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Title: Results of the August 23-26, 1994 Relative Accuracy Certifications of Four CO/Flow CERM Systems at the Louisiana Pacific Plant Located in Hayward, Wisconsin

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RESULTS OF THE AUGUST 23 - 26, 1994 RELATIVE ACCURACY CERTIFICATIONS OF FOUR CO/FLOW CERM SYSTEMS AT THE LOUISIANA PACIFIC PLANT LOCATED IN HAYWARD, WISCONSIN

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SP/slp

TABLE OF CONTENTS

ABBREVIATIONS

ACFM	actual cubic feet per minute
cc (ml)	cubic centimeter (milliliter)
DSCFM	dry standard cubic foot of dry gas per minute
DSML	dry standard milliliter
DEG-F (°F)	degrees Fahrenheit
DIA.	diameter
FP	finished product for plant
FT/SEC	feet per second
g	gram
GPM	gallons per minute
GR/ACF	grains per actual cubic foot
GR/DSCF	grains per dry standard cubic foot
g/dscm	grams per dry standard cubic meter
HP	horsepower
HRS	hours
IN.	inches
IN.HG.	inches of mercury
IN.WC.	inches of water
LB	pound
LB/DSCF	pounds per dry standard cubic foot
LB/HR	pounds per hour
LB/10^6BTU	pounds per million British Thermal Units heat input
LB/MMBTU	pounds per million British Thermal Units heat input
LTPD	long tons per day
MW	megawatt
mg/Nm^3	milligrams per dry standard cubic meter
ug/Nm^3	micrograms per dry standard cubic meter
microns (um)	micrometer
MIN.	minutes
ng	nanograms
ohm-cm	ohm-centimeter
PM	particulate matter
PPH	pounds per hour
PPM	parts per million
ppmC	parts per million carbon
ppm,d	parts per million, dry
ppm,w	parts per million, wet
ppt	parts per trillion
PSI	pounds per square inch
SQ.FT.	square feet
TPD	tons per day
ug	micrograms
v/v	percent by volume
w/w	percent by weight
$<$	$\leq$ (when following a number)

Standard conditions are defined as 68°F (20°C) and 29.92 IN. of mercury pressure.

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1 INTRODUCTION

During August 23 - 26, 1994, Interpoll Laboratories personnel conducted Relative Accuracy Certification Tests of four CO/Flow CERMs installed on the Line 1 Dryer, Line 2 Dryer, Line 1 Press, and Line 2 Press RTO Stacks at the Louisiana Pacific Corporation Plant in Hayward, Wisconsin. The certifications were performed on the following:

Monitor Type	Manufacturer	Model	Serial No.	Location
Flow	United Sciences	100	9401655	Line 1 Dryer
CO	TECO	48	48-47743-279	Line 1 Dryer
Flow	United Sciences	100	9401656	Line 2 Dryer
CO	TECO	48	48-47744-279	Line 2 Dryer
Flow	United Sciences	100	9401657	Line 1 Press
CO	TECO	48	48-48535-281	Line 1 Press
Flow	United Sciences	100	9401658	Line 2 Press
CO	TECO	48	48-48536-281	Line 2 Press

On-site testing was performed by Bob Aschenbach and Dennis Marso. Coordination between testing activities and plant operation was provided by Bob Schultz of Louisiana Pacific. The test was not witnessed by a member of the Wisconsin Department of Natural Resources.

The Relative Accuracy Certifications were performed in accordance with Specification 4, CFR Title 40, Part 60 Appendix B (revised July 1, 1993). Evaluations were performed in accordance with EPA Method 10 (Ibid: Appendix A). A slip stream of exhaust gas was drawn from the exhaust gas stream using test ports provided by the plant using a heat-traced probe and filter assembly. After passing through the filter, the gas passed through a chilled condenser to remove moisture. The particulate-free dry gas was then split, half the sample was collected directly in 44-Liter Tedlar bags. The other half of the sample gas stream was passed through an alkaline potassium permanganate scrubber to remove interferences and then collected in 44-Liter Tedlar bags. Each set of bags was then analyzed: the scrubbed sample for CO, the unscrubbed sample for O_2 and CO_2. The CO_2 level was also measured in the scrubbed sample to correct for residual CO_2. The O_2, CO_2 and CO analyzers were calibrated on-site using EPA Protocol standard gases. A three-way valve on the probe was used to introduce standard gas for the "system bias check". The analog response of the CO analyzer was recorded using a strip chart recorder. Moisture determinations were performed in accordance with EPA Method 4.

Twelve 21-minute test runs for CO were performed at each test site using a 30-minute cycle. During each run, the sample probe was moved through a three-point traverse (1/6, 3/6, 5/6 of the stack dia).

The important results of the tests are summarized in Tables 1 - 4. Field data and all other supporting information are presented in the appendices.

2 SUMMARY AND DISCUSSION

The important results of the Relative Accuracy Certifications are summarized in Tables 1 - 4. No difficulties were encountered in the field or in the data reduction. On the basis of this fact and a complete review of all of the data, it is our opinion that the concentrations reported herein are accurate and closely reflect the actual values which existed at the time the test was performed.

Table 1. Summary of the Results of the August 23, 1994 Relative Accuracy Test Audit on the **CO/Flow** CERM System installed on the Line 2 Dryer RTO Stack at the Louisiana Pacific Plant in Hayward, Wisconsin.

	TIME	CO (ppm,d)			Flow (kcfm)		
Run	(HRS)	RM	CERM	DIFF	RM	CERM	DIFF
1	0832-0902	277	275	-2	122	124	2
*2	0917-0947	449	401	-48	132	125	-7
3	1002-1032	174	180	6	129	125	-4
4	1047-1117	241	224	-17	125	124	-1
5	1132-1202	325	307	-18	126	125	-1
6	1217-1247	369	393	24	127	126	-1
*7	1332-1402	553	426	-127	125	126	1
8	1417-1447	370	360	-10	131	126	-5
9	1502-1532	409	357	-52	129	124	-5
10	1547-1617	393	366	-27	124	124	0
*11	1632-1702	506	399	-107	126	125	-1
12	1717-1747	449	439	-10	124	127	3
Average Diff				11.8			1.3
Confidence Coefficient				16.3			2.21
Standard Deviation				21.3			2.87
Relative Accuracy				8.4			2.8

* Note: Runs 2, 7, and 11 were not used in the calculation of relative accuracy.

RM = Reference Method

CERM = Continuous Emission Rate Monitor

Table 2. Summary of the Results of the August 24, 1994 Relative Accuracy Test Audit on the **CO/Flow** CERM System installed on the Line 1 Dryer RTO Stack at the Louisiana Pacific Plant in Hayward, Wisconsin.

	TIME	CO (ppm,d)			Flow (kcfm)		
Run	(HRS)	RM	CERM	DIFF	RM	CERM	DIFF
1	0817-0847	385	361	-24	109	114	5
2	0902-0932	401	357	-44	108	115	7
3	0947-1017	480	395	-85	123	115	-8
*4	1032-1102	621	447	-174	122	115	-7
*5	1117-1147	553	412	-141	120	115	-5
*6	1202-1232	456	369	-87	116	117	1
7	1247-1317	216	206	-10	118	117	-1
8	1332-1402	394	382	-12	116	117	1
9	1417-1447	262	249	-13	116	118	2
10	1547-1617	153	150	-3	112	118	6
11	1632-1702	232	265	33	124	119	-5
12	1715-1745	290	233	-57	119	116	-3
Average Difference				23.9			0.44
Confidence Coefficient				26.3			3.96
Standard Deviation				34.2			5.15
Relative Accuracy				16.1			3.8

Note: Runs 4, 5, and 6 were not used in the calculation of relative accuracy.

RM = Reference Method

CERM = Continuous Emission Rate Monitor

Table 3. Summary of the Results of the August 25, 1994 Relative Accuracy Test Audit on the **CO/Flow** CERM System installed on the Line 1 Press RTO Stack at the Louisiana Pacific Plant in Hayward, Wisconsin.

M acfm

	TIME	CO (ppm,d)			Flow (kcfm)		
Run	(HRS)	RM	CERM	DIFF	RM	CERM	DIFF
*1	0802-0832	18.5	16.2	-2.3	96	87	-9
2	0847-0917	15.5	14.8	-0.7	98	88	-10
3	0932-1002	15.7	14.2	-1.5	97	88	-9
4	1017-1047	14.9	14.7	-0.2	97	88	-9
*5	1147-1217	16.5	14.8	-1.7	96	89	-7
6	1232-1302	15.4	15.0	-0.4	96	90	-6
7	1317-1347	13.4	14.0	0.6	96	88	-8
8	1402-1432	12.9	14.4	1.5	98	89	-9
*9	1447-1517	17.1	12.2	-4.9	93	88	-5
10	1532-1602	16.2	14.6	-1.6	97	88	-9
11	1617-1647	15.7	14.8	-0.9	96	87	-9
12	1702-1732	15.9	15.4	-0.5	96	88	-8
Average Difference				0.41			8.56
Confidence Coefficient				0.752			0.87
Standard Deviation				0.98			1.13
Relative Accuracy				7.7			9.7

* Note: Runs 1, 5, and 9 were not used in the calculation of relative accuracy.

RM = Reference Method

CERM = Continuous Emission Rate Monitor

Table 4. Summary of the Results of the August 26, 1994 Relative Accuracy Test Audit on the **CO/Flow** CERM System installed on the Line 2 Press RTO Stack at the Louisiana Pacific Plant in Hayward, Wisconsin.

	TIME	CO (ppm,d)			Flow (kcfm)		
Run	(HRS)	RM	CERM	DIFF	RM	CERM	DIFF
1	0747-0817	11.6	10.0	-1.6	111	98	-13
*2	0832-0902	12.5	8.15	-4.35	110	97	-13
3	0917-0947	12.8	11.9	-0.9	108	98	-10
4	1102-1132	12.7	11.4	-1.3	110	97	-13
5	1147-1217	13.7	12.0	-1.7	111	102	-9
6	1232-1302	11.3	11.7	0.4	110	96	-14
7	1317-1347	10.3	11.2	0.9	111	101	-10
8	1402-1432	10.6	11.5	0.9	111	101	-10
*9	1447-1517	17.1	11.3	-5.8	110	100	-10
10	1530-1602	9.8	11.7	1.9	111	100	-11
*11	1617-1647	8.1	11.1	3.0	109	101	-8
12	1702-1732	8.3	11.1	2.8	109	98	-11
Average Difference				0.16			11
Confidence Coefficient				1.24			1.32
Standard Deviation				1.62			1.72
Relative Accuracy				12.5			11.4

* Note: Runs 2, 9, and 11 were not used in the calculation of relative accuracy.

RM = Reference Method

CERM = Continuous Emission Rate Monitor

2.1 Results of Orsat & Moisture Analyses

Test No. 1
Line 2 Dryer RTO Stack

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 1	Run 2	Run 3
Date of run	08-23-94	08-23-94	08-23-94
Dry basis (orsat)			
carbon dioxide............	2.85	3.25	2.25
oxygen....................	17.69	17.24	18.40
nitrogen..................	79.46	79.51	79.35
Wet basis (orsat)			
carbon dioxide............	2.39	2.59	1.91
oxygen....................	14.81	13.73	15.60
nitrogen..................	66.51	63.31	67.28
water vapor...............	16.30	20.38	15.21
Dry molecular weight........	29.16	29.21	29.10
Wet molecular weight........	27.34	26.93	27.41
Specific gravity............	0.945	0.930	0.947
FO	1.126	1.126	1.111

Test No. 1
Line 2 Dryer RTO Stack

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 4	Run 5	Run 6
Date of run	08-23-94	08-23-94	08-23-94
Dry basis (orsat)			
carbon dioxide...........	2.32	3.17	3.13
oxygen...................	18.35	17.31	17.32
nitrogen.................	79.33	79.52	79.55
Wet basis (orsat)			
carbon dioxide...........	1.98	2.55	2.52
oxygen...................	15.68	13.91	13.97
nitrogen.................	67.80	63.89	64.17
water vapor..............	14.54	19.66	19.33
Dry molecular weight........	29.11	29.20	29.19
Wet molecular weight........	27.49	27.00	27.03
Specific gravity...........	0.950	0.933	0.934
FO	1.099	1.132	1.144

Test No. 1
Line 2 Dryer RTO Stack

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 7	Run 8	Run 9
Date of run	08-23-94	08-23-94	08-23-94
Dry basis (orsat)			
carbon dioxide............	3.24	3.01	3.17
oxygen....................	17.03	17.55	17.30
nitrogen..................	79.73	79.44	79.53
Wet basis (orsat)			
carbon dioxide............	2.56	2.38	2.52
oxygen....................	13.45	13.87	13.76
nitrogen..................	62.95	62.77	63.27
water vapor...............	21.05	20.99	20.45
Dry molecular weight........	29.20	29.18	29.20
Wet molecular weight........	26.84	26.84	26.91
Specific gravity............	0.927	0.927	0.929
FO	1.194	1.113	1.136

Test No. 1
Line 2 Dryer RTO Stack

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 10	Run 11	Run 12
Date of run	08-23-94	08-23-94	08-23-94
Dry basis (orsat)			
carbon dioxide............	3.06	3.12	3.23
oxygen....................	17.33	17.27	17.12
nitrogen..................	79.61	79.61	79.65
Wet basis (orsat)			
carbon dioxide............	2.48	2.48	2.54
oxygen....................	14.03	13.75	13.44
nitrogen..................	64.46	63.37	62.53
water vapor...............	19.03	20.40	21.50
Dry molecular weight........	29.18	29.19	29.20
Wet molecular weight........	27.05	26.91	26.79
Specific gravity............	0.935	0.929	0.926
FO	1.167	1.163	1.170

Test No. 2
Line 1 Dryer RTO Stack

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

Date of run	Run 1 08-24-94	Run 2 08-24-94	Run 3 08-24-94
Dry basis (orsat)			
carbon dioxide............	3.74	3.57	3.71
oxygen....................	16.77	16.79	16.71
nitrogen..................	79.49	79.64	79.58
Wet basis (orsat)			
carbon dioxide............	2.93	2.75	2.83
oxygen....................	13.14	12.92	12.73
nitrogen..................	62.30	61.31	60.61
water vapor...............	21.62	23.02	23.84
Dry molecular weight........	29.27	29.24	29.26
Wet molecular weight........	26.83	26.65	26.58
Specific gravity...........	0.927	0.921	0.918
FO	1.104	1.151	1.129

Test No. 2
Line 1 Dryer RTO Stack

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 4	Run 5	Run 6
Date of run	08-24-94	08-24-94	08-24-94
Dry basis (orsat)			
carbon dioxide............	3.95	3.72	3.56
oxygen....................	16.49	16.72	16.91
nitrogen..................	79.56	79.56	79.53
Wet basis (orsat)			
carbon dioxide............	2.99	2.80	2.75
oxygen....................	12.49	12.58	13.04
nitrogen..................	60.27	59.87	61.35
water vapor...............	24.25	24.75	22.86
Dry molecular weight........	29.29	29.26	29.25
Wet molecular weight........	26.55	26.48	26.68
Specific gravity............	0.917	0.915	0.921
FO	1.116	1.124	1.121

Test No. 2
Line 1 Dryer RTO Stack

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

Date of run	Run 7 08-24-94	Run 8 08-24-94	Run 9 08-24-94
Dry basis (orsat)			
carbon dioxide............	3.11	3.35	2.96
oxygen....................	17.53	17.12	17.46
nitrogen..................	79.36	79.53	79.58
Wet basis (orsat)			
carbon dioxide............	2.45	2.64	2.36
oxygen....................	13.80	13.48	13.92
nitrogen..................	62.46	62.61	63.46
water vapor...............	21.29	21.27	20.26
Dry molecular weight........	29.20	29.22	29.17
Wet molecular weight........	26.81	26.83	26.91
Specific gravity...........	0.926	0.927	0.929
FO	1.084	1.128	1.162

Test No. 2
Line 1 Dryer RTO Stack

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 10	Run 11	Run 12
Date of run	08-24-94	08-24-94	08-24-94
Dry basis (orsat)			
carbon dioxide............	2.55	3.22	2.22
oxygen....................	17.47	17.31	18.11
nitrogen..................	79.98	79.47	79.67
Wet basis (orsat)			
carbon dioxide............	2.07	2.55	1.83
oxygen....................	14.21	13.71	14.91
nitrogen..................	65.04	62.96	65.59
water vapor...............	18.68	20.78	17.67
Dry molecular weight........	29.11	29.21	29.08
Wet molecular weight........	27.03	26.88	27.12
Specific gravity............	0.934	0.928	0.937
FO	1.345	1.115	1.257

Test No. 3
Line 1 Press RTO Stack

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 1	Run 2	Run 3
Date of run	08-25-94	08-25-94	08-25-94
Dry basis (orsat)			
carbon dioxide............	0.37	0.38	0.36
oxygen....................	20.40	19.97	20.64
nitrogen..................	79.23	79.65	79.00
Wet basis (orsat)			
carbon dioxide............	0.36	0.37	0.35
oxygen....................	19.73	19.29	19.95
nitrogen..................	76.62	76.92	76.36
water vapor...............	3.30	3.43	3.34
Dry molecular weight........	28.88	28.86	28.88
Wet molecular weight........	28.52	28.49	28.52
Specific gravity............	0.985	0.984	0.985
FO	1.351	2.447	0.722

Test No. 3
Line 1 Press RTO Stack

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 4	Run 5	Run 6
Date of run	08-25-94	08-25-94	08-25-94
Dry basis (orsat)			
carbon dioxide............	0.36	0.33	0.33
oxygen....................	20.54	20.53	20.14
nitrogen..................	79.10	79.14	79.53
Wet basis (orsat)			
carbon dioxide............	0.35	0.32	0.32
oxygen....................	19.86	19.91	19.47
nitrogen..................	76.48	76.77	76.88
water vapor...............	3.31	3.00	3.33
Dry molecular weight........	28.88	28.87	28.86
Wet molecular weight........	28.52	28.55	28.50
Specific gravity............	0.985	0.986	0.984
FO	1.000	1.121	2.303

Test No. 3
Line 1 Press RTO Stack

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 7	Run 8	Run 9
Date of run	08-25-94	08-25-94	08-25-94
Dry basis (orsat)			
carbon dioxide............	0.48	0.48	0.48
oxygen....................	20.07	19.98	20.46
nitrogen..................	79.45	79.54	79.06
Wet basis (orsat)			
carbon dioxide............	0.46	0.46	0.46
oxygen....................	19.41	19.32	19.78
nitrogen..................	76.82	76.90	76.44
water vapor...............	3.31	3.32	3.32
Dry molecular weight........	28.88	28.88	28.90
Wet molecular weight........	28.52	28.51	28.53
Specific gravity............	0.985	0.985	0.986
FO	1.729	1.917	0.917

Test No. 3
Line 1 Press RTO Stack

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 10	Run 11	Run 12
Date of run	08-25-94	08-25-94	08-25-94
Dry basis (orsat)			
carbon dioxide............	0.47	0.46	0.44
oxygen....................	20.45	20.43	20.46
nitrogen..................	79.08	79.11	79.10
Wet basis (orsat)			
carbon dioxide............	0.45	0.44	0.42
oxygen....................	19.76	19.70	19.69
nitrogen..................	76.42	76.27	76.14
water vapor...............	3.37	3.59	3.74
Dry molecular weight........	28.89	28.89	28.89
Wet molecular weight........	28.53	28.50	28.48
Specific gravity............	0.985	0.984	0.984
FO	0.957	1.022	1.000

Test No. 4
Line 2 Press RTO Stack

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 1	Run 2	Run 3
Date of run	08-26-94	08-26-94	08-26-94
Dry basis (orsat)			
carbon dioxide............	0.27	0.29	0.28
oxygen....................	20.49	20.50	20.53
nitrogen..................	79.24	79.21	79.19
Wet basis (orsat)			
carbon dioxide............	0.26	0.28	0.27
oxygen....................	19.87	19.90	19.92
nitrogen..................	76.84	76.87	76.82
water vapor...............	3.03	2.95	2.99
Dry molecular weight........	28.86	28.87	28.87
Wet molecular weight........	28.53	28.55	28.54
Specific gravity............	0.986	0.986	0.986
FO	1.519	1.379	1.321

Test No. 4
Line 2 Press RTO Stack

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

Date of run	Run 4 08-26-94	Run 5 08-26-94	Run 6 08-26-94
Dry basis (orsat)			
carbon dioxide............	0.28	0.27	0.28
oxygen....................	20.56	20.29	20.29
nitrogen..................	79.16	79.44	79.43
Wet basis (orsat)			
carbon dioxide............	0.27	0.26	0.27
oxygen....................	19.90	19.63	19.70
nitrogen..................	76.61	76.86	77.10
water vapor..............	3.22	3.25	2.93
Dry molecular weight........	28.87	28.85	28.86
Wet molecular weight........	28.52	28.50	28.54
Specific gravity...........	0.985	0.985	0.986
FO	1.214	2.259	2.179

Test No. 4
Line 2 Press RTO Stack

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 7	Run 8	Run 9
Date of run	08-26-94	08-26-94	08-26-94
Dry basis (orsat)			
carbon dioxide............	0.27	0.36	0.48
oxygen....................	20.29	20.29	20.46
nitrogen..................	79.44	79.35	79.06
Wet basis (orsat)			
carbon dioxide............	0.26	0.35	0.47
oxygen....................	19.68	19.69	19.84
nitrogen..................	77.05	76.99	76.68
water vapor...............	3.01	2.98	3.01
Dry molecular weight........	28.85	28.87	28.90
Wet molecular weight........	28.53	28.55	28.57
Specific gravity............	0.985	0.986	0.987
FO	2.259	1.694	0.917

Test No. 4
Line 2 Press RTO Stack

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 10	Run 11	Run 12
Date of run	08-26-94	08-26-94	08-26-94
Dry basis (orsat)			
carbon dioxide............	0.36	0.32	0.32
oxygen....................	20.51	20.20	20.22
nitrogen..................	79.13	79.48	79.46
Wet basis (orsat)			
carbon dioxide............	0.35	0.31	0.31
oxygen....................	19.90	19.58	19.59
nitrogen..................	76.77	77.02	77.00
water vapor...............	2.98	3.09	3.10
Dry molecular weight........	28.88	28.86	28.86
Wet molecular weight........	28.55	28.52	28.52
Specific gravity............	0.986	0.985	0.985
FO	1.083	2.187	2.125

Test No. 1
Line 2 Dryer RTO Stack
(Run 2)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-23-94
Time of Determination.......(HRS)	920
Barometric pressure.......(IN.HG)	28.71
Pitot tube coefficient..........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	81
Duct area.................(SQ.FT)	35.78
Direction of flow...............	UP
Static pressure...........(IN.WC)	-.54
Avg. gas temp.............(DEG-F)	325
Moisture content..........(% V/V)	20.38
Avg. linear velocity.....(FT/SEC)	61.6
Gas density..............(LB/ACF)	.04507
Molecular weight......(LB/LBMOLE)	29.21
Mass flow of gas..........(LB/HR)	357454
Volumetric flow rate.............	
actual....................(ACFM)	132198
dry standard.............(DSCFM)	67839

Test No. 1
Line 2 Dryer RTO Stack
(Run 4)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-23-94
Time of Determination.......(HRS)	1050
Barometric pressure.......(IN.HG)	28.71
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter..............(IN)	81
Duct area................(SQ.FT)	35.78
Direction of flow...............	UP
Static pressure...........(IN.WC)	-.75
Avg. gas temp.............(DEG-F)	320
Moisture content..........(% V/V)	14.54
Avg. linear velocity.....(FT/SEC)	58.4
Gas density..............(LB/ACF)	.04628
Molecular weight......(LB/LBMOLE)	29.11
Mass flow of gas..........(LB/HR)	348185
Volumetric flow rate.............	
actual...................(ACFM)	125386
dry standard............(DSCFM)	69468

Test No. 1
Line 2 Dryer RTO Stack

(Run 5)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-23-94
Time of Determination.......(HRS)	1130
Barometric pressure.......(IN.HG)	28.71
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	81
Duct area.................(SQ.FT)	35.78
Direction of flow................	UP
Static pressure...........(IN.WC)	-.62
Avg. gas temp.............(DEG-F)	316
Moisture content..........(% V/V)	19.66
Avg. linear velocity.....(FT/SEC)	58.5
Gas density..............(LB/ACF)	.04570
Molecular weight......(LB/LBMOLE)	29.20
Mass flow of gas..........(LB/HR)	344340
Volumetric flow rate.............	
actual..................(ACFM)	125575
dry standard............(DSCFM)	65764

Test No. 1
Line 2 Dryer RTO Stack
(Run 6)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-23-94
Time of Determination.......(HRS)	1220
Barometric pressure.......(IN.HG)	28.71
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	81
Duct area.................(SQ.FT)	35.78
Direction of flow................	UP
Static pressure...........(IN.WC)	-.54
Avg. gas temp.............(DEG-F)	319
Moisture content..........(% V/V)	19.33
Avg. linear velocity.....(FT/SEC)	59.2
Gas density..............(LB/ACF)	.04559
Molecular weight......(LB/LBMOLE)	29.19
Mass flow of gas..........(LB/HR)	347953
Volumetric flow rate.............	
actual....................(ACFM)	127206
dry standard.............(DSCFM)	66648

Test No. 1
Line 2 Dryer RTO Stack
(Run 7)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-23-94
Time of Determination.......(HRS)	1335
Barometric pressure.......(IN.HG)	28.71
Pitot tube coefficient..........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter..............(IN)	81
Duct area.................(SQ.FT)	35.78
Direction of flow...............	UP
Static pressure...........(IN.WC)	-.62
Avg. gas temp.............(DEG-F)	326
Moisture content..........(% V/V)	21.05
Avg. linear velocity.....(FT/SEC)	58.3
Gas density..............(LB/ACF)	.04486
Molecular weight......(LB/LBMOLE)	29.20
Mass flow of gas..........(LB/HR)	336783
Volumetric flow rate.............	
actual...................(ACFM)	125123
dry standard............(DSCFM)	63574

Test No. 1
Line 2 Dryer RTO Stack
(Run 8)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-23-94
Time of Determination.......(HRS)	1415
Barometric pressure.......(IN.HG)	28.71
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter..............(IN)	81
Duct area................(SQ.FT)	35.78
Direction of flow................	UP
Static pressure...........(IN.WC)	-.66
Avg. gas temp.............(DEG-F)	325
Moisture content..........(% V/V)	20.99
Avg. linear velocity.....(FT/SEC)	61.1
Gas density..............(LB/ACF)	.04490
Molecular weight......(LB/LBMOLE)	29.18
Mass flow of gas..........(LB/HR)	353642
Volumetric flow rate.............	
actual...................(ACFM)	131262
dry standard............(DSCFM)	66822

Test No. 1
Line 2 Dryer RTO Stack
(Run 9)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-23-94
Time of Determination.......(HRS)	1500
Barometric pressure.......(IN.HG)	28.71
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter..............(IN)	81
Duct area.................(SQ.FT)	35.78
Direction of flow................	UP
Static pressure...........(IN.WC)	-.64
Avg. gas temp.............(DEG-F)	338
Moisture content..........(% V/V)	20.45
Avg. linear velocity.....(FT/SEC)	59.9
Gas density..............(LB/ACF)	.04429
Molecular weight......(LB/LBMOLE)	29.20
Mass flow of gas..........(LB/HR)	341691
Volumetric flow rate............	
actual...................(ACFM)	128571
dry standard............(DSCFM)	64830

Test No. 1
Line 2 Dryer RTO Stack
(Run 10)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-23-94
Time of Determination.......(HRS)	1545
Barometric pressure.......(IN.HG)	28.71
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	81
Duct area.................(SQ.FT)	35.78
Direction of flow................	UP
Static pressure...........(IN.WC)	-.73
Avg. gas temp.............(DEG-F)	348
Moisture content..........(% V/V)	19.03
Avg. linear velocity.....(FT/SEC)	57.9
Gas density..............(LB/ACF)	.04397
Molecular weight......(LB/LBMOLE)	29.18
Mass flow of gas..........(LB/HR)	327741
Volumetric flow rate.............	
actual....................(ACFM)	124223
dry standard.............(DSCFM)	62952

Test No. 1
Line 2 Dryer RTO Stack

(Run 11)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-23-94
Time of Determination.......(HRS)	1630
Barometric pressure.......(IN.HG)	28.71
Pitot tube coefficient..........	.84
Number of sampling ports.........	2
Total number of points..........	16
Shape of duct...................	Round
Stack diameter..............(IN)	81
Duct area................(SQ.FT)	35.78
Direction of flow...............	UP
Static pressure..........(IN.WC)	-.66
Avg. gas temp............(DEG-F)	321
Moisture content.........(% V/V)	20.40
Avg. linear velocity.....(FT/SEC)	58.7
Gas density.............(LB/ACF)	.04525
Molecular weight......(LB/LBMOLE)	29.19
Mass flow of gas.........(LB/HR)	342210
Volumetric flow rate............	
actual..................(ACFM)	126038
dry standard...........(DSCFM)	64973

Test No. 1
Line 2 Dryer RTO Stack
(Run 12)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-23-94
Time of Determination.......(HRS)	1715
Barometric pressure.......(IN.HG)	28.71
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	81
Duct area.................(SQ.FT)	35.78
Direction of flow................	UP
Static pressure...........(IN.WC)	-.54
Avg. gas temp.............(DEG-F)	323
Moisture content..........(% V/V)	21.50
Avg. linear velocity.....(FT/SEC)	57.8
Gas density..............(LB/ACF)	.04496
Molecular weight......(LB/LBMOLE)	29.20
Mass flow of gas..........(LB/HR)	334646
Volumetric flow rate.............	
actual...................(ACFM)	124055
dry standard............(DSCFM)	62925

Test No. 2
Line 1 Dryer RTO Stack
(Run 1)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-24-94
Time of Determination.......(HRS)	820
Barometric pressure.......(IN.HG)	28.72
Pitot tube coefficient..........	.84
Number of sampling ports.........	2
Total number of points..........	16
Shape of duct....................	Round
Stack diameter...............(IN)	81
Duct area................(SQ.FT)	35.78
Direction of flow...............	UP
Static pressure..........(IN.WC)	-.66
Avg. gas temp............(DEG-F)	325
Moisture content..........(% V/V)	21.62
Avg. linear velocity.....(FT/SEC)	50.7
Gas density.............(LB/ACF)	.04491
Molecular weight......(LB/LBMOLE)	29.27
Mass flow of gas.........(LB/HR)	293109
Volumetric flow rate............	
actual...................(ACFM)	108770
dry standard............(DSCFM)	54950

Test No. 2
Line 1 Dryer RTO Stack
(Run 2)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-24-94
Time of Determination.......(HRS)	910
Barometric pressure.......(IN.HG)	28.72
Pitot tube coefficient..........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	81
Duct area.................(SQ.FT)	35.78
Direction of flow...............	UP
Static pressure...........(IN.WC)	-.51
Avg. gas temp.............(DEG-F)	335
Moisture content..........(% V/V)	23.02
Avg. linear velocity.....(FT/SEC)	50.5
Gas density..............(LB/ACF)	.04407
Molecular weight......(LB/LBMOLE)	29.24
Mass flow of gas..........(LB/HR)	286555
Volumetric flow rate.............	
actual...................(ACFM)	108370
dry standard...........(DSCFM)	53114

Test No. 2
Line 1 Dryer RTO Stack
(run 3)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-24-94
Time of Determination.......(HRS)	945
Barometric pressure.......(IN.HG)	28.72
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	81
Duct area.................(SQ.FT)	35.78
Direction of flow................	UP
Static pressure...........(IN.WC)	-.63
Avg. gas temp.............(DEG-F)	335
Moisture content..........(% V/V)	23.84
Avg. linear velocity.....(FT/SEC)	57.3
Gas density..............(LB/ACF)	.04393
Molecular weight......(LB/LBMOLE)	29.26
Mass flow of gas..........(LB/HR)	324320
Volumetric flow rate.............	
actual....................(ACFM)	123048
dry standard.............(DSCFM)	59647

Test No. 2
Line 1 Dryer RTO Stack

(Run 4)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-24-94
Time of Determination.......(HRS)	1030
Barometric pressure.......(IN.HG)	28.72
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	81
Duct area.................(SQ.FT)	35.78
Direction of flow................	UP
Static pressure...........(IN.WC)	-.52
Avg. gas temp.............(DEG-F)	337
Moisture content..........(% V/V)	24.25
Avg. linear velocity.....(FT/SEC)	56.6
Gas density..............(LB/ACF)	.04379
Molecular weight......(LB/LBMOLE)	29.29
Mass flow of gas..........(LB/HR)	319312
Volumetric flow rate.............	
actual....................(ACFM)	121527
dry standard.............(DSCFM)	58462

Test No. 2
Line 1 Dryer RTO Stack
(Run 5)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination...........	08-24-94
Time of Determination.......(HRS)	1115
Barometric pressure.......(IN.HG)	28.72
Pitot tube coefficient..........	.84
Number of sampling ports.........	2
Total number of points..........	16
Shape of duct...................	Round
Stack diameter..............(IN)	81
Duct area.................(SQ.FT)	35.78
Direction of flow...............	UP
Static pressure..........(IN.WC)	-.67
Avg. gas temp............(DEG-F)	335
Moisture content.........(% V/V)	24.75
Avg. linear velocity.....(FT/SEC)	55.8
Gas density.............(LB/ACF)	.04376
Molecular weight......(LB/LBMOLE)	29.26
Mass flow of gas..........(LB/HR)	314542
Volumetric flow rate............	
actual..................(ACFM)	119805
dry standard...........(DSCFM)	57376

Test No. 2
Line 1 Dryer RTO Stack
(Run 6)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-24-94
Time of Determination.......(HRS)	1210
Barometric pressure.......(IN.HG)	28.72
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	81
Duct area.................(SQ.FT)	35.78
Direction of flow................	UP
Static pressure...........(IN.WC)	-.56
Avg. gas temp.............(DEG-F)	334
Moisture content..........(% V/V)	22.86
Avg. linear velocity.....(FT/SEC)	54.1
Gas density..............(LB/ACF)	.04415
Molecular weight......(LB/LBMOLE)	29.25
Mass flow of gas..........(LB/HR)	307856
Volumetric flow rate.............	
actual...................(ACFM)	116205
dry standard............(DSCFM)	57137

Test No. 2
Line 1 Dryer RTO Stack
(Run 7)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-24-94
Time of Determination.......(HRS)	1245
Barometric pressure.......(IN.HG)	28.72
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	81
Duct area................(SQ.FT)	35.78
Direction of flow................	UP
Static pressure...........(IN.WC)	-.69
Avg. gas temp............(DEG-F)	334
Moisture content..........(% V/V)	21.29
Avg. linear velocity.....(FT/SEC)	54.8
Gas density..............(LB/ACF)	.04437
Molecular weight......(LB/LBMOLE)	29.20
Mass flow of gas..........(LB/HR)	313313
Volumetric flow rate.............	
actual...................(ACFM)	117689
dry standard............(DSCFM)	59025

Test No. 2
Line 1 Dryer RTO Stack
(Run 8)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-24-94
Time of Determination.......(HRS)	1330
Barometric pressure.......(IN.HG)	28.72
Pitot tube coefficient..........	.84
Number of sampling ports.........	2
Total number of points..........	16
Shape of duct..................	Round
Stack diameter..............(IN)	81
Duct area................(SQ.FT)	35.78
Direction of flow..............	UP
Static pressure..........(IN.WC)	-.48
Avg. gas temp............(DEG-F)	336
Moisture content.........(% V/V)	21.27
Avg. linear velocity.....(FT/SEC)	53.9
Gas density.............(LB/ACF)	.04431
Molecular weight......(LB/LBMOLE)	29.22
Mass flow of gas.........(LB/HR)	307651
Volumetric flow rate............	
actual..................(ACFM)	115706
dry standard...........(DSCFM)	57931

Test No. 2
Line 1 Dryer RTO Stack
(Run 9)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-24-94
Time of Determination.......(HRS)	1415
Barometric pressure.......(IN.HG)	28.72
Pitot tube coefficient..........	.84
Number of sampling ports.........	2
Total number of points..........	16
Shape of duct....................	Round
Stack diameter...............(IN)	81
Duct area................(SQ.FT)	35.78
Direction of flow................	UP
Static pressure...........(IN.WC)	-.68
Avg. gas temp.............(DEG-F)	335
Moisture content..........(% V/V)	20.26
Avg. linear velocity.....(FT/SEC)	54.2
Gas density..............(LB/ACF)	.04447
Molecular weight......(LB/LBMOLE)	29.17
Mass flow of gas..........(LB/HR)	310288
Volumetric flow rate.............	
actual...................(ACFM)	116289
dry standard............(DSCFM)	59013

Test No. 2
Line 1 Dryer RTO Stack
(Run 10)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-24-94
Time of Determination.......(HRS)	1545
Barometric pressure.......(IN.HG)	28.72
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	81
Duct area.................(SQ.FT)	35.78
Direction of flow................	UP
Static pressure...........(IN.WC)	-.6
Avg. gas temp.............(DEG-F)	335
Moisture content..........(% V/V)	18.68
Avg. linear velocity.....(FT/SEC)	52.0
Gas density..............(LB/ACF)	.04468
Molecular weight......(LB/LBMOLE)	29.11
Mass flow of gas..........(LB/HR)	299387
Volumetric flow rate.............	
actual...................(ACFM)	111668
dry standard............(DSCFM)	57803

Test No. 2
Line 1 Dryer RTO Stack
(Run 11)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-24-94
Time of Determination.......(HRS)	1630
Barometric pressure.......(IN.HG)	28.72
Pitot tube coefficient..........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	81
Duct area.................(SQ.FT)	35.78
Direction of flow................	UP
Static pressure...........(IN.WC)	-.44
Avg. gas temp.............(DEG-F)	338
Moisture content..........(% V/V)	20.78
Avg. linear velocity.....(FT/SEC)	57.6
Gas density..............(LB/ACF)	.04428
Molecular weight......(LB/LBMOLE)	29.21
Mass flow of gas..........(LB/HR)	328830
Volumetric flow rate............	
actual...................(ACFM)	123764
dry standard...........(DSCFM)	62201

Test No. 2
Line 1 Dryer RTO Stack
(Run 12)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-24-94
Time of Determination.......(HRS)	1715
Barometric pressure.......(IN.HG)	28.72
Pitot tube coefficient..........	.84
Number of sampling ports.........	2
Total number of points..........	16
Shape of duct....................	Round
Stack diameter...............(IN)	81
Duct area................(SQ.FT)	35.78
Direction of flow................	UP
Static pressure..........(IN.WC)	-.58
Avg. gas temp............(DEG-F)	345
Moisture content..........(% V/V)	17.67
Avg. linear velocity.....(FT/SEC)	55.3
Gas density.............(LB/ACF)	.04428
Molecular weight......(LB/LBMOLE)	29.08
Mass flow of gas..........(LB/HR)	315260
Volumetric flow rate............	
actual...................(ACFM)	118667
dry standard...........(DSCFM)	61419

Test No. 3
Line 1 Press RTO Stack
(Run 1)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-25-94
Time of Determination.......(HRS)	810
Barometric pressure.......(IN.HG)	28.82
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	76
Duct area................(SQ.FT)	31.50
Direction of flow...............	UP
Static pressure..........(IN.WC)	-.46
Avg. gas temp............(DEG-F)	261
Moisture content..........(% V/V)	3.30
Avg. linear velocity.....(FT/SEC)	50.8
Gas density.............(LB/ACF)	.05218
Molecular weight......(LB/LBMOLE)	28.88
Mass flow of gas.........(LB/HR)	300605
Volumetric flow rate............	
actual...................(ACFM)	96024
dry standard............(DSCFM)	65422

Interpoll Labs Report No. 4-3688
Louisiana Pacific Corporation
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Test No. 3
Line 1 Press RTO Stack
(Run 2)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-25-94
Time of Determination.......(HRS)	845
Barometric pressure.......(IN.HG)	28.82
Pitot tube coefficient..........	.84
Number of sampling ports.........	2
Total number of points..........	16
Shape of duct..................	Round
Stack diameter..............(IN)	76
Duct area...............(SQ.FT)	31.50
Direction of flow...............	UP
Static pressure..........(IN.WC)	-.68
Avg. gas temp............(DEG-F)	259
Moisture content..........(% V/V)	3.43
Avg. linear velocity.....(FT/SEC)	51.8
Gas density.............(LB/ACF)	.05224
Molecular weight......(LB/LBMOLE)	28.86
Mass flow of gas..........(LB/HR)	306843
Volumetric flow rate............	
actual..................(ACFM)	97900
dry standard...........(DSCFM)	66759

Test No. 3
Line 1 Press RTO Stack
(Run 3)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-25-94
Time of Determination.......(HRS)	930
Barometric pressure.......(IN.HG)	28.82
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	76
Duct area.................(SQ.FT)	31.50
Direction of flow................	UP
Static pressure...........(IN.WC)	-.47
Avg. gas temp.............(DEG-F)	248
Moisture content..........(% V/V)	3.34
Avg. linear velocity.....(FT/SEC)	51.3
Gas density..............(LB/ACF)	.05314
Molecular weight......(LB/LBMOLE)	28.88
Mass flow of gas..........(LB/HR)	308927
Volumetric flow rate.............	
actual....................(ACFM)	96894
dry standard............(DSCFM)	67198

Test No. 3
Line 1 Press RTO Stack
(Run 4)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-25-94
Time of Determination.......(HRS)	1015
Barometric pressure.......(IN.HG)	28.82
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	76
Duct area.................(SQ.FT)	31.50
Direction of flow................	UP
Static pressure...........(IN.WC)	-.65
Avg. gas temp.............(DEG-F)	256
Moisture content..........(% V/V)	3.31
Avg. linear velocity.....(FT/SEC)	51.4
Gas density..............(LB/ACF)	.05252
Molecular weight......(LB/LBMOLE)	28.88
Mass flow of gas..........(LB/HR)	306426
Volumetric flow rate.............	
actual....................(ACFM)	97242
dry standard.............(DSCFM)	66676

Test No. 3
Line 1 Press RTO Stack

(Run 5)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-25-94
Time of Determination.......(HRS)	1145
Barometric pressure.......(IN.HG)	28.82
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	76
Duct area................(SQ.FT)	31.50
Direction of flow................	UP
Static pressure...........(IN.WC)	-.68
Avg. gas temp.............(DEG-F)	263
Moisture content..........(% V/V)	3.00
Avg. linear velocity.....(FT/SEC)	50.7
Gas density..............(LB/ACF)	.05206
Molecular weight......(LB/LBMOLE)	28.87
Mass flow of gas..........(LB/HR)	299518
Volumetric flow rate.............	
actual...................(ACFM)	95890
dry standard............(DSCFM)	65316

Test No. 3
Line 1 Press RTO Stack

(Run 6)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-25-94
Time of Determination.......(HRS)	1230
Barometric pressure.......(IN.HG)	28.82
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	76
Duct area.................(SQ.FT)	31.50
Direction of flow................	UP
Static pressure...........(IN.WC)	-.42
Avg. gas temp.............(DEG-F)	260
Moisture content..........(% V/V)	3.33
Avg. linear velocity.....(FT/SEC)	50.7
Gas density..............(LB/ACF)	.05222
Molecular weight......(LB/LBMOLE)	28.86
Mass flow of gas..........(LB/HR)	300272
Volumetric flow rate.............	
actual.....................(ACFM)	95840
dry standard..............(DSCFM)	65374

Test No. 3
Line 1 Press RTO Stack

(Run 7)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-25-94
Time of Determination.......(HRS)	1315
Barometric pressure.......(IN.HG)	28.82
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter..............(IN)	76
Duct area................(SQ.FT)	31.50
Direction of flow................	UP
Static pressure...........(IN.WC)	-.66
Avg. gas temp.............(DEG-F)	267
Moisture content..........(% V/V)	3.31
Avg. linear velocity.....(FT/SEC)	50.7
Gas density.............(LB/ACF)	.05172
Molecular weight......(LB/LBMOLE)	28.88
Mass flow of gas..........(LB/HR)	297286
Volumetric flow rate.............	
actual...................(ACFM)	95792
dry standard............(DSCFM)	64686

Test No. 3
Line 1 Press RTO Stack
(Run 8)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-25-94
Time of Determination.......(HRS)	1400
Barometric pressure.......(IN.HG)	28.82
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	76
Duct area.................(SQ.FT)	31.50
Direction of flow................	UP
Static pressure...........(IN.WC)	-.58
Avg. gas temp.............(DEG-F)	264
Moisture content..........(% V/V)	3.32
Avg. linear velocity.....(FT/SEC)	51.7
Gas density..............(LB/ACF)	.05194
Molecular weight......(LB/LBMOLE)	28.88
Mass flow of gas..........(LB/HR)	304573
Volumetric flow rate.............	
actual...................(ACFM)	97731
dry standard............(DSCFM)	66275

Test No. 3
Line 1 Press RTO Stack
(Run 9)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-25-94
Time of Determination.......(HRS)	1445
Barometric pressure.......(IN.HG)	28.82
Pitot tube coefficient..........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	76
Duct area.................(SQ.FT)	31.50
Direction of flow................	UP
Static pressure...........(IN.WC)	-.69
Avg. gas temp.............(DEG-F)	265
Moisture content..........(% V/V)	3.32
Avg. linear velocity.....(FT/SEC)	49.0
Gas density..............(LB/ACF)	.05189
Molecular weight......(LB/LBMOLE)	28.90
Mass flow of gas..........(LB/HR)	288453
Volumetric flow rate.............	
actual...................(ACFM)	92652
dry standard............(DSCFM)	62727

Test No. 3
Line 1 Press RTO Stack
(Run 10)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-25-94
Time of Determination.......(HRS)	1530
Barometric pressure.......(IN.HG)	28.82
Pitot tube coefficient..........	.84
Number of sampling ports.........	2
Total number of points..........	16
Shape of duct....................	Round
Stack diameter..............(IN)	76
Duct area................(SQ.FT)	31.50
Direction of flow...............	UP
Static pressure..........(IN.WC)	-.58
Avg. gas temp............(DEG-F)	264
Moisture content.........(% V/V)	3.37
Avg. linear velocity.....(FT/SEC)	51.4
Gas density.............(LB/ACF)	.05196
Molecular weight......(LB/LBMOLE)	28.89
Mass flow of gas..........(LB/HR)	302939
Volumetric flow rate.............	
actual...................(ACFM)	97168
dry standard............(DSCFM)	65860

Test No. 3
Line 1 Press RTO Stack
(Run 11)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-25-94
Time of Determination.......(HRS)	1615
Barometric pressure.......(IN.HG)	28.82
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	76
Duct area.................(SQ.FT)	31.50
Direction of flow................	UP
Static pressure...........(IN.WC)	-.58
Avg. gas temp.............(DEG-F)	263
Moisture content..........(% V/V)	3.59
Avg. linear velocity.....(FT/SEC)	50.8
Gas density..............(LB/ACF)	.05199
Molecular weight......(LB/LBMOLE)	28.89
Mass flow of gas..........(LB/HR)	299336
Volumetric flow rate.............	
actual...................(ACFM)	95968
dry standard............(DSCFM)	64988

Test No. 3
Line 1 Press RTO Stack
(run 12)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-25-94
Time of Determination.......(HRS)	1700
Barometric pressure.......(IN.HG)	28.8
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	76
Duct area.................(SQ.FT)	31.50
Direction of flow................	UP
Static pressure...........(IN.WC)	-.56
Avg. gas temp.............(DEG-F)	266
Moisture content..........(% V/V)	3.74
Avg. linear velocity.....(FT/SEC)	51.0
Gas density..............(LB/ACF)	.05170
Molecular weight......(LB/LBMOLE)	28.89
Mass flow of gas..........(LB/HR)	299309
Volumetric flow rate.............	
actual..................(ACFM)	96482
dry standard...........(DSCFM)	64923

Test No. 4
Line 2 Press RTO Stack
(Run 1)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-26-94
Time of Determination.......(HRS)	755
Barometric pressure.......(IN.HG)	28.81
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	76
Duct area.................(SQ.FT)	31.50
Direction of flow................	UP
Static pressure...........(IN.WC)	-.5
Avg. gas temp.............(DEG-F)	249
Moisture content..........(% V/V)	3.03
Avg. linear velocity.....(FT/SEC)	58.8
Gas density..............(LB/ACF)	.05307
Molecular weight......(LB/LBMOLE)	28.86
Mass flow of gas..........(LB/HR)	353882
Volumetric flow rate.............	
actual....................(ACFM)	111143
dry standard.............(DSCFM)	77185

Test No. 4
Line 2 Press RTO Stack
(Run 2)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-26-94
Time of Determination.......(HRS)	830
Barometric pressure.......(IN.HG)	28.81
Pitot tube coefficient..........	.84
Number of sampling ports.........	2
Total number of points..........	16
Shape of duct..................	Round
Stack diameter..............(IN)	76
Duct area................(SQ.FT)	31.50
Direction of flow...............	UP
Static pressure..........(IN.WC)	-.8
Avg. gas temp............(DEG-F)	240
Moisture content..........(% V/V)	2.95
Avg. linear velocity.....(FT/SEC)	58.3
Gas density.............(LB/ACF)	.05373
Molecular weight......(LB/LBMOLE)	28.87
Mass flow of gas..........(LB/HR)	355563
Volumetric flow rate.............	
actual...................(ACFM)	110291
dry standard...........(DSCFM)	77583

Test No. 4
Line 2 Press RTO Stack
(Run 3)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-26-94
Time of Determination.......(HRS)	920
Barometric pressure.......(IN.HG)	28.81
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	76
Duct area.................(SQ.FT)	31.50
Direction of flow................	UP
Static pressure...........(IN.WC)	-.68
Avg. gas temp.............(DEG-F)	245
Moisture content..........(% V/V)	2.99
Avg. linear velocity.....(FT/SEC)	57.3
Gas density..............(LB/ACF)	.05336
Molecular weight......(LB/LBMOLE)	28.87
Mass flow of gas..........(LB/HR)	346752
Volumetric flow rate.............	
actual...................(ACFM)	108311
dry standard............(DSCFM)	75642

Test No. 4
Line 2 Press RTO Stack
(Run 4)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-26-94
Time of Determination.......(HRS)	1100
Barometric pressure.......(IN.HG)	28.81
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	76
Duct area.................(SQ.FT)	31.50
Direction of flow................	UP
Static pressure...........(IN.WC)	-.78
Avg. gas temp.............(DEG-F)	247
Moisture content..........(% V/V)	3.22
Avg. linear velocity.....(FT/SEC)	58.3
Gas density..............(LB/ACF)	.05315
Molecular weight......(LB/LBMOLE)	28.87
Mass flow of gas..........(LB/HR)	351425
Volumetric flow rate.............	
actual...................(ACFM)	110202
dry standard............(DSCFM)	76543

Test No. 4
Line 2 Press RTO Stack
(Run 5)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination...........	08-26-94
Time of Determination.......(HRS)	1145
Barometric pressure.......(IN.HG)	28.81
Pitot tube coefficient..........	.84
Number of sampling ports.........	2
Total number of points..........	16
Shape of duct....................	Round
Stack diameter..............(IN)	76
Duct area................(SQ.FT)	31.50
Direction of flow...............	UP
Static pressure..........(IN.WC)	-.68
Avg. gas temp.............(DEG-F)	250
Moisture content..........(% V/V)	3.25
Avg. linear velocity.....(FT/SEC)	58.6
Gas density.............(LB/ACF)	.05291
Molecular weight......(LB/LBMOLE)	28.85
Mass flow of gas..........(LB/HR)	351867
Volumetric flow rate............	
actual..................(ACFM)	110840
dry standard...........(DSCFM)	76657

Test No. 4
Line 2 Press RTO Stack

(Run 6)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-26-94
Time of Determination.......(HRS)	1230
Barometric pressure.......(IN.HG)	28.81
Pitot tube coefficient..........	.84
Number of sampling ports.........	2
Total number of points..........	16
Shape of duct....................	Round
Stack diameter...............(IN)	76
Duct area................(SQ.FT)	31.50
Direction of flow................	UP
Static pressure..........(IN.WC)	-.84
Avg. gas temp.............(DEG-F)	245
Moisture content..........(% V/V)	2.93
Avg. linear velocity.....(FT/SEC)	58.2
Gas density..............(LB/ACF)	.05333
Molecular weight......(LB/LBMOLE)	28.86
Mass flow of gas..........(LB/HR)	352251
Volumetric flow rate.............	
actual...................(ACFM)	110084
dry standard............(DSCFM)	76896

Test No. 4
Line 2 Press RTO Stack

(Run 7)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-26-94
Time of Determination.......(HRS)	1315
Barometric pressure.......(IN.HG)	28.81
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	76
Duct area.................(SQ.FT)	31.50
Direction of flow................	UP
Static pressure...........(IN.WC)	-.51
Avg. gas temp.............(DEG-F)	251
Moisture content..........(% V/V)	3.01
Avg. linear velocity.....(FT/SEC)	58.9
Gas density..............(LB/ACF)	.05291
Molecular weight......(LB/LBMOLE)	28.85
Mass flow of gas..........(LB/HR)	353334
Volumetric flow rate.............	
actual...................(ACFM)	111309
dry standard............(DSCFM)	77097

Test No. 4
Line 2 Press RTO Stack
(Run 8)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-26-94
Time of Determination.......(HRS)	1400
Barometric pressure.......(IN.HG)	28.81
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	76
Duct area.................(SQ.FT)	31.50
Direction of flow................	UP
Static pressure...........(IN.WC)	-.65
Avg. gas temp.............(DEG-F)	250
Moisture content..........(% V/V)	2.98
Avg. linear velocity.....(FT/SEC)	58.7
Gas density..............(LB/ACF)	.05299
Molecular weight......(LB/LBMOLE)	28.87
Mass flow of gas..........(LB/HR)	352746
Volumetric flow rate.............	
actual....................(ACFM)	110940
dry standard.............(DSCFM)	76946

Test No. 4
Line 2 Press RTO Stack
(Run 9)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-26-94
Time of Determination.......(HRS)	1445
Barometric pressure.......(IN.HG)	28.81
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	76
Duct area.................(SQ.FT)	31.50
Direction of flow................	UP
Static pressure...........(IN.WC)	-.72
Avg. gas temp.............(DEG-F)	250
Moisture content..........(% V/V)	3.01
Avg. linear velocity.....(FT/SEC)	58.1
Gas density..............(LB/ACF)	.05302
Molecular weight......(LB/LBMOLE)	28.90
Mass flow of gas..........(LB/HR)	349209
Volumetric flow rate.............	
actual...................(ACFM)	109763
dry standard............(DSCFM)	76092

Test No. 4
Line 2 Press RTO Stack
(Run 10)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-26-94
Time of Determination.......(HRS)	1530
Barometric pressure.......(IN.HG)	28.81
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	76
Duct area.................(SQ.FT)	31.50
Direction of flow................	UP
Static pressure...........(IN.WC)	-.68
Avg. gas temp.............(DEG-F)	257
Moisture content..........(% V/V)	2.98
Avg. linear velocity.....(FT/SEC)	58.8
Gas density..............(LB/ACF)	.05249
Molecular weight......(LB/LBMOLE)	28.88
Mass flow of gas..........(LB/HR)	349890
Volumetric flow rate.............	
actual....................(ACFM)	111102
dry standard.............(DSCFM)	76300

Test No. 4
Line 2 Press RTO Stack

(Run 11)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-26-94
Time of Determination.......(HRS)	1615
Barometric pressure.......(IN.HG)	28.81
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	76
Duct area................(SQ.FT)	31.50
Direction of flow................	UP
Static pressure...........(IN.WC)	-.65
Avg. gas temp.............(DEG-F)	247
Moisture content..........(% V/V)	3.09
Avg. linear velocity.....(FT/SEC)	57.9
Gas density..............(LB/ACF)	.05318
Molecular weight......(LB/LBMOLE)	28.86
Mass flow of gas..........(LB/HR)	348917
Volumetric flow rate.............	
actual...................(ACFM)	109355
dry standard............(DSCFM)	76082

Test No. 4
Line 2 Press RTO Stack
(Run 12)

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination............	08-26-94
Time of Determination.......(HRS)	1700
Barometric pressure.......(IN.HG)	28.81
Pitot tube coefficient...........	.84
Number of sampling ports.........	2
Total number of points...........	16
Shape of duct....................	Round
Stack diameter...............(IN)	76
Duct area.................(SQ.FT)	31.50
Direction of flow................	UP
Static pressure...........(IN.WC)	-.84
Avg. gas temp.............(DEG-F)	250
Moisture content..........(% V/V)	3.10
Avg. linear velocity.....(FT/SEC)	57.6
Gas density..............(LB/ACF)	.05293
Molecular weight......(LB/LBMOLE)	28.86
Mass flow of gas..........(LB/HR)	345633
Volumetric flow rate.............	
actual..................(ACFM)	108839
dry standard...........(DSCFM)	75359

APPENDIX A

SAMPLING TRAIN CALIBRATION DATA

Interpoll Laboratories, Inc.
(612) 786-6020

Meter Box Calibration and Usage Status

Date of Report: August 29, 1994

Meter Box No. : CEM Trailer (Rockwell Dry Test Meter Serial No. 964554)

Date of Last Calibration: July 22, 1994
Calibration Technician: S. Bainville
Wet Test Meter No.: American Meter AL-17

Date of Use	Report No.	Initial Meter Reading	Final Meter Reading	Volume/Job (cu. ft.)	Total Volume* (cu. ft.)
July 27, 1994	4-3470	592.610	600.600	7.990	7.990
August 23, 1994	4-3688	600.627	655.078	54.451	62.441

* Total volume through meter since last calibration.

