AMTEST
AIR QUALITY, LLC

AmTest-Air Quality, LLC
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SOURCE EMISSION EVALUATION

Draft Report Issued: May 2, 1997
Final Report Issued: June 30, 1997

Prepared For:

ASH GROVE CEMENT COMPANY
MAIN CEMENT KILN STACK
SEATTLE, WASHINGTON
MARCH 25-27, 1997

Submitted by:

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Am Test-Air Quality, LLC
Preston, Washington

We certify that the information contained herein is accurate and complete to the best of our knowledge.

[GW3\jaa\c\winword\report97\ashsea.doc; #96-043]

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AGCS2M000162
S4000605

AMTEST
AIR QUALITY, LLC

SUMMARY OF POLYCHLORINATED DIBENZODIOXINS AND DIBENZOFURANS EMISSION RATE RESULTS
AM TEST - AIR QUALITY, LLC

File Name: JAA\97-043WD\DF\DFSUM
Client: Ash Grove Cement Company
Location: Seattle, Washington

		MAIN CEMENT KILN STACK							
		ROLLER MILL ON				ROLLER MILL OFF			
	Analyte	Run 1 3/25/97 0700 1013 mg/hr	Run 2 3/25/97 1117 1435 mg/hr	Run 4 3/26/97 1303 1613 mg/hr	AVERAGE Runs 1, 2, & 4 mg/hr	Run 5 3/27/97 0700 1011 mg/hr	Run 6 3/27/97 1045 1356 mg/hr	Run 7 3/27/97 1455 1806 mg/hr	AVERAGE Runs 5, 6, & 7 mg/hr
DIOXINS	2, 3, 7, 8-TCDD	0.216 U	0.183 U	0.122 U	0.174 U	0.854	1.36	1.61	1.27
	TCDDs (total)	0.490	1.44	0.360	0.762 B	183.0	315.7	351.9	283.6
	1, 2, 3, 7, 8-PeCDD	0.085 U	0.718	0.064 U	~ 0.239 B	1.22	2.23	2.78	2.08
	PeCDDs (total)	0.615	4.83	0.514	1.99	37.2	105.2	129.7	90.70
	1, 2, 3, 4, 7, 8-HxCDD	0.131 U	1.50	0.096 U	~ 0.500 B	0.98	1.49	2.04	1.50
	1, 2, 3, 6, 7, 8-HxCDD	0.118 U	1.70	0.122 U	~ 0.566	1.10	1.36	1.85	1.44
	1, 2, 3, 7, 8, 9-HxCDD	0.111 U	2.02	0.084 U	~ 0.674	0.732	0.929	1.48	1.05
	HxCDDs (total)	0.916	18.9	0.900	6.91	32.3	48.9	59.3	46.8
	1,2,3,4,6,7,8-HpCDD	0.530	21.5	0.553	7.54	3.97	4.40	8.03	5.46
	HpCDDs (total)	0.981	38.5	0.964	13.5	8.54	9.29	16.7	11.5
	OCDD	3.79 M	143.6 M	4.37 M	50.6	8.54 M	7.43 M	32.1 M	16.0
FURANS	2, 3, 7, 8-TCDF	0.144 U	0.411	0.154 U	~ 0.137 B	5.06	12.4	11.7	9.73
	TCDFs (total)	1.90	8.48	0.835	3.74	494.1	1238	1111	947.9
	1, 2, 3, 7, 8-PeCDF	0.085 U	1.24	0.109 U	~ 0.413 B	0.854	1.55	1.98	1.46
	2, 3, 4, 7, 8-PeCDF	0.085 U	2.02	0.103 U	~ 0.674 B	1.10	2.04	2.59	1.91
	PeCDFs (total)	0.105 U	19.6	0.109 U	~ 6.53	14.0	60.0	61.7	45.27
	1, 2, 3, 4, 7, 8-HxCDF	0.137	5.68	0.053 U	~ 2.03	0.604	0.619	1.91	1.05
	1, 2, 3, 6, 7, 8-HxCDF	0.092 U	5.16	0.055 U	~ 1.72	0.397	0.477	1.67	0.847
	2, 3, 4, 6, 7, 8-HxCDF	0.150	11.7	0.084	3.99	0.531	0.582	2.96	1.36
	1, 2, 3, 7, 8, 9-HxCDF	0.065 U	2.22	0.064 U	~ 0.740	0.165	0.161	0.679	0.335
	HxCDFs (total)	0.510	57.4	0.212	19.4	4.03	5.63	17.9	9.19
	1, 2, 3, 4, 6, 7, 8-HpCDF	0.504	60.0	0.386	20.3	1.34	1.30	13.0	5.20
	1, 2, 3, 4, 7, 8, 9-HpCDF	0.065 U	6.53	0.044 U	~ 2.18	0.397	0.198	1.73	0.774
	HpCDFs (total)	0.504	84.8	0.707	28.7	2.14	2.04	19.8	7.98
	OCDF	0.850	50.3	0.636	17.2	1.46	0.867	11.7	4.69
	Toxic Equivalent (TEQ)	0.044	5.55	0.022	1.87	3.05	5.45	5.93	4.81

mg/hr = milligrams of analyte collected per hour.
U = Undetected at specified detection limit (DL).
M = analyte detected in the method blank.
B = less than five times the detection limit.

