Background Report Reference

AP-42 Section Number: 10.6.1

Background Report Section: 4

Reference Number: 64

Title: Results of the October 25 & 26, 1995 Air Emission Enginering Tests of Line 1 At The Louisiana-Pacific OSB Plant in Hayward, Wisconsin

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November 1995

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RESULTS OF THE OCTOBER 25 & 26, 1995 AIR EMISSION ENGINEERING TESTS OF LINE 1 AT THE LOUISIANA PACIFIC OSB PLANT IN HAYWARD, WISCONSIN

Submitted to:

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Report Number 5-6731
November 17, 1995
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APPENDICES:

1 INTRODUCTION

On October 25 & 26, 1995 Interpoll Laboratories personnel conducted air emission engineering tests on the following sources at the Louisiana Pacific Corporation (LP) OSB Plant located in Hayward, Wisconsin.

Source	Parameters
Line 1 Press RTO Inlet	PM,NO_x,CO
Line 1 Press RTO Stack	PM,NO_x,CO
Line 1 Dryer RTO Inlet	PM,NO_x,CO,CH_2O,Benzene
Line 1 Dryer RTO Stack	PM,NO_x,CO,CH_2O,Benzene

On-site testing was performed by Ed Trowbridge, Duane Van Hoever, Scott Fjelsta, Steve Kelker, and Jim Lorenz. Coordination between testing activities and plant operation was provided by Keith Seelig of LP. The tests were not witnessed by a member of the Wisconsin Department of Natural Resources.

The important results of the test are summarized in Section 2. Detailed results are presented in Section 3. Field data and all other supporting information are presented in the appendices.

2 SUMMARY AND DISCUSSION

The results of the air emission compliance tests are summarized in Tables 1 - 9. An overview of the results is presented in the Table below:

PARAMETER	MEASURED
Line 1 Press RTO	
Inlet	
Particulate (Dry + Wet Catch)	
. . . . . (GR/DSCF)	0.0029
. . . . . (LB/HR)	1.7
Oxides of Nitrogen	
. . . . . (ppm,d)	≤ 3
. . . . . (LB/HR)	≤ 1.3
Carbon Monoxide	
. . . . . (ppm,d)	< 1
. . . . . (LB/HR)	< 0.30
Stack	
Particulate (Dry + Wet Catch)	
. . . . . (GR/DSCF)	0.0034
. . . . . (LB/HR)	2.2
Oxides of Nitrogen	
. . . . . (ppm,d)	18
. . . . . (LB/HR)	9.2
Carbon Monoxide	
. . . . . (ppm,d)	8
. . . . . (LB/HR)	2.7
PM Removal Efficiency . . . . . (%)	N/A
CO Removal Efficiency . . . . . (%)	N/A

PARAMETER	MEASURED
Line 1 Dryer RTO	
Inlet	
Particulate (Dry + Wet Catch)	
. . . . . (GR/DSCF)	0.023
. . . . . (LB/HR)	11.9
Oxides of Nitrogen	
. . . . . (ppm,d)	11
. . . . . (LB/HR)	4.6
Carbon Monoxide	
. . . . . (ppm,d)	540
. . . . . (LB/HR)	144
Formaldehyde	
. . . . . (ppm,d)	36
. . . . . (LB/HR)	10.3
Benzene	
. . . . . (ppm,d)	0.67
. . . . . (LB/HR)	0.49
Stack	
Particulate (Dry + Wet Catch)	
. . . . . (GR/DSCF)	0.011
. . . . . (LB/HR)	6.5
Oxides of Nitrogen	
. . . . . (ppm,d)	≤ 13
. . . . . (LB/HR)	≤ 6.5
Carbon Monoxide	
. . . . . (ppm,d)	70
. . . . . (LB/HR)	22
Formaldehyde	
. . . . . (ppm,d)	3.0
. . . . . (LB/HR)	1.02
Methane . . . . . (ppm,d)	< 2
Benzene	
. . . . . (ppm,d)	0.028
. . . . . (LB/HR)	0.024
PM Removal Efficiency . . . . . (%)	45
CO Removal Efficiency . . . . . (%)	85
CH_2O Removal Efficiency . . . . . (%)	90
Benzene Removal Efficiency . . . . (%)	95

No difficulties were encountered in the field by Interpoll Labs or in the laboratory evaluation of the samples which were conducted by Interpoll Labs. On the basis of these facts and a complete review of the data and results, it is our opinion that the results reported herein are accurate and closely reflect the actual values which existed at the time the test was performed.

Table 1a Summary of the Results of the October 25, 1995 Particulate Emission Engineering Test of the Line 1 Press RTO Inlet at the Louisiana Pacific Plant Located in Hayward, Wisconsin.

ITEM		Run 1	Run 2	Run 3
Date of test		10-25-95	10-25-95	10-25-95
Time runs were done	(HRS)	845/ 953	1030/1207	1250/1402
Process rate				
Volumetric flow				
actual	(ACFM)	80291	79853	80047
standard	(DSCFM)	69630	69185	68883
Gas temperature	(DEG-F)	109	109	111
Moisture content	(%V/V)	1.57	1.58	1.92
Gas composition	(%V/V,dry)			
carbon dioxide		0.03	0.03	0.03
oxygen		20.90	20.90	20.90
nitrogen		79.07	79.07	79.07
Isokinetic variation	(%)	99.5	99.8	100.2
Particulate concentration				
actual	(GR/ACF)	.002692	.002069	.002782
standard	(GR/DSCF)	.003106	.002389	.003235
Part. emission rate	(LB/HR)	1.85	1.42	1.91

Note: Dry + Organic/Inorganic Wet Catch

Table 1b Summary of the Results of the October 25, 1995 Particulate Emission Engineering Test of the Line 1 Press RTO Inlet at the Louisiana Pacific Plant Located in Hayward, Wisconsin.

ITEM		Run 1	Run 2	Run 3
Date of test		10-25-95	10-25-95	10-25-95
Time runs were done	(HRS)	845/ 953	1030/1207	1250/1402
Process rate				
Volumetric flow				
actual	(ACFM)	80291	79853	80047
standard	(DSCFM)	69630	69185	68883
Gas temperature	(DEG-F)	109	109	111
Moisture content	(%V/V)	1.57	1.58	1.92
Gas composition	(%V/V,dry)			
carbon dioxide		0.03	0.03	0.03
oxygen		20.90	20.90	20.90
nitrogen		79.07	79.07	79.07
Isokinetic variation	(%)	99.5	99.8	100.2
Particulate concentration				
actual	(GR/ACF)	.001183	.001060	.000577
standard	(GR/DSCF)	.001364	.001223	.000670
Part. emission rate	(LB/HR)	0.814	0.726	0.396

Note: Dry Catch Only

Table 2a Summary of the Results of the October 25, 1995 Particulate Emission Engineering Test of the Line 1 Press RTO Stack at the Louisiana Pacific Plant in Hayward, Wisconsin.