Date 7-22-94

Bar. Press. 28.89 in. Hg

INTERPOLL LABORATORIES
MINIMODULE CALIBRATION SHEET
Flow Rate Range 0-0.13 CFM
(0-4 LPM)

Meter Box No. TR1

Serial No. DTM 964554

Wet Test Meter No. AL-17 (.05 CF/REV)

Technician SLB

Rota-meter Reading (cc/min)	ΔP_d (IN/WC)	Gas Volume Wet Test Meter (ft³)	** Cal. Index (%)	Diff. Wet Test Meter ΔP_w (in.WC)	Gas Volume Dry test meter (ft³) V_{di}	V_{df}	Gas temperatures Wet Test t_w (°F)	Dry Test t_{di} (°F)		Time θ (min/sec)	Meter Coeff. Y	Rota-meter Coeff. Z
1000	.001	.6	99.55	0.04	591.000	591.598	73.5	68			.9920	
1000	.001	.4	99.55	0.04	591.700	592.097	74	68			.9952	
1000	.001	.4	99.55	0.04	592.200	592.598	74	68			.9927	
1	2	3	4	5	6	7	8	9		10/11 Average:	.9937	

Meter was in tolerance ☒

Meter was not in tolerance ☐: readjusted linkage

Meter was not in tolerance ☐: changed dry test meters

Gas Meter Bimetallic Therm. Calibration/Verification*

☐ ≥ ± 5°F (Out of control) ☐ Recalibrated / /

☐ ≤ ± 5°F (In control) ☐ No action required

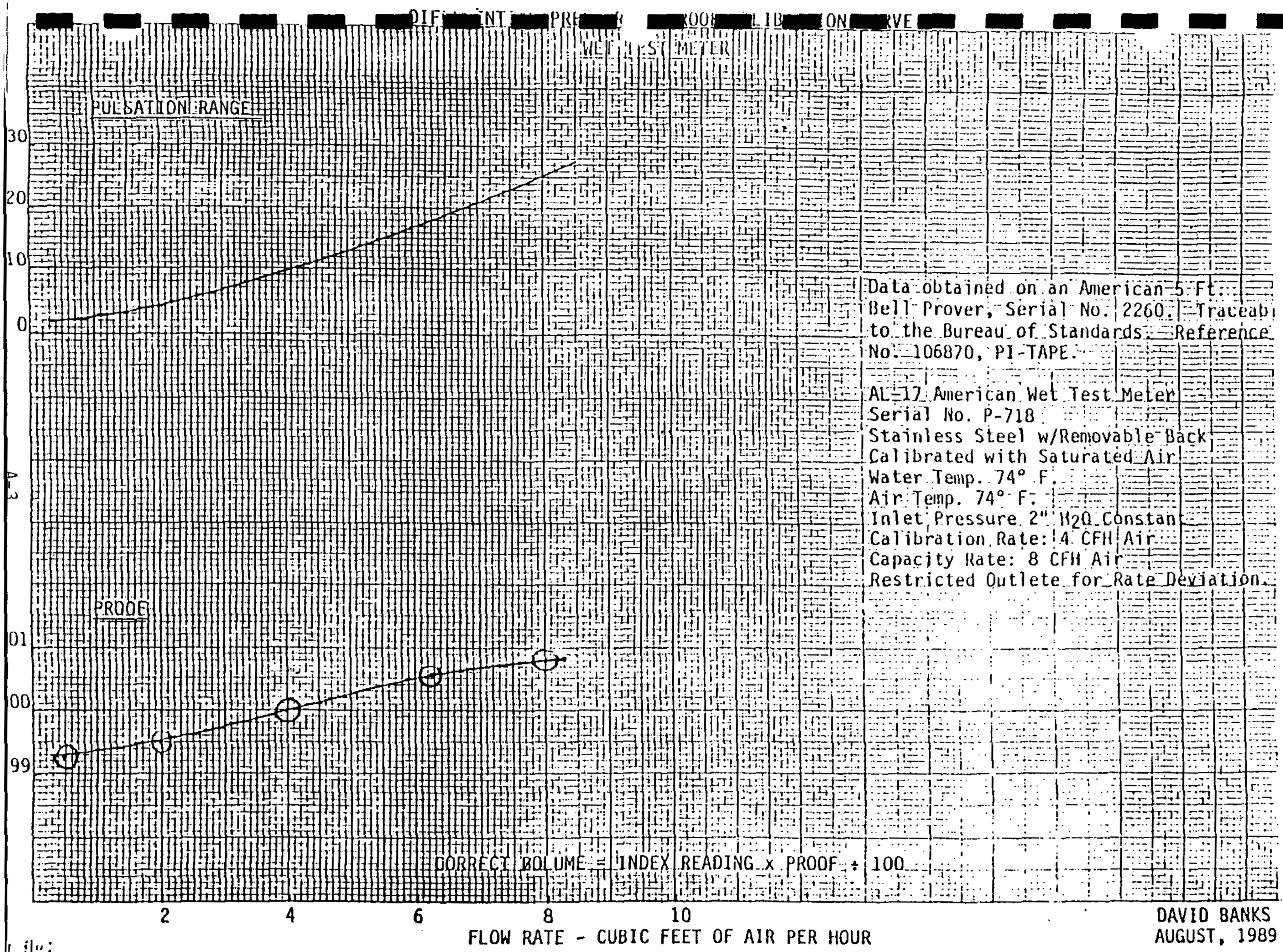
Temperature Compensated

Approved by [signature] Date 8/1/94

* Verified against mercury in glass thermometer or calibrated platinum resistance thermometer.

** Based on AL-17 wet test meter calibration in August 1989 against Bell Prover (NBS Traceable) - Carl Poe Co.

S0102R 8/89



DAVID BANKS
AUGUST, 1989

Interpoll Laboratories, Inc.

Temperature Measurement Device
Calibration Sheet

Unit under test:
Vendor Omega
Model HH81 Serial Number 74JX0223
Range -300 - 2100 °F Thermocouple Type K
Date of Calibration 8-1-94 Technician Bob

Method of Calibration:

☐ Comparison against ASTM mercury in glass thermometer using a thermostatted and insulated aluminum block designed to provide uniform temperature. The temperature is adjusted by adjusting the voltage on the block heater cartridge.

☒ Omega Model CL-300 Type K Thermocouple Simulator which provides 22 precise temperature equivalent millivolt signals. The CL-300 is cold junction compensated. Calibration accuracy is ± 0.1% of span (2100 °F) ± 1 degree (for negative temperatures add ± 2 degrees. The CL-300 simulates exactly the millivoltage of a Type K thermocouple at the indicated temperature.

Desired Temp (°F) Nominal	Temperature of Standard or Simulated Temp (°F)	Response of Unit Under Test (°F)	Deviation Δt (°F)	Deviation (%)
0	0	-2	-2	.21
100	100	99	1	.17
200	200	200	0	0
300	300	299	1	.13
400	400	399	1	.11
500	500	499	1	.10
600	600	601	1	.09
700	700	700	0	0
800	800	802	2	.15
900	900	901	1	.07
1000	1000	1001	1	.06
1100	1100	1100	0	0
1200	1200	1201	1	.06
1300	1300	1300	0	0
1400	1400	1402	2	.10
1500	1500	1501	1	.05
1600	1600	1603	3	.14
1700	1700	1701	1	.04
1800	1800	1804	4	.17
1900	1900	1901	1	.04
2000	2000	2001	1	.04
2100	2100	2099	1	.04
		Averages:	1	.08

OF = off scale response by unit under test (°F)
% dev = 100 Δt / (460 + t)

☒ Unit in tolerance
☐ Unit was not in tolerance: recalibrated - See new calibration sheet.

S-433

Interpoll Laboratories, Inc.
(612) 786-6020

S-Type Pitot Tube Inspection Sheet

Pitot Tube No. 27-8

Pitot tube dimensions:

1. External tubing diameter (D_t) .316 IN.
2. Base to Side A opening plane (P_A) .460 IN.
3. Base to Side B opening plane (P_B) .460 IN.

Alignment:

4. α_1 < 10° 0
5. α_2 < 10° 0
6. B_1 < 5° 0
7. B_2 < 5° 0
8. Z <.125" 0
9. W <.0625" .01

Distance from Pitot to Probe Components:

10. Pitot to 0.500 IN. nozzle .750 IN.
11. Pitot to probe sheath 3.0 IN.
12. Pitot to thermocouple (parallel to probe) 3.0 IN.
13. Pitot to thermocouple (perpendicular to probe) .760 IN.

☒ Meets all EPA design criteria thus C_p = 0.84
☐ Does not meet EPA design criteria - thus calibrate in wind tunnel.
C_p = ______

Date of Inspection: 1-7-94

Inspected by: [signature]

CFR Title 40 Part 60 Appenidix A Method 2

S-348

INTERPOLL LABORATORIES
(612)786-6020

Stack Sampling Department - QA
Aneroid Barometer Calibration Sheet

Date 7-7-94

Technician BB

Mercury Column Barometer No. CAB

Aneroid Barometer No. 107 23629

Actual Mercury Barometer Read	Ambient Temp.	Temperature Correction Factor	Adjsted Mercury Barometer Read	Initial Aneriod Barometer Read	Difference (P_{ba}-P_{bm})
28.98	78	.129	28.85	28.84	.01

Has this barometer shown any consistent problems with calibration? Yes/No. If yes, explain. No

Has problem been alleviated? Yes/No. How?

*Note

Aneroid barometers will be calibrated periodically against a mercury column barometer. The aneroid barometer to be calibrated should be placed in close proximity to the mercury barometer and left to equilibrate for 20-30 minutes before calibrating. Aneriod barometer will be calibrated to the adjusted mercury barometer readings.

S-312

APPENDIX B

REFERENCE METHOD RESULTS

Interpoll Laboratories, Inc.
(612) 786-6020

Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH11
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 2 Dryer RTO Stack -- Run 1

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
235	08:31:00	241	2.58	18.00
235	08:32:00	283	2.83	17.66
235	08:33:00	278	2.63	17.89
235	08:34:00	235	2.59	17.89
235	08:35:00	214	2.48	18.06
235	08:36:00	294	2.73	17.99
235	08:37:00.	281	2.81	17.61
235	08:38:00	263	2.85	17.69
235	08:39:00	294	2.39	18.04
235	08:40:00	213	2.51	18.21
235	08:41:00	274	2.59	17.88
235	08:42:00	232	2.63	17.97
235	08:43:00	256	3.09	17.47
235	08:44:00	225	2.55	17.76
235	08:45:00	233	2.85	17.85
235	08:46:00	224	2.71	17.89
235	08:47:00	308	3.14	17.55
235	08:48:00	301	3.12	17.27
235	08:49:00	327	3.26	17.29
235	08:50:00	339	2.90	17.51
235	08:51:00	332	2.85	17.82
235	08:52:00	321	2.89	17.63
235	08:53:00	278	3.00	17.63
235	08:54:00	273	3.10	17.30
235	08:55:00	231	2.95	17.57
235	08:56:00	288	2.89	17.66
235	08:57:00	227	2.82	17.82
235	08:58:00	359	3.19	17.53
235	08:59:00	335	3.32	17.10
235	09:00:00	345	3.38	17.14
	Run Average	277	2.85	17.69

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH12
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 2 Dryer RTO Stack -- Run 2

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
235	09:16:00	415	3.33	17.01
235	09:17:00	387	3.15	17.21
235	09:18:00	346	3.04	17.63
235	09:19:00	339	3.41	17.24
235	09:20:00	576	3.41	17.07
235	09:21:00	522	3.76	16.78
235	09:22:00	585	3.66	16.67
235	09:23:00	547	3.44	16.93
235	09:24:00	385	2.89	17.54
235	09:25:00	309	3.01	17.62
235	09:26:00	421	3.39	17.32
235	09:27:00	494	3.63	16.75
235	09:28:00	487	3.48	16.85
235	09:29:00	466	3.26	17.40
235	09:30:00	514	3.68	16.91
235	09:31:00	726	3.46	16.95
235	09:32:00	619	3.62	16.89
235	09:33:00	599	3.48	16.88
235	09:34:00	559	3.02	17.29
235	09:35:00	406	3.08	17.59
235	09:36:00	494	3.31	17.22
235	09:37:00	550	3.03	17.49
235	09:38:00	417	3.44	17.09
235	09:39:00	452	3.37	16.97
235	09:40:00	345	2.96	17.39
235	09:41:00	293	2.57	17.99
235	09:42:00	272	2.82	17.78
235	09:43:00	339	2.95	17.74
235	09:44:00	319	3.02	17.34
235	09:45:00	299	2.93	17.51
	Run Average	449	3.25	17.24

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH13
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 2 Dryer RTO Stack -- Run 3

Julian	Time	Conc. (dry basis unless noted)		
Date	(Hrs)	CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
235	10:01:00	150	2.06	18.46
235	10:02:00	156	1.99	18.66
235	10:03:00	135	1.89	18.75
235	10:04:00	155	1.91	18.89
235	10:05:00	197	2.14	18.62
235	10:06:00	141	1.96	18.55
235	10:07:00	152	2.23	18.46
235	10:08:00	173	1.83	18.76
235	10:09:00	147	2.03	18.84
235	10:10:00	159	1.97	18.61
235	10:11:00	154	2.17	18.63
235	10:12:00	187	2.57	18.02
235	10:13:00	190	1.91	18.59
235	10:14:00	181	2.28	18.56
235	10:15:00	158	1.92	18.60
235	10:16:00	206	2.30	18.67
235	10:17:00	162	2.30	18.12
235	10:18:00	177	2.26	18.43
235	10:19:00	223	2.33	18.29
235	10:20:00	139	2.07	18.63
235	10:21:00	208	2.39	18.28
235	10:22:00	146	2.31	18.27
235	10:23:00	211	2.67	18.01
235	10:24:00	189	2.27	18.16
235	10:25:00	162	2.48	18.39
235	10:26:00	180	2.45	18.10
235	10:27:00	187	2.67	18.20
235	10:28:00	218	2.93	17.56
235	10:29:00	172	2.60	17.92
235	10:30:00	219	2.70	18.02
	Run Average	174	2.25	18.40

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH14
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 2 Dryer RTO Stack -- Run 4

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
235	10:46:00	137	2.05	18.47
235	10:47:00	157	2.31	18.47
235	10:48:00	217	2.68	18.14
235	10:49:00	344	2.74	17.99
235	10:50:00	454	3.09	17.41
235	10:51:00	647	3.41	17.26
235	10:52:00	729	2.77	17.80
235	10:53:00	495	2.62	17.80
235	10:54:00	350	2.20	18.37
235	10:55:00	163	1.77	18.86
235	10:56:00	154	1.89	18.64
235	10:57:00	141	2.11	18.74
235	10:58:00	162	1.94	18.73
235	10:59:00	200	2.42	18.37
235	11:00:00	334	2.70	18.11
235	11:01:00	363	2.68	17.82
235	11:02:00	325	2.65	17.81
235	11:03:00	260	2.18	18.31
235	11:04:00	133	1.64	19.15
235	11:05:00	131	1.66	19.04
235	11:06:00	149	1.94	19.18
235	11:07:00	105	1.97	18.61
235	11:08:00	112	2.32	18.43
235	11:09:00	140	2.25	18.52
235	11:10:00	117	2.22	18.59
235	11:11:00	152	2.41	18.32
235	11:12:00	119	2.43	18.27
235	11:13:00	148	2.25	18.35
235	11:14:00	155	2.36	18.42
235	11:15:00	133	2.06	18.64
	Run Average	241	2.32	18.35

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH15
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 2 Dryer RTO Stack -- Run 5

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
235	11:31:00	307	3.16	17.42
235	11:32:00	285	3.32	17.25
235	11:33:00	438	3.36	17.09
235	11:34:00	434	3.50	16.99
235	11:35:00	416	3.53	16.86
235	11:36:00	439	3.42	17.21
235	11:37:00	390	3.25	17.21
235	11:38:00	311	3.10	17.36
235	11:39:00	309	3.12	17.46
235	11:40:00	281	3.34	17.09
235	11:41:00	307	3.19	17.11
235	11:42:00	273	2.88	17.70
235	11:43:00	249	3.20	17.44
235	11:44:00	424	3.31	17.17
235	11:45:00	384	3.39	17.11
235	11:46:00	383	3.64	16.82
235	11:47:00	488	3.31	16.95
235	11:48:00	364	3.10	17.44
235	11:49:00	341	3.28	17.24
235	11:50:00	450	3.29	17.26
235	11:51:00	373	3.27	17.04
235	11:52:00	266	3.08	17.25
235	11:53:00	231	2.49	17.96
235	11:54:00	191	2.86	17.81
235	11:55:00	248	2.70	17.75
235	11:56:00	207	3.04	17.51
235	11:57:00	226	3.03	17.40
235	11:58:00	258	2.98	17.44
235	11:59:00	242	2.87	17.67
235	12:00:00	250	3.21	17.41
	Run Average	325	3.17	17.31

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH16
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 2 Dryer RTO Stack -- Run 6

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
235	12:16:00	263	3.03	17.57
235	12:17:00	343	2.99	17.43
235	12:18:00	324	3.25	17.25
235	12:19:00	339	3.25	17.13
235	12:20:00	332	3.01	17.29
235	12:21:00	293	2.79	17.68
235	12:22:00	255	2.94	17.64
235	12:23:00	407	3.01	17.54
235	12:24:00	337	3.08	17.32
235	12:25:00	345	3.27	17.15
235	12:26:00	389	2.88	17.52
235	12:27:00	289	2.93	17.63
235	12:28:00	369	3.08	17.41
235	12:29:00	365	3.28	17.20
235	12:30:00	442	3.45	16.91
235	12:31:00	382	2.99	17.33
235	12:32:00	339	2.90	17.61
235	12:33:00	265	2.83	17.62
235	12:34:00	339	3.08	17.56
235	12:35:00	302	3.27	17.10
235	12:36:00	349	3.47	16.97
235	12:37:00	435	3.01	17.21
235	12:38:00	357	3.10	17.45
235	12:39:00	442	3.25	17.21
235	12:40:00	413	3.30	17.07
235	12:41:00	418	3.37	16.97
235	12:42:00	454	3.28	17.01
235	12:43:00	461	3.10	17.41
235	12:44:00	427	3.33	17.19
235	12:45:00	609	3.41	17.14
	Run Average	369	3.13	17.32

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH17
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 2 Dryer RTO Stack -- Run 7

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
235	13:31:00	590	3.28	16.79
235	13:32:00	500	2.57	17.45
235	13:33:00	263	2.59	17.89
235	13:34:00	314	2.62	17.65
235	13:35:00	297	2.63	17.79
235	13:36:00	286	3.15	17.21
235	13:37:00	438	3.15	17.05
235	13:38:00	425	3.06	17.27
235	13:39:00	490	3.37	17.03
235	13:40:00	738	3.32	16.99
235	13:41:00	599	3.46	16.75
235	13:42:00	582	3.48	16.73
235	13:43:00	634	3.22	17.06
235	13:44:00	390	2.92	17.32
235	13:45:00	445	3.04	17.27
235	13:46:00	523	3.41	17.11
235	13:47:00	721	3.70	16.47
235	13:48:00	705	3.52	16.60
235	13:49:00	771	3.71	16.69
235	13:50:00	846	3.90	16.40
235	13:51:00	1060	4.01	16.29
235	13:52:00	1015	4.17	15.82
235	13:53:00	1012	3.88	16.11
235	13:54:00	789	2.73	17.17
235	13:55:00	299	2.62	17.75
235	13:56:00	246	2.72	17.70
235	13:57:00	290	2.60	17.63
235	13:58:00	223	3.16	17.32
235	13:59:00	432	3.38	16.89
235	14:00:00	680	3.77	16.70
	Run Average	553	3.24	17.03

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH18
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 2 Dryer RTO Stack -- Run 8

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
235	14:16:00	758	3.01	17.20
235	14:17:00	298	2.43	18.10
235	14:18:00	247	2.31	18.22
235	14:19:00	233	2.58	18.15
235	14:20:00	278	3.18	17.45
235	14:21:00	314	2.97	17.56
235	14:22:00	378	3.42	17.26
235	14:23:00	457	3.50	17.14
235	14:24:00	728	3.42	17.07
235	14:25:00	495	3.33	17.17
235	14:26:00	554	3.35	17.05
235	14:27:00	453	2.73	17.75
235	14:28:00	321	2.83	17.89
235	14:29:00	452	3.14	17.50
235	14:30:00	456	3.24	17.35
235	14:31:00	472	3.58	17.00
235	14:32:00	532	3.23	17.09
235	14:33:00	395	2.96	17.56
235	14:34:00	245	2.82	17.80
235	14:35:00	260	2.60	17.99
235	14:36:00	188	2.71	17.80
235	14:37:00	202	2.89	17.73
235	14:38:00	260	2.65	17.96
235	14:39:00	192	2.95	17.81
235	14:40:00	305	2.83	17.63
235	14:41:00	229	2.99	17.75
235	14:42:00	314	3.29	17.22
235	14:43:00	313	2.87	17.59
235	14:44:00	316	3.30	17.43
235	14:45:00	463	3.31	17.26
	Run Average	370	3.01	17.55

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH19
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 2 Dryer RTO Stack -- Run 9

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
235	15:01:00	433	3.45	17.21
235	15:02:00	531	3.39	17.02
235	15:03:00	423	3.36	17.07
235	15:04:00	355	3.14	17.18
235	15:05:00	287	2.70	17.60
235	15:06:00	201	2.35	18.16
235	15:07:00	213	3.06	17.71
235	15:08:00	398	3.09	17.42
235	15:09:00	282	3.33	17.20
235	15:10:00	578	3.72	16.68
235	15:11:00	657	3.29	17.13
235	15:12:00	465	3.38	17.18
235	15:13:00	562	3.14	17.21
235	15:14:00	369	3.11	17.35
235	15:15:00	317	3.14	17.30
235	15:16:00	331	2.94	17.48
235	15:17:00	288	2.99	17.57
235	15:18:00	394	3.29	17.32
235	15:19:00	642	3.61	16.96
235	15:20:00	654	3.73	16.59
235	15:21:00	628	3.47	16.78
235	15:22:00	472	2.84	17.58
235	15:23:00	300	3.09	17.54
235	15:24:00	390	2.84	17.54
235	15:25:00	278	2.96	17.55
235	15:26:00	316	3.24	17.24
235	15:27:00	366	3.06	17.33
235	15:28:00	311	2.96	17.56
235	15:29:00	360	3.21	17.36
235	15:30:00	470	3.33	17.20
	Run Average	409	3.17	17.30

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH110
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 2 Dryer RTO Stack -- Run 10

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
235	15:46:00	327	2.86	17.48
235	15:47:00	328	2.86	17.70
235	15:48:00	343	3.40	16.99
235	15:49:00	406	3.40	16.89
235	15:50:00	394	3.14	17.16
235	15:51:00	391	3.01	17.35
235	15:52:00	355	3.07	17.36
235	15:53:00	334	3.00	17.37
235	15:54:00	291	3.10	17.17
235	15:55:00	267	2.93	17.33
235	15:56:00	257	2.70	17.70
235	15:57:00	250	2.90	17.65
235	15:58:00	404	3.23	17.23
235	15:59:00	495	3.39	17.04
235	16:00:00	500	3.60	16.68
235	16:01:00	447	3.21	16.86
235	16:02:00	328	2.74	17.65
235	16:03:00	255	2.79	17.68
235	16:04:00	332	2.73	17.65
235	16:05:00	261	3.07	17.41
235	16:06:00	405	3.49	16.93
235	16:07:00	589	3.42	16.99
235	16:08:00	691	3.59	16.91
235	16:09:00	927	3.51	16.72
235	16:10:00	686	3.28	17.07
235	16:11:00	371	2.63	17.47
235	16:12:00	264	2.50	17.84
235	16:13:00	284	2.55	18.06
235	16:14:00	235	2.68	17.79
235	16:15:00	366	3.09	17.62
	Run Average	393	3.06	17.33

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(612) 786-6020

Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH111
Job Number: 4-3677
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 2 Dryer RTO Stack -- Run 11

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
235	16:31:00	273	2.19	18.27
235	16:32:00	319	2.87	17.87
235	16:33:00	327	3.22	17.13
235	16:34:00	384	3.37	16.98
235	16:35:00	605	3.57	16.98
235	16:36:00	824	3.85	16.53
235	16:37:00	820	3.45	16.71
235	16:38:00	520	2.84	17.31
235	16:39:00	297	2.62	17.68
235	16:40:00	288	2.43	17.99
235	16:41:00	266	2.78	17.75
235	16:42:00	322	3.14	17.48
235	16:43:00	669	3.67	16.90
235	16:44:00	847	4.03	16.24
235	16:45:00	908	3.79	16.32
235	16:46:00	739	3.05	17.12
235	16:47:00	329	2.94	17.59
235	16:48:00	412	2.53	17.68
235	16:49:00	233	2.59	17.86
235	16:50:00	257	2.96	17.49
235	16:51:00	275	2.74	17.61
235	16:52:00	292	3.11	17.57
235	16:53:00	634	3.64	16.84
235	16:54:00	977	3.90	16.54
235	16:55:00	1047	4.19	16.01
235	16:56:00	877	3.54	16.30
235	16:57:00	446	2.40	17.81
235	16:58:00	282	2.44	18.10
235	16:59:00	360	2.45	18.01
235	17:00:00	341	3.26	17.33
	Run Average	506	3.12	17.27

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH112
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 2 Dryer RTO Stack -- Run 12

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
235	17:16:00	564	3.11	17.12
235	17:17:00	317	2.93	17.31
235	17:18:00	305	3.14	17.24
235	17:19:00	334	2.58	17.62
235	17:20:00	281	2.78	17.86
235	17:21:00	349	3.00	17.39
235	17:22:00	372	3.40	17.11
235	17:23:00	494	3.49	16.71
235	17:24:00	481	3.33	16.90
235	17:25:00	479	3.00	17.35
235	17:26:00	377	3.33	17.29
235	17:27:00	653	3.33	17.02
235	17:28:00	511	3.59	16.79
235	17:29:00	617	3.62	16.56
235	17:30:00	448	2.74	17.36
235	17:31:00	271	2.84	17.78
235	17:32:00	423	3.17	17.19
235	17:33:00	425	3.20	17.31
235	17:34:00	409	3.39	16.87
235	17:35:00	443	3.56	16.74
235	17:36:00	417	2.84	17.29
235	17:37:00	309	3.01	17.60
235	17:38:00	460	3.18	17.13
235	17:39:00	397	3.23	17.20
235	17:40:00	487	3.67	16.74
235	17:41:00	580	3.42	16.62
235	17:42:00	477	3.27	17.28
235	17:43:00	560	3.40	17.00
235	17:44:00	580	3.50	16.95
235	17:45:00	644	3.87	16.35
	Run Average	449	3.23	17.12

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH21
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 1 Dryer RTO Stack -- Run 1

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
236	08:16:00	216	3.31	17.28
236	08:17:00	218	3.12	17.47
236	08:18:00	218	3.31	17.31
236	08:19:00	212	3.35	17.08
236	08:20:00	221	3.38	17.23
236	08:21:00	303	3.53	16.93
236	08:22:00	280	3.32	17.29
236	08:23:00	305	3.66	16.95
236	08:24:00	274	3.47	16.90
236	08:25:00	244	3.38	17.18
236	08:26:00	274	3.44	17.09
236	08:27:00	349	3.63	17.01
236	08:28:00	322	3.58	16.91
236	08:29:00	290	3.65	16.86
236	08:30:00	398	3.83	16.74
236	08:31:00	376	3.81	16.65
236	08:32:00	423	3.83	16.75
236	08:33:00	484	4.08	16.40
236	08:34:00	399	3.88	16.52
236	08:35:00	399	3.81	16.72
236	08:36:00	431	3.93	16.72
236	08:37:00	488	4.01	16.47
236	08:38:00	461	4.19	16.27
236	08:39:00	525	4.15	16.22
236	08:40:00	558	4.18	16.28
236	08:41:00	672	4.36	16.20
236	08:42:00	775	4.46	15.98
236	08:43:00	637	4.13	16.09
236	08:44:00	436	3.77	16.67
236	08:45:00	353	3.55	16.86
	Run Average	385	3.74	16.77

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(612) 786-6020

Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH22
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 1 Dryer RTO Stack -- Run 2

Julian	Time	Conc. (dry basis unless noted)		
Date	(Hrs)	CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
236	09:01:00	330	3.39	17.17
236	09:02:00	310	3.33	16.90
236	09:03:00	235	3.25	17.11
236	09:04:00	292	3.37	17.02
236	09:05:00	306	3.38	17.12
236	09:06:00	367	3.40	16.98
236	09:07:00	271	3.20	17.06
236	09:08:00	201	3.07	17.37
236	09:09:00	237	3.23	17.18
236	09:10:00	248	3.37	17.22
236	09:11:00	345	3.65	16.73
236	09:12:00	300	3.58	16.70
236	09:13:00	335	3.58	16.81
236	09:14:00	377	3.51	16.84
236	09:15:00	438	3.71	16.80
236	09:16:00	521	4.01	16.46
236	09:17:00	669	4.26	15.94
236	09:18:00	654	3.65	16.31
236	09:19:00	457	2.31	17.94
236	09:20:00	339	3.26	17.48
236	09:21:00	313	3.42	16.95
236	09:22:00	278	3.53	16.82
236	09:23:00	344	3.65	16.80
236	09:24:00	425	3.84	16.58
236	09:25:00	536	3.96	16.43
236	09:26:00	526	4.02	16.23
236	09:27:00	510	4.03	16.19
236	09:28:00	618	4.09	16.20
236	09:29:00	565	4.18	16.13
236	09:30:00	686	3.89	16.34
	Run Average	401	3.57	16.79

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH23
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 1 Dryer RTO Stack -- Run 3

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
236	09:46:00	629	4.33	15.92
236	09:47:00	771	4.35	15.97
236	09:48:00	806	4.31	16.02
236	09:49:00	869	4.15	16.15
236	09:50:00	727	4.14	16.18
236	09:51:00	638	3.96	16.29
236	09:52:00	622	3.54	16.71
236	09:53:00	331	2.98	17.44
236	09:54:00	258	3.07	17.53
236	09:55:00	277	3.37	17.14
236	09:56:00	247	2.95	17.34
236	09:57:00	213	3.11	17.52
236	09:58:00	246	3.19	17.36
236	09:59:00	228	2.89	17.56
236	10:00:00	212	3.37	17.23
236	10:01:00	287	3.57	16.96
236	10:02:00	373	3.65	16.81
236	10:03:00	402	3.67	16.90
236	10:04:00	411	3.72	16.76
236	10:05:00	398	3.87	16.50
236	10:06:00	399	3.71	16.73
236	10:07:00	404	3.76	16.69
236	10:08:00	516	3.91	16.64
236	10:09:00	606	4.17	16.31
236	10:10:00	605	4.29	15.98
236	10:11:00	687	4.14	16.20
236	10:12:00	647	3.98	16.38
236	10:13:00	645	3.84	16.64
236	10:14:00	530	3.73	16.65
236	10:15:00	404	3.63	16.77
	Run Average	480	3.71	16.71

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH24
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 1 Dryer RTO Stack -- Run 4

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
236	10:31:00	401	3.64	16.85
236	10:32:00	411	3.88	16.68
236	10:33:00	545	3.99	16.46
236	10:34:00	497	3.98	16.37
236	10:35:00	599	4.04	16.49
236	10:36:00	712	4.08	16.31
236	10:37:00	708	3.88	16.56
236	10:38:00	504	3.34	16.89
236	10:39:00	207	2.77	17.71
236	10:40:00	226	3.36	17.38
236	10:41:00	344	3.76	16.87
236	10:42:00	565	4.13	16.49
236	10:43:00	770	4.65	15.80
236	10:44:00	913	4.68	15.60
236	10:45:00	1004	4.76	15.62
236	10:46:00	1004	4.52	15.79
236	10:47:00	975	4.36	15.96
236	10:48:00	621	3.62	16.47
236	10:49:00	351	3.25	17.29
236	10:50:00	366	3.65	16.96
236	10:51:00	405	3.96	16.60
236	10:52:00	621	3.99	16.50
236	10:53:00	626	4.00	16.37
236	10:54:00	714	3.88	16.64
236	10:55:00	796	4.05	16.42
236	10:56:00	807	3.97	16.47
236	10:57:00	773	4.13	16.36
236	10:58:00	709	4.17	16.16
236	10:59:00	780	4.15	16.25
236	11:00:00	689	3.86	16.48
	Run Average	621	3.95	16.49

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH25
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 1 Dryer RTO Stack -- Run 5

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
236	11:16:00	513	3.69	16.73
236	11:17:00	358	3.41	16.94
236	11:18:00	310	3.44	17.14
236	11:19:00	417	3.74	16.77
236	11:20:00	573	4.00	16.61
236	11:21:00	748	4.32	16.09
236	11:22:00	720	4.14	16.06
236	11:23:00	723	4.00	16.39
236	11:24:00	632	3.55	16.69
236	11:25:00	340	2.75	17.69
236	11:26:00	242	3.22	17.51
236	11:27:00	249	3.26	17.15
236	11:28:00	278	3.50	17.19
236	11:29:00	385	3.92	16.60
236	11:30:00	657	4.07	16.47
236	11:31:00	812	4.40	15.99
236	11:32:00	839	4.21	16.09
236	11:33:00	986	4.21	16.18
236	11:34:00	841	3.88	16.43
236	11:35:00	449	2.82	17.44
236	11:36:00	288	3.30	17.34
236	11:37:00	252	2.99	17.40
236	11:38:00	277	3.44	17.30
236	11:39:00	439	3.78	16.88
236	11:40:00	603	4.13	16.42
236	11:41:00	718	4.32	16.00
236	11:42:00	847	4.23	16.13
236	11:43:00	861	4.07	16.23
236	11:44:00	805	3.95	16.44
236	11:45:00	440	2.95	17.17
	Run Average	553	3.72	16.72

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH26
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 1 Dryer RTO Stack -- Run 6

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
236	12:01:00	629	3.77	16.59
236	12:02:00	478	3.53	16.85
236	12:03:00	406	3.51	17.06
236	12:04:00	353	3.66	16.89
236	12:05:00	388	3.92	16.55
236	12:06:00	519	3.95	16.50
236	12:07:00	601	4.03	16.39
236	12:08:00	709	4.09	16.43
236	12:09:00	807	4.23	16.11
236	12:10:00	823	4.20	16.11
236	12:11:00	898	4.06	16.27
236	12:12:00	658	3.57	16.76
236	12:13:00	340	2.54	17.69
236	12:14:00	204	3.06	17.71
236	12:15:00	208	3.08	17.45
236	12:16:00	322	3.72	16.98
236	12:17:00	606	4.05	16.53
236	12:18:00	764	4.14	16.26
236	12:19:00	626	3.89	16.27
236	12:20:00	354	2.84	17.41
236	12:21:00	247	2.84	17.84
236	12:22:00	271	3.42	17.24
236	12:23:00	282	3.57	16.93
236	12:24:00	394	3.86	16.58
236	12:25:00	475	3.61	16.80
236	12:26:00	397	3.04	17.30
236	12:27:00	248	2.75	17.91
236	12:28:00	202	3.07	17.59
236	12:29:00	200	3.20	17.31
236	12:30:00	274	3.50	17.12
	Run Average	456	3.56	16.91

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH27
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 1 Dryer RTO Stack -- Run 7

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
236	12:46:00	289	3.43	17.34
236	12:47:00	338	3.54	17.04
236	12:48:00	250	3.23	17.25
236	12:49:00	209	3.21	17.46
236	12:50:00	227	3.10	17.45
236	12:51:00	216	3.19	17.61
236	12:52:00	257	3.26	17.34
236	12:53:00	207	3.06	17.46
236	12:54:00	200	3.01	17.70
236	12:55:00	219	3.20	17.51
236	12:56:00	273	3.29	17.39
236	12:57:00	245	3.23	17.31
236	12:58:00	184	2.99	17.55
236	12:59:00	189	3.04	17.67
236	13:00:00	203	3.02	17.68
236	13:01:00	201	3.28	17.44
236	13:02:00	249	3.27	17.17
236	13:03:00	167	3.06	17.59
236	13:04:00	245	3.12	17.46
236	13:05:00	198	3.07	17.77
236	13:06:00	278	3.45	17.22
236	13:07:00	225	3.10	17.41
236	13:08:00	225	3.31	17.34
236	13:09:00	192	2.81	17.67
236	13:10:00	173	3.01	17.68
236	13:11:00	152	2.65	17.94
236	13:12:00	125	2.84	17.63
236	13:13:00	136	2.71	18.15
236	13:14:00	226	2.97	17.48
236	13:15:00	186	2.83	18.09
	Run Average	216	3.11	17.53

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH28
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 1 Dryer RTO Stack -- Run 8

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
236	13:31:00	149	2.45	18.07
236	13:32:00	174	2.62	17.73
236	13:33:00	152	2.76	17.99
236	13:34:00	194	2.41	17.85
236	13:35:00	194	3.23	17.58
236	13:36:00	218	2.57	17.64
236	13:37:00	279	3.49	17.39
236	13:38:00	406	3.40	17.20
236	13:39:00	250	3.36	17.31
236	13:40:00	324	3.34	16.93
236	13:41:00	230	3.24	17.29
236	13:42:00	366	3.50	16.96
236	13:43:00	359	3.43	17.13
236	13:44:00	437	3.67	16.86
236	13:45:00	430	3.51	16.75
236	13:46:00	348	3.29	17.18
236	13:47:00	375	3.43	17.04
236	13:48:00	473	3.58	16.98
236	13:49:00	553	3.77	16.65
236	13:50:00	523	3.70	16.61
236	13:51:00	582	3.54	16.85
236	13:52:00	516	3.49	16.99
236	13:53:00	596	3.69	16.79
236	13:54:00	536	3.56	16.75
236	13:55:00	376	3.36	17.02
236	13:56:00	435	3.50	16.98
236	13:57:00	517	3.70	16.86
236	13:58:00	666	3.79	16.59
236	13:59:00	592	3.68	16.62
236	14:00:00	572	3.47	16.88
	Run Average	394	3.35	17.12

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH29
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 1 Dryer RTO Stack -- Run 9

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
236	14:16:00	540	4.18	16.07
236	14:17:00	554	4.06	16.17
236	14:18:00	500	4.05	16.21
236	14:19:00	491	3.90	16.43
236	14:20:00	568	3.88	16.46
236	14:21:00	510	3.84	16.66
236	14:22:00	538	3.98	16.41
236	14:23:00	484	3.90	16.41
236	14:24:00	510	3.79	16.54
236	14:25:00	428	3.46	16.83
236	14:26:00	339	3.31	17.17
236	14:27:00	295	3.23	17.13
236	14:28:00	179	2.97	17.38
236	14:29:00	145	2.64	17.75
236	14:30:00	111	2.58	17.93
236	14:31:00	117	2.68	17.86
236	14:32:00	119	2.80	17.73
236	14:33:00	131	2.91	17.56
236	14:34:00	166	2.92	17.59
236	14:35:00	184	2.68	17.75
236	14:36:00	140	2.37	18.05
236	14:37:00	120	2.51	17.95
236	14:38:00	102	2.21	18.18
236	14:39:00	105	2.22	18.22
236	14:40:00	81.8	2.02	18.55
236	14:41:00	93.7	2.18	18.28
236	14:42:00	83.2	1.78	18.66
236	14:43:00	75.6	2.01	18.50
236	14:44:00	72.2	1.96	18.69
236	14:45:00	79.2	1.86	18.54
	Run Average	262	2.96	17.46

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH210
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 1 Dryer RTO Stack -- Run 10

Julian Date	Time (Hrs)	CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
		Conc. (dry basis unless noted)		
236	15:46:00	229	2.89	16.98
236	15:47:00	166	3.04	17.30
236	15:48:00	199	2.90	16.91
236	15:49:00	156	2.79	17.48
236	15:50:00	190	2.68	17.14
236	15:51:00	126	2.68	17.77
236	15:52:00	190	2.72	17.11
236	15:53:00	139	2.79	17.53
236	15:54:00	143	2.25	17.50
236	15:55:00	126	2.77	17.57
236	15:56:00	119	1.98	18.03
236	15:57:00	114	2.64	17.62
236	15:58:00	117	2.45	17.78
236	15:59:00	156	2.48	17.40
236	16:00:00	133	2.60	17.72
236	16:01:00	137	2.24	17.77
236	16:02:00	157	2.84	17.31
236	16:03:00	126	2.47	17.71
236	16:04:00	156	2.49	17.43
236	16:05:00	150	2.73	17.63
236	16:06:00	164	2.34	17.66
236	16:07:00	159	2.85	17.22
236	16:08:00	123	2.46	17.77
236	16:09:00	155	2.48	17.35
236	16:10:00	124	0.11	17.77
236	16:11:00	162	2.37	17.40
236	16:12:00	125	3.02	17.43
236	16:13:00	185	2.53	17.26
236	16:14:00	141	3.06	17.36
236	16:15:00	232	2.70	17.17
	Run Average	153	2.55	17.47

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH211
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 1 Dryer RTO Stack -- Run 11

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
236	16:31:00	112	2.73	17.92
236	16:32:00	199	3.03	17.35
236	16:33:00	137	2.47	18.10
236	16:34:00	163	2.90	17.66
236	16:35:00	132	2.69	18.05
236	16:36:00	182	3.03	17.23
236	16:37:00	143	2.81	18.01
236	16:38:00	222	2.92	17.29
236	16:39:00	155	3.00	17.93
236	16:40:00	231	2.78	17.36
236	16:41:00	159	3.26	17.61
236	16:42:00	233	2.71	17.49
236	16:43:00	236	3.59	17.36
236	16:44:00	293	2.82	17.44
236	16:45:00	257	3.67	17.06
236	16:46:00	243	2.75	17.44
236	16:47:00	234	3.54	17.28
236	16:48:00	247	2.83	17.41
236	16:49:00	184	3.31	17.62
236	16:50:00	301	3.56	16.73
236	16:51:00	206	3.32	17.25
236	16:52:00	305	3.70	16.82
236	16:53:00	280	3.57	17.02
236	16:54:00	341	3.76	16.71
236	16:55:00	265	3.51	16.87
236	16:56:00	256	3.36	17.12
236	16:57:00	249	3.46	17.09
236	16:58:00	299	3.60	17.02
236	16:59:00	351	3.93	16.60
236	17:00:00	342	3.87	16.51
	Run Average	232	3.22	17.31

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH212
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 1 Dryer RTO Stack -- Run 12

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
236	17:16:00	676	4.81	15.29
236	17:17:00	730	4.79	15.27
236	17:18:00	751	4.42	15.60
236	17:19:00	581	4.42	15.59
236	17:20:00	648	3.27	16.26
236	17:21:00	410	2.13	18.16
236	17:22:00	298	3.65	16.84
236	17:23:00	500	3.94	15.74
236	17:24:00	520	3.97	15.71
236	17:25:00	569	3.22	16.53
236	17:26:00	396	3.87	16.61
236	17:27:00	443	3.83	16.31
236	17:28:00	329	3.60	16.49
236	17:29:00	319	3.53	16.66
236	17:30:00	349	3.55	16.68
236	17:31:00	349	2.66	17.15
236	17:32:00	157	1.31	18.82
236	17:33:00	94.5	0.60	19.90
236	17:34:00	70.8	0.48	20.26
236	17:35:00	44.9	0.41	20.29
236	17:36:00	33.3	0.38	20.45
236	17:37:00	53.3	0.52	20.26
236	17:38:00	47.3	0.50	20.18
236	17:39:00	42.3	0.45	20.30
236	17:40:00	39.4	0.36	20.37
236	17:41:00	43.3	0.41	20.39
236	17:42:00	61.1	0.48	20.25
236	17:43:00	47.7	0.42	20.27
236	17:44:00	46.6	0.42	20.33
236	17:45:00	40.2	0.33	20.44
	Run Average	290	2.22	18.11

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH31
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 1 Press RTO Stack -- Run 1

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
237	08:01:00	16.4	0.36	20.39
237	08:02:00	12.3	0.37	20.41
237	08:03:00	20.5	0.33	20.50
237	08:04:00	27.7	0.44	20.40
237	08:05:00	26.5	0.42	20.32
237	08:06:00	13.2	0.31	20.48
237	08:07:00	9.8	0.32	20.49
237	08:08:00	24.8	0.37	20.47
237	08:09:00	26.0	0.46	20.33
237	08:10:00	21.1	0.38	20.33
237	08:11:00	9.4	0.37	20.42
237	08:12:00	14.2	0.30	20.50
237	08:13:00	26.6	0.40	20.46
237	08:14:00	26.5	0.42	20.34
237	08:15:00	14.8	0.36	20.42
237	08:16:00	8.1	0.34	20.42
237	08:17:00	17.6	0.34	20.51
237	08:18:00	23.2	0.42	20.36
237	08:19:00	24.3	0.40	20.32
237	08:20:00	15.1	0.36	20.41
237	08:21:00	13.9	0.32	20.48
237	08:22:00	20.6	0.36	20.49
237	08:23:00	20.8	0.43	20.34
237	08:24:00	15.5	0.36	20.39
237	08:25:00	9.3	0.37	20.34
237	08:26:00	20.0	0.32	20.40
237	08:27:00	26.0	0.40	20.30
237	08:28:00	14.3	0.40	20.27
237	08:29:00	14.8	0.36	20.35
237	08:30:00	21.8	0.35	20.37
	Run Average	18.5	0.37	20.40

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH32
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 1 Press RTO Stack -- Run 2

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
237	08:46:00	19.9	0.44	20.41
237	08:47:00	13.9	0.38	20.49
237	08:48:00	16.0	0.39	20.49
237	08:49:00	25.6	0.36	20.59
237	08:50:00	19.2	0.40	20.48
237	08:51:00	8.5	0.41	20.45
237	08:52:00	14.2	0.40	20.50
237	08:53:00	21.7	0.35	20.54
237	08:54:00	17.4	0.34	4.59
237	08:55:00	8.9	0.43	20.45
237	08:56:00	17.1	0.39	20.48
237	08:57:00	23.2	0.39	20.49
237	08:58:00	16.4	0.30	20.62
237	08:59:00	10.3	0.39	20.53
237	09:00:00	7.2	0.41	20.45
237	09:01:00	6.8	0.37	20.51
237	09:02:00	6.9	0.32	20.54
237	09:03:00	16.2	0.35	20.58
237	09:04:00	19.7	0.43	20.46
237	09:05:00	12.3	0.37	20.47
237	09:06:00	8.8	0.37	20.51
237	09:07:00	18.2	0.32	20.59
237	09:08:00	23.3	0.40	20.53
237	09:09:00	10.8	0.40	20.44
237	09:10:00	11.4	0.37	20.51
237	09:11:00	18.0	0.35	20.50
237	09:12:00	26.0	0.32	20.59
237	09:13:00	11.8	0.39	20.48
237	09:14:00	14.6	0.38	20.45
237	09:15:00	22.4	0.39	20.50
	Run Average	15.5	0.38	19.97

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH33
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 1 Press RTO Stack -- Run 3

Julian	Time	Conc. (dry basis unless noted)		
Date	(Hrs)	CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
237	09:31:00	12.7	0.40	20.62
237	09:32:00	17.8	0.43	20.55
237	09:33:00	23.0	0.37	20.63
237	09:34:00	12.6	0.31	20.69
237	09:35:00	17.9	0.33	20.73
237	09:36:00	21.5	0.42	20.59
237	09:37:00	13.9	0.36	20.61
237	09:38:00	9.5	0.36	20.65
237	09:39:00	9.3	0.29	20.74
237	09:40:00	10.0	0.38	20.68
237	09:41:00	15.4	0.42	20.56
237	09:42:00	22.8	0.36	20.64
237	09:43:00	12.7	0.32	20.67
237	09:44:00	14.7	0.32	20.73
237	09:45:00	22.0	0.42	20.59
237	09:46:00	20.2	0.37	20.58
237	09:47:00	13.0	0.36	20.65
237	09:48:00	21.2	0.31	20.71
237	09:49:00	24.8	0.37	20.69
237	09:50:00	10.9	0.39	20.58
237	09:51:00	15.5	0.37	20.64
237	09:52:00	17.8	0.34	20.63
237	09:53:00	11.9	0.31	20.74
237	09:54:00	12.2	0.39	20.60
237	09:55:00	19.5	0.39	20.56
237	09:56:00	11.6	0.35	20.65
237	09:57:00	11.0	0.29	20.70
237	09:58:00	21.1	0.36	20.70
237	09:59:00	13.3	0.39	20.58
237	10:00:00	10.2	0.34	20.63
	Run Average	15.7	0.36	20.64

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH34
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 1 Press RTO Stack -- Run 4

Julian	Time	Conc. (dry basis unless noted)		
Date	(Hrs)	CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
237	10:16:00	14.4	0.32	20.61
237	10:17:00	15.8	0.43	20.48
237	10:18:00	18.4	0.37	20.46
237	10:19:00	8.9	0.37	20.52
237	10:20:00	14.7	0.32	20.59
237	10:21:00	20.4	0.39	20.56
237	10:22:00	9.8	0.41	20.45
237	10:23:00	13.3	0.37	20.52
237	10:24:00	20.6	0.34	20.52
237	10:25:00	17.4	0.31	20.63
237	10:26:00	14.4	0.38	20.51
237	10:27:00	22.0	0.39	20.46
237	10:28:00	19.6	0.35	20.53
237	10:29:00	11.1	0.29	20.60
237	10:30:00	16.7	0.37	20.59
237	10:31:00	14.7	0.40	20.45
237	10:32:00	9.8	0.34	20.52
237	10:33:00	16.0	0.35	20.53
237	10:34:00	26.1	0.31	20.63
237	10:35:00	12.7	0.37	20.51
237	10:36:00	10.5	0.39	20.46
237	10:37:00	4.5	0.37	20.52
237	10:38:00	11.3	0.29	20.59
237	10:39:00	10.2	0.32	20.62
237	10:40:00	14.7	0.41	20.49
237	10:41:00	15.8	0.33	20.52
237	10:42:00	8.1	0.34	20.54
237	10:43:00	18.3	0.31	20.64
237	10:44:00	23.7	0.37	20.54
237	10:45:00	13.4	0.38	20.46
	Run Average	14.9	0.36	20.54

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH37
Job Number: 4-3677
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 1 Press RTO Stack -- Run 7

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
237	13:16:00	11.0	0.49	20.08
237	13:17:00	21.4	0.45	20.17
237	13:18:00	10.7	0.49	20.07
237	13:19:00	10.8	0.51	20.02
237	13:20:00	21.0	0.50	20.09
237	13:21:00	11.9	0.41	20.16
237	13:22:00	10.3	0.47	20.16
237	13:23:00	8.9	0.52	20.03
237	13:24:00	15.7	0.51	20.07
237	13:25:00	15.0	0.46	20.06
237	13:26:00	8.8	0.43	20.20
237	13:27:00	9.8	0.52	20.04
237	13:28:00	17.9	0.50	20.00
237	13:29:00	11.0	0.49	20.06
237	13:30:00	9.6	0.42	20.13
237	13:31:00	18.2	0.52	20.09
237	13:32:00	13.2	0.52	19.99
237	13:33:00	9.8	0.47	20.07
237	13:34:00	15.8	0.46	20.07
237	13:35:00	21.9	0.44	20.12
237	13:36:00	10.7	0.53	20.01
237	13:37:00	14.3	0.50	19.99
237	13:38:00	18.5	0.49	20.02
237	13:39:00	9.3	0.40	20.14
237	13:40:00	8.9	0.50	20.07
237	13:41:00	14.9	0.53	19.97
237	13:42:00	12.8	0.47	20.04
237	13:43:00	7.1	0.42	20.08
237	13:44:00	15.9	0.46	20.11
237	13:45:00	15.8	0.52	19.98
	Run Average	13.4	0.48	20.07