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S4000606

AMTEST
AIR QUALITY, LLC

SUMMARY OF MERCURY EMISSIONS RESULTS
AM TEST - AIR QUALITY, LLC

File Name: JAA\97-043WD\HG\HGSM
Client: Ash Grove Cement Plant
Location: Seattle, Washington
Sample Site: Cement Kiln Main Stack
Condition: Roller Mill ON

		EMISSION CONCENTRATION				
		Run 1 3/25/97 0700 0910	Run 2 3/25/97 1045 1327	Run 4 3/26/97 1313 1554	AVERAGE	Field Blank
Analyte		µg	µg	µg	µg	µg
Mercury	Hg	40	41	38	39.7	0.91

		EMISSION CONCENTRATION				
		Run 1 3/25/97 0700 0910	Run 2 3/25/97 1045 1327	Run 4 3/26/97 1313 1554	AVERAGE	Field Blank
Analyte		ng/dscm	ng/dscm	ng/dscm	ng/dscm	ng/dscm
Mercury	Hg	16660	17927	16616	17068	391.4

		EMISSION CONCENTRATION				
		Run 1 3/25/97 0700 0910	Run 2 3/25/97 1045 1327	Run 4 3/26/97 1313 1554	AVERAGE	Field Blank
Analyte		ng/dscm @ 7% O_2	ng/dscm @ 7% O_2	ng/dscm @ 7% O_2	ng/dscm @ 7% O_2	ng/dscm @ 7% O_2
Mercury	Hg	21442	23509	20621	21857	500.7

		EMISSION RATE				
		Run 1 3/25/97 0700 0910	Run 2 3/25/97 1045 1327	Run 4 3/26/97 1313 1554	AVERAGE	Field Blank
Analyte		mg/hr	mg/hr	mg/hr	mg/hr	mg/hr
Mercury	Hg	3965	4034	3761	3920	89.9

U = Not detected at specified reporting limits.
B = Less than five times the detection limit.
ug = micrograms

ng/dscm = nanograms of analyte per dry standard cubic meter.
ng/dscm @ 7% O_2 = nanograms of analyte per dry standard cubic meter, corrected to 7% oxygen.
mg/hr = milligrams of analyte emitted per hour.

AMTEST
AIR QUALITY, LLC

SUMMARY OF MERCURY EMISSIONS RESULTS
AM TEST - AIR QUALITY, LLC

File Name: JAA\97-043WD\HG\HGSM
Client: Ash Grove Cement Plant
Location: Seattle, Washington
Sample Site: Cement Kiln Main Stack
Condition: Roller Mill OFF

	EMISSION CONCENTRATION				
	Run 5 3/27/97 0700 0923	Run 6 3/27/97 1045 1259	Run 7 3/27/97 1450 1710	AVERAGE	Field Blank
Analyte	µg	µg	µg	µg	µg
Mercury Hg	1500	1500	1500	1500	0.91

	EMISSION CONCENTRATION				
	Run 5 3/27/97 0700 0923	Run 6 3/27/97 1045 1259	Run 7 3/27/97 1450 1710	AVERAGE	Field Blank
Analyte	ng/dscm	ng/dscm	ng/dscm	ng/dscm	ng/dscm
Mercury Hg	793651	814332	811249	806411	489.2

	EMISSION CONCENTRATION				
	Run 5 3/27/97 0700 0923	Run 6 3/27/97 1045 1259	Run 7 3/27/97 1450 1710	AVERAGE	Field Blank
Analyte	ng/dscm @ 7% O_2	ng/dscm @ 7% O_2	ng/dscm @ 7% O_2	ng/dscm @ 7% O_2	ng/dscm @ 7% O_2
Mercury Hg	861855	832295	756803	816984	493.9

	EMISSION RATE				
	Run 5 3/27/97 0700 0923	Run 6 3/27/97 1045 1259	Run 7 3/27/97 1450 1710	AVERAGE	Field Blank
Analyte	mg/hr	mg/hr	mg/hr	mg/hr	mg/hr
Mercury Hg	141499	143757	138298	141185	85.7

U = Not detected at specified reporting limits.
B = Less than five times the detection limit.
ug = micrograms

ng/dscm = nanograms of analyte per dry standard cubic meter.
ng/dscm @ 7% O_2 = nanograms of analyte per dry standard cubic meter, corrected to 7% oxygen.
mg/hr = milligrams of analyte emitted per hour.

Ash Grove Cement Company - Seattle, WA Plant
Mercury Study - March, 1997

Stack Emissions

	1	2	4	avg
Roller Mill ON	03/25/97	03/25/97	03/26/97	
	07:00	10:45	13:13	
Mercury	09:10	14:58	15:54	
Stack - µg	40	41	38	40
Stack - ng/dscm	16660	17927	16616	17068
Stack - ng/dscm @ 7% O2	21442	23509	20621	21857
Stack - mg/hr	3965	4034	3761	3920
Stack - lb/hr	0.008733	0.008885	0.008284	0.008634
O2 - %	10.1	10.3	9.7	10.0
flowrate - dscfm	140070	132425	133221	135239
stack temp - °F	228.9	225.5	232.3	228.9

