.3	119.3	92.4	119.4	119.4	119.4	119.4	119.4	119.4	99.86	
11:04	1283.0	1.7	12.6	403	0.92	221.2	119.5	105.1	119.5	119.5	119.5	119.5	119.5	119.5	99.87	
11:05	1269.0	1.5	12.7	403	0.91	221.2	119.5	117.1	119.5	119.5	119.5	119.5	119.5	119.5	99.88	
11:06	1271.0	1.5	12.7	403	0.90	221.2	119.5	119.4	119.5	119.5	119.5	119.5	119.5	119.5	99.88	
11:07	1273.0	1.5	12.7	403	0.90	221.1	119.4	119.4	119.4	119.4	119.4	119.4	119.4	119.4	99.88	
11:08	1269.0	1.4	12.8	403	0.90	221.1	119.4	119.4	119.4	119.4	119.4	119.4	119.4	119.4	99.89	
11:09	1259.0	1.4	12.8	403	0.90	221.1	119.4	119.4	119.4	119.4	119.4	119.4	119.4	119.4	99.89	
11:10	1243.0	1.2	12.8	403	0.90	221.1	119.4	119.4	119.4	119.4	119.4	119.4	119.4	119.4	99.90	
10 MinAvg	1279.3	1.6	12.6	403	0.91	221.1	119.4	110.4	119.4	119.4	119.4	119.4	119.4	119.4	99.88	
11:11	1236.0	1.1	12.9	403	0.90	221.2	119.5	119.3	119.5	119.5	119.5	119.5	119.5	119.5	99.91	
11:12	1230.0	1.1	12.9	403	0.90	221.2	119.5	111.2	119.5	119.5	119.5	119.5	119.5	119.5	99.91	
11:13	1216.0	1.3	13.0	403	0.90	221.2	119.6	101.9	119.6	119.6	119.6	119.6	119.6	119.6	99.90	
11:14	1210.0	1.1	13.0	403	0.89	221.3	119.6	90.2	119.6	119.6	119.6	119.6	119.6	119.6	99.91	
11:15	1194.0	1.2	13.1	403	0.90	220.9	119.6	90.2	119.6	119.6	119.6	119.6	119.6	119.6	99.90	
11:16	1206.0	1.2	13.1	403	0.90	221.3	119.7	90.3	119.7	119.7	119.7	119.7	119.7	119.7	99.90	
11:17	1217.0	1.2	13.0	403	0.90	221.1	119.7	90.3	119.7	119.7	119.7	119.7	119.7	119.7	99.90	
11:18	1211.0	1.1	13.2	403	0.90	221.4	119.7	90.3	119.7	119.7	119.7	119.7	119.7	119.7	99.91	
11:19	1219.0	1.3	13.1	403	0.91	221.4	119.7	90.2	119.7	119.7	119.7	119.7	119.7	119.7	99.90	
11:20	1217.0	1.1	13.1	403	0.91	221.4	119.8	90.4	119.8	119.8	119.8	119.8	119.8	119.8	99.91	
10 MinAvg	1215.6	1.2	13.0	403	0.90	221.2	119.6	96.4	119.6	119.6	119.6	119.6	119.6	119.6	99.90	
11:21	1213.0	1.1	13.1	403	0.91	221.3	119.8	90.4	119.8	119.8	119.8	119.8	119.8	119.8	99.91	

E-470

Starting
06-17-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dp (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
11:22	1198.0	1.2	13.2	403	0.91	221.5	119.8	90.5	119.8	119.8	119.8	119.8	119.8	119.8	99.90
11:23	1199.0	1.1	13.2	403	0.90	221.1	119.9	90.5	119.9	119.9	119.9	119.9	119.9	119.9	99.91
11:24	1196.0	1.1	13.3	403	0.90	221.6	119.9	90.5	119.9	119.9	119.9	119.9	119.9	119.9	99.90
11:25	1186.0	1.1	13.3	403	0.88	221.7	120.0	90.4	120.0	120.0	120.0	120.0	120.0	120.0	99.91
11:26	1176.0	1.2	13.4	403	0.88	221.7	120.1	90.2	120.1	120.1	120.1	120.1	120.1	120.1	99.90
11:27	1163.0	1.3	13.5	403	0.87	221.8	120.1	90.4	120.1	120.1	120.1	120.1	120.1	120.1	99.89
11:28	1140.0	1.2	13.6	403	0.88	221.8	120.0	90.5	120.2	120.2	120.2	120.2	120.2	120.2	99.89
11:29	1110.0	1.2	13.9	404	0.87	222.4	120.2	90.8	120.2	120.2	120.2	120.2	120.2	120.2	99.89
11:30	1141.0	1.2	13.7	404	0.87	222.0	120.2	90.9	120.2	120.2	120.2	120.2	120.2	120.2	99.90
10 MinAvg	1172.2	1.2	13.4	403	0.89	221.7	120.0	90.5	120.0	120.0	120.0	120.0	120.0	120.0	99.90
11:31	1185.0	1.1	13.3	404	0.86	222.7	120.3	90.9	120.3	120.3	120.3	120.3	120.3	120.3	99.91
11:32	1124.0	1.3	13.9	404	0.86	222.0	120.3	90.8	120.3	120.3	120.3	120.3	120.3	120.3	99.89
11:33	1085.0	1.2	14.1	403	0.85	220.9	120.3	91.0	120.3	120.3	120.3	120.3	120.3	120.3	99.89
11:34	1184.0	1.1	13.4	403	0.79	220.3	120.4	91.0	120.4	120.4	120.4	120.4	120.4	120.4	99.90
11:35	1232.0	1.3	13.2	403	0.84	221.1	120.4	91.0	120.4	120.4	120.4	120.4	120.4	120.4	99.89
11:36	1240.0	1.3	13.2	404	0.84	222.1	120.4	91.0	120.4	120.4	120.4	120.4	120.4	120.4	99.89
11:37	1256.0	1.2	12.9	404	0.83	222.1	120.4	91.0	120.4	120.4	120.4	120.4	120.4	120.4	99.91
11:38	1272.0	1.2	12.8	404	0.83	222.1	120.4	91.0	120.4	120.4	120.4	120.4	120.4	120.4	99.91
11:39	1271.0	1.1	12.8	404	0.82	222.1	120.4	91.1	120.4	120.4	120.4	120.4	120.4	120.4	99.91
11:40	1285.0	1.1	12.7	403	0.81	220.9	120.5	91.1	120.5	120.5	120.5	120.5	120.5	120.5	99.91
10 MinAvg	1213.4	1.2	13.2	403	0.83	221.6	120.4	91.0	120.4	120.4	120.4	120.4	120.4	120.4	99.90
11:41	1294.0	1.2	12.6	404	0.81	222.2	120.5	91.1	120.5	120.5	120.5	120.5	120.5	120.5	99.91
11:42	1298.0	1.1	12.6	404	0.80	221.9	120.5	91.1	120.5	120.5	120.5	120.5	120.5	120.5	99.92
11:43	1290.0	1.1	12.7	404	0.80	222.2	120.5	91.1	120.5	120.5	120.5	120.5	120.5	120.5	99.91
11:44	1283.0	0.8	12.7	404	0.78	222.2	120.5	91.2	120.5	120.5	120.5	120.5	120.5	120.5	99.93
11:45	1277.0	0.9	12.8	404	0.79	222.2	120.4	91.2	120.5	120.5	120.5	120.5	120.5	120.5	99.93
11:46	1269.0	0.9	12.9	404	0.78	222.2	120.6	91.2	120.6	120.6	120.6	120.6	120.6	120.6	99.93
11:47	1260.0	1.0	12.8	403	0.77	220.6	120.6	91.2	120.6	120.6	120.6	120.6	120.6	120.6	99.92
11:48	1249.0	1.0	13.0	404	0.77	222.4	120.6	91.2	120.6	120.6	120.6	120.6	120.6	120.6	99.92
11:49	1246.0	1.0	13.0	404	0.76	222.3	120.6	91.3	120.6	120.6	120.6	120.6	120.6	120.6	99.92
11:50	1246.0	1.0	13.0	404	0.76	222.3	120.6	91.3	120.6	120.6	120.6	120.6	120.6	120.6	99.92
10 MinAvg	1271.2	1.0	12.8	404	0.78	222.1	120.5	91.2	120.5	120.5	120.5	120.5	120.5	120.5	99.92
11:51	1238.0	0.9	13.1	404	0.75	222.7	120.7	91.3	120.7	120.7	120.7	120.7	120.7	120.7	99.93
11:52	1238.0	1.0	13.0	404	0.74	222.5	120.7	91.3	120.7	120.7	120.7	120.7	120.7	120.7	99.92
11:53	1227.0	1.0	13.1	404	0.74	223.1	120.7	91.4	120.7	120.7	120.7	120.7	120.7	120.7	99.92
11:54	1222.0	1.1	13.2	404	0.74	222.3	120.8	91.8	120.8	120.8	120.8	120.8	120.8	120.8	99.91

LEC Run 920617

Starting
06-17-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
11:55	1200.0	0.9	13.4	404	0.73	222.5	120.8	92.0	120.8	120.8	120.8	120.8	120.8	120.8	99.92
11:56	1181.0	1.0	13.6	404	0.73	222.5	120.8	91.7	120.8	120.8	120.8	120.8	120.8	120.8	99.92
11:57	1165.0	0.9	13.8	404	0.72	222.4	120.7	92.6	120.7	120.7	120.7	120.7	120.7	120.7	99.92
11:58	1153.0	0.9	13.8	404	0.70	222.4	120.7	91.7	120.7	120.7	120.7	120.7	120.7	120.7	99.93
11:59	1145.0	0.9	13.9	404	0.71	222.5	120.7	94.4	120.7	120.7	120.7	120.7	120.7	120.7	99.92
12:00	1138.0	1.0	14.0	404	0.71	222.4	120.7	98.5	120.7	120.7	120.7	120.7	120.7	120.7	99.92
10 MinAvg	1190.7	1.0	13.5	404	0.73	222.5	120.7	92.7	120.7	120.7	120.7	120.7	120.7	120.7	99.92
12:01	1148.0	0.9	13.9	403	0.71	221.5	120.7	101.6	120.7	120.7	120.7	120.7	120.7	120.7	99.92
12:02	1154.0	0.9	13.8	404	0.70	222.3	120.7	112.7	120.7	120.7	120.7	120.7	120.7	120.7	99.92
12:03	1145.0	0.8	13.9	404	0.70	222.7	120.7	106.0	120.7	120.7	120.7	120.7	120.7	120.6	99.93
12:04	1145.0	0.8	13.9	404	0.70	222.5	120.8	100.3	120.8	120.8	120.8	120.8	120.8	120.8	99.93
12:05	1146.0	0.9	14.0	404	0.70	222.5	120.8	95.3	120.8	120.8	120.8	120.8	120.8	120.8	99.92
C	Outlet sampling system is opened to ambient air to check O2 monitor calibration and drain the condenser.														
12:06	1152.0			404	0.69	222.2	120.7	93.2	120.7	120.7	120.7	120.7	120.7	120.7	
12:07	1163.0			404	0.69	222.9	120.8	101.1	120.8	120.8	120.8	120.8	120.8	120.8	
12:08	1178.0			404	0.68	222.7	120.9	102.2	120.9	120.9	120.9	120.9	120.9	120.9	
12:09	1186.0			404	0.68	223.7	121.0	97.7	121.0	121.0	121.0	121.0	121.0	121.0	
12:10	1198.0			404	0.67	223.3	121.1	92.2	121.1	121.1	121.1	121.1	121.1	121.1	
10 MinAvg	1161.5	0.9	13.9	404	0.69	222.6	120.8	100.2	120.8	120.8	120.8	120.8	120.8	120.8	99.93
12:11	1208.0	0.9	11.8	404	0.67	223.3	121.2	91.8	121.2	121.2	121.2	121.2	121.2	121.2	99.92
12:12	1216.0	0.9	11.8	404	0.67	222.9	121.3	91.9	121.3	121.3	121.3	121.3	121.3	121.3	99.93
12:13	1229.0	0.9	11.7	404	0.66	223.0	121.3	92.0	121.3	121.3	121.3	121.3	121.3	121.3	99.93
12:14	1235.0	0.8	11.8	404	0.66	223.0	121.3	92.0	121.3	121.3	121.3	121.3	121.3	121.3	99.93
12:15	1241.0	0.9	11.9	404	0.65	223.0	121.4	92.0	121.4	121.4	121.4	121.4	121.4	121.4	99.93
12:16	1251.0	0.8	11.8	404	0.65	223.1	121.4	92.0	121.4	121.4	121.4	121.4	121.4	121.4	99.93
12:17	1259.0	0.9	11.7	404	0.65	223.4	121.4	92.0	121.4	121.4	121.4	121.4	121.4	121.4	99.92
12:18	1269.0	1.0	11.6	404	0.64	223.3	121.4	92.0	121.4	121.4	121.4	121.4	121.4	121.4	99.92
12:19	1275.0	1.0	11.6	404	0.64	222.9	121.4	92.0	121.4	121.4	121.4	121.4	121.4	121.4	99.92
12:20	1285.0	0.8	11.7	404	0.63	223.4	121.4	92.0	121.4	121.4	121.4	121.4	121.4	121.4	99.93
10 MinAvg	1246.8	0.9	11.7	404	0.65	223.1	121.4	92.0	121.4	121.4	121.4	121.4	121.4	121.4	99.93
12:21	1293.0	0.8	11.3	404	0.63	223.1	121.4	92.0	121.4	121.4	121.4	121.4	121.4	121.4	99.94
12:22	1305.0	0.8	11.2	404	0.62	223.2	121.4	92.1	121.4	121.4	121.4	121.4	121.4	121.4	99.94
12:23	1319.0	1.0	11.1	404	0.62	223.2	121.5	92.1	121.5	121.5	121.5	121.5	121.5	121.5	99.93
12:24	1333.0	0.9	11.0	404	0.61	223.2	121.5	92.2	121.5	121.5	121.5	121.5	121.5	121.5	99.93
12:25	1341.0	0.9	11.0	404	0.61	223.2	121.5	92.2	121.5	121.5	121.5	121.5	121.5	121.5	99.94
12:26	1351.0	0.8	10.9	401	0.60	215.0	121.5	92.2	121.5	121.5	121.5	121.5	121.5	121.5	99.94

E-472

Starting
06-17-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dp (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
12:27	1360.0	1.0	10.9	404	0.60	223.2	121.5	92.2	121.5	121.5	121.5	121.5	121.5	121.5	99.93
12:28	1360.0	0.9	10.9	404	0.59	223.2	121.5	92.2	121.5	121.5	121.5	121.5	121.5	121.5	99.93
12:29	1358.0	1.0	10.9	404	0.58	223.4	121.6	92.2	121.6	121.6	121.6	121.6	121.6	121.6	99.93
12:30	1347.0	0.9	11.0	404	0.58	223.3	121.6	92.3	121.6	121.6	121.6	121.6	121.6	121.6	99.93
10 MinAvg	1336.7	0.9	11.0	404	0.60	222.4	121.5	92.2	121.5	121.5	121.5	121.5	121.5	121.5	99.93
12:31	1355.0	1.0	10.9	404	0.58	223.4	121.7	92.3	121.7	121.7	121.7	121.7	121.7	121.7	99.92
12:32	1371.0	1.0	10.8	404	0.57	223.4	121.7	92.3	121.7	121.7	121.7	121.7	121.7	121.7	99.93
12:33	1369.0	1.0	10.9	404	0.57	223.5	121.8	92.4	121.8	121.8	121.8	121.8	121.8	121.8	99.93
12:34	1387.0	1.0	10.7	404	0.57	223.5	121.8	92.5	121.8	121.8	121.8	121.8	121.8	121.8	99.92
12:35	1413.0	1.2	10.6	404	0.57	223.5	121.8	92.5	121.8	121.8	121.8	121.8	121.8	121.8	99.92
12:36	1400.0	1.2	10.8	404	0.57	223.5	121.9	92.5	121.9	121.9	121.9	121.9	121.9	121.9	99.91
12:37	1396.0	1.3	10.8	404	0.57	223.6	121.9	92.5	121.9	121.9	121.9	121.9	121.9	121.9	99.91
12:38	1393.0	1.4	10.9	404	0.57	223.6	121.9	92.6	121.9	121.9	121.9	121.9	121.9	121.9	99.90
12:39	1405.0	1.5	10.9	404	0.57	223.6	121.9	92.6	121.9	121.9	121.9	121.9	121.9	121.9	99.89
12:40	1407.0	1.6	11.0	404	0.56	223.7	121.9	92.6	121.9	121.9	121.9	121.9	121.9	121.9	99.88
10 MinAvg	1389.6	1.2	10.8	404	0.57	223.5	121.8	92.5	121.8	121.8	121.8	121.8	121.8	121.8	99.91
12:41	1383.0	1.2	11.2	404	0.56	223.6	122.0	92.6	122.0	122.0	122.0	122.0	122.0	122.0	99.91
12:42	1382.0	1.2	11.0	404	0.56	223.9	122.0	92.6	122.0	122.0	122.0	122.0	122.0	122.0	99.91
12:43	1361.0	1.2	11.1	404	0.56	223.7	121.9	92.6	121.9	121.9	121.9	121.9	121.9	121.9	99.91
12:44	1342.0	1.0	11.2	404	0.56	223.6	122.0	92.6	122.0	122.0	122.0	122.0	122.0	122.0	99.92
12:45	1330.0	1.2	11.3	404	0.56	223.7	122.0	92.7	122.0	122.0	122.0	122.0	122.0	122.0	99.91
12:46	1318.0	1.1	11.4	404	0.56	223.8	122.0	92.7	122.0	122.0	122.0	122.0	122.0	122.0	99.92
12:47	1308.0	1.2	11.5	404	0.56	223.7	122.0	92.7	122.0	122.0	122.0	122.0	122.0	122.0	99.91
12:48	1286.0	1.1	11.6	404	0.56	224.1	122.0	92.7	122.0	122.0	122.0	122.0	122.0	122.0	99.91
12:49	1287.0	1.2	11.6	404	0.56	223.7	122.0	92.7	122.0	122.0	122.0	122.0	122.0	122.0	99.90
12:50	1289.0	1.3	11.5	404	0.56	224.8	122.1	92.7	122.1	122.1	122.1	122.1	122.1	122.1	99.90
10 MinAvg	1328.6	1.2	11.3	404	0.56	223.9	122.0	92.7	122.0	122.0	122.0	122.0	122.0	122.0	99.91
12:51	1272.0	1.7	11.6	404	0.56	223.9	122.1	92.7	122.1	122.1	122.1	122.1	122.1	122.1	99.87
12:52	1249.0	1.6	11.8	404	0.56	224.2	122.1	92.7	122.1	122.1	122.1	122.1	122.1	122.1	99.87
12:53	1243.0	1.6	11.9	404	0.56	224.4	122.0	92.7	122.0	122.0	122.0	122.0	122.0	122.0	99.87
12:54	1243.0	1.7	11.9	404	0.56	224.3	121.9	92.6	121.9	121.9	121.9	121.9	121.9	121.9	99.86
12:55	1253.0	1.7	11.9	405	0.56	226.5	121.9	92.5	121.9	121.9	121.9	121.9	121.9	121.9	99.86
12:56	1242.0	2.0	12.0	405	0.56	227.5	121.9	92.5	121.9	121.9	121.9	121.9	121.9	121.9	99.84
12:57	1226.0	2.2	12.1	405	0.56	226.4	121.9	92.6	121.9	121.9	121.9	121.9	121.9	121.9	99.82
12:58	1216.0	2.2	12.1	405	0.56	227.8	122.0	92.6	122.0	122.0	122.0	122.0	122.0	122.0	99.82
12:59	1219.0	1.8	12.1	405	0.56	226.7	122.0	92.6	122.0	122.0	122.0	122.0	122.0	122.0	99.86