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH38
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 1 Press RTO Stack -- Run 8

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
237	14:01:00	15.8	0.44	20.02
237	14:02:00	8.8	0.51	20.01
237	14:03:00	9.9	0.55	19.90
237	14:04:00	19.9	0.51	19.96
237	14:05:00	10.4	0.45	19.99
237	14:06:00	12.4	0.44	20.08
237	14:07:00	18.0	0.53	19.96
237	14:08:00	13.0	0.48	19.95
237	14:09:00	9.3	0.49	19.99
237	14:10:00	18.5	0.45	20.06
237	14:11:00	17.5	0.50	20.01
237	14:12:00	6.2	0.51	19.93
237	14:13:00	11.8	0.49	19.99
237	14:14:00	14.0	0.44	20.00
237	14:15:00	8.5	0.42	20.07
237	14:16:00	9.4	0.53	19.95
237	14:17:00	17.9	0.48	19.95
237	14:18:00	10.7	0.47	19.97
237	14:19:00	11.8	0.43	20.07
237	14:20:00	19.8	0.52	19.97
237	14:21:00	12.3	0.50	19.90
237	14:22:00	9.0	0.48	19.97
237	14:23:00	14.1	0.45	20.01
237	14:24:00	16.1	0.45	20.04
237	14:25:00	6.3	0.51	19.92
237	14:26:00	11.1	0.48	19.95
237	14:27:00	14.5	0.47	19.96
237	14:28:00	9.7	0.42	20.08
237	14:29:00	12.2	0.49	19.95
237	14:30:00	19.0	0.50	19.88
	Run Average	12.9	0.48	19.98

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH311
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 1 Press RTO Stack -- Run 11

Julian	Time	Conc. (dry basis unless noted)		
Date	(Hrs)	CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
237	16:16:00	11.7	0.51	20.38
237	16:17:00	12.7	0.47	20.41
237	16:18:00	20.2	0.48	20.41
237	16:19:00	17.0	0.41	20.54
237	16:20:00	13.1	0.49	20.42
237	16:21:00	18.1	0.51	20.35
237	16:22:00	16.5	0.46	20.42
237	16:23:00	9.6	0.40	20.49
237	16:24:00	18.6	0.47	20.50
237	16:25:00	18.5	0.50	20.37
237	16:26:00	13.1	0.46	20.42
237	16:27:00	15.2	0.46	20.42
237	16:28:00	23.7	0.42	20.53
237	16:29:00	11.7	0.47	20.41
237	16:30:00	12.4	0.48	20.36
237	16:31:00	20.7	0.47	20.41
237	16:32:00	12.8	0.38	20.51
237	16:33:00	15.2	0.45	20.51
237	16:34:00	21.2	0.51	20.35
237	16:35:00	16.3	0.45	20.42
237	16:36:00	9.3	0.43	20.42
237	16:37:00	19.3	0.43	20.50
237	16:38:00	18.3	0.47	20.39
237	16:39:00	12.4	0.44	20.39
237	16:40:00	17.2	0.47	20.42
237	16:41:00	20.5	0.38	20.50
237	16:42:00	11.4	0.46	20.47
237	16:43:00	12.9	0.51	20.34
237	16:44:00	20.4	0.46	20.39
237	16:45:00	10.6	0.40	20.42
	Run Average	15.7	0.46	20.43

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH312
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 1 Press RTO Stack -- Run 12

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO_2 (%v/v)	O_2 (%v/v)
237	17:01:00	11.1	0.47	20.33
237	17:02:00	11.3	0.46	20.41
237	17:03:00	21.8	0.42	20.45
237	17:04:00	19.0	0.43	20.51
237	17:05:00	10.8	0.49	20.40
237	17:06:00	18.1	0.47	20.43
237	17:07:00	17.1	0.43	20.45
237	17:08:00	12.1	0.41	20.56
237	17:09:00	19.1	0.50	20.42
237	17:10:00	21.8	0.47	20.36
237	17:11:00	12.2	0.45	20.45
237	17:12:00	16.0	0.41	20.51
237	17:13:00	22.9	0.45	20.50
237	17:14:00	10.9	0.48	20.40
237	17:15:00	12.6	0.46	20.45
237	17:16:00	17.6	0.43	20.44
237	17:17:00	14.4	0.38	20.57
237	17:18:00	10.9	0.47	20.45
237	17:19:00	18.5	0.48	20.39
237	17:20:00	21.6	0.45	20.44
237	17:21:00	12.5	0.37	20.55
237	17:22:00	19.7	0.47	20.53
237	17:23:00	19.9	0.49	20.38
237	17:24:00	12.3	0.45	20.46
237	17:25:00	14.1	0.42	20.47
237	17:26:00	24.9	0.41	20.55
237	17:27:00	11.8	0.46	20.45
237	17:28:00	11.2	0.45	20.43
237	17:29:00	18.0	0.46	20.46
237	17:30:00	13.4	0.36	20.57
	Run Average	15.9	0.44	20.46

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH41
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 2 Press RTO Stack -- Run 1

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
238	07:46:00	9.8	0.27	20.46
238	07:47:00	12.4	0.26	20.52
238	07:48:00	16.1	0.29	20.48
238	07:49:00	19.1	0.27	20.46
238	07:50:00	11.0	0.25	20.51
238	07:51:00	9.3	0.28	20.49
238	07:52:00	14.1	0.29	20.46
238	07:53:00	16.2	0.26	20.52
238	07:54:00	6.3	0.26	20.49
238	07:55:00	5.4	0.27	20.48
238	07:56:00	11.2	0.27	20.51
238	07:57:00	14.4	0.27	20.48
238	07:58:00	9.5	0.28	20.48
238	07:59:00	5.4	0.24	20.52
238	08:00:00	9.0	0.27	20.49
238	08:01:00	16.1	0.29	20.47
238	08:02:00	12.2	0.24	20.52
238	08:03:00	5.5	0.25	20.49
238	08:04:00	5.0	0.27	20.47
238	08:05:00	4.8	0.26	20.52
238	08:06:00	10.5	0.28	20.47
238	08:07:00	16.5	0.27	20.45
238	08:08:00	12.1	0.25	20.52
238	08:09:00	9.4	0.25	20.50
238	08:10:00	15.1	0.27	20.46
238	08:11:00	17.8	0.28	20.49
238	08:12:00	13.8	0.27	20.48
238	08:13:00	10.0	0.24	20.47
238	08:14:00	11.4	0.27	20.50
238	08:15:00	17.6	0.28	20.51
	Run Average	11.6	0.27	20.49

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH42
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 2 Press RTO Stack -- Run 2

Julian	Time	Conc. (dry basis unless noted)		
Date	(Hrs)	CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
238	08:31:00	9.8	0.29	20.50
238	08:32:00	12.6	0.32	20.46
238	08:33:00	12.8	0.29	20.46
238	08:34:00	6.7	0.27	20.52
238	08:35:00	6.3	0.31	20.48
238	08:36:00	13.2	0.32	20.45
238	08:37:00	19.7	0.28	20.51
238	08:38:00	11.4	0.28	20.50
238	08:39:00	7.5	0.29	20.50
238	08:40:00	9.1	0.28	20.53
238	08:41:00	14.2	0.30	20.49
238	08:42:00	18.8	0.31	20.48
238	08:43:00	13.1	0.27	20.54
238	08:44:00	6.9	0.27	20.50
238	08:45:00	9.5	0.31	20.50
238	08:46:00	15.7	0.28	20.52
238	08:47:00	17.2	0.29	20.49
238	08:48:00	12.4	0.28	20.50
238	08:49:00	7.5	0.25	20.56
238	08:50:00	8.5	0.27	20.53
238	08:51:00	15.9	0.31	20.48
238	08:52:00	19.0	0.29	20.52
238	08:53:00	14.3	0.28	20.50
238	08:54:00	10.5	0.27	20.50
238	08:55:00	10.5	0.27	20.55
238	08:56:00	15.7	0.30	20.52
238	08:57:00	21.3	0.27	20.48
238	08:58:00	13.8	0.28	20.53
238	08:59:00	9.7	0.29	20.52
238	09:00:00	11.7	0.25	20.49
	Run Average	12.5	0.29	20.50

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH43
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 2 Press RTO Stack -- Run 3

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
238	09:16:00	10.2	0.31	20.53
238	09:17:00	18.4	0.32	20.50
238	09:18:00	21.5	0.28	20.53
238	09:19:00	7.2	0.31	20.51
238	09:20:00	4.4	0.30	20.50
238	09:21:00	8.2	0.28	20.56
238	09:22:00	12.4	0.31	20.53
238	09:23:00	17.1	0.30	20.51
238	09:24:00	12.5	0.27	20.57
238	09:25:00	9.2	0.29	20.52
238	09:26:00	13.0	0.31	20.52
238	09:27:00	16.0	0.28	20.56
238	09:28:00	15.6	0.28	20.53
238	09:29:00	8.6	0.28	20.53
238	09:30:00	7.7	0.26	20.58
238	09:31:00	12.3	0.29	20.53
238	09:32:00	19.5	0.32	20.50
238	09:33:00	18.3	0.28	20.54
238	09:34:00	8.0	0.27	20.53
238	09:35:00	5.9	0.27	20.52
238	09:36:00	10.9	0.27	20.57
238	09:37:00	17.4	0.29	20.54
238	09:38:00	18.5	0.28	20.51
238	09:39:00	15.5	0.27	20.56
238	09:40:00	6.6	0.27	20.55
238	09:41:00	8.8	0.26	20.52
238	09:42:00	13.3	0.30	20.55
238	09:43:00	17.4	0.30	20.52
238	09:44:00	18.3	0.24	20.51
238	09:45:00	10.4	0.26	20.55
	Run Average	12.8	0.28	20.53

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH44
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 2 Press RTO Stack -- Run 4

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
238	11:01:00	17.3	0.30	20.56
238	11:02:00	8.1	0.30	20.56
238	11:03:00	11.3	0.27	20.55
238	11:04:00	14.1	0.31	20.56
238	11:05:00	10.9	0.31	20.55
238	11:06:00	6.8	0.25	20.57
238	11:07:00	9.5	0.30	20.56
238	11:08:00	16.9	0.30	20.55
238	11:09:00	9.3	0.26	20.59
238	11:10:00	6.3	0.28	20.56
238	11:11:00	15.6	0.32	20.53
238	11:12:00	21.1	0.27	20.57
238	11:13:00	10.9	0.28	20.56
238	11:14:00	14.7	0.30	20.54
238	11:15:00	20.3	0.27	20.57
238	11:16:00	10.8	0.28	20.56
238	11:17:00	7.6	0.28	20.56
238	11:18:00	13.0	0.27	20.59
238	11:19:00	13.9	0.28	20.54
238	11:20:00	8.0	0.27	20.54
238	11:21:00	11.1	0.26	20.59
238	11:22:00	17.2	0.29	20.54
238	11:23:00	19.2	0.28	20.53
238	11:24:00	11.3	0.24	20.60
238	11:25:00	11.3	0.27	20.56
238	11:26:00	17.9	0.31	20.54
238	11:27:00	22.5	0.25	20.58
238	11:28:00	9.9	0.25	20.56
238	11:29:00	7.3	0.27	20.54
238	11:30:00	7.6	0.26	20.59
	Run Average	12.7	0.28	20.56

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH45
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 2 Press RTO Stack -- Run 5

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
238	11:46:00	18.3	0.29	20.23
238	11:47:00	8.7	0.26	20.31
238	11:48:00	6.8	0.29	20.27
238	11:49:00	11.7	0.31	20.26
238	11:50:00	19.5	0.29	20.29
238	11:51:00	13.8	0.28	20.28
238	11:52:00	10.8	0.28	20.28
238	11:53:00	14.3	0.27	20.32
238	11:54:00	17.1	0.30	20.28
238	11:55:00	21.8	0.29	20.26
238	11:56:00	13.0	0.24	20.34
238	11:57:00	10.9	0.26	20.30
238	11:58:00	13.9	0.31	20.28
238	11:59:00	18.0	0.29	20.29
238	12:00:00	12.8	0.26	20.28
238	12:01:00	7.1	0.27	20.28
238	12:02:00	8.3	0.26	20.32
238	12:03:00	12.7	0.28	20.30
238	12:04:00	18.8	0.26	20.27
238	12:05:00	9.0	0.24	20.34
238	12:06:00	7.0	0.26	20.32
238	12:07:00	12.0	0.27	20.26
238	12:08:00	17.1	0.30	20.28
238	12:09:00	18.0	0.27	20.29
238	12:10:00	10.6	0.21	20.30
238	12:11:00	11.1	0.25	20.34
238	12:12:00	17.7	0.29	20.31
238	12:13:00	24.6	0.25	20.29
238	12:14:00	13.5	0.27	20.28
238	12:15:00	11.0	0.27	20.28
	Run Average	13.7	0.27	20.29

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for CEM Trailer No. 1
- 1994 -

File Name: LPH46
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 2 Press RTO Stack -- Run 6

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
238	12:31:00	18.6	0.31	20.26
238	12:32:00	13.0	0.29	20.26
238	12:33:00	8.8	0.30	20.25
238	12:34:00	10.8	0.29	20.30
238	12:35:00	14.6	0.31	20.27
238	12:36:00	16.9	0.28	20.25
238	12:37:00	6.8	0.28	20.31
238	12:38:00	5.6	0.29	20.29
238	12:39:00	11.0	0.28	20.26
238	12:40:00	12.8	0.32	20.28
238	12:41:00	11.5	0.29	20.28
238	12:42:00	4.4	0.24	20.29
238	12:43:00	4.5	0.28	20.30
238	12:44:00	11.0	0.31	20.28
238	12:45:00	18.0	0.27	20.29
238	12:46:00	7.6	0.27	20.28
238	12:47:00	8.7	0.28	20.27
238	12:48:00	13.5	0.27	20.32
238	12:49:00	15.4	0.30	20.28
238	12:50:00	16.5	0.27	20.27
238	12:51:00	9.6	0.24	20.33
238	12:52:00	10.1	0.28	20.30
238	12:53:00	15.7	0.30	20.27
238	12:54:00	20.4	0.26	20.30
238	12:55:00	8.8	0.25	20.29
238	12:56:00	5.3	0.27	20.29
238	12:57:00	8.4	0.26	20.33
238	12:58:00	11.5	0.28	20.28
238	12:59:00	13.7	0.28	20.27
238	13:00:00	4.8	0.24	20.31
	Run Average	11.3	0.28	20.29

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- 1994 -

File Name: LPH47
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 2 Press RTO Stack -- Run 7

Julian	Time	Conc. (dry basis unless noted)		
Date	(Hrs)	CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
238	13:16:00	14.7	0.32	20.22
238	13:17:00	17.5	0.26	20.29
238	13:18:00	6.7	0.27	20.28
238	13:19:00	6.2	0.28	20.26
238	13:20:00	10.0	0.28	20.30
238	13:21:00	13.4	0.30	20.26
238	13:22:00	8.5	0.28	20.27
238	13:23:00	4.3	0.25	20.32
238	13:24:00	6.7	0.26	20.30
238	13:25:00	12.1	0.31	20.28
238	13:26:00	14.6	0.25	20.32
238	13:27:00	4.5	0.25	20.30
238	13:28:00	5.4	0.28	20.28
238	13:29:00	12.5	0.28	20.31
238	13:30:00	16.9	0.27	20.29
238	13:31:00	13.1	0.26	20.27
238	13:32:00	8.3	0.25	20.32
238	13:33:00	11.0	0.27	20.31
238	13:34:00	16.5	0.27	20.28
238	13:35:00	16.9	0.27	20.31
238	13:36:00	8.7	0.27	20.31
238	13:37:00	6.2	0.23	20.29
238	13:38:00	7.3	0.28	20.30
238	13:39:00	14.5	0.29	20.28
238	13:40:00	10.1	0.22	20.32
238	13:41:00	3.7	0.24	20.32
238	13:42:00	6.8	0.27	20.29
238	13:43:00	12.2	0.25	20.33
238	13:44:00	10.8	0.26	20.29
238	13:45:00	7.7	0.25	20.28
	Run Average	10.3	0.27	20.29

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH48
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 2 Press RTO Stack -- Run 8

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
238	14:01:00	11.4	0.31	20.28
238	14:02:00	17.6	0.31	20.26
238	14:03:00	9.7	0.26	20.25
238	14:04:00	6.9	0.29	20.30
238	14:05:00	7.4	0.32	20.28
238	14:06:00	13.3	0.31	20.27
238	14:07:00	14.9	0.33	20.28
238	14:08:00	9.8	0.35	20.28
238	14:09:00	9.3	0.33	20.32
238	14:10:00	8.6	0.38	20.29
238	14:11:00	15.7	0.39	20.26
238	14:12:00	7.5	0.35	20.31
238	14:13:00	5.6	0.38	20.29
238	14:14:00	12.4	0.39	20.27
238	14:15:00	18.6	0.39	20.30
238	14:16:00	13.7	0.39	20.28
238	14:17:00	9.5	0.39	20.28
238	14:18:00	9.9	0.38	20.33
238	14:19:00	11.2	0.40	20.29
238	14:20:00	13.7	0.41	20.28
238	14:21:00	6.9	0.37	20.33
238	14:22:00	6.2	0.38	20.30
238	14:23:00	10.8	0.42	20.28
238	14:24:00	16.7	0.39	20.31
238	14:25:00	7.9	0.38	20.31
238	14:26:00	8.3	0.39	20.29
238	14:27:00	7.8	0.41	20.32
238	14:28:00	13.5	0.41	20.29
238	14:29:00	9.2	0.36	20.28
238	14:30:00	3.9	0.39	20.32
	Run Average	10.6	0.36	20.29

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH49
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 2 Press RTO Stack -- Run 9

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
237	14:46:00	22.4	0.48	20.50
237	14:47:00	21.7	0.53	20.40
237	14:48:00	13.0	0.49	20.40
237	14:49:00	16.1	0.52	20.44
237	14:50:00	23.9	0.43	20.54
237	14:51:00	13.4	0.51	20.48
237	14:52:00	13.1	0.53	20.40
237	14:53:00	21.9	0.50	20.45
237	14:54:00	12.2	0.43	20.50
237	14:55:00	12.9	0.45	20.55
237	14:56:00	19.0	0.55	20.40
237	14:57:00	16.0	0.48	20.43
237	14:58:00	9.9	0.48	20.46
237	14:59:00	18.9	0.45	20.56
237	15:00:00	20.4	0.50	20.45
237	15:01:00	10.2	0.50	20.40
237	15:02:00	15.2	0.49	20.46
237	15:03:00	20.4	0.43	20.50
237	15:04:00	15.4	0.45	20.54
237	15:05:00	15.2	0.52	20.41
237	15:06:00	24.0	0.49	20.43
237	15:07:00	15.3	0.46	20.44
237	15:08:00	14.1	0.43	20.57
237	15:09:00	20.8	0.51	20.43
237	15:10:00	19.5	0.49	20.39
237	15:11:00	13.1	0.47	20.46
237	15:12:00	19.3	0.43	20.52
237	15:13:00	25.0	0.47	20.51
237	15:14:00	13.8	0.50	20.40
237	15:15:00	16.5	0.48	20.46
	Run Average	17.1	0.48	20.46

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH410
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 2 Press RTO Stack -- Run 10

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
238	15:31:00	3.8	0.36	20.48
238	15:32:00	6.3	0.38	20.48
238	15:33:00	12.3	0.37	20.52
238	15:34:00	12.1	0.37	20.50
238	15:35:00	6.8	0.36	20.48
238	15:36:00	7.5	0.36	20.52
238	15:37:00	10.8	0.40	20.49
238	15:38:00	16.0	0.37	20.47
238	15:39:00	7.1	0.33	20.54
238	15:40:00	6.8	0.34	20.53
238	15:41:00	11.6	0.39	20.50
238	15:42:00	16.3	0.35	20.53
238	15:43:00	6.4	0.35	20.50
238	15:44:00	7.1	0.36	20.50
238	15:45:00	10.4	0.36	20.54
238	15:46:00	15.4	0.35	20.52
238	15:47:00	7.6	0.34	20.49
238	15:48:00	5.9	0.36	20.53
238	15:49:00	10.6	0.39	20.51
238	15:50:00	18.2	0.34	20.48
238	15:51:00	8.6	0.34	20.52
238	15:52:00	7.8	0.36	20.52
238	15:53:00	12.2	0.35	20.50
238	15:54:00	11.6	0.37	20.48
238	15:55:00	6.9	0.35	20.50
238	15:56:00	5.4	0.32	20.55
238	15:57:00	8.0	0.36	20.51
238	15:58:00	16.4	0.36	20.49
238	15:59:00	10.7	0.32	20.54
238	16:00:00	6.9	0.35	20.50
	Run Average	9.8	0.36	20.51

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH411
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 2 Press RTO Stack -- Run 11

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
238	16:16:00	9.6	0.32	20.15
238	16:17:00	11.5	0.34	20.18
238	16:18:00	6.3	0.33	20.19
238	16:19:00	6.3	0.31	20.20
238	16:20:00	8.7	0.35	20.19
238	16:21:00	13.9	0.33	20.16
238	16:22:00	5.8	0.30	20.22
238	16:23:00	5.5	0.33	20.19
238	16:24:00	12.6	0.35	20.16
238	16:25:00	10.6	0.31	20.21
238	16:26:00	3.7	0.33	20.18
238	16:27:00	7.3	0.34	20.17
238	16:28:00	13.7	0.31	20.21
238	16:29:00	4.7	0.30	20.21
238	16:30:00	4.0	0.32	20.21
238	16:31:00	8.6	0.32	20.23
238	16:32:00	10.9	0.31	20.18
238	16:33:00	4.1	0.33	20.19
238	16:34:00	4.3	0.31	20.22
238	16:35:00	8.5	0.33	20.19
238	16:36:00	11.0	0.31	20.18
238	16:37:00	3.0	0.29	20.23
238	16:38:00	5.4	0.32	20.22
238	16:39:00	13.8	0.31	20.18
238	16:40:00	8.0	0.31	20.23
238	16:41:00	4.1	0.31	20.22
238	16:42:00	8.5	0.30	20.19
238	16:43:00	12.1	0.33	20.20
238	16:44:00	9.3	0.31	20.20
238	16:45:00	7.3	0.28	20.21
	Run Average	8.1	0.32	20.20

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Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1994 -

File Name: LPH412
Job Number: 4-3688
Client: Louisiana Pacific Corporation
Location: Hayward, Wisconsin

Line 2 Press RTO Stack -- Run 12

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO (ppmv)	CO2 (%v/v)	O2 (%v/v)
238	17:01:00	3.6	0.33	20.20
238	17:02:00	4.6	0.33	20.19
238	17:03:00	7.9	0.34	20.23
238	17:04:00	9.4	0.33	20.23
238	17:05:00	4.5	0.31	20.19
238	17:06:00	4.9	0.35	20.21
238	17:07:00	12.3	0.36	20.19
238	17:08:00	9.5	0.28	20.23
238	17:09:00	5.2	0.30	20.26
238	17:10:00	10.0	0.34	20.24
238	17:11:00	18.0	0.31	20.23
238	17:12:00	7.3	0.31	20.23
238	17:13:00	7.2	0.33	20.21
238	17:14:00	12.5	0.32	20.26
238	17:15:00	11.9	0.31	20.23
238	17:16:00	5.5	0.31	20.22
238	17:17:00	5.5	0.30	20.25
238	17:18:00	8.8	0.34	20.22
238	17:19:00	9.7	0.31	20.22
238	17:20:00	3.1	0.28	20.27
238	17:21:00	4.8	0.30	20.24
238	17:22:00	12.5	0.35	20.22
238	17:23:00	10.6	0.29	20.25
238	17:24:00	6.0	0.29	20.23
238	17:25:00	9.8	0.33	20.22
238	17:26:00	14.3	0.31	20.22
238	17:27:00	6.8	0.29	20.18
238	17:28:00	4.9	0.29	20.16
238	17:29:00	7.1	0.32	20.19
238	17:30:00	11.1	0.31	20.16
	Run Average	8.3	0.32	20.22

APPENDIX C

FIELD DATA SHEETS

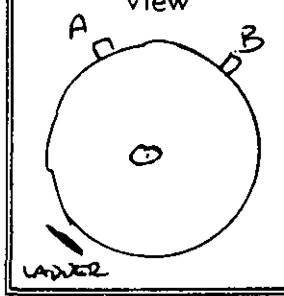
INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job: CP / HAYWARD
Source: LINE 2 DRYER RTO STACK
Test: 1 Run 1 Date 5-23-94
Stack Dimen.: 81 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure: 28.71 IN.HG
Static Pressure: -.63 IN.WC
Operators: D MARSO B ASCHENBACH
Pitot No.: 270-S C_p .84

Drawing of Test Site

Cross-section View	Elevation View
N	



Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6.0	IN.	Time Start: 0935	HRS
A-1	.032	2.592	8.592	.36	
2	.105	8.505	14.505	.58	
3	.194	15.714	21.714	.55	
4	.323	26.163	32.163	.64	342
5	.677	54.837	60.837	.71	
6	.806	65.286	71.286	.72	
7	.895	72.495	78.495	.74	
8	.968	78.408	84.408	.70	
B-1				.48	
2				.67	
3				.64	
4				.60	
5				.48	
6				.64	
7				.69	
8				.63	
			FT/SEC	56.66	
			ACFM	121670	
			DSCFM	64229	
Temp. Meas. Device & S/N:				Time End: 0845	HRS

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job: LP / HAYWARD
Source: LINE 2 Dryer RTO STACK
Test: 1 Run 2 Date 8-23-94
Stack Dimen. 81 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.71 IN.HG
Static Pressure -.54 IN.WC
Operators BA DM
Pitot No. 270-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6.0	IN.	Time Start: 0920	HRS
A-1				.58	
2				.78	
3				.95	
4				.89	325
5				.94	
6				.86	
7				.76	
8				.86	
B-1				.57	
2				.62	
3				.56	
4				.59	
5				.69	
6				.68	
7				.68	
8				.65	
		FT/SEC	61.50		
		ACFM	132063		
		DSCFM	67769		
Temp. Meas. Device & S/N:				Time End: 0925 HRS	

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job: LP / HAYWARD
Source: LINE 2 DRYER RTO STACK
Test: 1 Run 3 Date 8-23-94
Stack Dimen.: 81 IN.
Dry Bulb ___ °F Wet bulb ___ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure: 28.71 IN.HG
Static Pressure: -.61 IN.WC
Operators: BA DM
Pitot No.: 270-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6.0	IN.	Time Start: 1005	HRS
A-1				.58	
2				.65	
3				.69	325
4				.73	
5				.81	
6				.84	
7				.86	
8				.79	
B-1				.46	
2				.58	
3				.68	
4				.64	
5				.76	
6				.71	
7				.79	
8				.63	
			FT/SEC	59.83	
			ACFM	128468	
			DSCFM	70193	
Temp. Meas. Device & S/N:				Time End: 1100	HRS

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job CP / HAYWARD
Source LINE 2 Dryer RTO STACK
Test 1 Run 4 Date 8-23-94
Stack Dimen. 81 IN.
Dry Bulb ______ °F Wet bulb ______ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.71 IN.HG
Static Pressure -.75 IN.WC
Operators BA DM
Pitot No. 270-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6.0	IN.	Time Start: 1050	HRS
A-1				.48	
2				.57	
3				.62	
4				.68	320
5				.71	
6				.69	
7				.78	
8				.74	
B-1				.54	
2				.68	
3				.62	
4				.80	
5				.69	
6				.75	
7				.70	
8				.68	
			FT/SEC	58.35	
			ACFM	125302	
			DSCFM	69422	

Temp. Meas. Device & S/N:	Time End: 1055 HRS

R or nothing = reg. manometer; S = expanded; E = electronic

INTERPOLL LABORATORIES, INC.
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EPA Method 2 Field Data Sheet

Job: LP / HAYWARD
Source: LINE 2 D (DRYER RTO) STACK
Test: 1 Run 5 Date 8-23-94
Stack Dimen. 81 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☑ Elec.
Barometric Pressure 28.71 IN.HG
Static Pressure -.62 IN.WC
Operators BA DM
Pitot No. 27-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6.0	IN.	Time Start: 1130	HRS
A-1				.51	
2				.64	
3				.62	316
4				.60	
5				.62	
6				.71	
7				.74	
8				.67	
B-1				.48	
2				.69	
3				.70	
4				.68	
5				.84	
6				.70	
7				.76	
8				.67	
			FT/SEC	58.46	
			ACFM	125534	
			DSCFM	65742	
Temp. Meas. Device & S/N:				Time End: 1135	HRS

R or nothing = reg. manometer; S = expanded; E = electronic

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EPA Method 2 Field Data Sheet

Job: LPI HAYWARD
Source: LINE 2 Dryer RTO STACK
Test: 1 Run 6 Date: 8-23-94
Stack Dimen.: 81 IN.
Dry Bulb: ____ °F Wet bulb ____ °F
Manometer: ☐ Reg. ☐ Exp ☑ Elec.
Barometric Pressure: 28.71 IN.HG
Static Pressure: -.54 IN.WC
Operators: BA DM
Pitot No.: 270-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6.0	IN.	Time Start: 1220	HRS
A-1				.46	
2				.58	
3				.68	
4				.71	319
5				.81	
6				.77	
7				.75	
8				.71	
B-1				.48	
2				.67	
3				.79	
4				.78	
5				.69	
6				.59	
7				.75	
8				.68	
			FT/SEC	59.27	
			ACFM	127269	
			DSCFM	66680	

Temp. Meas. Device & S/N: Time End: 1225 HRS

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES, INC.

(612) 786-6020

EPA Method 2 Field Data Sheet

Job CP / HAYWARD

Source Line 2 Dryer RTO Stack

Test 1 Run 2 Date 5-23-94

Stack Dimen. 81 IN.

Dry Bulb ____ °F Wet bulb ____ °F

Manometer ☐ Reg. ☐ Exp ☑ Elec.

Barometric Pressure 28.71 IN.HG

Static Pressure -.62 IN.WC

Operators RA DM

Pitot No. 276-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 60	IN.	Time Start: 1335	HRS
A-1				.49	
2				.58	
3				.68	326
4				.72	
5				.63	
6				.65	
7				.68	
8				.63	
B-1				.49	
2				.55	
3				.72	
4				.68	
5				.77	
6				.76	
7				.75	
8				.64	
			FT/SEC	58.18	
			ACFM	124920	
			DSCFM	63471	

Temp. Meas. Device & S/N: Time End: 1340 HRS

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES, INC.

(612) 786-6020

EPA Method 2 Field Data Sheet

Job: CP / HAYWARD

Source: LINE 2 Dryer RTO STACK

Test: 1 Run 8 Date 5-23-94

Stack Dimen.: 81 IN.

Dry Bulb ____ °F Wet bulb ____ °F

Manometer ☐ Reg. ☐ Exp ☑ Elec.

Barometric Pressure: 28.71 IN.HG

Static Pressure: -.66 IN.WC

Operators: BA DM

Pitot No.: 270-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6.0	IN.	Time Start: 1415	HRS
A-1				.57	
2				.68	
3				.66	325
4				.63	
5				.75	
6				.77	
7				.77	
8				.70	
B-1				.71	
2				.77	
3				.82	
4				.89	
5				.68	
6				.70	
7				.73	
8				.57	
			FTSEC	61.08	
			ACFM	131145	
			DSCFM	66763	
Temp. Meas. Device & S/N:				Time End: 1420	HRS

R or nothing = reg. manometer; S = expanded; E = electronic

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EPA Method 2 Field Data Sheet

Job: CP / HAYWARD
Source: LINE 2 Dryer RTO STACK
Test: 1 Run 2 Date 5·23·94
Stack Dimen.: 81 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☑ Elec.
Barometric Pressure: 28.71 IN.HG
Static Pressure: -.64 IN.WC
Operators: BA DN
Pitot No.: 270-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6.0	IN.	Time Start: 1500	HRS
A-1				.58	
2				.67	
3				.72	338
4				.68	
5				.70	
6				.69	
7				.77	
8				.73	
B-1				.53	
2				.58	
3				.65	
4				.68	
5				.77	
6				.74	
7				.66	
8				.63	
			FT/SEC	59.81	
			ACFM	128,437	
			DSCFM	64756	
Temp. Meas. Device & S/N:				Time End: 1505	HRS

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job: LP/Hayward
Source: Line 2 Dryer RTO Stack
Test: 1 Run 12 Date 8-23-94
Stack Dimen.: 81 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure: 28.71 IN.HG
Static Pressure: -.73 IN.WC
Operators: DA DM
Pitot No.: 37V-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6.0	IN.	Time Start: 1545 HRS	
A-1				.47	
2				.47	
3				.56	348
4				.60	
5				.58	
6				.66	
7				.68	
8				.65	
B-1				.63	
2				.64	
3				.74	
4				.68	
5				.70	
6				.66	
7				.68	
8				.58	
			FT/SEC	57.77	
			ACFM	124054	
			DSCFM	62866	
Temp. Meas. Device & S/N:				Time End: 1550 HRS	

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job LP / Haywood
Source Line 2 Dryer RTO Stack
Test 1 Run II Date 8-23-94
Stack Dimen. 81 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.71 IN.HG
Static Pressure -.66 IN.WC
Operators BA DM
Pitot No. 27 U-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6.0 IN.		Time Start: 1630 HRS	
A-1				.58	
2				.63	
3				.68	321
4				.70	
5				.64	
6				.60	
7				.69	
8				.54	
B-1				.49	
2				.53	
3				.68	
4				.74	
5				.80	
6				.89	
7				.78	
8				.65	
			FT/SEC	59.06	
			ACFM	126822	
			DSCFM	62420	
Temp. Meas. Device & S/N:				Time End: 1635 HRS	

R or nothing = reg. manometer; S = expanded; E = electronic

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EPA Method 2 Field Data Sheet

Job LP / Hayward
Source Line 2 Dryer RTO Stack
Test 1 Run 12 Date 8-23-94
Stack Dimen. 81 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.71 IN.HG
Static Pressure -.54 IN.WC
Operators BA DM
Pitot No. 27U-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6.0	IN.	Time Start: 1715	HRS
A-1				.47	
2				.59	
3				.68	
4				.64	323
5				.68	
6				.71	
7				.82	
8				.86	
B-1				.45	
2				.64	
3				.67	
4				.64	
5				.66	
6				.62	
7				.55	
8				.55	
			FT/SEC	57.69	
			ACFM	123880	
			DSCFM	62836	

Temp. Meas. Device & S/N: Time End: 1720 HRS

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job LP / HAYWARD
Source Line 2 Dryer RTO Stack
Date 8-23-94 Test 1 Run 1

Operator(s) BA DM
Meter Box No. Cey 1 Gasmeter coef. .9937
^H@ — in.WC Bar. press 28.71 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg. X
Posttest: 6.0 cfm at 15 in. Hg. X

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(0830)	(600.627)								
	5	600.823	1000	2	250	—	—	68	—	—
	10	601.009	1000	2	248	—	—	68	—	—
	15	601.195	1000	2	250	—	—	68	—	—
	20	601.381	1000	2	249	—	—	68	—	—
	25	601.568	1000	2	249	—	—	68	—	—
	30	601.747	1000	2	247	—	—	68	—	—
	(0900)									
	θ=30	V_m=1.120	$(^H)_{avg}$=1000					$(t_m)_{avg}$=68		

Condensate Data: #1

Item	Weight(g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	74.530	70.119	4.411
		Total	4.411

Preliminary results of SO_2 concentration determination
V_{std} =1.067 DSCF
Moisture =16.30 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 as

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job LP / Hayward
Source Line 2 Dryer RTO Stack
Date 8-23-94 Test 1 Run 2

Operator(s) BA DM
Meter Box No. CM1 Gasmeter coef. .9937
^H@ — in.WC Bar. press 28.71 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(0915)	(601.779)								
	5	601.962	1000	2	249	—	—	68	—	—
	10	602.145	1000	2	251	—	—	68	—	—
	15	602.328	1000	2	248	—	—	68	—	—
	20	602.512	1000	2	248	—	—	68	—	—
	25	602.700	1000	2	250	—	—	68	—	—
	30	602.883	1000	2	249	—	—	68	—	—
	(0945)									
	θ=30	V_m=1.104	$(^H)_{avg}$=1000					$(t_m)_{avg}$=68		

Condensate Data: #2

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	78.310	72.592	5.718
		Total	5.718

Preliminary results of SO_2 concentration determination
V_{std} = 1.052 DSCF
Moisture = 20.38 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

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INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job CP / HAYWARD
Source Line 2 Dryer RTO Stack
Date 8-23-94 Test 1 Run 3

Operator(s) RA DM
Meter Box No. CM1 Gasmeter coef. .9937
^H@ —— in.WC Bar. press 28.71 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg. ☒
Posttest: 0.0 cfm at 15 in. Hg. ☒

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1000)	(602.920)								
	5	603.097	1000	2	248	—	—	68	—	—
	10	603.275	1000	2	249	—	—	68	—	—
	15	603.453	1000	2	250	—	—	68	—	—
	20	603.631	1000	2	250	—	—	68	—	—
	25	603.809	1000	2	249	—	—	68	—	—
	30	603.987	1100	2	249	—	—	68	—	—
	(1030)									
	θ=30	V_m=1.067	(^H) avg=1000					$(t_m)_{avg.}$=68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	74.436	70.564	3.872
		Total	3.872

Preliminary results of SO_2 concentration determination
V_{std} =1.017 DSCF
Moisture =15.21 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 as

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job CPI HAYWARD
Source LINE 2 Dryer RTO STACK
Date 8-23-94 Test 1 Run 4

Operator(s) BA DM
Meter Box No. CAL 1 Gasmeter coef. .9937
^H@ ——— in.WC Bar. press 28.71 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1045)	(604.031)								
	5	604.216	1000	2	247	—	—	68	—	—
	10	604.401	1000	2	247	—	—	68	—	—
	15	604.586	1000	2	249	—	—	68	—	—
	20	604.771	1000	2	251	—	—	68	—	—
	25	604.956	1000	2	247	—	—	68	—	—
	30	605.141	1000	2	249	—	—	68	—	—
	(1115)									
	θ=30	V_m=1.110	$(^H)_{avg}$=1000					$(t_m)_{avg.}$= 68		

Condensate Data:

Item	Weight(g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	74.161	70.339	3.822
		Total	3.822

Preliminary results of SO_2 concentration determination
V_{std} =1.058 DSCF
Moisture =14.54 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 aS

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job CP / HAYWARD
Source Line 2 Dryer RTO Stack
Date 8·23·94 Test 1 Run 5

Operator(s) BA DM
Meter Box No. [illegible] Gasmeter coef. .7937
^H@ —— in.WC Bar. press 28·71 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1130)	(605.185)								
	5	605.372	1000	2	251	—	—	68	—	—
	10	605.560	1000	2	247	—	—	68	—	—
	15	605.747	1000	2	247	—	—	68	—	—
	20	605.935	1000	2	249	—	—	68	—	—
	25	606.122	1000	2	250	—	—	68	—	—
	30	606.310	1000	2	248	—	—	68	—	—
	(1200)									
	θ=30	V_m=1.125	(^H)avg=1000					$(t_m)_{avg}$ = 68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	69.008	63.439	5.569
		Total	5.569

Preliminary results of SO_2 concentration determination
V_{std} = 1.072 DSCF
Moisture = 19.66 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 as

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job CP / HAYWARD
Source LINE 2 Dryer RTO STACK
Date 8-23-94 Test 1 Run 6

Operator(s) RA DM
Meter Box No. CELL Gasmeter coef. .9937
^H@ —— in.WC Bar. press ~~29~~ .71 in.Hg.

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1215)	(606.354)								
	5	606.540	1000	2	247	—	—	68	—	—
	10	606.726	1000	2	248	—	—	68	—	—
	15	606.912	1000	2	247	—	—	68	—	—
	20	607.098	1000	2	251	—	—	68	—	—
	25	607.284	1000	2	249	—	—	68	—	—
	30	607.475	1000	2	250	—	—	68	—	—
	(1245)									
	θ= 30	V_m= 1.121	$(^H)_{avg}$= 1000					$(t_m)_{avg.}$= 68		

Condensate Data:

Item	Weight(g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	71.643	66.207	5.436
		Total	5.436

Preliminary results of SO_2 concentration determination
V_{std} = 1.068 DSCF
Moisture = 19.33 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 aS

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job LP / HAYWARD
Source Line 2 Dryer RTO Stack
Date 8-23-94 Test 1 Run 2

Operator(s) BA DM
Meter Box No. CEM 1 Gasmeter coef. .9937
^H@ — in.WC Bar. press 28.71 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1330)	(607.510)								
	5	607.694	1000	2	250	—	—	68	—	—
	10	607.878	1000	2	247	—	—	68	—	—
	15	608.062	1000	2	248	—	—	68	—	—
	20	608.246	1000	2	251	—	—	68	—	—
	25	608.430	1000	2	249	—	—	68	—	—
	30	608.615	1000	2	248	—	—	68	—	—
	(1400)									
	θ= 30	V_m=1.105	(^H) 1000					$(t_m)_{avg.}$=68		

Condensate Data:

Item	Weight(g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	76.673	70.710	5.963
		Total	5.963

Preliminary results of SO_2 concentration determination
V_{std} =1.053 DSCF
Moisture =21.05 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 aS

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job CP / HAYWARD
Source LINE 2 Dryer RTO Stack
Date 8-23-94 Test 1 Run 8
Operator(s) BA DN
Meter Box No. CEM Gasmeter coef. .9937
^H@ —— in.WC Bar. press 28.71 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1415)	(608.662)								
	5	608.846	1000	2	251	—	—	68	—	—
	10	609.031	1000	2	249	—	—	68	—	—
	15	609.216	1000	2	250	—	—	68	—	—
	20	609.401	1000	2	250	—	—	68	—	—
	25	609.586	1000	2	248	—	—	68	—	—
	30	609.771	1000	2	249	—	—	68	—	—
	(1445)									
	θ= 30	V_m=1.109	(^H)$_{avg}$=1000					$(t_m)_{avg}$=68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	77.074	71.110	5.964
		Total	5.964

Preliminary results of SO_2 concentration determination
V_{std} = 1.057 DSCF
Moisture = 20.99 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 aS

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job CP / HAYWARD
Source LINE 2 Dryer RTO STACK
Date 8-23-94 Test 1 Run 9

Operator(s) BA DM
Meter Box No. 4211 Gasmeter coef. .9937
^H@ ——— in.WC Bar. press 28.71 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg. ☒
Posttest: 0.0 cfm at 15 in. Hg. ☒

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1500)	(609.860)								
	5	610.043	1000	2	251	—	—	68	—	—
	10	610.227	1000	2	250	—	—	68	—	—
	15	610.411	1000	2	250	—	—	68	—	—
	20	610.555	1000	2	249	—	—	68	—	—
	25	610.779	1000	2	247	—	—	68	—	—
	30	610.963	1000	2	250	—	—	68	—	—
	(1530)									
	θ= 30	V_m=1.103	(^H) 1000					$(t_m)_{avg.}$= 68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	76.912	71.176	5.736
		Total	5.736

Preliminary results of SO_2 concentration determination
V_{std} = 1.051 DSCF
Moisture = 20.45 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 as

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job LP/HAYWARD
Source Line 2 Dryer RTO Stack
Date 6-23-94 Test 1 Run 16
Operator(s) GA DM
Meter Box No. CEM 1 Gasmeter coef. .9937
^H@ — in.WC Bar. press 28.71 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1545)	(610.985)								
	5	611.156	1000	2	250	—	—	68	—	—
	10	611.328	1000	2	250	—	—	68	—	—
	15	611.500	1000	2	247	—	—	68	—	—
	20	611.672	1000	2	251	—	—	68	—	—
	25	611.844	1000	2	247	—	—	68	—	—
	30	612.016	1000	2	249	—	—	68	—	—
	(1615)									
	θ= 30	Vm=1.031	(^H)avg=1000					(tm)avg. 68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	78.270	73.368	4.902
		Total	4.902

Preliminary results of SO_2 concentration determination
V_{std} = .982 DSCF
Moisture = 19.03 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-297 as

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job CP / HAYWARD
Source Line 2 Dryer RTO Stack
Date 5-23-94 Test 1 Run 11

Operator(s) BA DM
Meter Box No. CCM 1 Gasmeter coef. .9937
^H@ — in.WC Bar. press 28.71 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1630)	(612.059)								
	5	612.240	1000	2	249	—	—	68	—	—
	10	612.422	1000	2	251	—	—	68	—	—
	15	612.604	1000	2	247	—	—	68	—	—
	20	612.786	1000	2	249	—	—	68	—	—
	25	612.968	1000	2	249	—	—	68	—	—
	30	613.150	1000	2	250	—	—	68	—	—
	(1700)									
	θ= 30	V_m= 1.091	(^H)avg = 1000					$(t_m)_{avg.}$ = 68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	79.765	74.111	5.654
	Total		5.654

Preliminary results of SO_2 concentration determination
V_{std} = 1.039 DSCF
Moisture = 20.4 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 as

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job LP / HAYWARD
Source Line 2 Dryer RTO Stack
Date 8-23-94 Test 1 Run 12

Operator(s) BA DM
Meter Box No. IEM1 Gasmeter coef. .9937
^H@ _____ in.WC Bar. press 28.71 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1715)	(613.190)								
	5	613.382	1000	2	249	—	–	68	—	–
	10	613.574	1000	2	257	—	—	68	—	–
	15	613.766	1000	2	248	—	–	68	—	–
	20	613.958	1000	2	247	—	–	68	—	–
	25	614.150	1000	2	250	—	—	68	—	–
	30	614.350	1000	2	257	—	—	68	—	—
	(1745)									
	θ=30	V_m=1.160	$(^H)_{avg}$= 1000					$(t_m)_{avg.}$= 68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	78.860	72.433	6.427
		Total	6.427

Preliminary results of SO_2 concentration determination
V_{std} = 1.165 DSCF
Moisture = 21.50 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 aS

INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job: LP / HAYWARD
Source: Line / Dryer RTO Stack
Test: 2 Run: 1 Date: 8-24-94
Stack Dimen.: 81 IN.
Dry Bulb: ____ °F Wet bulb: ____ °F
Manometer: ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure: 28.72 IN.HG
Static Pressure: -.66 IN.WC
Operators: B Aschenbach D. Marso
Pitot No.: 270-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6.0 IN.		Time Start: 0820 HRS	
A 1				.44	
2				.58	
3				.57	
4				.56	325
5				.60	
6				.59	
7				.58	
8				.50	
B 1				.42	
2				.44	
3				.38	
4				.39	
5				.41	
6				.44	
7				.48	
8				.47	
			FT/SEC	50.60	
			ACFM	108659	
			DSCFM	54893	
Temp. Meas. Device & S/N:				Time End: 0825 HRS	

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job LP / Hayward
Source Line 1 Dryer RTO Stack
Test 2 Run 4 Date 8-24-94
Stack Dimen. 81 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.72 IN.HG
Static Pressure -.52 IN.WC
Operators BA DM
Pitot No. 27U-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 60	IN.	Time Start: 1030	HRS
A 1				.44	
2				.49	
3				.54	
4				.49	337
5				.45	
6				.43	
7				.68	
8				.66	
B 1				.58	
2				.63	
3				.75	
4				.78	
5				.78	
6				.70	
7				.64	
8				.55	
			FT/SEC	56.53	
			ACFM	121389	
			DSCFM	58355	
Temp. Meas. Device & S/N:				Time End: 1035 HRS	

R or nothing - reg. manometer; S - expanded; E - electronic

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job: LP / Hayward
Source: Line 1 Dryer RTO Stack
Test: 2 Run: 5 Date: 8-24-94
Stack Dimen.: 81 IN.
Dry Bulb: ____ °F Wet bulb: ____ °F
Manometer: ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure: 28.72 IN.HG
Static Pressure: -.67 IN.WC
Operators: BA DM
Pitot No.: 370-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6.0	IN.	Time Start: 1115	HRS
A 1				.56	
2				.71	
3				.58	335
4				.57	
5				.57	
6				.69	
7				.97	
8				.87	
B 1				.42	
2				.48	
3				.44	
4				.39	
5				.61	
6				.57	
7				.56	
8				.39	
			FT/SEC	55.73	
			ACFM	119674	
			DSCFM	57312	
Temp. Meas. Device & S/N:				Time End: 1120	HRS

R or nothing - reg. manometer; S - expanded; E - electronic

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job LP / Hayward
Source Line 1 Dryer RTO Stack
Test 2 Run 6 Date 8-24-94
Stack Dimen. 81 IN.
Dry Bulb ______ °F Wet bulb ______ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.72 IN.HG
Static Pressure -.56 IN.WC
Operators BA DM
Pitot No. 37U-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6.0	IN.	Time Start: 1210	HRS
A 1				.48	
2				.52	
3				.62	
4				.56	334
5				.51	
6				.68	
7				.52	
8				.48	
B 1				.38	
2				.56	
3				.51	
4				.54	
5				.64	
6				.66	
7				.61	
8				.57	
			FT/SEC	54.07	
			ACFM	116102	
			DSCFM	57086	

Temp. Meas. Device & S/N:	Time End: 1215 HRS

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job LP / Hayward
Source Line 1 Dryer RTO Stack
Test 2 Run 7 Date 8-24-94
Stack Dimen. 81 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.72 IN.HG
Static Pressure -.64 IN.WC
Operators BA DM
Pitot No. 270-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6.0	IN.	Time Start: 1245	HRS
A 1				.53	
2				.56	
3				.58	
4				.57	334
5				.58	
6				.64	
7				.56	
8				.44	
B 1				.49	
2				.63	
3				.52	
4				.51	
5				.61	
6				.68	
7				.60	
8				.55	
			FT/SEC	54.77	
			ACFM	117606	
			DSCFM	58983	
Temp. Meas. Device & S/N:				Time End: 1250	HRS

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES, INC.
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EPA Method 2 Field Data Sheet

Job LP / Hayward
Source Line 1 Dryer RTO Stack
Test 2 Run 8 Date 8-24-94
Stack Dimen. 81 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.72 IN.HG
Static Pressure -.48 IN.WC
Operators BA DM
Pitot No. 270-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6.0	IN.	Time Start: 1330	HRS
A 1				.51	
2				.54	
3				.62	
4				.56	336
5				.62	
6				.55	
7				.58	
8				.43	
B 1				.46	
2				.48	
3				.48	
4				.52	
5				.58	
6				.64	
7				.57	
8				.60	
			FT/SEC	53.82	
			ACFM	115569	
			DSCFM	57861	
Temp. Meas. Device & S/N:					Time End: 1335 HRS

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job: LP / Hayward
Source: Line 1 Dryer RTO Stack
Test: 2 Run 9 Date 8-24-94
Stack Dimen. 31 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.72 IN.HG
Static Pressure -.68 IN.WC
Operators BA DM
Pitot No. 27U-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6.0	IN.	Time Start: 1415	HRS
A 1				.46	
2				.64	
3				.59	
4				.54	335
5				.60	
6				.65	
7				.56	
8				.44	
B 1				.44	
2				.50	
3				.49	
4				.57	
5				.50	
6				.64	
7				.65	
8				.56	
			FT/SEC	54.10	
			ACFM	116161	
			DSCFM	58947	
Temp. Meas. Device & S/N:				Time End: 1420	HRS

R or nothing = reg. manometer; S = expanded; E = electronic

INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job LP/ Hayward
Source Line 1 Dryer RTO Stack
Test 2 Run/D Date 8-24-94
Stack Dimen. 81 IN.
Dry Bulb ______ °F Wet bulb ______ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.72 IN.HG
Static Pressure -.60 IN.WC
Operators BA DM
Pitot No. 27V-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6.0	IN.	Time Start: 1545	HRS
A 1				.48	
2				.53	
3				.60	335
4				.55	
5				.62	
6				.58	
7				.56	
8				.48	
B 1				.37	
2				.42	
3				.49	
4				.45	
5				.56	
6				.55	
7				.54	
8				.44	
			FT/SEC	51.89	
			ACFM	111424	
			DSCFM	57676	
Temp. Meas. Device & S/N:				Time End: 1550 HRS	

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES, INC.
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EPA Method 2 Field Data Sheet

Job LP / Hayward
Source Line 1 Dryer RTO Stack
Test 2 Run 11 Date 8-24-94
Stack Dimen. 81 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure ____ IN.HG
Static Pressure -.44 IN.WC
Operators BA DM
Pitot No. 27U-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6.0	IN.	Time Start: 1630	HRS
A 1				.52	
2				.62	
3				.59	
4				.65	338
5				.73	
6				.75	
7				.54	
8				.60	
B 1				.50	
2				.63	
3				.60	
4				.62	
5				.65	
6				.68	
7				.68	
8				.63	
			FT/SEC	57.58	
			ACFM	123635	
			DSCFM	62135	
Temp. Meas. Device & S/N:				Time End: 1635 HRS	

R or nothing = reg. manometer; S = expanded; E = electronic

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EPA Method 2 Field Data Sheet

Job LP / Hayward
Source Line 1 Dryer RTO Stack
Test 2 Run 12 Date 8-24-94
Stack Dimen. 81 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.72 IN.HG
Static Pressure -.58 IN.WC
Operators BA DM
Pitot No. 270-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6,0 IN.		Time Start: 1715 HRS	
A 1				.52	
2				.62	
3				.53	
4				.55	345°
5				.68	
6				.66	
7				.68	
8				.48	
B 1				.46	
2				.52	
3				.57	
4				.49	
5				.61	
6				.63	
7				.58	
8				.61	
			FT/SEC	55.2	
			ACFM	118529	
			DSCFM	61347	
Temp. Meas. Device & S/N:				Time End: 1720 HRS	

