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Title: Results of the Source Emission Compliance Testing on the Dryer And Thermal Oil Heater Stacks at at the Louisiana Pacific Corporation, In Sagola, Michigan

PACE, Inc

February 1992

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Dryers

RESULTS OF THE SOURCE EMISSION COMPLIANCE TESTING ON THE DRYER AND THERMAL OIL HEATER STACKS AT THE LOUISIANA PACIFIC CORPORATION LOCATED IN SAGOLA, MICHIGAN

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PACE Project No: 920108.402
Date: February 27, 1992

Field sampling was performed by me and personnel under my direct supervision.

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Mike Loftus
Project Field Supervisor

All sampling, analysis and data reduction were performed by PACE, Incorporated under my supervision

T. Roland Nelson

T. Roland Nelson
Project Manager, Air Sampling Department

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EXECUTIVE SUMMARY

PACE, Incorporated was contraced by The Louisiana Pacific Corporation to perform source emission testing at the sites listed below at the The Louisiana Pacific Corporation facility located in Sagola, Michigan. This series of tests was performed on January 28-31, 1992. The important results are summarized with pertinent process information in the following table:

PARAMETER	Average Surface/Core Dryer Stack	Average Surface Dryer Stack	Average Core Dryer Stack	Average Thermal Oil Heater Stack
Date of Testing	1/28/92	1/29-30/92	1/28-29/92	1/30-31/92
Volumetric Airflows				
ACFM	53700	59000	57800	33900
DSCFM	33200	35100	33400	14800
DON'T USE Tons of Finished Product/HR	~29.22	~29.02	~28.33	~24.35
Heat Input (MMBTU/HR)	~33.43	~38.13	~36.47	~43.80*
Particulate Conc. (GR/DSCF)[a]	0.037	0.028	0.024	0.050
Particulate Mass Rate (LB/HR)[a]	10.6	8.3	6.8	6.3
PM Particulate Emission Factor (LB/TFP)[a]	0.36	0.29	0.24	NA
PM10 Particulate Matter < 10µm (%)	88 9.3 0.78	82 6.8 0.57	90 6.1 0.52	74
Formaldehyde Conc. (mg/cubic meter @ 70° F and 29.92 mm Hg)	0.0158	0.0129	0.0174	0.0690
Formaldehyde Mass Rate (LB/HR)	0.0020	0.0016	0.0022	0.0038
HCOH Formaldehyde Emission Factor (LB/TFP)	0.000052	0.000057	0.000078	0.000160
THC Concentration (PPM-C1, Wet)	145	185	187	4
THC Mass Rate (LB/HR, C1)	11.3	15.2	14.4	0.1
THC THC Emission Factor (LB/TFP)	0.39	0.52	0.52	NA
THC Emission Factor (LB/MMBTU)	0.34	0.40	0.42	0.0037*
CO Concentration (PPM, Dry)	304	663	405	100
CO Mass Rate (LB/HR)	44.1	101.7	59.2	6.4
CO CO Emission Factor (LB/TFP)	1.51	3.48	2.12	NA
CO Emission Factor (LB/MMBTU)	1.34	2.67	1.73	0.15*

[a] Based upon front half particulate analysis only

* F-Factor method used

INTRODUCTION

PACE, Incorporated personnel conducted source emission compliance testing on three Dryer Stacks and one Thermal Oil Heater Stack at the Louisiana Pacific Corporation located in Sagola, Michigan. On-site testing was performed by a five member team consisting of M. Loftus, J. Pederson, T. Kuchinski, M. McDermott and P. Proehl. Coordination between plant and testing activities was provided by Susan Somers of the Louisiana Pacific Corporation through direct contact with the test team leader. Testing was witnessed by Warren Dellies with the Michigan Department of Natural Resources and Mark Conti with the U.S. Environmental Protection Agency.

The testing was conducted according to the following schedule:

Date	Surface/Core Dryer	Surface Dryer	Core Dryer	Thermal Oil Heater
1/28/92	EPA 5		EPA 201A	
	EPA 201A			
	EPA 0011			
	EPA 25A			
	EPA 10			
1/29/92		EPA 5	EPA 5	
		EPA 210A	EPA 0011	
		EPA 25A	EPA 25A	
		EPA 10	EPA 10	
1/30/92		EPA 0011		EPA 5
				EPA 201A
				EPA 25A
				EPA 10
1/31/92				EPA 0011

The objectives of this project were to quantify source emissions, in response to a Clean Air Act section 114 request, and compare them to applicable air emissions regulations stipulated by state and federal regulations.

Results are summarized in the next section followed by descriptions of the process under investigation and test methods. All supporting data are included in subsequent appendices.

RESULTS SUMMARY

Results of particulate carbon monoxide and total hydrocarbon determinations are summarized in Tables 1-8. The particulate emission factor ranged from an average high of 0.42 LB/Ton of Finished Product on the Surface/Core Dryer Stack to an average low of 0.33 LB/Ton of Finished Product on the Core Dryer Stack. The percent of particulate matter under 10 um in diameter ranged from 74 to 90 percent.

Results of formaldehyde determinations and gas composition are summarized in Tables 9-12. The formaldehyde emission factor ranged from an average high of 0.00016 LB/Ton of Finished Product on the Thermal Oil Heater Stack to an average low of 0.000052 LB/Ton of Finished Product on the Surface/Core Dryer Stack.

Results of total hydrocarbon determination can be found in Tables 25-28. The total hydrocarbon emissions factor ranged from an average high of 0.52 LB/Ton of finished product on the Surface and the Core Dryer Stacks to an average low of 0.39 LB/Ton of Finished Product on the Surface/Core Dryer Stack.

Results of carbon monoxide determinations are found in Tables 33-36. The carbon monoxide emission factor ranged from an average high of 3.48 LB/Ton of Finished Product on the Surface Dryer Stack, to an average low of 1.51 LB/Ton of Finished Product on the Surface Core Dryer Stack.

The results of gas composition analysis (Orsat) was conducted on samples gathered during EPA Method 5 testing at each source. Subsequent gas composition data that appears on concurrent tests is the average of these three runs. Results of fuel analysis appear in the laboratory report included in Appendix B.

A few minor problems did occur during sampling. The dryers were down from approximately 1123-1300 on January 28; this caused minor delays. The total hydrocarbon analyzer strip chart paper jammed during Test 2, Run 1 on the Core Dryer Stack. The jam occurred at the 28-minute mark and analysis of the raw data indicates that the total hydrocarbon concentration remained near the average for the remaining 41 minutes of the run. The carbon monoxide analyzer was not drawing sample for the first 32 minutes of Test 2, Run 1 during testing on the Core Dryer Stack; these data do not appear in this report. Lastly, a stainless steel nozzle was replaced with a quartz one at the 8-minute mark of Test 3, Run 1 on the Surface/Core Dryer Stack. This change was authorized and condoned by Mark Conti of the Environmental Protection Agency.

No other problems were encountered in the sampling or analyses of emissions samples. On this and after complete review of test values, we believe that the results reported herein are an accurate representation of the source conditions at the time of the test.

SUMMARY OF THE RESULTS

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
Particulate

TABLE 1

SUMMARY OF THE PARTICULATE AND THC RESULTS
* Based upon front half particulate analysis only
TEST 1

Surface/Core Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3	AVERAGE
Date of Run	1/28/92	1/28/92	1/28/92	
Time of Run	1040-1323	1358-1504	1525-1633	
Tons of Finished Product/HR	29.23	29.23	29.23	29.23
Heat Input (MMBTU/HR)	33.0	33.0	33.0	33.0
Volumetric Flow Rate				
ACFM	53200	53600	54400	53700
DSCFM	33200	33100	33400	33200
Gas Temperature (°F)	208	210	210	209
Gas Moisture Content (%v/v)	19.9	20.5	20.8	20.4
Gas Composition (%v/v,Dry)				
CO_2	3.0	3.1	3.1	3.1
O_2	17.8	17.9	18.0	17.9
N_2	79.2	79.0	79.0	79.1
Isokinetic Variation (%)	99.5	100.9	101.2	
Particulate Emission Rate (LB/HR)*	10.3	11.2	10.4	10.6
Particulate Concentration*				
GR/ACF	0.023	0.024	0.022	0.023
GR/DSCF	0.036	0.039	0.036	0.037
Particulate Emission Factor*				
LB/Ton of Finished Product	0.35	0.38	0.36	0.36
Total Hydrocarbon Emission Factor				
LB/Ton of Finished Product x 28.84 TPF/HR	0.33	0.39	0.44	0.39
LB/MMBTU (Heat Input Method)	0.29	0.35	0.39	0.34
Carbon Monoxide Emission Factor				
LB/Ton of Finished Product	1.31	1.61	1.61	1.51
LB/MMBTU (Heat Input Method)	1.16	1.42	1.43	1.34

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
Particulate

TABLE 2

SUMMARY OF THE PARTICULATE AND THC RESULTS
* Based upon front half particulate analysis only
TEST 1

Surface Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3	AVERAGE
Date of Run	1/29/92	1/29/92	1/29/92	
Time of Run	905-1012	1040-1145	1215-1325	
Tons of Finished Product/HR	29.23	29.23	29.23	29.23
Heat Input (MMBTU/HR)	38.1	38.1	38.1	38.1
Volumetric Flow Rate				
ACFM	57700	60000	59400	59000
DSCFM	34300	35700	35300	35100
Gas Temperature (°F)	235	239	243	239
Gas Moisture Content (%v/v)	20.7	20.1	19.5	20.1
Gas Composition (%v/v,Dry)				
CO_2	3.4	3.0	3.1	3.2
O_2	17.5	17.6	17.8	17.6
N_2	79.1	79.4	79.1	79.2
Isokinetic Variation (%)	102.0	99.3	99.8	
Particulate Emission Rate (LB/HR)*	7.7	9.0	8.3	8.3
Particulate Concentration*				
GR/ACF	0.016	0.018	0.016	0.016
GR/DSCF	0.026	0.029	0.027	0.028
Particulate Emission Factor*				
LB/Ton of Finished Product	0.26	0.31	0.28	0.29
Total Hydrocarbon Emission Factor				
LB/Ton of Finished Product	0.49	0.50	0.57	0.52
LB/MMBTU (Heat Input Method)	0.38	0.38	0.44	0.40
Carbon Monoxide Emission Factor				
LB/Ton of Finished Product	3.18	3.91	3.35	3.48
LB/MMBTU (Heat Input Method)	2.44	3.00	2.57	2.67

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
Particulate

TABLE 3

SUMMARY OF THE PARTICULATE AND THC RESULTS
* Based upon front half particulate analysis only
TEST 2

Core Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3	AVERAGE
Date of Run	1/29/92	1/29/92	1/29/92	
Time of Run	1420-1529	1602-1707	1723-1830	
Tons of Finished Product/HR	27.89	27.89	27.89	27.89
Heat Input (MMBTU/HR)	34.2	34.2	34.2	34.2
Volumetric Flow Rate				
ACFM	57800	58300	57400	57800
DSCFM	34600	32900	32700	33400
Gas Temperature (°F)	251	247	249	249
Gas Moisture Content (%v/v)	15.6	20.9	20.0	18.8
Gas Composition (%v/v,Dry)				
CO2	2.1	2.9	3.2	2.7
O2	18.9	17.5	17.7	18.0
N2	79.0	79.6	79.1	79.2
Isokinetic Variation (%)	96.1	104.5	100.7	
Particulate Emission Rate (LB/HR)*	6.2	7.4	6.8	6.8
Particulate Concentration*				
GR/ACF	0.013	0.015	0.014	0.014
GR/DSCF	0.021	0.026	0.024	0.024
Particulate Emission Factor*				
LB/Ton of Finished Product	0.22	0.26	0.24	0.24
Total Hydrocarbon Emission Factor				
LB/Ton of Finished Product	0.58	0.55	0.42	0.52
LB/MMBTU (Heat Input Method)	0.47	0.45	0.35	0.42
Carbon Monoxide Emission Factor				
LB/Ton of Finished Product	2.64	2.06	1.67	2.12
LB/MMBTU (Heat Input Method)	2.15	1.68	1.36	1.73

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
Particulate

TABLE 4

SUMMARY OF THE PARTICULATE AND THC RESULTS
* Based upon front half particulate analysis only
TEST 2

Thermal Oil Burner Stack

PARAMETER	**RUN 1**	**RUN 2**	**RUN 3**	**AVERAGE**
Date of Run	1/30/92	1/30/92	1/31/92	
Time of Run	2130-2233	2300-4	45-147	
Heat Input (MMBTU/HR)	48.6	48.6	52.0	49.7
Volumetric Flow Rate				
ACFM	33400	34900	33400	33900
DSCFM	14800	14900	14700	14800
Gas Temperature (°F)	495	502	497	498
Gas Moisture Content (%v/v)	14.6	16.7	15.0	15.5
Gas Composition (%v/v,Dry)				
CO2	9.8	9.9	9.0	9.6
O2	11.0	10.9	11.7	11.2
N2	79.3	79.3	79.3	79.3
Isokinetic Variation (%)	99.2	102.1	99.2	
Particulate Emission Rate (LB/HR)*	6.0	7.0	6.0	6.3
Particulate Concentration*				
GR/ACF	0.021	0.023	0.021	0.022
GR/DSCF	0.047	0.055	0.048	0.050
Particulate Emission Factor*				
LB/MMBTU (F-factor = 9280)	0.131	0.152	0.144	0.142
LB/KLB of Gas @ 50% Excess Air	0.157	0.177	0.184	0.173
Total Hydrocarbon Emission Factor				
LB/HR	0.3	0.1	0.1	0.2
LB/MMBTU (F-factor = 9280)	0.0066	0.0022	0.0024	0.0037
Carbon Monoxide Emission Factor				
LB/HR	3.8	7.7	7.8	6.4
LB/MMBTU (F-factor = 9280)	0.083	0.167	0.186	0.146

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
PM-10

TABLE 5

SUMMARY OF THE PM-10 RESULTS

11.9 TOW/1112

TEST 2

Surface/Core Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3	AVERAGE
Date of Run	1/28/92	1/28/92	1/28/92	
Time of Run	800-904	1000-1108	1215-1325	
Tons of Finished Product/HR	29.20	29.20	29.20	29.20
Heat Input (MMBTU/HR)	33.2	33.2	33.2	33.2
Volumetric Flow Rate				
ACFM	55700	57000	57500	56700
DSCFM	34300	34400	35500	34700
Gas Temperature (°F)	216	216	216	216
Gas Moisture Content (%v/v)	19.9	21.6	19.7	20.4
Gas Composition (%v/v,Dry)				
CO_2	3.1	3.1	3.1	3.1
O_2	17.9	17.9	17.9	17.9
N_2	79.1	79.1	79.1	79.1
Isokinetic Variation (%) '	64.9	65.5	63.7	
Particulate Emission Rate (LB/HR)				
Total Particulate *	13.24	13.63	22.57	16.48
< 10 µm Particulate	11.61	12.20	19.46	14.42
Particulate Concentration (GR/DSCF)				
Total Particulate *	0.045	0.046	0.074	0.055
< 10 µm Particulate	0.039	0.041	0.064	0.048
Percent of Particulate Less Than 10 µm	88%	90%	86%	88%

* The anisokinetic error for large particulate is theoretically greater than the <10 µm particulate. Therefore, adding all the fractions to get total particulate may not be as accurate as EPA Method 5.

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
PM-10

TABLE 6

SUMMARY OF THE PM-10 RESULTS

TEST 2 11.5 ton/hr

Surface Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3	AVERAGE
Date of Run	1/29/92	1/29/92	1/29/92	
Time of Run	1505-1616	1710-1817	1925-2032	
Tons of Finished Product/HR	29.23	29.23	29.23	29.23
Heat Input (MMBTU/HR)	37.9	37.9	37.9	37.9
Volumetric Flow Rate				
ACFM	61200	61800	63200	62100
DSCFM	34600	34800	34600	34700
Gas Temperature (°F)	249	250	250	250
Gas Moisture Content (%v/v)	20.5	20.8	22.9	21.4
Gas Composition (%v/v,Dry)				
CO_2	3.2	3.2	3.2	3.2
O_2	17.6	17.6	17.6	17.6
N_2	79.2	79.2	79.2	79.2
Isokinetic Variation (%)	60.8	66.1	60.9	
Particulate Emission Rate (LB/HR)				
Total Particulate *	10.15	11.12	11.24	10.83
< 10 μm Particulate	8.27	9.16	9.34	8.92
Particulate Concentration (GR/DSCF)				
Total Particulate *	0.034	0.037	0.038	0.036
< 10 μm Particulate	0.028	0.031	0.031	0.030
Percent of Particulate Less Than 10 μm	82%	82%	83%	82%

* The anisokinetic error for large particulate is theoretically greater than the <10 μm particulate. Therefore, adding all the fractions to get total particulate may not be as accurate as EPA Method 5.

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
PM-10

TABLE 7

SUMMARY OF THE PM-10 RESULTS

11.8 ton/hr

TEST 1

Core Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3	AVERAGE
Date of Run	1/28/92	1/28/92	1/28/92	
Time of Run	1040-1324	1425-1530	1630-1741	
Tons of Finished Product/HR	29.23	29.23	29.23	29.23
Heat Input (MMBTU/HR)	37.7	37.7	37.7	37.7
Volumetric Flow Rate				
ACFM	58900	58000	59100	58700
DSCFM	33700	33900	36100	34600
Gas Temperature (°F)	245	244	243	244
Gas Moisture Content (%v/v)	22.2	20.8	17.2	20.1
Gas Composition (%v/v,Dry)				
CO2	2.7	2.7	2.7	2.7
O2	18.0	18.0	18.0	18.0
N2	79.2	79.2	79.2	79.2
Isokinetic Variation (%)	79.5	70.5	61.6	
Particulate Emission Rate (LB/HR)				
Total Particulate *	9.24	8.90	11.79	9.98
< 10 µm Particulate	8.68	7.90	10.13	8.90
Particulate Concentration (GR/DSCF)				
Total Particulate *	0.032	0.031	0.038	0.034
< 10 µm Particulate	0.030	0.027	0.033	0.030
Percent of Particulate Less Than 10 µm	94%	89%	86%	90%

* The anisokinetic error for large particulate is theoretically greater than the <10 µm particulate. Therefore, adding all the fractions to get total particulate may not be as accurate as EPA Method 5.

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
PM-10

TABLE 8

SUMMARY OF THE PM-10 RESULTS

TEST 1

Thermal Oil Heater Stack

PARAMETER	RUN 1	RUN 2	RUN 3	AVERAGE
Date of Run	1/30/92	1/30/92	1/30/92	
Time of Run	1435-1536	1652-1756	1905-2010	
Tons of Finished Product/HR	24.8	24.8	24.8	24.8
Heat Input (MMBTU/HR)	48.6	48.6	48.6	48.6
Volumetric Flow Rate				
ACFM	34400	34300	35400	34700
DSCFM	15300	15200	15500	15300
Gas Temperature (°F)	473	475	488	479
Gas Moisture Content (%v/v)	15.9	16.4	15.9	16.1
Gas Composition (%v/v,Dry)				
CO_2	9.6	9.6	9.6	9.6
O_2	11.2	11.2	11.2	11.2
N_2	79.3	79.3	79.3	79.3
Isokinetic Variation (%)	92.0	93.5	90.1	
Particulate Emission Rate (LB/HR)				
Total Particulate *	7.10	7.35	7.22	7.22
< 10 µm Particulate	5.50	5.51	4.91	5.31
Particulate Concentration (GR/DSCF)				
Total Particulate *	0.054	0.057	0.054	0.055
< 10 µm Particulate	0.042	0.042	0.037	0.040
Percent of Particulate Less Than 10 µm	77%	75%	68%	74%

* The anisokinetic error for large particulate is theoretically greater than the <10 µm particulate. Therefore, adding all the fractions to get total particulate may not be as accurate as EPA Method 5.

Louisiana Pacific Corporation
Sagola, Michigan
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PACE Incorporated
February 25, 1992

TABLE 9

SUMMARY OF FORMALDEHYDE RESULTS

TEST 3

Surface/Core Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3	AVERAGE
Date of Run	1/28/92	1/28/92	1/28/92	
Time of Run	1754-1925	2018-2125	2223-2328	
Tons of Finished Product/HR	29.23	29.23	29.23	29.23
Heat Input (MMBTU/HR)	34.1	34.1	34.1	34.1
Volumetric Flow Rate				
ACFM	56300	56300	55900	56200
DSCFM	33300	32200	32500	32700
Gas Temperature (°F)	212	213	212	212
Gas Moisture Content (%v/v)	21.1	23.6	22.4	22.4
Gas Composition (%v/v,Dry)				
CO2	3.1	3.1	3.1	3.1
O2	17.9	17.9	17.9	17.9
N2	79.1	79.1	79.1	79.1
Isokinetic Variation (%)	100.4	103.2	100.9	
Concentration (mg/cubic meter @ 70° F and 29.92 mm Hg)				
Formaldehyde	0.014	0.032	0.008	0.018
Emission Rate (LB/HR)				
Formaldehyde	0.0015	0.0035	0.0009	0.0020
Emission Factor (LB/TFP)				
Formaldehyde	0.000052	0.000119	0.000031	0.000067

Louisiana Pacific Corporation
Sagola, Michigan
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PACE Incorporated
February 25, 1992

TABLE 10

SUMMARY OF FORMALDEHYDE RESULTS

TEST 3

Surface Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3	AVERAGE
Date of Run	1/30/92	1/30/92	1/30/92	
Time of Run	843-948	1047-1152	1242-1348	
Tons of Finished Product/HR	28.61	28.61	28.61	28.61
Heat Input (MMBTU/HR)	38.4	38.4	38.4	38.4
Volumetric Flow Rate				
ACFM	62200	62300	61400	62000
DSCFM	33500	34700	34000	34100
Gas Temperature (°F)	248	248	248	248
Gas Moisture Content (%v/v)	23.2	20.6	21.0	21.6
Gas Composition (%v/v,Dry)				
CO2	3.2	3.2	3.2	3.2
O2	17.6	17.6	17.6	17.6
N2	79.2	79.2	79.2	79.2
Isokinetic Variation (%)	102.3	99.3	100.1	
Concentration (mg/cubic meter @ 70° F and 29.92 mm Hg)				
Formaldehyde	0.022	0.014	0.011	0.015
Emission Rate (LB/HR)				
Formaldehyde	0.0023	0.0014	0.0011	0.0016
Emission Factor (LB/TFP)				
Formaldehyde	0.000081	0.000050	0.000039	0.000057

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992

TABLE 11

SUMMARY OF FORMALDEHYDE RESULTS

TEST 3

Core Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3	AVERAGE
Date of Run	1/29/92	1/29/92	1/29/92	
Time of Run	1900-2006	2053-2158	2241-2347	
Tons of Finished Product/HR	27.86	27.86	27.86	27.86
MMBTU/HR	37.5	37.5	37.5	37.5
Volumetric Flow Rate				
ACFM	59300	59400	59200	59300
DSCFM	33500	33400	33800	33600
Gas Temperature (°F)	247	248	248	248
Gas Moisture Content (%v/v)	20.8	21.1	19.7	20.5
Gas Composition (%v/v,Dry)				
CO2	2.7	2.7	2.7	2.7
O2	18.0	18.0	18.0	18.0
N2	79.2	79.2	79.2	79.2
Isokinetic Variation (%)	99.6	101.0	99.2	
Concentration (mg/cubic meter @ 70° F and 29.92 mm Hg)				
Formaldehyde	0.010	0.019	0.032	0.020
Emission Rate (LB/HR)				
Formaldehyde	0.0010	0.0021	0.0034	0.0022
Emission Factor (LB/TFP)				
Formaldehyde	0.000037	0.000075	0.000123	0.000078

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Sagola, Michigan
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PACE Incorporated
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TABLE 12

SUMMARY OF FORMALDEHYDE RESULTS

TEST 3

Thermal Oil Heater Stack

PARAMETER	RUN 1	RUN 2	RUN 3	AVERAGE
Date of Run	1/31/92	1/31/92	1/31/92	
Time of Run	940-1042	1205-1308	1415-1518	
Tons of Finished Product/HR	24.1	24.1	24.1	24.1
Heat Input (MMBTU/HR)	52.0	52.0	52.0	52.0
Volumetric Flow Rate				
ACFM	32400	32500	32200	32400
DSCFM	14700	14300	14500	14500
Gas Temperature (°F)	469	468	464	467
Gas Moisture Content (%v/v)	15.2	17.7	16.1	16.3
Gas Composition (%v/v,Dry)				
CO_2	9.6	9.6	9.6	9.6
O_2	11.2	11.2	11.2	11.2
N_2	79.3	79.3	79.3	79.3
Isokinetic Variation (%)	99.3	102.8	99.3	
Concentration (mg/cubic meter @ 70° F and 29.92 mm Hg)				
Formaldehyde	0.038	0.056	0.084	0.059
Emission Rate (LB/HR)				
Formaldehyde	0.0024	0.0036	0.0054	0.0038
Emission Factor (LB/TFP)				
Formaldehyde	0.00010	0.00015	0.00023	0.00016

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TABLE 13

RESULTS OF ORSAT AND MOISTURE DETERMINATIONS

TEST 1

Surface/Core Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Date of Run	1/28/92	1/28/92	1/28/92
Time of Run	1040-1323	1358-1504	1525-1633
ORSAT (%v/v)			
Dry Basis			
Carbon Dioxide	3.00	3.10	3.10
Oxygen	17.80	17.90	17.95
Carbon Monoxide	*	*	*
Nitrogen	79.20	79.00	78.95
WetBasis			
Carbon Dioxide	2.40	2.46	2.46
Oxygen	14.26	14.23	14.22
Carbon Monoxide	*	*	*
Nitrogen	63.43	62.81	62.54
Portable Oxygen Monitor Result			
Time Weighted Average (%O2)	17.6	17.4	17.5
Moisture Collected (ml)[1]	308.0	236.0	243.0
Moisture Content (%v/v)	19.91	20.50	20.78
Molecular Weight of Flue Gas (lb/lb-mole)			
Dry	29.19	29.21	29.21
Wet	26.96	26.91	26.88
Fo	1.033	0.968	0.952

*Carbon monoxide was not measured, assumed concentrations less than 0.005%.

RESULTS OF ORSAT AND MOISTURE DETERMINATIONS

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TABLE 14

RESULTS OF ORSAT AND MOISTURE DETERMINATIONS

TEST 1

Surface Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Date of Run	1/29/92	1/29/92	1/29/92
Time of Run	905-1012	1040-1145	1215-1325
ORSAT (%v/v)			
Dry Basis			
Carbon Dioxide	3.40	3.00	3.10
Oxygen	17.50	17.60	17.80
Carbon Monoxide	*	*	*
Nitrogen	79.10	79.40	79.10
WetBasis			
Carbon Dioxide	2.70	2.40	2.50
Oxygen	13.88	14.06	14.33
Carbon Monoxide	*	*	*
Nitrogen	62.72	63.45	63.67
Portable Oxygen Monitor Result			
Time Weighted Average (%O2)	17.5	17.5	17.3
Moisture Collected (ml)	250.0	244.0	234.0
Moisture Content (%v/v)	20.70	20.09	19.51
Molecular Weight of Flue Gas (lb/lb-mole)			
Dry	29.24	29.18	29.21
Wet	26.92	26.94	27.02
Fo	1.000	1.100	1.000

*Carbon monoxide was not measured, assumed concentrations less than 0.005%.

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TABLE 15

RESULTS OF ORSAT AND MOISTURE DETERMINATIONS

TEST 2

Core Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Date of Run	1/29/92	1/29/92	1/29/92
Time of Run	1420-1529	1602-1707	1723-1830
ORSAT (%v/v)			
Dry Basis			
Carbon Dioxide	2.10	2.90	3.20
Oxygen	18.90	17.50	17.70
Carbon Monoxide	*	*	*
Nitrogen	79.00	79.60	79.10
WetBasis			
Carbon Dioxide	1.77	2.29	2.56
Oxygen	15.96	13.84	14.16
Carbon Monoxide	*	*	*
Nitrogen	66.70	62.94	63.30
Portable Oxygen Monitor Result Time Weighted Average (%O2)	18.5	17.4	17.5
Moisture Collected (ml)	168.0	249.0	225.0
Moisture Content (%v/v)	15.57	20.93	19.98
Molecular Weight of Flue Gas (lb/lb-mole)			
Dry	29.09	29.16	29.22
Wet	27.37	26.83	26.98
Fo	0.952	1.172	1.000

*Carbon monoxide was not measured, assumed concentrations less than 0.005%.

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TABLE 16

RESULTS OF ORSAT AND MOISTURE DETERMINATIONS

TEST 2

Thermal Oil Burner Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Date of Run	1/30/92	1/30/92	1/30/92
Time of Run	2130-2233	2300-4	45-147
ORSAT (%v/v)			
Dry Basis			
Carbon Dioxide	9.80	9.85	9.00
Oxygen	10.95	10.90	11.70
Carbon Monoxide	*	*	*
Nitrogen	79.25	79.25	79.30
WetBasis			
Carbon Dioxide	8.37	8.20	7.65
Oxygen	9.35	9.08	9.94
Carbon Monoxide	*	*	*
Nitrogen	67.65	65.99	67.40
Portable Oxygen Monitor Result			
Time Weighted Average (%O2)	10.4	10.2	10.8
Moisture Collected (ml)	137.0	167.0	140.0
Moisture Content (%v/v)	14.64	16.73	15.01
Molecular Weight of Flue Gas (lb/lb-mole)			
Dry	30.01	30.01	29.91
Wet	28.25	28.00	28.12
Fo	1.015	1.015	1.022

*Carbon monoxide was not measured, assumed concentrations less than 0.005%.

RESULTS OF PARTICULATE LOADING DETERMINATIONS

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TABLE 17

RESULTS OF PARTICULATE LOADING DETERMINATIONS

TEST 1

Surface/Core Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Date of Run	1/28/92	1/28/92	1/28/92
Time of Run	1040-1323	1358-1504	1525-1633
Sample Duration (Min.)	64.0	64.0	64.0
Average Flue Gas Temperature (°F)	208.2	209.6	210.1
Moisture Content of Flue Gas (%v/v)	19.91	20.50	20.78
Particulate Collected (Mg)			
Wet Catch	19.6	15.7	16.0
Dry Catch	136.8	110.1	102.8
Total	156.4	125.8	118.8
Volumetric Flow Rate			
ACFM	53200	53600	54360
DSCFM	33180	33120	33440
Sample Volume (Cubic Feet)			
Meter Conditions	57.53	43.15	43.31
Dry Standard	58.31	43.09	43.61
Isokinetic Variation (%)	99.5	100.9	101.2
Particulate Concentration			
Wet Catch, GR/DSCF	0.005	0.006	0.006
Dry Catch, GR/DSCF	0.036	0.039	0.036
Total, GR/DSCF	0.041	0.045	0.042
Particulate Emission Rate			
Wet Catch, LB/HR	1.48	1.60	1.62
Dry Catch, LB/HR	10.29	11.20	10.43
Total, LB/HR	11.77	12.80	12.05

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TABLE 18

RESULTS OF PARTICULATE LOADING DETERMINATIONS

TEST 1

Surface Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Date of Run	1/29/92	1/29/92	1/29/92
Time of Run	905-1012	1040-1145	1215-1325
Sample Duration (Min.)	64.0	64.0	64.0
Average Flue Gas Temperature (°F)	234.5	238.9	243.4
Moisture Content of Flue Gas (%v/v)	20.70	20.09	19.51
Particulate Collected (Mg)			
Wet Catch	28.2	26.1	29.1
Dry Catch	77.0	87.3	80.6
Total	105.2	113.4	109.7
Volumetric Flow Rate			
ACFM	57680	60040	59400
DSCFM	34260	35700	35350
Sample Volume (Cubic Feet)			
Meter Conditions	44.78	45.70	45.61
Dry Standard	45.07	45.70	45.45
Isokinetic Variation (%)	102.0	99.3	99.8
Particulate Concentration			
Wet Catch, GR/DSCF	0.010	0.009	0.010
Dry Catch, GR/DSCF	0.026	0.029	0.027
Total, GR/DSCF	0.036	0.038	0.037
Particulate Emission Rate			
Wet Catch, LB/HR	2.84	2.70	2.99
Dry Catch, LB/HR	7.74	9.02	8.29
Total, LB/HR	10.58	11.71	11.28

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TABLE 19

RESULTS OF PARTICULATE LOADING DETERMINATIONS

TEST 2

Core Dryer Stack

PARAMETER	**RUN 1**	**RUN 2**	**RUN 3**
Date of Run	1/29/92	1/29/92	1/29/92
Time of Run	1420-1529	1602-1707	1723-1830
Sample Duration (Min.)	64.0	64.0	64.0
Average Flue Gas Temperature (°F)	250.8	246.5	248.6
Moisture Content of Flue Gas (%v/v)	15.57	20.93	19.98
Particulate Collected (Mg)			
Wet Catch	19.5	27.6	22.6
Dry Catch	58.5	75.3	66.6
Total	78.0	102.9	89.2
Volumetric Flow Rate			
ACFM	57830	58270	57430
DSCFM	34620	32860	32680
Sample Volume (Cubic Feet)			
Meter Conditions	44.47	45.92	44.02
Dry Standard	42.89	44.27	42.43
Isokinetic Variation (%)	96.1	104.5	100.7
Particulate Concentration			
Wet Catch, GR/DSCF	0.007	0.010	0.008
Dry Catch, GR/DSCF	0.021	0.026	0.024
Total, GR/DSCF	0.028	0.036	0.032
Particulate Emission Rate			
Wet Catch, LB/HR	2.08	2.71	2.30
Dry Catch, LB/HR	6.24	7.39	6.79
Total, LB/HR	8.33	10.10	9.09

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TABLE 20

RESULTS OF PARTICULATE LOADING DETERMINATIONS

TEST 2

Thermal Oil Burner Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Date of Run	1/30/92	1/30/92	1/30/92
Time of Run	2130-2233	2300-4	45-147
Sample Duration (Min.)	60.0	60.0	60.0
Average Flue Gas Temperature (°F)	494.9	502.5	497.3
Moisture Content of Flue Gas (%v/v)	14.64	16.73	15.01
Particulate Collected (Mg)			
Wet Catch	2.7	2.7	1.7
Dry Catch	114.7	138.9	116.0
Total	117.4	141.6	117.7
Volumetric Flow Rate			
ACFM	33440	34930	33410
DSCFM	14790	14950	14670
Sample Volume (Cubic Feet)			
Meter Conditions	40.77	42.92	40.74
Dry Standard	37.60	39.12	37.31
Isokinetic Variation (%)	99.2	102.1	99.2
Particulate Concentration			
Wet Catch, GR/DSCF	0.001	0.001	0.001
Dry Catch, GR/DSCF	0.047	0.055	0.048
Total, GR/DSCF	0.048	0.056	0.049
Particulate Emission Rate			
Wet Catch, LB/HR	0.14	0.14	0.09
Dry Catch, LB/HR	5.97	7.02	6.03
Total, LB/HR	6.11	7.16	6.12

RESULTS OF PM-10 DETERMINATIONS

Louisiana Pacific Corporation
Sagola, Michigan
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PM-10

TABLE 21

RESULTS OF PM-10 LOADING DETERMINATIONS

TEST 2

Surface/Core Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Date of Run	1/28/92	1/28/92	1/28/92
Time of Run	800-904	1000-1108	1215-1325
Sample Duration (Min.)	66.8	64.3	63.8
Average Flue Gas Temperature (°F)	216.2	215.7	215.9
Moisture Content of Flue Gas (%v/v)	19.88	21.60	19.72
Particulate Collected (Mg)*			
PM-10 Cyclone Catch	8.4	7.2	15.1
< 10 µm Particulate Weight	60.1	61.4	94.5
Total Particulate Weight	68.5	68.6	109.6
Volumetric Flow Rate			
ACFM	55730	57000	57480
DSCFM	34340	34390	35510
Sample Volume (Cubic Feet)			
Meter Conditions	22.82	22.63	22.63
Dry Standard	23.52	22.89	22.81
Isokinetic Variation (%)	64.9	65.5	63.7
Particulate Concentration*			
Total, GR/DSCF	0.045	0.046	0.074
> 10 µm Particulate, GR/DSCF	0.006	0.005	0.010
< 10 µm Particulate, GR/DSCF	0.039	0.041	0.064
Percent of Particulate Less Than 10µm	87.7%	89.5%	86.2%
Particulate Emission Rate*			
Total, LB/HR	13.24	13.63	22.57
< 10 µm Particulate, LB/HR	11.61	12.20	19.46
Actual Particulate Cut Diameter (µm)	9.63	9.38	9.55

* The anisokinetic error for large particulate is theoretically greater than the <10 µm particulate. Therefore, adding all the fractions to get total particulate may not be as accurate as EPA Method 5.

TABLE 22

RESULTS OF PM-10 LOADING DETERMINATIONS

TEST 2

Surface Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Date of Run	1/29/92	1/29/92	1/29/92
Time of Run	1505-1616	1710-1817	1925-2032
Sample Duration (Min.)	67.5	62.8	65.0
Average Flue Gas Temperature (°F)	248.8	249.9	249.8
Moisture Content of Flue Gas (%v/v)	20.49	20.76	22.94
Particulate Collected (Mg)*			
PM-10 Cyclone Catch	9.2	9.7	9.0
< 10 µm Particulate Weight	40.6	45.5	44.2
Total Particulate Weight	49.8	55.2	53.2
Volumetric Flow Rate			
ACFM	61210	61820	63230
DSCFM	34600	34770	34590
Sample Volume (Cubic Feet)			
Meter Conditions	22.84	23.38	22.17
Dry Standard	22.46	22.82	21.66
Isokinetic Variation (%)	60.8	66.1	60.9
Particulate Concentration*			
Total, GR/DSCF	0.034	0.037	0.038
> 10 µm Particulate, GR/DSCF	0.006	0.007	0.006
< 10 µm Particulate, GR/DSCF	0.028	0.031	0.031
Percent of Particulate Less Than 10µm	81.5%	82.4%	83.1%
Particulate Emission Rate*			
Total, LB/HR	10.15	11.12	11.24
< 10 µm Particulate, LB/HR	8.27	9.16	9.34
Actual Particulate Cut Diameter (µm)	9.86	9.23	9.59

* The anisokinetic error for large particulate is theoretically greater than the <10 µm particulate. Therefore, adding all the fractions to get total particulate may not be as accurate as EPA Method 5.

Louisiana Pacific Corporation
Sagola, Michigan
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February 25, 1992
PM-10

TABLE 23

RESULTS OF PM-10 LOADING DETERMINATIONS

TEST 1

Core Dryer Stack

PARAMETER	**RUN 1**	**RUN 2**	**RUN 3**
Date of Run	1/28/92	1/28/92	1/28/92
Time of Run	1040-1324	1425-1530	1630-1741
Sample Duration (Min.)	64.0	62.5	65.5
Average Flue Gas Temperature (°F)	245.2	243.9	243.3
Moisture Content of Flue Gas (%v/v)	22.24	20.83	17.23
Particulate Collected (Mg)*			
PM-10 Cyclone Catch	3.4	5.3	8.0
< 10 µm Particulate Weight	52.8	41.6	48.9
Total Particulate Weight	56.2	46.9	56.9
Volumetric Flow Rate			
ACFM	58890	57970	59070
DSCFM	33730	33870	36110
Sample Volume (Cubic Feet)			
Meter Conditions	26.43	23.34	22.67
Dry Standard	27.16	23.62	23.06
Isokinetic Variation (%)	79.5	70.5	61.6
Particulate Concentration*			
Total, GR/DSCF	0.032	0.031	0.038
> 10 µm Particulate, GR/DSCF	0.002	0.003	0.005
< 10 µm Particulate, GR/DSCF	0.030	0.027	0.033
Percent of Particulate Less Than 10µm	94.0%	88.7%	85.9%
Particulate Emission Rate*			
Total, LB/HR	9.24	8.90	11.79
< 10 µm Particulate, LB/HR	8.68	7.90	10.13
Actual Particulate Cut Diameter (µm)	8.27	9.11	9.95

* The anisokinetic error for large particulate is theoretically greater than the <10 µm particulate. Therefore, adding all the fractions to get total particulate may not be as accurate as EPA Method 5.

Louisiana Pacific Corporation
Sagola, Michigan
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PACE Incorporated
February 25, 1992
PM-10

TABLE 24

RESULTS OF PM-10 LOADING DETERMINATIONS

TEST 1

Thermal Oil Heater Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Date of Run	1/30/92	1/30/92	1/30/92
Time of Run	1435-1536	1652-1756	1905-2010
Sample Duration (Min.)	57.0	60.0	61.3
Average Flue Gas Temperature (°F)	473.1	474.8	487.9
Moisture Content of Flue Gas (%v/v)	15.89	16.43	15.88
Particulate Collected (Mg)*			
PM-10 Cyclone Catch	17.3	21.3	26.3
< 10 μm Particulate Weight	59.5	63.9	56.0
Total Particulate Weight	76.8	85.2	82.3
Volumetric Flow Rate			
ACFM	34350	34260	35400
DSCFM	15320	15150	15540
Sample Volume (Cubic Feet)			
Meter Conditions	23.63	25.22	25.36
Dry Standard	21.93	23.23	23.44
Isokinetic Variation (%)	92.0	93.5	90.1
Particulate Concentration*			
Total, GR/DSCF	0.054	0.057	0.054
> 10 μm Particulate, GR/DSCF	0.012	0.014	0.017
< 10 μm Particulate, GR/DSCF	0.042	0.042	0.037
Percent of Particulate Less Than 10μm	77.5%	75.0%	68.0%
Particulate Emission Rate*			
Total, LB/HR	7.10	7.35	7.22
< 10 μm Particulate, LB/HR	5.50	5.51	4.91
Actual Particulate Cut Diameter (μm)	9.44	9.35	9.50

* The anisokinetic error for large particulate is theoretically greater than the <10 μm particulate. Therefore, adding all the fractions to get total particulate may not be as accurate as EPA Method 5.

RESULTS OF TOTAL HYDROCARBON DETERMINATIONS

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992

TABLE 25

INTEGRATION OF TOTAL HYDROCARBON STRIPCHART DATA

TEST 1

Surface/Core Dryer Stack

Date of Test:	January 28, 1992	Full Scale Range:	0 - 500
Instrument Type:	Ratfisch RS 55 (FID)	Chart Speed:	15 cm/HR
Calibration Gas:	Propane	Integration Period:	4 Minutes

Run 1			Run 2			Run 3		
Int. Period No.	Concentration PPM (C3)	Concentration PPM (C1)	Int. Period No.	Concentration PPM (C3)	Concentration PPM (C1)	Int. Period No.	Concentration PPM (C3)	Concentration PPM (C1)
1	60	180	1	45	135	1	60	180
2	52	156	2	40	120	2	56	168
3	65	195	3	42	126	3	57	171
4	55	165	4	53	159	4	61	183
5	37	111	5	50	150	5	65	195
6	37	111	6	52	156	6	60	180
7	40	120	7	57	171	7	53	159
8	40	120	8	49	147	8	46	138
9	45	135	9	60	180	9	50	150
10	35	105	10	55	165	10	48	144
11	37	111	11	50	150	11	52	156
12	30	90	12	54	162	12	51	153
13	32	96	13	50	150	13	52	156
14	37	111	14	50	150	14	55	165
15	35	105	15	43	129	15	52	156
16	33	99	16	40	120	16	52	156
17	40	120	17	40	120	17		
18			18			18		
19			19			19		
20			20			20		

Results Summary:	**Run 1**	**Run 2**	**Run 3**	**Average**
Time of Run	1040-1327	1358-1504	1525-1633	
Volumetric Airflow (SCFM)	41448	41635	42172	41750
Minimum Integration (PPM-C3, wet)	30	40	46	
Maximum Integration (PPM-C3, wet)	65	60	65	
Average Concentration (PPM-C3, wet)	42	49	54	48
Average Concentration (PPM-C1, wet)	125	146	163	145
THC Emission Rate (LB/HR, C1)	9.7	11.4	12.9	11.3

Louisiana Pacific Corporation
Sagola, Michigan
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PACE Incorporated
February 25, 1992

TABLE 26

INTEGRATION OF TOTAL HYDROCARBON STRIPCHART DATA

TEST 1

Surface Dryer Stack

Date of Test:	January 29, 1992	Full Scale Range:	0 - 500
Instrument Type:	Ratfisch RS 55 (FID)	Chart Speed:	15 cm/HR
Calibration Gas:	Propane	Integration Period:	4 Minutes

Run 1			Run 2			Run 3		
Int. Period No.	Concentration PPM (C3)	Concentration PPM (C1)	Int. Period No.	Concentration PPM (C3)	Concentration PPM (C1)	Int. Period No.	Concentration PPM (C3)	Concentration PPM (C1)
1	52	156	1	42	126	1	70	210
2	47	141	2	50	150	2	60	180
3	60	180	3	50	150	3	65	195
4	57	171	4	55	165	4	65	195
5	52	156	5	52	156	5	65	195
6	52	156	6	55	165	6	55	165
7	55	165	7	55	165	7	70	210
8	57	171	8	62	186	8	70	210
9	60	180	9	65	195	9	75	225
10	62	186	10	62	186	10	75	225
11	60	180	11	55	165	11	72	216
12	64	192	12	60	180	12	72	216
13	70	210	13	67	201	13	65	195
14	70	210	14	70	210	14		
15	67	201	15	67	201	15		
16	65	195	16	65	195	16		
17	60	180	17	55	165	17		
18			18			18		
19			19			19		
20			20			20		

Results Summary:	**Run 1**	**Run 2**	**Run 3**	**Average**
Time of Run	907-1012	1040-1145	1215-1326	
Volumetric Airflow (SCFM)	43253	44681	43851	43930
Minimum Integration (PPM-C3, wet)	47	42	55	
Maximum Integration (PPM-C3, wet)	70	70	75	
Average Concentration (PPM-C3, wet)	59	58	68	62
Average Concentration (PPM-C1, wet)	178	174	203	185
THC Emission Rate (LB/HR, C1)	14.4	14.6	16.6	15.2

Louisiana Pacific Corporation
Sagola, Michigan
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TABLE 27

INTEGRATION OF TOTAL HYDROCARBON STRIPCHART DATA

TEST 2

Core Dryer Stack

Date of Test:	January 29, 1992	Full Scale Range:	0 - 1000/500
Instrument Type:	Ratfisch RS 55 (FID)	Chart Speed:	15 cm/HR
Calibration Gas:	Propane	Integration Period:	4 Minutes

Run 1*			Run 2			Run 3		
Int.	Concentration		Int.	Concentration		Int.	Concentration	
Period No.	PPM (C3)	PPM (C1)	Period No.	PPM (C3)	PPM (C1)	Period No.	PPM (C3)	PPM (C1)
1	65	195	1	70	210	1	65	195
2	75	225	2	65	195	2	60	180
3	80	240	3	80	240	3	60	180
4	72	216	4	75	225	4	60	180
5	70	210	5	70	210	5	55	165
6	65	195	6	70	210	6	45	135
7	65	195	7	65	195	7	45	135
8			8	60	180	8	50	150
9			9	60	180	9	50	150
10			10	50	150	10	50	150
11			11	60	180	11	45	135
12			12	60	180	12	50	150
13			13	70	210	13	45	135
14			14	70	210	14	50	150
15			15	65	195	15	45	135
16			16	65	195	16	45	135
17			17			17		
18			18			18		
19			19			19		
20			20			20		

*Stripchart jammed at 28-minute mark

Results Summary:	**Run 1**	**Run 2**	**Run 3**	**Average**
Time of Run	1420-1529	1602-1707	1723-1830	
Volumetric Airflow (SCFM)	40995	41593	40875	41150
Minimum Integration (PPM-C3, wet)	65	50	45	
Maximum Integration (PPM-C3, wet)	80	80	60	
Average Concentration (PPM-C3, wet)	70	66	51	62
Average Concentration (PPM-C1, wet)	211	198	154	187
THC Emission Rate (LB/HR, C1)	16.2	15.4	11.8	14.4

Louisiana Pacific Corporation
Sagola, Michigan
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TABLE 28

INTEGRATION OF TOTAL HYDROCARBON STRIPCHART DATA

TEST 2

Thermal Oil Heater Stack

Date of Test:	January 30, 1992	Full Scale Range:	0 - 50/100
Instrument Type:	Ratfisch RS 55 (FID)	Chart Speed:	15 cm/HR
Calibration Gas:	Propane	Integration Period:	4 Minutes

Run 1			Run 2			Run 3		
Int. Period No.	Concentration PPM (C3)	Concentration PPM (C1)	Int. Period No.	Concentration PPM (C3)	Concentration PPM (C1)	Int. Period No.	Concentration PPM (C3)	Concentration PPM (C1)
1	7	21	1	1	3	1	1	3
2	5	15	2	1	3	2	1	3
3	4	12	3	1	3	3	1	3
4	3	9	4	1	3	4	1	3
5	3	9	5	0.5	1.5	5	1	3
6	3	9	6	0.5	1.5	6	1	3
7	2	6	7	0.5	1.5	7	1	3
8	2	6	8	0.5	1.5	8	1	3
9	2	6	9	0.5	1.5	9	1	3
10	2	6	10	0.5	1.5	10	1	3
11	2	6	11	0.5	1.5	11	1	3
12	2	6	12	0.5	1.5	12	1	3
13	2	6	13	0.5	1.5	13	1	3
14	2	6	14	0.5	1.5	14	1	3
15	2	6	15	0.5	1.5	15	1	3
16	2	6	16	0.5	1.5	16		
17			17			17		
18			18			18		
19			19			19		
20			20			20		

Results Summary:	Run 1	Run 2	Run 3	Average
Time of Run	2130-2233	2300-4	45-147	
Volumetric Airflow (SCFM)	17330	17887	17294	17500
Minimum Integration (PPM-C3, wet)	2	1	1	
Maximum Integration (PPM-C3, wet)	5	1	1	
Average Concentration (PPM-C3, wet)	3	1	1	1
Average Concentration (PPM-C1, wet)	8	2	3	4
THC Emission Rate (LB/HR, C1)	0.3	0.1	0.1	0.1

RESULTS OF FORMALDEHYDE DETERMINATIONS

Louisiana Pacific Corporation
Sagola, Michigan
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PACE Incorporated
February 25, 1992

TABLE 29

RESULTS OF FORMALDEHYDE DETERMINATIONS

TEST 3

Surface/Core Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Date of Run	1/28/92	1/28/92	1/28/92
Time of Run	1754-1925	2018-2125	2223-2328
Sample Duration (Min.)	64.0	64.0	64.0
Average Flue Gas Temperature (°F)	211.8	212.8	212.2
Moisture Content of Flue Gas (%v/v)	21.10	23.64	22.39
Sample Volume (Cubic Feet)			
Meter Conditions	43.99	43.93	43.07
Dry Standard	43.12	42.88	41.94
Sample Volume (Dry Standard Cubic Meters)	1.221	1.214	1.188
Volumetric Flow Rate			
ACFM	56280	56340	55920
DSCFM	33310	32220	32540
Isokinetic Variation (%)	100.4	103.2	100.9
Total Mass Collected (µg)			
Formaldehyde	15	34	8.9
Concentration (µg/dscm @ 68° F and 29.92 mm Hg)			
Formaldehyde	12.3	27.8	7.3
Emission Rate (LB/HR)			
Formaldehyde	0.0015	0.0035	0.0009

Louisiana Pacific Corporation
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TABLE 30

RESULTS OF FORMALDEHYDE DETERMINATIONS

TEST 3

Surface Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Date of Run	1/30/92	1/30/92	1/30/92
Time of Run	843-948	1047-1152	1242-1348
Sample Duration (Min.)	64.0	64.0	64.0
Average Flue Gas Temperature (°F)	247.6	248.4	248.1
Moisture Content of Flue Gas (%v/v)	23.19	20.58	20.98
Sample Volume (Cubic Feet)			
Meter Conditions	44.99	45.45	44.99
Dry Standard	43.81	43.95	43.43
Sample Volume (Dry Standard Cubic Meters)	1.241	1.245	1.230
Volumetric Flow Rate			
ACFM	62240	62330	61370
DSCFM	33520	34670	33980
Isokinetic Variation (%)	102.3	99.3	100.1
Total Mass Collected (μg)			
Formaldehyde	23	14	11
Concentration (μg/dscm @ 68° F and 29.92 mm Hg)			
Formaldehyde	18.5	11.3	8.9
Emission Rate (LB/HR)			
Formaldehyde	0.0023	0.0014	0.0011

TABLE 31

RESULTS OF FORMALDEHYDE DETERMINATIONS

TEST 3

Core Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Date of Run	1/29/92	1/29/92	1/29/92
Time of Run	1900-2006	2053-2158	2241-2347
Sample Duration (Min.)	64.0	64.0	64.0
Average Flue Gas Temperature (°F)	247.3	248.4	248.3
Moisture Content of Flue Gas (%v/v)	20.84	21.07	19.66
Sample Volume (Cubic Feet)			
Meter Conditions	44.03	44.35	44.07
Dry Standard	42.56	43.03	42.88
Sample Volume (Dry Standard Cubic Meters)	1.205	1.218	1.214
Volumetric Flow Rate			
ACFM	59320	59410	59210
DSCFM	33460	33360	33840
Isokinetic Variation (%)	99.6	101.0	99.2
Total Mass Collected (µg)			
Formaldehyde	10	20	33
Concentration (µg/dscm @ 68° F and 29.92 mm Hg)			
Formaldehyde	8.3	16.6	27.4
Emission Rate (LB/HR)			
Formaldehyde	0.0010	0:0021	0.0034

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TABLE 32

RESULTS OF FORMALDEHYDE DETERMINATIONS

TEST 3

Thermal Oil Heater Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Date of Run	1/31/92	1/31/92	1/31/92
Time of Run	940-1042	1205-1308	1415-1518
Sample Duration (Min.)	60.0	60.0	60.0
Average Flue Gas Temperature (°F)	468.6	467.9	463.9
Moisture Content of Flue Gas (%v/v)	15.16	17.70	16.08
Sample Volume (Cubic Feet)			
Meter Conditions	38.73	39.43	38.87
Dry Standard	35.84	36.11	35.37
Sample Volume (Dry Standard Cubic Meters)	1.015	1.023	1.002
Volumetric Flow Rate			
ACFM	32440	32530	32220
DSCFM	14730	14340	14540
Isokinetic Variation (%)	99.3	102.8	99.3
Total Mass Collected (µg)			
Formaldehyde	44	66	100
Concentration (µg/dscm @ 68° F and 29.92 mm Hg)			
Formaldehyde	43.4	65.0	98.5
Emission Rate (LB/HR)			
Formaldehyde	0.0024	0.0036	0.0054

Louisiana Pacific Corporation
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TABLE 29

RESULTS OF FORMALDEHYDE DETERMINATIONS

TEST 3

Surface/Core Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Date of Run	1/28/92	1/28/92	1/28/92
Time of Run	1754-1925	2018-2125	2223-2328
Sample Duration (Min.)	64.0	64.0	64.0
Average Flue Gas Temperature (°F)	211.8	212.8	212.2
Moisture Content of Flue Gas (%v/v)	21.10	23.64	22.39
Sample Volume (Cubic Feet)			
Meter Conditions	43.99	43.93	43.07
Dry Standard	43.12	42.88	41.94
Sample Volume (Dry Standard Cubic Meters)	1.221	1.214	1.188
Volumetric Flow Rate			
ACFM	56280	56340	55920
DSCFM	33310	32220	32540
Isokinetic Variation (%)	100.4	103.2	100.9
Total Mass Collected (µg)			
Formaldehyde	15	34	8.9
Concentration (µg/dscm)			
Formaldehyde	12.3	27.8	7.3
Emission Rate (LB/HR)			
Formaldehyde	0.0015	0.0035	0.0009
Concentration (mg/cubic meter @ 70° F and 29.92 mm Hg)			
Formaldehyde	0.014	0.032	0.008

Louisiana Pacific Corporation
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TABLE 30

RESULTS OF FORMALDEHYDE DETERMINATIONS

TEST 3

Surface Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Date of Run	1/30/92	1/30/92	1/30/92
Time of Run	843-948	1047-1152	1242-1348
Sample Duration (Min.)	64.0	64.0	64.0
Average Flue Gas Temperature (°F)	247.6	248.4	248.1
Moisture Content of Flue Gas (%v/v)	23.19	20.58	20.98
Sample Volume (Cubic Feet)			
Meter Conditions	44.99	45.45	44.99
Dry Standard	43.81	43.95	43.43
Sample Volume (Dry Standard Cubic Meters)	1.241	1.245	1.230
Volumetric Flow Rate			
ACFM	62240	62330	61370
DSCFM	33520	34670	33980
Isokinetic Variation (%)	102.3	99.3	100.1
Total Mass Collected (μg)			
Formaldehyde	23	14	11
Concentration (μg/dscm)			
Formaldehyde	18.5	11.3	8.9
Emission Rate (LB/HR)			
Formaldehyde	0.0023	0.0014	0.0011
Concentration (mg/cubic meter @ 70° F and 29.92 mm Hg)			
Formaldehyde	0.022	0.014	0.011

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TABLE 31

RESULTS OF FORMALDEHYDE DETERMINATIONS

TEST 3

Core Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Date of Run	1/29/92	1/29/92	1/29/92
Time of Run	1900-2006	2053-2158	2241-2347
Sample Duration (Min.)	64.0	64.0	64.0
Average Flue Gas Temperature (°F)	247.3	248.4	248.3
Moisture Content of Flue Gas (%v/v)	20.84	21.07	19.66
Sample Volume (Cubic Feet)			
Meter Conditions	44.03	44.35	44.07
Dry Standard	42.56	43.03	42.88
Sample Volume (Dry Standard Cubic Meters)	1.205	1.218	1.214
Volumetric Flow Rate			
ACFM	59320	59410	59210
DSCFM	33460	33360	33840
Isokinetic Variation (%)	99.6	101.0	99.2
Total Mass Collected (µg)			
Formaldehyde	10	20	33
Concentration (µg/dscm @ 68° F and 29.92 mm Hg)			
Formaldehyde	8.3	16.6	27.4
Emission Rate (LB/HR)			
Formaldehyde	0.0010	0.0021	0.0034
Concentration (mg/cubic meter @ 70° F and 29.92 mm Hg)			
Formaldehyde	0.010	0.019	0.032

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TABLE 32

RESULTS OF FORMALDEHYDE DETERMINATIONS

TEST 3

Thermal Oil Heater Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Date of Run	1/31/92	1/31/92	1/31/92
Time of Run	940-1042	1205-1308	1415-1518
Sample Duration (Min.)	60.0	60.0	60.0
Average Flue Gas Temperature (°F)	468.6	467.9	463.9
Moisture Content of Flue Gas (%v/v)	15.16	17.70	16.08
Sample Volume (Cubic Feet)			
Meter Conditions	38.73	39.43	38.87
Dry Standard	35.84	36.11	35.37
Sample Volume (Dry Standard Cubic Meters)	1.015	1.023	1.002
Volumetric Flow Rate			
ACFM	32440	32530	32220
DSCFM	14730	14340	14540
Isokinetic Variation (%)	99.3	102.8	99.3
Total Mass Collected (µg)			
Formaldehyde	44	66	100
Concentration (µg/dscm @ 68° F and 29.92 mm Hg)			
Formaldehyde	43.4	65.0	98.5
Emission Rate (LB/HR)			
Formaldehyde	0.0024	0.0036	0.0054
Concentration (mg/cubic meter @ 70° F and 29.92 mm Hg)			
Formaldehyde	0.038	0.056	0.084

RESULTS OF CARBON MONOXIDE DETERMINATIONS

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992

TABLE 33

INTEGRATION OF CARBON MONOXIDE STRIPCHART DATA

TEST 1

Surface/Core Dryer Stack

Date of Test:	January 28, 1992	Full Scale Range:	0 - 1500
Instrument Type:	Horiba PIR 2000, NDIR	Chart Speed:	15 cm/HR
Calibration Gas:	CO in air	Integration Period:	4 Minutes

Run 1		Run 2		Run 3	
Int. Period No.	Conc. PPM (CO)	Int. Period No.	Conc. PPM (CO)	Int. Period No.	Conc. PPM (CO)
1	225	1	330	1	420
2	225	2	240	2	320
3	390	3	270	3	280
4	360	4	390	4	275
5	160	5	390	5	345
6	190	6	340	6	280
7	240	7	360	7	320
8	300	8	360	8	345
9	190	9	375	9	300
10	230	10	350	10	320
11	360	11	350	11	350
12	240	12	360	12	320
13	240	13	330	13	
14	350	14	340	14	
15	280	15	240	15	
16	240	16	235	16	
17	270	17	270	17	
18		18		18	
19		19		19	
20		20		20	

Results Summary:	Run 1	Run 2	Run 3	Average
Run Start	1040	1358	1546	
Run Stop	1327	1504	1633	
Vol. Airflow (DSCFM)	33,200	33,100	33,400	33,230
Minimum Int. (PPM, dry)	160	235	275	
Maximum Int. (PPM, dry)	390	390	420	
Average Conc. (PPM, dry)	264	325	323	304
CO Emission Rate (LB/HR)	38.3	47.0	47.1	44.1

Louisiana Pacific Corporation
Sagola, Michigan
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PACE Incorporated
February 25, 1992

TABLE 34

INTEGRATION OF CARBON MONOXIDE STRIPCHART DATA

TEST 1

Surface Dryer Stack

Date of Test:	January 29, 1992	Full Scale Range:	0 - 1500
Instrument Type:	Horiba PIR 2000, NDIR	Chart Speed:	15 cm/HR
Calibration Gas:	CO in air	Integration Period:	4 Minutes

Run 1		Run 2		Run 3	
Int. Period No.	Conc. PPM (CO)	Int. Period No.	Conc. PPM (CO)	Int. Period No.	Conc. PPM (CO)
1	480	1	430	1	720
2	380	2	630	2	660
3	590	3	600	3	720
4	630	4	650	4	780
5	570	5	660	5	660
6	570	6	690	6	690
7	600	7	790	7	550
8	660	8	870	8	630
9	630	9	810	9	720
10	550	10	690	10	480
11	660	11	620	11	780
12	660	12	800	12	630
13	800	13	870	13	660
14	800	14	930	14	520
15	690	15	930	15	510
16	720	16	750	16	580
17	570	17	750	17	510
18		18		18	
19		19		19	
20		20		20	

Results Summary:	**Run 1**	**Run 2**	**Run 3**	**Average**
Run Start	907	1040	1215	
Run Stop	1012	1145	1326	
Vol. Airflow (DSCFM)	34,300	35,700	35,300	35,100
Minimum Int. (PPM, dry)	380	430	480	
Maximum Int. (PPM, dry)	800	930	780	
Average Conc. (PPM, dry)	621	734	635	663
CO Emission Rate (LB/HR)	93.0	114.3	97.9	101.7

Louisiana Pacific Corporation
Sagola, Michigan
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February 25, 1992

TABLE 35

INTEGRATION OF CARBON MONOXIDE STRIPCHART DATA

TEST 2

Core Dryer Stack

Date of Test:	January 29, 1992	Full Scale Range:	0 - 1500
Instrument Type:	Horiba PIR 2000, NDIR	Chart Speed:	15 cm/HR
Calibration Gas:	CO in air	Integration Period:	4 Minutes

Run 1*		Run 2		Run 3	
Int. Period No.	Conc. PPM (CO)	Int. Period No.	Conc. PPM (CO)	Int. Period No.	Conc. PPM (CO)
1		1	330	1	480
2		2	520	2	360
3		3	450	3	510
4		4	480	4	330
5		5	360	5	420
6		6	550	6	270
7		7	300	7	240
8		8	450	8	330
9	420	9	300	9	320
10	420	10	300	10	240
11	540	11	450	11	300
12	430	12	300	12	290
13	510	13	510	13	270
14	480	14	370	14	270
15	590	15	370	15	270
16	510	16	370	16	310
17		17		17	
18		18		18	
19		19		19	
20		20		20	

* NDIR was not drawing sample until 32-minute mark

Results Summary:	Run 1	Run 2	Run 3	Average
Run Start	1420	1602	1723	
Run Stop	1529	1707	1830	
Vol. Airflow (DSCFM)	34,600	32,900	32,700	33,400
Minimum Int. (PPM, dry)	420	300	240	
Maximum Int. (PPM, dry)	590	550	510	
Average Conc. (PPM, dry)	488	401	326	405
CO Emission Rate (LB/HR)	73.6	57.5	46.5	59.2

Louisiana Pacific Corporation
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February 25, 1992

TABLE 36

INTEGRATION OF CARBON MONOXIDE STRIPCHART DATA

TEST 2

Thermal Oil Heater Stack

Date of Test:	January 30, 1992	Full Scale Range:	0 - 500
Instrument Type:	Horiba PIR 2000, NDIR	Chart Speed:	15 cm/HR
Calibration Gas:	CO in air	Integration Period:	4 Minutes

Run 1		Run 2		Run 3	
Int. Period No.	Conc. PPM (CO)	Int. Period No.	Conc. PPM (CO)	Int. Period No.	Conc. PPM (CO)
1	45	1	110	1	100
2	45	2	95	2	110
3	45	3	105	3	140
4	45	4	125	4	140
5	50	5	110	5	120
6	50	6	130	6	130
7	45	7	105	7	120
8	45	8	100	8	125
9	50	9	105	9	145
10	70	10	110	10	125
11	75	11	125	11	125
12	65	12	140	12	125
13	75	13	160	13	125
14	70	14	135	14	110
15	75	15	140	15	115
16	80	16	110	16	90
17		17		17	
18		18		18	
19		19		19	
20		20		20	

Results Summary:	Run 1	Run 2	Run 3	Average
Run Start	2130	2300	45	
Run Stop	2233	4	147	
Vol. Airflow (DSCFM)	14,800	14,900	14,700	14,800
Minimum Int. (PPM, dry)	45	95	90	
Maximum Int. (PPM, dry)	80	160	145	
Average Conc. (PPM, dry)	58	119	122	100
CO Emission Rate (LB/HR)	3.8	7.7	7.8	6.4

RESULTS OF PRELIMINARY SOURCE DETERMINATIONS

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
Particulate

RESULTS OF AIR FLOW DETERMINATIONS

TEST 1

Surface/Core Dryer Stack

Date of Run	1/28/92
Time of Measurement	0836
Number of Sampling Ports	2
Number of Points Sampled	12
Barometric Pressure (In. Hg)	29.43
Static Pressure (In. WC)	0.80
Absolute Flue Gas Pressure (In. Hg)	29.49
Average Flue Gas Temperature (F)	206
Average Moisture Content (%v/v)	21
Flue Gas Average Velocity (Feet/Second)	72.60
Duct Dimension (Inches)	47
Duct Cross-sectional Area (Square Feet)	12.05
Volumetric Flow Rate	
ACFM	52480
DSCFM	32380

Louisiana Pacific Corporation
Sagola, Michigan
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PACE Incorporated
February 25, 1992
Particulate

RESULTS OF AIR FLOW DETERMINATIONS

TEST 1

Surface Dryer Stack

Date of Run	1/29/92
Time of Measurement	0855
Number of Sampling Ports	2
Number of Points Sampled	16
Barometric Pressure (In. Hg)	29.41
Static Pressure (In. WC)	0.97
Absolute Flue Gas Pressure (In. Hg)	29.48
Average Flue Gas Temperature (F)	238
Average Moisture Content (%v/v)	19
Flue Gas Average Velocity (Feet/Second)	77.97
Duct Dimension (Inches)	47
Duct Cross-sectional Area (Square Feet)	12.05
Volumetric Flow Rate	
ACFM	56360
DSCFM	34010

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992

RESULTS OF AIR FLOW DETERMINATIONS

TEST 1

Core Dryer Stack

Date of Run	1/28/92
Time of Measurement	0834
Number of Sampling Ports	1
Number of Points Sampled	6
Barometric Pressure (In. Hg)	28.39
Static Pressure (In. WC)	.0.75
Absolute Flue Gas Pressure (In. Hg)	28.45
Average Flue Gas Temperature (F)	245
Average Moisture Content (%v/v)	18.8
Flue Gas Average Velocity (Feet/Second)	81.33
Duct Dimension (Inches)	47.0
Duct Cross-sectional Area (Square Feet)	12.05
Volumetric Flow Rate	
ACFM	58790
DSCFM	33960

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992

RESULTS OF AIR FLOW DETERMINATIONS

TEST 1

Thermal Oil Heater Stack

Date of Run	1/30/92
Time of Measurement	1245
Number of Sampling Ports	2
Number of Points Sampled	24
Barometric Pressure (In. Hg)	28.05
Static Pressure (in. WC)	-0.25
Absolute Flue Gas Pressure (In. Hg)	28.03
Average Flue Gas Temperature (F)	438
Average Moisture Content (%v/v)	12.9
Flue Gas Average Velocity (Feet/Second)	48.63
Duct Dimension (Inches)	47.3
Duct Cross-sectional Area (Square Feet)	12.18
Volumetric Flow Rate	
ACFM	35530
DSCFM	17050

PROCESS DESCRIPTION

The wafer dryers tested are Heil Model SD125-60 manufactured by Baker/Rullman. They are equipped with a Coen DAZ scroll feed burner for firing wood fines and have a design heat input capacity of 43 MMBTU/HR. Particulate emissions from each wafer dryer are controlled by twin cyclones in series with an electrified filter bed manufactured by E.F.B. Inc. Cleaned flue gas is exhausted to the atmosphere by means of a 150 foot high stack which has a diameter of 48 inches.

The thermal oil heater tested is a reciprocating grate combustor manufactured by Geka in 1987. It is equipped with hydraulic ram stokers and fired with bark and wet wood waste. The design heat output capacity is 40 MM BTU/HR. Particulate emissions are controlled by a multi cyclone in series with an electrified filter bed manufactured by E.F.B. Inc. Clean flue gas is emitted to the atmosphere by a 100 foot high radial steel stack which has a diameter of 48 inches.

For this series of tests,. the rate of operation for each source was varied to investigate emission changes at different operating rates.

TEST PROCEDURES SUMMARY

Testing on the Surface/Core Dryer stack was performed from two test ports oriented at 90 degrees, approximately 6.8 duct diameters downstream of the nearest flow disturbance and 20.5 duct diameters upstream of the stack outlet. The duct dimension at this point was verified on-site and measures 47 inches in diameter. A 16 point traverse was used to extract representative flue gas samples. Each point was sampled 4 minutes for a run duration of 64 minutes.

Testing on the Surface Dryer Stack was performed from two test ports oriented at 90 degrees, approximately 6.7 duct diameters downstream of the nearest flow disturbance and 20.6 duct diameters upstream of the stack outlet. The duct dimension at this point was verified on-site and measures 47 inches in diameter. A 16 point traverse was used to extract representative flue gas samples. Each point was sampled 4 minutes for a run duration of 64 minutes.

Testing on the Core Dryer Stack was performed from two test ports oriented at 90 degrees, approximately 7.7 duct diameters downstream of the nearest flow disturbance and 19.7 duct diameters upstream of the stack outlet. The duct dimension at this point was verified on-site and measures 47 inches in diameter. A 16 point traverse was used to extract representative flue gas samples. Each point was sampled 4 minutes for a run duration of 64 minutes.

Testing on the Thermal Oil Heater Stack was performed from two test ports oriented at 90 degrees, approximately 2.3 duct diameters downstream of the nearest flow disturbance and 11.9 duct diameters upstream of the stack outlet. The duct dimension at this point was verified on-site and measures 47.25 inches in diameter. A 24 point traverse was used to extract representative flue gas samples. Each point was sampled 2.5 minutes for a run duration of 60 minutes. Test port and traverse point locations are displayed in Figures 1-8.

Particulate testing was performed in accordance with EPA Methods 1-5 and 201A, 40 CFR 60, Appendix A. A preliminary velocity traverse and moisture estimation were conducted so that an appropriate sampling nozzle required for isokinetic sample withdrawal could be selected. A PACE sampling train which meets or exceeds the specifications outlined in the above reference was used to collect particulate samples. A temperature controlled sampling probe was used to extract flue gas samples and transport them to an all glass filter and cyclone assembly in a temperature controlled oven. The back half of the particulate sampling train consisted of a series of three glass impingers, each of the first two prepared with 100 mls of deionized water, followed by a desiccant packed dry column. In addition, integrated gas samples were collected concurrently with the three particulate runs so that gas composition (Orsat) could be determined. Gas samples were verified in the field with a portable oxygen analyzer to ensure that no leakage occurred between the site and the laboratory. The portable oxygen analyzer was also used to monitor oxygen content of the flue gas throughout the course of the test.

Formaldehyde was sampled using EPA Method 0011. Formaldehyde samples are withdrawn isokinetically, using the back half of a method 5 train, and collected in aqueous acetic 2,4-dinitrophenyl-hydrazine (DNPH) in a series of glass impingers. Formaldehyde reacts with the DNPH to form a derivative that is extracted, solvent exchanged, concentrated and then analyzed by high performance liquid chromatography. Sampling train components and operation are the same as that described for EPA Method 5 above.

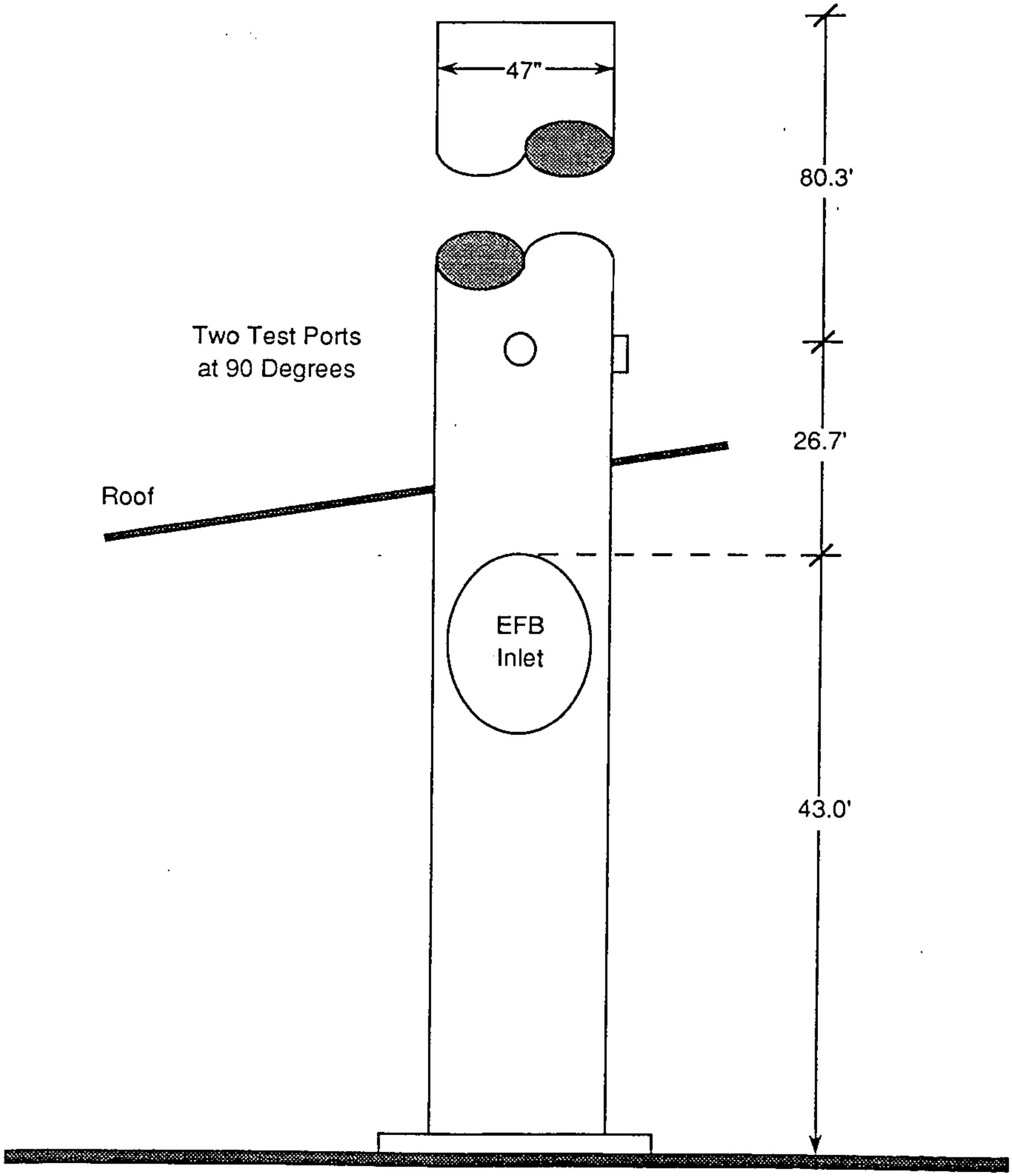
Total hydrocarbon determinations were performed in accordance with EPA Method 25A, 40 CFR 60, Appendix A. A stainless steel sampling probe situated near the center of the flue and a heat-traced Teflon™ sampling line was used to draw a sample of the gas stream from the duct of the analyzer. A Ratfisch RS 55 total hydrocarbon analyzer utilizing a flame ionization detector was used to quantify total hydrocarbon emissions. Carbon filtered air was used as zero gas and varying concentrations of propane were used as span gases. A flatbed stripchart recorder is used to monitor total hydrocarbon concentrations over time and the stripchart results are integrated to computer spreadsheets to reduce the data. As specified in Method 25A, the analyzer results were multiplied by 3 to report results as carbon (C_1).

Carbon monoxide (CO) was analyzed in accordance with EPA Method 10, 40 CFR 60, Appendix A. Time integrated gas samples are collected from the flue and a Horiba PIR 2000 nondispersive infrared carbon monoxide analyzer was used to quantify CO concentrations. Data was logged on a strip chart recorder. Zero and span gases were introduced to the system prior to analyses and the monitor adjusted accordingly. Zero and span gases were also introduced to the system between sample sets and these results recorded on a separate record. Zero span adjustments are not made at this time unless the values are outside the applicable limits.