LEC Run 920617

Starting
06-17-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Inlet Temp (F)	Bed dp (in.H2O)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	S02 Removal (%)
13:00	1214.0	1.6	12.1	405	226.2	0.56	122.0	92.6	122.0	122.0	122.0	122.0	122.0	122.0	99.87
10 MinAvg	1237.7	1.8	12.0	405	225.8	0.56	122.0	92.6	122.0	122.0	122.0	122.0	122.0	122.0	99.85
13:01	1214.0	1.8	12.1	406	229.1	0.56	122.0	92.7	122.0	122.0	122.0	122.0	122.0	122.0	99.85
13:02	1224.0	1.9	12.1	405	228.6	0.56	122.0	92.7	122.0	122.0	122.0	122.0	122.0	122.0	99.84
13:03	1228.0	2.2	12.2	405	226.3	0.56	122.0	92.7	122.0	122.0	122.0	122.0	122.0	122.0	99.82
13:04	1223.0	2.4	12.1	405	225.3	0.57	122.0	92.7	122.0	122.0	122.0	122.0	122.0	122.0	99.80
13:05	1233.0	2.9	12.0	405	226.7	0.57	122.0	92.7	122.0	122.0	122.0	122.0	122.0	122.0	99.76
13:06	1232.0	3.1	12.1	406	229.3	0.56	122.0	92.6	122.0	122.0	122.0	122.0	122.0	122.0	99.75
13:07	1243.0	3.6	12.4	406	228.9	0.57	122.0	92.6	122.0	122.0	122.0	122.0	122.0	122.0	99.71
13:08	1234.0	3.9	12.3	405	228.6	0.56	121.9	92.6	121.9	121.9	121.9	121.9	121.9	121.9	99.68
13:09	1238.0	3.7	12.1	406	230.1	0.57	121.8	92.5	121.8	121.8	121.8	121.8	121.8	121.8	99.70
13:10	1240.0	4.2	12.1	405	227.4	0.57	121.8	92.5	121.8	121.8	121.8	121.8	121.8	121.8	99.66
10 MinAvg	1230.9	3.0	12.1	405	228.0	0.56	122.0	92.6	122.0	122.0	122.0	122.0	122.0	122.0	99.76
13:11	1233.0	4.9	12.3	406	228.9	0.57	121.8	92.5	121.8	121.8	121.8	121.8	121.8	121.8	99.61
13:12	1239.0	5.0	12.2	405	227.7	0.57	121.9	92.5	121.9	121.9	121.9	121.9	121.9	121.9	99.59
13:13	1236.0	5.3	12.4	405	225.5	0.57	121.9	92.5	121.9	121.9	121.9	121.9	121.9	121.9	99.57
13:14	1237.0	5.8	12.2	405	228.4	0.57	121.9	92.6	121.9	121.9	121.9	121.9	121.9	121.9	99.53
13:15	1243.0	5.6	12.1	404	224.8	0.57	121.9	92.6	121.9	121.9	121.9	121.9	121.9	121.9	99.55
13:16	1244.0	5.9	12.1	404	225.2	0.57	121.9	92.6	121.9	121.9	121.9	121.9	121.9	121.9	99.53
13:17	1243.0	6.1	12.2	404	224.4	0.57	122.0	92.7	122.0	122.0	122.0	122.0	122.0	122.0	99.51
13:18	1266.0	6.3	12.0	404	225.2	0.57	122.1	92.8	122.1	122.1	122.1	122.1	122.1	122.1	99.50
13:19	1276.0	6.6	11.9	405	226.3	0.57	122.2	92.8	122.2	122.2	122.2	122.2	122.2	122.2	99.49
13:20	1282.0	6.9	11.9	405	226.4	0.57	122.2	92.9	122.2	122.2	122.2	122.2	122.2	122.2	99.46
10 MinAvg	1249.9	5.8	12.1	405	226.3	0.57	122.0	92.7	122.0	122.0	122.0	122.0	122.0	122.0	99.53
13:21	1285.0	7.6	11.8	405	226.1	0.57	122.2	92.9	122.2	122.2	122.2	122.2	122.2	122.2	99.41
13:22	1289.0	9.1	11.8	404	224.3	0.57	122.2	92.9	122.2	122.2	122.2	122.2	122.2	122.2	99.29
13:23	1295.0	10.5	11.9	404	224.0	0.56	122.3	93.0	122.3	122.3	122.3	122.3	122.3	122.3	99.19
13:24	1301.0	11.8	11.7	404	224.3	0.58	122.4	93.0	122.4	122.4	122.4	122.4	122.4	122.4	99.10
13:25	1311.0	12.0	11.8	404	224.1	0.58	122.4	93.0	122.4	122.4	122.4	122.4	122.4	122.4	99.08
13:26	1332.0	12.7	11.6	404	224.0	0.58	122.4	93.7	122.4	122.4	122.4	122.4	122.4	122.4	99.05
13:27	1330.0	12.9	11.6	404	224.1	0.58	122.4	93.1	122.4	122.4	122.4	122.4	122.4	122.4	99.03
13:28	1325.0	13.6	11.5	404	224.0	0.58	122.4	93.1	122.4	122.4	122.4	122.4	122.4	122.4	98.97
13:29	1324.0	14.5	11.6	404	224.1	0.56	122.4	93.1	122.4	122.4	122.4	122.4	122.4	122.4	98.90
13:30	1324.0	15.1	11.7	404	224.1	0.58	122.5	93.1	122.5	122.5	122.5	122.5	122.5	122.5	98.86
10 MinAvg	1311.6	12.0	11.7	404	224.3	0.57	122.4	93.1	122.4	122.4	122.4	122.4	122.4	122.4	99.09

Starting
06-17-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
13:31	1306.0	15.7	11.7	404	0.58	224.2	122.5	93.3	122.5	122.5	122.5	122.5	122.5	122.5	98.80
13:32	1289.0	15.7	11.7	404	0.58	223.5	122.6	95.3	122.6	122.6	122.6	122.6	122.6	122.6	98.78
13:33	1269.0	15.3	11.8	404	0.58	224.2	122.6	93.3	122.6	122.6	122.6	122.6	122.6	122.6	98.79
13:34	1311.0	15.0	11.6	404	0.58	224.2	122.6	95.8	122.6	122.6	122.6	122.6	122.6	122.6	98.85
13:35	1323.0	16.5	11.5	404	0.59	224.2	122.5	93.3	122.5	122.5	122.5	122.5	122.5	122.5	98.75
13:36	1339.0	17.6	11.5	404	0.59	224.2	122.5	93.3	122.5	122.5	122.5	122.5	122.5	122.5	98.68
13:37	1329.0	17.9	11.5	404	0.59	224.1	122.5	93.4	122.5	122.5	122.5	122.5	122.5	122.5	98.65
13:38	1342.0	18.3	11.6	404	0.59	223.9	122.4	93.1	122.4	122.4	122.4	122.4	122.4	122.4	98.63
13:39	1342.0	19.1	11.6	404	0.59	224.1	122.4	93.8	122.4	122.4	122.4	122.4	122.4	122.4	98.58
13:40	1337.0	20.2	11.3	404	0.59	224.1	122.4	94.6	122.4	122.4	122.4	122.4	122.4	122.4	98.49
10 MinAvg	1318.7	17.1	11.6	404	0.59	224.1	122.5	93.9	122.5	122.5	122.5	122.5	122.5	122.5	98.70
13:41	1345.0	20.6	11.3	404	0.59	224.1	122.5	93.5	122.5	122.5	122.5	122.5	122.5	122.5	98.47
13:42	1350.0	21.4	11.2	404	0.60	224.2	122.5	94.7	122.5	122.5	122.5	122.5	122.5	122.5	98.41
13:43	1350.0	22.5	11.6	404	0.60	224.1	122.5	93.5	122.5	122.5	122.5	122.5	122.5	122.5	98.33
13:44	1351.0	23.8	11.5	404	0.60	224.2	122.5	93.3	122.5	122.5	122.5	122.5	122.5	122.5	98.24
13:45	1345.0	24.4	11.6	404	0.60	223.5	122.5	93.2	122.5	122.5	122.5	122.5	122.5	122.5	98.18
13:46	1345.0	25.2	11.6	404	0.60	224.2	122.5	93.3	122.5	122.5	122.5	122.5	122.5	122.5	98.13
13:47	1332.0	25.9	11.4	404	0.60	224.2	122.5	93.2	122.5	122.5	122.5	122.5	122.5	122.5	98.05
13:48	1348.0	25.3	11.4	404	0.60	224.2	122.5	93.2	122.5	122.5	122.5	122.5	122.5	122.5	98.12
13:49	1360.0	27.0	11.3	404	0.60	224.2	122.5	93.2	122.5	122.5	122.5	122.5	122.5	122.5	98.01
13:50	1363.0	28.1	11.4	404	0.60	224.1	122.5	93.1	122.5	122.5	122.5	122.5	122.5	122.5	97.94
10 MinAvg	1348.9	24.4	11.4	404	0.60	224.1	122.5	93.4	122.5	122.5	122.5	122.5	122.5	122.5	98.19
13:51	1361.0	30.0	11.5	404	0.60	224.2	122.5	93.2	122.5	122.5	122.5	122.5	122.5	122.5	97.80
13:52	1355.0	30.6	11.5	404	0.60	224.2	122.6	93.4	122.6	122.6	122.6	122.6	122.6	122.6	97.74
13:53	1331.0	32.2	11.7	404	0.60	224.3	122.6	93.3	122.6	122.6	122.6	122.6	122.6	122.6	97.58
C	Outlet sampling system is opened to ambient air to check O2 monitor calibration and drain the condenser.														
13:54	1329.0			404	0.60	224.3	122.6	93.3	122.6	122.6	122.6	122.6	122.6	122.6	
13:55	1317.0			404	0.61	224.2	122.6	93.2	122.6	122.6	122.6	122.6	122.6	122.6	
13:56	1309.0			404	0.61	224.2	122.6	93.3	122.6	122.6	122.6	122.6	122.6	122.6	
13:57	1300.0	31.1	10.8	404	0.61	224.2	122.6	93.3	122.6	122.6	122.6	122.6	122.6	122.6	97.61
13:58	1283.0	32.4	10.9	404	0.60	224.2	122.6	93.3	122.6	122.6	122.6	122.6	122.6	122.6	97.48
13:59	1239.0	32.4	11.1	404	0.61	224.3	122.6	93.3	122.6	122.6	122.6	122.6	122.6	122.6	97.39
14:00	1218.0	33.2	11.2	404	0.61	224.3	122.7	93.3	122.7	122.7	122.7	122.7	122.7	122.7	97.27
10 MinAvg	1304.2	31.7	11.2	404	0.60	224.2	122.6	93.3	122.6	122.6	122.6	122.6	122.6	122.6	97.55
14:01	1216.0	32.1	11.3	404	0.61	224.3	122.7	93.4	122.7	122.7	122.7	122.7	122.7	122.7	97.36
14:02	1186.0	32.6	11.5	404	0.62	224.3	122.7	93.4	122.7	122.7	122.7	122.7	122.7	122.7	97.25

E-475

LEC Run 920617

Starting
06-17-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
14:03	1185.0	33.5	11.5	404	0.62	224.4	122.8	93.4	122.8	122.8	122.8	122.8	122.8	122.8	97.17
14:04	1188.0	33.2	11.6	404	0.62	224.5	122.8	93.5	122.8	122.8	122.8	122.8	122.8	122.8	97.20
14:05	1162.0	33.5	11.7	404	0.62	224.5	122.8	93.5	122.8	122.8	122.8	122.8	122.8	122.8	97.12
14:06	1154.0	35.3	11.8	404	0.62	224.5	122.8	93.5	122.8	122.8	122.8	122.8	122.8	122.8	96.94
14:07	1153.0	35.7	11.7	404	0.62	224.5	122.9	93.5	122.9	122.9	122.9	122.9	122.9	122.9	96.91
14:08	1164.0	36.8	11.7	404	0.62	224.6	122.8	93.6	122.9	122.9	122.9	122.9	122.9	122.9	96.84
14:09	1166.0	38.3	11.8	404	0.63	224.6	123.0	93.6	123.0	123.0	123.0	123.0	123.0	123.0	96.72
14:10	1163.0	39.4	11.9	404	0.63	224.6	123.0	93.7	123.0	123.0	123.0	123.0	123.0	123.0	96.61
C	Louver sprays are turned on to 0.27 gpm.														
10 MinAvg	1173.7	35.0	11.6	404	0.62	224.5	122.8	93.5	122.8	122.8	122.8	122.8	122.8	122.8	97.01
14:11	1164.0	40.7	11.8	404	0.63	224.7	123.0	93.7	123.0	123.0	123.0	123.0	123.0	123.0	96.51
14:12	1159.0	43.0	11.9	404	0.63	224.7	123.1	93.7	123.1	123.1	123.1	123.1	123.1	123.1	96.29
14:13	1145.0	44.0	12.0	404	0.64	224.7	123.1	93.7	123.1	123.1	123.1	123.1	123.1	123.1	96.16
14:14	1178.0	42.8	11.7	404	0.65	224.7	123.1	93.7	123.1	123.1	123.1	123.1	123.1	123.1	96.36
14:15	1196.0	47.7	11.5	404	0.65	223.5	123.1	93.7	123.1	123.1	123.1	123.1	123.1	123.1	96.01
14:16	1195.0	50.4	11.6	404	0.66	224.8	123.1	93.8	123.1	123.1	123.1	123.1	123.1	123.1	95.78
14:17	1214.0	52.3	11.5	404	0.67	224.8	123.1	93.8	123.1	123.1	123.1	123.1	123.1	123.1	95.69
14:18	1224.0	56.7	11.6	362	0.67	224.3	123.1	93.8	123.1	123.1	123.1	123.1	123.1	123.1	95.37
14:19	1221.0	61.3	11.5	404	0.68	224.8	123.1	93.8	127.0	123.1	123.1	123.1	123.1	123.1	94.98
14:20	1252.0	64.8	11.3	404	0.69	224.8	123.2	93.8	127.2	123.2	123.2	123.2	123.2	123.2	94.83
10 MinAvg	1194.8	50.4	11.7	400	0.66	224.6	123.1	93.7	123.9	123.1	123.1	123.1	123.1	123.1	95.80
14:21	1266.0	69.3	11.0	404	0.69	224.1	123.2	93.8	127.4	123.4	123.2	123.2	123.2	123.2	94.53
14:22	1281.0	72.2	11.1	404	0.69	224.4	123.1	93.8	125.1	126.3	123.1	123.1	123.1	123.1	94.36
14:23	1277.0	76.0	11.3	404	0.70	224.7	123.1	93.8	124.3	138.0	123.1	123.1	123.1	123.1	94.05
14:24	1280.0	79.3	11.2	404	0.71	223.4	123.1	93.8	123.1	144.8	123.1	123.1	123.1	123.1	93.80
14:25	1273.0	83.2	11.7	404	0.71	224.2	123.1	93.8	123.1	144.2	123.1	123.1	123.1	123.1	93.46
14:26	1265.0	89.7	11.3	404	0.72	224.7	123.2	93.8	123.2	139.5	123.2	123.2	123.2	123.2	92.91
14:27	1269.0	91.1	11.2	404	0.73	224.8	123.2	93.9	123.2	132.8	124.2	123.2	123.2	123.2	92.82
14:28	1270.0	89.7	11.2	404	0.73	224.5	123.2	93.9	123.2	135.6	127.8	123.2	123.2	123.2	92.94
14:29	1258.0	95.3	11.4	404	0.74	224.1	123.3	93.9	123.3	128.6	142.4	123.3	123.3	123.3	92.42
14:30	1253.0	98.1	11.4	404	0.74	225.0	123.3	94.0	123.3	123.9	150.2	123.3	123.3	123.3	92.17
10 MinAvg	1269.2	84.4	11.3	404	0.72	224.4	123.2	93.9	123.9	133.7	128.3	123.2	123.2	123.2	93.35
14:31	1256.0	99.8	11.3	404	0.75	224.5	123.3	94.0	123.3	124.1	152.2	123.3	123.3	123.3	92.05
14:32	1256.0	99.7	11.2	404	0.75	224.9	123.3	94.0	123.3	123.4	152.3	123.3	123.3	123.3	92.06
14:33	1260.0	95.6	11.1	404	0.76	224.3	123.3	93.9	123.3	123.3	152.4	123.3	123.3	123.3	92.41
14:34	1272.0	99.1	11.1	404	0.77	223.8	123.2	93.9	123.2	123.2	152.3	123.2	123.2	123.2	92.21