R or nothing = reg. manometer; S = expanded; E = electronic

032594-G:\STACK\WP\FORMS\S-392.1

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job (P) HAYWARD
Source (?) / Dryer RTO STACK
Date 8-24-94 Test 2 Run 1

Operator(s) BA DM
Meter Box No. C01 Gasmeter coef. .9937
^H@ —— in.WC Bar. press 28.72 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(0815)	(614.395)								
	5	614.577	1000	2	250	—	—	68	—	—
	10	614.750	1000	2	247	—	—	68	—	—
	15	614.928	1000	2	247	—	—	68	—	—
	20	615.106	1000	2	249	—	—	68	—	—
	25	615.283	1000	2	251	—	—	68	—	—
	30	615.474	1000	2	250	—	—	68	—	—
	(0845)									
	θ= 30	Vm=1.079	(^H) avg= 1000					(tm) avg.=68		

Condensate Data:

Item	Weight(g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	80.816	74.788	6.028
		Total	6.028

Preliminary results of SO_2 concentration determination
V_{std} =1.029 DSCF
Moisture =21.62 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 as

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job LP/HAYWARD Operator(s) BA DM
Source LINE 1 Dryer RTO Stack Meter Box No. LEM1 Gasmeter coef. .9937
Date 8-24-94 Test 2 Run 2 ^H@ —— in.WC Bar. press 28.72 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(0700)	(615.500)								
	5	615.682	1000	2	250	—	—	68	—	—
	10	615.865	1000	2	251	—	—	68	—	—
	15	616.047	1000	2	248	—	—	68	—	—
	20	616.230	1000	2	250	—	—	68	—	—
	25	616.412	1000	2	249	—	—	68	—	—
	30	616.595	1000	2	247	—	—	68	—	—
	(0930)									
	θ= 30	Vm=1.095	(^H) 1000					(tm)avg.=68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	79.531	72.900	6.631
		Total	6.631

Preliminary results of SO_2 concentration determination
V_{std} = 1.044 DSCF
Moisture = 23.02 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 as

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job (P) HAYWARD
Source Line 1 Dryer RTO Stack
Date 6-24-94 Test 2 Run 3

Operator(s) SA DM
Meter Box No. Cml 1 Gasmeter coef. .9937
^H@ — in.WC Bar. press 28.72 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg. ☑
Posttest: 0.0 cfm at 15 in. Hg. ☑

Moisture

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(0945)	(616.605)								
	5	616.786	1.00	2	250	—	—	68	—	—
	10	616.967	1.00	2	250	—	—	68	—	—
	15	617.149	1.00	2	247	—	—	68	—	-
	20	617.331	1.00	2	248	—	—	68	—	—
	25	617.512	1.00	2	257	—	—	68	—	—
	30	617.695	1.00	2	249	—	—	68	—	—
	(1015)									
	θ= 30	V_m=1.090	(^H) = 1.00					$(t_m)_{avg.}$ = 68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	80.131	73.223	6.908
		Total	6.908

Preliminary results of SO_2 concentration determination
V_{std} = 1.039 DSCF
Moisture = 23.84 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 as

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job LP/ HAYWARD
Source Line 1 Dryer Stack
Date 8-24-94 Test 2 Run 4

Operator(s) BA DM
Meter Box No. LCM 1 Gasmeter coef. .9937
^H@ — in.WC Bar. press 28-72 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1030)	(617.720)								
	5	617.906	1000	2	257	—	—	68	—	—
	10	618.093	1000	2	247	—	—	68	—	—
	15	618.279	1000	2	249	—	—	68	—	—
	20	618.466	1000	2	250	—	—	68	—	—
	25	618.653	1000	2	250	—	—	68	—	—
	30	618.840	1000	2	248	—	—	68	—	—
	(1100)									
	θ= 30	V_m= 1.120	(^H) avg= 1000					$(t_m)_{avg.}$= 68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	79.280	71.757	7.523
		Total	7.523

Preliminary results of SO_2 concentration determination
V_{std} = 1.067 DSCF
Moisture = 24.25 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 as

INTERPOLL LABORATORIES

EPA Method 4 and 6 Field Data Sheet

Job LP/HAYWARD
Source LPZE / Dryer RTO STACK
Date 2-24-94 Test 2 Run 5

Operator(s) BA DM
Meter Box No. 4041 Gasmeter coef. .9937
^H@ —— in.WC Bar. press 28.72 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg. ☒
Posttest: 0.0 cfm at 15 in. Hg. ☒

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1115)	(618.865)								
	5	619.050	1000	2	247	—	—	68	—	—
	10	619.236	1000	2	247	—	—	68	—	—
	15	619.427	1000	2	257	—	—	68	—	—
	20	619.618	1000	2	249	—	—	68	—	—
	25	619.809	1000	2	250	—	—	68	—	—
	30	620.000	1000	2	247	—	—	68	—	—
	(1145)									
	θ=30	V_m=1.145	(^H) 1000					$(t_m)_{avg.}$=68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	74.604	67.343	7.261
		Total	7.261

Preliminary results of SO_2 concentration determination
V_{std} = 1.891 DSCF
Moisture = 24.75 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 aS

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job LP / HAYWARD
Source LFWC / Dryer RTO STACK
Date 8-24-94 Test 2 Run 6
Operator(s) BA DM
Meter Box No. CCM1 Gasmeter coef. .9937
^H@ — in.WC Bar. press 28.72 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1206)	(620.012)								
	5	620.193	1000	2	250	—	—	68	—	—
	10	620.375	1000	2	250	—	—	68	—	—
	15	620.557	1000	2	250	—	—	68	—	—
	20	620.738	1000	2	247	—	—	68	—	—
	25	620.920	1000	2	249	—	—	68	—	—
	30	621.102	1000	2	251	—	—	68	—	—
	(1230)									
	θ= 30	V_m=1090	$(^H)_{avg}$= 1000					$(t_m)_{avg}$=68		

Condensate Data:

Item	Weight(g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	76.085	69.545	6.540
		Total	6.540

Preliminary results of SO_2 concentration determination
V_{std} = 1.039 DSCF
Moisture = 22.86 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 aS

INTERPOLL LABORATORIES

EPA Method 4 and 6 Field Data Sheet

Job LP/ HAYWARD Operator(s) BA DM

Source Line 1 Dryer RTO Stack Meter Box No. CEM 1 Gasmeter coef. .9937

Date 8-24-94 Test 2 Run 7 ^H@ ____ in.WC Bar. press 28.82 in.Hg

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. ☑

Posttest: 0.0 cfm at 15 in. Hg. ☑

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1245)	(621.155)								
	5	621.337	1000	2	250	—	—	68	—	—
	10	621.519	1000	2	250	—	-	68	—	—
	15	621.701	1000	2	247	—	—	68	—	—
	20	621.883	1000	2	250	—	—	68	—	—
	25	622.065	1000	2	251	—	-	68	—	-
	30	622.247	1000	2	249	—	—	68	—	—
	(1315)									
	θ=30	V_m=1.092	(^H) 1000 =					$(t_m)_{avg.}$=68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	79.533	73.552	5.981
		Total	5.981

Preliminary results of SO_2 concentration determination
V_{std} = 1.041 DSCF
Moisture = 21.29 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 aS

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job LP / HAYWARD
Source LINE 1 DRYER RTO STACK
Date 8-24-14 Test 2 Run 8

Operator(s) BA DM
Meter Box No. 2641 Gasmeter coef. .9937
^H@ — in.WC Bar. press 28.72 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1330)	(622.341)								
	5	622.520	1000	2	249	—	—	68	—	—
	10	622.699	1000	2	248	—	—	68	—	—
	15	622.878	1000	2	250	—	-	68	—	-
	20	623.057	1000	2	248	—	—	68	—	—
	25	623.236	1000	2	251	—	-	68	—	—
	30	623.416	1000	2	249	—	—	68	—	—
	(1400)									
	θ= 30	V_m= 1.075	(^H)avg= 1000					$(t_m)_{avg}$= 68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	79.388	73.509	5.879
		Total	5.879

Preliminary results of SO_2 concentration determination
V_{std} = 1.025 DSCF
Moisture = 21.27 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 aS

INTERPOLL LABORATORIES

EPA Method 4 and 6 Field Data Sheet

Job LP / HAYWARD

Source LP / Dryer RTO STACK

Date 6-24-94 Test 2 Run 9

Operator(s) BA Don

Meter Box No. LP-1 Gasmeter coef. .9937

^H@ —— in.WC Bar. press 28.72 in.Hg

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg.

Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1415)	(623.440)								
	5		1000	2	248	—	—	68	—	—
	10		1000	2	249	—	—	68	—	—
	15		1000	2	250	—	—	68	—	—
	20		1000	2	247	—	—	68	—	—
	25		1000	2	257	—	—	68	—	—
	30	724.538	1000	2	248	—	—	68	—	—
	(1445)									
	θ= 30	V_m=1.098	(^H) 1000					$(t_m)_{avg.}$=68		

Condensate Data:

Item	Weight(g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	76.326	70.677	5.649
		Total	5.649

Preliminary results of SO_2 concentration determination
V_{std} = 1.047 DSCF
Moisture = 20.26 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 as

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job LP / HAYWARD
Source LDE / Dryer RTO STACK
Date 8-24-94 Test 2 Run 10

Operator(s) GM DM
Meter Box No. CEM1 Gasmeter coef. .9937
^H@ — in.WC Bar. press 28.72 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1545)	(624.546)								
	5	624.723	1000	2	251	—	—	68	—	—
	10	624.901	1000	2	252	—	—	68	—	—
	15	625.078	1000	2	252	—	—	68	—	—
	20	625.255	1000	2	247	—	—	68	—	—
	25	625.432	1000	2	248	—	—	68	—	—
	30	625.610	1000	2	250	—	—	68	—	—
	(1615)									
	θ= 30	V_m= 1.064	(^H)avg= 1000					$(t_m)_{avg.}$= 68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	78.671	73.723	4.948
		Total	4.948

Preliminary results of SO_2 concentration determination
V_{mstd} = 1.014 DSCF
Moisture = 18.68 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-297 aS

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job LP / HAYWARD
Source CDLE / Dryer RTO STACK
Date 8-24-94 Test 2 Run 11

Operator(s) SA DM
Meter Box No. CEM1 Gasmeter coef. .9937
^H@ —— in.WC Bar. press 29.72 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg. X
Posttest: 0.0 cfm at 15 in. Hg. X

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1630)	(625.645)								
	5	625.827	1000	2	249	—	—	68	—	—
	10	626.005	1000	2	250	—	—	68	—	—
	15	626.182	1000	2	247	—	—	68	—	—
	20	626.360	1000	2	257	—	—	68	—	—
	25	626.537	1000	2	249	—	-	68	—	-
	30	626.710	1000	2	249	—	—	68	—	—
	(1700)									
	θ= 30	V_m= 1.065	(^H)avg= 1000					$(t_m)_{avg.}$= 68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	80.654	74.999	5.655
		Total	5.655

Preliminary results of SO_2 concentration determination
V_{std} = 1.015 DSCF
Moisture = 20.78 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 as

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job CP / HAYWARD
Source LDF / Dryer RTO STACK
Date 6-24-94 Test 2 Run 12

Operator(s) BA Day
Meter Box No. LEAK / Gasmeter coef. .9937
^H@ — in.WC Bar. press 28.72 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1715)	(626.725)								
	5		1000	2	248	—	—	68	—	—
	10		1000	2	247	—	–	68	—	—
	15		1000	2	251	—	–	68	—	—
	20		1000	2	249	—	–	68	—	—
	25		1000	2	251	—	—	68	—	—
	30	627.790	1000	2	250	—	—	68	—	—
	(1745)									
	θ= 30	V_m=1.065	$(^H)_{avg}$= 1000					$(t_m)_{avg}$ =68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	77.268	72.642	4.626
		Total	4.626

Preliminary results of SO_2 concentration determination
V_{std} = 1.045 DSCF
Moisture = 17.67 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 aS

INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job: LPI HAYWARD
Source: LINE 1 PRESS RTO STACK
Test: 3 Run# Date: 8-25-94
Stack Dimen.: 86 IN.
Dry Bulb: ___ °F Wet bulb: ___ °F
Manometer: ☐ Reg. ☐ Exp ☑ Elec.
Barometric Pressure: 28.82 IN.HG
Static Pressure: -.46 IN.WC
Operators: BA DM
Pitot No.: 270-8 C_p .84
A= B=

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6	IN.	Time Start: 0810	HRS
A 1	.032	2.43	8.43	.47	
2	.105	7.98	13.98	.55	
3	.194	14.74	20.74	.66	
4	.323	24.54	30.54	.63	261
5	.677	51.45	57.45	.57	
6	.806	61.25	67.25	.64	
7	.895	68.02	74.02	.52	
8	.968	73.56	79.56	.47	
B 1				.47	
2				.62	
3				.65	
4				.63	
5				.58	
6				.57	
7				.64	
8				.48	
			FT/SEC	50.77	
			ACFM	95978	
			DSCFM	65351	
Temp. Meas. Device & S/N:				Time End: 0815 HRS	

R or nothing = reg. manometer; S = expanded; E = electronic

032594-G:\STACK\WP\FORMS\S-392.1

INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job LP / Hayward
Source Line 1 Press RTO Stack
Test 3 Run 2 Date 8-25-94
Stack Dimen. 86 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.82 IN.HG
Static Pressure -.68 IN.WC
Operators BA DM
Pitot No. 270-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6 IN.		Time Start: 0845 HRS	
A 1				.57	
2				.52	
3				.67	259
4				.63	
5				.68	
6				.67	
7				.57	
8				.44	
B 1				.45	
2				.54	
3				.65	
4				.68	
5				.64	
6				.65	
7				.64	
8				.53	
			FT/SEC	51.71	
			ACFM	97744	
			DSCFM	66652	
Temp. Meas. Device & S/N:				Time End: 0850 HRS	

R or nothing = reg. manometer; S = expanded; E = electronic

032594-G:\STACK\WP\FORMS\S-392.1

INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job LP / Hayward
Source Line 1 Press RTO Stack
Test 3 Run 3 Date 8-25-94
Stack Dimen. 86 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.82 IN.HG
Static Pressure -.47 IN.WC
Operators BA DM
Pitot No. 270-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6	IN.	Time Start: 0930	HRS
A 1				.53	
2				.62	
3				.68	
4				.66	248
5				.70	
6				.56	
7				.56	
8				.53	
B 1				.53	
2				.58	
3				.58	
4				.61	
5				.59	
6				.60	
7				.57	
8				.57	
			FT/SEC	51.26	
			ACFM	96910	
			DSCFM	67208	
Temp. Meas. Device & S/N:				Time End: 0935	HRS

R or nothing - reg. manometer; S - expanded; E - electronic

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job LP / Hayward
Source Line I Press RTO Stack
Test 3 Run 4 Date 8-25 94
Stack Dimen. 86 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.82 IN.HG
Static Pressure -.65 IN.WC
Operators BA DM
Pitot No. 270-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6 IN.		Time Start: 1015 HRS	
A 1				.56	
2				.68	
3				.72	
4				.62	256
5				.66	
6				.59	
7				.56	
8				.47	
B 1				.46	
2				.63	
3				.71	
4				.65	
5				.55	
6				.63	
7				.53	
8				.44	
			FT/SEC	51.43	
			ACFM	97230	
			DSCFM	66667	
Temp. Meas. Device & S/N:				Time End: 1020 HRS	

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job LP/ HAYWARD

Source Line 1 Press RTO Stack

Test 3 Run 5 Date 8-25-96

Stack dimen. 76 IN.

Dry bulb ____ °F Wet bulb ____ °F

Manometer: ☐ Reg. ☐ Exp. ☒ Elec.

Barometric pressure 28.82 in Hg

Static pressure -.68 in WC

Operators GA DM.

Pitot No. 270-8 Cp .84

Schematic of Cross Section

Traverse Point No.		Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
			Port length:	in.	Time start: 1145 hrs	
	A 1				.45	
	2				.62	
	3				.62	
	4				.66	263
	5				.63	
	6				.59	
	7				.60	
	8				.48	
	B 1				.33	
	2				.64	
	3				.61	
	4				.69	
	5				.63	
	6				.58	
	7				.57	
	8				.44	
				FT/SEC	50.71	
				ACFM	95868	
				DSCFM	65390	
Temp. meas. tool & S/N:					Time end: 1150 hrs	

R or nothing= reg. manometer; S= expanded; E = electronic S-392.1

INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job LP/ Hayward
Source Line 1 Press RTO Stack
Test 3 Run 6 Date 8-25-84
Stack Dimen. 86 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.82 IN.HG
Static Pressure -.42 IN.WC
Operators BA DM
Pitot No. 27U-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6 IN.		Time Start: 1230 HRS	
A 1				.48	
2				.56	
3				.63	
4				.72	260
5				.58	
6				.57	
7				.56	
8				.45	
B 1				.36	
2				.58	
3				.61	
4				.65	
5				.57	
6				.63	
7				.62	
8				.57	
			FT/SEC	50.63	
			ACFM	95716	
			DSCFM	65290	
Temp. Meas. Device & S/N:				Time End: 1235 HRS	

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job LP/Hayward
Source Line 1 Press RTO Stack
Test 3 Run 2 Date 8-25-94
Stack Dimen. 86 IN.
Dry Bulb ______ °F Wet bulb ______ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.82 IN.HG
Static Pressure -.66 IN.WC
Operators BA DM
Pitot No. 370-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6 IN.		Time Start: 1315	HRS
A 1				.47	
2				.57	
3				.63	
4				.61	267
5				.58	
6				.63	
7				.54	
8				.45	
B 1				.47	
2				.57	
3				.66	
4				.66	
5				.63	
6				.60	
7				.55	
8				.46	
			FT/SEC	50.62	
			ACFM	95689	
			DSCFM	64616	

Temp. Meas. Device & S/N: Time End: 1320 HRS

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job LP / Hayward
Source Line 1 Press RTO Stack
Test 3 Run 8 Date 8-25-94
Stack Dimen. 86 IN.
Dry Bulb ______ °F Wet bulb ______ °F
Manometer ☐ Reg. ☐ Exp ☑ Elec.
Barometric Pressure 28.82 IN.HG
Static Pressure -.58 IN.WC
Operators BA DM
Pitot No. 27U-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6 IN.		Time Start: 1400 HRS	
A 1				.53	
2				.55	
3				.60	264
4				.63	
5				.57	
6				.61	
7				.62	
8				.48	
B 1				.59	
2				.62	
3				.63	
4				.66	
5				.65	
6				.62	
7				.61	
8				.50	
			FT/SEC	51.63	
			ACFM	97604	
			DSCFM	66189	
Temp. Meas. Device & S/N:				Time End: 1405 HRS	

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job LP/Hayward
Source Line 1 Press RTO Stack
Test 3 Run 9 Date 8-25-94
Stack Dimen. 86 IN.
Dry Bulb ______ °F Wet bulb ______ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.82 IN.HG
Static Pressure -.69 IN.WC
Operators BA DM
Pitot No. 270-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6 IN.		Time Start: 1445 HRS	
A 1				.51	
2				.48	
3				.53	
4				.58	265
5				.59	
6				.57	
7				.54	
8				.44	
B 1				.42	
2				.52	
3				.58	
4				.58	
5				.54	
6				.55	
7				.55	
8				.45	
			FT/SEC	49.04	
			ACFM	92713	
			DSCFM	62768	
Temp. Meas. Device & S/N:				Time End: 1450 HRS	

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job LP/Hayward
Source Line 1 Press RTO Stack
Test 3 Run 10 Date 8-25-94
Stack Dimen. 36 IN.
Dry Bulb ______ °F Wet bulb ______ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.82 IN.HG
Static Pressure -.58 IN.WC
Operators BA DM
Pitot No. 27U-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6 IN.		Time Start: 1530 HRS	
A 1				.48	
2				.63	
3				.65	
4				.66	
5				.61	264
6				.56	
7				.57	
8				.52	
B 1				.53	
2				.53	
3				.60	
4				.72	
5				.57	
6				.55	
7				.59	
8				.55	
			FT/SEC	51.40	
			ACFM	97163	
			DSCFM	65856	

Temp. Meas. Device & S/N: Time End: 1535 HRS

R or nothing - reg. manometer; S - expanded; E - electronic

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job LP/Hayward
Source Line 1 Press RTO Stack
Test 3 Run 11 Date 8-25-94
Stack Dimen. 86 IN.
Dry Bulb ______ °F Wet bulb ______ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.82 IN.HG
Static Pressure -.56 IN.WC
Operators BA DM
Pitot No. 270-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6	IN.	Time Start: 1615	HRS
A 1				.48	
2				.56	
3				.63	
4				.62	263
5				.60	
6				.62	
7				.49	
8				.46	
B 1				.48	
2				.62	
3				.60	
4				.65	
5				.61	
6				.60	
7				.57	
8				.51	
			FT/SEC	50.76	
			ACFM	95556	
			DSCFM	64979	
Temp. Meas. Device & S/N:				Time End: 1620	HRS

R or nothing = reg. manometer; S = expanded; E = electronic

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(612) 786-6020

EPA Method 2 Field Data Sheet

Job LP / Hayward
Source Line 1 Press RTO Stack
Test 3 Run 2 Date 8-25-94
Stack Dimen. 36 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.80 IN.HG
Static Pressure -.56 IN.WC
Operators BA DM
Pitot No. 270-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6	IN.	Time Start: 1700	HRS
A 1				.49	
2				.61	
3				.66	
4				.65	266
5				.58	
6				.56	
7				.55	
8				.50	
B 1				.42	
2				.56	
3				.60	
4				.67	
5				.61	
6				.60	
7				.55	
8				.54	
			FT/SEC	51.02	
			ACFM	96438	
			DSCFM	64938	
Temp. Meas. Device & S/N:				Time End: 1705 HRS	

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job LPI HAYWARD
Source Cave I Press PTO STACK
Date 6-15-94 Test 3 Run 1

Operator(s) BA DM
Meter Box No. COM1 Gasmeter coef. .9937
^H@ —— in.WC Bar. press 28.82 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(0800)	(627.825)								
	5	628.008	1.00C	2	250	—	—	68	—	—
	10	628.191	1.00C	2	250	—	—	68	—	—
	15	628.374	1.000	2	248	—	—	68	—	—
	20	628.557	1.000	2	250	—	—	68	—	—
	25	628.740	1.000	2	250	—	—	68	—	—
	30	628.925	1.000	2	249	—	—	68	—	—
	(0830)									
	θ= 30	V_m= 1.100	$(^H)_{avg}$= 1.000					$(t_m)_{avg.}$ = 68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	73.537	72.738	.799
		Total	.799

Preliminary results of SO_2 concentration determination
V_{std} = 1.052 DSCF
Moisture = 3.30 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 aS

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job (?)/HAYWARD
Source LINE 1 PRESS 270 STACK
Date 6-25-94 Test 3 Run 2

Operator(s) BA DM
Meter Box No. CM1 Gasmeter coef. .5937
^H@ — in.WC Bar. press 28.82 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(0845)	(628.942)								
	5	629.135	1000	2	250	—	—	68	—	—
	10	629.328	1000	2	257	—	—	68	—	—
	15	629.521	1100	2	248	—	—	68	—	—
	20	629.714	1000	2	250	—	—	68	—	—
	25	629.907	1000	2	248	—	—	68	—	—
	30	630.100	1000	2	247	—	—	68	—	—
	(0915)									
	θ=30	V_m=1.158	(^H)avg=.1000					$(t_m)_{avg.}$=68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	75.023	74.188	.835
		Total	.835

Preliminary results of SO_2 concentration determination
V_{std} = 1.107 DSCF
Moisture = 3.43 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 aS

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job CPI HAYWARD
Source LINE 1 PRESS RTO STACK
Date 6-25-94 Test 3 Run 3

Operator(s) BA DM
Meter Box No. [illegible] Gasmeter coef. .9937
^H@ — in.WC Bar. press 29.82 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg. ☑
Posttest: 0.0 cfm at 15 in. Hg. ☑

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(0930)	630.110								
	5	630.294	1000	2	249	—	—	68	—	—
	10	630.478	1000	2	249	—	—	68	—	—
	15	630.662	1000	2	248	—	—	68	—	—
	20	630.847	1000	2	250	—	—	68	—	—
	25	631.031	1000	2	249	—	—	68	—	—
	30	631.216	1000	2	247	—	—	68	—	—
	(1000)									
	θ=30	Vm=1.106	(^H)avg= 1000					(tm)avg.=68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	72.898	72.121	.777
		Total	.777

Preliminary results of SO_2 concentration determination
V_{std} = 1.058 DSCF
Moisture = 3.4 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 as

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job CPI / HAYWARD
Source CPE / Press RTO Stack
Date 8-25-94 Test 3 Run 4

Operator(s) BA DM
Meter Box No. CPM1 Gasmeter coef. .9937
^H@ — in.WC Bar. press 28.82 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg. ☒
Posttest: .00 cfm at 15 in. Hg. ☒

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1015)	(631.230)								
	5	631.411	1.000	2	250	—	—	68	—	—
	10	631.593	1.000	2	250	—	—	68	—	—
	15	631.774	1.000	2	248	—	—	68	—	—
	20	631.955	1.000	2	250	—	—	68	—	—
	25	632.137	1.000	2	249	—	—	68	—	—
	30	632.320	1.000	2	250	—	—	68	—	—
	(1045)									
	θ=30	V_m=1.090	$(^H)_{avg}$=1.000					$(t_m)_{avg.}$=68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	73.649	72.891	.758
	Total		.758

Preliminary results of SO_2 concentration determination
V_{std} = 1.042 DSCF
Moisture = 3.31 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 as

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job CP/HAYWARD
Source Line 1 Dross RTO Stack
Date 6-25-96 Test 3 Run 5

Operator(s) BA DM
Meter Box No. Con 1 Gasmeter coef. .5937
^H@ — in.WC Bar. press 28.52 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg. X
Posttest: 0.0 cfm at 15 in. Hg. X

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F)					Oxygen
					Probe	Oven	Impg.	Gas/In	Gas/Out	(%v/v)
	(1145)	(633.036)								
	5	633.218	1000	2	248	—	–	68	—	–
	10	633.401	1000	2	249	—	–	68	—	–
	15	633.589	1000	2	257	—	–	68	—	–
	20	633.765	1000	2	250	—	–	68	—	–
	25	633.947	1000	2	249	—	–	68	—	–
	30	634.130	1000	2	249	—	–	68	—	–
	(1215)									
	θ=30	V_m=1.094	(^H) 1000					$(t_m)_{avg.}$=68		

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impingers			
Condenser			
Desiccant	69.630	68.942	.688
		Total	.688

Preliminary results of SO_2 concentration determination	
V_{std} =	1.046 DSCF
Moisture =	3.00 %v/v
SO_2, dry =	ppm
SO_2, wet =	ppm
LB/MMBtu =	

S-287 as

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job CPI HAYWARD
Source LDUE / CROSS RTO STACK
Date 6-25-94 Test 3 Run 6
Operator(s) DA DM
Meter Box No. CEM Gasmeter coef. .9937
^H@ — in.WC Bar. press 28.82 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg. ☒
Posttest: 0.0 cfm at 13 in. Hg. ☒

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1230)	(634.140)								
	5	634.321	1000	2	251	—	—	68	—	—
	10		1000	2	249	—	—	68	—	—
	15		1000	2	249	—	—	68	—	—
	20		1000	2	250	—	—	68	—	—
	25		1000	2	248	—	—	68	—	—
	30	635.230	1000	2	248	—	—	68	—	—
	(1300)									
	θ=30	V_m=1.090	(^H)avg= 1000					$(t_m)_{avg.}$ = 68		

Condensate Data:

Item	Weight(g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	76.143	75.379	.764
		Total	.764

Preliminary results of SO_2 concentration determination
V_{std} = 1.043 DSCF
Moisture = 3.33 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 as

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job CP/HAYWARD
Source [illegible]
Date 8 25 84 Test 3 Run 7

Operator(s) BA DM
Meter Box No. 6941 Gasmeter coef. .9937
^H@ — in.WC Bar. press 28.82 in.H

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1315)	(635.235)								
	5	635.419	1000	2	251	—	—	68	—	—
	10	635.603	1000	2	249	—	—	68	—	—
	15	635.787	1000	2	250	—	—	68	—	—
	20	635.971	1000	2	248	—	—	68	—	—
	25	636.155	1000	2	247	—	—	68	—	—
	30	636.340	1000	2	252	—	—	68	—	—
	(1345)									
	θ= 30	V_m= 1.105	(^H)avg= 1000					$(t_m)_{avg}$ =68		

Condensate Data:

Item	Weight(g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	74.546	73.778	.768
	Total		.768

Preliminary results of SO_2 concentration determination
V_{std} = 1.057 DSCF
Moisture = 3.31 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 as

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job CPI HAYWARD
Source LINE 1 PRESS PTO STACK
Date 8-25-94 Test 3 Run 8

Operator(s) BA DM
Meter Box No. CPI Gasmeter coef. .9937
^H@ — in.WC Bar. press 28.83 in. Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1400)	(636.358)								
	5	636.531	1000	2	250	—	–	68	—	–
	10	636.712	1000	2	249	—	–	68	—	–
	15	636.893	1000	2	250	—	–	68	—	–
	20	637.074	1000	2	247	—	–	68	—	–
	25	637.255	1000	2	248	—	–	68	—	–
	30	637.446	1000	2	249	—	–	68	—	—
	(1430)									
	θ= 30	V_m=1.089	$(^H)_{avg}$= 1000					$(t_m)_{avg.}$=68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	73.329	72.569	.760
		Total	.760

Preliminary results of SO_2 concentration determination
V_{std} =1.041 DSCF
Moisture =3.32 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job CPI HAYWARD — Operator(s) RA DM
Source CTLE / PRESS RTO STACK — Meter Box No. CEM 1 — Gasmeter coef. .9937
Date 8-25-94 — Test 3 — Run 9 — ^H@ — in.WC — Bar. press 28.82 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg. ☒
Posttest: 0.0 cfm at 15 in. Hg. ☒

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1445)	(637.455)								
	5	637.632	1000	2	247	—	—	68	—	—
	10	637.810	1000	2	250	—	—	68	—	—
	15	637.988	1000	2	248	—	—	68	—	—
	20	638.166	1000	2	249	—	—	68	—	—
	25	638.349	1000	2	249	—	—	68	—	—
	30	638.524	1000	2	250	—	—	68	—	—
	(1515)									
	θ= 30	V_m= 1.069	$(^H)_{avg}$= 1000					$(t_m)_{avg.}$ = 68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	73.871	73.124	.747
		Total	.747

Preliminary results of SO_2 concentration determination
V_{std} = 1.022 DSCF
Moisture = 3.32 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 as

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job LPL HAYWARD
Source [illegible] STACK
Date 8-25-84 Test 3 Run 10

Operator(s) [illegible]
Meter Box No. [illegible] Gasmeter coef. [illegible]
^H@ — in.WC Bar. press 28.62 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxyg (%v/v)
	(1530)	(638.538)								
	5	638.715	1000	2	251	—	—	68	—	—
	10	638.893	1000	2	247	—	—	68	—	—
	15	639.074	1000	2	249	—	—	68	—	—
	20	639.249	1000	2	248	—	—	68	—	—
	25	639.427	1000	2	250	—	—	68	—	—
	30	639.605	1000	2	250	—	—	68	—	—
	(1600)									
	θ= 30	V_m=1.067	(^H) 1000					$(t_m)_{avg.}$= 68		

Condensate Data:

Item	Weight(g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	75.540	74.784	.756
		Total	.756

Preliminary results of SO_2 concentration determination
V_{std} = 1.020 DSCF
Moisture = 3.37 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job CPI HAYWTRD
Source LINE 1 Press RTO STACK
Date 5-25-94 Test 3 Run 1

Operator(s) BA DM
Meter Box No. LFM1 Gasmeter coef. .9937
^H@ ____ in.WC Bar. press 28.82 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1615)	(639.611)								
	5	639.784	1000	2	250	–	–	68	–	–
	10	639.958	1000	2	249	–	–	68	–	–
	15	640.134	1000	2	250	–	–	68	–	–
	20	640.310	1000	2	248	–	–	68	–	–
	25	640.484	1000	2	251	–	–	68	–	–
	30	640.653	1000	2	249	–	–	68	–	–
	(1645)									
	θ=30	V_m=1.042	(^H) 1000					$(t_m)_{avg.}$=68		

Condensate Data:

Item	Weight(g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	76.880	76.092	.788
		Total	.788

Preliminary results of SO_2 concentration determination
V_{std} = .996 DSCF
Moisture = 3.59 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 aS

INTERPOLL LABORATORIES

EPA Method 4 and 6 Field Data Sheet

Job CPL HAYWARD Operator(s) BA DW

Source LINE 1 PRESS 2ND STACK Meter Box No. CB4 Gasmeter coef. .9937

Date 8-21-94 Test 3 Run 12 ^H@ —— in.WC Bar. press 29.82 in.Hg

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. ☒

Posttest: ______ cfm at ______ in. Hg. ☐

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1700)	(640.667)								
	5	640.838	1000	2	251	—	–	68	—	–
	10	641.015	1000	2	248	—	–	68	—	–
	15	641.192	1000	2	250	—	–	68	—	–
	20	641.369	1000	2	249	—	–	68	—	–
	25	641.546	1000	2	249	—	–	68	—	–
	30	641.730	1000	2	247	—	—	68	—	—
	(1730)									
	θ=30	V_m=1.063	$(^H)_{avg}$=1000					$(t_m)_{avg}$=68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	74.739	73.898	.841
		Total	.841

Preliminary results of SO_2 concentration determination
V_{std} = 1.017 DSCF
Moisture = 3.74 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 as

INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job LP/Hayward
Source Line 2 Press RTO Stack
Test 4 Run 1 Date 8-26-94
Stack Dimen. 76 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.81 IN.HG
Static Pressure -.50 IN.WC
Operators BA DM
Pitot No. 270-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6	IN.	Time Start: 0755	HRS
A 1				.57	
2				.75	
3				.92	
4				.87	249
5				.92	
6				.89	
7				.72	
8				.60	
B 1				.52	
2				.64	
3				.73	
4				.78	
5				1.04	
6				.93	
7				.35	
8				.40	
			FT/SEC	58.77	
			ACFM	111087	
			DSCFM	77146	
Temp. Meas. Device & S/N:				Time End: 0800 HRS	

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job: LP / Hayward
Source: Line 2 Press RTO Stack
Test: 4 Run 2 Date 8-26-94
Stack Dimen.: 76 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure: 28.81 IN.HG
Static Pressure: -.80 IN.WC
Operators: BA DM
Pitot No.: 270-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6 IN.		Time Start: 0830 HRS	
A 1				.69	
2				.68	
3				.74	
4				.89	240
5				.88	
6				.93	
7				.80	
8				.67	
B 1				.55	
2				.64	
3				.68	
4				.78	
5				1.00	
6				.88	
7				.89	
8				.76	
			FT/SEC	58.32	
			ACFM	110247	
			DSCFM	77551	

Temp. Meas. Device & S/N: Time End: 0835 HRS

R or nothing - reg. manometer; S - expanded; E - electronic

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INTERPOLL LABORATORIES, INC.
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EPA Method 2 Field Data Sheet

Job LP / Hayward
Source Line 2 Press RTO Stack
Test 4 Run 3 Date 8-26-94
Stack Dimen. 76 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.51 IN.HG
Static Pressure -.68 IN.WC
Operators BA BM
Pitot No. 270-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6 IN.		Time Start: 0920 HRS	
A 1				.53	
2				.65	
3				.83	245
4				.88	
5				.80	
6				.75	
7				.71	
8				.68	
B 1				.52	
2				.61	
3				.72	
4				.85	
5				.95	
6				.92	
7				.85	
8				.70	
			FT/SEC	52.28	
			ACFM	108273	
			DSCFM	75615	
Temp. Meas. Device & S/N:				Time End: 0927 HRS	

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES, INC.
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EPA Method 2 Field Data Sheet

Job LP / Hayward
Source Line 2 Press RTO Stack
Test 4 Run 4 Date 8-26-94
Stack Dimen. 76 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.81 IN.HG
Static Pressure -.78 IN.WC
Operators BA DM
Pitot No. 27U-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6 IN.		Time Start: 1100 HRS	
A 1				.58	
2				.76	
3				.92	
4				.91	
5				.82	247
6				.75	
7				.60	
8				.67	
B 1				.52	
2				.64	
3				.67	
4				.82	
5				1.01	
6				.99	
7				.86	
8				.62	
			FT/SEC	58.28	
			ACFM	110171	
			DSCFM	76521	
Temp. Meas. Device & S/N:				Time End: 1105 HRS	

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES, INC.
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EPA Method 2 Field Data Sheet

Job LP / Hayward
Source Line 2 Press RTO Stack
Test 4 Run 5 Date 8-26-94
Stack Dimen. 76 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.81 IN.HG
Static Pressure -.68 IN.WC
Operators BA DM
Pitot No. 27U-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6	IN.	Time Start: 1145	HRS
A 1				.54	
2				.75	
3				.87	
4				.98	250
5				.92	
6				.89	
7				.62	
8				.48	
B 1				.65	
2				.69	
3				.71	
4				.80	
5				1.01	
6				1.00	
7				.84	
8				.70	
			FT/SEC	58.57	
			ACFM	110726	
			DSCFM	76578	
Temp. Meas. Device & S/N:				Time End: 1150 HRS	

R or nothing = reg. manometer; S = expanded; E = electronic

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EPA Method 2 Field Data Sheet

Job LP/Hayward
Source Line 2 Press RTO Stack
Test 4 Run 6 Date 8-26-94
Stack Dimen. 76 IN.
Dry Bulb ______ °F Wet bulb ______ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.81 IN.HG
Static Pressure -.84 IN.WC
Operators BA DM
Pitot No. 27U-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6	IN.	Time Start: 1230	HRS
A 1				~~[illegible]~~ .56	
2				~~[illegible]~~ .75	
3				~~[illegible]~~ .85	
4				~~[illegible]~~ .85	245
5				.90	
6				.91	
7				.80	
8				.69	
B 1				.46	
2				.64	
3				.65	
4				.78	
5				.95	
6				.87	
7				.91	
8				.78	
			FT/SEC	58.18	
			ACFM	109972	
			DSCFM	76817	
Temp. Meas. Device & S/N:				Time End: 1235 HRS	

R or nothing - reg. manometer; S - expanded; E - electronic

032594-G:\STACK\WP\FORMS\S-392.1

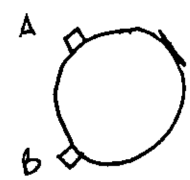
INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job: LP / Hayward
Source: Line 2 Press RTO Stack
Test: 4 Run 2 Date 8-26-94
Stack Dimen.: 76 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure: 28.81 IN.HG
Static Pressure: -.51 IN.WC
Operators: BA DM
Pitot No.: 270-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View
N	



Traverse Point No.		Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
			Port Length: 6 IN.		Time Start: 1315 HRS	
A	1				.59	
	2				.79	
	3				.80	
	4				.83	251
	5				.79	
	6				.93	
	7				.75	
	8				.64	
B	1				.55	
	2				.64	
	3				.70	
	4				.95	
	5				1.03	
	6				.97	
	7				.85	
	8				.80	
				FT/SEC	58.82	
				ACFM	111194	
				DSCFM	72017	
Temp. Meas. Device & S/N:					Time End: 1320 HRS	

R or nothing = reg. manometer; S = expanded; E = electronic

032594-G:\STACK\WP\FORMS\S-392.1

INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job LP / Hayward
Source Line 2 Press RTO Stack
Test 4 Run 8 Date 8-26-94
Stack Dimen. 76 IN.
Dry Bulb ______ °F Wet bulb ______ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.81 IN.HG
Static Pressure -.65 IN.WC
Operators BA DM
Pitot No. 27U-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6 IN.		Time Start: 1400	HRS
A 1				.63	
2				.83	
3				.85	
4				.96	
5				1.08	250
6				.73	
7				.70	
8				.83	
B 1				.48	
2				.65	
3				.72	
4				.75	
5				.97	
6				.95	
7				.85	
8				.70	
			FT/SEC	58.64	
			ACFM	110853	
			DSCFM	76885	
Temp. Meas. Device & S/N:				Time End: 1405 HRS	

R or nothing = reg. manometer; S = expanded; E = electronic

032594-G:\STACK\WP\FORMS\S-392.1

INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job LP / Hayward
Source Line 2 Press RTO Stack
Test 4 Run 9 Date 8-26-94
Stack Dimen. 76 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.81 IN.HG
Static Pressure -.72 IN.WC
Operators BA DM
Pitot No. 270-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6	IN.	Time Start: 1445	HRS
A 1				.59	
2				.42	
3				.79	
4				.83	250
5				.47	
6				.83	
7				.63	
8				.59	
B 1				.59	
2				.63	
3				.71	
4				.84	
5				.84	
6				.95	
7				.92	
8				.81	
			FT/SEC	58.18	
			ACFM	109883	
			DSCFM	76245	
Temp. Meas. Device & S/N:				Time End: 1450 HRS	

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job LP/Hayward
Source Line 2 Press RTO Stack
Test 4 Run 10 Date 8-26-94
Stack Dimen. 76 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.81 IN.HG
Static Pressure -.68 IN.WC
Operators BA DM
Pitot No. 27U-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6 IN.		Time Start: 1530 HRS	
A 1				.68	
2				.84	
3				.80	
4				.83	257
5				.90	
6				.85	
7				.73	
8				.61	
B 1				.53	
2				.65	
3				.65	
4				.89	
5				.90	
6				.91	
7				.85	
8				.73	
			FT/SEC	58.76	
			ACFM	111079	
			DSCFM	76284	
Temp. Meas. Device & S/N:				Time End: 1535 HRS	

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job LP / Hayward
Source Line 2 Press RTO Stack
Test 4 Run 11 Date 3-26-94
Stack Dimen. 76 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☒ Elec.
Barometric Pressure 28.81 IN.HG
Static Pressure -.65 IN.WC
Operators BA DM
Pitot No. 270-8 C_p .84

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6 IN.		Time Start: 1615	HRS
A 1				.60	
2				.52	
3				.91	
4				.83	247
5				.85	
6				.75	
7				.73	
8				.70	
B 1				.45	
2				.64	
3				.65	
4				.75	
5				.95	
6				.81	
7				.88	
8				.82	
			PT/Sec	57.78	
			ACFM	109228	
			DSCFM	75884	
Temp. Meas. Device & S/N:				Time End: 1620	HRS

R or nothing = reg. manometer; S = expanded; E = electronic

032594-G:\STACK\WP\FORMS\S-392.1

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job LP/HAYWARD Operator(s) RA DM
Source LINE 2 PRESS RTO STACK Meter Box No. CEM1 Gasmeter coef. .9937
Date 8-26-94 Test 4 Run 8 ^H@ — in.WC Bar. press 28.81 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1400)	(649.650)								
	5	649.828	1000	2	249	—	—	68	—	—
	10	650.010	1000	2	250	—	—	68	—	—
	15	650.187	1000	2	248	—	—	68	—	—
	20	650.366	1000	2	248	—	—	68	—	—
	25	650.545	1000	2	250	—	—	68	—	—
	30	650.725	1000	2	249	—	—	68	—	—
	(1430)									
	θ=30	V_m=1.075	(^H)avg=1000					$(t_m)_{avg}$=68		

Condensate Data:

Item	Weight(g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	75.696	75.025	.671
		Total	.671

Preliminary results of SO_2 concentration determination
V_{std} = 1.028 DSCF
Moisture = 2.98 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 as

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job CP / HAYWARD
Source CERE 2 PRESS RTO STACK
Date 5-26-94 Test 4 Run 9

Operator(s) BA DM
Meter Box No. CEX-1 Gasmeter coef. .9937
^H@ — in.WC Bar. press 28.61 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1445)	(650.756)								
	5	650.932	1000	2	250	—	—	68	—	—
	10	651.108	1000	2	249	—	—	68	—	—
	15	651.284	1000	2	248	—	—	68	—	—
	20	651.460	1000	2	247	—	—	68	—	—
	25	651.635	1000	2	251	—	—	68	—	—
	30	651.825	1000	2	250	—	—	68	—	—
	(1515)									
	θ 30	V_m = 1.069	$(^H)_{avg}$ = 1000					$(t_m)_{avg}$ = 68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	74.896	74.224	.672
		Total	.672

Preliminary results of SO_2 concentration determination
V_{std} = 1.022 DSCF
Moisture = 3.01 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 as

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job CPL HAYWARD
Source LAVE 2 PRESS RTO STACK
Date 8-26-94 Test 4 Run 10

Operator(s) BA PM
Meter Box No. CP4 Gasmeter coef. .9937
^H@ — in.WC Bar. press 28.81 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1530)	(651.852)								
	5	652.031	1.000	2	249	—	—	68	—	—
	10	652.210	1.000	2	248	—	—	68	—	—
	15	652.390	1.000	2	250	—	—	68	—	—
	20	652.573	1.000	2	250	—	-	68	—	—
	25	652.756	1.000	2	249	—	-	68	—	—
	30	652.950	1.000	2	248	—	—	68	—	—
	(1600)									
	θ= 30	V_m= 1.098	(^H) 1.000					$(t_m)_{avg.}$ = 68		

Condensate Data:

Item	Weight(g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	74.851	74.165	.686
		Total	.686

Preliminary results of SO_2 concentration determination
V_{std} = 1.050 DSCF
Moisture = 2.98 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 aS

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job (P) HAYWARD
Source Line 2 Press RTO Stack
Date 8-26-94 Test 4 Run 11

Operator(s) BA DU
Meter Box No. Cont Gasmeter coef. .5937
^H@ ——— in.WC Bar. press 28.64 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1615)	(652.975)								
	5	653.148	1.000	2	250	—	—	68	—	—
	10	653.321	1.000	2	249	—	—	68	—	—
	15	653.494	1.000	2	250	—	—	68	—	—
	20	653.667	1.000	2	248	—	—	68	—	—
	25	653.840	1.000	2	247	—	—	68	—	—
	30	654.015	1.000	2	250	—	—	68	—	—
	(1645)									
	θ= 30	V_m=1.040	(^H) 1.000					$(t_m)_{avg.}$ 68		

Condensate Data:

Item	Weight(g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	77.807	77.135	.672
		Total	.672

Preliminary results of SO_2 concentration determination
V_{std} = .994 DSCF
Moisture = 3.09 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 aS

INTERPOLL LABORATORIES
EPA Method 4 and 6 Field Data Sheet

Job UP/HAYWARD Operator(s) RA DM
Source LINE 2 PRESS RTO STACK Meter Box No. Bl. Gasmeter coef. .9937
Date 8-26-94 Test 4 Run 12 ^H@ ___ in.WC Bar. press 28.61 in.Hg

Sample Train Leak Check:
Pretest: < 0.02 cfm at 15 in. Hg.
Posttest: 0.0 cfm at 15 in. Hg.

MOISTURE

Trav. Point No.	Samp. Time (min)	Sample Volume (cf)	Orif. Meter (inWC)	VAC. inHg	Temperatures (°F) Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1700)	(654.037)								
	5	654.206	1000	2	247	—	—	68	—	—
	10	654.375	1000	2	248	—	—	68	—	—
	15	654.545	1000	2	249	—	—	68	—	—
	20	654.718	1000	2	250	—	—	68	—	—
	25	654.885	1000	2	251	—	—	68	—	—
	30	655.078	1000	2	248	—	—	68	—	—
	(1730)									
	θ= 30	V_m=1.041	$(^H)_{avg}$= zero					$(t_m)_{avg}$=68		

Condensate Data:

Item	Weight (g) Final	Tare	Difference
Impingers			
Condenser			
Desiccant	79.366	78.680	.676
	Total		

Preliminary results of SO_2 concentration determination
V_{std} = .995 DSCF
Moisture = 3.10 %v/v
SO_2, dry = ppm
SO_2, wet = ppm
LB/MMBtu =

S-287 aS

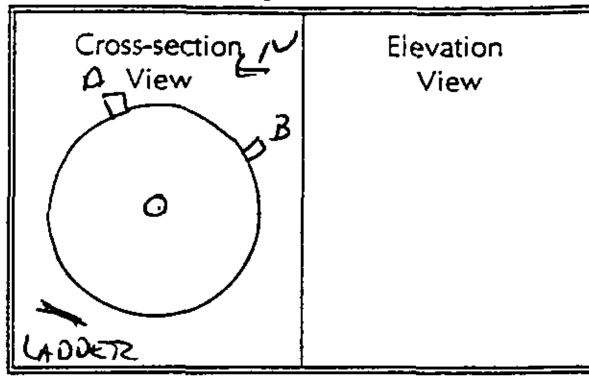
APPENDIX D

MEASUREMENT SYSTEM PERFORMANCE SPECIFICATIONS

INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Drawing of Test Site



Job: LPI HAYWARD
Source: LINE 2 Dryer RTO STACK
Test: 1 Run: 0 Date: 8-23-94
Stack Dimen.: 81" IN.
Dry Bulb: ______ °F Wet bulb: ______ °F
Manometer ☐ Reg. ☐ Exp ☐ Elec.
Barometric Pressure: 28.71 IN.HG
Static Pressure: ______ IN.WC
Operators: B. ASCHENBACH D. MARSO
Pitot No.: TEST 8' C_p ______
A = 51' Ft B = 38' Ft

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6.0	IN.	Time Start:	HRS
1	.16	12.96	18.96		
2	.50	40.50	46.50		
3	.83	67.23	71.23		

Temp. Meas. Device & S/N: Time End: HRS

R or nothing – reg. manometer; S – expanded; E – electronic

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INTERPOLL LABORATORIES, INC
(612) 786-6020

CO System Bias Check

Job: LP/ HAYWARD Source: LINE 2 DRYER RTO
Test: 1 Run: 1-12 Date: 8-23-94 Site: STACK
Operator: BOB

Run	Time (HRS)	***	Cylinder Value (PPM)	Analyzer Resp (PPM) Cal. Err.	Sys. Bias	Diff. CE-SB (PPM)	Span Val. (PPM)	% of Span
1	0730	Zero Gas	0	2	4	2	1000	.2
		Upscale	249	249	248	1	1000	.1
2	0906	Zero Gas	0	2	8	6	1000	.60
		Upscale	249	249	248	1	1000	.1
3	0950	Zero Gas	0	2	5	3	1000	.30
		Upscale	249	249	247	2	1000	.20
4	1035	Zero Gas	0	2	4	2	1000	.20
		Upscale	249	249	247	2	1000	.20
5	1120	Zero Gas	0	2	5	3	1000	.30
		Upscale	249	249	245	4	1000	.40
6	1205	Zero Gas	0	2	8	6	1000	.60
		Upscale	249	249	245	4	1000	.40
7	1250	Zero Gas	0	2	1	1	1000	.10
		Upscale	249	249	248	1	1000	.10
8	1405	Zero Gas	0	2	8	6	1000	.60
		Upscale	249	249	248	1	1000	.10
9	1450	Zero Gas	0	2	9	7	1000	.70
		Upscale	249	249	249	0	1000	0
10	1535	Zero Gas	0	2	6	4	1000	.40
		Upscale	249	249	250	1	1000	-.10
11	1620	Zero Gas	0	2	10	8	1000	.80
		Upscale	249	249	248	1	1000	.10
12	1705	Zero Gas	0	2	9	7	1000	.70
		Upscale	249	249	245	4	1000	.40

Must be within 5% of the span for the zero or upscale cal. gas.

8

245

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INTERPOLL LABORATORIES, INC
(612) 786-6020

O2 System Bias Check

Job CP / HAYWARD Source LANE 2 DRYER RTO
Test 1 Run 1-12 Date 8-23-94 Site STACK
Operator BOB

Run	Time (HRS)	***	Cylinder Value (PPM)	Analyzer Resp (PPM)		Diff. CE-SB (PPM)	Span Val. (PPM)	% of Span
				Cal. Err.	Sys. Bias			
1	0730	Zero Gas	0	0	0	0	25	0
		Upscale	13.5	13.5	13.6	.1	25	.40
2	0906	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.5	0	25	0
3	0950	Zero Gas	0	0	0	0	25	0
		Upscale	13.5	13.5	13.5	0	25	0
4	1035	Zero Gas	0	0	0	0	25	0
		Upscale	13.5	13.5	13.6	.1	25	.40
5	1120	Zero Gas	0	0	0	0	25	0
		Upscale	13.5	13.5	13.6	.1	25	.40
6	1205	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.4	.1	25	.40
7	1250	Zero Gas	0	0	0	0	25	0
		Upscale	13.5	13.5	13.5	0	25	0
8	1405	Zero Gas	0	0	0	0	25	0
		Upscale	13.5	13.5	13.5	0	25	0
9	1450	Zero Gas	0	0	0	0	25	0
		Upscale	13.5	13.5	13.6	.1	25	.40
10	1535	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.4	.1	25	.40
11	1620	Zero Gas	0	0	0	0	25	0
		Upscale	13.5	13.5	13.6	.1	25	.40
12	1705	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.4	.1	25	.40

Must be within 5% of the span for the zero or upscale cal. gas.

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13.5

INTERPOLL LABORATORIES, INC
(612) 786-6020

CO_2 System Bias Check

Job CP / HAYWARD Source Line 2 Dryer RTO
Test 1 Run 1-12 Date 8-23-94 Site STACK
Operator Bob

Run	Time (HRS)	***	Cylinder Value (PPM)	Analyzer Resp (PPM)		Diff. CE-SB (PPM)	Span Val. (PPM)	% of Span
				Cal. Err.	Sys. Bias			
1	0730	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
2	0906	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
3	0950	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
4	1035	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	10.9	.1	20	.50
5	1120	Zero Gas	0	0	1	.1	20	.50
		Upscale	11.1	11.0	11.1	.1	20	.50
6	1205	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
7	1250	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
8	1405	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	.1	20	.50
9	1450	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
10	1535	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
11	1620	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
12	1705	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	10.9	.1	20	.50

Must be within 5% of the span for the zero or upscale cal. gas.