ITEM		Run 1	Run 2	Run 3
Date of test		10-25-95	10-25-95	10-25-95
Time runs were done	(HRS)	845/ 953	1030/1202	1250/1357
Process rate				
Volumetric flow				
actual	(ACFM)	102119	104162	103526
standard	(DSCFM)	73226	73936	72918
Gas temperature	(DEG-F)	236	238	241
Moisture content	(%V/V)	1.59	2.31	2.72
Gas composition	(%V/V,dry)			
carbon dioxide		0.20	0.20	0.20
oxygen		20.70	20.70	20.70
nitrogen		79.10	79.10	79.10
Isokinetic variation	(%)	98.7	100.1	100.0
Particulate concentration				
actual	(GR/ACF)	.003546	.002286	.001519
standard	(GR/DSCF)	.004947	.003221	.002158
Part. emission rate	(LB/HR)	3.11	2.04	1.35

Note: Dry + Organic/Inorganic Wet Catch

Table 2b Summary of the Results of the October 25, 1995 Particulate Emission Engineering Test of the Line 1 Press RTO Stack at the Louisiana Pacific Plant in Hayward, Wisconsin.

ITEM	Run 1	Run 2	Run 3
Date of test	10-25-95	10-25-95	10-25-95
Time runs were done (HRS)	845/ 953	1030/1202	1250/1357
Process rate			
Volumetric flow			
actual (ACFM)	102119	104162	103526
standard (DSCFM)	73226	73936	72918
Gas temperature (DEG-F)	236	238	241
Moisture content (%V/V)	1.59	2.31	2.72
Gas composition (%V/V,dry)			
carbon dioxide	0.20	0.20	0.20
oxygen	20.70	20.70	20.70
nitrogen	79.10	79.10	79.10
Isokinetic variation (%)	98.7	100.1	100.0
Particulate concentration			
actual (GR/ACF)	.002553	.001829	.001082
standard (GR/DSCF)	.003562	.002577	.001537
Part. emission rate (LB/HR)	2.24	1.63	0.960

Note: Dry Catch Only

Table 3a Summary of the Results of the October 26, 1995 Particulate Emission Engineering Test of the Line 1 Dryer RTO Inlet at the Louisiana Pacific Plant in Hayward, Wisconsin.

ITEM		Run 1	Run 2	Run
Date of test		10-26-95	10-26-95	10-26-95
Time runs were done	(HRS)	1618/1723	1755/1858	1930/2101
Process rate				
Volumetric flow				
actual	(ACFM)	98463	97462	98793
standard	(DSCFM)	61217	58446	61812
Gas temperature	(DEG-F)	160	159	157
Moisture content	(%V/V)	23.30	26.05	23.12
Gas composition	(%V/V,dry)			
carbon dioxide		3.40	3.40	3.40
oxygen		17.20	17.20	17.20
nitrogen		79.40	79.40	79.40
Isokinetic variation	(%)	99.2	102.4	99.1
Particulate concentration				
actual	(GR/ACF)	.0129	.0166	.0131
standard	(GR/DSCF)	.0207	.0276	.0209
Part. emission rate	(LB/HR)	10.89	13.85	11.10

Note: Dry + Organic/Inorganic Wet Catch

Table 3b Summary of the Results of the October 26, 1995 Particulate Emission Engineering Test of the Line 1 Dryer RTO Inlet at the Louisiana Pacific Plant in Hayward, Wisconsin.

ITEM		Run 1	Run 2	Run
Date of test		10-26-95	10-26-95	10-26-95
Time runs were done	(HRS)	1618/1723	1755/1858	1930/2101
Process rate				
Volumetric flow				
actual	(ACFM)	98463	97462	98793
standard	(DSCFM)	61217	58446	61812
Gas temperature	(DEG-F)	160	159	157
Moisture content	(%V/V)	23.30	26.05	23.12
Gas composition	(%V/V,dry)			
carbon dioxide		3.40	3.40	3.40
oxygen		17.20	17.20	17.20
nitrogen		79.40	79.40	79.40
Isokinetic variation	(%)	99.2	102.4	99.1
Particulate concentration				
actual	(GR/ACF)	.00129	.00179	.00355
standard	(GR/DSCF)	.00208	.00299	.00567
Part. emission rate	(LB/HR)	1.09	1.50	3.01

Note: Dry Catch Only

Table 4a Summary of the Results of the October 26, 1995 Particulate Emission Engineering Test of the Line 1 Dryer RTO Stack at the Louisiana Pacific Plant in Hayward, Wisconsin.

ITEM		Run 1	Run 2	Run
Date of test		10-26-95	10-26-95	10-26-95
Time runs were done	(HRS)	1620/1725	1755/1900	1930/2025
Volumetric flow				
actual	(ACFM)	128941	129101	130685
standard	(DSCFM)	68681	68394	69138
Gas temperature	(DEG-F)	264	263	261
Moisture content	(%V/V)	23.35	23.89	24.13
Gas composition	(%V/V,dry)			
carbon dioxide		3.50	3.70	3.70
oxygen		17.00	16.80	16.90
nitrogen		79.50	79.50	79.40
Isokinetic variation	(%)	101.2	100.9	101.6
Particulate concentration				
actual	(GR/ACF)	.00742	.00558	.00450
standard	(GR/DSCF)	.0139	.0105	.00851
Part. emission rate	(LB/HR)	8.21	6.18	5.05

Note: Dry + Organic/Inorganic Wet Catch

Table 4b Summary of the Results of the October 26, 1995 Particulate Emission Engineering Test of the Line 1 Dryer RTO Stack at the Louisiana Pacific Plant in Hayward, Wisconsin.

ITEM		Run 1	Run 2	Run
Date of test		10-26-95	10-26-95	10-26-95
Time runs were done	(HRS)	1620/1725	1755/1900	1930/2025
Volumetric flow				
actual	(ACFM)	128941	129101	130685
standard	(DSCFM)	68681	68394	69138
Gas temperature	(DEG-F)	264	263	261
Moisture content	(%V/V)	23.35	23.89	24.13
Gas composition	(%V/V,dry)			
carbon dioxide		3.50	3.70	3.70
oxygen		17.00	16.80	16.90
nitrogen		79.50	79.50	79.40
Isokinetic variation	(%)	101.2	100.9	101.6
Particulate concentration				
actual	(GR/ACF)	.00519	.00262	.00273
standard	(GR/DSCF)	.00975	.00495	.00516
Part. emission rate	(LB/HR)	5.74	2.90	3.06

Note: Dry Catch Only

Table 5. Summary of the Results of the October 25 & 26, 1995 **Particulate Removal Efficiency Tests** at the Louisiana Pacific Corporation Plant in Hayward, Wisconsin.