E-476

Starting 06-17-92	Inlet S02 (ppm)	Outlet S02 (ppm)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dp (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	S02 Removal (%)
Time															
14:35	1294.0	104.7	11.0	404	0.77	222.6	123.2	93.8	123.2	123.2	151.8	123.2	123.2	123.2	91.91
14:36	1290.0	108.0	11.1	404	0.78	222.9	123.1	93.8	123.1	123.1	148.8	123.1	123.1	123.1	91.63
14:37	1275.0	108.0	11.2	404	0.79	222.5	123.1	93.7	123.1	123.1	146.0	123.1	123.1	123.1	91.53
14:38	1290.0	108.1	11.1	404	0.79	224.2	123.1	93.7	123.1	123.1	129.0	123.1	123.1	123.1	91.62
14:39	1285.0	105.3	11.1	404	0.80	224.1	123.0	93.9	123.0	123.0	131.5	123.0	123.0	123.0	91.81
14:40	1281.0	101.7	11.1	404	0.80	224.2	123.0	94.3	123.0	123.0	129.0	123.0	123.0	123.0	92.06
10 MinAvg	1275.9	103.0	11.1	404	0.78	223.8	123.2	93.9	123.2	123.2	144.5	123.2	123.2	123.2	91.93
14:41	1282.0	95.8	11.2	404	0.81	224.3	123.0	94.2	123.0	123.0	127.2	123.0	123.0	123.0	92.53
14:42	1279.0	96.5	11.1	404	0.82	222.1	123.0	95.8	123.0	123.0	125.4	123.0	123.0	123.0	92.46
14:43	1283.0	94.5	10.9	403	0.82	221.8	122.9	98.7	122.9	122.9	123.3	122.9	122.9	122.9	92.63
14:44	1282.0	92.5	10.8	404	0.83	223.7	122.9	99.5	122.9	122.9	123.3	122.9	122.9	122.9	92.78
14:45	1279.0	95.6	10.8	403	0.83	219.4	122.9	100.5	122.9	122.9	123.0	122.9	122.9	122.9	92.53
14:46	1287.0	93.8	10.7	404	0.84	224.5	122.9	103.3	122.9	122.9	122.9	122.9	122.9	122.9	92.71
14:47	1287.0	94.2	10.6	403	0.85	221.7	122.8	104.2	122.8	122.8	122.8	122.8	122.8	122.8	92.68
14:48	1281.0	91.6	10.6	404	0.85	222.5	122.8	106.8	122.8	122.8	122.8	122.8	122.8	122.8	92.85
14:49	1280.0	88.4	10.5	404	0.86	222.0	122.8	113.3	122.8	122.8	122.8	122.8	122.8	122.8	93.09
14:50	1289.0	83.8	10.5	403	0.87	220.5	122.8	106.9	122.8	122.8	122.8	122.8	122.8	122.8	93.50
10 MinAvg	1282.9	92.7	10.8	404	0.84	222.3	122.9	102.3	122.9	122.9	123.6	122.9	122.9	122.9	92.78
14:51	1314.0	83.2	10.3	403	0.87	221.7	122.7	110.0	122.7	122.7	122.7	122.7	122.7	122.7	93.67
14:52	1322.0	83.7	10.3	403	0.88	219.0	122.6	107.8	122.6	122.6	122.6	122.6	122.6	122.6	93.67
14:53	1333.0	82.0	10.3	403	0.89	220.4	122.6	112.9	122.6	122.6	122.6	122.6	122.6	122.6	93.85
14:54	1349.0	82.9	10.1	404	0.89	222.8	122.6	113.8	122.6	122.6	122.6	122.6	122.7	122.6	93.85
14:55	1331.0	75.8	10.2	403	0.90	221.0	122.5	107.7	122.5	122.5	122.5	122.5	122.5	122.5	94.31
14:56	1321.0	71.9	10.3	404	0.90	223.5	122.4	111.8	122.4	122.4	122.4	122.4	122.4	122.4	94.56
14:57	1320.0	68.7	10.2	404	0.91	223.6	122.4	111.0	122.4	122.4	122.4	122.4	122.4	122.4	94.79
14:58	1295.0	64.1	10.3	404	0.80	223.0	122.5	110.4	122.5	122.5	122.5	122.5	122.5	122.5	95.05
14:59	1321.0	58.8	10.2	404	0.58	224.2	122.6	114.2	122.6	122.6	122.6	122.6	122.6	122.6	95.55
15:00	1333.0	54.8	10.1	404	0.92	224.3	122.7	113.9	122.7	122.7	122.7	122.7	122.7	122.7	95.89
10 MinAvg	1323.9	72.6	10.2	404	0.85	222.3	122.6	111.3	122.6	122.6	122.6	122.6	122.6	122.6	94.52
15:01	1342.0	54.2	10.1	404	0.93	224.4	122.7	111.4	122.7	122.7	122.7	122.7	122.7	122.7	95.96
15:02	1345.0	50.3	10.2	404	0.94	224.5	122.8	105.2	122.8	122.8	122.8	122.8	122.8	122.8	96.26
15:03	1323.0	46.8	10.2	404	0.94	224.1	122.9	110.4	122.9	122.9	122.9	122.9	122.9	122.9	96.46
15:04	1336.0	42.0	10.3	404	0.94	224.3	122.9	110.7	122.9	122.9	122.9	122.9	122.9	122.9	96.85
15:05	1295.0	38.0	10.2	404	0.94	224.2	123.0	111.9	123.0	123.0	123.0	123.0	123.0	123.0	97.06
15:06	1327.0	38.1	10.2	404	0.83	222.5	123.0	115.2	123.0	123.0	123.0	123.0	123.0	123.0	97.13
15:07	1330.0	38.6	10.2	404	0.90	224.1	123.0	113.3	123.0	123.0	123.0	123.0	123.0	123.0	97.10

Starting
06-17-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dp (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
15:08	1329.0	38.4	10.1	404	0.84	224.0	123.1	114.4	123.1	123.1	123.1	123.1	123.1	123.1	97.11
15:09	1301.0	37.3	10.2	404	0.96	224.2	123.1	114.4	123.1	123.1	123.1	123.1	123.1	123.1	97.13
15:10	1304.0	36.3	10.3	404	0.96	222.9	123.2	114.3	123.2	123.2	123.2	123.2	123.2	123.2	97.21
10 MinAvg	1323.2	42.0	10.2	404	0.92	223.9	123.0	112.1	123.0	123.0	123.0	123.0	123.0	123.0	96.83
15:11	1311.0	37.4	10.3	404	0.97	224.2	123.2	112.3	123.2	123.2	123.2	123.2	123.2	123.2	97.15
15:12	1312.0	37.7	10.3	404	0.97	224.1	123.2	115.4	123.2	123.2	123.2	123.2	123.2	123.2	97.13
15:13	1296.0	41.7	10.2	404	0.98	224.5	123.2	117.1	123.2	123.2	123.2	123.2	123.2	123.2	96.79
15:14	1299.0	38.0	10.3	404	0.98	224.8	123.3	116.3	123.3	123.3	123.3	123.3	123.3	123.3	97.07
15:15	1283.0	40.2	10.3	404	0.98	224.6	123.3	117.2	123.3	123.3	123.3	123.3	123.3	123.3	96.87
15:16	1300.0	41.0	10.3	404	0.99	224.3	123.4	115.5	123.4	123.4	123.4	123.4	123.4	123.4	96.85
15:17	1286.0	38.8	10.3	404	0.99	224.8	123.4	116.2	123.4	123.4	123.4	123.4	123.4	123.4	96.98
15:18	1311.0	38.7	10.3	404	1.00	225.1	123.5	116.3	123.5	123.5	123.5	123.5	123.5	123.5	97.05
15:19	1297.0	40.6	10.3	404	1.00	225.0	123.5	118.0	123.5	123.5	123.5	123.5	123.5	123.5	96.87
15:20	1298.0	40.3	10.3	404	1.00	225.2	123.5	116.8	123.5	123.5	123.5	123.5	123.5	123.5	96.90
10 MinAvg	1299.3	39.4	10.3	404	0.98	224.7	123.3	116.1	123.3	123.3	123.3	123.3	123.3	123.3	96.96
15:21	1286.0	45.7	10.4	404	1.00	224.5	123.5	118.0	123.5	123.5	123.5	123.5	123.5	123.5	96.45
15:22	1284.0			404	1.00	225.0	123.5	117.0	123.5	123.5	123.5	123.5	123.5	123.5	
15:23	1275.0			400	1.01	210.5	123.4	116.1	123.4	123.4	123.4	123.4	123.4	123.4	
15:24	1282.0			404	1.01	224.7	123.4	116.5	123.4	123.4	123.4	123.4	123.4	123.4	
15:25	1267.0			404	1.01	225.0	123.4	121.8	123.4	123.4	123.4	123.4	123.4	123.4	
15:26	1274.0			404	1.02	225.1	123.4	119.9	123.4	123.4	123.4	123.4	123.4	123.4	
15:27	1290.0	41.5	12.8	404	1.02	225.1	123.5	121.6	123.5	123.5	123.5	123.5	123.5	123.5	96.78
15:28	1280.0	43.3	12.9	404	1.01	225.2	123.5	120.1	123.5	123.5	123.5	123.5	123.5	123.5	96.62
15:29	1264.0	42.6	13.0	404	1.02	225.2	123.6	121.1	123.6	123.6	123.6	123.6	123.6	123.6	96.63
15:30	1264.0	44.7	12.9	404	1.02	225.2	123.6	120.8	123.6	123.6	123.6	123.6	123.6	123.6	96.46
10 MinAvg	1276.6	43.6	12.4	404	1.01	223.5	123.5	119.3	123.5	123.5	123.5	123.5	123.5	123.5	96.59
15:31	1277.0	44.0	13.0	404	1.02	224.3	123.6	120.3	123.6	123.6	123.6	123.6	123.6	123.6	96.56
15:32	1274.0	46.4	13.0	404	1.02	225.2	123.6	118.8	123.6	123.6	123.6	123.6	123.6	123.6	96.36
15:33	1269.0	46.3	13.1	404	1.02	225.1	123.6	119.8	123.6	123.6	123.6	123.6	123.6	123.6	96.35
15:34	1283.0	45.0	13.1	405	1.02	225.3	123.6	122.9	123.6	123.6	123.6	123.6	123.6	123.6	96.49
15:35	1291.0	46.0	13.1	405	1.02	225.3	123.7	122.6	123.7	123.7	123.7	123.7	123.7	123.7	96.43
15:36	1301.0	44.6	13.1	405	1.03	225.3	123.6	121.8	123.6	123.6	123.6	123.6	123.6	123.6	96.57
15:37	1259.0	45.6	13.1	404	1.02	225.2	123.6	119.6	123.6	123.6	123.6	123.6	123.6	123.6	96.38
15:38	1281.0	49.0	13.0	404	1.02	225.2	123.6	120.0	123.6	123.6	123.6	123.6	123.6	123.6	96.18
15:39	1286.0	49.5	13.0	404	1.02	225.1	123.7	118.8	123.7	123.7	123.7	123.7	123.7	123.7	96.15

Starting
06-17-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
15:40	1289.0	53.9	13.1	405	1.03	225.3	123.7	122.0	123.7	123.7	123.7	123.7	123.7	123.7	95.82
10 MinAvg	1281.0	47.0	13.1	404	1.02	225.1	123.6	120.7	123.6	123.6	123.6	123.6	123.6	123.6	96.33
15:41	1288.0	56.0	13.1	404	1.03	225.2	123.7	121.0	123.7	123.7	123.7	123.7	123.7	123.7	95.65
15:42	1299.0	56.0	13.1	405	1.03	225.4	123.7	119.0	123.7	123.7	123.7	123.7	123.7	123.7	95.69
15:43	1278.0	60.0	13.1	404	1.03	224.9	123.7	122.4	123.7	123.7	123.7	123.7	123.7	123.7	95.31
15:44	1294.0	64.2	13.1	405	0.95	225.4	123.7	118.8	123.7	123.7	123.7	123.7	123.7	123.7	95.04
15:45	1290.0	69.8	13.1	405	0.95	225.3	123.7	120.0	123.7	123.7	123.7	123.7	123.7	123.7	94.59
15:46	1316.0	72.6	13.1	404	1.02	223.3	123.7	122.5	123.7	123.7	123.7	123.7	123.7	123.7	94.46
15:47	1318.0	77.7	13.1	405	0.93	225.3	123.7	120.7	123.7	123.7	123.7	123.7	123.7	123.7	94.10
15:48	1296.0	80.5	13.1	405	0.89	225.3	123.7	123.6	123.7	123.7	123.7	123.7	123.7	123.7	93.79
15:49	1279.0	88.8	13.0	404	0.95	224.0	123.7	122.9	123.7	123.7	123.7	123.7	123.7	123.7	93.06
15:50	1295.0	90.1	13.1	405	1.03	225.4	123.7	123.5	123.7	123.7	123.7	123.7	123.7	123.7	93.04
10 MinAvg	1295.3	71.6	13.1	404	0.98	225.0	123.7	121.4	123.7	123.7	123.7	123.7	123.7	123.7	94.48
15:51	1309.0	97.2	13.1	405	1.03	225.4	123.8	123.7	123.8	123.8	123.8	123.8	123.8	123.8	92.57
15:52	1308.0	103.1	13.0	404	0.96	224.0	123.8	123.5	123.8	123.8	123.8	123.8	123.8	123.8	92.12
15:53	1276.0	113.5	13.1	405	0.77	225.5	123.9	121.6	123.9	123.9	123.9	123.9	123.9	123.9	91.11
15:54	1278.0	124.5	13.0	405	0.92	225.5	123.9	121.1	123.9	123.9	123.9	123.9	123.9	123.9	90.26
15:55	1291.0	129.5	13.0	405	0.95	225.6	123.9	123.7	123.9	123.9	123.9	123.9	123.9	123.9	89.97
15:56	1308.0	130.3	13.0	405	0.92	225.6	123.9	122.8	123.9	123.9	123.9	123.9	123.9	123.9	90.04
15:57	1309.0	139.1	13.0	405	0.85	225.6	123.9	123.7	123.9	123.9	123.9	123.9	123.9	123.9	89.37
15:58	1304.0	143.2	13.0	405	1.03	225.6	124.0	123.9	123.9	124.0	124.0	124.0	124.0	124.0	89.02
15:59	1298.0	141.2	13.1	362	1.03	225.6	124.0	122.8	124.0	124.0	124.0	124.0	124.0	124.0	89.12
16:00	1279.0	148.6	13.1	404	1.03	224.4	124.0	123.5	124.0	124.0	124.0	124.0	124.0	124.0	88.38
10 MinAvg	1296.0	127.0	13.0	400	0.95	225.3	123.9	123.0	123.9	123.9	123.9	123.9	123.9	123.9	90.20
16:01	1294.0	146.9	13.1	405	1.03	225.6	124.0	123.7	124.0	124.0	124.0	124.0	124.0	124.0	88.65
16:02	1303.0	162.2	13.0	362	1.03	225.7	124.0	123.9	124.0	124.0	124.0	124.0	124.0	124.0	87.55
16:03	1296.0	166.6	13.0	362	1.03	225.7	124.1	124.1	124.1	124.1	124.1	124.1	124.1	124.1	87.15
16:04	1293.0	166.2	13.1	362	0.83	225.7	124.1	123.7	124.1	124.1	124.1	124.1	124.1	124.1	86.94
16:05	1304.0	170.3	13.1	361	0.86	221.2	124.1	123.8	124.1	124.1	124.1	124.1	124.1	124.1	85.71
16:06	1274.0	182.1	13.1	362	0.82	225.7	124.2	122.7	124.2	124.2	124.2	124.2	124.2	124.2	85.61
16:07	1257.0	180.9	13.2	405	0.89	225.9	124.2	124.0	124.2	124.2	124.2	124.2	124.2	124.2	85.68
16:08	1284.0	183.9	13.2	362	0.96	225.9	124.3	123.4	124.3	124.3	124.3	124.3	124.3	124.3	85.20
16:09	1279.0	189.3	13.3	405	0.84	225.9	124.3	123.0	124.3	124.3	124.3	124.3	124.3	124.3	85.24
16:10	1245.0	183.8	13.3	362	0.84	226.0	124.3	120.7	124.3	124.3	124.3	124.3	124.3	124.3	