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job: IP/ HAYARW
Source: Line 1 Dryer RTO Stack
Test: 2 Run: 6 Date: 5-24-94
Stack Dimen.: 61 IN.
Dry Bulb: _____ °F Wet bulb: _____ °F
Manometer: ☐ Reg. ☐ Exp ☐ Elec.
Barometric Pressure: 28.72 IN.HG
Static Pressure: _____ IN.WC
Operators: S Aschenbach D Marse
Pitot No.: 8' DAST C_p _____

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length:	IN.	Time Start:	HRS
Temp. Meas. Device & S/N:				Time End:	HRS

R or nothing – reg. manometer; S – expanded; E – electronic

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INTERPOLL LABORATORIES, INC
(612) 786-6020

CO System Bias Check

Job: LP/ HAYWARD
Source: GALE / Dryer RTO
Test: 2 Run: 1-12 Date: 5-24-94
Site: STACK
Operator: GJG

Run	Time (HRS)	***	Cylinder Value (PPM)	Analyzer Resp (PPM) Cal. Err.	Analyzer Resp (PPM) Sys. Bias	Diff. CE-SB (PPM)	Span Val. (PPM)	% of Span
1	0716	Zero Gas	0	2	5	3	1000	.30
		Upscale	249	249	249	0	1000	0
2	0850	Zero Gas	0	2	6	4	1000	.40
		Upscale	249	249	251	2	1000	.20
3	0935	Zero Gas	0	2	5	3	1000	.30
		Upscale	249	249	250	1	1000	.10
4	1020	Zero Gas	0	2	6	4	1000	.40
		Upscale	249	249	252	3	1000	.30
5	1105	Zero Gas	0	2	7	5	1000	.50
		Upscale	249	249	252	3	1000	.30
6	1150	Zero Gas	0	2	7	5	1000	.50
		Upscale	249	249	251	2	1000	.20
7	1235	Zero Gas	0	2	7	5	1000	.50
		Upscale	249	249	251	2	1000	.20
8	1320	Zero Gas	0	2	6	4	1000	.40
		Upscale	249	249	247	2	1000	.20
9	1405	Zero Gas	0	2	6	4	1000	.40
		Upscale	249	249	245	4	1000	.40
10	1450	Zero Gas	0	2	5	3	1000	.30
		Upscale	249	249	244	5	1000	.50
11	1620	Zero Gas	0	2	5	3	1000	.30
		Upscale	249	249	242	7	1000	.70
12	1705	Zero Gas	0	2	5	3	1000	.30
		Upscale	249	249	243	6	1000	.60

Must be within 5% of the span for the zero or upscale cal. gas.

7

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244

INTERPOLL LABORATORIES, INC
(612) 786-6020

O_2 System Bias Check

Job LP / HAYWARD Source [illegible] / Dryer 2[illegible]

Test 2 Run 1-12 Date 5-24-94 Site Stack

Operator BB

Run	Time (HRS)	***	Cylinder Value (PPM)	Analyzer Resp (PPM) Cal. Err.	Analyzer Resp (PPM) Sys. Bias	Diff. CE-SB (PPM)	Span Val. (PPM)	% of Span
1	0716	Zero Gas	0	0	0	0	25	0
		Upscale	13.5	13.5	13.4	.1	25	.40
2	0850	Zero Gas	0	0	0	0	25	0
		Upscale	13.5	13.5	13.6	.1	25	.40
3	0935	Zero Gas	0	0	-.1	.1	25	.40
		Upscale	13.5	13.5	13.5	0	25	0
4	1020	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.6	.1	25	.40
5	1105	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.5	0	25	0
6	1150	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.6	.1	25	.40
7	1235	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.5	0	25	0
8	1320	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.6	.1	25	.40
9	1405	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.5	0	25	0
10	1450	Zero Gas	0	0	0	0	25	0
		Upscale	13.5	13.5	13.6	.1	25	.40
11	1620	Zero Gas	0	0	0	0	25	0
		Upscale	13.5	13.5	13.4	.1	25	.40
12	1705	Zero Gas	0	0	0	0	25	0
		Upscale	13.5	13.5	13.5	0	25	0

Must be within 5% of the span for the zero or upscale cal. gas.

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INTERPOLL LABORATORIES, INC
(612) 786-6020

CO_2 System Bias Check

Job: LPI HAYWARD   Source: Stack 1 Dryer RTO
Test: 2   Run: 1-12   Date: 5-24-94   Site: Stack
Operator: Bob

Run	Time (HRS)	***	Cylinder Value (PPM)	Analyzer Resp (PPM) Cal. Err.	Sys. Bias	Diff. CE-SB (PPM)	Span Val. (PPM)	% of Span
1	0716	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
2	0850	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
3	0935	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
4	1020	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
5	1105	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
6	1150	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
7	1235	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
8	1320	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.1	.1	20	.50
9	1405	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
10	1450	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
11	1620	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
12	1705	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0

Must be within 5% of the span for the zero or upscale cal. gas.

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job LP / HAYWARD
Source LINE / PRESS RTO STACK
Test 3 Run 6 Date 8-25-94
Stack Dimen. 76 IN.
Dry Bulb ______ °F Wet bulb ______ °F
Manometer ☐ Reg. ☐ Exp ☐ Elec.
Barometric Pressure 28.82 IN.HG
Static Pressure ______ IN.WC
Operators BA DM
Pitot No. 8' INST C_p ______

Drawing of Test Site

Cross-section View	Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6.	IN.	Time Start:	HRS
1	.16	12.16	18.16		
2	.50	38.00	44.00		
3	.83	63.08	69.08		
Temp. Meas. Device & S/N:				Time End:	HRS

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES, INC
(612) 786-6020

CO System Bias Check

Job: CPI Hayward Source: Line 1 Press RTO
Test: 3 Run: 1-12 Date: 8-25-96 Site: Stack
Operator: [illegible]

Run	Time (HRS)	***	Cylinder Value (PPM)	Analyzer Resp (PPM) Cal. Err.	Analyzer Resp (PPM) Sys. Bias	Diff. CE-SB (PPM)	Span Val. (PPM)	% of Span
1	0715	Zero Gas	0	1	1	0	250	0
		Upscale	150	148	148	0	250	0
2	0835	Zero Gas	0	1	2	1	250	.40
		Upscale	150	148	148	0	250	0
3	0920	Zero Gas	0	1	1	0	250	0
		Upscale	150	148	147	1	250	.40
4	1005	Zero Gas	0	1	2	1	250	.40
		Upscale	150	148	147	1	250	.40
5	1050	Zero Gas	0	1	1	0	250	0
		Upscale	150	148	146	2	250	.80
6	1138	Zero Gas	0	1	2	1	250	.40
		Upscale	150	148	147	1	250	.40
7	1220	Zero Gas	0	1	1	0	250	0
		Upscale	150	148	147	1	250	.40
8	1305	Zero Gas	0	1	1	0	250	0
		Upscale	150	148	146	2	250	.80
9	1350	Zero Gas	0	1	0	1.0	250	-.40
		Upscale	150	148	144	4	250	1.60
10	1435	Zero Gas	0	1	2	1	250	.40
		Upscale	150	148	144	4	250	1.60
11	1520	Zero Gas	0	1	3	2	250	.80
		Upscale	150	148	147	1	250	.40
12	1605	Zero Gas	0	1	3	2	250	.80
		Upscale	150	148	146	2	250	.80

Must be within 5% of the span for the zero or upscale cal. gas.

033194-C:\STACK\WP\FORMS\S-420-11

INTERPOLL LABORATORIES, INC
(612) 786-6020

O_2 System Bias Check

Job CPI HAYWARD Source LINE 1 PRESS RTO
Test 3 Run 1-12 Date 5-25-96 Site STACK
Operator SCB

Run	Time (HRS)	***	Cylinder Value (PPM)	Analyzer Resp (PPM) Cal. Err.	Analyzer Resp (PPM) Sys. Bias	Diff. CE-SB (PPM)	Span Val. (PPM)	% of Span
1	0715	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.6	.1	25	.40
2	0835	Zero Gas	0	0	0	0	25	0
		Upscale	13.5	13.5	13.5	0	25	0
3	0920	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.6	.1	25	.40
4	1005	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.6	.1	25	.40
5	1050	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.6	.1	25	.40
6	1136	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.5	0	25	0
7	1220	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.4	.1	25	.40
8	1305	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.3	.2	25	.80
9	1350	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.4	.1	25	.40
10	1435	Zero Gas	0	0	0	0	25	0
		Upscale	13.5	13.5	13.5	0	25	0
11	1520	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.6	.1	25	.40
12	1605	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.5	0	25	0

Must be within 5% of the span for the zero or upscale cal. gas.

033194-G:\STACK\WP\FORMS\S-420-11

INTERPOLL LABORATORIES, INC
(612) 786-6020
CO_2 System Bias Check

Job: CPI HAYWARD   Source: CPLE 1 Press RTO
Test: 3   Run: 1-12   Date: F-25-54   Site: STACK
Operator: GLB

Run	Time (HRS)	***	Cylinder Value (PPM)	Analyzer Resp (PPM)		Diff. CE-SB (PPM)	Span Val. (PPM)	% of Span
				Cal. Err.	Sys. Bias			
1	0715	Zero Gas	0	0	.1	-.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
2	0835	Zero Gas	0	0	0	0	20	0
		Upscale	11.1	11.0	10.9	-.1	20	.50
3	0920	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	10.9	.1	20	.50
4	1005	Zero Gas	0	0	0	0	20	0
		Upscale	11.1	11.0	10.9	.1	20	.50
5	1050	Zero Gas	0	0	.1	-.1	20	-.50
		Upscale	11.1	11.0	10.9	.1	20	-.50
6	1138	Zero Gas	0	0	0	0	20	0
		Upscale	11.1	11.0	10.9	.1	20	.50
7	1220	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	10.9	.1	20	.50
8	1305	Zero Gas	0	0	0	0	20	0
		Upscale	11.1	11.0	10.9	.1	20	.50
9	1350	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.1	-.1	20	.50
10	1435	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
11	1520	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
12	1605	Zero Gas	0	0	.1	-.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0

Must be within 5% of the span for the zero or upscale cal. gas.

033194-G:\STACK\WP\FORMS\S-420-11

INTERPOLL LABORATORIES, INC
(612) 786-6020

ACC System Bias Check

Job LPI HAYWARD Source LEVEL PRESS RTO
Test 3 Run 1-12 Date 5-25-94 Site STACK
Operator JCB

Run	Time (HRS)	***	Cylinder Value (PPM)	Analyzer Resp (PPM)		Diff. CE-SB (PPM)	Span Val. (PPM)	% of Span
				Cal. Err.	Sys. Bias			
1	1650	Zero Gas	0	1	2	1	250	.40
		Upscale	150	148	145	3	250	1.20
2	1735	Zero Gas	0	1	3	2	250	.80
		Upscale	150	148	146	2	250	.80
3		Zero Gas	0					
		Upscale						
4		Zero Gas	0					
		Upscale						
5	1650	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.6	.1	25	.40
6	1735	Zero Gas	0	0	.0	0	25	0
		Upscale	13.5	13.5	13.5	0	25	0
7		Zero Gas	0					
		Upscale						
8		Zero Gas	0					
		Upscale						
9	1650	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	10.9	.1	20	.50
10	1735	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
11		Zero Gas	0					
		Upscale						
12		Zero Gas	0					
		Upscale						

Must be within 5% of the span for the zero or upscale cal. gas.

033194-G:\STACK\WP\FORMS\S-420-11

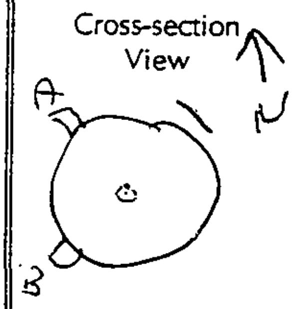
INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job: CP/ HAYWARD
Source: LINE 2 PRESS RTO STACK
Test: 4 Run: 0 Date: 8-26-94
Stack Dimen.: 76 IN.
Dry Bulb: ______ °F Wet bulb: ______ °F
Manometer: ☐ Reg. ☐ Exp ☐ Elec.
Barometric Pressure: 28.81 IN.HG
Static Pressure: ______ IN.WC
Operators: BA DM
Pitot No.: 8' DUST C_p ______

Drawing of Test Site

Cross-section View



Elevation View

Traverse Point No.	Fraction of Diameter	Distance From Stack Wall (IN.)	Distance From End of Port (IN.)	Velocity	Temp. of Gas (°F)
		Port Length: 6.0	IN.	Time Start:	HRS
1	.16	12.16	18.16		
2	.50	38.00	44.00		
3	.83	63.08	69.08		

Temp. Meas. Device & S/N: Time End: HRS

R or nothing = reg. manometer; S = expanded; E = electronic

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INTERPOLL LABORATORIES, INC
(612) 786-6020

CO System Bias Check

Job CP/ HAYWARD Source Line 2 Press RTO
Test 4 Run 1-12 Date 8-26-95 Site STACK
Operator BCB

Run	Time (HRS)	***	Cylinder Value (PPM)	Analyzer Resp (PPM) Cal. Err.	Sys. Bias	Diff. CE-SB (PPM)	Span Val. (PPM)	% of Span
1	0707	Zero Gas	0	1	2	1	250	.40
		Upscale	150	148	147	1	250	.40
2	0820	Zero Gas	0	1	2	1	250	.40
		Upscale	150	148	147	1	250	.40
3	0905	Zero Gas	0	1	2	1	250	.40
		Upscale	150	148	147	1	250	.40
4	0950	Zero Gas	0	1	2	1	250	.40
		Upscale	150	148	147	1	250	.40
5	1050	Zero Gas	0	1	2	1	250	.40
		Upscale	150	148	147	1	250	.40
6	1135	Zero Gas	0	1	2	1	250	.40
		Upscale	150	148	147	1	250	.40
7	1220	Zero Gas	0	1	3	2	250	.80
		Upscale	150	148	147	1	250	.40
8	1305	Zero Gas	0	1	1	0	250	0
		Upscale	150	148	145	3	250	1.20
9	1350	Zero Gas	0	1	1	0	250	0
		Upscale	150	148	146	2	250	.80
10	1435	Zero Gas	0	1	0	1	250	.40
		Upscale	150	148	146	2	250	.80
11	1520	Zero Gas	0	1	1	0	250	0
		Upscale	150	148	147	1	250	.40
12	1605	Zero Gas	0	1	0	1	250	.40
		Upscale	150	148	145	3	250	1.20

Must be within 5% of the span for the zero or upscale cal. gas.

033194-G:\STACK\WP\FORMS\S-420-11

INTERPOLL LABORATORIES, INC
(612) 786-6020

O_2 System Bias Check

Job: CPI Haygtrd
Source: Line 2 Press RTO
Test: 4 Run: 1-12 Date: 8-26-94
Site: Stack
Operator: [illegible]

Run	Time (HRS)	* * *	Cylinder Value (PPM)	Analyzer Resp (PPM) Cal. Err.	Analyzer Resp (PPM) Sys. Bias	Diff. CE-SB (PPM)	Span Val. (PPM)	% of Span
1	0707	Zero Gas	0	0	0	0	25	0
		Upscale	13.5	13.5	13.4	.1	25	.40
2	0820	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.6	.1	25	.40
3	0905	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.5	0	25	0
4	0958	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.6	.1	25	.40
5	1050	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.5	.1	25	.40
6	1135	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.5	0	25	0
7	1220	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.4	.1	25	.40
8	1305	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.5	0	25	0
9	1350	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.4	.1	25	.40
10	1435	Zero Gas	0	0	1	.1	25	.40
		Upscale	13.5	13.5	13.5	0	25	0
11	1520	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.5	0	25	0
12	1605	Zero Gas	0	0	0	0	25	0
		Upscale	13.5	13.5	13.6	.1	25	.40

Must be within 5% of the span for the zero or upscale cal. gas.

033194-G:\STACK\WP\FORMS\S-420-11

INTERPOLL LABORATORIES, INC
(612) 786-6020

CO_2 System Bias Check

Job (P) HAYWARD Source [illegible]
Test 4 Run 1-12 Date 6-26-94 Site STACK
Operator BCB

Run	Time (HRS)	***	Cylinder Value (PPM)	Analyzer Resp (PPM) Cal. Err.	Sys. Bias	Diff. CE-SB (PPM)	Span Val. (PPM)	% of Span
1	0707	Zero Gas	0	0	0	0	20	0
		Upscale	11.1	11.0	11.0	0	20	0
2	0820	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
3	0905	Zero Gas	0	0	0	0	20	0
		Upscale	11.1	11.0	11.0	0	20	0
4	0950	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
5	1050	Zero Gas	0	0	0	0	20	0
		Upscale	11.1	11.0	11.0	0	20	0
6	1135	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	10.9	.1	20	.50
7	1220	Zero Gas	0	0	0	0	20	0
		Upscale	11.1	11.0	10.9	.1	20	.50
8	1305	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	10.9	.1	20	.50
9	1350	Zero Gas	0	0	0	0	20	0
		Upscale	11.1	11.0	10.9	.1	20	.50
10	1435	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.1	.1	20	.50
11	1520	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	11.0	0	20	0
12	1605	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	10.9	.1	20	.50

Must be within 5% of the span for the zero or upscale cal. gas.

033194-G:\STACK\WP\FORMS\S-420-11

INTERPOLL LABORATORIES, INC

(612) 786-6020

ALL System Bias Check

Job: LP/HAYWARD   Source: ZONE 2 PRESS RTO

Test: 4   Run: 1-12   Date: 8-26-96   Site: STACK

Operator: BJB

Run	Time (HRS)	***	Cylinder Value (PPM)	Analyzer Resp (PPM) Cal. Err.	Analyzer Resp (PPM) Sys. Bias	Diff. CE-SB (PPM)	Span Val. (PPM)	% of Span
13	1650	Zero Gas	0	1	0	1	250	.40
		Upscale	150	148	148	0	250	0
24	1735	Zero Gas	0	1	0	1	250	.4
		Upscale	150	148	147	1	250	.4
3		Zero Gas	0					
		Upscale						
4		Zero Gas	0					
		Upscale						
53	1650	Zero Gas	0	0	0	0	25	0
		Upscale	13.5	13.5	13.3	.2	25	.80
64	1735	Zero Gas	0	0	.1	.1	25	.40
		Upscale	13.5	13.5	13.4	.1	25	.40
7		Zero Gas	0					
		Upscale						
8		Zero Gas	0					
		Upscale						
93	1650	Zero Gas	0	0	0	0	20	0
		Upscale	11.1	11.0	10.9	.1	20	.50
104	1735	Zero Gas	0	0	.1	.1	20	.50
		Upscale	11.1	11.0	10.9	.1	20	.50
11		Zero Gas	0					
		Upscale						
12		Zero Gas	0					
		Upscale						

CO

O2

CO2

Must be within 5% of the span for the zero or upscale cal. gas.

033194-G:\STACK\WP\FORMS\S-420-11

INTERPOLL LABORATORIES

Calibration Error Check

Job CP/ HAYWARD

Test 1 Run 1-12 Date 8-23-94

Operator BOB

Calibration: Time(HRS) 0705

***	Cylinder Value (ppm)	Analyzer Response (ppm)	Difference (ppm)	Span Value (ppm)	Percent of Span
Zero gas	0	2	2	1000	.2
Mid level	249	249	0	1000	0
High level	594	599	5	1000	.5

NO_x Calibration: Time(HRS) ________

***	Cylinder Value (ppm)	Analyzer Response (ppm)	Difference (ppm)	Span Value (ppm)	Percent of Span
Zero gas	0				
Mid level					
High level					

O_2 Calibration: Time(HRS) 0705

***	Cylinder Value (ppm)	Analyzer Response (ppm)	Difference (ppm)	Span Value (ppm)	Percent of Span
Zero gas	0	0	0	25	0
Mid level	13.5	13.5	0	25	0
High level	21	21.0	0	25	0

CO_2 Calibration: Time(HRS) 0705

***	Cylinder Value (ppm)	Analyzer Response (ppm)	Difference (ppm)	Span Value (ppm)	Percent of Span
Zero gas	0	0	0	20	0
Mid level	11.1	11.0	.1	20	.50
High level	17	17.0	0	20	0

Must be within 2% of the span for each calibration gas S-420-10

INTERPOLL LABORATORIES

Calibration Error Check

Job CP/HAYWARD

Test 3 Run 6 Date 8-25-94

Operator BdB

CO ~~SO_2~~ Calibration: Time(HRS) 0700

***	Cylinder Value (ppm)	Analyzer Response (ppm)	Difference (ppm)	Span Value (ppm)	Percent of Span
Zero gas	0	1	1	250	.40
Mid level	150	148	2	250	.80
High level	249	251	2	250	.80

NO_x Calibration: Time(HRS) ________

***	Cylinder Value (ppm)	Analyzer Response (ppm)	Difference (ppm)	Span Value (ppm)	Percent of Span
Zero gas	0				
Mid level					
High level					

O_2 Calibration: Time(HRS) ________

***	Cylinder Value (ppm)	Analyzer Response (ppm)	Difference (ppm)	Span Value (ppm)	Percent of Span
Zero gas	0				
Mid level					
High level					

CO_2 Calibration: Time(HRS) ________

***	Cylinder Value (ppm)	Analyzer Response (ppm)	Difference (ppm)	Span Value (ppm)	Percent of Span
Zero gas	0				
Mid level					
High level					

Must be within 2% of the span for each calibration gas S-420-10

APPENDIX E

CALIBRATION GAS CERTIFICATION SHEETS

Interpoll Laboratories, Inc.
(612) 786-6020

CERTIFICATE OF ANALYSIS FOR MIDRANGE STANDARD GAS FOR METHOD 3A

Vendor: National Specialty Gases

Cylinder No: CC 103339

Date of Preparation: 3-11-93

Label: 17% CO_2 / 21.1% O_2 BAL NIT

Blend Specification:

Results Of Analyses Of Standard Gas (by Orsat)

Date of Analysis	Run	CO_2 (% v/v)	O_2 (% v/v)
8-11-93	1	16.99	21.21
"	2	17.12	21.24
"	3	17.15	21.23
	4		
	5		
	6		
	Avg	17.09	21.23

Analyst: Bob Aschenbach

- [x] Results are within 5% of the vendor tag value; use tag value.
- [ ] Results are not within 5% of the vendor tag value; conduct another set of triplicate analyses.
- [ ] All results within ± 5% of the average; relabel as above.
- [ ] All results not within ± 5% of the average; perform another set of triplicate analyses.

Approved by,

August 16, 1993
Date

Daniel [illegible] for
Dr. Perry Lonnes

S-424

Interpoll Laboratories, Inc.
(612) 786-6020

Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1993 -

File Name: CG5
Job Number: 3-3333
Client: Interpoll Laboratories
Location: Circle Pines, Minnesota

CC103339 - 21 02/ 17 CO2 -- Run 1 - 3

Run 1

Julian Date	Time (Hrs)	Conc. (dry basis unless noted) CO2 (%v/v)	O2 (%v/v)
223	14:52:00	16.92	21.20
223	14:52:30	16.97	21.21
223	14:53:00	17.02	21.21
223	14:53:30	17.06	21.22
223	14:54:00	11.57	17.83
223	14:54:30	0.66	0.30
223	14:55:00	0.51	0.07
223	14:55:30	0.23	0.06
223	14:56:00	-0.05	0.03
223	14:56:30	-0.08	0.02
223	14:57:00	7.89	7.95
223	14:57:30	10.83	13.52
223	14:58:00	10.87	13.53
223	14:58:30	8.03	14.65
223	14:59:00	10.90	13.04
223	14:59:30	6.44	9.14
223	15:00:00	0.11	0.10
223	15:00:30	7.95	7.39
223	15:01:00	10.84	12.69
223	15:01:30	10.74	12.72
223	15:02:00	10.81	12.45
223	15:02:30	10.82	12.42
223	15:03:00	9.40	12.47
223	15:03:30	8.80	13.64
223	15:04:00	10.97	11.88
223	15:04:30	10.97	11.87
223	15:05:00	11.02	11.86
223	15:05:30	7.05	13.43
223	15:06:00	5.08	22.18
223	15:06:30	1.71	20.09
223	15:07:00	9.59	16.19
223	15:07:30	10.81	13.92
223	15:08:00	10.99	13.56
223	15:08:30	11.01	13.56

Interpoll Laboratories, Inc.
(612) 786-6020

Printout of ESC Model 80 DAS
for CEM Trailer No. 1
- 1993 -

File Name: CG5
Job Number: 3-3333
Client: Interpoll Laboratories
Location: Circle Pines, Minnesota

CC103339 - 21 02/ 17 CO2 -- Run 1 - 3

Julian Date	Time (Hrs)		Conc. (dry basis unless noted) CO2 (%v/v)	O2 (%v/v)
223	15:09:00		15.87	18.94
223	15:09:30		17.00	21.21
223	15:10:00		17.05	21.23
223	15:10:30	Run 2	17.10	21.24
223	15:11:00		17.14	21.24
223	15:11:30		17.19	21.25
223	15:12:00		11.45	17.75
223	15:12:30		0.37	0.23
223	15:13:00		0.08	0.06
223	15:13:30		4.74	4.41
223	15:14:00		10.78	13.54
223	15:14:30		10.99	13.56
223	15:15:00		10.96	13.56
223	15:15:30		15.12	17.64
223	15:16:00		17.01	21.21
223	15:16:30		17.06	21.22
223	15:17:00		17.10	21.21
223	15:17:30		17.13	21.23
223	15:18:00	Run 3	17.17	21.24
223	15:18:30		17.21	21.25

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083-0000
PHONE: 313-589-2950 FAX:313-589-2134

8/02/91

GENEX
4018 DUNCAN AVENUE

ST LOUIS MO 63110-0000

PROJECT #: 05-26600
PO #: 4970SA

CYLINDER #: ALM008828

ANALYTICAL ACCURACY: +-2%

COMPONENT	REQUESTED CONCENTRATION		ANALYSIS 1 (MOLES)	U/M
CARBON MONOXIDE	150.0	PPM	150.	PPM
NITROGEN	BALANCE			N/A

NOTES: CERTIFIED MASTER GAS

ANALYTICAL METHOD: CMG

DATE OF ANALYSIS: 7/29/91

ANALYST: Frank P. Doran
ANALYST

APPROVED BY: J. Shapiro
SUPERVISOR

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083-0000 8/02/91
PHONE: 313-589-2950 FAX: 313-589-2134

GENEX
4018 DUNCAN AVENUE

ST LOUIS MO 63110-0000

PROJECT #: 05-26600
PO #: 4970SA

CYLINDER #: AAL19103 ANALYTICAL ACCURACY: +-2%

COMPONENT	REQUESTED CONCENTRATION		ANALYSIS 1 (MOLES)	U/M
CARBON MONOXIDE	250.0	PPM	249.	PPM
NITROGEN		BALANCE		N/A

NOTES: CERTIFIED MASTER GAS

ANALYTICAL METHOD: CMG

DATE OF ANALYSIS: 7/29/91

ANALYST: ANALYST APPROVED BY: SUPERVISOR

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083-0000 8/02/9
PHONE: 313-589-2950 FAX:313-589-2134

GENEX
4018 DUNCAN AVENUE
PROJECT #: 05-26600
PO #: 4970SA

ST LOUIS MO 63110-0000

CYLINDER #: ALM020902 ANALYTICAL ACCURACY: +-2%

COMPONENT	REQUESTED CONCENTRATION		ANALYSIS 1 (MOLES)	U/M
CARBON MONOXIDE	600.0	PPM	594.	PPM
NITROGEN		BALANCE		N/A

NOTES: CERTIFIED MASTER GAS

ANALYTICAL METHOD: CMG

DATE OF ANALYSIS: 7/29/91

ANALYST: Frank P. Cora APPROVED BY: J. Shapiro
ANALYST SUPERVISOR

APPENDIX F

GAS ANALYZER SPECIFICATIONS

INTERPOLL LABORATORIES
4500 BALL ROAD N.E.
CIRCLE PINES, MN 55014-1819
(612) 786-6020

Servomex

1420
Oxygen Analyser
Instruction Manual

Ref : 01420/001A/0

Order as part No. 01420001A

was (7982-2842)

INTERPOLL LABORATORIES
4500 BALL ROAD N.E.
CIRCLE PINES, MN 55014-1819
(612) 786-6020

SPECIFICATIONS FOR ACS MODEL 3300 CO NDIR

Measuring principle	NDIR single beam method
Operating ranges	0 - 500 ppm 0 - 1000 ppm
Reproducibility	±0.5% of full scale
Stability	Zero drift; ±% of full scale/24H Span drift; ±% of full scale/24H
Noise	0.5% of full scale
Ambient temperature	-5 to 45^{0}C
Ambient humidity	Less than 90% RH
Response time (90% of final reading)	Electrical system; 2 sec, 3 sec, 5 sec (selectable with connector) Response of actual gas; Within 15 sec (depending on cell length)
Indicator	100 linear division
Output signal	OUTPUT 1; DC 0 - 1 V OUTPUT 2; DC 0 - 10 mV or DC 0 - 100 mV or DC 0 - 1 V or DC 4 - 20 mA (Allowable load resistance 500Ω max.)
Linearity	Better than ±2% of full scale (when linearizer is used)
Power supply	AC 115 V ± 10%, 60 Hz

Power consumption	Approx. 30 VA
Materials of gas-contacting parts	Measuring cell; SUS304 Window; CaF_2 Piping; Polyethylene
Sample gas flow rate	1ℓ/min ± 0.5ℓ/min
Sample gas temperature	0 to 55°C
Purging gas flow rate	1ℓ/min (to be flowed as occasion demands)
Warmup time	Approx. 2 hours
External dimensions	200 x 250 x 541 (H x W x D) mm
Weight	Approx. 11 kg
Finish Color	MUNSELL N1.5

Remarks: For combinations of measuring ranges for the dualcomponent analyzer, inquiry should be made to the manufacturer.

APPENDIX G

CEM INSTRUMENT INFORMATION SHEETS

Interpoll Laboratories
(612)786-6020

CEM Relative Field Accuracy Certification Instrument Information Sheet

Plant Name LP/ HAYWARD

GRASEBY-STI HI-FLOW CO PROBE & EXTRACTIVE SYSTEM
Pollutant Gas Monitor Data:

Vendor TECO - THERMAL ENVIRONMENTAL INSTRUMENTS, INC

Model 48 CO ANALYZER S/N 48-47744-279

Location LINE 2 DRYER RTO STACK & SHELTER HOUSE

Gas(es): ☐ SO_2 ☐ NO_x ☒ CO

Type of System: ☐ In-situ ☒ Extractive

Installation Date JULY 22, 1994

Startup Date August 10, 1994

Data Recording System:

☐ Strip Chart Recorder ☐ Data Logger System

☒ Computer and DAS IN SHELTER HOUSE

Relative Accuracy Certification Units:

☒ ppm,dry ☐ LB/10^6BTU by O_2 F-Factor

☐ ppm,wet ☐ LB/10^6BTU by CO_2 F-Factor

Span Value (ppm):

SO_2 ______

NO_x ______

CO 500

Plant Location HAYWARD WI

FLOW & Temperature
~~Diluent~~ Monitor Data:

Vendor USI - United Sciences, Inc.

Model 100 S/N 9401656

Location LINE 2 DRYER RTO STACK

Gas: ☐ O_2 ☐ CO_2 ☒ Air Flow

Type of System: ☐ In-situ ☐ Extractive Ultrasonic

Installation Date JULY 22, 1994

Startup Date August 10, 1994

Data Recording System:

☐ Strip Chart Recorder ☐ Data Logger System

☒ Computer and DAS IN SHELTER HOUSE

Output Units:

☐ % O_2,dry ☐ % CO_2,dry ☒ Racfm *

☐ % O_2,wet ☐ % CO_2,wet ☒ °F Temperature *

Span ~~Gas~~ Values (~~% v/v~~) Racfm:

*********Oxygen********* FLOW	***Carbon Dioxide***
Low ∅	
High 120 Racfm	

* Printouts of Rcfm & temperature are actual stack data. Computer program calcs Rdscfm and CO #/HR are calculated from CO ppmd and Rdscfm (Racfm corrected for temp, pressure and % moisture content).

Bob Schultz
Signature of Person Responsible for Data

8-23-94
Date

S-253 RR-9/25

Interpoll Laboratories
(612)786-6020

CEM Relative Field Accuracy Certification Instrument Information Sheet

Plant Name CP / HAYWARD

Plant Location HAYWARD WI

Pollutant Gas Monitor Data:

Vendor Thermo Environmental Instruments Inc.

Model 48 CO ANALYZER S/N 48-47743-279

Location Line I Dryer RTO STACK & SHELTER HOUSE

Gas(es): ☐ SO_2 ☐ NO_x ☒ CO

Type of System: ☐ In-situ ☒ Extractive

Installation Date July 24, 1994

Startup Date August 10, 1994

Data Recording System:

☐ Strip Chart Recorder ☐ Data Logger System

☒ Computer

Relative Accuracy Certification Units:

☒ ppm,dry ☐ LB/10^6BTU by O_2 F-Factor

☐ ppm,wet ☐ LB/10^6BTU by CO_2 F-Factor

Span Value (ppm):

SO_2

NO_x

CO 500

FLOW & TEMPERATURE ~~Diluent~~ **Monitor Data:**

Vendor USI - United Sciences, Inc.

Model 100 S/N 9401655

Location Line 1 Dryer RTO stack

Gas: ☐ O_2 ☐ CO_2 ☒ Airflow Ultrasonic

Type of System: ☐ In-situ ☐ Extractive

Installation Date July 24, 1994

Startup Date August 10, 1994

Data Recording System:

☐ Strip Chart Recorder ☐ Data Logger System

☒ Computer

Output Units:

☐ % O_2,dry ☐ % CO_2,dry ☒ kacfm*

☐ % O_2,wet ☐ % CO_2,wet ☒ temperature-°F*

Span ~~Gas~~ Values (~~% v/v~~): kacfm

	*********~~Oxygen~~********* FLOW	***Carbon Dioxide***
Low	∅	
High	120 kacfm	

Signature of Person Responsible for Data: Bob Schultz

Date 8-24-94

S-253 RR-9/25

* Printouts of kcfm & temperature are actual stack data. Computer program calculates kdscfm and CO #/hr from CO ppmd and kdscfm (kacfm corrected to temp., pressure and % ...

G-2

page 6

LN 1 Press

Interpoll Laboratories
(612)786-6020

CEM Relative Field Accuracy Certification Instrument Information Sheet

Plant Name LP / HAYWARD

Pollutant Gas Monitor Data:

Vendor TECO - Thermo Environmental Instruments, Inc

Model 48 CO Analyzer S/N 48-48535-281

Location Line 1 PRESS RTO STACK & SHELTER HOUSE

Gas(es): ☐ SO_2 ☐ NO_x ☒ CO

Type of System: ☐ In-situ ☒ Extractive

Installation Date July 20, 1994

Startup Date August 10, 1994

Data Recording System:

☐ Strip Chart Recorder ☐ Data Logger System

☒ Computer

Relative Accuracy Certification Units:

☒ ppm,dry ☐ LB/10^6BTU by O_2 F-Factor

☐ ppm,wet ☐ LB/10^6BTU by CO_2 F-Factor

Span Value (ppm):

SO_2

NO_x

CO 100

Plant Location HAYWARD, WI

FLOW & TEMPERATURE ~~Diluent~~ Monitor Data:

Vendor USI - United Sciences, Inc.

Model 100 S/N 9401657

Location Line 1 Press RTO STACK

Gas: ☐ O_2 ☐ CO_2 ☒ Airflow - Ultrasonic

Type of System: ☐ In-situ ☐ Extractive

Installation Date July 20, 1994

Startup Date August 10, 1994

Data Recording System:

☐ Strip Chart Recorder ☐ Data Logger System

☒ Computer

Output Units:

☐ % O_2,dry ☐ % CO_2,dry ☒ kacfm *

☐ % O_2,wet ☐ % CO_2,wet ☒ temperature - °F *

Span Gas Values (% v/v):

*********~~Oxygen~~ FLOW*********	***Carbon Dioxide***
Low Ø	
High 120 kacfm	

* Printouts of kcfm & temperature are actual stack data. Computer program calculates kdscfm and CO #/hr from CO ppm dry and kdscfm = (kacfm corrected for temp., pressure and % moisture content).

Signature of Person Responsible for Data

Date 8-25-94

S-253 RR-9/25

LN 2 PRESS

Interpoll Laboratories
(612)786-6020

CEM Relative Field Accuracy Certification Instrument Information Sheet

Plant Name LP/HAYWARD

Plant Location HAYWARD, WI

Pollutant Gas Monitor Data:

Vendor TECO - Thermo Environmental Instruments, Inc

Model 48 CO Analyzer S/N 48-48536-281

Location Line 2 PRESS RTO STACK & SHELTER HOUSE

Gas(es): ☐ SO_2 ☐ NO_x ☒ CO

Type of System: ☐ In-situ ☒ Extractive

Installation Date July 25, 1994

Startup Date August 10, 1994

Data Recording System:

☐ Strip Chart Recorder ☐ Data Logger System

☒ Computer

Relative Accuracy Certification Units:

☒ ppm,dry ☐ LB/10^6BTU by O_2 F-Factor

☐ ppm,wet ☐ LB/10^6BTU by CO_2 F-Factor

Span Value (ppm):

SO_2 ______

NO_x ______

CO 100

FLOW & TEMPERATURE ~~Diluent~~ **Monitor Data:**

Vendor USI - United Sciences, Inc.

Model 100 S/N 9401658

Location Line 2 Press RTO STACK

Gas: ☐ O_2 ☐ CO_2 ☒ Airflow - Ultrasonic

Type of System: ☐ In-situ ☐ Extractive

Installation Date July 25, 1994

Startup Date August 10, 1994

Data Recording System:

☐ Strip Chart Recorder ☐ Data Logger System

☒ Computer

Output Units:

☐ % O_2,dry ☐ % CO_2,dry ☒ kacfm *

☐ % O_2,wet ☐ % CO_2,wet ☒ temperature - °F *

Span Gas Values (% v/v):

*********~~Oxygen~~********* FLOW ***Carbon Dioxide***

Low ∅ ______

High 120 kacfm ______

* Printouts of kacfm & temperature are actual stack data. Computer program calculates kdscfm and CO #/hr from CO ppmdry and kdscfm = (kacfm corrected for temp., pressure, and % moisture content.

Robert W. Schult 8-26-94

Signature of Person Responsible for Data Date

S-253 RR-9/25

APPENDIX H

CEM DATA

DAILY TEMP SUMMARY REPORT

Dryer #1 TEMP Deg-F FIFTEEN MINUTE AVERAGES
LOUISIANA PACIFIC
Hayward, WI

TODAY'S DATE: 08-24-1994
TIME: 17:57:54

REPORTING PERIOD
DAY: August 24

Period	15		30		45		60		Hr. AVG.	
	Read.	Stat.	Read.	Stat.	Read.	Stat.	Read.	Stat.	Read.	Stat
Hour 7	331.7	0	337.1	0	337.8	0	339.2	0	336.4	0
Hour 8	339.2	0	337.6	0	339.3	0	343.2	0	339.8	0
Hour 9	340.0	0	338.8	0	338.9	0	344.9	0	340.6	0
Hour 10	342.3	0	342.3	0	347.5	0	351.1	0	345.8	0
Hour 11	351.9	0	351.9	0	349.7	0	350.4	0	351.0	0
Hour 12	353.6	0	354.7	0	351.6	0	347.6	0	351.9	0
Hour 13	347.5	0	344.9	0	342.5	0	347.1	0	345.5	0
Hour 14	354.3	0	357.0	0	353.2	0	353.1	0	354.4	0
Hour 15	353.1	0	351.6	0	352.1	0	346.3	0	350.8	0
Hour 16	346.2	0	346.0	0	346.8	0	350.6	0	347.4	0
Hour 17	352.5	0	367.6	0	352.3	0	-1.0	-1	-1.0	-1
Hour 18	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 19	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 20	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 21	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 22	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 23	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 3	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 4	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 5	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 6	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0

DAILY TEMP SUMMARY REPORT

Dryer #1 TEMP Deg-F FIFTEEN MINUTE AVERAGES
LOUISIANA PACIFIC
Hayward, WI

TODAY'S DATE: 09-19-1994
TIME: 11:43:35

REPORTING PERIOD
DAY: August 24

Period	15		30		45		60		Hr. AVG.	
	Read.	Stat.	Read.	Stat.	Read.	Stat.	Read.	Stat.	Read.	Sta
Hour 7	331.7	0	337.1	0	337.8	0	339.2	0	336.4	0
Hour 8	339.2	0	337.6	0	339.3	0	343.2	0	339.8	0
Hour 9	340.0	0	338.8	0	338.9	0	344.9	0	340.6	0
Hour 10	342.3	0	342.3	0	347.5	0	351.1	0	345.8	0
Hour 11	351.9	0	351.9	0	349.7	0	350.4	0	351.0	0
Hour 12	353.6	0	354.7	0	351.6	0	347.6	0	351.9	0
Hour 13	347.5	0	344.9	0	342.5	0	347.1	0	345.5	0
Hour 14	354.3	0	357.0	0	353.2	0	353.1	0	354.4	0
Hour 15	353.1	0	351.6	0	352.1	0	346.3	0	350.8	0
Hour 16	346.2	0	346.0	0	346.8	0	350.6	0	347.4	0
Hour 17	352.5	0	367.6	0	352.3	0	325.7	0	349.5	0
Hour 18	353.8	0	355.0	0	355.3	0	353.0	0	354.3	0
Hour 19	352.2	0	349.6	0	349.0	0	350.0	0	350.2	0
Hour 20	354.1	0	352.5	0	350.8	0	352.8	0	352.6	0
Hour 21	343.6	0	327.8	0	323.2	0	318.2	0	328.2	0
Hour 22	309.2	0	322.1	0	324.7	0	325.0	0	320.3	0
Hour 23	336.0	0	340.7	0	348.7	0	352.0	0	344.4	0
Hour 0	352.0	0	352.4	0	351.8	0	342.6	0	349.7	0
Hour 1	346.9	0	354.4	0	350.9	0	344.8	0	349.3	0
Hour 2	334.5	0	335.5	0	346.7	0	338.4	0	338.8	0
Hour 3	338.4	0	355.1	0	360.6	0	362.3	0	354.1	0
Hour 4	360.5	0	358.8	0	358.8	0	358.8	0	359.2	0
Hour 5	343.8	0	346.1	0	343.6	0	339.0	0	343.1	0
Hour 6	337.0	0	341.9	0	340.9	0	340.6	0	340.1	0

DAILY CO SUMMARY REPORT

Dryer #1 CO ppm FIFTEEN MINUTE AVERAGES
LOUISIANA PACIFIC
Hayward, WI

TODAY'S DATE: 08-24-1994
TIME: 17:56:19

REPORTING PERIOD
DAY: August 24

Period	15		30		45		60		Hr. AVG.	
	Read.	Stat.	Read.	Stat.	Read.	Stat.	Read.	Stat.	Read.	Stat
Hour 7	237.2	0	265.0	0	242.2	0	367.2	0	277.9	0
Hour 8	281.9	0	271.1	0	451.2	0	307.8	0	328.0	0
Hour 9	292.9	0	420.7	0	354.3	0	337.0	0	351.2	0
Hour 10	452.2	0	491.7	0	430.7	0	462.7	0	459.3	0
Hour 11	460.8	0	395.9	0	427.4	0	480.6	0	441.2	0
Hour 12	419.4	0	319.3	0	289.1	0	215.7	0	310.9	0
Hour 13	195.8	0	188.9	0	287.9	0	476.4	0	287.2	0
Hour 14	498.1	0	384.6	0	114.1	0	83.3	0	270.0	0
Hour 15	109.6	0	201.4	0	224.1	0	140.7	0	168.9	0
Hour 16	158.9	0	136.1	0	195.8	0	334.8	0	206.4	0
Hour 17	390.7	0	418.3	0	48.4	0	-1.0	-1	-1.0	-1
Hour 18	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 19	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 20	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 21	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 22	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 23	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 3	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 4	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 5	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 6	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0

DAILY CO SUMMARY REPORT

Dryer #1 CO ppm FIFTEEN MINUTE AVERAGES
LOUISIANA PACIFIC
Hayward, WI

TODAY'S DATE: 09-19-1994
TIME: 11:43:06

REPORTING PERIOD
DAY: August 24

Period	15 Read.	15 Stat.	30 Read.	30 Stat.	45 Read.	45 Stat.	60 Read.	60 Stat.	Hr. AVG. Read.	Hr. AVG. Stat
Hour 7	237.2	0	265.0	0	242.2	0	367.2	0	277.9	0
Hour 8	281.9	0	271.1	0	451.2	0	307.8	0	328.0	0
Hour 9	292.9	0	420.7	0	354.3	0	337.0	0	351.2	0
Hour 10	452.2	0	491.7	0	430.7	0	462.7	0	459.3	0
Hour 11	460.8	0	395.9	0	427.4	0	480.6	0	441.2	0
Hour 12	419.4	0	319.3	0	289.1	0	215.7	0	310.9	0
Hour 13	195.8	0	188.9	0	287.9	0	476.4	0	287.2	0
Hour 14	498.1	0	384.6	0	114.1	0	83.3	0	270.0	0
Hour 15	109.6	0	201.4	0	224.1	0	140.7	0	168.9	0
Hour 16	158.9	0	136.1	0	195.8	0	334.8	0	206.4	0
Hour 17	390.7	0	418.3	0	48.4	0	354.3	0	302.9	0
Hour 18	365.1	0	301.1	0	221.2	0	193.4	0	270.2	0
Hour 19	176.8	0	169.6	0	223.3	0	217.4	0	196.8	0
Hour 20	196.1	0	141.2	0	216.4	0	306.0	0	214.9	0
Hour 21	57.6	0	29.8	0	11.7	0	8.8	0	27.0	0
Hour 22	264.9	0	473.0	0	403.1	0	312.5	0	363.4	0
Hour 23	305.2	0	294.8	0	411.2	0	498.9	0	377.5	0
Hour 0	390.9	0	311.8	0	163.5	0	125.1	0	247.8	0
Hour 1	376.7	0	430.7	0	291.5	0	152.4	0	312.8	0
Hour 2	88.4	0	314.3	0	139.1	0	247.1	0	197.2	0
Hour 3	485.3	0	498.0	0	498.8	0	498.8	0	495.2	0
Hour 4	276.1	0	245.8	0	228.6	0	137.2	0	221.9	0
Hour 5	202.9	0	204.2	0	132.4	0	112.4	0	163.0	0
Hour 6	122.7	0	111.1	0	117.1	0	207.3	0	139.5	0

DAILY FLOW SUMMARY REPORT

Dryer #1 FLOW kcfm FIFTEEN MINUTE AVERAGES
LOUISIANA PACIFIC
Hayward, WI

TODAY'S DATE: 08-24-1994
TIME: 17:57:03

REPORTING PERIOD
DAY: August 24

Period	15 Read.	15 Stat.	30 Read.	30 Stat.	45 Read.	45 Stat.	60 Read.	60 Stat.	Hr. AVG. Read.	Hr. AVG. Stat
Hour 7	115.3	0	114.4	0	115.6	0	114.6	0	115.0	0
Hour 8	116.0	0	113.3	0	113.8	0	115.4	0	114.6	0
Hour 9	115.7	0	114.5	0	114.9	0	113.8	0	114.7	0
Hour 10	115.1	0	116.2	0	115.3	0	115.6	0	115.5	0
Hour 11	115.5	0	114.7	0	116.2	0	117.7	0	116.0	0
Hour 12	116.4	0	118.5	0	116.3	0	116.2	0	116.9	0
Hour 13	117.2	0	117.4	0	118.5	0	118.3	0	117.9	0
Hour 14	118.2	0	117.4	0	118.7	0	119.2	0	118.4	0
Hour 15	118.7	0	117.3	0	117.9	0	118.6	0	118.1	0
Hour 16	119.0	0	119.0	0	119.3	0	118.1	0	118.8	0
Hour 17	117.1	0	116.2	0	115.5	0	-1.0	-1	-1.0	-1
Hour 18	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 19	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 20	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 21	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 22	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 23	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 3	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 4	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 5	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 6	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0

DAILY FLOW SUMMARY REPORT

Dryer #1 FLOW kcfm FIFTEEN MINUTE AVERAGES
LOUISIANA PACIFIC
Hayward, WI

TODAY'S DATE: 09-19-1994
TIME: 11:43:20

REPORTING PERIOD
DAY: August 24

Period	15 Read.	15 Stat.	30 Read.	30 Stat.	45 Read.	45 Stat.	60 Read.	60 Stat.	Hr. AVG. Read.	Hr. AVG. Sta
Hour 7	115.3	0	114.4	0	115.6	0	114.6	0	115.0	0
Hour 8	116.0	0	113.3	0	113.8	0	115.4	0	114.6	0
Hour 9	115.7	0	114.5	0	114.9	0	113.8	0	114.7	0
Hour 10	115.1	0	116.2	0	115.3	0	115.6	0	115.5	0
Hour 11	115.5	0	114.7	0	116.2	0	117.7	0	116.0	0
Hour 12	116.4	0	118.5	0	116.3	0	116.2	0	116.9	0
Hour 13	117.2	0	117.4	0	118.5	0	118.3	0	117.9	0
Hour 14	118.2	0	117.4	0	118.7	0	119.2	0	118.4	0
Hour 15	118.7	0	117.3	0	117.9	0	118.6	0	118.1	0
Hour 16	119.0	0	119.0	0	119.3	0	118.1	0	118.8	0
Hour 17	117.1	0	116.2	0	115.5	0	118.5	0	116.8	0
Hour 18	117.5	0	118.7	0	120.9	0	120.5	0	119.4	0
Hour 19	121.5	0	122.0	0	120.6	0	120.6	0	121.2	0
Hour 20	119.2	0	120.3	0	119.8	0	118.4	0	119.4	0
Hour 21	117.2	0	121.5	0	122.0	0	123.3	0	121.0	0
Hour 22	122.8	0	120.2	0	119.8	0	116.9	0	119.9	0
Hour 23	118.9	0	119.2	0	119.2	0	120.5	0	119.5	0
Hour 0	119.9	0	119.9	0	121.6	0	119.7	0	120.3	0
Hour 1	119.9	0	116.6	0	117.1	0	117.8			

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Sector not found error reading file
REPORT1.TMP

DAILY SUMMARY REPORT
Dryer #1 HOURLY AVERAGES
LOUISIANA PACIFIC
Hayward, WI

REPORTING PERIOD August 24

Period	CO ppm	FLOW kcfm	TEMP Deg-F	CO #/HR
7:00 to 8:00	277.9	115.0	336.4	66.5
8:00 to 9:00	328.0	114.6	339.8	77.9
9:00 to 10:00	351.2	114.7	340.6	83.4
10:00 to 11:00	459.3	115.5	345.8	109.2
11:00 to 12:00	441.2	116.0	351.0	104.6
12:00 to 13:00	310.9	116.9	351.9	74.2
13:00 to 14:00	287.2	117.9	345.5	69.7
14:00 to 15:00	270.0	118.4	354.4	65.1
15:00 to 16:00	168.9	118.1	350.8	40.8
16:00 to 17:00	206.4	118.8	347.4	50.4
17:00 to 18:00	302.9	116.8	349.5	72.5
18:00 to 19:00	270.2	119.4	354.3	65.7
19:00 to 20:00	196.8	121.2	350.2	48.8
20:00 to 21:00	214.9	119.4	352.6	52.4
21:00 to 22:00	27.0	121.0	328.2	6.9
22:00 to 23:00	363.4	119.9	320.3	92.6
23:00 to 24:00	377.5	119.5	344.4	93.0
0:00 to 1:00	247.8	120.3	349.7	61.0
1:00 to 2:00	312.8	117.9	349.3	75.5
2:00 to 3:00	197.2	118.2	338.8	48.4
3:00 to 4:00	495.2	118.7	354.1	119.7
4:00 to 5:00	221.9	119.1	359.2	53.5
5:00 to 6:00	163.0	118.5	343.1	39.9
6:00 to 7:00	139.5	118.6	340.1	34.3

Averages

7:00 to 19:00	306.2	116.9	347.3	73.5
19:00 to 7:00	246.4	119.4	344.2	60.6
7:00 to 7:00	276.3	118.1	345.7	67.1

* Bad data not used for averages.