Date	Time (HRS)	PM Emission Rate (LB/HR) (Inlet)	(Stack)	Removal Efficiency (%)
(Line 1 PRESS RTO)				
10-25-95	0845-0953	1.9	3.1	N/A
10-25-95	1030-1207	1.4	2.0	N/A
10-25-95	1250-1402	1.9	1.4	26
Average		1.7	2.2	N/A
(Line 1 DRYER RTO)				
10-25-95	1618-1723	10.9	8.2	25
10-25-95	1755-1900	13.9	6.2	55
10-25-95	1930-2025	11.1	5.1	54
Average		12.0	6.5	45

Table 6. Summary of the Results of the October 25 & 26, 1995 **Oxides of Nitrogen** Emission Engineering Tests at the Louisiana Pacific OSB Plant in Hayward, Wisconsin.

Date	Time (HRS)	Concentration (ppm,d)	Emission Rate (LB/HR)
Line 1 PRESS RTO Inlet			
10-25-95	0845-0953	< 2	< 1.2
10-25-95	1030-1207	≤ 3	≤ 1.3
10-25-95	1250-1402	≤ 3	≤ 1.4
Avg		≤ 3	≤ 1.3
Line 1 PRESS RTO Stack			
10-25-95	0845-0953	19	9.7
10-25-95	1030-1202	11	5.9
10-25-95	1250-1357	23	12.0
Avg		18	9.2
Line 1 DRYER RTO Inlet			
10-26-95	1618-1723	9	3.6
10-26-95	1755-1858	10	4.0
10-26-95	1930-2101	14	6.2
Avg		11	4.6
Line 1 DRYER RTO Stack			
10-26-95	1620-1725	≤ 9	≤ 4.5
10-26-95	1755-1900	16	7.7
10-26-95	1930-2025	15	7.3
Avg		≤ 13	≤ 6.5

Table 7. Summary of the Results of the October 25 & 26, 1995 **Carbon Monoxide** Emission Engineering Tests at the Louisiana Pacific OSB Plant in Hayward, Wisconsin.

Date	Time (HRS)	Concentration (ppm,d)	Emission Rate (LB/HR)
Line 1 PRESS RTO Inlet			
10-25-95	0845-0953	< 1	< 0.30
10-25-95	1030-1202	< 1	< 0.30
10-25-95	1250-1357	< 1	< 0.30
Avg		< 1	< 0.30
Line 1 PRESS RTO Stack			
10-25-95	0845-0953	8	2.6
10-25-95	1030-1202	8	2.6
10-25-95	1250-1357	9	2.9
Avg		8	2.7
Line 1 DRYER RTO Inlet			
10-26-95	0900-1023	555	148
10-26-95	1200-1305	431	117
10-26-95	1420-1524	633	166
Avg		540	144
Line 1 DRYER RTO Stack			
10-26-95	0900-1025	114	35
10-26-95	1200-1306	44	14
10-26-95	1420-1526	53	16
Avg		70	22

Table 8. Summary of the Results of the October 26, 1995 **Formaldehyde** Emission Engineering Tests at the Louisiana Pacific OSB Plant in Hayward, Wisconsin.

Date	Time (HRS)	Concentration (ppm,d)	Emission Rate (LB/HR)
Line 1 DRYER RTO Inlet			
10-26-95	0900-1023	35	10.1
10-26-95	1200-1305	32	9.4
10-26-95	1420-1524	41	11.4
Avg		36	10.3
Line 1 DRYER RTO Stack			
10-26-95	0900-1025	2.9	0.98
10-26-95	1200-1306	2.5	0.86
10-26-95	1420-1526	3.7	1.21
Avg		3.0	1.02

Table 9. Summary of the Results of the October 26, 1995 **Benzene** Emission Engineering Tests at the Louisiana Pacific OSB Plant in Hayward, Wisconsin.

Date	Time (HRS)	Concentration (ppm,d)	Emission Rate (LB/HR)
Line 1 DRYER RTO Inlet			
10-26-95	0920-1024	0.83	0.62
10-26-95	1200-1303	0.33	0.25
10-26-95	1340-1442	0.84	0.61
Avg		0.67	0.49
Line 1 DRYER RTO Stack			
10-26-95	0920-1027	0.035	0.031
10-26-95	1200-1303	0.015	0.013
10-26-95	1340-1442	0.034	0.028
Avg		0.028	0.024

3 RESULTS

The results of all field and laboratory evaluations are presented in this section. Gas composition (orsat and moisture) are presented first followed by the computer printout of the particulate, oxides of nitrogen, carbon monoxide, formaldehyde, and benzene results. Preliminary measurements including test port locations are given in the appendices.

The results have been calculated on a personal computer using programs written in Extended BASIC specifically for source testing calculations. EPA-published equations have been used as the basis of the calculation techniques in these programs. The emission rates have been calculated using the product of the concentration times flow method.

3.1 Results of Orsat and Moisture Determinations

Test No. 1
Line 1 Press RTO Inlet

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

	Run 1	Run 2	Run 3
Date of run	10-25-95	10-25-95	10-25-95
Dry basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.90	20.90	20.90
nitrogen.....	79.07	79.07	79.07
Wet basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.57	20.57	20.50
nitrogen.....	77.83	77.82	77.55
water vapor.....	1.57	1.58	1.92
Dry molecular weight.....	28.84	28.84	28.84
Wet molecular weight.....	28.67	28.67	28.63
Specific gravity.....	0.990	0.990	0.989
Water mass flow.....(LB/HR)	3118	3109	3785

Test No. 1
Line 1 Press RTO Stack

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

	Run 1	Run 2	Run 3
Date of run	10-25-95	10-25-95	10-25-95
Dry basis (orsat)			
carbon dioxide.....	0.20	0.20	0.20
oxygen.....	20.70	20.70	20.70
nitrogen.....	79.10	79.10	79.10
Wet basis (orsat)			
carbon dioxide.....	0.20	0.20	0.19
oxygen.....	20.37	20.22	20.14
nitrogen.....	77.84	77.27	76.95
water vapor.....	1.59	2.31	2.72
Dry molecular weight.....	28.86	28.86	28.86
Wet molecular weight.....	28.69	28.61	28.56
Specific gravity.....	0.991	0.988	0.987
Water mass flow.....(LB/HR)	3312	4900	5722
FO	1.000	1.000	1.000