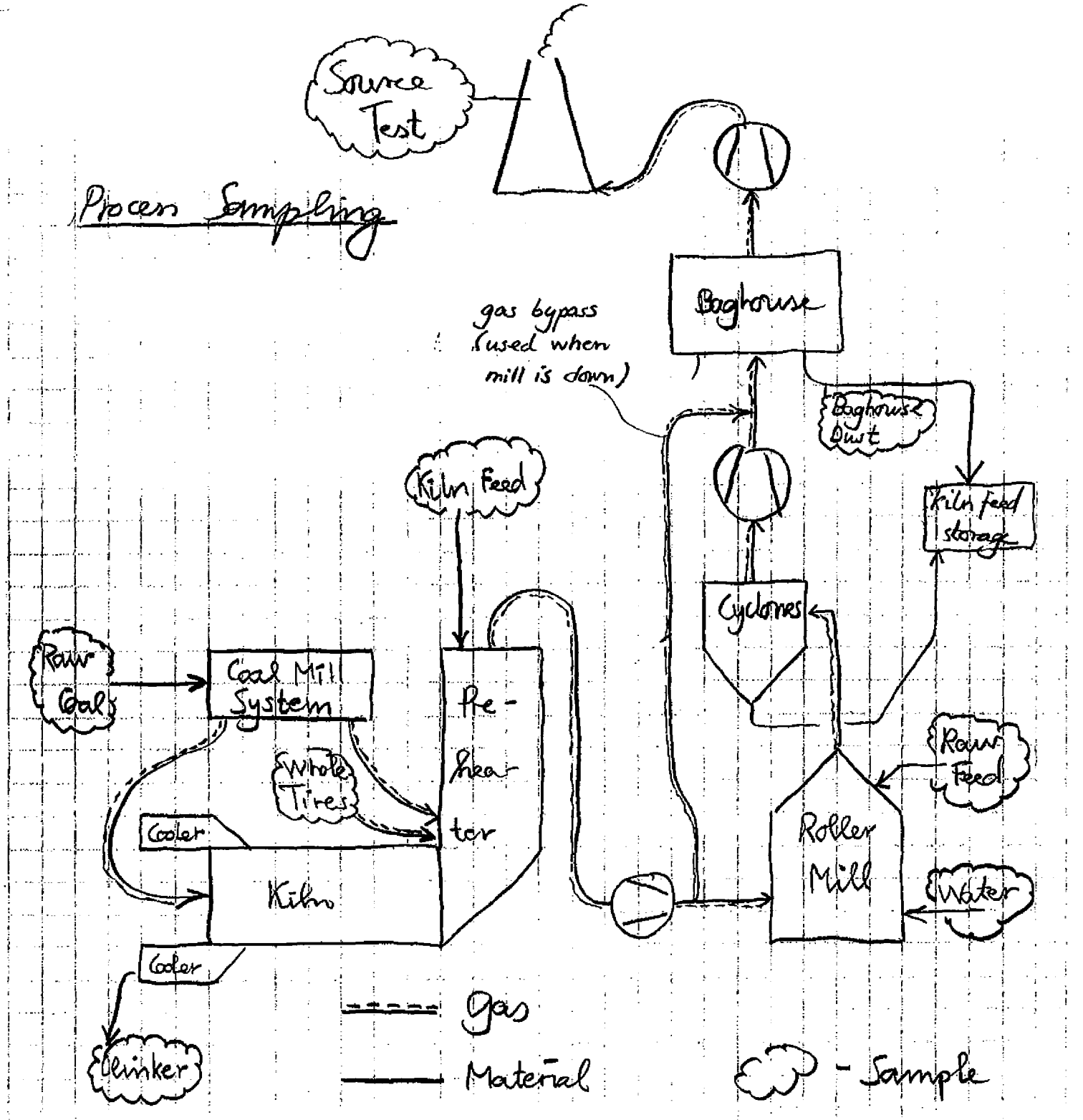
	5	6	7	avg
Roller Mill OFF	03/27/97	03/27/97	03/27/97	
	07:00	10:45	14:50	
Mercury	09:23	12:59	17:10	
Stack - µg	1500	1500	1500	1500
Stack - ng/dscm	793651	814332	811249	806411
Stack - ng/dscm @ 7% O2	861855	832295	756803	816984
Stack - mg/hr	141499	143757	138298	141185
Stack - lb/hr	0.311672	0.316645	0.304621	0.310979
O2 - %	8.1	7.3	6	7.1
flowrate - dscfm	104923	103890	100325	103046
stack temp - °F	395.8	424.8	431.3	417.3

Stream Feed Rates

		Roller Mill ON				Roller Mill OFF			
Run		1	2	4	avg	5	6	7	avg
Roller Mill Raw Feed	tph	172	205	191	189	0	0	0	0
Roller Mill Spray Water	tph	3.83	3.83	3.83	3.8	0	0	0	0.0
Kiln Feed	tph	157	156	155	156	154	154	159	156
Baghouse Return Dust	tph	17.2	20.5	19.1	18.9	12.3	12.3	12.7	12.4
Whole Tires	tph	1.59	1.53	1.08	1	1.26	1.5	0	1
Raw Coal	tph	9.36	5.78	12.7	9.3	11	11.6	14.7	12.4
Clinker	tph	95	94.4	93.8	94.4	93.2	93.2	96.2	94.2

ASH GROVE CEMENT COMPANY

PROJECT: Seattle HAPs JOB NO: DATE: 5/16/97 BY: KEJ PAGE 1 OF 1



Ash Grove Cement Company, Seattle Plant
HAPs Test Baghouse Inlet Temperature and Material Throughput Rates