LEC Run 920617

Starting
06-17-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
C	The louver sprays are turned off since:														
C	1 - the removal is poor														
C	2 - the stone is wet exiting the bottom of the reactor causing less fines to be removed by the vibrating screen.														
10 MinAvg	1282.9	173.2	13.1	375	0.92	225.3	124.2	123.3	124.2	124.2	124.2	124.2	124.2	124.2	86.49
16:11	1261.0	190.2	13.4	362	0.82	226.0	124.3	118.9	124.3	124.3	124.3	124.3	124.3	124.3	84.92
16:12	1264.0	190.8	13.3	362	0.82	224.3	124.3	119.1	124.3	124.3	124.3	124.3	124.3	124.3	84.91
16:13	1248.0	197.5	13.3	362	0.79	225.1	124.4	120.0	124.4	124.4	124.4	124.4	124.4	124.4	84.17
16:14	1265.0	201.3	13.2	362	0.71	225.9	124.4	120.2	124.4	124.4	124.4	124.4	124.4	124.4	84.09
16:15	1269.0	205.6	13.2	405	0.71	226.0	124.3	116.9	124.3	124.3	124.3	124.3	124.3	124.3	83.80
16:16	1282.0	210.4	13.2	362	0.74	225.8	124.3	117.0	124.3	124.3	124.3	124.3	124.3	124.3	83.59
16:17	1262.0	225.1	13.2	405	0.64	225.8	124.2	116.6	124.2	124.2	124.2	124.2	124.2	124.2	82.16
16:18	1282.0	217.0	13.2	404	0.71	224.6	124.2	116.2	124.2	124.2	124.2	124.2	124.2	124.2	83.07
16:19	1275.0	217.9	13.2	405	0.77	225.6	124.2	116.8	124.2	124.2	124.2	124.2	124.2	124.2	82.91
16:20	1273.0	228.3	13.2	405	0.85	225.8	124.2	115.0	124.3	124.2	124.2	124.2	124.2	124.2	82.07
10 MinAvg	1268.1	208.4	13.2	383	0.76	225.5	124.3	117.7	124.3	124.3	124.3	124.3	124.3	124.3	83.57
16:21	1262.0	235.6	13.2	404	0.68	225.2	124.1	114.1	124.1	124.1	124.1	124.1	124.1	124.1	81.33
16:22	1269.0	231.1	13.3	405	0.60	225.7	124.1	114.6	124.1	124.1	124.1	124.1	124.1	124.1	81.79
16:23	1274.0	233.0	13.4	405	0.58	225.6	124.0	115.5	124.1	124.0	124.0	124.0	124.0	124.0	81.71
16:24	1267.0	230.3	13.4	405	0.73	225.4	124.0	117.0	124.0	124.0	124.0	124.0	124.0	124.0	81.82
16:25	1269.0	232.9	13.4	405	0.70	225.6	124.0	116.6	124.0	124.0	124.0	124.0	124.0	124.0	81.65
16:26	1260.0	230.1	13.5	405	0.69	225.5	124.0	116.2	124.0	124.0	124.0	124.0	124.0	124.0	81.74
16:27	1257.0	224.9	13.4	405	0.69	225.6	124.0	116.7	124.0	124.0	124.0	124.0	124.0	124.0	82.11
16:28	1251.0	232.8	13.5	405	0.64	225.6	124.0	118.4	124.0	124.0	124.0	124.0	124.0	124.0	81.39
16:29	1254.0	227.1	13.6	405	0.47	225.6	124.0	114.8	124.0	124.0	124.0	124.0	124.0	124.0	81.89
16:30	1244.0	235.3	13.6	405	0.71	225.5	123.9	117.4	124.1	123.9	123.9	123.9	123.9	123.9	81.09
10 MinAvg	1260.7	231.3	13.4	405	0.65	225.5	124.0	116.1	124.0	124.0	124.0	124.0	124.0	124.0	81.65
16:31	1243.0	228.5	13.6	405	0.67	225.3	123.9	116.5	123.9	123.9	123.9	123.9	123.9	123.9	81.62
16:32	1250.0	224.3	13.6	405	0.88	225.3	123.9	116.5	123.9	123.9	123.9	123.9	123.9	123.9	82.06
16:33	1226.0	219.3	13.7	405	0.77	225.6	123.9	114.5	123.9	123.9	123.9	123.9	123.9	123.9	82.11
16:34	1234.0	222.9	13.6	405	0.87	225.6	123.9	116.4	123.9	123.9	123.9	123.9	123.9	123.9	81.94
16:35	1252.0	229.3	13.6	405	0.87	225.6	123.9	117.0	123.9	123.9	123.9	123.9	123.9	123.9	81.69
16:36	1246.0	216.1	13.6	405	0.86	225.6	123.9	116.9	123.9	123.9	123.9	123.9	123.9	123.9	82.66
16:37	1240.0	231.8	13.6	405	0.86	225.5	123.9	116.5	123.9	123.9	123.9	123.9	123.9	123.9	81.31
16:38	1230.0	228.9	13.7	405	0.69	225.5	123.9	117.0	123.9	123.9	123.9	123.9	123.9	123.9	81.39
16:39	1226.0	243.7	13.6	405	0.64	225.5	123.9	117.0	123.9	123.9	123.9	123.9	123.9	123.9	80.12
16:40	1216.0	229.5	13.7	405	0.58	225.5	123.9	116.7	123.9	123.9	123.9	123.9	123.9	123.9	81.13

E-480

LEC Run 920617

Starting
06-17-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10 MinAvg	1236.3	227.4	13.6	405	0.77	225.5	123.9	116.5	123.9	123.9	123.9	123.9	123.9	123.9	81.60
16:41	1216.0	226.6	13.6	404	0.62	224.2	123.8	116.8	123.8	123.8	123.8	123.8	123.8	123.8	81.37
16:42	1236.0	224.9	13.6	404	0.29	224.4	123.8	116.0	123.8	123.8	123.8	123.8	123.8	123.8	81.80
16:43	1249.0	235.2	13.4	405	0.19	225.4	123.7	115.4	123.7	123.7	123.7	123.7	123.7	123.7	81.17
16:44	1273.0	249.3	13.3	404	0.18	225.1	123.7	116.3	123.7	123.7	123.7	123.7	123.7	123.7	80.42
16:45	1275.0	254.8	13.3	405	0.19	225.3	123.7	114.5	123.7	123.7	123.7	123.7	123.7	123.7	80.02
16:46	1282.0	256.9	13.2	405	0.19	225.3	123.7	115.8	123.7	123.7	123.7	123.7	123.7	123.7	79.96
16:47	1296.0	251.3	13.2	405	0.19	225.3	123.6	116.0	123.6	123.6	123.6	123.6	123.6	123.6	80.61
16:48	1290.0	247.5	13.1	404	0.27	225.2	123.6	116.2	123.6	123.6	123.6	123.6	123.6	123.6	80.81
16:49	1289.0	251.9	13.1	404	0.35	225.2	123.6	116.1	123.6	123.6	123.6	123.6	123.6	123.6	80.46
16:50	1319.0	253.2	13.0	404	0.69	224.2	123.5	116.2	123.5	123.5	123.5	123.5	123.5	123.5	80.80
10 MinAvg	1272.5	245.2	13.3	404	0.31	225.0	123.7	115.9	123.7	123.7	123.7	123.7	123.7	123.7	80.74
16:51	1324.0	258.6	13.0	404	0.80	225.0	123.5	115.3	123.5	123.5	123.6	123.5	123.5	123.5	80.47
16:52	1321.0	267.9	13.0	404	0.79	224.6	123.5	111.4	123.5	123.5	124.4	123.5	123.5	123.5	79.72
16:53	1328.0	265.1	12.9	404	0.66	225.1	123.5	113.8	123.5	123.5	123.9	123.5	123.5	123.5	80.04
16:54	1333.0	260.3	12.9	404	0.76	225.1	123.4	113.1	123.4	123.4	123.7	123.4	123.4	123.4	80.47
16:55	1325.0	264.2	12.9	404	0.27	225.0	123.4	114.9	123.4	123.4	124.4	123.4	123.4	123.4	80.06
16:56	1330.0	263.7	12.8	404	0.63	225.0	123.4	115.1	123.4	123.4	123.5	123.4	123.4	123.4	80.17
16:57	1346.0	251.3	12.8	404	0.49	225.0	123.4	115.6	123.4	123.4	123.8	123.4	123.4	123.4	81.33
16:58	1366.0	249.6	12.8	404	0.75	225.0	123.4	115.2	123.4	123.4	123.9	123.4	123.4	123.4	81.73
16:59	1361.0	248.5	12.7	404	0.68	225.0	123.4	115.9	123.4	123.4	124.0	123.4	123.4	123.4	81.74
17:00	1377.0	252.9	12.7	404	0.68	225.1	123.4	114.0	123.4	123.4	124.6	123.4	123.4	123.4	81.63
10 MinAvg	1341.1	258.2	12.9	404	0.65	225.0	123.4	114.4	123.4	123.4	124.0	123.4	123.4	123.4	80.74
17:01	1395.0	248.4	12.7	404	0.73	225.0	123.4	113.2	123.4	123.4	124.7	123.4	123.4	123.4	82.19
17:02	1380.0	247.0	12.7	404	0.73	225.0	123.4	114.4	123.4	123.4	124.7	123.4	123.4	123.4	82.10
17:03	1384.0	251.6	12.6	404	0.72	223.8	123.4	116.1	123.4	123.4	125.5	123.4	123.4	123.4	81.82
17:04	1409.0	250.8	12.6	404	0.71	225.0	123.4	115.1	123.4	123.4	124.8	123.4	123.4	123.4	82.20
17:05	1402.0	250.1	12.6	404	0.50	225.0	123.3	116.0	123.3	123.3	124.4	123.3	123.3	123.3	82.16
17:06	1393.0	249.3	12.6	404	0.56	225.0	123.3	116.0	123.3	123.3	125.2	123.3	123.3	123.3	82.10
17:07	1386.0	254.2	12.7	404	0.56	225.0	123.3	116.0	123.3	123.3	123.9	123.3	123.3	123.3	81.66
17:08	1395.0	259.6	12.6	404	0.28	224.9	123.4	115.9	123.4	123.4	125.4	123.4	123.4	123.4	81.39
17:09	1396.0	261.9	12.6	404	0.67	225.0	123.4	116.1	123.4	123.4	124.5	123.4	123.4	123.4	81.24
17:10	1406.0	263.8	12.6	404	0.67	225.0	123.3	116.2	123.3	123.3	124.7	123.3	123.3	123.3	81.24
10 MinAvg	1394.6	253.7	12.6	404	0.61	224.9	123.4	115.5	123.4	123.4	124.8	123.4	123.4	123.4	81.81
17:11	1394.0	271.4	12.6	404	0.66	225.0	123.3	116.3	123.3	123.3	123.9	123.3	123.3	123.3	80.53

E-481

LEC Run 920617

Starting
06-17-92

E-482

LEC Run 920617

Starting
06-17-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
17:44	1195.0	215.6	13.5	404	0.49	224.5	123.1	101.7	123.1	123.1	123.1	123.1	123.1	123.1	81.96
17:45	1190.0	206.3	13.5	404	0.49	224.6	123.1	97.8	123.1	123.1	123.1	123.1	123.1	123.1	82.66
17:46	1182.0	200.4	13.6	404	0.49	224.7	123.1	98.7	123.1	123.1	123.1	123.1	123.1	123.1	83.05
17:47	1196.0	203.5	13.5	360	0.36	218.2	123.1	99.8	123.1	123.1	123.1	123.1	123.1	123.1	82.98

C The run was terminated when the three M5 sampling was completed.

E-483

LEC RUN 920617

Waste Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Dust Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
10:37 AM	17	24.0	1.41
11:00 AM	23	24.0	1.04
11:20 AM	20	28.1	1.41
11:45 AM	25	33.6	1.34
11:58 AM	13	19.0	1.46
12:17 PM	19	24.0	1.26
12:39 PM	22	50.0	2.27
12:52 PM	13	27.0	2.08
01:00 PM	8	26.0	3.25
01:21 PM	21	24.0	1.14
01:39 PM	18	24.0	1.33
01:59 PM	20	24.0	1.20
02:27 PM	28	24.0	0.86
03:07 PM	40	24.0	0.60
03:45 PM	38	24.0	0.63
04:22 PM	37	24.0	0.65
Total:		423.6	
Average:			1.37

LEC RUN 920617

Carry-Over Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Stone Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
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No carry-over stone was collected.

Run Summary: **LEC Run 920618**

Objective: EPA Method 5 testing with No.8.

Total Run Time: 430 minutes.

SO₂ Removal: 44% (average)

Inlet Gas Rate: 2359 acfm (average)

Operational Conditions:

 No damper choker.

 No.8 Maxville limestone (L/S#920617)

 In-duct Steam = 0 psig from 13:36 to 14:30

 10 psig from 14:30 to 20:46

 Overhead Sprays = 0.0 gpm

 Louver Sprays = 0.00 gpm from 13:36 to 15:30

 0.33 gpm from 15:30 to 17:30

 0.38 gpm from 17:30 to 19:30

 0.46 gpm from 19:30 to 20:46

 Bed Speed = 10DT (1462 lb/hr)

 Regeneration Device: Twin deck vibrating screen equipped with 1/4" and No.16 mesh screens.

 Stone Carry-Over: 0.0 lbs/min

 Waste fines: 1.3 lbs/min (average)

Comments: - EPA Reference Method 5 testing was conducted on the outlet stack during this run.

LEC Run 920618

Starting
06-18-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
EPA Reference Method 5 testing was being done on the outlet stack during this run. Initial Conditions: Wet Maxville No.8 (L/S#920617); No choker in damper; Damper in position #1; No moisture addition; 1/4" and No.6 mesh screens as dry method regeneration device; Bed speed = 1460 lb/hr (100T).															
13:36	280.8	0.8	14.5	2556	2.23	256.3	72.7	66.6	66.9	66.6	66.7	66.7	66.6	66.6	99.73
13:37	762.0	2.5	14.3	2488	2.29	256.3	81.3	73.9	66.4	66.4	66.4	66.4	66.4	66.4	99.67
13:38	798.0	6.3	14.3	2488	2.24	256.3	80.4	81.7	69.3	66.4	66.4	66.8	66.4	66.4	99.21
13:39	889.0	27.9	14.4	2454	2.21	256.2	81.2	95.4	89.7	69.6	66.4	77.3	73.1	66.4	96.87
13:40	974.0	87.1	14.4	2397	2.11	256.2	85.9	96.7	104.1	90.4	76.2	84.8	92.7	66.3	91.06
10 MinAvg	371.1	12.6	17.9	2326	1.07	169.9	74.5	74.9	73.1	69.4	67.6	69.8	70.0	66.6	87.30
13:41	1034.0	161.1	14.3	2361	2.01	256.2	95.8	102.2	110.3	102.9	96.1	96.0	98.3	66.3	84.42
13:42	1111.0	213.1	14.2	2332	1.90	256.1	95.9	103.1	113.5	110.0	107.4	100.0	105.1	66.3	80.82
13:43	1140.0	246.9	14.3	2332	1.81	256.2	95.9	103.6	112.9	111.5	113.6	105.8	108.2	66.2	78.34
13:44	1180.0	267.2	14.3	2346	1.74	256.0	96.4	103.2	111.7	111.7	113.4	106.4	108.8	66.7	77.36
13:45	1193.0	290.6	14.2	2354	1.66	256.1	98.8	102.2	111.3	110.8	111.8	107.6	109.7	77.5	75.64
13:46	1229.0	313.7	14.2	2375	1.59	256.0	100.0	98.2	112.1	110.3	111.6	106.1	109.1	86.5	74.48
13:47	1256.0	325.5	14.2	2397	1.54	256.0	99.6	96.1	109.6	110.0	110.8	105.9	107.9	95.4	74.08
13:48	1263.0	343.9	14.3	2397	1.51	255.9	100.2	95.8	109.7	110.8	110.4	104.9	108.1	95.7	72.77
13:49	1265.0	347.2	14.4	2396	1.49	255.8	100.4	95.6	110.1	111.1	110.5	103.3	106.7	95.6	72.55
13:50	1268.0	360.7	14.4	2404	1.49	255.8	101.0	95.6	111.6	110.1	111.2	99.7	107.1	95.6	71.55
10 MinAvg	1193.9	287.0	14.3	2369	1.67	256.0	98.4	99.6	111.3	109.9	109.7	103.6	106.9	81.2	76.20
13:51	1298.0	379.0	14.3	2410	1.50	255.7	100.4	95.5	109.9	112.7	110.0	100.8	107.0	95.5	70.80
13:52	1317.0	395.4	14.3	2403	1.49	255.7	101.5	95.5	109.8	110.3	109.4	100.5	107.1	95.5	69.98
13:53	1317.0	406.1	14.3	2418	1.50	255.8	100.1	95.4	109.1	109.3	109.9	99.3	106.4	95.4	69.16
13:54	1336.0	414.2	14.4	2424	1.49	255.6	100.9	95.4	107.4	108.1	109.3	98.2	106.5	95.4	69.00
13:55	1341.0	425.6	14.4	2439	1.48	256.0	100.5	95.3	106.8	108.3	109.4	97.8	107.8	95.3	68.26
13:56	1348.0	435.3	14.4	2453	1.48	255.8	101.5	95.3	105.5	108.8	109.7	99.0	107.2	95.3	67.71
13:57	1357.0	440.7	14.4	2462	1.49	257.3	100.4	95.3	105.4	107.0	110.0	97.2	105.8	95.3	67.52
13:58	1360.0	445.8	14.4	2469	1.48	257.4	100.5	95.2	106.6	107.7	109.8	98.4	105.3	95.2	67.22
13:59	1356.0	450.3	14.4	2470	1.48	257.7	101.1	95.2	107.0	107.0	109.9	98.8	105.4	95.2	66.79
14:00	1355.0	456.8	14.4	2469	1.48	257.3	102.3	95.2	107.4	106.1	109.9	98.7	105.9	95.2	66.29
10 MinAvg	1338.5	424.9	14.3	2442	1.49	256.4	100.9	95.3	107.5	108.5	109.7	98.9	106.4	95.3	68.27
14:01	1347.0	462.8	14.4	2476	1.48	257.3	102.2	95.1	105.9	106.6	110.1	99.7	105.2	95.1	65.64
14:02	1344.0	465.7	14.5	2477	1.47	257.9	102.0	95.1	104.9	106.4	109.7	100.1	106.3	95.1	65.35
14:03	1334.0	475.5	14.4	2485	1.47	258.1	102.3	95.1	105.1	105.3	110.0	99.9	105.9	95.1	64.36
14:04	1339.0	488.6	14.3	2477	1.47	257.6	103.1	95.1	106.4	107.1	110.2	100.3	106.5	95.1	63.51
14:05	1351.0	484.5	14.4	2483	1.46	257.0	103.3	95.1	106.0	106.9	109.9	100.6	105.5	95.1	64.14