Test No. 2
Line 1 Dryer RTO Inlet

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

	Run 1	Run 2	Run 3
Date of run	10-26-95	10-26-95	10-26-95
Dry basis (orsat)			
carbon dioxide.....	3.40	3.40	3.50
oxygen.....	17.50	17.50	17.40
nitrogen.....	79.10	79.10	79.10
Wet basis (orsat)			
carbon dioxide.....	2.63	2.65	2.65
oxygen.....	13.52	13.64	13.18
nitrogen.....	61.10	61.65	59.93
water vapor.....	22.75	22.06	24.23
Dry molecular weight.....	29.24	29.24	29.26
Wet molecular weight.....	26.69	26.76	26.53
Specific gravity.....	0.922	0.924	0.916
Water mass flow.....(LB/HR)	0.00	0.00	0.00
FO	1.000	1.000	1.000

Test No. 2
Line 1 Dryer RTO Stack

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

	Run 1	Run 2	Run 3
Date of run	10-26-95	10-26-95	10-26-95
Dry basis (orsat)			
carbon dioxide.....	3.60	3.30	3.80
oxygen.....	17.10	17.40	16.90
nitrogen.....	79.30	79.30	79.30
Wet basis (orsat)			
carbon dioxide.....	2.83	2.59	2.92
oxygen.....	13.45	13.67	13.00
nitrogen.....	62.39	62.29	61.00
water vapor.....	21.33	21.46	23.08
Dry molecular weight.....	29.26	29.22	29.28
Wet molecular weight.....	26.86	26.82	26.68
Specific gravity.....	0.928	0.926	0.922
Water mass flow.....(LB/HR)	0.00	0.00	0.00
FO	1.056	1.061	1.053

Test No. 3
Line 1 Dryer RTO Inlet

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

	Run 1	Run 2	Run 3
Date of run	10-26-95	10-26-95	10-26-95
Dry basis (orsat)			
carbon dioxide.....	3.40	3.40	3.40
oxygen.....	17.20	17.20	17.20
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	79.40	79.40	79.40
Wet basis (orsat)			
carbon dioxide.....	2.61	2.51	2.61
oxygen.....	13.19	12.72	13.22
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	60.90	58.71	61.05
water vapor.....	23.30	26.05	23.12
Dry molecular weight.....	29.23	29.23	29.23
Wet molecular weight.....	26.61	26.31	26.64
Specific gravity.....	0.919	0.909	0.920
Water mass flow.....(LB/HR)	52172	57757	52129
FO	1.088	1.088	1.088

Test No. 3
Line 1 Dryer RTO Stack

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

	Run 1	Run 2	Run 3
Date of run	10-26-95	10-26-95	10-26-95
Dry basis (orsat)			
carbon dioxide.....	3.50	3.70	3.70
oxygen.....	17.00	16.80	16.90
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	79.50	79.50	79.40
Wet basis (orsat)			
carbon dioxide.....	2.68	2.82	2.81
oxygen.....	13.03	12.79	12.82
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	60.94	60.51	60.24
water vapor.....	23.35	23.89	24.13
Dry molecular weight.....	29.24	29.26	29.27
Wet molecular weight.....	26.62	26.57	26.55
Specific gravity.....	0.919	0.918	0.917
Water mass flow.....(LB/HR)	58693	60203	61666
FO	1.114	1.108	1.081

3.2 Results of Particulate Determinations

Test No. 1
Line 1 Press RTO Inlet

Results of Particulate Loading Determinations-------Method 5

	Run 1	Run 2	Run 3
Date of run	10-25-95	10-25-95	10-25-95
Time run start/end.....(HRS)	845/ 953	1030/1207	1250/1402
Static pressure.....(IN.WC)	-5.20	-5.20	-5.20
Cross sectional area (SQ.FT)	15.39	15.39	15.39
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	0.0	4.0	4.0
desiccant.....(GRAMS)	18.0	14.0	18.0
total.....(GRAMS)	18.0	18.0	22.0
Total particulate material..			
.....collected(grams)	0.0107	0.0082	0.0111
Gas meter coefficient.....	0.9934	0.9934	0.9934
Barometric pressure..(IN.HG)	28.77	28.77	28.77
Avg. orif.pres.drop..(IN.WC)	2.50	2.51	2.55
Avg. gas meter temp..(DEF-F)	52.6	58.4	66.9
Volume through gas meter....			
at meter conditions...(CF)	53.71	54.12	54.98
standard conditions.(DSCF)	53.16	52.97	52.95
Total sampling time....(MIN)	60.00	60.00	60.00
Nozzle diameter.....(IN)	.190	.190	.190
Avg.stack gas temp ..(DEG-F)	109	109	111
Volumetric flow rate.....			
actual.....(ACFM)	80291	79853	80047
dry standard.....(DSCFM)	69630	69185	68883
Isokinetic variation.....(%)	99.5	99.8	100.2
Particulate concentration...			
actual.....(GR/ACF)	0.00269	0.00207	0.00278
dry standard.....(GR/DSCF)	0.00311	0.00239	0.00323
Particle mass rate...(LB/HR)	1.853	1.416	1.910

Test No. 1
Line 1 Press RTO Stack

Results of Particulate Loading Determinations-------Method 5

	Run 1	Run 2	Run 3
Date of run	10-25-95	10-25-95	10-25-95
Time run start/end.....(HRS)	845/ 953	1030/1202	1250/1357
Static pressure.....(IN.WC)	-0.31	-0.31	-0.31
Cross sectional area (SQ.FT)	31.09	31.09	31.09
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	5.0	8.0	7.0
desiccant.....(GRAMS)	11.0	16.0	21.0
total.....(GRAMS)	16.0	24.0	28.0
Total particulate material..			
.....collected(grams)	0.0150	0.0100	0.0066
Gas meter coefficient.....	1.0023	1.0023	1.0023
Barometric pressure..(IN.HG)	28.77	28.77	28.77
Avg. orif.pres.drop..(IN.WC)	1.95	2.06	2.00
Avg. gas meter temp..(DEF-F)	65.6	73.8	73.0
Volume through gas meter....			
at meter conditions...(CF)	48.10	50.00	49.20
standard conditions.(DSCF)	46.78	47.90	47.19
Total sampling time....(MIN)	60.00	60.00	60.00
Nozzle diameter.....(IN)	.248	.248	.248
Avg.stack gas temp ..(DEG-F)	236	238	241
Volumetric flow rate.....			
actual.....(ACFM)	102119	104162	103526
dry standard.....(DSCFM)	73226	73936	72918
Isokinetic variation.....(%)	98.7	100.1	100.0
Particulate concentration...			
actual.....(GR/ACF)	0.00355	0.00229	0.00152
dry standard.....(GR/DSCF)	0.00495	0.00322	0.00216
Particle mass rate...(LB/HR)	3.105	2.042	1.349