Process Condition	Roller Mill Running			Roller Mill Down			
Run #	1	2	4	5	6	7	Notes
Date	3/25/97	3/25/97	3/26/97	3/27/97	3/27/97	3/27/97	
EPA Source Test Method	101A						
Time	0700-0910	1045-1327	1313-1550	0700-0923	1045-1259	1450-1710	
Baghouse Inlet Temp., deg. F	237	230	235	502	496	507	1
Roller Mill Raw Feed, tph	172	205	191	0	0	0	1
Roller Mill Spray Water, tph	3.83	3.83	3.83	0	0	0	2
Kiln Feed, tph	157	156	155	154	154	159	1
Baghouse Return Dust, tph	17.2	20.5	19.1	12.3	12.3	12.7	3
Whole Tires, tph	1.59	1.53	1.08	1.26	1.50	0	1
Raw Coal, tph	9.36	5.78	12.7	11.0	11.6	14.7	4
Clinker, tph	95.0	94.4	93.8	93.2	93.2	96.2	5
EPA Source Test Method	23						
Time	0700-1013	1117-1435	1303-1613	0700-1011	1045-1356	1455-1806	
Baghouse Inlet Temp., deg. F	236	228	235	500	496	504	1
Roller Mill Raw Feed, tph	175	211	191	0	0	0	1
Roller Mill Spray Water, tph	3.83	3.83	3.83	0	0	0	2
Kiln Feed, tph	157	156	155	154	156	160	1
Baghouse Return Dust, tph	17.5	21.1	19.1	12.3	12.5	12.8	3
Whole Tires, tph	1.49	1.58	1.08	1.39	1.36	0.32	1
Raw Coal, tph	8.26	6.58	12.7	10.9	11.6	13.8	4
Clinker, tph	95.0	94.4	93.8	93.2	94.4	96.8	5

1) from process computer report
2) from Nate Fernow: mill spray averages 15 gallons per minute
3) from Nate Fernow: roller mill cyclones are 90 % efficient, kiln preheater top stage is 92 % efficient
4) pulverized coal to kiln and calciner from process computer report *1.03/1.008 for 3.0 % moisture in sampled raw coal and 0.8 % moisture in pulverized coal according to Pat Noon. Natural Gas also in use.
5) kiln feed*0.92/1.52

4/17/97, 3:51 PM, 970417A.XLS

FLS Automation 3 Apr 1997 Ver 4.2a B 15.59.31 Ash Grove Cement Wes

Plant Report 23 SPARE Demand Report 24 Mar 97 - 25 Mar 97

FLOW RATE NAT.GAS CALCIN.....
FLOW RATE KILN PF. FEED.....
FLOW RATE CALC. PF.FEED.....
TIRE WEIGH SCALE LB/HR.....
FLOW SUMMATION FEEDERS.....
RAW MEAL TO KILN FEED
BAGHOUSE INLET TEMP.

FLOW RATE NAT'L GAS KILN

	342030.TI1	05TOTFLW	465075.FI1	463140.FI1	431370.FI1			
		KILN-FEED		463210.FI1	751210.FI1			
H:M	degF	t/h	t/h	t/h	t/h	CFM	CFM	
0:00	443	156	-0.2	3274.8	1.00	10.5	0	87
1:00	219	153	158.9	3197.8	0.87	10.5	0	86
2:00	230	161	162.7	3256.8	0.69	10.5	0	86
3:00	233	164	169.5	3276.7	0.56	10.5	1	87
4:00	347	164	-0.2	2476.6	0.65	10.3	0	87
5:00	446	162	-0.2	3276.7	0.70	10.2	0	87
6:00	227	160	164.4	3062.7	0.65	10.1	1	87
7:00	226	160	164.6	3276.7	0.51	10.1	1	87
8:00	431	161	-0.2	3208.8	0.51	10.1	0	86
9:00	218	158	163.8	3276.7	0.52	9.8	0	86
10:00	232	154	175.3	3073.8	0.51	10.5	0	86
11:00	443	156	0.5	3062.7	0.51	10.9	0	86
12:00	216	154	163.7	3276.7	0.61	11.1	0	86
13:00	470	158	-0.2	3263.8	0.61	11.1	0	86
14:00	473	154	-0.2	3276.7	0.51	11.3	0	86
15:00	460	155	-0.2	3080.8	0.51	11.3	0	86
16:00	204	152	171.7	3230.8	0.51	11.4	0	86
17:00	235	162	165.8	3131.8	0.51	10.9	0	86
18:00	422	156	-0.2	3276.7	0.51	10.1	0	86
19:00	449	156	-0.2	3276.7	0.51	10.1	0	86
20:00	455	157	-0.1	3276.7	0.60	10.5	0	86
21:00	464	154	-0.2	3276.7	0.60	10.8	0	86
22:00	464	156	-0.2	3102.8	0.60	10.9	0	86
23:00	461	151	-0.2	3276.7	0.60	11.2	0	87
0:00	420	152	-0.2	3276.7	0.61	11.2	0	86

3/24

FLS Automation 3 Apr 1997 Ver 4.2a B 15.5[illegible]41 Ash Grove Cement Wes

Plant Report 23 SPARE Demand Report 25 Mar 97 - 26 Mar 97

FLOW RATE NAT.GAS CALCIN.....FLOW RATE NAT'L GAS KILN
FLOW RATE KILN PF. FEED.....
FLOW RATE CALC. PF.FEED.....
TIRE WEIGH SCALE LB/HR.....
.....
FLOW SUMMATION FEEDERS.....
RAW MEAL TO KILN FEED .....
BAGHOUSE INLET TEMP. .....