Louisiana Pacific Corporation

Sagola, Michigan

Surface/Core Dryer Stack

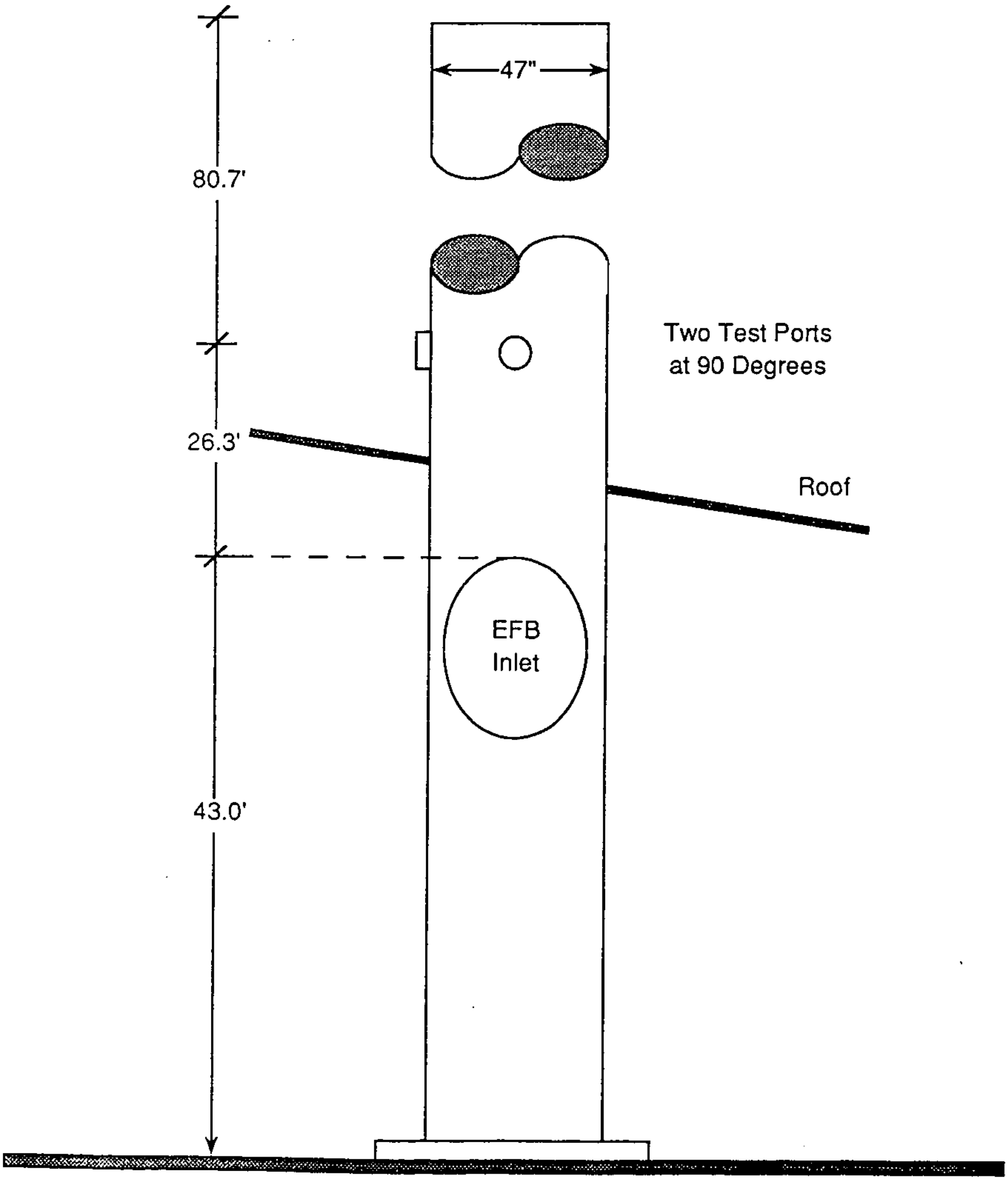


TRN 2/92
Not to scale

Louisiana Pacific Corporation

Sagola, Michigan

Surface Dryer Stack



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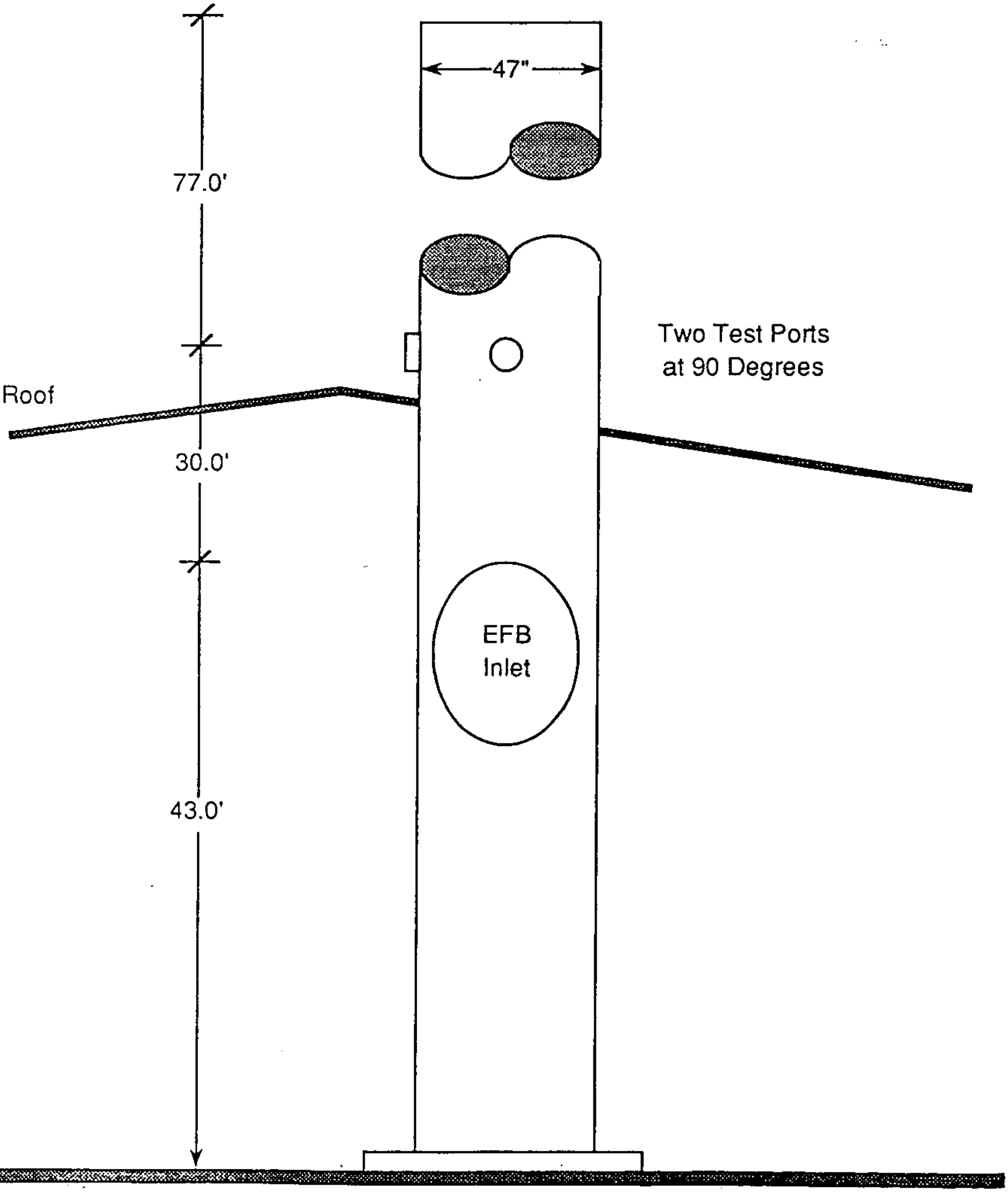
Louisiana Pacific Corporation

Sagola, Michigan

Core Dryer Stack



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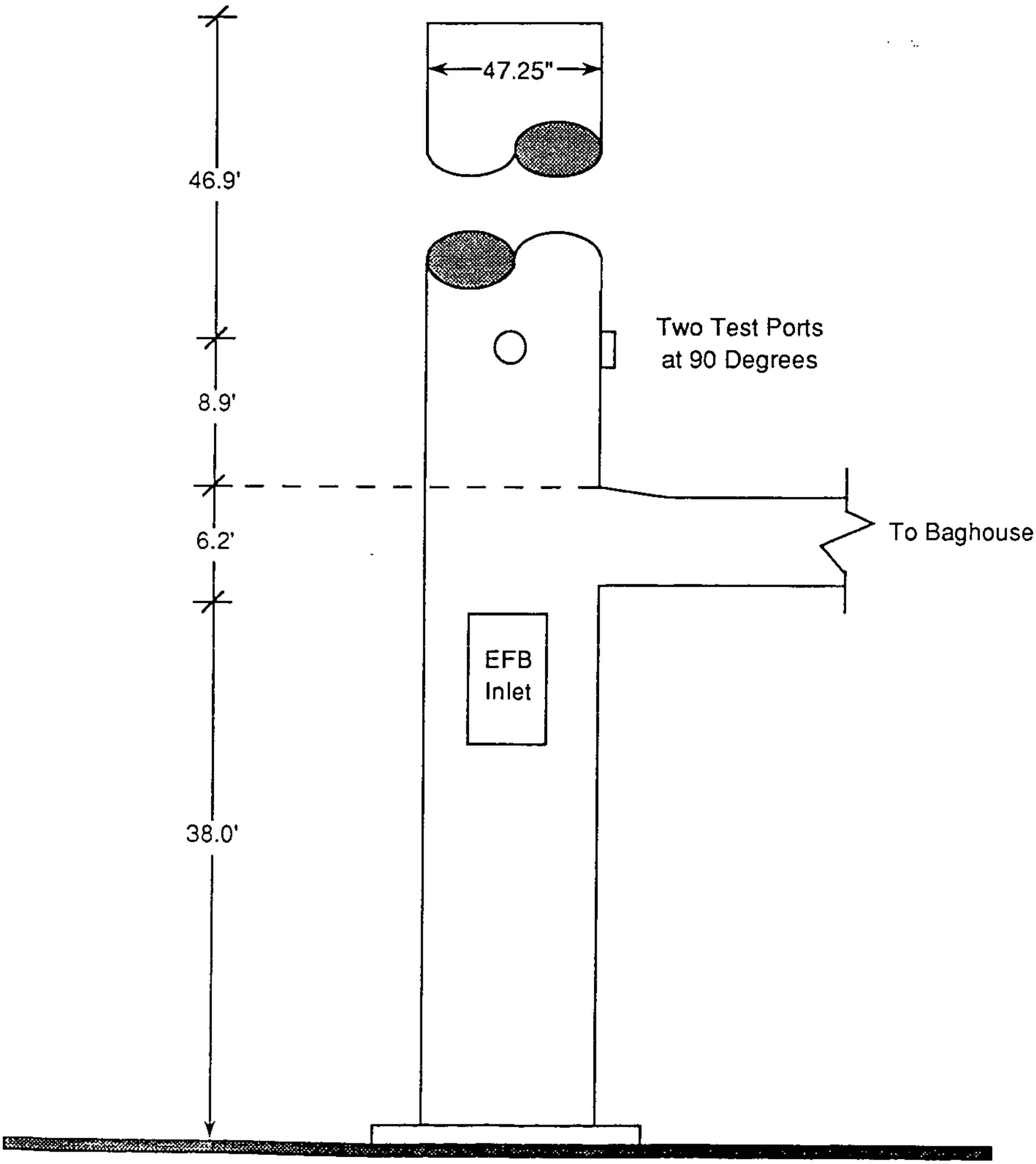
Louisiana Pacific Corporation

Sagola, Michigan

Thermal Oil Heater Stack



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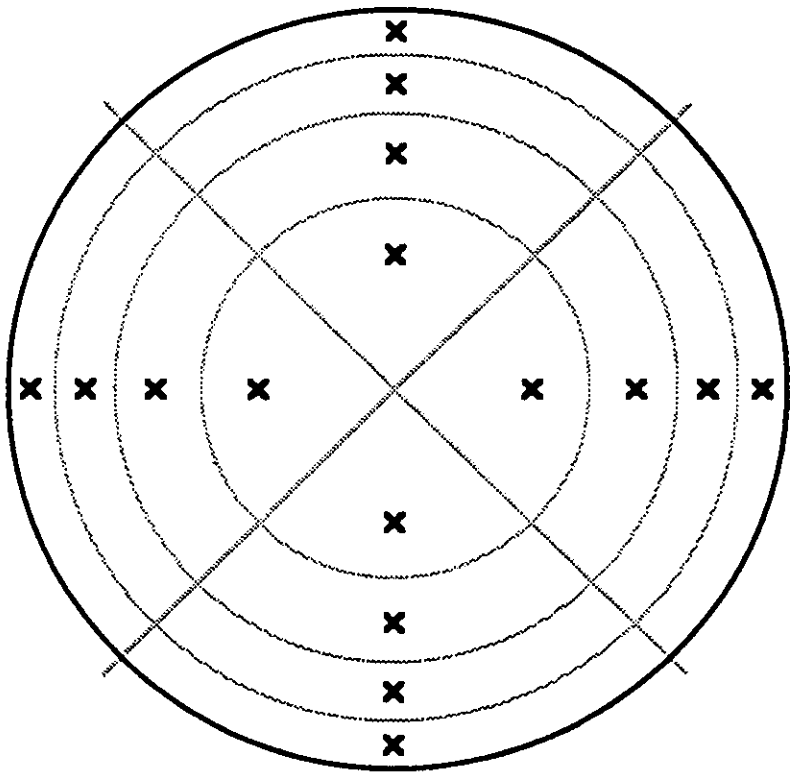
Louisiana Pacific Corporation

Sagola, Michigan
Surface/Core Dryer Stack

Location of Traverse Points

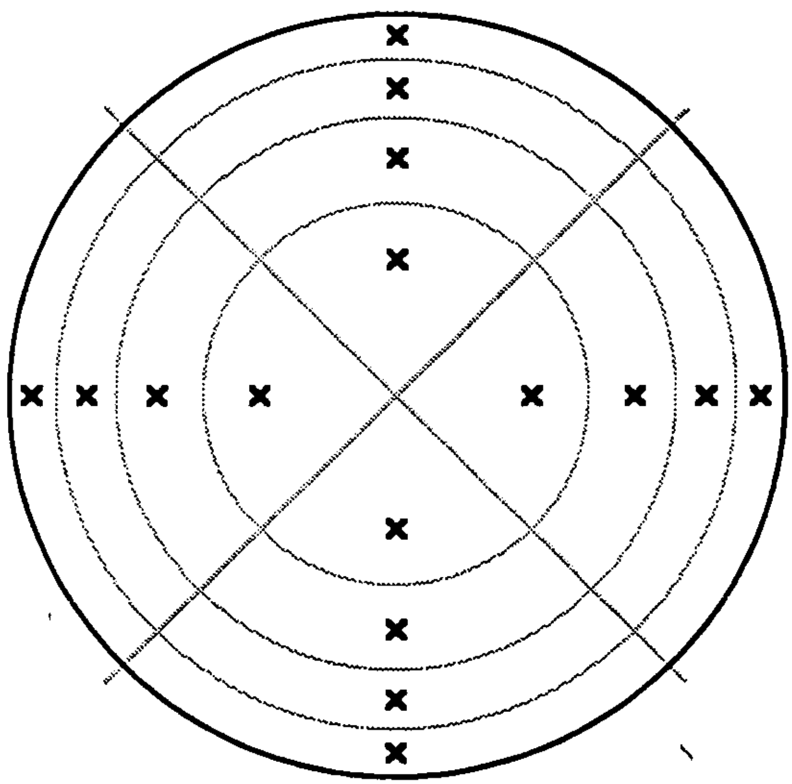


Number of Test Ports	2
Total Number of Traverse Points	16
Number of Traverse Points Per Traverse	8
Duct Diameter (Inches)	47

Louisiana Pacific Corporation

Sagola, Michigan
Surface Dryer Stack

Location of Traverse Points

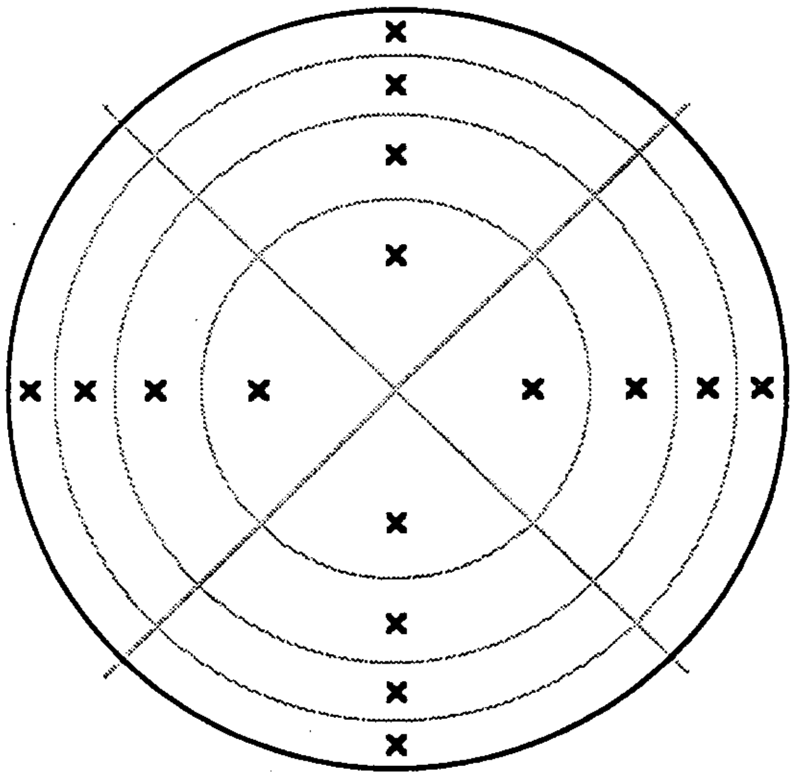


Number of Test Ports	2
Total Number of Traverse Points	16
Number of Traverse Points Per Traverse	8
Duct Diameter (Inches)	47

Louisiana Pacific Corporation

Sagola, Michigan
Core Dryer Stack

Location of Traverse Points



Number of Test Ports	2
Total Number of Traverse Points	16
Number of Traverse Points Per Traverse	8
Duct Diameter (Inches)	47

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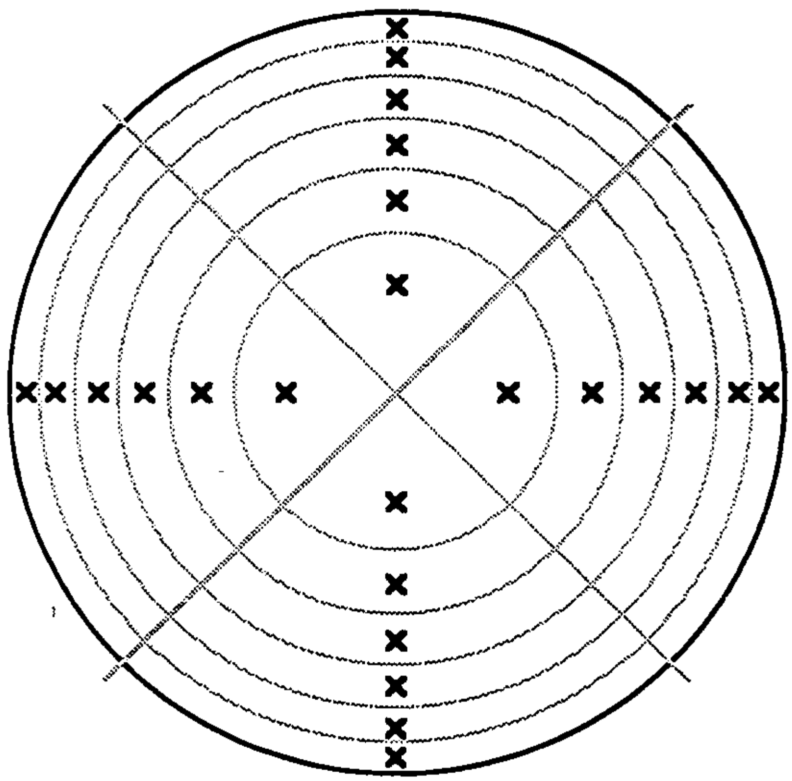
Sagola, Michigan
Thermal Oil Heater Stack

Location of Traverse Points



Number of Test Ports	2
Total Number of Traverse Points	24
Number of Traverse Points Per Traverse	12
Duct Diameter (Inches)	47.25

APPENDIX A

Field Data Sheets and Notes

EPA METHODS 2-5 FIELD DATA SHEETS

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
Particulate

APPENDIX A

METHOD 5 CALCULATION SUMMARY

TEST 1

Surface/Core Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Sample Duration (Minutes)	64	64	64
Barometric Pressure (inches Hg)	29.43	29.43	29.43
Static Pressure Of Duct (Inches H2O)	0.8	0.8	0.8
Absolute Pressure Of Duct (Inches Hg)	29.49	29.49	29.49
Meter Coefficient	1.001	1.001	1.001
Pitot Tube Coefficient	0.833	0.833	0.833
Nozzle Diameter (Inches)	0.247	0.211	0.211
Area Of Nozzle Opening (Square Feet)	0.000333	0.000243	0.000243
Average $\sqrt{\Delta P}$	1.1274	1.1337	1.1485
Average ΔH	2.73	1.51	1.54
Average Stack Temperature (°R)	668.19	669.56	670.13
Average Meter Temperature (°R)	516.38	522.56	518.31
Meter Volume (Cubic Feet)	57.53	43.15	43.31
Dry Standard Sample Volume (Cubic Feet)	58.31	43.09	43.61
Collected Condensate Volume (mls)	308.0	236.0	243.0
Volume Of Water Vapor (Standard Cubic Feet)	14.50	11.11	11.44
Moisture Content Of Flue Gas (% v/v)	19.91	20.50	20.78
Weight Of Particulate (mg)	156.4	125.8	118.8
Source Gas Velocity (Feet Per Second)	73.6	74.2	75.2
Isokinetic Variation (%)	99.5	100.9	101.2

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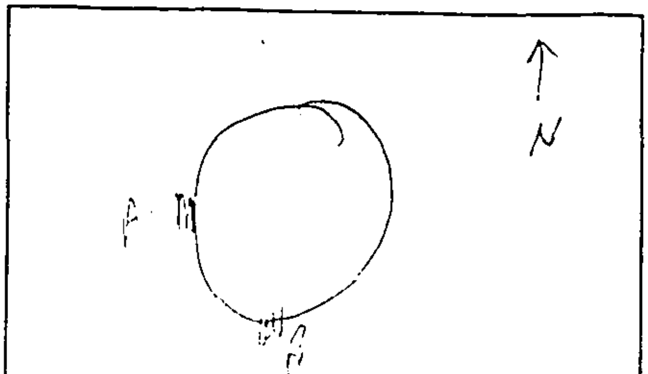
EPA Method 2 Field Data Sheet

Project LP Sagola
Test Location surface core dryer stack
Date 1/28/92 Test 1 Run 2
Operators M. Loftus, M McDermott
Barometric Pressure 29.35 Inches Hg
Static Pressure +.80 Inches H_2O

Pitot Tube No. 1 C_p .833
Pressure Measurement Device oil manometer
Duct Dimensions 47 Inches
Port Length 4 Inches
Temp. - Dry Bulb 206 °F, Wet Bulb 146 °F
Moisture Content 31 %
Time of Measurement 0836 (24 Hr. Clock)
02:18

Traverse Point Identification				Velocity Head ΔP Inches H_2O	Stack Temperature °F
Point Number	% Of Diameter	Inches From: Wall	Inches From: Port		
A 1 6		2.05	6.05	.81	
2 5		6.88	10.88	1.10	
3 4		13.91	17.91	1.20	
4 3		33.09	37.09	1.40	
5 2		40.12	44.12	1.50	
6 1		44.95	48.95	1.35	
B 1 6				1.15	Avg ΔP .24
2 5				1.40	.225
3 4				1.35	1/4
4 3				1.35	
5 2				1.25	
6 1				1.05	
8		1.52	5.52		
7		4.92	8.92		
6		9.11	13.11		
5		15.19	19.19		.247
4		31.81	35.81		.211
3		37.89	41.89		
2		42.08	46.08		
1		45.48	49.48		



Schematic of Duct Cross-Section

Computer Data Summary:

Stack Pressure ______ Inches Hg
Duct Area ______ Square Feet
Molecular Weight - M_d ______
Molecular Weight - M_s ______
Avg. Duct Temperature ______ °F
Average $\sqrt{\Delta P}$ ______
Flue Gas Velocity ______ Feet/Sec.
Volumetric Flow Rate:
ACFM ______
DSCFM ______

AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project L.F. [illegible]
Sample Location surface condenser stack
Date 1/15/92 Test 1 Run 2
Operators [illegible] M. McDermott
Train No. ~~[illegible]~~ C5, B2, P7
Meter Coef. 1.0010
Orifice Coef. ΔH@ 1.872
Nozzle No. 4-7 D_n .277
Pitot Tube No. 4 C_p .833
Bar. Pres. 29.43 Ins. Hg
Static Pres. +.5 Ins. H_2O
Estimated MC 21 %

Sampling Train Leak Checks:
Pretest 0 @ 15 Ins. Hg
Posttest 0.02 @ 12.0 Ins. Hg

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Sampling Train Temperatures - °F: Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(1040)	(30.71)													
A 8	4	34.04	1.25	2.53	339	409	7.2	208	250	241	47	43	40	18.2	
7	5	37.39	1.20	2.48	340	748	7.6	209				67	43	17.7	
6	12	40.98	1.30	2.75	363	111	8.0	210				69	44	17.5	
5	[illegible]	44.80	1.40	2.98	378	484	8.1	207	252	234	56	70	46	17.2	
4	[illegible]	48.62	1.45	3.10	385	874	8.5	209				71	48	17.8	
3	[illegible]	52.47	1.35	2.89	373	247	9.2	209				72	49	18.0	
2	[illegible]	56.27	1.40	3.03	382	629	9.3	204	256	228	57	71	50	17.8	
1	[illegible]	59.63	1.05	2.26	330	960	7.8	206				74	51	17.7	
B 8	[illegible]	63.52	1.45	3.12	389	348	9.3	209				66	51	18.1	
7	[illegible]	67.29	1.50	3.19	392	740	10.0	212	244	229	51	71	52	18.1	
6	[illegible]	71.28	1.60	3.43	407	147	11.2	210				49	47	17.5	
5	[illegible]	75.05	1.45	3.01	377	524	11.2	214				55	47	17.5	
4	52	78.70	1.30	2.51	345	869	11.3	214	264	236	54	60	48	17.3	
3	56	82.37	1.10	2.42	340	208	10.2	211				65	49	17.2	w=19
2	60	85.60	.97	2.19	324	532	8.2	198				67	49	17.2	
1	64	85.23	.81	1.83	296	824	6.1	199	267	232	57	70	50	17.4	
	(1323)														
	θ=64	V_m 57.53	1127	ΔH=2732				$\bar{T}_s$= 208.19					$\bar{T}_m$= 56.36		

Samples Recovered: Filter No. 2210 ; ☒ Probe Wash; ☒ Wet Catch; ☐ Other ______

Integrated Gas Sampling Data:
Box No. 2
Bag No. 1
Bag Vol. [illegible] Liters
Bag Material Teflon
Leak Checks 0.00 cc/min. @ 25"Hg
Posttest O_2 Reading
320 P No. OX-2

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	276	170	16		1349	
Initial Volume	100	100	0		~~[illegible]~~	1303
Difference	176	70	16		46	308

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AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project LP Sagola
Sample Location surface/core dryer stack
Date 1/28/93 Test 1 Run 2
Operators M. Loretis M. McDermott

Train No. C3, B2, P7
Meter Coef. ∂ 1.0010
Orifice Coef. ΔH@ 1.872
Nozzle No. 4-1 D_n .211

Pitot Tube No. 4 C_p .833
Bar. Pres. 29.38 Ins. Hg
Static Pres. +.80 Ins. H_2O
Estimated MC 20 %

Sampling Train Leak Checks:
Pretest 0 @ 15 Ins. Hg
Posttest 0.00 @ 6.0 Ins. Hg

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Sampling Train Temperatures - °F Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent
	(1358)	(85.50)												
B 8	4X	91.31	1.50	1.70	282	132	4.5	210				51	50	
7	8X	94.23	1.50	1.71	285	416	4.5	210	247	236	60	75	51	17.4
6	12X	97.13	1.55	1.81	297	713	4.8	210				77	52	17.5
5	16X	100.02	1.45	1.70	287	000	4.9	211				77	53	17.3
4	20X	102.67	1.15	1.35	256	257	4.2	211	238	242	48	78	53	17.2
3	24X	105.20	1.10	1.30	251	508	4.2	209				77	54	17.3
A 2	28X	107.57	1.05	1.24	246	754	3.9	205				77	54	17.4
4	32X	109.64	.76	.91	210	964	3.1	201	248	230	49	76	55	17.4
4	36X	112.42	1.30	1.53	273	237	4.9	210				68	55	17.5
7	40X	115.16	1.35	1.57	275	~~512~~	4.9	213				72	54	17.3
2	44X	117.95	1.40	1.63	281	794	5.1	212	233	238	46	72	54	17.3
5	48X	120.72	1.40	1.63	281	075	5.1	213				71	54	17.1
4	52	123.53	1.45	1.69	286	361	5.3	213				70	54	17.2
3	56	126.55	1.50	1.74	291	651	5.6	213	232	235	48	70	53	17.3
2	60	129.26	1.30	1.52	271	923	5.5	207				70	53	17.6
1	64	131.65	.97	1.14	235	157	4.9	205				70	52	17.6
	(1504)													
	Θ=64	V_m=43.15	1134	$\overline{\Delta H}$=1.511				$\overline{T_s}$=204.56					$\overline{T_m}$=62.57	

Samples Recovered: Filter No. 2211 ; ☒ Probe Wash; ☒ Wet Catch; ☐ Other ______

Integrated Gas Sampling Data:

Box No. 2
Bag No. 2
Bag Vol. 40 Liters

Bag Material TEDLAR
Leak Checks 0.00 cc/min. @ 25"Hg
Posttest O_2 Reading ______
[redacted] 320 [redacted]

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	296	128	1	X	1334	
Initial Volume	100	100	0	X	1323	
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

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AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project: CP Sagola | Train No. CS, P 7, B2 | Pitot Tube No. 4 | C_p .833 | Sampling Train Leak Checks:
Sample Location: Surface/core dryer stack | Meter Coef. 1.0010 | Bar. Pres. 29.38 Ins. Hg | Pretest ⊖ @ 15 Ins. Hg
Date: 1/25/92 | Test 1 | Run 3 | Orifice Coef. ΔH@ 1.822 | Static Pres. +.8 Ins. H_2O | Posttest 0.00 @ 6.0 Ins. Hg
Operators: M. LaFors, M. McDermott | Nozzle No. Y-1 | D_n .211 | Estimated MC 20 %

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent
	(1525)	(132.00)												
H 6	54	134.52	1.30	1.52	271	471	3.8	212	231	225	36	56	46	17.7
5	1508	137.51	1.35	1.54	270	741	3.8	213				64	47	17.4
4	1512	140.22	1.40	1.61	277	018	3.8	212				66	47	17.4
3	2016	142.90	1.40	1.61	278	296	3.8	213	225	240	40	67	47	17.3
2	2520	145.64	1.40	1.61	278	574	3.9	213				68	47	17.3
1	3024	148.57	1.50	1.73	288	862	4.2	212				70	47	17.3
G 6	3528	151.33	1.35	1.57	275	137	4.1	207	225	235	44	68	48	17.6
5	4032	153.52	1.10	1.28	248	385	3.7	209				68	48	17.6
4	4536	152.90	1.60	1.55	248	683	4.9	211				63	48	17.6
3	5040	159.94	1.65	1.90	301	984	5.1	212	239	225	43	71	49	17.6
2	5544	162.76	1.50	1.74	290	274	4.8	212				72	49	17.6
5	6048	165.45	1.45	1.68	285	558	4.6	213				72	50	17.6
4	52	168.14	1.20	1.39	260	818	4.6	212	241	233	45	72	50	17.6
3	56	170.87	1.20	1.40	260	078	4.8	211				73	50	17.5
2	60	173.18	1.05	1.24	245	323	4.0	201				72	50	17.6
1	64	175.31	.80	.95	214	536	3.6	200	271	231	46	72	50	17.5
	(1633)													
	Θ= 64	V_m = 43.31		$\overline{\Delta H}$=				$\overline{T_s}$=					$\overline{T_m}$=	

Samples Recovered: Filter No. 2212 ; ☒ Probe Wash; ☒ Wet Catch; ☐ Other

Integrated Gas Sampling Data:

Box No. 2
Bag No. 3
Bag Vol. 40 Liters

Bag Material Tedlar
Leak Checks 0.00 cc/min. @ 25"Hg
Posttest O_2 Reading
320 P No. 8Y-2

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	300	130	2	X	1272	
Initial Volume	100	100	0	X	1261	
Difference	200	30	2	X	11	243

230 232

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AIR SAMPLING DEPARTMENT

Field Computer Summary

Project Name: LP Sagola

Operator: M. Loftus

Sampling Location: Surface/core dryer stack

Date of Test: 1/28/92

Test Number: 1

Initialization Parameters		
Meter Coef. - ∂	=	1.0010
Orif. Coef. - ΔH@	=	1.872
Pitot Coef. - C_p	=	.833
Nozzle Dia. - D_n	=	.247
Bar. Pres. - P_b	=	29.38
Time/Point - ΔT	=	4
Moisture Content	=	21
% Oxygen	=	18
Meter Temp. - t_m	=	30
Static Pres. - P_g	=	+.80

Run Specific Input Parameters

	Run 1	Run 2	Run 3	Run 4
V/O	30.70	88.50	132.00	
No. Of Points	16	16	16	
MC	21	20	20	
V/F	88.23	131.65	175.31	
Grams H_2O	308	236	243	
Run Time	64	64	64	
1-Rnd/2-Rect	1	1	1	
Diameter(Ins.)	47	47	47	
Length(Ins.)	X	X	X	
Width(Ins.)	X	X	X	

End Of Run Summary

	Run 1	Run 2	Run 3	Run 4
Avg. $\sqrt{\Delta P}$	1.127	1134	1148	
Avg. ΔH	2.733	1511	1.539	
Avg. t_s	208.19	20956	210.13	
Avg. t_m	56.38	6256	58.31	
Standard Vol.	58.22	4302	43.53	
Moist. Content	19.94	2052	20.81	
Avg. Gas Vel.	73.52	7416	75.16	
% Isokinetic	99.61	10094	101.24	
ACFM	53148	53611	54333	
DSCFM	33083	33059	33357	

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
Particulate

APPENDIX A

METHOD 5 CALCULATION SUMMARY

TEST 1

Surface Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Sample Duration (Minutes)	64	64	64
Barometric Pressure (inches Hg)	29.41	29.41	29.41
Static Pressure Of Duct (Inches H2O)	0.97	0.75	0.75
Absolute Pressure Of Duct (Inches Hg)	29.48	29.47	29.47
Meter Coefficient	1.001	1.001	1.001
Pitot Tube Coefficient	0.842	0.842	0.842
Nozzle Diameter (Inches)	0.211	0.211	0.211
Area Of Nozzle Opening (Square Feet)	0.000243	0.000243	0.000243
Average $\sqrt{\Delta P}$	1.1849	1.2296	1.2145
Average ΔH	1.66	1.71	1.69
Average Stack Temperature (°R)	694.50	698.94	703.38
Average Meter Temperature (°R)	518.28	521.78	523.50
Meter Volume (Cubic Feet)	44.78	45.7	45.61
Dry Standard Sample Volume (Cubic Feet)	45.07	45.70	45.45
Collected Condensate Volume (mls)	250.0	244.0	234.0
Volume Of Water Vapor (Standard Cubic Feet)	11.77	11.49	11.01
Moisture Content Of Flue Gas (% v/v)	20.70	20.09	19.51
Weight Of Particulate (mg)	105.2	113.4	109.7
Source Gas Velocity (Feet Per Second)	79.8	83.1	82.2
Isokinetic Variation (%)	102.0	99.3	99.8

pace.

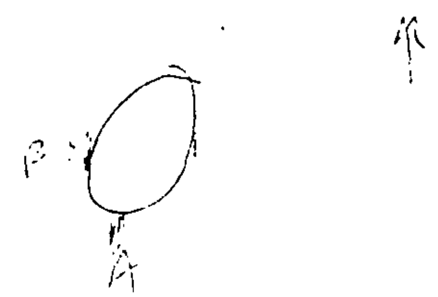
AIR SAMPLING DEPARTMENT

EPA Method 2 Field Data Sheet

Project: IP Sagola
Test Location: SURFACE dryer stack
Date: 1/29/92 Test: 1 Run: 2
Operators: MSL PJD
Barometric Pressure: 29.41 Inches Hg
Static Pressure: + .97 Inches H_2O
+ .75

Pitot Tube No.: 25 C_p: .842
Pressure Measurement Device: OIL MAN.
Duct Dimensions: 47 Inches
Port Length: 4 Inches
Temp. - Dry Bulb: 238 °F, Wet Bulb: 143 °F
Moisture Content: ≈19 %
Time of Measurement: 0855 (24 Hr. Clock)
O_2 = 18 1035

Traverse Point Identification				Velocity Head	Stack
Point Number	% Of Diameter	Inches From: Wall	Inches From: Port	ΔP Inches H_2O	Temperature °F
A 1		1.52 ~~2.05~~	5.52	.63 / .91	
2		4.92 ~~6.58~~	9.52	.95 / 1.10	
3		9.11 ~~13.44~~	13.11	1.10 / 1.20	
4		15.19	19.19	1.10 / 1.30	O_2=18
5		31.81	35.81	1.40 / 1.65	AVG ΔP = 1.36
6		37.89	41.89	1.60 / 1.80	
7		42.08	46.08	1.70 / 1.90	219
8		45.48	49.48	1.70 / 1.90	14
B 1				1.10 / ~~[illegible]~~	211
2				1.50 /	
3				1.55 /	
4				1.50 /	
5				1.45 /	
6				1.50 /	
7				1.55 /	
8				1.45 /	



Schematic of Duct Cross-Section

Computer Data Summary:
Stack Pressure: 29.48 Inches Hg
Duct Area: 12.048 Square Feet
Molecular Weight - M_d: 29.19
Molecular Weight - M_s: 27.06
Avg. Duct Temperature: 235.00 °F
Average $\sqrt{\Delta P}$: 1.1559
Flue Gas Velocity: 78.03 Feet/Sec.
Volumetric Flow Rate:
ACFM: 56409
DSCFM: 34057

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AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project: LP Saucerk
Sample Location: Suction dryer stack
Date: / Test: 1 Run: 1
Operators: MSC RJP

Train No.: CS, P7, B2
Meter Coef. ∂: 1.0010
Orifice Coef. ΔH@: 1.833
Nozzle No.: 4-1 D_n: .211

Pitot Tube No.: 25 C_p: .842
Bar. Pres.: 29.41 Ins. Hg
Static Pres.: +.97 Ins. H_2O
Estimated MC: 21 %

Sampling Train Leak Checks:
Pretest: .02 @ 15 Ins. Hg
Posttest: 0.00 @ 6.0 Ins. Hg

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(0'00)	(305.33)													
A 8	4	311.31	1.55	1.74	284	117	3.9	238	245	265	57	46	41	17.8	
7	8	314.18	1.60	1.81	290	407	4.1	238				67	42	17.8	
6	12	316.96	1.55	1.79	292	698	4.0	238				70	43	17.3	
5	16	319.73	1.45	1.68	283	983	3.8	238				71	44	17.6	
4	20	322.75	1.60	1.86	298	280	4.5	237	257	264	54	71	45	17.4	
3	24	325.84	1.65	1.92	304	584	4.8	236				72	46	17.5	
2	28	328.94	1.55	1.82	296	880	4.8	230				73	47	17.6	
1	32	331.08	.95	1.12	232	112	3.0	230	275	259	55	72	47	17.5	
B 8	36	334.30	1.80	2.10	318	430	5.1	236				67	48	17.4	
7	40	337.45	1.80	2.09	317	746	5.1	236	252	241	54	72	48	17.5	
6	44	340.40	1.70	1.99	309	056	5.1	236				73	48	17.4	
5	48	343.48	1.50	1.76	291	346	4.8	236				73	49	17.5	
4	52	346.15	1.30	1.52	271	617	4.2	236	249	240	54	73	49	17.1	
3	56	348.64	1.15	1.35	255	872	3.9	235				73	50	17.1	
2	60	351.13	.94	1.12	232	104	3.9	227				73	50	17.5	
1	64	353.11	.70	.83	201	305	3.0	225	248	232	55	72	50	17.4	
	(1012)														
	Θ= 64	V_m = 47.78	1185	$\overline{\Delta H}$=1.652				T_s=234.50					T_m=(illegible)		

Samples Recovered: Filter No. 2213 ; ☒ Probe Wash; ☒ Wet Catch; ☐ Other ______

Integrated Gas Sampling Data:

Box No. 2
Bag No. 1
Bag Vol. 40 Liters

Bag Material: Tedlar
Leak Checks: 0.0 cc/min @ 25"Hg
Posttest O_2 Reading: 17.3
320 P No.: 4X-2

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	278	156	2	X	318	
Initial Volume	100	100	0	X	304	
Difference	178	56	2	X	14	250

pace

AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project CP Sagola
Sample Location ... dryer stack
Date 1/28/93 Test 1 Run 2
Operators ... PJP

Train No. CS, P4, G3
Meter Coef. ∂ .99010
Orifice Coef. ΔH@ 1.872
Nozzle No. 4-1 D_n .211

Pitot Tube No. 25 C_p .842
Bar. Pres. 29.41 Ins. Hg
Static Pres. +.75 Ins. H_2O
Estimated MC 21 %

Sampling Train Leak Checks:
Pretest 0 @ 15 Ins. Hg
Posttest 0.00 @ 12.5 Ins. Hg

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Sampling Train Temperatures - °F: Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(1040)	(353.40)													
B 8	4	356.67	1.90	2.11	318	658	6.1	240				49	47	17.5	
7	8	359.77	1.90	2.07	312	970	5.5	240	238	261	42	72	48	17.6	
6	12	362.83	1.85	2.06	315	285	5.7	240				74	49	17.7	
5	16	365.97	1.70	1.90	303	588	5.7	240				74	50	17.5	
4	20	368.74	1.40	1.57	275	863	4.9	240	238	234	49	75	50	17.5	
3	24	371.09	1.20	1.35	255	119	4.0	238				74	51	17.5	
2	28	373.58	1.05	1.18	239	358	4.0	235				74	51	17.6	
1	32	375.63	.76	.86	204	561	3.5	235	225	236	44	73	51	17.5	
A 8	36	378.68	1.70	1.90	303	865	6.2	240				69	51	17.5	
7	40	381.78	1.70	1.81	303	166	6.2	241				74	52	17.5	
6	44	384.86	1.70	1.90	303	470	6.2	242	251	256	47	75	52	17.6	
5	48	387.62	1.60	1.79	304	764	5.5	242				75	53	17.5	
4	52	390.62	1.70	1.90	304	068	6.2	242				75	53	17.4	
3	56	393.67	1.70	1.91	304	372	6.5	241	261	266	49	76	53	17.5	
2	60	396.66	1.55	1.76	292	664	6.2	231				76	53	17.4	
1	64	399.10	1.10	1.25	246	911	5.7	233				75	53	17.5	
	1145														
	Θ=64	V_m 45.70	1230	ΔH=1.712				T_s=238.4					T_m=61.75		

Samples Recovered: Filter No. 2214 ; ☒ Probe Wash; ☑ Wet Catch; ☐ Other ____

Integrated Gas Sampling Data:

Box No. 2
Bag No. 1
Bag Vol. 40 Liters
Bag Material TEDLAR
Leak Checks 0.00 cc/min @ 25"Hg
Posttest O_2 Reading 17.6
[redacted] 20 P[redacted]

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	292	138	2		1338	
Initial Volume	100	100	0		1324	
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]

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AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project LP Sigoia
Sample Location surface dryer stack
Date 1/25/92 Test 1 Run 3
Operators MSL PTP

Train No. 55,83,P7
Meter Coef. ∂ 1.0010
Orifice Coef. ΔH@ 1.873
Nozzle No. 4-1 D_n .24

Pitot Tube No. 25 C_p .842
Bar. Pres. 29.41 Ins. Hg
Static Pres. +.75 Ins. H_2O
Estimated MC 20 %

Sampling Train Leak Checks:
Pretest .02 @ 15 Ins. Hg
Posttest 0.00 @ 9.5 Ins. Hg

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(1215)	(400.90)													
B 5	4	403.84	1.60	1.82	296	376	3.9	244				53	50	17.2	
2	8	406.79	1.70	1.89	299	675	3.9	246	226	232	36	74	51	17.2	
2	12	409.96	1.65	1.87	301	976	4.3	245				76	51	17.3	
5	16	412.93	1.60	1.82	297	273	4.1	245				77	52	17.1	
4	20	415.95	1.60	1.82	298	571	4.2	245	226	255	44	77	53	17.2	
3	24	418.85	1.60	1.83	298	869	4.1	243				77	55	17.3	
2	28	421.72	1.50	1.71	289	158	4.1	244				77	54	17.2	
1	32	424.16	1.20	1.37	258	416	4.1	244	233	256	48	77	54	17.5	
A 5	36	427.14	1.75	2.00	312	728	4.4	245	~~222~~			58	53	17.3	
7	40	430.19	1.80	2.00	309	037	4.5	241				75	53	17.1	
6	44	433.24	1.75	1.99	311	348	4.6	246	228	257	46	76	54	17.3	
5	48	436.31	1.55	1.77	293	641	4.6	246				77	54	17.2	
4	52	439.19	1.40	1.60	279	920	4.4	246	227	243	50	77	55	17.3	
3	56	441.74	1.30	1.49	269	189	4.1	244				77	55	17.4	
2	60	444.32	1.05	1.22	244	433	3.8	231				76	55	17.3	
1	64	446.41	.78	.91	210	643	3.0	231	220	240	47	76	55	17.5	
	(1325)														
	Θ= 64	V_m = 45.61		$\overline{\Delta H}$=				$\overline{T}_s$=					$\overline{T}_m$=		

Samples Recovered: Filter No. 2246 ; [x] Probe Wash; [x] Wet Catch; [ ] Other

Integrated Gas Sampling Data:

Box No. 3
Bag No. 3
Bag Vol. 40 Liters

Bag Material TEDLAR
Leak Checks 0.00 cc/min. @ 25"Hg
Posttest O_2 Reading 17.6
320 P No. DX-2

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	300	126	1		1325	
Initial Volume	100	100	0		1318	
Difference	200	26	1		7	234

226 227

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AIR SAMPLING DEPARTMENT

Field Computer Summary

Project Name: LP Sagola

Operator M. Loftus

Sampling Location: Surface dryer stack

Date of Test: 1/29/92

Test Number: 1

Initialization Parameters		Run Specific Input Parameters	Run 1	Run 2	Run 3	Run 4
Meter Coef. - ∂	= 1.0010	V/O	308.33	353.4	400.80	
Orif. Coef. - ΔH@	= 1.872	No. Of Points	16	16	16	
Pitot Coef. - C_p	= .842	MC	~~21~~ 19	21	20	
Nozzle Dia. - D_n	= .211	V/F	353.11	399.10	446.41	
Bar. Pres. - P_b	= 29.41	Grams H_2O	250	244	234	
Time/Point - ΔT	= 4	Run Time	64	64	64	
Moisture Content	= ~~21~~ 19	1-Rnd/2-Rect	1	1	1	
% Oxygen	= 18	Diameter(Ins.)	47	47	47	
Meter Temp. - t_m	= 40	Length(Ins.)	X	X	X	
Static Pres. - P_g	= +.97	Width(Ins.)	X	X	X	

Pg R2 +.75

End Of Run Summary

	Run 1	Run 2	Run 3	Run 4
Avg. √ΔP	1.185	1.230	1.214	
Avg. ΔH	1.656	1.712	1.694	
Avg. t_s	234.50	238.94	243.38	
Avg. t_m	58.28	61.78	63.50	
Standard Vol.	45.07	45.70	45.45	
Moist. Content	20.70	20.09	19.51	
Avg. Gas Vel.	79.58	83.21	82.27	
% Isokinetic	102.32	99.13	99.63	
ACFM	57524	60149	59474	
DSCFM	34170	35760	35391	

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Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
Particulate

APPENDIX A

METHOD 5 CALCULATION SUMMARY

TEST 2

Core Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Sample Duration (Minutes)	64	64	64
Barometric Pressure (inches Hg)	28.5	28.5	28.5
Static Pressure Of Duct (Inches H2O)	0.75	0.73	0.73
Absolute Pressure Of Duct (Inches Hg)	28.56	28.55	28.55
Meter Coefficient	1.001	1.001	1.001
Pitot Tube Coefficient	0.833	0.833	0.833
Nozzle Diameter (Inches)	0.211	0.211	0.211
Area Of Nozzle Opening (Square Feet)	0.000243	0.000243	0.000243
Average $\sqrt{\Delta P}$	1.1779	1.1786	1.1633
Average ΔH	1.55	1.66	1.52
Average Stack Temperature (°R)	710.75	706.50	708.56
Average Meter Temperature (°R)	524.09	524.50	524.38
Meter Volume (Cubic Feet)	44.47	45.92	44.02
Dry Standard Sample Volume (Cubic Feet)	42.89	44.27	42.43
Collected Condensate Volume (mls)	168.0	249.0	225.0
Volume Of Water Vapor (Standard Cubic Feet)	7.91	11.72	10.59
Moisture Content Of Flue Gas (% v/v)	15.57	20.93	19.98
Weight Of Particulate (mg)	78.0	102.9	89.2
Source Gas Velocity (Feet Per Second)	80.0	80.6	79.4
Isokinetic Variation (%)	96.1	104.5	100.7

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AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project LP Single
Sample Location core dryer stack
Date 1/29/82 Test 2 Run 1
Operators [illegible]

Train No. CS, P7, B2
Meter Coef. ∂ 1.0010
Orifice Coef. ΔH@ 1.872
Nozzle No. 4-1 D_n .211

Pitot Tube No. 4 C_p .833
Bar. Pres. 28.5 Ins. Hg
Static Pres. +.75 Ins. H_2O
Estimated MC 21 %

Sampling Train Leak Checks:
Pretest 0 @ 15 Ins. Hg
Posttest 0.01 @ 6.0 Ins. Hg

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Sampling Train Temperatures - °F: Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent
	(1420)	(447.21)												
A 8	4	450.18	1.65	1.77	294	015	4.8	254						
7	8	453.18	1.65	1.79	296	311	4.8	253				59	50	18.3
6	12	456.17	1.65	1.82	301	612	4.7	253	269	237	38	74	51	18.2
5	16	459.14	1.55	1.71	293	905	4.5	252				76	52	18.1
4	20	461.83	1.20	1.33	258	163	3.9	251				77	53	18.3
3	24	464.21	1.15	1.28	253	416	3.5	251	238	240	44	78	54	18.3
2	28	466.56	1.05	1.16	242	658	3.5	251				77	54	18.3
1	32	468.76	.82	.91	214	872	3.3	249				76	54	18.5
B 8	36	471.24	1.65	1.83	303	175	5.1	251	241	234	43	76	54	18.5
7	40	474.79	1.65	1.81	299	474	5.1	251				65	53	18.8
6	44	477.33	1.70	1.86	307	781	5.3	250				75	54	18.7
5	48	480.69	1.60	1.77	298	079	5.2	251	251	243	42	76	54	18.6
4	52	483.65	1.50	1.67	290	369	5.2	249				77	55	18.8
3	56	486.57	1.45	1.61	285	654	5.1	249				77	55	18.9
2	60	489.27	1.25	1.39	264	918	4.8	249	258	248	45	77	55	18.8
1	64	491.65	.93	1.03	228	146	3.5	249				77	55	18.8
	(1524)											76	55	18.7
	Θ = 64	V_m = 44.47	1178	$\overline{\Delta H}$ = 1547				T_s = 250.69					T_m = 64.01	

Samples Recovered: Filter No. 2247 ; ☒ Probe Wash; ☒ Wet Catch; ☐ Other

Integrated Gas Sampling Data:

Box No. 7
Bag No. 1
Bag Vol. 40 Liters

Bag Material TED/AR
Leak Checks 0.00 cc/min. @ 25"Hg
Posttest O_2 Reading 18.6
[redacted]

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	230	122		X	1349	
Initial Volume	100	100	[redacted]	[redacted]	[redacted]	[redacted]
Difference	[illegible]	[illegible]			15	163

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AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project LP Sagola
Sample Location Core dryer stack
Date 1/29/93 Test 2 Run 2
Operators MSL PJD

Train No. C5, B2, P7
Meter Coef. ∂ 1.0010
Orifice Coef. ΔH@ 1.873
Nozzle No. 4-1 D_n .211

Pitot Tube No. 4 C_p .833
Bar. Pres. 28.50 Ins. Hg
Static Pres. +.73 Ins. H_2O
Estimated MC 18 %

Sampling Train Leak Checks:
Pretest .0 @ 15 Ins. Hg
Posttest .0 @ 7.0 Ins. Hg

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Sampling Train Temperatures - °F Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(1600)	(492.50)													
B 8	4	495.53	1.55	1.83	303	553	4.9	248				51	50	17.3	
7	8	498.49	1.55	1.78	295	848	4.8	249	227	241	35	73	52	17.3	
6	12	501.47	1.60	1.88	307	154	5.0	248				76	52	17.4	
5	16	504.56	1.60	1.84	308	462	5.1	248				77	53	17.1	
4	20	507.56	1.55	1.83	303	765	5.1	248	230	255	42	78	53	17.5	
3	24	510.60	1.45	1.72	294	059	5.1	248				78	54	17.2	
2	28	513.47	1.45	1.72	294	353	5.1	246				78	54	17.5	
1	32	516.03	1.00	1.20	246	599	4.1	240	243	253	47	78	55	17.3	
A 8	36	519.99	1.65	1.96	314	913	5.6	248				71	55	17.2	
7	40	523.12	1.70	2.00	316	229	6.8	248				77	55	17.3	
6	44	525.37	1.70	2.01	318	547	6.9	249	247	237	50	78	55	17.3	
5	48	528.76	1.50	1.78	299	846	6.5	249				78	55	17.6	
4	52	531.26	1.25	1.48	273	120	4.9	248				77	56	17.4	
3	56	533.44	1.10	1.31	256	376	4.8	247	256	232	53	77	55	17.3	
2	60	535.91	1.00	1.20	246	1022	4.5	240				77	55	17.4	
1	64	538.42	.81	.97	221	843		240				76	55	17.4	
	(1507)														
	θ=64	V_m=45.92	1179	$\overline{\Delta H}$=1661				$\overline{T_s}$=246.50					$\overline{T_m}$=64.50		

Samples Recovered: Filter No. 2248 ; ☒ Probe Wash; ☒ Wet Catch; ☐ Other ______

Integrated Gas Sampling Data:

Box No. 2
Bag No. 2
Bag Vol. 40 Liters

Bag Material TED/AR
Leak Checks 0.00 cc/min. @ 25"Hg
Posttest O_2 Reading 17.3
320 P No. OX-2

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	300	138	4		1384	
Initial Volume	100	100	0		1377	
Difference	200	38	4		7	249

pace

AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project LP Sagola
Sample Location Core dryer stack
Date 1/29/92 Test 2 Run 5
Operators BSL PJP

Train No. CS, P7, B2
Meter Coef. ∂ 1.0010
Orifice Coef. ΔH@ 1.872
Nozzle No. 4-1 D_n .24

Pitot Tube No. 4 C_p .833
Bar. Pres. 28.50 Ins. Hg
Static Pres. -1.73 Ins. H_2O
Estimated MC 21 %

Sampling Train Leak Checks:
Pretest 0 @ 15 Ins. Hg
Posttest 0.00 @ 8.5 Ins. Hg

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(1:33)	(538.50)													
A 8	4	541.51	1.70	1.87	307	187	4.0	249							
7	8	544.40	1.60	1.78	293	480	3.9	249				58	52	17.3	
6	12	547.94	1.70	1.88	307	757	4.0	250				75	52	17.3	
5	16	550.77	1.50	1.66	289	076	3.5	250	236	231	42	77	53	17.4	
4	20	553.54	1.20	1.33	259	335	3.3	249				77	53	17.4	
3	24	555.97	1.10	1.22	248	582	3.6	248				77	54	17.4	
2	28	558.21	1.15	1.17	242	825	2.8	249	227	233	44	77	54	17.4	
1	32	560.24	.75	.83	265	059	2.3	248				77	54	17.7	
B 8	36	563.22	1.10	1.78	249	338	3.8	248	227			77	54	17.6	
7	40	566.07	1.60	1.77	297	635	3.9	251	227	230	46	72	54	17.5	
6	44	569.12	1.60	1.77	298	923	4.2	251				75	54	17.6	
5	48	571.96	1.50	1.66	289	212	4.1	251				76	54	17.6	
4	52	574.90	1.45	1.61	284	496	4.2	251	252	240	48	77	54	17.6	
3	56	577.90	1.40	1.56	280	776	4.2	251				76	55	17.7	
2	60	580.53	1.30	1.46	271	048	4.0	249				76	55	17.7	
1	64	583.83	.87	.98	231	268	3.2	242	251	241	49	77	54	17.6	
	(1:30)							242				76	54	17.4	
	θ= 64	V_m = 44.02	1163	$\overline{\Delta H}$= 1.517				T_s= 248.56					T_m= 64.38		

Samples Recovered: Filter No. 2249 ; ☒ Probe Wash; ☒ Wet Catch; ☐ Other ______

Integrated Gas Sampling Data:

Box No. 2
Bag No. 3
Bag Vol. 40 Liters

Bag Material Tedlar
Leak Checks 0.00 cc/min. @ 25"Hg
Posttest O_2 Reading 17.4
[redacted]

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	250	132	2		1324	
[redacted]						

pace

AIR SAMPLING DEPARTMENT

Field Computer Summary

Project Name: CP Sagola
Sampling Location: core dryer stack
Date of Test: 1/28/92
Test Number: 2

Operator M. LOFTUS

Initialization Parameters		
Meter Coef. - ∂	=	1.0010
Orif. Coef. - ΔH@	=	1.872
Pitot Coef. - C_p	=	.842
Nozzle Dia. - D_n	=	.211
Bar. Pres. - P_b	=	28.50
Time/Point - ΔT	=	4
Moisture Content	=	21
% Oxygen	=	18
Meter Temp. - t_m	=	50
Static Pres. - P_g	=	+.73

Run Specific Input Parameters

	Run 1	Run 2	Run 3	Run 4
V/O	447.21	492.50	538.80	
No. Of Points	16	16	16	
MC	21	18	21	
V/F	491.68	538.42	582.82	
Grams H_2O	168	249	225	
Run Time	64	64	64	
1-Rnd/2-Rect	1	1	1	
Diameter(Ins.)	47	47	47	
Length(Ins.)	X	X	X	
Width(Ins.)	X	X	X	

End Of Run Summary

	Run 1	Run 2	Run 3	Run 4
Avg. √ΔP	1.178	1.179	1.163	
Avg. ΔH	1.547	1.661	1.519	
Avg. t_s	250.69	246.50	248.56	
Avg. t_m	64.09	64.50	64.38	
Standard Vol.	42.89	44.27	42.43	
Moist. Content	15.67	20.93	19.98	
Avg. Gas Vel.	81.65	80.95	80.51	
% Isokinetic	94.16	104.06	99.37	
ACFM	59020	58516	58201	
DSCFM	35331	32997	33121	

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
Particulate

APPENDIX A

METHOD 5 CALCULATION SUMMARY

TEST 2

Thermal Oil Burner Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Sample Duration (Minutes)	60	60	60
Barometric Pressure (inches Hg)	28.05	28.05	28.05
Static Pressure Of Duct (Inches H2O)	-0.25	-0.25	-0.25
Absolute Pressure Of Duct (Inches Hg)	28.03	28.03	28.03
Meter Coefficient	1.0067	1.0067	1.0067
Pitot Tube Coefficient	0.842	0.842	0.842
Nozzle Diameter (Inches)	0.309	0.309	0.309
Area Of Nozzle Opening (Square Feet)	0.000521	0.000521	0.000521
Average $\sqrt{\Delta P}$	0.5790	0.5998	0.5765
Average ΔH	1.59	1.75	1.59
Average Stack Temperature (°R)	954.92	962.46	957.29
Average Meter Temperature (°R)	542.58	549.19	546.38
Meter Volume (Cubic Feet)	40.77	42.92	40.74
Dry Standard Sample Volume (Cubic Feet)	37.60	39.12	37.31
Collected Condensate Volume (mls)	137.0	167.0	140.0
Volume Of Water Vapor (Standard Cubic Feet)	6.45	7.86	6.59
Moisture Content Of Flue Gas (% v/v)	14.64	16.73	15.01
Weight Of Particulate (mg)	117.4	141.6	117.7
Source Gas Velocity (Feet Per Second)	45.8	47.8	45.7
Isokinetic Variation (%)	99.2	102.1	99.2

EPA Method 5 Field Data Sheet

Project L-P Sample
Sample Location Oil Burner stack
Date 1-20-93 Test 2 Run 1
Operators J. Pederson R. Rice

Train No. C2 B1 P551
Meter Coef. ∂ 1.0067
Orifice Coef. ΔH@ 2.166
Nozzle No. 1-3 D_n .309

Pitot Tube No. 25 C_p .842
Bar. Pres. 28.65 Ins. Hg
Static Pres. -.25 Ins. H_2O
Estimated MC 16 %

Sampling Train Leak Checks:
Pretest 0 @ 15 Ins. Hg
Posttest ____ @ ____ Ins. Hg

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	~~Velocity Heads ΔP~~ Orifice ΔH Inches WC	~~Orifice Meter ΔH~~ Vel. ΔP Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(2133)	(522.60)													
B 12	2.5	524.25	1.52	.32	166	426	3.2	485	228	240	45	74	72	11.1	
11	5	525.95	1.51	.32	164	590	3.2	483				76	72	9.7	
10	7.5	527.50	1.55	.33	167	756	3.3	484				80	72	10.3	
9	10	529.10	1.74	.37	172	933	3.9	488	246	264	50	82	72	9.5	
8	12.5	531.03	1.70	.36	178	108	3.9	488				85	72	10.8	
7	15	532.55	1.83	.39	182	289	4.0	495				85	72	9.6	
6	17.5	534.54	1.69	.36	174	463	3.8	497	247	261	60	87	73	10.6	
5	20	536.35	1.60	.34	170	633	3.7	497				89	74	11.1	
4	22.5	538.01	1.55	.33	168	801	3.4	497				90	74	9.8	
3	25	539.65	1.51	.32	165	966	3.4	496	248	266	63	91	74	9.1	
2	27.5	541.20	1.32	.28	155	121	3.1	497				91	74	10.1	
1	30	542.65	1.13	.24	143	264	3.0	498				92	75	10.2	
A 12	32.5	544.30	1.59	.33	169	433	3.8	484	246	261	63	85	75	10.6	
11	35	546.15	1.73	.37	178	611	4.1	493				92	75	10.2	
10	37.5	547.84	1.65	.35	173	784	4.0	498				94	75	12.0	
9	40	549.64	1.75	.37	179	963	4.1	497	250	271	64	95	76	11.2	
8	42.5	551.40	1.85	.39	184	146	4.3	494				96	76	11.4	
7	45	553.32	1.90	.40	186	332	4.5	496				97	77	10.9	
6	47.5	555.07	1.76	.37	179	511	4.3	500	251	272	65	98	77	11.1	
5	50	556.89	1.66	.35	174	686	4.2	499				98	78	10.6	
4	52.5	558.44	1.57	.33	172	855	4.1	499				97	78	10.6	
3	55	560.23	1.57	.33	170	025	4.0	498	249	267	68	97	78	11.1	
2	57.5	561.81	1.42	.30	162	187	4.0	497				97	79	9.1	
1	60	563.37	1.09	.23	141	327	3.8	499				97	79	9.4	
	(2233)														
	Θ= 60	V_m = 40.77		$\overline{\Delta H}$=				$\overline{T_s}$=					$\overline{T_m}$=		

Samples Recovered: Filter No. 2234 ; ☒ Probe Wash; ☒ Wet Catch; ☐ Other ____

Integrated Gas Sampling Data:

Box No. B1
Bag No. 1
Bag Vol. 40 Liters

Bag Material Tedlar
Leak Checks Good cc/min. @ 25"Hg
Posttest O_2 Reading ____
320 P No. ...3

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	188	138	2	X	1361	
Initial Volume	100	100	0	X	1342	
Difference	88	38				

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AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project L.P. Sasola
Sample Location C.I. Burner Stack
Date 1-30-92 Test 2 Run 2
Operators D. [illegible] R. [illegible]

Train No. C2 B1 PS 51
Meter Coef. ∂ 1.0067
Orifice Coef. ΔH@ 2.00
Nozzle No. 1-3 D_n .304

Pitot Tube No. 25 C_p .842
Bar. Pres. 25.65 Ins. Hg
Static Pres. -.25 Ins. H_2O
Estimated MC 15 %

Sampling Train Leak Checks:
Pretest 0 @ 15 Ins. Hg
Posttest ____ @ ____ Ins. Hg

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	~~Velocity Head ΔP~~ Orifice Vel. ΔP Inches WC	~~Orifice Meter ΔH~~ Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(1350)	(553.60)													
A 12	2.5	555.42	1.23	.38	182	542	4.5	498	229	260	65	86	78	9.9	
11	5	557.35	1.87	.39	184	726	4.5	499				96	78	9.7	
10	7.5	569.12	1.93	.40	188	914	4.6	504				95	79	9.1	
9	10	571.01	1.89	.39	186	100	4.6	502				99	79	9.8	
8	12.5	572.80	1.84	.38	184	283	4.6	505	2.42	271	66	100	79	10.9	
7	15	574.65	1.98	.41	191	474	4.9	506				101	80	9.2	
6	17.5	576.61	1.99	.41	191	665	5.0	502				101	80	9.6	
5	20	578.47	1.85	.38	184	850	4.9	502	248	268	51	101	80	10.8	
4	22.5	580.26	1.70	.35	172	027	4.8	501				101	80	10.5	
3	25	581.97	1.55	.32	169	196	4.3	502				101	80	8.9	
2	27.5	583.56	1.36	.28	158	354	3.8	502	2.48	2.66	50	100	80	11.3	
1	30	585.00	1.17	.24	146	500	3.5	501				99	80	9.9	
B 12	32.5	586.70	1.53	.31	168	665	4.0	487				93	80	10.0	
11	35	588.30	1.56	.32	169	837	4.0	490	2.25	2.60	44	98	80	11.2	
10	37.5	590.00	1.56	.32	169	007	4.0	494				99	80	9.5	
9	40	591.80	1.80	.37	182	184	4.4	497				99	80	10.5	
8	42.5	593.69	1.84	.39	186	325	4.5	505	244	269	48	99	80	10.3	
7	45	595.[illegible]	1.64	.35	174	551	4.5	507				100	80	12.4	
6	47.5	597.44	2.16	.45	197	750	5.1	511				101	80	11.1	
5	50	599.50	2.17	.45	24[illegible]	950	5.2	509	249	268	44	101	80	9.1	
4	52.5	601.30	1.97	.41	190	141	4.9	512				101	80	10.5	
3	55	603.26	1.78	.37	181	322	4.8	510				101	80	9.2	
2	57.5	604.95	1.54	.32	164	440	4.3	508	250	267	43	99	79	10.8	
1	60	606.57	1.39	.29	160	650	4.0	509				95	79	11.1	
	[illegible]														
	θ= 60	V_m = 52.97		$\overline{\Delta H}$=				$\overline{T_s}$=					$\overline{T_m}$=		

Samples Recovered: Filter No. 2235 ; ☒ Probe Wash; ☒ Wet Catch; ☐ Other ______

Integrated Gas Sampling Data:

Box No. B1 Bag Material Tedlar

[redacted]

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

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AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project LP Sissela
Sample Location Thermal Oil Heater
Date 1-30-92 Test 2 Run 3
Operators J. Peterson, M. Holland

Train No. C2131PSSI
Meter Coef. ∂ 1.0067
Orifice Coef. ΔH@ 2.106
Nozzle No. 1-3 D_n .309

Pitot Tube No. 25 C_p .842
Bar. Pres. 28.05 Ins. Hg
Static Pres. -.25 Ins. H_2O
Estimated MC 16 %

Sampling Train Leak Checks:
Pretest 0 @ 15 Ins. Hg
Posttest ___ @ ___ Ins. Hg

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(0845)	(608.00)													
B 12	2.5	609.48	.25	1.21	144	449	2.8	485	236	266	63	80	72	10.8	
11	5	611.05	.28	1.32	154	603	2.9	488				91	73	10.4	
10	7.5	612.68	.32	1.52	166	768	4.1	490				94	73	11.4	
9	10	614.39	.33	1.56	169	437	4.3	495	235	257	56	95	73	10.4	
8	12.5	616.00	.34	1.61	171	608	4.4	497				96	74	11.7	
7	15	617.81	.36	1.72	176	784	4.6	490				96	74	10.3	
6	17.5	619.50	.35	1.65	176	957	4.5	505	245	257	53	97	74	9.1	
5	20	621.36	.38	1.79	180	138	4.8	506				98	74	10.7	
4	22.5	623.23	.38	1.79	181	319	4.8	504				98	75	11.0	
3	25	624.99	.34	1.60	171	490	4.0	505	247	257	53	98	76	11.8	
2	27.5	626.51	.27	1.37	158	648	3.2	506				98	76	10.4	
1	30	627.96	.26	1.22	150	798	3.0	507				97	77	10.5	
A 12	32.5	629.68	.34	1.63	173	970	3.8	488	245	255	51	96	77	11.2	
11	35	631.40	.35	1.66	174	144	3.9	493				96	77	11.1	
10	37.5	633.20	.35	1.66	174	318	4.0	497				97	77	10.8	
9	40	635.01	.38	1.81	182	500	4.3	490	249	254	46	98	78	11.6	
8	42.5	636.90	.39	1.86	185	685	4.4	497				99	78	12.0	
7	45	638.77	.40	1.91	187	872	4.3	498				99	78	10.4	
6	47.5	640.48	.37	1.77	180	052	4.2	495	249	260	46	99	78	9.1	
5	50	642.22	.35	1.67	175	227	4.0	495				99	79	10.4	
4	52.5	643.90	.33	1.57	170	397	3.9	498				100	79	11.3	
3	55	645.62	.33	1.58	170	567	3.9	496	250	261	48	100	79	10.9	
2	57.5	647.26	.29	1.34	160	727	3.2	494				100	80	11.0	
1	60	649.74	.25	1.20	148	875	3.0	497				99	79	11.7	
	(1047)														
	Θ = 60	V_m = 41.74		$\overline{\Delta H}$ =				$\overline{T_s}$ =					$\overline{T_m}$ =		

Samples Recovered: Filter No. 2236; ☒ Probe Wash; ☒ Wet Catch; ☐ Other ______

Integrated Gas Sampling Data:

Box No. B1
Bag No. 3
Bag Vol. 40 Liters

Bag Material Tedlar
Leak Checks 0.0 cc/min. @ 25"Hg
Posttest O_2 Reading ______
320 P No. OX-3

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	202	124	3	X	1372	
Initial Volume	100	100	0		1361	
Difference	102	24	3		11	140

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AIR SAMPLING DEPARTMENT

Field Computer Summary

Project Name: LP Sagola

Operator J. Pederson

Sampling Location: Air Burner Stack

Date of Test: 1-30-92

Test Number: 2

Initialization Parameters		Run Specific Input Parameters	Run 1	Run 2	Run 3	Run 4
Meter Coef. - ∂	= 1.0067	V/O	522.66	563.60	608.00	
Orif. Coef. - ΔH@	= 2.106	No. Of Points	24	24	24	
Pitot Coef. - C_p	= .842	MC	16	15	16	
Nozzle Dia. - D_n	= .309	V/F	563.37	606.52	648.74	
Bar. Pres. - P_b	= 28.05	Grams H_2O	137	167	140	
Time/Point - ΔT	= 2.5	Run Time	60	60	60	
Moisture Content	= 16	1-Rnd/2-Rect	1	1	1	
% Oxygen	= 10	Diameter(Ins.)	47.25	47.25	47.25	
Meter Temp. - t_m	= 80	Length(Ins.)				
Static Pres. - P_g	= -.25	Width(Ins.)				

End Of Run Summary

	Run 1	Run 2	Run 3	Run 4
Avg. $\sqrt{\Delta P}$	.579	.600	.576	
Avg. ΔH	1.592	1.751	1.586	
Avg. t_s	494.67	502.42	497.42	
Avg. t_m	82.42	89.23	86.33	
Standard Vol.	37.61	39.12	37.31	
Moist. Content	14.64	16.73	15.01	
Avg. Gas Vel.	45.80	47.53	45.66	
% Isokinetic	99.69	102.64	99.32	
ACFM	33460	34725	33361	
DSCFM	14860	14862	14649	

EPA METHOD 201A FIELD DATA SHEETS

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
PM-10

APPENDIX A

METHOD 5 CALCULATION SUMMARY

TEST 2

Surface/Core Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Sample Duration (Minutes)	66.75	64.25	63.75
Barometric Pressure (inches Hg)	29.41	29.41	29.41
Static Pressure Of Duct (Inches H2O)	0.8	0.8	0.8
Absolute Pressure Of Duct (Inches Hg)	29.47	29.47	29.47
Meter Coefficient	1.0067	1.0067	1.0067
Pitot Tube Coefficient	0.84	0.84	0.84
Nozzle Diameter (Inches)	0.187	0.187	0.187
Area Of Nozzle Opening (Square Feet)	0.000191	0.000191	0.000191
Average $\sqrt{\Delta P}$	1.1640	1.1867	1.2013
Average ΔH	0.40	0.45	0.42
Average Stack Temperature (°R)	676.19	675.69	675.88
Average Meter Temperature (°R)	507.47	517.06	518.91
Meter Volume (Cubic Feet)	22.82	22.63	22.63
Dry Standard Sample Volume (Cubic Feet)	23.52	22.89	22.81
Collected Condensate Volume (mls)	124.0	134.0	119.0
Volume Of Water Vapor (Standard Cubic Feet)	5.84	6.31	5.60
Moisture Content Of Flue Gas (% v/v)	19.88	21.60	19.72
Weight Of Particulate (mg)	68.5	68.6	109.6
Source Gas Velocity (Feet Per Second)	77.1	78.8	79.5
Isokinetic Variation (%)	64.9	65.5	63.7

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
PM-10

APPENDIX A

METHOD 201 CALCULATION SUMMARY

TEST 2, RUN 1

Surface/Core Dryer Stack

Sequential Point No.	Time Int. Minutes	Flue Gas Temp. (°R)	Flue Gas Viscosity	Gas Sample Rate(cf/sec.)	PM-10 Cut Dia. (μm)	Isokinetic Variation
1	4.75	676.0	200.5	0.551	9.9	57.7
2	5.00	677.0	200.8	0.567	9.7	58.0
3	4.75	677.0	200.8	0.519	10.3	53.0
4	4.50	677.0	200.8	0.515	10.4	55.6
5	4.25	676.0	200.5	0.538	10.1	63.9
6	4.00	676.0	200.5	0.532	10.1	65.5
7	3.75	676.0	200.5	0.578	9.6	78.9
8	2.25	676.0	200.5	0.433	11.7	90.1
9	4.25	676.0	200.5	0.543	10.0	62.3
10	4.50	676.0	200.5	0.593	9.4	66.9
11	4.50	676.0	200.5	0.518	10.3	56.1
12	4.75	676.0	200.5	0.548	9.9	59.1
13	4.75	676.0	200.5	0.561	9.8	60.7
14	4.50	676.0	200.5	0.597	9.3	67.5
15	4.25	676.0	200.5	0.468	11.1	54.0
16	2.50	676.0	200.5	0.575	9.6	113.6
Average of Points	4.20	676.2	200.6	0.540	10.1	66.4
From End Run Data	67.25	676.2	200.6	0.572	9.6	64.9

Note: Point data use run averages for moisture content, molecular weight, pressures and O2

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
PM-10

APPENDIX A

METHOD 201 CALCULATION SUMMARY

TEST 2, RUN 2

Surface/Core Dryer Stack

Sequential Point No.	Time Int. Minutes	Flue Gas Temp. (°R)	Flue Gas Viscosity	Gas Sample Rate(cf/sec.)	PM-10 Cut Dia. (μm)	Isokinetic Variation
1	4.25	676.0	199.3	0.712	8.2	84.1
2	4.25	676.0	199.3	0.567	9.7	62.2
3	4.25	676.0	199.3	0.532	10.1	56.7
4	4.25	676.0	199.3	0.591	9.4	65.4
5	4.25	677.0	199.5	0.532	10.1	57.5
6	4.25	676.0	199.3	0.559	9.8	62.1
7	4.00	676.0	199.3	0.551	9.9	65.4
8	3.00	676.0	199.3	0.570	9.6	88.6
9	4.50	676.0	199.3	0.452	11.3	45.6
10	4.50	676.0	199.3	0.554	9.8	57.0
11	4.50	675.0	199.0	0.553	9.8	57.7
12	4.25	675.0	199.0	0.594	9.3	65.8
13	3.75	675.0	199.0	0.527	10.2	63.2
14	3.75	675.0	199.0	0.566	9.7	71.7
15	3.50	675.0	199.0	0.565	9.7	76.6
16	3.00	675.0	199.0	0.565	9.7	88.2
Average of Points	4.02	675.7	199.2	0.562	9.8	66.7
From End Run Data	64.25	675.7	199.2	0.591	9.4	65.5

Note: Point data use run averages for moisture content, molecular weight, pressures and O2

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
PM-10

APPENDIX A

METHOD 201 CALCULATION SUMMARY

TEST 2, RUN 3

Surface/Core Dryer Stack

Sequential Point No.	Time Int. Minutes	Flue Gas Temp. (°R)	Flue Gas Viscosity	Gas Sample Rate(cf/sec.)	PM-10 Cut Dia. (μm)	Isokinetic Variation
1	4.50	675.0	200.4	0.638	8.9	67.5
2	4.50	676.0	200.7	0.544	10.0	55.1
3	4.50	676.0	200.7	0.545	10.0	56.1
4	4.25	676.0	200.7	0.590	9.4	64.3
5	4.00	675.0	200.4	0.484	10.8	56.1
6	3.75	676.0	200.7	0.545	10.0	68.7
7	3.00	676.0	200.7	0.546	10.0	73.5
8	3.00	676.0	200.7	0.559	9.8	83.1
9	4.00	676.0	200.7	0.554	9.9	62.6
10	4.25	676.0	200.7	0.550	9.9	60.1
11	4.25	676.0	200.7	0.531	10.2	56.8
12	4.25	676.0	200.7	0.552	9.9	60.4
13	4.25	676.0	200.7	0.555	9.8	59.8
14	4.25	676.0	200.7	0.549	9.9	60.0
15	4.00	676.0	200.7	0.571	9.6	67.2
16	3.00	676.0	200.7	0.515	10.4	77.5
Average of Points	3.98	675.9	200.6	0.552	9.9	64.3
From End Run Data	63.75	675.9	200.6	0.579	9.5	63.7

Note: Point data use run averages for moisture content, molecular weight, pressures and O2

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AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project: LP Sayola
Sample Location: Swifted condition stack
Date: 1/29/92 Test: 2 Run: 1
Operators: TEP

Train No.: C2, B1, P4
Meter Coef. ∂: 1.0067
Orifice Coef. ΔH@: 2.106
Nozzle No.: A-2 D_n: .182

Pitot Tube No.: 5 C_p: .840
Bar. Pres.: 29.41 Ins. Hg
Static Pres.: 2.80 Ins. H_2O
Estimated MC: 20 %

Sampling Train Leak Checks:
Pretest: 0 @ 15 Ins. Hg
Posttest: 0 @ 5 Ins. Hg

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(05.__)	(304.20)													
A 8	4.75	305.85	1.75	.42			1.4	216	212	186	34	50	50	18.0	
7	9.75	307.61	1.85	.34			1.2	217	234	194	39	45	35	17.4	
6	14.50	309.12	1.80	.35			1.3	217	244	198	41	47	36	17.6	
5	19.16	310.54	1.60	.36			1.3	217	245	195	39	44	37	17.8	
4	23.75	311.96	1.35	.37			1.4	216	243	198	38	50	38	17.9	
3	27.25	312.28	1.35	.38			1.4	216	248	199	38	52	38	17.8	
2	31.00	314.68	1.65	.39			1.5	216	239	196	38	53	39	17.6	
1	37.25	315.23	.40	.39			1.5	216	242	195	38	54	40	17.5	
B 8	37.50	316.07	1.45	.39			1.5	216	247	186	35	52	46	17.8	
7	42.00	318.37	1.55	.40			1.7	216	246	190	37	55	41	17.9	
6	46.50	319.82	1.60	.41			1.8	216	238	196	38	57	41	17.7	
5	51.25	321.41	1.65	.42			1.9	216	244	193	38	58	42	17.9	
4	56.00	323.15	1.65	.43			1.9	211	242	188	36	59	43	17.9	
3	60.50	324.83	1.55	.45			1.9	216	243	185	34	60	45	18.1	
2	64.25	326.10	1.35	.45			1.9	214	245	183	33	61	45	18.0	
1	66.75	327.02	.50	.46			2.0	216	244	185	33	61	46	17.8	
	0904														
	Θ=66.75	V_m=22.82	1.40	$\overline{\Delta H}$=.40				T_s=216					T_m=44.4		

Samples Recovered: Filter No. 2172 ; ☒ Probe Wash; ☒ Wet Catch; ☒ Other PM10

Integrated Gas Sampling Data:

Box No. 1
Bag No. 1
Bag Vol. 60 Liters

Bag Material: TEDLAR
Leak Checks: 0.00 cc/min. @ 25"Hg
Posttest O_2 Reading
20 P

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	216	104	0		12.76	
Initial Volume	100	100	0		12.3	
Difference						

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AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project L.P. Sawla Train No. 3,P4,B1 Pitot Tube No. 5 C_p .846 Sampling Train Leak Checks:

Sample Location precipitator down stack Meter Coef. ∂ 1.0067 Bar. Pres. 29.41 Ins. Hg Pretest .0 @ 15 Ins. Hg

Date 12-5-90 Test 2 Run 2 Orifice Coef. ΔH@ 2.106 Static Pres. +.80 Ins. H_2O Posttest 0 @ 5 Ins. Hg

Operators ~~[illegible]~~ MRM TP Nozzle No. 62 D_n .187 Estimated MC 20 %

	Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
										Sampling Train Temperatures - °F						
		(1060)	(322.53)													
.25	B 8	4.25	324.45	1.50	.41			1.6	216	234	176	37	45	48	17.2	
.25	7	8.50	330.94	1.60	.43			1.6	216	241	179	34	62	48	17.4	
.25	6	12.75	332.34	1.65	.44			1.7	216	241	185	35	64	48	17.2	
.25	5	17.00	333.95	1.60	.44			1.7	216	245	188	36	64	48	17.4	
.25	4	21.25	335.38	1.60	.45			1.8	217	244	196	38	65	50	17.2	
.25	3	25.50	336.87	1.55	.45			1.8	216	244	191	39	65	50	17.1	
.00	2	29.50	339.25	1.55	.45			1.8	216	246	196	41	66	50	17.3	
.00	1	33.50	339.33	.50	.46			1.9	216	245	197	41	66	51	17.2	
.50	A 8	37.00	340.54	1.70	.44			1.9	216	246	181	42	62	51	17.3	
.50	7	41.50	342.10	1.80	.45			1.9	216	242	183	43	63	51	17.3	
.50	6	46.00	343.66	1.75	.45			1.9	215	248	183	43	65	51	17.5	
.25	5	50.25	345.27	1.66	.46			1.9	215	249	186	44	66	52	17.5	
.75	4	54.00	346.56	1.36	.46			1.9	215	244	185	44	66	52	17.5	
.75	3	57.75	347.84	1.20	.46			1.9	215	242	181	43	66	52	17.5	
.50	2	61.25	349.09	1.65	.46			2.0	215	246	181	46	66	52	17.6	
.00	1	64.25	350.16	.79	.46			2.0	215	241	181	47	66	52	17.6	
		(1105)														
		θ = 64.25	V_m = 22.63	1.43	$\overline{\Delta H}$ = .45				T_s = 215.61					T_m = 57.0		

Samples Recovered: Filter No. 2171 ; ☒ Probe Wash; ☒ Wet Catch; ☒ Other PM10

Integrated Gas Sampling Data:

Box No. 1 Bag Material Tedlar

Bag No. 2 Leak Checks 0.00 cc/min. @ 25"Hg

Bag Vol. 40 Liters Posttest O_2 Reading

320 P No. CP-3

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	214	114	1	X	1377	
Initial Volume	100	100	0	X	1372	
Difference	114	14	1	X	5	134

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AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project L P Sagola | Train No. C2,P4,B1 | Pitot Tube No. 5 C_p .840 | Sampling Train Leak Checks:

Sample Location [illegible] | Meter Coef. ∂ 1.0067 | Bar. Pres. 29.41 Ins. Hg | Pretest .0 @ 15 Ins. Hg

Date [illegible] Test 2 Run 3 | Orifice Coef. ΔH@ 3.106 | Static Pres. +.8 Ins. H_2O | Posttest 0 @ 5 Ins. Hg

Operators [illegible] | Nozzle No. 0-2 D_n .187 | Estimated MC 22 %

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Sampling Train Temperatures - °F Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(1215)	(352.90)													
A 8	4.50	354.77	1.86	.38			1.5	215	199	170	35	55	51	18.1	
7	9.00	356.33	1.85	.41			1.6	216	200	175	33	63	51	17.4	
6	13.50	357.90	1.80	.42			1.6	216	212	178	33	64	51	17.6	
5	17.75	359.53	1.65	.42			1.6	216	221	182	33	66	52	17.6	
4	21.75	360.74	1.35	.42			1.6	215	230	168	33	66	51	17.4	
3	25.50	362.05	1.20	.42			1.6	216	241	172	33	66	52	17.4	
2	28.50	363.10	1.05	.43			1.7	216	245	177	34	67	52	17.6	
1	31.50	364.18	.87	.43			1.7	216	236	179	35	67	52	17.6	
B 8	35.50	365.60	1.36	.42			1.7	216	239	174	33	64	52	17.5	
7	39.75	367.40	1.60	.42			1.7	216	235	176	35	65	53	17.5	
6	44.00	368.54	1.65	.43			1.8	216	236	180	35	66	53	17.5	
5	48.25	370.05	1.60	.43			1.8	216	240	184	36	67	53	17.4	
4	52.50	371.57	1.65	.44			1.9	216	242	180	35	68	53	17.6	
3	56.75	373.07	1.60	.44			1.9	216	236	182	35	68	53	17.5	
2	60.75	374.55	1.40	.44			1.9	216	233	182	34	68	53	17.6	
1	63.75	375.53	.52	.44			1.9	216	243	170	34	68	53	17.1	
	(1325)														
	Ø=63.75	V_m = 22.63	1.46	$\overline{\Delta H}$ = .42				$\overline{T_s}$ = 215.88					$\overline{T_m}$ = 53.91		

Samples Recovered: Filter No. ______ ; ☒ Probe Wash; ☒ Wet Catch; ☒ Other PM-10

Integrated Gas Sampling Data:

Box No. 1 | Bag Material TEDLAR

Bag No. 3 | Leak Checks 0.00 cc/min. @ 25"Hg

Bag Vol. 40 Liters | Posttest O_2 Reading ______

[redacted]

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	212	146	1	X	1322	
Initial Volume	100	100	0	X	1272	
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

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AIR SAMPLING DEPARTMENT

Field Computer Summary

Project Name: LP Sagola

Operator J. Pederson

Sampling Location: surface core dryer stack

Date of Test: 1/28/92

Test Number: 2

Initialization Parameters		Run Specific Input Parameters	Run 1	Run 2	Run 3	Run 4
Meter Coef. - ∂ =	1.0067	V/O	304.20	327.53	352.40	
Orif. Coef. - ΔH@ =	2.106	No. Of Points	16	16	16	
Pitot Coef. - C_p =	.840	MC	20	20	22	
Nozzle Dia. - D_n =	.187	V/F	327.02	350.16	375.53	
Bar. Pres. - P_b =	29.41	Grams H_2O	124	134	119	
Time/Point - ΔT =	—	Run Time	66.75	64.25	63.75	
Moisture Content =	20	1-Rnd/2-Rect	1	1	1	
% Oxygen =	18	Diameter(Ins.)	47	47	47	
Meter Temp. - t_m =	56	Length(Ins.)	X	X	X	
Static Pres. - P_g =	+.80	Width(Ins.)	X	X	X	

End Of Run Summary

	Run 1	Run 2	Run 3	Run 4
Avg. $\sqrt{\Delta P}$	1.40			
Avg. ΔH	.40			
Avg. t_s				
Avg. t_m				
Standard Vol.	23.68	22.895	22.81	
Moist. Content	19.77	21.60	19.72	
Avg. Gas Vel.				
% Isokinetic				
ACFM				
DSCFM				

AS 100 G

Company: LP Sagola

Source: Surface Line Dryer Stack

Date: 1-29-92

Test 2

City &State: Sagola, MI

Method 201A Summary Sheet

Pre-Run Calculations

	RUN 1	RUN 2	RUN 3	RUN 4	Comments
Ps=	29.47	29.47	29.47		
Md=	29.04	29.04	29.04		
Mw=	26.83	26.83	26.61		
µs=	202.175	203.787	202.306		
Qs=	.546	.552	.549		
ΔH(@Tm)=	.42	.43	.41		
Vn=	47.67				
Vmin=	32.44				
Vmax=	57.26				
ΔPmin=	.24				
ΔPmax=	.65				
Avg. ΔP=	1.24	1.40	1.43		
Bws=	~~.18~~ .20	.20	.22		
Ts (avg)=	210	216	216		
Tm=	50	55	57		
Pb=	29.41	29.41	29.41		
Pg=	+.180	+.80	+.80		
Cp=	.840	.840	.840		
Dn=	.187	.187	.187		
Cal. ΔH=	2.106	2.106	2.106		
F.G. Vel.=	75.66				
O2=	18	18	18		
CO2=	2	2	2		
N2=	80	80	80		

Nominal Dia.	Nozzle	Dn (sq.)
	0-1	
	0-2	
	0-3	
	0-4	
	0-5	
	0-6	

Ps= Stack Gas Pressure
Md= Mol. Weight of Stack Gas,dry
Mw= Mol. Weight of Stack Gas,in Water
µs= Viscosity of Stack Gas
Qs= Cyclone Flow Rate
ΔH(@ Tm)= ΔH at Estimated Meter Temp.
Vn= Nozzle Velocity
Vmin= Minimum Gas Velocity in ft/ sec.
Vmax= Maximum Gas Velocity in ft/ sec.
ΔPmin= Minimum Velocity Head Value
ΔPmax= Maximum Velocity Head Value
Avg. ΔP= Average Velocity Head Reading
Bws= Fraction Moisture Content
Ts(avg)= Estimated Average Stack Temp.
Tm= Estimated Average Meter Temp.
Pb= Barometric Pressure
Pg= Stack Static Pressure
Cp= Pitot Coefficient
Dn= Calibrated Nozzle Diameter
Cal. ΔH= Avg. Pressure Differential Across Meter
F.G. Vel.= Stack Gas Velocity in ft/ sec.
O2= Estimated Oxygen Content
CO2= Estimated Carbon Dioxide Content
N2= Estimated Nitrogen Content

LP Sagola Surface Coil Dryer
T2R1

Ps=29.41+(+.80 /13.6)	Md=.44(2)+.32(18)+.28(80)	Mw=29.04(1-.28)+18(.28)
= 29.47	= 29.04	= 26.83

μs=152.418+.2552(210)+.000032355(210²)+.53147(18)-74.143(.20)

= 202.175

μs= 202.175

Qs=.002837(202.175) [(210 +460) / (26.83 (29.47))]^.2949 =

Qs= .546

ΔH= [.546(.80)2947 / (670)] ^2 (50 +460)(29.04)(1.083)(2.106) / (29.41)

= .000369 X 1148.572958

ΔH= .42

Vn= 3.056 (Qs) .546 / (.187²)   1.668576 / .035

Vn= 47.67

Vmin= 47.67 [.2457+ [.3072- .2603 (.546^.5) 202.175 / (47.67^1.5)] ^.5]

= .3072-.1181

Vmin = 32.44

Vmax= 47.67 [.4457+ [.5690- .2603 ( ) / ( )] ^.5]

= .5690 - .1181

Vmax= 53.26

ΔPmin= .00013686 X (29.47)(26.83)(32.44²) / (210 +460)(.840²)

X 1760.066694

=

ΔPmin= .24

ΔPmax= .00013686 X (29.47)(26.83)(53.26²) / (210+460)(.84²)

ΔPmax= .65

X 4744.273941

=

Dwell time= [( ) / ( )]^.5 X ( ) / ( )

Change Dwell time=

Tn= ( ) / ( ) X ( )

List ΔH for various avg. Tm

.42/50 * Tm

Tm	ΔH
45	.38
47	.39
49	.41
51	.43
53	.45
55	.46
57	.48
59	.50
61	.51
63	.53

V STD 17.647 X 29.41+(.4/13.6) X 1.0667 X 22.32

= 23.62

MC = (4.702 X 564/124) / (1.077 ... + 22.4...) = 533.668 / ... = ...

LP Segula Surface Line Dryer
T2R2

Ps=29.41 + (+.80 /13.6)	Md=.44(2)+.32(18)+.28(80)	Mw=29.04(1-.20)+18(.20)
= 29.47	=	=
=	= 29.04	= 26.83

μs=152.418+.2552(216)+.000032355(216^2)+.53147(18)-74.143(.20)

=

= μs= 203.789

Qs=.002837(203.789) $\left[\frac{216+460}{26.83\ (29.47)}\right]$^.2949 =

Qs= .552

ΔH= $\left[\frac{.552(.8)29.47}{(676)}\right]$^2 $\frac{(55+460)(29.04)(1.083)(2.106)}{(29.47)}$

= .000371 X 1157.472093 ΔH= .43

Vn= $\frac{3.056\ (Qs)}{(\quad)}$

Vn=

Vmin= $\left[.2457+\left[.3072-\frac{.2603\ (\quad)}{(\quad)}\right]\right]$^.5

= Vmin =

Vmax= $\left[.4457+\left[.5690-\frac{.2603\ (\quad)}{(\quad)}\right]\right]$^.5

= Vmax=

ΔPmin= .00013686 X $\frac{(\quad)(\quad)(\quad)}{(\quad+460)(\quad)}$

= ΔPmin=

ΔPmax= .00013686 X $\frac{(\quad)(\quad)(\quad)}{(\quad+460)(\quad)}$

ΔPmax=

=

List ΔH for various avg. Tm

Tm	Δ H
	.
	.
	.
	.
	.
	.
	.
	.