Test No. 3
Line 1 Dryer RTO Inlet

Results of Particulate Loading Determinations-------Method 5

	Run 1	Run 2	Run 3
Date of run	10-26-95	10-26-95	10-26-95
Time run start/end.....(HRS)	1618/1723	1755/1858	1930/2101
Static pressure.....(IN.WC)	-1.00	-1.00	-1.00
Cross sectional area (SQ.FT)	23.58	23.58	23.58
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	189.0	204.0	154.0
desiccant.....(GRAMS)	7.0	20.0	9.0
total.....(GRAMS)	196.0	224.0	163.0
Total particulate material..			
.....collected (grams)	0.0409	0.0537	0.0347
Gas meter coefficient.....	0.9934	0.9934	0.9934
Barometric pressure..(IN.HG)	28.54	28.54	28.54
Avg. orif.pres.drop..(IN.WC)	0.85	0.83	0.86
Avg. gas meter temp..(DEF-F)	71.1	71.3	70.2
Volume through gas meter....			
at meter conditions...(CF)	32.23	31.78	27.04
standard conditions.(DSCF)	30.42	29.98	25.56
Total sampling time....(MIN)	60.00	60.00	50.00
Nozzle diameter.....(IN)	.190	.190	.190
Avg.stack gas temp ..(DEG-F)	160	159	157
Volumetric flow rate.....			
actual.....(ACFM)	98463	97462	98793
dry standard.....(DSCFM)	61217	58446	61812
Isokinetic variation.....(%)	99.2	102.4	99.1
Particulate concentration...			
actual.....(GR/ACF)	0.01289	0.01657	0.01310
dry standard.....(GR/DSCF)	0.02075	0.02764	0.02095
Particle mass rate...(LB/HR)	10.89	13.85	11.10

Test No. 3
Line 1 Dryer RTO Stack

Results of Particulate Loading Determinations-------Method 5

	Run 1	Run 2	Run 3
Date of run	10-26-95	10-26-95	10-26-95
Time run start/end.....(HRS)	1620/1725	1755/1900	1930/2025
Static pressure.....(IN.WC)	-0.53	-0.53	-0.53
Cross sectional area (SQ.FT)	36.23	36.23	36.23
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	256.0	261.0	207.0
desiccant.....(GRAMS)	10.0	11.0	13.0
total.....(GRAMS)	266.0	272.0	220.0
Total particulate material..			
.....collected (grams)	0.0372	0.0279	0.0180
Gas meter coefficient.....	1.0023	1.0023	1.0023
Barometric pressure..(IN.HG)	28.54	28.54	28.54
Avg. orif.pres.drop..(IN.WC)	1.35	1.33	1.38
Avg. gas meter temp..(DEF-F)	76.9	77.7	81.6
Volume through gas meter....			
at meter conditions...(CF)	43.65	43.40	34.89
standard conditions.(DSCF)	41.17	40.87	32.62
Total sampling time....(MIN)	64.00	64.00	50.16
Nozzle diameter.....(IN)	.248	.248	.248
Avg.stack gas temp ..(DEG-F)	264	263	261
Volumetric flow rate.....			
actual.....(ACFM)	128941	129101	130685
dry standard.....(DSCFM)	68681	68394	69138
Isokinetic variation.....(%)	101.2	100.9	101.6
Particulate concentration...			
actual.....(GR/ACF)	0.00742	0.00558	0.00450
dry standard.....(GR/DSCF)	0.01394	0.01053	0.00851
Particle mass rate...(LB/HR)	8.21	6.18	5.05

3.3 Results of Oxides of Nitrogen Determinations

Test No. 1
Line 1 Press RTO Inlet

Results of Oxides of Nitrogen (NOx) Determinations----------Method 7

	Run 1A	Run 1B	Run 1C	Run 1D
Date of run.....	10-25-95	10-25-95	10-25-95	10-25-95
Time of run.....(HRS)	854	905	935	945
Flask number.....	74	75	76	77
Volume of flask.....(ML)	2071	2066	2093	2104
Data: time of sampling				
flask temperature..(DEG-F)	41.00	37.00	39.00	42.00
bar. press.....(IN.HG)	28.77	28.77	28.77	28.77
flask vacuum.....(IN.HG)	28.20	28.40	28.50	28.50
flask abs. press...(IN.HG)	0.57	0.37	0.27	0.27
Data: Time of Flask Opening				
flask temperature..(DEG-F)	78.00	78.00	78.00	78.00
lab. bar. press....(IN.HG)	28.98	28.98	28.98	28.98
flask static press.(IN.HG)	0.70	0.80	0.40	-0.80
flask abs. press...(IN.HG)	29.68	29.78	29.38	28.18
Volume gas sampled....(DSML)	1950	1966	1972	1901
Moisture content.....(%V/V)	1.57	1.57	1.57	1.57
Nitrate in gas sample...(JG)	< 12.5	< 12.5	< 12.5	< 12.5
NO2 in gas sample.....(JG)	< 9.3	< 9.3	< 9.3	< 9.3
<u>NOx Concentration</u>				
(GR/DSCF).....	< .0021	< .0021	< .0021	< .0021
(MG/DSCM).....	< 5	< 5	< 5	< 5
(PPM-DRY).....	< 2	< 2	< 2	< 3
(PPM-WET).....	< 2	< 2	< 2	< 3
NOX Emission rate....(LB/HR)	< 1.24	< 1.23	< 1.23	< 1.27

Test No. 1
Line 1 Press RTO Inlet

Results of Oxides of Nitrogen (NOx) Determinations---------Method 7

	Run 2A	Run 2B	Run 2C	Run 2D
Date of run.....	10-25-95	10-25-95	10-25-95	10-25-95
Time of run.....(HRS)	1031	1045	1125	1143
Flask number.....	78	79	37	38
Volume of flask.....(ML)	2077	2085	2054	2056
Data: time of sampling				
flask temperature..(DEG-F)	44.00	47.00	56.00	56.00
bar. press.....(IN.HG)	28.77	28.77	28.77	28.77
flask vacuum.....(IN.HG)	28.50	28.50	28.50	28.50
flask abs. press...(IN.HG)	0.27	0.27	0.27	0.27
Data: Time of Flask Opening				
flask temperature..(DEG-F)	78.00	78.00	78.00	78.00
lab. bar. press....(IN.HG)	28.98	28.98	28.98	28.98
flask static press.(IN.HG)	-0.50	-0.10	-0.10	-0.30
flask abs. press...(IN.HG)	28.48	28.88	28.88	28.68
Volume gas sampled....(DSML)	1897	1931	1903	1891
Moisture content.....(%V/V)	1.58	1.58	1.58	1.58
Nitrate in gas sample...(JG)	< 12.5	< 12.5	14.0	< 12.5
NO2 in gas sample.....(JG)	< 9.3	< 9.3	10.4	< 9.3
<u>NOx Concentration</u>				
(GR/DSCF).....	< .0021	< .0021	0.0024	< .0021
(MG/DSCM).....	< 5	< 5	5	< 5
(PPM-DRY).....	< 3	< 3	3	< 3
(PPM-WET).....	< 3	< 2	3	< 3
NOX Emission rate....(LB/HR)	< 1.27	< 1.24	1.41	< 1.27