342030.TI1 05TOTFLW 465075.FI1 463140.FI1 431370.FI1
KILN-FEED 463210.FI1 751210.FI1

H:M	degF	t/h	t/h		t/h	t/h	CFM	CFM
0:00	420	152	-0.2	3276.7	0.61	11.2	0	86
1:00	219	159	164.9	2930.7	0.61	11.2	0	86
2:00	236	159	167.1	3168.8	0.52	10.8	0	86
3:00	236	161	147.0	3276.7	0.52	10.8	0	87
4:00	236	158	167.3	3276.7	0.52	10.6	0	87
5:00	235	160	168.5	3109.8	0.52	10.6	0	87
6:00	236	158	167.0	3276.7	0.52	10.6	0	86
7:00	236	153	166.4	3276.7	0.60	10.7	0	86
8:00	237	154	171.9	3259.8	0.61	11.0	0	86
9:00	237	159	172.3	3109.8	0.61	6.1	0	683
10:00	235	159	179.7	2945.6	0.61	5.3	0	685
11:00	239	160	180.3	3276.7	0.61	5.0	0	685
12:00	235	156	199.8	3276.7	0.61	5.0	0	685
13:00	225	156	210.7	2842.7	0.61	5.1	0	685
14:00	216	154	215.7	3276.7	0.52	5.9	0	547
15:00	235	157	215.8	3276.7	0.52	7.5	0	422
16:00	349	157	0.2	3276.7	0.52	7.6	0	421
17:00	450	158	2.4	2842.7	0.52	9.7	0	146
18:00	459	158	2.4	2999.7	0.52	10.5	0	86
19:00	510	161	2.3	2813.7	0.97	10.3	0	86
20:00	207	155	151.5	1967.5	0.92	9.0	0	86
21:00	232	158	180.7	3276.7	0.97	10.0	0	86
22:00	236	163	179.8	2831.7	0.97	9.8	0	86
23:00	237	159	180.4	3076.8	1.01	9.8	0	87
0:00	237	165	179.3	3160.8	1.01	9.5	0	101

3/25

M 101A, Run #1

M23, Run #1

M101 A, Run #2

M23, Run #2

FLS Automation 3 Apr 1997 Ver 4.2a B 15.59.58 Ash Grove Cement Wes

Plant Report 23 SPARE Demand Report 26 Mar 97 - 27 Mar 97

FLOW RATE NAT.GAS CALCIN.....
FLOW RATE KILN PF. FEED.....
FLOW RATE CALC. PF.FEED.....
TIRE WEIGH SCALE LB/HR.....
FLOW SUMMATION FEEDERS.....
RAW MEAL TO KILN FEED
BAGHOUSE INLET TEMP.
FLOW RATE NAT'L GAS KILN

342030.TIL 05TOTFLW 465075.FI1 463140.FI1 431370.FI1
KILN-FEED 463210.FI1 751210.FI1

H:M	degF	t/h	t/h		t/h	t/h	CFM	CFM
0:00	237	165	179.8	3160.8	1.01	9.5	0	101
1:00	237	154	178.9	3276.7	1.01	9.5	0	102
2:00	236	160	180.2	3267.8	1.01	10.0	0	101
3:00	236	162	180.9	3138.8	1.01	10.0	0	101
4:00	237	162	181.6	3208.8	1.01	10.1	0	102
5:00	238	159	179.4	3276.7	1.01	10.3	0	102
6:00	239	163	180.0	3014.7	1.01	10.1	0	102
7:00	327	156	185.4	3276.7	1.01	9.9	0	102
8:00	466	159	-0.2	3276.7	1.01	9.9	0	101
9:00	444	155	-0.2	2959.7	1.12	10.3	0	101
10:00	449	155	-0.2	3219.8	1.12	10.2	0	101
11:00	452	156	-0.2	2457.6	1.12	10.4	0	101
12:00	445	156	-0.2	0.0	3.04	10.5	0	100
13:00	230	150	179.8	3276.7	1.22	10.5	0	100
14:00	237	153	195.7	3230.8	1.22	10.5	1	101
15:00	232	156	197.6	3276.7	1.22	10.5	1	102
16:00	236	156	172.2	0.0	3.53	10.4	1	102
17:00	226	152	188.0	3094.8	1.21	10.4	1	101
18:00	213	157	195.5	2853.7	1.21	10.4	1	102
19:00	224	160	196.0	3153.8	1.01	10.3	1	102
20:00	225	160	206.0	2765.7	1.01	10.3	1	102
21:00	235	156	196.1	2893.7	1.21	9.8	1	102
22:00	238	161	183.0	3276.7	1.17	9.6	0	102
23:00	239	153	186.1	2622.6	1.19	9.3	1	102
0:00	232	162	185.6	0.0	3.15	9.3	1	102

3/26

-M101 A, Run #4 & M23, Run #4

FLS Automation 3 Apr 1997 Ver 4.2a B 16.00.15 Ash Grove Cement Wes

Plant Report 23 SPARE Demand Report 27 Mar 97 - 28 Mar 97

FLOW RATE NAT.GAS CALCIN.....
FLOW RATE KILN PF. FEED.....
FLOW RATE CALC. PF.FEED.....
TIRE WEIGH SCALE LB/HR.....
.....
FLOW SUMMATION FEEDERS.....
RAW MEAL TO KILN FEED
BAGHOUSE INLET TEMP.