DAILY OPAC SUMMARY REPORT

Dryer #1 OPAC pct SIX MINUTE AVERAGES
LOUISIANA PACIFIC
Hayward, WI

TODAY'S DATE: 09-19-1994
TIME: 11:43:51

REPORTING PERIOD
DAY: August 24

Period	6	12	18	24	30	36	42	48	54	60
Hr 7	1.1 0	1.0 0	1.0 0	1.1 0	1.1 0	1.1 0	1.2 0	1.3 0	1.4 0	1.4 0
Hr 8	1.4 0	1.3 0	1.2 0	1.4 0	1.4 0	1.5 0	1.6 0	1.4 0	1.3 0	1.3 0
Hr 9	1.3 0	1.3 0	1.6 0	1.4 0	1.6 0	1.3 0	1.6 0	1.7 0	1.6 0	1.3 0
Hr 10	1.5 0	1.7 0	1.6 0	1.7 0	1.7 0	1.7 0	1.5 0	1.9 0	1.7 0	1.9 0
Hr 11	1.7 0	1.6 0	1.7 0	1.7 0	1.5 0	1.6 0	1.6 0	1.5 0	1.7 0	1.8 0
Hr 12	1.6 0	1.8 0	1.5 0	1.5 0	1.4 0	1.4 0	1.4 0	1.4 0	1.3 0	1.3 0
Hr 13	1.3 0	1.2 0	1.2 0	1.1 0	1.2 0	1.2 0	1.4 0	1.6 0	1.7 0	1.7 0
Hr 14	1.7 0	1.7 0	1.7 0	1.6 0	1.2 0	1.1 0	0.9 0	0.9 0	0.8 0	0.8 0
Hr 15	0.9 0	0.9 0	0.9 0	1.0 0	1.1 0	1.1 0	1.0 0	1.0 0	1.0 0	1.1 0
Hr 16	0.9 0	0.9 0	0.9 0	0.9 0	0.8 0	0.9 0	0.9 0	0.9 0	1.0 0	1.1 0
Hr 17	1.1 0	1.1 0	1.4 0	1.2 0	1.2 0	1.1 0	1.7 0	1.5 0	1.3 0	1.4 0
Hr 18	1.3 0	1.3 0	1.2 0	1.2 0	1.1 0	1.1 0	1.1 0	1.1 0	1.1 0	1.0 0
Hr 19	1.0 0	1.0 0	0.8 0	0.8 0	0.8 0	0.8 0	0.9 0	0.9 0	0.9 0	0.9 0
Hr 20	1.0 0	0.8 0	0.7 0	0.8 0	0.8 0	0.9 0	0.9 0	1.0 0	1.1 0	1.1 0
Hr 21	0.9 0	0.9 0	1.0 0	1.0 0	1.3 0	1.3 0	1.3 0	1.3 0	1.3 0	1.4 0
Hr 22	1.4 0	1.9 0	2.5 0	2.5 0	2.5 0	2.1 0	1.8 0	1.6 0	1.5 0	1.3 0
Hr 23	1.3 0	1.3 0	1.3 0	1.4 0	1.3 0	1.4 0	1.4 0	1.5 0	1.5 0	1.3 0
Hr 0	1.3 0	1.3 0	1.2 0	1.1 0	1.0 0	1.0 0	0.9 0	0.8 0	0.8 0	1.0 0
Hr 1	1.3 0	1.5 0	1.4 0	1.4 0	1.3 0	1.3 0	1.1 0	1.1 0	1.0 0	1.0 0
Hr 2	0.9 0	0.9 0	0.9 0	1.2 0	1.2 0	1.0 0	0.9 0	0.9 0	1.0 0	1.4 0
Hr 3	1.6 0	1.8 0	1.7 0	1.7 0	1.8 0	1.9 0	1.9 0	1.9 0	2.1 0	1.9 0
Hr 4	1.6 0	1.4 0	1.4 0	1.3 0	1.1 0	1.1 0	1.1 0	1.1 0	1.0 0	0.9 0
Hr 5	1.0 0	1.1 0	1.3 0	1.2 0	1.2 0	1.1 0	1.0 0	0.9 0	0.9 0	1.0 0
Hr 6	1.0 0	1.0 0	0.9 0	0.8 0	0.8 0	0.8 0	0.9 0	0.9 0	1.0 0	1.1 0

TOTAL NUMBER OF MINUTES ABOVE 20 0
NUMBER OF SIX MINUTE EXCURSIONS: 0

TOTAL NUMBER OF MINUTES ABOVE 30 0
NUMBER OF SIX MINUTE EXCURSIONS: 0

DAILY TEMP SUMMARY REPORT

Dryer #2 TEMP Deg-F FIFTEEN MINUTE AVERAGES
LOUISIANA PACIFIC
Hayward, WI

TODAY'S DATE: 08-23-1994
TIME: 18:04:50

REPORTING PERIOD
DAY: August 23

Period	15 Read.	15 Stat.	30 Read.	30 Stat.	45 Read.	45 Stat.	60 Read.	60 Stat.	Hr. AVG. Read.	Hr. AVG. Stat
Hour 7	311.4	64	311.6	64	313.6	0	310.5	0	312.1	0
Hour 8	312.0	0	311.3	0	308.6	0	310.3	0	310.5	0
Hour 9	312.0	0	316.4	0	315.4	0	311.8	0	313.9	0
Hour 10	310.7	0	301.3	0	307.6	0	306.4	0	306.5	0
Hour 11	302.3	0	306.4	0	313.0	0	312.9	0	308.6	0
Hour 12	312.6	0	315.4	0	314.4	0	317.0	0	314.9	0
Hour 13	322.7	0	320.0	0	317.6	0	320.6	0	320.2	0
Hour 14	319.5	0	317.7	0	317.6	0	320.6	0	318.8	0
Hour 15	317.7	0	317.9	0	316.1	0	316.8	0	317.1	0
Hour 16	319.7	0	319.6	0	321.6	0	323.3	0	321.0	0
Hour 17	322.0	0	324.8	0	323.8	0	322.0	0	323.2	0
Hour 18	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 19	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 20	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 21	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 22	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 23	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 3	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 4	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 5	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 6	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0

DAILY CO SUMMARY REPORT

Dryer #2 CO ppm FIFTEEN MINUTE AVERAGES
LOUISIANA PACIFIC
Hayward, WI

TODAY'S DATE: 08-23-1994
TIME: 18:00:59

REPORTING PERIOD
DAY: August 23

Period	15		30		45		60		Hr. AVG.	
	Read.	Stat.	Read.	Stat.	Read.	Stat.	Read.	Stat.	Read.	Sta
Hour 7	280.7	68	-1.0	196	-1.0	0	450.2	0	224.6	0
Hour 8	421.7	0	270.7	0	251.7	0	298.7	0	310.7	0
Hour 9	371.9	0	452.6	0	349.8	0	164.0	0	334.6	0
Hour 10	168.6	0	190.9	0	267.8	0	304.6	0	233.0	0
Hour 11	143.3	0	266.4	0	348.7	0	265.8	0	256.0	0
Hour 12	335.7	0	349.5	0	436.2	0	500.0	0	405.3	0
Hour 13	421.4	0	436.1	0	441.0	0	411.7	0	427.6	0
Hour 14	424.2	0	416.6	0	303.9	0	325.5	0	367.6	0
Hour 15	352.6	0	361.7	0	340.9	0	335.6	0	347.7	0
Hour 16	396.2	0	368.6	0	408.1	0	390.8	0	390.9	0
Hour 17	419.1	0	428.4	0	449.6	0	420.5	0	429.4	0
Hour 18	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 19	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 20	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 21	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 22	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 23	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 0	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 2	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 3	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 4	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 5	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 6	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1

DAILY SUMMARY REPORT
Dryer #2 HOURLY AVERAGES
LOUISIANA PACIFIC
Hayward, WI

REPORTING PERIOD August 23

Period	CO ppm	FLOW kcfm	TEMP Deg-F	CO #/HR
:00 to 8:00	224.6	124.3	312.1	59.9
8:00 to 9:00	310.7	123.9	310.5	82.8
:00 to 10:00	334.6	124.5	313.9	89.2
1 :00 to 11:00	233.0	124.3	306.5	62.7
1:00 to 12:00	256.0	124.5	308.6	68.7
:00 to 13:00	405.3	125.5	314.9	%108.9
1 :00 to 14:00	427.6	125.2	320.2	%113.8
14:00 to 15:00	367.6	125.9	318.8	98.5
5:00 to 16:00	347.7	124.1	317.1	92.1
:00 to 17:00	390.9	124.5	321.0	%103.3
1 :00 to 18:00	429.4	126.0	323.2	%114.5
8:00 to 19:00	388.2	125.5	318.5	%103.8
:00 to 20:00	416.8	126.3	320.0	%111.9
:00 to 21:00	383.5	126.9	319.4	%103.5
1:00 to 22:00	422.0	126.2	320.8	%113.1
:00 to 23:00	324.6	125.2	315.8	86.9
:00 to 24:00	314.8	124.7	311.7	84.3
:00 to 1:00	310.4	125.1	312.0	83.4
1:00 to 2:00	385.7	126.9	312.4	%105.0
:00 to 3:00	422.3	125.3	312.4	%113.6
:00 to 4:00	360.6	125.5	311.9	97.2
4:00 to 5:00	273.8	125.0	309.1	73.8
:00 to 6:00	231.8	125.4	306.1	62.9
:00 to 7:00	308.6	126.9	313.9	83.9
erages				
:00 to 19:00	343.0	124.9	315.5	91.5
9:00 to 7:00	346.2	125.8	313.8	93.3
:00 to 7:00	344.6	125.3	314.6	92.4

Bad data not used for averages.

DAILY FLOW SUMMARY REPORT

Dryer #2 FLOW kcfm FIFTEEN MINUTE AVERAGES
LOUISIANA PACIFIC
Hayward, WI

TODAY'S DATE: 08-23-1994 REPORTING PERIOD
TIME: 18:03:18 DAY: August 23

Period	15		30		45		60		Hr. AVG.	
	Read.	Stat.	Read.	Stat.	Read.	Stat.	Read.	Stat.	Read.	Stat
Hour 7	126.0	64	126.6	64	125.4	0	123.2	0	124.3	0
Hour 8	123.5	0	124.4	0	123.7	0	124.1	0	123.9	0
Hour 9	125.5	0	125.4	0	124.7	0	122.4	0	124.5	0
Hour 10	124.5	0	125.2	0	123.9	0	123.7	0	124.3	0
Hour 11	123.3	0	123.9	0	124.8	0	125.8	0	124.5	0
Hour 12	123.7	0	126.7	0	124.9	0	126.8	0	125.5	0
Hour 13	124.5	0	125.1	0	126.4	0	124.9	0	125.2	0
Hour 14	126.8	0	127.1	0	125.6	0	124.0	0	125.9	0
Hour 15	123.4	0	124.3	0	124.2	0	124.5	0	124.1	0
Hour 16	123.6	0	124.3	0	126.6	0	123.3	0	124.5	0
Hour 17	124.6	0	125.6	0	127.7	0	126.2	0	126.0	0
Hour 18	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 19	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 20	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 21	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 22	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 23	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 0	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 2	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 3	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 4	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 5	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 6	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1

DAILY SUMMARY REPORT
Press #1 HOURLY AVERAGES
LOUISIANA PACIFIC
Hayward, WI

REPORTING PERIOD August 25

[illegible]od	CO ppm	FLOW kcfm	TEMP Deg-F	CO #/HR
[illegible] to 8:00	13.9	87.7	230.0	3.8
[illegible] to 9:00	15.5	87.5	235.1	4.2
9:00 to 10:00	14.4	88.3	237.8	3.9
[illegible] to 11:00	14.9	88.5	239.4	4.0
[illegible] to 12:00	10.4	87.9	245.3	2.8
12:00 to 13:00	14.6	89.6	246.3	4.0
[illegible]:00 to 14:00	14.4	88.9	248.3	3.9
[illegible] to 15:00	13.2	88.7	246.9	3.5
15[illegible] to 16:00	14.4	87.9	247.4	3.8
16:00 to 17:00	15.0	87.4	248.3	4.0
[illegible] to 18:00	0.0*	0.0*	0.0*	0.0*
[illegible] to 19:00	0.0*	0.0*	0.0*	0.0*
19:00 to 20:00	0.0*	0.0*	0.0*	0.0*
[illegible] to 21:00	0.0*	0.0*	0.0*	0.0*
[illegible] to 22:00	0.0*	0.0*	0.0*	0.0*
22:00 to 23:00	0.0*	0.0*	0.0*	0.0*
[illegible]00 to 24:00	0.0*	0.0*	0.0*	0.0*
[illegible] to 1:00	0.0*	0.0*	0.0	0.0*
[illegible] to 2:00	0.0*	0.0*	0.0	0.0*
2:00 to 3:00	0.0*	0.0*	0.0	0.0*
[illegible] to 4:00	0.0*	0.0*	0.0	0.0*
[illegible] to 5:00	0.0*	0.0*	0.0	0.0*
5:00 to 6:00	0.0*	0.0*	0.0	0.0*
[illegible] to 7:00	0.0*	0.0*	0.0	0.0*

Averages

[illegible] to 19:00	14.0	88.2	242.5	3.8
19[illegible] to 7:00	0.0	0.0	0.0	0.0
7:00 to 7:00	14.0	88.2	142.6	4.4

[illegible] data not used for averages.

DAILY TEMP SUMMARY REPORT

Press #1 TEMP Deg-F FIFTEEN MINUTE AVERAGES
LOUISIANA PACIFIC
Hayward, WI

TODAY'S DATE: 08-25-1994
TIME: 17:38:54

REPORTING PERIOD
DAY: August 25

Period	15		30		45		60		Hr. AVG.	
	Read.	Stat.	Read.	Stat.	Read.	Stat.	Read.	Stat.	Read.	Sta
Hour 7	230.1	0	229.4	0	229.9	0	230.5	0	230.0	0
Hour 8	233.7	0	234.5	0	235.5	0	236.6	0	235.1	0
Hour 9	236.7	0	238.1	0	238.2	0	238.2	0	237.8	0
Hour 10	238.2	0	238.2	0	238.2	0	242.9	0	239.4	0
Hour 11	242.7	0	245.0	0	246.8	0	246.8	0	245.3	0
Hour 12	245.1	0	245.1	0	247.2	0	247.6	0	246.3	0
Hour 13	248.3	0	248.4	0	248.3	0	248.4	0	248.3	0
Hour 14	247.7	0	246.5	0	246.2	0	247.2	0	246.9	0
Hour 15	247.3	0	247.4	0	248.1	0	247.0	0	247.4	0
Hour 16	248.0	0	248.5	0	248.6	0	248.2	0	248.3	0
Hour 17	248.7	0	249.2	0	-1.0	-1	-1.0	-1	-1.0	-1
Hour 18	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 19	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 20	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 21	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 22	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 23	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 3	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 4	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 5	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 6	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0

DAILY CO SUMMARY REPORT

Press #1 CO ppm FIFTEEN MINUTE AVERAGES
LOUISIANA PACIFIC
Hayward, WI

TODAY'S DATE: 08-25-1994
TIME: 17:38:24

REPORTING PERIOD
DAY: August 25

Period	15		30		45		60		Hr. AVG.	
	Read.	Stat.	Read.	Stat.	Read.	Stat.	Read.	Stat.	Read.	Sta
Hour 7	12.2	0	14.5	0	13.8	0	15.2	0	13.9	0
Hour 8	16.3	0	16.1	0	14.7	0	15.0	0	15.5	0
Hour 9	14.6	0	14.5	0	13.1	0	15.3	0	14.4	0
Hour 10	14.9	0	15.0	0	14.4	0	15.2	0	14.9	0
Hour 11	6.9	0	4.3	0	15.2	0	15.0	0	10.4	0
Hour 12	14.5	0	13.8	0	14.4	0	15.5	0	14.6	0
Hour 13	14.5	0	14.0	0	13.9	0	15.1	0	14.4	0
Hour 14	13.8	0	14.4	0	14.6	0	9.9	0	13.2	0
Hour 15	14.5	0	13.9	0	14.7	0	14.5	0	14.4	0
Hour 16	15.2	0	15.1	0	14.4	0	15.1	0	15.0	0
Hour 17	15.6	0	15.1	0	-1.0	-1	-1.0	-1	-1.0	-1
Hour 18	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 19	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 20	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 21	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 22	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 23	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 0	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 2	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 3	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 4	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 5	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 6	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1

DAILY FLOW SUMMARY REPORT

Press #1 FLOW kcf* FIFTEEN MINUTE AVERAGES
LOUISIANA PACIFIC
Hayward, WI

TODAY'S DATE: 08-25-1994
TIME: 17:39:34

REPORTING PERIOD
DAY: August 25

Period	15 Read.	15 Stat.	30 Read.	30 Stat.	45 Read.	45 Stat.	60 Read.	60 Stat.	Hr. AVG. Read.	Hr. AVG. Stat
Hour 7	87.5	0	86.2	0	88.5	0	88.7	0	87.7	0
Hour 8	87.3	0	87.5	0	87.5	0	87.8	0	87.5	0
Hour 9	88.8	0	88.2	0	87.9	0	88.2	0	88.3	0
Hour 10	89.0	0	87.0	0	89.0	0	88.9	0	88.5	0
Hour 11	87.9	0	87.6	0	87.4	0	88.9	0	87.9	0
Hour 12	88.5	0	89.6	0	90.0	0	90.3	0	89.6	0
Hour 13	90.6	0	87.4	0	88.1	0	89.3	0	88.9	0
Hour 14	88.3	0	89.2	0	89.8	0	87.5	0	88.7	0
Hour 15	87.7	0	87.9	0	88.0	0	87.9	0	87.9	0
Hour 16	87.6	0	87.6	0	87.1	0	87.3	0	87.4	0
Hour 17	87.9	0	87.1	0	-1.0	-1	-1.0	-1	-1.0	-1
Hour 18	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 19	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 20	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 21	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 22	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 23	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 0	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0			

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Sector not found error reading file
REPORT2.TMP

DAILY CO SUMMARY REPORT

Press #2 CO ppm FIFTEEN MINUTE AVERAGES
LOUISIANA PACIFIC
Hayward, WI

TODAY'S DATE: 08-26-1994
TIME: 17:37:24

REPORTING PERIOD
DAY: August 26

Period	15		30		45		60		Hr. AVG.	
	Read.	Stat.	Read.	Stat.	Read.	Stat.	Read.	Stat.	Read.	Sta
Hour 7	5.1	0	10.6	0	10.9	0	10.6	0	9.3	0
Hour 8	9.4	0	10.7	0	10.2	0	6.1	0	9.1	0
Hour 9	10.4	0	11.3	0	12.5	0	13.1	0	11.8	0
Hour 10	11.6	128	-1.0	128	11.6	0	11.4	0	11.5	0
Hour 11	11.8	0	11.0	0	11.1	0	11.8	0	11.4	0
Hour 12	12.1	0	11.2	0	11.0	0	12.3	0	11.7	0
Hour 13	11.5	0	11.0	0	11.4	0	11.2	0	11.3	0
Hour 14	11.1	0	11.8	0	11.0	0	11.5	0	11.4	0
Hour 15	11.1	0	11.6	0	11.9	0	11.5	0	11.5	0
Hour 16	11.2	0	11.0	0	11.1	0	10.3	0	10.9	0
Hour 17	11.1	0	11.1	0	-1.0	-1	-1.0	-1	-1.0	-1
Hour 18	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 19	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 20	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 21	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 22	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 23	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 0	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 2	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 3	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 4	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 5	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 6	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1

DAILY CO SUMMARY REPORT

Press #2 CO ppm FIFTEEN MINUTE AVERAGES
LOUISIANA PACIFIC
Hayward, WI

TODAY'S DATE: 09-19-1994
TIME: 11:17:15

REPORTING PERIOD
DAY: August 26

Period	15		30		45		60		Hr. AVG.	
	Read.	Stat.	Read.	Stat.	Read.	Stat.	Read.	Stat.	Read.	Sta
Hour 7	5.1	0	10.6	0	10.9	0	10.6	0	9.3	0
Hour 8	9.4	0	10.7	0	10.2	0	6.1	0	9.1	0
Hour 9	10.4	0	11.3	0	12.5	0	13.1	0	11.8	0
Hour 10	11.6	128	-1.0	128	11.6	0	11.4	0	11.5	0
Hour 11	11.8	0	11.0	0	11.1	0	11.8	0	11.4	0
Hour 12	12.1	0	11.2	0	11.0	0	12.3	0	11.7	0
Hour 13	11.5	0	11.0	0	11.4	0	11.2	0	11.3	0
Hour 14	11.1	0	11.8	0	11.0	0	11.5	0	11.4	0
Hour 15	11.1	0	11.6	0	11.9	0	11.5	0	11.5	0
Hour 16	11.2	0	11.0	0	11.1	0	10.3	0	10.9	0
Hour 17	11.1	0	11.1	0	11.4	0	11.0	0	11.2	0
Hour 18	11.0	0	10.2	0	9.9	0	9.6	0	10.2	0
Hour 19	6.3	0	4.3	0	9.1	0	8.0	0	6.9	0
Hour 20	9.6	0	10.2	0	10.7	0	11.7	0	10.6	0
Hour 21	10.9	0	8.2	0	10.4	0	10.6	0	10.0	0
Hour 22	10.3	0	11.1	0	10.8	0	11.3	0	10.9	0
Hour 23	11.5	0	12.2	0	12.1	0	11.4	0	11.8	0
Hour 0	12.5	0	12.2	0	12.3	0	11.8	0	12.2	0
Hour 1	11.6	0	12.6	0	12.2	0	12.6	0	12.2	0
Hour 2	12.1	0	12.4	0	12.7	0	12.7	0	12.5	0
Hour 3	12.5	0	12.2	0	12.9	0	12.8	0	12.6	0
Hour 4	12.2	0	11.9	0	12.3	0	12.1	0	12.1	0
Hour 5	13.0	0	12.8	0	11.9	0	13.2	0	12.7	0
Hour 6	11.9	0	11.5	0	11.6	0	11.8	0	11.7	0

DAILY FLOW SUMMARY REPORT

Press #2 FLOW kcfm FIFTEEN MINUTE AVERAGES
LOUISIANA PACIFIC
Hayward, WI

TODAY'S DATE: 08-26-1994 REPORTING PERIOD
TIME: 17:38:25 DAY: August 26

Period	15 Read.	15 Stat.	30 Read.	30 Stat.	45 Read.	45 Stat.	60 Read.	60 Stat.	Hr. AVG. Read.	Hr. AVG. Sta
Hour 7	96.4	0	96.7	0	90.7	0	95.7	0	94.9	0
Hour 8	99.3	0	97.3	0	97.6	0	96.5	0	97.7	0
Hour 9	97.4	0	99.4	0	97.2	0	97.9	0	98.0	0
Hour 10	97.8	0	99.0	0	100.6	0	102.5	0	100.0	0
Hour 11	96.4	0	97.4	0	96.9	0	101.4	0	98.0	0
Hour 12	102.2	0	94.5	0	96.0	0	95.8	0	97.1	0
Hour 13	97.3	0	100.5	0	99.6	0	101.6	0	99.8	0
Hour 14	101.3	0	101.3	0	101.1	0	100.4	0	101.0	0
Hour 15	100.5	0	100.2	0	98.9	0	101.8	0	100.4	0
Hour 16	102.3	0	102.1	0	100.5	0	97.5	0	100.6	0
Hour 17	98.3	0	97.7	0	-1.0	-1	-1.0	-1	-1.0	-1
Hour 18	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 19	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 20	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 21	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 22	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 23	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 0	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 2	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 3	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 4	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 5	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 6	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1

DAILY FLOW SUMMARY REPORT

Press #2 FLOW kcfm FIFTEEN MINUTE AVERAGES
LOUISIANA PACIFIC
Hayward, WI

TODAY'S DATE: 09-19-1994
TIME: 11:17:49

REPORTING PERIOD
DAY: August 26

Period	15 Read.	15 Stat.	30 Read.	30 Stat.	45 Read.	45 Stat.	60 Read.	60 Stat.	Hr. AVG. Read.	Hr. AVG. Sta
Hour 7	96.4	0	96.7	0	90.7	0	95.7	0	94.9	0
Hour 8	99.3	0	97.3	0	97.6	0	96.5	0	97.7	0
Hour 9	97.4	0	99.4	0	97.2	0	97.9	0	98.0	0
Hour 10	97.8	0	99.0	0	100.6	0	102.5	0	100.0	0
Hour 11	96.4	0	97.4	0	96.9	0	101.4	0	98.0	0
Hour 12	102.2	0	94.5	0	96.0	0	95.8	0	97.1	0
Hour 13	97.3	0	100.5	0	99.6	0	101.6	0	99.8	0
Hour 14	101.3	0	101.3	0	101.1	0	100.4	0	101.0	0
Hour 15	100.5	0	100.2	0	98.9	0	101.8	0	100.4	0
Hour 16	102.3	0	102.1	0	100.5	0	97.5	0	100.6	0
Hour 17	98.3	0	97.7	0	100.9	0	100.3	0	99.3	0
Hour 18	95.5	0	93.3	0	94.7	0	96.9	0	95.1	0
Hour 19	96.2	0	96.1	0	100.7	0	100.2	0	98.3	0
Hour 20	100.4	0	100.4	0	98.9	0	93.8	0	98.4	0
Hour 21	97.6	0	97.7	0	97.7	0	101.5	0	98.6	0
Hour 22	101.4	0	98.3	0	99.6	0	98.9	0	99.5	0
Hour 23	97.3	0	97.2	0	95.0	0	93.8	0	95.8	0
Hour 0	95.2	0	94.6	0	93.1	0	96.5	0	94.9	0
Hour 1	97.7	0	96.0	0	100.6	0	97.7	0	98.0	0
Hour 2	94.2	0	100.8	0	101.1	0	101.2	0	99.3	0
Hour 3	98.8	0	97.9	0	99.0	0	101.6	0	99.3	0
Hour 4	101.1	0	97.8	0	93.7	0	93.4	0	96.5	0
Hour 5	99.5	0	96.2	0	94.2	0	94.8	0	96.2	0
Hour 6	98.2	0	101.3	0	102.5	0	102.7	0	101.2	0

DAILY TEMP SUMMARY REPORT

Press #2 TEMP Deg-F FIFTEEN MINUTE AVERAGES
LOUISIANA PACIFIC
Hayward, WI

TODAY'S DATE: 08-26-1994
TIME: 17:39:22

REPORTING PERIOD
DAY: August 26

Period	15		30		45		60		Hr. AVG.	
	Read.	Stat.	Read.	Stat.	Read.	Stat.	Read.	Stat.	Read.	Sta
Hour 7	174.2	0	173.5	0	178.3	0	175.7	0	175.4	0
Hour 8	174.4	0	176.2	0	177.3	0	178.2	0	176.5	0
Hour 9	176.4	0	176.9	0	178.0	0	178.9	0	177.6	0
Hour 10	175.3	0	179.1	0	187.6	0	199.1	0	185.3	0
Hour 11	208.0	0	208.7	0	208.4	0	207.8	0	208.3	0
Hour 12	207.0	0	209.9	0	210.6	0	210.9	0	209.6	0
Hour 13	210.7	0	208.0	0	209.7	0	210.4	0	209.7	0
Hour 14	211.1	0	209.0	0	208.9	0	209.1	0	209.5	0
Hour 15	211.1	0	210.8	0	212.1	0	210.6	0	211.1	0
Hour 16	211.3	0	211.9	0	212.9	0	212.9	0	212.2	0
Hour 17	213.0	0	213.9	0	-1.0	-1	-1.0	-1	-1.0	-1
Hour 18	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 19	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 20	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 21	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 22	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 23	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1	-1.0	-1
Hour 0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 3	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 4	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 5	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hour 6	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0

DAILY TEMP SUMMARY REPORT

Press #2 TEMP Deg-F FIFTEEN MINUTE AVERAGES
LOUISIANA PACIFIC
Hayward, WI

TODAY'S DATE: 09-19-1994
TIME: 11:18:16

REPORTING PERIOD
DAY: August 26

Period	15		30		45		60		Hr. AVG.	
	Read.	Stat.	Read.	Stat.	Read.	Stat.	Read.	Stat.	Read.	Sta
Hour 7	174.2	0	173.5	0	178.3	0	175.7	0	175.4	0
Hour 8	174.4	0	176.2	0	177.3	0	178.2	0	176.5	0
Hour 9	176.4	0	176.9	0	178.0	0	178.9	0	177.6	0
Hour 10	175.3	0	179.1	0	187.6	0	199.1	0	185.3	0
Hour 11	208.0	0	208.7	0	208.4	0	207.8	0	208.3	0
Hour 12	207.0	0	209.9	0	210.6	0	210.9	0	209.6	0
Hour 13	210.7	0	208.0	0	209.7	0	210.4	0	209.7	0
Hour 14	211.1	0	209.0	0	208.9	0	209.1	0	209.5	0
Hour 15	211.1	0	210.8	0	212.1	0	210.6	0	211.1	0
Hour 16	211.3	0	211.9	0	212.9	0	212.9	0	212.2	0
Hour 17	213.0	0	213.9	0	212.6	0	212.1	0	212.9	0
Hour 18	213.7	0	214.5	0	214.1	0	212.7	0	213.8	0
Hour 19	213.8	0	213.9	0	212.9	0	209.7	0	212.6	0
Hour 20	209.7	0	209.4	0	209.8	0	208.4	0	209.3	0
Hour 21	208.0	0	208.0	0	207.7	0	204.7	0	207.1	0
Hour 22	205.0	0	205.3	0	204.5	0	204.7	0	204.9	0
Hour 23	205.4	0	205.6	0	204.7	0	205.4	0	205.3	0
Hour 0	203.9	0	203.4	0	202.0	0	201.8	0	202.8	0
Hour 1	201.8	0	201.9	0	200.7	0	201.4	0	201.5	0
Hour 2	202.3	0	200.1	0	199.8	0	199.5	0	200.4	0
Hour 3	199.5	0	199.5	0	200.2	0	198.1	0	199.3	0
Hour 4	198.7	0	198.9	0	199.0	0	199.2	0	198.9	0
Hour 5	199.0	0	199.4	0	199.8	0	201.3	0	199.9	0
Hour 6	200.0	0	198.6	0	199.6	0	199.6	0	199.5	0

DAILY OPAC SUMMARY REPORT

Press #2 OPAC pct SIX MINUTE AVERAGES
LOUISIANA PACIFIC
Hayward, WI

TODAY'S DATE: 09-19-1994
TIME: 11:18:32

REPORTING PERIOD
DAY: August 26

Period	6	12	18	24	30	36	42	48	54	60
Hr 7	2.2 0	2.2 0	2.1 0	2.2 0	2.2 0	2.2 0	2.2 0	2.2 0	2.1 0	2.1 0
Hr 8	2.1 0	2.2 0	2.2 0	2.2 0	2.2 0	2.2 0	2.2 0	2.2 0	2.2 0	2.3 0
Hr 9	2.3 0	2.3 0	2.2 0	2.2 0	2.2 0	2.3 0	2.3 0	2.3 0	2.3 0	2.2 0
Hr 10	2.3 0	2.2 0	2.3 0	2.2 0	2.2 0	2.4 0	2.2 0	2.3 0	2.3 0	2.3 0
Hr 11	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0
Hr 12	2.3 0	2.3 0	2.4 0	2.3 0	2.3 0	2.4 0	2.4 0	2.4 0	2.4 0	2.4 0
Hr 13	2.4 0	2.4 0	2.3 0	2.4 0	2.4 0	2.4 0	2.4 0	2.5 0	2.4 0	2.3 0
Hr 14	2.4 0	2.4 0	2.4 0	2.5 0	2.5 0	2.4 0	2.4 0	2.5 0	2.5 0	2.5 0
Hr 15	2.5 0	2.5 0	2.5 0	2.5 0	2.5 0	2.5 0	2.6 0	2.5 0	2.6 0	2.5 0
Hr 16	2.6 0	2.5 0	2.6 0	2.6 0	2.5 0	2.5 0	2.5 0	2.5 0	2.5 0	2.5 0
Hr 17	2.6 0	2.6 0	2.6 0	2.5 0	2.5 0	2.5 0	2.5 0	2.4 0	2.5 0	2.4 0
Hr 18	2.4 0	2.4 0	2.4 0	2.4 0	2.4 0	2.4 0	2.4 0	2.4 0	2.4 0	2.4 0
Hr 19	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0	2.2 0	2.2 0	2.1 0
Hr 20	2.2 0	2.2 0	2.2 0	2.2 0	2.3 0	2.2 0	2.2 0	2.2 0	2.2 0	2.0 0
Hr 21	2.2 0	2.2 0	2.2 0	2.2 0	2.2 0	2.2 0	2.2 0	2.2 0	2.3 0	2.3 0
Hr 22	2.3 0	2.2 0	2.2 0	2.2 0	2.2 0	2.3 0	2.3 0	2.2 0	2.2 0	2.2 0
Hr 23	2.2 0	2.2 0	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0
Hr 0	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0	2.4 0	2.3 0	2.3 0
Hr 1	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0	2.2 0
Hr 2	2.2 0	2.2 0	2.2 0	2.2 0	2.2 0	2.2 0	2.2 0	2.1 0	2.2 0	2.2 0
Hr 3	2.2 0	2.1 0	2.1 0	2.2 0	2.2 0	2.2 0	2.2 0	2.1 0	2.2 0	2.2 0
Hr 4	2.2 0	2.2 0	2.2 0	2.2 0	2.1 0	2.2 0	2.2 0	2.2 0	2.3 0	2.3 0
Hr 5	2.2 0	2.2 0	2.2 0	2.2 0	2.2 0	2.1 0	2.2 0	2.2 0	2.2 0	2.3 0
Hr 6	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0	2.3 0

TOTAL NUMBER OF MINUTES ABOVE 20 0
NUMBER OF SIX MINUTE EXCURSIONS: 0

TOTAL NUMBER OF MINUTES ABOVE 30 0
NUMBER OF SIX MINUTE EXCURSIONS: 0

DAILY SUMMARY REPORT
Press #2 HOURLY AVERAGES
LOUISIANA PACIFIC
Hayward, WI

REPORTING PERIOD August 26

Period	CO ppm	FLOW kcfm	TEMP Deg-F	CO #/HR
7:00 to 8:00	9.3	94.9	175.4	3.0
8:00 to 9:00	9.1	97.7	176.5	3.0
9:00 to 10:00	11.8	98.0	177.6	3.9
10:00 to 11:00	11.5	100.0	185.3	3.8
11:00 to 12:00	11.4	98.0	208.3	3.6
12:00 to 13:00	11.7	97.1	209.6	3.6
13:00 to 14:00	11.3	99.8	209.7	3.6
14:00 to 15:00	11.4	101.0	209.5	3.7
15:00 to 16:00	11.5	100.4	211.1	3.7
16:00 to 17:00	10.9	100.6	212.2	3.5
17:00 to 18:00	11.2	99.3	212.9	3.5
18:00 to 19:00	10.2	95.1	213.8	3.1
19:00 to 20:00	6.9	98.3	212.6	2.2
20:00 to 21:00	10.6	98.4	209.3	3.3
21:00 to 22:00	10.0	98.6	207.1	3.2
22:00 to 23:00	10.9	99.5	204.9	3.5
23:00 to 24:00	11.8	95.8	205.3	3.6
0:00 to 1:00	12.2	94.9	202.8	3.7
1:00 to 2:00	12.2	98.0	201.5	3.9
2:00 to 3:00	12.5	99.3	200.4	4.0
3:00 to 4:00	12.6	99.3	199.3	4.1
4:00 to 5:00	12.1	96.5	198.9	3.8
5:00 to 6:00	12.7	96.2	199.9	4.0
6:00 to 7:00	11.7	101.2	199.5	3.8

Averages

7:00 to 19:00	10.9	98.5	200.2	3.5
19:00 to 7:00	11.4	98.0	203.5	3.6
7:00 to 7:00	11.1	98.2	201.8	3.5

* Bad data not used for averages.

7-20-94
R. Schultz

LINE #2 PRESS

RUN #11 16:17 thru 16:47 8-26-94

15 min avg.

16:30 11.0 ppmCO 16:45 11.1 ppm CO
102.1 kcfm 100.5 kcfm
211.9 °F 212.9 °F

$$\#CO/HR\ (dry) = \frac{COppm \times FLOW \times 2.14424}{(460 + temp)}$$

16:30 (11.0)(102.1)(2.14424)/(460+211.9)
= 3.5842 #Co/HR

16:45 = (11.1)(100.5)(2.14424)/(460+212.9)
= 3.5548 #CO/hr

AVG RUN #11 = (3.5842+3.5548)/2 = 7.139/2 = 3.5695 #/HR

RUN #12 17:02 thru 17:32 8-26-94

15 min avg.

17:15 11.1 ppm CO 17:30 11.1 ppm CO
98.3 kcfm 97.7 kcfm
213.0 °F 213.9 °F

$$\#CO/HR\ (dry) = \frac{COppm \times FLOW}{(460 + Temp)} \times 2.14424$$

17:15 → (11.1)(98.3)(2.14424)/(460+213)
= 3.4764 #CO/hr

17:30 → (11.1)(97.7)(2.14424)/(460+213.9)
= 3.4506 #CO/hr

Avg RUN #12 = (3.4764+3.4506)/2
= 6.927/2 = 3.4635 #CO/HR

08/29/94, Rev.
R. Schmitz

Louisiana-Pacific Corporation
Hayward, WI

CEMS Computer program to calculate CO LB/HR (dry)

CO LB/HR = RD!*lbcf!*MW!*FF!*1000*Temp!*Pcmp!*Mcmp!*60
(dry)

Where:

Pb! = 14.08, Local Barometric pressure based on altitude
lbcf! = 2.6E-9, Conversion factor for ppm to lbcf without CO molecular weight
Temp! = (460 + 68)/(460 + FT!)
Pcmp! = Pb! / 14.696
Mcmp! = (100 - Moisture!) / 100
MW! = 28.01, Molecular weight for CO
Moisture! = 25 for Dryers and 3 for Presses
RD! = CO reading
FF! = Flow reading
FT! = Temperature reading

Therefore; to calculate CO LB/HR (dry) from the 15 minute averages of CO ppm; flow & temperature, substitute those values into this equation:

$$\text{DRYER CO LB/HR (dry)} = \frac{\text{CO ppm x Flow}}{(460 + \text{Temperature})} \times 1.65792^{*}$$

$$\text{PRESS CO LB/HR (dry)} = \frac{\text{CO ppm x Flow}}{(460 + \text{Temperature})} \times 2.14424^{*}$$

* Constant based on 25% moisture content for dryer RTO's and 3% for press RTO's.

APPENDIX I

OPERATING DATA

LOUISIANA PACIFIC HAYWARD DAILY TONNAGE LINE I 8/94

FISCAL FACTOR	41.6		40.0		39.3		40.0		40.2	
	1/4"	1/4"	3/8"	3/8"	7/16"	7/16"	15/32"	15/32"	1/2"	1/2"
DATE	FTG	LBS	FTG	LBS	FTG	LBS	FTG	LBS	FTG	LBS
7/31		0		0	193.642	237,694		0		0
8/1		0		0	98.563	121,048		0	532.467	668,912
8/2		0		0	308.233	378,549	349.440	436,800	28.671	36,018
8/3		0		0	440.845	541,413	13.440	16,800	245.754	308,728
8/4		0		0	508.943	625,046		0	225.274	283,000
8/5		0	35.328	44,160	684.564	840,730		0		0
8/6		0		0	12.543	15,404	328.320	410,400	313.336	393,628
8/7		0		0	652.307	801,115		0	18.432	23,155
8/8		0	61.440	76,800	8.960	11,004	608.640	760,800		0
8/9	23.553	30,619		0	736.533	904,555	11.520	14,400		0
8/10		0		0	267.016	327,929	190.080	237,600		0
8/11	29.697	38,606	35.328	44,160	621.842	763,700		0		0
8/12		0	70.656	88,320	639.762	785,708		0		0
8/13	33.794	43,932		0	327.945	402,757	289.920	362,400		0
8/14		0		0	349.450	429,168	328.320	410,400		0
8/15		0		0	693.524	851,734		0		0
8/16		0		0	10.752	13,205	735.360	919,200		0
8/17		0		0	713.236	875,943	11.520	14,400		0
8/18		0		0	697.108	856,136		0		0
8/19		0		0	734.741	902,354		0		0
8/20	19.457	25,294		0	10.752	13,205		0	684.015	859,294
8/21	22.529	29,288		0	313.609	385,151	278.400	348,000	12.288	15,437
8/22		0		0	650.515	798,914		0		0
8/23		0	70.656	88,320	636.178	781,306		0		0
8/24		0		0	675.603	829,725		0		0
8/25		0		0	697.108	856,136		0		0
8/26		0		0	397.835	488,591	364.800	456,000		0
8/27		0		0	534.031	656,857		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
TOTALS=	129.030	167739	273.408	341760	12616.040	15494074	3509.760	4387200	2060.237	2588173

LINE I 8/94 CONT.

38.5 19/32"SE FTG	19/32"SE LBS	39.3 19/32"H FTG	19/32"H LBS	39.2 23/32"SE FTG	23/32"SE LBS	38.2 23/32"H FTG	23/32"H LBS	TOTAL DAILY LBS	
	0		0		0	418.055	499,053	736,747	
	0		0		0		0	789,959	
	0		0		0	47.105	56,232	907,598	
	0		0		0		0	866,941	
	0		0		0		0	908,046	
	0		0		0		0	884,890	
	0		0		0		0	819,433	
	0		0		0		0	824,270	
	0		0		0		0	848,604	
	0		0		0		0	949,573	
	0		0		0		0	565,529	
	0		0		0		0	846,466	
	0		0		0		0	874,028	
	0		0		0		0	809,090	
	0		0		0		0	839,568	
	0		0		0		0	851,734	
	0		0		0		0	932,405	
	0		0		0		0	890,343	
	0		0		0		0	856,136	
	0		0		0		0	902,354	
	0		0		0		0	897,793	
	0		0		0		0	777,876	
	0		0		0		0	798,914	
	0		0		0		0	869,626	
	0		0		0		0	829,725	= 414.86 TPD = 17.29 TPH
	0		0		0		0	856,136	= 428.06 TPD = 17.84 TPH
	0		0		0		0	944,591	
226.171	272,112		0		0		0	927,969	
	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	
226.171	272112	0.000	0	0.000	0	465.160	555285	23,806,343	

LOUISIANA PACIFIC HAYWARD DAILY TONNAGE LINE II 8/94

FISCAL FACTOR	43.7		38.6		39.1		40.2		39.9	
	1/4"	1/4"	3/8"	3/8"	7/16"	7/16"	15/32"	15/32"	1/2"	1/2"
DATE	FTG	LBS	FTG	LBS	FTG	LBS	FTG	LBS	FTG	LBS
7/31		0		0	202.502	247,432	309.120	388,332	155.644	194,069
8/1		0		0		0	312.960	393,156		0
8/2	25.601	34,961		0		0		0		0
8/3		0	35.328	42,614	154.116	188,310		0		0
8/4		0		0		0	368.640	463,104		0
8/5		0		0		0		0		0
8/6		0		0		0		0		0
8/7	5.120	6,992		0		0		0	321.528	400,905
8/8		0		0		0		0	325.624	406,012
8/9		0		0		0		0	30.719	38,303
8/10		0		0		0		0		0
8/11	22.529	30,766		0		0		0	215.035	268,122
8/12		0		0		0		0		0
8/13		0	75.264	90,787		0		0	317.432	395,798
8/14		0		0		0		0	335.864	418,780
8/15		0		0		0		0	344.055	428,994
8/16		0		0		0		0	356.343	444,315
8/17	27.649	37,758	70.656	85,229	256.263	313,121		0	18.432	22,982
8/18		0	35.328	42,614	322.569	394,139		0		0
8/19		0		0		0		0		0
8/20		0		0	374.539	457,640		0		0
8/21		0	27.648	33,350		0		0		0
8/22		0		0		0		0	317.432	395,798
8/23		0		0		0	332.160	417,276	24.575	30,642
8/24	33.794	46,150		0		0		0	516.083	643,491
8/25		0		0		0		0	352.247	439,208
8/26		0	86.016	103,757		0		0	286.713	357,495
8/27		0		0	197.126	240,863	328.320	412,452		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
TOTALS=	114.693	156628	330.240	398352	1507.115	1841506	1651.200	2074320	3917.726	4884915

LINE II 8/94 CONT.

37.5 19/32"SE FTG	19/32"SE LBS	39.9 19/32"H FTG	19/32"H LBS	39.2 23/32"SE FTG	23/32"SE LBS	38.2 23/32"H FTG	23/32"H LBS	TOTAL DAILY LBS
	0		0		0		0	829,833
301.562	353,393	53.503	66711.553		0		0	813,261
255.355	299,244		0		0	412.167	492024.36	826,230
	0		0		0	338.566	404163.16	635,088
	0		0	88.322	108194.45	253.188	302243.18	873,542
	0		0		0	656.523	783724.33	783,724
194.556	227,995	126.461	157681.06		0	368.006	439307.16	824,984
41.343	48,449		0		0	353.286	421735.16	878,081
	0		0		0	403.335	481481.16	887,494
367.224	430,341		0		0	350.343	418221.96	886,865
	0		0		0	721.293	861043.52	861,044
	0		0		0	453.384	541227.15	840,115
	0		0		0	665.356	794268.73	794,269
	0		0		0	253.188	302243.18	788,828
218.875	256,494	109.438	136455.51		0		0	811,730
	0		0	105.986	129832.85	226.692	270613.58	829,440
	0		0		0	332.678	397134.36	841,450
269.946	316,343		0		0		0	775,434
	0		0		0	279.685	333873.97	770,627
	0		0		0	697.740	832927.13	832,927
	0		0		0	332.678	397134.36	854,774
252.923	296,394	70.527	87938.353	111.874	137045.65	167.811	200324.38	755,053
	0		0		0	394.503	470937.96	866,736
211.580	247,945	109.438	136455.51		0		0	832,319 = 416.1 TPD = 17.33 TPH
14.592	17,100		0		0		0	706,741
	0		0	44.161	54097.225	288.517	344417.17	837,722
	0		0		0	288.517	344417.17	805,669 = 402.83 TPD = 16.78 TPH
	0		0		0	144.259	172209.18	825,525
	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
2127.956	2493698	469.367	585242	350.343	429170	8381.715	10005672	22,869,503

DAILY PRODUCTION REPORT DATE: 8/23/94 ENV. OLS
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7AM-7PM — LINE I

	LOADS	#PANELS	SUR FTG	3/8 FTG
1/4		0	0	0
3/8	46	2208	70656	70656
7/16	137	6576	210432	245511
15/32		0	0	0
1/2		0	0	0
19/32SE		0	0	0
19/32H		0	0	0
23/32SE		0	0	0
23/32H		0	0	0
			TOTAL	316167

7PM-7AM — LINE I

	LOADS	#PANELS	SUR FTG	3/8 FTG
1/4		0	0	0
3/8		0	0	0
7/16	218	10464	334848	390667
15/32		0	0	0
1/2		0	0	0
19/32SE		0	0	0
19/32H		0	0	0
23/32SE		0	0	0
23/32H		0	0	0
			TOTAL	390667

LINE I TOTALS

	LOADS	#PANELS	SUR FTG	3/8 FTG
1/4	0	0	0	0
3/8	46	2208	70656	70656
7/16	355	17040	545280	636178
15/32	0	0	0	0
1/2	0	0	0	0
19/32SE	0	0	0	0
19/32H	0	0	0	0
23/32SE	0	0	0	0
23/32H	0	0	0	0
TOTALS=		19248	615936	706834

LINE I TOTAL = 706834

7AM-7PM — LINE II

	LOADS	#PANELS	SUR FTG	3/8 FTG
1/4		0	0	0
3/8		0	0	0
7/16		0	0	0
15/32	162	7776	248832	311040
1/2	12	576	18432	24575
19/32SE		0	0	0
19/32H		0	0	0
23/32SE		0	0	0
23/32H		0	0	0
			TOTAL	335615

7PM-7AM — LINE II

	LOADS	#PANELS	SUR FTG	3/8 FTG
1/4		0	0	0
3/8		0	0	0
7/16		0	0	0
15/32	11	528	16896	21120
1/2		0	0	0
19/32SE	87	4176	133632	211580
19/32H	45	2160	69120	109438
23/32SE		0	0	0
23/32H		0	0	0
			TOTAL	342137

LINE II TOTALS

	LOADS	#PANELS	SUR FTG	3/8 FTG
1/4	0	0	0	0
3/8	0	0	0	0
7/16	0	0	0	0
15/32	173	8304	265728	332160
1/2	12	576	18432	24575
19/32SE	87	4176	133632	211580
19/32H	45	2160	69120	109438
23/32SE	0	0	0	0
23/32H	0	0	0	0
TOTALS=		15216	486912	677753

LINE II TOTAL= 677753

DAILY PLANT TOTAL= 1384587

7AM-7PM TOTAL= 651782
7PM-7AM TOTAL= 732804

LINE I MTD TOTALS		MTD%
1/4	129030	0.8
3/8	273408	1.7
7/16	10311463	62.9
15/32	3144960	19.2
1/2	2060236	12.6
19/32SE	0	0.0
19/32H	0	0.0
23/32SE	0	0.0
23/32H	465160	2.8

WTD #1	4784423
WTD #2	4627425
WTD #3	4988236
WTD #4	1984175
WTD #5	0
MTD TOTAL	16384258

PLANT WTD

WTD #1	9396543
WTD #2	9549427
WTD #3	9703652
WTD #4	4004644
WTD #5	0

PLANT MTD 32654266

LINE II MTD TOTALS		MTD%
1/4	80900	0.5
3/8	244224	1.5
7/16	1309989	8.1
15/32	1322880	8.1
1/2	2762685	17.0
19/32SE	2113364	13.0
19/32H	469366	2.9
23/32SE	306181	1.9
23/32H	7660421	47.1

WTD #1	4612121
WTD #2	4922002
WTD #3	4715416
WTD #4	2020470
WTD #5	0
MTD TOTAL	16270009

MTD%=

1/4	0.6
3/8	1.6
7/16	35.6
15/32	13.7
1/2	14.8
19/32SE	6.5
19/32H	1.4
23/32SE	0.9
23/32H	24.9

DAILY PRODUCTION REPORT DATE: 8/24/94 ENV. DLS

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7AM-7PM — LINE I

7AM-7PM	LOADS	#PANELS	SUR FTG	3/8 FTG
1/4		0	0	0
3/8		0	0	0
7/16	191	9168	293376	342282
15/32		0	0	0
1/2		0	0	0
19/32SE		0	0	0
19/32H		0	0	0
23/32SE		0	0	0
23/32H		0	0	0
			TOTAL	342282

7AM-7PM — LINE II

7AM-7PM	LOADS	#PANELS	SUR FTG	3/8 FTG
1/4	33	1584	50688	33794
3/8		0	0	0
7/16		0	0	0
15/32		0	0	0
1/2	107	5136	164352	219131
19/32SE	6	288	9216	14592
19/32H		0	0	0
23/32SE		0	0	0
23/32H		0	0	0
			TOTAL	267516

7PM-7AM — LINE I

7PM-7AM	LOADS	#PANELS	SUR FTG	3/8 FTG
1/4		0	0	0
3/8		0	0	0
7/16	186	8928	285696	333322
15/32		0	0	0
1/2		0	0	0
19/32SE		0	0	0
19/32H		0	0	0
23/32SE		0	0	0
23/32H		0	0	0
			TOTAL	333322

7PM-7AM — LINE II

7PM-7AM	LOADS	#PANELS	SUR FTG	3/8 FTG
1/4		0	0	0
3/8		0	0	0
7/16		0	0	0
15/32		0	0	0
1/2	145	6960	222720	296953
19/32SE		0	0	0
19/32H		0	0	0
23/32SE		0	0	0
23/32H		0	0	0
			TOTAL	296953

LINE I TOTALS

	LOADS	#PANELS	SUR FTG	3/8 FTG
1/4	0	0	0	0
3/8	0	0	0	0
7/16	377	18096	579072	675603
15/32	0	0	0	0
1/2	0	0	0	0
19/32SE	0	0	0	0
19/32H	0	0	0	0
23/32SE	0	0	0	0
23/32H	0	0	0	0
TOTALS=		18096	579072	675603

LINE I TOTAL = 675603

LINE II TOTALS

	LOADS	#PANELS	SUR FTG	3/8 FTG
1/4	33	1584	50688	33794
3/8	0	0	0	0
7/16	0	0	0	0
15/32	0	0	0	0
1/2	252	12096	387072	516083
19/32SE	6	288	9216	14592
19/32H	0	0	0	0
23/32SE	0	0	0	0
23/32H	0	0	0	0
TOTALS=		13968	446976	564468

LINE II TOTAL= 564468

DAILY PLANT TOTAL= 1240072

7AM-7PM TOTAL= 609798

7PM-7AM TOTAL= 630274

LINE I MTD TOTALS		MTD%
1/4	129030	0.8
3/8	273408	1.6
7/16	10987066	64.4
15/32	3144960	18.4
1/2	2060236	12.1
19/32SE	0	0.0
19/32H	0	0.0
23/32SE	0	0.0
23/32H	465160	2.7

WTD #1	4784423
WTD #2	4627425
WTD #3	4988236
WTD #4	2659778
WTD #5	0
MTD TOTAL	17059861

PLANT WTD

WTD #1	9396543
WTD #2	9549427
WTD #3	9703652
WTD #4	5244716
WTD #5	0

PLANT MTD 33894338

LINE II MTD TOTALS		MTD%
1/4	114694	0.7
3/8	244224	1.5
7/16	1309989	7.8
15/32	1322880	7.9
1/2	3278766	19.5
19/32SE	2127955	12.6
19/32H	469366	2.8
23/32SE	306181	1.8
23/32H	7660421	45.5

WTD #1	4612121
WTD #2	4922002
WTD #3	4715416
WTD #4	2584938
WTD #5	0
MTD TOTAL	16834477

MTD%=

1/4	0.7
3/8	1.5
7/16	36.3
15/32	13.2
1/2	15.8
19/32SE	6.3
19/32H	1.4
23/32SE	0.9
23/32H	24.0

DAILY PRODUCTION REPORT DATE: 8/25/94 ENV. DLS

FISCAL

7AM-7PM — LINE I

7AM-7PM	LOADS	#PANELS	SUR FTG	3/8 FTG
1/4		0	0	0
3/8		0	0	0
7/16	189	9072	290304	338698
15/32		0	0	0
1/2		0	0	0
19/32SE		0	0	0
19/32H		0	0	0
23/32SE		0	0	0
23/32H		0	0	0
			TOTAL	338698

7AM-7PM — LINE II

7AM-7PM	LOADS	#PANELS	SUR FTG	3/8 FTG
1/4		0	0	0
3/8		0	0	0
7/16		0	0	0
15/32		0	0	0
1/2	20	960	30720	40959
19/32SE		0	0	0
19/32H		0	0	0
23/32SE	15	720	23040	44161
23/32H	93	4464	142848	273797
			TOTAL	358917

7PM-7AM — LINE I

7PM-7AM	LOADS	#PANELS	SUR FTG	3/8 FTG
1/4		0	0	0
3/8		0	0	0
7/16	200	9600	307200	358410
15/32		0	0	0
1/2		0	0	0
19/32SE		0	0	0
19/32H		0	0	0
23/32SE		0	0	0
23/32H		0	0	0
			TOTAL	358410

7PM-7AM — LINE II

7PM-7AM	LOADS	#PANELS	SUR FTG	3/8 FTG
1/4		0	0	0
3/8		0	0	0
7/16		0	0	0
15/32		0	0	0
1/2	152	7296	233472	311288
19/32SE		0	0	0
19/32H		0	0	0
23/32SE		0	0	0
23/32H	5	240	7680	14720
			TOTAL	326008

LINE I TOTALS

	LOADS	#PANELS	SUR FTG	3/8 FTG
1/4	0	0	0	0
3/8	0	0	0	0
7/16	389	18672	597504	697108
15/32	0	0	0	0
1/2	0	0	0	0
19/32SE	0	0	0	0
19/32H	0	0	0	0
23/32SE	0	0	0	0
23/32H	0	0	0	0
TOTALS=		18672	597504	697108

LINE I TOTAL = 697108

LINE II TOTALS

	LOADS	#PANELS	SUR FTG	3/8 FTG
1/4	0	0	0	0
3/8	0	0	0	0
7/16	0	0	0	0
15/32	0	0	0	0
1/2	172	8256	264192	352247
19/32SE	0	0	0	0
19/32H	0	0	0	0
23/32SE	15	720	23040	44161
23/32H	98	4704	150528	288517
TOTALS=		13680	437760	684925

LINE II TOTAL= 684925

7AM-7PM TOTAL= 697614
7PM-7AM TOTAL= 684419

DAILY PLANT TOTAL= 1382033

LINE I MTD TOTALS		MTD%
1/4	129030	0.7
3/8	273408	1.5
7/16	11684174	65.8
15/32	3144960	17.7
1/2	2060236	11.6
19/32SE	0	0.0
19/32H	0	0.0
23/32SE	0	0.0
23/32H	465160	2.6

WTD #1	4784423
WTD #2	4627425
WTD #3	4988236
WTD #4	3356886
WTD #5	0
MTD TOTAL	17756969

PLANT WTD

WTD #1	9396543
WTD #2	9549427
WTD #3	9703652
WTD #4	6626749
WTD #5	0

PLANT MTD 35276371

LINE II MTD TOTALS		MTD%
1/4	114694	0.7
3/8	244226	1.4
7/16	1309989	7.5
15/32	1322880	7.6
1/2	3631013	20.7
19/32SE	2127955	12.1
19/32H	469366	2.7
23/32SE	350342	2.0
23/32H	7948938	45.4

WTD #1	4612121
WTD #2	4922002
WTD #3	4715416
WTD #4	3269863
WTD #5	0
MTD TOTAL	17519402

MTD%=

1/4	0.7
3/8	1.5
7/16	36.8
15/32	12.7
1/2	16.1
19/32SE	6.0
19/32H	1.3
23/32SE	1.0
23/32H	23.9

DAILY PRODUCTION REPORT DATE: 8/26/94 ENV. DLS
FISCAL

LINE I — 7AM-7PM

7AM-7PM	LOADS	#PANELS	LINE I SUR FTG	3/8 FTG
1/4		0	0	0
3/8		0	0	0
7/16	15	720	23040	26881
15/32	183	8784	281088	351360
1/2		0	0	0
19/32SE		0	0	0
19/32H		0	0	0
23/32SE		0	0	0
23/32H		0	0	0
			TOTAL	378241

LINE II — 7AM-7PM

7AM-7PM	LOADS	#PANELS	LINE II SUR FTG	3/8 FTG
1/4		0	0	0
3/8	56	2688	86016	86016
7/16		0	0	0
15/32		0	0	0
1/2	113	5424	173568	231418
19/32SE		0	0	0
19/32H		0	0	0
23/32SE		0	0	0
23/32H		0	0	0
			TOTAL	317434

LINE I — 7PM-7AM

7PM-7AM	LOADS	#PANELS	LINE I SUR FTG	3/8 FTG
1/4		0	0	0
3/8		0	0	0
7/16	207	9936	317952	370955
15/32	7	336	10752	13440
1/2		0	0	0
19/32SE		0	0	0
19/32H		0	0	0
23/32SE		0	0	0
23/32H		0	0	0
			TOTAL	384395

LINE II — 7PM-7AM

7PM-7AM	LOADS	#PANELS	LINE II SUR FTG	3/8 FTG
1/4		0	0	0
3/8		0	0	0
7/16		0	0	0
15/32		0	0	0
1/2	27	1296	41472	55295
19/32SE		0	0	0
19/32H		0	0	0
23/32SE		0	0	0
23/32H	98	4704	150528	288517
			TOTAL	343812

LINE I TOTALS

	LOADS	#PANELS	SUR FTG	3/8 FTG
1/4	0	0	0	0
3/8	0	0	0	0
7/16	222	10656	340992	397835
15/32	190	9120	291840	364800
1/2	0	0	0	0
19/32SE	0	0	0	0
19/32H	0	0	0	0
23/32SE	0	0	0	0
23/32H	0	0	0	0
TOTALS=		19776	632832	762635

LINE I TOTAL = 762635

LINE II TOTALS

	LOADS	#PANELS	SUR FTG	3/8 FTG
1/4	0	0	0	0
3/8	56	2688	86016	86016
7/16	0	0	0	0
15/32	0	0	0	0
1/2	140	6720	215040	286713
19/32SE	0	0	0	0
19/32H	0	0	0	0
23/32SE	0	0	0	0
23/32H	98	4704	150528	288517
TOTALS=		14112	451584	661246

LINE II TOTAL= 661246

DAILY PLANT TOTAL= 1423881

7AM-7PM TOTAL= 695675
7PM-7AM TOTAL= 728206

LINE I MTD TOTALS		MTD%
1/4	129030	0.7
3/8	273408	1.5
7/16	12082009	65.2
15/32	3509760	19.0
1/2	2060236	11.1
19/32SE	0	0.0
19/32H	0	0.0
23/32SE	0	0.0
23/32H	465160	2.5

WTD #1	4784423
WTD #2	4627425
WTD #3	4988236
WTD #4	4119521
WTD #5	0
MTD TOTAL	18519604

PLANT WTD

WTD #1	9396543
WTD #2	9549427
WTD #3	9703652
WTD #4	8050630
WTD #5	0

PLANT MTD 36700252

LINE II MTD TOTALS		MTD%
1/4	114694	0.6
3/8	330240	1.8
7/16	1309989	7.2
15/32	1322880	7.3
1/2	3917726	21.5
19/32SE	2127955	11.7
19/32H	469366	2.6
23/32SE	350342	1.9
23/32H	8237455	45.3

WTD #1	4612121
WTD #2	4922002
WTD #3	4715416
WTD #4	3931109
WTD #5	0
MTD TOTAL	18180648

MTD%=

1/4	0.7
3/8	1.6
7/16	36.5
15/32	13.2
1/2	16.3
19/32SE	5.8
19/32H	1.3
23/32SE	1.0
23/32H	23.7

APPENDIX J

PROCEDURES

Accuracy—The degree of agreement between a measured value and the true value: usually expressed as ± percent of full scale.