Test No. 1
Line 1 Press RTO Inlet

Results of Oxides of Nitrogen (NOx) Determinations---------Method 7

	Run 3A	Run 3B	Run 3C	Run 3D
Date of run.....	10-25-95	10-25-95	10-25-95	10-25-95
Time of run.....(HRS)	1256	1308	1339	1347
Flask number.....	39	40	41	42
Volume of flask.....(ML)	2062	2093	2076	2094
Data: time of sampling				
flask temperature..(DEG-F)	56.00	56.00	59.00	59.00
bar. press.....(IN.HG)	28.77	28.77	28.77	28.77
flask vacuum.....(IN.HG)	28.50	28.40	28.40	28.40
flask abs. press...(IN.HG)	0.27	0.37	0.37	0.37
Data: Time of Flask Opening				
flask temperature..(DEG-F)	78.00	78.00	78.00	78.00
lab. bar. press....(IN.HG)	28.98	28.98	28.98	28.98
flask static press.(IN.HG)	0.10	-0.80	-1.50	1.30
flask abs. press...(IN.HG)	29.08	28.18	27.48	30.28
Volume gas sampled....(DSML)	1923	1885	1822	2028
Moisture content.....(%V/V)	1.92	1.92	1.92	1.92
Nitrate in gas sample...(JG)	18.7	13.4	< 12.5	< 12.5
NO2 in gas sample.....(JG)	13.9	9.9	< 9.3	< 9.3
<u>NOx Concentration</u>				
(GR/DSCF).....	0.0032	0.0023	< .0022	< .0020
(MG/DSCM).....	7	5	< 5	< 5
(PPM-DRY).....	4	3	< 3	< 2
(PPM-WET).....	4	3	< 3	< 2
NOX Emission rate....(LB/HR)	1.86	1.36	< 1.31	< 1.18

Test No. 1
Line 1 Press RTO Stack

Results of Oxides of Nitrogen (NOx) Determinations---------Method 7

	Run 1A	Run 1B	Run 1C	Run 1D
Date of run.....	10-25-95	10-25-95	10-25-95	10-25-95
Time of run.....(HRS)	850	901	913	935
Flask number.....	61	62	63	64
Volume of flask.....(ML)	2100	2079	2067	2087
Data: time of sampling				
flask temperature..(DEG-F)	43.00	44.00	42.00	41.00
bar. press.....(IN.HG)	28.77	28.77	28.77	28.77
flask vacuum.....(IN.HG)	27.50	27.50	27.60	27.40
flask abs. press...(IN.HG)	1.27	1.27	1.17	1.37
Data: Time of Flask Opening				
flask temperature..(DEG-F)	78.00	78.00	78.00	78.00
lab. bar. press....(IN.HG)	28.98	28.98	28.98	28.98
flask static press.(IN.HG)	0.80	0.60	0.10	1.20
flask abs. press...(IN.HG)	29.78	29.58	29.08	30.18
Volume gas sampled....(DSML)	1934	1901	1863	1941
Moisture content.....(%V/V)	1.59	1.59	1.59	1.59
Nitrate in gas sample...(JG)	89.5	134.0	71.5	70.0
NO2 in gas sample.....(JG)	66.4	99.4	53.1	51.9
<u>NOx Concentration</u>				
(GR/DSCF).....	0.0150	0.0229	0.0124	0.0117
(MG/DSCM).....	34	52	28	27
(PPM-DRY).....	18	27	15	14
(PPM-WET).....	18	27	15	14
NOX Emission rate....(LB/HR)	9.42	14.35	7.81	7.34

Test No. 1
Line 1 Press RTO Stack

Results of Oxides of Nitrogen (NOx) Determinations---------Method 7

	Run 2A	Run 2B	Run 2C	Run 2D
Date of run.....	10-25-95	10-25-95	10-25-95	10-25-95
Time of run.....(HRS)	1031	1041	1057	1126
Flask number.....	65	66	7	8
Volume of flask.....(ML)	2068	2096	2081	2088
Data: time of sampling				
flask temperature..(DEG-F)	41.00	42.00	44.00	47.00
bar. press.....(IN.HG)	28.77	28.77	28.77	28.77
flask vacuum.....(IN.HG)	27.30	27.50	27.50	27.50
flask abs. press...(IN.HG)	1.47	1.27	1.27	1.27
Data: Time of Flask Opening				
flask temperature..(DEG-F)	78.00	78.00	78.00	78.00
lab. bar. press....(IN.HG)	28.98	28.98	28.98	28.98
flask static press.(IN.HG)	-0.90	1.00	1.50	0.30
flask abs. press...(IN.HG)	28.08	29.98	30.48	29.28
Volume gas sampled....(DSML)	1775	1943	1963	1889
Moisture content.....(%V/V)	2.31	2.31	2.31	2.31
Nitrate in gas sample...(JG)	45.2	43.4	76.5	52.0
NO2 in gas sample.....(JG)	33.5	32.2	56.8	38.6
<u>NOx Concentration</u>				
(GR/DSCF).....	0.0083	0.0072	0.0126	0.0089
(MG/DSCM).....	19	17	29	20
(PPM-DRY).....	10	9	15	11
(PPM-WET).....	10	8	15	10
NOX Emission rate....(LB/HR)	5.23	4.59	8.01	5.66