Dwell time= $\left[\frac{(\quad)}{(\quad)}\right]$^.5 X $\frac{(\quad)}{(\quad)}$

Change Dwell time=

Tn= $\frac{(\quad)}{(\quad)}$ X ( )

VS70 = 12.647 x $\frac{29.41 + (.45/13.6)}{(57+460)}$ x 1.0067 x 22.43

630.738 = 22.895

Mn = 4.707 x 134 = 21.60

LP Sagola Surface Core Dryer
T2R3

Ps= 29.44 (1.8 /13.6)	Md=.44(2)+.32(18)+.28(80)	Mw=29.04(1-.22)+18(.22)
=	=	=
= 29.47	= 29.04	= 26.61

μs=152.418+.2552(216)+.000032355(216²)+.53147(15)-74.143(.22)
=
=

μs= 202.366

$$Qs=.002837(202.366)\left[\frac{216+460}{26.61(29.47)}\right]^{.2949} =$$

Qs= .549

$$\Delta H=\left[\frac{.549(.78)29.47}{(676)}\right]^{2}\ \frac{(57+460)(29.04)(1.083)(2.164)}{(29.47)}$$

= .000348 X 1164.337685

ΔH= .41

$$Vn=\frac{3.056\,(Qs)}{(\quad)}$$

Vn=

$$Vmin=\left[.2457+\left[.3072-\frac{.2603(\quad)}{(\quad)}\right]^{.5}\right]$$

=

Vmin =

$$Vmax=\left[.4457+\left[.5690-\frac{.2603(\quad)}{(\quad)}\right]^{.5}\right]$$

=

Vmax=

$$\Delta Pmin= .00013686\ X\ \frac{(\quad)(\quad)(\quad)}{(\quad+460)(\quad)}$$

=

ΔPmin=

$$\Delta Pmax= .00013686\ X\ \frac{(\quad)(\quad)(\quad)}{(\quad+460)(\quad)}$$

ΔPmax=

=

List ΔH for various avg. Tm

Tm	ΔH

$$\text{Dwell time}=\left[\frac{(\quad)}{(\quad)}\right]^{.5} X\ \frac{(\quad)}{(\quad)}$$

Change Dwell time=

$$Tn=\frac{(\quad)}{(\quad)} X (\quad)$$

VsTD = 17.647 X 29.41 + (.42/13.6) / 59 + 460 X 1.0067 X 22.63 = 22.81

A1C = 4.727 X 119 = 562.133 = 14.77

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
PM-10

APPENDIX A

METHOD 5 CALCULATION SUMMARY

TEST 2

Surface Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Sample Duration (Minutes)	67.5	62.75	65
Barometric Pressure (inches Hg)	28.5	28.5	28.5
Static Pressure Of Duct (Inches H2O)	0.75	0.75	0.75
Absolute Pressure Of Duct (Inches Hg)	28.56	28.56	28.56
Meter Coefficient	1.0067	1.0067	1.0067
Pitot Tube Coefficient	0.84	0.84	0.84
Nozzle Diameter (Inches)	0.187	0.187	0.187
Area Of Nozzle Opening (Square Feet)	0.000191	0.000191	0.000191
Average $\sqrt{\Delta P}$	1.2279	1.2384	1.2609
Average ΔH	0.38	0.46	0.39
Average Stack Temperature (°R)	708.81	709.94	709.81
Average Meter Temperature (°R)	515.38	519.28	518.78
Meter Volume (Cubic Feet)	22.84	23.38	22.17
Dry Standard Sample Volume (Cubic Feet)	22.46	22.82	21.66
Collected Condensate Volume (mls)	123.0	127.0	137.0
Volume Of Water Vapor (Standard Cubic Feet)	5.79	5.98	6.45
Moisture Content Of Flue Gas (% v/v)	20.49	20.76	22.94
Weight Of Particulate (mg)	49.8	55.2	53.2
Source Gas Velocity (Feet Per Second)	84.7	85.5	87.5
Isokinetic Variation (%)	60.8	66.1	60.9

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
PM-10

APPENDIX A

METHOD 201 CALCULATION SUMMARY

TEST 2, RUN 1

Surface Dryer Stack

Sequential Point No.	Time Int. Minutes	Flue Gas Temp. (°R)	Flue Gas Viscosity	Gas Sample Rate(cf/sec.)	PM-10 Cut Dia. (µm)	Isokinetic Variation
1	4.75	708.0	208.0	0.517	10.8	52.8
2	4.75	708.0	208.0	0.624	9.4	65.9
3	4.75	708.0	208.0	0.539	10.5	56.3
4	4.75	708.0	208.0	0.541	10.5	56.5
5	4.75	707.0	207.8	0.548	10.3	57.4
6	4.25	707.0	207.8	0.540	10.5	56.5
7	4.25	707.0	207.8	0.556	10.2	59.4
8	3.00	709.0	208.3	0.541	10.5	79.3
9	4.75	709.0	208.3	0.543	10.4	51.5
10	4.75	710.0	208.5	0.558	10.3	51.9
11	4.50	710.0	208.5	0.553	10.3	53.3
12	4.50	710.0	208.5	0.561	10.2	56.4
13	4.00	710.0	208.5	0.565	10.2	63.5
14	3.75	710.0	208.5	0.568	10.1	67.4
15	3.50	710.0	208.5	0.586	9.9	77.8
16	2.50	710.0	208.5	0.510	10.9	90.3
Average of Points	4.22	708.8	208.2	0.553	10.3	62.3
From End Run Data	67.50	708.8	208.2	0.589	9.9	60.8

Note: Point data use run averages for moisture content, molecular weight, pressures and O2

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
PM-10

APPENDIX A

METHOD 201 CALCULATION SUMMARY

TEST 2, RUN 2

Surface Dryer Stack

Sequential Point No.	Time Int. Minutes	Flue Gas Temp. (°R)	Flue Gas Viscosity	Gas Sample Rate(cf/sec.)	PM-10 Cut Dia. (µm)	Isokinetic Variation
1	4.50	711.0	208.6	0.678	8.9	65.8
2	4.50	711.0	208.6	0.638	9.3	60.5
3	4.50	711.0	208.6	0.567	10.1	54.6
4	4.25	711.0	208.6	0.604	9.7	61.4
5	3.75	711.0	208.6	0.617	9.6	70.3
6	3.50	711.0	208.6	0.602	9.7	72.4
7	3.25	711.0	208.6	0.641	9.3	85.1
8	3.00	711.0	208.6	0.604	9.7	90.3
9	4.50	711.0	208.6	0.445	12.0	41.1
10	4.50	710.0	208.3	0.610	9.6	59.6
11	4.25	709.0	208.1	0.605	9.7	60.8
12	4.25	709.0	208.1	0.605	9.7	62.5
13	4.25	708.0	207.8	0.588	9.8	59.6
14	4.25	708.0	207.8	0.617	9.5	63.1
15	4.00	708.0	207.8	0.595	9.8	65.2
16	2.50	708.0	207.8	0.598	9.7	102.1
Average of Points	3.98	709.9	208.3	0.601	9.8	67.2
From End Run Data	63.75	709.9	208.3	0.647	9.2	66.1

Note: Point data use run averages for moisture content, molecular weight, pressures and O2

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
PM-10

APPENDIX A

METHOD 201 CALCULATION SUMMARY

TEST 2, RUN 3

Surface Dryer Stack

Sequential Point No.	Time Int. Minutes	Flue Gas Temp. (°R)	Flue Gas Viscosity	Gas Sample Rate(cf/sec.)	PM-10 Cut Dia. (µm)	Isokinetic Variation
1	4.50	708.0	206.2	0.562	10.1	55.0
2	4.50	711.0	207.0	0.566	10.1	53.3
3	4.50	710.0	206.7	0.559	10.2	53.8
4	4.25	709.0	206.5	0.565	10.1	56.8
5	4.00	709.0	206.5	0.617	9.5	61.5
6	3.75	709.0	206.5	0.659	9.1	66.5
7	3.00	709.0	206.5	0.749	8.3	86.8
8	3.00	709.0	206.5	0.501	11.0	82.3
9	4.00	710.0	206.7	0.617	9.5	59.2
10	4.25	711.0	207.0	0.624	9.4	58.5
11	4.25	711.0	207.0	0.598	9.7	56.9
12	4.25	711.0	207.0	0.566	10.1	62.2
13	4.25	710.0	206.7	0.535	10.5	58.3
14	4.25	710.0	206.7	0.477	11.4	55.3
15	4.00	710.0	206.7	0.487	11.2	61.9
16	3.00	710.0	206.7	0.594	9.8	87.7
Average of Points	3.98	709.8	206.7	0.580	10.0	63.5
From End Run Data	63.75	709.8	206.7	0.609	9.6	60.9

Note: Point data use run averages for moisture content, molecular weight, pressures and O2

pace

AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project LP Samla
Sample Location surface dryer stack
Date 1/?/97 Test 1 Run 1
Operators [illegible]

Train No. C3,B1,P4
Meter Coef. ∂ 1.0067
Orifice Coef. ΔH@ 2.106
Nozzle No. 0.2 D_n .187

Pitot Tube No. 5 C_p .840
Bar. Pres. 28.50 Ins. Hg
Static Pres. 1.88 Ins. H_2O
Estimated MC 20 %

Sampling Train Leak Checks:
Pretest 0 @ 15 Ins. Hg
Posttest 0 @ 5 Ins. Hg

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(1565)	(376.76)													
A 8	4.75	372.76	1.70	.32			1.3	248	225	188	35	48	47	17.6	
7	9.50	379.66	1.70	.36			1.4	248	243	211	35	57	47	17.5	
6	14.25	381.15	1.65	.35			1.4	248	239	214	37	59	47	17.5	
5	19.00	382.71	1.65	.37			1.4	248	243	210	38	60	48	17.5	
4	23.75	384.36	1.65	.38			1.5	247	239	209	39	61	49	17.7	
3	28.00	385.70	1.65	.38			1.5	247	241	211	40	62	49	17.5	
2	32.25	387.15	1.60	.38			1.5	247	247	213	40	62	49	17.7	
1	35.25	388.14	.84	.39			1.5	249	246	209	40	63	50	17.4	
B 8	40.00	389.71	2.00	.38			1.5	249	244	209	43	61	50	17.5	
7	44.75	391.33	2.10	.39			1.5	250	226	212	47	62	50	17.5	
6	49.25	392.85	1.45	.39			1.5	250	226	213	49	63	50	17.3	
5	53.25	394.40	1.50	.40			1.6	250	225	211	49	64	51	17.7	
4	57.75	395.74	1.45	.40			1.6	250	225	210	51	64	51	17.4	
3	61.50	397.10	1.30	.41			1.6	250	227	213	51	64	51	17.5	
2	65.00	398.37	1.65	.40			1.6	250	224	210	52	64	52	17.3	
1	68.50	399.14	.56	.41			1.7	250	272	204	51	65	52	17.7	
	1616														
			AVG ΔP												
	θ 67.50	V_m = 22.54	1.54	$\overline{\Delta H}$ = .38				T_s = 248.64					T_m = 53.35		

Samples Recovered: Filter No. 2191 ; ☒ Probe Wash; ☒ Wet Catch; ☒ Other PM-10

Integrated Gas Sampling Data: [redacted]

Box No. ______
Bag No. ______
Bag Vol. ______ Liters

Bag Material ______
Leak Checks ______ cc/min. @ 25"Hg
Posttest O_2 Reading ______
320 P No. [redacted]

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	204	110	0		334	
Initial Volume	100	100	0		1325	
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

pace

AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project LP Sagola
Sample Location Surface dryer stack
Date 1/24/02 Test 2 Run 2
Operators JSP ir AIR

Train No. C2, B1, P4
Meter Coef. ∂ 1.0067
Orifice Coef. ΔH@ 2.106
Nozzle No. 0-2 D_n .182

Pitot Tube No. 5 C_p .84
Bar. Pres. 28.10 Ins. Hg
Static Pres. +.75 Ins. H_2O
Estimated MC 20 %

Sampling Train Leak Checks:
Pretest 0 @ 15 Ins. Hg
Posttest 0 @ 5 Ins. Hg

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(1.76)	(400.40)													
B 8	4.50	402.28	2.00	.41			1.6	257	226	201	57	55	51	17.8	
7	9.00	404.05	2.05	.46			1.8	251	226	214	56	65	53	17.2	
6	13.50	405.54	1.90	.46			1.8	251	226	216	56	66	52	17.3	
5	17.75	407.16	1.75	.47			1.9	251	226	216	56	67	52	17.2	
4	21.50	408.58	1.40	.47			1.9	251	228	216	57	67	52	17.7	
3	25.00	409.87	1.25	.47			1.9	251	228	215	58	67	53	17.7	
2	28.25	411.16	1.05	.47			1.9	251	230	213	57	67	53	17.5	
1	31.25	412.27	.81	.47			1.9	251	225	213	59	67	53	17.3	
A 8	34.75	413.41	1.75	.41			1.7	251	244	214	58	67	53	17.4	
7	39.25	415.09	1.90	.46			1.9	250	246	212	56	64	53	17.3	
6	43.50	416.67	1.80	.47			1.9	249	248	216	56	67	53	17.2	
5	47.75	418.25	1.76	.47			1.9	249	248	218	57	67	53	17.4	
4	52.00	419.78	1.75	.47			1.9	248	248	218	58	67	53	17.6	
3	56.25	421.40	1.75	.48			2.0	248	248	214	59	68	53	17.4	
2	60.25	422.86	1.50	.48			2.0	248	245	209	59	68	53	17.5	
1	62.75	423.78	.62	.48			2.0	248	245	218	59	69	54	17.3	
	1317														
	θ=62.75	V_m =23.38	1.57	$\overline{\Delta H}$= .46				$\overline{T}_s$=250					$\overline{T}_m$=59		

Samples Recovered: Filter No. ~~2190~~ ~~2230~~ 2192 ☒ Probe Wash; ☒ Wet Catch; ☒ Other PM-10

Integrated Gas Sampling Data:

Box No. ____
Bag No. ____
Bag Vol. ____ Liters

Bag Material ____
Leak Checks ____ cc/min. @ 25"Hg
Posttest O_2 Reading ____
320 P No. ____

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	208	107	2		1580	
Initial Volume	100	100	0		1370	
Difference	108	7	2		10	127

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AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project: LP Sayula
Sample Location: [illegible]
Date: 1/20/92 Test: 2 Run: 3
Operators: [illegible]

Train No.: C3, B1, P4
Meter Coef. ∂: 1.0067
Orifice Coef. ΔH@: 2.106
Nozzle No.: 0-2 D_n: .187

Pitot Tube No.: 5 C_p: .840
Bar. Pres.: 28.50 Ins. Hg
Static Pres.: [illegible] Ins. H_2O
Estimated MC: 24 %

Sampling Train Leak Checks:
Pretest: 0 @ 15 Ins. Hg
Posttest: 0 @ 5 Ins. Hg

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(1920)	(424.70)													
B 8	4.50	426.20	1.90	.35			1.5	248	228	209	43	55	51	17.2	
7	9.00	427.72	2.05	.38			1.7	251	243	217	46	63	51	17.6	
6	13.50	429.22	1.95	.38			1.7	250	245	224	49	65	51	17.5	
5	17.75	430.66	1.80	.39			1.8	249	244	227	52	66	52	17.4	
4	22.25	432.17	1.90	.40			1.8	249	246	227	55	67	52	17.4	
3	26.75	433.70	1.90	.40			1.8	249	246	226	55	67	52	17.0	
2	30.75	435.12	1.50	.40			1.8	245	247	225	57	67	52	17.5	
1	33.25	436.00	.64	.40			1.8	249	248	227	58	67	53	17.7	
A 8	37.75	437.50	2.05	.38			1.7	250	231	211	59	63	51	17.7	
7	42.50	439.12	2.15	.39			1.8	251	235	211	60	65	53	17.9	
6	47.00	440.66	2.05	.40			1.9	251	240	210	61	66	53	17.7	
5	51.25	442.10	1.80	.46			1.9	251	241	215	62	66	53	17.6	
4	55.25	443.45	1.50	.40			1.9	250	239	216	64	67	53	17.8	
3	58.75	444.63	1.25	.40			1.9	250	240	215	64	67	53	17.6	
2	62.00	445.75	1.65	.46			1.9	250	241	217	64	67	58	17.5	
1	65.00	446.83	.85	.40			1.9	250	243	208	65	67	53	17.3	
	(2032)														
	θ=65.00	V_m=22.17		$\overline{\Delta H}$=.39				$\overline{T}_s$=250					$\overline{T}_m$=56.81		

Samples Recovered: Filter No. 2230; ☒ Probe Wash; ☒ Wet Catch; ☒ Other PM-10

Integrated Gas Sampling Data:

Box No. ________ Bag Material ________
Bag No. ________ Leak Checks ______ cc/min. @ 25"Hg
Bag Vol. ______ Liters Posttest O_2 Reading ________
320 P No. ________

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	210	107	1		240.3	
Initial Volume	100	100	0		1384	
Difference	110	7	1		[illegible]	132

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AIR SAMPLING DEPARTMENT

Field Computer Summary

Project Name: LP Sagola

Operator J. Pederson

Sampling Location: surface dryer stack

Date of Test: 1/29/92

Test Number: 2

Initialization Parameters		Run Specific Input Parameters	Run 1	Run 2	Run 3	Run 4
Meter Coef. - ∂ =	1.0067	V/O	376.30	400.40	424.70	
Orif. Coef. - ΔH@ =	2.106	No. Of Points	16	16	16	
Pitot Coef. - C_p =	.840	MC	20	20	24	
Nozzle Dia. - D_n =	.187	V/F	399.14	423.78	446.83	
Bar. Pres. - P_b =	28.50	Grams H_2O	123	127	137	
Time/Point - ΔT =	-	Run Time	67.50	62.75	65.00	
Moisture Content =	20	1-Rnd/2-Rect	1	1	1	
% Oxygen =	18	Diameter(Ins.)	47	47	47	
Meter Temp. - t_m =	64	Length(Ins.)	X	X	X	
Static Pres. - P_g =	+.97	Width(Ins.)	X	X	X	

End Of Run Summary

	Run 1	Run 2	Run 3	Run 4
Avg. √ΔP				
Avg. ΔH				
Avg. t_s				
Avg. t_m				
Standard Vol.	22.48	19.15	21.73	
Moist. Content	20.48	23.79	22.88	
Avg. Gas Vel.				
% Isokinetic				
ACFM				
DSCFM				

Company: LP Sagola

Source: Surface Dryer stack

Date: 1-29-92

City &State: Sagola MI

T2

Method 201A Summary Sheet

Pre-Run Calculations

	RUN 1	RUN 2	RUN 3	RUN 4	Comments
Ps=	28.56	28.56	28.56		
Md=	29.64	29.64	29.64		
Mw=	26.83	26.83	26.39		
µs=	211.050	212.207	210.012		
Qs=	.554	.540	.585		
ΔH(@Tm)=	.44	.43	.39		
Vn=	51.04				
Vmin=	.68				
Vmax=	1.12				
ΔPmin=	.71				
ΔPmax=	1.93				
Avg. ΔP=	1.21	1.54	1.57		
Bws=	.20	.20	.24		
Ts (avg)=	243	249	250		
Tm=	64	55	59		
Pb=	28.50	28.50	28.50		
Pg=	+.75	+.75	+.75		
Cp=	.841	.841	.841		
Dn=	.187	.187	.187		
Cal. ΔH=	2.166	2.164	2.166		
F.G. Vel.=	78.03				
O2=	18	18	18		
CO2=	2	2	2		
N2=	80	80	80		

R1 $\frac{.44}{64} \times$ Ave Tm

$\sqrt{\frac{\Delta P}{1.21}} \times 4$

.0164

Nominal Dia.	Nozzle	Dn (sq.)
	0-1	.0169
.187	0-2	.035
	0-3	.061
	0-4	
	0-5	
	0-6	

R2 $\frac{.43}{55} \times$ Ave Tm

$\sqrt{\frac{\Delta P}{1.54}} \times 4$

R3 $\frac{.39}{59} \times$ Ave Tm $\sqrt{\frac{\Delta}{1.57}} \times 4$

Ps= Stack Gas Pressure
Md= Mol. Weight of Stack Gas,dry
Mw= Mol. Weight of Stack Gas,in Water
µs= Viscosity of Stack Gas
Qs= Cyclone Flow Rate
ΔH(@ Tm)= ΔH at Estimated Meter Temp.
Vn= Nozzle Velocity
Vmin= Minimum Gas Velocity in ft/ sec.
Vmax= Maximum Gas Velocity in ft/ sec.
ΔPmin= Minimum Velocity Head Value
ΔPmax= Maximum Velocity Head Value
Avg. ΔP= Average Velocity Head Reading

Bws= Fraction Moisture Content
Ts(avg)= Estimated Average Stack Temp.
Tm= Estimated Average Meter Temp.
Pb= Barometric Pressure
Pg= Stack Static Pressure
Cp= Pitot Coefficient
Dn= Calibrated Nozzle Diameter
Cal. ΔH= Avg. Pressure Differential Across Meter
F.G. Vel.= Stack Gas Velocity in ft/ sec.
O2= Estimated Oxygen Content
CO2= Estimated Carbon Dioxide Content
N2= Estimated Nitrogen Content

LP Sugula Surface Dryer Stack
T2 R1

Ps= 28.50+ (+.75 /13.6)	Md=.44(2)+.32(18)+.28(50)	Mw=29.04(1-.20)+18(.20)
=	=	=
= 28.56	= 29.04	= 26.83

µs=152.418+.2552(243)+.000032355(243^2)+.53147(18)-74.143(.20)
=
= 211.080 µs= 211.080

Qs=.002837(211.08) $\left[\frac{243+460}{26.83\ (28.56)}\right]$^.2949 =
Qs= .584

ΔH= $\left[\frac{.584(.8\ )28.56}{(243+460)}\right]$ ^2 $\frac{(64 \quad +460)(29.04 \quad)(1.083)(2.106\ )}{(\ 28.50\ )}$

= .000360 X 1217.782875 ΔH= .44

Vn= $\frac{3.056\ (Qs)}{(.187^2)}$ 1.784764
Vn= 51.04

Vmin= $\left[.2457+\left[.3072-\frac{.2603\ (.584^{1.5}\ )211.08}{(\ 51.04^{1.5}\ )}\right]\right]$^.5

= [.3072 - .1151]$^{.5}$ Vmin = .68

Vmax= $\left[.4457+\left[.5690-\frac{.2603\ (\qquad)}{(\qquad)}\right]\right]$^.5

= [.5690 - .1151]$^{.5}$ Vmax= 1.12

ΔPmin= .00013686 X $\frac{(28.56)(26.83)(\ .68^2\ )}{(243+460)(\ .841^2\ )}$

= ΔPmin= .71

ΔPmax= .00013686 X $\frac{(28.56\ )(26.83\ )(1.12^2\ )}{(243\ +460)(\ .841^2\ )}$ ΔPmax= 1.93

=

Dwell time= $\left[\frac{(\qquad)}{(\qquad)}\right]$^.5 X $\frac{(\qquad)}{(\qquad)}$

Change Dwell time=
Tn= $\frac{(\qquad)}{(\qquad)}$ X ( )

List ΔH for various avg. Tm	
Tm	ΔH

V + D 17.647 x 28.50 + (.35/13.6) / 515 x 1.0017 x 22.84 = 22.48

M.C 4.707 x 123) / .04707 x 123 + 23.16 = 20.48

LP Sagola Surface Dryer Stack
T2 R2

Ps= 28.50 + (1.75 /13.6) = = 28.56	Md=.44(2)+.32(18)+.28(80) = = 29.04	Mw=28.04(1-.20)+18(.20) = = 26.83

μs=152.418+.2552(249)+.000032355(249^2)+.53147(18)-74.143(.20)
=
= 212.707 μs= 212.707

Qs=.002837(212.707) $\left[\frac{249+460}{26.83\,(28.56)}\right]$^.2949 = Qs= .590

ΔH= $\left[\frac{.590\,(.8\,)\,28.56}{(249+460)}\right]$ ^2 $\frac{(55\ +460)(29.04\ )(1.083)(2.166\ )}{(28.50\ )}$

= .000361 × 1196.866757 ΔH= .43

Vn= $\frac{3.056\ (\ Qs\ )}{(\qquad)}$ Vn=

Vmin= $\left[.2457+\left[.3072-\frac{.2603\ (\qquad)}{(\qquad)}\right]^{.5}\right]$
= Vmin =

Vmax= $\left[.4457+\left[.5690-\frac{.2603\ (\qquad)}{(\qquad)}\right]^{.5}\right]$
= Vmax=

ΔPmin= .00013686 X $\frac{(\quad)(\quad)(\quad)}{(\quad +460)(\quad)}$

= ΔPmin=

ΔPmax= .00013686 X $\frac{(\quad)(\quad)(\quad)}{(\quad +460)(\quad)}$ ΔPmax=

=

Dwell time= $\left[\frac{(\quad)}{(\quad)}\right]$^.5 X $\frac{(\quad)}{(\quad)}$

Change Dwell time=
Tn= $\frac{(\quad)}{(\quad)}$ X ( )

List ΔH for various avg. Tm

Tm	Δ H
	.
	.
	.
	.
	.
	.
	.
	.

VSTD = 17.647 × $\frac{28.50 + (.46/13.6)}{54+460}$ × 1.0067 × 23.38 = 19.15

MC = $\frac{4.727 \times 127}{.0462\ldots}$ = 23.74

LP Segola   Surface Dryer stack
T2 R3

Ps=28.50+(.75 /13.6)	Md=.44(2)+.32(18)+.28(80)	Mw=29.04(1-.24)+18(.24)
=	=	=
= 28.56	= 29.04	= 26.39

µs=152.418+.2552(250)+.000032355(250^2)+.53147(18)-74.143(.24)
=
=   µs= 210.012

Qs=.002837(210.012) $\left[\frac{250+460}{26.39\ (28.56)}\right]$^.2949 =   Qs= .585

ΔH= $\left[\frac{.585(.76)\,28.56}{(710)}\right]$^2 $\frac{(59 + 460)(29.04)(1.083)(2.106)}{(28.50)}$

= .000320 X 1206.162804   ΔH= .39

Vn= $\frac{3.056\ (Qs)}{(\quad)}$ Vn=

Vmin= [.2457+ [.3072- $\frac{.2603\ (\quad)}{(\quad)}$] ^.5]
=   Vmin =

Vmax= [.4457+ [.5690- $\frac{.2603\ (\quad)}{(\quad)}$] ^.5]
=   Vmax=

ΔPmin= .00013686 X $\frac{(\quad)(\quad)(\quad)}{(\quad+460)(\quad)}$
=   ΔPmin=

ΔPmax= .00013686 X $\frac{(\quad)(\quad)(\quad)}{(\quad+460)(\quad)}$ ΔPmax=
=

List ΔH for various avg. Tm	
Tm	Δ H

Dwell time= $\left[\frac{(\quad)}{(\quad)}\right]$^.5 X $\frac{(\quad)}{(\quad)}$

Change Dwell time=
Tn= $\frac{(\quad)}{(\quad)}$ X ( )

Sto = 17.047 x 28.50 / (+(39/13.6)) x 1.047 x 22.17 = 21.73
M = 4.707 x 132 517 / .0047 x 1024 21.73 = 22.88

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
PM-10

APPENDIX A

METHOD 5 CALCULATION SUMMARY

TEST 1

Core Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Sample Duration (Minutes)	64	62.5	65.5
Barometric Pressure (inches Hg)	29.38	29.38	29.38
Static Pressure Of Duct (Inches H2O)	0.75	0.75	0.75
Absolute Pressure Of Duct (Inches Hg)	29.44	29.44	29.44
Meter Coefficient	1.0067	1.0067	1.0067
Pitot Tube Coefficient	0.84	0.84	0.84
Nozzle Diameter (Inches)	0.187	0.187	0.187
Area Of Nozzle Opening (Square Feet)	0.000191	0.000191	0.000191
Average $\sqrt{\Delta P}$	1.1970	1.1830	1.2148
Average ΔH	0.62	0.49	0.41
Average Stack Temperature (°R)	705.19	703.88	703.25
Average Meter Temperature (°R)	508.66	516.44	513.66
Meter Volume (Cubic Feet)	26.43	23.34	22.67
Dry Standard Sample Volume (Cubic Feet)	27.16	23.62	23.06
Collected Condensate Volume (mls)	165.0	132.0	102.0
Volume Of Water Vapor (Standard Cubic Feet)	7.77	6.21	4.80
Moisture Content Of Flue Gas (% v/v)	22.24	20.83	17.23
Weight Of Particulate (mg)	56.2	46.9	56.9
Source Gas Velocity (Feet Per Second)	81.5	80.2	81.7
Isokinetic Variation (%)	79.5	70.5	61.6

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Sagola, Michigan
PACE Project No. 920108.402

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February 25, 1992
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APPENDIX A

METHOD 201 CALCULATION SUMMARY

TEST 1, RUN 1

Core Dryer Stack

Sequential Point No.	Time Int. Minutes	Flue Gas Temp. (°R)	Flue Gas Viscosity	Gas Sample Rate(cf/sec.)	PM-10 Cut Dia. (μm)	Isokinetic Variation
1	4.50	707.0	206.7	0.604	9.6	59.4
2	4.50	705.0	206.2	0.589	9.7	56.8
3	4.50	710.0	207.4	0.935	7.1	98.5
4	4.25	710.0	207.4	0.709	8.6	74.2
5	4.00	709.0	207.2	0.661	9.0	76.5
6	3.50	706.0	206.4	0.710	8.5	87.0
7	3.50	710.0	207.4	0.701	8.6	93.2
8	2.50	710.0	207.4	0.758	8.2	130.1
9	4.50	708.0	206.9	0.673	8.9	68.8
10	4.50	711.0	207.7	0.739	8.3	74.8
11	4.50	700.0	204.9	0.646	9.1	65.8
12	4.50	700.0	204.9	0.716	8.4	76.7
13	4.25	699.0	204.7	0.657	8.9	70.3
14	4.00	698.0	204.4	0.678	8.7	75.5
15	3.75	700.0	204.9	0.745	8.2	94.4
16	2.75	700.0	204.9	0.656	9.0	110.9
Average of Points	4.00	705.2	206.2	0.699	8.7	82.0
From End Run Data	64.00	705.2	206.2	0.741	8.3	79.5

Note: Point data use run averages for moisture content, molecular weight, pressures and O2

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
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APPENDIX A

METHOD 201 CALCULATION SUMMARY

TEST 1, RUN 2

Core Dryer Stack

Sequential Point No.	Time Int. Minutes	Flue Gas Temp. (°R)	Flue Gas Viscosity	Gas Sample Rate(cf/sec.)	PM-10 Cut Dia. (μm)	Isokinetic Variation
1	4.25	703.0	206.7	0.704	8.6	75.6
2	4.25	705.0	207.2	0.606	9.6	62.4
3	4.25	705.0	207.2	0.629	9.3	66.1
4	4.25	705.0	207.2	0.571	10.0	60.6
5	4.25	705.0	207.2	0.731	8.4	81.3
6	4.00	704.0	207.0	0.480	11.3	51.4
7	3.75	705.0	207.2	0.597	9.7	71.0
8	2.75	705.0	207.2	0.663	9.0	111.3
9	4.50	703.0	206.7	0.581	9.8	58.5
10	4.50	705.0	207.2	0.609	9.5	61.0
11	4.50	703.0	206.7	0.608	9.5	62.6
12	4.25	703.0	206.7	0.598	9.6	63.3
13	3.75	703.0	206.7	0.647	9.1	76.8
14	3.50	703.0	206.7	0.561	10.1	68.6
15	3.50	702.0	206.5	0.603	9.6	79.0
16	2.25	703.0	206.7	0.598	9.6	117.3
Average of Points	3.91	703.9	206.9	0.612	9.5	72.9
From End Run Data	62.50	703.9	206.9	0.647	9.1	70.5

Note: Point data use run averages for moisture content, molecular weight, pressures and O2

Louisiana Pacific Corporation
Sagola, Michigan
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APPENDIX A

METHOD 201 CALCULATION SUMMARY

TEST 1, RUN 3

Core Dryer Stack

Sequential Point No.	Time Int. Minutes	Flue Gas Temp. (°R)	Flue Gas Viscosity	Gas Sample Rate(cf/sec.)	PM-10 Cut Dia. (μm)	Isokinetic Variation
1	4.50	702.0	209.1	0.703	8.6	71.8
2	4.75	703.0	209.4	0.515	10.8	49.1
3	4.50	703.0	209.4	0.539	10.4	53.1
4	4.50	703.0	209.4	0.553	10.2	56.2
5	4.00	702.0	209.1	0.543	10.4	62.5
6	3.75	702.0	209.1	0.585	9.8	72.0
7	3.50	703.0	209.4	0.579	9.9	75.8
8	3.00	702.0	209.1	0.480	11.3	73.8
9	4.50	703.0	209.4	0.545	10.3	55.2
10	4.50	704.0	209.6	0.548	10.3	55.6
11	4.50	704.0	209.6	0.542	10.4	54.8
12	4.50	705.0	209.9	0.542	10.4	55.6
13	4.25	704.0	209.6	0.534	10.5	56.3
14	4.25	704.0	209.6	0.554	10.2	59.7
15	3.75	704.0	209.6	0.339	14.5	36.6
16	2.25	704.0	209.6	0.855	7.5	183.0
Average of Points	4.06	703.3	209.5	0.560	10.4	66.9
From End Run Data	65.00	703.3	209.5	0.576	9.9	61.6

Note: Point data use run averages for moisture content, molecular weight, pressures and O2

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AIR SAMPLING DEPARTMENT

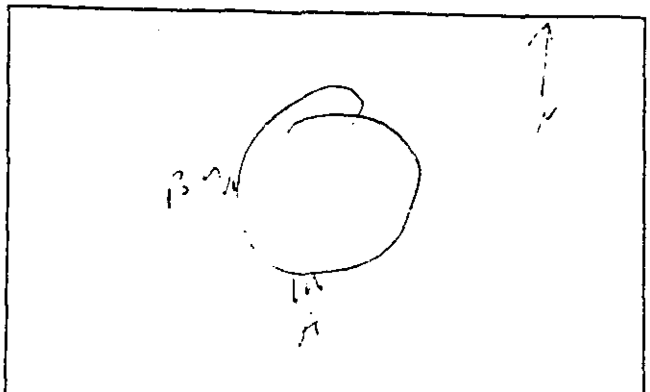
EPA Method 2 Field Data Sheet

Project LP Sagola
Test Location core dryer stack
Date 1/28/92 Test 1 Run 0
Operators T Pederson P Proehl
Barometric Pressure 28.39 Inches Hg
Static Pressure +.75 Inches H_2O

Pitot Tube No. 5 C_p .840
Pressure Measurement Device oil man.
Duct Dimensions 47 Inches
Port Length 4 Inches
Temp. - Dry Bulb 245 °F, Wet Bulb 143 °F
Moisture Content 18 %
Time of Measurement [illegible] (24 Hr. Clock)

Traverse Point Identification				Velocity Head ΔP Inches H_2O	Stack Temperature °F
Point Number	% Of Diameter	Inches From: Wall	Inches From: Port		
A 1	1.52 5.52	~~2.05~~	~~6.05~~	.74	
2	4.92 8.92	~~6.88~~	~~10.88~~	1.20	
3	9.11 13.11	~~13.91~~	~~17.91~~	1.30	
4	15.19 19.19	~~23.09~~	~~37.09~~	1.76	
5	31.81 35.81	~~40.12~~	~~44.12~~	1.88	
6	37.84 41.84	~~44.05~~	~~48.95~~	1.80	
B 7	42.68 46.68			.	
8	45.48 49.48			.	
B 1				.	
2				.	
3				.	
4				.	
5					
6					
7					
8					

1.4



Schematic of Duct Cross-Section

Computer Data Summary:

Stack Pressure ______ Inches Hg
Duct Area ______ Square Feet
Molecular Weight - M_d ______
Molecular Weight - M_s ______
Avg. Duct Temperature ______ °F
Average $\sqrt{\Delta P}$ ______
Flue Gas Velocity 81.17 Feet/Sec.
Volumetric Flow Rate:
ACFM ______
DSCFM

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AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project: C.P. Sm... | Train No.: C2, P4, B1 | Pitot Tube No.: 5 | Cp: .840 | Sampling Train Leak Checks:
Sample Location: Core dryer stack | Meter Coef. ∂: 1.0067 | Bar. Pres.: 29.38 Ins. Hg | Pretest: 0 @ 15 Ins. Hg
Date: 1/25/92 | Test: 1 | Run: 1 | Orifice Coef. ΔH@: 2.166 | Static Pres.: +.75 Ins. H_2O | Posttest: 0 @ 5 Ins. Hg
Operators: J. Pennerson, P. Kisnell | Nozzle No.: 2-2 | D_n: .187 | Estimated MC: 18 %

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(1040)	(229.50)													
A 8	4.5	231.50	1.80	.39			1.5	247	173	180	36	31	31	17.6	
7	9	233.60	1.85	.58			1.8	245	[illegible]	184	42	50	41		
6	13.5	235.60	1.85	.60			1.9	250	215	187	47	54	41		
5	18	237.38	1.70	.62			1.9	250	224	186	51	55	43	17.9	
4	22	238.92	1.35	.63			1.9	249	236	185	50	56	43	15.9	
3	25.5	240.40	1.25	.63			2.0	246	242	191	50	56	44	20.0	
2	[illegible]	241.85	1.05	.64			2.0	250	244	194	48	57	44	20.3	
B 1	[illegible]	242.99	.65	.65			2.0	250	241	195	48	58	45	20.4	
8	[illegible]	244.77	1.75	.64			2.0	248	245	185	50	56	46	17.8	
7	[illegible]	246.76	1.85	.65			2.0	251	246	197	48	57	47	17.7	
6	[illegible]45	248.46	1.75	.59			1.9	240	252	208	45	48	46	16.9	
5	[illegible]	250.39	1.65	.63			2.0	240	249	218	65	51	46	16.8	
4	53.75	252.04	1.60	.63			2.0	239	244	225	67	54	46	16.8	
3	57.75	253.66	1.30	.64			2.0	238	250	226	68	56	46	16.8	
2	61.50	255.36	1.20	.65			2.1	240	245	224	68	57	47	16.8	
1	64.25	256.43	.64	.67			2.1	240	251	226	65	58	47	16.5	
	(1124)														
	Θ=	V_m = 26.93	1.465	$\overline{\Delta H}$ = .614				$\overline{T_s}$ = 245					$\overline{T_m}$ = 48.85		

Samples Recovered: Filter No. 2166 ; ☒ Probe Wash; ☒ Wet Catch; ☒ Other PM-10

Integrated Gas Sampling Data:

Box No. 1 | Bag Material Tedlar
Bag No. 1 | Leak Checks 0.00 cc/min. @ 25"Hg
Bag Vol. 40 Liters | Posttest O_2 Reading ______
| 320 P No. ______

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	226	110	3		1350	
Initial Volume	100	100	0		1324	
Difference	126	10	3		26	165

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AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project LP Saggla | Train No. C2, F4, B1 | Pitot Tube No. 5 C_p .840 | Sampling Train Leak Checks:
Sample Location core dryer stack | Meter Coef. ∂ 1.0067 | Bar. Pres. 29.35 Ins. Hg | Pretest 0 @ 15 Ins. Hg
Date 1/28/92 Test 1 Run 2 | Orifice Coef. ΔH@ 2.106 | Static Pres. .75 Ins. H_2O | Posttest 0 @ 5 Ins. Hg
Operators [illegible] | Nozzle No. 0-2 D_n .187 | Estimated MC 22 %

	Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
		Sampling Train Temperatures - °F														
cll		(1425)	(257.20)													
25	B 8	[illegible]	259.05	1.72	.42			1.6	243	243	201	48	49	49	17.2	
25	7	[illegible]	260.62	1.25	.49			1.6	245	242	206	50	63	51	17.2	
25	6	[illegible]	262.26	1.26	.49			1.6	245	242	206	51	63	51	17.2	
25	5	[illegible]	263.72	1.60	.44			1.6	245	241	208	51	63	57	17.2	
25	4	[illegible]	265.68	1.60	.50			1.7	245	245	215	51	64	52	17.1	
[illegible]	3	[illegible]	266.[illegible]	1.45	.49			1.6	244	245	214	51	63	51	17.1	
25	2	[illegible]	268.15	1.30	.49			1.6	245	243	220	51	63	51	17.0	
25	1	[illegible]	269.28	.68	.49			1.6	245	246	217	49	63	57	17.0	
50	9 8	[illegible]	270.86	1.80	.48			1.7	243	235	201	45	61	51	17.1	
50	7	[illegible]	272.53	1.85	.49			1.7	245	235	200	40	62	51	16.9	
50	6	[illegible]	274.20	1.75	.49			1.7	243	235	203	37	62	51	16.9	
25	5	[illegible]	275.75	1.65	.49			1.7	243	240	202	39	63	51	17.0	
25	4	53.25	277.25	1.35	.49			1.7	243	238	209	39	63	51	16.8	
50	3	56.75	278.43	1.24	.49			1.7	243	241	214	37	63	57	16.8	
50	2	60.25	279.72	1.09	.49			1.7	248	248	215	38	63	57	16.8	
25	1	62.50	280.54	.48	.49			1.7	243	239	218	38	63	51	16.7	
		(1530)														
		θ = 62.5	V_m = 23.34	1.43	$\overline{\Delta H}$ = .49				$\overline{T_s}$ = 243.94					$\overline{T_m}$ = 56.45		

Samples Recovered: Filter No. 2176 ; ☒ Probe Wash; ☒ Wet Catch; ☒ Other PM-10

Integrated Gas Sampling Data:

Box No. 1
Bag No. 2
Bag Vol. 40 Liters

Bag Material Tedlar
Leak Checks 0.00 cc/min. @ 25"Hg
Posttest O_2 Reading
20 [redacted]

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	210	113	1	X	1386	
Initial Volume	100	100	0	X	1372	
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

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AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project: LP Sagola
Sample Location: core dryer stack
Date: 1/28/92 Test: 1 Run: 3
Operators: J Pederson, P Proehl

Train No. C3,84,B1
Meter Coef. ∂: 1.0067
Orifice Coef. ΔH@: 2.106
Nozzle No. 0-2 D_n .187

Pitot Tube No. 5 C_p .840
Bar. Pres. 29.35 Ins. Hg
Static Pres. -.75 Ins. H_2O
Estimated MC 21 %

Sampling Train Leak Checks:
Pretest .0 @ 15 Ins. Hg
Posttest 0 @ 5 Ins. Hg

	Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
										Sampling Train Temperatures - °F						
		(1630)	(280.80)													
.50	A 68	8 45	282.87	1.90	.42			1.7	242	195	160	38	56	56	18.0	
.75	57	9 25	284.79	2.00	.39			1.6	243	199	176	39	58	46	17.7	
.50	46	13 25	285.91	1.90	.40			1.7	243	203	178	42	59	47	17.4	
1.50	35	18 25	287.85	1.80	.43			1.8	243	207	182	42	61	47	17.2	
.40	24	22 25	288.85	1.40	.41			1.8	242	213	180	42	61	48	17.1	
.75	13	26 50	290.25	1.25	.41			1.8	242	210	129	42	61	49	17.1	
1.50	B 62	31 00	291.54	1.10	.41			1.8	243	208	176	48	61	49	17.3	
.60	51	32 00	292.43	.75	.41			1.8	242	213	172	40	61	49	17.4	
1.50	B 48	37 50	293.97	1.80	.40			1.7	243	236	176	41	58	48	17.3	
1.80	37	40 00	295.52	1.80	.41			1.8	244	243	178	41	59	48	17.2	
1.5	26	46 50	297.05	1.80	.41			1.8	244	245	179	40	60	48	17.4	
1.50	15	51 00	298.57	1.75	.41			1.8	245	242	175	43	60	48	17.2	
.25	4	55.25	300.00	1.65	.41			1.8	244	243	174	41	59	48	17.2	
.25	3	54.50	301.48	1.60	.40			1.9	244	243	175	41	58	48	17.3	
.75	2	63.25	302.70	1.30	.39			1.9	244	244	172	40	57	47	17.1	
.25	1	65.50	303.47	.45	.38			1.9	244	244	120	40	56	46	17.1	
		(1741)													17.3	
		θ=65.50	V_m=22.67	1.52	$\overline{\Delta H}$=.41				$\overline{T_s}$=243					$\overline{T_m}$=48		

Samples Recovered: Filter No. 2167 ; ☒ Probe Wash; ☒ Wet Catch; ☒ Other PM-10

Integrated Gas Sampling Data:

Box No. 1
Bag No. 2
Bag Vol. 40 Liters

Bag Material TEDLAR
Leak Checks 0.00 cc/min. @ 25"Hg
Posttest O_2 Reading ______
320 P No. ______

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	190	110	1		1328	
Initial Volume	100	100	0		1327	
Difference	90	10	1		1	102

pace

AIR SAMPLING DEPARTMENT

Field Computer Summary

Project Name: LP Sagola

Operator J. Pederson

Sampling Location: core dryer stack

Date of Test: 1/28/92

Test Number: 1

Initialization Parameters		
Meter Coef. - ∂	=	1.0067
Orif. Coef. - $\Delta H@$	=	2.106
Pitot Coef. - C_p	=	.840
Nozzle Dia. - D_n	=	.187
Bar. Pres. - P_b	=	29.38
Time/Point - ΔT	=	5
Moisture Content	=	18
% Oxygen	=	18
Meter Temp. - t_m	=	11
Static Pres. - P_g	=	+.75

Run Specific Input Parameters

	Run 1	Run 2	Run 3	Run 4
V/O	230.00	257.20	280.80	
No. Of Points	12	12	12	
MC	18	22	21	
V/F	256.43	280.54	303.47	
Grams H_2O	165	132	102	
Run Time	~~62.50~~	62.50	65.50	
1-Rnd/2-Rect	1	1	1	
Diameter(Ins.)	47	47	47	
Length(Ins.)	X	X	X	
Width(Ins.)	X	X	X	

End Of Run Summary

	Run 1	Run 2	Run 3	Run 4
Avg. $\sqrt{\Delta P}$				
Avg. ΔH				
Avg. t_s				
Avg. t_m				
Standard Vol.				
Moist. Content				
Avg. Gas Vel.				
% Isokinetic				
ACFM				
DSCFM				

Company: Louisiana Pacific Source: ~~Surface~~/Core Dryer Stack

Date: 1/28/92 City &State: Sagola, MI.

Method 201A Summary Sheet

Pre-Run Calculations

T1

	RUN 1	RUN 2	RUN ~~3~~2	RUN ~~4~~3	Comments
Ps=	~~28.48~~	29.44	29.44	29.44	
Md=	~~29.04~~	29.04	29.16	29.16	
Mw=	~~27.05~~	27.05	26.70	26.82	
µs=	~~212.242~~	213.105	212.215	216.078	
Qs=	~~.586~~	.589	.583	.526	
ΔH(@Tm)=	~~.42~~	.44	.42	.42	
Vn=	~~51.47~~	51.43			
Vmin=		.68			
Vmax=		1.12			
ΔPmin=					
ΔPmax=					
Avg. ΔP=	~~1.19~~	1.43	1.43	1.43	
Bws=	~~18~~	18	22	21	T1R3 VSTD = 23.316
Ts (avg)=	~~242~~	245	245	244	ML = 17.08
Tm=	~~11~~	35	49	56	
Pb=	~~28.39~~	28.39	29.38	29.38	
Pg=	~~+1.2~~	+.75	+.75	+.75	
Cp=	~~.840~~	.840	.840	.840	
Dn=	~~.187~~	.187	.187	.187	
Cal. ΔH=	~~2.106~~	2.106	2.106	2.106	
F.G. Vel.=	~~73.76~~	81.17			
O2=	~~18~~	18	17	17	
CO2=	~~2~~	2	3	3	
N2=	~~80~~	80	80	80	

Nominal Dia.	Nozzle	Dn (sq.)
.130	0-1	.0169
.187	0-2	.0350
.247	0-3	.0610
.315	0-4	.0992
.373	0-5	
.499	0-6	

Ps= Stack Gas Pressure
Md= Mol. Weight of Stack Gas,dry
Mw= Mol. Weight of Stack Gas,in Water
µs= Viscosity of Stack Gas
Qs= Cyclone Flow Rate
ΔH(@ Tm)= ΔH at Estimated Meter Temp.
Vn= Nozzle Velocity
Vmin= Minimum Gas Velocity in ft/ sec.
Vmax= Maximum Gas Velocity in ft/ sec.
ΔPmin= Minimum Velocity Head Value
ΔPmax= Maximum Velocity Head Value
Avg. ΔP= Average Velocity Head Reading

Bws= Fraction Moisture Content
Ts(avg)= Estimated Average Stack Temp.
Tm= Estimated Average Meter Temp.
Pb= Barometric Pressure
Pg= Stack Static Pressure
Cp= Pitot Coefficient
Dn= Calibrated Nozzle Diameter
Cal. ΔH= Avg. Pressure Differential Across Meter
F.G. Vel.= Stack Gas Velocity in ft/ sec.
O2= Estimated Oxygen Content
CO2= Estimated Carbon Dioxide Content
N2= Estimated Nitrogen Content

LP Supply Cue Dryer stack
T1 R1

Ps=29.38+(.75 /13.6) = 29.44	Md=.44(2)+.32(18)+.28(80) = 29.04	Mw=29.04(1-.18)+18(.18) = 27.05

μs=152.418+.2552(245)+.000032355(245^2)+.53147(18)-74.143(.18)

= 213.165

μs= 213.105

Qs=.002837(213.165) $\left[\frac{245+460}{27.05\ (28.45)}\right]$^.2949 =

Qs= .589

ΔH= $\left[\frac{.589\ (82\ )28.45}{(705\ )}\right]$^2 $\frac{(35\ +460)(29.04\ )(1.083)(2.166\ )}{(28.39\ )}$

= .00038   1154.8431786

ΔH= .44

Vn= $\frac{3.056\ (Qs)}{(.187\ )}$ $\frac{1.799984}{.0350}$

Vn= 51.43

Vmin= $\left[.2457+\left[.3072-\frac{.2603\ (\ .589^{.5}\ )\ 213.105}{(\ 51.43^{.5}\ )}\right]\right]$^.5

= .3072 - .1154 = .1918^.5

Vmin = .68

Vmax= $\left[.4457+\left[.5690-\frac{.2603\ (\qquad)}{(\qquad)}\right]\right]$^.5

= .5690 - .1154 = .4536^.5

Vmax= 1.12

ΔPmin= .00013686 X $\frac{(28.39\ )(29.04\ )(\ .68^2\ )}{(245\ +460)(\ .84^2\ )}$ $\frac{381.224}{497.448}$

=

ΔPmin=

ΔPmax= .00013686 X $\frac{(\qquad)(\qquad)(\qquad)}{(\qquad+460)(\qquad)}$

=

ΔPmax=

Dwell time= $\left[\frac{(\qquad)}{(\qquad)}\right]$^.5 X $\frac{(\qquad)}{(\qquad)}$

Change Dwell time=

Tn= $\frac{(\qquad)}{(\qquad)}$ X ( )

List ΔH for various avg. Tm

Tm	ΔH
31	.39
33	.41
35	.44
37	.47
39	.49
41	.52
43	.54
45	.57

~~(29.38 + .0452)~~ ~~26.43~~ = ~~763.553~~ / 2.0055

$\frac{29.42}{503.65}$ = 27.16

$\frac{776.66}{34.92}$ = ~~34.72~~ 22.24

LP Sagola Coig Dryer stack
T1 R2

Ps= 29.38 + (.75 /13.6) = = 29.44	Md= .44(3)+.32(17)+.28(80) = = 29.16	Mw= 29.16(1-.22)+18(.22) = = 26.70

μs=152.418+.2552(245)+.000032355(245^2)+.53147(17)-74.143(.22)
=
= 212.265

μs= 212.265

Qs=.002837(212.265) $\left[\frac{245+460}{26.70\ (29.44)}\right]$^.2949 =

Qs= .583

ΔH= $\left[\frac{.583\ (.78)\ 29.44}{(705)}\right]$^2 $\frac{(49 +460)(29.16)(1.083)(2.106)}{(29.38)}$

= .000361 X 1152.233466

ΔH= .42

Vn= $\frac{3.056\ (Qs)}{(\quad)}$

Vn=

Vmin= $\left[.2457+\left[.3072-\frac{.2603\ (\quad)}{(\quad)}\right]\right]$^.5

=

Vmin =

Vmax= $\left[.4457+\left[.5690-\frac{.2603\ (\quad)}{(\quad)}\right]\right]$^.5

=

Vmax=

ΔPmin= .00013686 X $\frac{(\quad)(\quad)(\quad)}{(\quad +460)(\quad)}$

=

ΔPmin=

ΔPmax= .00013686 X $\frac{(\quad)(\quad)(\quad)}{(\quad +460)(\quad)}$

ΔPmax=

=

Dwell time= $\left[\frac{(\quad)}{(\quad)}\right]$^.5 X $\frac{(\quad)}{(\quad)}$

Change Dwell time=

Tn= $\frac{(\quad)}{(\quad)}$ X ( )

List ΔH for various avg. Tm

Tm	Δ H

VSTD = 23.68
V = 20.78

$\frac{29.485}{576}$

L Y Saguls Core Dryer stack
T1R3

Ps= + (/13.6)	Md=.44( )+.32( )+.28( )	Mw= 29.16(1-.21)+18(.21)
=	=	=
= 29.44	= 27.16	= 26.82

μs=152.418+.2552(244)+.000032355(244^2)+.53147(.17)-74.143(.21)
=
= 210.078 μs= 210.078

Qs=.002837(210.078) $\left[\frac{244+460}{26.82\ (29.44)}\right]$^.2949 = Qs= .576

ΔH= $\left[\frac{.576(.74)\ 29.44}{(\ 704\ )}\right]$^2 $\frac{(\ 56\ +460)(\ 29.16\ )(1.083)(\ 2.166\ )}{(\ 29.38\ )}$

= .000362 X 1168.0741 ΔH= .42

Vn= $\frac{3.056\ (\text{Qs})}{(\quad)}$

Vn=

Vmin= $\left[.2457+\left[.3072-\frac{.2603\ (\quad)}{(\quad)}\right]\right.$^.5$\Big]$

= Vmin =

Vmax= $\left[.4457+\left[.5690-\frac{.2603\ (\quad)}{(\quad)}\right]\right.$^.5$\Big]$

= Vmax=

ΔPmin= .00013686 X $\frac{(\quad)(\quad)(\quad)}{(\quad+460)(\quad)}$

= ΔPmin=

ΔPmax= .00013686 X $\frac{(\quad)(\quad)(\quad)}{(\quad+460)(\quad)}$

ΔPmax=

=

Dwell time= $\left[\frac{(\quad)}{(\quad)}\right]$^.5 X $\frac{(\quad)}{(\quad)}$

Change Dwell time=
Tn= $\frac{(\quad)}{(\quad)}$ X ( )

List ΔH for various avg. Tm	
Tm	Δ H

VSTD = 17.647 X $\frac{29.38+(.41/13.6)}{48+460}$ X 1.0067 X 22.17
= 23.316

MC = 4.707X102 = 1

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
PM-10

APPENDIX A

METHOD 5 CALCULATION SUMMARY

TEST 1

Thermal Oil Heater Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Sample Duration (Minutes)	57	60	61.25
Barometric Pressure (inches Hg)	28.05	28.05	28.05
Static Pressure Of Duct (Inches H2O)	-0.25	-0.25	-0.21
Absolute Pressure Of Duct (Inches Hg)	28.03	28.03	28.03
Meter Coefficient	1.0067	1.0067	1.0067
Pitot Tube Coefficient	0.842	0.842	0.842
Nozzle Diameter (Inches)	0.247	0.247	0.247
Area Of Nozzle Opening (Square Feet)	0.000333	0.000333	0.000333
Average $\sqrt{\Delta P}$	0.5999	0.5971	0.6134
Average ΔH	0.58	0.60	0.55
Average Stack Temperature (°R)	933.08	934.75	947.88
Average Meter Temperature (°R)	537.71	541.90	539.98
Meter Volume (Cubic Feet)	23.63	25.22	25.36
Dry Standard Sample Volume (Cubic Feet)	21.93	23.23	23.44
Collected Condensate Volume (mls)	88.0	97.0	94.0
Volume Of Water Vapor (Standard Cubic Feet)	4.14	4.57	4.42
Moisture Content Of Flue Gas (% v/v)	15.89	16.43	15.88
Weight Of Particulate (mg)	76.8	85.2	82.3
Source Gas Velocity (Feet Per Second)	47.0	46.9	48.5
Isokinetic Variation (%)	92.0	93.5	90.1

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
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APPENDIX A

METHOD 201 CALCULATION SUMMARY

TEST 1, RUN 1

Thermal Oil Heater Stack

Sequential Point No.	Time Int. Minutes	Flue Gas Temp. (°R)	Flue Gas Viscosity	Gas Sample Rate(cf/sec.)	PM-10 Cut Dia. (μm)	Isokinetic Variation
1	2.50	937.0	267.6	0.789	10.1	87.1
2	2.50	934.0	266.8	1.098	8.0	128.1
3	2.50	937.0	267.6	0.689	11.1	71.3
4	2.50	937.0	267.6	0.772	10.2	83.9
5	2.50	938.0	267.9	0.787	10.1	87.8
6	2.50	938.0	267.9	0.780	10.2	84.7
7	2.25	936.0	267.4	0.785	10.1	91.4
8	2.50	936.0	267.4	0.783	10.1	86.3
9	2.25	934.0	266.8	0.860	9.5	104.1
10	2.25	938.0	267.9	0.714	10.8	86.0
11	2.00	938.0	267.9	0.873	9.4	114.7
12	2.00	920.0	263.1	0.702	10.8	92.8
13	2.25	915.0	261.7	0.829	9.5	101.1
14	2.50	924.0	264.1	0.662	11.3	75.1
15	2.50	928.0	265.2	0.789	10.0	89.8
16	2.50	926.0	264.7	0.786	10.0	88.3
17	2.50	934.0	266.8	0.806	9.9	85.9
18	2.50	933.0	266.5	0.798	10.0	85.1
19	2.50	935.0	267.1	0.806	9.9	90.3
20	2.50	938.0	267.9	0.807	9.9	89.2
21	2.50	933.0	266.5	0.797	10.0	90.5
22	2.25	935.0	267.1	0.870	9.4	102.4
23	2.25	935.0	267.1	0.715	10.8	89.0
24	2.25	935.0	267.1	0.792	10.0	101.4
Average of Points	2.39	933.1	266.6	0.795	10.1	91.9
From End Run Data	57.25	933.1	266.6	0.863	9.4	92.0

Note: Point data use run averages for moisture content, molecular weight, pressures and O2

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
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APPENDIX A

METHOD 201 CALCULATION SUMMARY

TEST 1, RUN 2

Thermal Oil Heater Stack

Sequential Point No.	Time Int. Minutes	Flue Gas Temp. (°R)	Flue Gas Viscosity	Gas Sample Rate(cf/sec.)	PM-10 Cut Dia. (µm)	Isokinetic Variation
1	2.50	928.0	264.8	1.065	8.1	128.1
2	2.50	924.0	263.7	0.770	10.1	87.7
3	2.50	928.0	264.8	0.771	10.2	88.7
4	2.50	930.0	265.3	0.792	10.0	90.1
5	2.75	934.0	266.4	0.780	10.1	85.1
6	2.75	936.0	266.9	0.793	10.0	86.5
7	2.50	935.0	266.7	0.808	9.9	90.6
8	2.50	930.0	265.3	0.769	10.2	89.6
9	2.50	935.0	266.7	0.806	9.9	92.8
10	2.50	935.0	266.7	0.785	10.1	94.2
11	2.25	934.0	266.4	0.793	10.0	100.0
12	2.25	934.0	266.4	0.662	11.4	81.7
13	2.50	938.0	267.5	0.953	8.8	109.9
14	2.75	935.0	266.7	0.848	9.6	93.2
15	2.75	937.0	267.2	0.735	10.6	75.8
16	2.75	938.0	267.5	0.792	10.1	84.2
17	2.50	940.0	268.0	0.808	9.9	89.3
18	2.75	939.0	267.8	0.811	9.9	86.4
19	2.50	938.0	267.5	0.800	10.0	92.0
20	2.50	938.0	267.5	0.807	9.9	95.5
21	2.25	937.0	267.2	0.810	9.9	98.9
22	2.25	936.0	266.9	0.770	10.3	96.6
23	2.25	937.0	267.2	0.833	9.7	109.1
24	2.25	938.0	267.5	0.818	9.8	106.9
Average of Points	2.50	934.8	266.6	0.808	9.9	93.9
From End Run Data	60.00	934.8	266.6	0.875	9.4	93.5

Note: Point data use run averages for moisture content, molecular weight, pressures and O2

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992
PM-10

APPENDIX A

METHOD 201 CALCULATION SUMMARY

TEST 1, RUN 3

Thermal Oil Heater Stack

Sequential Point No.	Time Int. Minutes	Flue Gas Temp. (°R)	Flue Gas Viscosity	Gas Sample Rate(cf/sec.)	PM-10 Cut Dia. (µm)	Isokinetic Variation
1	2.50	946.0	270.0	0.787	10.2	84.3
2	2.50	948.0	270.6	0.773	10.3	85.8
3	2.75	952.0	271.6	0.821	9.9	84.0
4	2.75	952.0	271.6	0.710	11.0	70.8
5	2.75	952.0	271.6	0.761	10.5	77.3
6	2.75	953.0	271.9	0.768	10.4	77.2
7	2.50	943.0	269.2	0.794	10.1	88.5
8	2.75	943.0	269.2	0.740	10.6	79.9
9	2.50	945.0	269.8	0.808	10.0	93.9
10	2.50	945.0	269.8	0.807	10.0	95.2
11	2.25	944.0	269.5	0.684	11.2	87.3
12	2.25	945.0	269.8	0.762	10.4	98.5
13	2.50	947.0	270.3	0.774	10.3	88.3
14	2.50	940.0	268.4	0.775	10.3	89.9
15	2.50	938.0	267.9	0.771	10.3	88.3
16	2.50	945.0	269.8	0.776	10.3	88.6
17	2.75	948.0	270.6	0.797	10.1	83.4
18	2.75	951.0	271.4	0.845	9.7	88.7
19	2.75	953.0	271.9	0.723	10.9	75.5
20	2.75	953.0	271.9	0.787	10.3	83.9
21	2.50	952.0	271.6	0.780	10.3	86.4
22	2.50	953.0	271.9	0.808	10.1	93.6
23	2.25	951.0	271.4	0.793	10.2	99.0
24	2.25	950.0	271.1	0.791	10.2	100.6
Average of Points	2.55	947.9	270.5	0.776	10.3	87.0
From End Run Data	61.25	947.9	270.5	0.872	9.5	90.1

Note: Point data use run averages for moisture content, molecular weight, pressures and O2

pace.

AIR SAMPLING DEPARTMENT

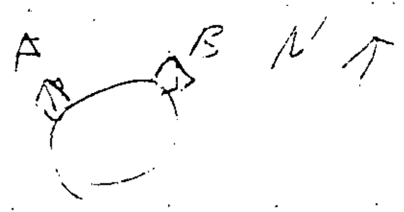
EPA Method 2 Field Data Sheet

Project LP Sagola
Test Location Thermal Oil Heater stack
Date 1-30-92 Test 1 Run 1
Operators J. Pedersen P. Pivotil
Barometric Pressure 28.65 Inches Hg
Static Pressure -.25 Inches H_2O

Pitot Tube No. 25 C_p .842
Pressure Measurement Device Oil Manometer
Duct Dimensions 47.25 Inches
Port Length 2 Inches
Temp. - Dry Bulb 438 °F, Wet Bulb 145 °F
Moisture Content 14 %
Time of Measurement 1245 (24 Hr. Clock)

Traverse Point Identification				Velocity Head ΔP Inches H_2O	Stack Temperature °F
Point Number	% Of Diameter	Inches From: Wall	Inches From: Port		
A 1		1.01	3.01	.28	
2		3.17	5.17	.32	
3		5.58	7.58	.40	
4		8.38	10.38	.39	
5		11.81	13.81	.41	
6		16.81	18.81	.44	
7		30.44	32.44	.41	
8		35.44	37.44	.41	
9		38.87	40.87	.37	
10		41.67	43.67	.36	
11		44.08	46.08	.35	
12		46.24	48.24	.34	
B 1				.30	
2				.31	
3				.37	
4				.40	
5				.42	
6				.45	
7				.45	
8				.40	
9				.43	
10				.41	
11				.38	
12				.38	

Avg ΔP = .3…



Schematic of Duct Cross-Section

Computer Data Summary:

Stack Pressure 28.03 Inches Hg
Duct Area 12.176 Square Feet
Molecular Weight - M_d 30.15
Molecular Weight - M_s 28.45
Avg. Duct Temperature 438 °F
Average $\sqrt{\Delta P}$ .6204
Flue Gas Velocity 47.37 Feet/Sec.
Volumetric Flow Rate:
ACFM 34620
DSCFM 16401

pace

AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project L.K. Seed/a
Sample Location Thomas Co. Heater Burner Stack
Date 1-30-92 Test 1 Run 1
Operators T. Pelkey, R. Auchl

Train No. C2 B1 P5 S1
Meter Coef. ∂ 1.0067
Orifice Coef. ΔH@ 2.168
Nozzle No. 6-3 D_n .242

Pitot Tube No. 25 C_p .842
Bar. Pres. 28.05 Ins. Hg
Static Pres. -.25 Ins. H_2O
Estimated MC 14 %

Sampling Train Leak Checks:
Pretest 0 @ 15 Ins. Hg
Posttest 0 @ 6 Ins. Hg

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Sampling Train Temperatures - °F: Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(14.25)	(447.461)													
12	2.5	448.41	.39	.51			1.8	477	245	240	48	70	68	10.7	
12	5	449.85	.37	.54			1.9	474				77	69	10.7	
11	7.5	450.72	.43	.52			2.4	477	246	245	38	79	69	9.9	
9	10.00	451.71	.40	.56			2.8	477				81	69	6.5	
8	12.50	452.72	.38	.57			3.1	478	249	263	38	82	69	9.3	
7	15	453.72	.40	.57			3.3	478				83	68	10.6	
6	17.25	454.63	.35	.57			3.6	476	248	254	37	83	69	12.2	
5	19.75	455.64	.34	.58			3.8	476				84	70	9.8	
4	22.00	456.65	.33	.59			4.0	476	249	254	37	85	70	9.8	
3	24.25	457.47	.32	.59			4.1	478				85	70	10.6	
2	26.25	458.74	.28	.59			4.5	478	249	255	38	86	70	10.3	
1	28.25	459.11	.27	.54			4.9	460				86	70	9.3	
12	30.50	460.10	.33	.57			4.8	455	246	235	39	83	71	10.5	
11	32.75	460.95	.36	.57			4.7	464				84	71	10.1	
10	35.25	461.98	.37	.59			4.5	468	248	241	39	86	71	9.0	
9	37.75	463.01	.38	.59			4.1	466				87	72	9.2	
8	40.25	464.06	.42	.60			4.0	474	245	256	39	88	72	11.2	
7	42.75	465.16	.42	.60			4.0	473				88	72	8.6	
6	45.25	466.15	.38	.60			3.8	475	251	260	39	88	73	10.8	
5	47.75	467.20	.39	.60			3.5	478				89	73	11.3	
4	50.25	468.24	.37	.60			3.5	473	249	253	40	89	73	10.4	
3	52.50	469.22	.35	.61			3.5	475				89	74	10.4	
2	54.75	470.16	.30	.61			3.5	473	248	242	40	90	74	9.6	
1	57.00	471.03	.29	.61			3.5	475				90	74	10.1	
	(1:30)														
	Θ = 57.0	V_m = 23.63	.3400	ΔH = .5800				T_s = 473.08					T_m = 79.5		

Samples Recovered: Filter No. 2190 : ☒ Probe Wash; ☒ Wet Catch; ☒ Other PM-10

Integrated Gas Sampling Data:

Box No. ______ Bag Material ______
Bag No. ______ Leak Checks ______ cc/min. @ 25"Hg
Bag Vol. ______ Liters Posttest O_2 Reading ______
320 ______

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	177	106	6	X	1389	
Initial Volume	100	100	0	X	1384	
Difference	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project: LP Supply
Sample Location: O.P. Baghouse Stack
Date: 1-30-97 Test 1 Run 2
Operators: J. Robinson

Train No. C2 B1 P5 S1
Meter Coef. ∂ 1.0062
Orifice Coef. ΔH@ 2.1004
Nozzle No. U-3 D_n .247

Pitot Tube No. 25 C_p .842
Bar. Pres. 28.65 Ins. Hg
Static Pres. -.25 Ins. H_2O
Estimated MC 16 %

Sampling Train Leak Checks:
Pretest 0 @ 15 Ins. Hg
Posttest ____ @ ____ Ins. Hg

Point No.	Time ΔT 2.5	Meter Vol. V_m 472.30 Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter °F	Probe °F	Impinger Outlet °F	Meter Inlet °F	Meter Outlet °F	320 P Oxygen Percent	
	(16.25)	(-474.29-)													
B 12	2.5	473.71	.35	.54			1.6	468	215	250	44	75	73	11.3	
11	5	474.71	.37	.56			1.6	464	234	262	47	82	72	9.3	
10	7.5	475.71	.36	.57			1.7	468	245	264	41	86	72	9.9	
9	11	476.74	.37	.58			1.7	470	245	264	42	85	72	10.4	
8	12.75	477.85	.40	.58			1.8	474	247	266	42	88	72	10.5	
7	15.50	478.98	.40	.59			1.8	476	246	261	42	89	73	9.7	
6	18.00	480.03	.35	.59			1.8	475	248	262	42	89	74	10.0	
5	20.50	481.03	.35	.60			1.8	470	245	261	42	90	74	10.4	
4	23.00	482.08	.36	.60			1.9	475	248	261	42	91	75	9.2	
3	25.50	483.10	.33	.60			1.9	475	248	259	42	91	75	8.3	
2	27.75	484.03	.30	.60			1.9	474	248	258	42	91	75	10.2	
1	30.00	484.79	.30	.60			1.9	474	246	261	42	91	75	11.9	
A 12	32.50	486.04	.37	.58			1.9	478	248	265	42	84	75	9.9	
11	35.25	487.21	.40	.60			1.9	475	248	261	42	86	75	10.6	
10	38.00	488.30	.44	.60			1.9	477	247	261	42	90	75	11.8	
9	40.75	489.43	.42	.60			1.9	478	250	261	43	91	75	8.7	
8	43.25	490.48	.39	.61			1.9	480	250	266	44	92	76	9.7	
7	46.00	491.64	.42	.61			1.9	479	250	266	44	92	76	11.6	
6	48.50	492.68	.36	.61			1.9	478	251	269	45	92	75	8.7	
5	51.00	493.73	.34	.61			1.9	478	250	268	45	92	76	10.0	
4	53.25	494.65	.32	.61			1.9	477	249	266	44	92	76	10.5	
3	55.50	495.58	.30	.62			2.0	476	250	262	43	93	76	10.9	
2	57.75	496.51	.27	.61			1.9	477	250	263	43	92	76	10.2	
1	60.00	497.52	.28	.61			1.9	478	250	264	43	92	76	9.6	
	(17.56)														
	θ=60	V_m =25.22	.36	$\overline{\Delta H}$=.575				$\overline{T}_s$=474.2					$\overline{T}_m$=81.8		

Samples Recovered: Filter No. 2/93 ; ☒ Probe Wash; ☒ Wet Catch; ☒ Other 8 AM-10

Integrated Gas Sampling Data:

Box No. ________ Bag Material ________
Bag No. ________ Leak Checks ____ cc/min. @ 25"Hg
Bag Vol. ____ Liters Posttest O_2 Reading ________
320 P No. ________

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	180	112	0	X	1342	
Initial Volume	100	100	0	X	1337	
Difference	80	12	0	X	5	97

pace

AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project LP Suzala
Sample Location Thermal Oil Boiler/Kiln Stack
Date 1-3-92 Test 1 Run 3
Operators T. Welvin R. Piechl

Train No. C2 01 PS 51
Meter Coef. ∂ 1.0067
Orifice Coef. ΔH@ 2.106
Nozzle No. 0-3 D_n .247

Pitot Tube No. 25 C_p .840
Bar. Pres. 28.05 Ins. Hg
Static Pres. -.21 Ins. H_2O
Estimated MC 16 %

Sampling Train Leak Checks:
Pretest 0 @ 15 Ins. Hg
Posttest 0 @ 5 Ins. Hg

	Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
		(14:35)	(497.50)													
5	4 12	2.5	495.50	.41	.50			1.8	454	251	268	48	75	73	10.1	
.5	11	5	499.75	.39	.51			1.8	486	248	267	45	76	73	10.9	
.35	10	7.75	500.93	.45	.52			1.8	492	250	265	49	75	73	9.9	
.75	9	10.50	501.91	.46	.51			1.9	492	250	263	48	80	73	10.3	
.75	8	13.25	502.97	.45	.53			1.7	492	250	266	49	82	73	9.7	
.25	7	16.00	504.04	.46	.53			1.9	493	250	264	50	82	73	9.7	
.50	6	18.50	505.06	.35	.54			1.9	483	251	265	52	83	73	8.5	
.75	5	21.25	506.10	.40	.54			1.9	483	250	261	52	84	73	9.9	
.5	4	23.75	507.14	.35	.54			1.9	485	250	265	56	85	73	10.3	
.5	3	26.25	508.15	.34	.55			2.0	485	250	263	57	86	73	9.6	
.25	2	28.50	508.96	.28	.55			2.0	484	251	263	55	86	74	9.8	
.25	1	30.75	509.84	.25	.55			2.0	485	249	263	53	87	74	10.6	
.5	13 12	33.25	510.83	.36	.54			1.9	482	241	263	54	85	73	10.5	
.5	11	35.75	511.83	.35	.55			2.0	480	248	265	52	86	74	10.1	
.5	10	38.25	512.83	.36	.56			2.0	475	245	267	53	88	75	10.9	
.25	9	40.75	513.83	.36	.56			2.0	485	250	267	51	89	75	10.8	
.25	8	43.50	514.90	.43	.56			2.0	488	250	263	50	89	75	10.8	
.75	7	46.25	516.16	.43	.56			2.0	491	248	266	50	89	75	10.6	
.75	6	49.00	517.17	.42	.57			2.0	493	244	264	49	90	75	10.1	
.75	5	51.75	518.35	.41	.57			2.0	493	243	263	44	91	75	10.5	
.5	4	54.25	519.38	.38	.57			2.0	493	243	264	48	91	75	10.0	
.5	3	56.75	520.32	.35	.58			2.1	493	245	265	48	91	76	9.4	
.25	2	59.00	521.24	.30	.58			2.1	491	250	266	48	92	77	10.0	
.25	1	61.25	522.16	.24	.58			2.1	490	249	265	48	93	77	11.1	
		(2010)														
		Θ=61.25	V_m=25.36	.38	$\overline{\Delta H}$=.55				$\overline{T}_s$=482.8					$\overline{T}_m$=74.9		

Samples Recovered: Filter No. 2273 ; ☒ Probe Wash; ☒ Wet Catch; ☒ Other Rn-10

Integrated Gas Sampling Data:

Box No. ______ Bag Material ______
Bag No. ______ Leak Checks ______ cc/min. @ 25"Hg
Bag Vol. ______ Liters Posttest O_2 Reading ______
[redacted]320 [redacted]

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	180	108	1	X	1394	
Initial Volume	100	100	0	X	1359	
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

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AIR SAMPLING DEPARTMENT

Field Computer Summary

Project Name: LP Sasola

Operator: J. Pederson

Sampling Location: Thermal Oil "Heater" stack

Date of Test: 1-30-92

Test Number: 1

Initialization Parameters		
Meter Coef. - ∂	=	1.0067
Orif. Coef. - ΔH@	=	2.106
Pitot Coef. - C_p	=	.842
Nozzle Dia. - D_n	=	.247
Bar. Pres. - P_b	=	28.05
Time/Point - ΔT	=	–
Moisture Content	=	14
% Oxygen	=	10
Meter Temp. - t_m	=	78
Static Pres. - P_g	=	-.25

Run Specific Input Parameters	Run 1	Run 2	Run 3	Run 4
V/O	447.40	~~471.78~~ 472.30	497.80	
No. Of Points	24	24	24	
MC	14	16	16	
V/F	471.03	497.52	522.16	
Grams H_2O	88	97	94	
Run Time	57	60	61.25	
1-Rnd/2-Rect	1	1	1	
Diameter(Ins.)	47.25	47.25	47.25	
Length(Ins.)				
Width(Ins.)				

End Of Run Summary	Run 1	Run 2	Run 3	Run 4
Avg. √ΔP				
Avg. ΔH				
Avg. t_s				
Avg. t_m				
Standard Vol.	21.84	23.22	23.44	
Moist. Content	15.94	16.43	15.88	
Avg. Gas Vel.				
% Isokinetic				
ACFM				
DSCFM				

Company: LP Segola   Source: Oil Burner Stack

Date: 1-30-92   City &State: Segola MI

Method 201A Summary Sheet
Pre-Run Calculations

	RUN 1	RUN 2	RUN 3	RUN 4	Comments
Ps=	28.03	28.03	28.03		
Md=	30.00	30.00	30.00		
Mw=	28.32	28.08	28.08		
µs=	265,337	278,138	274,340		
Qs=	.781	.830	.819		
ΔH(@Tm)=	.58	.58	.56		
Vn=	34.07				
Vmin=	.49				
Vmax=	1.61				
ΔPmin=					
ΔPmax=					
Avg. ΔP=	.39	.36	.36		
Bws=	.14	.16	.16		
Ts (avg)=	438	473	475		
Tm=	78	80	82		
Pb=	28.05	28.05	28.05		
Pg=	-.25	-.25	-.25		
Cp=	.842	.842	.842		
Dn=	.247	.247	.247		
Cal. ΔH=	2.106	2.106	2.106		
F.G. Vel.=	47.39				
O2=	10	10	10		
CO2=	10	10	10		
N2=	80	80	80		

Nominal Dia.	Nozzle	Dn (sq.)	
	0-1	.0169	
.187	0-2	.035	68.19
	0-3	.061	= 34.07
	0-4		
	0-5		
	0-6		

Ps= Stack Gas Pressure
Md= Mol. Weight of Stack Gas,dry
Mw= Mol. Weight of Stack Gas,in Water
µs= Viscosity of Stack Gas
Qs= Cyclone Flow Rate
ΔH(@ Tm)= ΔH at Estimated Meter Temp.
Vn= Nozzle Velocity
Vmin= Minimum Gas Velocity in ft/ sec.
Vmax= Maximum Gas Velocity in ft/ sec.
ΔPmin= Minimum Velocity Head Value
ΔPmax= Maximum Velocity Head Value
Avg. ΔP= Average Velocity Head Reading

Bws= Fraction Moisture Content
Ts(avg)= Estimated Average Stack Temp.
Tm= Estimated Average Meter Temp.
Pb= Barometric Pressure
Pg= Stack Static Pressure
Cp= Pitot Coefficient
Dn= Calibrated Nozzle Diameter
Cal. ΔH= Avg. Pressure Differential Across Meter
F.G. Vel.= Stack Gas Velocity in ft/ sec.
O2= Estimated Oxygen Content
CO2= Estimated Carbon Dioxide Content
N2= Estimated Nitrogen Content

LP Sazola Oil Burner Stack
R1

Ps=28.05 + (-.25/13.6)	Md=.44(10)+.32(10)+.28(80)	Mw= 30 (1-.14)+18(.14)
=	=	=
= 28.03	= 30.00	= ~~28.9~~ 28.32

μs=152.418+.2552(434)+.000032355(434²)+.53147(10)-74.143(.14)
=
= μs= 265.337

Qs=.002837(265.337) [(425+460) / (28.32 (28.03))]^.2949 = Qs= .781

ΔH= [.781(.86)28.03 / (848)]^2 (78 +460)(30)(1.083)(2.106) / (28.05)

= .000440 X 1312.373609 ΔH= .58

Vn= 3.056 (Qs) / (.187²) 2.386736 / .0350 Vn= 39.07

Vmin= [.2457+ [.3072- .2603 (.781^1.5)265.337 / (39.07^1.5)]]^.5

= .3072 - .2499 = .2344 Vmin = .49

Vmax= [.4457+ [.5690- .2603 ( ) / ( )]]^.5

= .5690 - .2499 = .3191 Vmax= 1.01

ΔPmin= .00013686 X ( )( )( ) / (+460)( )

= ΔPmin=

ΔPmax= .00013686 X ( )( )( ) / (+460)( )

ΔPmax=

=

List ΔH for various avg. Tm

Tm	ΔH

Dwell time= [( ) / ( )]^.5 X ( ) / ( )

Change Dwell time=

Tn= ( ) / ( ) X ( )

Vs0 17.647 Y 28.05 + (.55/13.6)

MC = 4.707 x .55 / ... 80 + 460 / ... X 1.0067 X 23.63 = 21.54

LP Sasols Oil Burner Stack
R2

Ps= 28.07+ (-.25 /13.6)	Md=.44(10)+.32(10)+.28(80)	Mw=30.00(1-.16)+18(.16)
=	=	=
= 28.03	= 30.00	= 28.08

µs=152.418+.2552(473)+.000032355(473^2)+.53147(10)-74.143(.16)
=
= µs= 278.138

Qs=.002837(278.138) $\left[\frac{473+460}{28.08\,(28.03)}\right]$^.2949 = Qs= .830

ΔH= $\left[\frac{.830(.84)28.03}{(933)}\right]$^2 $\frac{(80+460)(30)(1.083)(2.106)}{(28.05)}$

= .000439 X 1317.25252 ΔH= .58

Vn= $\frac{3.056\,(Qs)}{(\quad)}$ Vn=

Vmin= [.2457+ [.3072- .2603 ( ) / ( )] ^.5]

= Vmin =

Vmax= [.4457+ [.5690- .2603 ( ) / ( )] ^.5]

= Vmax=

ΔPmin= .00013686 X $\frac{(\quad)(\quad)(\quad)}{(\quad+460)(\quad)}$

= ΔPmin=

ΔPmax= .00013686 X $\frac{(\quad)(\quad)(\quad)}{(\quad+460)(\quad)}$ ΔPmax=

=

Dwell time= [( ) / ( )]^.5 X ( ) / ( )

Change Dwell time=

Tn= ( ) / ( ) X ( )

List ΔH for various avg. Tm

Tm	Δ H

VSTD 12.642 X $\frac{28.05+(60/13.6)}{80+460}$ X 1.0067 X 25.22 = 23.22

ML = 4.702x.97

LP Sample Oil Burner Stack
R3

Ps= 28.05 + (-.25 /13.6)	Md=.44(10)+.32(10)+.28(80)	Mw=30.6 (1-.16)+18(.16)
=	=	=
= 28.03	= 30.66	= 28.08

μs=152.418+.2552(475)+.000032355(475^2)+.53147(10)-74.143(.16)
=
=

μs= 274.390

Qs=.002837(274.390) $\left[\frac{475+460}{28.08\ (28.03)}\right]$^.2949 =

Qs= .819

ΔH= $\left[\frac{.819\ (.84)\ 28.03}{(\ 935\ )}\right]$ ^2 $\frac{(\ 82\ +460)(\ 30\ )(1.083)(\ 2.106\ )}{(\ 28.05\ )}$

= .000425 × ~~1078.155448~~ 1322.131033

ΔH= .56

Vn= $\frac{3.056\ (\ Qs\ )}{(\quad)}$

Vn=

Vmin= $\left[.2457+\left[.3072-\frac{.2603\ (\quad)}{(\quad)}\right]\right]$^.5

=

Vmin =

Vmax= $\left[.4457+\left[.5690-\frac{.2603\ (\quad)}{(\quad)}\right]\right]$^.5

=

Vmax=

ΔPmin= .00013686 X $\frac{(\quad)(\quad)(\quad)}{(\quad+460)(\quad)}$

=

ΔPmin=

ΔPmax= .00013686 X $\frac{(\quad)(\quad)(\quad)}{(\quad+460)(\quad)}$

ΔPmax=

=

Dwell time= $\left[\frac{(\quad)}{(\quad)}\right]$^.5 X $\frac{(\quad)}{(\quad)}$

Change Dwell time=

Tn= $\frac{(\quad)}{(\quad)}$ X ( )

List ΔH for various avg. Tm

Tm	Δ H

VSTD = 17.647 × 28.05 + (.55/13.6) / 82+460 × 1.0062 × 2.536 = 23.44

Mc = 4.707 × 94 / 442.458 = .

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992

APPENDIX A

FORMALDEHYDE CALCULATION SUMMARY

TEST 3

Surface/Core Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Sample Duration (Minutes)	64	64	64
Barometric Pressure (inches Hg)	28.5	28.5	28.5
Static Pressure Of Duct (Inches H2O)	0.8	0.8	0.8
Absolute Pressure Of Duct (Inches Hg)	28.56	28.56	28.56
Meter Coefficient	1.001	1.001	1.001
Pitot Tube Coefficient	0.831	0.831	0.831
Nozzle Diameter (Inches)	0.211	0.211	0.21
Area Of Nozzle Opening (Square Feet)	0.000243	0.000243	0.000241
Average $\sqrt{\Delta P}$	1.1705	1.1647	1.1597
Average ΔH	1.54	1.54	1.49
Average Stack Temperature (°R)	671.81	672.81	672.19
Average Meter Temperature (°R)	515.69	517.78	519.03
Meter Volume (Cubic Feet)	43.99	43.93	43.07
Dry Standard Sample Volume (Cubic Feet)	43.12	42.88	41.94
Collected Condensate Volume (mls)	245.0	282.0	257.0
Volume Of Water Vapor (Standard Cubic Feet)	11.53	13.27	12.10
Moisture Content Of Flue Gas (% v/v)	21.10	23.64	22.39
Source Gas Velocity (Feet Per Second)	77.8	77.9	77.4
Isokinetic Variation (%)	100.4	103.2	100.9

pace

EPA Method 5 Field Data Sheet

Project: Lr Sagola | Train No. CS, P7 | Pitot Tube No. 3 C_p .831 | Sampling Train Leak Checks:
Sample Location: Scrubber/ore dryers/stack | Meter Coef. ∂ 1.0010 | Bar. Pres. 28.50 Ins. Hg | Pretest 0 @ 15 Ins. Hg
Date 1/28/92 Test 3 Run 1 | Orifice Coef. ΔH@ 1.822 | Static Pres. +.8 Ins. H_2O | Posttest 0.00 @ 7.0 Ins. Hg
Operators: [illegible] PJP | Nozzle No. 4-1 / 81-1 D_n .211 / .212 | Estimated MC 21 %

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(1754)	(176.00)													
A 8	4	178.79	1.55	1.72	284	889	4.3	212				43	42	17.4	
7	8	181.07	1.60	1.74	284	179	4.9	214	218	259	36	65	43	17.4	
6	92	184.52	1.60	1.78	296	475	4.5	214				68	44	17.5	reweigh [illegible] nozzles
5	16	187.50	1.55	1.73	292	767	5.0	214				62	43	17.6	
4	20	190.36	1.30	1.44	266	033	5.0	214	231	249	46	67	43	17.7	
3	24	193.16	1.30	1.45	267	300	5.0	215				68	44	17.7	
2	28	195.69	1.30	1.35	258	558	4.3	210				69	45	17.6	
1	32	197.81	.86	.97	219	777	3.2	210	234	248	51	70	45	17.4	
B 8	36	200.45	1.30	1.47	270	047	4.5	207				64	46	17.3	
7	40	203.13	1.40	1.57	278	325	4.9	213				68	46	17.3	
6	44	206.03	1.40	1.57	278	603	5.5	214	226	256	55	69	46	17.3	
5	48	208.92	1.50	1.69	289	892	5.7	213				69	47	17.2	
4	52	211.70	1.45	1.63	284	176	5.5	214				69	47	17.2	
3	56	214.60	1.55	1.74	294	469	5.8	213	230	252	48	69	47	17.2	
2	60	217.55	1.50	1.69	290	759	6.1	210				69	48	17.5	
1	64	219.99	1.00	1.14	237	996	4.5	207				69	48	17.3	
	(1935)														
	Θ = 64	V_m = 43.99	1.121	ΔH = 1.543				T_s = 212.[illegible]					T_m = 55.69		

Samples Recovered: Filter No. N/A ; ☒ Probe Wash; ☒ Wet Catch; ☒ Other TRAIN WASH (FORM)

Integrated Gas Sampling Data: None taken

Box No. ______ Bag Material ______
Bag No. ______ Leak Checks ______ cc/min. @ 25"Hg
Bag Vol. ______ Liters Posttest O_2 Reading ______
320 P No. ______

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	292	142	0	X	345	
Initial Volume	100	100	0	X	334	
Difference	192	42	0	X	11	245

pace

EPA Method 5 Field Data Sheet

Project CP Sagola
Sample Location Surface core dryer stack
Date 1/28/92 Test 3 Run 2
Operators DJC PJD

Train No. C5, P7
Meter Coef. ∂ 1.0010
Orifice Coef. ΔH@ 1.873
Nozzle No. 4-1 D_n .211 (0.1-1 .210)

Pitot Tube No. 3 C_p .831
Bar. Pres. 28.50 Ins. Hg
Static Pres. +.8 Ins. H_2O
Estimated MC 21 %

Sampling Train Leak Checks:
Pretest 0 @ 15 Ins. Hg
Posttest 0.00 @ 80 Ins. Hg

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(2018)	(220.34)													
B 8	4	223.07	1.40	1.56	277	311	4.4	215	225	250	42	44	43	17.1	
7	8	225.65	1.30	1.42	261	573	4.5	215				66	44	17.3	
6	12	228.43	1.45	1.62	282	855	5.3	215				69	44	17.5	
5	16	231.36	1.50	1.68	288	142	6.0	215	232	261	45	70	45	17.3	
4	20	234.30	1.50	1.68	288	430	6.1	216				71	46	17.2	
3	24	237.20	1.50	1.68	289	719	6.0	215				70	47	17.3	
2	28	239.97	1.40	1.59	280	999	5.5	209	226	252	53	70	48	17.5	
1	32	242.39	1.05	1.20	243	243	4.7	206				70	48	17.5	
A 8	36	245.37	1.65	1.86	304	547	6.5	212				62	48	17.5	
7	40	248.38	1.65	1.84	301	848	6.6	215	227	255	53	70	49	17.6	
6	44	251.45	1.65	1.86	303	151	7.0	215				71	49	17.5	
5	48	254.43	1.45	1.63	285	436	6.9	215				71	49	17.4	
4	52	257.09	1.30	1.46	270	705	5.5	215	250	264	59	72	50	17.4	
3	56	259.67	1.20	1.35	260	965	5.4	215				71	50	17.3	
2	60	262.19	1.10	1.25	250	215	5.0	208				71	50	17.6	
1	64	264.27	.78	.89	211	425	4.0	204	250	261	59	71	50	17.6	
	(2125)														
	θ= 64	V_m = 43.93	1.165	$\overline{\Delta H}$= 1.535				$\overline{T_s}$= 212.81					$\overline{T_m}$= 57.72		

Samples Recovered: Filter No. — ; ☐ Probe Wash; ☐ Wet Catch; ☒ Other TRAIN WASH

Integrated Gas Sampling Data: None taken

Box No. ______
Bag No. ______
Bag Vol. ______ Liters

Bag Material ______
Leak Checks ______ cc/min. @ 25"Hg
Posttest O_2 Reading ______
320 P No. ______

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	316	140	1		1370	
Initial Volume	100	100	0		1345	
Difference	216	40	1		25	282

256 257

pace

AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project: LP Sagola
Sample Location: Scrubber/core dryer stack
Date: 1/25/92 Test: 3 Run: 3
Operators: [illegible] PJD

Train No.: CS, P7
Meter Coef. ∂: 1.0010
Orifice Coef. ΔH@: 1.872
Nozzle No.: @14 D_n: .210

Pitot Tube No.: 3 C_p: .831
Bar. Pres.: 28.50 Ins. Hg
Static Pres.: -.80 Ins. H_2O
Estimated MC: 22 %

Sampling Train Leak Checks:
Pretest .000 @ 15 Ins. Hg
Posttest ____ @ ____ Ins. Hg

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Sampling Train Temperatures - °F Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(2223)	(264.70)													
A 8	4	267.00	1.65	1.81	290	764	5.0	215				46	45	17.2	
7	8	270.40	1.65	1.76	280	050	5.0	215	225	252	51	55	47	17.0	
6	12	273.30	1.65	1.79	295	345	5.0	215				71	46	17.0	
5	16	276.74	1.50	1.65	286	631	5.0	214				72	47	17.0	
4	20	278.82	1.25	1.38	262	842	4.7	214	227	256	54	72	49	16.9	
3	24	281.50	1.20	1.32	257	149	4.8	213				72	49	17.0	
2	28	283.92	1.05	1.17	241	391	4.4	208				72	49	17.0	
1	32	286.06	.83	.93	215	605	3.6	207	230	254	52	71	50	17.1	
B 8	36	288.56	1.35	1.50	273	875	5.5	212				64	50	17.3	
7	40	291.63	1.40	1.54	276	154	5.5	213				71	50	17.4	
6	44	294.36	1.40	1.55	278	431	5.5	213	232	269	52	72	50	17.0	
5	48	297.08	1.40	1.55	278	709	5.5	214				72	50	16.8	
4	52	299.96	1.45	1.60	283	991	6.3	214				72	51	16.5	
3	56	302.82	1.45	1.61	283	274	6.3	213	247	270	54	73	51	17.3	
2	60	305.58	1.40	1.56	279	553	6.1	212				73	52	17.1	
1	64	307.77	1.05	1.18	243	796	4.5	207				73	52	17.1	
	2321.0														
	Θ = 1:04	V_m = 43.07	1160	ΔH = 1.489				T_s = 212.9					T_m = 56.9		

Samples Recovered: Filter No. ______ ; ☐ Probe Wash; ☐ Wet Catch; ☒ Other Train wash / Form

Integrated Gas Sampling Data: none taken

Box No. ______
Bag No. ______
Bag Vol. ______ Liters

Bag Material ______
Leak Checks ______ cc/min. @ 25"Hg
Posttest O_2 Reading ______
320 P No. ______

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	254	149	3	X	1336	
Initial Volume	100	100	0	X	1315	
Difference	184	49	3	X	21	257

pace

AIR SAMPLING DEPARTMENT

Field Computer Summary

Project Name: LP Sago/9

Operator: M. Loftus

Sampling Location: surface/core dryer stack

Date of Test: 1/28/92

Test Number: 3

Initialization Parameters			Run Specific Input Parameters	Run 1	Run 2	Run 3	Run 4
Meter Coef. - ∂	=	1.0010	V/O	176.00	220.34	264.70	
Orif. Coef. - ΔH@	=	1.872	No. Of Points	16	16	16	
Pitot Coef. - C_p	=	.833	MC	21	21	22	
Nozzle Dia. - D_n	=	.211	V/F	219.99	264.27	307.77	
Bar. Pres. - P_b	=	28.50	Grams H_2O	245	282	257	
Time/Point - ΔT	=	4	Run Time	64	64	64	
Moisture Content	=	21	1-Rnd/2-Rect	1	1	1	
% Oxygen	=	18	Diameter(Ins.)	47	47	47	
Meter Temp. - t_m	=	50	Length(Ins.)	X	X	X	
Static Pres. - P_g	=	+.8	Width(Ins.)	X	X	X	

End Of Run Summary

	Run 1	Run 2	Run 3	Run 4
Avg. √ΔP	1.171	1.165	1.160	
Avg. ΔH	1.543	1.535	1.489	
Avg. t_s	212.00	212.81	212.19	
Avg. t_m	55.69	57.78	56.19	
Standard Vol.	43.12	42.88	42.17	
Moist. Content	21.10	23.64	22.29	
Avg. Gas Vel.	77.86	77.52	77.31	
% Isokinetic	100.43	103.78	100.46	
ACFM	56283	56037	55888	
DSCFM	33303	32053	32561	

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Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992

APPENDIX A

FORMALDEHYDE CALCULATION SUMMARY

TEST 3

Surface Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Sample Duration (Minutes)	64	64	64
Barometric Pressure (inches Hg)	28.05	28.05	28.05
Static Pressure Of Duct (Inches H2O)	0.9	0.9	0.9
Absolute Pressure Of Duct (Inches Hg)	28.12	28.12	28.12
Meter Coefficient	1.001	1.001	1.001
Pitot Tube Coefficient	0.831	0.831	0.831
Nozzle Diameter (Inches)	0.21	0.21	0.21
Area Of Nozzle Opening (Square Feet)	0.000241	0.000241	0.000241
Average $\sqrt{\Delta P}$	1.2462	1.2542	1.2341
Average ΔH	1.62	1.63	1.60
Average Stack Temperature (°R)	707.56	708.44	708.13
Average Meter Temperature (°R)	511.00	514.53	515.41
Meter Volume (Cubic Feet)	44.99	45.45	44.99
Dry Standard Sample Volume (Cubic Feet)	43.81	43.95	43.43
Collected Condensate Volume (mls)	281.0	242.0	245.0
Volume Of Water Vapor (Standard Cubic Feet)	13.23	11.39	11.53
Moisture Content Of Flue Gas (% v/v)	23.19	20.58	20.98
Source Gas Velocity (Feet Per Second)	86.1	86.2	84.9
Isokinetic Variation (%)	102.3	99.3	100.1

pace

AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project: c/ Saguk
Sample Location: Surface dryer stack
Date: 1/30/92 Test: 3 Run: 1
Operators: RSL TAK'MAKI

Train No. CS,P7
Meter Coef. ∂ 1.0010
Orifice Coef. ΔH@ 1.872
Nozzle No. Q1-1 D_n .216

Pitot Tube No. 3 C_p .831
Bar. Pres. 28.05 Ins. Hg
Static Pres. +.90 Ins. H_2O
Estimated MC 20 %

Sampling Train Leak Checks:
Pretest 0 @ 15 Ins. Hg
Posttest 0.00 @ 8.1 Ins. Hg

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(0243)	(716.46)													
A8	4	719.57	1.96	1.92	306	952	7.9	248				40	37		
7	8	722.72	1.90	1.92	304	256	7.5	249	223			45	37	17.0	
6	12	725.68	1.85	1.87	302	558	7.5	249		265	46	50	37	17.2	
5	16	728.63	1.65	1.68	287	844	7.0	249				55	38	17.2	
4	20	731.23	1.40	1.44	266	110	5.5	248				57	39	17.3	
3	24	733.73	1.30	1.34	257	367	5.1	247	243	246	52	54	39	17.2	
2	28	736.30	1.30	1.35	~~226~~	~~940~~	5.2	241				61	40	17.3	
1	32	738.43	.83	.87	207	833	3.9	241				63	41	17.3	
B8	36	741.65	1.70	1.76	296	129	6.3	250	233	256	53	61	42	17.7	
7	40	744.45	1.75	1.81	300	428	6.0	250				65	44	17.5	
6	44	747.32	1.75	1.82	301	729	5.9	250				66	45	17.5	
5	48	750.17	1.60	1.66	288	018	5.9	251	233	256	54	68	46	17.5	
4	52	753.01	1.65	1.72	294	312	6.6	250				68	46	17.4	
3	56	755.91	1.70	1.77	298	610	6.2	250				68	46	17.5	
2	60	758.83	1.60	1.68	241	901	6.2	244	226	252	57	68	47	17.3	
1	64	761.45	1.20	1.26	252	153	5.0	244				67	47	17.2	
	0448														
	Θ=64	V_m=44.99	1.246	$\overline{\Delta H}$=1.618				$\overline{T_s}$=247.8					$\overline{T_m}$=51.00		

Samples Recovered: Filter No. ______ ; ☐ Probe Wash; ☐ Wet Catch; ☒ Other TRAIN WASH (FCM)

Integrated Gas Sampling Data:

Box No. ______
Bag No. ______
Bag Vol. ______ Liters

Bag Material ______
Leak Checks ______ cc/min. @ 25"Hg
Posttest O_2 Reading ______
320 P No. ______

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	278	175	10		1385	
Initial Volume	100	100	0		1367	
Difference	178	75	10		18	281

253 263

pace

AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project LP Sagola — Train No. CS, 1'7 — Pitot Tube No. 3 — C_p .831

Sample Location surface dryer stack — Meter Coef. ∂ 1.0010 — Bar. Pres. 28.05 Ins. Hg

Date 1/31/92 — Test 3 — Run 2 — Orifice Coef. ΔH@ 1.872 — Static Pres. +.90 Ins. H_2O