.....FLOW RATE NAT'L GAS KILN

342030.T11 05TOTFLW 465075.F11 463140.F11 431370.F11
KILN-FEED 465210.F11 751210.F11

H:M	degF	t/h	t/h		t/h	t/h	CFM	CFM
0:00	232	162	185.6	0.0	3.15	9.3	1	102
1:00	236	163	176.5	0.0	3.24	9.4	1	102
2:00	238	160	162.3	0.0	3.24	9.4	1	102
3:00	239	154	180.3	0.0	3.24	9.7	1	102
4:00	238	159	181.1	0.0	3.43	9.9	1	102
5:00	237	157	180.1	2454.6	2.05	9.9	1	102
6:00	236	157	171.3	0.0	1.92	10.0	1	102
7:00	460	157	-0.2	2736.7	1.11	9.9	1	93
8:00	507	153	-0.2	2670.7	1.11	9.6	0	90
9:00	497	155	-0.2	2369.6	1.11	9.7	0	90
10:00	496	153	-0.3	3276.7	1.02	9.6	0	90
11:00	498	151	-0.3	2783.7	1.01	9.7	0	90
12:00	503	152	-0.3	2725.7	1.01	10.3	0	90
13:00	488	155	-0.2	3276.7	1.01	10.4	0	90
14:00	496	160	-0.2	2183.5	1.37	10.3	0	90
15:00	493	159	-0.2	0.0	3.25	10.7	0	90
16:00	512	156	-0.2	0.0	3.14	11.1	0	90
17:00	502	161	-0.2	0.0	3.14	11.4	0	90
18:00	499	162	-0.2	1908.5	0.71	11.0	0	90
19:00	281	0	-0.2	0.0	0.00	0.0	0	90
20:00	185	0	-0.2	0.0	0.00	0.0	1	25
21:00	160	0	-0.2	0.0	0.00	0.0	1	25
22:00	214	0	-0.3	0.0	0.00	0.0	1	25
23:00	228	0	-0.3	0.0	0.00	0.0	1	295
0:00	219	0	-0.3	0.0	0.00	0.0	1	325

3/27

M101A, Run #5

M23, Run #5

M101A, Run #6

M23, Run #6

M101A, Run #7

M23, Run #7

FLS Automation 3 Apr 1997 Ver 4.2a B 16.01.45 Ash Grove Cement Wes

Plant Report 23 SPARE Demand Report 28 Mar 97 - 29 Mar 97

FLOW RATE NAT.GAS CALCIN.....
FLOW RATE KILN PF. FEED.....
FLOW RATE CALC. PF.FEED.....
TIRE WEIGH SCALE LB/HR.....
.....
FLOW SUMMATION FEEDERS.....
RAW MEAL TO KILN FEED
BAGHOUSE INLET TEMP.
.....FLOW RATE NAT'L GAS KILN

342030.FI1 05TOTFLW 465075.FI1 463140.FI1 431370.FI1
KILN-FEED 463210.FI1 751210.FI1

H:M	degF	t/h	t/h		t/h	t/h	CFM	CFM
0:00	219	0	-0.3	0.0	0.00	0.0	1	325
1:00	327	0	-0.3	0.0	0.00	0.0	1	325
2:00	399	72	-0.3	0.0	0.09	0.0	1	336
3:00	366	82	-0.3	0.0	1.76	5.9	1	336
4:00	220	108	183.0	0.0	2.12	8.4	1	282
5:00	233	127	192.9	0.0	2.26	11.4	1	93
6:00	236	164	193.4	0.0	2.26	12.8	1	92
7:00	237	164	193.9	0.0	2.67	11.7	1	92
8:00	237	164	198.3	0.0	2.81	11.5	1	92
9:00	237	162	198.8	0.0	2.81	11.3	0	92
10:00	237	156	201.6	0.0	2.75	11.1	0	92
11:00	239	152	203.2	0.0	2.74	11.4	0	92
12:00	237	152	203.6	0.0	2.75	11.5	0	91
13:00	238	155	171.0	0.0	2.74	11.6	0	91
14:00	237	155	197.9	0.0	2.74	11.4	0	91
15:00	238	157	202.9	0.0	2.75	11.4	0	91
16:00	239	161	200.5	0.0	2.74	11.4	0	92
17:00	235	164	198.3	0.0	2.79	11.0	0	92
18:00	228	165	198.6	0.0	2.75	11.0	0	92
19:00	225	162	198.5	0.0	2.74	10.7	0	92
20:00	233	161	198.2	0.0	2.74	10.3	0	92
21:00	235	163	200.9	0.0	2.84	10.5	0	92
22:00	235	160	190.1	0.0	2.93	11.1	0	92
23:00	237	152	189.1	0.0	2.93	11.7	0	92
0:00	228	159	189.7	0.0	2.93	11.7	0	92