E-486

LEC Run 920618

Starting
06-18-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
14:06	1347.0	481.9	14.5	2484	1.46	258.0	103.1	95.1	106.0	107.1	110.0	98.2	105.3	95.1	64.22
14:07	1353.0	493.0	14.4	2492	1.45	258.3	102.5	95.1	106.6	105.5	109.7	99.9	105.2	95.1	63.56
14:08	1341.0	495.9	14.5	2491	1.45	258.0	102.2	95.1	108.1	105.9	109.7	98.8	105.4	95.1	63.02
14:09	1341.0	497.8	14.5	2489	1.44	256.6	103.9	95.1	108.4	103.9	109.4	99.4	106.3	95.1	62.88
14:10	1337.0	499.4	14.5	2491	1.44	258.1	103.5	95.1	107.7	103.4	109.6	100.4	106.0	95.1	62.65
10 MinAvg	1343.4	484.5	14.4	2485	1.46	257.7	102.8	95.1	106.5	105.8	109.8	99.7	105.8	95.1	63.93
14:11	1338.0	513.3	14.4	2484	1.43	257.5	103.7	95.0	108.1	103.7	110.0	99.3	105.6	95.0	61.64
14:12	1335.0	518.6	14.5	2481	1.42	256.3	103.7	95.0	108.6	104.7	109.1	99.5	106.3	95.0	61.15
14:13	1306.0	516.0	14.5	2491	1.41	257.6	103.9	94.9	109.4	105.2	109.5	100.1	106.0	94.9	60.49
14:14	1335.0	530.0	14.4	2498	1.40	258.1	105.4	95.1	110.5	105.2	109.4	99.8	106.5	94.9	60.30
14:15	1324.0	542.6	14.4	2487	1.39	255.5	106.2	95.1	108.9	105.7	109.4	101.7	106.1	94.9	59.02
14:16	1286.0	547.7	14.4	2504	1.39	257.4	107.2	95.2	109.4	105.6	108.9	103.4	105.7	94.9	57.41
14:17	1358.0	548.8	14.4	2514	1.37	259.1	108.2	95.3	109.8	112.8	109.9	102.9	106.6	94.9	59.59
14:18	1367.0	570.9	14.2	2585	1.37	261.5	109.3	95.2	109.2	124.2	121.5	102.7	105.0	95.0	58.24
14:19	1359.0	582.1	14.2	2577	1.36	260.5	109.4	96.1	110.4	152.9	125.1	104.0	104.6	95.0	57.17
14:20	1360.0	604.7	14.2	2558	1.35	257.5	112.4	97.4	109.8	162.9	149.9	106.0	103.7	94.9	55.54
10 MinAvg	1336.8	547.5	14.4	2518	1.39	258.1	106.9	95.4	109.4	118.3	116.3	101.9	105.6	94.9	59.05
14:21	1314.0	607.7	14.3	2553	1.34	258.2	112.9	98.2	109.3	166.8	159.4	109.7	104.3	94.9	53.75
14:22	1353.0	627.2	14.2	2557	1.33	260.3	115.9	98.3	109.1	167.7	167.7	114.7	103.1	94.9	53.64
14:23	1367.0	641.5	14.2	2534	1.32	259.2	116.5	97.2	109.8	167.7	174.9	119.8	104.8	94.9	53.07
14:24	1365.0	654.6	14.2	2526	1.32	258.3	118.2	96.2	110.8	167.8	189.8	123.6	103.6	94.9	52.04
14:25	1354.0	668.7	14.3	2510	1.32	257.1	120.3	96.5	110.2	166.2	196.6	124.2	103.9	94.9	50.61
14:26	1322.0	661.9	14.4	2534	1.33	258.9	122.7	96.0	108.4	159.8	196.7	124.2	105.4	94.9	49.93
14:27	1297.0	658.4	14.4	2785	1.57	258.4	123.8	95.0	108.2	166.9	196.7	131.2	104.9	96.8	49.24
14:28	1278.0	676.2	14.4	2749	1.54	259.4	124.1	95.3	105.9	167.6	196.6	147.2	105.9	103.6	47.09
14:29	1279.0	675.5	14.5	2713	1.53	257.0	124.0	94.9	104.7	167.6	197.3	152.5	108.3	106.7	47.19
14:30	1255.0	660.3	14.6	2410	1.24	255.2	124.0	95.2	104.3	166.7	209.4	153.0	120.4	109.8	47.39
10 MinAvg	1318.4	653.2	14.4	2587	1.38	258.2	120.2	96.3	108.1	166.5	188.5	130.0	106.5	98.6	50.40
14:31	1291.0	662.2	14.6	2415	1.24	258.1	123.9	94.8	102.5	167.5	221.6	153.0	124.3	112.3	48.71
14:32	1303.0	669.6	14.5	2362	1.24	231.3	123.9	94.6	102.1	160.1	225.5	153.1	138.9	116.7	48.61
14:33	1293.0	682.2	14.5	2359	1.24	213.3	123.9	94.5	107.4	143.2	225.5	154.1	152.9	119.8	47.24
14:34	1296.0	678.0	14.6	2377	1.24	223.6	123.8	94.5	110.3	125.1	225.4	161.8	156.5	121.5	47.69
14:35	1288.0	675.6	14.6	2363	1.23	227.7	123.8	94.8	111.5	123.8	226.1	166.1	167.2	123.3	47.55
14:36	1279.0	669.4	14.6	2361	1.23	226.8	123.8	95.4	111.6	123.8	230.1	167.3	167.3	123.8	47.66
14:37	1274.0	659.8	14.7	2339	1.22	226.0	123.7	99.6	112.9	123.7	234.6	167.3	167.3	123.7	48.21
14:38	1258.0	653.4	14.7	2341	1.22	227.4	123.7	100.1	111.3	123.7	232.6	167.3	167.3	123.7	48.06

E-487

LEC Run 920618

Starting
06-18-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
14:39	1256.0	650.6	14.7	2340	1.22	226.5	123.8	99.5	114.4	123.7	237.0	167.2	167.2	123.7	48.20
14:40	1260.0	658.7	14.6	2343	1.22	228.4	125.2	101.1	112.0	123.6	243.5	167.4	167.2	123.6	47.72
10 MinAvg	1279.8	666.0	14.6	2360	1.23	228.9	123.9	96.9	109.6	133.8	230.2	162.5	157.6	121.2	47.96
14:41	1256.0	653.4	14.7	2335	1.22	227.5	130.0	102.2	115.5	123.5	248.8	167.6	167.5	123.5	47.98
14:42	1255.0	661.0	14.7	2337	1.22	229.1	137.1	102.3	115.8	123.5	248.3	168.1	177.3	123.5	47.33
14:43	1257.0	662.0	14.7	2344	1.22	233.0	144.4	101.7	116.2	125.1	252.6	172.2	184.4	123.4	47.33
14:44	1259.0	658.8	14.7	2346	1.22	234.0	150.0	100.6	115.7	156.0	254.0	175.0	188.5	123.4	47.67
14:45	1240.0	662.7	14.8	2339	1.21	234.0	151.5	101.7	116.5	167.0	254.3	177.5	189.6	123.3	46.56
14:46	1215.0	645.0	14.8	2324	1.21	229.4	152.4	101.8	117.3	180.2	254.2	178.8	192.8	123.3	46.91
14:47	1218.0	643.2	14.8	2331	1.21	233.9	152.3	102.4	115.7	179.6	254.0	174.6	195.6	123.5	47.19
14:48	1234.0	648.0	14.9	2331	1.21	234.0	152.3	103.2	115.9	175.8	253.8	180.3	194.7	138.5	47.49
14:49	1264.0	662.8	14.7	2334	1.21	235.8	152.3	102.6	120.3	169.8	254.1	179.7	195.5	151.6	47.56
14:50	1269.0	669.0	14.7	2329	1.21	232.4	152.2	104.0	115.7	166.7	253.5	178.6	195.7	152.2	47.28
10 MinAvg	1246.7	656.6	14.8	2335	1.21	232.3	147.4	102.3	116.5	156.7	252.8	175.2	188.2	130.6	47.33
14:51	1276.0	656.6	14.6	2315	1.21	232.5	152.1	105.9	113.9	154.4	253.8	180.5	195.6	152.1	48.54
14:52	1281.0	677.9	14.5	2312	1.21	231.2	152.1	103.2	115.9	152.1	252.6	181.1	196.3	152.1	47.08
14:53	1282.0	676.9	14.5	2307	1.21	227.7	152.1	103.3	119.8	140.2	251.9	179.6	196.0	153.0	47.20
14:54	1274.0	682.4	14.4	2311	1.22	226.2	152.1	105.4	115.9	127.2	244.5	181.0	195.5	157.7	46.44
14:55	1279.0	689.5	14.5	2320	1.22	227.4	152.0	105.5	117.3	122.9	240.8	179.6	195.5	163.9	46.09
14:56	1276.0	702.0	14.2	2319	1.22	230.7	152.0	107.3	118.8	122.9	226.8	179.9	195.5	166.3	44.98
14:57	1308.0	696.6	14.1	2332	1.23	234.5	152.0	104.4	116.0	122.9	224.8	181.0	195.5	166.5	46.74
14:58	1353.0	713.0	14.0	2338	1.23	233.7	152.0	105.2	116.0	122.9	224.5	180.8	198.6	166.5	47.30
14:59	1360.0	713.0	14.0	2334	1.23	235.5	152.3	103.3	120.0	122.9	225.0	178.5	202.5	166.5	47.57
15:00	1343.0	719.0	13.9	2331	1.23	233.9	152.1	104.7	116.7	122.9	225.4	180.7	195.8	166.5	46.46
10 MinAvg	1303.2	692.7	14.3	2322	1.22	231.3	152.1	104.8	117.0	131.1	237.0	180.3	196.7	161.1	46.84
15:01	1310.0	706.0	14.0	2333	1.22	230.5	152.1	107.4	115.7	122.9	232.2	180.9	200.1	166.4	46.11
15:02	1283.0	714.0	14.2	2322	1.22	228.7	151.9	105.3	117.2	122.8	242.0	180.9	200.1	166.4	44.35
15:03	1294.0	707.0	14.3	2334	1.22	227.1	152.2	107.3	116.0	122.8	241.2	180.9	198.0	166.4	45.36
15:04	1267.0	720.0	13.9	2326	1.22	226.5	152.2	111.0	120.6	122.8	247.9	180.9	201.2	166.4	43.17
15:05	1254.0	730.0	14.0	2317	1.22	225.3	153.2	109.0	121.0	122.6	248.6	180.9	202.9	166.5	41.79
15:06	1258.0	732.0	14.1	2326	1.22	226.7	152.8	107.9	118.8	121.1	237.3	180.4	204.8	166.4	41.81
15:07	1321.0	743.0	14.2	2334	1.22	227.2	152.4	108.5	116.1	122.5	224.2	180.6	195.9	166.5	43.75
15:08	1346.0	733.0	14.4	2333	1.21	226.3	152.8	109.1	117.9	122.6	198.0	180.0	198.9	168.1	45.54
15:09	1311.0	731.0	14.4	2316	1.22	225.0	153.5	111.2	120.9	122.1	181.6	180.1	202.1	170.4	44.24
15:10	1272.0	728.0	14.4	2321	1.22	223.9	154.8	110.0	121.1	120.9	166.4	176.4	216.5	171.7	42.77

E-488

Starting
06-18-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10 MinAvg	1291.6	724.4	14.2	2326	1.22	226.7	152.8	108.7	118.5	122.3	221.9	180.2	202.1	167.5	43.89
15:11	1297.0	748.0	14.3	2323	1.21	224.7	152.6	113.7	121.7	122.0	162.7	176.2	212.1	173.5	42.33
15:12	1290.0	759.0	14.2	2320	1.21	223.3	152.6	113.0	118.3	122.4	151.9	176.3	209.9	177.1	41.16
15:13	1231.0	750.0	14.3	2329	1.21	224.1	154.9	111.8	120.9	121.8	151.7	174.1	209.3	178.6	39.07
15:14	1273.0	762.0	14.2	2328	1.21	223.9	152.5	113.2	118.1	122.4	151.7	180.0	213.7	179.2	40.14
15:15	1261.0	766.0	14.1	2329	1.20	224.5	154.0	108.7	117.0	122.1	151.7	180.5	205.4	178.7	39.25
15:16	1258.0	775.0	14.1	2335	1.20	223.7	156.3	110.1	122.3	120.4	151.6	176.4	199.0	180.6	38.39
15:17	1257.0	780.0	14.1	2328	1.20	223.8	154.3	110.9	118.9	122.3	154.2	179.6	210.7	180.5	37.95
15:18	1204.0	785.0	14.2	2320	1.20	223.0	155.0	110.5	121.6	120.7	166.1	174.1	200.2	180.5	34.80
15:19	1191.0	777.0	14.3	2335	1.20	223.6	153.2	113.5	119.3	122.5	168.9	174.7	197.6	180.5	34.76
15:20	1185.0	775.0	14.5	2342	1.21	223.6	155.0	109.2	120.8	119.5	179.4	175.6	196.3	180.5	34.60
10 MinAvg	1244.7	767.7	14.2	2329	1.21	223.8	154.0	111.5	119.9	121.6	159.0	176.7	205.4	179.0	38.25
15:21	1190.0	790.0	14.5	2321	1.19	223.7	155.0	113.7	122.3	121.0	184.5	177.5	201.8	180.5	33.61
15:22	1186.0	772.0	14.5	2342	1.20	223.7	152.4	114.9	122.1	122.2	194.8	180.3	200.7	180.5	34.91
15:23	1198.0	784.0	14.2	2341	1.20	223.2	152.8	114.7	117.6	122.5	195.0	179.2	205.6	180.5	34.56
15:24	1209.0	789.0	14.1	2341	1.20	223.2	155.2	113.3	121.1	120.3	195.0	170.3	212.1	180.5	34.74
15:25	1228.0	798.0	14.0	2342	1.19	223.7	152.7	113.0	119.4	121.6	187.7	174.6	209.8	180.7	35.02
15:26	1303.0	818.0	13.8	2356	1.18	223.9	152.8	114.3	120.1	121.2	170.0	166.8	201.9	181.0	37.22
15:27	1326.0	822.0	13.8	2384	1.18	224.2	152.8	113.5	119.9	121.1	163.0	167.1	214.1	181.7	38.01
15:28	1328.0	811.0	13.9	2399	1.18	224.9	154.2	111.0	118.4	119.4	151.9	166.1	210.5	181.2	38.93
15:29	1319.0	814.0	13.9	2398	1.17	224.3	152.3	113.4	118.3	122.0	150.6	166.2	211.4	184.3	38.29
15:30	1315.0	809.0	13.9	2391	1.17	224.2	154.9	112.4	121.5	116.9	128.3	166.2	205.7	183.1	38.48
C	Louver sprays are turned on to 0.33 gpm.														
C	In-duct steam injection is turned on full (10psig).														
10 MinAvg	1260.2	800.7	14.1	2362	1.19	223.9	153.5	113.4	120.1	120.8	172.1	171.4	207.4	181.4	36.38
15:31	1301.0	810.0	13.9	2391	1.17	223.9	153.2	114.1	121.9	117.3	122.6	166.2	206.7	184.1	37.74
15:32	1305.0	792.0	14.1	2392	1.16	224.5	152.7	112.0	121.4	116.6	141.6	166.2	202.9	186.7	39.31
15:33	1260.0	794.0	14.1	2397	1.16	223.3	152.0	113.8	117.8	120.6	151.8	166.3	202.3	191.4	36.98
15:34	1237.0	791.0	13.8	2377	1.16	223.9	154.3	114.0	119.1	119.4	161.9	166.4	198.2	191.0	36.05
15:35	1237.0	788.0	13.7	2364	1.16	224.4	155.3	112.4	116.2	122.3	158.6	166.4	196.6	192.2	36.30
15:36	1208.0	787.0	13.8	2350	1.16	224.2	153.8	121.7	119.6	122.6	152.0	166.6	196.2	193.6	34.85
15:37	1223.0	766.0	14.0	2280	1.16	224.4	153.4	122.3	122.8	122.1	156.1	166.5	209.8	194.3	37.37
15:38	1236.0	755.0	14.1	2272	1.15	224.4	154.4	118.7	122.8	122.7	166.4	166.4	219.3	193.9	38.92
15:39	1241.0	746.0	14.2	2258	1.14	224.3	153.7	118.2	122.8	122.8	175.0	166.5	220.7	194.2	39.89
15:40	1234.0	723.0	14.3	2258	1.14	224.6	154.7	115.3	122.8	122.8	180.9	166.5	215.9	194.1	41.41
10 MinAvg	1248.2	775.2	14.0	2334	1.16	224.2	153.7	116.3	120.7	120.9	156.7	166.4	206.9	191.6	37.88