Operators [illegible] — Nozzle No. 01-1 — D_n .210 — Estimated MC 22 %

Sampling Train Leak Checks:
Pretest 0 @ 15 Ins. Hg
Posttest 0.01 @ 6.5 Ins. Hg

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Sampling Train Temperatures - °F: Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(1047)	(761.80)													
KS	4	764.61	1.75	1.77	297	477	4.9	248				41	40	17.4	
2	8	767.65	1.75	1.73	290	767	5.1	249				59	41	17.4	
6	12	770.35	1.75	1.77	296	063	5.5	249	223	245	51	64	41	17.2	
5	16	773.25	1.65	1.67	289	351	5.7	249				65	42	17.4	
4	20	776.34	1.70	1.73	273	645	6.1	249				64	42	17.2	
3	24	779.33	1.65	1.68	289	934	6.2	247	244	249	53	67	44	17.5	
2	28	782.26	1.65	1.69	291	225	6.0	245				67	44	17.5	
1	32	784.50	.95	.98	221	446	3.5	245				68	45	17.4	
4.5	36	787.54	1.96	1.94	312	758	6.3	250	254	234	48	62	45	17.4	
7	40	790.79	1.90	1.93	316	068	6.3	250				66	46	17.4	
6	44	793.64	1.90	1.94	311	379	6.3	251				67	46	17.5	
5	48	796.65	1.80	1.83	303	682	6.3	252	259	264	44	67	47	17.5	
4	52	799.64	1.40	1.43	268	950	5.2	251				67	47	17.6	
3	56	802.32	1.35	1.56	298	248	5.1	250				68	48	17.7	
2	60	804.80	1.10	1.13	239	487	4.2	245	266	264	46	69	48	17.3	
1	64	807.25	1.00	1.24	250	737	4.2	244				70	48	17.5	
	(1152)														
	θ= 64	V_m = 45.45	1.254	$\overline{\Delta H}$ = 1.627				T_s = 248.44					T_m =		

Samples Recovered: Filter No. ____ ; ☐ Probe Wash; ☐ Wet Catch; ☒ Other tear k wash

Integrated Gas Sampling Data:

Box No. ____
Bag No. ____
Bag Vol. ____ Liters

Bag Material ____
Leak Checks ____ cc/min. @ 25"Hg
Posttest O_2 Reading ____
320 P No. ____

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	276	148	3		1400	
Initial Volume	100	100	0		1385	
Difference	176	48	3		15	242

pace

AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project: L.P. Sagala
Sample Location: Surface dryer stack
Date: 1/30/92 Test 3 Run 3
Operators: [illegible]

Train No. CS, 1'7
Meter Coef. ∂ 1.0010
Orifice Coef. ΔH@ 1.872
Nozzle No. 01-1 D_n .210

Pitot Tube No. 3 C_p .831
Bar. Pres. 28.05 Ins. Hg
Static Pres. +.90 Ins. H_2O
Estimated MC 21 %

Sampling Train Leak Checks:
Pretest 0 @ 15 Ins. Hg
Posttest .00 @ 6.0 Ins. Hg

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Sampling Train Temperatures - °F: Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(1242)	(807.61)													
A 8	4	810.55	1.90	1.97	317	078	5.0	249				43	42		
7	8	813.66	1.95	1.98	311	389	5.2	249				56	42	17.3	
6	12	817.00	1.90	1.96	311	700	5.5	249	224	258	40	62	43	17.4	
5	16	819.68	1.70	1.76	296	995	5.5	250				65	43	17.4	
4	20	822.02	1.30	1.35	260	255	5.3	249				67	44	17.5	
3	[illegible]	825.19	1.25	1.30	256	511	4.5	248	245	255	46	67	45	17.6	
2	28	827.53	1.10	1.11	241	751	3.9	243				67	45	17.5	
1	32	829.75	.93	.98	221	973	3.5	243				68	46	17.2	
B 8	36	831.[illegible]	1.80	1.88	307	280	5.5	250	250	252	45	60	46	17.6	
7	40	835.90	1.75	1.81	300	580	6.0	250				65	47	17.5	
6	44	838.92	1.75	1.82	302	883	5.9	250				69	47	17.4	
5	48	841.81	1.60	1.67	290	173	5.3	250	260	254	43	70	48	17.4	
4	52	844.54	1.60	1.68	291	463	5.1	250				70	48	17.3	
3	56	847.52	1.65	1.73	295	759	5.9	250				70	48	17.2	
2	60	850.36	1.50	1.57	283	042	5.2	245	259	251	44	71	49	17.4	
1	64	852.60	.98	1.04	226	270	4.1	245				71	49	17.4	
	(1348)														
	Θ=64	V_m = 44.99		$\overline{\Delta H}$=				$\overline{T_s}$=					$\overline{T_m}$=		

Samples Recovered: Filter No: ______ ; ☐ Probe Wash; ☐ Wet Catch; ☒ Other ZR/HIN WASH (Evian)

Integrated Gas Sampling Data:

Box No. ______
Bag No. ______
Bag Vol. ______ Liters

Bag Material ______
Leak Checks ______ cc/min. @ 25"Hg
Posttest O_2 Reading ______
320 P No. ______

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	287	139	2	X	1415	
Initial Volume	100	100	0	X	1400	
Difference	159	39	2	X	15	245

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AIR SAMPLING DEPARTMENT

Field Computer Summary

Project Name: LP Sagola

Sampling Location: Surface dryer Stack

Date of Test: 1/30/92

Test Number: 3

Operator M. Loftus

Initialization Parameters		
Meter Coef. - ∂	=	1.0010
Orif. Coef. - ΔH@	=	1.872
Pitot Coef. - C_p	=	.831
Nozzle Dia. - D_n	=	.210
Bar. Pres. - P_b	=	28.05
Time/Point - ΔT	=	4
Moisture Content	=	21
% Oxygen	=	18
Meter Temp. - t_m	=	40
Static Pres. - P_g	=	+.90

Run Specific Input Parameters

	Run 1	Run 2	Run 3	Run 4
V/O	716.46	761.80	807.61	
No. Of Points	16	16	16	
MC	21	22	21	
V/F	761.45	807.25	852.60	
Grams H_2O	281	242	245	
Run Time	64	64	64	
1-Rnd/2-Rect	1	1	1	
Diameter(Ins.)	47	47	47	
Length(Ins.)	X	X	X	
Width(Ins.)	Y	X	X	

End Of Run Summary

	Run 1	Run 2	Run 3	Run 4
Avg. √ΔP	1.246	1.254	1.234	
Avg. ΔH	1.618	1.627	1.606	
Avg. t_s	247.56	248.44	248.13	
Avg. t_m	51.06	~~56.87~~	55.47	
Standard Vol.	43.81	43.59	43.43	
Moist. Content	23.19	20.72	20.78	
Avg. Gas Vel.	85.73	86.51	84.93	
% Isokinetic	102.79	98.31	100.06	
ACFM	61970	62536	61390	
DSCFM	33378	34724	33989	

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Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992

APPENDIX A

FORMALDEHYDE CALCULATION SUMMARY

TEST 3

Core Dryer Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Sample Duration (Minutes)	64	64	64
Barometric Pressure (inches Hg)	28.5	28.5	28.5
Static Pressure Of Duct (Inches H2O)	0.73	0.73	0.73
Absolute Pressure Of Duct (Inches Hg)	28.55	28.55	28.55
Meter Coefficient	1.001	1.001	1.001
Pitot Tube Coefficient	0.831	0.831	0.831
Nozzle Diameter (Inches)	0.21	0.21	0.21
Area Of Nozzle Opening (Square Feet)	0.000241	0.000241	0.000241
Average $\sqrt{\Delta P}$	1.2023	1.2026	1.2021
Average ΔH	1.54	1.54	1.53
Average Stack Temperature (°R)	707.25	708.38	708.25
Average Meter Temperature (°R)	522.88	521.00	519.41
Meter Volume (Cubic Feet)	44.03	44.35	44.07
Dry Standard Sample Volume (Cubic Feet)	42.56	43.03	42.88
Collected Condensate Volume (mls)	238.0	244.0	223.0
Volume Of Water Vapor (Standard Cubic Feet)	11.20	11.49	10.50
Moisture Content Of Flue Gas (% v/v)	20.84	21.07	19.66
Source Gas Velocity (Feet Per Second)	82.1	82.2	81.9
Isokinetic Variation (%)	99.6	101.0	99.2

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AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project LP Segola Train No. CS, P7 Pitot Tube No. 3 C_p .831 Sampling Train Leak Checks:
Sample Location core dryer stack Meter Coef. ∂ 1.0010 Bar. Pres. 25.50 Ins. Hg Pretest 0 @ 15 Ins. Hg
Date 1/20/92 Test 3 Run 1 Orifice Coef. ΔH@ 1.873 Static Pres. +.73 Ins. H_2O Posttest ___ @ 7.0 Ins. Hg
Operators BISL TAK WRM Nozzle No. 314 D_n .310 Estimated MC 21 %

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(1300)	(583.20)													
B 8	4	586.03	1.65	1.70	288	608	5.1	248				54	49		
7	8	588.86	1.70	1.76	293	901	5.5	250				73	51		
6	12	591.80	1.70	1.79	299	200	6.1	250	230	256	49	74	51	17.4	
5	16	594.70	1.60	1.67	290	490	6.3	250				75	52	17.4	
4	20	597.58	1.50	1.54	282	772	6.5	249				75	52	17.6	
3	24	600.49	1.45	1.54	277	049	6.8	248	234	266	51	75	52	17.8	
2	28	603.26	1.40	1.50	274	323	5.9	241				75	53	17.4	
1	32	605.78	1.05	1.12	237	560	5.0	241				75	53	17.3	
A 8	36	608.80	1.80	1.91	309	869	6.9	244	251	263	52	76	53	17.3	
7	40	611.80	1.80	1.89	306	175	6.9	250				76	53	17.4	
6	44	614.80	1.70	1.80	300	476	6.9	251				76	54	17.5	
5	48	617.72	1.60	1.68	291	767	6.8	251	250	266	50	76	54	17.4	
4	52	620.42	1.30	1.38	263	030	5.5	250				75	54	17.4	
3	56	622.83	1.15	1.22	247	277	4.9	248				75	54	17.4	
2	60	625.07	1.05	1.13	238	515	4.1	240	250	261	47	75	54	17.2	
1	64	627.23	.91	.98	221	736	4.1	240				75	54	17.3	
	(2006)														
	θ=64	V_m = 44.03		ΔH=				T_s =					T_m =		

Samples Recovered: Filter No. None ; ☐ Probe Wash; ☐ Wet Catch; ☒ Other Train wash (Form)

Integrated Gas Sampling Data:

Box No. ______ Bag Material ______
Bag No. ______ Leak Checks ______ cc/min. @ 25"Hg
Bag Vol. ______ Liters Posttest O_2 Reading ______
320 P No. ______

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	248	160	5		1380	
Initial Volume	100	100	0		~~1244~~ 1465	
Difference	148	60	5		1380	238

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AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project LP Sagola
Sample Location core dryer stack
Date 1/21/92 Test 3 Run 2
Operators BISI TAK mkm

Train No. CS,P7
Meter Coef. ∂ 1.0010
Orifice Coef. ΔH@ 1.873
Nozzle No. 91-1 D_n .210

Pitot Tube No. 3 C_p .831
Bar. Pres. 28.50 Ins. Hg
Static Pres. 1.73 Ins. H_2O
Estimated MC 21 %

Sampling Train Leak Checks:
Pretest 0 @ 15 Ins. Hg
Posttest 0.00 @ 8.0 Ins. Hg

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(2053)	(627.64)													
B 5	4	630.48	1.76	1.35	295	055	5.8	250				55	48		
7	8	633.52	1.85	1.91	308	363	6.5	251				71	49	17.4	
6	12	636.52	1.75	1.83	304	667	6.7	252	231	237	39	72	49	17.1	
5	16	639.52	1.65	1.73	296	963	6.7	251				73	50	17.3	
4	20	642.26	1.25	1.32	258	222	5.8	250				73	50	17.3	
3	24	644.67	1.25	1.32	259	480	4.8	249	234	245	40	73	51	17.3	
2	28	647.18	1.05	1.12	239	719	5.0	241				73	51	17.3	
1	32	649.44	.97	1.04	229	948	4.5	241				73	51	17.2	
B 8	36	652.40	1.40	1.64	293	241	6.3	250	232	244	46	64	51	17.4	
7	40	655.33	1.70	1.78	300	541	6.5	252				73	51	17.1	
6	44	658.37	1.80	1.87	310	851	7.1	252				73	51	17.2	
5	48	661.46	1.55	1.63	288	138	6.3	252	232	265	47	73	51	17.1	
4	52	664.25	1.50	1.58	253	421	6.3	252				73	51	17.2	
3	56	667.08	1.45	1.53	278	699	6.3	257				73	51	17.1	
2	60	669.88	1.30	1.39	266	965	6.2	240	232	264	48	73	52	17.3	
1	64	671.95	1.00	1.07	233	198	4.5	240				73	52	17.3	
	(2158)														
	Θ= 64	V_m = 44.35		$\overline{\Delta H}$=				$\overline{T}_s$=					$\overline{T}_m$=		

Samples Recovered: Filter No. ______; ☐ Probe Wash; ☐ Wet Catch; ☒ Other TRAIN WASH (Form)

Integrated Gas Sampling Data:

Box No. ______
Bag No. ______
Bag Vol. ______ Liters

Bag Material ______
Leak Checks ______ cc/min. @ 25"Hg
Posttest O_2 Reading ______
320 P No. ______

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	300	130	1		1340	
Initial Volume	100	100	0		1327	
Difference	200	30	1		13	244

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AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project: CP Sequola
Sample Location: core dryer stack
Date: 1/29/92 Test: 3 Run: 3
Operators: [illegible]

Train No. CS,P7
Meter Coef. ∂: 1.0010
Orifice Coef. ΔH@: 1.872
Nozzle No. 24 D_n: .210

Pitot Tube No. 3 C_p: .831
Bar. Pres. 28.50 Ins. Hg
Static Pres. -.73 Ins. H_2O
Estimated MC: 21 %

Sampling Train Leak Checks:
Pretest: 0 @ 15 Ins. Hg
Posttest: ____ @ 9.0 Ins. Hg

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	Velocity Head - ΔP Inches WC	Orifice Meter - ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(2241)	(672.70)													
A 8	4	675.12	1.65	1.74	297	577	6.2	250				51	44	17.5	
7	8	678.02	1.65	1.69	289	805	6.3	251				68	46	17.5	
6	12	680.94	1.70	1.77	298	104	6.8	252				70	46	17.4	
5	16	683.77	1.55	1.62	285	354	6.5	252	233	224	45	70	47	17.3	
4	20	686.80	1.55	1.62	286	675	7.0	252				72	48	17.2	
3	24	689.53	1.45	1.52	277	952	6.5	252				71	48	17.2	
2	28	692.09	1.25	1.33	259	211	5.1	250	236	55	51	71	48	17.2	
1	32	694.44	1.05	1.11	237	448	4.2	242				71	48	17.1	
B 8	36	697.39	1.80	1.88	308	757	7.2	242				68	49	17.4	
7	40	700.55	1.80	1.88	308	065	8.0	252				73	50	17.4	
6	44	703.76	1.75	1.84	306	371	8.0	250	249	226	49	73	50	17.5	
5	48	706.70	1.65	1.74	297	667	7.5	250				73	50	17.3	
4	52	709.50	1.30	1.37	264	931	6.5	250	228	254	48	73	51	17.3	
3	56	711.84	1.20	1.27	254	185	4.8	249				73	51	17.2	
2	60	714.16	1.10	1.17	244	429	4.9	248				73	51	17.4	
1	64	716.77	.90	.96	221	650	4.7	241	223	250	48	73	51	12.3	
	(2347)							241							
	Ø=64	V_m =44.07		$\overline{\Delta H}$=				$\overline{T_s}$=					$\overline{T_m}$=		

Samples Recovered: Filter No. ______; ☐ Probe Wash; ☐ Wet Catch; ☒ Other TRAIN WASH (Acetone)

Integrated Gas Sampling Data:

Box No. ______
Bag No. ______
Bag Vol. ______ Liters
Bag Material ______
Leak Checks ______ cc/min. @ 25"Hg
Posttest O_2 Reading ______
320 P No. ______

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	280	135	1		347	
Initial Volume	100	100	0		340	
Difference	180	35	1		7	223

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AIR SAMPLING DEPARTMENT

Field Computer Summary

Project Name: CP Sagola

Operator: M. Loftus

Sampling Location: core dryer stack

Date of Test: 1-29-92

Test Number: 3

Initialization Parameters		
Meter Coef. - ∂	=	1.0010
Orif. Coef. - $\Delta H@$	=	1.872
Pitot Coef. - C_p	=	.831
Nozzle Dia. - D_n	=	.210
Bar. Pres. - P_b	=	28.50
Time/Point - ΔT	=	4
Moisture Content	=	21
% Oxygen	=	18
Meter Temp. - t_m	=	50
Static Pres. - P_g	=	+.73

Run Specific Input Parameters

	Run 1	Run 2	Run 3	Run 4
V/O	583.20	627.6	672.20	
No. Of Points	16	16	16	
MC	21	21	21	
V/F	627.23	671.95	716.27	
Grams H_2O	238	244	223	
Run Time	64	64	64	
1-Rnd/2-Rect	1	1	1	
Diameter(Ins.)	47	47	47	
Length(Ins.)	X	X	X	
Width(Ins.)	X	X	X	

End Of Run Summary

	Run 1	Run 2	Run 3	Run 4
Avg. $\sqrt{\Delta P}$	1.202	1.203	1.202	
Avg. ΔH	1.542	1.535	1.532	
Avg. t_s	247.25	248.38	248.25	
Avg. t_m	62.88	61.00	59.41	
Standard Vol.	42.56	42.27	42.13	
Moist. Content	20.84	21.36	19.94	
Avg. Gas Vel.	82.05	82.87	82.83	
% Isokinetic	99.64	100.56	98.49	
ACFM	59315	59902	59870	
DSCFM	33454	32920	33504	

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Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992

APPENDIX A

FORMALDEHYDE CALCULATION SUMMARY

TEST 3

Thermal Oil Heater Stack

PARAMETER	RUN 1	RUN 2	RUN 3
Sample Duration (Minutes)	60	60	60
Barometric Pressure (inches Hg)	28.18	28.18	28.18
Static Pressure Of Duct (Inches H2O)	-0.25	-0.25	-0.25
Absolute Pressure Of Duct (Inches Hg)	28.16	28.16	28.16
Meter Coefficient	1.0067	1.0067	1.0067
Pitot Tube Coefficient	0.831	0.831	0.831
Nozzle Diameter (Inches)	0.302	0.302	0.302
Area Of Nozzle Opening (Square Feet)	0.000497	0.000497	0.000497
Average $\sqrt{\Delta P}$	0.5777	0.5763	0.5740
Average ΔH	1.45	1.49	1.43
Average Stack Temperature (°R)	928.58	927.92	923.92
Average Meter Temperature (°R)	543.10	548.71	552.15
Meter Volume (Cubic Feet)	38.73	39.43	38.87
Dry Standard Sample Volume (Cubic Feet)	35.84	36.11	35.37
Collected Condensate Volume (mls)	136.0	165.0	144.0
Volume Of Water Vapor (Standard Cubic Feet)	6.40	7.77	6.78
Moisture Content Of Flue Gas (% v/v)	15.16	17.70	16.08
Source Gas Velocity (Feet Per Second)	44.4	44.5	44.1
Isokinetic Variation (%)	99.3	102.8	99.3

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EPA Method 5 Field Data Sheet

Project: LP Sampling
Sample Location: Thermal Oil Heater Stack
Date: 1-31-93 Test: 3 Run: 1
Operators: T. Peterson

Train No.: 62 81 8556
Meter Coef. ∂: 1.0067
Orifice Coef. ΔH@: 2.166
Nozzle No.: Glass D_n: .302

Pitot Tube No.: 3 C_p: .831
Bar. Pres.: 28.18 Ins. Hg
Static Pres.: -.25 Ins. H_2O
Estimated MC: 16 %

Sampling Train Leak Checks:
Pretest: 0 @ 15 Ins. Hg
Posttest: 0 @ 5 Ins. Hg

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	~~Velocity Head - ΔP~~ Orf. ΔH Inches WC	~~Orifice Meter - ΔH~~ Vel ΔP Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter (°F)	Probe (°F)	Impinger Outlet (°F)	Meter Inlet (°F)	Meter Outlet (°F)	320 P Oxygen Percent	
	(0933)	(649.25)													
A 12	2.5	650.73	1.33	.31	153	623	3.2	459	235	210	34	74	71	10.0	
11	5	652.23	1.45	.34	160	034	4.0	462				80	70	8.6	
10	7.5	653.87	1.42	.33	159	393	4.0	460				82	70	9.0	
9	10	655.50	1.47	.34	162	554	4.1	460	258	207	35	83	70	8.6	
8	12.5	657.22	1.54	.37	168	723	4.4	466				85	71	8.8	
7	15	658.91	1.54	.37	169	891	4.4	467				87	71	9.5	
6	17.5	660.65	1.55	.37	165	044	4.4	477	236	251	35	89	72	9.3	
5	20	662.33	1.55	.36	167	226	4.4	468				90	73	9.6	
4	22.5	663.90	1.47	.34	163	386	4.3	468				91	73	8.8	
3	25	665.55	1.51	.35	165	554	4.5	467	227	251	36	92	74	8.7	
2	27.5	667.12	1.26	.30	153	708	4.2	468				92	76	8.5	
1	30	668.51	1.13	.26	143	850	3.5	469				93	75	9.8	
B 12	32.5	670.10	1.44	.33	161	012	4.5	463	230	242	38	90	76	9.6	
11	35	671.73	1.43	.33	161	175	4.5	466				93	76	8.6	
10	37.5	673.30	1.48	.34	164	336	4.6	468				94	78	8.3	
9	40	674.98	1.56	.36	165	504	4.7	469	234	243	40	94	78	12.3	
8	42.5	676.70	1.60	.37	171	675	4.8	474				95	80	12.7	
7	45	678.42	1.65	.38	173	846	4.8	474				96	78	13.4	
6	47.5	680.15	1.48	.34	166	012	4.6	473	240	256	43	96	79	13.5	
5	50	681.82	1.52	.35	166	178	4.7	473				97	79	12.8	
4	52.5	683.43	1.47	.34	164	342	4.7	475				97	81	11.6	
3	55	685.05	1.37	.32	159	507	4.2	474	233	251	52	97	80	10.6	
2	57.5	686.66	1.22	.28	149	651	3.8	474				96	81	10.5	
1	60	687.93	1.04	.25	141	742	3.7	472				98	81	10.1	
	(1004.2)														
	θ = 60	V_m = 38.73		$\overline{\Delta H}$ = 1.446				$\overline{T_s}$ = 468.74					$\overline{T_m}$ = 83.2		

Samples Recovered: Filter No. By Pass ; ☒ Probe Wash; ☒ Wet Catch; ☒ Other (Form.)

Integrated Gas Sampling Data:

Box No. ______
Bag No. ______
Bag Vol. ______ Liters
Bag Material ______
Leak Checks ______ cc/min. @ 25"Hg
Posttest O_2 Reading ______
320 P No. CX-3

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	182	132	2		1397	
Initial Volume	100	100	0		1377	
Difference	82	32	2		20	136

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AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project LP Sagola Train No. 52 R: 15 ... Pitot Tube No. 3 C_p .831 Sampling Train Leak Checks:
Sample Location Thermal Oil Heater Meter Coef. ∂ .9967 Bar. Pres. 28.18 Ins. Hg Pretest 0 @ 15 Ins. Hg
Date 1-3-92 Test 1 Run 2 Orifice Coef. ΔH@ 2.06 Static Pres. -.35 Ins. H_2O Posttest 0 @5 Ins. Hg
Operators T. Webner T. Ludwick MAM Nozzle No. 6249 D_n .302 Estimated MC 15 %

Point No.	Time ΔT	Meter Vol. V_m Cubic Feet	~~Velocity Head~~ ΔP Inches WC	~~Orifice Meter~~ ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(12.5)	(688.50)													
B 12	2.5	690.15	1.60	.36	170	020	4.2	465	229	252	46	85	76	8.8	
11	5	691.8	1.60	.36	169	189	4.2	461			56	90	76	10.4	
10	7.5	693.60	1.59	.36	169	359	4.2	468			82	92	76	8.1	
9	10	695.35	1.63	.37	172	531	4.3	470	228	257	48	93	76	8.1	
8	12.5	697.10	1.68	.38	174	705	4.4	470				94	77	7.3	
7	15	698.75	1.69	.38	175	880	4.3	468				95	77	9.8	
6	17.5	700.43	1.54	.35	168	048	4.4	467	232	257	48	95	78	9.4	
5	20	702.10	1.56	.35	168	216	4.4	465				96	78	9.2	
4	22.5	703.80	1.52	.34	166	382	4.4	466				97	78	8.3	
3	25	705.38	1.34	.30	156	538	3.4	467	233	251	45	97	78	9.4	
2	27.5	706.90	1.29	.29	153	692	3.2	468				97	80	10.0	
1	30	708.34	1.11	.25	143	834	3.0	465				97	80	10.8	
A 12	32.5	710.10	1.69	.38	176	010	3.8	468	231	229	41	96	81	9.3	
11	35	711.90	1.44	.32	162	173	3.5	458				98	82	9.3	
10	37.5	713.40	1.44	.32	163	335	3.5	460				99	82	10.0	
9	40	714.98	1.40	.32	163	498	3.5	460	238	254	36	99	83	9.7	
8	42.5	716.61	1.52	.34	167	665	3.5	467				99	83	9.3	
7	45	718.38	1.69	.38	176	841	3.8	475				100	84	9.9	
6	47.5	720.02	1.47	.33	16.4	005	3.5	475	235	256	36	100	84	12.2	
5	50	721.68	1.52	.34	167	172	3.6	472				101	84	10.2	
4	52.5	723.39	1.52	.34	167	339	3.6	473				101	85	10.0	
3	55	725.02	1.43	.32	162	502	3.4	474	241	257	37	101	85	10.9	
2	57.5	726.53	1.25	.28	152	653	3.1	472				100	86	11.0	
1	60	727.93	1.07	.24	141	794	3.0	473				100	86	10.8	
	(13:37)														
	Θ= 60	V_m = 39.43		$\overline{\Delta H}$= 1.486				$\overline{T_s}$= 467.2					$\overline{T_m}$= 88.5		

Samples Recovered: Filter No. ______ ; [X] Probe Wash; [X] Wet Catch; [X] Other (Form)

Integrated Gas Sampling Data:

Box No. ______ Bag Material ______
Bag No. ______ Leak Checks ______ cc/min. @ 25"Hg
Bag Vol. ______ Liters Posttest O_2 Reading ______
[redacted] 20 [redacted]

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	218	115	3	X	1146	
Initial Volume	100	120	0	X	1114	
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

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AIR SAMPLING DEPARTMENT

EPA Method 5 Field Data Sheet

Project LP Sangala

Sample Location Thermal Oil Heater Stack

Date 1-1?-02 Test 3 Run 3

Operators JCP TAK MAM

Train No. C2 81 P551

Meter Coef. ∂ 1.0067

Orifice Coef. ΔH@ 2.166

Nozzle No. 6ks D_n .342

Pitot Tube No. 3 C_p .831

Bar. Pres. 29.18 Ins. Hg

Static Pres. -.25 Ins. H_2O

Estimated MC 17 %

Sampling Train Leak Checks:

Pretest 0 @ 15 Ins. Hg

Posttest 0 @ 5 Ins. Hg

Point No.	Time ΔT (1:2.5)	Meter Vol. V_m Cubic Feet	~~Velocity~~ Head = ΔP Inches WC	~~Orifice Meter~~ = ΔH Inches WC	Desired ΔV_m	Desired V_m	Vacuum Inches Hg	Stack Temp. °F	Sampling Train Temperatures - °F Filter	Probe	Impinger Outlet	Meter Inlet	Meter Outlet	320 P Oxygen Percent	
	(4:45)	(725.56)													
A 12	2.5	729.26	1.59	.36	171	021	3.5	440	225	228	38	84	82	8.4	
11	5	731.86	1.45	.34	162	182	3.4	463				93	82	8.2	
10	7.5	733.35	1.55	.36	16?	350	3.5	465				94	82	8.4	
9	10	735.26	1.64	.38	173	523	3.6	465	230	259	33	96	82	8.7	
8	12.5	736.96	1.6?	.38	173	696	3.6	467				97	82	8.0	
7	15	738.73	1.68	.41	175	871	3.7	467				97	82	9.8	
6	17.5	741.[illegible]	1.68	.39	175	047	3.7	463	229	259	33	99	83	9.0	
5	20	742.14	1.51	.35	167	213	3.5	464				99	83	8.2	
4	22.5	743.73	1.47	.34	164	378	3.5	465				99	83	9.2	
3	25	745.30	1.30	.30	154	532	3.4	466	232	252	35	100	84	9.2	
2	27.5	746.81	1.21	.28	149	681	3.1	464				100	85	9.4	
1	30	748.19	1.?4	.24	138	819	2.9	465				100	85	8.5	
B 12	32.5	749.78	1.3?	.30	155	974	3.1	462	226	243	33	96	86	10.3	
11	35	751.??	1.31	.30	155	129	3.1	457				100	85	9.5	
10	37.5	752.89	1.40	.32	160	290	3.2	456				101	85	9.6	
9	40	754.54	1.48	.34	165	455	3.3	461	224	256	34	102	86	10.6	
8	42.5	756.1?	1.52	.35	168	622	3.4	465				102	86	10.2	
7	45	757.87	1.47	.34	165	287	3.3	467				103	87	10.5	
6	47.5	759.54	1.52	.35	167	454	3.4	470	228	256	36	103	87	11.0	
5	50	761.23	1.47	.34	165	119	3.4	472				103	85	11.3	
4	52.5	763.90	1.57	.36	176	284	3.5	467				104	87	12.3	
3	55	764.45	1.30	.31	158	447	3.2	470	236	257	37	104	88	11.8	
2	57.5	765.49	1.??	.28	150	547	3.1	469				104	90	11.8	
1	60	767.37	1.05	.24	139	736	2.9	465				104	89	10.6	
	(15:18)														
	Θ = 60	V_m = 38.57		$\overline{\Delta H}$ = 1.434				$\overline{T}_s$ = 463.4					$\overline{T}_m$ = 92.35		

Samples Recovered: Filter No. —— ; [X] Probe Wash; [X] Wet Catch; [X] Other (Form.)

Integrated Gas Sampling Data:

Box No. ______ Bag Material ______

Bag No. ______ Leak Checks ______ cc/min. @ 25"Hg

Bag Vol. ______ Liters Posttest O_2 Reading ______

320 P No. (?)-3

Moisture Recovery Data:

Impinger No.	1	2	3	4	Desiccant	Total
Final Volume	203	129	2	X	1165	
Initial Volume	100	100	0	X	1146	
Difference	103	29	2		19	1[illegible]

pace

AIR SAMPLING DEPARTMENT

Field Computer Summary

Project Name: LP Sagola

Operator J. Pederson

Sampling Location: Thermal oil

Date of Test: 1-31-92

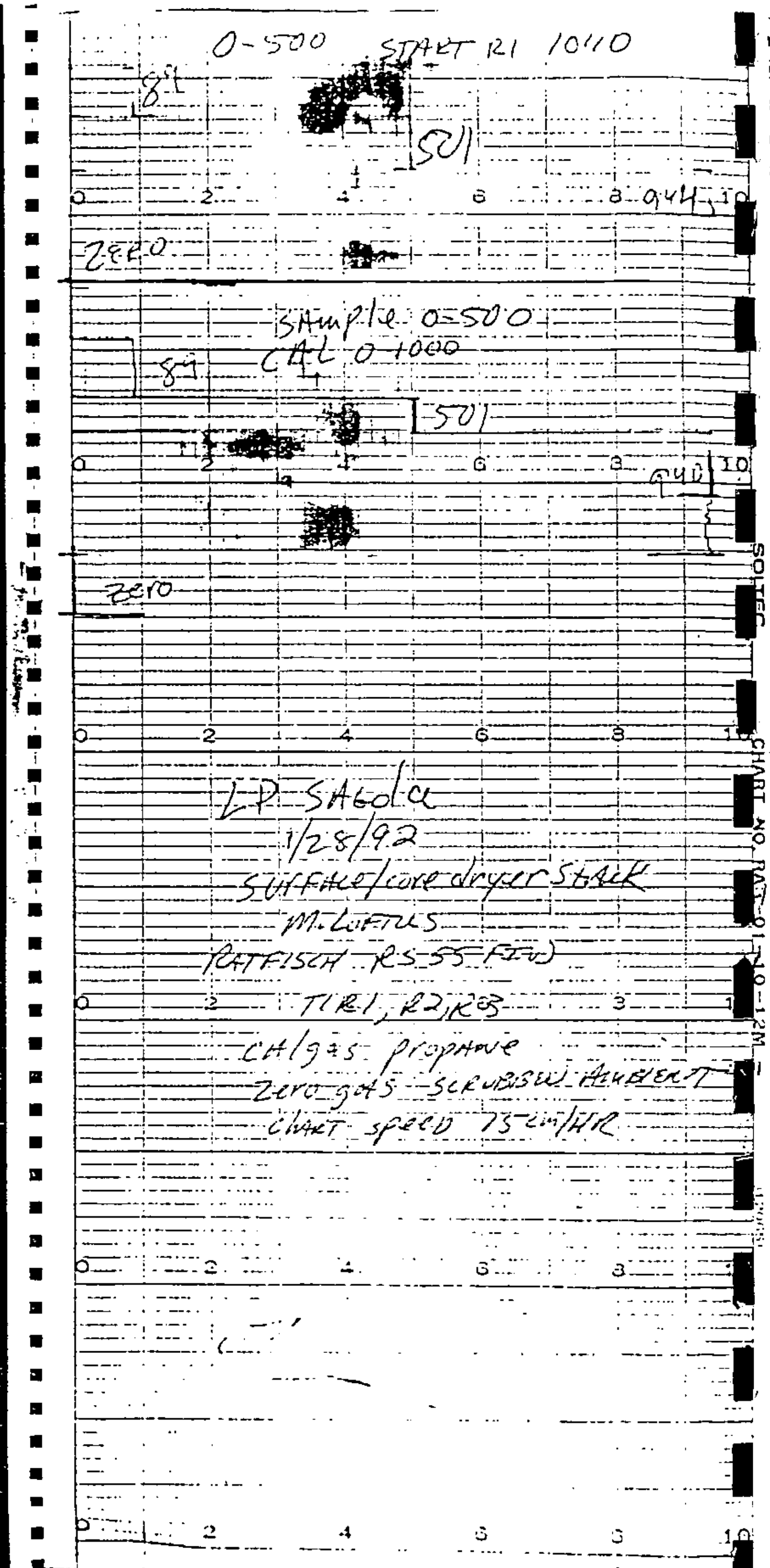
Test Number: 3

Initialization Parameters		Run Specific Input Parameters	Run 1	Run 2	Run 3	Run 4
Meter Coef. - ∂	= 1.0067	V/O	649.20	688.50	728.50	
Orif. Coef. - ΔH@	= 2.106	No. Of Points	24	24	24	
Pitot Coef. - C_p	= ~~.842~~ .831	MC	16	15	17	
Nozzle Dia. - D_n	= .302	V/F	687.93	727.93	762.37	
Bar. Pres. - P_b	= 28.18	Grams H_2O	136	165	144	
Time/Point - ΔT	= 2.5	Run Time	60	60	60	
Moisture Content	= 16	1-Rnd/2-Rect	1	1	1	
% Oxygen	= 10	Diameter(Ins.)	47.25	47.25	47.25	
Meter Temp. - t_m	= 72	Length(Ins.)				
Static Pres. - P_g	= -.25	Width(Ins.)				

End Of Run Summary

	Run 1	Run 2	Run 3	Run 4
Avg. √ΔP	.578	.576	.574	
Avg. ΔH	1.446	1.486	1.434	
Avg. t_s	468.79	467.92	463.92	
Avg. t_m	87.21	88.71	92.23	
Standard Vol.	35.83	36.11	35.37	
Moist. Content	15.16	17.70	16.08	
Avg. Gas Vel.	44.38	44.16	44.07	
% Isokinetic	99.38	103.67	99.34	
ACFM	32421	32262	32200	
DSCFM	14718	14220	14535	

TOTAL HYDROCARBON STRIP CHART DATA



0-500 START R1 1010
89
501
0 2 4 6 8 944 10
ZERO
SAmple 0=500
CAL 0-1000
89
501
0 2 4 6 8 940 10
Zero
0 2 4 6 8 10
LP SAGOLA
1/28/92
Surface/core dryer Stack
M. Loftus
RATFISCH RS55 FID
T(R1, R2, R3
CAL gas propane
Zero gas scrubbed Ambient
Chart speed 75 cm/HR
0 2 4 6 8 10
0 2 4 6 8 10
SOLTEC CHART NO. RAT-01-10-12M

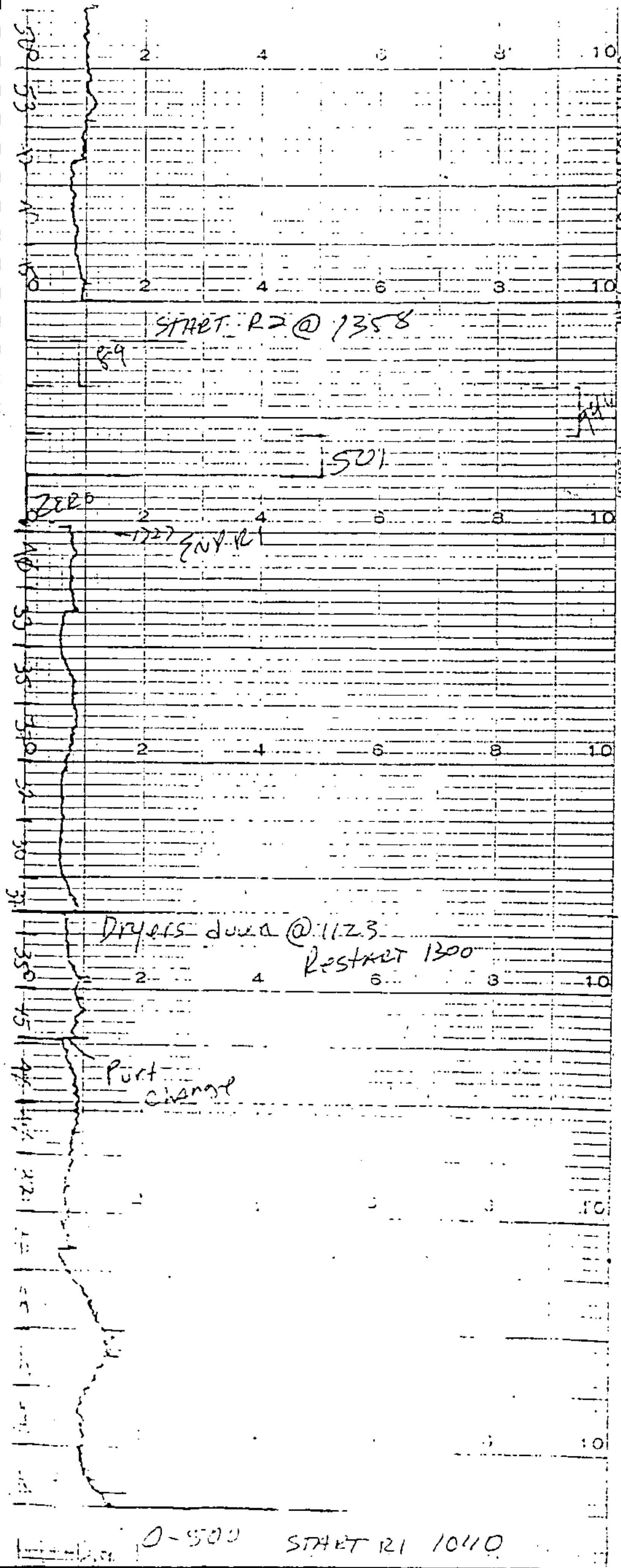
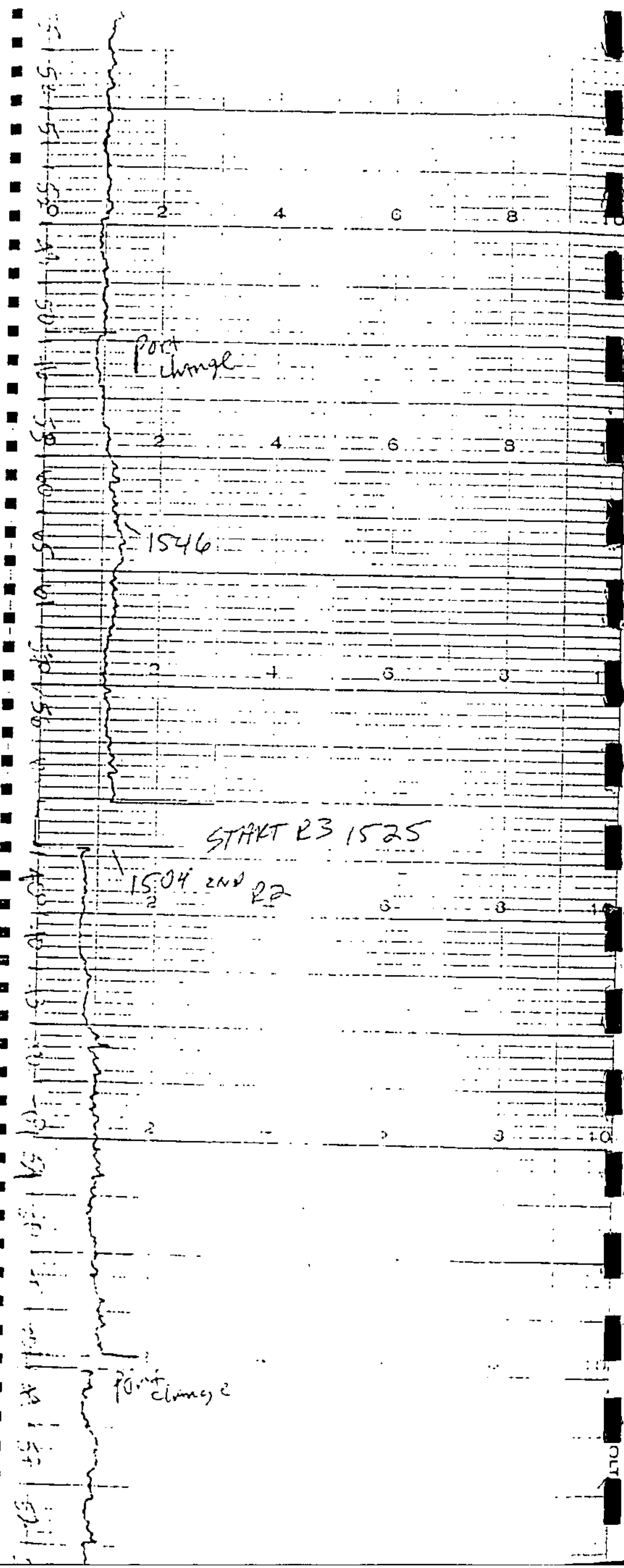
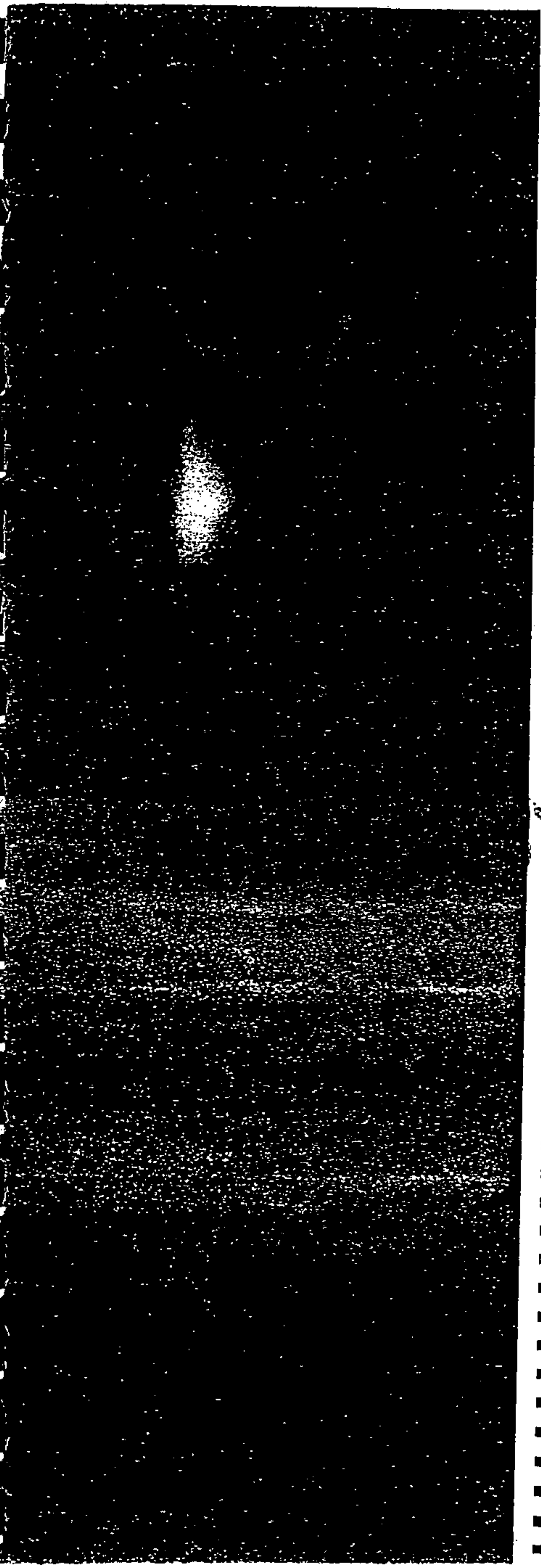
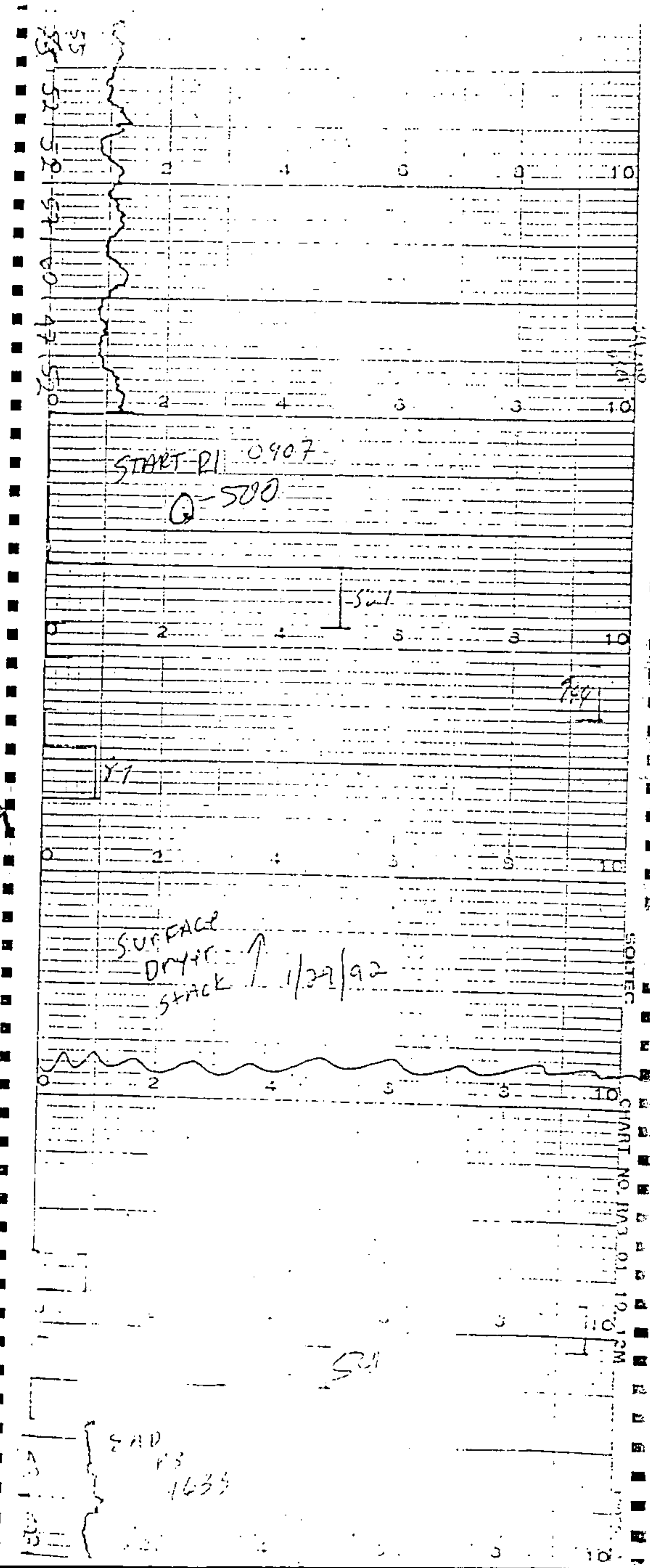


CHART NO. RA3-01-10-12M
START R2 @ 1358
89
501
ZERO
1727 END R1
Dryers down @ 1123
Restart 1300
Port change
0-500
START R1 1010

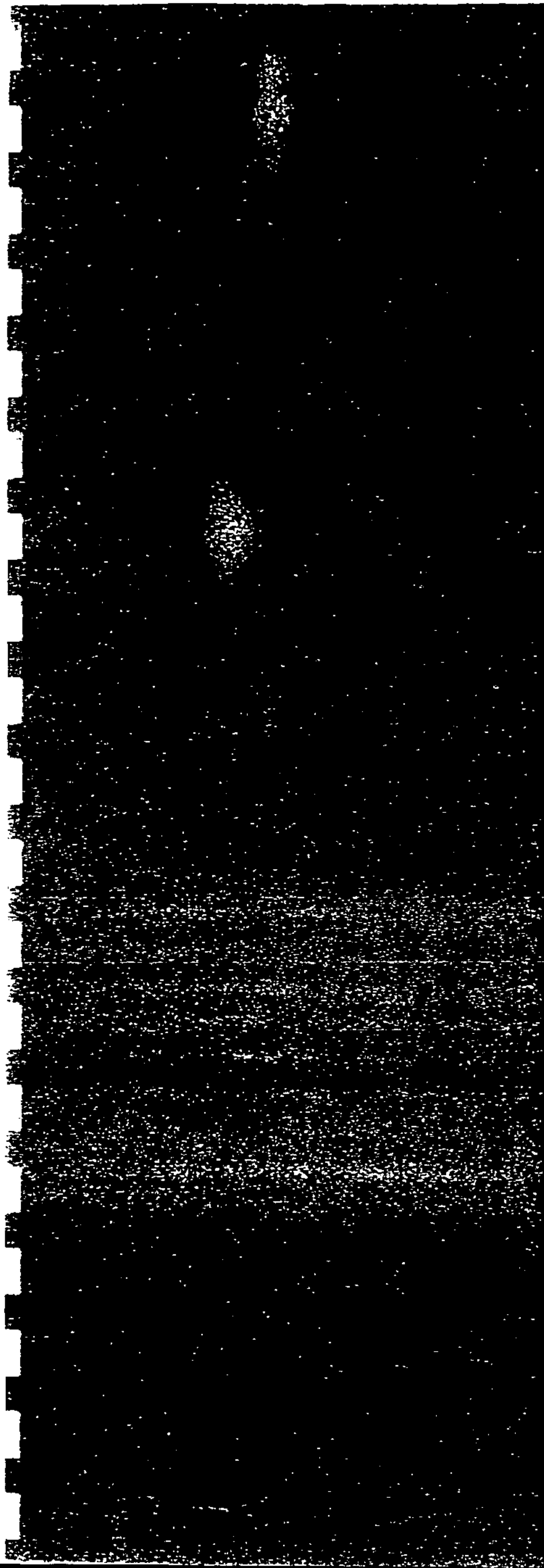


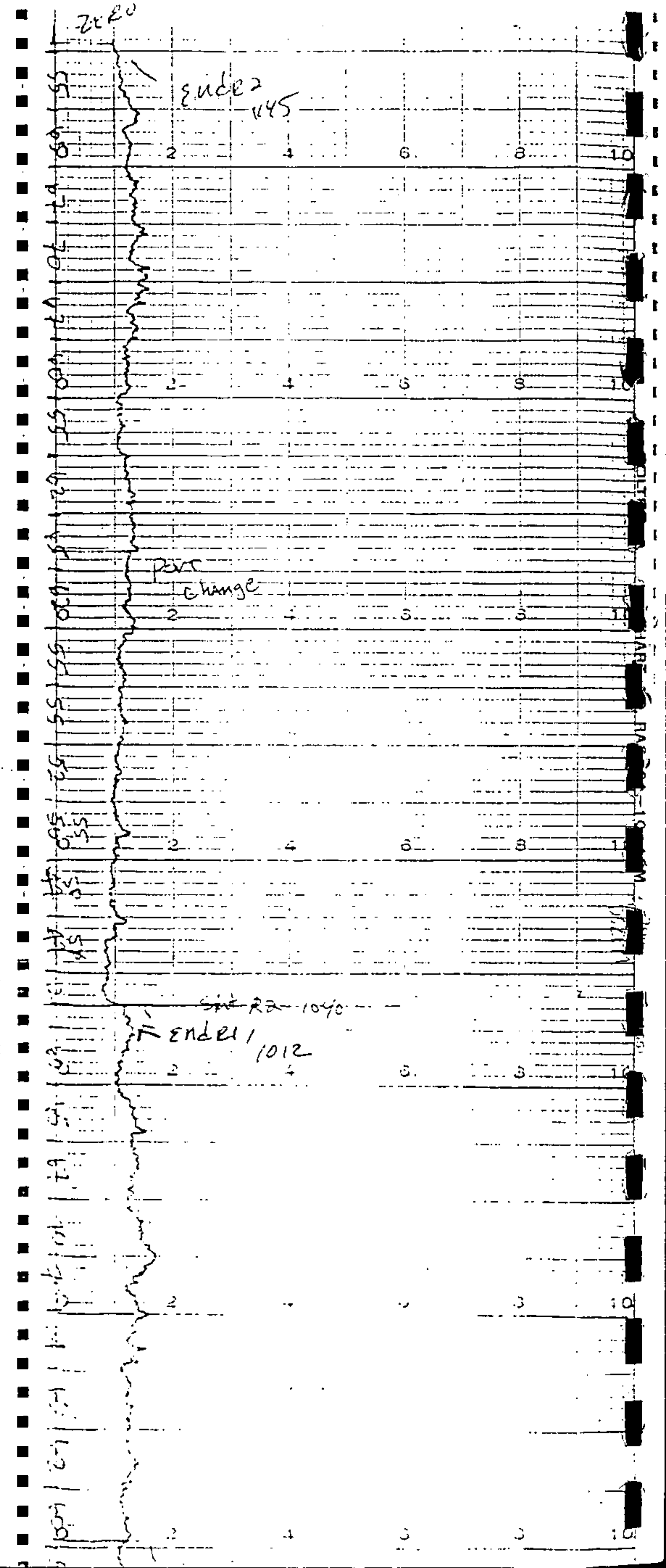
0 2 4 6 8 10
Port change
0 2 4 6 8
1546
2 4 6 8
START R3 1525
15:04 2ND R2
2 6 8 10
2 8 10
Port change





START-R1 0907
Q-500
Y-1
SURFACE
Dryer
Stack 1 1/29/92
1633
SOLTEC
CHART NO.




zero
Ended 1145
port change
~~Start R2 1040~~
Ended 1012

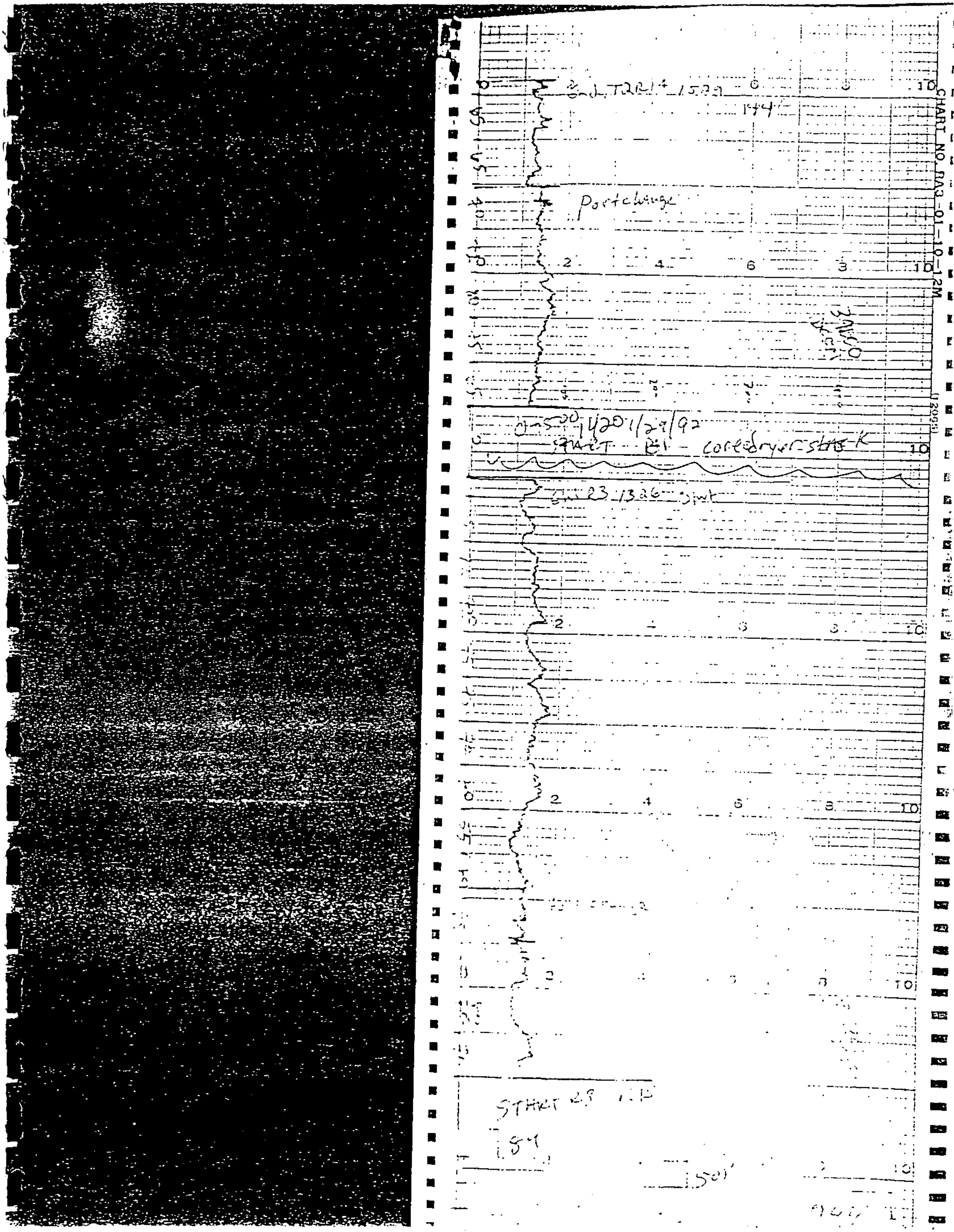
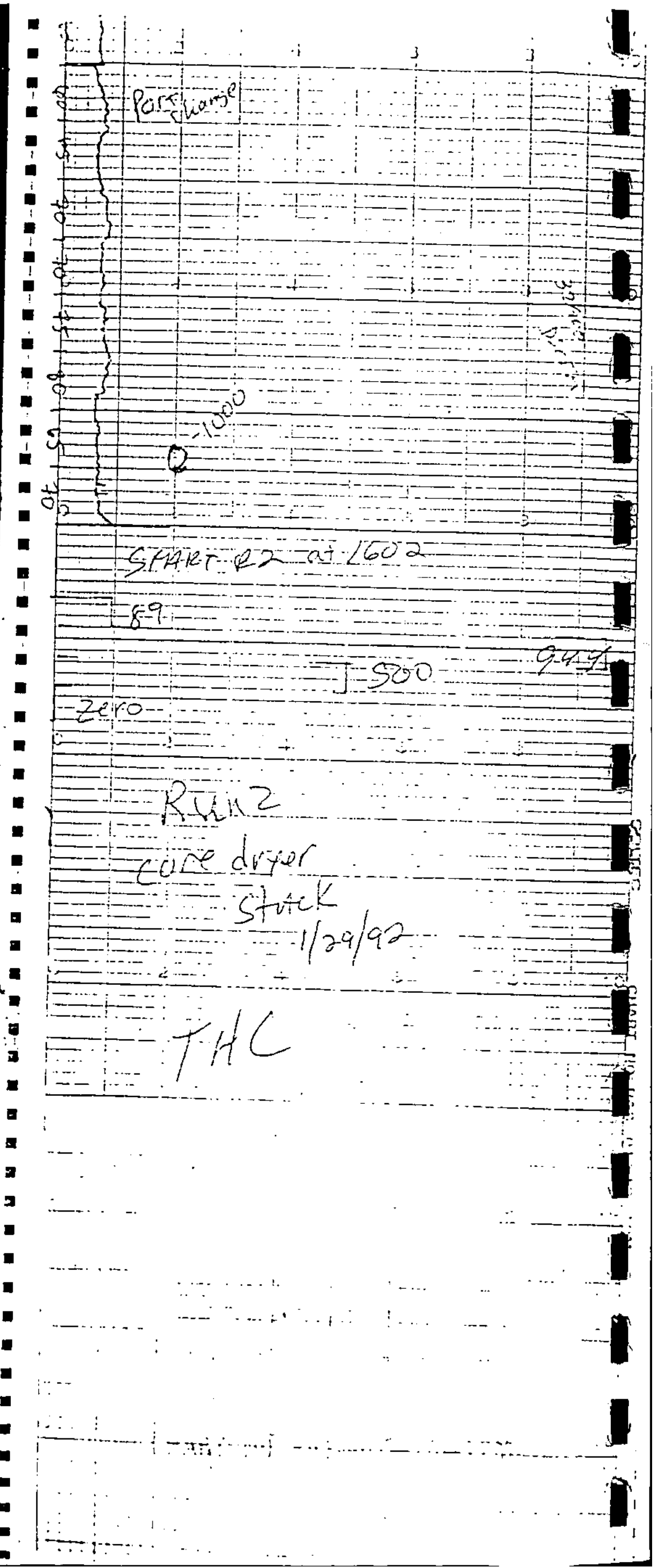
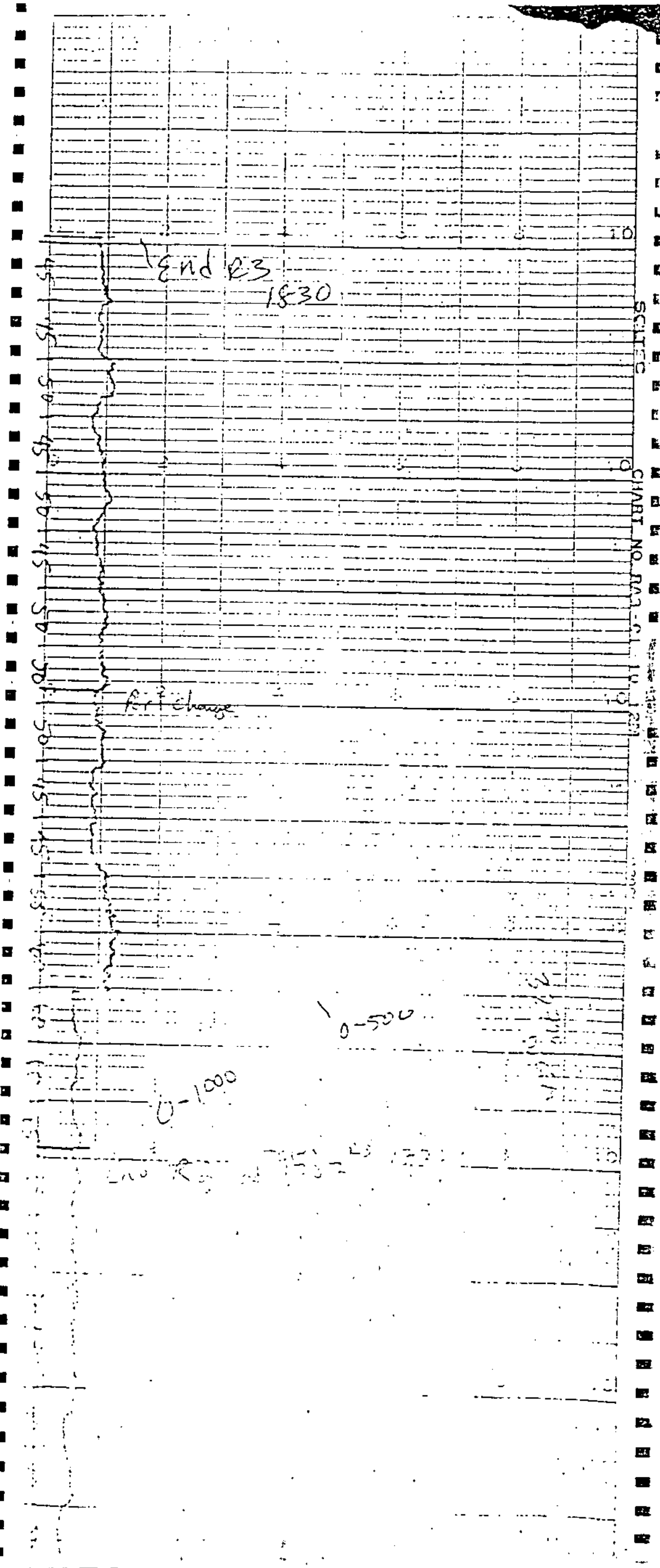
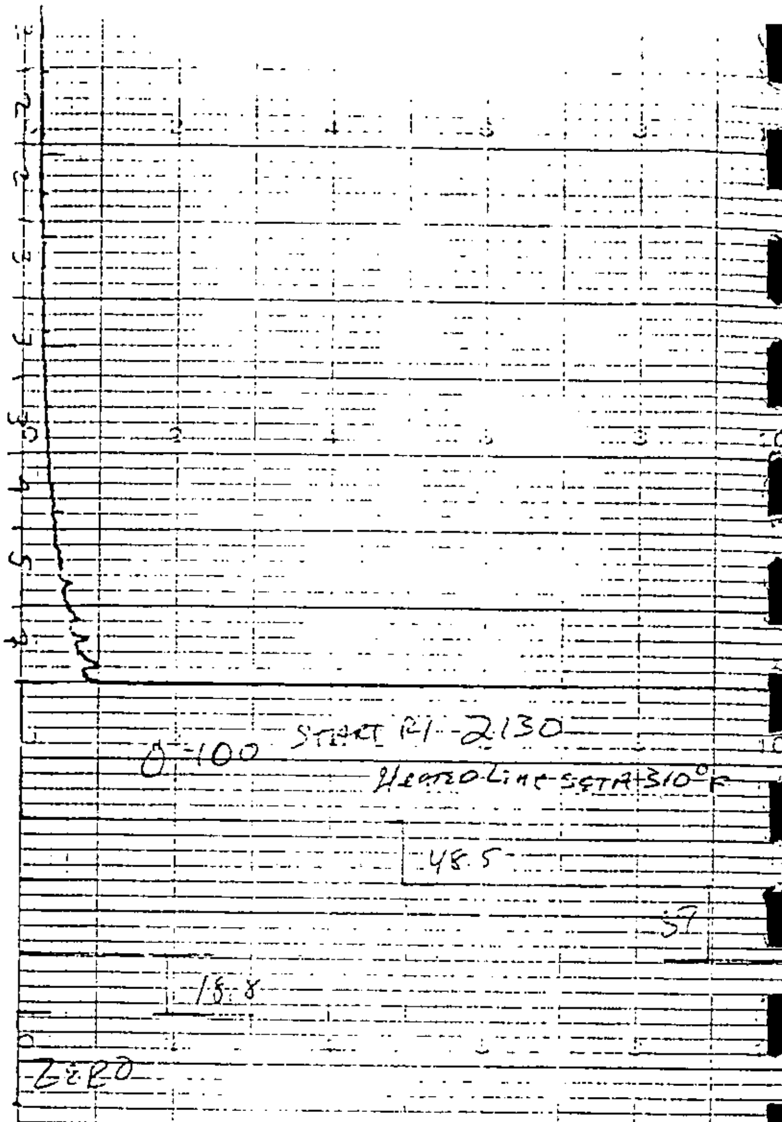


CHART NO DA3-01-10-12M
Portcharge
1420 1/29/92
START B1 - core dryer stack
START
500'


Port change
1000
START R2 at 1602
89
500
94.9
Zero
Run 2
core dryer
stack
1/29/92
THC


End R3
1830
SCITEC
CHART NO
0-500
0-1000



LP Sagola

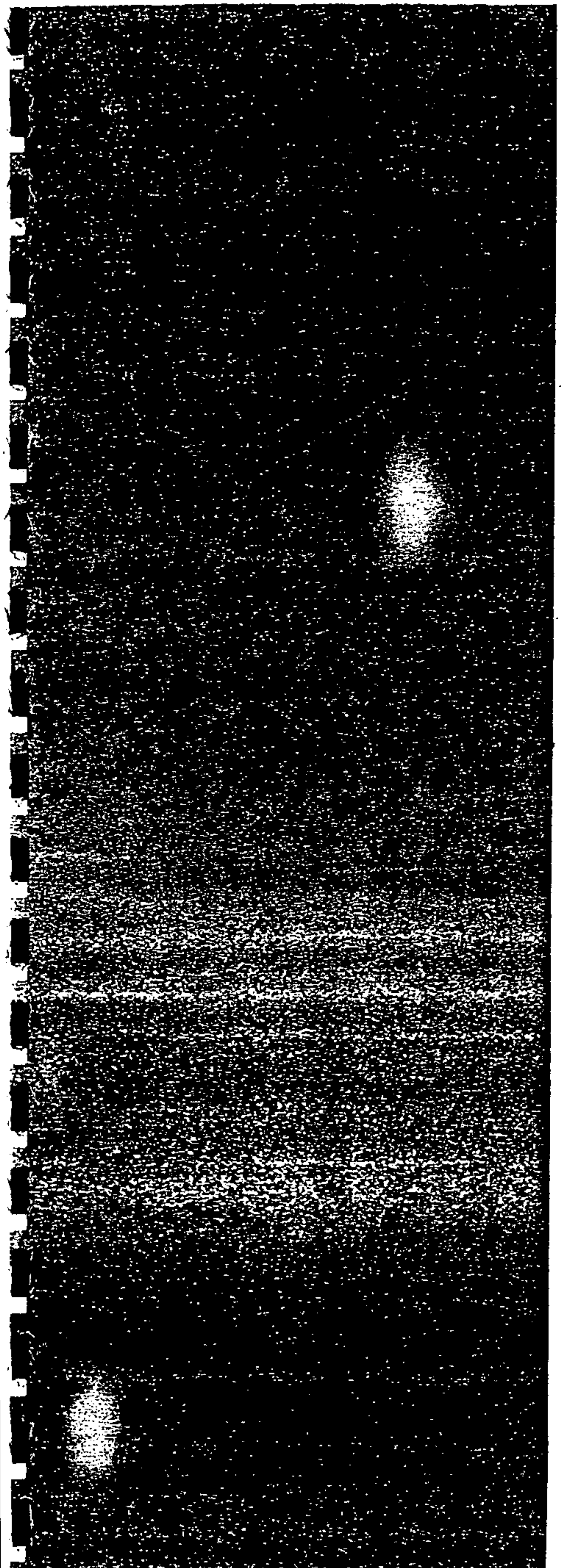
THC

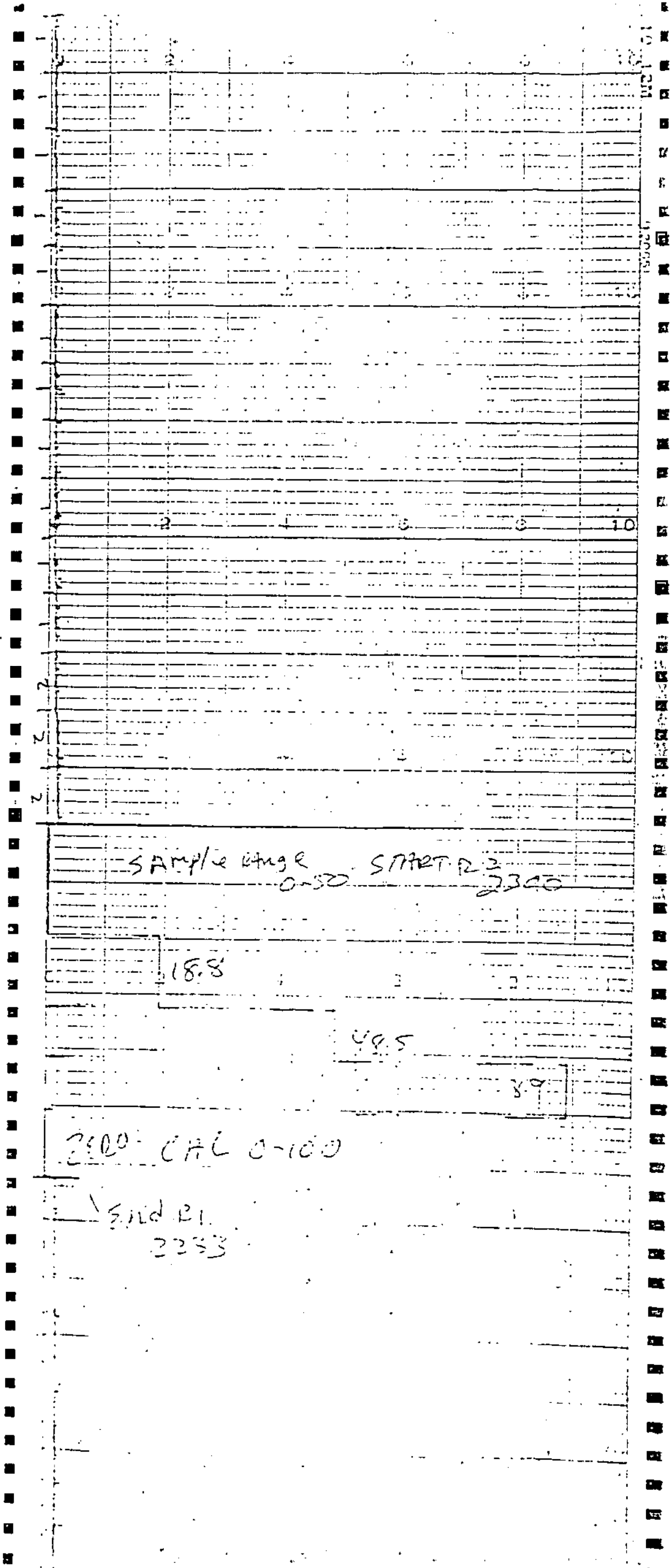
Thermal oil Heater stack

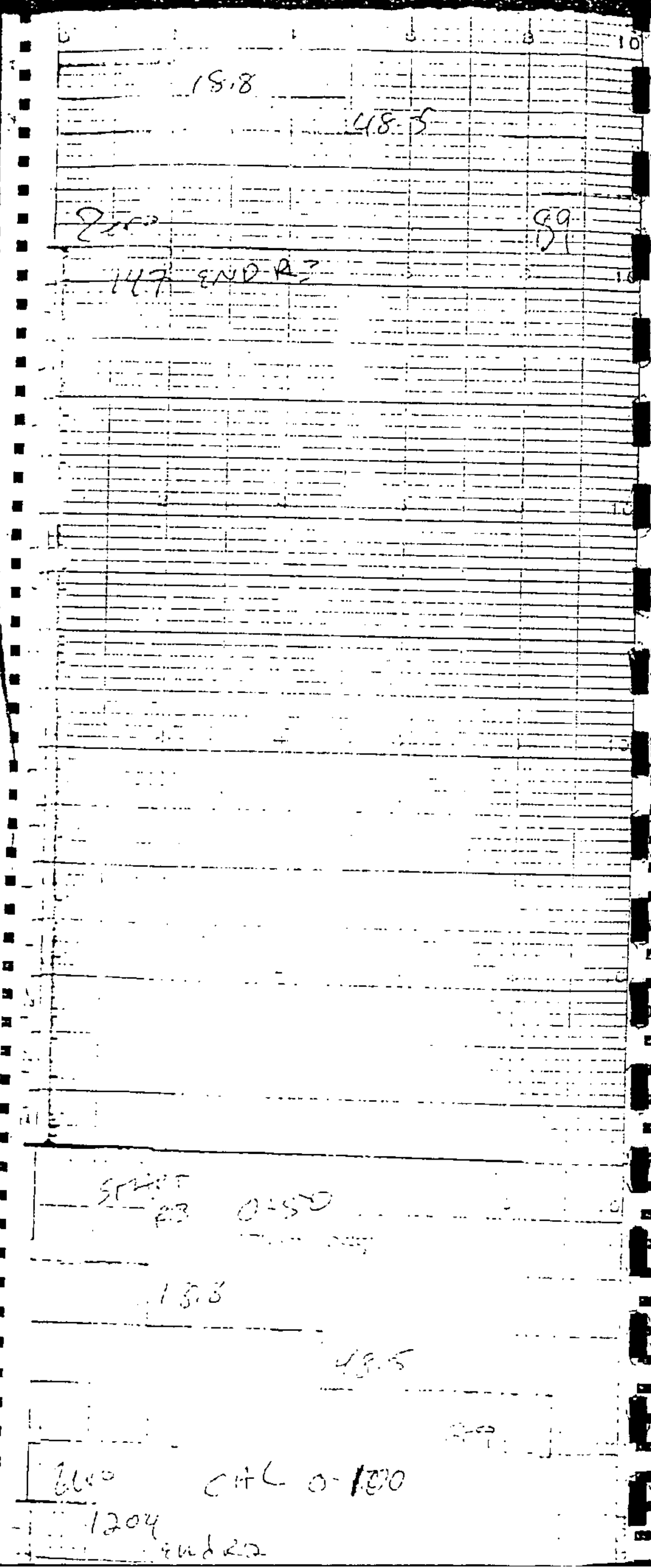
1/30/92

M. Loftus

Ratfisch ~~[illegible]~~ 2555 (spike)




2 4 6 8 10
SAmple Range 0-50 START R2 2300
18.8
49.5
8.9
2320 CAL 0-100
End R1 2333


18.8
48.5
Zero
147 END R2
START R3 0450
18.8
48.5
1200 CAL 0-100
1204 END R3

CARBON MONOXIDE STRIP CHART DATA

START R1 1040

300 600 900 1200 1500

250 sample 0-1500

50

300

ZERO

300 450 600 900 1200 1500

0-1500

LP SABOL 9

1/28/92

SURFACE / core dryer stack

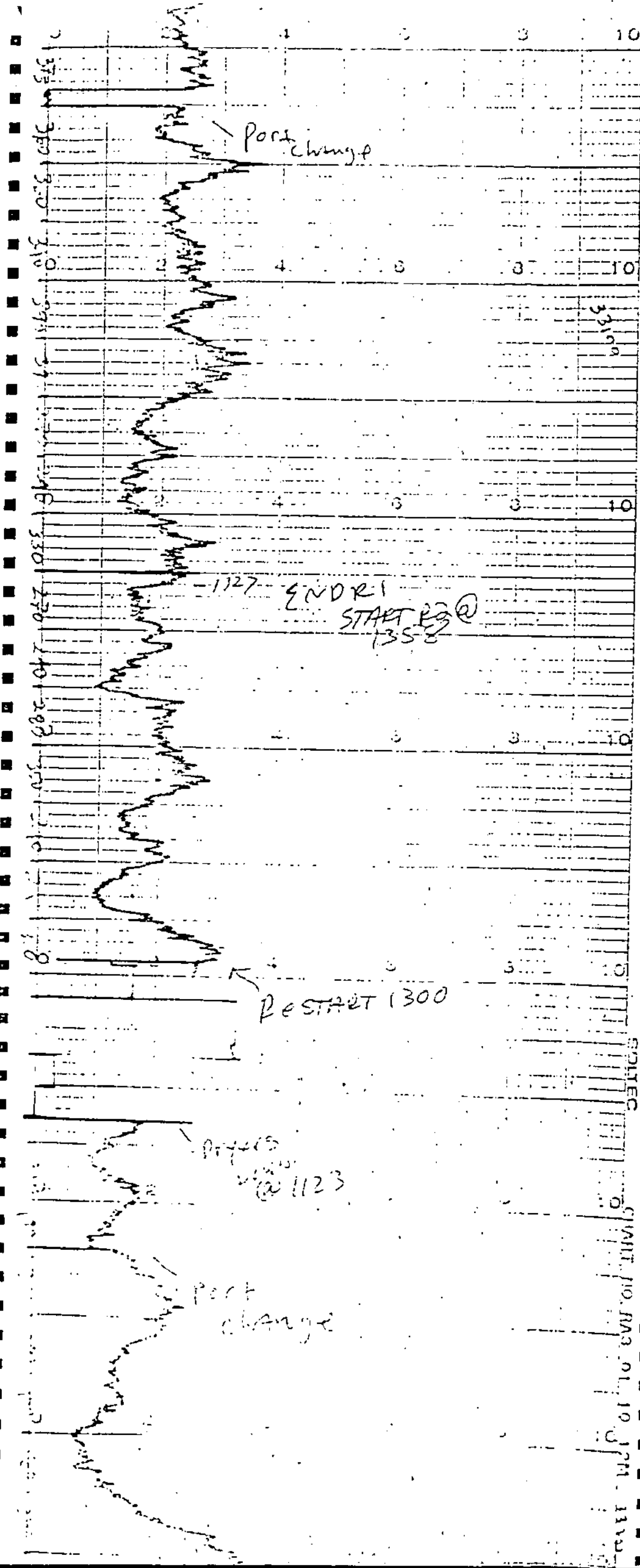
M. LOFTUS

HORIBA PIR 2000 NDIR

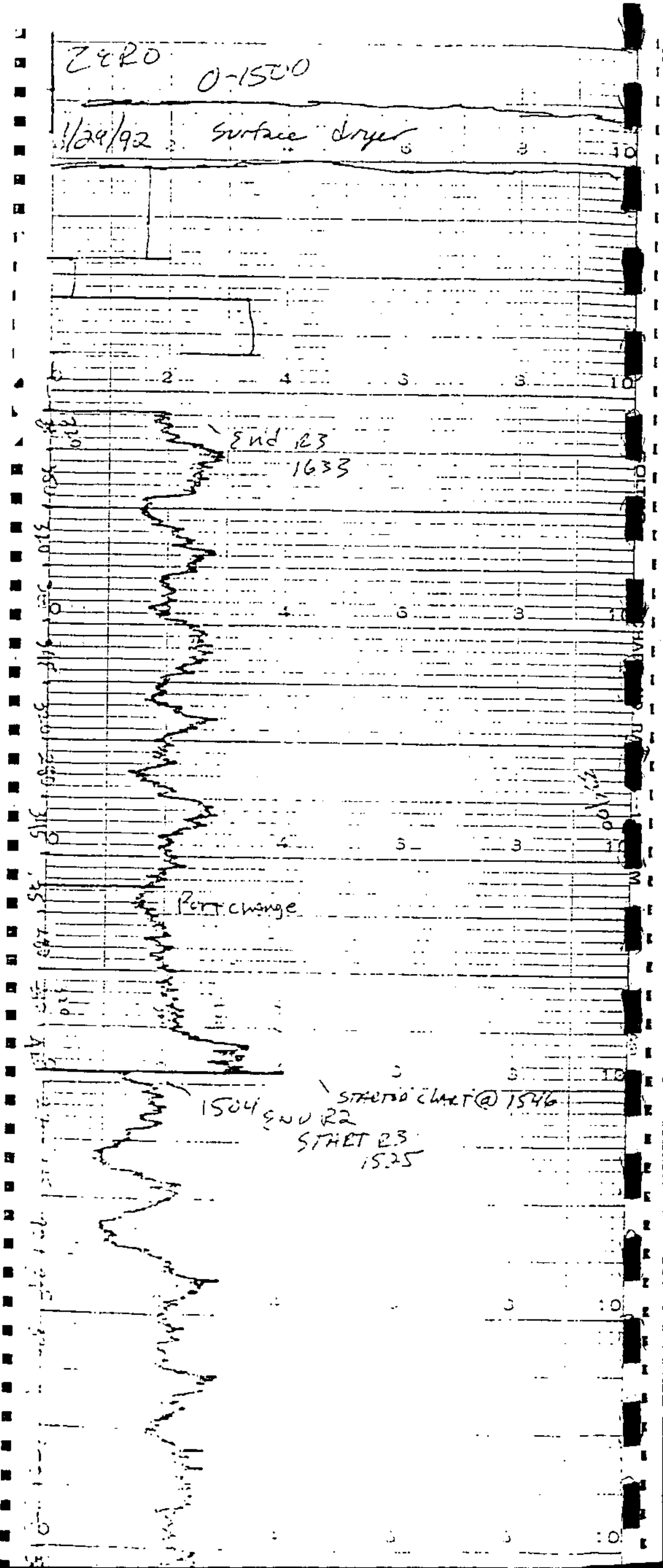
T1 R1, R2, R3

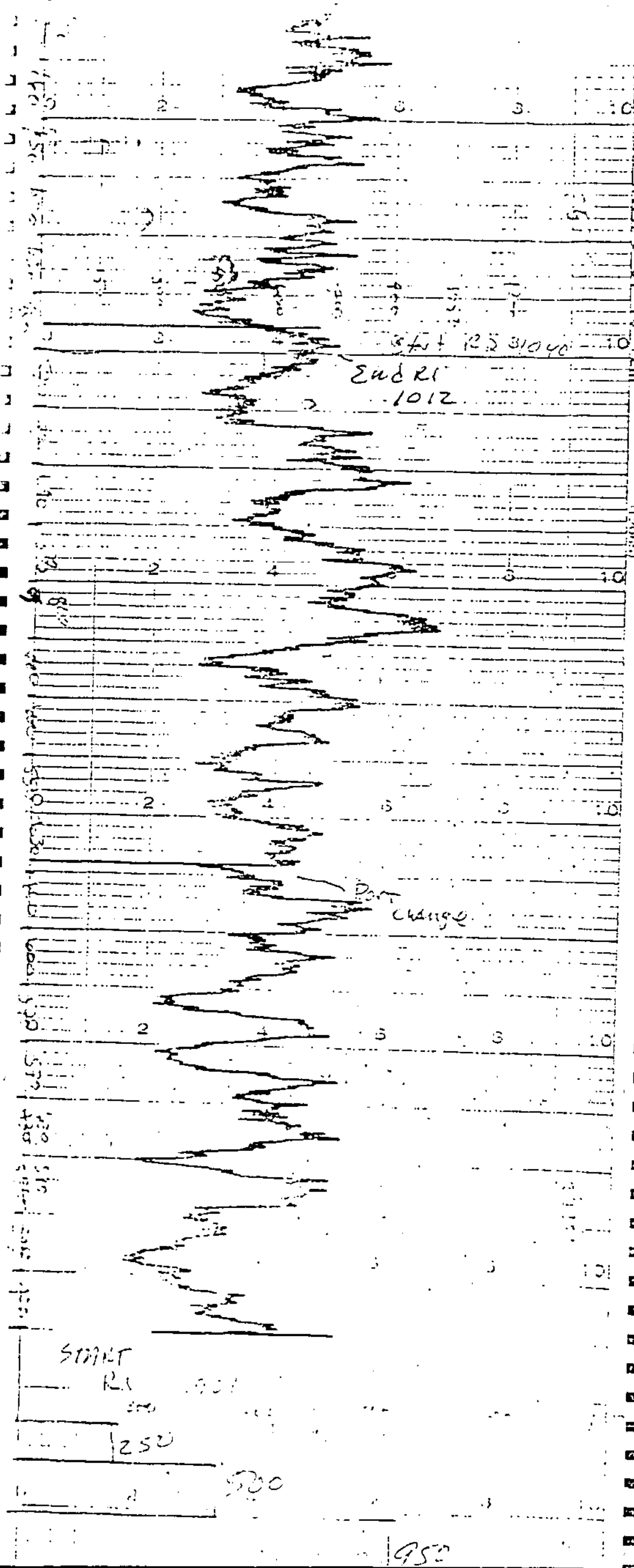
CH / gas CO

Chart speed 15cm/HR

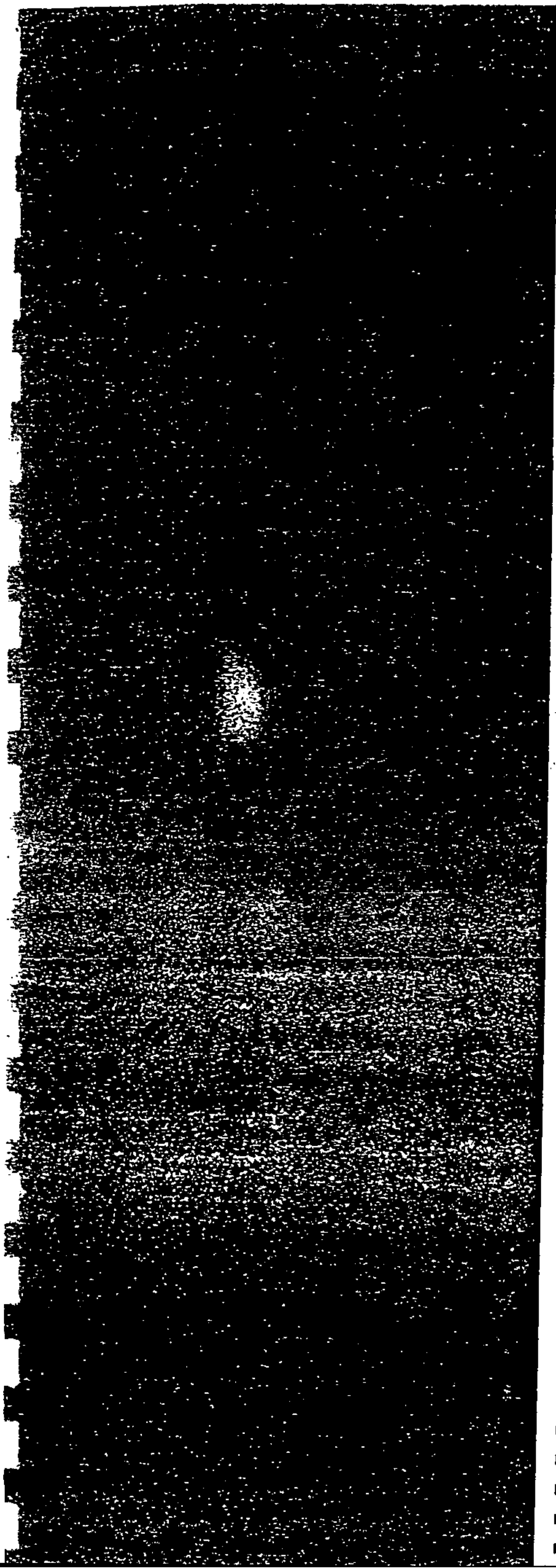


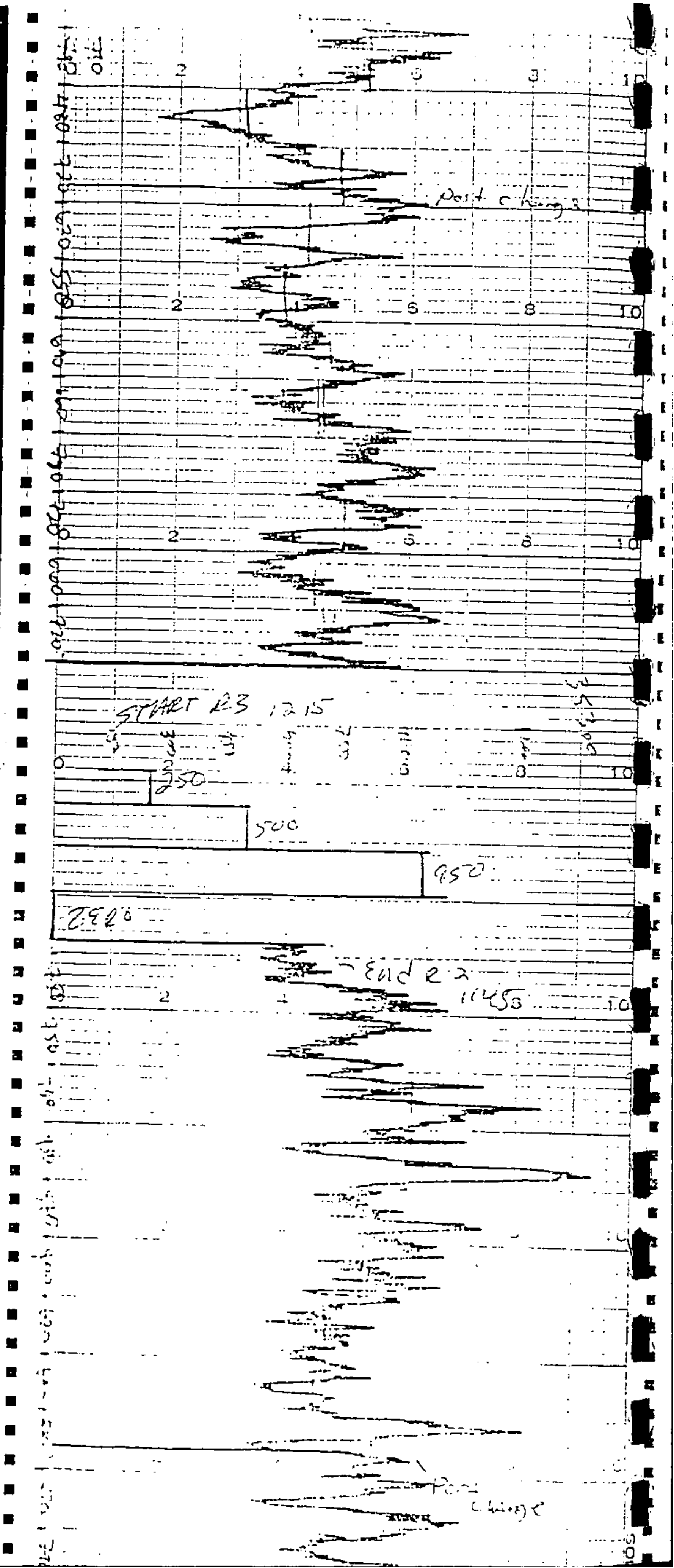
Port change
1127 END R-1
START R-2 @ 1358
RESTART 1300
@ 1123
Port change