3/28

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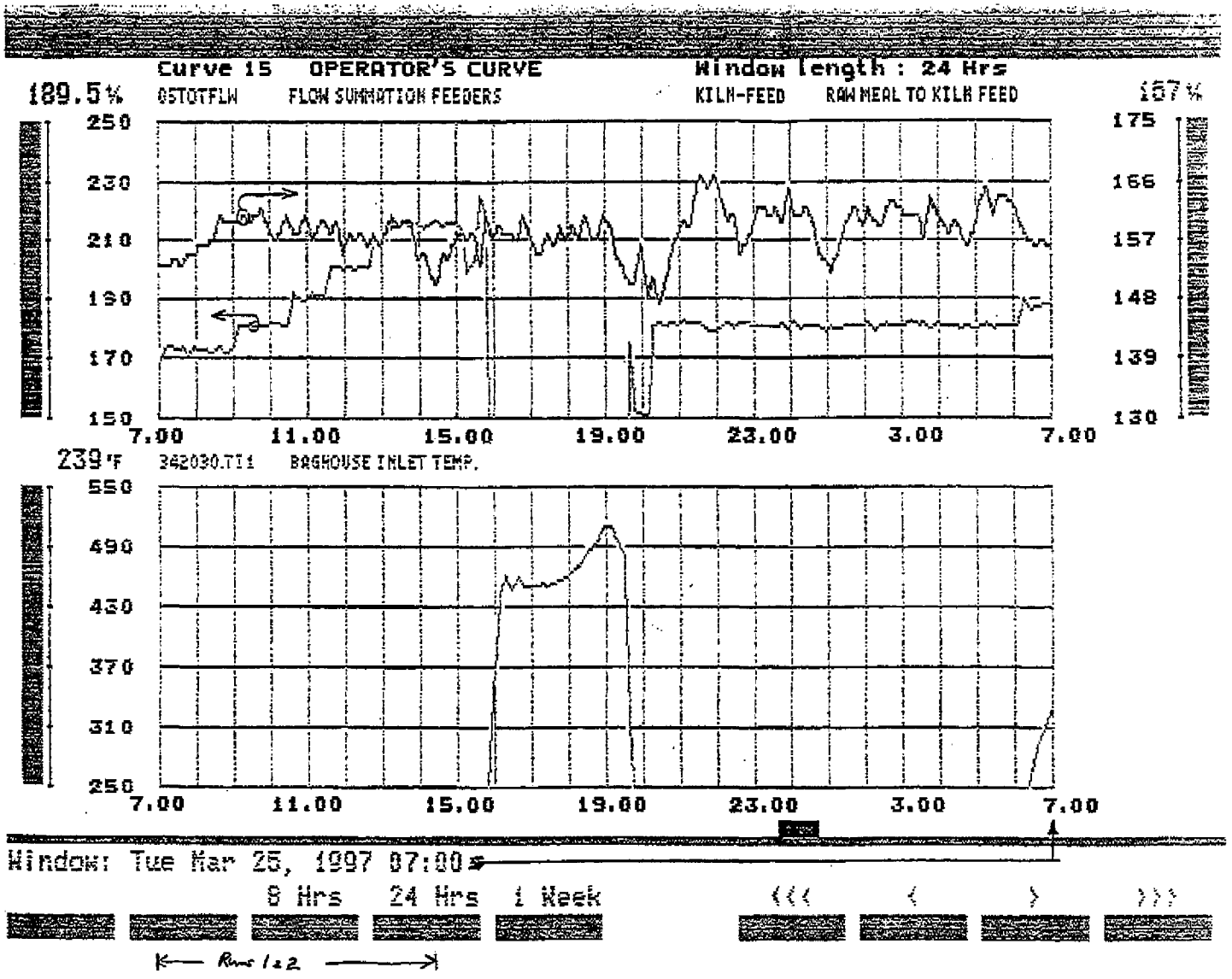
S4000616



Run 1&2

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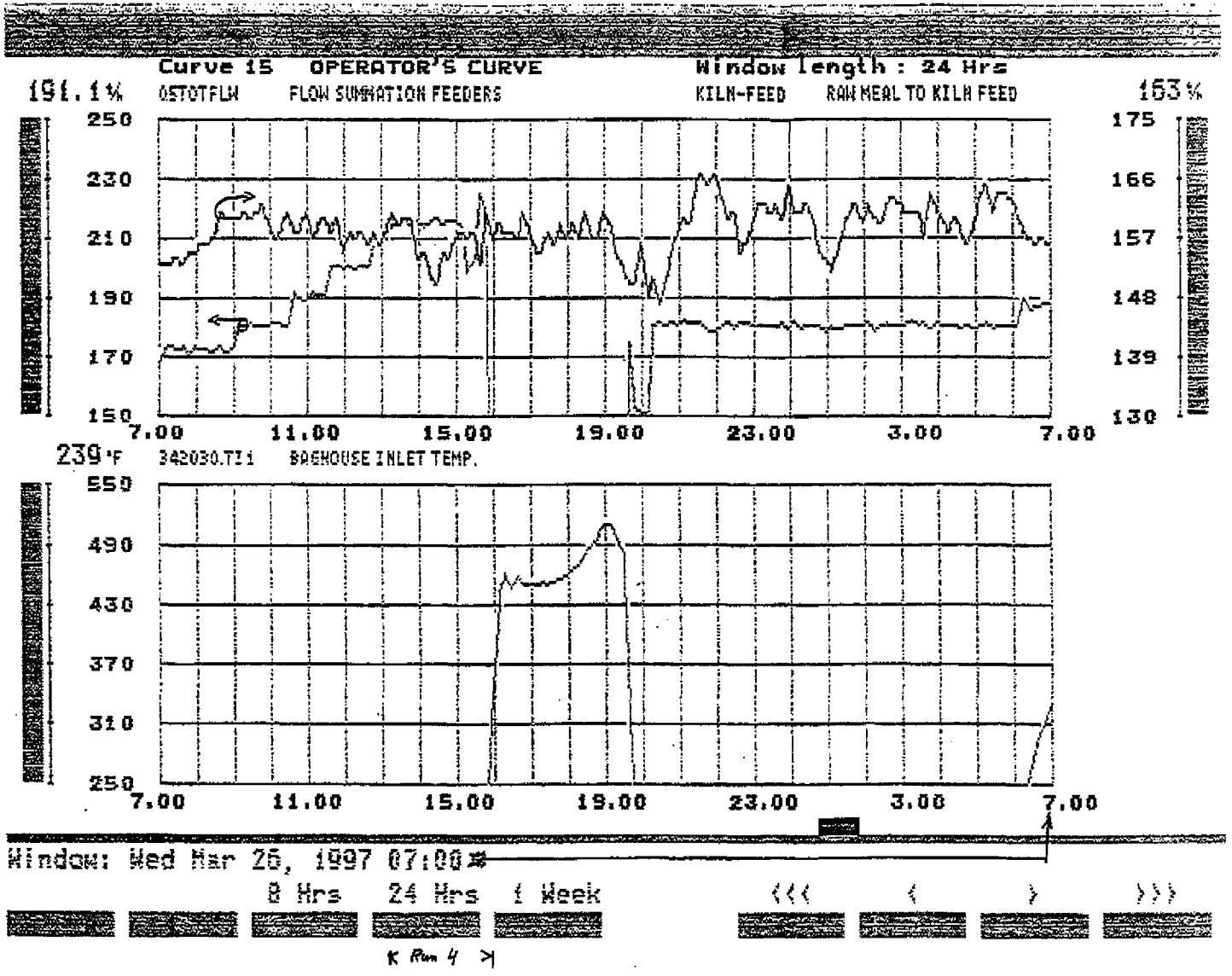