Time to 90 percent response—The time interval from a step change in the input concentration at the instrument inlet to a reading of 90 percent of the ultimate recorded concentration.

Rise Time (90 percent)—The interval between initial response time and time to 90 percent response after a step increase in the inlet concentration.

Fall Time (90 percent)—The interval between initial response time and time to 90 percent response after a step decrease in the inlet concentration.

Zero Drift—The change in instrument output over a stated time period, usually 24 hours, of unadjusted continuous operation when the input concentration is zero; usually expressed as percent full scale.

Span Drift—The change in instrument output over a stated time period, usually 24 hours, of unadjusted continuous operation when the input concentration is a stated upscale value; usually expressed as percent full scale.

Precision—The degree of agreement between repeated measurements of the same concentration, expressed as the average deviation of the single results from the mean.

Noise—Spontaneous deviations from a mean output not caused by input concentration changes.

Linearity—The maximum deviation between an actual instrument reading and the reading predicted by a straight line drawn between upper and lower calibration points.

Method 10A—Determination of Carbon Monoxide Emissions in Certifying Continuous Emission Monitoring Systems at Petroleum Refineries

1. Applicability and Principle

1.1 Applicability. This method applies to the measurement of carbon monoxide (CO) at petroleum refineries. This method serves as the reference method in the relative accuracy test for nondispersive infrared (NDIR) CO continuous emission monitoring systems (CEMS's) that are required to be installed in petroleum refineries on fluid catalytic cracking unit catalyst regenerators [40 CFR Part 60.105(a)(2)].

1.2 Principle. An integrated gas sample is extracted from the stack, passed through an alkaline permanganate solution to remove sulfur and nitrogen oxides, and collected in a Tedlar bag. The CO concentration in the sample is measured spectrophotometrically using the reaction of CO with p-sulfaminobenzoic acid.

1.3 Range and Sensitivity.

1.3.1 Range. Approximately 3 to 1800 ppm CO. Samples having concentrations below 400 ppm are analyzed at 425 nm, and samples having concentrations above 400 ppm are analyzed at 600 nm.

1.3.2 Sensitivity. The detection limit is 3 ppm based on three times the standard deviation of the mean reagent blank values.

1.4 Interferences. Sulfur oxides, nitric oxide, and other acid gases interfere with the colorimetric reaction. They are removed by passing the sampled gas through an alkaline potassium permanganate scrubbing solution. Carbon dioxide (CO_2) does not interfere, but, because it is removed by the scrubbing solution, its concentration must be measured independently and an appropriate volume correction made to the sampled gas.

1.5 Precision, Accuracy, and Stability.

1.5.1 Precision. The estimated intralaboratory standard deviation of the method is 3 percent of the mean for gas samples analyzed in duplicate in the concentration range of 39 to 412 ppm. The interlaboratory precision has not been established.

1.5.2 Accuracy. The method contains no significant biases when compared to an NDIR analyzer calibrated with National Bureau of Standards (NBS) standards.

1.5.3 Stability. The individual components of the colorimetric reagent are stable for at least 1 month. The colorimetric reagent must be used within 2 days after preparation to avoid excessive blank correction. The samples in the Tedlar [1] bag should be stable for at least 1 week if the bags are leak-free.

2. Apparatus

2.1 Sampling. The sampling train is shown in Figure 10A-1, and component parts are discussed below:

[1] Mention of trade names or commercial products in this publication does not constitute the endorsement or recommendation for use by the Environmental Protection Agency.

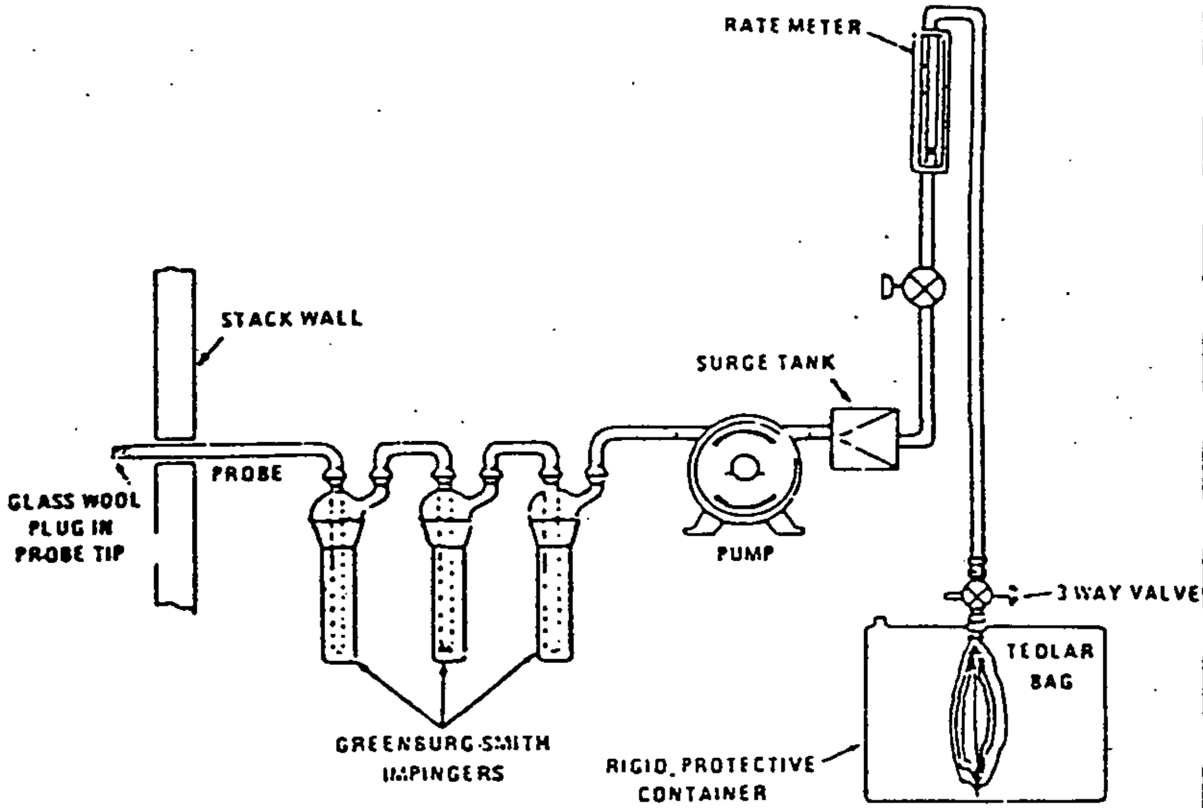

Figure 10A-1. Sampling train.

2.1.1 Probe. Stainless steel, sheathed Pyrex glass, or equivalent, equipped with a glass wool plug to remove particulate matter.

2.1.2 Sample Conditioning System. Three Greenburg-Smith impingers connected in series with leak-free connections.

2.1.3 Pump. Leak-free pump with stainless steel and Teflon parts to transport sample at a flow rate of 300 ml/min to the flexible bag.

2.1.4 Surge Tank. Installed between the pump and the rate meter to eliminate the pulsation effect of the pump on the rate meter.

2.1.5 Rate Meter. Rotameter, or equivalent, to measure flow rate at 300 ml/min. Calibrate according to Section 5.2.

2.1.6 Flexible Bag. Tedlar, or equivalent, with a capacity of 10 liters and equipped with a sealing quick-connect plug. The bag must be leak-free according to Section 4.1. For protection, it is recommened that the bag be enclosed with a rigid container.

2.1.7 Valves. Stainless-steel needle valve to adjust flow rate, and stainless-steel three-way valve, or equivalent.

2.1.8 CO_2 Analyzer. Method 3 or its approved alternative to measure CO_2 concentration to within 0.5 percent.

2.1.9 Volume Meter. Dry gas meter, calibrated and capable of measuring the sample volume under rotameter calibration conditions of 300 ml/min for 10 minutes

2.1.10 Pressure Gauge. A water filled U-tube manometer, or equivalent, of about 28 cm (12 in.) to leak-check the flexible bag.

2.2 Analysis.

2.2.1 Spectrophotometer. Single- or double-beam to measure absorbance at 425 and 600 nm. Slit width should not exceed 20 nm.

2.2.2 Spectrophotometer Cells. 1-cm pathlength.

2.2.3 Vacuum Gauge. U-tube mercury manometer, 1 meter (39 in.), with 1-mm divisions, or other gauge capable of measuring pressure to within 1 mm Hg.

2.2.4 Pump. Capable of evacuating the gas reaction bulb to a pressure equal to or less than 40 mm Hg absolute, equipped with coarse and fine flow control valves.

2.2.5 Barometer. Mercury, aneroid, or other barometer capable of measuring atmospheric pressure to within 1 mm Hg.

2.2.6 Reaction Bulbs. Pyrex glass, 100 ml with Teflon stopcock (Figure 10A-2), leak-free at 40 mm Hg, designed so that 10 ml of the colorimetric reagent can be added and removed easily and accurately. Commercially available gas sample bulbs such as Supelco Catalog No. 2-2161 may also be used.

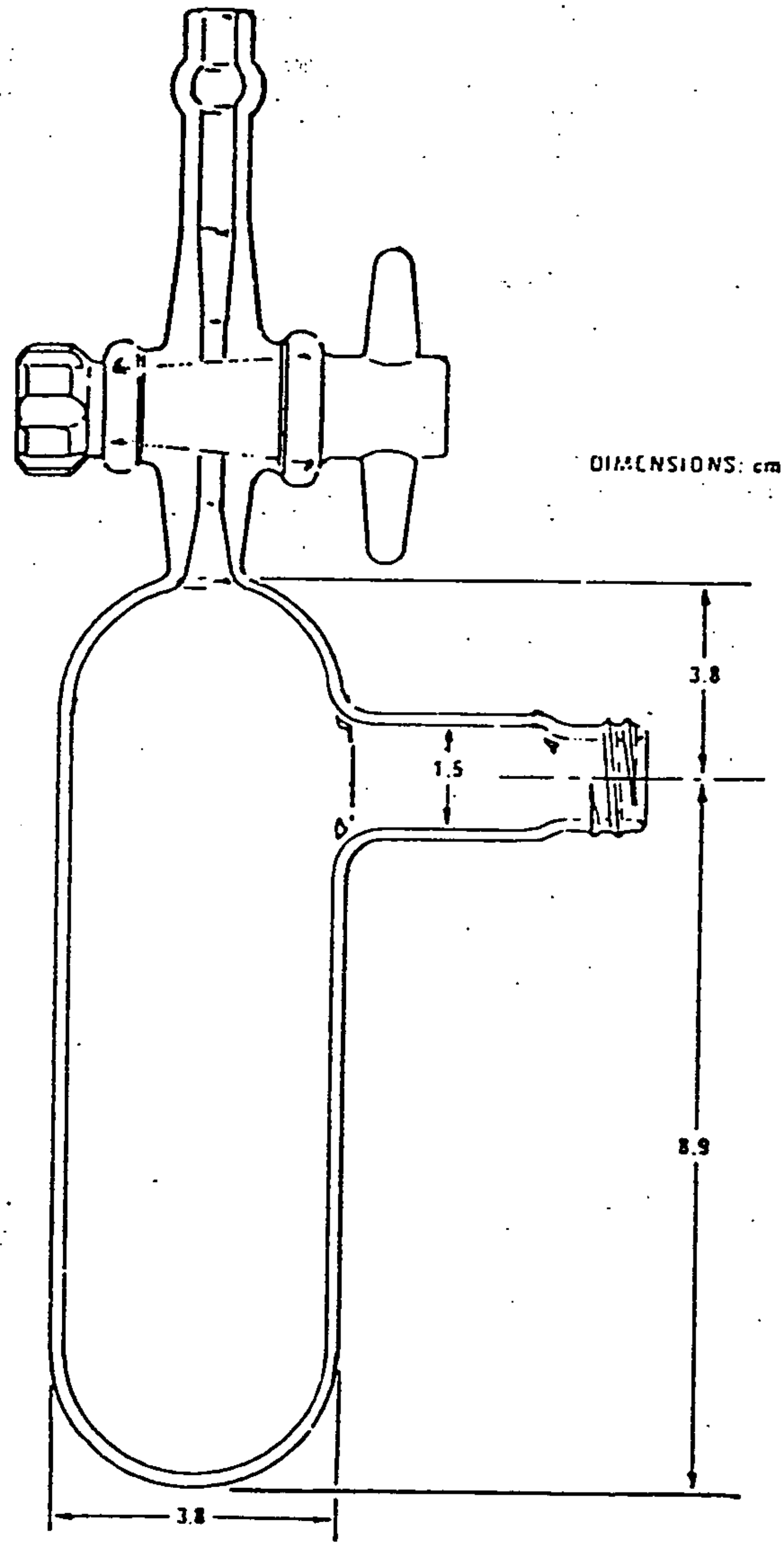

Figure 10A-2. Sample reaction bulbs.

2.2.7 *Manifold.* Stainless steel, with connections for three reaction bulbs and the appropriate connections for the manometer and sampling bag as shown in Figure 10A-3.

2.2.8 *Pipets.* Class A, 10-ml size.

2.2.9 *Shaker Table.* Reciprocating-stroke type such as Eberbach Corporation, Model 6015. A rocking arm or rotary-motion type shaker may also be used. The shaker must be large enough to accommodate at least six gas sample bulbs simultaneously. It may be necessary to construct a table top extension for most commercial shakers to provide sufficient space for the needed bulbs (Figure 10A-4).

2.2.10 *Valve.* Stainless steel shut-off valve.

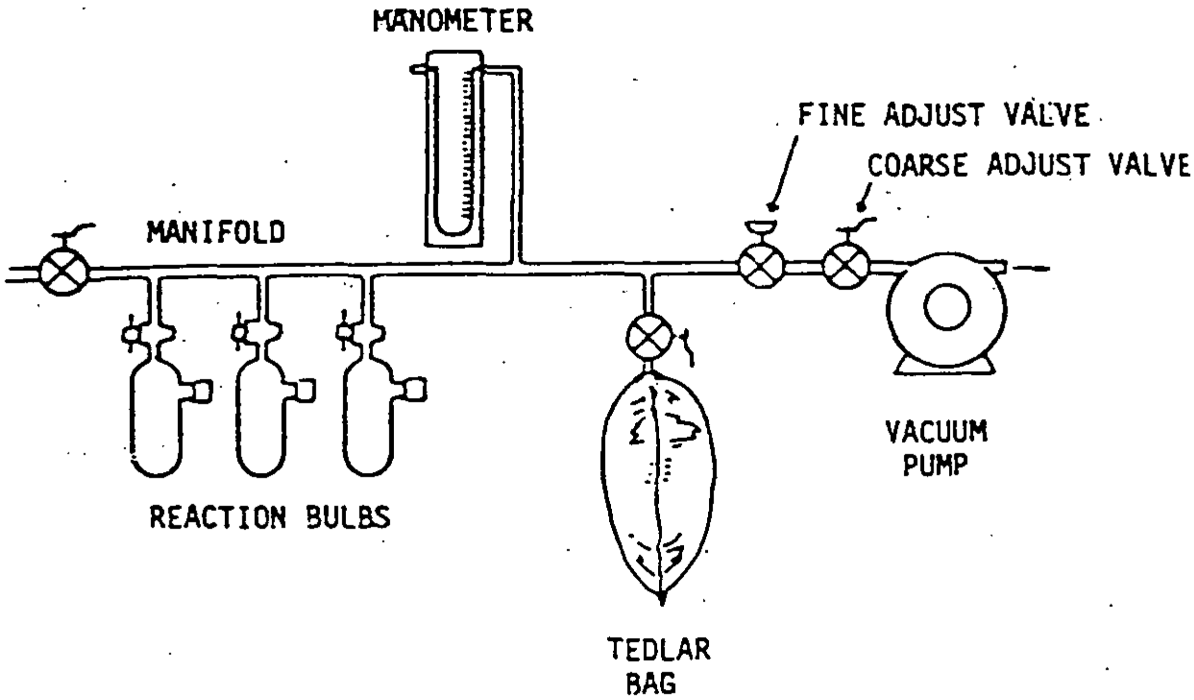

Figure 10A-3. Sample bulb filling system.

2.2.11 *Analytical Balance.* Capable of accurately weighing to 0.1 mg.

3. Reagents

Unless otherwise indicated, all reagents shall conform to the specifications established by the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available, otherwise, the best available grade shall be used.

3.1 Sampling.

3.1.1 Water. Deionized distilled, as described in Method 6, Section 3.1.1.

3.1.2 Alkaline Permanganate Solution, 0.25 M $KMnO_4$/1.5 M NaOH. Dissolve 40 g $KMnO_4$ and 60 g NaOH in water, and dilute to 1 liter.

3.2 Analysis.

3.2.1 Water. Same as in Section 3.1.1.

3.2.2 1 M Sodium Hydroxide (NaOH) Solution. Dissolve 40 g NaOH in approximately 900 ml of water, cool, and dilute to 1 liter.

3.2.3 0.1 M Silver Nitrate ($AgNO_3$) Solution. Dissolve 8.5 g $AgNO_3$ in water, and dilute to 500 ml.

3.2.4 0.1 M Para-Sulfaminobenzoic Acid (p-SABA) Solution. Dissolve 10.0 g p-SABA in 0.1 M NaOH (prepared by diluting 50 ml of 1 M NaOH to 500 ml), and dilute to 500 ml with 0.1 M NaOH.

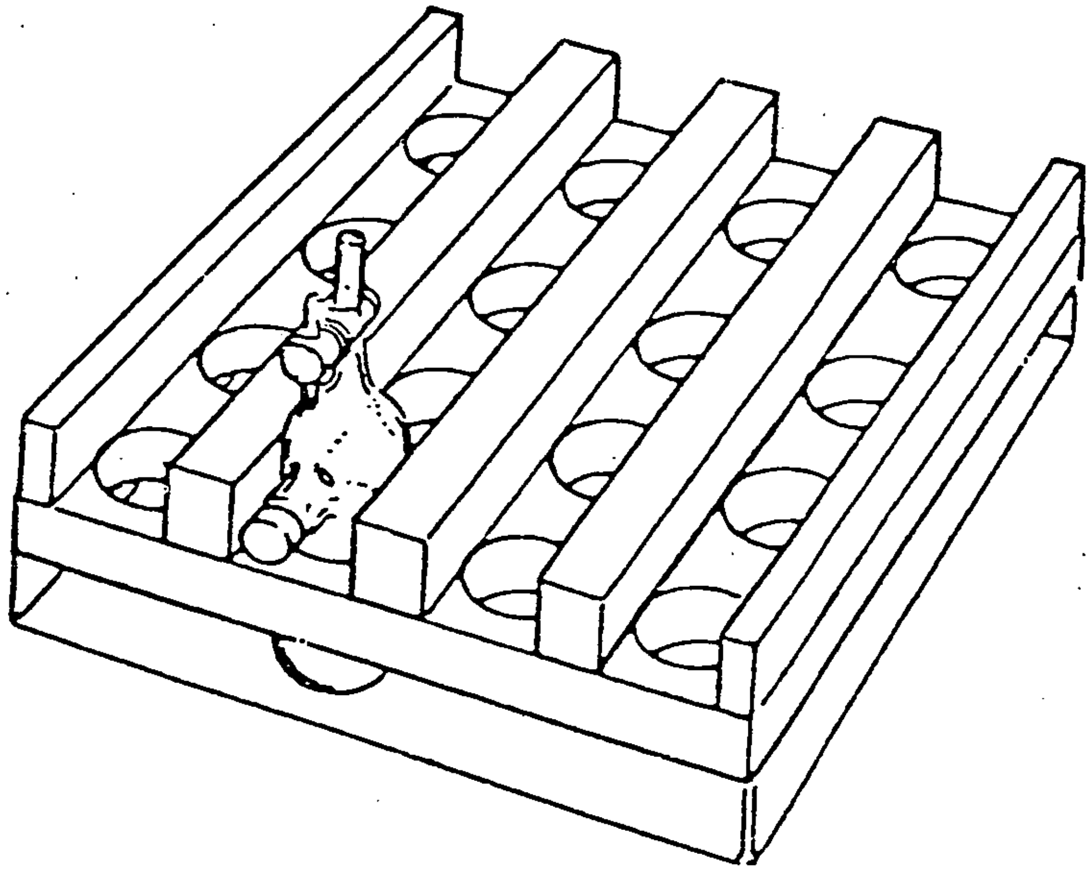

Figure 10A-4. Shaker table adapter.

3.2.5 Colorimetric Solution. To a flask, add 100 ml of p-SABA solution and 100 ml of $AgNO_3$ solution. Mix, and add 50 ml of 1 M NaOH with shaking. The resultant solution should be clear and colorless. This solution is acceptable for use for a period of 2 days.

3.2.6 Standard Gas Mixtures. Traceable to NBS standards and containing between 50 and 1000 ppm CO in nitrogen. At least two concentrations are needed to span each calibration range used (Section 5.3).

The calibration gases shall be certified by the manufacturer to be within 2 percent of the specified concentrations.

4. Procedure

4.1 Sample Bag Leak-checks. While a bag leak-check is required after bag use, it should also be done before the bag is used for sample collection. The bag should be leak-checked in the inflated and deflated condition according to the following procedures.

Connect the bag to a water manometer, and pressurize the bag to 5 to 10 cm H_2O (2 to 4 in. H_2O). Allow the bag to stand for 60 minutes. Any displacement in the water manometer indicates a leak. Now, evacuate the bag with a leakless pump that is connected on the downstream side of a flow-indicating device such as a 0-to 100-ml/min rotameter or an impinger containing water. When the bag is completely evacuated, no flow should be evident if the bag is leak-free.

4.2 Sampling. Evacuate the Tedlar bag completely using a vacuum pump. Assemble the apparatus as shown in Figure 10A-1. Loosely pack glass wool in the tip of the probe. Place 400 ml of alkaline permanganate solution in the first two impingers and 250 ml in the third. Connect the pump to the third impinger, and follow this with the surge tank, rate meter, and three-way valve. Do not connect the Tedlar bag to the system at this time.

Leak-check the sampling system by placing a vacuum gauge at or near the probe inlet, plugging the probe inlet, opening the three-way valve, and pulling a vacuum approximately 250 mm Hg on the syst while observing the rate meter for flow. flow is indicated on the rate meter, do r proceed further until the leak is found a corrected.

Purge the system with sample gas by serting the probe into the stack and drawi sample through the system at 300 ml/m $\pm$10 percent for 5 minutes. Connect the ev uated Tedlar bag to the system, record t starting time, and sample at a rate of 3 ml/min for 30 minutes, or until the Tedl bag is nearly full. Record the sampling tin the barometric pressure, and the ambie temperature. Purge the system as describ above immediately before each sample.

The scrubbing solution is adequate for moving sulfur and nitrogen oxides from liters of stack gas when the concentration each is less than 1,000 ppm and the CO_2 cc centration is less than 15 percent. Repla the scrubber solution after every fift sample.

4.3 Carbon Dioxide Measurement. Mea ure the CO_2 content in the stack to th nearest 0.5 percent each time a CO samp is collected. A simultaneous grab samp analyzed by the Fyrite analyzer is accept ble.

4.4 Analysis. Assemble the system show in Figure 10A-3, and record the informatic required in Table 10A-1 as it is obtaine Pipet 10.0 ml of the colorimetric reager into each gas reaction bulb, and attach th bulbs to the system. Open the stopcocks the reaction bulbs, but leave the valve t the Tedlar bag closed. Turn on the pum fully open the coarse-adjust flow valve, ar slowly open the fine-adjust valve until th pressure is reduced to at least 40 mm H Now close the coarse adjust valve, and ol serve the manometer to be certain that th system is leak-free. Wait a minimum of minutes. If the pressure has increased les than 1 mm, proceed as described below. If leak is present, find and correct it befor proceeding further.

TABLE 10A-1. DATA RECORDING SHEET FOR SAMPLES ANALYZED IN TRIPLICATE

Sample no./Type	Room temp., °C	Stack % CO_2	Bulb no.	Bulb vol., liters	Reagent vol. in bulb, liter	Partial pressure of gas in bulb mm Hg	P_{bar}, mm Hg	Shaking time, min	Abs versus water	$A - A_r$	A_s	Avg. A_s
Blank												
Std. 1												
Std. 2												
Sample 1												
Sample 2												
Sample 3												

Record the vacuum pressure (P_v) to the nearest 1 mm Hg, and close the reaction bulb stopcocks. Open the Tedlar bag valve, and allow the system to come to atmospheric pressure. Close the bag valve, open the pump coarse adjust valve, and evacuate the system again. Repeat this fill/evacuation procedure at least twice to flush the manifold completely. Close the pump coarse adjust valve, open the Tedlar bag valve, and let the system fill to atmospheric pressure. Open the stopcocks to the reaction bulbs, and let the entire system come to atmospheric pressure. Close the bulb stopcocks, remove the bulbs, record the room temperature and barametric pressure (P_{bar}, to nearest mm Hg), and place the bulbs on the shaker table with their main axis either parallel to or perpendicular to the plane of the table top. Purge the bulb-filling system with ambient air for several minutes between samples. Shake the samples for exactly 2 hours.

Immediately after shaking, measure the absorbance (A) of each bulb sample at 425 nm if the concentration is less than or equal to 400 ppm CO or at 600 nm if the concentration is above 400 ppm. This may be accomplished with multiple bulb sets by sequentially collecting sets and adding to the shaker at staggered intervals, followed by sequentially removing sets from the shaker for absorbance measurement after the two-hour designated intervals have elapsed.

Use a small portion of the sample to rinse a spectrophotometer cell several times before taking an aliquot for analysis. If one cell is used to analyze multiple samples, rinse the cell several times between samples with water.

Prepare and analyze standards and a reagent blank as described in Section 5.3. Use water as the reference. Reject the analysis if the blank absorbance is greater than 0.1. All conditions should be the same for analysis of samples and standards. Measure the absorbances as soon as possible after shaking is completed. Determine the CO concentration of each bag sample using the calibration curve for the appropriate concentration range as discussed in Section 5.3.

5. *Calibration*

5.1 *Bulb Calibration.* Weigh the empty bulb to the nearest 0.1 g. Fill the bulb to the stopcock with water, and again weigh to the nearest 0.1 g. Subtract the tare weight, and calculate the volume in liters to three significant figures using the density of water (at the measurement temperature). Record the volume on the bulb; alternatively, mark an identification number on the bulb, and record the volume in a notebook.

5.2 *Rate Meter Calibration.* Assemble the system as shown in Figure 10A-1 (the impingers may be removed), and attach a volume meter to the probe inlet. Set the rotameter at 300 ml/min, record the volume meter reading, start the pump, and pull gas through the system for 10 minutes. Record the final volume meter reading. Repeat the procedure and average the results to determine the volume of gas that passed through the system.

5.3 Spectrophotometer Calibration Curve. The calibration curve is established by taking at least two sets of three bulbs of known CO collected from Tedlar bags through the analysis procedure. Reject the standard set where any of the individual bulb absorbances differ from the set mean by more than 10 percent. Collect the standards as described in Section 4.2. Prepare standards to span the 0- to 400- or 400- to 1000-ppm range. If any samples span both concentration ranges, prepare a calibration curve for each range. A set of three bulbs containing colorimetric reagent but no CO should serve as a reagent blank and be taken through the analysis procedure.

Calculate the average absorbance for each set (3 bulbs) of standards using Equation 10A-1 and Table 10A-1. Construct a graph of average absorbance for each standard against its corresponding concentration in ppm. Draw a smooth curve through the points. The curve should be linear over the two concentration ranges discussed in Section 1.3.1.

6. Calculations

Carry out calculations retaining at least one extra decimal figure beyond that of the acquired data. Round off figures after final calculation.

6.1 Nomenclature.

A=Sample absorbance, uncorrected for the reagent blank.
A_r=Aborbance of the reagent blank.
A_s=Average sample absorbance per liter, units/liter.
B_w=Moisture content in the bag sample.
C=CO concentration in the stack gas, dry basis, ppm.
C_b=CO concentration of the bag sample, dry basis, ppm.
C_g=CO concentration from the calibration curve, ppm.
F=Volume fraction of CO_2 in the stack.
n=Number of reaction bulbs used per bag sample.
P_{bar}=Barometric pressure, mm Hg.
P_r=Residual pressure in the sample bulb after evacuation, mm Hg.
P_w=Vapor pressure of H_2O in the bag (from Table 10A-2), mm Hg.
V_b=Volume of the sample bulb, liters.
V_r=Volume of reagent added to the sample bulb, 0.0100 liter.

6.2 Average Sample Absorbance per Liter.

Average the three absorbance values for each bulb set. Then calculate A_s for each set of gas bulbs using Equation 10A-1. Use A_s to determine the CO concentration from the calibration curve (C_g).

$$A_s = \frac{(A - A_r)\,(P_{bar})}{(V_b - V_r)\,(P_{bar} - P_r)} \qquad \text{Eq. 10A-1}$$

NOTE: A and A_r must be at the same wavelength.

6.3 CO Concentration in the Bag.

Calculate C_b using Equations 10A-2 and 10A-3. If condensate is visible in the Tedlar bag, calculate B_w using Table 10A-2 and the temperature and barometric pressure in the analysis room. If condensate is not visible, calculate B_w using the temperature and barometric pressure recorded at the sampling site.

$$B_w = \frac{P_w}{P_{bar}} \qquad \text{Eq. 10A-2}$$

$$C_b = \frac{C_g}{(1 - B_w)} \qquad \text{Eq. 10A-3}$$

6.4 CO Concentration in the Stack.

$$C = C_b\,(1 - F) \qquad \text{Eq. 10A-4}$$

TABLE 10A-2. MOISTURE CORRECTION

Temperature, °C	Vapor pressure of H_2O, mm Hg	Temperature, °C	Vapor pressure of H_2O, mm Hg
4	6.1	18	15.5
6	7.0	20	17.5
8	8.0	22	19.8
10	9.2	24	22.4
12	10.5	26	25.2
14	12.0	28	28.3
16	13.6	30	31.8

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3. Lambert, J.L., and R.E. Weins. Induced Colorimetric Method for Carbon Monoxide. Analytical Chemistry. *46*(7):929-930. June 1974.

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METHOD 10B—DETERMINATION OF CARBON MONOXIDE EMISSIONS FROM STATIONARY SOURCES

1. Applicability and Principle

1.1 Applicability. This method applies to the measurement of carbon monoxide (CO) emissions at petroleum refineries and from other sources when specified in an applicable subpart of the regulations.

1.2 Principle. An integrated gas sample is extracted from the sampling point and analyzed for CO. The sample is passed through a conditioning system to remove interferences and collected in a Tedlar bag. The CO is separated from the sample by gas chromatography (GC) and catalytically reduced to methane (CH_4) prior to analysis by flame ionization detection FID. The analytical portion of this method is identical to applicable sections in Method 25 detailing CO measurement. The oxidation catalyst re-

APPENDIX K

CALCULATION EQUATIONS

CALCULATION EQUATIONS

METHOD 10

$$CO{\cdot}PPM{\cdot}DRY = CO_{CO_2} - free,\ dry,\ avg\ (1 - CO_2,\ d/100)$$

$$CO{\cdot}PPM{\cdot}WET = CO{\cdot}PPM{\cdot}DRY\ (1 - MC/100)$$

$$GR/DSCF = 5.0885\ X\ 10^{-4}\ (CO{\cdot}PPM{\cdot}DRY)$$

$$mg/dscm = 1.165\ (CO{\cdot}PPM{\cdot}DRY)$$

$$\dot{m} = 8.5714\ x\ 10^{-3}\ (GR/DSCF)\ (Q_{s,d})$$

$$E = \frac{2.9857\ x\ 10^{-3}\ F_d\ (GR/DSCF)}{20.9 - O_{2,\ d}}$$

where:

CO_{CO_2} - *free, dry, avg*

	=	average of two determinations of carbon monoxide on a dry, CO_2 - free integrated flue gas sample reported in ppm by volume
$CO_{2,\ d}$	=	carbon dioxide concentration of flue gas on a dry percent by volume basis
$O_{2,\ d}$	=	oxygen concentration of flue gas on a dry percent by volume basis

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MC	=	moisture content of flue gas on a percent by volume basis
CO·PPM·DRY	=	carbon monoxide concentration in ppm by volume on a dry basis
CO·PPM·WET	=	carbon monoxide concentration in ppm by volume on a wet or actual basis
GR/DSCF	=	concentration of carbon monoxide in flue gas on a grains per dry standard cubic foot basis (68 °F, 29.92 IN. HG.)
mg/dscm	=	concentration of carbon monoxide in flue gas on a milligrams per dry standard cubic meter basis (60 °F, 29.92 IN. HG.)
$\dot{m}$	=	emissions or mass rate of carbon monoxide on a LB/HR basis
$Q_{s,d}$	=	volumetric flow rate of flue gas in dry standard cubic feet per minute
E	=	emission factor of carbon monoxide in pounds of carbon monoxide emitted per million BTU heat input (LB/MMBTU)
F_d	=	F-Factor of respective fuel in dry standard cubic feet of exhaust gas at 0% oxygen per million BTU of heat input (DSCF/MMBTU)

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Interpoll Laboratories, Inc.
(612) 786-6020

CARBON MONOXIDE CONCENTRATION CALCULATION

EPA METHOD 10
(WITH ALTERNATIVE INTERFERENCE TRAP)

$$C_{CO_{stack}} = C_{CO_{NDIR}} \left(1 - \left(f_{CO_2} - f_{RCO_2}\right)\right)$$

where:

$C_{CO_{STACK}}$ = Concentration of CO in stack, ppm by volume (dry basis)

$C_{CO_{NDIR}}$ = Concentration of CO measured by NDIR analyzer, ppm by volume (dry basis)

f_{CO_2} = Volume fraction of CO_2 in sample

f_{RCO_2} = Volume fraction of residual CO_2 in sample after scrubbing.

		LP- HAYWARD			Report No. 4-3688					
		Hayward, Wisconsin								
				Carbon Monoxide						
Line 2 Dryer RTO Stack				LB/HR Calculations			*Line 1 Dryer RTO Stack*			
RUN	CO ppm	Flow	LB/DSCF	LB/HR		RUN	CO ppm	Flow	LB/DSCF	LB/HR
1	277	64296	2.01E-05	77.64444		1	385	54950	2.8E-05	92.23061
2	449	67839	3.26E-05	132.7922		2	401	53114	2.91E-05	92.85387
3	174	70246	1.26E-05	53.28654		3	480	59647	3.49E-05	124.8178
4	241	69468	1.75E-05	72.9875		4	621	58462	4.51E-05	158.2749
5	325	65764	2.36E-05	93.17904		5	553	57376	4.02E-05	138.3254
6	369	66648	2.68E-05	107.2161		6	456	57137	3.31E-05	113.5871
7	553	63574	4.02E-05	153.2679		7	216	59025	1.57E-05	55.58228
8	370	66822	2.69E-05	107.7874		8	394	57931	2.86E-05	99.50706
9	409	64830	2.97E-05	115.5968		9	262	59013	1.9E-05	67.40555
10	393	62952	2.86E-05	107.8571		10	153	57803	1.11E-05	38.55569
11	506	64973	3.68E-05	143.3277		11	232	62201	1.69E-05	62.91178
12	449	62925	3.26E-05	123.1732		12	290	61419	2.11E-05	77.65106
Line 1 Press RTO Stack						*Line 2 Press RTO Stack*				
RUN	CO ppm	Flow	LB/DSCF	LB/HR		RUN	CO ppm	Flow	LB/DSCF	LB/HR
1	18.5	65422	1.34E-06	5.276454		1	11.6	77185	8.43E-07	3.90335
2	15.5	66759	1.13E-06	4.511159		2	12.5	77583	9.08E-07	4.227886
3	15.7	67198	1.14E-06	4.599415		3	12.8	75642	9.3E-07	4.221041
4	14.9	66676	1.08E-06	4.331142		4	12.7	76543	9.23E-07	4.23795
5	16.5	65316	1.2E-06	4.698402		5	13.7	76657	9.95E-07	4.578456
6	15.4	65374	1.12E-06	4.389069		6	11.3	76896	8.21E-07	3.788165
7	13.4	64686	9.74E-07	3.778868		7	10.3	77097	7.48E-07	3.461954
8	12.9	66275	9.37E-07	3.727229		8	10.6	76946	7.7E-07	3.55581
9	17.1	62727	1.24E-06	4.676245		9	17.1	76092	1.24E-06	5.672595
10	16.2	65860	1.18E-06	4.651397		10	9.8	76300	7.12E-07	3.259847
11	15.7	64988	1.14E-06	4.44815		11	8.1	76082	5.89E-07	2.686665
12	15.9	64923	1.16E-06	4.500309		12	8.3	75359	6.03E-07	2.726841

APPENDIX L

CALIBRATION DRIFT DATA

Dryer #1 Normal Opacity Calibration Report
LOUISIANA PACIFIC
05:00:00 08-23-1994

SAMPLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
Zero	-2.13	-1.20	0.00	0.93	102.42
Span	43.33	44.62	45.28	1.29	30.66

Dirt Drift % 0.92

Stack Taper Ratio (Exit/Monitoring) 1.00

Dryer #1 Normal Opacity Calibration Report
LOUISIANA PACIFIC
05:00:00 08-22-1994

SAMPLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
Zero	-2.13	-1.23	0.00	0.90	102.47
Span	43.33	44.49	45.16	1.16	30.81

Dirt Drift % 0.89

Stack Taper Ratio (Exit/Monitoring) 1.00

Dryer #1 Normal Opacity Calibration Report
LOUISIANA PACIFIC
05:00:00 08-21-1994

SAMPLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
Zero	-2.13	-1.29	-0.00	0.84	102.59
Span	43.33	44.40	45.11	1.07	30.91

Dirt Drift % 0.83

Stack Taper Ratio (Exit/Monitoring) 1.00

Dryer #1 Normal Opacity Calibration Report
LOUISIANA PACIFIC
05:00:00 08-20-1994

SAMPLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
Zero	-2.13	-1.41	-0.00	0.72	102.83
Span	43.33	44.32	45.09	0.98	31.01

Dirt Drift % 0.71

Stack Taper Ratio (Exit/Monitoring) 1.00

Dryer #1 Normal Opacity Calibration Report
LOUISIANA PACIFIC
05:00:00 08-19-1994

SAMPLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
Zero	-2.13	-1.62	-0.00	0.50	103.27
Span	43.33	44.40	45.29	1.07	30.91

irt Drift % 0.50

tack Taper Ratio (Exit/Monitoring) 1.00

Dryer #1 Normal Opacity Calibration Report
LOUISIANA PACIFIC
05:00:00 08-18-1994

SAMPLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
Zero	-2.13	-1.44	-0.00	0.68	102.91
Span	43.34	44.30	45.09	0.96	31.03

Dirt Drift % 0.67

Stack Taper Ratio (Exit/Monitoring) 1.00

Dryer #1 Normal Opacity Calibration Report
LOUISIANA PACIFIC
05:00:00   08-17-1994

SAMPLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
Zero	-2.13	-1.54	-0.00	0.59	103.10
Span	43.34	44.32	45.16	0.98	31.01

Dirt Drift %   0.58

Stack Taper Ratio (Exit/Monitoring)   1.00

Dryer #2 Normal Opacity Calibration Report
LOUISIANA PACIFIC
07:00:03 08-23-1994

SAMPLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
Zero	2.93	3.68	0.00	0.75	92.77
Span	47.36	47.62	45.61	0.26	27.44

Det Drift % 0.78

Stack Taper Ratio (Exit/Monitoring) 1.00

Dryer #2 Normal Opacity Calibration Report
LOUISIANA PACIFIC
07:00:02   08-22-1994

:PLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
Zero	2.93	3.67	-0.00	0.74	92.80
:an	47.36	47.64	45.64	0.28	27.42

:rt Drift %   0.77

.ck Taper Ratio (Exit/Monitoring)   1.00

Dryer #2 Normal Opacity Calibration Report
LOUISIANA PACIFIC
07:00:02   08-21-1994

PLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
?ero	2.93	3.68	0.00	0.75	92.77
an	47.36	47.64	45.64	0.28	27.42

Drift %   0.78

ck Taper Ratio (Exit/Monitoring)   1.00

Dryer #2 Normal Opacity Calibration Report
LOUISIANA PACIFIC
07:00:02 08-20-1994

PLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
ro	2.93	3.49	-0.00	0.56	93.14
an	47.36	47.50	45.60	0.14	27.56

t Drift % 0.58

ck Taper Ratio (Exit/Monitoring) 1.00

Dryer #2 Normal Opacity Calibration Report
LOUISIANA PACIFIC
07:00:02 08-19-1994

PLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
Zero	2.93	3.62	-0.00	0.69	92.90
pan	47.36	47.52	45.55	0.16	27.54

Drift % 0.72

k Taper Ratio (Exit/Monitoring) 1.00

Dryer #2 Normal Opacity Calibration Report
LOUISIANA PACIFIC
07:00:02 08-18-1994

SAMPLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
Zero	2.93	3.31	0.00	0.39	93.48
Span	47.36	47.52	45.72	0.16	27.54

Dirt Drift % 0.40

Stack Taper Ratio (Exit/Monitoring) 1.00

Dryer #2 Normal Opacity Calibration Report
LOUISIANA PACIFIC
07:00:02 08-17-1994

SAMPLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
Zero	2.93	3.34	0.00	0.41	93.43
Span	47.36	47.52	45.71	0.16	27.54

Dirt Drift % 0.43

Stack Taper Ratio (Exit/Monitoring) 1.00

Press #1 Normal Opacity Calibration Report
LOUISIANA PACIFIC
05:00:00 08-23-1994

SAMPLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
Zero	0.28	0.26	-0.00	-0.02	99.49
Span	45.30	44.87	44.73	-0.43	30.40

Dirt Drift % -0.02

Stack Taper Ratio (Exit/Monitoring) 1.00

Press #1 Normal Opacity Calibration Report
LOUISIANA PACIFIC
05:00:00 08-22-1994

SAMPLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
Zero	0.28	0.23	-0.00	-0.04	99.54
Span	45.30	45.02	44.90	-0.28	30.22

irt Drift % -0.04

Stack Taper Ratio (Exit/Monitoring) 1.00

Press #1 Normal Opacity Calibration Report
LOUISIANA PACIFIC
05:00:00 08-21-1994

SAMPLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
ero	0.28	0.16	-0.00	-0.12	99.68
Span	45.30	44.91	44.82	-0.39	30.35

rt Drift % -0.12

Stack Taper Ratio (Exit/Monitoring) 1.00

Press #1 Normal Opacity Calibration Report
LOUISIANA PACIFIC
05:00:00 08-20-1994

SAMPLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
Zero	0.28	-0.02	0.00	-0.30	100.05
Span	45.30	44.96	44.97	-0.34	30.30

Drift % -0.30

Stack Taper Ratio (Exit/Monitoring) 1.00

Press #1 Normal Opacity Calibration Report
LOUISIANA PACIFIC
05:00:00 08-19-1994

SAMPLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
ero	0.28	0.38	-0.00	0.10	99.24
Span	45.30	45.00	44.79	-0.30	30.25

D rt Drift % 0.10

Stack Taper Ratio (Exit/Monitoring) 1.00

Press #1 Normal Opacity Calibration Report
LOUISIANA PACIFIC
05:00:00   08-18-1994

SAMPLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
ero	0.27	0.20	-0.00	-0.08	99.61
Span	45.30	45.07	44.96	-0.23	30.18

rt Drift % -0.08

Stack Taper Ratio (Exit/Monitoring) 1.00

Press #1 Normal Opacity Calibration Report
LOUISIANA PACIFIC
05:00:00 08-17-1994

SAMPLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
Zero	0.27	0.12	0.00	-0.15	99.76
Span	45.30	45.09	45.02	-0.21	30.15

irt Drift % -0.15

Stack Taper Ratio (Exit/Monitoring) 1.00

Press #2 Normal Opacity Calibration Report
LOUISIANA PACIFIC
05:00:00 08-23-1994

SAMPLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
Zero	0.00	0.18	-0.00	0.18	99.63
Span	44.92	45.13	45.03	0.22	30.10

...rt Drift % 0.18

...ack Taper Ratio (Exit/Monitoring) 1.00

Press #2 Normal Opacity Calibration Report
LOUISIANA PACIFIC
05:00:00   08-22-1994

SAMPLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
Zero	0.00	0.38	0.00	0.38	99.24
Span	44.92	45.22	45.01	0.31	30.00

Dirt Drift %   0.38

Stack Taper Ratio (Exit/Monitoring)   1.00

Press #2 Normal Opacity Calibration Report
LOUISIANA PACIFIC
05:00:00 08-21-1994

SAMPLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
Zero	0.00	0.34	-0.00	0.34	99.32
Span	44.92	45.13	44.95	0.22	30.10

Start Drift % 0.34

Stack Taper Ratio (Exit/Monitoring) 1.00

Press #2 Normal Opacity Calibration Report
LOUISIANA PACIFIC
05:00:00 08-20-1994

MPLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
Zero	0.00	0.31	0.00	0.31	99.39
pan	44.92	45.07	44.90	0.15	30.18

Dirt Drift % 0.31

ack Taper Ratio (Exit/Monitoring) 1.00

Press #2 Normal Opacity Calibration Report
LOUISIANA PACIFIC
05:00:00 08-19-1994

SAMPLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
Zero	0.00	0.24	-0.00	0.24	99.51
Span	44.92	44.85	44.71	-0.07	30.42

...t Drift % 0.25

Stack Taper Ratio (Exit/Monitoring) 1.00

Press #2 Normal Opacity Calibration Report
LOUISIANA PACIFIC
05:00:00 08-18-1994

SAMPLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
Zero	-0.00	0.34	0.00	0.34	99.32
Span	44.92	45.00	44.81	0.08	30.25

Dirt Drift % 0.35

Stack Taper Ratio (Exit/Monitoring) 1.00

Press #2 Normal Opacity Calibration Report
LOUISIANA PACIFIC
05:00:00 08-17-1994

SAMPLE	CALIBRATION STANDARD	READING	ADJUSTED READING	PERCENT DRIFT	PERCENT TRANSMISSION
Zero	-0.00	0.12	0.00	0.12	99.76
Span	44.92	45.07	45.00	0.15	30.18

Dirt Drift % 0.12

Stack Taper Ratio (Exit/Monitoring) 1.00

APPENDIX M

TRANSMISSOMETER FACTORY PERFORMANCE SPECIFICATION TESTS

(Provided by Louisiana-Pacific)

TRANSMISSOMETER FACTORY PERFORMANCE
SPECIFICATION TESTS
PER
CODE OF FEDERAL REGULATIONS
TITLE 40, PART 60, APPENDIX B, SPECIFICATION 1

UNITED SCIENCES INC.
MODEL 500C COMPLIANCE OPACITY MONITOR

SERIAL NO: 0993724

TRANSMISSOMETER PERFORMANCE SPECIFICATION TESTS

PER

CODE OF FEDERAL REGULATIONS

TITLE 40, PART 60, APPENDIX B

SPECIFICATION 1

GRASEBY / STI

ID# Louisiana Pacific Chilco

Transmissometer Serial No. 0993724

This signed and completed document certifies that the Model 500C Transmissometer has been tested and meets the factory certification tests herein.

Signed

Dean Murray

Please Print Above Signature

Date: 3-16-94

IDENT NO. C93GRG09

TRANSMISSOMETER FACTORY PERFORMANCE
SPECIFICATION TESTS
PER
CODE OF FEDERAL REGULATIONS
TITLE 40, PART 60, APPENDIX B, SPECIFICATION 1

UNITED SCIENCES INC.
MODEL 500C COMPLIANCE OPACITY MONITOR

SERIAL NO: 0993724

TABLE OF CONTENTS

1.0 INTRODUCTION

This report describes the procedures used and the test results obtained during testing of the United Sciences Inc. (USI) Model 500C Transmissometer.

These tests were conducted in accordance with the Code of Federal Regulations, Title 40, Part 60, Appendix B, Specification 1.

2.0 TEST RESULTS SUMMARY

A summary of test results is listed here in tabular form for quick reference. Discussions of test procedures, actual test data, and calculations will be described later in the appropriate sections of this report.

2.1 DESIGN SPECIFICATIONS

Refer to Manufacturer's Certificate of Conformance with Design Specifications, page 2.

2.2 PERFORMANCE SPECIFICATIONS

2.2.1 CALIBRATION ERROR

Low Filter	0.31	% Opacity
Mid Filter	0.73	% Opacity
High Filter	0.86	% Opacity

2.2.2 RESPONSE TIME . . . . 2.11 seconds

3.0 INSTRUMENT DESCRIPTION

The USI Model 500C transmissometer is a double-pass, two detector analyzer designed to continuously monitor the opacity of effluent in a duct or stack exhausting combustion gases.

The analyzer uses a special solid state light source (Light Emitting Diode) to project a modulated light beam from the optical head assembly through a medium of interest to the passive retroreflector. The retroreflector returns the beam through the medium to the optical head where the beam is refocused onto the "signal" detector. A second "reference" detector is used in the optical head assembly to monitor and control the output of the LED in order to provide long term operational stability regardless of extremes in ambient temperature or aging of optical and electronic components.