ZERO 0-1500
1/29/92 Surface dryer
End R3
1633
Port change
1504 END R2
START R3
1525
STARTED CHART @ 1546

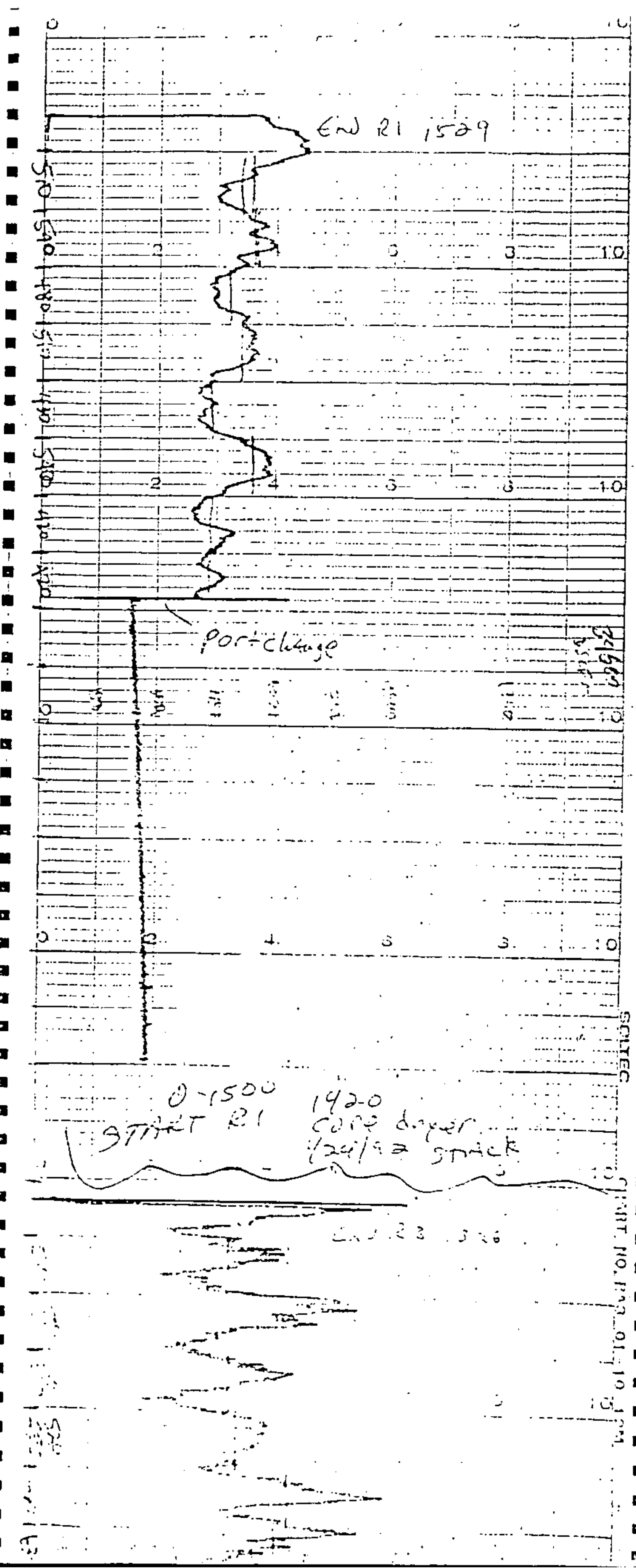


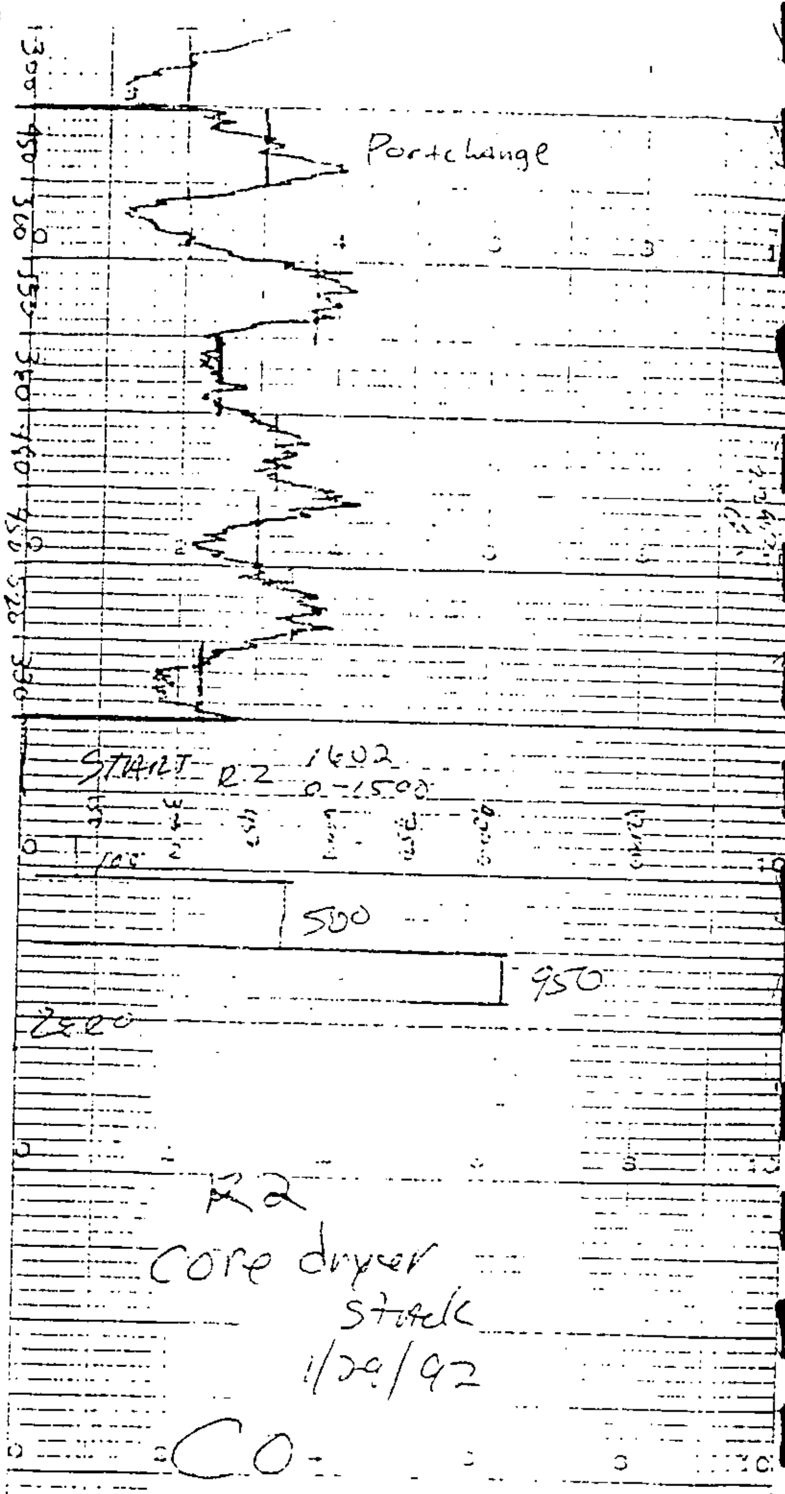
Start R2 S1040
End R1
1012
Port
change
START
R1
250
500
950

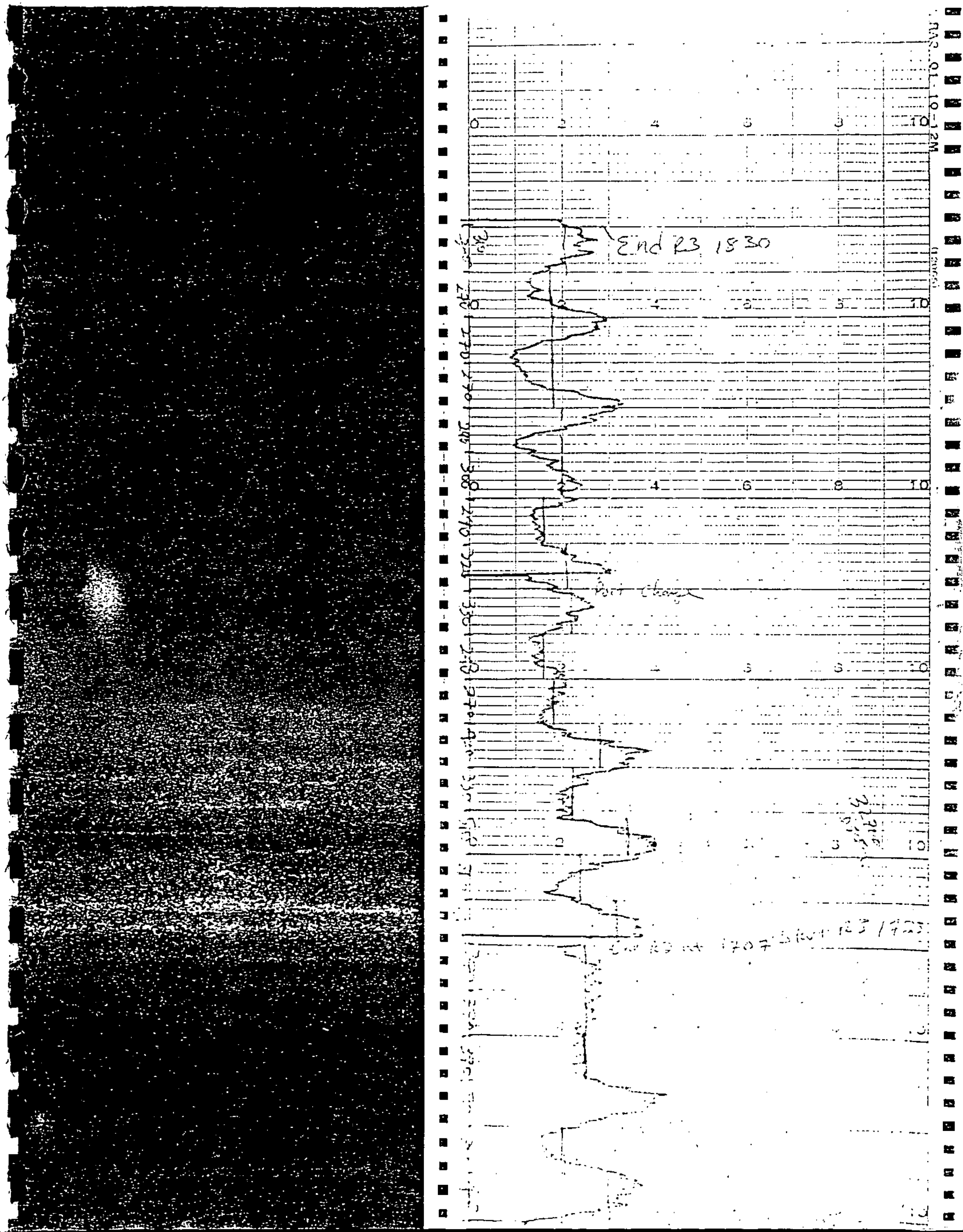


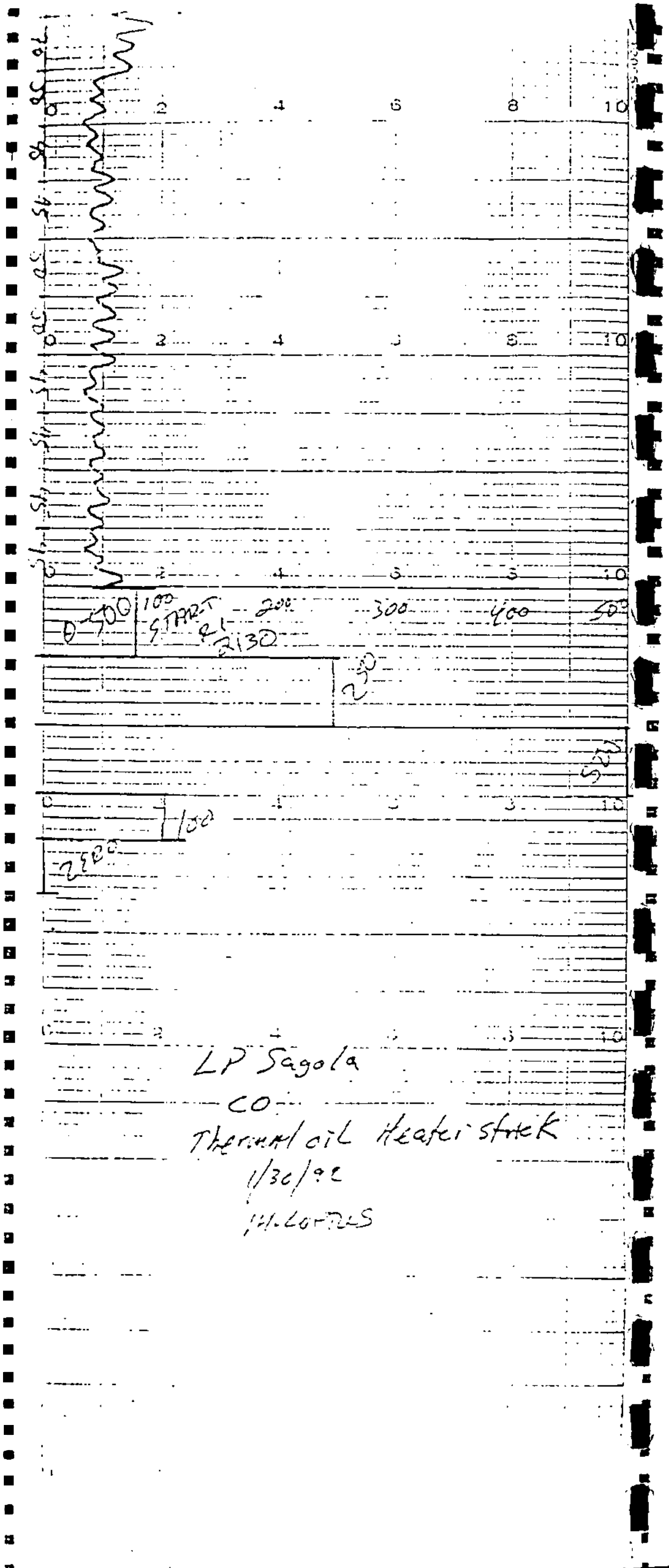


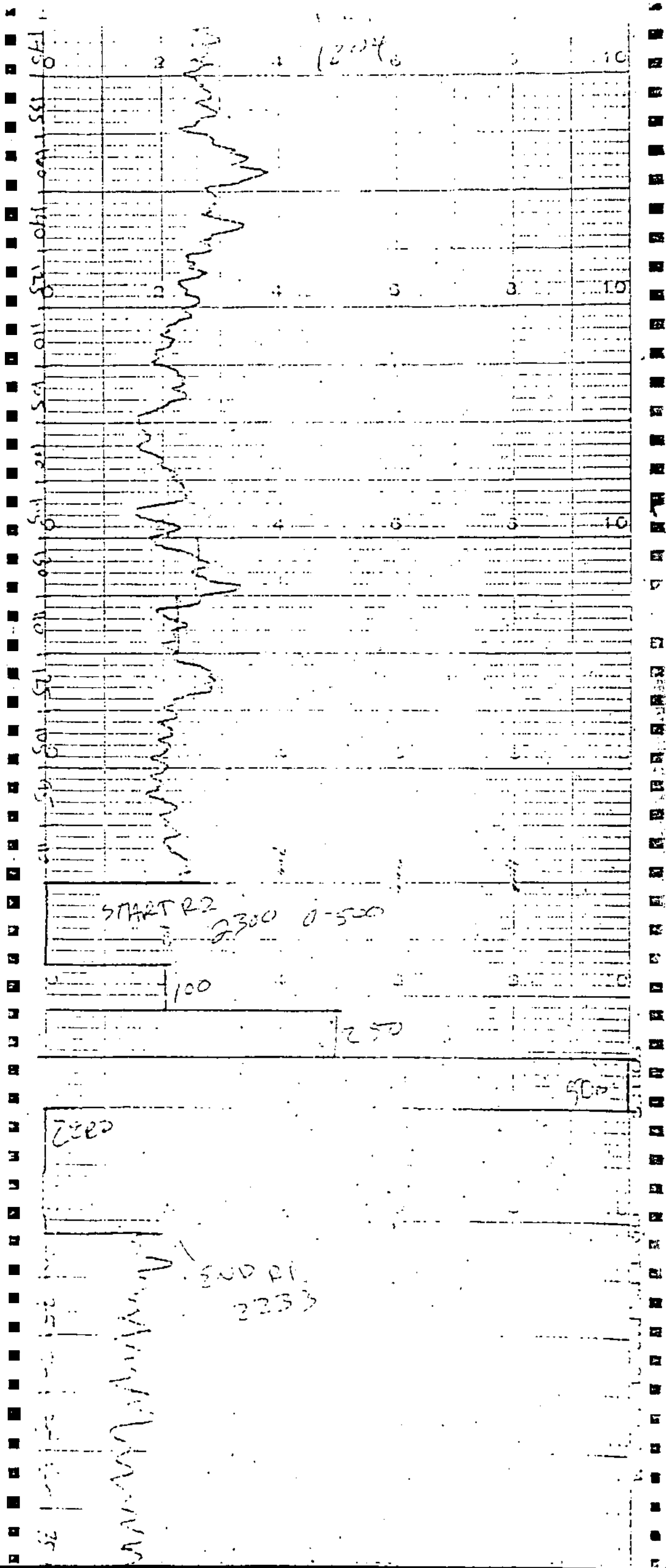
Post change
START 23 12:15
250
500
950
2920
End 22 1145
Post change


END R1 1529
port change
0-1500
START R1
1420
core dryer
1/24/92 stack
SCITEC

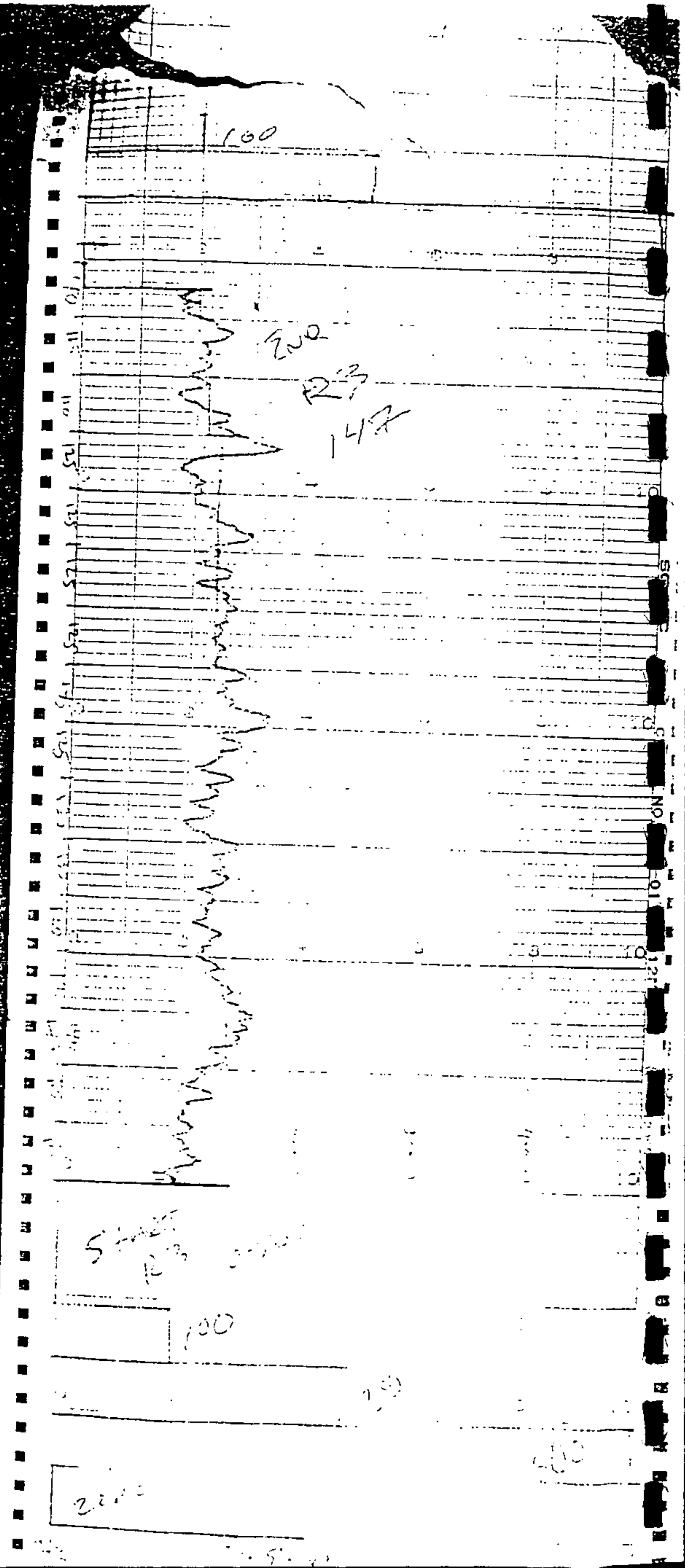

Portchange
START R2 1602
0-1500
500
950
R2
Core dryer
Stack
1/29/92
CO


0 2 4 6 8 10
End R3 1530
0 2 4 6 8 10
0 2 4 6 8 10
Port Change


0-500
100 START
2130
200
300
400
250
2200
LP Sagola
CO
Thermal oil Heater stack
1/30/92
M. Lopez



1204
START R2
2300 0-500
100
250
500
2000
END R1
2333


100
END
R3
147
START
R3
100
200
400

APPENDIX B

Laboratory Data and Reports

ORSAT ANALYTICAL DATA

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AIR SAMPLING DEPARTMENT

EPA Method 3 Laboratory Data Sheet

Project L.P. SAGOLA Analyst WAM

Sampling Location SURFACE-CORE DRYER STACK Analysis Date 1/28/92

Sampling Date 1/28/92 Apparatus Leak Check - Pos. 0.00 Neg. 0.00

Project Number ____ Apparatus Identification 08-

	Aliquot Volume	CO_2	O_2
Test 1 Run 0	Zero Point 0.00 ml Sample Volume 100.0 ml	Initial Reading 0.00 ml Final Reading 0.00 ml Volume CO_2 0.00 ml % CO_2 0.00 %	Initial Reading 0.00 ml Final Reading 20.90 ml Volume O_2 20.90 ml % O_2 20.90 %
Duplicate	Zero Point ____ ml Sample Volume ____ ml	Initial Reading ____ ml Final Reading ____ ml Volume CO_2 ____ ml % CO_2 ____ %	Initial Reading ____ ml Final Reading ____ ml Volume O_2 ____ ml % O_2 ____ %
Average		% CO_2 ____ %	% O_2 ____ %
Test 1 Run 1	Zero Point 0.00 ml Sample Volume 100.0 ml	Initial Reading 0.00 ml Final Reading 3.00 ml Volume CO_2 3.00 ml % CO_2 3.00 %	Initial Reading 3.00 ml Final Reading 20.80 ml Volume O_2 17.80 ml % O_2 17.80 %
Duplicate	Zero Point 0.00 ml Sample Volume 100.0 ml	Initial Reading 0.00 ml Final Reading 3.00 ml Volume CO_2 3.00 ml % CO_2 3.00 %	Initial Reading 3.00 ml Final Reading 20.80 ml Volume O_2 17.80 ml % O_2 17.80 %
Average		% CO_2 3.00 %	% O_2 17.80 %

Comments: Average for 3 runs is 3.06% CO2 17.94% O2

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AIR SAMPLING DEPARTMENT

EPA Method 3 Laboratory Data Sheet

Project L. P. SHOOLA
Sampling Location SURFACE CORE DRYER STACK
Sampling Date 1/28/92
Project Number

Analyst [illegible]
Analysis Date 1/28/92
Apparatus Leak Check - Pos. 0.00 Neg. 0.00
Apparatus Identification 08

Test 1 Run 2	Aliquot Volume Zero Point 0.00 ml Sample Volume 100.0 ml	CO_2 Initial Reading 0.00 ml Final Reading 3.10 ml Volume CO_2 3.10 ml % CO_2 3.10 %	O_2 Initial Reading 3.10 ml Final Reading 21.00 ml Volume O_2 17.90 ml % O_2 17.90 %
Duplicate	Aliquot Volume Zero Point 0.00 ml Sample Volume 100.0 ml	CO_2 Initial Reading 0.00 ml Final Reading 3.10 ml Volume CO_2 3.10 ml % CO_2 3.10 %	O_2 Initial Reading 3.10 ml Final Reading 21.00 ml Volume O_2 21.00 ml % O_2 17.90 %
Average		% CO_2 3.10 %	% O_2 17.90 %
Test 1 Run 3	Aliquot Volume Zero Point 0.00 ml Sample Volume 100.0 ml	CO_2 Initial Reading 0.00 ml Final Reading 3.10 ml Volume CO_2 3.10 ml % CO_2 3.10 %	O_2 Initial Reading 3.10 ml Final Reading 21.10 ml Volume O_2 18.00 ml % O_2 18.00 %
Duplicate	Aliquot Volume Zero Point 0.00 ml Sample Volume 100.0 ml	CO_2 Initial Reading 0.00 ml Final Reading 3.10 ml Volume CO_2 3.10 ml % CO_2 3.10 %	O_2 Initial Reading 3.40 ml Final Reading 21.00 ml Volume O_2 17.90 ml % O_2 17.90 %
Average		% CO_2 3.10 %	% O_2 17.95 %

Comments:

AS 103

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AIR SAMPLING DEPARTMENT

EPA Method 3 Laboratory Summary Sheet

Project LP Sasol

Sampling Location Sur Bed Dryer Stack

Sampling Date 1-29-92

Project Number

Analyst P. Proehl

Analysis Date 1-29-92

Apparatus Leak Check - Pos. 0 Neg. 0

Apparatus Identification C-2

Sample Type ☒ Integrated ☐ Grab

Test No.	Run No.	Orsat Analyzer Results			F_o	O_2 Analyzer Results		Sample Container
		% CO_2	% O_2	% CO		Field	Lab	
1	1	3.40	17.50			17.3		☐ Tedlar™ Bag ☒ Glass Bulb
1	2	3.00	17.60			17.6		☐ Tedlar™ Bag ☒ Glass Bulb
1	3	3.1	17.80			17.6		☐ Tedlar™ Bag ☒ Glass Bulb
								☐ Tedlar™ Bag ☐ Glass Bulb
								☐ Tedlar™ Bag ☐ Glass Bulb
								☐ Tedlar™ Bag ☐ Glass Bulb
								☐ Tedlar™ Bag ☐ Glass Bulb
								☐ Tedlar™ Bag ☐ Glass Bulb
								☐ Tedlar™ Bag ☐ Glass Bulb
								☐ Tedlar™ Bag ☐ Glass Bulb

Calculate F_o before evacuating any samples. Compare F_o to expected fuel values. If discrepancies exist, reanalyze samples. Calculate F_o as follows:

$$F_o = \frac{20.9 - \%\,O_2}{\%\,CO_2}$$

Comments

F_o Ranges For Common Fuels	
Anthracite Coal & Lignite	1.016 - 1.130
Bituminous Coal	1.083 - 1.230
Distillate Oil	1.260 - 1.413
Residual Oil	1.210 - 1.370
Wood	1.000 - 1.120
Wood Bark	1.003 - 1.130
Natural Gas	1.600 - 1.836
Propane	1.434 - 1.586
Butane	1.405 - 1.553

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AIR SAMPLING DEPARTMENT

EPA Method 3 Laboratory Data Sheet

Project LP Sasola
Sampling Location Surface Dryer Stack
Sampling Date 1-29-92
Project Number

Analyst P. Proehl
Analysis Date 1-29-92
Apparatus Leak Check - Pos. 0 Neg. 0
Apparatus Identification O-2

	Aliquot Volume	CO_2	O_2
Test 1 Run 1	Zero Point 0.0 ml Sample Volume 100.00 ml	Initial Reading 0.00 ml Final Reading 3.40 ml Volume CO_2 3.40 ml % CO_2 3.40 %	Initial Reading 3.40 ml Final Reading 20.90 ml Volume O_2 17.50 ml % O_2 17.50 %
Duplicate	Zero Point 0.00 ml Sample Volume 100.00 ml	Initial Reading 0.0 ml Final Reading 3.40 ml Volume CO_2 3.40 ml % CO_2 3.40 %	Initial Reading 3.40 ml Final Reading 20.90 ml Volume O_2 17.50 ml % O_2 17.50 %
Average		% CO_2 %	% O_2 17.50 %
Test 1 Run 2	Zero Point 0.00 ml Sample Volume 100.00 ml	Initial Reading 0.00 ml Final Reading 3.00 ml Volume CO_2 3.00 ml % CO_2 3.00 %	Initial Reading 3.00 ml Final Reading 20.60 ml Volume O_2 17.60 ml % O_2 17.60 %
Duplicate	Zero Point 0.0 ml Sample Volume 100.00 ml	Initial Reading 0.00 ml Final Reading 3.00 ml Volume CO_2 3.00 ml % CO_2 3.00 %	Initial Reading 3.00 ml Final Reading 20.60 ml Volume O_2 17.60 ml % O_2 17.60 %
Average		% CO_2 3.00 %	% O_2 17.60 %

Comments: Average of 3 Runs 3.17% CO_2 17.63% O_2

AS-103

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AIR SAMPLING DEPARTMENT

EPA Method 3 Laboratory Data Sheet

Project LP Sasola

Analyst P. Proch

Sampling Location Surface Dryer Stack

Analysis Date 1-29-92

Sampling Date 1-29-92

Apparatus Leak Check - Pos. 0 Neg. 0

Project Number

Apparatus Identification 0-2

	Aliquot Volume	CO_2	O_2
Test 1 Run 3	Zero Point 0.00 ml Sample Volume 100.00 ml	Initial Reading 0.00 ml Final Reading 3.10 ml Volume CO_2 3.10 ml % CO_2 3.10 %	Initial Reading 3.10 ml Final Reading 20.90 ml Volume O_2 17.80 ml % O_2 17.80 %
Duplicate	Zero Point 0.00 ml Sample Volume 100.00 ml	Initial Reading 0.00 ml Final Reading 3.10 ml Volume CO_2 3.10 ml % CO_2 3.10 %	Initial Reading 3.10 ml Final Reading 20.90 ml Volume O_2 17.80 ml % O_2 17.80 %
Average		% CO_2 3.10 %	% O_2 17.80 %

	Aliquot Volume	CO_2	O_2
Test ___ Run ___	Zero Point ___ ml Sample Volume ___ ml	Initial Reading ___ ml Final Reading ___ ml Volume CO_2 ___ ml % CO_2 ___ %	Initial Reading ___ ml Final Reading ___ ml Volume O_2 ___ ml % O_2 ___ %
Duplicate	Zero Point ___ ml Sample Volume ___ ml	Initial Reading ___ ml Final Reading ___ ml Volume CO_2 ___ ml % CO_2 ___ %	Initial Reading ___ ml Final Reading ___ ml Volume O_2 ___ ml % O_2 ___ %
Average		% CO_2 ___ %	% O_2 ___ %

Comments:

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AIR SAMPLING DEPARTMENT

EPA Method 3 Laboratory Summary Sheet

Project LP Sugda

Sampling Location Cure Dryer Stack

Sampling Date 1-29-93

Project Number

Analyst P. Piechl

Analysis Date 1-29-92

Apparatus Leak Check - Pos. 0 Neg. 0

Apparatus Identification O-2

Sample Type ☒ Integrated ☐ Grab

Test No.	Run No.	Orsat Analyzer Results			F_o.	O_2 Analyzer Results		Sample Container
		% CO_2	% O_2	% CO		Field	Lab	
0	0	0.00	20.90					☐ Tedlar™ Bag ☐ Glass Bulb
2	1	2.1	18.9		0.952	18.6		☐ Tedlar™ Bag ☒ Glass Bulb
2	2	2.90	17.50		1.172	17.3		☐ Tedlar™ Bag ☒ Glass Bulb
2	3	3.20	17.70		1.000	17.4		☐ Tedlar™ Bag ☒ Glass Bulb
								☐ Tedlar™ Bag ☐ Glass Bulb
								☐ Tedlar™ Bag ☐ Glass Bulb
								☐ Tedlar™ Bag ☐ Glass Bulb
								☐ Tedlar™ Bag ☐ Glass Bulb
								☐ Tedlar™ Bag ☐ Glass Bulb
								☐ Tedlar™ Bag ☐ Glass Bulb

Calculate F_o before evacuating any samples. Compare F_o to expected fuel values. If discrepancies exist, reanalyze samples. Calculate F_o as follows:

$$F_o = \frac{20.9 - \%O_2}{\%CO_2}$$

Comments

F_o Ranges For Common Fuels	
Anthracite Coal & Lignite	1.016 - 1.130
Bituminous Coal	1.083 - 1.230
Distillate Oil	1.260 - 1.413
Residual Oil	1.210 - 1.370
Wood	1.000 - 1.120
Wood Bark	1.003 - 1.130
Natural Gas	1.600 - 1.836
Propane	1.434 - 1.586
Butane	1.405 - 1.553

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EPA Method 3 Laboratory Data Sheet

Project: LP Sagola
Analyst: P. Proehl
Sampling Location: Core Dryer Stack
Analysis Date: 1-29-92
Sampling Date: 1-29-92
Apparatus Leak Check - Pos. 0 Neg. 0
Project Number:
Apparatus Identification: 0-2

	Aliquot Volume	CO_2	O_2
Test 0 Run 0	Zero Point 0.00 ml Sample Volume 20.90 ml	Initial Reading 0.00 ml Final Reading 0.00 ml Volume CO_2 0.00 ml % CO_2 0.00 %	Initial Reading 0.00 ml Final Reading 20.90 ml Volume O_2 20.90 ml % O_2 20.90 %
Duplicate	Zero Point 0.80 ml Sample Volume 100.00 ml	Initial Reading 0.80 ml Final Reading 0.80 ml Volume CO_2 0.80 ml % CO_2 0.80 %	Initial Reading 0.80 ml Final Reading 20.90 ml Volume O_2 20.90 ml % O_2 20.90 %
Average		% CO_2 ____ %	% O_2 ____ %
Test 2 Run 1	Zero Point 0.00 ml Sample Volume 100.00 ml	Initial Reading 0.00 ml Final Reading 2.1 ml Volume CO_2 2.1 ml % CO_2 2.1 %	Initial Reading 2.1 ml Final Reading 21.0 ml Volume O_2 18.9 ml % O_2 18.9 %
Duplicate	Zero Point 0.00 ml Sample Volume 100.00 ml	Initial Reading 0.00 ml Final Reading 2.1 ml Volume CO_2 2.1 ml % CO_2 2.1 %	Initial Reading 2.1 ml Final Reading 21.0 ml Volume O_2 18.9 ml % O_2 18.9 %
Average		% CO_2 2.1 %	% O_2 18.9 %

Comments: Average for 3 runs is 2.73% CO_2 18.03% O_2

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EPA Method 3 Laboratory Data Sheet

Project LP Sasola

Sampling Location Coke Power Stack

Sampling Date 1-29-92

Project Number

Analyst R. Prucha

Analysis Date 1-29-92

Apparatus Leak Check - Pos. 0 Neg. 0

Apparatus Identification U-2

	Aliquot Volume	CO_2	O_2
Test 2 Run 2	Zero Point 0.00 ml Sample Volume 100.00 ml	Initial Reading 0.00 ml Final Reading 2.90 ml Volume CO_2 2.90 ml % CO_2 2.90 %	Initial Reading 2.90 ml Final Reading 20.40 ml Volume O_2 17.50 ml % O_2 17.50 %
Duplicate	Zero Point 0.00 ml Sample Volume 100.00 ml	Initial Reading 0.00 ml Final Reading 2.90 ml Volume CO_2 2.90 ml % CO_2 2.90 %	Initial Reading 2.90 ml Final Reading 20.40 ml Volume O_2 17.50 ml % O_2 17.50 %
Average		% CO_2 2.90 %	% O_2 17.50 %
Test 2 Run 3	Zero Point 0.00 ml Sample Volume 100.00 ml	Initial Reading 0.00 ml Final Reading 3.20 ml Volume CO_2 3.20 ml % CO_2 3.20 %	Initial Reading 3.20 ml Final Reading 20.90 ml Volume O_2 17.70 ml % O_2 17.70 %
Duplicate	Zero Point 0.00 ml Sample Volume 100.00 ml	Initial Reading 0.00 ml Final Reading 3.20 ml Volume CO_2 3.20 ml % CO_2 3.20 %	Initial Reading 3.20 ml Final Reading 20.90 ml Volume O_2 17.70 ml % O_2 17.70 %
Average		% CO_2 3.20 %	% O_2 17.70 %

Comments:

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EPA Method 3 Laboratory Summary Sheet

Project: LP Sagola
Analyst: P. Proehl
Sampling Location: Thermal Oil Heater Stack
Analysis Date: 2/3/92
Sampling Date: 1/30/92
Apparatus Leak Check - Pos. 0.0 Neg. 0.0
Project Number: 920108.403
Apparatus Identification: O-2
Sample Type: ☒ Integrated ☐ Grab

Test No.	Run No.	Orsat Analyzer Results			F_o	O_2 Analyzer Results		Sample Container
		% CO_2	% O_2	% CO		Field	Lab	
0	0	0.0	20.90					☐ Tedlar™ Bag ☐ Glass Bulb
2	1	9.8	10.95		1.015			☐ Tedlar™ Bag ☐ Glass Bulb
2	2	9.85	10.9		1.012			☐ Tedlar™ Bag ☐ Glass Bulb
2	3	9.0	11.7		1.022			☐ Tedlar™ Bag ☐ Glass Bulb
								☐ Tedlar™ Bag ☐ Glass Bulb
								☐ Tedlar™ Bag ☐ Glass Bulb
								☐ Tedlar™ Bag ☐ Glass Bulb
								☐ Tedlar™ Bag ☐ Glass Bulb
								☐ Tedlar™ Bag ☐ Glass Bulb
								☐ Tedlar™ Bag ☐ Glass Bulb

Calculate F_o before evacuating any samples. Compare F_o to expected fuel values. If discrepancies exist, reanalyze samples. Calculate F_o as follows:

$$F_o = \frac{20.9 - \%O_2}{\%CO_2}$$

Comments ______

F_o Ranges For Common Fuels	
Anthracite Coal & Lignite	1.016 - 1.130
Bituminous Coal	1.083 - 1.230
Distillate Oil	1.260 - 1.413
Residual Oil	1.210 - 1.370
Wood	1.000 - 1.120
Wood Bark	1.003 - 1.130
Natural Gas	1.600 - 1.836
Propane	1.434 - 1.586
Butane	1.405 - 1.553

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EPA Method 3 Laboratory Data Sheet

Project LP Sagola
Sampling Location Thermal Oil Heater Stack
Sampling Date 1/30/92
Project Number 920108-402

Analyst P. Proehl
Analysis Date 2/3/92
Apparatus Leak Check - Pos. 0.0 Neg. 0.0
Apparatus Identification 0-2

	Aliquot Volume	CO_2	O_2
Test 0 Run 0	Zero Point 0.00 ml Sample Volume 100.0 ml	Initial Reading 0.00 ml Final Reading 0.00 ml Volume CO_2 0.00 ml % CO_2 0.00 %	Initial Reading 0.00 ml Final Reading 20.90 ml Volume O_2 20.90 ml % O_2 20.90 %
Duplicate	Zero Point 0.00 ml Sample Volume 100.0 ml	Initial Reading 0.00 ml Final Reading 0.00 ml Volume CO_2 0.00 ml % CO_2 0.00 %	Initial Reading 0.00 ml Final Reading 20.90 ml Volume O_2 20.90 ml % O_2 20.90 %
Average		% CO_2 0.00 %	% O_2 20.90 %
Test 2 Run 1	Zero Point 0.0 ml Sample Volume 100.0 ml	Initial Reading 0.00 ml Final Reading 9.80 ml Volume CO_2 9.80 ml % CO_2 9.80 %	Initial Reading 9.80 ml Final Reading 20.80 ml Volume O_2 11.00 ml % O_2 11.00 %
Duplicate	Zero Point 0.0 ml Sample Volume 100.0 ml	Initial Reading 0.00 ml Final Reading 9.80 ml Volume CO_2 9.80 ml % CO_2 9.80 %	Initial Reading 9.80 ml Final Reading 20.70 ml Volume O_2 10.90 ml % O_2 10.90 %
Average		% CO_2 9.80 %	% O_2 10.95 %

Comments: Average for 3 runs is 9.55% CO_2 11.15% O_2

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EPA Method 3 Laboratory Data Sheet

Project LP Sesola
Analyst P. Proehl
Sampling Location Heting 10.1 Heater Stack
Analysis Date 2/3/92
Sampling Date 1/30/92
Apparatus Leak Check - Pos. 0.0 Neg. 0.0
Project Number 920103.402
Apparatus Identification O-2

	Aliquot Volume	CO_2	O_2
Test 2 Run 2	Zero Point 0.00 ml Sample Volume 100.00 ml	Initial Reading 0.00 ml Final Reading 9.80 ml Volume CO_2 9.80 ml % CO_2 9.80 %	Initial Reading 9.80 ml Final Reading 20.70 ml Volume O_2 10.90 ml % O_2 10.90 %
Duplicate	Zero Point 0.00 ml Sample Volume 100.00 ml	Initial Reading 0.00 ml Final Reading 9.90 ml Volume CO_2 9.90 ml % CO_2 9.90 %	Initial Reading 9.90 ml Final Reading 20.80 ml Volume O_2 10.90 ml % O_2 10.90 %
Average		% CO_2 9.85 %	% O_2 10.90 %
Test 2 Run 3	Zero Point 0.0 ml Sample Volume 100.0 ml	Initial Reading 0.00 ml Final Reading 9.00 ml Volume CO_2 9.00 ml % CO_2 9.00 %	Initial Reading 9.00 ml Final Reading 20.70 ml Volume O_2 11.70 ml % O_2 11.70 %
Duplicate	Zero Point 0.0 ml Sample Volume 100.0 ml	Initial Reading 0.00 ml Final Reading 9.00 ml Volume CO_2 9.00 ml % CO_2 9.00 %	Initial Reading 9.00 ml Final Reading 20.70 ml Volume O_2 11.70 ml % O_2 11.70 %
Average		% CO_2 9.00 %	% O_2 11.70 %

Comments:

PARTICULATE ANALYTICAL DATA

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EPA Method 5 Particulate Gravimetric Sheet
Organic Condensibles

Project LP Sagola
Sampling Location Surface/Core Dryer Stack
Sampling Date 1-28-92
Test Number
Project Number 920203.517

Analyst BOL
Analysis Date(s) 2-13-92
Sampling Reagent DI
LDMS Entry Initials
LDMS Validation Initials

1018810

Sample No. 3505.0	Sample No. 3506.8	Sample No. 3507.6
Run Number T, R1	Run Number T, R2	Run Number T, R3
Dish Number 8L	Dish Number 42	Dish Number 25
VoL 450	VoL 450	VoL 420
Date/Time 2-10-92 9:00	Date/Time 2-10-92 9:00	Date/Time 2-10-92 9:00
Gross Weight 108.6948 g	Gross Weight 99.5181 g	Gross Weight 99.4813 g
Date/Time 2-11-92 8:00	Date/Time 2-11-92 8:00	Date/Time 2-11-92 3:00
Gross Weight 108.6950 g	Gross Weight 99.5180 g	Gross Weight 99.4813 g
Avg. Gross Wt. 108.6949 g	Avg. Gross Wt. 99.5181 g	Avg. Gross Wt. 99.4813 g
Dish Tare Wt. 108.6745 g	Dish Tare Wt. 99.5016 g	Dish Tare Wt. 99.4645 g
Difference 0.0204 g	Difference 0.0165 g	Difference 0.0168 g
Blank Weight +0.0008 g	Blank Weight +0.0008 g	Blank Weight +0.0008 g
Condensible Organic Wt. 0.0196 g	Condensible Organic Wt. 0.0157 g	Condensible Organic Wt. 0.0160 g
Transfer "Condensible Organic Wt." to Box Number 1.	Transfer "Condensible Organic Wt." to Box Number 2.	Transfer "Condensible Organic Wt." to Box Number 3.
WC 1 0.0196 g	WC 2 0.0157 g	WC 3 0.0160 g

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EPA Method 5 Particulate Gravimetric Sheet
Particulate In Probe Wash

Project LP Sagola
Analyst BDL
Sampling Location Surface / Core Dryer STACK
Analysis Date(s) 2-13-92
Sampling Date 1-28-92
Cleanup Reagent(s) Acetone
Test Number
LDMS Entry ______ Initials ______
Project Number 920203.517
LDMS Validation ______ Initials ______

Sample No. 3505.0	Sample No. 3506.8	Sample No. 3507.6
Run Number T1R1	Run Number T1R2	Run Number T1R3
Dish Number DNP	Dish Number LM3	Dish Number 14
Reagent Vol. 150 ml	Reagent Vol. 150 ml	Reagent Vol. 110 ml
Date/Time 2-11-92 8:30	Date/Time 2-11-92 8:30	Date/Time 2-11-92 8:30
Gross Weight 108.2015 g	Gross Weight 107.9387 g	Gross Weight 101.4817 g
Date/Time 2-12-92 4:00	Date/Time 2-12-92 4:00	Date/Time 2-12-92 4:00
Gross Weight 108.2020 g	Gross Weight 107.9391 g	Gross Weight 101.4822 g
Avg. Gross Wt. 108.2018 g	Avg. Gross Wt. 107.9389 g	Avg. Gross Wt. 101.4820 g
Dish Tare Wt. 108.1647 g	Dish Tare Wt. 107.9103 g	Dish Tare Wt. 101.4581 g
Difference 0.0371 g	Difference 0.0286 g	Difference 0.0239 g
Blank Weight — g	Blank Weight — g	Blank Weight — g
Particulate In Rinse Weight 0.0371 g	Particulate In Rinse Weight 0.0286 g	Particulate In Rinse Weight 0.0239 g
Transfer "Particulate In Rinse Weight" to Box Number 1.	Transfer "Particulate In Rinse Weight" to Box Number 2.	Transfer "Particulate In Rinse Weight" to Box Number 3.
PW 1 0.0371 g	PW 2 0.0286 g	PW 3 0.0239 g

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EPA Method 5 Particulate Gravimetric Sheet

Particulate On Filter

Project LP Sagola

Analyst BOL

Sampling Location Surface/Core Dryer Stack

Analysis Date(s) 2-13-92

Sampling Date 1-28-92

Filter Type Fiberglass

Test Number

LDMS Entry ______ Initials ______

Project Number 9202035.17

LDMS Validation ______ Initials ______

Sample No. 3505.0	Sample No. 3506.8	Sample No. 3507.6
Run Number T1R1	Run Number T1R2	Run Number T1R3
Filter Number 2210	Filter Number 2211	Filter Number 2212
Date/Time 2-7-92 8:15	Date/Time 2-10-92 9:30	Date/Time 2-7-92 8:15
Gross Weight 0.79275 g	Gross Weight 0.77286 g	Gross Weight 0.77364 g
Date/Time 2-7-92 3:30	Date/Time 2-11-92 8:15	Date/Time 2-7-92 3:30
Gross Weight 0.79279 g	Gross Weight 0.77285 g	Gross Weight 0.77368 g
Avg. Gross Wt. 0.79277 g	Avg. Gross Wt. 0.77286 g	Avg. Gross Wt. 0.77366 g
Filter Tare Wt. 0.69310 g	Filter Tare Wt. 0.69132 g	Filter Tare Wt. 0.69478 g
Difference 0.09967 g	Difference 0.08154 g	Difference 0.07888 g
Particulate On Filter Weight 0.09967 g	Particulate On Filter Weight 0.08154 g	Particulate On Filter Weight 0.07888 g
Transfer "Particulate On Filter Weight" to Box Number 1.	Transfer "Particulate On Filter Weight" to Box Number 2.	Particulate On Filter Weight" to Box Number 3.
Sum particulate weights from each box labeled "1" and record in box labeled "T1."	Sum particulate weights from each box labeled "2" and record in box labeled "T2."	Sum particulate weights from each box labeled "3" and record in box labeled "T3."
AF 1 0.09967 g	AF 2 0.08154 g	AF 3 0.07888 g
Total T1 0.15637 g	Total T2 0.12554 g	Total T3 0.11878 g

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EPA Method 5 Particulate Gravimetric Sheet
Reagent Blanks

Project LP Sagola Analyst BOL
Sampling Location Surface Core Dryer Stack Analysis Date(s) 2-13-92
Sampling Date 1-28-92
Test Number
Project Number 920203.517

Wet Catch			Probe Wash		
Type:	☐ Organic Condensibles (Extract.) ☐ Inorganic (Residual) ☐ Other ☐ Retain For Further Analyses HJ		Type:	☒ Gravimetric ☐ Other ☐ Retain For Further Analyses 66	
Reagent	DI		Reagent	Acetone	
Volume	400	ml	Volume	100	ml
Date/Time	2-10-92 9:00		Date/Time	2-11-92 8:30	
Gross Weight	113.1300	g	Gross Weight	100.0410	g
Date/Time	2-11-92 8:00		Date/Time	2-12-92 4:00	
Gross Weight	113.1294	g	Gross Weight	100.0415	g
Avg. Gross Wt.	113.1297	g	Avg. Gross Wt.	100.0413	g
Dish Tare Wt.	113.1289	g	Dish Tare Wt.	100.0417	g
Difference	0.0008	g	Difference	-0.0004	g
Blank Weight	+0.0008	g	Blank Weight	-0.0004	g

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EPA Method 5 Particulate Gravimetric Sheet
Organic Condensibles

Project LP Sagola
Sampling Location Surface / Core Stack
Sampling Date 1-29-92
Test Number
Project Number 920203517

Analyst BOL
Analysis Date(s) 2-14-92
Sampling Reagent DI
LDMS Entry 2-14-92 Initials BOL
LDMS Validation Initials

BATCH 18854

Sample No.	3499.1	Sample No.	3501.7	Sample No.	3503.3
Run Number	T2 R1	Run Number	T2 R2	Run Number	T2 R3
Dish Number	8r	Dish Number	Cal	Dish Number	22
Vol 350		Vol 350		Vol 350	
Date/Time	2-7-92 7:45	Date/Time	2-7-92 7:45	Date/Time	2-7-92 7:45
Gross Weight	106.1931 g	Gross Weight	115.5596 g	Gross Weight	99.5848 g
Date/Time	2-7-92 2:00	Date/Time	2-7-92 2:00	Date/Time	2-7-92 2:00
Gross Weight	106.1933 g	Gross Weight	115.5600 g	Gross Weight	99.5853 g
Avg. Gross Wt.	106.1932 g	Avg. Gross Wt.	115.5598 g	Avg. Gross Wt.	99.5850 g
Dish Tare Wt.	106.1838 g	Dish Tare Wt.	115.5517 g	Dish Tare Wt.	99.5749 g
Difference	0.0094 g	Difference	0.0081 g	Difference	0.0101 g
Blank Weight	+0.0006 g	Blank Weight	+0.0006 g	Blank Weight	+0.0006 g
Condensible Organic Wt.	0.0088 g	Condensible Organic Wt.	0.0075 g	Condensible Organic Wt.	0.0095 g
Transfer "Condensible Organic Wt." to Box Number 1.		Transfer "Condensible Organic Wt." to Box Number 2.		Transfer "Condensible Organic Wt." to Box Number 3.	
WC 1	0.0088 g	WC 2	0.0075 g	WC 3	0.0095 g

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EPA Method 5 Particulate Gravimetric Sheet
Particulate In Probe Wash

Project LP Sagola
Analyst BDL
Sampling Location Surface/Core Stack
Analysis Date(s) 2-14-92
Sampling Date 1-29-92
Cleanup Reagent(s) Acetone
Test Number
LDMS Entry 2-14-92 Initials BDL
Project Number 920203.517
LDMS Validation Initials

Sample No.	3499.1	3501.7	3503.3
Run Number	T2 R1	T2 R2	T2 R3
Dish Number	10	36	MP
Reagent Vol.	90 ml	135 ml	160 ml
Date/Time	2-11-92 8:00	2-10-92 9:00	2-11-92 8:00
Gross Weight	98.4595 g	100.4438 g	106.9306 g
Date/Time	2-11-92 3:00	2-11-92 8:00	2-11-92 3:05
Gross Weight	98.4595 g	100.4433 g	106.9310 g
Avg. Gross Wt.	98.4595 g	100.4436 g	106.9308 g
Dish Tare Wt.	98.4477 g	100.4305 g	106.8834 g
Difference	0.0118 g	0.0131 g	0.0474 g
Blank Weight	— g	— g	— g
Particulate In Rinse Weight	0.0118 g	0.0131 g	0.0474 g
	Transfer "Particulate In Rinse Weight" to Box Number 1.	Transfer "Particulate In Rinse Weight" to Box Number 2.	Transfer "Particulate In Rinse Weight" to Box Number 3.
PW	1 0.0118 g	2 0.0131 g	3 0.0474 g

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EPA Method 5 Particulate Gravimetric Sheet

Particulate On Filter

Project LP Sagola

Analyst BDL

Sampling Location Surface/Core Stack

Analysis Date(s) 2-14-92

Sampling Date 1-29-92

Filter Type Fiberglass

Test Number

LDMS Entry 2-14-92 Initials BDL

Project Number 920203.517

LDMS Validation Initials

Sample No. 3499.1	Sample No. 3501.7	Sample No. 3503.3
Run Number T2 R1	Run Number T2 R2	Run Number T2 R3
Filter Number 2172	Filter Number 2171	Filter Number 2173
Date/Time 2-7-92 8:15	Date/Time 2-7-92 8:15	Date/Time 2-7-92 8:15
Gross Weight 0.73278 g	Gross Weight 0.73477 g	Gross Weight 0.73454 g
Date/Time 2-7-92 3:30	Date/Time 2-7-92 3:30	Date/Time 2-7-92 3:30
Gross Weight 0.73279 g	Gross Weight 0.73475 g	Gross Weight 0.73458 g
Avg. Gross Wt. 0.73278 g	Avg. Gross Wt. 0.73476 g	Avg. Gross Wt. 0.73456 g
Filter Tare Wt. 0.68444 g	Filter Tare Wt. 0.68647 g	Filter Tare Wt. 0.68745 g
Difference 0.04834 g	Difference 0.04829 g	Difference 0.04711 g
Particulate On Filter Weight 0.04834 g	Particulate On Filter Weight 0.04829 g	Particulate On Filter Weight 0.04711 g
Transfer "Particulate On Filter Weight" to Box Number 1.	Transfer "Particulate On Filter Weight" to Box Number 2.	Particulate On Filter Weight" to Box Number 3.
Sum particulate weights from each box labeled "1" and record in box labeled "T1."	Sum particulate weights from each box labeled "2" and record in box labeled "T2."	Sum particulate weights from each box labeled "3" and record in box labeled "T3."
AF 1 0.04834 g	AF 2 0.04829 g	AF 3 0.04711 g
Total T1 0.06894 g	Total T2 0.06889 g	Total T3 0.10401 g

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EPA Method 5 Particulate Gravimetric Sheet

Reagent Blanks

Project: L P Sagola
Analyst: BDL
Sampling Location: Surface / Core Stack
Analysis Date(s): 2-14-92
Sampling Date: 1-29-92
Test Number:
Project Number: 920203.517

Wet Catch			Probe Wash		
Type:	☐ Organic Condensibles (Extract.)		Type:	☒ Gravimetric	
	☐ Inorganic (Residual)			☐ Other	
	☐ Other			☐ Retain For Further Analyses	
	☐ Retain For Further Analyses			JP	
	44				
Reagent	DI		Reagent	Acetone	
Volume	450	ml	Volume	100	ml
Date/Time	2-7-92 7:45		Date/Time	2-11-92 8:00	
Gross Weight	102.3350	g	Gross Weight	106.7888	g
Date/Time	2-7-92 2:00		Date/Time	2-11-92 3:00	
Gross Weight	102.3348	g	Gross Weight	106.7890	g
Avg. Gross Wt.	102.3349	g	Avg. Gross Wt.	106.7889	g
Dish Tare Wt.	102.3343	g	Dish Tare Wt.	106.7890	g
Difference	+0.0006	g	Difference	-0.0001	g
Blank Weight	+0.0006	g	Blank Weight	—	g

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EPA Method 5 Particulate Gravimetric Sheet

Particulate In Probe Wash

Project LP [illegible]
Analyst BDL
Sampling Location [illegible] Stack
Analysis Date(s) 2-13-92
Sampling Date 1-29-92
Cleanup Reagent(s) Acetone
Test Number
LDMS Entry 2-13-92 Initials BDL
Project Number 920203.517
LDMS Validation Initials

BATCH 1013807

Sample No. 3500.9	Sample No. 3502.5	Sample No. 3504.1
Run Number T2 R1	Run Number T2 R2	Run Number T2 R3
Dish Number 50	Dish Number 44	Dish Number 26
Reagent Vol. 20 ml	Reagent Vol. 20 ml	Reagent Vol. 25 ml
Date/Time 2-12-92 4:00	Date/Time 2-12-92 4:00	Date/Time 2-12-92 4:00
Gross Weight 115.2895 g	Gross Weight 102.3407 g	Gross Weight 99.5799 g
Date/Time 2-13-92 7:30	Date/Time 2-13-92 7:30	Date/Time 2-13-92 7:30
Gross Weight 115.2900 g	Gross Weight 102.3415 g	Gross Weight 99.5804 g
Avg. Gross Wt. 115.2898 g	Avg. Gross Wt. 102.3411 g	Avg. Gross Wt. 99.5802 g
Dish Tare Wt. 115.2808 g	Dish Tare Wt. 102.3333 g	Dish Tare Wt. 99.5645 g
Difference 0.0090 g	Difference 0.0078 g	Difference 0.0157 g
Blank Weight [illegible] g	Blank Weight [illegible] g	Blank Weight [illegible] g
Particulate In Rinse Weight [illegible] g	Particulate In Rinse Weight [illegible] g	Particulate In Rinse Weight [illegible] g
Transfer "Particulate In Rinse Weight" to Box Number 1.	Transfer "Particulate In Rinse Weight" to Box Number 2.	Transfer "Particulate In Rinse Weight" to Box Number 3.
PW 1 [illegible] g	PW 2 [illegible] g	PW 3 [illegible] g

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EPA Method 5 Particulate Gravimetric Sheet

Reagent Blanks

Project LP Sagola
Analyst BDL
Sampling Location Surface Core Stack
Analysis Date(s) 2-13-92
Sampling Date 1-29-92
Test Number
Project Number 920203.517

Wet Catch			Probe Wash		
Type:	☐ Organic Condensibles (Extract.) ☐ Inorganic (Residual) ☐ Other ☐ Retain For Further Analyses		Type:	☒ Gravimetric ☐ Other ☐ Retain For Further Analyses ATP	
Reagent			Reagent	Acetone	
Volume		ml	Volume	100	ml
Date/Time			Date/Time	2-12-92 4:00	
Gross Weight		g	Gross Weight	106.7570	g
Date/Time			Date/Time	2-13-92 8:00	
Gross Weight		g	Gross Weight	106.7575	g
Avg. Gross Wt.		g	Avg. Gross Wt.	106.7572	g
Dish Tare Wt.		g	Dish Tare Wt.	106.7566	g
Difference		g	Difference	0.0006	g
Blank Weight		g	Blank Weight	+0.0006	g

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EPA Method 5 Particulate Gravimetric Sheet
Organic Condensibles

Project LP Sagola
Analyst BDL
Sampling Location Surface Dryer Stack
Analysis Date(s) 2-13-92
Sampling Date 1-29-92
Sampling Reagent DI
Test Number
LDMS Entry 2-13-92 Initials BDL
Project Number 920203.517
LDMS Validation Initials

BATCH 1018809

Sample No. 3486.0	Sample No. 3487.8	Sample No. 3488.6
Run Number T1R1	Run Number T1R2	Run Number T1R3
Dish Number PR	Dish Number EP	Dish Number 26
Vol 450	Vol 450	Vol 450
Date/Time 2-7-92 7:45	Date/Time 2-7-92 7:45	Date/Time 2-7-92 7:45
Gross Weight 99.9167 g	Gross Weight 110.1955 g	Gross Weight 99.5952 g
Date/Time 2-7-92 2:00	Date/Time 2-7-92 2:00	Date/Time 2-7-92 2:00
Gross Weight 99.9162 g	Gross Weight 110.1952 g	Gross Weight 99.5950 g
Avg. Gross Wt. 99.9164 g	Avg. Gross Wt. 110.1954 g	Avg. Gross Wt. 99.5951 g
Dish Tare Wt. 99.8876 g	Dish Tare Wt. 110.1687 g	Dish Tare Wt. 99.5654 g
Difference 0.0288 g	Difference 0.0267 g	Difference 0.0297 g
Blank Weight -0.0006 g	Blank Weight -0.0006 g	Blank Weight -0.0006 g
Condensible Organic Wt. 0.0282 g	Condensible Organic Wt. 0.0261 g	Condensible Organic Wt. 0.0291 g
Transfer "Condensible Organic Wt." to Box Number 1.	Transfer "Condensible Organic Wt." to Box Number 2.	Transfer "Condensible Organic Wt." to Box Number 3.
WC 1 0.0282 g	WC 2 0.0261 g	WC 3 0.0291 g

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EPA Method 5 Particulate Gravimetric Sheet
Particulate In Probe Wash

Project LP Saoola
Sampling Location Surface Dryer STACK
Sampling Date 1-29-92
Test Number
Project Number 920203.517

Analyst BDL
Analysis Date(s) 2-13-92
Cleanup Reagent(s) Acetone
LDMS Entry 2-13-92 Initials BDL
LDMS Validation Initials

Sample No. 3486.0	Sample No. 3487.3	Sample No. 3488.6
Run Number T, R,	Run Number T, R2	Run Number T, R3
Dish Number 12	Dish Number 41	Dish Number C5
Reagent Vol. 160 ml	Reagent Vol. 135 ml	Reagent Vol. 125 ml
Date/Time [illegible]	Date/Time [illegible]	Date/Time 2-13 7:15
Gross Weight [illegible] g	Gross Weight [illegible] g	Gross Weight [illegible] g
Date/Time [illegible]	Date/Time [illegible]	Date/Time [illegible]
Gross Weight [illegible] g	Gross Weight [illegible] g	Gross Weight [illegible] g
Avg. Gross Wt. 109.5780 g	Avg. Gross Wt. [illegible] g	Avg. Gross Wt. [illegible] g
Dish Tare Wt. 109.5533 g	Dish Tare Wt. 101.6047 g	Dish Tare Wt. 106.6872 g
Difference 0.0247 g	Difference 0.0307 g	Difference 0.0297 g
Blank Weight g	Blank Weight — g	Blank Weight — g
Particulate In Rinse Weight [illegible] g	Particulate In Rinse Weight [illegible] g	Particulate In Rinse Weight [illegible] g
Transfer "Particulate In Rinse Weight" to Box Number 1.	Transfer "Particulate In Rinse Weight" to Box Number 2.	Transfer "Particulate In Rinse Weight" to Box Number 3.
PW 1 0.0247 g	PW 2 0.0307 g	PW 3 [illegible] g

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EPA Method 5 Particulate Gravimetric Sheet

Particulate On Filter

Project: LP Sagola
Analyst: BDL
Sampling Location: Surface Dryer Stack
Analysis Date(s): 2-13-92
Sampling Date: 1-29-92
Filter Type: Fiberglass
Test Number:
LDMS Entry: 2-13-92 Initials: BDL
Project Number: 920203.517
LDMS Validation: Initials:

Sample No. 3486.0	Sample No. 3487.8	Sample No. 3488.6
Run Number T, R1	Run Number T, R2	Run Number T, R3
Filter Number 2213	Filter Number 2214	Filter Number 2246
Date/Time 2-6-92 8:30	Date/Time 2-7-92 8:15	Date/Time 2-6-92 8:30
Gross Weight 0.74877 g	Gross Weight 0.75048 g	Gross Weight 0.74222 g
Date/Time 2-6-92 2:30	Date/Time 2-7-92 3:30	Date/Time 2-6-92 2:30
Gross Weight 0.74878 g	Gross Weight 0.75043 g	Gross Weight 0.74220 g
Avg. Gross Wt. 0.74878 g	Avg. Gross Wt. 0.75046 g	Avg. Gross Wt. 0.74221 g
Filter Tare Wt. 0.69648 g	Filter Tare Wt. 0.69389 g	Filter Tare Wt. 0.69135 g
Difference 0.05230 g	Difference 0.05656 g	Difference 0.05086 g
Particulate On Filter Weight 0.05230 g	Particulate On Filter Weight 0.05656 g	Particulate On Filter Weight 0.05086 g
Transfer "Particulate On Filter Weight" to Box Number 1.	Transfer "Particulate On Filter Weight" to Box Number 2.	Particulate On Filter Weight" to Box Number 3.
Sum particulate weights from each box labeled "1" and record in box labeled "T1."	Sum particulate weights from each box labeled "2" and record in box labeled "T2."	Sum particulate weights from each box labeled "3" and record in box labeled "T3."
AF 1 0.05230 g	AF 2 0.05656 g	AF 3 0.05086 g
Total T1 0.10520 g	Total T2 0.11336 g	Total T3 0.10966 g

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EPA Method 5 Particulate Gravimetric Sheet

Reagent Blanks

Project ______ Analyst ______

Sampling Location ______ Analysis Date(s) ______

Sampling Date ______

Test Number ______

Project Number ______

Wet Catch

Type:
- [ ] Organic Condensibles (Extract.)
- [ ] Inorganic (Residual)
- [ ] Other ______
- [ ] Retain For Further Analyses

44

Reagent: DI

Volume: 450 ml

Date/Time: 2-7-92 7:45

Gross Weight: 102.3350 g

Date/Time: 2-7-92 2:00

Gross Weight: 102.3348 g

Avg. Gross Wt.: 102.3349 g

Dish Tare Wt.: 102.3343 g

Difference: +0.0006 g

Blank Weight: +0.0006 g

Probe Wash

Type:
- [x] Gravimetric
- [ ] Other ______
- [ ] Retain For Further Analyses

B5

Reagent: Acetone

Volume: 100 ml

Date/Time: 2-7-92 7:45

Gross Weight: 110.3034 g

Date/Time: 2-7-92 2:00

Gross Weight: 110.3038 g

Avg. Gross Wt.: 110.3036 g

Dish Tare Wt.: 110.3043 g

Difference: -0.0007 g

Blank Weight: ------ g

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EPA Method 5 Particulate Gravimetric Sheet
Organic Condensibles

Project LP Sagola
Sampling Location Surface Dryer Stack
Sampling Date 1-29-92
Test Number
Project Number 920203.517

Analyst BDL
Analysis Date(s) 2-13-92
Sampling Reagent DI
LDMS Entry 2-13-92 Initials BDL
LDMS Validation Initials

BATCH 1018806

Sample No. 3493.2	Sample No. 3495.9	Sample No. 3497.5
Run Number T2 R1	Run Number T2 R2	Run Number T2 R3
Dish Number TP	Dish Number 50	Dish Number TWA
Vol 300	Vol 350	Vol 350
Date/Time 2-7-92 7:45	Date/Time 2-7-92 7:45	Date/Time 2-7-92 7:45
Gross Weight 108.0304 g	Gross Weight 115.2977 g	Gross Weight 112.7204 g
Date/Time 2-7-92 2:00	Date/Time 2-7-92 2:00	Date/Time 2-7-92 2:00
Gross Weight 108.0304 g	Gross Weight 115.2974 g	Gross Weight 112.7205 g
Avg. Gross Wt. 108.0304 g	Avg. Gross Wt. 115.2976 g	Avg. Gross Wt. 112.7204 g
Dish Tare Wt. 108.0185 g	Dish Tare Wt. 115.2823 g	Dish Tare Wt. 112.7038 g
Difference 0.0119 g	Difference 0.0153 g	Difference 0.0166 g
Blank Weight ±0.0006 g	Blank Weight ±0.0006 g	Blank Weight ±0.0006 g
Condensible Organic Wt. 0.0113 g	Condensible Organic Wt. 0.0147 g	Condensible Organic Wt. 0.0160 g
Transfer "Condensible Organic Wt." to Box Number 1.	Transfer "Condensible Organic Wt." to Box Number 2.	Transfer "Condensible Organic Wt." to Box Number 3.
WC 1 0.0113 g	WC 2 0.0147 g	WC 3 0.0160 g

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EPA Method 5 Particulate Gravimetric Sheet
Particulate In Probe Wash

Project LP Sagola
Sampling Location Surface Dryer Stack
Sampling Date 1-29-92
Test Number
Project Number 920203.517

Analyst BDL
Analysis Date(s) 2-13-92
Cleanup Reagent(s) Acetone
LDMS Entry ______ Initials ______
LDMS Validation ______ Initials ______

Sample No. 3493.2	Sample No. 3495.9	Sample No. 3497.5
Run Number T2R1	Run Number T2R2	Run Number T2R3
Dish Number 18	Dish Number Reo	Dish Number 27
Reagent Vol. 225 ml	Reagent Vol. 160 ml	Reagent Vol. 200 ml
Date/Time 2-7-92 7:45	Date/Time 2-7-92 7:45	Date/Time 2-7-92 7:45
Gross Weight 103.8835 g	Gross Weight 115.6305 g	Gross Weight 99.9748 g
Date/Time 2-7-92 2:00	Date/Time 2-7-92 2:00	Date/Time 2-7-92 2:00
Gross Weight 103.8837 g	Gross Weight 115.6309 g	Gross Weight 99.9752 g
Avg. Gross Wt. 103.8836 g	Avg. Gross Wt. 115.6307 g	Avg. Gross Wt. 99.9750 g
Dish Tare Wt. 103.8713 g	Dish Tare Wt. 115.6158 g	Dish Tare Wt. 99.9612 g
Difference 0.0123 g	Difference 0.0149 g	Difference 0.0138 g
Blank Weight —— g	Blank Weight —— g	Blank Weight —— g
Particulate In Rinse Weight [illegible] g	Particulate In Rinse Weight [illegible] g	Particulate In Rinse Weight [illegible] g
Transfer "Particulate In Rinse Weight" to Box Number 1.	Transfer "Particulate In Rinse Weight" to Box Number 2.	Transfer "Particulate In Rinse Weight" to Box Number 3.
PW 1 [illegible] g	PW 2 [illegible] g	PW 3 [illegible] g

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EPA Method 5 Particulate Gravimetric Sheet

Particulate On Filter

Project: LP Sagola
Analyst: BDL
Sampling Location: Surface Dryer Stack
Analysis Date(s): 2-13-92
Sampling Date: 1-29-92
Filter Type: Fiberglass
Test Number:
LDMS Entry: Initials:
Project Number: 920203.517
LDMS Validation: Initials:

Sample No. 3493.2	Sample No. 3495.9	Sample No. 3497.5
Run Number T2 R1	Run Number T2 R2	Run Number T2 R3
Filter Number 2191	Filter Number 2192	Filter Number 2230
Date/Time 2-6-92 8:30	Date/Time 2-6-92 8:30	Date/Time 2-6-92 8:30
Gross Weight 0.72460 g	Gross Weight 0.72321 g	Gross Weight 0.72541 g
Date/Time 2-6-92 2:30	Date/Time 2-6-92 2:30	Date/Time 2-6-92 2:30
Gross Weight 0.72463 g	Gross Weight 0.72324 g	Gross Weight 0.72544 g
Avg. Gross Wt. 0.72462 g	Avg. Gross Wt. 0.72322 g	Avg. Gross Wt. 0.72542 g
Filter Tare Wt. 0.69633 g	Filter Tare Wt. 0.69265 g	Filter Tare Wt. 0.69502 g
Difference 0.02829 g	Difference 0.03057 g	Difference 0.03040 g
Particulate On Filter Weight 0.02829 g	Particulate On Filter Weight 0.03057 g	Particulate On Filter Weight 0.03040 g
Transfer "Particulate On Filter Weight" to Box Number 1.	Transfer "Particulate On Filter Weight" to Box Number 2.	Particulate On Filter Weight" to Box Number 3.
Sum particulate weights from each box labeled "1" and record in box labeled "T1."	Sum particulate weights from each box labeled "2" and record in box labeled "T2."	Sum particulate weights from each box labeled "3" and record in box labeled "T3."
AF 1 0.02329 g	AF 2 0.03057 g	AF 3 0.03040 g
Total T1 0.05189 g	Total T2 0.06017 g	Total T3 0.06020 g

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EPA Method 5 Particulate Gravimetric Sheet

Reagent Blanks

Project LP Sagola Analyst BDL
Sampling Location Surface Dryer Stack Analysis Date(s) 2-13-92
Sampling Date 1-29-92
Test Number
Project Number 920203.517

Wet Catch	Probe Wash
Type: ☐ Organic Condensibles (Extract.) ☐ Inorganic (Residual) ☐ Other ☐ Retain For Further Analyses	Type: ☒ Gravimetric ☐ Other ☐ Retain For Further Analyses
44	35
Reagent DI	Reagent Acetone
Volume 450 ml	Volume 100 ml
Date/Time 2-7-92 7:45	Date/Time 2-7-92 7:45
Gross Weight 102.3350 g	Gross Weight 110.3034 g
Date/Time 2-7-92 2:00	Date/Time 2-7-92 2:00
Gross Weight 102.3348 g	Gross Weight 110.3038 g
Avg. Gross Wt. 102.3349 g	Avg. Gross Wt. 110.3036 g
Dish Tare Wt. 102.3343 g	Dish Tare Wt. 110.3043 g
Difference + 0.0006 g	Difference − 0.0007 g
Blank Weight + 0.0006 g	Blank Weight — g

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EPA Method 5 Particulate Gravimetric Sheet
Particulate In Probe Wash

Project LP Sagola
Analyst BDL
Sampling Location Dryer Stack
Analysis Date(s) 2-13-92
Sampling Date 1-29-92
Cleanup Reagent(s) Acetone
Test Number
LDMS Entry 2-13-92 Initials BDL
Project Number 920203.517
LDMS Validation Initials

BATCH 1018805

Sample No. 3494.0	Sample No. 3496.7	Sample No. 3498.3
Run Number T2 R1	Run Number T2 R2	Run Number T2 R3
Dish Number Wam	Dish Number PO	Dish Number LO
Reagent Vol. 20 ml	Reagent Vol. 20 ml	Reagent Vol. 35 ml
Date/Time 2-7 2:00	Date/Time 2-7-92 7:45	Date/Time 2-7-92 7:45
Gross Weight 108.1500 g	Gross Weight 116.8715 g	Gross Weight 99.4321 g
Date/Time 2-10-92 9:00	Date/Time 2-7-92 2:00	Date/Time 2-7-92 2:00
Gross Weight 108.1505 g	Gross Weight 116.8720 g	Gross Weight 99.4323 g
Avg. Gross Wt. 108.1503 g	Avg. Gross Wt. 116.8718 g	Avg. Gross Wt. 99.4322 g
Dish Tare Wt. 108.1411 g	Dish Tare Wt. 116.8621 g	Dish Tare Wt. 99.4232 g
Difference 0.0092 g	Difference 0.0097 g	Difference 0.0090 g
Blank Weight — g	Blank Weight — g	Blank Weight — g
Particulate In Rinse Weight 0.0092 g	Particulate In Rinse Weight 0.0097 g	Particulate In Rinse Weight 0.0090 g
Transfer "Particulate In Rinse Weight" to Box Number 1.	Transfer "Particulate In Rinse Weight" to Box Number 2.	Transfer "Particulate In Rinse Weight" to Box Number 3.
PW 1 0.0092 g	PW 2 0.0097 g	PW 3 0.0090 g

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EPA Method 5 Particulate Gravimetric Sheet

Reagent Blanks

Project LP Sagola
Analyst BDL
Sampling Location Dryer Stack
Analysis Date(s) 2-13-92
Sampling Date 1-29-92
Test Number
Project Number 920203.517

Wet Catch			Probe Wash		
Type:	☐ Organic Condensibles (Extract.) ☐ Inorganic (Residual) ☐ Other ☐ Retain For Further Analyses		Type:	☒ Gravimetric ☐ Other ☐ Retain For Further Analyses B5	
Reagent			Reagent	Acetone	
Volume		ml	Volume	100	ml
Date/Time			Date/Time	2-7-92 7:45	
Gross Weight		g	Gross Weight	110.3034	g
Date/Time			Date/Time	2-7-92 2:00	
Gross Weight		g	Gross Weight	110.3038	g
Avg. Gross Wt.		g	Avg. Gross Wt.	110.3036	g
Dish Tare Wt.		g	Dish Tare Wt.	110.3043	g
Difference		g	Difference	-0.0007	g
Blank Weight		g	Blank Weight	—	g

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EPA Method 5 Particulate Gravimetric Sheet
Organic Condensibles

Project LP Sagola
Analyst BDL
Sampling Location Core Dryer Stack
Analysis Date(s) 2-14-92
Sampling Date 1-29-92
Sampling Reagent DI
Test Number
LDMS Entry 2-14-92 Initials BDL
Project Number 920203.517
LDMS Validation Initials

BATCH 1018852

Sample No. 3518.1	Sample No. 3519.0	Sample No. 3520.3
Run Number T2 R1	Run Number T2 R2	Run Number T2 R3
Dish Number BMW	Dish Number NA	Dish Number 9
VOL 380	VOL 470	VoL 400
Date/Time 2-10-92 9:00	Date/Time 2-11-92 8:00	Date/Time 2-11-92 8:00
Gross Weight 108.3200 g	Gross Weight 106.7350 g	Gross Weight 97.4506 g
Date/Time 2-11-92 3:00	Date/Time 2-11-92 3:00	Date/Time 2-11-92 3:00
Gross Weight 108.3196 g	Gross Weight 106.7355 g	Gross Weight 97.4511 g
Avg. Gross Wt. 108.3198 g	Avg. Gross Wt. 106.7352 g	Avg. Gross Wt. 97.4508 g
Dish Tare Wt. 108.2995 g	Dish Tare Wt. 106.7068 g	Dish Tare Wt. 97.4274 g
Difference 0.0203 g	Difference 0.0284 g	Difference 0.0234 g
Blank Weight +0.0008 g	Blank Weight +0.0008 g	Blank Weight +0.0008 g
Condensible Organic Wt. 0.0195 g	Condensible Organic Wt. 0.0276 g	Condensible Organic Wt. 0.0226 g
Transfer "Condensible Organic Wt." to Box Number 1.	Transfer "Condensible Organic Wt." to Box Number 2.	Transfer "Condensible Organic Wt." to Box Number 3.
WC 1 0.0195 g	WC 2 0.0276 g	WC 3 0.0226 g

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EPA Method 5 Particulate Gravimetric Sheet
Particulate In Probe Wash

Project LP Sagola
Analyst [illegible]
Sampling Location Core Dryer Stack
Analysis Date(s) 2-14-92
Sampling Date 1-29-92
Cleanup Reagent(s) [illegible]
Test Number
LDMS Entry 2-14-92 Initials [illegible]
Project Number 920203.517
LDMS Validation Initials

Sample No. 3518.1	Sample No. 3519.0	Sample No. 3520.3
Run Number T2 R1	Run Number T2 R2	Run Number T2 R3
Dish Number CAL	Dish Number 22	Dish Number TWA
Reagent Vol. 125 ml	Reagent Vol. 150 ml	Reagent Vol. 85 ml
Date/Time 2-12-92 4:00	Date/Time 2-12-92 4:00	Date/Time 2-12-92 4:00
Gross Weight 115.5707 g	Gross Weight 99.5920 g	Gross Weight 112.7229 g
Date/Time 2-13-92 8:00	Date/Time 2-13-92 8:00	Date/Time 2-13-92 8:00
Gross Weight 115.5712 g	Gross Weight 99.5925 g	Gross Weight 112.7234 g
Avg. Gross Wt. 115.5710 g	Avg. Gross Wt. 99.5922 g	Avg. Gross Wt. 112.7232 g
Dish Tare Wt. 115.5437 g	Dish Tare Wt. 99.5734 g	Dish Tare Wt. 112.7036 g
Difference [illegible] g	Difference 0.0188 g	Difference 0.0196 g
Blank Weight [illegible] g	Blank Weight [illegible] g	Blank Weight [illegible] g
Particulate In Rinse Weight [illegible] g	Particulate In Rinse Weight [illegible] g	Particulate In Rinse Weight [illegible] g
Transfer "Particulate In Rinse Weight" to Box Number 1.	Transfer "Particulate In Rinse Weight" to Box Number 2.	Transfer "Particulate In Rinse Weight" to Box Number 3.
PW 1 [illegible] g	PW 2 [illegible] g	PW 3 [illegible] g

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EPA Method 5 Particulate Gravimetric Sheet

Particulate On Filter

Project LP Sagola
Analyst BOL
Sampling Location Core Dryer Stack
Analysis Date(s) 2-14-92
Sampling Date 1-29-92
Filter Type Fiberglass
Test Number
LDMS Entry 2-14-92 Initials BOL
Project Number 920203.517
LDMS Validation Initials

Sample No. 3518.1	Sample No. 3519.0	Sample No. 3520.3
Run Number T2 R1	Run Number T2 R2	Run Number T2 R3
Filter Number 2247	Filter Number 2248	Filter Number 2249
Date/Time 2-10-92 9:30	Date/Time 2-10-92 9:30	Date/Time 2-10-92 9:30
Gross Weight 0.73290 g	Gross Weight 0.75166 g	Gross Weight 0.74154 g
Date/Time 2-13-92 7:30	Date/Time 2-13-92 7:30	Date/Time 2-13-92 7:30
Gross Weight 0.73286 g	Gross Weight 0.75171 g	Gross Weight 0.74159 g
Avg. Gross Wt. 0.73288 g	Avg. Gross Wt. 0.75168 g	Avg. Gross Wt. 0.74156 g
Filter Tare Wt. 0.69589 g	Filter Tare Wt. 0.69561 g	Filter Tare Wt. 0.69397 g
Difference 0.03699 g	Difference 0.05607 g	Difference 0.04759 g
Particulate On Filter Weight 0.03699 g	Particulate On Filter Weight 0.05607 g	Particulate On Filter Weight 0.04759 g
Transfer "Particulate On Filter Weight" to Box Number 1.	Transfer "Particulate On Filter Weight" to Box Number 2.	Particulate On Filter Weight" to Box Number 3.
Sum particulate weights from each box labeled "1" and record in box labeled "T1."	Sum particulate weights from each box labeled "2" and record in box labeled "T2."	Sum particulate weights from each box labeled "3" and record in box labeled "T3."
AF 1 0.03699 g	AF 2 0.05607 g	AF 3 0.04759 g
Total T1 0.07799 g	Total T2 0.10287 g	Total T3 0.08919 g

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EPA Method 5 Particulate Gravimetric Sheet
Reagent Blanks

Project LP Sagola
Analyst BDL
Sampling Location Core Dryer Stack
Analysis Date(s) 2-14-92
Sampling Date 1-29-92
Test Number
Project Number 920203.517

Wet Catch

Type:
- ☐ Organic Condensibles (Extract.)
- ☐ Inorganic (Residual)
- ☐ Other
- ☐ Retain For Further Analyses

HJ

Reagent DI
Volume 400 ml

Date/Time 2-10-92 9:00
Gross Weight 113.1300 g

Date/Time 2-11-92 3:00
Gross Weight 113.1294 g

Avg. Gross Wt 113.1297 g
Dish Tare Wt. 113.1289 g
Difference +0.0008 g

Blank Weight +0.0008 g

Probe Wash

Type:
- ☒ Gravimetric
- ☐ Other
- ☐ Retain For Further Analyses

ATP

Reagent Acetone
Volume 100 ml

Date/Time 2-12-92 4:00
Gross Weight 106.7570 g

Date/Time 2-13-92 8:00
Gross Weight 106.7575 g

Avg. Gross Wt. 106.7572 g
Dish Tare Wt. 106.7566 g
Difference +0.0006 g

Blank Weight +0.0006 g

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EPA Method 5 Particulate Gravimetric Sheet
Organic Condensibles

Project LP Sagola
Analyst BDL
Sampling Location Core Dryer stack
Analysis Date(s) 2-13-92
Sampling Date 1-28-92
Sampling Reagent DI
Test Number
LDMS Entry ______ Initials ______
Project Number 920203.517
LDMS Validation ______ Initials ______

BATCH 1018808

Sample No. 3512.2	Sample No. 3514.9	Sample No. 3516.5
Run Number T, R1	Run Number T, R2	Run Number T, R3
Dish Number TOB 2	Dish Number 16	Dish Number REM
Vol 350	Vol 310	Vol 300
Date/Time 2-10-92 9:00	Date/Time 2-11-92 8:00	Date/Time 2-11-92 8:00
Gross Weight 109.1995 g	Gross Weight 105.1126 g	Gross Weight 114.2124 g
Date/Time 2-11-92 3:00	Date/Time 2-11-92 3:00	Date/Time 2-11-92 3:00
Gross Weight 109.1991 g	Gross Weight 105.1130 g	Gross Weight 114.2128 g
Avg. Gross Wt. 109.1993 g	Avg. Gross Wt. 105.1128 g	Avg. Gross Wt. 114.2126 g
Dish Tare Wt. 109.1807 g	Dish Tare Wt. 105.0989 g	Dish Tare Wt. 114.2025 g
Difference 0.0186 g	Difference 0.0139 g	Difference 0.0101 g
Blank Weight +0.0008 g	Blank Weight +0.0008 g	Blank Weight +0.0008 g
Condensible Organic Wt. 0.0178 g	Condensible Organic Wt. 0.0131 g	Condensible Organic Wt. 0.0093 g
Transfer "Condensible Organic Wt." to Box Number 1.	Transfer "Condensible Organic Wt." to Box Number 2.	Transfer "Condensible Organic Wt." to Box Number 3.
WC 1 0.0178 g	WC 2 0.0131 g	WC 3 0.0093 g

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EPA Method 5 Particulate Gravimetric Sheet
Particulate In Probe Wash

Project LP Sagola
Sampling Location Core Dryer Stack
Sampling Date 1-28-92
Test Number
Project Number 920203.517

Analyst BDL
Analysis Date(s) 2-13-92
Cleanup Reagent(s) Aceton
LDMS Entry ______ Initials ______
LDMS Validation ______ Initials ______

Sample No. 3512.2	Sample No. 3514.9	Sample No. 3516.5
Run Number T1R1	Run Number T1R2	Run Number T1R3
Dish Number Joe	Dish Number 51	Dish Number 4P
Reagent Vol. 160 ml	Reagent Vol. 150 ml	Reagent Vol. 150 ml
Date/Time 2-11-92 8:30	Date/Time 2-11-92 8:30	Date/Time 2-11-92 8:30
Gross Weight 107.5119 g	Gross Weight 111.5232 g	Gross Weight 117.4741 g
Date/Time 2-12-92 4:00	Date/Time 2-12-92 4:00	Date/Time 2-12-92 4:00
Gross Weight 107.5123 g	Gross Weight 111.5232 g	Gross Weight 117.4745 g
Avg. Gross Wt. 107.5121 g	Avg. Gross Wt. 111.5232 g	Avg. Gross Wt. 117.4743 g
Dish Tare Wt. 107.4912 g	Dish Tare Wt. 111.5083 g	Dish Tare Wt. 117.4521 g
Difference 0.0209 g	Difference 0.0149 g	Difference 0.0222 g
Blank Weight — g	Blank Weight — g	Blank Weight — g
Particulate In Rinse Weight 0.0209 g	Particulate In Rinse Weight 0.0149 g	Particulate In Rinse Weight 0.0222 g
Transfer "Particulate In Rinse Weight" to Box Number 1.	Transfer "Particulate In Rinse Weight" to Box Number 2.	Transfer "Particulate In Rinse Weight" to Box Number 3.
PW 1 [0.0209] g	PW 2 [0.0149] g	PW 3 [0.0222] g

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EPA Method 5 Particulate Gravimetric Sheet

Particulate On Filter

Project LP Sagola　Analyst BDL

Sampling Location Core Dryer Stack　Analysis Date(s) 2-13-92

Sampling Date 1-28-92　Filter Type Fiberglass

Test Number ______　LDMS Entry ______ Initials ______

Project Number 920 203.517　LDMS Validation ______ Initials ______

Sample No. 3512.2	Sample No. 3514.9	Sample No. 3516.5
Run Number T1R1	Run Number T1R2	Run Number T1R3
Filter Number 2166	Filter Number 2170	Filter Number 2167
Date/Time 2-11-92 9:00	Date/Time 2-11-92 9:00	Date/Time 2-11-92 9:00
Gross Weight 0.72241 g	Gross Weight 0.71256 g	Gross Weight 0.71972 g
Date/Time 2-13-92 7:30	Date/Time 2-13-92 7:30	Date/Time 2-13-92 7:30
Gross Weight 0.72246 g	Gross Weight 0.71260 g	Gross Weight 0.71977 g
Avg. Gross Wt. 0.72244 g	Avg. Gross Wt. 0.71258 g	Avg. Gross Wt. 0.71974 g
Filter Tare Wt. 0.69048 ~~0.68144~~ g	Filter Tare Wt. 0.68586 ~~0.68970~~ g	Filter Tare Wt. 0.69002 ~~0.68369~~ g
Difference ~~0.04103~~ 0.03193 g	Difference ~~0.02288~~ 0.02672 g	Difference ~~0.03605~~ 0.02972 g
Particulate On Filter Weight 0.03193 ~~0.04103~~ g	Particulate On Filter Weight 0.02672 ~~0.02288~~ g	Particulate On Filter Weight 0.02972 ~~0.03605~~ g
Transfer "Particulate On Filter Weight" to Box Number 1.	Transfer "Particulate On Filter Weight" to Box Number 2.	Particulate On Filter Weight" to Box Number 3.
Sum particulate weights from each box labeled "1" and record in box labeled "T1."	Sum particulate weights from each box labeled "2" and record in box labeled "T2."	Sum particulate weights from each box labeled "3" and record in box labeled "T3."
AF 1 0.03193 ~~0.04103~~ g	AF 2 0.02672 ~~0.02288~~ g	AF 3 0.02672 ~~0.03605~~ g
Total T1 0.07063 g	Total T2 0.05472 g	Total T3 0.05822 g

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EPA Method 5 Particulate Gravimetric Sheet

Reagent Blanks

Project LP Sagola
Analyst BDL
Sampling Location Core Dryer Stack
Analysis Date(s)
Sampling Date 1-28-92
Test Number
Project Number 920203.517

Wet Catch			Probe Wash		
Type:	☐ Organic Condensibles (Extract.) ☐ Inorganic (Residual) ☐ Other ☐ Retain For Further Analyses HJ		Type:	☒ Gravimetric ☐ Other ☐ Retain For Further Analyses 66	
Reagent	DI		Reagent	Acetone	
Volume	400	ml	Volume	100	ml
Date/Time	2-10-92 9:00		Date/Time	2-11-92 8:30	
Gross Weight	113.1300	g	Gross Weight	100.0410	g
Date/Time	2-11-92 8:00		Date/Time	2-12-92 4:00	
Gross Weight	113.1294	g	Gross Weight	100.0415	g
Avg. Gross Wt.	113.1297	g	Avg. Gross Wt.	100.0413	g
Dish Tare Wt.	113.1289	g	Dish Tare Wt.	100.0417	g
Difference	0.0008	g	Difference	-0.0004	g
Blank Weight	+0.0008	g	Blank Weight	-0.0004	g

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EPA Method 5 Particulate Gravimetric Sheet
Particulate In Probe Wash

Project LP Sagola
Sampling Location Core Dryer Stack
Sampling Date 1-28-92
Test Number
Project Number 920203.517

Analyst BOL
Analysis Date(s) 2-13-92
Cleanup Reagent(s) Acetone
LDMS Entry 2-14-92 Initials BOL
LDMS Validation Initials

BATCH 1018855

	Box 1	Box 2	Box 3
Sample No.	3513.0	3515.7	3517.3
Run Number	T, R1	T, R2	T, R3
Dish Number	32	Fe	RM
Reagent Vol.	20 ml	15 ml	30 ml
Date/Time	2-11-92 830	2-11-92 8:30	2-11-92 8:35
Gross Weight	96.8068 g	115.9085 g	113.5530 g
Date/Time	2-12-92 4:00	2-12-92 4:00	2-12-92 4:00
Gross Weight	96.8072 g	115.9090 g	113.5535 g
Avg. Gross Wt.	96.8070 g	115.9088 g	113.5533 g
Dish Tare Wt.	96.8036 g	115.9035 g	113.5453 g
Difference	0.0034 g	0.0053 g	0.0080 g
Blank Weight	— g	— g	— g
Particulate In Rinse Weight	0.0034 g	0.0053 g	0.0080 g
	Transfer "Particulate In Rinse Weight" to Box Number 1.	Transfer "Particulate In Rinse Weight" to Box Number 2.	Transfer "Particulate In Rinse Weight" to Box Number 3.
PW	1 0.0034 g	2 0.0053 g	3 0.0080 g

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EPA Method 5 Particulate Gravimetric Sheet

Reagent Blanks

Project LP Sagola Analyst BDL
Sampling Location Core Dryer Stack Analysis Date(s) 2-13-92
Sampling Date 1-28-92
Test Number
Project Number 920203.517

Wet Catch			Probe Wash		
Type:	☐ Organic Condensibles (Extract.) ☐ Inorganic (Residual) ☐ Other ☐ Retain For Further Analyses		Type:	☒ Gravimetric ☐ Other ☐ Retain For Further Analyses 66	
Reagent			Reagent	Acetone	
Volume		ml	Volume	100	ml
Date/Time			Date/Time	2-11-92 8:30	
Gross Weight		g	Gross Weight	100.0410	g
Date/Time			Date/Time	2-12-92 4:00	
Gross Weight		g	Gross Weight	100.0415	g
Avg. Gross Wt.		g	Avg. Gross Wt.	100.0414	g
Dish Tare Wt.		g	Dish Tare Wt.	100.0417	g
Difference		g	Difference		g
Blank Weight		g	Blank Weight	-0.0003	g

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EPA Method 5 Particulate Gravimetric Sheet
Organic Condensibles

Project LP SagoLa

Analyst BDL

Sampling Location Thermal Oil Heater

Analysis Date(s) 2-14-92.