Test No. 1
Line 1 Press RTO Stack

Results of Oxides of Nitrogen (NOx) Determinations---------Method 7

	Run 3A	Run 3B	Run 3C	Run 3D
Date of run.....	10-25-95	10-25-95	10-25-95	10-25-95
Time of run.....(HRS)	1251	1303	1310	1326
Flask number.....	9	10	11	12
Volume of flask.....(ML)	2080	2063	2062	2111
Data: time of sampling				
flask temperature..(DEG-F)	50.00	53.00	55.00	55.00
bar. press.....(IN.HG)	28.77	28.77	28.77	28.77
flask vacuum.....(IN.HG)	27.50	27.50	27.30	27.40
flask abs. press...(IN.HG)	1.27	1.27	1.47	1.37
Data: Time of Flask Opening				
flask temperature..(DEG-F)	78.00	78.00	78.00	78.00
lab. bar. press....(IN.HG)	28.98	28.98	28.98	28.98
flask static press.(IN.HG)	0.20	0.20	0.10	-0.80
flask abs. press...(IN.HG)	29.18	29.18	29.08	28.18
Volume gas sampled....(DSML)	1876	1861	1840	1830
Moisture content.....(%V/V)	2.72	2.72	2.72	2.72
Nitrate in gas sample...(JG)	94.5	116.0	138.0	89.5
NO2 in gas sample.....(JG)	70.1	86.1	102.4	66.4
NOx Concentration				
(GR/DSCF).....	0.0163	0.0202	0.0243	0.0159
(MG/DSCM).....	37	46	56	36
(PPM-DRY).....	20	24	29	19
(PPM-WET).....	19	24	28	18
NOX Emission rate....(LB/HR)	10.21	12.63	15.20	9.91

Test No. 3
Line 1 Dryer RTO Inlet

Results of Oxides of Nitrogen (NOx) Determinations---------Method 7

	Run 1A	Run 1B	Run 1C	Run 1D
Date of run.....	10-26-95	10-26-95	10-26-95	10-26-95
Time of run.....(HRS)	1626	1640	1700	1713
Flask number.....	25	26	27	28
Volume of flask.....(ML)	2100	2035	2054	2031
Data: time of sampling				
flask temperature..(DEG-F)	53.00	53.00	53.00	52.00
bar. press.....(IN.HG)	28.54	28.54	28.54	28.54
flask vacuum.....(IN.HG)	25.70	25.70	25.70	25.70
flask abs. press...(IN.HG)	2.84	2.84	2.84	2.84
Data: Time of Flask Opening				
flask temperature..(DEG-F)	78.00	78.00	78.00	78.00
lab. bar. press....(IN.HG)	29.17	29.17	29.17	29.17
flask static press.(IN.HG)	-2.20	-1.90	-1.50	-2.60
flask abs. press...(IN.HG)	26.97	27.27	27.67	26.57
Volume gas sampled....(DSML)	1632	1601	1643	1551
Moisture content.....(%V/V)	23.30	23.30	23.30	23.30
Nitrate in gas sample...(JG)	36.0	42.2	32.4	26.0
NO2 in gas sample.....(JG)	26.7	31.3	24.0	19.3
<u>NOx Concentration</u>				
(GR/DSCF).....	0.0072	0.0085	0.0064	0.0054
(MG/DSCM).....	16	20	15	12
(PPM-DRY).....	9	10	8	7
(PPM-WET).....	7	8	6	5
NOX Emission rate....(LB/HR)	3.75	4.48	3.36	2.85

Test No. 3
Line 1 Dryer RTO Inlet

Results of Oxides of Nitrogen (NOx) Determinations---------Method 7

	Run 2A	Run 2B	Run 2C	Run 2D
Date of run.....	10-26-95	10-26-95	10-26-95	10-26-95
Time of run.....(HRS)	1800	1815	1834	1844
Flask number.....	29	30	31	32
Volume of flask.....(ML)	2068	2071	2009	2092
Data: time of sampling				
flask temperature..(DEG-F)	51.00	51.00	53.00	53.00
bar. press.....(IN.HG)	28.54	28.54	28.54	28.54
flask vacuum.....(IN.HG)	25.70	25.70	25.70	25.70
flask abs. press...(IN.HG)	2.84	2.84	2.84	2.84
Data: Time of Flask Opening				
flask temperature..(DEG-F)	78.00	78.00	78.00	78.00
lab. bar. press....(IN.HG)	29.17	29.17	29.17	29.17
flask static press.(IN.HG)	-0.80	-2.90	-3.00	0.10
flask abs. press...(IN.HG)	28.37	26.27	26.17	29.27
Volume gas sampled....(DSML)	1700	1562	1509	1782
Moisture content.....(%V/V)	26.05	26.05	26.05	26.05
Nitrate in gas sample...(JG)	38.2	35.0	46.2	41.8
NO2 in gas sample.....(JG)	28.3	26.0	34.3	31.0
<u>NOx Concentration</u>				
(GR/DSCF).....	0.0073	0.0073	0.0099	0.0076
(MG/DSCM).....	17	17	23	17
(PPM-DRY).....	9	9	12	9
(PPM-WET).....	6	6	9	7
NOX Emission rate....(LB/HR)	3.65	3.64	4.97	3.81

Test No. 3
Line 1 Dryer RTO Inlet

Results of Oxides of Nitrogen (NOx) Determinations---------Method 7

	Run 3A	Run 3B	Run 3C	Run 3D
Date of run.....	10-26-95	10-26-95	10-26-95	10-26-95
Time of run.....(HRS)	1930	1937	1944	1955
Flask number.....	33	34	35	36
Volume of flask.....(ML)	2088	2071	2071	2127
Data: time of sampling				
flask temperature..(DEG-F)	51.00	51.00	51.00	52.00
bar. press.....(IN.HG)	28.54	28.54	28.54	28.54
flask vacuum.....(IN.HG)	25.70	25.70	25.70	25.70
flask abs. press...(IN.HG)	2.84	2.84	2.84	2.84
Data: Time of Flask Opening				
flask temperature..(DEG-F)	78.00	78.00	78.00	78.00
lab. bar. press....(IN.HG)	29.17	29.17	29.17	29.17
flask static press.(IN.HG)	-1.10	-0.10	-3.80	-0.10
flask abs. press...(IN.HG)	28.07	29.07	25.37	29.07
Volume gas sampled....(DSML)	1696	1750	1501	1798
Moisture content.....(%V/V)	23.12	23.12	23.12	23.12
Nitrate in gas sample...(JG)	48.2	64.2	48.8	83.8
NO2 in gas sample.....(JG)	35.8	47.6	36.2	62.2
NOx Concentration				
(GR/DSCF).....	0.0092	0.0119	0.0105	0.0151
(MG/DSCM).....	21	27	24	35
(PPM-DRY).....	11	14	13	18
(PPM-WET).....	8	11	10	14
NOX Emission rate....(LB/HR)	4.88	6.30	5.58	8.01