E-489

LEC Run 920618

Starting
06-18-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
15:41	1245.0	721.0	14.4	2264	1.14	223.5	157.4	112.5	122.0	122.9	175.5	166.6	208.3	194.3	42.09
15:42	1277.0	720.0	14.3	2272	1.14	224.4	155.5	109.4	122.6	122.9	166.6	167.2	202.2	195.0	43.62
15:43	1283.0	719.0	14.4	2266	1.14	224.6	159.4	104.6	122.9	122.9	166.5	166.9	208.3	194.7	43.96
15:44	1254.0	703.0	14.4	2265	1.14	224.4	158.0	101.7	121.7	123.0	165.9	166.9	205.4	195.3	43.94
15:45	1247.0	691.6	14.6	2274	1.14	225.1	157.9	102.5	121.5	123.0	157.3	166.7	197.8	194.6	44.54
15:46	1226.0	675.9	14.6	2273	1.14	224.9	158.1	103.4	121.2	123.0	153.7	166.6	204.9	195.5	44.87
15:47	1191.0	668.2	14.8	2273	1.15	224.9	158.7	99.3	122.6	123.0	165.0	166.6	201.5	195.3	43.90
15:48	1170.0	657.9	14.8	2272	1.14	223.9	157.2	100.1	118.7	123.0	166.6	168.3	199.2	195.3	43.77
15:49	1148.0	650.6	14.9	2267	1.15	225.2	152.9	95.8	122.2	123.0	173.6	169.0	195.6	195.1	43.33
15:50	1128.0	656.7	14.9	2273	1.15	224.6	153.5	97.4	122.8	123.1	166.9	172.8	196.9	194.6	41.78
10 MinAvg	1216.9	686.4	14.6	2270	1.14	224.6	156.9	102.7	121.8	123.0	165.8	167.8	202.0	195.0	43.58
15:51	1110.0	643.5	14.9	2273	1.16	224.8	155.4	98.7	122.6	123.1	166.4	167.7	196.8	195.1	42.03
15:52	1128.0	649.8	15.0	2280	1.15	224.8	155.8	96.4	121.8	123.1	154.4	168.1	195.7	195.7	42.39
15:53	1133.0	641.5	15.0	2259	1.14	225.1	153.3	93.9	123.0	123.1	152.2	170.9	196.0	195.4	43.38
15:54	1137.0	638.9	15.1	2282	1.16	225.6	152.9	94.7	121.0	123.1	152.2	172.2	195.6	194.9	43.81
15:55	1154.0	643.9	15.0	2287	1.17	224.7	152.3	94.7	118.8	123.1	152.2	172.9	195.6	195.4	44.20
15:56	1169.0	647.4	14.9	2287	1.17	224.4	153.0	94.0	117.0	123.1	152.2	166.8	195.6	195.3	44.62
15:57	1176.0	650.7	15.0	2304	1.17	226.1	152.5	93.8	116.0	123.1	152.2	168.5	195.6	194.9	44.67
15:58	1183.0	649.8	15.0	2298	1.17	226.6	152.8	94.0	121.9	123.1	152.2	169.6	195.7	195.4	45.07
15:59	1189.0	645.0	15.0	2297	1.18	226.2	153.3	94.0	119.1	123.1	152.2	167.2	199.4	195.4	45.75
16:00	1199.0	647.7	15.0	2305	1.18	226.6	152.7	93.8	122.6	123.1	152.2	166.7	195.6	195.4	45.98
10 MinAvg	1157.8	645.8	15.0	2287	1.16	225.5	153.4	94.8	120.4	123.1	153.8	169.1	196.2	195.3	44.19
16:01	1218.0	661.4	14.9	2291	1.19	227.0	152.7	95.0	122.6	123.1	151.8	166.9	196.0	195.0	45.70
16:02	1218.0	664.8	14.9	2289	1.18	225.6	152.2	94.7	122.0	123.1	152.2	166.7	197.2	194.7	45.42
16:03	1209.0	658.8	14.9	2303	1.19	225.3	152.2	95.2	117.9	123.1	152.3	166.7	195.8	194.4	45.51
16:04	1239.0	673.6	14.8	2318	1.19	226.1	152.2	95.7	120.8	123.1	152.2	166.7	195.6	194.8	45.63
16:05	1254.0	679.4	14.8	2310	1.19	225.3	152.3	95.2	121.7	123.0	152.1	166.6	195.6	194.9	45.82
16:06	1266.0	690.1	14.7	2313	1.20	227.0	152.2	95.8	121.3	123.0	152.1	166.6	195.6	195.0	45.49
16:07	1254.0	681.8	14.7	2312	1.20	226.4	152.2	96.5	118.3	123.5	152.1	166.6	195.6	194.9	45.63
16:08	1268.0	690.6	14.7	2330	1.20	228.7	152.2	96.4	117.8	131.3	153.8	166.6	195.6	195.1	45.54
16:09	1280.0	699.6	14.6	2322	1.20	228.7	152.1	96.9	121.1	131.4	152.4	166.6	195.2	194.9	45.34
16:10	1282.0	709.0	14.5	2318	1.21	225.9	152.1	99.9	119.2	137.4	152.1	166.6	193.4	194.9	44.70
10 MinAvg	1248.8	680.9	14.7	2310	1.19	226.6	152.2	96.1	120.3	126.2	152.3	166.7	195.6	194.9	45.48
16:11	1286.0	711.0	14.6	2331	1.20	229.4	152.1	99.7	112.7	138.0	152.1	166.6	183.3	194.9	44.71
16:12	1314.0	724.0	14.4	2332	1.20	230.4	152.1	99.5	114.8	139.3	155.4	166.6	181.1	195.2	44.90
16:13	1315.0	732.0	14.4	2337	1.21	233.2	152.1	95.6	120.6	140.7	154.7	166.6	180.7	194.2	44.33

E-490

LEC Run 920618

Starting
06-18-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
16:14	1339.0	741.0	14.3	2344	1.22	232.8	152.1	100.5	116.9	150.3	152.2	166.6	177.4	195.0	44.66
16:15	1366.0	754.0	14.2	2354	1.22	238.9	152.1	95.7	117.3	151.6	152.2	166.6	171.1	194.7	44.80
16:16	1368.0	760.0	14.2	2351	1.22	237.4	152.1	102.1	116.1	151.8	152.2	166.5	167.5	195.5	44.44
16:17	1378.0	771.0	14.1	2347	1.22	234.8	152.0	99.5	116.3	149.0	152.4	166.5	166.5	195.4	44.05
16:18	1400.0	778.0	14.1	2361	1.23	234.6	152.0	100.2	116.9	146.6	152.0	166.5	166.5	195.0	44.43
16:19	1404.0	787.0	14.1	2376	1.24	235.4	152.0	103.5	114.0	152.0	152.0	166.5	166.5	195.3	43.95
16:20	1406.0	789.0	14.1	2369	1.24	231.4	151.9	103.7	119.6	151.6	151.9	166.4	166.4	195.4	43.88
10 MinAvg	1357.6	754.7	14.3	2350	1.22	233.8	152.1	100.0	116.5	147.1	152.7	166.5	172.7	195.1	44.42
16:21	1385.0	789.0	14.1	2370	1.24	231.7	151.9	102.2	121.9	155.3	151.9	166.4	166.4	195.3	43.03
16:22	1379.0	802.0	14.0	2363	1.24	232.1	151.8	103.1	118.2	155.3	152.0	166.3	166.3	194.5	41.84
16:23	1373.0	809.0	14.0	2381	1.24	238.2	151.7	102.3	120.9	152.9	152.2	166.2	166.4	194.2	41.08
16:24	1379.0	804.0	14.0	2364	1.24	228.1	151.7	103.8	122.3	155.2	151.7	166.2	166.3	194.3	41.70
16:25	1359.0	803.0	14.0	2369	1.24	235.1	151.6	104.8	121.3	165.9	151.6	166.1	166.1	193.7	40.91
16:26	1319.0	801.0	14.0	2370	1.24	231.6	151.6	101.8	122.2	162.0	151.6	166.1	166.1	194.2	39.27
16:27	1302.0	796.0	14.1	2363	1.25	231.6	151.7	103.9	121.9	164.3	151.7	166.2	166.2	194.1	38.86
16:28	1296.0	799.0	14.0	2361	1.25	230.5	151.7	103.9	116.6	162.5	151.7	166.2	166.2	194.1	38.35
16:29	1275.0	797.0	14.1	2355	1.25	227.3	151.7	103.3	118.5	165.6	151.7	166.2	166.2	194.6	37.49
16:30	1274.0	793.0	14.1	2356	1.26	227.7	151.7	105.2	118.1	165.5	151.7	166.2	166.2	192.3	37.76
10 MinAvg	1334.1	799.3	14.0	2365	1.25	231.4	151.7	103.4	120.2	160.4	151.8	166.2	166.2	194.1	40.03
16:31	1269.0	788.0	14.1	2360	1.26	225.8	151.7	105.2	120.9	160.1	151.2	166.2	166.2	191.9	37.90
16:32	1286.0	798.0	14.0	2361	1.26	226.8	151.7	105.7	122.2	159.7	151.7	166.2	166.2	190.2	37.95
16:33	1271.0	798.0	14.1	2371	1.26	228.1	151.7	105.5	122.6	160.0	151.7	166.2	166.2	187.1	37.21
16:34	1268.0	790.0	14.1	2368	1.26	226.6	151.7	103.6	122.6	166.2	151.6	166.4	166.2	187.0	37.70
16:35	1260.0	790.0	14.1	2368	1.26	226.8	151.7	105.0	122.6	166.2	151.7	166.6	166.2	183.0	37.30
16:36	1255.0	792.0	14.1	2363	1.27	227.8	151.8	107.5	122.7	166.2	151.8	166.7	166.2	181.0	36.89
16:37	1251.0	783.0	14.1	2368	1.26	226.5	151.8	107.9	122.7	165.3	151.8	166.3	166.3	180.7	37.41
16:38	1234.0	773.0	14.2	2368	1.26	230.4	151.8	104.5	122.7	161.8	151.8	166.3	166.3	180.7	37.36
16:39	1261.0	770.0	14.2	2369	1.26	227.3	151.8	105.0	122.8	166.3	151.8	166.3	166.3	180.7	38.94
16:40	1264.0	774.0	14.3	2371	1.27	228.2	151.8	106.0	140.2	166.3	151.7	166.3	166.3	180.6	38.77
10 MinAvg	1261.9	785.6	14.1	2367	1.26	227.4	151.8	105.6	124.2	163.8	151.7	166.4	166.2	184.3	37.74
16:41	1270.0	778.0	14.2	2373	1.26	229.3	151.8	109.0	143.3	166.3	151.8	168.1	166.3	179.7	38.74
16:42	1271.0	769.0	14.3	2371	1.27	228.4	151.8	109.8	124.1	166.3	151.8	169.6	166.3	178.0	39.50
16:43	1261.0	764.0	14.4	2372	1.26	229.2	151.8	108.4	138.9	166.3	151.7	169.4	166.3	175.7	39.41
16:44	1265.0	767.0	14.4	2363	1.26	227.8	151.8	111.4	144.9	166.3	151.7	171.0	166.3	176.9	39.37
16:45	1252.0	756.0	14.5	2357	1.25	228.2	151.8	106.9	133.3	166.3	151.6	166.6	166.3	175.0	39.62
16:46	1238.0	746.0	14.6	2348	1.25	227.2	151.8	110.2	131.6	166.3	151.7	166.6	166.3	172.8	39.74

E-491

LEC Run 920618

Starting
06-18-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
16:47	1184.0	719.0	15.0	2346	1.25	225.8	151.8	108.3	137.0	166.3	151.8	167.5	166.3	175.1	39.27
C	Outlet O2 monitor signal output ends.														
16:48	1164.0	82.3		2352	1.26	225.2	151.8	106.1	144.1	166.4	150.2	166.4	166.3	172.5	92.93
16:49	1154.0	275.5		2352	1.26	225.7	151.8	108.1	142.5	166.9	150.2	166.3	166.3	172.2	76.13
16:50	1146.0	683.5		2356	1.26	228.0	151.8	109.4	143.7	166.3	151.5	166.3	166.3	170.7	40.36
10 MinAvg	1220.5	634.0	14.5	2359	1.26	227.5	151.8	108.8	138.3	166.4	151.4	167.8	166.3	174.9	48.51
16:51	1134.0	697.8		2361	1.26	226.6	151.8	109.2	141.4	167.0	149.9	166.4	166.3	170.7	38.47
16:52	1163.0	713.0		2357	1.26	224.5	151.9	113.8	145.7	166.4	151.1	166.6	166.4	170.2	38.69
16:53	1202.0	720.0		2362	1.26	227.2	151.9	111.7	148.5	166.4	150.5	166.6	166.4	168.3	40.10
16:54	1232.0	739.0		2359	1.26	225.4	151.9	111.0	151.2	166.4	151.3	166.4	166.4	167.8	40.02
16:55	1243.0	748.0		2353	1.26	226.0	151.9	110.0	147.3	166.4	151.9	166.3	166.3	168.4	39.82
16:56	1244.0	748.0		2359	1.27	225.4	151.9	112.7	145.3	166.3	151.9	166.3	166.3	168.4	39.87
16:57	1248.0	746.0		2371	1.27	228.4	151.8	112.6	144.1	166.3	151.8	166.3	166.3	166.9	40.22
16:58	1253.0	747.0		2369	1.28	227.5	151.8	114.0	149.2	166.3	151.8	166.3	166.3	166.9	40.38
16:59	1264.0	754.0		2371	1.28	228.1	151.8	113.8	149.2	166.3	151.7	166.3	166.3	167.0	40.35
17:00	1279.0	759.0		2380	1.27	233.6	151.8	115.5	150.5	166.2	151.8	166.2	166.2	166.8	40.66
10 MinAvg	1226.2	737.2		2364	1.27	227.3	151.9	112.4	147.2	166.4	151.4	166.4	166.2	168.0	39.86
17:01	1282.0	767.0		2382	1.28	234.8	151.7	116.7	150.2	166.2	151.6	166.2	166.2	166.5	40.17
17:02	1285.0	759.0		2387	1.28	237.8	151.7	115.4	151.5	166.2	151.5	166.2	166.2	166.7	40.93
17:03	1295.0	765.0		2391	1.28	235.9	151.6	115.1	151.6	166.1	151.6	166.1	166.1	166.5	40.93
17:04	1286.0	773.0		2386	1.29	233.3	151.6	115.3	151.6	166.1	151.6	166.1	166.1	166.7	39.89
17:05	1287.0	775.0		2371	1.28	228.6	151.5	115.0	151.2	166.0	151.5	166.0	166.0	166.3	39.78
17:06	1270.0	783.0		2383	1.28	231.6	151.5	115.5	151.5	166.0	151.5	166.0	166.0	166.2	38.35
17:07	1287.0	788.0		2376	1.29	231.3	151.5	115.1	151.1	166.1	151.5	166.0	166.0	166.4	38.77
17:08	1258.0	780.0		2381	1.29	229.9	151.4	114.9	151.4	165.9	151.4	165.9	165.7	166.3	38.00
17:09	1269.0	802.0		2389	1.28	235.1	151.4	115.2	151.4	166.2	151.4	165.9	165.9	166.4	36.80
17:10	1329.0	817.0		2395	1.29	238.4	151.3	115.1	151.2	165.8	151.3	165.8	165.8	166.2	38.53
10 MinAvg	1284.8	780.9		2384	1.28	233.7	151.5	115.3	151.3	166.1	151.5	166.0	166.0	166.4	39.21
17:11	1340.0	819.0		2392	1.29	236.4	151.3	120.1	151.3	165.7	151.3	165.7	165.7	166.2	38.88
17:12	1308.0	820.0		2391	1.29	235.7	151.2	116.1	151.2	166.9	151.2	165.8	165.7	166.1	37.31
17:13	1331.0	833.0		2392	1.29	236.4	151.2	115.2	151.2	165.6	151.2	165.6	165.6	166.4	37.42
17:14	1332.0	835.0		2378	1.28	232.3	151.1	117.9	151.1	165.6	151.1	165.6	165.6	165.7	37.31
17:15	1304.0	833.0		2374	1.29	229.9	151.1	120.4	151.1	165.5	151.1	165.8	165.5	165.7	36.12
17:16	1342.0	847.0		2379	1.29	232.9	151.0	116.4	151.0	165.5	151.0	165.6	165.5	165.8	36.89
17:17	1360.0	853.0		2369	1.28	227.5	151.0	118.1	150.7	165.7	151.0	166.4	165.5	165.9	37.28
17:18	1370.0	866.0		2381	1.29	230.3	150.9	115.1	150.9	165.4	150.9	169.3	165.4	166.3	36.79