Sampling Date 1-30-92

Sampling Reagent DI

Test Number

LDMS Entry 2-14-92 Initials BDL

Project Number 920203.517

LDMS Validation Initials

BATCH 10 18853

Sample No. 3531.9	Sample No. 3532.7	Sample No. 3533.5
Run Number T2 R1	Run Number T2 R2	Run Number T2 R3
Dish Number BS	Dish Number 87	Dish Number TROY
Vol 300	Vol 325	Vol 325
Date/Time 2-12-92 4:00	Date/Time 2-12-92 4:00	Date/Time 2-12-92 4:06
Gross Weight 97.4166 g	Gross Weight 111.2139 g	Gross Weight 104.2044 g
Date/Time 2-13-92 7:30	Date/Time 2-13-92 7:30	Date/Time 2-13-92 4:15
Gross Weight 97.4171 g	Gross Weight 111.2137 g	Gross Weight 104.2048 g
Avg. Gross Wt. 97.4168 g	Avg. Gross Wt. 111.2138 g	Avg. Gross Wt. 104.2046 g
Dish Tare Wt. 97.4133 g	Dish Tare Wt. 111.2103 g	Dish Tare Wt. 104.2021 g
Difference 0.0035 g	Difference 0.0035 g	Difference 0.0025 g
Blank Weight +0.0008 g	Blank Weight +0.0008 g	Blank Weight +0.0008 g
Condensible Organic Wt. 0.0027 g	Condensible Organic Wt. 0.0027 g	Condensible Organic Wt. 0.0017 g
Transfer "Condensible Organic Wt." to Box Number 1.	Transfer "Condensible Organic Wt." to Box Number 2.	Transfer "Condensible Organic Wt." to Box Number 3.
WC 1 0.0027 g	WC 2 0.0027 g	WC 3 0.0017 g

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EPA Method 5 Particulate Gravimetric Sheet

Particulate In Probe Wash

Project LP Sagola
Analyst [illegible]
Sampling Location Thermal Oil Heater
Analysis Date(s) 2-14-92
Sampling Date 1-30-92
Cleanup Reagent(s) Acetone
Test Number
LDMS Entry 2-14-92 Initials [illegible]
Project Number 920303.517
LDMS Validation Initials

Sample No. 3531.9	Sample No. 3532.7	Sample No. 3533.5
Run Number T2 R1	Run Number T2 R2	Run Number T2 R3
Dish Number 7b	Dish Number 9r	Dish Number T-3
Reagent Vol. 200 ml	Reagent Vol. [illegible] ml	Reagent Vol. 175 ml
Date/Time 2-12-92 [illegible]	Date/Time 2-12-92 [illegible]	Date/Time 2-12-92 [illegible]
Gross Weight 107.9967 g	Gross Weight 106.2572 g	Gross Weight 103.6891 g
Date/Time 2-13-92 8:00	Date/Time 2-13-92 [illegible]	Date/Time [illegible]
Gross Weight 107.9969 g	Gross Weight 106.2572 g	Gross Weight 103.6875 g
Avg. Gross Wt. [illegible] g	Avg. Gross Wt. 106.2572 g	Avg. Gross Wt. [illegible] g
Dish Tare Wt. [illegible] g	Dish Tare Wt. [illegible] g	Dish Tare Wt. [illegible] g
Difference [illegible] g	Difference [illegible] g	Difference [illegible] g
Blank Weight [illegible] g	Blank Weight [illegible] g	Blank Weight [illegible] g
Particulate In Rinse Weight [illegible] g	Particulate In Rinse Weight [illegible] g	Particulate In Rinse Weight [illegible] g
Transfer "Particulate In Rinse Weight" to Box Number 1.	Transfer "Particulate In Rinse Weight" to Box Number 2.	Transfer "Particulate In Rinse Weight" to Box Number 3.
PW 1 [illegible] g	PW 2 [illegible] g	PW 3 [illegible] g

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EPA Method 5 Particulate Gravimetric Sheet
Particulate On Filter

Project: LP Segola
Analyst: BDL
Sampling Location: Thermal Oil Heater
Analysis Date(s): 2-14-92
Sampling Date: 1-30-92
Filter Type: Fiberglass
Test Number:
LDMS Entry: 2-14-92 Initials: BDL
Project Number: 920203.517
LDMS Validation: Initials:

Sample No. 3531.9	Sample No. 3532.7	Sample No. 3533.5
Run Number T_2R_1	Run Number T_2R_2	Run Number T_2R_3
Filter Number 2234	Filter Number 2235	Filter Number 2236
Date/Time 2-11-92 9:00	Date/Time 2-10-92 10:00	Date/Time 2-11-92 9:00
Gross Weight 0.75253 g	Gross Weight 0.75484 g	Gross Weight 0.74166 g
Date/Time 2-13-92 7:30	Date/Time 2-13-92 7:30	Date/Time 2-13-92 7:30
Gross Weight 0.75248 g	Gross Weight 0.75490 g	Gross Weight 0.74166 g
Avg. Gross Wt. 0.75250 g	Avg. Gross Wt. 0.75487 g	Avg. Gross Wt. 0.74166 g
Filter Tare Wt. 0.68953 g	Filter Tare Wt. 0.69144 g	Filter Tare Wt. 0.69129 g
Difference 0.06297 g	Difference 0.06343 g	Difference 0.05037 g
Particulate On Filter Weight 0.06297 g	Particulate On Filter Weight 0.06343 g	Particulate On Filter Weight 0.05037 g
Transfer "Particulate On Filter Weight" to Box Number 1.	Transfer "Particulate On Filter Weight" to Box Number 2.	"Particulate On Filter Weight" to Box Number 3.
Sum particulate weights from each box labeled "1" and record in box labeled "T1."	Sum particulate weights from each box labeled "2" and record in box labeled "T2."	Sum particulate weights from each box labeled "3" and record in box labeled "T3."
AF 1 0.06297 g	AF 2 0.06343 g	AF 3 0.05037 g
Total T1 0.11737 g	Total T2 0.14163 g	Total T3 0.11767 g

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EPA Method 5 Particulate Gravimetric Sheet

Reagent Blanks

Project: LP Sagola
Analyst: BDL
Sampling Location: Thermal Oil Heater
Analysis Date(s):
Sampling Date: 1-30-92
Test Number:
Project Number: 920203.517

Wet Catch		Probe Wash	
Type:	☐ Organic Condensibles (Extract.) ☐ Inorganic (Residual) ☐ Other ☐ Retain For Further Analyses EP	Type:	☒ Gravimetric ☐ Other ☐ Retain For Further Analyses ATP
Reagent	DI	Reagent	Acetone
Volume	300 ml	Volume	100 ml
Date/Time	2-12-92 4:00	Date/Time	2-12-92 4:00
Gross Weight	110.1684 g	Gross Weight	106.7570 g
Date/Time	2-13-92 8:00	Date/Time	2-13-92 8:00
Gross Weight	110.1689 g	Gross Weight	106.7575 g
Avg. Gross Wt.	110.1686 g	Avg. Gross Wt.	106.7572 g
Dish Tare Wt.	110.1678 g	Dish Tare Wt.	106.7566 g
Difference	+0.0008 g	Difference	0.0006 g
Blank Weight	+0.0008 g	Blank Weight	-0.0006 g

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EPA Method 5 Particulate Gravimetric Sheet
Organic Condensibles

Project LP Sagola
Analyst BDL
Sampling Location THERMAL HEATer STack
Analysis Date(s) 2-14-92
Sampling Date 1-30-92
Sampling Reagent DI
Test Number
LDMS Entry 2-14-92 Initials BDL
Project Number 920203.517
LDMS Validation Initials

BATCH 1018856

Sample No. 3525.4	Sample No. 3527.6	Sample No. 3529.7
Run Number T, R1	Run Number T, R2	Run Number T, R3
Dish Number OMO	Dish Number 37	Dish Number S'
Vol 275	VOL 290	Vol 290
Date/Time 2-11-92 8:30	Date/Time 2-11-92 8:30	Date/Time 2-11-92 8:30
Gross Weight 112.0332 g	Gross Weight 103.8807 g	Gross Weight 106.6269 g
Date/Time 2-12-92 4:00	Date/Time 2-12-92 4:00	Date/Time 2-12-92 4:00
Gross Weight 112.0337 g	Gross Weight 103.8812 g	Gross Weight 106.6274 g
Avg. Gross Wt. 112.0334 g	Avg. Gross Wt. 103.8810 g	Avg. Gross Wt. 106.6268 g
Dish Tare Wt. 112.0304 g	Dish Tare Wt. 103.8791 g	Dish Tare Wt. 106.6262 g
Difference 0.0030 g	Difference 0.0019 g	Difference 0.0006 g
Blank Weight — g	Blank Weight — g	Blank Weight — g
Condensible Organic Wt. 0.0030 g	Condensible Organic Wt. 0.0019 g	Condensible Organic Wt. 0.0006 g
Transfer "Condensible Organic Wt." to Box Number 1.	Transfer "Condensible Organic Wt." to Box Number 2.	Transfer "Condensible Organic Wt." to Box Number 3.
WC 1 0.0030 g	WC 2 0.0019 g	WC 3 0.0006 g

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EPA Method 5 Particulate Gravimetric Sheet
Particulate In Probe Wash

Project: LP Sagola
Analyst: BCL
Sampling Location: Thermal Heater Stack
Analysis Date(s):
Sampling Date: 1-30-92
Cleanup Reagent(s):
Test Number:
LDMS Entry: Initials:
Project Number: 920203.517
LDMS Validation: Initials:

Sample No. 35254	Sample No. 35270	Sample No. 35297
Run Number T, 2.	Run Number T, 2	Run Number T, 2
Dish Number 27	Dish Number [illegible]	Dish Number [illegible]
Reagent Vol. 200 ml	Reagent Vol. 150 ml	Reagent Vol. 225 ml
Date/Time 2-13-92 1:30	Date/Time [illegible]	Date/Time 2-13-92 1:30
Gross Weight 99.9735 g	Gross Weight [illegible] g	Gross Weight [illegible] g
Date/Time 2-13-92 4:15	Date/Time 2-13-92 4:15	Date/Time [illegible]
Gross Weight 99.9735 g	Gross Weight [illegible] g	Gross Weight [illegible] g
Avg. Gross Wt. 99.9735 g	Avg. Gross Wt. [illegible] g	Avg. Gross Wt. [illegible] g
Dish Tare Wt. 99.9595 g	Dish Tare Wt. [illegible] g	Dish Tare Wt. [illegible] g
Difference [illegible] g	Difference [illegible] g	Difference [illegible] g
Blank Weight [illegible] g	Blank Weight [illegible] g	Blank Weight [illegible] g
Particulate In Rinse Weight [illegible] g	Particulate In Rinse Weight [illegible] g	Particulate In Rinse Weight [illegible] g
Transfer "Particulate In Rinse Weight" to Box Number 1.	Transfer "Particulate In Rinse Weight" to Box Number 2.	Transfer "Particulate In Rinse Weight" to Box Number 3.
PW 1 [illegible] g	PW 2 [illegible] g	PW 3 [illegible] g

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EPA Method 5 Particulate Gravimetric Sheet

Particulate On Filter

Project LP SagoLa
Analyst BOL
Sampling Location Thermal Heater Stack
Analysis Date(s)
Sampling Date 1-30-92
Filter Type
Test Number
LDMS Entry Initials
Project Number 920203.517
LDMS Validation Initials

Sample No. 3525.4	Sample No. 3527.0	Sample No. 3529.7
Run Number T,R1	Run Number T,R2	Run Number T,R3
Filter Number 2190	Filter Number 2193	Filter Number 2233
Date/Time 2-13-92 7:30	Date/Time 2-13-92 7:30	Date/Time 2-13-92 7:30
Gross Weight 0.73650 g	Gross Weight 0.73392 g	Gross Weight 0.72991 g
Date/Time 2-13-92 4:15	Date/Time 2-13-92 4:15	Date/Time 2-13-92 4:15
Gross Weight 0.73654 g	Gross Weight 0.73397 g	Gross Weight 0.72994 g
Avg. Gross Wt. 0.73652 g	Avg. Gross Wt. 0.73394 g	Avg. Gross Wt. 0.72992 g
Filter Tare Wt. 0.69941 g	Filter Tare Wt. 0.69515 g	Filter Tare Wt. 0.69163 g
Difference 0.03711 g	Difference 0.03879 g	Difference 0.03829 g
Particulate On Filter Weight 0.03711 g	Particulate On Filter Weight 0.03879 g	Particulate On Filter Weight 0.03829 g
Transfer "Particulate On Filter Weight" to Box Number 1.	Transfer "Particulate On Filter Weight" to Box Number 2.	Particulate On Filter Weight" to Box Number 3.
Sum particulate weights from each box labeled "1" and record in box labeled "T1."	Sum particulate weights from each box labeled "2" and record in box labeled "T2."	Sum particulate weights from each box labeled "3" and record in box labeled "T3."
AF 1 0.03711 g	AF 2 0.03879 g	AF 3 0.03829 g
Total T1 0.06251 g	Total T2 0.06579 g	Total T3 0.05659 g

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EPA Method 5 Particulate Gravimetric Sheet

Reagent Blanks

Project: LP Sagola
Analyst: BDL
Sampling Location: Thermal Heater Stack
Analysis Date(s):
Sampling Date: 1-30-92
Test Number:
Project Number: 920303.517

Wet Catch

Type:
- [ ] Organic Condensibles (Extract.)
- [ ] Inorganic (Residual)
- [ ] Other
- [ ] Retain For Further Analyses

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Reagent	DI	
Volume	300	ml
Date/Time	2-11-92 0730	
Gross Weight	98.1673	g
Date/Time	2-12-92 1000	
Gross Weight	98.1677	g
Avg. Gross Wt.	98.1675	g
Dish Tare Wt.	98.1676	g
Difference	-0.0001	g
Blank Weight	—	g

Probe Wash

Type:
- [x] Gravimetric
- [ ] Other
- [ ] Retain For Further Analyses

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Reagent	Acetone	
Volume	100	ml
Date/Time	2-13-92 9:30	
Gross Weight	103.3720	g
Date/Time	2-13-92 4:00	
Gross Weight	103.3715	g
Avg. Gross Wt.	103.3718	g
Dish Tare Wt.	103.3702	g
Difference	+0.0016	g
Blank Weight	+0.0016	g

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EPA Method 5 Particulate Gravimetric Sheet
Particulate In Probe Wash

Project: LP Sagola
Analyst: BOL
Sampling Location: Thermal Oil Htr Stack
Analysis Date(s): 2-14-92
Sampling Date: 1-30-92
Cleanup Reagent(s): Acetone
Test Number:
LDMS Entry: 2-14-92 Initials: BOL
Project Number: 920203.517
LDMS Validation: Initials:

BATCH 1018850

Sample No. 3526.2	Sample No. 3528.9	Sample No. 3530.0
Run Number T1R1	Run Number T1R2	Run Number T1R3
Dish Number 35	Dish Number TP	Dish Number 40
Reagent Vol. 60 ml	Reagent Vol. 60 ml	Reagent Vol. 60 ml
Date/Time 2-13-92 8:00	Date/Time 2-13-92 8:00	Date/Time 2-13-92 8:00
Gross Weight 110.3215 g	Gross Weight 108.0392 g	Gross Weight 99.4478 g
Date/Time 2-13-92 4:15	Date/Time 2-13-92 4:15	Date/Time 2-13-92 4:15
Gross Weight 110.3219 g	Gross Weight 108.0397 g	Gross Weight 99.4483 g
Avg. Gross Wt. 110.3217 g	Avg. Gross Wt. 108.0394 g	Avg. Gross Wt. 99.4480 g
Dish Tare Wt. 110.3028 g	Dish Tare Wt. 108.0165 g	Dish Tare Wt. 99.4201 g
Difference 0.0189 g	Difference 0.0229 g	Difference 0.0279 g
Blank Weight ±0.0016 g	Blank Weight ±0.0016 g	Blank Weight ±0.0016 g
Particulate In Rinse Weight 0.0173 g	Particulate In Rinse Weight 0.0213 g	Particulate In Rinse Weight 0.0263 g
Transfer "Particulate In Rinse Weight" to Box Number 1.	Transfer "Particulate In Rinse Weight" to Box Number 2.	Transfer "Particulate In Rinse Weight" to Box Number 3.

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EPA Method 5 Particulate Gravimetric Sheet
Reagent Blanks

Project LP Sagola
Analyst BDL
Sampling Location Thermal Oil Heater Stack
Analysis Date(s) 2-14-92
Sampling Date 1-30-92
Test Number
Project Number 920203.517

Wet Catch			Probe Wash		
Type:	☐ Organic Condensibles (Extract.) ☐ Inorganic (Residual) ☐ Other ☐ Retain For Further Analyses		Type:	☒ Gravimetric ☐ Other ☐ Retain For Further Analyses 18	
Reagent			Reagent	Acetone	
Volume		ml	Volume	100	ml
Date/Time			Date/Time	2-13-92 9:30	
Gross Weight		g	Gross Weight	103.8720	g
Date/Time			Date/Time	2-13-92 4:00	
Gross Weight		g	Gross Weight	103.8715	g
Avg. Gross Wt.		g	Avg. Gross Wt.	103.8718	g
Dish Tare Wt.		g	Dish Tare Wt.	103.8702	g
Difference		g	Difference	0.0016	g
Blank Weight		g	Blank Weight	0.0016	g

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REPORT OF LABORATORY ANALYSIS

Louisiana Pacific
Route 8, Box 8030
Hayward, WI 54843

February 21, 1992
PACE Project Number: 920203517

Attn: Ms. Susan Somers

Client Reference: 920108.402 - TRN

PACE Sample Number:			10 0041653	10 0041661
Date Collected:			02/07/92	02/07/92
Date Received:			02/07/92	02/07/92
Client Sample ID:			Dryer Fuel	T.O. Heater Fuel
Parameter	Units	MDL		
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Ash content	%	0.01	0.98	1.5
BTU	BTU/lb	100	8100	4700
Moisture content	%	0.1	1.7	47
Sulfur	%	0.02	0.10	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

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THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Ms. Susan Somers
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February 21, 1992
PACE Project Number: 920203517

Client Reference: 920108.402 - TRN

Parameter	Units	MDL			
PACE Sample Number:			10 0034860	10 0034878	10 0034886
Date Collected:			01/29/92	01/29/92	01/29/92
Date Received:			02/03/92	02/03/92	02/03/92
Client Sample ID:			Surface Dryer Stck T1R1	Surface Dryer Stck T1R2	Surface Dryer Stc T1R3
INORGANIC ANALYSIS					
PARTICULATE EMISSIONS EPA 5					
Particulates, filter	g	0.0001	0.05230	0.05656	0.05086
Particulates, probe wash	g	0.0001	0.0247	0.0307	0.0297
Particulates, total condensibles	g	0.0001	0.0282	0.0261	0.0291
Particulates, total-EPA 5	g	0.0001	0.10520	0.11336	0.10966

MDL Method Detection Limit

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February 21, 1992
PACE Project Number: 920203517

Client Reference: 920108.402 - TRN

Parameter	Units	MDL			
PACE Sample Number:			10 0034894	10 0034908	10 0034916
Date Collected:			01/30/92	01/30/92	01/30/92
Date Received:			02/03/92	02/03/92	02/03/92
Client Sample ID:			Surface Dryer Stck T3R1	Surface Dryer Stck T3R2	Surface Dryer Stck T3R3
ORGANIC ANALYSIS					
METHOD TO-5					
Date Analyzed			02/07/92	02/07/92	02/07/92
Date Extracted			02/07/92	02/07/92	02/07/92
Formaldehyde-TO5	ug	0.42	-	14	-
Formaldehyde-TO5	ug	0.43	-	-	11
Formaldehyde-TO5	ug	0.44	23	-	-

MDL Method Detection Limit

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February 21, 1992
PACE Project Number: 92020351?

Client Reference: 920108.402 - TRN

Parameter	Units	MDL			
PACE Sample Number:			10 0034924	10 0034932	10 0034940
Date Collected:			01/31/92	01/29/92	01/29/92
Date Received:			02/03/92	02/03/92	02/03/92
Client Sample ID:			Surface Dryer Stck I3RO Blank	Surface Dryer Stck I2R1	Surface Dryer Stck I2R1 PM10
INORGANIC ANALYSIS					
PARTICULATE EMISSIONS EPA 5					
Particulates, filter	g	0.0001	-	0.02829	-
Particulates, probe wash	g	0.0001	-	0.0123	0.0092
Particulates, total condensibles	g	0.0001	-	0.0113	-
Particulates, total-EPA 5	g	0.0001	-	0.05189	-
ORGANIC ANALYSIS					
METHOD TO-5					
Date Analyzed			02/12/92	-	-
Date Extracted			02/07/92	-	-
Formaldehyde-TO5	ug	0.19	11	-	-

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PACE Project Number: 920203517

Client Reference: 920108.402 - TRN

PACE Sample Number:			10 0034959	10 0034967	10 0034975
Date Collected:			01/29/92	01/29/92	01/29/92
Date Received:			02/03/92	02/03/92	02/03/92
Client Sample ID:			Surface Dryer Stck	Surface Dryer Stck	Surface Dryer Stck
Parameter	Units	MDL	T2R2	T2R2 PM10	T2R3
INORGANIC ANALYSIS					
PARTICULATE EMISSIONS EPA 5					
Particulates, filter	g	0.0001	0.03057	-	0.03040
Particulates, probe wash	g	0.0001	0.0149	0.0097	0.0138
Particulates, total condensibles	g	0.0001	0.0147	-	0.0160
Particulates, total-EPA 5	g	0.0001	0.06017	-	0.06020

MDL Method Detection Limit

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February 21, 1992
PACE Project Number: 9202035

Client Reference: 920108.402 - TRN

Parameter	Units	MDL			
PACE Sample Number:			10 0034983	10 0034991	10 0035009
Date Collected:			01/29/92	01/29/92	01/29/92
Date Received:			02/03/92	02/03/92	02/03/92
Client Sample ID:			Surface Dryer Stck I2R3 PM10	Surface Core Stck I2R1	Surface Core Stck I2R1 PM10
INORGANIC ANALYSIS					
PARTICULATE EMISSIONS EPA 5					
Particulates, filter	g	0.0001	-	0.04834	-
Particulates, probe wash	g	0.0001	0.0090	0.0118	0.0084
Particulates, total condensibles	g	0.0001	-	0.0088	-
Particulates, total-EPA 5	g	0.0001	-	0.06894	-

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February 21, 1992
PACE Project Number: 920203517

Client Reference: 920108.402 - TRN

Parameter	Units	MDL			
PACE Sample Number:			10 0035017	10 0035025	10 0035033
Date Collected:			01/29/92	01/29/92	01/29/92
Date Received:			02/03/92	02/03/92	02/03/92
Client Sample ID:			Surface Core Stck T2R2	Surface Core Stck T2R2 PM10	Surface Core Stck T2R3
INORGANIC ANALYSIS					
PARTICULATE EMISSIONS EPA 5					
Particulates, filter	g	0.0001	0.04829	-	0.04711
Particulates, probe wash	g	0.0001	0.0131	0.0072	0.0474
Particulates, total condensibles	g	0.0001	0.0075	-	0.0095
Particulates, total-EPA 5	g	0.0001	0.06889	-	0.10401

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PACE Project Number: 9202035

Client Reference: 920108.402 - TRN

PACE Sample Number:			10 0035041	10 0035050	10 0035068
Date Collected:			01/29/92	01/28/92	01/28/92
Date Received:			02/03/92	02/03/92	02/03/92
Client Sample ID:			Surface Core Stck I2R3 PM10	Surface Core Stck I1R1	Surface Core Stck I1R2
Parameter	Units	MDL			
INORGANIC ANALYSIS					
PARTICULATE EMISSIONS EPA 5					
Particulates, filter	g	0.0001	-	0.09967	0.08154
Particulates, probe wash	g	0.0001	0.0151	0.0371	0.0286
Particulates, total condensibles	g	0.0001	-	0.0196	0.0157
Particulates, total-EPA 5	g	0.0001	-	0.15637	0.12554

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PACE Project Number: 920203517

Client Reference: 920108.402 - TRN

PACE Sample Number:			10 0035076	10 0035084	10 0035092
Date Collected:			01/28/92	01/28/92	01/28/92
Date Received:			02/03/92	02/03/92	02/03/92
Client Sample ID:			Surface Core Stck T1R3	Surface Core Stck T3R1	Surface Core Stck T3R2
Parameter	Units	MDL			
INORGANIC ANALYSIS					
PARTICULATE EMISSIONS EPA 5					
Particulates, filter	g	0.0001	0.07888	-	-
Particulates, probe wash	g	0.0001	0.0239	-	-
Particulates, total condensibles	g	0.0001	0.0160	-	-
Particulates, total-EPA 5	g	0.0001	0.11878	-	-
ORGANIC ANALYSIS					
METHOD TO-5					
Date Analyzed			-	02/07/92	02/07/92
Date Extracted			-	02/07/92	02/07/92
Formaldehyde-TO5	ug	0.40	-	15	-
Formaldehyde-TO5	ug	0.44	-	-	34

MDL Method Detection Limit

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PACE Project Number: 9202035[illegible]

Client Reference: 920108.402 - TRN

PACE Sample Number:			10 0035106	10 0035114	10 003512[illegible]
Date Collected:			01/28/92	01/28/92	01/28/92
Date Received:			02/03/92	02/03/92	02/03/92
Client Sample ID:			Surface Core Stck I3R3	Surface Core Stck I3R0 Blank	Core Drye[illegible] Stack I1R1
Parameter	Units	MDL			
INORGANIC ANALYSIS					
PARTICULATE EMISSIONS EPA 5					
Particulates, filter	g	0.0001	-	-	0.03193
Particulates, probe wash	g	0.0001	-	-	0.0209
Particulates, total condensibles	g	0.0001	-	-	0.0178
Particulates, total-EPA 5	g	0.0001	-	-	0.07063
ORGANIC ANALYSIS					
METHOD TO-5					
Date Analyzed			02/07/92	02/07/92	-
Date Extracted			02/07/92	02/07/92	-
Formaldehyde-TO5	ug	0.20	-	7.6	-
Formaldehyde-TO5	ug	0.54	8.9	-	-

MDL Method Detection Limit

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Client Reference: 920108.402 - TRN

PACE Sample Number:			10 0035130	10 0035149	10 0035157
Date Collected:			01/28/92	01/28/92	01/28/92
Date Received:			02/03/92	02/03/92	02/03/92
Client Sample ID:			Core Dryer Stack	Core Dryer Stack	Core Dryer Stack
Parameter	Units	MDL	T1R1 PM10	T1R2	T1R2 PM10
INORGANIC ANALYSIS					
PARTICULATE EMISSIONS EPA 5					
Particulates, filter	g	0.0001	-	0.02672	-
Particulates, probe wash	g	0.0001	0.0034	0.0149	0.0053
Particulates, total condensibles	g	0.0001	-	0.0131	-
Particulates, total-EPA 5	g	0.0001	-	0.05472	-

MDL Method Detection Limit

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February 21, 1992
PACE Project Number: 920203517

Client Reference: 920108.402 - TRN

PACE Sample Number:			10 0035165	10 0035173	10 0035181
Date Collected:			01/28/92	01/28/92	01/29/92
Date Received:			02/03/92	02/03/92	02/03/92
Client Sample ID:			Core Dryer Stack	Core Dryer Stack	Core Dryer Stack
Parameter	Units	MDL	I1R3	I1R3 PM10	I2R1
INORGANIC ANALYSIS					
PARTICULATE EMISSIONS EPA 5					
Particulates, filter	g	0.0001	0.02672	-	0.03699
Particulates, probe wash	g	0.0001	0.0222	0.0080	0.0215
Particulates, total condensibles	g	0.0001	0.0093	-	0.0195
Particulates, total-EPA 5	g	0.0001	0.05822	-	0.07799

MDL Method Detection Limit

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PACE Project Number: 920203517

Client Reference: 920108.402 - TRN

PACE Sample Number:			10 0035190	10 0035203	10 0035211
Date Collected:			01/29/92	01/29/92	01/31/92
Date Received:			02/03/92	02/03/92	02/03/92
Client Sample ID:			Core Dryer Stack I2R2	Core Dryer Stack I2R3	Core Dryer Stack I3R1
Parameter	Units	MDL			
INORGANIC ANALYSIS					
PARTICULATE EMISSIONS EPA 5					
Particulates, filter	g	0.0001	0.05607	0.04759	-
Particulates, probe wash	g	0.0001	0.0192	0.0190	-
Particulates, total condensibles	g	0.0001	0.0276	0.0226	-
Particulates, total-EPA 5	g	0.0001	0.10287	0.08919	-
ORGANIC ANALYSIS					
METHOD TO-5					
Date Analyzed			-	-	02/11/92
Date Extracted			-	-	02/07/92
Formaldehyde-TO5	ug	0.47	-	-	10

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February 21, 1992
PACE Project Number: 92020351

Client Reference: 920108.402 - TRN

PACE Sample Number:			10 0035220	10 0035238	10 0035246
Date Collected:			01/31/92	01/31/92	01/31/92
Date Received:			02/03/92	02/03/92	02/03/92
Client Sample ID:			Core Dryer Stack	Core Dryer Stack	Core Dryer Stack
Parameter	Units	MDL	I3R2	I3R3	I3RO Blank
ORGANIC ANALYSIS					
METHOD TO-5					
Date Analyzed			02/11/92	02/11/92	02/12/92
Date Extracted			02/07/92	02/07/92	02/07/92
Formaldehyde-TO5	ug	0.27	-	-	14
Formaldehyde-TO5	ug	0.47	20	-	-
Formaldehyde-TO5	ug	0.51	-	33	-

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February 21, 1992
PACE Project Number: 920203517

Client Reference: 920108.402 - TRN

PACE Sample Number:			10 0035254	10 0035262	10 0035270
Date Collected:			01/30/92	01/30/92	01/30/92
Date Received:			02/03/92	02/03/92	02/03/92
Client Sample ID:			Thrml Oil Htr Stack	Thrml Oil Htr Stack	Thrml Oil Htr Stack
Parameter	Units	MDL	T1R1	T1R1 PM10	T1R2
INORGANIC ANALYSIS					
PARTICULATE EMISSIONS EPA 5					
Particulates, filter	g	0.0001	0.03711	-	0.03879
Particulates, probe wash	g	0.0001	0.0224	0.0173	0.0251
Particulates, total condensibles	g	0.0001	0.0030	-	0.0019
Particulates, total-EPA 5	g	0.0001	0.06251	-	0.06579

MDL Method Detection Limit

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February 21, 1992
PACE Project Number: 9202035[illegible]

Client Reference: 920108.402 - TRN

Parameter	Units	MDL			
PACE Sample Number:			10 0035289	10 0035297	10 003530[illegible]
Date Collected:			01/30/92	01/30/92	01/30/92
Date Received:			02/03/92	02/03/92	02/03/92
Client Sample ID:			Thrml Oil Htr Stack I1R2 PM10	Thrml Oil Htr Stack I1R3	Thrml Oil Htr Stack I1R3 PM10
INORGANIC ANALYSIS					
PARTICULATE EMISSIONS EPA 5					
Particulates, filter	g	0.0001	-	0.03829	-
Particulates, probe wash	g	0.0001	0.0213	0.0177	0.0263
Particulates, total condensibles	g	0.0001	-	0.0006	-
Particulates, total-EPA 5	g	0.0001	-	0.05659	-

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PACE Project Number: 920203517

Client Reference: 920108.402 - TRN

PACE Sample Number:			10 0035319	10 0035327	10 0035335
Date Collected:			01/30/92	01/30/92	01/30/92
Date Received:			02/03/92	02/03/92	02/03/92
Client Sample ID:			Thrml Oil Htr Stack T2R1	Thrml Oil Htr Stack T2R2	Thrml Oil Htr Stack T2R3
Parameter	Units	MDL			
INORGANIC ANALYSIS					
PARTICULATE EMISSIONS EPA 5					
Particulates, filter	g	0.0001	0.06297	0.06343	0.05037
Particulates, probe wash	g	0.0001	0.0517	0.0755	0.0656
Particulates, total condensibles	g	0.0001	0.0027	0.0027	0.0017
Particulates, total-EPA 5	g	0.0001	0.11737	0.14163	0.11767

MDL Method Detection Limit

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February 21, 1992
PACE Project Number: 9202035

Client Reference: 920108.402 - TRN

PACE Sample Number:			10 0035343	10 0035351	10 0035360
Date Collected:			01/31/92	01/31/92	01/31/92
Date Received:			02/03/92	02/03/92	02/03/92
Client Sample ID:			Thrml Oil Htr Stack	Thrml Oil Htr Stack	Thrml Oil Htr Stack
Parameter	Units	MDL	I3R1	I3R2	I3R3
ORGANIC ANALYSIS					
METHOD TO-5					
Date Analyzed			02/18/92	02/18/92	02/18/92
Date Extracted			02/07/92	02/07/92	02/07/92
Formaldehyde-TO5	ug	1.3	44	-	-
Formaldehyde-TO5	ug	1.5	-	66	-
Formaldehyde-TO5	ug	1.6	-	-	100

MDL Method Detection Limit

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PACE Project Number: 920203517

Client Reference: 920108.402 - TRN

PACE Sample Number:			10 0035378
Date Collected:			01/31/92
Date Received:			02/03/92
Client Sample ID:			Thrml Oil Htr Stack
Parameter	Units	MDL	T3RO Blank
ORGANIC ANALYSIS			
METHOD TO-5			
Date Analyzed			02/11/92
Date Extracted			02/07/92
Formaldehyde-TO5	ug	0.16	6.4

MDL Method Detection Limit

The analyses of soil samples were performed 'as received' and do not reflect analyses on a dry weight basis unless indicated.

These data have been reviewed and are approved for release.

Starla Enger

Starla Enger
Inorganic Chemistry Manager

Liesa Shanahan

Liesa A. Shanahan
Organic Chemistry Manager

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APPENDIX C

Calculations Equations and Report Nomenclature

Calculation Equations

Nomenclature

A	= Cross-sectional area of duct
A_n	= Cross-sectional area of nozzle
B_{ws}	= Water vapor in gas stream, proportion by volume
C_a	= Particulate concentration, actual, wet basis - GR/ACF
C_p	= Pitot tube calibration coefficient
C_s	= Particulate concentration at dry standard conditions - GR/DSCF
%EA	= Excess air, percent by volume
F_o	= Fuel factor
G_d	= Specific gravity relative to air, dimensionless
I	= Isokinetic variation, percent by volume
M_d	= Molecular weight of flue gas, dry, lb/lb-mole
m_g	= Mass flow of wet flue gas, LB/HR
m_n	= Total particulate collected, grams
m_p	= Particulate mass flow, LB/HR
M_s	= Molecular weight of flue gas, wet, lb/lb-mole
P_b	= Barometric pressure, uncompensated, inches of mercury
P_g	= Static pressure of duct, inches of water
P_s	= Absolute gas pressure of duct, inches of mercury
Q	= Actual flue gas volumetric flow rate, ACFM
Q_{sd}	= Dry flue gas volumetric flow rate corrected to standard conditions, DSCFM
$\overline{T_m}$	= Average dry gas meter temperature, °R
$\overline{T_s}$	= Average stack gas temperature, °R
Ø	= Total sampling time, minutes
V_{lc}	= Total volume of liquid collected in impingers and desiccant, ml
V_m	= Volume of gas sample measured by gas meter, cubic feet
V_{std}	= Volume of gas sample corrected to standard conditions, dry standard cubic feet
V_w	= Volume of water vapor in gas sample, corrected to standard conditions
V_s	= Linear velocity of flue gas, feet per second
Y	= Dry gas meter calibration factor
ΔH	= Orifice meter differential pressure, inches of water
ΔP	= Velocity pressure of flue gas, inches of water
β	= Actual gas density, pounds per cubic foot

Calculation Equations

Method 2

$$V_s = 85.49\, C_p\, (\sqrt{\Delta P}\,(avg))\, \sqrt{\frac{\overline{T_s}}{P_s\, M_s}}$$

$$Q = 60\, V_s\, A$$

$$Q_{sd} = Q\,(1 - B_{ws})\left(\frac{528}{T_s}\right)\left(\frac{P_s}{29.92}\right)$$

$$m_g = \frac{4.995\, Q_{sd}\, G_d}{1 - B_{ws}}$$

$$\rho = \frac{0.04585\, P_s\, M_s}{\overline{T}_s}$$

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Calculation Equations

Method 3

$$M_d = 0.44\ \%CO_2 + 0.32\ \%O_2 + 0.28\ (\%N_2 + \%CO)$$

$$M_s = M_d\ (1 - B_{ws}) + 18\ B_{ws}$$

$$\%EA = 100 \left(\frac{\%O_2 - 0.05\ \%CO}{0.264\ \%N_2 - \%O_2 + 0.5\%CO} \right)$$

$$F_o = \frac{20.9 - \%O_2}{\%CO_2}$$

Calculation Equations

Method 5

$$V_{std} = 17.647\, V_m\, Y \left(\frac{P_b + \Delta H/13.6}{\overline{T_m}} \right)$$

$$V_w = 0.047070\, V_{lc}$$

$$B_{ws} = \frac{V_w}{V_w + V_{std}}$$

$$C_s = 15.432 \left(\frac{m_n}{V_{std}} \right)$$

$$C_a = 272.22 \left(\frac{m_n P_s}{\overline{T_s}\, V_w + V_{std}} \right)$$

$$m_p = 0.00857\, C_s\, Q_{sd}$$

$$I = 0.09450 \left(\frac{\overline{T_s}\, V_m}{P_s\, V_s\, A_n\, \text{Ø}\, (1 - B_{ws})} \right)$$

REPORT NOMENCLATURE

ACFM	Actual cubic feet per minute
°C	Degrees Centigrade
C_1	Results reported as carbon
cc(ml)	Cubic centimeter (milliliter)
CFH	Cubic feet per hour
Cu. Ft.	Cubic feet
DSCFM	Dry standard cubic feet per minute
°F	Degrees Fahrenheit
Dia.	Diameter
Ft./Sec.	Feet per second
GPH	Gallons per hour
GPM	Gallons per minute
GR/ACF	Grains per actual cubic foot
GR/DSCF	Grains per dry standard cubic foot
GR/DSCF @ 12% CO_2	Grains per dry standard cubic foot corrected to 12 percent carbon dioxide
GR/DSCF @7% O_2	Grains per dry standard cubic foot corrected to 7 percent oxygen
g	Gram
Hrs.	Hours
In.	Inches
In. Hg	Inches of mercury
In. H_2O	Inches of water
In. WC	Inches of water column
KLB/HR	Thousand pounds per hour
LB	Pound
LB/DSCF	Pounds per dry standard cubic foot
LB/HR	Pounds per hour
LB/MMBTU	Pounds per million British Thermal Units heat input
MW	Megawatt
mg	Milligram
mg/dscm	Milligrams per dry standard cubic meter
Min.	Minutes
PPM	Parts per million by volume
PPM, w/w	Parts per million by weight
PSIA	Pounds per square inch - actual
PSIG	Pounds per square inch - gauge
°R	Degrees Rankin
Sec.	Seconds
Sq. Ft.	Square Feet
TPH	Tons per hour
ug	Microgram
%v/v	percent by volume
%w/w	percent by weight

APPENDIX D

Test Procedures

OXYGEN AND CARBON DIOXIDE CONCENTRATION (ORSAT)

Integrated gas samples are collected in 40 liter Tedlar™ bags and ultimately transferred to an Orsat gas analyzer for oxygen and carbon dioxide analyses. A PACE sampling train which meets or exceeds the specifications of EPA Method 3, 40 CFR 60, Appendix A is used to collect gas samples. Normally, gas samples are collected at the exhaust of an EPA Method 4 or 5 sampling train since this gas stream is moisture conditioned. Method 4 and 5 sampling equipment is maintained and checked to assure no leaks occur between the flue and the integrated gas sampler.

Gas samples are collected by drawing a portion of the stream through a chemically resistant diaphragm pump and delivering it to a Tedlar™ bag at a constant, settable rate depending on expected sampling time. At the conclusion of sampling, the bag and associated hardware is sealed and labelled. When multiple tests are to be performed, gas samples are often transferred to glass collection tubes for storage. A portable oxygen analyzer is used for this to ensure sample integrity.

Samples are analyzed by chemical absorption using an Orsat gas analyzer. Following positive and negative leak checks of the gas analyzer, the system is purged with the gas to be analyzed. The burret is filled with approximately 100 mls of sample gas and the exact volume recorded. The sample line stopcock is closed and the stopcock for the first bubbler containing carbon dioxide absorbent is opened. Several passes are made, bubbling the same gas through the reagent and the absorbent is returned to the initial mark. The new volume of the burret is recorded and an additional 1-2 passes are made to verify total absorption. Similar procedures are used to quantify oxygen with the same gas aliquot and oxygen absorbent.

PARTICULATE LOADINGS AND EMISSION RATES

Particulate emission rates were determined in accordance with EPA Methods 1-5, 40 CFR 60, Appendix A. Using traverse points determined with EPA Method 1, a preliminary velocity profile was obtained with respect to the velocity traverse, gas temperature, gas pressure and estimated moisture content. From this data, sampling nozzles of the appropriate diameter to ensure isokinetic sampling were selected.

The particulate sampling train consists of a temperature controlled sampling probe equipped with a S-type pitot tube and Type K thermocouples to monitor stack temperature and probe liner temperature. The sampling probe is attached to a sample module which houses an all glass in-line filter and cyclone assembly in a temperature controlled oven. The back half of the sampling train consists of a series of three glass impingers followed by a tared desiccant-packed drying column. The sample train is connected by means of a control and sampling umbilical cord to the control module. The control module houses a temperature monitored dry test gas meter, a calibrated orifice, dual inclined manometers, temperature controllers, and necessary flow rate control devices.

Particulate samples are collected by isokinetically extracting a sample gas stream from the flue by means of the sampling probe and passing the stream through the cyclone which collects larger, heavier particles. The sample gas stream then passes through a 4 inch diameter Gelman Type A/E glass fiber filter and a desiccant packed drying column which quantitatively collects all moisture from the sample gas stream. The gas then passes through a leakless rotary vane sampling pump and a dry test gas meter which integrates the sample volume throughout the course of the test. A calibrated orifice is connected to the gas meter outlet to facilitate sample flow rate adjustment.

Representative particulate samples are collected by sampling the centroid of equal area sections of the duct for equal time periods. The sampling rate is adjusted at each traverse point to ensure isokinetic sampling. Pre-programed field computers are used to facilitate rapid determination of the correct sampling rate.

Integrated gas samples are collected concurrently with particulate samples to determine a representative gas composition of the flue gas. Gas samples are collected in Tedlar bags throughout the course of the particulate run and analyzed with Orsat gas analyzer.

At the end of each particulate run, the sampling train is disassembled and the samples recovered. The sampling filter is transferred from the filter holder to its dedicated petri dish. The probe nozzle is acetone rinsed, brushed, rinsed again and the washings placed in a uniquely labelled polyethylene container. The probe is similarly cleaned; acetone rinsed brushed several times, rinsed again and the washing transferred to the same polyethylene container. The filter holder and cyclone are wiped free of silicone grease, acetone rinsed, brushed, rinsed and these washings added to the probe wash container. The container is tightly capped and the liquid level marked for transport. The impinger catch volume is determined to the nearest milliliter using a graduated cylinder. If the impinger catch is to be analyzed it is transferred to a separate polyethylene container, capped, and the liquid level marked. The desiccant-packed drying column is weighed in the field to the nearest 0.5 g and the weight of absorbed moisture added to the condensate for moisture calculations.

Particulate samples are transported back to the laboratory, logged in, and prepared for analyses. Filters are desiccated for 24 hours and weighed to a constant weight and the results recorded to the nearest 0.1 mg. Probe wash samples are evaporated at ambient temperatures to dryness in tared evaporating dishes. They are then desiccated for 24 hours and weighed to a constant weight. Results are reported to the nearest 0.1 mg.

WET CATCH ANALYSIS - ORGANIC CONDENSIBLES

Particulate concentrations reported in this document include gravimetric results of both the dry catch and organic wet catch. Organic condensibles were collected in a series of three ice-cooled all-glass impingers in the back half of the Method 5 sampling train. The first two impingers were initially prepared with 100 mls of deionized water in each and the third impinger was dry. After sampling the volume of condensate in the impingers was determined and the contents transferred to an air-tight polyethylene sample container.

The wet catch was analyzed for condensible organic particulate with the methylene chloride extraction. The extractions were evaporated at room temperature and desiccated to a constant weight. Gravimetric results were then added to dry catch results to calculate particulate concentrations.

TOTAL HYDROCARBON EMISSIONS (FID)

Total hydrocarbon determinations were performed in accordance with EPA Method 25A, 40 CFR 60, Appendix A. A stainless steel sampling probe situated near the center of the flue and a heat-traced Teflon™ sampling line was used to draw a sample of the gas stream from the duct of the analyzer. A Ratfisch RS 55 total hydrocarbon analyzer utilizing a flame ionization detector was used to quantify total hydrocarbon emissions. Carbon filtered air was use as zero gas and varying concentrations of propane were used as span gases. A flatbed strip chart recorder is used to monitor total hydrocarbon concentrations over time and the strip chart results are integrated to computer spreadsheets to reduce the data. As specified in Method 25A, the analyzer results were multiplied by 3 to report results as carbon (C_1).

FORMALDEHYDE EMISSIONS

Formaldehyde was sampled using EPA Method 0011. Formaldehyde samples are withdrawn isokinetically, using the back half of a method 5 train, and collected in aqueous acetic 2,4-dinitrophenyl-hydrazine (DNPH) in a series of glass impingers. Formaldehyde reacts with the DNPH to form a derivative that is extracted, solvent exchanged, concentrated and then analyzed by high performance liquid chromatography. Sampling train components and operation are the same as that described for EPA Method 5 described previously.

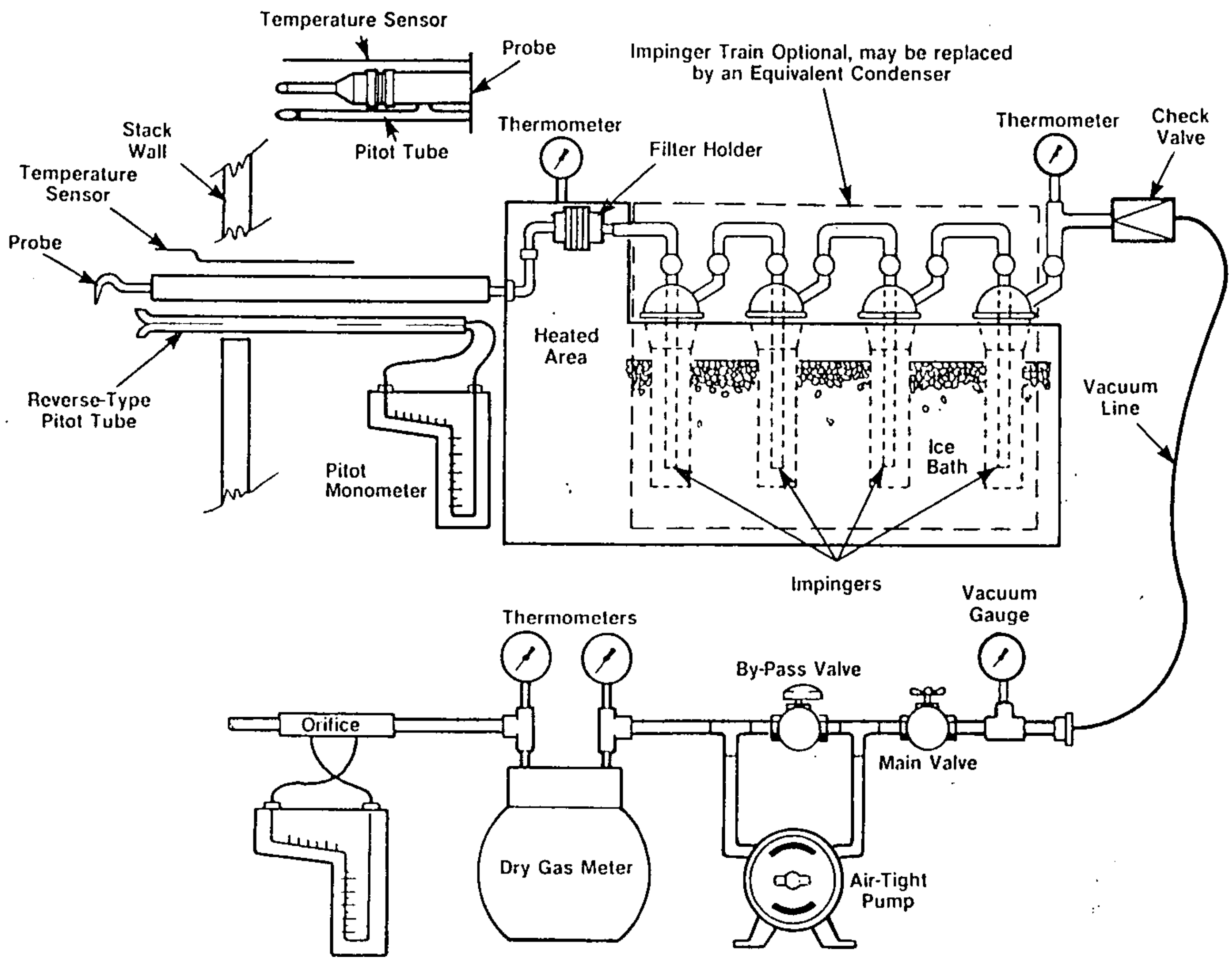

Figure 1. Method 5 Sampling Train

APPENDIX E

Quality Assurance Data

SAMPLING TRAIN CALIBRATION DATA

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992

Air Sampling Department Calibration Report

Sampling Nozzle Calibration Data

Nozzle Number : 4 - 2

Date of Calibration : 12/6/91

Calibration Technician: M. Loftus

Measurement Position		Diameter Inches
1		0.246
2		0.245
3		0.247
4		0.247
5		0.248
	Average	0.247

The sampling nozzle is rotated and measured at 36 degree Increments. Diameters are measured to the nearest 0.001". All measurements must be within a range of 0.004".

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992

Air Sampling Department Calibration Report

Sampling Nozzle Calibration Data

Nozzle Number : 4 - 1

Date of Calibration : 12/6/91

Calibration Technician: M. Loftus

Measurement Position		Diameter Inches
1		0.210
2		0.210
3		0.211
4		0.212
5		0.212
	Average	0.211

The sampling nozzle is rotated and measured at 36 degree Increments. Diameters are measured to the nearest 0.001". All measurements must be within a range of 0.004".

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992

Air Sampling Department Calibration Report

Sampling Nozzle Calibration Data

Nozzle Number : 0 - 2

Date of Calibration : 6/4/91

Calibration Technician: M. Loftus

Measurement Position		Diameter Inches
1		0.185
2		0.187
3		0.188
4		0.186
5		0.187
	Average	0.187

The sampling nozzle is rotated and measured at 36 degree Increments. Diameters are measured to the nearest 0.001". All measurements must be within a range of 0.004".

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992

Air Sampling Department Calibration Report

Sampling Nozzle Calibration Data

Nozzle Number :	Q1 - 1
Date of Calibration :	1/1/04
Calibration Technician:	M. Loftus

Measurement Position		Diameter Inches
1		0.211
2		0.210
3		0.210
4		0.211
5		0.209
	Average	0.210

The sampling nozzle is rotated and measured at 36 degree Increments. Diameters are measured to the nearest 0.001". All measurements must be within a range of 0.004".

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992

Air Sampling Department Calibration Report

Sampling Nozzle Calibration Data

Nozzle Number : 1 - 3

Date of Calibration : 10/17/91

Calibration Technician: M. Loftus

Measurement Position		Diameter Inches
1		0.310
2		0.309
3		0.310
4		0.309
5		0.309
	Average	0.309

The sampling nozzle is rotated and measured at 36 degree Increments. Diameters are measured to the nearest 0.001". All measurements must be within a range of 0.004".

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992

Air Sampling Department Calibration Report

Sampling Nozzle Calibration Data

Nozzle Number : Glass

Date of Calibration : 1/1/04

Calibration Technician: M. Loftus

Measurement Position		Diameter Inches
1		0.302
2		0.304
3		0.301
4		0.302
5		0.302
	Average	0.302

The sampling nozzle is rotated and measured at 36 degree Increments. Diameters are measured to the nearest 0.001". All measurements must be within a range of 0.004".

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992

Air Sampling Department Calibration Report

Pitot Tube Calibration Data

Pitot Tube Number : 4

Date of Calibration : 8/26/91

Calibration Technician: C. Stock

A Side Calibration

Calibration Trial No.	ΔP(standard) Inches WC	ΔP(S-type) Inches WC	Pitot Coefficient
1	0.470	0.666	0.832
2	0.470	0.660	0.835
3	0.471	0.664	0.834
		A Side Average	0.834

B Side Calibration

Calibration Trial No.	ΔP(standard) Inches WC	ΔP(S-type) Inches WC	Pitot Coefficient
1	0.469	0.665	0.831
2	0.468	0.660	0.834
3	0.471	0.668	0.831
		B Side Average	0.832
		Pitot Tube Coefficient	0.833

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992

Air Sampling Department Calibration Report

Pitot Tube Calibration Data

Pitot Tube Number : 3

Date of Calibration : 8/26/91

Calibration Technician: C. Stock

A Side Calibration

Calibration Trial No.	ΔP(standard) Inches WC	ΔP(S-type) Inches WC	Pitot Coefficient
1	0.469	0.669	0.829
2	0.468	0.666	0.830
3	0.465	0.662	0.830
		A Side Average	0.830

B Side Calibration

Calibration Trial No.	ΔP(standard) Inches WC	ΔP(S-type) Inches WC	Pitot Coefficient
1	0.467	0.661	0.832
2	0.463	0.652	0.834
3	0.470	0.663	0.834
		B Side Average	0.833
		Pitot Tube Coefficient	0.831

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992

Air Sampling Department Calibration Report

Pitot Tube Calibration Data

Pitot Tube Number : 5

Date of Calibration : 8/26/91

Calibration Technician: C. Stock

A Side Calibration

Calibration Trial No.	ΔP(standard) Inches WC	ΔP(S-type) Inches WC	Pitot Coefficient
1	0.468	0.652	0.839
2	0.468	0.650	0.840
3	0.468	0.649	0.841
		A Side Average	0.840

B Side Calibration

Calibration Trial No.	ΔP(standard) Inches WC	ΔP(S-type) Inches WC	Pitot Coefficient
1	0.469	0.650	0.841
2	0.471	0.651	0.842
3	0.465	0.648	0.839
		B Side Average	0.841
		Pitot Tube Coefficient	0.840

Louisiana Pacific Corporation
Sagola, Michigan
PACE Project No. 920108.402

PACE Incorporated
February 25, 1992

Air Sampling Department Calibration Report

Pitot Tube Calibration Data

Pitot Tube Number : 25

Date of Calibration : 8/26/91

Calibration Technician: C. Stock

A Side Calibration

Calibration Trial No.	ΔP(standard) Inches WC	ΔP(S-type) Inches WC	Pitot Coefficient
1	0.475	0.656	0.842
2	0.475	0.658	0.841
3	0.475	0.654	0.844
		A Side Average	0.842

B Side Calibration

Calibration Trial No.	ΔP(standard) Inches WC	ΔP(S-type) Inches WC	Pitot Coefficient
1	0.474	0:657	0.841
2	0.477	0.658	0.843
3	0.475	0.658	0.841
		B Side Average	0.842
		Pitot Tube Coefficient	0.842

Air Sampling Department Calibration Report

Dry Test Meter and Orifice Calibration Data

Control Module Number : C-5

Calibration Technician: TAK

Date of Calibration : 12/6/91

Barometric Pressure : 28.90

Orifice Diff. Press., ΔH Inches WC	Dry Test Meter Vol. Cubic Ft.	Wet Test Meter Vol. Cubic Ft.	Dry Test Meter Temperatures, °F		Wet Test Meter Temp., °F	Elapsed Time Minutes	Gas Meter Coefficient ∂	Orifice Coefficient ΔH@
			Inlet	Outlet				
0.50	5.203	5.000	98.0	83.0	65.5	12.657	1.0054	1.763
1.00	5.220	5.000	102.0	82.0	65.5	9.062	1.0036	1.803
1.75	5.150	5.000	91.0	77.0	67.0	7.037	0.9977	1.941
2.50	10.420	10.000	102.0	78.0	67.0	11.751	0.9952	1.912
3.50	10.427	10.000	105.0	85.0	66.0	10.067	1.0030	1.940

Average Meter Coefficient 1.0010

Average Orifice Coefficient 1.872

Air Sampling Department Calibration Report

Dry Test Meter and Orifice Calibration Data

Control Module Number : C-2

Calibration Technician: E. Gabrielson

Date of Calibration : 9/24/90

Barometric Pressure : 29.05

Orifice Diff. Press., ΔH Inches WC	Dry Test Meter Vol. Cubic Ft.	Wet Test Meter Vol. Cubic Ft.	Dry Test Meter Temperatures, °F		Wet Test Meter Temp., °F	Elapsed Time Minutes	Gas Meter Coefficient ∂	Orifice Coefficient ΔH@
			Inlet	Outlet				
0.50	5.145	5.000	90.5	80.5	73.0	13.171	0.9934	1.972
1.00	5.140	5.000	91.0	79.5	73.0	9.492	0.9926	2.049
1.75	5.020	5.000	77.5	70.0	73.0	7.187	0.9930	2.100
2.50	10.105	10.000	87.5	74.0	73.0	12.190	0.9977	2.130
3.50	10.130	10.000	93.0	77.0	73.0	10.617	1.0005	2.244

Average Meter Coefficient 0.9954

Average Orifice Coefficient 2.099

APPENDIX F

Process/Source Information

SAGOLA DRYER TESTING JAN 28-30, 1992
THERMAL OIL HEATER TESTING
JAN 30+31, 1992

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SAGOLA, MICHIGAN JAN 1992

TEST SCHEDULE

EQUIPMENT	TEST	DATE	RUN	TIME
SURFACE/ CORE DRYER (WEST) S/C	PM, CO AND VOC	1-28	T1-R1	*1040-1125 & 1300-1327
			T1-R2	1405-1508
			T1-R3	1525-1628
	PM-10	1-29	T2-R1	0800-0910
			T2-R2	1010-1105
			T2-R3	1215-1326
	HCHO	1-28	T3-R1	1825-1927
			T3-R2	2025-2125
			T3-R3	2223-2330
CORE DRYER (CENTER) C	PM, CO AND VOC	1-29	T2-R1	1420-1530
			T2-R2	1602-1710
			T2-R3	1723-1830
	PM-10	1-28	T1-R1	*1040-1125 & 1300-1327
			T1-R2	1435-1540
			T1-R3	1640-1746
	HCHO	1-29	T3-R1	1900-2007
			T3-R2	2053-2156
			T3-R3	2241-2350
SURFACE DRYER (EAST) S	PM, CO AND VOC	1-29	T1-R1	0907-1015
			T1-R2	1040-1150
			T1-R3	1215-1320
	PM-10	1-29	T2-R1	1505-1616
			T2-R2	1710-1815
			T2-R3	1926-2030
	HCHO	1-30	T3-R1	0843-0950
			T3-R2	1047-1154
			T3-R3	1242-1348

* T1-R1 ON THE S/C AND C DRYERS WAS NOT CONTINUOUS DUE TO A PROCESS INTERRUPTION. THE PRESS WENT DOWN, AND THE DRYERS HAD TO GO DOWN BECAUSE THE DRY BINS WERE FULL

SAGOLA, MICHIGAN JAN 1992

TEST SCHEDULE, CONT.

EQUIPMENT	TEST	DATE	RUN	TIME
THERMAL OIL HEATER	PM-10	1-30	T1-R1	1435-1536
			T1-R2	1652-1756
			T1-R3	1905-2010
	PM, CO AND VOC	1-30 AND 1-31	T2-R1	2130-2235
			T2-R2	2300-0005
			T2-R3	0095-0155
	HCHO	1-31	T3-R1	0940-1042
			T3-R2	1205-1308
			T3-R3	1415-1531

NOTE: ALL TEST TIMES ARE APPROXIMATE
SEE PACE REPORTS FOR EXACT
TEST TIMES

SAGOLA TESTING JAN 28-31, 1992
OPERATING DATA SPECIFIED IN TEST PLAN

7a. <u>THERMAL OIL HEATER OPERATING DATA:</u>

7a1. Design heat input is 61mm BTU/hr. Operating heat input to be based on f factor. Heat output to be determined by efficiency calculations. OUTPUT = INPUT x 65%

7a2. Type of fuel to be used is 100% green bark and green wood fines.

7a3. ACFM of air through the Thermal Oil Heater is equal to ACFM at the stack and will be determined during sampling.

7a4. Tons of dry fuel burned during testing will be determined by bark infeed counts and moisture content.
SEE ATTACHED SHEETS

7a5. Plant production rate is tons of finished product per hour as described in 7c10.
SEE ATTACHED SHEETS

7a6. Thermal Oil Heater operating parameters including:
- Refractory temperature
- Incoming oil temperature
- Outgoing oil temperature
- Fuel feed setting
- Pond heat set point, building heat setpoint and thermal oil temperature setpoint.

7a7. Control equipment parameters to be recorded include:
- EFB bed voltage
- EFB bed Amperage
- EFB ionizer voltage
- EFB ionizer Amperage
- EFB pressure drop

7b. <u>DRYER OPERATING DATA:</u>

7b1. Moisture content of wet wafers. RECORDED ON
Moisture content of dry wafers. ATTACHED SHEETS

7b2. Wood to be processed will be $\geq$ 99% green wood, $\leq$ 1% dried, dead wood.

7b3. Wood to be processed will be $\geq$ 99% hardwood, $\leq$ 1% softwood.

BURNER OUTLET SETPOINTS = 1700° SURF. 1875° CORE AND 1800° SURF/CORE

7b4. Dryer operating temperature to be recorded:
- Burner outlet temperature, operating and setpoint.
- Inlet temperature, ~~and~~ operating.
- Outlet temperature, operating and setpoint. OPERATING = SETPOINT DURING NORMAL OPERATION

RECORDED ON ATTACHED SHEETS

7b5. Design airflow rate is 60,000 acfm, actual airflow will be determined during sampling.

7b6. Type of fuel to be burned is dry fines. Waste oil is not burned in the drying process. The percent of reacted (solid, not liquid) resin burned will be determined by percent of resin in finished product and percent of trim material in dry fuel. SHOWN ON ATTACHED SHEETS

7b7. The heat content of the dry fuel will be determined by analysis. 8100 BTU/LB

7b8. The dryer is 13' diameter and 60' long. Actual and design revolutions per minute will be recorded. 6 REVOLUTIONS PER MIN ACTUAL.

7b9. Dryer production rate in pounds of dry furnish per hour based on press production plus screened fines and board trim using the following formula:

$$\frac{\text{lb. Dryer Production}}{\text{HR}} = \frac{\text{Tons press production/hr.}}{1 - (0.07 + 0.08)} / 2000$$

Where: Board Trim = ~~7%~~ 6.1 of finished product weight
screened fines = ~~8%~~ 11.8 of finished product weight

Design rate is 21,800 lb. dry furnish/hr. SEE ATTACHED FOR ACTUAL RATES
Test rate is 21,800 lb. dry furnish/hr.

7b10. The level of the dry ~~fines~~ bins (in feet) will be recorded before and after testing and bin dimensions will be supplied. SEE ATTACHED SHEET - PLANT RECORDS LEVEL IN %

7b11. Plant production rate in tons of finished product per hour based on press production. See 7c10. SEE ATTACHED SHEETS

7b12. Additional dryer operating parameters to be recorded include
- Wet bin feed rate

7b13. EFB operating parameters to be recorded include:
- Bed voltage
- Bed amperage
- Ionizer voltage
- Ionizer amperage
- EFB pressure drop

SAGOLA DRYER TESTING JAN 28-30 1992

DRYER PRODUCTION RATE SUMMARY

GENERAL INFORMATION

- DRYER PRODUCTION RATE = AVG FEED RATE X 279.4 lb/HR
- PROJECTED PLANT PRODUCTION RATE BASED ON DRYER PRODUCTION = AVG FEED RATE X 0.3439 TONS/HR
- BTU INPUT = FUEL COUNTS PER HOUR X FUEL CALIBRATION X 8100 BTU PER POUND OF FUEL + 4mm BTU FROM SUSTAINING GAS
- FUEL CALIBRATION =
  7.6 lb/COUNT SURFACE DRYER
  6.3 lb/COUNT CORE DRYER
  7.3 lb/COUNT SURFACE/CORE DRYER

DATA IS DERIVED FROM DRYER OPERATIONS REPORT, DATA TIMES ARE TO THE NEAREST READING TO ACTUAL TEST TIMES

DRYER DATE TEST #	TEST FOR:	DATA TIMES	AVG FEED RATE	DRYER PROD. RATE lb/HR	PROJ. PLANT PROD. RATE TON/HR	BTU INPUT MM BTU/HR
SURFACE/ CORE 1-28 T1	PM, CO + VOC	1045-1115 1300-630	85.0	23,749	29.23	33.0
SURFACE/ CORE 1-29 T2	PM-10	0800-1330	84.9	23,721	29.20	33.2
SURFACE/ CORE 1-28 T3	HCHO	1830-2330	85.0	23,749	29.23	34.1

11.9 TON/HR

SAGOLA DRYER TESTING JAN 28-30 1992

DRYER PRODUCTION RATE SUMMARY (CONT)

DRYER DATE TEST#	TEST FOR	DATA TIMES	AVG FEED RATE	DRYER PROD. RATE lb/HR	PROJ. PLANT PROD. RATE TON/HR	BTU INPUT mm BTU/HR
CORE 1-28 T-1	PM-10	1045-1115 1300-1745	85	23,749	29.23	37.7
CORE 1-29 T-2	PM, CO + VOC	1415-1830	84.1	22,659	27.89	34.2
CORE 1-29 T3	HCHO	1900-2345	81.0	22,631	27.86	37.5
SURFACE 1-29 T1	PM, CO + VOC	0900-1330	85.0	23,749	29.23	38.1
SURFACE 1-29 T2	PM-10	1500-2030	85.0	23,749	29.23	37.9
SURFACE 1-30 T3	HCHO	0845-1345	83.2	23,246	28.61	38.9

SAGOLA DRYER TESTING JAN 28-30, 1992

DETERMINATION OF
DRYER PRODUCTION RATES

DRYER THROUGHPUT DURING TESTING IS DETERMINED BY THE FEED SETTING ON THE WET BIN BELT

BIN CROSS SECTION = 80 CUBIC FEET

1% ON POT = 0.01 FEET PER MINUTE OF WET BIN MOVEMENT

BULK DENSITY OF WAFERS = 5.82 lb PER CUBIC FOOT (DRY BASIS)

∴ 1% ON POT IS RELATED TO LBS OF DRY FURNISH PRODUCED AS FOLLOWS:

$$1\% \text{ ON POT} = 0.01\,ft \times \frac{60\,min}{HR} \times 80\,ft^2 \times 5.82\,lb/ft^2$$

= 279.4 lb OF DRY FURNISH PER 1% POT SETTING PER DRYER PER HOUR

3 DRYERS × 279.4 = 838.2 lb OF DRY FURNISH PER 1% OF POT SETTING FOR THREE DRYER AVERAGE PER HOUR

PLANT PRODUCTION RATE =

DRYER PROD. RATE (1 - 6.1% TRIM + 11.84% FINES) / 2000 lb

838.2 (1 - 0.061 + 0.1184) / 2000 lb

1% ON POT = 0.3939 TONS FINAL PRODUCT

SAGOLA DRYER TESTING JAN 28 - 30 1992

DRYER PRODUCTION CHECK

PRESS PRODUCTION AND DRY FUEL USAGE WERE COMPARED TO CALCULATED DRYER PRODUCTION FOR 3 PERIODS OF STEADY PRODUCTION DURING TESTING.

ALL USAGE/PRODUCTION FIGURES ARE IN LB PER HOUR

1-28-92 1400-1930

AVG WET BIN SPEED, ALL 3 DRYERS = 74.30
DRYER PRODUCTION =
74.30 X 838.2 = 62,278 lb DRY FURNISH PER HOUR

ACTUAL
PRESS PRODUCTION = 51,179 lb/HR
FUEL BURNED = 11,146 lb/HR

TOTAL MAT'L REQ'D = 62,325 lb/HR

1-29-92 0830-1940

AVG WET BIN SPEED, ALL 3 DRYERS = 77.87
DRYER PRODUCTION =
77.87 x 838.2 = 65,271 lb DRY FURNISH PER HOUR

ACTUAL
PRESS PRODUCTION = 52,348 lb/HR
FUEL BURNED = 11,022 lb/HR

TOTAL MAT'L REQ'D = 63,370 lb/HR
(NOTE: DRY BINS GAINED ≈10% DURING THIS PERIOD)

1-30-92 0815-1345

AVG WET BIN SPEED, ALL 3 DRYERS =
DRYER PRODUCTION =
73.53x 838.2 = 61,633 lb DRY FURNISH PER HOUR

ACTUAL
PRESS PRODUCTION = 51,725 lb/HR
FUEL BURNED = 10903 lb/HR

TOTAL MAT'L REQ'D = 62,628 lb/HR

SAGOLA DRYER TESTING JAN 28-30, 1992

DRYER PRODUCTION CHECK (CONT) in lbs/HR

AVERAGE MATERIAL REQUIRED FOR 3 TIME PERIODS
(62,325 + 63,370 + 62,628)/3 = 62,774 lb/hr
AVERAGE DRYER PRODUCTION FOR 3 TIME PERIODS =

(62,278 + 65,271 + 61,633)/3 = 63,061 lb/hr

AVERAGE DRYER PRODUCTION + MATERIAL REQ'D BALANCES TO WITHIN 0.5%

$$1 - \frac{62,774}{63,061} = 0.0046$$

ESTIMATION OF FINES PRODUCTION

AVERAGE FINISHED PRODUCTION FOR 3 TIME PERIODS
(51,179 + 52,348 + 51,725)/3 = 51,751 lb/hr

FINES =

$$\frac{51751\ lb}{63061\ lb} = 1 - .061^{*} + FINES$$

0.8206 = 1 - 0.061 + FINES
0.8816 = 1 - FINES
0.1184 = FINES = 11.84%

* TRIM = 6.1%

Suzuki 1-27-92

WET BIN LIVE BOTTOM SPEEDS

LINE	% SPEED BY POT	CALCULATED IN/MIN	CALCULATED FT/MIN	ACTUAL IN/MIN	ACTUAL FT/MIN
SURFACE	75	9.00	.75	8.90	.742
CORE	75	9.00	.75	8.91	.743
SUR/CORE	75	9.00	.75	9.06	.755
SURFACE	76	9.12	.76	9.05	.754
CORE	76	9.12	.76	9.05	.754
SUR/CORE	76	9.12	.76	9.04	.753
SURFACE	77	9.24	.77	9.15	.763
CORE	77	9.24	.77	9.18	.765
SUR/CORE	77	9.24	.77	9.18	.766
SURFACE	78	9.36	.78	9.28	.773
CORE	78	9.36	.78	9.28	.773
SUR/CORE	78	9.36	.78	9.33	.777
SURFACE	79	9.48	.79	9.43	.790
CORE	79	9.48	.79	9.43	.790
SUR/CORE	79	9.48	.79	9.48	.790
SURFACE	80	9.60	.80	9.53	.794
CORE	80	9.60	.80	9.55	.796
SUR/CORE	80	9.60	.80	9.75	.813
SURFACE	81	9.72	.81	9.66	.805
CORE	81	9.72	.81	9.77	.814
SUR/CORE	81	9.72	.81	9.70	.808
SURFACE	82	9.84	.82	10.00	.833
CORE	82	9.84	.82	9.88	.823
SUR/CORE	82	9.84	.82	9.85	.820
SURFACE	83	9.96	.83	9.90	.825
CORE	83	9.96	.83	9.94	.828
SUR/CORE	83	9.96	.83	9.98	.831
SURFACE	84	10.08	.84	10.06	.839
CORE	84	10.08	.84	10.09	.841
SUR/CORE	84	10.08	.84	10.08	.834
SURFACE	85	10.20	.85	10.18	.848
CORE	85	10.20	.85	10.20	.850
SUR/CORE	85	10.20	.85	10.16	.847

DRYER PRODUCTION BASED
ON CALCULATED SPEEDS

SAGOLA DRYER TESTING 1-28-92

PRODUCTION + BOARD WEIGHTS

WEIGHT OF APPROX EVERY 50 th
BOARD FROM 1400-1930, 5.5 HRS

275 lbs	282	275
282	285	273
267	274	273
269	260	269
271	273	278
281	276	270
285	274	

AVG 7/16" = 274.5 lb UNTRIMED
= 274.5 (1-0.061)
= 257.8 lb TRIMMED

7/16" PRESSLOADS FROM 1400-1930 = 91

$$\frac{91 \text{ P.L.}}{5 \text{ HRS}} = 16.55 \text{ P.L./HR}$$

PROD. RATE =
16.55 P.L. x 12 BOARDS x 257.8 lb/BOARD =

51,179 lb/HR
FINISHED
PRODUCT

SAGOLA DRYER TESTING 1-29-92

PRODUCTION + BOARD WEIGHTS

WEIGHT OF APPROX. EVERY 50th BOARD FROM 0830 - 1940, 11.17 HRS

276 lbs	283	278	275
278	267	272	279
281	277	273	279
279	274	275	275
273	277	273	281
273	272	273	285
269	274	280	272
276	274	280	276
284	281	282	276
277	272	282	266
278	275	280	271
			270

AVG 7/16" = 276.0 UNTRIMMED
= 276.0 (0-0.61)
= 259.2 TRIMMED

7/16" PRESSLOADS FROM 0830 - 1940 = 188

$$\frac{188 \text{ P.L.}}{11.16 \text{ HRS}} = 16.83 \text{ P.L./HR}$$

PROD. RATE =
16.83 P.L. x 12 BOARDS x 259.2 lb/BOARD =

52,348 lb/HR
FINISHED
PRODUCT

SAGOLA DRYER TESTING 1-30-92

PRODUCTION + BOARD WEIGHTS

WEIGHT OF APPRX. EVERY 50th
BOARD FROM 0845-1345, 5 HRS

282 lbs	279	278
273	275	277
271	275	272
279	272	269
277	276	276
275	270	270
264	279	278

AVG 7/16" = 274.6 UNTRIMMED
= 274.6 x (1 - 0.061)
= 257.8 lb TRIMMED

7/16" PRESSLOADS FROM 0815 - 1345 = 92

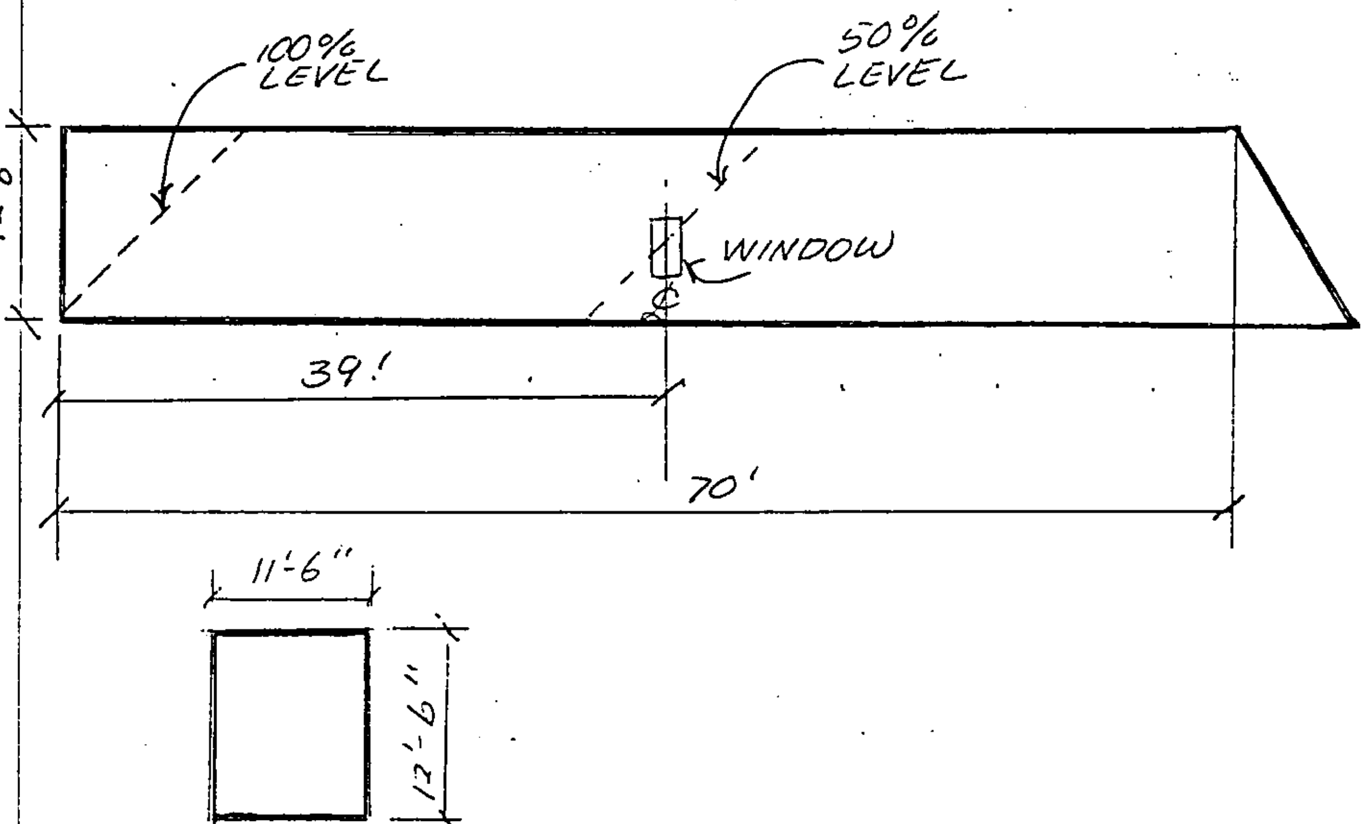
$$\frac{92 \text{ PL}}{5.5 \text{ HRS}} = 16.72 \text{ P.L./HR}$$

PROD. RATE =
16.72 P.L. x 12 BOARDS x 257.8 lb/BOARD =

51,725 lb/HR
FINISHED
PRODUCT

SAGOLA TESTING JAN 28-31 1992

DIMENSIONS ON DRY BINS



SAGOLA, MICHIGAN DRYER TESTING
JAN 28, 29, 30

DRYER FUEL BURNING INFORMATION

FUEL FROM TRIM & FINES
FINES = 11.84% F.P. TRIM = 6.1% F.P.
FUEL = 34% TRIM AND 66% FINES

% IN TRIM

1-28-92 PF RESN: 2.88% OF 50% = 1.44%
MDI RESIN: 1.87% OF 50% = 0.94%

1-29-92 PF RESIN: 3.42% OF 51.3% = 1.75%
MDI RESIN: 1.83% OF 48.7% = 0.89%

1-30-92 PF RESIN: 3.27% OF 50% = 1.63%
MDI RESIN: 1.87% OF 50% = 0.94%

AVG % FOR 3 DAYS: MDI = 0.92% 0.31
P.F = 1.61% 0.55

ESTIMATION OF RESIN BURNED WITH
DRY FUEL BASED ON THREE DAY AVG. %

TEST	lb FUEL/HR	lb P.F./HR	lb. MDI/HR
S/C T1	3581	19.7	11.1
S/C T2	3606	19.8	11.2
S/C T3	3722	20.5	11.5
C T1	4158	22.9	12.9
C T2	3857	21.2	12.0
C T3	4131	22.7	12.8
S T1	4205	23.1	13.0
S T2	4190	23.0	13.0
S T3	4241	23.3	13.1

S/C = SURFACE/CORE DRYER
C = CORE DRYER
S = SURFACE DRYER

SAGOLA, THERMAL OIL HEATER TESTING
JAN 30 + 31

PRODUCTION RATES DURING TESTING

T1 - JAN 30th

TOTAL TEST TIME = 190 MIN
TEST DURING 15/32" PROD. = 150 MIN ; 79%
" " 23/32" PROD. = 40 MIN ; 21%

PRODUCTION =
(24.8 TFP x 0.79) + (24.1 TFP x 0.21) =
24.7 TFP/HR

T2 - JAN 30th

100% OF TESTING DURING 23/32"
PRODUCTION
= 24.1 TFP/HR

T3 - JAN 31ST

TOTAL TEST TIME = 201 MIN
TEST DURING 15/32" PROD = 102 MIN = 51%
" " 7/16" PROD = 99 MIN = 49%

PRODUCTION =
(24.0 TFP x 0.51) + (24.5 TFP x 0.49) =
24.2 TFP/HR

TFP = TONS FINISHED PRODUCT

SAGOLA THERMAL OIL HEATER TESTING
JAN 30 + 31

BOARD WEIGHTS (IN LBS)
WEIGHTS OF APROX EVERY 50th
BOARD DURING TESTING

JAN 30th 15/32" 1930 - 1930

294	302	304	AVG UNTRIMMED = 301.1 lb
298	298	302	
308	302	294	AVG TRIMMED = 301.1 x (1-0.061) =
305	310		282.7 lb
299	300		
298	298		

PRESSLOADS 1345 - 1930 = 84
84 / 5.75 HRS = 14.6 P.L. HR
14.6 PL x 12 BOARDS x 282.7 lb / 2000 lb
= 24.8 TONS FINISHED PROD. / HR

JAN 30th 23/32" 1930 - 0200

471	483	467	475	
456	483	470	476	
471	483	471	485	AVG. UNTRIMMED = 472.3
470	479	467		AVG TRIMMED = 472.3 x (1-0.061) =
468	466	461		443.5 lb

PRESSLOADS 1930 - 0340 = 74
74 PL / 8.17 HRS x 12 BOARDS x 443.5 lb / 2000 lb
= 24.1 TONS FINISHED PRODUCT / HR

GAGOLA THERMAL OIL HEATER TESTING
JAN 30 + 31

BOARD WEIGHTS (CONT.)

JAN 31ST - 15/32" 0915 - 1245

304	306
306	306
294	305
303	305
306	309
305	306

AVG UNTRIMMED = 304.6 lb

AVG TRIMMED = 304.6 (1 - 0.061)
= 286.0 lb

PRESSLOADS 0915 - 1245 = 49
49 P.L. / 3.5 HRS = 14 P.L. / HR
14 P.L. x 12 BOARDS x 286 lb / 2000 lb
= 24.0 TON FINISHED PRODUCT / HR

JAN 31ST - 7/16" 1245 - 1545

284	276
276	283
277	279
279	277
276	279
280	

AVG UNTRIMMED = 278.6 lb

AVG TRIMMED = 278.6 (1 - 0.061)
= 261.6 lb

PRESSLOADS 1245 - 1320 = 45
45 P.L. / 2.88 HRS = 15.6 P.L. / HR
15.6 P.L. x 12 BOARDS x 261.6 lb / 2000 lb
= 24.5 TON FINISHED PROD / HR

SAGOLA THERMAL OIL HEATER TESTING
JAN 30 + 31, 1992

ESTIMATION OF BTU INPUT BY
TEMP DIFFERENTIAL * (TO BE VERIFIED BY
F FACTOR)

JAN 30 -
AVG. TEMP OF OIL OUT = 490.4 °F
" " OIL IN = 428.3 °F
DIFFERENCE = 62.1 °F

BTU INPUT =

$$\frac{62.1°F}{78°F^{**}} \times 61\ mm\ BTU/HR = 48.6\ mm\ BTU/HR$$

JAN 31
AVG. TEMP OF OIL OUT = 487.5
" " OIL IN = 421.0
DIFFERENCE = 66.5 °F

BTU INPUT =

$$\frac{66.5°F}{78°F} \times 61\ mm\ BTU/HR = 52.0\ mm\ BTU/HR$$

* NOTE, ESTIMATION OF HEAT INPUT BY FUEL INPUT CANNOT BE MADE. BRIDGING IN THE BARK BIN CAUSED THE INFEED RAMS TO STROKE WHILE EMPTY

** 78 °F = 100% CAPACITY (BY MANUFACTURER)

SAGOLA THERMAL OIL HEATER TESTING

<u>BTU OUTPUT BY TEMPERATURE DIFFERENTIAL</u>
(TO BE VERIFIED BY F FACTOR)

T1 & T2 JAN 30<u>th</u>

BTU INPUT = 48.6 mm BTU/HR

BTU OUTPUT = 48.6 mm BTU/HR x 65% EFFIC.

BTU OUTPUT = 31.6 MM BTU/HR

T3 JAN 31<u>th</u>

BTU INPUT = 52.0 mm BTU/HR

BTU OUTPUT = 52.0 mm BTU/HR x 65% EFFIC.