United Sciences inc.
5310 NORTH PIONEER ROAD • GIBSONIA, PA 15044 • 412 - 443-8610 • FAX 412 - 443-4025

MANUFACTURER'S CERTIFICATE OF CONFORMANCE WITH DESIGN SPECIFICATIONS

United Sciences Inc. certifies that the Model 500C transmissometer randomly sampled from the September 1993 production was tested according to Sections 6.1 through 6.4 of the Code of Federal Regulations, Title 40, Part 60, Appendix B, Specification 1 and met all requirements of Section 5 of this specification.

Test results are listed below. These data are valid for Serial Numbers 0993534 through 0993743.

Serial Number Tested - 0993541

5.1.1 Spectral Response

Relative Response	Wavelength
Peak	570nm
Mean	576nm
< 1%	< 400nm
< 1%	> 700nm

5.1.2	Angle of View	≤ 3.24 Degrees
5.1.3	Angle of Projection Projection Aperture .141" Diam	≤ 2.67 Degrees
5.1.4	Optical Alignment	Provided
5.1.5	Simulated Zero and Upscale Calibration	Provided
5.1.6	Access to External Optics	Provided
5.1.7	Auto Zero Compensation Indicator	Provided
5.1.8	Slotted Tube	Not Applicable
5.1.9	External Calibration Filter Access	Provided

Signed: ____________________

By: Joseph Ziolkowski

Date: September 19, 1993

A calibration wheel, located in the optical head, rotates continuously in front of the projected beam in order to provide simulated zero and upscale calibration values. Signals proportional to the simulated zero, upscale calibration, and the opacity of the effluent are time multiplexed and transmitted via a 0-20 mA current loop to the microprocessor controlled remote display panel.Assessment of these signals by the microprocessor permits the remote display panel to correct the opacity data for dirt accumulation on the optical surfaces and to output the amount of the automatic zero correction to the digital display.

Since the simulated zero, upscale calibration, and actual opacity values are monitored continuously by the microprocessor, the panel can immediately provide alarms to indicate operational malfunctions without waiting for auto calibration cycle evaluation.

These data are analyzed by the remote display panel, and analog outputs are generated in terms of instantaneous and integrated opacity. These outputs may be corrected or uncorrected for stack geometry, depending on the specific user's needs.

A Calibration Kit is provided which may be installed on the Optical Head to check the operation of the analyzer while the stack or duct is in operation. Calibrated Neutral Density Filters may be installed in this fixture to provide audit and calibration information.

4.0 DESIGN SPECIFICATIONS

4.1 SPECTRAL RESPONSE

4.1.1 PROCEDURE

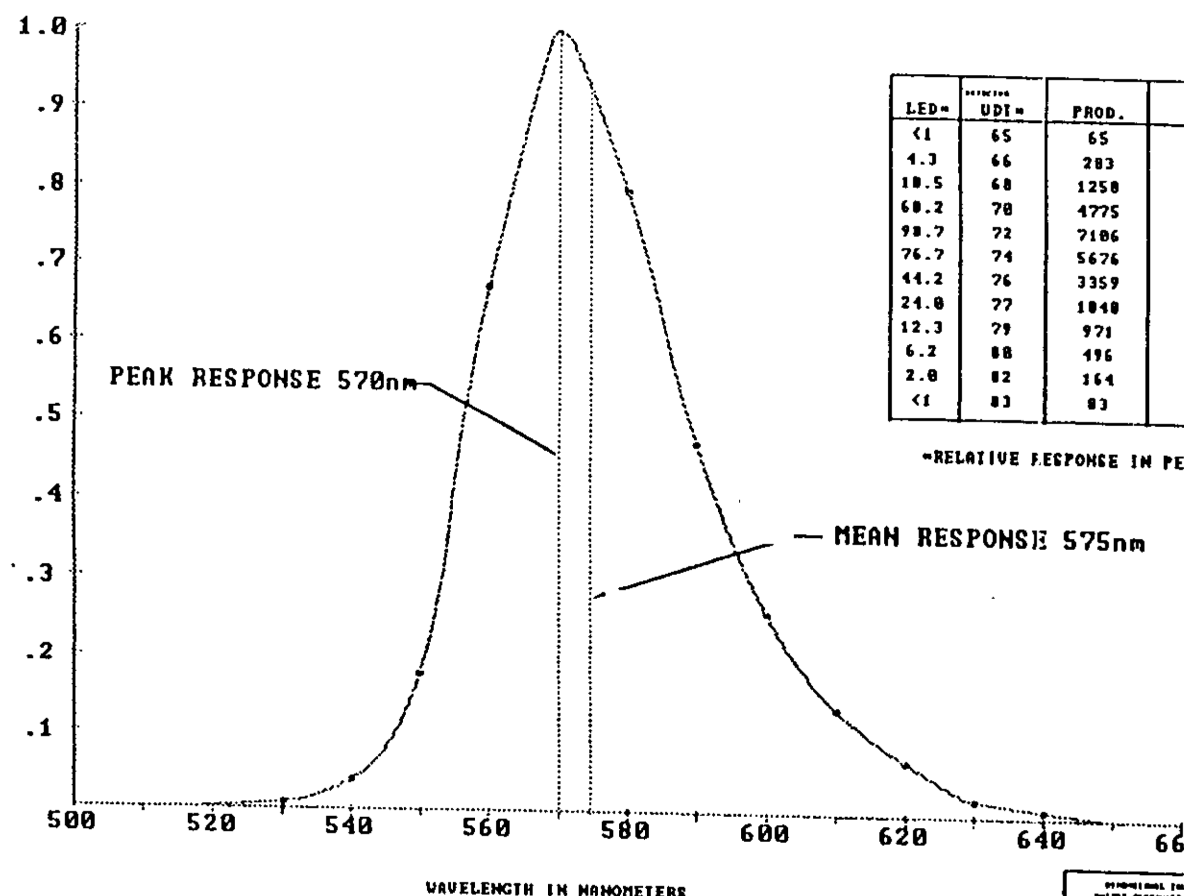
USI obtained curves of the spectral data of the yellow-green LED and the silicon photo diode from their respective manufacturers. The relative response of each curve was determined at 10 nanometer intervals and the product of the response of the two curves calculated. The product data were then normalized and a composite analyzer spectral response curve constructed. Reference Drawing No. 600-0005-01, Figure 1.

Since the entire output of the LED source falls within the 400 to 700nm range, the use of color correction filters is unnecessary.

4.1.2 RESULTS

The spectral data on the Manufacturer's Certificate of Conformance was obtained from the Analyzer Response Curve, Drawing No. 600-0005-01, and indicate that the analyzer met or exceeded the performance specification.

ANALYZER SPECTRAL RESPONSE
UNITED SCIENCES INC. MODEL 500C



LED*	UDI*	PROD.	RELATIVE RESPONSE	(NANOMETERS)
<1	65	65	0.009	530
4.3	66	283	0.039	540
18.5	68	1258	0.177	550
68.2	70	4775	0.672	560
98.7	72	7106	1.0	570
76.7	74	5676	0.799	580
44.2	76	3359	0.473	590
24.0	77	1840	0.260	600
12.3	79	971	0.137	610
6.2	80	496	0.070	620
2.0	82	164	0.023	630
<1	83	83	0.011	640

*RELATIVE RESPONSE IN PERCENT FROM MANU. CURVES

REVISIONS				
ZONE	SYM.	DESCRIPTION	DATE	APPD.

USED ON

AUTHORIZATION

EAS

GRG

JET

MAT'L.

FINISH

UNITED SCIENCES INC.

TITLE ANALYZER SPECTRAL RESPONSE CURVE

1-1

C

600-0005

4.2 ANGLE OF VIEW

4.2.1 PROCEDURE

USI chose an analyzer, Serial No. 0993541, at random and performed the angle of view test in both the vertical and horizontal directions. A small, 1.3 centimeter, quartz halogen light source was placed on an arc whose radius was 3 meters from the analyzer. The analyzer's response was monitored while the light source was moved until the analyzer's maximum response indicated the viewing centerline. The analyzer's response was then recorded at the centerline and at 5 centimeter intervals along the arc for a total of 30 centimeters on each side (see Figures 2 and 4). These readings were then normalized and the angle of view curves of Figures 3 and 5 constructed.

4.2.2 RESULTS

The angle of view reported on the Manufacturer's Certificate of Conformance was obtained from the angle of view curves, Figures 3 and 5, according to the formula:

$$\text{Angle of View in Degrees} = \arctan \frac{D}{300}$$

Where D = Total distance, in centimeters, along the arc during which the analyzer's response was greater than 2.5% of the peak response.

4.3 ANGLE OF PROJECTION

4.3.1 PROCEDURE

USI chose an analyzer, Serial No. 0993541, at random and performed an angle of projection test on the analyzer in both the vertical and the horizontal direction. A small, .25 centimeter, silicon photo diode was placed on an arc whose radius was 3 meters from the analyzer. The analyzer's projection system was focused to the 3 meter range and by measuring the output of the silicon photo diode the centerline of the projected beam was determined.

Measurements of the photo diode's output were recorded at the centerline and at 5 centimeter intervals for 30 centimeters on each side of the centerline (see Figures 6 and 8). These readings were then normalized and the angle of projection curves of Figures 7 and 9 were constructed.

4.3.2 RESULTS

The angle of projection reported on the Manufacturer's Certificate of Conformance was obtained from the angle of projection curves, Figures 7 and 9, according to the formula:

$$\text{Angle of Projection in Degrees} = \arctan \frac{D}{300}$$

Where D = Total distance in centimeters along the arc during which the detector response was greater than 2.5% of the peak response.

FIGURE 2

ANGLE OF VIEW TEST

1. VERTICAL/HORIZONTAL VERTICAL
2. SERIAL NO. TESTED 0993541
3. FOR ANALYZERS PRODUCED SEPTEMBER MONTH 1993 YEAR
4. VALID FOR SERIAL NOS. 0993534 through 0993743
5. LIGHT SOURCE SIZE 1.3 cm
6. DATE OF TEST SEPTEMBER 16, 1993
7. TEST PERSONNEL WILLIAM SMITH and JOSEPH ZIOLKOWSKI
8. RANGE: ANALYZER TO SOURCE 3 METERS
9. PC BOARD SERIAL NO. L-08715M-0493
10. TEST POINT USED FOR OUTPUT TP3

POSITION	READING	RELATIVE RESPONSE
+30 cm	-2.18	0.00%
+25 cm	-2.18	0.00%
+20 cm	-2.18	0.00%
+15 cm	-2.18	0.00%
+10 cm	-2.19	0.19%
+5 cm	-3.32	21.67%
0 cl	-7.44	100.00%
-5 cm	-2.27	1.71%
-10 cm	-2.18	0.00%
-15 cm	-2.18	0.00%
-20 cm	-2.18	0.00%
-25 cm	-2.18	0.00%
-30 cm	-2.18	0.00%

FIGURE 3

ANGLE OF VIEW (vertical)
SERIAL #0993541
Aperture= .141" Angle= 2.58 deg.
Month: Sept. 93
Test Date: 9/16/93

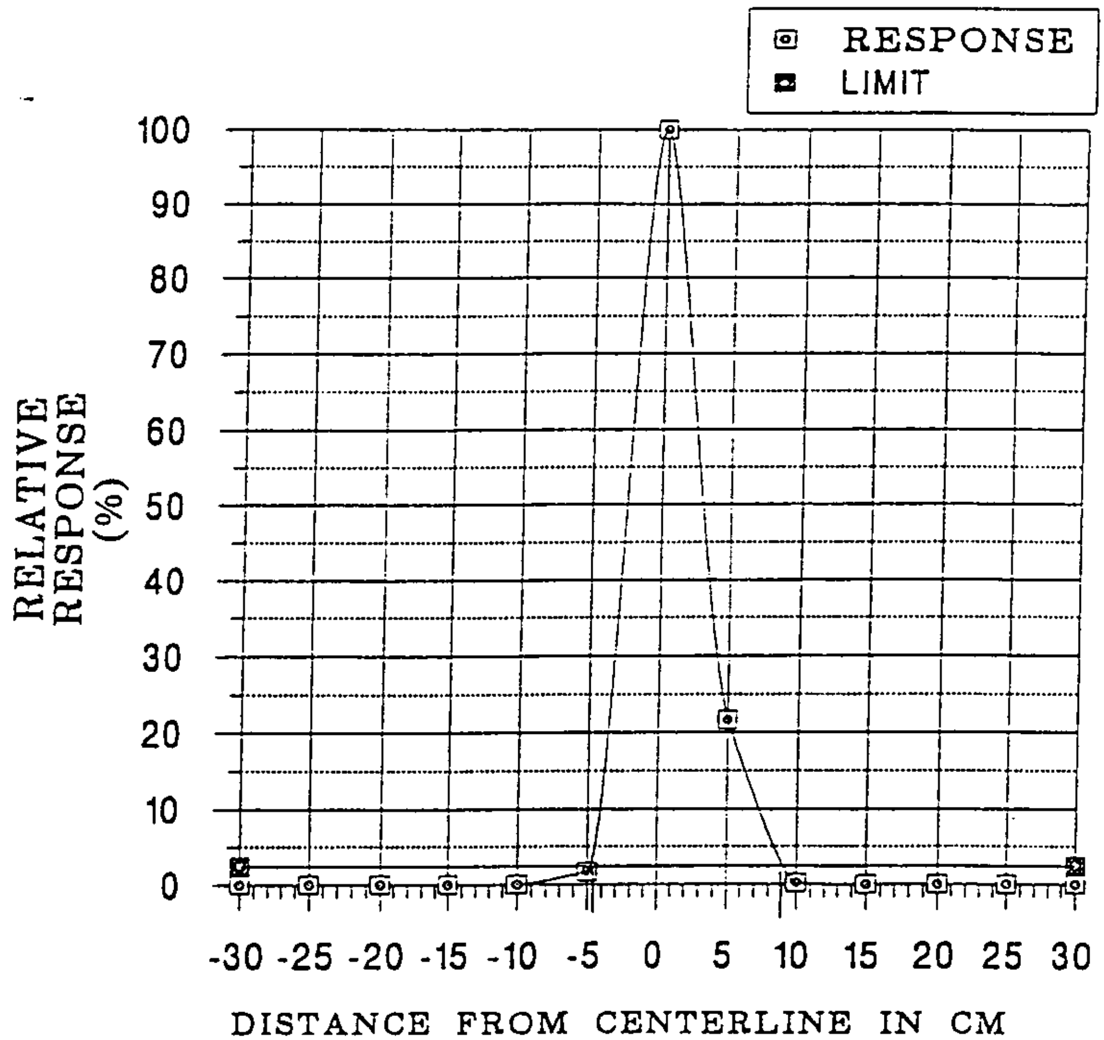


FIGURE 4

ANGLE OF VIEW TEST

1. VERTICAL/HORIZONTAL HORIZONTAL
2. SERIAL NO. TESTED 0993541
3. FOR ANALYZERS PRODUCED SEPTEMBER MONTH 1993 YEAR
4. VALID FOR SERIAL NOS. 0993534 through 0993743
5. LIGHT SOURCE SIZE 1.3 cm
6. DATE OF TEST SEPTEMBER 16, 1993
7. TEST PERSONNEL WILLIAM SMITH and JOSEPH ZIOLKOWSKI
8. RANGE: ANALYZER TO SOURCE 3 METERS
9. PC BOARD SERIAL NO. L-08715M-0493
10. TEST POINT USED FOR OUTPUT TP3

POSITION	READING	RELATIVE RESPONSE
+30 cm	-2.18	0.00%
+25 cm	-2.18	0.00%
+20 cm	-2.18	0.00%
+15 cm	-2.18	0.00%
+10 cm	-2.19	0.21%
+5 cm	-2.50	6.61%
0 cl	-7.02	100.00%
-5 cm	-3.12	19.42%
-10 cm	-2.19	0.21%
-15 cm	-2.19	0.21%
-20 cm	-2.18	0.00%
-25 cm	-2.18	0.00%
-30 cm	-2.18	0.00%

FIGURE 5

ANGLE OF VIEW (horiz.)
Serial #0993541
Aperture= .141" Angle= 3.24 deg.
Month: Sept. 93
Test Date: 9/16/93

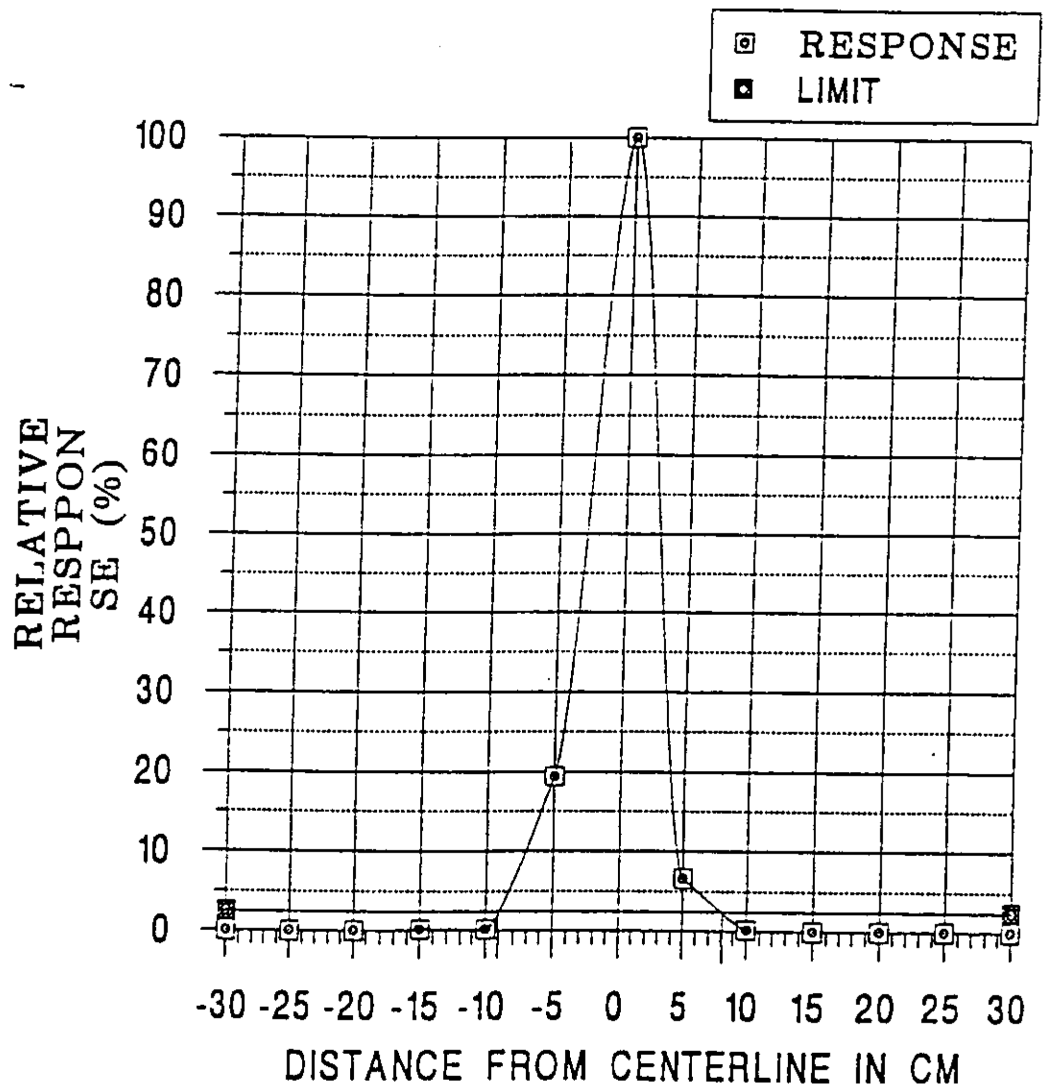


FIGURE 6

ANGLE OF PROJECTION TEST

1. VERTICAL/HORIZONTAL: VERTICAL
2. SERIAL NO. TESTED: 0993541
3. FOR ANALYZERS PRODUCED: SEPTEMBER MONTH 1993 YEAR
4. VALID FOR SERIAL NOS.: 0993534 through 0993743
5. DETECTOR SIZE: .25 cm
6. DATE OF TEST: SEPTEMBER 16, 1993
7. TEST PERSONNEL: WILLIAM SMITH and JOSEPH ZIOLKOWSKI
8. RANGE: ANALYZER TO DETECTOR: 3 METERS
9. PROJECTION APERATURE: .141 (-09)
10. PC BOARD SERIAL NO.: L-08715M-0493
11. TEST POINT USED FOR OUTPUT: TP12

POSITION	READING	RELATIVE RESPONSE
+30 cm	-0.11	0.00%
+25 cm	-0.11	0.00%
+20 cm	-0.11	0.00%
+15 cm	-0.11	0.00%
+10 cm	-0.11	0.00%
+5 cm	-0.21	1.40%
0 cl	-7.27	100.0%
-5 cm	-0.14	0.42%
-10 cm	-0.11	0.00%
-15 cm	-0.11	0.00%
-20 cm	-0.11	0.00%
-25 cm	-0.11	0.00%
-30 cm	-0.11	0.00%

FIGURE 7

ANGLE OF PROJECTION (vert.)
Serial # 0993541
Aperture= .141" Angle=1.53 deg.
Month: Sept. 93
Test Date: 9/16/93

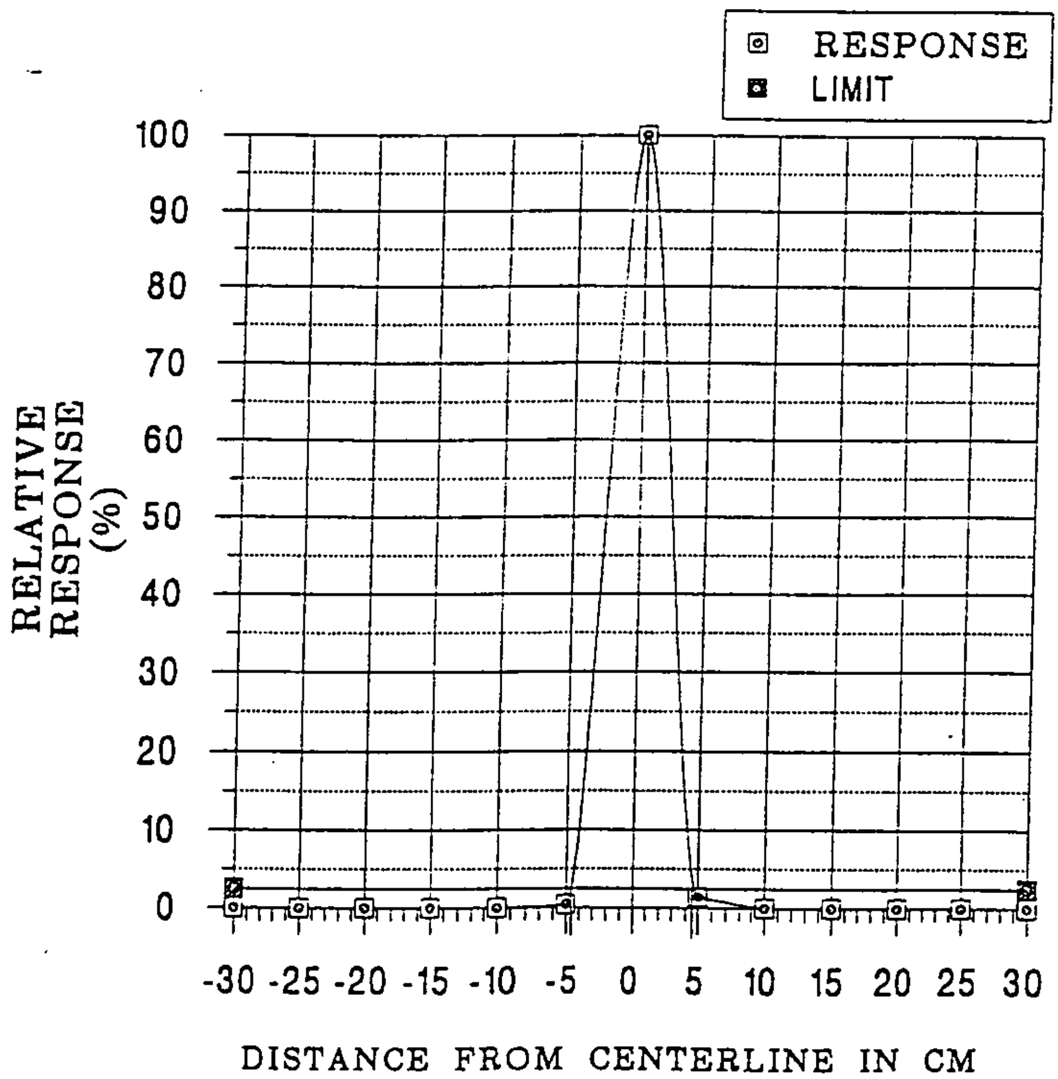


FIGURE 8

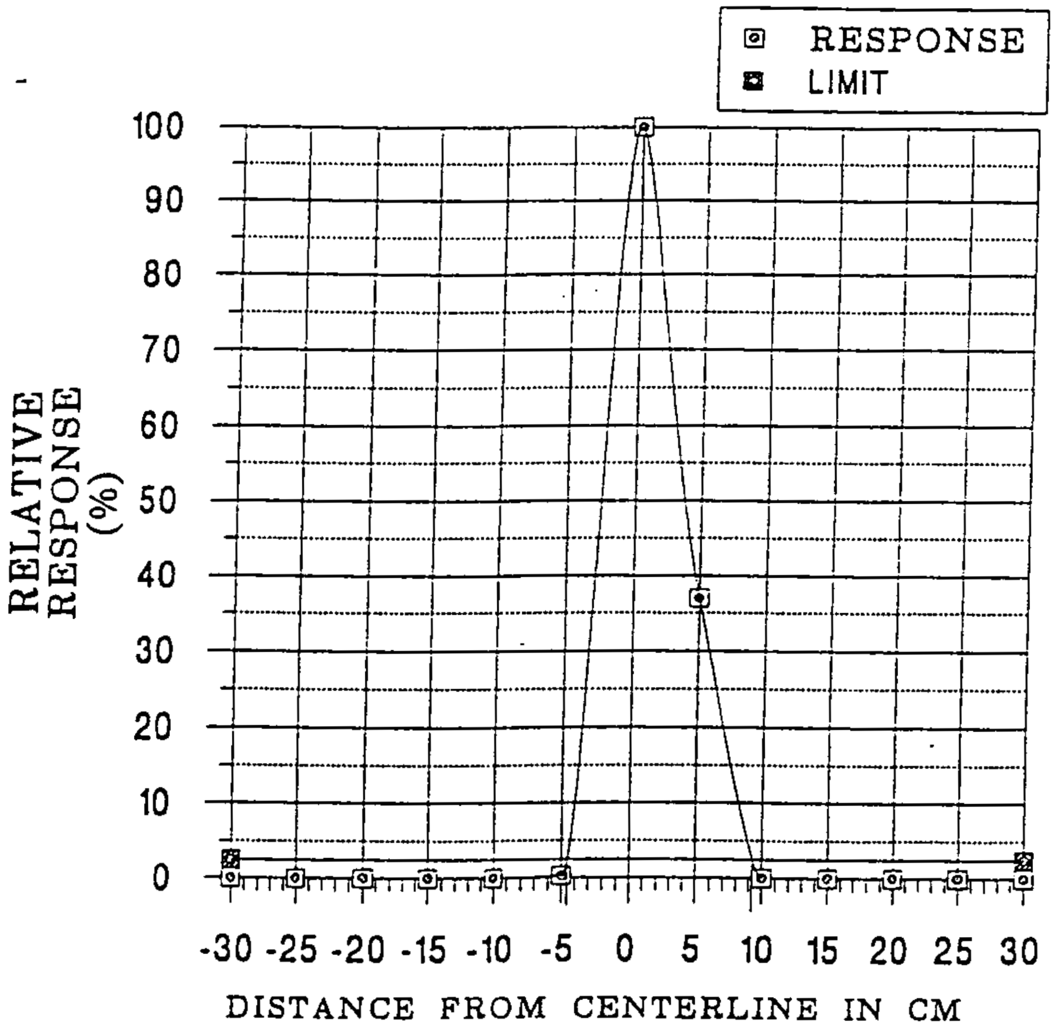
ANGLE OF PROJECTION TEST

1. VERTICAL/HORIZONTAL HORIZONTAL
2. SERIAL NO. TESTED 0993541
3. FOR ANALYZERS PRODUCED SEPTEMBER MONTH 1993 YEAR
4. VALID FOR SERIAL NOS. 0993534 through 0993743
5. DETECTOR SIZE .25 cm
6. DATE OF TEST SEPTEMBER 16, 1993
7. TEST PERSONNEL WILLIAM SMITH and JOSEPH ZIOLKOWSKI
8. RANGE: ANALYZER TO DETECTOR 3 METERS
9. PROJECTION APERATURE .141 (-09)
10. PC BOARD SERIAL NO. L-08715M-0493
11. TEST POINT USED FOR OUTPUT TP12

POSITION	READING	RELATIVE RESPONSE
+30 cm	-0.10	0.00%
+25 cm	-0.10	0.00%
+20 cm	-0.10	0.00%
+15 cm	-0.10	0.00%
+10 cm	-0.10	0.00%
+5 cm	-2.75	36.96%
0 cl	-7.27	100.00%
-5 cm	-0.12	0.28%
-10 cm	-0.10	0.00%
-15 cm	-0.10	0.00%
-20 cm	-0.10	0.00%
-25 cm	-0.10	0.00%
-30 cm	-0.10	0.00%

FIGURE 9

ANGLE OF PROJECTION (horiz)
Serial # 0993541
Aperture= .141" Angle= 2.67 deg
Month: Sept. 93
Test Date: 9/16/93



4.4 OPTICAL ALIGNMENT

4.4.1 PROCEDURE

USI chose an analyzer, Serial No. 0993541, at random from the September 1993 month's production and conducted an optical alignment sight test per Section 6.4 of 40 CFR Part 60, Appendix B, Specification 1. USI considers the optical system misaligned when the circle of the gunsight reticle intersects the edge of the retro image, as viewed from the optical head eyepiece.

4.4.2 RESULTS

The results of this test are shown in Figures 10, 11, and 12 and confirm that the Model 500C tested met or exceeded the Performance Specification. The instrument provided a clear indication when it was misaligned.

4.5 SIMULATED ZERO AND UPSCALE CALIBRATION

USI certifies that the Model 500C meets or exceeds the requirements of this specification and that compliance is inherent in the basic analyzer design details.

4.6 ACCESS TO EXTERNAL OPTICS

USI certifies that the Model 500C meets or exceeds the requirements of this specification and that compliance is inherent in the basic analyzer design details.

4.7 AUTO ZERO COMPENSATION INDICATOR

USI certifies that the Model 500C meets or exceeds the requirements of this specification and that compliance is inherent in the basic analyzer design details.

4.8 EXTERNAL CALIBRATION FILTER ACCESS

USI certifies that the Model 500C meets or exceeds the requirements of this specification and that compliance is inherent in the basic analyzer design details.

5.0 PERFORMANCE SPECIFICATIONS

5.1 CALIBRATION ERROR TEST

5.1.1 PROCEDURE

USI performed a Calibration Error test at the USI laboratory in Gibsonia, Pennsylvania, on the analyzer after the calibration and optical alignments were complete.

FIGURE 10

OPTICAL ALIGNMENT TEST

SERIAL NO. TESTED 0993541

FOR ANALYZERS PRODUCED SEPTEMBER MONTH 1993 YEAR

VALID FOR SERIAL NO. 0993534 through 0993743

DATE OF TEST SEPTEMBER 19, 1993

TEST PERSONNEL JOSEPH ZIOLKOWSKI

TEST DISTANCE 8 METERS

FILTER USED CLEAR

INSTRUMENT PROJECTION APERATURE .125 (-08)

Optical Head

1. OPACITY, PROPER ALIGNMMENT 9.4%

2A. OPACITY, VERTICAL MISALIGNMENT 11.4% ±2.0%

2B. DISTANCE BEAM OFFSET AT 8 METERS 1 1/8"

3A. OPACITY, LATERAL MISALIGNMENT 7.3% ±2.0%

3B. DISTANCE BEAM OFFSET AT 8 METERS 1 1/8"

Retro Reflector

1. OPACITY, PROPER ALIGNMENT 9.4%

2. OPACITY, LATERAL MISALIGNMENT 7.5%

3. DISTANCE OFFSET (APPARENT) INSIGHT IMAGE 1 1/8"

COMMENTS: IN ALL TESTS, THE CIRCLE IN THE GUNSIGHT INTERSECTED THE EDGE OF THE RETRO IMAGE BEFORE THE ±2% OPACITY MOVEMENT WAS INDICATED.

FIGURE 11

PROJECTOR UNIT
MISALIGNMENT TEST

SERIAL NO. TESTED 0993541

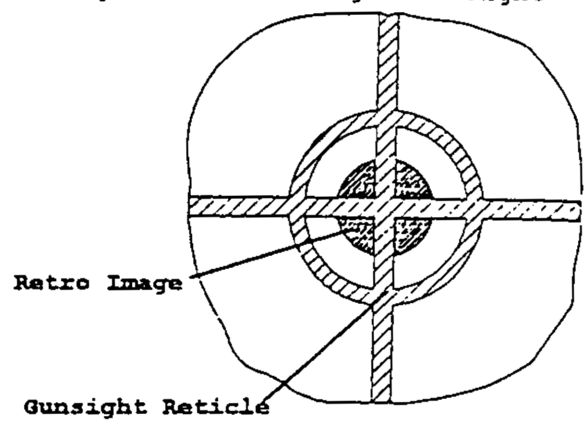
TEST DATE SEPTEMBER 19, 1993

FILTER VALUE CLEAR O.D.

TEST DISTANCE 8 METERS

TEST PERSONNEL JOSEPH ZIOLKOWSKI

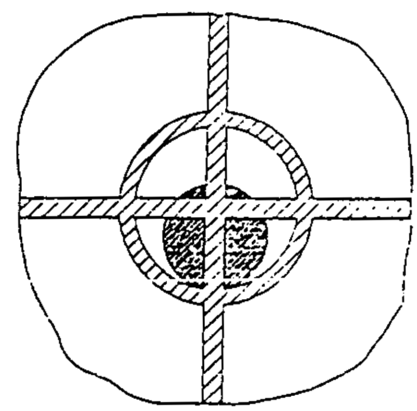
Image as viewed from optical head alignment sight



9.4 % OPACITY

VERTICAL MISALIGNMENT:

11.4 % OPACITY



HORIZONTAL MISALIGNMENT:

7.3 % OPACITY

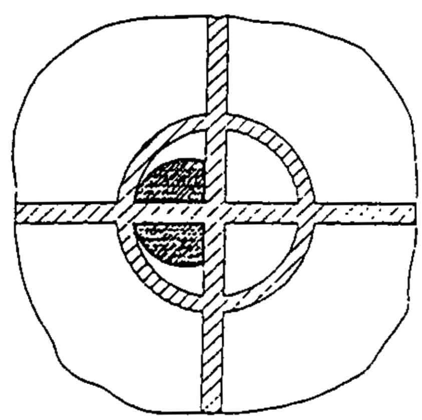


FIGURE 12

REFLECTOR UNIT
MISALIGNMENT TEST

SERIAL NO. TESTED 0993541

TEST DATE SEPTEMBER 19, 1993

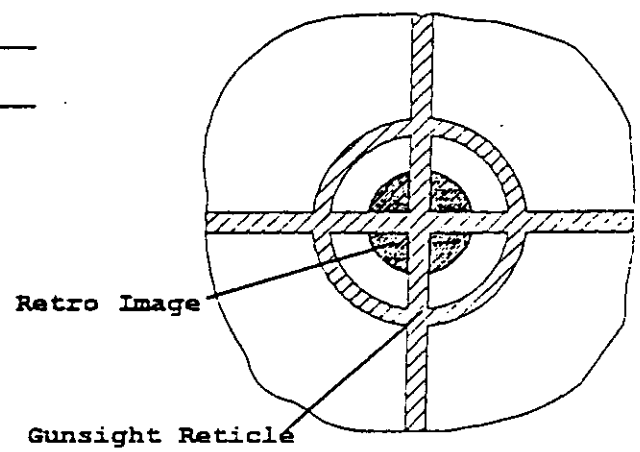
FILTER VALUE CLEAR

TEST DISTANCE 8 METERS

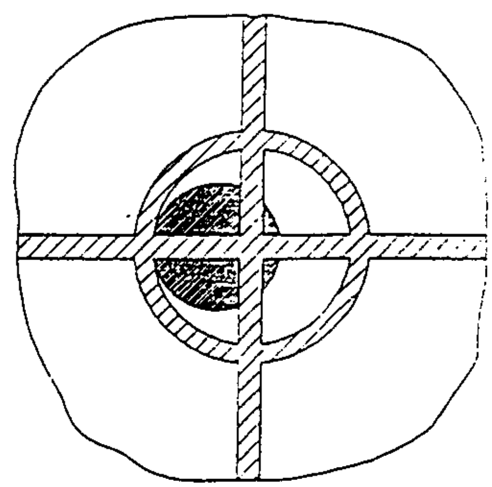
TEST PERSONNEL JOSEPH ZIOLKOWSKI

Image as viewed from optical head alignment sight

PROPERLY ALIGNED: 9.4 % OPACITY



LATERAL MISALIGNMENT: 7.5 % OPACITY



Low, mid, and high value neutral density attenuators were placed in the optical path between the Optical Head and the Retro. The analyzer's response to each attenuator was recorded. Each attenuator was measured five times non-consecutively, and its value was recorded in Figure 13. The test output device was a stripchart recorder, which was connected to the integrated analog output of the Remote Display panel.

5.1.2 RESULTS

The analyzer's response was subtracted from the pathlength adjusted neutral density attenuator value for each data point. The mean, standard deviation, confidence coefficient, and the total drift values were calculated and reported in Figure 13. These data indicate that the analyzer calibration error was less than three percent opacity for each filter and met or exceeded the performance specification.

5.2 RESPONSE TIME TEST

5.2.1 PROCEDURE

A high value attenuator was placed in the optical path and the time required for the analyzer to respond to 95% of the attenuator's value measured. The attenuator was then removed from the path and the time required for the analyzer to return to within 5% of its zero value measured. This procedure was then repeated until five upscale and five downscale times were recorded.

5.2.2 RESULTS

These data were recorded and a mean response time calculated in Figure 14.

5.3 NEUTRAL DENSITY ATTENUATORS

5.3.1 ATTENUATOR SELECTION

The values of the attenuators selected to perform the Calibration Error Test of Section 5.1 above are determined according to Section 7.1.2 of the CFR Title 40, Part 60, Appendix B, PS-1.

Low, mid, and high attenuators are chosen based on the analyzer full scale, and the automatic pathlength compensation (if any), and the availability of standard attenuator values. See Appendix A for the appropriate calculation used.

5.3.2 ATTENUATOR CALIBRATION

All attenuators were calibrated and maintained in accordance with all requirements of Section 7.1.3 of the Code of Federal Regulations Title 40, Part 60, Appendix B, Specification 1.

Certified calibration information is provided in Appendix B.

CALIBRATION ERROR TEST

Date: 03/16/94

Customer
GRASEBY / STI - LOUISIANA PACIFIC / CHILCO

Location of Test	GIBSONIA PA
Analyzer Manufacturer	UNITED SCIENCES INC.
Model Number	500C
Serial Number	0993724
Person Conducting Test	DEAN MURRAY
Person's Affiliation	UNITED SCIENCES

THE MONITORING SYSTEM IS NOT PATHLENGTH CORRECTED
Monitor calib. distance 9.479167 Feet

CALIBRATED NEUTRAL DENSITY ATTENUATOR VALUES

Serial Number	Stability Check Date	Certified Value Opacity	Corrected Value Opacity
NBS-026	1-6-94	22.50	22.50
NBS-003	1-6-94	59.80	59.80
NBS-039	1-6-94	85.70	85.70

CUSTOMER GRASEBY / STI
SO # 015694
DATE 9/14/94
☐ NO EXCEPTIONS NOTED
☐ EXCEPTIONS NOTED
☐ RETURNED FOR CORRECTIONS
☐ RECORD COPY
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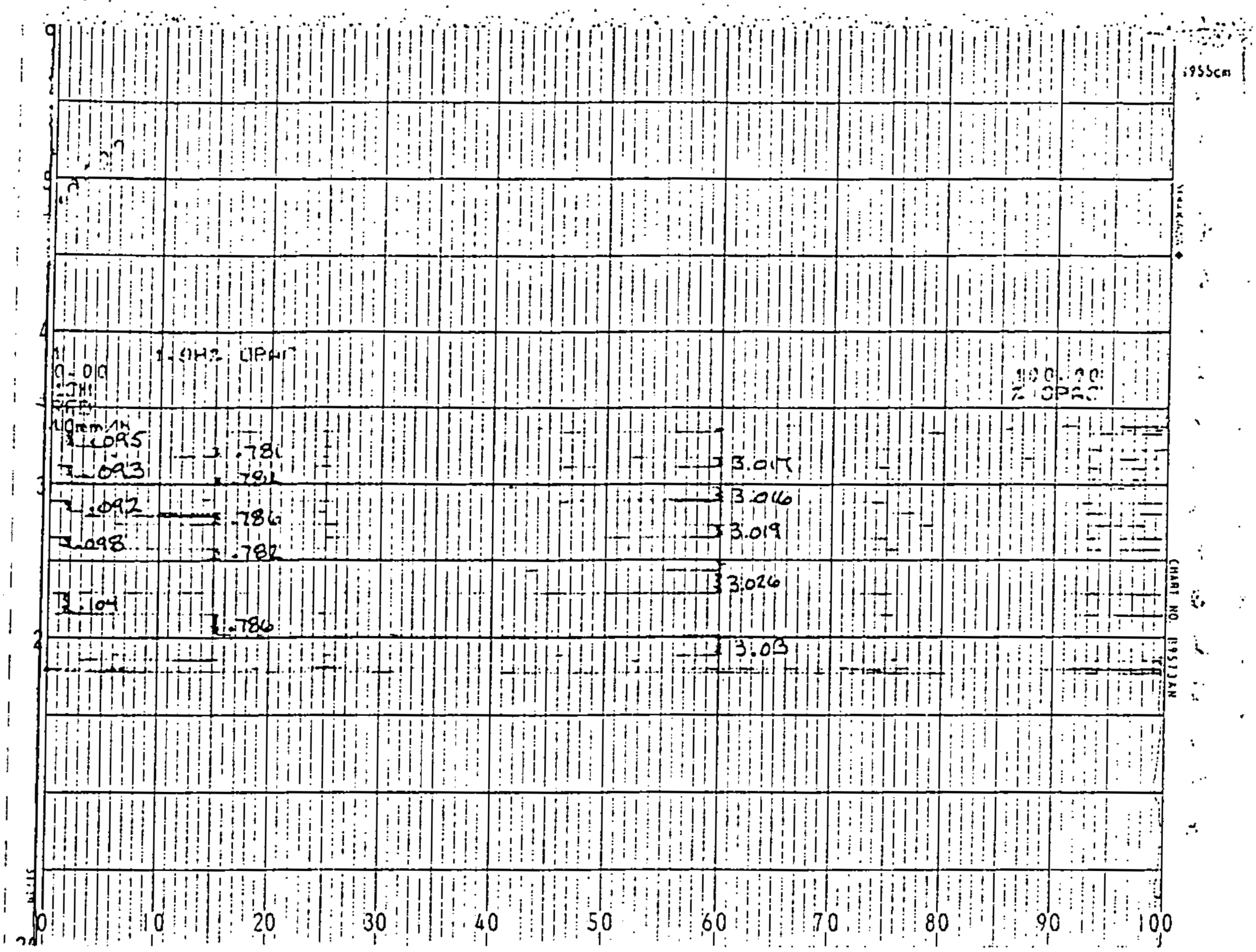
RUN NO.	ATTENUATOR VALUE (PATH ADJUSTED)	INSTRUMENT READING	DIFFERENCE READINGS LOW	MID	HI
LOW1	22.50	22.20	-0.30	XXX	XXX
MID1	59.80	60.40	XXX	0.60	XXX
HI1	85.70	85.50	XXX	XXX	-0.20
LOW2	22.50	22.20	-0.30	XXX	XXX
MID2	59.80	60.50	XXX	0.70	XXX
HI2	85.70	86.00	XXX	XXX	0.30
LOW3	22.50	22.30	-0.20	XXX	XXX
MID3	59.80	60.40	XXX	0.60	XXX
HI3	85.70	86.40	XXX	XXX	0.70
LOW4	22.50	22.30	-0.20	XXX	XXX
MID4	59.80	60.50	XXX	0.70	XXX
HI4	85.70	86.40	XXX	XXX	0.70
LOW5	22.50	22.30	-0.20	XXX	XXX
MID5	59.80	60.50	XXX	0.70	XXX
HI5	85.70	86.20	XXX	XXX	0.50
		ARITHMETIC MEAN=	-0.24	0.66	0.40
		CONFIDENCE COEFFICIENT=	0.07	0.07	0.46
		TOTAL ERROR=	0.31	0.73	0.86



CUSTOMER GRASEBY / STI
SO # 015644
DATE 9/14/94

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UNITED SCIENCES, INC.

FIGURE 14

RESPONSE TIME TEST

Serial Number	099724
Calibration Distance	9' 5 3/4"
Date of Test	3-14-94
Place of Test	Gibsonia, PA.
Test Personnel	Dean Murray
Data Display Device	Fluke Meter
Filter Value Used	89.5%

Upscale	1	2.66	seconds
	2	2.77	seconds
	3	1.57	seconds
	4	2.02	seconds
	5	1.99	seconds
Downscale	1	1.98	seconds
	2	1.63	seconds
	3	1.88	seconds
	4	2.68	seconds
	5	1.95	seconds
AVERAGE RESPONSE		2.113	seconds

CUSTOMER Gansgby / STI
SO # 015634
DATE 9/14/94
☐ NO EXCEPTIONS NOTED
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BY [signature]
UNITED SCIENCES, INC.

APPENDIX A

EQUATIONS USED

PROCEDURE FOR DETERMINING VALUES AND CONFIDENCE INTERVALS

The mean value or the data set is calculated according to Equation 1.

$$\overline{X} = \frac{1}{n}\sum_{i=1}^{n} X_i \qquad \text{EQUATION 1}$$

Where:

X_1 = Algebraic value of the individual measurements

n = Number of data points

$\bar{X}$ = Mean value of data points

The standard deviation is calculated according to Equation 2.

$$S_d = \sqrt{\frac{\sum_{i=1}^{n} X_i^{2} - \frac{\left(\sum_{i=1}^{n} X_i\right)^2}{n}}{n-1}} \qquad \text{EQUATION 2}$$

Where:

S_d = The standard deviation of the data set

The confidence coefficient is calculated according to Equation 3.

$$CC = t_{0.975}\frac{S_d}{\sqrt{d}} \qquad \text{EQUATION 3}$$

Where:

CC = The confidence coefficient
t_{0975} = t value, see table on following page

The error is calculated according to Equation 4.

$$Error = |\overline{X}| + |CC| \qquad \text{EQUATION 4}$$

VALUES FOR $t_{0.975}$

n	$t_{0.975}$
2	12.706
3	4.303
4	3.182
5	2.776
6	2.571
7	2.447
8	2.365
9	2.306
10	2.262
11	2.228
12	2.201
13	2.179
14	2.160
15	2.145
16	2.131

CONVERSION OF OPACITY VALUES FROM MONITOR PATH LENGTH TO EMISION OUTLET PATH LENGTH

$$OP_e = 1 - [(1 - OP_m)^{STR}] \qquad \text{EQUATION 5}$$

$$OP_m = 1 - [(1 - OP_e)^{1/STR}] \qquad \text{EQUATION 6}$$

Where: OP_e = Opacity at the Emission Outlet (expressed as a decimal).

OP_m = Opacity at the Monitor (expressed as a decimal).

STR = Stack Taper Ratio = $\dfrac{\text{Effluent Pathlength Emission Outlet}}{\text{Effluent Pathlength at the Monitor Location}}$

$$O.D._e = O.D._m\ (STR) \qquad \text{EQUATION 7}$$

$$\frac{O.D._e}{STR} = O.D._m$$

Where: $O.D._e$ = Optical Density at Emission Outlet

$O.D._m$ = Optical Density at the Monitor

STR = See Above

APPENDIX B

CERTIFICATE OF ANALYSIS, NEUTRAL DENSITY FILTERS

DOC #NDFANAL

UNITED SCIENCES INC.

CERTIFIED NEUTRAL DENSITY ATTENUATOR ANALYSIS REPORT

I. PURPOSE

This analysis was conducted in order to determine the CIE Daylight Luminous Transmittance and effective opacity of neutral density attenuators.

II. SPECTRAL TRANSMITTANCE MEASUREMENTS

Spectral transmittance measurements were performed using a laboratory scanning spectrophotometer whose specification meets or exceeds those described in the Code of Federal Regulations Title 40, Part 60, Appendix B, Specification 1, Section 3.4. Transmittance values were determined at 2 nanometer intervals over the range of 350 to 750 nanometers. Two scans are conducted on each attenuator. The second scan is conducted after rotating the attenuator 90 degrees from its original orientation.

The arithmetic mean of the transmittance at each wavelength measured is calculated and these data used to compute the overall transmittance and effective opacity. All attenuator calibration procedures were in accordance with CFR Title 40, Part 60, Appendix B, Specification 1, Section 7.1.3.

III. ACCURACY

The accuracy of the spectrophotemeter is insured using the National Institute of Standards Technology Standard Reference Material 930D to assess its operation method, the NIST traceable calibration is certified to be within ±0.5% transmittance.

IV. STABILITY

In accordance with CFR Title 40, Part 60, Appendix B, Specification 1, Section 7.1.3, these attenuators must be returned to USI for checks of stability every three months in order to maintain valid attenuator certification. These stability checks are performed using a laboratory transmissometer, and any time the attenuator value as measured on the transmissometer varies by ±2% opacity the attenuator is recalibrated.

United Sciences inc.

5310 NORTH PIONEER ROAD • GIBSONIA, PA 15044 • 412 - 443-8610 • FAX 412 - 443-4025

CERTIFICATE OF ANALYSIS
NEUTRAL DENSITY FILTERS

The enclosed calibration attenuators have been calibrated in accordance with Title 40 Code of Federal Regulations Part 60, Appendix B, Specification 1, Section 7.1.3.

These attenuators are certified to have the following opacity values:

Serial Number	Opacity In Percent	Calibration Date	Stability Check Date
NBS001	21.0%	06/28/93	01/06/94
NBS002	30.5%	06/28/93	01/06/94
NBS003	59.8%	06/28/93	01/06/94
NBS004	86.4%	06/28/93	01/06/94
NBS006	77.7%	06/28/93	01/06/94
NBS007	74.9%	06/28/93	01/06/94
NBS008	64.6%	06/28/93	01/06/94
NBS009	35.5%	06/28/93	01/06/94
NBS010	8.7%	06/28/93	01/06/94
NBS011	46.1%	06/28/93	01/06/94
NBS012	77.6%	06/28/93	01/06/94
NBS024	91.7%	06/28/93	01/06/94

SIGNATURE Joseph P. [illegible]

DATE January 6, 1994

CUSTOMER United Sciences Inc.
In-house Reference Filters - Set #1
5310 North Pioneer Road
Gibsonia, Pennsylvania 15044-9629

United Sciences inc.

5310 NORTH PIONEER ROAD • GIBSONIA, PA 15044 • 412 - 443-8610 • FAX 412 - 443-4025

CERTIFICATE OF ANALYSIS
NEUTRAL DENSITY FILTERS

The enclosed calibration attenuators have been calibrated in accordance with Title 40 Code of Federal Regulations Part 60, Appendix B, Specification 1, Section 7.1.3.

These attenuators are certified to have the following opacity values:

Serial Number	Opacity In Percent	Calibration Date	Stability Check Date
NBS013	9.5%	01/06/94	01/06/94
NBS014	22.3%	01/06/94	01/06/94
NBS015	37.2%	01/06/94	01/06/94
NBS016	44.4%	01/06/94	01/06/94
NBS018	68.4%	01/06/94	01/06/94
NBS019	75.1%	01/06/94	01/06/94
NBS020	79.9%	01/06/94	01/06/94
NBS021	80.7%	01/06/94	01/06/94
NBS022	84.4%	01/06/94	01/06/94
NBS023	91.4%	01/06/94	01/06/94

SIGNATURE Joseph P. Zulchard

DATE January 6, 1994

CUSTOMER United Sciences Inc.
In-house Reference Filters - Set #2
5310 North Pioneer Road
Gibsonia, Pennsylvania 15044-9629

United Sciences inc.

5310 NORTH PIONEER ROAD • GIBSONIA, PA 15044 • 412 - 443-8610 • FAX 412 - 443-4025

CERTIFICATE OF ANALYSIS
NEUTRAL DENSITY FILTERS

The enclosed calibration attenuators have been calibrated in accordance with Title 40 Code of Federal Regulations Part 60, Appendix B, Specification 1, Section 7.1.3.

These attenuators are certified to have the following opacity values:

Serial Number	Opacity In Percent	Calibration Date	Stability Check Date
NBS025	9.4%	06/28/93	01/06/94
NBS026	22.5%	06/28/93	01/06/94
NBS029	59.7%	06/28/93	01/06/94

SIGNATURE Joseph P. Zilliotti

DATE January 6, 1994

CUSTOMER United Sciences Inc.
In-house Reference Filters - Set #3
5310 North Pioneer Road
Gibsonia, Pennsylvania 15044-9629

United Sciences inc.

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CERTIFICATE OF ANALYSIS
NEUTRAL DENSITY FILTERS

The enclosed calibration attenuators have been calibrated in accordance with Title 40 Code of Federal Regulations Part 60, Appendix B, Specification 1, Section 7.1.3.

These attenuators are certified to have the following opacity values:

Serial Number	Opacity In Percent	Calibration Date	Stability Check Date
047	8.9%	01/06/94	01/06/94
048	20.7%	01/06/94	01/06/94
049	60.2%	01/06/94	01/06/94
050	86.7%	01/06/94	01/06/94
051	89.5%	01/06/94	01/06/94

SIGNATURE Joseph P. Zielkowski

DATE January 6, 1994

CUSTOMER United Sciences Inc.
In-house Reference Filters #6
5310 North Pioneer Road
Gibsonia, PA 15044-9629