E-492

LEC Run 920618

Starting
06-18-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
17:19	1377.0	873.0		2370	1.29	227.7	150.9	115.8	150.9	165.5	150.9	174.7	165.4	165.7	36.60
17:20	1369.0	865.0		2382	1.29	234.7	150.8	119.1	151.0	165.3	150.8	174.6	165.3	167.5	36.82
10 MinAvg	1343.3	844.4		2381	1.29	232.4	151.1	117.4	151.0	165.7	151.1	167.9	165.5	166.1	37.14
17:21	1411.0	867.0		2388	1.29	234.5	150.8	120.7	151.0	165.3	150.8	175.8	165.3	168.1	38.55
17:22	1447.0	876.0		2376	1.29	235.2	150.7	121.4	152.7	165.4	150.7	179.2	165.2	166.1	39.46
17:23	1434.0	864.0		2359	1.30	229.6	150.7	120.8	153.1	165.4	150.8	179.3	165.2	166.3	39.75
17:24	1436.0	878.0		2374	1.30	234.2	150.7	120.4	152.4	169.9	152.1	176.5	165.2	167.9	38.86
17:25	1456.0	888.0		2372	1.30	237.0	150.6	121.0	151.0	177.7	163.2	178.2	165.1	170.4	39.01
17:26	1467.0	896.0		2373	1.30	233.7	150.6	116.4	152.2	174.4	154.0	179.1	165.1	168.7	38.92
17:27	1492.0	902.0		2372	1.30	237.2	150.5	120.6	151.1	179.1	152.3	178.8	165.3	171.5	39.54
17:28	1503.0	918.0		2375	1.30	238.8	150.5	118.5	151.5	179.0	151.2	179.2	166.4	174.5	38.92
17:29	1513.0	907.0		2370	1.30	236.0	150.4	118.9	151.5	178.4	150.9	176.9	166.7	175.4	40.05
17:30	1523.0	911.0		2376	1.30	235.4	150.8	119.1	155.1	173.2	151.2	174.8	170.9	177.7	40.18
C	Louver sprays are increased to 0.38 gpm.														
10 MinAvg	1468.2	890.7		2374	1.30	235.2	150.6	119.8	152.2	172.8	152.7	177.8	166.0	170.7	39.33
17:31	1506.0	917.0		2375	1.31	238.9	150.4	120.5	151.2	177.0	150.5	174.6	175.3	179.0	39.11
17:32	1504.0	919.0		2365	1.31	236.9	150.4	120.8	153.1	169.9	150.3	176.5	176.4	179.2	38.90
17:33	1511.0	916.0		2382	1.32	242.9	150.3	120.2	152.4	164.7	155.2	175.0	175.1	179.2	39.38
17:34	1503.0	910.0		2372	1.33	241.5	150.3	118.1	160.2	166.5	161.5	173.5	176.9	179.2	39.45
17:35	1492.0	904.0		2365	1.33	241.5	150.4	119.5	158.1	167.6	162.6	168.9	175.3	179.1	39.41
17:36	1469.0	902.0		2350	1.34	236.8	150.1	120.1	153.6	166.8	163.2	174.4	173.4	179.1	38.60
17:37	1482.0	910.0		2357	1.34	240.9	150.3	118.3	155.0	169.3	159.3	174.5	177.2	179.1	38.60
17:38	1477.0	903.0		2358	1.35	241.6	150.2	120.1	155.1	164.6	164.4	172.2	175.6	179.0	38.86
17:39	1459.0	901.0		2363	1.35	240.1	150.4	120.8	151.2	165.0	164.5	176.1	170.2	179.0	38.25
17:40	1460.0	901.0		2354	1.35	239.0	150.1	120.0	150.9	171.2	164.5	174.7	165.3	178.7	38.29
10 MinAvg	1486.3	908.3		2364	1.33	240.0	150.3	119.8	154.1	168.3	159.6	174.0	174.1	179.1	38.88
17:41	1450.0	901.0		2363	1.36	244.5	150.2	118.8	152.4	178.8	164.4	176.3	166.1	172.8	37.86
17:42	1445.0	897.0		2353	1.37	238.2	150.2	120.2	151.5	178.2	164.4	178.9	171.0	166.2	37.92
17:43	1423.0	898.0		2350	1.37	240.6	150.0	120.7	149.9	179.0	164.4	178.7	169.4	164.9	36.89
17:44	1432.0	886.0		2326	1.38	230.6	150.1	117.7	149.9	178.7	164.4	178.6	170.3	164.5	38.13
17:45	1415.0	880.0		2333	1.38	230.6	150.0	117.1	151.4	178.8	164.3	178.0	165.6	164.3	37.81
17:46	1406.0	881.0		2337	1.38	232.9	150.7	117.7	150.6	175.3	164.3	178.8	164.7	164.3	37.34
17:47	1409.0	877.0		2337	1.38	233.2	150.9	120.5	150.2	169.0	164.3	178.7	167.1	164.3	37.76
17:48	1395.0	890.0		2328	1.39	227.9	150.7	120.6	149.9	170.2	164.3	178.8	164.4	164.3	36.20
17:49	1365.0	872.0		2327	1.39	231.3	150.1	120.4	149.8	166.3	164.3	178.0	164.3	164.3	36.12
17:50	1391.0	862.0		2333	1.40	230.6	150.1	120.0	149.8	165.3	164.3	178.0	164.4	164.3	38.03

E-493

LEC Run 920618

Starting
06-18-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10 MinAvg	1413.1	884.4		2339	1.38	234.0	150.3	119.4	150.5	174.0	164.3	178.3	166.7	165.4	37.41
17:51	1389.0	856.0		2331	1.40	229.4	149.9	119.6	149.8	164.6	164.2	171.5	164.4	164.2	38.37
17:52	1372.0	872.0		2338	1.41	233.7	150.2	119.8	149.8	176.9	164.2	176.9	164.2	164.2	36.44
17:53	1381.0	867.0		2331	1.41	234.0	150.3	120.5	149.7	175.1	164.2	178.7	164.5	164.2	37.22
17:54	1371.0	868.0		2341	1.42	235.3	150.2	120.6	149.7	167.3	164.2	178.7	164.2	164.2	36.69
17:55	1356.0	862.0		2334	1.41	235.4	149.9	120.5	149.7	165.4	164.2	178.7	164.2	164.2	36.43
17:56	1357.0	860.0		2326	1.41	230.7	149.8	120.6	149.7	176.2	164.3	179.7	164.2	164.2	36.62
17:57	1343.0	849.0		2329	1.42	232.7	149.9	120.6	149.7	169.1	164.2	182.2	164.2	164.2	36.78
17:58	1344.0	845.0		2323	1.42	229.1	150.2	120.6	149.7	167.2	164.2	179.2	164.2	164.2	37.13
17:59	1324.0	845.0		2326	1.43	234.8	149.7	120.6	149.7	166.1	164.6	179.2	164.2	164.2	36.18
18:00	1329.0	847.0		2320	1.43	231.2	149.9	120.6	149.6	166.0	169.4	178.7	164.2	164.2	36.27
10 MinAvg	1356.6	857.1		2330	1.42	232.6	150.0	120.4	149.7	169.4	164.8	178.3	164.2	164.2	36.81
18:01	1321.0	846.0		2318	1.44	230.5	149.7	120.6	149.3	164.9	164.4	178.8	164.2	164.2	35.96
18:02	1346.0	843.0		2306	1.45	227.6	149.7	120.6	147.4	164.3	164.6	184.6	164.2	164.2	37.37
18:03	1352.0	841.0		2311	1.45	225.8	150.1	120.6	146.9	171.4	172.6	178.7	164.2	164.2	37.80
18:04	1344.0	840.0		2321	1.46	228.1	149.7	120.6	145.8	178.1	173.6	178.7	164.2	164.2	37.50
18:05	1327.0	833.0		2336	1.46	236.7	149.8	120.6	143.3	178.2	178.3	178.7	164.2	164.2	37.23
18:06	1342.0	830.0		2345	1.47	238.0	150.1	120.6	140.5	176.1	178.7	178.7	164.2	164.2	38.15
18:07	1334.0	829.0		2346	1.47	238.3	149.9	120.6	142.2	166.0	176.5	178.7	164.2	164.2	37.86
18:08	1341.0	824.0		2331	1.48	237.8	150.0	120.5	135.2	165.7	169.2	187.3	164.2	164.2	38.55
18:09	1330.0	826.0		2330	1.48	237.3	149.9	120.5	146.4	171.3	164.4	192.0	164.1	164.1	37.89
18:10	1329.0	805.0		2342	1.48	240.2	149.6	120.5	144.5	173.2	164.1	191.4	164.1	164.1	39.43
10 MinAvg	1336.6	831.7		2329	1.46	234.0	149.9	120.6	144.1	170.9	170.6	182.8	164.2	164.2	37.77
18:11	1330.0	809.0		2330	1.49	237.2	149.7	120.5	136.1	166.2	164.2	190.3	164.1	164.1	39.17
18:12	1293.0	802.0		2323	1.49	233.0	149.7	120.5	140.4	165.1	165.2	188.5	164.1	164.1	37.97
18:13	1269.0	793.0		2333	1.49	235.1	149.8	120.5	148.2	164.3	164.1	186.5	164.6	164.1	37.51
18:14	1279.0	792.0		2322	1.50	232.7	149.6	120.5	149.3	164.4	164.1	188.8	164.4	164.1	38.08
18:15	1291.0	787.0		2332	1.50	234.5	149.7	120.6	149.7	164.3	164.3	191.0	164.3	164.2	39.04
18:16	1300.0	788.0		2328	1.50	236.1	149.8	120.6	149.7	164.7	167.1	185.9	164.4	164.2	39.38
18:17	1261.0	779.0		2329	1.51	236.8	149.7	120.6	149.7	165.4	169.2	186.2	164.2	164.2	38.22
18:18	1255.0	775.0		2321	1.50	236.2	150.0	120.6	149.7	173.6	178.7	182.0	164.4	164.2	38.25
18:19	1240.0	769.0		2325	1.51	238.6	149.8	120.7	149.8	164.6	171.0	188.9	164.6	164.5	37.98
18:20	1218.0	760.0		2319	1.51	234.9	149.9	120.7	149.8	165.2	169.5	193.1	164.6	164.6	37.60
Avg	1273.6	785.4		2326	1.50	235.5	149.8	120.6	147.2	165.8	167.7	188.1	164.4	164.2	38.32
18:21	1203.0	760.0		2330	1.51	237.3	149.8	120.7	149.8	170.7	171.0	192.4	164.4	164.4	36.82

E-494

LEC Run 920618

Starting
06-18-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
18:22	1222.0	750.0		2336	1.52	241.3	150.1	120.7	149.8	165.3	176.5	193.3	166.0	164.8	38.63
18:23	1235.0	749.0		2328	1.52	240.3	149.8	120.7	149.8	164.6	167.0	192.7	165.9	165.2	39.35
18:24	1238.0	739.0		2330	1.52	241.5	150.0	120.8	150.8	175.0	178.5	193.3	165.3	165.8	40.31
18:25	1229.0	731.0		2326	1.52	239.4	149.9	120.8	152.4	166.3	178.9	192.0	165.1	165.3	40.52
18:26	1210.0	736.0		2330	1.53	241.7	150.2	120.8	157.8	165.4	171.6	193.4	164.9	164.6	39.17
18:27	1221.0	734.0		2336	1.54	245.2	149.9	120.8	158.8	170.5	168.9	188.2	165.0	164.5	39.89
18:28	1241.0	733.0		2337	1.53	245.8	150.1	120.9	163.9	165.5	170.5	187.1	164.6	164.5	40.93
18:29	1234.0	731.0		2332	1.54	243.1	150.2	120.9	161.3	164.5	166.3	191.7	164.6	164.7	40.76
18:30	1226.0	735.0		2330	1.54	241.7	150.0	120.9	158.9	168.5	170.9	190.9	164.5	164.6	40.05
10 MinAvg	1225.9	739.8		2331	1.53	241.7	150.0	120.8	155.3	167.6	172.0	191.5	165.0	164.8	39.64
18:31	1234.0	741.0		2325	1.55	242.8	150.0	120.9	159.9	169.3	169.3	191.0	164.6	164.5	39.95
18:32	1263.0	738.0		2347	1.55	247.9	150.1	120.9	151.4	167.9	164.5	190.9	164.6	164.5	41.57
18:33	1226.0	735.0		2344	1.55	245.6	150.0	120.9	150.7	177.0	167.0	190.3	170.5	164.5	40.05
18:34	1248.0	730.0		2353	1.55	246.8	150.0	120.9	150.0	175.1	179.2	183.6	171.3	164.6	41.51
18:35	1234.0	735.0		2346	1.55	247.3	150.2	120.9	150.4	171.6	179.0	190.6	172.6	164.5	40.44
18:36	1250.0	732.0		2339	1.56	242.9	150.1	120.9	150.3	172.1	179.0	193.3	177.0	164.5	41.44
18:37	1258.0	722.0		2346	1.56	247.2	150.0	120.9	150.2	177.7	178.9	191.5	178.8	164.6	42.61
18:38	1239.0	727.0		2341	1.56	244.1	150.1	120.9	150.2	178.9	181.5	179.1	178.8	164.5	41.32
18:39	1221.0	731.0		2328	1.54	249.0	150.0	120.9	150.0	178.9	178.9	183.2	175.7	164.5	40.13
18:40	1238.0	729.0		2343	1.56	249.7	150.1	120.9	150.2	178.9	184.9	192.9	178.3	164.5	41.11
10 MinAvg	1241.1	732.0		2341	1.55	246.3	150.1	120.9	151.3	174.7	176.2	188.6	173.2	164.5	41.01
18:41	1239.0	728.0		2340	1.56	248.0	150.0	120.8	150.2	178.9	179.2	193.4	178.7	164.6	41.24
18:42	1215.0	725.0		2346	1.56	242.7	150.1	120.8	151.8	179.1	178.9	193.1	179.8	164.4	40.33
18:43	1220.0	728.0		2359	1.56	250.7	150.1	120.9	153.2	179.1	179.3	192.0	178.9	164.5	40.33
18:44	1235.0	730.0		2351	1.56	249.8	150.0	120.9	153.8	182.7	179.8	187.4	178.7	164.5	40.89
18:45	1238.0	723.0		2351	1.57	250.0	150.0	120.9	155.2	179.0	179.0	184.9	177.7	164.5	41.60
18:46	1233.0	726.0		2358	1.57	249.9	150.0	120.9	158.8	178.7	179.0	182.7	179.0	164.5	41.12
18:47	1246.0	737.0		2358	1.58	249.9	150.0	120.9	157.1	179.0	179.0	179.9	180.4	164.5	40.85
18:48	1260.0	746.0		2367	1.58	250.8	150.0	120.9	153.5	175.0	167.5	192.4	179.9	164.5	40.79
18:49	1295.0	755.0		2365	1.58	249.6	150.0	120.9	161.1	176.9	164.7	193.2	179.2	164.5	41.70
18:50	1307.0	756.0		2351	1.58	250.2	150.1	120.9	154.8	180.4	177.6	189.2	178.8	164.5	42.16
10 MinAvg	1248.8	735.4		2355	1.57	249.2	150.0	120.9	154.9	178.9	176.4	188.8	179.1	164.5	41.10
18:51	1293.0	756.0		2358	1.57	249.8	150.0	120.9	152.4	180.9	178.8	179.1	178.9	164.5	41.53
18:52	1297.0	762.0		2351	1.58	250.3	150.0	120.9	154.3	175.2	179.0	185.0	179.0	164.5	41.25
18:53	1309.0	767.0		2358	1.59	250.2	150.0	120.9	152.8	178.8	178.6	180.9	175.2	164.5	41.41
18:54	1308.0	766.0		2358	1.58	249.9	150.0	120.9	151.8	179.0	179.0	180.3	180.2	164.5	41.44

E-495

LEC Run 920618

Starting
06-18-92

E-496

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
18:55	1280.0	764.0		2348	1.59	248.3	150.0	120.9	150.1	179.0	187.3	185.1	179.0	164.5	40.31
18:56	1276.0	771.0		2354	1.59	247.5	150.0	120.9	150.0	179.0	179.8	179.0	178.7	164.5	39.58
C	Outlet sample line is opened to ambient air to drain condenser and check O2 monitor.														
18:57	1263.0			2352	1.59	246.4	149.9	120.8	149.9	181.9	184.9	178.9	178.9	164.4	
18:58	1230.0			2353	1.59	247.1	149.9	120.8	149.9	188.3	189.0	178.8	178.8	164.4	
18:59	1291.0			2355	1.60	248.2	149.8	120.7	149.8	182.4	190.8	180.9	178.8	164.3	
19:00	1280.0			2355	1.60	247.9	149.8	120.7	149.8	180.3	192.7	178.8	177.6	164.3	
10 MinAvg	1282.7	764.3		2354	1.59	248.6	149.9	120.8	151.1	180.5	184.0	180.7	178.5	164.4	40.92
19:01	1269.0			2357	1.60	249.2	149.8	120.7	149.8	179.0	184.3	178.8	167.7	164.3	
19:02	1261.0			2355	1.61	247.9	149.8	120.6	149.8	182.4	178.7	181.3	174.4	164.2	
19:03	1241.0	769.0		2354	1.61	247.5	149.7	120.6	149.7	182.0	184.9	189.4	167.6	164.2	38.03
19:04	1245.0	782.0		2344	1.61	245.8	149.7	120.6	149.7	187.4	187.6	187.1	170.2	164.2	37.19
19:05	1261.0	776.0		2345	1.61	246.3	149.7	120.5	149.8	185.0	178.6	180.0	166.4	164.1	38.46
19:06	1254.0	779.0		2333	1.62	243.4	149.7	120.5	149.6	182.0	182.5	178.7	164.5	164.1	37.88
19:07	1237.0	775.0		2338	1.61	246.4	149.6	120.5	149.6	184.8	192.8	178.6	164.3	164.1	37.35
19:08	1222.0	774.0		2337	1.62	241.5	149.5	120.4	149.5	180.6	191.1	179.0	170.4	164.0	36.66
19:09	1218.0	772.0		2337	1.61	241.7	149.5	120.4	150.0	184.6	191.7	178.6	165.5	164.0	36.62
19:10	1200.0	774.0		2325	1.61	238.6	149.5	120.4	149.8	192.2	193.0	178.6	164.7	164.0	35.50
10 MinAvg	1240.8	775.1		2342	1.61	244.8	149.6	120.5	149.7	184.0	186.5	181.0	167.6	164.1	37.21
19:11	1166.0	772.0		2324	1.61	237.9	149.5	120.3	149.7	181.7	192.9	178.4	167.7	164.0	33.79
19:12	1202.0	779.0		2345	1.62	246.7	149.4	120.3	149.4	178.4	192.9	181.7	169.9	163.9	35.19
19:13	1213.0	776.0		2328	1.62	240.7	149.4	120.3	149.4	178.3	192.8	192.1	168.9	163.9	36.03
19:14	1177.0	773.0		2329	1.62	237.0	149.3	120.2	149.4	178.3	192.8	186.3	177.2	163.8	34.32
19:15	1160.0	770.0		2307	1.62	232.4	149.3	120.2	149.3	178.5	192.8	178.5	178.1	163.8	33.62
19:16	1156.0	772.0		2322	1.63	237.2	149.3	120.2	149.4	177.1	192.8	181.8	176.0	163.8	33.22
19:17	1164.0	764.0		2311	1.62	234.6	149.3	120.2	149.3	178.3	192.8	178.3	176.2	163.8	34.36
19:18	1122.0	759.0		2316	1.62	233.3	149.5	120.2	149.3	179.6	192.9	183.0	167.9	163.8	32.35
19:19	1145.0	758.0		2315	1.62	228.3	149.3	120.2	149.3	187.1	192.8	192.4	167.8	163.8	33.80
19:20	1148.0	746.0		2319	1.62	235.2	149.3	120.2	149.3	178.6	192.9	182.7	164.7	163.8	35.02
10 MinAvg	1165.3	766.9		2322	1.62	236.3	149.4	120.2	149.4	179.6	192.8	183.5	171.4	163.8	34.17
19:21	1150.0	746.0		2319	1.62	234.9	149.2	120.1	149.2	178.2	196.2	181.4	165.4	163.7	35.13
19:22	1155.0	748.0		2319	1.62	234.9	149.2	120.1	148.6	178.2	200.3	181.9	163.7	163.7	35.24
19:23	1182.0	751.0		2319	1.62	235.4	149.2	120.1	148.7	179.1	195.3	180.3	163.7	163.7	36.46
19:24	1198.0	750.0		2313	1.61	231.6	149.2	120.0	148.7	176.7	202.3	180.2	163.7	163.7	37.40
19:25	1207.0	750.0		2309	1.61	233.4	149.1	120.0	147.3	178.0	197.6	183.5	163.6	163.6	37.86
19:26	1193.0	744.0		2315	1.60	237.2	149.1	120.0	146.4	178.5	193.3	180.4	163.6	163.6	37.64