BTU OUTPUT = 33.8 mm BTU/HR

DRYER OPERATIONS REPORT LOUISIANA-PACIFIC CORPORATION SAGOLA MI

NAME Anderson/Levi CREW D SHIFT DAY [X] NIGHT [ ] DATE 1-28-92

TIME	WET FEED RATE %	GRAYCONS Fuel	WOOD VALVE %	BARBER COLEMAN Furnace F°	Inlet F°	Outlet F°	GAS % VALVE	MOISTURE METER %	MOISTURE HA... Wt
SURFACE									
10 30	55	1610	35.2	1525	760	248		4.5	
10:45	55	1692	37.6	1540	720	240		4.6	
11.00	55	1778	36.1	1550	740	242		4.9	
11:15	50	1903	37.8	1580	840	240		5.0	
11:30	-	1941	10	1350	220	215		-	
11.45	-	1941	10	1190	140	150		-	
12.00	-	1941	10	1100	110	100		-	
12.15		1941	10	950	100	70		-	
12:30	40	1989	48.4	1150	530	210		9.2	
12:45	55	2063	43.4	1390	770	240		5.9	
1:00	60	2210	44.5	1430	900	220		6.1	
1:15	60	2315	42.1	1460	860	222		5.7	
CORE									
10:30	85	2342	45.5	1400	990	260		4.0	
10:45	85	2489	42.1	1400	960	260		5.3	
11:00	85	2642	42.2	1420	950	260		4.7	
11:15	85	2797	42.6	1440	900	255		4.4	
11:30	-	2959	10	1350	420	245		-	
11.45	-	2959	10	1225	160	195		-	
12:00		2959	10	1090	120	100		-	
12:15	35	2989	42.6	1110	120	165		-	
12:30	80	3128	48.6	1350	940	265		5.4	
12:45	83	3294	47.8	1390	1020	260		5.2	
1:00	85	3484	45.4	1410	980	252		5.3	
1.15	85	3618	45.3	1400	1000	252		8.3	
SURFACE CORE									
10:30	85	1633	39.3	1520	980	183		8.0	
10:45	85	1721	36.7	1520	850	190		7.6	
11:00	85	1818	31.6	1510	780	192		6.9	
11:15	85	1930	34.7	1520	820	190		5.7	
11:30	-	2008	10	1340	210	175		-	
11:45	-	2008	10	1220	150	120		-	
12:00	-	2008	10	1110	130	80		-	
12:15	30	2014	20.0	1150	400	180			
12:30	80	2160	37.6	1450	840	225		4.7	
12:45	83	2226	38.0	1480	860	205		5.7	
1:00	85	2356	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	

DRYER OPERATIONS REPORT LOUISIANA-PACIFIC CORPORATION SAGOLA MI

NAME Anderson/Kevin CREW ________ SHIFT DAY [X] NIGHT [ ] DATE 1-28-92

TIME	WET FEED RATE %	GRAYCONS Fuel Count	WOOD VALVE %	BARBER COLEMAN Furnace F°	Inlet F°	Outlet F°	GAS % VALVE	MOISTURE METER %	MOISTURE Wet / D
SURFACE									
1:30	45	2417	25.4	1460	640	240		5.6	1
1:45	-	2440	10	1100	150	165		-	
2:00	-	2440	10	1020	130	135		-	
2:15	-	2440	10	925	110	100		-	
2:30	30	2446	20	950	320	170		-	
2:45	45	2557	42.5	1350	740	240		8.0	
3:00	45	2658	32.0	1410	600	240		7.1	
3:15	50	2773	36.6	1490	840	230		6.8	8.
3:30	50	2888	38.6	1490	820	225		6.0	
3:45	50	3019	34.8	1490	800	230		6.5	
4:00	55	3132	34.6	1500	820	230		6.7	
4:15	55	3215	36.1	1500	790	225		~~7.8~~ 5.6	9.
CORE									
1:30	85	3793 11	46.9	1390	1100	258		5.1	
1:45	85	4041 111	45.9	1400	980	255		5.6	6
2:00	85	4153 111	46.7	1400	1040	250		8.5	
2:15	85	4309 11	45.5	1400	1000	250		4.8	6.
2:30	85	4502 11	41.1	1420	920	250		5.1	
2:45	85	4661 1	41.5	1420	900	245		6.1	
3:00	85	4797	43.6	1425	910	245		7.4	
3:15	85	4971	43.7	1450	930	248		6.7	8.
3:30	85	5148	44.2	1440	980	245		5.9	
3:45	85	5354	44.6	1440	950	245		6.2	
4:00	85	5518	44.2	1440	900	240		8.3	
4:15	85	5649	42.7	1450	870	245		7.3	9.1
SURFACE CORE									
1:30	85	2567	38.8	1500	860	192		8.8	7.
1:45	85	2728	41.4	1500	900	190		8.7	
2:00	85	2810	40.6	1500	880	192		8.5	
2:15	85	2929	42.8	1500	900	188		8.5	8.
2:30	85	3076	41.1	1500	900	194		8.6	
2:45	85	3195	40.9	1500	880	195		8.4	
3:00	85	3304	38.0	1500	860	190		7.2	
3:15	85	3427	40.8	1490	900	195		8.4	8.2
3:30	85	3553	40.8	1490	910	195		8.8	
3:45	85	3708	42.9	1490	910	198		9.0	
4:00	85	3832	40.7	1490	900	195		8.7	23
[illegible]	85	[illegible]							

DRYER OPERATIONS REPORT   LOUISIANA-PACIFIC CORPORATION SAGOLA MI

NAME Anderson/Ken   CREW D   SHIFT DAY [X] NIGHT   DATE 1-28-92

TIME	WET FEED RATE %	GRAYCONS Fuel		WOOD VALVE %	BARBER COLEMAN Furnace F°	Inlet F°	Outlet F°	GAS % VALVE	MOISTURE METER %	MOISTURE
SURFACE										
4:30	70	3379		43.0	1500	900	220		5.5	
4:45	70	3446		44.0	1470	910	220		6.1	
5:00	70	3574		42.8	1460	910	220		5.5	
5:15	70	3699		43.6	1450	900	222		5.2	
5:30	70	3856		46.3	1450	900	228		6.1	
5:45	70	3980		44.1	1420	890	228		5.6	
6:00	70	4121		41.8	1425	900	230		5.4	
6:15	65	4244		40.9	1450	900	235		4.5	
6:30	62	4364		39.0	1460	890	240		5.3	
6:45	55	4489		35.9	1480	840	240		4.9	
7:00	55	4590		38.9	1490	880	240		4.8	
7:15										
CORE										
4:30	85	5872		44.3	1450	860	240		6.7	
4:45	85	5962		45.9	1450	910	240		6.4	
5:00	85	6114		43.5	1450	880	242		7.4	
5:15	85	6280		44.5	1430	900	248		7.8	
5:30	85	6478		46.3	1420	980	245		7.3	
5:45	85	6641		44.1	1400	960	252		6.1	
6:00	85	6800		44.5	1430	910	252		6.1	
6:15	85	6971		46.3	1420	960	255		6.5	
6:30	85	7142		46.1	1400	990	255		5.5	
6:45	85	7308		42.0	1440	910	260		6.1	
7:00	85	7463		42.6	1420	940	260		5.4	
7:15										
SURFACE CORE										
4:30	85	4109		40.7	1490	920	198		6.1	
4:45	85	4173		41.7	1500	920	192		8.7	
5:00	85	4290		38.1	1500	880	198		8.2	
5:15	85	4428		42.2	1500	930	193		8.9	
5:30	85	4554		41.0	1500	910	198		8.7	
5:45	85	4668		41.2	1500	920	198		8.2	
6:00	85	4802		41.6	1500	920	198		8.5	
6:15	85	4916		39.0	1510	890	198		8.0	
6:30	85	5029		40.3	1510	920	192		9.0	
6:45	85	5161		41.7	1500	920	192		8.9	
7:00	85	5278		43.2	1500	930	195		7.9	

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DRYER OPERATIONS REPORT LOUISIANA-PACIFIC CORPORATION SAGOLA MI

NAME Leslie CREW B SHIFT DAY ☐ NIGHT ☒ DATE 1-28-92

TIME	WET FEED RATE %	Fuel Count	WOOD VALVE %	BARBER COLEMAN Furnace F°	Inlet F°	Outlet F°	GAS % VALVE	MOISTURE METER %	MOISTURE HA
SURFACE									
7:15 AM	55	117 (ending)	38.5	1525	840	242		3.9	8.4
7:30	55	236 ǀ	37.4	1520	848	242		5.0	
7:45	55	357	35.7	1525	852	243		4.9	
8:00	53	458	35.5	1520	842	242		4.9	
8:15		Dryer	Down						
8:30									
8:45									
9:00									
9:15									
9:30		Dryer	Down						
9:45									
10:00									
CORE									
7:15 AM	85	175 (ending)	41.0	1425	978	259		7.6	8.4
7:30	85	370 ǀǀǀǀ	47.6	1425	1055	258		5.5	
7:45	83	557 ǀǀǀǀ	42.6	1405	940	255		5.8	
8:00	83	700 ǀǀ	44.2	1425	919	255		5.1	
8:15	83	883 ǀǀ	43.4	1410	942	252		5.4	7.9
8:30	83	1047 ǀǀǀ	43.1	1410	1000	251		5.6	
8:45	83	1193 ǀǀǀǀ	45.3	1403	992	255		6.1	
9:00	82	1389 ǀǀǀ	41.3	1425	925	253		6.2	
9:15	82	1507	49.2	1415	960	252		5.4	7.7
9:30	82	1649	41.9	1442	918	253		5.4	
9:45	82	1915 ǀǀǀ	45.5	1435	939	252		5.7	
10:00	82	2081 ǀ	44.7	1435	841	246		5.6	
SURFACE CORE									
7:15 AM	85	129 (ending)	43.3	1500	939	199		7.0	8.2
7:30 AM	85	270	42.5	1498	920	199		8.2	
7:45	85	403	43.8	1505	943	197		8.1	
8:00	85	529 ǀ	44.2	1500	958	198		7.6	
8:15	85	674	44.4	1499	958	194		7.9	7.9
8:30	85	792	46.1	1501	959	194		7.9	
8:45	85	921	43.4	1505	952	201		7.3	
9:00	85	1070	42.7	1500	959	199		7.8	
9:15	85	1165	43.3	1505	955	199		7.1	8.2
9:30	85	1320	39.3	1498	[illegible]	200		7.0	
9:45	85	1482 ǀ	40.0	1500	920	199		7.9	7.25

DRYER OPERATIONS REPORT — **LOUISIANA-PACIFIC CORPORATION SAGOLA MI**

NAME [illegible] CREW C SHIFT DAY [ ] NIGHT [X] DATE 1-28-9[illegible]

TIME	WET FEED RATE %	Fuel Count	WOOD VALVE %	BARBER COLEMAN Furnace F°	Inlet F°	Outlet F°	GAS % VALVE	MOISTURE METER %	MOISTURE %
SURFACE									
10:15		Carlos							
10:30									
10:45	68	1668	45.1	1235	842	237		5.4	
11:00	74	216	47.3	1245	901	218		4.4	
11:15	77	931	49.4	1255	899	218		4.5	
11:30	80	1115	48.9	1350	910	212		5.6	
			Finished Testing						
12:00	86	1420	47.5	1350	895	219		5.3	
12:15	86	1545	46.9	1350	890	218		5.2	
3:15	86		49	1665	920	215		4.8	7.7
CORE									
10:15	82	2124 Carlos	42.6	1430	955	258		5.7	7.7
10:30	82	2376	43.0	1440	920	256		5.5	
10:45	83	2570	43.7	1445	960	254		5.3	
11:00	83	2692	45.6	1445	942	257		5.7	
11:15	83	2841	43.7	1425	992	253		6.0	
11:30	83	3051	44.4	1430	995	252		5.9	
			Finished Testing						
12:00		3390	44.8	1450	900	255		5.9	
12:15		3550	47.1	1450	940	252		5.6	
3:15	85		48	1455	888	250		5.9	7.4
SURFACE CORE									
10:15	85	1636 Carlos	40.2	1505	920	199		8.1	7.2
10:30	85	1820	42.1	1503	940	199		7.2	
10:45	85	1927	40.5	1501	932	200		9.1	
11:00	85	2055	40.8	1500	940	200		9.2	
11:15	85	2150	42.2	1500	959	193		7.5	7.9
11:30	85	2300	27.7	1500	999	199		7.2	
			Finished Testing						
12:00		2520	37.3	1503	995	200		8.2	
12:15		2637	35.7	1501	910	201		7.5	
3:15	46		43	1550	870	200		7.4	7.2

DRYER OPERATIONS REPORT

LOUISIANA-PACIFIC CORPORATION SAGOLA MI

NAME [illegible] CREW A SHIFT DAY [X] NIGHT [ ] DATE 1-29-92

TIME	WET FEED RATE %	Fuel Count/Fire Count	WOOD VALVE %	BARBER COLEMAN Furnace F°	Inlet F°	Outlet F°	GAS % VALVE	MOISTURE METER %	MOISTURE
SURFACE									
7:15 am	60	105	38.8	1490	874	213		5.5	
7:30	60	254	35.4	1500	855	213		4.6	
7:45	60	333	37.9	1490	871	212		5.5	
8:00	77	434 / 0	39.3	1440	865	208		5.2	9.1
8:15	83	587	40.1	1400	865	210		6.2	
8:30	85	685	40.4	1390	872	208		5.2	
8:45	85	816	42.6	1380	881	208		5.0	
9:00	85	947 / 1	44.1	1375	884	206		5.4	7.7
9:15	85	1104	44	1350	920	206		5.9	
9:30	85	1228	45.6	1350	890	206		5.6	
9:45	85	1351	44.4	1350	902	204		6.1	
10:00	85	1486 / 3	47.1	1340	98[illegible]	207		5.3	7.2
CORE									
7:15 am	84	171	45.4	1420	990	255		7.2	
7:30	85	385	46.1	1410	990	255		6.0	
7:45	85	499	46.2	1430	950	260		5.7	
8:00	75	652 / 12	41.6	1450	860	262		5.0	6.6
8:15	67	841	36.8	1500	870	262		5.6	
8:30	65	950	35.6	1550	860	265		6.0	
8:45	65	1081	37.4	1510	830	260		6.6	
9:00	65	1212 / 0	38.4	1540	860	265		5.6	8.2
9:15	65	1385	37.6	1500	840	268		6.4	
9:30	60	1507	38.5	1580	860	270		6.2	
9:45	65	1640	32.6	1570	840	265		6.3	
10:00	65	1773 / 0	39.6	1560	860	265		5.8	8.7
SURFACE CORE									
7:15 am	85	117	39.4	1500	910	180		8.6	
7:30	85	283	41.5	1500	920	205		6.2	
7:45	85	369	41.4	1500	920	200		7.6	
8:00	85	474 / 0	40.5	1500	920	200		7.4	6.4
8:15	85	627	37.3	1510	870	205		6.9	
8:30	85	719	43	1510	940	195		8.7	
8:45	85	845	41.4	1510	940	195		7.9	
9:00	85	968 / 0	38.5	1500	890	200		7.0	6.4
9:15	85	1117	41	1490	930	200		5.8	
9:30	85	1222	41.8	1500	930	192		6.0	
9:45	85	1346	[illegible]	1500	[illegible]	[illegible]		[illegible]	[illegible]

DRYER OPERATIONS REPORT LOUISIANA-PACIFIC CORPORATION SAGOLA MI

NAME Al Ulveri CREW A SHIFT DAY ☒ NIGHT ☐ DATE 1-29-92

TIME	WET FEED RATE %	Fuel/Coal/Gns	WOOD VALVE %	BARBER COLEMAN Furnace F°	Inlet F°	Outlet F°	GAS % VALVE	MOISTURE METER %	MOISTURE
SURFACE									
10:15	85	1626	44.8	1350	908	211		5.5	
10:30	85	1780	43.5	1325	879	205		5.2	
10:45	85	1895	45.2	1330	866	206		6.1	
11:00	85	2016 /0	47.5	1325	871	207		6.3	9.1
11:15	85	2114	47.1	1325	884	208		5.7	
11:30	85	2321	50.4	1340	886	210		5.9	
11:45	85	2476	45.6	1340	877	216		5.6	
12:00 PM	85	2597 / 1	49.0	1340	870	229		5.0	7.4
12:15	85	2742	47.0	1325	860	226		5.5	
12:30	85	2888	45.2	1325	880	213		5.5	
12:45	85	3018 /	48.5	1330	883	211		5.5	
1:00	85	3166 /0	46.1	1330	870	211		5.6	7.4
CORE									
10:15	65	1908	35.1	1525	840	265		5.3	
10:30	65	2080	34.5	1550	850	270		5.3	
10:45	65	2194	39.3	1550	850	265		5.2	
11:00	65	2314 /0	37.1	1560	860	265		4.8	8.2
11:15	65	2470	35.3	1525	840	268		5.7	
11:30	65	2615	37.9	1530	880	265		4.8	
11:45	65	2781 /	39.8	1540	850	268		5.2	
12:00 PM	65	2904 /0	41.6	1570	860	268		5.0	6.0
12:15	65	3063	38.1	1520	820	265		4.8	
12:30	65	3202	35.5	1560	870	270		4.5	
12:45	65	3348 /	36.4	1510	830	265		5.1	
1:00	65	3486 /0	36.3	1550	870	270		5.0	8.2
SURFACE CORE									
10:15	85	1585	38.9	1520	920	195		8.0	
10:30	85	1731	42.6	1500	960	195		7.7	
10:45	85	1835 /	36.8	1500	880	200		6.2	
11:00	85	1936 /0	37.4	1510	900	200		6.9	8.2
11:15	85	2060	39.6	1510	900	195		5.9	
11:30	85	2199	41	1510	920	200		6.8	
11:45	85	2335 /	41.5	1510	930	200		7.3	
12:00 PM	85	2445 /0	42.2	1510	930	200		8.0	6.4
12:15	85	2573	42.3	1520	840	198		7.6	
12:30	85	2700	41	1510	900	[illegible]		8.5	[illegible]
12:45	85	2814 /	42.7	[illegible]	[illegible]	[illegible]		[illegible]	

DRYER OPERATIONS REPORT   LOUISIANA-PACIFIC CORPORATION   SAGOLA MI

NAME A.J. Uhovic   CREW A   SHIFT DAY ☒ NIGHT ☐   DATE 1-29-92

TIME	WET FEED RATE %	Fuel Count [illegible]	WOOD VALVE %	BARBER COLEMAN Furnace F°	Inlet F°	Outlet F°	GAS % VALVE	MOISTURE METER %	MOISTURE HA
SURFACE									
1:15	85	3295	45.7	1325	862	211		5.9	[illegible]
1:30	85	3437	48.3	1340	885	211		5.5	
1:45	85	3600 1	47.3	1320	896	213		5.7	
2:00	85	3735 /10	46.5	1310	892	212		5.5	6.6
2:15	85	3897	46.8	1300	893	210		5.4	
2:30	85	4036	43.5	1300	880	215		6.0	
2:45	85	4131 1	45	1300	886	213		5.6	
3:00	85	4257 /10	47.1	1290	922	214		5.8	8.2
3:15	85	4404	43.9	1290	870	230		4.9	
3:30	85	4541	42.4	1300	860	230		5.8	
3:45	85	4685 1	47.4	1290	890	210		5.1	
4:00	85	4776 /7	47.6	1280	865	211		5.5	7.0
CORE									
1:15	70	3620	39.5	1500	830	265		4.4	
1:30	80	3772	42.4	1520	890	263		4.6	
1:45	84	3968 1	43.6	1430	990	265		4.4	
2:00	84	4144 /10	45.5	1420	1040	255		4.1	7.2
2:15	82	4315	43	1440	970	252		5.1	
2:30	81	4487	43.1	1440	950	252		4.9	
2:45	81	4596 1	42.1	1410	960	252		5.0	
3:00	82	4752 /10	40	1440	910	250		5.0	7.7
3:15	83	4908	41.1	1440	940	250		5.1	
3:30	83	5086	41.4	1420	840	250		7.5	
3:45	83	5264 1	43.5	1425	950	248		5.1	
4:00	83	5373 /16	45.7	1430	990	248		7.0	7.0
SURFACE CORE									
1:15	85	3064	45.2	1510	940	192		8.4	
1:30	82	3191	42	1525	930	200		8.2	
1:45	78	3332 1	40.6	1510	840	195		8.2	
2:00	75	3450 /10	34.5	1515	840	205		6.0	7.2
2:15	72	3577	36.8	1520	850	205		8.1	
2:30	67	3684	33.7	1510	800	205		8.7	
2:45	67	3754 1	33.9	1540	820	205		8.3	
3:00	67	3840 /10	31.6	1540	750	205		8.5	9.4
3:15	67	3939	32.1	1550	760	200		8.1	
3:30	67	4043	32.3	1550	790	200		8.1	[illegible]
[illegible]	67	[illegible]	35.[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]

DRYER OPERATIONS REPORT   LOUISIANA-PACIFIC CORPORATION SAGOLA MI

NAME Al Ulhorn   CREW A   SHIFT DAY ☒ NIGHT ☐   DATE 1-29-92

SURFACE

TIME	WET FEED RATE %	GRAYCONS	WOOD VALVE %	BARBER COLEMAN Furnace F°	BARBER COLEMAN Inlet F°	BARBER COLEMAN Outlet F°	GAS % VALVE	MOISTURE METER %	MOISTURE H.
4:15	85	4919	42.1	1280	865	212		4.9	
4:30	85	5039	42.8	1270	913	213		5.3	
4:45	85	5215 /	44.9	1280	906	216		6.2	
5:00	85	5333 /1	44.1	1275	846	215		6.1	8.2
5:15	85	5458	46.8	1270	952	211		6.2	
5:30	85	5603	47	1260	975	214		6.2	
5:45	85	5752 /	46	1270	905	214		5.9	
6:00	85	5843 /12	43.6	1275	884	213		5.8	7.7
6:15	85	5994	44.7	1280	872	211		6.2	
6:30	85	6116	45.5	1260	943	212		5.6	
6:45	85	6270	47.8	1260	923	212		5.9	
7:00	85	6394	47.2	1260	880	213		5.1	

CORE

TIME	WET FEED RATE %	GRAYCONS	WOOD VALVE %	Furnace F°	Inlet F°	Outlet F°	GAS % VALVE	MOISTURE METER %	MOISTURE H.
4:15	81	5553	42.6	1430	990	250		6.5	
4:30	81	5688	42.4	1425	920	250		5.5	
4:45	80	5891 /1	40	1420	910	250		5.5	
5:00	80	6044 /3	40.9	1430	930	250		6.0	6.4
5:15	80	6180	41.3	1440	910	245		5.7	
5:30	80	6351	42.4	1430	960	250		6.9	
5:45	80	6507 /	39.2	1440	860	245		6.2	
6:00	80	6611 /10	40.6	1460	890	245		6.3	8.7
6:15	80	6791	38.7	1425	840	250		6.2	
6:30	80	6917	40.8	1450	900	245		6.0	
6:45	80	7096	40.4	1450	880	250		6.2	
7:00	80	7246	42.7	1450	840	250		5.7	

SURFACE CORE

TIME	WET FEED RATE %	GRAYCONS	WOOD VALVE %	Furnace F°	Inlet F°	Outlet F°	GAS % VALVE	MOISTURE METER %	MOISTURE H.
4:15	63	4307	30.5	1540	750	205		5.8	
4:30	62	4390	29	1550	740	205		7.6	
4:45	62	4508 /	30.4	1550	730	205		8.4	
5:00	62	4588 /0	29.3	1560	730	205		8.4	6.8
5:15	62	4667	29.2	1560	740	205		8.0	
5:30	62	4755	29.5	1560	730	205		9.2	
5:45	62	4848 /	29.6	1550	730	205		8.4	
6:00	62	4909 /0	30.2	1550	740	205		8.5	9.2
6:15	62	5006	26.1	1560	700	210		7.9	
6:30	62	5075	27.6	1600	710	205		7.7	
6:45	62	5163	28.2	15[illegible]	71[illegible]	2[illegible]		8.[illegible]	

DRYER OPERATIONS REPORT LOUISIANA-PACIFIC CORPORATION SAMOA

NAME Colburn CREW C SHIFT DAY ☐ NIGHT ☒ DATE 1-29-92

TIME	WET FEED RATE %	~~GRAVITONS~~ FUEL		WOOD VALVE %	BARBER COLEMAN Furnace F°	Inlet F°	Outlet F°	GAS % VALVE	MOISTURE METER %	MOISTURE HA
SURFACE										
7:15	85	175	𝍸 7	47.6	1275	900	230	S.S.	5.4	5.3
7:30	85	292	𝍸 8	49.5	1275	960	230	"	8.1 9 Mon	
7:45	85	410	𝍸 9	50.2	1300	910	230	"	5.9	
8:00	85	591	10	49.5	1300	880	230	"	5.9	
8:15	85	729	11	49.1	1300	890	230	"	6.0	6.4
8:30	85	895	12	53.2	1300	960	230	"	6.2	
8:45	82	1043	1	48.3	1275	840	225	"	5.8	
9:00	82	1185	2	46.7	1275	920	230	"	4.9	
9:15	82	1315	3	45.6	1275	920	230	"	8.0 9 Mon	8.2
9:30	80	1447	4	47.0	1300	880	225	"	6.1	
9:45	80	1584	5	47.2	1300	850	225	"	6.0	
10:00	80	1725	6	42.3	1300	825	220	"	6.4	7.7
CORE										
7:15	82	200	𝍸 7	43.4	1475	900	250	S.S.	5.8	7.2
7:30	84	340	8	43.7	1450	910	250	"	6.6	
7:45	85	467	𝍸 9	44.0	1425	940	250	"	6.6	
8:00	85	671	10	44.5	1425	990	250	"	6.4	
8:15	82	819	𝍸 11	42.7	1425	900	250	"	5.9	6.4
8:30	82	1013	12	47.7	1425	980	250	"	6.3	Done testing
8:45	80	1193	1	43.6	1410	960	250	"	5.4	on surf.
9:00	80	1364	2	44.3	1425	940	250	"	5.7	
9:15	80	1502	3	44.3	1425	930	250	"	6.0	7.7
9:30	80	1666	4	44.5	1425	940	250	"	5.6	
9:45	80	1817	5	44.0	1410	950	250	"	5.5	
10:00	80	1999	6	45.2	1400	940	255	"	6.2	8.2
SURFACE CORE										
7:15	62	112	7	28.8	1570	740	205	S.S.	7.0	8.2
7:30	62	180	8	30.4	1575	740	205	"	8.0	
7:45	62	252	9	32.6	1560	745	205	"	6.9	
8:00	62	364	10	30.8	1550	740	210	"	6.7	
8:15	62	455	11	31.2	1550	745	210	"	6.8	
8:30	62	565	12	34.1	1525	750	215	"	7.2	7.7
8:45	62	664	1	31.0	1560	740	220	"	7.7	
9:00	62	761	2	33.1	1525	780	220	"	6.8	
9:15	62	847	3	33.0	1550	790	220	"	5.9	7.2
9:30	62	935	4	28.8	1525	760	225	"	6.1	
9:45	62	1024	5	30.5	1550	770	22[illegible]		5.8	

DRYER OPERATIONS REPORT   LOUISIANA-PACIFIC CORPORATION SAGOLA MI

NAME Colhurw   CREW C   SHIFT DAY ☐ NIGHT ☒   DATE 1-29-92

TIME	WET FEED RATE %	GRAYCONS	WOOD VALVE %	BARBER COLEMAN Furnace F°	Inlet F°	Outlet F°	GAS % VALVE	MOISTURE METER %	MOISTURE [illegible]
SURFACE									
10:15	75	1830	50.6	1325	860	220	SUS OFF	6.7	
10:30	75	2004	47.4	1325	860	225	—	7.0	
10:45	75	2151	45.4	1325	850	225	—	6.8	
11:00	70	2299	43.4	1375	870	225	—	6.2	
11:15	70	2400	44.1	1375	860	225	—	6.2	
11:30	70	2506	44.3	1350	850	225	—	6.1	6.8
11:45	70	2679	45.2	1375	860	230	—	6.1	
12:00	70	2778	45.7	1375	870	225	—	6.0	
1:30	70		42.4	1375	860	230	—	6.6	
3:30	60		40.4	1425	840	235	—	5.6	6.8
5:30	70		44.7	1400	860	240	—	6.8	7.7
							—	5.7	7.2
								AV-	7.0
CORE									
10:15	80	2140	43.2	1400	980	250	SUS.	5.5	
10:30	80	2317	43.2	1425	920	250	"	5.6	
10:45	80	2491	41.8	1450	890	250	"	5.7	
11:00	80	2669	42.4	1425	900	250	"	5.5	
11:15	80	2780	41.6	1425	880	250	"	5.6	8.2
11:30	80	2915	39.9	1450	870	250	"	5.1	
11:45	80	3115	42.4	1425	920	250	"	5.9	
12:00	80	3247	42.0	1425	890	250	"	6.4	
1:30	70		41.9	1475	840	250	—	6.7	8.2
3:30	60		35.4	1500	830	255	—	6.2	7.2
5:30	55		34.1	1550	810	260	—	6.8	7.7
								AV-	7.6
SURFACE CORE									
10:15	62	1148	37.7	1600	800	220	SUS OFF	6.0	
10:30	62	1332	39.9	1600	810	225	—	5.8	
10:45	62	1450	37.0	1625	770	230	—	5.9	
11:00	60	1569	35.3	1625	740	230	—	5.9	
11:15	60	1649	36.0	1625	750	225	—	6.0	7.7
11:30	60	1739	35.3	1650	740	225	—	5.9	
11:45	60	1871	33.6	1650	730	225	—	6.2	
12:00	60	1949	35.4	1675	740	225	—	6.6	
1:30	70		41.1	1600	890	225	—	5.1	6.8
3:30	60		74.0	1625	740	235	—	6.3	[illegible]
[illegible]									

[illegible] LOUISIANA-PACIFIC CORPORATION SAGOLA MI

NAME [illegible] CREW A SHIFT DAY ☒ NIGHT ☐ DATE 1-31-92

TIME	WET FEED RATE %	GRAYCONS	WOOD VALVE %	BARBER COLEMAN Furnace F°	Inlet F°	Outlet F°	GAS % VALVE	MOISTURE METER %	MOISTURE H.
SURFACE									
7:15	85	204	47	1300	938	215		6.3	
7:30	85	319	43.1	1325	902	218		6.5	
7:45	85	458	44	1310	901	216		5.8	
8:00	85	601 /4	46.1	1310	930	215		6.0	
8:15	85	722	47.9	1300	927	215		5.5	
8:30	85	896	46.5	1300	923	215		5.4	
8:45	85	1009	48.2	1290	978	213		6.5	
9:00	83	1116 /1	46.3	1300	914	215		5.8	6.4
9:15	83	1302	45.3	1300	910	218		6.4	
9:30	83	1443 /1	42.9	1300	880	235		5.5	
9:45	84	1596 /1	46.8	1300	960	230		6.6	
10:00	84	1734	50.9	1300	990	215		6.1	8.2
CORE									
7:15	70	198	39.1	1530	880	255		7.6	
7:30	70	310	37.5	1490	860	260		6.2	
7:45	70	468	39.1	1480	880	265		7.5	
8:00	70	599 /0	35.9	1500	850	265		5.4	
8:15	72	712	36.8	1480	870	265		5.2	
8:30	72	892	41.5	1500	910	260		5.2	
8:45	72	1057	40.2	1480	880	260		5.3	
9:00	72	1175 /0	40.1	1500	880	260		6.1	7.7
9:15	70	1308	37.5	1500	870	262		5.6	
9:30	70	1464	37.2	1460	850	262		6.2	
9:45	70	1609	40.3	1500	870	258		5.3	
10:00	70	1763	41.1	1480	870	260		5.3	8.7
SURFACE CORE									
7:15	0	LINE	DOWN						
7:30									
7:45	40	110	35	1600	590	235		11.0	
8:00	70	233 /0	45	1500	870	255		4.9	
8:15	72	329	39.5	1570	770	190		6.1	
8:30	72	480	38	1510	880	205		7.7	
8:45	72	568	38.3	1500	850	195		8.0	
9:00	72	687 /0	37	1510	850	200		7.9	8.2
9:15	70	787	34	1520	850	205		7.6	
9:30	70	886	33.3	1540	820	198		7.6	33
9:45	70	997	35.2	1520	850	198		8.6	
[illegible]	70	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	

[illegible] LOUISIANA-PACIFIC CORPORATION SAGOLA MI

NAME Bj Ulhozie CREW A SHIFT DAY ☒ NIGHT ☐ DATE 1-30-92

TIME	WET FEED RATE %	GRAYCONS	WOOD VALVE %	BARBER COLEMAN Furnace F°	Inlet F°	Outlet F°	GAS % VALVE	MOISTURE METER %	MOISTURE RA
SURFACE									
10:15	83	1912	47.6	1280	1040	215		6.0	
10:30	83	2057	44.1	1280	950	216		6.4	
10:45	83	2194	45.2	1280	939	214		5.6	
11:00	83	2313 /4	41.3	1290	841	218		5.5	9.1
11:15	83	2451	41.6	1290	902	219		5.4	
11:30	83	2601	41.8	1280	886	218		5.0	
11:45	83	2703	41.4	1290	922	217		6.2	
12:00	83	2836 /1	43.1	1280	927	218		5.0	7.7
12:15	83	2977	43.8	1275	910	219		6.0	
12:30	83	3086	43.4	1290	900	215		5.4	
12:45	83	3308	41.7	1290	880	220		6.0	
1:00	83	3401	42.1 /1	1300	870	230		6.6	9.1
CORE									
10:15	70	1946	40.5	1460	870	260		5.8	
10:30	70	2086	39.7	1460	860	260		6.3	
10:45	70	2219	36.4	1470	870	260		6.2	
11:00	69	2358 /1	36	1475	860	265		5.9	7.7
11:15	69	2496	38.7	1475	850	260		6.3	
11:30	67	2669	37.1	1475	870	262		5.5	
11:45	67	2780	39	1520	890	265		6.3	
12:00	67	2915 /1	38.9	1500	870	265		6.4	7.7
12:15	67	3075	32.7	1475	870	270		6.4	
12:30	67	3186	40.6	1525	880	265		6.2	
12:45	67	3328	38.6	1500	870	262		5.8	
1:00	67	3517	39.3	1460	860	260		6.1	8.0
SURFACE CORE									
10:15	70	1217	32.2	1520	790	205		5.8	
10:30	70	1318	36	1520	910	193		8.5	
10:45	70	1417	36.4	1525	910	195		8.2	
11:00	69	1504 /0	33.1	1540	850	205		8.2	6.8
11:15	69	1606	32.9	1540	830	198		7.8	
11:30	67	1718	31.5	1550	820	200		7.8	
11:45	67	1793	33.1	1550	870	195		7.7	
12:00	67	1888 /0	28.9	1550	760	200		7.5	7.7
12:15	67	1934	31.8	1540	830	200		8.7	
12:30	67	2010	31.2	1550	800	195		8.7	
12:45	67	2185	33.7	1550	810	195		8.6	

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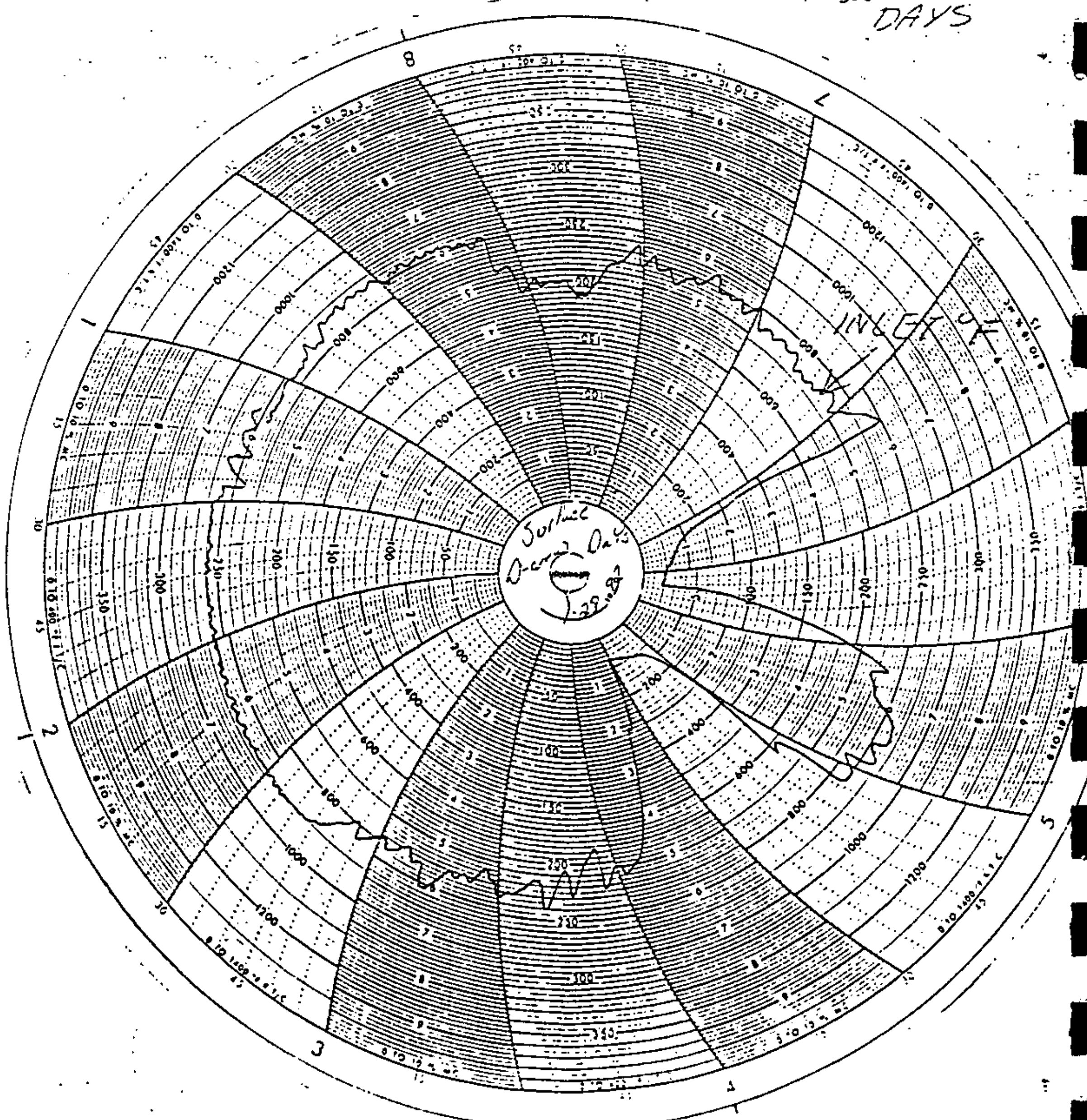
DRYER OPERATIONS REPORT LOUISIANA-PACIFIC CORPORATION SAGOLA MI

NAME Aj Ullrich CREW A SHIFT DAY ☒ NIGHT ☐ DATE 1-30-92

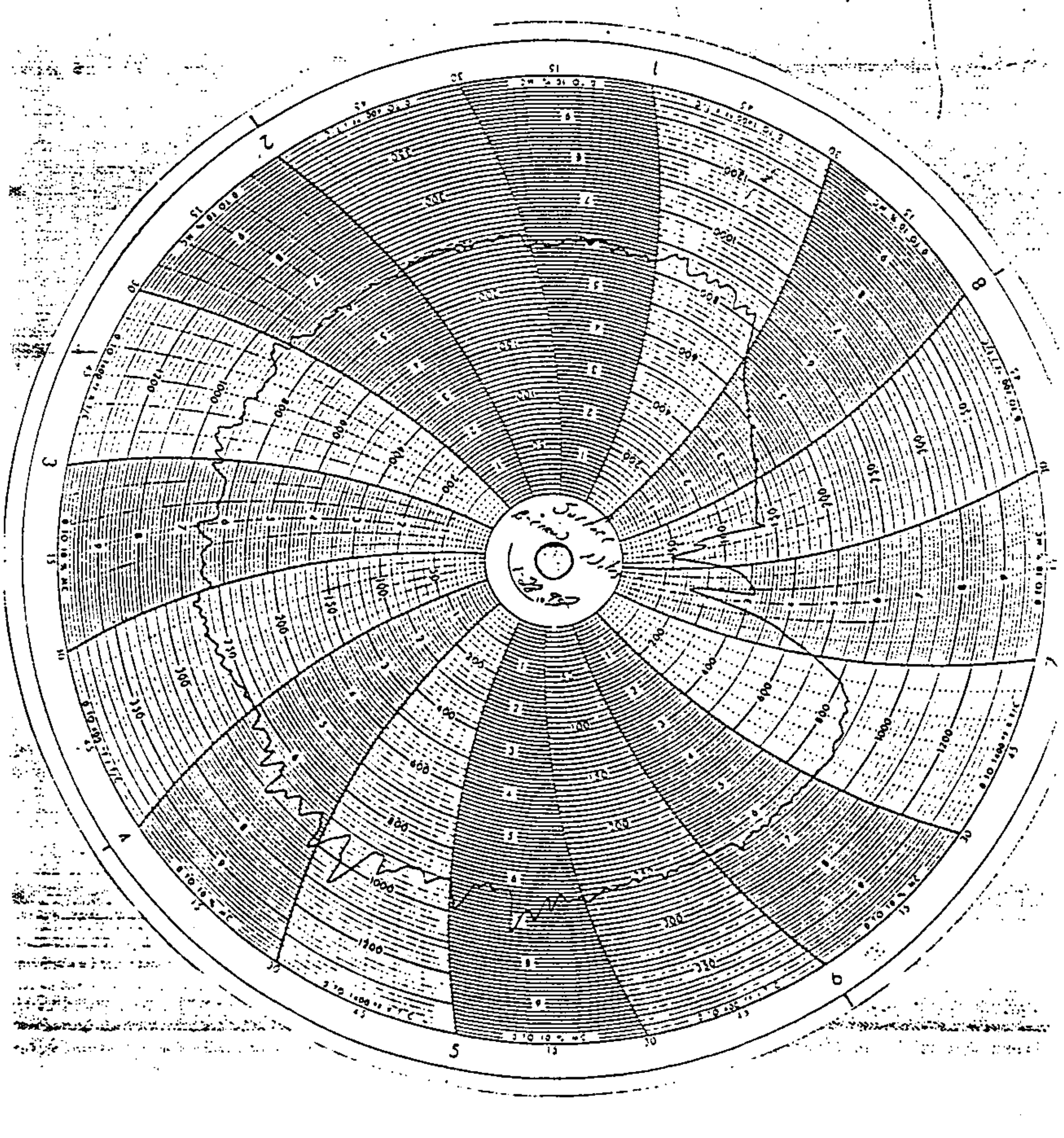
TIME	WET FEED RATE %	GRAYCONS	WOOD VALVE %	BARBER COLEMAN Furnace F°	Inlet F°	Outlet F°	GAS % VALVE	MOISTURE METER %	MOISTURE H
SURFACE									
1:15	83	3564	42.7	1300	880	232		5.5	8.
1:30	83	3662	43.7	1300	894	216		6.1	
1:45	83	3799	45.7	1290	849	218		6.1	
2:00	83	3902	45.3	1300	849	218		5.7	7.4
4:00	77		38.8	1310	880	218			7.7
5:30	75		45.6	1340	883	214			8.8
CORE									
1:15	67	3646	40.4	1480	870	265		6.6	
1:30	67	3807	39.2	1460	860	268		5.8	
1:45	67	3962	38.4	1450	850	263		5.7	
2:00	67	4069	40.1	1500	840	263		5.4	7.7
4:00	77		41.6	1420	980	260			7.0
5:30	75		43.7	1410	870	255			8.2
SURFACE CORE									
1:15	67	2372	35.3	1550	840	200		8.6	
1:30	67	2487	34.6	1550	830	200		9.3	
1:45	67	2581	32.3	1550	800	200		9.4	
2:00	67	2657	33.3	1505	850	205		8.4	9.2
4:00	77		39.5	1510	910	200			7.0
5:30	75		38.7	1530	870	200			9.1

SAGGL.9
SURFACE DRYER
CHART
1-28-92
DAYS



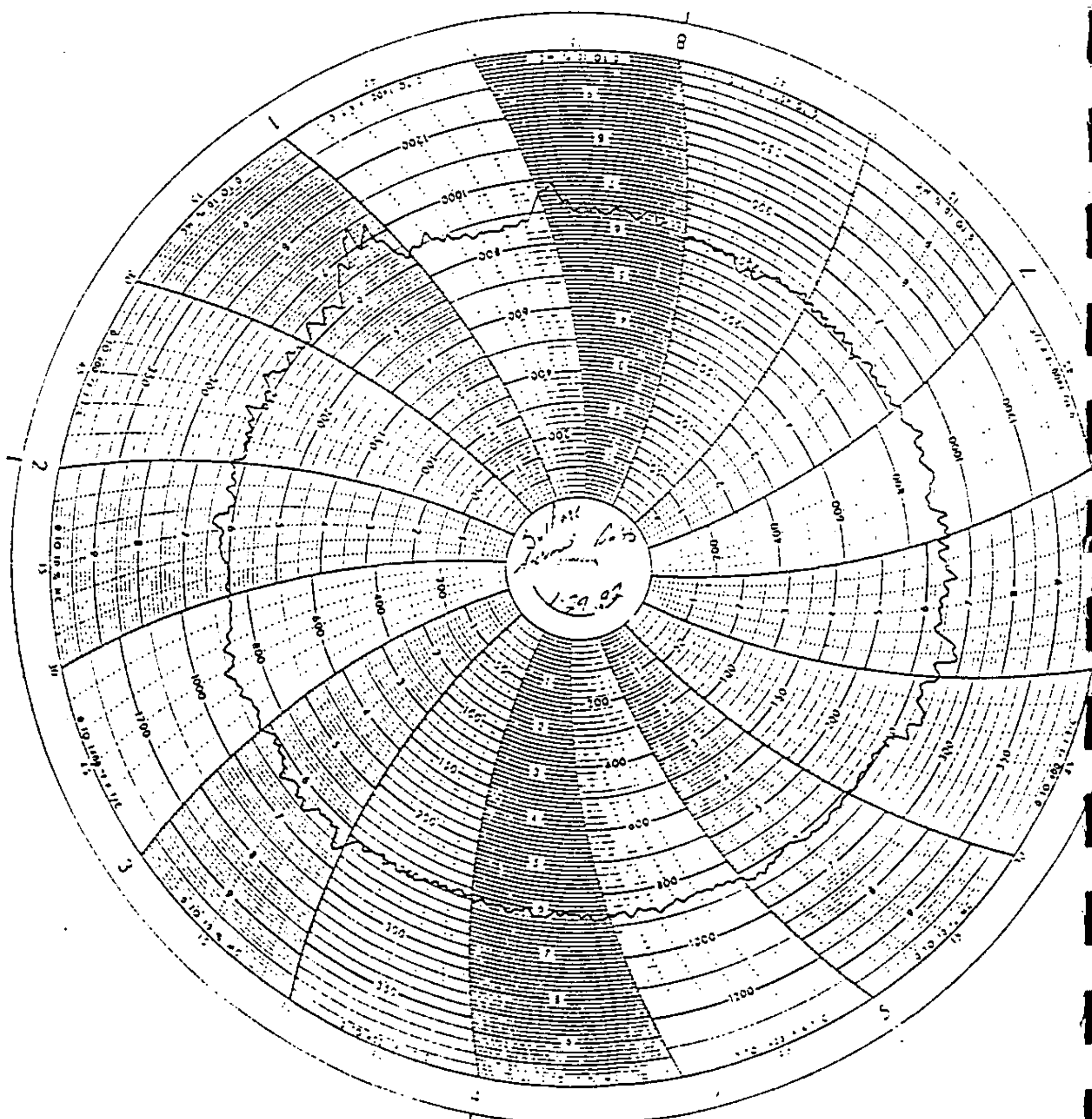
3C

SAGLLJ
SURFACE DRYER
CHART 1-25-92
NIGHTS

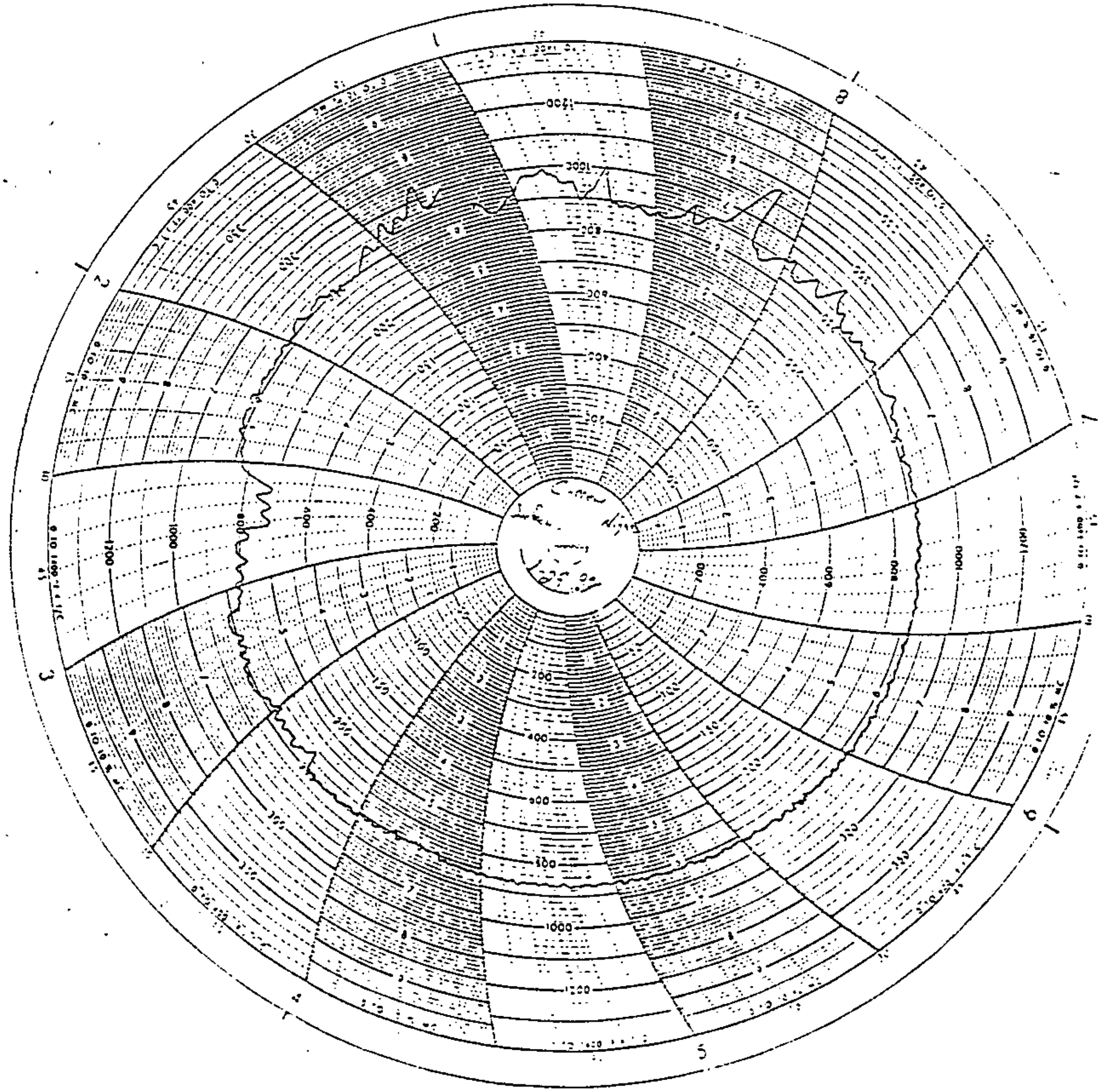


SAGOLA
SURFACE DRYER
CHART 1-29-92

DAYS

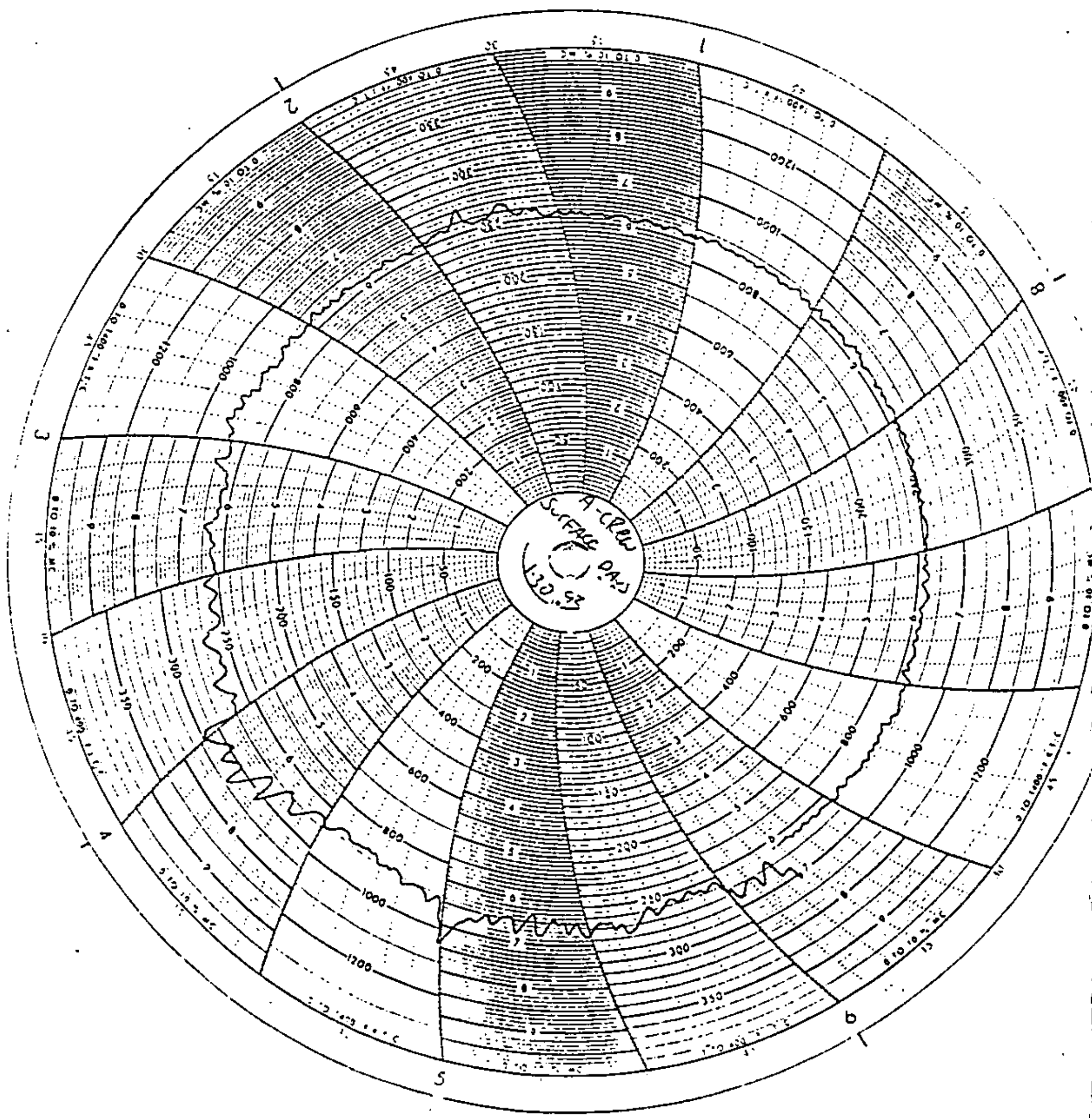


SAGOLA
SURFACE DRYER
CHART 1-24-92
NIGHTS

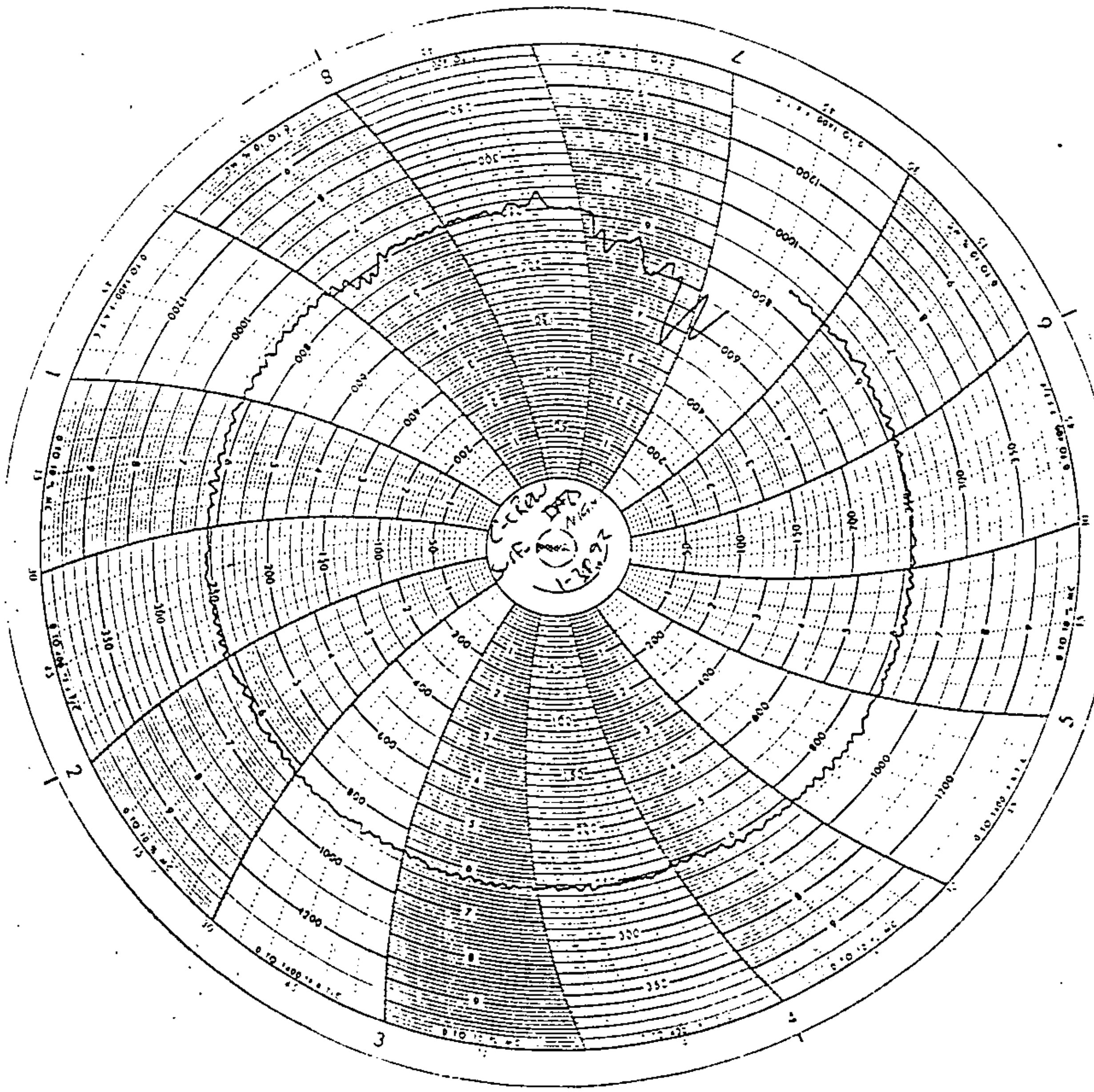


SAGOLA SURFACE
DRYER CHART
1-30-92

DAYS



SAGOLA
SURFACE DRYER
CHART 1-30-92
NIGHTS



1-28-92 E F B LOG SHEET LOUISIANA-PACIFIC SAGOLA

DAYS

TIME	SURFACE BED A KV	SURFACE BED A A	SURFACE BED B KV	SURFACE BED B A	SURFACE ION A KV	SURFACE ION A MA	SURFACE ION B KV	SURFACE ION B MA	SURFACE EFB P	SURFACE BH P	CORE BED A KV	CORE BED A A	CORE BED B KV	CORE BED B A	CORE ION A KV	CORE ION A MA	CORE ION B KV	CORE ION B MA	CORE EFB P	CORE BH P	SURFACE/CORE BED A KV	SURFACE/CORE BED A A	SURFACE/CORE BED B KV	SURFACE/CORE BED B A	SURFACE/CORE ION A KV	SURFACE/CORE ION A MA	SURFACE/CORE ION B KV	SURFACE/CORE ION B MA	SURFACE/CORE EFB P	SURFACE/CORE BH P
10:30	13	0	12	0	29	28	30	2.0	2.8	4.5	12	0	12	0	31	4.8	32	4.2	3.0	3.2	12	0	12	0	40	3.8	38	3.8	2.7	3.4
10:45	12.8	0	12	0	28	2.8	30	2.2			12	0	12	0	31	4.6	32	4.2			12	0	12	0	40	4.0	39	3.8		
11:00	12.5	0	12	0	28	2.8	30	2.1			12	0	12	0	31	4.6	32	4.0			12	0	12	0	39	4.0	38	4.2		
11:15	12.8	0	12.1	0	28	2.6	30	2.0			12	0	12	0	31	4.7	31	4.8			12.8	0	12	0	40	4.0	38	4.2		
11:30																														
11:45																														
12:00																														
12:15									2.8	4.4									3.0	3.2									2.8	3.2
12:30	12	0	11	0	28	3.4	28	3.4			12	0	12	0	30	2.4	28	2.6			7	0	12	0	36	4.6	38	4.0		
12:45	12	0	12	0	30	4.0	30	2.4			12	0	12	0	30	2.4	30	3.0			12	0	12	0	37	4	38	3.2		
1:00	13	0	12	0	30	3.2	34	3.4			12	0	12	0	34	3.2	33	3.6			12	0	12	0	38	3.2	39	3.2		
1:15	13	0	12.5	0	30	32	32	3.8	2.8	4.4	12	0	12	0	31	4.4	34	2.8	2.8	3.2	12	0	12	0	37	3.2	38	3.0	2.7	3.0
1:30											12	0	12	0	32	4.2	34	3.0			12	0	12	0	38	3.2	40	3.0		
1:45											12	0	12	0	31	4.2	34	3.2			12	0	12	0	37	3.0	40	3.0		
2:00											12	0	12	0	32	4.4	32	4.4			12	0	12	0	37	3.0	40	3.2		
2:15									2.5	4.4	12	0	12	0	32	4.2	33	4.2	2.6	3.2	12	0	12	0	38	2.9	40	3.0	2.8	3.2
2:30											12	0	12	0	32	4.4	32	4.8			12	0	12	0	38	2.4	40	2.4		
2:45	12	0	12	0	29	30	30	3.4			12	0	12	0	32	4.4	32	4.8			12	0	12	0	38	2.2	40	2.2		
3:00	12	0	12	0	28	3.2	30	3.2			12	0	12	0	31	4.4	32	4.6			12	0	12	0	38	2.4	40	3.2		
3:15	12.5	0	12	0	29	3	30	2.6	2.8	4.4	12	0	12	0	31	4.2	32	4.4	2.8	3.3	12	0	12	0	36	3.0	40	2.8	2.8	3.2
3:30	12	0	12	0	29	3.2	30	2.8			12	0	12	0	31	4.2	32	4.2			12	0	12	0	37	2.8	39	2.9		
3:45	12	0	12	0	29	3.2	30	2.4			12	0	12	0	32	4.2	32	4.2			12	0	12	0	38	3.4	40	2.4		

1-28-92

E F B LOG SHEET LOUISIANA-PACIFIC SAGOLA

	SURFACE										CORE										SURFACE/CORE									
	BED A		BED B		ION A		ION B		EFB	BH	BED A		BED B		ION A		ION B		EFB	BH	BED A		BED B		ION A		ION B		EFB	BH
TIME	KV	A	KV	A	KV	MA	KV	MA	P	P	KV	A	KV	A	KV	MA	KV	MA	P	P	KV	A	KV	A	KV	MA	KV	MA	P	P
4:00	12	0	12	0	29	3.2	30	2.4			12	0	12	0	31	4.4	32	4.6			12	0	12	0	39	3.6	40	3.0		
4:15	12	0	12	0	29	3.0	30	2.0	2.8	4.4	12	0	12	0	31	4.4	31	4.8	2.6	3.2	12	0	12	0	39	3.2	39	2.6	2.8	3.2
4:30	12	0	12	0	30	3	32	2.6			12	0	12	0	31	4.4	31	4.4			12	0	12	0	39	3.2	40	2.8		
4:45	12	0	12	0	30	2.8	32	2.4			12	0	12	0	32	4.0	32	4.0			12	0	12	0	39	3.4	40	2.4		
5:00	12	0	12	0	30	2.6	32	2.4			12	0	12	0	32	4.0	33	4.0			12	0	12	0	38	4.0	39	3.4		
5:15	12	0	12	0	30	2.8	33	2.4	3.0	4.4	12	0	12	0	31	4.4	33	4.4	2.6	3.2	12	0	12	0	39	3.6	40	2.8	2.8	3.2
5:30	12	0	12	0	30	2.6	32	3.0			12	0	12	0	32	4.0	33	4.0			12	0	12	0	38	3.8	40	2.9		
5:45	12	0	12	0	30	2.8	33	3.0			12	0	12	0	32	4.0	33	4.0			12	0	12	0	39	3.8	40	2.8		
6:00	12	0	12	0	32	3.8	32	3.2			12	0	12	0	32	4.2	32	4.4			12	0	12	0	39	3.4	40	2.2		
6:15	12	0	12	0	31	3.8	32	3.6	2.9	4.5	12	0	12	0	31	4.0	33	4.0	2.7	3.3	12	0	12	0	38	4.0	40	3.0	2.8	3.7
6:30	12	0	12	0	28	3.6	32	3.8			12	0	12	0	32	4.0	32	4.0			12	0	12	0	38	3.8	40	2.4		
6:45	12	0	12	0	28	3.6	32	3.8			12	0	12	0	32	4.0	32	4.0			12	0	12	0	38	3.8	40	2.6		
7:00	12	0	12	0	29	3.8	31	4.0			12	0	12	0	32	4.0	30	2.8			12	0	12	0	38	3.6	40	2.0		
7:15																														
7:30																														
7:45																														
8:00																														
8:15																														
8:30																														
8:45																														
9:00																														
9:15																														

E F B LOG SHEET LOUISIANA-PACIFIC SAGOLA

1-28-92 B-[illegible] NIGHTS

	SURFACE										CORE										SURFACE/CORE									
TIME	BED A		BED B		ION A		ION B		EFB	BH	BED A		BED B		ION A		ION B		EFB	BH	BED A		BED B		ION A		ION B		EFB	BH
	KV	A	KV	A	KV	MA	KV	MA	P	P	KV	A	KV	A	KV	MA	KV	MA	P	P	KV	A	KV	A	KV	MA	KV	MA	P	P
7:15	12	0	12	0	25	4.6	31	4.6	2.8	4.4	12	0	12	0	31	4	30	2.5	2.8	3.2	12	0	12	0	34	3.0	40	2.2	2.5	3.2
7:30	12	0	12	0	29	3.5	31	3.9			12	0	12	0	31	3.5	30	2.6			12	0	12	0	31	3.4	37	2.4		
7:45	12	0	12	0	29	3.2	31	3.1			12	0	12	0	31	4.0	30	2.1			12	0	12	0	39	3.4	40	2.3		
8:00	12	0	12	0	29	3.8	31	3.4			12	0	12	0	31	4.0	30	2.6			12	0	12	0	39	3.2	39	2.4		
8:15		Dust	Down	[illegible]					.4	4.4	12	0	12	0	31	4.6	30	2.5	2.6	3.2	12	0	12	0	40	3.4	40	2.2	2.6	3.2
8:30											12	0	12	0	31	4.6	31	2.6			12	0	12	0	40	3.6	40	2.1		
8:45											12	0	12	0	31	4.0	31	3.0			12	0	12	0	40	3.2	40	2.2		
9:00											12	0	12	0	31	4.2	31	3.0			12	0	12	0	40	3.4	40	2.3		
9:15									.4	4.4	12	0	12	0	31	4.2	31	3.2	2.6	3.2	12	0	12	0	40	3.3	40	2.2	2.6	3.2
9:30											12	0	12	0	31	4.6	31	3.0			12	0	12	0	40	3.4	40	2.4		
9:45											12	0	12	0	31	4.1	31	3.0			12	0	12	0	40	3.2	40	2.1		
10:00											12	0	12	0	31	4.0	31	3.0			12	0	12	0	40	3.4	40	2.2		
10:15									.2	4.4	12	0	12	0	31	4.0	30	3.1	2.6	3.2	12	0	12	0	40	3.0	40	2.2	2.8	3.2
10:30											12	0	12	0	31	4.0	30	3.1			12	0	12	0	40	3.6	40	2.1		
10:45	9	0	9	0	30	2.6	30	1.8			12	0	12	0	31	4.0	30	3.0			12	0	12	0	40	3.6	40	2.0		
11:00	10	0	10	0	31	3.4	30	2.4			12	0	12	0	31	3.9	31	3.0			12	0	12	0	40	3.0	40	2.1		
11:15	11	0	11	0	31	3.2	30	2.4	2.4	4.4	12	0	12	0	31	3.9	31	2.9	2.6	3.2	12	0	12	0	40	3.0	40	2.1	2.8	3.2
11:30	12	0	12	0	31	3.2	31	3.0			12	0	12	0	31	3.8	31	3.0			12	0	12	0	40	3.4	40	2.6		
12:00	12	0	12	0	31	3.4	32	3.2	2.4	4.4	12	0	12	0	31	3.8	31	3.2	2.6	3.2	12	0	12	0	40	3.4	40	2.6	2.5	3.2
2:00	12	0	12	0	32	3.4	32	3.6	2.4	4.4	12	0	12	0	31	3.5	31	3.2	2.6	3.2	12	0	12	0	40	3.4	40	2.6	2.5	3.2
4:00	12	0	12	0	32	3.2	34	3.6	2.4	4.4	12	0	12	0	31	3.6	31	3.6	2.6	3.2	12	0	12	0	37	2.6	40	2.4	2.5	3.2
6:00	12	0	12	0	35	3.6	38	3.0	2.4	4.4	12	0	12	0	32	3.4	32	3.2	2.6	3.2	12	0	12	0	40	3.6	40	2.6	2.5	3.2

7-27-95

E F B LOG SHEET LOUISIANA-PACIFIC SAGOLA

SURFACE

TIME	BED A KV	BED A A	BED B KV	BED B A	ION A KV	ION A MA	ION B KV	ION B MA	EFB P	BH P
9:15	12.1	0	12.2	0	30	2.7	32	2.7		
9:30	12.1	0	12.2	0	31	2.9	34	4.4		
9:45	12.1	0	12.2	0	31	2.3	35	4.0		
10:00	12.2	0	12	0	31	1.9	37	2.6	2.5	4.4
10:15	12.2	0	12	0	31	1.9	37	2.7		
10:30	12.2	0	12.1	0	31	1.9	35	3		
10:45	12.2	0	12	0	31	1.8	37	2.8		
11:00	12.3	0	12	0	31	1.8	37	2.3	2.8	4.4
11:15	12.2	0	12.1	0	31	1.8	37	2.8		
11:30	12.2	0	12.1	0	31	1.9	37	2.6		
11:45	12.2	0	12	0	31	1.8	37	2.3		
12:00	12.2	0	12	0	31	1.8	37	2.1	2.7	4.5
12:15	12.1	0	12.2	0	31	1.9	37	2.3		
12:30	12.1	0	12.2	0	31	2	37	2.5		
12:45	12.1	0	12	0	31	2	37	2.9		
1:00	12.1	0	12.2	0	31	2	36	3	2.9	4.5
1:15	12.1	0	12.2	0	31	2	37	2.9		
1:30	12.1	0	12.2	0	31	2	37	2.8		
1:45	12.1	0	12.2	0	31	2	37	2.8		
2:00	12.6	0	12.4	0	31	2	37	3	2.8	4.5
2:15	12.5	0	12.4	0	31	1.8	37	2.8		
2:30	12.1	0	12.1	0	31	1.9	37	2.7		

CORE

TIME	BED A KV	BED A A	BED B KV	BED B A	ION A KV	ION A MA	ION B KV	ION B MA	EFB P	BH P
9:15	12	0	12	0	33	3.6	34	4.2		
9:30	12.1	0	12.2	0	34	4.1	34	4.5		
9:45	12.2	0	12	0	34	4.2	34	4.0		
10:00	12.3	0	12.1	0	33	4.7	33	4.3	2.6	3.2
10:15	12.3	0	12.2	0	32	5.1	31	5.5		
10:30	12.5	0	12.2	0	32	5.4	32	5.6		
10:45	12.5	0	12.3	0	32	5	30	5.7		
11:00	12.5	0	12.3	0	32	5	32	5.2	2.6	3.2
11:15	12.1	0	12	0	32	5	31	5.8		
11:30	12.4	0	12.4	0	32	5.2	30	6.2		
11:45	12.1	0	12.2	0	32	4.9	32	5.3		
12:00	12.6	0	12.1	0	33	5	31	5.8	2.6	3.2
12:15	12.6	0	12.5	0	33	4.9	32	5.6		
12:30	12.6	0	12.5	0	32	5.2	31	5.8		
12:45	12.5	0	12.3	0	33	4.8	33	5.7		
1:00	12.6	0	12.5	0	33	4.9	32	5.2	2.6	3.2
1:15	12.6	0	12.4	0	33	5	32	5.7		
1:30	12.6	0	12.1	0	33	4.8	33	5.1		
1:45	12.6	0	12.2	0	33	4.6	32	4.7		
2:00	12.8	0	12.5	0	33	5	32	5.4	2.6	3.2
2:15	12.5	0	12.2	0	33	4.8	33	5		
2:30	12.6	0	12.4	0	33	4.8	32	5.3		

SURFACE/CORE

TIME	BED A KV	BED A A	BED B KV	BED B A	ION A KV	ION A MA	ION B KV	ION B MA	EFB P	BH P
9:15	13	0	13.2	0	40	3.1	42	2.4		
9:30	13.2	0	13.4	0	41	4	43	3.1		
9:45	13	0	13.3	0	39	4.2	43	2.6		
10:00	13.1	0	13.3	0	37	4.4	44	2.7	2.8	3.1
10:15	13.2	0	13.3	0	38	4.6	43	3.1		
10:30	13.2	0	13.3	0	39	4.2	43	3.1		
10:45	13	0	13.3	0	41	3.8	42	3.1		
11:00	13.2	0	13.3	0	39	4.1	41	3.9	2.8	3.2
11:15	13	0	13.2	0	41	3.7	42	3		
11:30	13	0	13.2	0	42	3.4	42	2.8		
11:45	13.1	0	13.4	0	40	4	42	3.2		
12:00	13.4	0	13.5	0	41	3.9	43	3.5	2.8	3.2
12:15	13.3	0	13.6	0	41	3.7	43	2.9		
12:30	13.1	0	13.5	0	42	3.4	43	3		
12:45	13.3	0	13.5	0	42	3.7	42	3.7		
1:00	13.3	0	13.5	0	41	4.2	42	3.2	2.8	3.2
1:15	13.3	0	13.5	0	42	3.7	42	3.1		
1:30	13.2	0	13.5	0	41	3.6	43	3		
1:45	13.2	0	13.5	0	42	3.7	44	2.9		
2:00	13.2	0	13.5	0	42	3.6	44	2.8	2.7	3.1
2:15	13.2	0	13.5	0	40	4	43	3.0		
2:30	13.2	0	13.4	0	42	3.5	44	2.6		

1-27-10 Days

E F B LOG SHEET LOUISIANA-PACIFIC SAGOLA

TIME	SURFACE BED A KV	BED A A	BED B KV	BED B A	ION A KV	ION A MA	ION B KV	ION B MA	EFB. P	BH P	CORE BED A KV	BED A A	BED B KV	BED B A	ION A KV	ION A MA	ION B KV	ION B MA	EFB P	BH P	SURFACE/CORE BED A KV	BED A A	BED B KV	BED B A	ION A KV	ION A MA	ION B KV	ION B MA	EFB P	BH P
12:45	12.3	0	12.2	0	31	1.8	35	3.8			12.6	0	12.5	0	33	4.7	33	5			13.4	0	13.6	0	41	41	43	2.9		
1:00	12.5	0	12.2	0	31	2	37	2.9	3.0	4.4	12.7	0	12.5	0	33	4.9	32	5.6	2.6	3.2	13.5	0	13.6	0	42	3.5	43	3	2.8	3.1
1:15	12.4	0	12.2	0	31	2.2	36	3.7			12.5	0	12.1	0	33	4.9	33	4.8			13.4	0	13.5	0	37	2.2	43	2.9		
1:30	12.6	0	12.2	0	31	2.1	36	3.4			12.4	0	12.3	0	34	4.2	34	4.6			13.4	0	13.5	0	41	2.8	43	2.9		
1:45	12.6	0	12.3	0	31	2	36	3.1			12.5	0	12.3	0	35	4	34	4.5			13.5	0	13.6	0	41	2.9	43	3.2		
2:00	12.5	0	12.2	0	31	2	36	3.5	3.0	4.4	12.4	0	12.2	0	34	4.1	34	4.2	2.4	3.2	13.6	0	13.5	0	39	3.2	41	3.4	2.7	3.1
2:15	12.4	0	12.2	0	31	1.9	37	3			12.3	0	12	0	34	4.1	34	4.5			13.4	0	13.5	0	40	3	40	4.3		
2:30	12.5	0	12.2	0	31	2	37	2.8			12.3	0	12.2	0	34	4	33	4.5			13.6	0	13.5	0	39	3.3	40	4.4		
2:45	12.5	0	12.2	0	31	2	37	2.6			12.4	0	12.2	0	34	4.1	34	4.3			13.6	0	13.5	0	38	4.2	40	5		
3:00	12.5	0	12.2	0	31	2	37	2.7	3.0	4.4	12.4	0	12.3	0	34	4.3	34	4.3	2.4	3.3	11.8	0	13.5	0	37	4.7	40	4.9	2.8	3.2
3:15	12.9	0	12.4	0	31	2.2	37	2.9			12.5	0	12.4	0	34	4.1	34	4.0			14	0	13.5	0	37	4.8	40	4.3		
3:30	12.9	0	12.5	0	32	2.4	36	4.0			12.8	0	12.6	0	34	4.2	34	4.4			14	0	13.8	0	38	3.8	42	4.2		
3:45	12.7	0	12.2	0	31	2	36	3.2			12.5	0	12.3	0	34	4.1	34	4.3			13.8	0	13.5	0	37	4.3	40	4.6		
4:00	12.6	0	12.1	0	31	2.2	36	5.8	3.2	4.4	12.5	0	12.3	0	34	4	33	4.1	2.6	3.3	13.8	0	13.5	0	37	4	39	5	2.7	3.2
4:15	12.6	0	12.2	0	31	2.2	36	3.5			12.5	0	12.3	0	35	4	31	4.5			13.8	0	13.5	0	38	3.8	40	4.7		
4:30	12.6	0	12.2	0	31	2.1	36	3.5			12.5	0	12.4	0	34	4.2	33	4.7			13.8	0	13.5	0	37	4	40	4.6		
4:45	12.5	0	12.2	0	31	2	35	2.9			12.5	0	12.4	0	34	4	34	4.1			13.9	0	13.6	0	37	4.7	39	5.9		
5:00	12.5	0	12.2	0	31	2.1	37	2.4	3.0	4.4	12.1	0	12.3	0	35	3.9	34	4	2.4	3.2	13.9	0	13.5	0	37	5	39	5.8	2.7	3.2
5:15	12.5	0	12.1	0	31	1.9	37	3.2			12.5	0	12.3	0	34	4	33	4.7			13.9	0	13.5	0	38	4.4	39	5.6		
5:30	12.6	0	12.2	0	31	1.9	37	2.8			12.5	0	12.3	0	34	4	34	4.6			13.9	0	13.6	0	36	2.7	39	5.4		
5:45	12.8	0	12.4	0	31	2	36	3.6			12.7	0	12.5	0	34	4.1	33	5			14.1	0	13.8	0	31	3.9	39	5.7		
6:00	12.8	0	12.4	0	31	2	37	3.3	3.2	4.5	12.7	0	12.5	0	34	4.3	33	4.9	2.6	3.2	14	0	13.8	0	36	3.5	39	6	2.7	3.2

7-27-73 days & nights A C Crew

E F B LOG SHEET LOUISIANA-PACIFIC SAGOLA

	SURFACE										CORE										SURFACE/CORE									
	BED A		BED B		ION A		ION B		EFB	BH	BED A		BED B		ION A		ION B		EFB	BH	BED A		BED B		ION A		ION B		EFB	BH
TIME	KV	A	KV	A	KV	MA	KV	MA	P	P	KV	A	KV	A	KV	MA	KV	MA	P	P	KV	A	KV	A	KV	MA	KV	MA	P	P
6:15	12.8	0	12.4	0	31	2.2	37	2.7			12.8	0	12.6	0	34	4.2	34	4.4			14.2	0	13.8	0	35	4.5	39	5.7		
6:30	12.8	0	12.4	0	31	2.1	37	2.9			12.8	0	12.6	0	34	4	33	4.5			14	0	13.7	0	36	4.4	39	5.5		
6:45	12.8	0	12.3	0	31	2	37	2.7	[illegible]	[illegible]	12.8	0	12.6	0	34	4.1	34	4.6	2		14	0	13.8	0	37	2.9	40	5.9		
7:00	12.8	0	12.2	0	32	1.9	37	2.9	3.2	4.5	12.7	0	12.5	0	33.2	4.2	34	4.4	2.6	3.2	14	0	13.8	0	36	3.8	41	5.3	2.5	3.2
7:15	12.8	0	12.3	0	31	1.9	37	2.9			12.7	0	12.6	0	33	4.0	33	4.8			14	0	13.8	0	37	3.9	40	5.2		
7:30	12.8	0	12.4	0	32	2	38	2.8			12.8	0	12.5	0	33	4.2	32	4.2			14.2	0	13.9	0	37	3.7	40	6.0		
7:45	12.8	0	12.4	0	32	2	38	2.9			12.8	0	12.6	0	33	4.2	32	4.6			14.2	0	14	0	38	2.8	40	5.7		
8:00	13	0	13	0	31	2	36	3.4	3.4	4.6	13	0	13	0	33	4	32	4.4	2.6	3.2	14	0	14	0	35	3.4	40	4.8	2.7	3.2
8:15	13	0	13	0	31	1.8	36	2.4			13	0	13	0	34	4	33	4.6			14	0	14	0	37	2.6	40	4.0		
8:30	13	0	13	0	31	1.8	36	2.6			13	0	13	0	34	4.2	34	4.2			14	0	14	0	37	2.8	40	4.3		
8:45	13	0	13	0	31	1.8	37	2.6			13	0	13	0	34	4	33	4.6			14	0	14	0	37	2.8	40	4.6		
9:00	13	0	13	0	31	1.8	37	2.4	3.3	4.6	13	0	13	0	34	4	34	4.2	2.5	3.2	14	0	14	0	37	3.2	40	5.0	2.8	3.3
9:15	13	0	13	0	31	2	37	2.4			13	0	13	0	34	4	33	4.6			14	0	14	0	36	3.6	41	4.8		
9:30	13	0	13	0	31	1.8	37	2.5			13	0	13	0	34	4	34	4.6			14	0	14	0	35	3.4	40	5.0		
9:45	13	0	13	0	31	1.8	36	2.8			13	0	13	0	34	4	34	4.2			14	0	14	0	36	3.8	38	5.8		
10:00	13	0	13	0	31	2	37	2.7	3.4	4.6	13	0	13	0	34	4.1	34	4.0	2.8	3.3	14	0	14	0	35	3.9	38	5.6	2.7	3.4
10:15	12	0	13	0	31	2	36	3.6			13	0	13	0	34	4	34	4.6			14	0	14	0	37	3.2	41	5.2		
10:30	13	0	13	0	31	2	36	3.8			13	0	13	0	34	4	34	4.0			14	0	14	0	36	3.8	42	4.4		
10:45	13	0	13	0	31	2.5	36	3			13	0	13	0	34	4.2	34	4.8			14	0	14	0	37	3.2	40	6		
11:00	13	0	13	0	31	2.5	35	4	3.2	4.6	13	0	13	0	34	4	34	4.2	2.6	3.2	14	0	14	0	37	3.8	40	6	2.7	3.3
11:15	13	0	13	0	31	2.7	35	4.2			13	0	13	0	34	4	34	4.2			14	0	14	0	36	3.8	40	6		
11:30	13	0	13	0	31	2.4	35	4.0			13	0	13	0	34	4	34	4			14	0	14	0	36	3.8	40	5.2		

1-29-92 Nights C-Crew

E F B LOG SHEET LOUISIANA-PACIFIC SAGOLA

TIME	SURFACE BED A KV	SURFACE BED A A	SURFACE BED B KV	SURFACE BED B A	SURFACE ION A KV	SURFACE ION A MA	SURFACE ION B KV	SURFACE ION B MA	SURFACE EFB P	SURFACE BH P	CORE BED A KV	CORE BED A A	CORE BED B KV	CORE BED B A	CORE ION A KV	CORE ION A MA	CORE ION B KV	CORE ION B MA	CORE EFB P	CORE BH P	SURFACE/CORE BED A KV	SURFACE/CORE BED A A	SURFACE/CORE BED B KV	SURFACE/CORE BED B A	SURFACE/CORE ION A KV	SURFACE/CORE ION A MA	SURFACE/CORE ION B KV	SURFACE/CORE ION B MA	SURFACE/CORE EFB P	SURFACE/CORE BH P
11:45	13	0	13	0	31	2.2	36	3.8			13	0	13	0	34	4	34	4			14	0	14	0	37	3.6	40	5.8		
12:00	13	0	13	0	31	2.2	36	3.4	3.1	4.5	13	0	13	0	34	4	34	4.2	2.6	3.3	14	0	14	0	37	4.0	40	5.6	2.8	3.4
2:00	14	0	13	0	30	3	35	3.6	3.2	4.6	14	0	13.8	0	35	3.8	34	4.2	2.7	3.3	14	0	14	0	40	4.0	42	4.0	2.7	3.3
4:00	14	0	13	0	30	3.8	34	2	3.2	4.7	14	0	14	0	35	3.5	33	5	2.8	3.4	14	0	14	0	35	2	40	5.2	2.9	3.5
6:00	14	0	13	0	30	2.4	34	2	3.3	4.6	14	0	14	0	36	3.4	33	4.5	2.7	3.3										

1-30-92 Days

E F B LOG SHEET LOUISIANA-PACIFIC SAGOLA

TIME	SURFACE BED A KV	SURFACE BED A A	SURFACE BED B KV	SURFACE BED B A	SURFACE ION A KV	SURFACE ION A MA	SURFACE ION B KV	SURFACE ION B MA	SURFACE EFB P	SURFACE BH P	CORE BED A KV	CORE BED A A	CORE BED B KV	CORE BED B A	CORE ION A KV	CORE ION A MA	CORE ION B KV	CORE ION B MA	CORE EFB P	CORE BH P	SURFACE/CORE BED A KV	SURFACE/CORE BED A A	SURFACE/CORE BED B KV	SURFACE/CORE BED B A	SURFACE/CORE ION A KV	SURFACE/CORE ION A MA	SURFACE/CORE ION B KV	SURFACE/CORE ION B MA	SURFACE/CORE EFB P	SURFACE/CORE BH P
7:15	13.8	0	12.7	0	30	2.2	35	1.5			12.9	0	13.7	0	33	4.5	34	4.1			—	Line		Down	—	—	—	—		
7:30	14	0	12.8	0	30	2.2	35	1.6			14	0	13.8	0	33	4.6	33	4.8												
7:45	13.8	0	12.8	0	30	2.2	35	1.7			13.8	0	13.6	0	33	4.8	33	4.4												
8:00	14	0	12.8	0	31	2	35	1.5	2.8	4.7	13.9	0	13.8	0	33	4.8	34	4.4	2.7	3.3	7.5	0	12.2	0	31	2.1	30	23	2.8	3.4
8:15	14	0	13	0	31	2.1	35	1.6			14	0	13.8	0	35	4	33	4.9			11.2	0	13.3	0	31	2.1	30	23		
8:30	14	0	12.8	0	30	2.2	35	1.5			13.9	0	13.7	0	36	2.9	34	4.2			11.7	0	14	0	38	5.1	39	5.7		
8:45	14	0	12.8	0	31	1.9	35	1.5			14	0	13.8	0	33	4.6	33	4.8			12.6	0	14.2	0	38	5	39	5.8		
9:00	14	0	13	0	30	2.1	35	1.5	3.0	4.7	14	0	13.8	0	33	4.9	33	4.5	2.6	3.3	13.7	0	14.5	0	38	5.3	40	5	2.7	3.4
9:15	14	0	13.8	0	30	2	35	1.5			13.8	0	13.8	0	32	5	33	5.1			13.8	0	14.3	0	37	6	39	5.9		
9:30	14	0	12.8	0	30	2	35	1.5			13.8	0	13.8	0	32	4.8	32	5			14	0	14.6	0	38	5.8	40	5.9		
9:45	14	0	12.8	0	30	2	35	1.4			13.8	0	13.6	0	33	4.6	33	4.7			14	0	14.6	0	38	5.4	39	6.0		
10:00	14	0	12.8	0	31	1.9	35	1.6	2.8	4.9	14	0	13.7	0	33	4.6	33	4.7	2.6	3.3	13.8	0	14.5	0	37	5.7	39	5.9	2.8	3.4
10:15	14	0	13	0	31	1.8	34	1.7			14	0	13.8	0	33	4.9	32	5.1			14	0	14.5	0	36	3.8	39	5.7		
10:30	14	0	12.8	0	30	1.8	34	1.1			13.8	0	12.7	0	33	5	32	5.4			13.9	0	14.4	0	36	3	40	4.8		
10:45	13.8	0	12.7	0	31	1.9	35	1.4			13.9	0	13.8	0	33	4.8	32	5.2			13.8	0	14.5	0	37	2.9	40	4.9		
11:00	14	0	13	0	31	1.9	35	1.7	3.0	4.7	14	0	13.8	0	32	5.2	33	5	2.7	3.3	13.9	0	14.5	0	33	1.6	40	4.8	2.7	3.4
11:15	14	0	13	0	30	2.2	35	1.7			14	0	13.8	0	33	4.9	33	5.1			14	0	14.6	0	33	1.9	39	6.2		
11:30	14	0	13	0	30	2.1	33	1.7			14	0	13.8	0	32	5.2	33	5			14	0	14.5	0	33	1.6	38	4.8		
11:45	14	0	13	0	31	2	35	1.8			13.8	0	13.8	0	32	5.2	33	5			14	0	14.5	0	34	1.5	39	4		
12:00	14	0	13	0	31	2	35	1.6	2.8	4.2	14	0	13.8	0	32	5.2	33	4.7	2.6	3.3	14	0	14.5	0	33	1.7	38	5.1	2.7	3.3
12:15	14	0	13	0	31	1.8	35	1.6			14	0	13.8	0	32	5.1	33	5			14	0	14.5	0	33	1.8	39	4.5		
12:30	14	0	13	0	31	2	35	1.6			14	0	13.8	0	32	5	33	5.3			13.8	0	14.5	0	33	1.5	39	4.5		