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156

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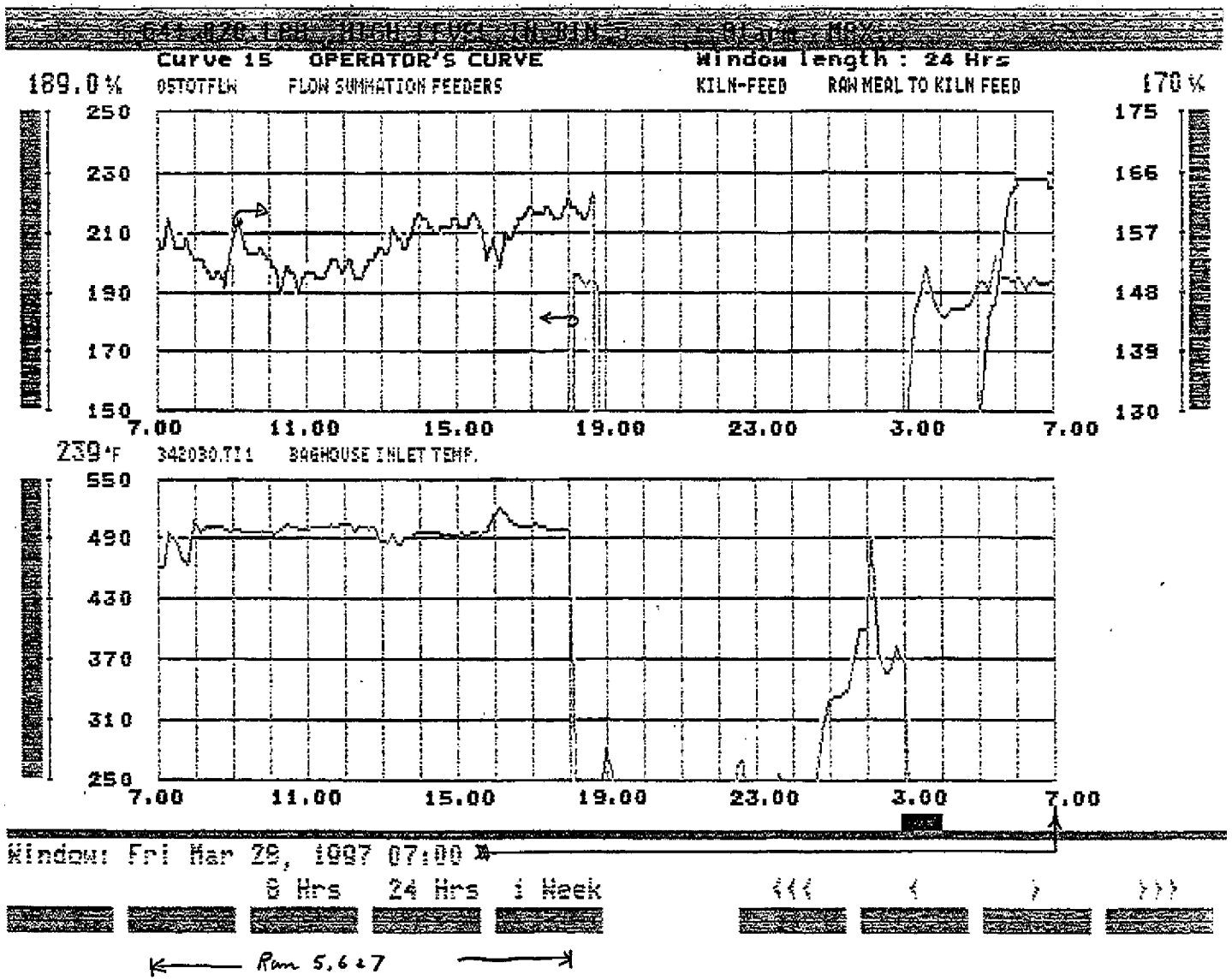

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157

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