LEC Run 920618

Starting
06-18-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
19:27	1193.0	741.0		2307	1.60	232.3	149.0	119.9	148.7	178.0	201.6	185.8	163.5	163.5	37.89
19:28	1192.0	738.0		2308	1.59	232.7	149.0	119.9	148.5	178.1	192.5	191.9	163.9	163.5	38.09
19:29	1178.0	734.0		2293	1.60	232.5	149.0	119.9	148.8	177.2	192.4	180.0	163.6	163.5	37.69
19:30	1198.0	731.0		2301	1.60	237.2	148.9	119.8	148.9	176.5	192.4	178.0	166.8	163.4	38.98
C	Louver sprays are increased to 0.46 gpm.														
10 MinAvg	1184.6	743.3		2310	1.61	234.2	149.1	120.0	148.4	177.8	196.4	182.3	164.1	163.6	37.24
19:31	1193.0	723.0		2302	1.61	237.7	149.1	119.7	148.9	173.7	192.3	177.8	165.0	163.4	39.40
19:32	1183.0	714.0		2289	1.61	234.5	148.8	119.7	148.8	167.3	192.3	177.8	175.7	163.3	39.64
19:33	1188.0	706.0		2315	1.61	241.2	148.8	119.6	148.8	171.5	192.2	178.5	169.1	163.3	40.57
19:34	1192.0	706.0		2295	1.61	233.9	148.7	119.6	148.7	163.6	190.2	188.2	176.0	163.2	40.77
19:35	1167.0	714.0		2313	1.62	235.8	148.6	119.5	148.6	163.1	191.6	178.0	177.6	163.1	38.82
19:36	1177.0	708.0		2309	1.62	238.0	148.6	119.5	148.6	165.4	192.1	177.4	177.6	163.1	39.85
19:37	1192.0	699.0		2323	1.61	242.0	148.5	119.4	148.5	165.3	192.0	170.5	177.3	163.0	41.36
19:38	1202.0	710.0		2333	1.61	247.6	148.5	119.4	148.5	167.2	191.6	176.7	177.3	163.0	40.93
19:39	1200.0	710.0		2335	1.61	248.9	148.4	119.3	148.4	162.9	190.1	177.4	177.8	162.9	40.83
19:40	1180.0	696.3		2336	1.61	249.9	148.3	119.2	148.3	163.1	188.0	181.7	177.3	162.8	40.99
10 MinAvg	1187.4	708.6		2315	1.61	240.9	148.6	119.5	148.6	166.3	191.2	178.4	175.1	163.1	40.32
19:41	1163.0	682.3		2342	1.62	248.9	148.3	119.2	148.3	162.8	180.9	177.0	172.3	162.8	41.33
19:42	1152.0	685.5		2344	1.62	250.0	148.2	119.1	148.2	162.7	177.2	177.2	176.4	162.7	40.49
19:43	1171.0	694.8		2334	1.62	248.5	148.2	119.1	148.2	162.7	179.9	177.0	176.4	162.7	40.67
19:44	1178.0	709.0		2343	1.62	249.6	148.2	119.0	148.2	162.7	179.1	181.1	176.9	162.7	39.81
19:45	1197.0	713.0		2349	1.63	249.0	148.1	119.0	148.3	162.7	179.2	187.8	177.0	162.7	40.43
19:46	1179.0	701.0		2350	1.63	249.5	148.1	119.0	148.4	162.6	177.1	187.4	175.6	162.6	40.54
19:47	1203.0	699.9		2349	1.64	248.7	148.1	119.0	148.7	162.6	171.2	177.1	175.9	162.6	41.82
19:48	1222.0	741.0		2348	1.64	248.1	148.1	119.0	148.5	162.6	168.4	177.1	164.6	162.6	39.36
19:49	1256.0	767.0		2348	1.63	248.3	148.0	118.9	148.4	162.5	163.6	177.0	165.7	162.5	38.93
19:50	1273.0	771.0		2338	1.64	246.5	148.0	118.9	148.0	162.5	172.5	177.0	167.7	162.5	39.43
10 MinAvg	1199.4	716.5		2344	1.63	248.7	148.1	119.0	148.3	162.6	174.9	179.6	172.8	162.6	40.28
19:51	1327.0	788.0		2346	1.63	247.1	148.0	118.8	148.0	162.5	177.0	171.3	173.9	162.5	40.62
19:52	1329.0	781.0		2333	1.65	243.6	147.9	118.8	147.9	162.4	172.3	174.0	173.2	162.4	41.23
19:53	1335.0	788.0		2345	1.65	246.4	147.9	118.7	147.9	162.1	164.7	175.9	169.1	162.4	40.97
19:54	1351.0	804.0		2344	1.64	245.8	147.8	118.7	147.8	152.2	171.3	176.4	170.5	162.3	40.49
19:55	1371.0	802.0		2338	1.65	246.3	147.8	118.7	147.8	151.9	162.4	175.2	171.0	162.3	41.50
19:56	1339.0	802.0		2339	1.65	247.3	147.7	118.6	147.7	162.2	162.6	172.3	168.9	162.2	40.10
19:57	1336.0	813.0		2341	1.64	248.6	147.7	118.6	147.6	162.2	163.5	169.7	176.1	162.2	39.15
19:58	1357.0	810.0		2337	1.65	246.1	147.6	118.5	147.1	162.1	162.1	162.9	165.5	162.1	40.31

E-497

LEC Run 920618

Starting
06-18-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
19:59	1316.0	810.0		2342	1.65	244.7	147.6	118.4	145.4	162.1	162.1	169.3	174.6	162.1	38.45
20:00	1298.0	808.0		2345	1.65	246.2	147.5	118.4	142.8	161.8	162.0	176.4	175.4	162.0	37.75
10 MinAvg	1335.9	800.6		2341	1.65	246.2	147.7	118.6	147.0	160.1	166.0	172.3	171.8	162.2	40.06
20:01	1298.0	804.0		2335	1.65	244.6	147.5	118.4	136.1	162.0	162.0	176.5	174.5	162.0	38.06
20:02	1260.0	799.0		2334	1.66	244.2	147.5	118.4	131.4	162.0	161.1	174.3	162.2	162.0	36.59
20:03	1275.0	807.0		2325	1.65	242.8	147.4	118.3	123.3	161.9	152.3	175.3	161.9	161.9	36.71
20:04	1280.0	813.0		2330	1.66	241.7	147.4	118.1	124.2	161.9	151.4	170.8	161.9	161.9	36.48
20:05	1283.0	813.0		2334	1.66	240.1	147.3	118.2	119.8	161.8	152.8	171.6	161.8	161.8	36.63
20:06	1255.0	794.0		2339	1.67	243.1	147.3	118.1	118.1	161.8	157.4	172.9	161.8	161.8	36.73
20:07	1230.0	790.0		2324	1.67	238.2	147.2	117.9	118.5	161.7	159.6	167.5	161.7	161.7	35.77
20:08	1203.0	784.0		2336	1.67	240.8	147.1	118.0	118.0	161.6	151.1	174.8	161.6	161.6	34.83
20:09	1241.0	787.0		2343	1.67	241.2	147.0	117.9	117.9	161.5	147.3	171.0	161.5	161.5	36.58
20:10	1242.0	775.0		2339	1.67	238.5	147.0	117.8	117.8	161.6	147.0	163.7	161.2	161.5	37.60
10 MinAvg	1256.7	796.6		2334	1.66	241.5	147.3	118.1	122.5	161.8	154.2	171.8	163.0	161.8	36.60
20:11	1247.0	775.0		2338	1.67	242.1	146.9	117.8	117.8	161.5	149.1	161.8	161.4	161.4	37.85
20:12	1250.0	771.0		2347	1.67	243.2	146.8	117.7	117.7	161.5	146.8	161.9	161.3	161.3	38.32
20:13	1273.0	761.0		2350	1.67	245.0	146.7	117.6	117.6	161.9	146.7	163.4	161.0	161.2	40.22
20:14	1243.0	743.0		2338	1.67	242.4	146.6	117.5	117.5	161.8	147.3	162.9	159.2	161.1	40.23
20:15	1243.0	741.0		2346	1.67	242.8	146.6	117.5	117.5	161.1	151.6	162.0	151.1	161.1	40.39
20:16	1241.0	721.0		2350	1.68	245.4	146.6	117.5	117.5	161.1	154.0	162.0	148.3	161.1	41.90
20:17	1245.0	703.0		2340	1.67	243.3	146.6	117.4	117.4	161.1	158.8	161.2	147.6	161.1	43.53
20:18	1225.0	706.0		2341	1.67	244.1	146.6	117.5	117.5	161.1	161.1	161.1	151.1	161.1	42.37
20:19	1197.0	708.0		2349	1.67	244.6	146.6	117.5	117.5	163.9	161.1	161.1	147.2	161.1	40.85
20:20	1192.0	675.4		2337	1.68	241.6	146.6	117.5	117.5	168.2	161.1	163.0	146.6	161.1	43.34
10 MinAvg	1235.6	730.4		2344	1.67	243.5	146.7	117.6	117.6	162.3	153.8	162.0	153.5	161.2	40.90
20:21	1169.0	672.7		2341	1.68	244.2	146.6	117.5	117.5	162.4	161.1	162.2	146.7	161.1	42.46
20:22	1159.0	664.2		2341	1.68	244.2	146.6	117.3	117.5	161.1	162.7	161.1	147.3	160.5	42.69
20:23	1144.0	655.3		2348	1.67	244.0	146.6	117.4	117.5	161.1	162.3	161.1	146.6	157.0	42.72
20:24	1122.0	669.2		2346	1.67	242.9	146.6	116.8	117.5	161.1	161.1	161.1	146.6	154.7	40.36
20:25	1114.0	663.1		2337	1.66	241.9	146.6	117.1	117.5	161.1	162.8	161.6	146.6	151.1	40.48
20:26	1118.0	659.4		2346	1.66	242.5	146.6	117.1	117.5	161.1	175.0	161.6	145.9	149.3	41.02
20:27	1115.0	643.0		2352	1.66	242.1	146.6	117.2	117.5	161.1	175.6	161.1	145.5	146.8	42.33
20:28	1154.0	650.9		2347	1.66	243.5	146.6	116.1	117.4	161.1	175.1	161.1	146.6	146.6	43.60
20:29	1159.0	653.5		2357	1.67	245.1	146.6	117.2	117.4	161.1	175.6	161.1	146.5	146.6	43.62
20:30	1164.0	652.4		2359	1.66	246.5	146.6	117.3	117.4	161.1	175.6	161.1	143.9	146.6	43.95

E-498

LEC Run 920618

Starting
06-18-92

Time	Inlet SO2 (ppmdv)	Outlet SO2 (ppmdv)	In/Out O2 (%)	Inlet Flow (acfm)	Bed dP (in.H2O)	Inlet Temp (F)	Outlet Temp (F)	10.5 ft Bed Temp (F)	8.8 ft Bed Temp (F)	7.0 ft Bed Temp (F)	5.3 ft Bed Temp (F)	3.5 ft Bed Temp (F)	1.8 ft Bed Temp (F)	0.0 ft Bed Temp (F)	SO2 Removal (%)
10 MinAvg	1141.8	658.4		2348	1.67	243.7	146.6	117.1	117.5	161.2	168.7	161.3	146.2	152.0	42.32
20:31	1173.0	641.6		2361	1.66	247.5	146.6	116.5	117.4	161.1	175.6	162.5	144.9	146.6	45.30
20:32	1181.0	634.4		2362	1.67	247.8	146.6	117.2	117.4	161.1	175.6	161.8	143.8	146.6	46.28
20:33	1175.0	646.1		2355	1.66	244.0	146.5	117.4	117.4	161.0	187.3	161.0	140.6	146.5	45.01
20:34	1175.0	653.2		2359	1.66	246.4	146.5	116.9	117.3	161.1	189.7	161.3	145.3	146.5	44.41
20:35	1181.0	663.9		2361	1.66	247.5	146.4	117.2	117.3	160.9	189.7	161.9	146.3	146.4	43.78
20:36	1185.0	667.7		2357	1.66	245.3	146.3	117.2	117.3	160.9	189.9	161.4	146.4	146.4	43.65
20:37	1150.0	659.9		2359	1.66	246.3	146.4	114.2	117.3	160.9	189.9	161.2	146.2	146.4	42.62
20:38	1159.0	653.7		2353	1.66	246.7	146.4	116.3	117.3	160.9	189.9	166.3	145.9	146.4	43.60
20:39	1168.0	660.4		2360	1.65	246.6	146.4	116.8	117.3	160.9	189.9	163.7	146.4	146.4	43.46
20:40	1161.0	665.9		2359	1.65	246.2	146.3	115.1	117.3	160.9	189.9	162.1	142.6	146.4	42.64
10 MinAvg	1170.8	654.7		2359	1.66	246.4	146.4	116.5	117.3	161.0	186.7	162.3	144.8	146.5	44.08
20:41	1163.0	665.8		2368	1.65	247.4	146.4	115.7	117.3	160.9	189.9	164.2	139.2	146.4	42.75
20:42	1169.0	663.3		2368	1.65	247.5	146.4	117.1	117.3	160.9	181.2	162.5	142.6	146.4	43.26
20:43	1175.0	664.7		2368	1.65	247.1	146.4	117.2	117.3	160.9	176.0	174.8	145.7	146.4	43.43
20:44	1175.0	664.8		2372	1.63	258.4	146.3	117.1	117.3	160.9	186.7	173.3	143.3	146.4	43.42
20:45	1181.0	663.5		2387	1.61	263.2	146.2	117.0	117.3	160.9	189.1	170.8	144.1	146.4	42.13
20:46	1175.0	672.4		2402	1.57	267.6	146.2	114.8	117.3	160.9	189.9	171.1	146.4	146.4	41.07
6 MinAvg	1173.0	672.4		2377	1.63	255.2	146.3	116.5	117.3	160.9	185.5	169.4	143.6	146.4	42.68

Post-run bed inspection:

- All outlet louvers are 100% clean.
- Approx. 6" of L/S is afixed to the stone discharge side of the reactor.
- Dutchman bucket was clean through entire run.

E-499

LEC RUN 920618

Waste Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Dust Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
03:00 PM	85	17.5	0.21
03:30 PM	30	24.0	0.80
03:45 PM	15	26.1	1.74
04:05 PM	20	28.0	1.40
04:26 PM	21	28.9	1.38
04:40 PM	14	23.7	1.69
05:00 PM	20	31.6	1.58
05:16 PM	16	32.3	2.02
05:31 PM	15	26.5	1.77
05:45 PM	14	25.0	1.79
06:00 PM	15	24.0	1.60
06:15 PM	15	16.0	1.07
06:35 PM	20	18.0	0.90
07:10 PM	35	35.5	1.01
07:55 PM	45	36.0	0.80
08:35 PM	40	26.1	0.65
Total:		419.3	
Average:			1.28

LEC RUN 920618

Carry-Over Production Log

<u>Time Collected</u>	<u>Collection Time (min)</u>	<u>Stone Collected (lbs)</u>	<u>Mass Rate (lbs/min)</u>
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No carry-over stone was collected.

DATE

FILMED

5 / 3 / 94

END

[REDACTED]

[REDACTED]