Rd Crew 1-30-92 E F B LOG SHEET LOUISIANA-PACIFIC SAGOLA

	SURFACE										CORE										SURFACE/CORE									
	BED A		BED B		ION A		ION B		EFB	BH	BED A		BED B		ION A		ION B		EFB	BH	BED A		BED B		ION A		ION B		EFB	BH
TIME	KV	A	KV	A	KV	MA	KV	MA	P	P	KV	A	KV	A	KV	MA	KV	MA	P	P	KV	A	KV	A	KV	MA	KV	MA	P	P
1:00	14.2	0	13	0	31	2.1	35	1.7	2.9	4.5	14	0	13.8	0	33	5.3	33	4.8	2.8	3.2	14	0	14.6	0	34	1.3	40	3.2	2.5	3.3
1:15	14	0	13	0	31	2	35	1.7			14	0	13.8	0	33	5.1	33	4.7			14	0	14.6	0	34	1.4	40	3.8		
1:30	14	0	13	0	31	1.8	34	1.7			13.8	0	13.7	0	33	5	33	4.6			14	0	14.6	0	3.4	1.5	39	4		
1:45	14	0	13	0	31	1.8	35	1.5			13.8	0	13.7	0	33	5	33	4.7			13.8	0	14.5	0	34	1.4	39	4		
2:00	14	0	13	0	31	2	35	1.7			14	0	13.8	0	33	5	33	5.3			14	0	14.6	0	34	1.4	40	3.3		
4:00	14	0	13	0	30	2.2	34	2	2.8	4.5	13.8	0	13.7	0	33	4.4	34	4.5	2.8	3.1	13.6	0	14.5	0	34	1.2	41	2.6	2.5	3.3
6:00	12.7	0	12.8	0	33	3.2	34	1.8	2.9	4.5	13.8	0	13.8	0	33	4	34	4.4	2.8	3.2	13.8	0	14.6	0	37	1.8	40	3.3	2.6	3.3
8:00	14	0	13	0	33	3	34	1.8	3.0	4.6	14	0	13.8	0	33	4	34	4.4	2.9	3.2	13.8	0	14.8	0	38	1.8	42	2.4	2.5	3.2
10:00	14	0	13	0	32	3.6	35	1.9	3.0	4.6	14	0	13.8	0	32	3.8	34	4.6	2.9	3.2	14	0	14.5	0	38	2	42	2.8	2.5	3.4
12:00	14	0	13	0	32	4	34	2	3.0	4.5	14	0	13.8	0	32	3.8	33	5	2.8	3.2	14	0	14.8	0	38	3	42	2.6	2.6	3.3
2:00	14	0	13	0	33	3.6	34	2	3.1	4.6	14	0	13.9	0	33	3.8	33	4.8	2.9	3.2	14	0	14.8	0	38	3.2	42	3.0	2.5	3.2
4:00	14	0	13	0	31	2	35	1.8	3.0	4.5	14	0	13.6	0	33	3.8	34	4.2	2.8	3.2	14	0	14.8	0	38	3.0	42	2.4	2.6	3.3
6:00	14	0	13	0	30	2.2	34	2.4	3.0	4.6	14	0	13.8	0	32	3.6	34	4.2	2.9	3.2	14	0	14.8	0	38	3.4	42	3.2	2.5	3.3

Mon + Tues

LOUISIANA-PACIFIC CORPORATION
SAGOLA MICHIGAN

1-27-92
B-crew
[illegible]

BIN LEVEL RECORD (recored each half hour)

DATE	TIME	SURFACE WET BIN %	CORE WET BIN %	S/C WET BIN %	SURFACE DRY BIN %	CORE DRY BIN %	COMMENTS
1-27-92	7:30 am	90	70	65	66	69	
	8:00	F	75	70	63	66	
	8:30	90	85	70	65	65	
	9:00	F	90	F	62	67	
	9:30	90	90	F	66	70	
	10:00	90	90	F	67	66	
	10:30	F	F	90	69	65	
	11:00	F	90	90	74	63	
	11:30	90	F	90	70	67	Shut Down Core Dryer
-28-	12:00	F	F	90	68	70	
	12:30	90	F	85	70	70	
	1:00	F	F	90	65	70	
	1:30	90	F	85	64	68	
	2:00	90	F	85	[illegible]	65	Starting Core
	2:30	90	F	85	60	65	
	3:00	85	90	80	60	63	
	3:30	[illegible]	90	75	65	67	
	4:00	80	75	70	69	70	
	4:30	75	70	65	74	73	
	5:00	95	75	75	76	78	
	5:30	90	90	90	Full	78	
	6:00	9[illegible]	85	80	Full	Full	
	6:30	F	90	75	Full	Full	
	7:00 pm	90	85	85	Full	Full	
	7:30				Full	Full	
	8:00				FW	FW	
	8:30				FW	FW	
	9:00				FW	FW	
	9:30				FW	FW	
	10:00				FW	FW	
	10:30				FW	FW	
	11:00				FW	FW	
	11:30				FW	FW	Dryers Down
	12:00				75	FW	
	12:30				75	75	STARTED UP
	1:00						
	1:30						
	2:00				F	70	
	2:30				72	72	
	3:00				68	68	
	3:30				64	68	
	4:00						
	4:30						
	5:00						
	5:30				70	62	
	6:00				68	70	
	6:30				75	67	
	7:00						
					75	67	

28th 29th

28th

LOUISIANA-PACIFIC CORPORATION
SAGOLA MICHIGAN

BIN LEVEL RECORD (recored each half hour)

DATE	TIME	SURFACE WET BIN %	CORE WET BIN %	S/C WET BIN %	SURFACE DRY BIN %	CORE DRY BIN %	COMMENTS
7:30 pm	7:30 pm.	80	75	70	63	70	
	8:00	85	80	F	69	69	Surface Dryer Down
	8:30	F	85	80	66	67	
	9:00	F	90	F	65	59	
	9:30	F	90	90	49	49	
	10:00	F	90	90	48	45	
	10:30	90	90	85	50	47	
	11:00	85	85	80	45	50	
	11:30	80	80	85	47	51	
	12:00 am	80	85	85	50	54	
29th	12:30	85	90	80	49	53	
	1:00	90	F	85	48	55	
	1:30	85	90	F	52	50	
	2:00	F	90	F	54	55	
	2:30	F	F	90	57	57	
	3:00	90	90	F	60	61	
	3:30	F	F	90	63	61	
	4:00	90	90	F	61	61	
	4:30	90	F	90	68	63	
	5:00	F	F	F	62	64	
	5:30	90	90	90	65	66	
	6:00	F	90	F	67	67	
	6:30	F	90	90	68	68	
	7:00 am	F	F	90	68	67	
	720				63	70	
	745				63	70	
	810				70	65	
	855				70	65	
	950				65	70	
	1040				70	62	
	1115				65	70	
	1145				70	70	
	1230				78	63	
	110				72	63	
	200				72	70	
	250				70	72	
	400				72	71	
	500				70	72	
	600				70	75	
	630				74	70	
	715				F	60	
	810				75	70	
	900				67	F	
	1000				71	75	
	1100				70	70	
1-30	1120				68	65	
	1240				68	55	
	115				65	60	
	200						

A-C CRew
1-30-92

LOUISIANA-PACIFIC CORPORATION
SAGOLA MICHIGAN

BIN LEVEL RECORD (recored each half hour)

DATE	TIME	SURFACE WET BIN %	CORE WET BIN %	S/C WET BIN %	SURFACE DRY BIN %	CORE DRY BIN %	COMMENTS
1-30-92	7:00	F	F	F	75	70	
	7:30	F	F	F	80	70	
	8:00	85	F	80	70	70	
	8:30	90	85	95	75	65	
	9:00	95	F	F	70	70	
	9:30	F	85	90	FW	63	
	10:00	90	F	F	75	65	
	10:30	90	F	90	72	73	
	11:00	85	95	F	70	75	
	11:30	F	F	F	78	68	
	12:00	F	F	F	75	70	
	12:30	70	F	F	68	70	
	1:00	F	95	90	73	70	
	1:30	90	F	F	70	74	
	2:00	F	80	85	75	70	
	2:30	90	90	90	70	75	
	3:00	80	F	80	73	72	
	3:30	F	80	90	75	70	
	4:00	95	90	80	72	73	
	4:30	F	85	90	70	75	
	5:00	80	80	F	75	70	
	5:30	90	F	80	73	75	
	6:00	F	80	90	80	70	
	6:30	90	90	F	70	80	
Nights	7:00	F	F	F	75	75	
	7:30	F	90	F	FW	72	
	8:00	90	F	F	FW	80	
	8:30	90	F	90	FW	FW	
	9:00	F	F	90	FW	FW	
	9:30	F	F	F	FW	FW	
	10:00	90	90	90	FW	FW	
	10:30	F	90	F	FW	FW	
	11:00	90	F	90	FW	FW	
	11:30	F	90	F	FW	FW	
	12:00	90	F	F	FW	FW	
	12:30	90	F	F	FW	FW	
	1:00	F	F	F	FW	FW	
	1:30	F	F	90	FW	FW	
	2:00	90	F	F	FW	FW	
	2:30	F	F	90	FW	FW	
	3:00	90	F	F	FW	FW	
	3:30	F	90	F	FW	FW	
	4:00	F	F	F	F	F	
	4:30	90	F	F	F	FW	
	5:00	85	90	90	FW	FW	
	5:30	90	85	F	FW	FW	
	6:00	90	90	F	FW	FW	
	6:30	F	F	F	FW	FW	
	7:00	F	F	F	FW	FW	

LOUISIANA-PACIFIC SAGOLA, MI Daily Inventory Sheet Date: 1/28/92

Shift:	1st				2nd			
	Th. 1	Th. 2	Th. 3	Th. 4	Th. 1	Th. 2	Th. 3	Th. 4
Dimension:	1/4	1/2	15/32	7/16	3/8	19/32 H	19/SE	23/H
Presslcad:	0	57	110	189	0	0	0	0
Conversion:	0.6667	1.3333	1.25	1.1667	1	1.5833	1.5833	1.9167
MSF/Thickness:	0.000	175.100	316.800	508.047	0.000	0.000	0.000	0.000
Wt. Conversion:	160	317	304	277	247	394	377	466
Total Wt./Th.:	0	216828	401280	628236	0	0	0	0

Total 999.946 MSF for day

(Surface) 1/4 Brd. Wt. 0

II. Factors:	1/4=0.6667	3/8=1.000	7/16=1.1667	15/32=1.25	1/2=1.3333	(Core) 1/4 Brd. Wt.	0
	5/8=1.6667	19/32=1.5833	23/32=1.9167	3/4=2.0000		Total Brd. Wt.	1246344

III. Inventory:	Wax N.T.	Wax S.T.	LPH S.T.	LPH N.T.	MDI S.T.	MDI N.T.	Surface Wt.	623172
			2075				Core Wt.	623172
			676.5				%Surface Wt.	50.0%
	0	14.516	16.563	16.807	13.255	13.51	%Core Wt.	50.0%
X Factor	5667	5667	8768	8052	8616	7910		
= LBS	0	82262	145224	135330	114205	106864		

IV. Wax Agent:

Total Amount of Wax From Day Before		90848	lbs.
Add: Incoming Wax		0	lbs.
Subtract: Total Amount of Wax Today		82262	lbs.
Total Wax Usage		8586	lbs.
/ 999.946 MSF	8.59	lbs./MSF	
Total Wax Cost	Dollars/MSF	0.67%	Percent Wax Used

V. MDI:

Total Amount of MDI From Day Before		232747	lbs.
Add: Incoming MDI		0	lbs.
Subtract: Total Amount of MDI Today		221069	lbs.
Total MDI Usage		11678	lbs.
/ 999.946 MSF	11.68	lbs./MSF	
Total MDI Cost	Dollars/MSF	1.87%	Percent MDI Used

VI. Lq. Phenol:

Total Amount of LPH From Day Before		313168	lbs.
Add: Incoming LPH		0	lbs.
Subtract: Total Amount of LPH Today		283306	lbs.
Total LPH Usage		29862	lbs.-60% solid
/ 999.946 MSF	17.92	lbs./MSF	17917 lbs.-100% solid
Total LPH Cost	Dollars/MSF	2.88%	Percent LPH Used

VII. Summary:

Ave Wax Cost/MSF (MTD)	Dollars/MSF	Total Resin Cost for Day	Dollars/MSF
Ave MDI Cost/MSF (MTD)	Dollars/MSF	Total Cost for Day	Dollars/MSF
Ave LiquidPhenol Cost/MSF (MTD)	Dollars/MSF	Finished OSB Produced	Tons
Total Ave Cost (MTD)	Dollars/MSF		

Signature Jeff Jayne

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LOUISIANA-PACIFIC SAGOLA, MI <u>Daily Inventory Sheet</u> Date: 1/29/92

Shift:	1st				2nd			
	Th. 1	Th. 2	Th. 3	Th. 4	Th. 1	Th. 2	Th. 3	Th. 4
Dimension:	1/4	1/2	15/32	7/16	3/8	19/32 H	19/SE	23/H
Pressload:	42	48	0	188	0	0	0	64
Conversion:	0.6667	1.3333	1.25	1.1667	1	1.5833	1.5833	1.9167
MSF/Thickness:	64.515	147.452	0.000	505.358	0.000	0.000	0.000	262.629
Wt. Conversion:	160	317	304	277	247	394	377	466
Total Wt./Th.:	80640	182592	0	624912	0	0	0	357880

Total 999.955 MSF for day

						(Surface) 1/4 Brd. Wt.	56448
II. Factors:	1/4=0.6667	3/8=1.000	7/16=1.1667	15/32=1.25	1/2=1.3333	(Core) 1/4 Brd. Wt.	26192
	5/8=1.6667	19/32=1.5833	23/32=1.9167	3/4=2.0000		Total Brd. Wt.	1246032

III. Inventory:	Wax N.T.	Wax S.T.	LPH S.T.	LPH N.T.	MDI S.T.	MDI N.T.		
							Surface Wt.	639144
			2075				Core Wt.	606888
			307.5				%Surface Wt.	51.3%
	0	12.583	14.328	14.766	12.589	12.828	%Core Wt.	48.7%
X Factor	6598	5667	8768	8052	8616	7910		
= LBS	0	71308	125628	118896	108467	101469		

IV. Wax Agent:	Total Amount of Wax From Day Before			82262	lbs.
	Add: Incoming Wax			0	lbs.
	Subtract: Total Amount of Wax Today			71308	lbs.
	Total Wax Usage			10954	lbs.
	/ 999.955	MSF	10.95	lbs./MSF	
	Total Wax Cost		Dollars/MSF	0.88%	Percent Wax Used
V. MDI:	Total Amount of MDI From Day Before			221069	lbs.
	Add: Incoming MDI			0	lbs.
	Subtract: Total Amount of MDI Today			209936	lbs.
	Total MDI Usage			11133	lbs.
	/ 999.955	MSF	11.13	lbs./MSF	
	Total MDI Cost		Dollars/MSF	1.83%	Percent MDI Used
VI. Lq. Phenol:	Total Amount of LPH From Day Before			283306	lbs.
	Add: Incoming LPH			0	lbs.
	Subtract: Total Amount of LPH Today			246906	lbs.
	Total LPH Usage			36400	lbs.-60% solid
	/ 999.955	MSF	21.84	lbs./MSF	21840 lbs.-100% solid
	Total LPH Cost		Dollars/MSF	3.42%	Percent LPH Used

VII. Summary:	Ave Wax Cost/MSF (MTD)	Dollars/MSF	Total Resin Cost for Day	Dollars/MSF
	Ave MDI Cost/MSF (MTD)	Dollars/MSF	Total Cost for Day	Dollars/MSF
	Ave LiquidPhenol Cost/MSF (MTD)	Dollars/MSF	FinishedOSB Produced	Tons
	Total Ave Cost (MTD)	Dollars/MSF		

Signature Jeff Jayne

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LOUISIANA-PACIFIC SAGOLA, MI Daily Inventory Sheet Date: 1/30/92

Shift:	1st				2nd			
	Th. 1	Th. 2	Th. 3	Th. 4	Th. 1	Th. 2	Th. 3	Th. 4
Dimension:	1/4	1/2	15/32	7/16	3/8	23/SE	19/SE	23/H
Pressload:	0	0	114	106	0	2	14	74
Conversion:	0.6667	1.3333	1.25	1.1667	1	1.9167	1.5833	1.9167
MSF/Thickness:	0.000	0.000	328.320	284.936	0.000	8.832	51.071	326.790
Wt. Conversion:	160	317	304	277	247	456	377	466
Total Wt./Th.:	0	0	415872	352344	0	10944	63336	413808

Total 999.949 MSF for day

(Surface) 1/4 Brd. Wt. 0
(Core) 1/4 Brd. Wt. 0
Total Brd. Wt. 1256304
Surface Wt. 628152
Core Wt. 628152
%Surface Wt. 50.0%
%Core Wt. 50.0%

II. Factors: 1/4=0.6667 3/8=1.000 7/16=1.1667 15/32=1.25 1/2=1.3333
5/8=1.6667 19/32=1.5833 23/32=1.9167 3/4=2.0000

III. Inventory:	Wax N.T.	Wax S.T.	LPH S.T.	LPH N.T.	MDI S.T.	MDI N.T.
			2075			
			1783.5			
	0	10.666	12.156	12.7	11.87	12.13
X Factor	6598	5667	8768	8052	8616	7910
= LBS	0	60444	106584	102260	102272	95948

IV. Wax Agent:

Total Amount of Wax From Day Before	71308	lbs.
Add: Incoming Wax	0	lbs.
Subtract: Total Amount of Wax Today	60444	lbs.
Total Wax Usage	10864	lbs.

/ 999.949 MSF 10.86 lbs./MSF
Total Wax Cost _ Dollars/MSF 0.86% Percent Wax Used

V. MDI:

Total Amount of MDI From Day Before	209936	lbs.
Add: Incoming MDI	0	lbs.
Subtract: Total Amount of MDI Today	198220	lbs.
Total MDI Usage	11716	lbs.

/ 999.949 MSF 11.72 lbs./MSF
Total MDI Cost Dollars/MSF 1.87% Percent MDI Used

VI. Lq. Phenol:

Total Amount of LPH From Day Before	246906	lbs.
Add: Incoming LPH	0	lbs.
Subtract: Total Amount of LPH Today	212703	lbs.
Total LPH Usage	34203	lbs.-60% solid

/ 999.949 MSF 20.52 lbs./MSF 20522 lbs.-100% solid
Total LPH Cost Dollars/MSF 3.27% Percent LPH Used

VII. Summary:

Ave Wax Cost/MSF (MTD)	Dollars/MSF	Total Resin Cost for Day	Dollars/MSF
Ave MDI Cost/MSF (MTD)	Dollars/MSF	Total Cost for Day	Dollars/MSF
Ave LiquidPhenol Cost/MSF (MTD)	Dollars/MSF	FinishedOSB Produced	Tons
Total Ave Cost (MTD)	Dollars/MSF		

Signature Jeff Jayne

Moisture Content - Wet Flake 1-28-92

Time	Wet Bin	w1	w2	% moisture
8 Am	Surf/Core	50.2	25.6	49.0
9 Am	"	50.5	24.1	52.3
10 AM	"	50.0	29.8	40.4
11 Am	"	50.3	25.4	49.5
1 Pm	"	50.0	23.7	52.6
2 Pm	"	50.1	28.3	43.5
3 Pm	"	50.0	24.9	50.2
4 pm	"	50.1	26.1	47.9
5 pm	"	50.0	25.6	48.8
6 pm	"	50.0	24.4	51.2
7 pm	"	50.0	25.8	48.4
8pm	"	50.0	24.1	51.8
9pm	"	50.2	23.2	53.7
10pm	"	50.0	25.2	49.6
11pm	"	50.0	24.7	50.6

Louisiana Pacific Sagola

Moisture Content Wet Flake

Date: 1/29/92

	Surface Wet Bin			Core Wet Bin			Surf/Core Wet Bin		
Time	W1	W2	% Moist.	W1	W2	% Moist.	W1	W2	% Moist.
7:30 Am			0.0%	50.3	27.5	45.3%	50.1	28.7	42.7%
8:30 Am			0.0%	50.2	31.7	36.9%	50.1	27.5	45.1%
9:30 Am	50.0	26.6	46.8%	50.3	26.9	46.5%	50.0	27.9	44.2%
10:30 Am	50.1	25.1	49.9%	50.0	27.5	45.0%	50.0	25.8	48.4%
11:30 Am	50.2	26.3	47.6%	50.0	27.8	44.4%	50.2	25.7	48.8%
12:30 Pm	50.1	26.4	47.3%	50.0	26.9	46.2%	50.0	25.3	49.4%
1:30 Pm	50.0	25.5	49.0%	50.0	22.5	55.0%			0.0%
2:30 Pm	50.0	28.9	42.2%	50.0	24.3	51.4%			0.0%
3:30 Pm	50.0	25.8	48.4%	50.0	24.8	50.4%			0.0%
4:30 Pm	50.2	25.4	49.4%	50.0	25.3	49.4%			0.0%
5:30 Pm	50.0	24.9	50.2%	50.0	24.2	51.6%			0.0%
6:30 Pm	50.0	25.0	50.0%	50.0	27.6	44.8%			0.0%
7:30 Pm	50.0	26.1	47.8%	50.0	26.8	46.4%			0.0%
8:30 Pm	50.0	27.4	45.2%	50.0	23.6	52.8%			0.0%
9:30 Pm	50.0	28.4	43.2%	50.0	25.9	48.2%			0.0%
10:30 Pm	50.0	25.7	48.6%	50.0	26.1	47.8%			0.0%
11:30 Pm			0.0%	50.0	26.8	46.4%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
		Average	47.5%		Average	47.6%		Average	46.4%

Date:	1/30/92								
	Surface Wet Bin			Core Wet Bin			Surf/Core Wet Bin		
Time	W1	W2	% Moist.	W1	W2	% Moist.	W1	W2	% Moist.
7:00 Am	50.0	30.3	39.4%	50.0	23.0	54.0%			0.0%
8:00 Am	50.0	25.8	48.4%	50.1	26.6	46.9%			0.0%
9:00 Am	50.1	25.4	49.3%	50.0	26.0	48.0%			0.0%
10:00 Am	50.1	25.6	48.9%	50.1	24.0	52.1%			0.0%
11:00 Am	50.0	25.1	49.8%	50.0	26.7	46.6%			0.0%
12:00 Am	50.0	27.7	44.6%	50.2	25.4	49.4%			0.0%
1:00 Am	50.0	23.2	53.6%	50.0	25.6	46.8%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
			0.0%			0.0%			0.0%
		Average	47.7%		Average	49.1%		Average	0.0%

LOUISIANA-PACIFIC CORPORATION

PRESS REPORT SAGOLA MICHIGAN *PRESS REPORT*

OPERATOR [illegible] DATE 1-29-92

SHIFT D CREW D

BLOW OUT:

F.L. RADIATORS . .	100	GREASE COLUMNS .	715
HYD. COOLING FANS .	1015	FLUSH BLENDER . .	—
PRESS COOLING FANS .	1015	BAGHOUSE PRESSURE	7
F.C.O.S.	420	HYD. OIL TEMP . .	117
FORMER DECK	200	√ PIT/RETURN CONVS	710 N/
LOADER	520	CLEAN DECKLE CHAIN	500
UNLOADER	545	CLEAN BLENDERS .	600
PRESS	555	CLEAN TAIL PULLEYS	6:40

Line Speed	From	To	Thickness	Press Loads
86	7:00	7:00	7/16	181

DOWNTIME FROM	TO	M	E	O	downtime (mins.)	REASON FOR DOWNTIME
7:35	7:36	✓			1	Dropped H.B. loader
11:17	12:07	✓			50	Core Drybin Pick Rolls chain
1:13	1:16	✓			1	SPRAY MAT
1:19	1:21	✓			2	Scrape Press
1:42	1:46			✓	4	Core drybin Tripped (Live bottom)
1:47	1:49	✓			2	Bag on #7 Flt loader Spaced cards-bunching mat
4:50	4:51	✓			1	Dropped HB loader Flt #7
4:54	4:55	✓			1	Dropped HB, loader Flt #7

DOWNTIME CODES: M-Mechanical E-Electrical O-Operator

59

TIME OF POSITION (seconds)

1	52	43	44	85	45	127	46	169	41
2	53	44	47	86	45	128	46	170	41
3	53	45	47	87	45	129	46	171	42
4	54	46	47	88	45	130	47	172	42
5	54	47	48	89	45	131	47	173	42
6	54	48	48	90	44	132	47	174	42
7	54	49	48	91	44	133	48	175	41
8	52	50	48	92	45	134	48	176	41
9	52	51	47	93	45	135	48	177	41
10	50	52	47	94	46	136	49	178	42
11	50	53	47	95	45	137	49	179	41
12	49	54	47	96	45	138	48	180	41
13	49	55	47	97	45	139	48	181	41
14	48	56	46	98	45	140	47	182	
15	48	57	46	99	45	141	47	183	
16	48	58	46	100	45	142	44	184	
17	48	59	46	101	46	143	45	185	
18	47	60	46	102	46	144	44	186	
19	47	61	46	103	46	145	44	187	
20	47	62	46	104	46	146	43	188	
21	47	63	46	105	46	147	42	189	
22	47	64	46	106	45	148	42	190	
23	46	65	46	107	45	149	43	191	
24	46	66	46	108	44	150	43	192	
25	45	67	46	109	44	151	43	193	
26	45	68	46	110	44	152	43	194	
27	44	69	46	111	43	153	42	195	
28	45	70	46	112	43	154	42	196	
29	46	71	45	113	42	155	42	197	
30	47	72	43	114	40	156	42	198	
31	48	73	49	115	43	157	42	199	
32	48	74	48	116	43	158	42	200	
33	49	75	46	117	43	159	41	201	
34	49	76	46	118	43	160	41	202	
35	49	77	45	119	44	161	41	203	
36	49	78	46	120	44	162	41	204	
37	49	79	46	121	45	163	41	205	
38	49	80	46	122	45	164	41	206	
39	48	81	46	123	55	165	42	207	
40	48	82	45	124	46	166	42	208	
41	47	83	45	125	45	167	41	209	

LOUISIANA-PACIFIC CORPORATION

PRESS REPORT SAGOLA MICHIGAN *PRESS REPORT*

OPERATOR MESSINA DATE 1-28-92

SHIFT Night CREW B

BLOW OUT:

F.L. RADIATORS . .	[illegible]	GREASE COLUMNS .	4:00
HYD. COOLING FANS .	[illegible]	FLUSH BLENDER . .	[illegible]
PRESS COOLING FANS.	[illegible]	BAGHOUSE PRESSURE	[illegible]
F.C.O.S.	[illegible]	HYD. OIL TEMP . .	125°
FORMER DECK	[illegible]	✓ PIT/RETURN CNVS	[illegible]
LOADER	[illegible]	CLEAN DECKLE CHAIN	[illegible]
UNLOADER	[illegible]	CLEAN BLENDERS . .	[illegible]
PRESS	[illegible]	CLEAN TAIL PULLEYS	[illegible]

Line Speed	From	To	Thickness	Press Loads
85	7:00	7:30	7/16	8
75	7:30	3:05	[illegible]	110
75	3:10	7:00	½	57

DOWNTIME FROM	TO	M	E	O	DOWNTIME (MINS.)	REASON FOR DOWNTIME
10:20	10:36	✓			16	[illegible]
10:38	10:40	✓			2	[illegible] FLIGHT #7 [illegible]
3:56	3:57		✓		1	[illegible] LIMIT [illegible] STUCK
5:41	5:45			✓	4	FLUSH BLENDER

DOWNTIME CODES: M-Mechanical E-Electrical O-Operator

60

TIME OF POSITION (seconds)

1	43	43	50	85	50	127	52	169	[illegible]
2	43	44	50	86	51	128	52	170	[illegible]
3	42	45	50	87	50	129	51	171	48
4	42	46	51	88	50	130	51	172	49
5	42	47	51	89	49	131	52	173	49
6	43	48	52	90	49	132	51	174	49
7	43	49	52	91	48	133	51	175	49
8	43	50	52	92	48	134	48	176	
9	[illegible]	51	51	93	50	135	48	177	
10	46	52	50	94	50	136	49	178	
11	46	53	51	95	49	137	49	179	
12	47	54	51	96	50	138	49	180	
13	47	55	51	97	49	139	49	181	
14	47	56	50	98	50	140	49	182	
15	46	57	51	99	50	141	49	183	
16	46	58	51	100	50	142	49	184	
17	46	59	50	101	[illegible]	143	40	185	
18	46	60	50	102	49	144	48	186	
19	47	61	51	103	48	145	48	187	
20	47	62	50	104	49	146	48	188	
21	48	63	50	105	50	147	48	189	
22	49	64	50	106	50	148	49	190	
23	49	65	49	107	51	149	48	191	
24	49	66	49	108	51	150	49	192	
25	49	67	48	109	51	151	49	193	
26	49	68	48	110	52	152	49	194	
27	49	69	48	111	52	153	50	195	
28	48	70	47	112	52	154	49	196	
29	48	71	47	113	50	155	49	197	
30	47	72	47	114	51	156	49	198	
31	48	73	47	115	51	157	49	199	
32	48	74	47	116	52	158	410	200	
33	47	75	48	117	53	159	48	201	
34	48	76	47	118	52	160	48	202	
35	48	77	47	119	50	161	48	203	
36	48	78	48	120	50	162	48	204	
37	48	79	47	121	50	163	48	205	
38	48	80	47	122	50	164	48	206	
39	49	81	47	123	51	165	47	207	
40	47	82	48	124	[illegible]	166	47	208	
41	[illegible]	83	49	125	51	167	47	209	

LOUISIANA-PACIFIC CORPORATION

PRESS REPORT SAGOLA MICHIGAN *PRESS REPORT*

OPERATOR Beasley DATE 1-29-92

SHIFT Day CREW A

BLOW OUT:

F.L. RADIATORS . .	530	GREASE COLUMNS .	900
HYD. COOLING FANS .	1230	FLUSH BLENDER . .	✓
PRESS COOLING FANS.	630	BAGHOUSE PRESSURE	75
F.C.O.S.	545	HYD. OIL TEMP . .	126
FORMER DECK	✓	✓ PIT/RETURN CNVS	730
LOADER	530	CLEAN DECKLE CHAIN	545
UNLOADER	500	CLEAN BLENDERS . .	✓
PRESS	715/800	CLEAN TAIL PULLEYS	[illegible]

Line Speed	From	To	Thickness	Press Loads
75	7:00	8:30	7/16	21
85	8:30		7/16	177
				198

DOWNTIME FROM	TO	M	E	O	DOWNTIME MINUTES	REASON FOR DOWNTIME
9:23	9:25				2	PRESS Tail on #3 slide back
12:34	12:35	✓			1	Loader Rescanned HR FLT 5
1:07	1:08		✓		1	FLT. 8 - Loader limit switch stuck
1:17	1:18	✓			1	Loader Rescanned HR 202 FLT 5
2:49	2:50	✓			1	Loader Rescanned #214 FLT 5
6:14	6:15	✓			1	Loader Rescanned HR FLT 7
					7	

DOWNTIME CODES: M-Mechanical E-Electrical O-Operator

61

TIME OF POSITION (seconds)

1	48	43	46	85	44	127	45	169	[illegible]
2	48	44	46	86	44	128	45	170	44
3	48	45	45	87	44	129	45	171	44
4	47	46	46	88	44	130	44	172	44
5	47	47	41	89	44	131	44	173	44
6	47	48	45	90	44	132	44	174	44
7	46	49	45	91	44	133	44	175	44
8	46	50	45	92	44	134	44	176	44
9	46	51	46	93	44	135	44	177	44
10	47	52	46	94	44	136	44	178	45
11	47	53	46	95	44	137	45	179	49
12	47	54	46	96	44	138	47	180	49
13	47	55	46	97	44	139	48	181	49
14	47	56	47	98	44	140	47	182	49
15	47	57	47	99	44	141	49	183	50
16	48	58	46	100	44	142	49	184	50
17	48	59	46	101	44	143	48	185	44
18	48	60	46	102	45	144	47	186	47
19	47	61	46	103	44	145	45	187	41
20	47	62	45	104	45	146	45	188	41
21	45	63	45	105	45	147	44	189	41
22	43	64	45	106	44	148	44	190	44
23	45	65	45	107	45	149	43	191	42
24	46	66	46	108	45	150	43	192	42
25	46	67	46	109	44	151	43	193	42
26	47	68	45	110	44	152	42	194	42
27	48	69	45	111	44	153	45	195	42
28	47	70	45	112	44	154	46	196	42
29	48	71	46	113	45	155	46	197	42
30	47	72	46	114	45	156	46	198	42
31	47	73	46	115	44	157	45	199	
32	46	74	46	116	45	158	45	200	
33	46	75	46	117	45	159	44	201	
34	46	76	46	118	46	160	44	202	
35	46	77	45	119	45	161	44	203	
36	45	78	45	120	47	162	44	204	
37	46	79	45	121	47	163	44	205	
38	46	80	45	122	46	164	44	206	
39	47	81	[illegible]	123	45	165	44	207	
40	46	82	44	124	44	166	44	208	
41	46	83	44	125	45	167	44	209	

LOUISIANA-PACIFIC CORPORATION

PRESS REPORT SAGOLA MICHIGAN *PRESS REPORT*

OPERATOR [illegible] DATE 1-29-92

SHIFT Night CREW C

BLOW OUT:

F.L. RADIATORS . .	10:00	GREASE COLUMNS .	6:10
HYD. COOLING FANS .	1:00	FLUSH BLENDER . .	—
PRESS COOLING FANS.	6:00	BAGHOUSE PRESSURE	6.5
F.C.O.S.	2:10	HYD. OIL TEMP . .	126°
FORMER DECK	12:40	✓ PIT/RETURN CONVS	7:30
LOADER	2:30	CLEAN DECKLE CHAIN	9:10
UNLOADER	5:30	CLEAN BLENDERS .	11:30
PRESS	2:[illegible]	CLEAN TAIL PULLEYS	[illegible]

Line Speed	From	To	Thickness	Press Loads
75	7:00	7:10	7/16	11
50	7:10	2:00	23/32 H	64
60	2:00	4:15	1/2	27
80	4:15	7:00	7/16	42
				144

DOWNTIME FROM	TO	M	E	O	DOWNTIME (MINS.)	REASON FOR DOWNTIME
6:04	6:05	✓			1	Dropped H.B. #20 in Loader Flite #9
6:20	6:21	✓			1	Dropped H.B. #4 in Loader Flt #2

DOWNTIME CODES: M-Mechanical E-Electrical O-Operator

TIME OF POSITION (seconds)

1 42	43 53	85 48	127 42	169
2 42	44 52	86 48	128 41	170
3 42	45 54	87 41	129 42	171
4 42	46 54	88 43	130 42	172
5 41	47 53	89 45	131 41	173
6 42	48 56	90 47	132 42	174
7 42	49 56	91 45	133 43	175
8 42	50 55	92 45	134 41	176
9 42	51 53	93 46	135 41	177
10 43	52 53	94 46	136 40	178
11 43	53 52	95 46	137 40	179
12 54	54 53	96 47	138 40	180
13 54	55 52	97 47	139 40	181
14 54	56 52	98 47	140 40	182
15 54	57 52	99 47	141 41	183
16 54	58 52	100 49	142 41	184
17 55	59 51	101 48	143 41	185
18 52	60 51	102 48	144 41	186
19 53	61 57	103 42	145	187
20 52	62 54	104 41	146	188
21 52	63 54	105 43	147	189
22 52	64 54	106 45	148	190
23 51	65 54	107 45	149	191
24 51	66 53	108 43	150	192
25 51	67 55	109 44	151	193
26 52	68 55	110 44	152	194
27 51	69 54	111 44	153	195
28 51	70 53	112 44	154	196
29 51	71 53	113 43	155	197
30 51	72 53	114 43	156	198
31 53	73 53	115 42	157	199
32 52	74 51	116 42	158	200
33 54	75 45	117 42	159	201
34 54	76 46	118 42	160	202
35 54	77 48	119 42	161	203
36 52	78 48	120 42	162	204
37 52	79 49	121 42	163	205
38 52	80 48	122 42	164	206
39 52	81 47	123 41	165	207
40 52	82 45	124 42	166	208
41 52	83 47	125 41	167	209
42 51	84 [illegible]	126 42	168	210

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LOUISIANA-PACIFIC CORPORATION

PRESS REPORT* SAGOLA MICHIGAN *PRESS REPORT*

OPERATOR Beasley DATE 1-20-92

SHIFT DAY CREW A

BLOW OUT:

.L. RADIATORS . .	600	GREASE COLUMNS .	1130
YD. COOLING FANS .	1230	FLUSH BLENDER . .	
RESS COOLING FANS.	1230	BAGHOUSE PRESSURE	7.0
.C.O.S.	–	HYD. OIL TEMP . .	125
ORMER DECK	900	✓ PIT/RETURN CONVS	730
OADER	430	CLEAN DECKLE CHAIN	615
NLOADER	430	CLEAN BLENDERS . .	500
RESS	1230/430	CLEAN TAIL PULLEYS	100/600/530

Line Speed	From	To	Thickness	Press Loads
62	7:00	8:15	19/32	14
85	8:15	11:45	7/16	92
75	11:45	7:00	15/32	78
				184

DOWNTIME FROM	TO	M	E	O	downtime (mins.)	REASON FOR DOWNTIME
7:07	7:15	✓			8	N. Belt CC outfeed Rolls
11:24	11:25	✓			1	Loader Dropped #811 Fr 4
					9	

DOWNTIME CODES: M-Mechanical E-Electrical O-Operator

63

TIME OF POSITION (seconds)

1	54	43	42	85	44	127	45	169	45
2	49	44	42	86	44	128	45	170	46
3	49	45	43	87	43	129	44	171	46
4	48	46	42	88	43	130	44	172	46
5	49	47	43	89	43	131	44	173	48
6	49	48	42	90	42	132	45	174	49
7	49	49	44	91	42	133	45	175	50
8	49	50	44	92	44	134	46	176	49
9	49	51	44	93	41	135	46	177	49
10	48	52	44	94	41	136	46	178	47
11	48	53	44	95	42	137	46	179	47
12	48	54	44	96	42	138	46	180	46
13	48	55	45	97	42	139	47	181	46
14	46	56	44	98	43	140	47	182	46
15	44	57	44	99	44	141	47	183	45
16	41	58	45	100	43	142	47	184	45
17	42	59	44	101	43	143	47	185	
18	42	60	44	102	43	144	47	186	
19	42	61	45	103	43	145	47	187	
20	43	62	43	104	43	146	48	188	
21	42	63	44	105	43	147	48	189	
22	42	64	44	106	44	148	49	190	
23	41	65	43	107	47	149	48	191	
24	41	66	44	108	45	150	48	192	
25	42	67	44	109	45	151	49	193	
26	42	68	44	110	46	152	48	194	
27	42	69	45	111	47	153	48	195	
28	42	70	44	112	47	154	49	196	
29	42	71	43	113	47	155	49	197	
30	42	72	43	114	47	156	49	198	
31	42	73	43	115	46	157	48	199	
32	42	74	43	116	46	158	47	200	
33	43	75	43	117	46	159	47	201	
34	43	76	44	118	47	160	47	202	
35	42	77	44	119	47	161	47	203	
36	42	78	44	120	47	162	47	204	
37	41	79	46	121	47	163	46	205	
38	42	80	47	122	46	164	47	206	
39	42	81	45	123	46	165	47	207	
40	42	82	44	124	47	166	46	208	
41	42	83	44	125	46	167	46	209	
[illegible]	42	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

LOUISIANA-PACIFIC CORPORATION

PRESS REPORT SAGOLA MICHIGAN *PRESS REPORT*

OPERATOR [illegible] DATE 1-20-92

SHIFT Night CREW C

BLOW OUT:

F.L. RADIATORS . . [illegible]
HYD. COOLING FANS . 5:00
PRESS COOLING FANS. 5:0[illegible]
F.C.O.S. 1:15-4:15
FORMER DECK 12:00
LOADER 11:00-5:00
UNLOADER 11:00
PRESS 11:30-5:30

GREASE COLUMNS . 6:30
FLUSH BLENDER . .
BAGHOUSE PRESSURE 8
HYD. OIL TEMP . . 124°
✓ PIT/RETURN CONVS 2:30
CLEAN DECKLE CHAIN 1:00-4:20
CLEAN BLENDERS . . 9:00
CLEAN TAIL PULLEYS 7:00

Line Speed	From	To	Thickness	Press Loads
72	7:00	7:30	15/32	6
45	7:30	9:00	23/32 H	24
45	9:40	10:00	23/32 [illegible]	2
75	11:30	1:30	[illegible]	30
72	[illegible]	7:00	7/16	14

DOWNTIME

FROM	TO	M	E	O	downtime mins.	REASON FOR DOWNTIME

DOWNTIME CODES: M-Mechanical E-Electrical O-Operator

TIME OF POSITION (seconds)

1 46	43 55	85 44	127	169
2 46	44 55	86 45	128	170
3 [illegible]	45 [illegible]	87 44	129	171
4 [illegible]	46 57	88 44	130	172
5 [illegible]	47 57	89 45	131	173
6 [illegible]	48 57	90 45	132	174
7 52	49 56	91 48	133	175
8 53	50 55	92 47	134	176
9 54	51 52	93 48	135	177
10 50	52 52	94 49	136	178
11 50	53 53	95 49	137	179
12 50	54 55	96 49	138	180
13 53	55 54	97 48	139	181
14 54	56 55	98 48	140	182
15 53	57 57	99 48	141	183
16 52	58 57	100 48	142	184
17 53	59 57	101 48	143	185
18 53	60 57	102 47	144	186
19 54	61 57	103 47	145	187
20 5[illegible]	62 55	104 46	146	188
21 54	63 55	105 46	147	189
22 56	64 52	106 46	148	190
23 54	65 56	107 49	149	191
24 55	66 55	108 48	150	192
25 57	67 56	109 48	151	193
26 58	68 57	110 48	152	194
27 59	69 56	111 46	153	195
28 57	70 56	112 47	154	196
29 57	71 56	113 46	155	197
30 57	72 55	114 45	156	198
31 57	73 55	115 44	157	199
32 5[illegible]	74 55	116 44	158	200
33 5[illegible]	75 54	117 44	159	201
34 5[illegible]	76 54	118 44	160	202
35 5[illegible]	77 54	119 44	161	203
36 55	78 57	120 44	162	204
37 55	79 51	121 43	163	205
38 54	80 53	122 43	164	206
39 55	81 52	123 44	165	207
40 5[illegible]	82 49	124 45	166	208
41 55	83 45	125	167	209

LOUISIANA-PACIFIC CORPORATION

PRESS REPORT SAGOLA MICHIGAN *PRESS REPORT*

OPERATOR Blasien DATE 1-[illegible]-[illegible]

SHIFT DAY CREW A

BLOW OUT:

F.L. RADIATORS . .	___	GREASE COLUMNS .	___
HYD. COOLING FANS .	___	FLUSH BLENDER . .	___
PRESS COOLING FANS.	___	BAGHOUSE PRESSURE	___
F.C.O.S.	___	HYD. OIL TEMP . .	___
FORMER DECK	___	✓ PIT/RETURN CONVS	___
LOADER	___	CLEAN DECKLE CHAIN	___
UNLOADER	___	CLEAN BLENDERS . .	___
PRESS	___	CLEAN TAIL PULLEYS	___

Line Speed	From	To	Thickness	Press Loads
62	7:00	7:20	19/32 SE	5
75	7:20	9:15	1/2	26
75	9:15	12:45	15/32	49
57	12:45	3:30	7/16	45 [illegible]

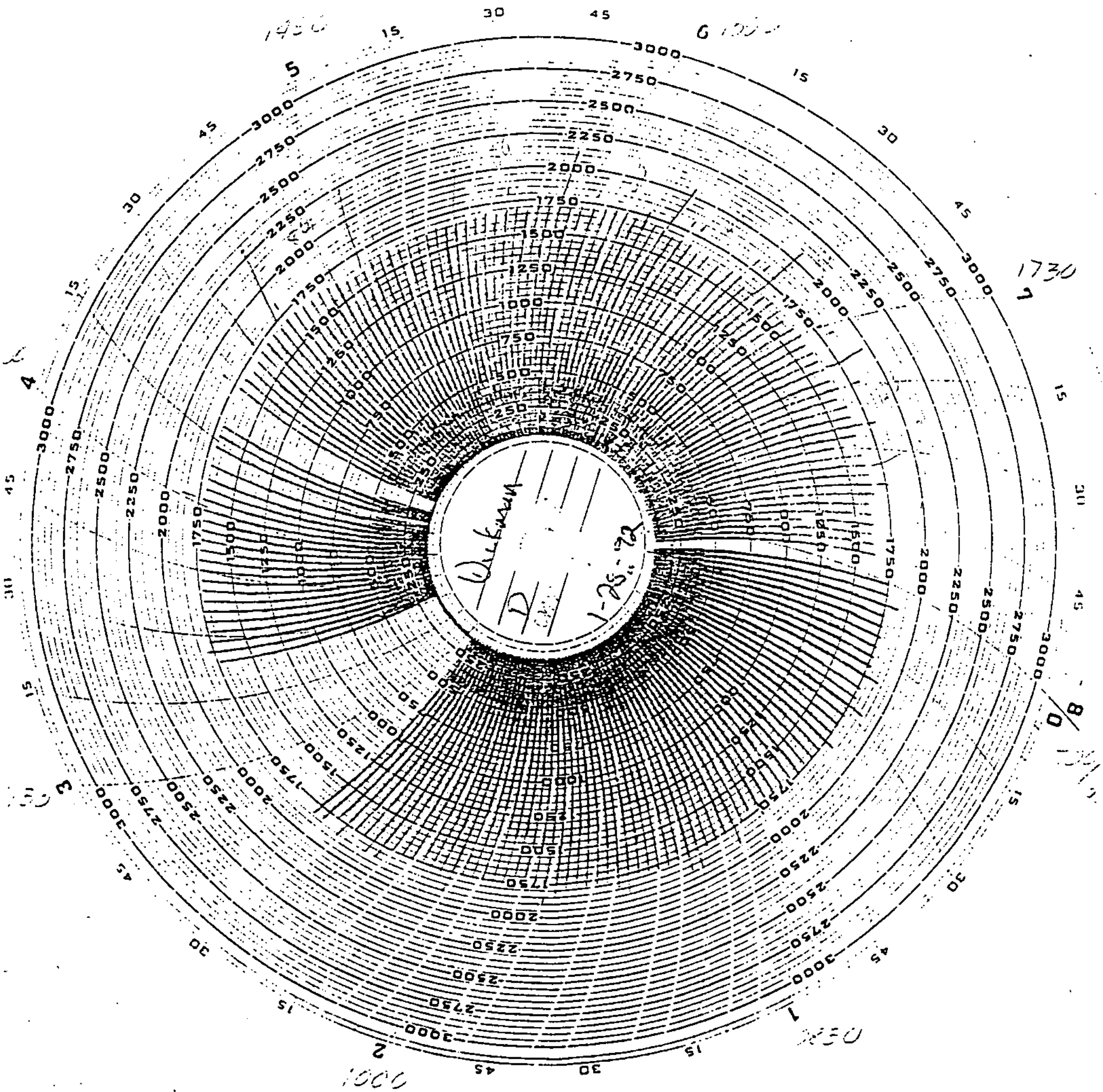
DOWNTIME FROM	TO	M	E	O	downtime (mins.)	REASON FOR DOWNTIME
8:51	9:05	✓			14	Loose plate Flt. 12 Press
10:23	10:25	✓			2	Lost [illegible] shaft incline Belt stacked
12:35	12:40	✓			5	Loose plate Flt. 12 Press

DOWNTIME CODES: M-Mechanical E-Electrical O-Operator

TIME OF POSITION (seconds)

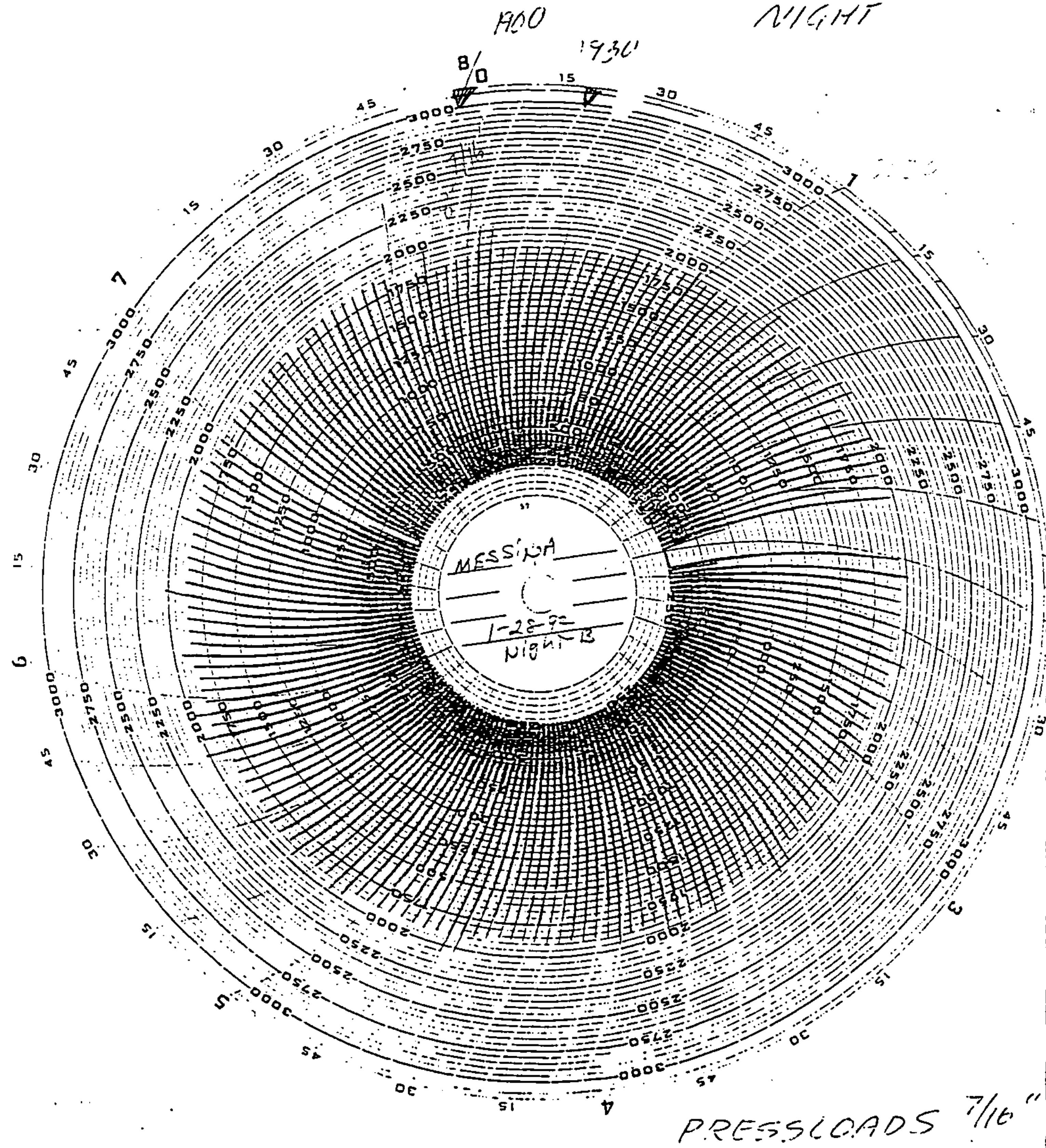
1	49	43	42	85	44	127		169	
2	47	44	43	86	45	128		17	
3	47	45	44	87	45	129		171	
4	49	46	46	88	46	130		17	
5	47	47	46	89	46	131		17	
6	49	48	48	90	47	132		174	
7	46	49	47	91	47	133		17	
8	46	50	49	92	47	134		17	
9	47	51	49	93	48	135		177	
10	47	52	49	94	48	136		17	
11	47	53	50	95	48	137		17	
12	47	54	49	96	46	138		180	
13	47	55	49	97	46	139		18	
14	48	56	49	98	47	140		182	
15	48	57	49	99	47	141		183	
16	50	58	48	100	47	142		18	
17	51	59	48	101	47	143		185	
18	51	60	48	102	46	144		186	
19	52	61	48	103	47	145		187	
20	51	62	48	104	47	146		188	
21	51	63	47	105	47	147		189	
22	50	64	48	106	48	148		190	
23	47	65	48	107	47	149		191	
24	47	66	47	108	46	150		192	
25	46	67	47	109	47	151		193	
26	45	68	47	110	47	152		194	
27	46	69	46	111	47	153		195	
28	45	70	47	112	47	154		196	
29	44	71	47	113	47	155		197	
30	43	72	46	114	47	156		198	
31	43	73	47	115	47	157		199	
32	44	74	47	116	47	158		200	
33	44	75	48	117	48	159		201	
34	44	76	47	118	48	160		202	
35	44	77	47	119	49	161		203	
36	44	78	47	120	48	162		204	
37	43	79	49	121	47	163		205	
38	42	80	49	122	47	164		206	
39	42	81	48	123	46	165		207	
40	42	82	47	124	46	166		208	

SAGULA
PRESS CHART
1-28-92
DAY



PRESSLOADS 7/16"
1400 - 1900 = 83

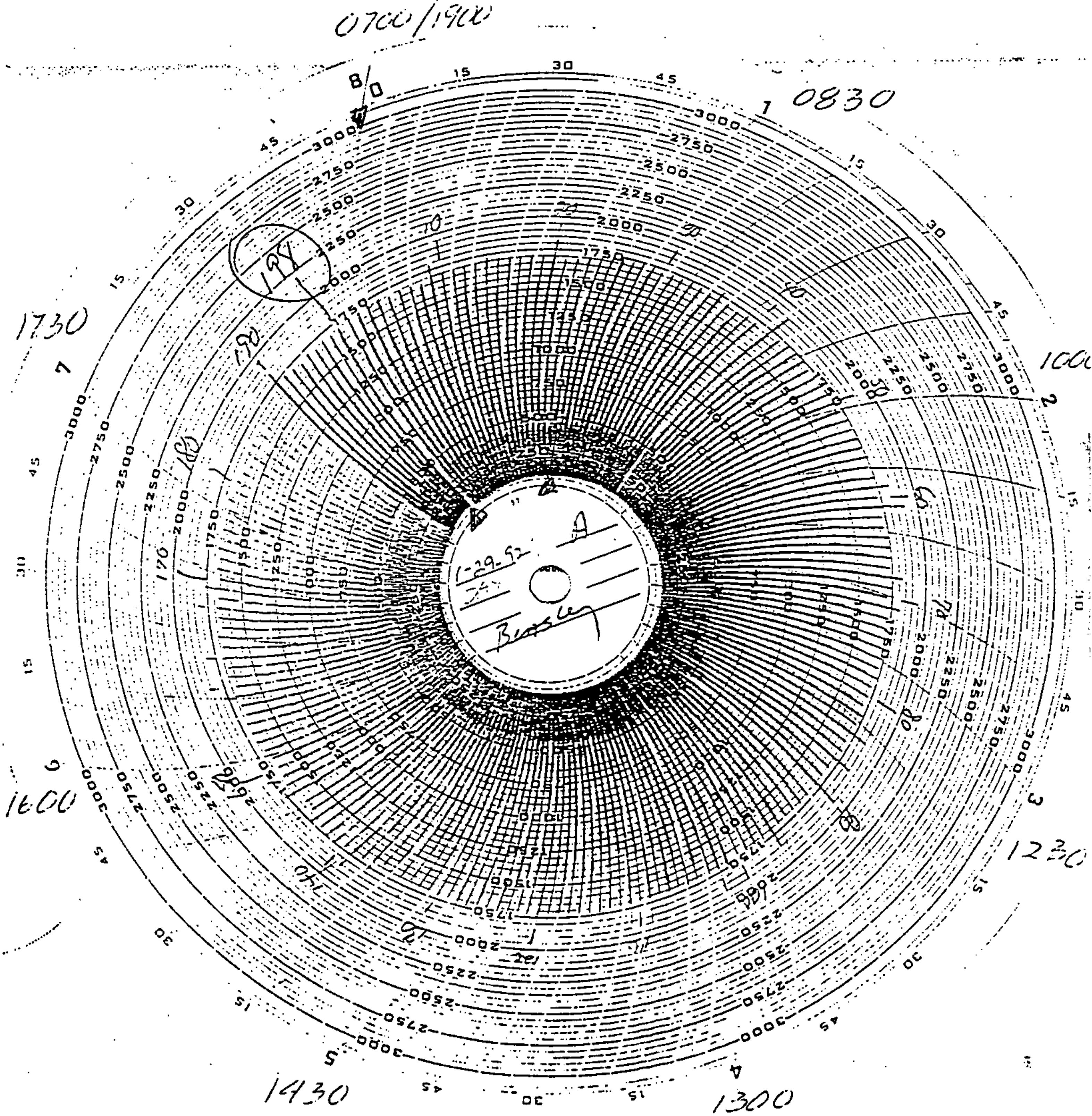
SAGOLA
PRESS CHART
1-28-92
NIGHT



PRESSLOADS 7/16"
1900 - 1930 = 8

SAYULA
PRESS CHART
1-29-92

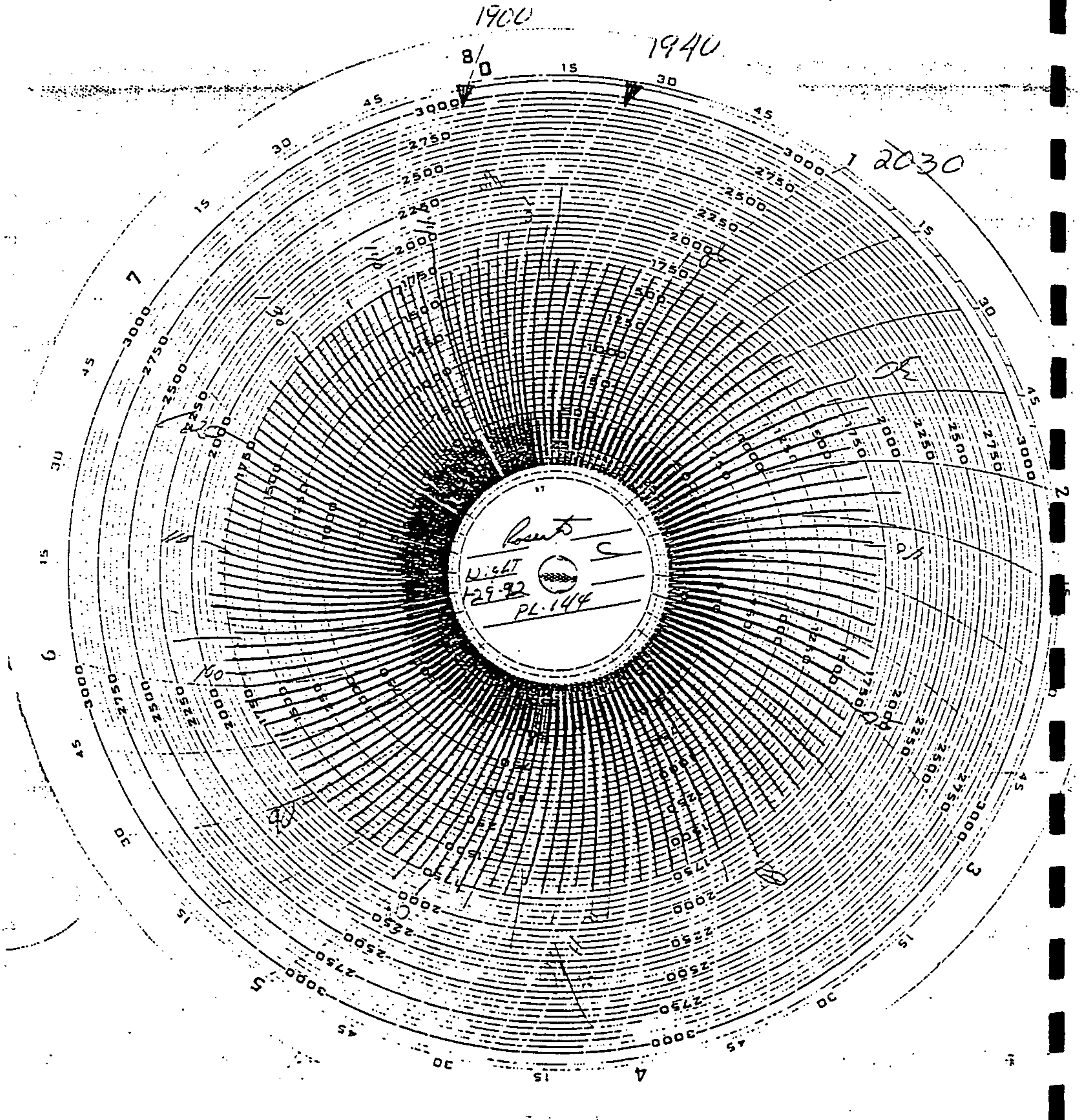
DAYS



PRESSLOADS
0830 - 1900 = 177 7/16

SAGOLA
PRESS CHART
1-29-92

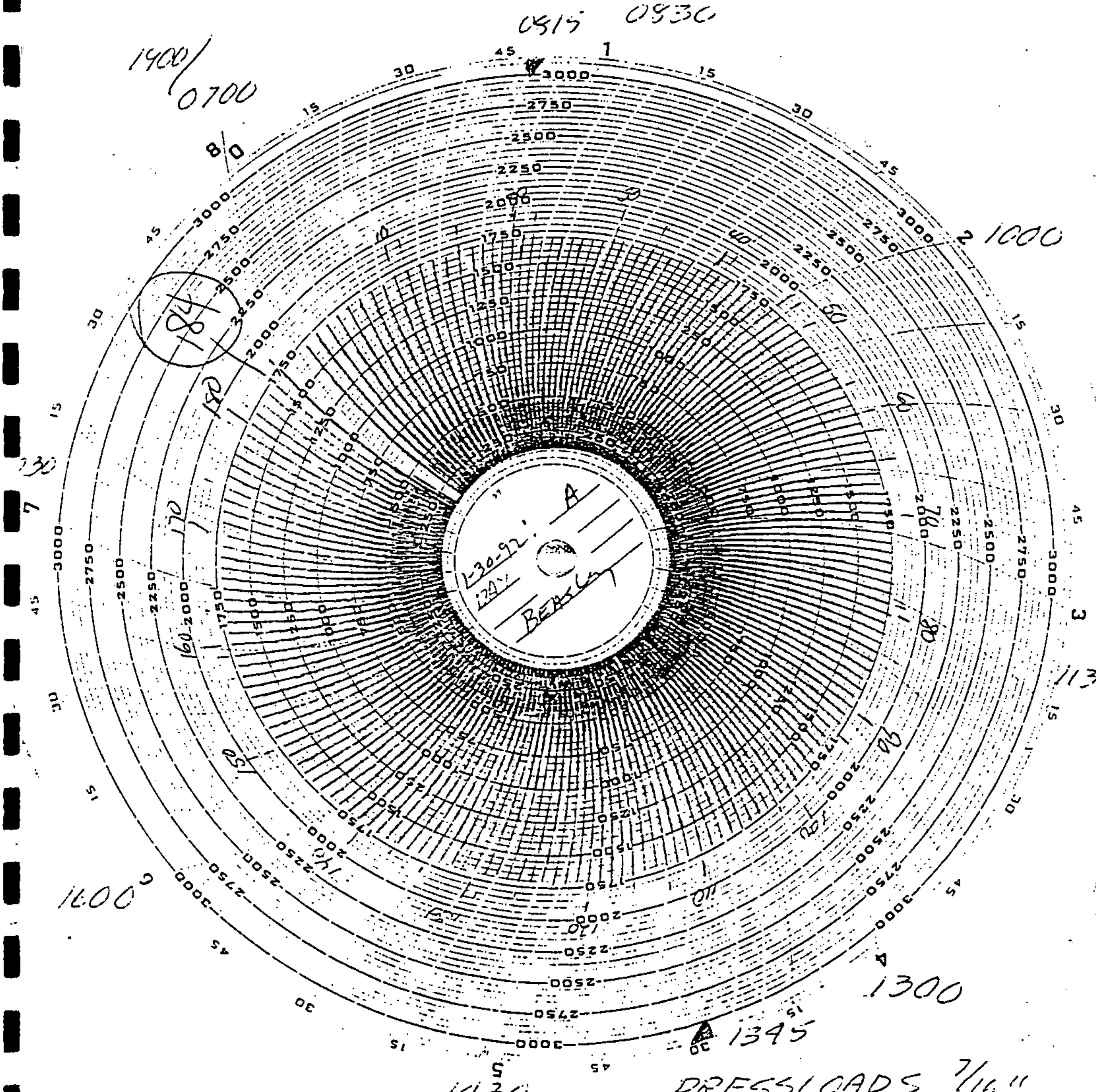
NIGHTS



PRESSLOADS 7/16"
1900 - 1940 = 11

SIAGULA
PRESS CHART
1-30-92

DAYS

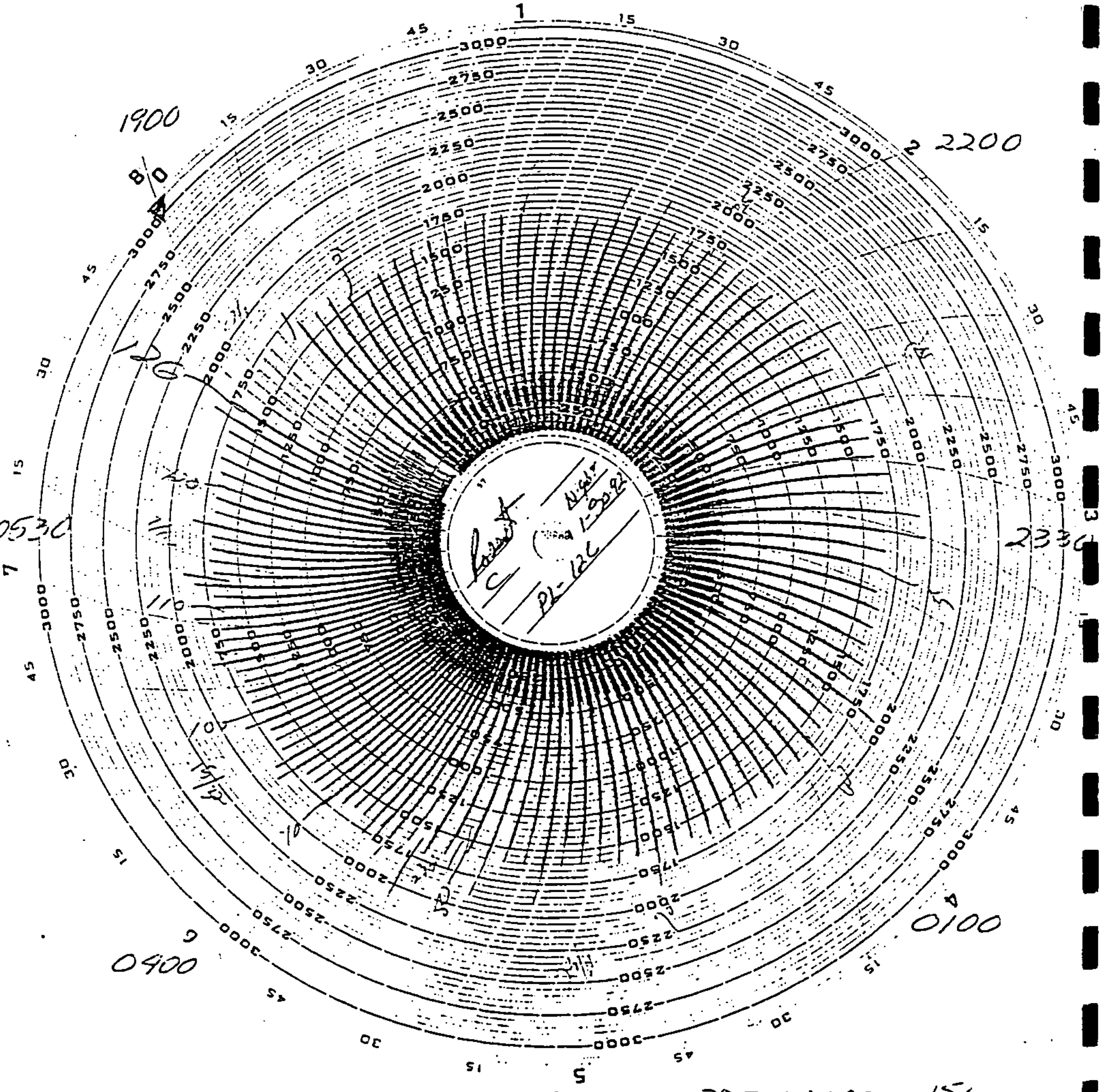


PRESSLOADS 7/16"
0815 - 1345 = 92

PRESSLOADS
15/32" = 1345-1900 = 78

SAGOLA
PRESS CHART
1-30-92

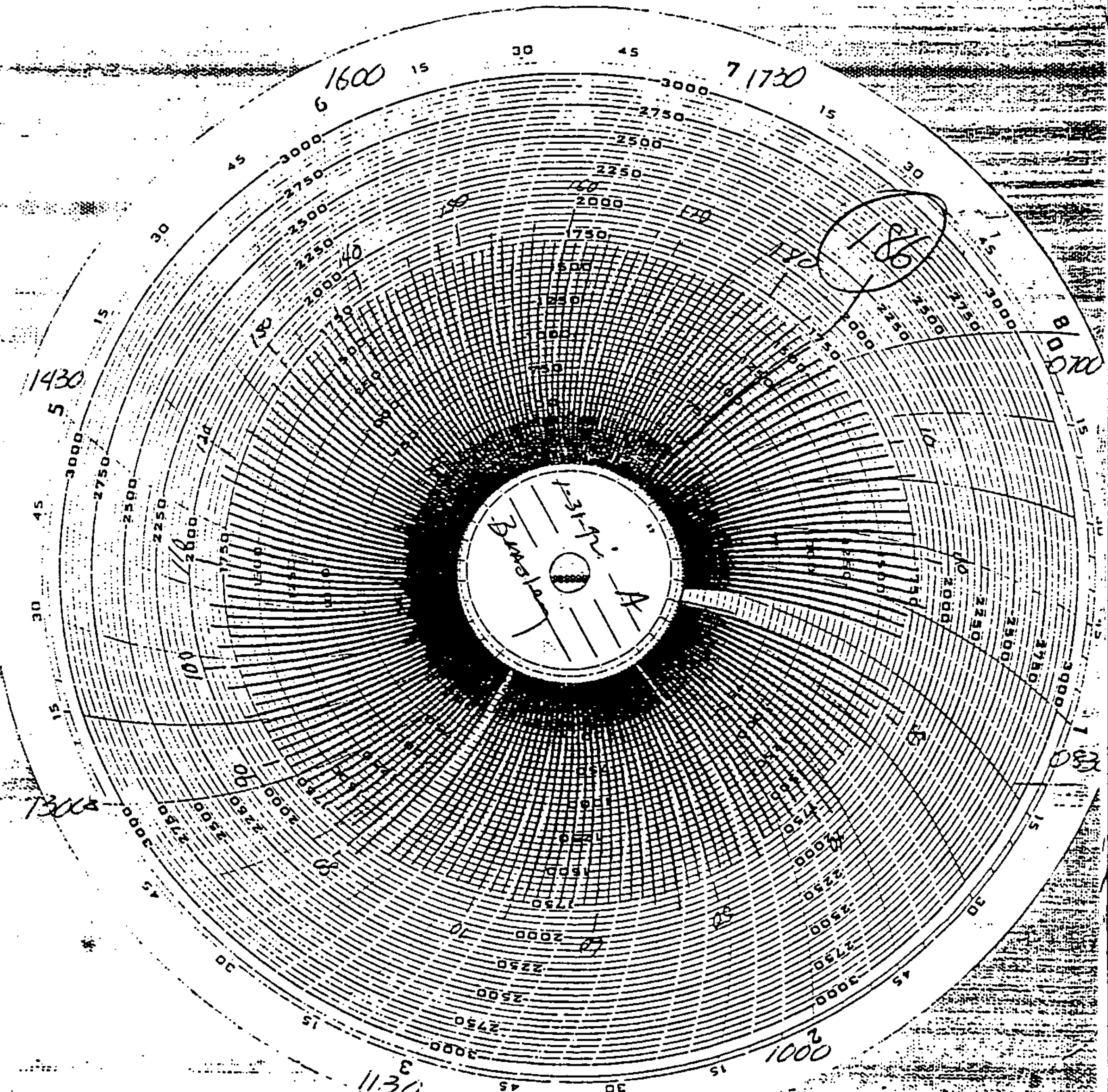
NIGHTS



PRESSLOADS 15/32"
1900-1930 = 6
23/32" 1930-0340 = 74

PRESSLOADS 15/32"
1900 - 1930 = 6
PRESSLOADS 23/32"
1930 - 0340 = 74

SAGOLA
PRESS CHART
1-31-92



PRESSLOADS
15/32" 0915 - 1245 = 49

PRESSLOADS
7/16" 1245

PRESSLOADS
15/32" 0915 - 1245 = 49

7/16" 1245 - 1900 = 106

T-O HEATER LOG

DATE: 1-30-92

PLANT: SAGOLA

BY: OPERATOR

FUEL FEED SETTING: AUTO

POND SET POINT: 125°

BLDG HEAT SET POINT: 135°

T-O OUTLET SET POINT: 500°

1. READINGS EVERY 10 MINUTES.
2. BARK MOISTURE ONCE PER HOUR.
3. NOTE IF SET-POINTS ARE CHANGED.

TIME	OIL TEMP		FLOW	FUEL COUNT		FURNACE TEMP	BARK MOISTURE	E F B DATA					
								BED		IONIZER		Pressure DROP	
	IN OUT	OUT IN	(mb)	A	B		%	KV	MA	KV	MA	E.F.B.	BAGHOUSE
2:30	489	426	.26	754	754	1405	35.5	9	.4	29	4.4	6.5	2.9
2:45	489	426	.26	778	778	1406		9	.4	30	4	6.7	2.9
3:00	486	425	.26	791	791	1407		9.1	.3	29	4.3	6.4	2.9
3:15	488	426	.26	820	820	1408		9.2	.3	29	4.1	6.7	2.9
3:30	485	423	.26	841	841	1408		9.2	.4	29	4.3	6.9	2.9
3:45	488	423	.26	859	859	1406		9.1	.4	30	3.3	6.9	2.9
4:00	486	423	.26	883	883	1405	41	9.1	.4	30	3.8	6.9	2.9
4:15	485	425	.26	911	911	1405		9.1	.3	29	4.4	6.4	2.9
4:30	483	424	.26	936	936	1405		9.1	.3	28	4.7	6.6	2.9
4:45	484	424	.26	958	958	1404		9.2	.3	29	4.2	6.9	2.9
5:00	488	426	.26	982	982	1414		9.1	.3	30	4.2	6.9	2.9
5:15	487	425	.26	1029	1029	1407	36	9.1	.3	28	4.6	6.7	2.9
5:30	488	427	.26	1047	1047	1406		9.1	.4	28	4.5	6.9	2.9
5:45	489	426	.26	1072	1072	1407		9.0	.4	30	3.6	6.7	2.9
6:00	490	427	.26	1090	1090	1408		9.0	.4	29	4.2	6.9	2.9
6:15	490	427	.26	1110	1110	1406	39.5	9.0	.5	29	4.1	6.9	2.9
6:30	488	424	.26	1142	1142	1406		9.0	.5	29	4.1	7.1	2.9
6:45	484	423	.26	1167	1167	1404		9.0	.5	29	3.7	7.1	2.9
7:00	483	422	.26	1186	1186	1404		9.0	.5	28	4.5	7.1	2.9
7:15	484	421	.26	21	21	1402		9.0	.5	28	4.5	7.0	2.9
7:30	483	422	.26	47	47	1398	35.2	9.0	.5	30	4.5	6.9	2.9
7:45	485	425	.26	67	67	1395		9.0	.5	29	4.0	6.7	3.0
8:00	486	424	.26	97	97	1395		9.0	.5	29	4.7	6.8	3.0
8:15	487	425	.26	123	123	1395		9.0	.45	29	4.3	6.8	3.0
8:30	491	429	.26	150	150	1395	35.3	9.0	.45	29	4.6	6.5	3.0
8:45	484	425	.26	174	174	1392		9.0	.45	29	4.4	6.6	3.0
9:00	481	422	.26	202	202	1410		9.0	.45	28	4.4	6.7	3.0
9:15	491	429	.26	226	226	1393		9.0	.5	29	4.0	7.0	3.0
9:30	499	437	.26	262	262	1393	37.7	9.0	.5	29	4.3	7.1	3.0
9:45	504	442	.26	287	287	1392		9.0	.55	29	4.4	6.8	3.0
[illegible]	[illegible]	412	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	.6	[illegible]	[illegible]	6	2.9

73

T-O HEATER LOG

DATE: 1-30-92 Night

PLANT: SAGOLA

BY: OPERATOR

1. READINGS EVERY 10 MINUTES.
2. BARK MOISTURE ONCE PER HOUR.
3. NOTE IF SET-POINTS ARE CHANGED.

FUEL FEED SETTING: AUTO
POND SET POINT: 125° F
BLDG HEAT SET POINT: 135° F
T-O OUTLET SET POINT: 500° F

TIME	OIL TEMP		FLOW	FUEL COUNT		FURNACE	BARK MOISTURE	E F B DATA					
								BED		IONIZER		Pressure DROP	
	OUT	IN	(mb)	A	B	TEMP	%	KV	MA	KV	MA	E.F.B.	BAGHOUSE
10:15	497	436	.26	330	330	1392		8.8	.6	29	3.8	6.8	3.0
10:30	498	432	.26	354	354	1392	36.1	8.8	.6	28	4.4	6.9	3.1
10:45	496	431	.26	376	376	1392		8.8	.6	28	4.5	6.8	3.1
11:00	496	430	.26	404	404	1394		8.8	.6	29	4.4	7.1	3.1
11:15	493	432	.26	422	422	1392		8.8	.6	30	3.8	7.1	3.1
11:30	494	432	.26	450	450	1389	36.5	8.8	.6	29	4.0	6.8	3.0
11:45	491	429	.26	469	469	1401		8.8	.6	28	4.6	7.0	3.1
12:00	492	429	.26	484	484	1412		8.8	.6	28	4.8	6.8	3.1
12:15	489	425	.26	515	515	1414		8.7	.6	29	4.6	6.6	3.0
12:30	494	432	.26	540	540	1415	38.8	8.8	.6	29	4.2	6.6	3.1
12:45	496	435	.26	569	569	1414		8.4	.55	28	4.8	6.5	3.3
1:00	496	434	.26	606	606	1394		8.4	.55	28	4.6	6.6	3.1
1:15	492	438	.26	642	642	1392		9.0	.5	28	4.5	6.4	3.1
1:30	496	433	.26	677	677	1388	37.9	9.0	.5	29	4.0	6.5	3.1
1:45	494	434	.26	704	704	1386		9.0	.5	28	4.8	6.4	3.1
2:00	499	436	.26	739	739	1386		9.0	.5	28	4.6	6.4	3.1
Testing	Done.							9.0	.4	28	4.9	6.1	3.3
9:15	501	450	.26	267	267	1412		9.0	.4	28	4.9	6.1	3.3
9:30	484	415	.26	298	298	1413		9.0	.4	30	3.7	7.1	3.3
9:45	486	416	.26	311	311	1423		9.0	.5	28	3.3	7.2	3.3
10:00	487	417	.26	326	326	1428		9.0	.5	28	3.4	7.3	3.3
10:15	493	421	.26	347	347	1429		9.0	.5	28	3.2	7.3	3.5
10:30	475	414	.26	372	372	1418	30.5	9.0	.4	27	3.7	7.0	3.4
10:45	483	415	.26	396	396	1418		9.0	.4	27	3.6	6.3	3.3
11:00	485	416	.26	418	418	1415		9.0	.5	28	3.5	6.1	3.1
11:15	491	421	.26	443	443	1418		9.0	.5	28	3.3	6.5	3.3
11:30	488	423	.26	473	473	1414	36.9	9.0	.5	27	4.0	6.1	3.1
11:45	487	420	.26	495	495	1416		9.0	.4	28	3.7	6.1	3.3
12:00	488	414	.26	519	519	1421		9.0	.4	28	3.5	6.1	3.3
12:15	494	421	.26	533	533	1423		9.0	.5	28	3.6	6.3	3.3
12:30	495	435	.26	560	560	1423		9.0	.5	28	4.2	5.8	3.3

T-O HEATER LOG

DATE: 1-31-92

PLANT: SAGOLA

BY: OPERATOR

1. READINGS EVERY 10 MINUTES.
2. BARK MOISTURE ONCE PER HOUR.
3. NOTE IF SET-POINTS ARE CHANGED.

FUEL FEED SETTING: AUTO

POND SET POINT: 125 °F

BLDG HEAT SET POINT: 135 °F

T-O OUTLET SET POINT: 500 °F

TIME	OIL TEMP		FLOW	FUEL COUNT		FURNACE TEMP	BARK MOISTURE	E F B DATA					
								BED		IONIZER		Pressure DROP	
	HT OUT	OUT IN	(mb)	A	B		%	KV	MA	KV	MA	E.F.B.	BAGHOUSE
12:45	498	433	.26	580	580	1419	38.1	9.0	.5	28	3.7	6.0	3.3
1:00	495	430	.26	608	608	1418		9.0	.5	28	4.0	6.3	3.4
1:15	484	417	.26	636	636	1422		9.0	.5	28	3.2	6.3	3.3
1:30	487	419	.26	651	651	1432		9.0	.5	28	3.6	6.1	3.3
1:45	466	407	.26	670	670	1425		9.0	.4	28	4.0	5.3	3.3
2:00	473	407	.26	691	691	1422	35.5	9.0	.4	28	4.0	5.7	3.3
2:15	483	412	.26	703	703	1429		9.0	.4	28	3.3	6.0	3.4
2:30	487	420	.26	726	726	1431		9.0	.5	28	3.9	6.3	3.4
2:45	494	408	.26	749	749	1432		9.0	.5	28	4.0	5.5	3.4
3:00	492	431	.26	784	784	1425		9.0	.5	28	3.7	5.5	3.4
3:15	485	422	.26	811	811	1427		9.0	.5	28	3.9	5.3	3.3
3:30	489	423	.26	830	830	1429		9.0	.5	28	3.5	5.4	3.4

LOUISIANA – PACIFIC CORPORATION

ENGINEERING OFFICE
Route 8 – BOX 8263
HAYWARD, WI. 54843
715-634-3454 Phone
715-634-5963 Fax

FAX TRANSMITTAL SHEET

TO: T. NELSON DATE: 2-10-92
FROM: SOMERS # PAGES 2
(INCLUDING COVER PAGE)

MESSAGE:

MATRIX OF PERMIT CONDITIONS FOR SAGOLA FOR REPORT.

BTU'S ON ~~[illegible]~~ GEKA TO BE BASED ON F FACTOR

I'll PROVIDE TFP (TONS OF FINISHED PRODUCT) + BTU'S FOR DRYER

FAX TRANSMITTED AS CHECKED BELOW:

- [ ] FOR APPROVAL
- [ ] FOR YOUR USE
- [ ] AS REQUESTED
- [ ] FOR REVIEW & COMMENT
- [ ] OTHER
- [ ] APPROVED AS SUBMITTED
- [ ] APPROVED AS NOTED
- [ ] RETURNED FOR CORRECTIONS

SAGOLA 1992 TESTING
PERMIT LIMITS TO BE COMPARED TO TEST RESULTS

	PARTICULATE	CARBON MONOXIDE	VOLATILE ORGANIC COMPOUNDS	FORMALDEHYDE	PM-10
DRYERS	– 0.32 LB / TFP	– 1.45 LB / TFP – 1.41 LB / mm BTU	– 0.25 LB / TFP – 0.26 LB / mm BTU	– 0.20 LB / TFP – 25.79 mg/m³ @ 70° F AND 29.92 mm Hg	N/A
T.O. HEATER	– 8.89 LB / HR – 0.15 LB / mm BTU – 0.10 LB / 1000 LB GAS @ 50% EXCESS AIR	– 24.6 LB / HR – 0.41 LB / mm BTU	– 3.6 LB / HR – 0.06 LB / mm BTU	n/A	N/A
PRESS VENTS	– 35.48 LB / HR – 1.44 LB / TFP – 0.038 LB / 1000 LB GAS @ 50% EXCESS AIR	N/A	– 18.46 LB / HR – 0.48 LB / TFP	– 5.32 LB / HR – 0.217 LB / TFP – 10.76 mg / m³ @ 70° F AND 29.92 mm Hg	N/A

9290

Source category: Reconstituted wood products
Plant name : L-P, Sagola (dryers)
Test date : 1/28 - 1/31, 1992
Process : wafer board

Date:
Location:
Ref. No. 77
Basis for process rate :

Source	Type of control	Pollutant	Run No.	Emission rate, lb/hr	Process rate, ton/hr	Emission factor kg/Mg	Emission factor lb/ton
Rotary dryer	Cyclone+	filt. PM	1			ERR	ERR
Wood-fired		filt. PM	2			ERR	ERR
surf/core	electrified	filt. PM	3			ERR	ERR
	filter bed	AVERAGE				ERR	ERR
		condens. PM	1			ERR	ERR
		condens. PM	2			ERR	ERR
		condens. PM	3			ERR	ERR
		AVERAGE				ERR	ERR
		PM-10	1	11.61	11.86	0.49	0.98
		PM-10	2	12.20	11.86	0.51	1.03
		PM-10	3	19.46	11.86	0.82	1.64
		AVERAGE				0.61	1.22
		condens. PM	1	ND		ERR	ERR
		condens. PM	2	ND		ERR	ERR
		condens. PM	3	ND		ERR	ERR
		AVERAGE				ERR	ERR
		CO	1			ERR	ERR
		CO	2			ERR	ERR
		CO	3			ERR	ERR
		AVERAGE				ERR	ERR
		CO2	1/1			ERR	ERR
		CO2	1/2			ERR	ERR
		CO2	1/3			ERR	ERR
		CO2	2/1			ERR	ERR
		CO2	2/2			ERR	ERR
		CO2	2/3			ERR	ERR
		CO2	3/1			ERR	ERR
		CO2	3/2			ERR	ERR
		CO2	3/3			ERR	ERR
		AVERAGE				ERR	ERR
		formaldehyde	1			ERR	ERR
		formaldehyde	2			ERR	ERR
		formaldehyde	3			ERR	ERR
		AVERAGE				ERR	ERR
		total hydrocarbon	1			ERR	ERR
		total hydrocarbon	2			ERR	ERR
		total hydrocarbon	3			ERR	ERR
		AVERAGE				ERR	ERR

PM-10 – same numbers – need to note that this is PM-10 (just half) only – no condensibles available – in M202 w/ the PM-10 runs

Source category:	Reconstituted wood products	Date:
Plant name :	L-P, Sagola (dryers)	Location:
Test date :	1/28 - 1/31, 1992	Ref. No.:
Process :	wafer board	Basis for process rate :

Source	Type of control	Pollutant	Run No.	Emission rate, lb/hr	Process rate, ton/hr	Emission factor kg/Mg	Emission factor lb/ton
::							
Rotary dryer Wood-fired surface	Cyclone+ electrified filter bed	filt. PM	1			ERR	ERR
		filt. PM	2			ERR	ERR
		filt. PM	3			ERR	ERR
				AVERAGE		ERR	ERR
		condens. PM	1			ERR	ERR
		condens. PM	2			ERR	ERR
		condens. PM	3			ERR	ERR
				AVERAGE		ERR	ERR
		PM-10	1	8.27	11.87	0.35	0.70
		PM-10	2	9.16	11.87	0.39	0.77
		PM-10	3	9.34	11.87	0.39	0.79
				AVERAGE		0.38	0.75
		condens. PM	1	ND		ERR	ERR
		condens. PM	2	ND		ERR	ERR
		condens. PM	3	ND		ERR	ERR
				AVERAGE		ERR	ERR
		CO	1			ERR	ERR
		CO	2			ERR	ERR
		CO	3			ERR	ERR
				AVERAGE		ERR	ERR
		CO2	1/1			ERR	ERR
		CO2	1/2			ERR	ERR
		CO2	1/3			ERR	ERR
		CO2	2/1			ERR	ERR
		CO2	2/2			ERR	ERR
		CO2	2/3			ERR	ERR
		CO2	3/1			ERR	ERR
		CO2	3/2			ERR	ERR
		CO2	3/3			ERR	ERR
				AVERAGE		ERR	ERR
		formaldehyde	1			ERR	ERR
		formaldehyde	2			ERR	ERR
		formaldehyde	3			ERR	ERR
				AVERAGE		ERR	ERR
		total hydrocarbon	1			ERR	ERR
		total hydrocarbon	2			ERR	ERR

Source category:	Reconstituted wood products		Date:
Plant name :	L-P, Sagola (dryers)		Location:
Test date :	1/28 - 1/31, 1992		Ref. No.:
Process :	wafer board	Basis for process rate :	

Source	Type of control	Pollutant	Run No.	Emission rate, lb/hr	Process rate, ton/hr	Emission factor kg/Mg	Emission factor lb/ton
		total hydrocarbon	3			ERR	ERR
		AVERAGE				ERR	ERR

::

Source	Type of control	Pollutant	Run No.	Emission rate, lb/hr	Process rate, ton/hr	Emission factor kg/Mg	Emission factor lb/ton
Rotary dryer Wood-fired core	Cyclone+ electrified filter bed	filt. PM	1			ERR	ERR
		filt. PM	2			ERR	ERR
		filt. PM	3			ERR	ERR
		AVERAGE				ERR	ERR
		condens. PM	1			ERR	ERR
		condens. PM	2			ERR	ERR
		condens. PM	3			ERR	ERR
		AVERAGE				ERR	ERR
		PM-10	1	8.68	11.87	0.37	0.73
		PM-10	2	7.90	11.87	0.33	0.67
		PM-10	3	10.13	11.87	0.43	0.85
		AVERAGE				0.37	0.75
		condens. PM	1	ND		ERR	ERR
		condens. PM	2	ND		ERR	ERR
		condens. PM	3	ND		ERR	ERR
		AVERAGE				ERR	ERR
		CO	1			ERR	ERR
		CO	2			ERR	ERR
		CO	3			ERR	ERR
		AVERAGE				ERR	ERR
		CO2	1/1			ERR	ERR
		CO2	1/2			ERR	ERR
		CO2	1/3			ERR	ERR
		CO2	2/1			ERR	ERR
		CO2	2/2			ERR	ERR
		CO2	2/3			ERR	ERR
		CO2	3/1			ERR	ERR
		CO2	3/2			ERR	ERR
		CO2	3/3			ERR	ERR
		AVERAGE				ERR	ERR
		formaldehyde	1			ERR	ERR
		formaldehyde	2			ERR	ERR
		formaldehyde	3			ERR	ERR
		AVERAGE				ERR	ERR

Source category: Reconstituted wood products Date:
Plant name : L-P, Sagola (dryers) Location:
Test date : 1/28 - 1/31, 1992 Ref. No.:
Process : wafer board Basis for process rate :

Source	Type of control	Pollutant	Run No.	Emission rate, lb/hr	Process rate, ton/hr	Emission factor	
						kg/Mg	lb/ton
		total hydrocarbon	1			ERR	ERR
		total hydrocarbon	2			ERR	ERR
		total hydrocarbon	3			ERR	ERR
		AVERAGE				ERR	ERR

(3 DRYERS)

- OUTLET EMISSIONS ONLY (FROM EFB)

- WOOD SPECIES BEING DRIED ?

- ISOKINETICS WAY OFF ON DRYER PM-10 MEASUREMENTS (60.8 - 66.1 SURFACE and 61.6 - 79.5 CORE)

  and 63.7 - 65.5 SURFACE/CORE

Emissions controlled by an EFB

Dryer production rates included