Test No. 3
Line 1 Dryer RTO Stack

Results of Oxides of Nitrogen (NOx) Determinations---------Method 7

	Run 1A		Run 1B	Run 1C	Run 1D
Date of run.....	10-26-95		10-26-95	10-26-95	10-26-95
Time of run.....(HRS)	1635		1643	1658	1714
Flask number.....	19		20	21	22
Volume of flask.....(ML)	2069		2060	2068	2031
Data: time of sampling					
flask temperature..(DEG-F)	53.00		55.00	54.00	53.00
bar. press.....(IN.HG)	28.54		28.54	28.54	28.54
flask vacuum.....(IN.HG)	27.10		27.20	27.10	27.10
flask abs. press...(IN.HG)	1.44		1.34	1.44	1.44
Data: Time of Flask Opening					
flask temperature..(DEG-F)	78.00		78.00	78.00	78.00
lab. bar. press....(IN.HG)	29.17		29.17	29.17	29.17
flask static press.(IN.HG)	-2.20		0.30	-2.70	-0.10
flask abs. press...(IN.HG)	26.97		29.47	26.47	29.07
Volume gas sampled....(DSML)	1706		1873	1672	1813
Moisture content.....(%V/V)	23.35		23.35	23.35	23.35
Nitrate in gas sample...(JG)	57.8	<	12.5	54.8	36.7
NO2 in gas sample.....(JG)	42.9	<	9.3	40.7	27.2
<u>NOx Concentration</u>					
(GR/DSCF).....	0.0110	<	.0022	0.0106	0.0066
(MG/DSCM).....	25	<	5	24	15
(PPM-DRY).....	13	<	3	13	8
(PPM-WET).....	10	<	2	10	6
NOX Emission rate....(LB/HR)	6.47	<	1.27	6.26	3.86

Test No. 3
Line 1 Dryer RTO Stack

Results of Oxides of Nitrogen (NOx) Determinations---------Method 7

	Run 2A	Run 2B	Run 2C	Run 2D
Date of run.....	10-26-95	10-26-95	10-26-95	10-26-95
Time of run.....(HRS)	1755	1805	1814	1843
Flask number.....	23	24	49	50
Volume of flask.....(ML)	2056	2031	2088	2084
Data: time of sampling				
flask temperature..(DEG-F)	53.00	52.00	53.00	50.00
bar. press.....(IN.HG)	28.54	28.54	28.54	28.54
flask vacuum.....(IN.HG)	27.10	27.10	27.20	27.10
flask abs. press...(IN.HG)	1.44	1.44	1.34	1.44
Data: Time of Flask Opening				
flask temperature..(DEG-F)	78.00	78.00	78.00	78.00
lab. bar. press....(IN.HG)	29.17	29.17	29.17	29.17
flask static press.(IN.HG)	-0.90	-0.20	-1.40	-1.70
flask abs. press...(IN.HG)	28.27	28.97	27.77	27.47
Volume gas sampled....(DSML)	1782	1806	1783	1752
Moisture content.....(%V/V)	23.89	23.89	23.89	23.89
Nitrate in gas sample...(JG)	84.2	76.2	61.8	68.2
NO2 in gas sample.....(JG)	62.5	56.5	45.9	50.6
<u>NOx Concentration</u>				
(GR/DSCF).....	0.0153	0.0137	0.0112	0.0126
(MG/DSCM).....	35	31	26	29
(PPM-DRY).....	18	16	13	15
(PPM-WET).....	14	12	10	11
NOX Emission rate....(LB/HR)	8.98	8.02	6.59	7.40

Test No. 3
Line 1 Dryer RTO Stack

Results of Oxides of Nitrogen (NOx) Determinations---------Method 7

	Run 3A	Run 3B	Run 3C	Run 3D
Date of run.....	10-26-95	10-26-95	10-26-95	10-26-95
Time of run.....(HRS)	1926	1930	1941	1955
Flask number.....	51	52	53	54
Volume of flask.....(ML)	2064	1985	2083	2064
Data: time of sampling				
flask temperature..(DEG-F)	49.00	53.00	48.00	47.00
bar. press.....(IN.HG)	28.54	28.54	28.54	28.54
flask vacuum.....(IN.HG)	27.20	27.20	27.20	27.20
flask abs. press...(IN.HG)	1.34	1.34	1.34	1.34
Data: Time of Flask Opening				
flask temperature..(DEG-F)	78.00	78.00	78.00	78.00
lab. bar. press....(IN.HG)	29.17	29.17	29.17	29.17
flask static press.(IN.HG)	-1.00	-1.40	-2.70	-0.50
flask abs. press...(IN.HG)	28.17	27.77	26.47	28.67
Volume gas sampled....(DSML)	1789	1694	1690	1822
Moisture content.....(%V/V)	24.13	24.13	24.13	24.13
Nitrate in gas sample...(JG)	73.2	66.8	58.2	69.2
NO2 in gas sample.....(JG)	54.3	49.6	43.2	51.3
NOx Concentration				
(GR/DSCF).....	0.0133	0.0128	0.0112	0.0123
(MG/DSCM).....	30	29	26	28
(PPM-DRY).....	16	15	13	15
(PPM-WET).....	12	12	10	11
NOX Emission rate....(LB/HR)	7.86	7.58	6.62	7.30

3.4 Results of Carbon Monoxide Determinations

Test No. 1
Line 1 Press RTO Inlet

Results of CO Determinations ----------Method 10

	Run 1	Run 2	Run 3
Date of run	10-25-95	10-25-95	10-25-95
Time run start/end.....(HRS)	0845/0953	1030/1207	1250/1402
Total sampling time....(MIN)	60.0	60.0	60.0
Moisture content.....(%V/V)	1.57	1.58	1.92
O2 Concentration.....(%V/V)	20.90	20.90	20.90
Volumetric flow rate (DSCFM)	69630	69185	68883
CO concentration.....			
(GR/DSCF).....	0.0005<	0.0005<	0.0005<
(MG/DSCM).....	1.17<	1.17<	1.17<
(PPM-WET).....	0.98<	0.98<	0.98<
(PPM-DRY).....	1.00<	1.00<	1.00<
(PPM-DRY @ 7% O2).....	140.00<	140.00<	140.00<
CO emission rate.....(LB/HR)	0.304<	0.302<	0.300<

CO = Carbon monoxide

A trailing '<' symbol indicates that the true value is less than or equal to the reported value

Test No. 1
Line 1 Press RTO Stack

Results of CO Determinations ----------Method 10

	Run 1	Run 2	Run 3
Date of run	10-25-95	10-25-95	10-25-95
Time run start/end.....(HRS)	0845/0953	1030/1202	1250/1357
Total sampling time....(MIN)	60.0	60.0	60.0
Moisture content.....(%V/V)	1.59	2.31	2.72
O2 Concentration.....(%V/V)	20.70	20.70	20.70
Volumetric flow rate (DSCFM)	73230	73936	72918
CO concentration.....			
(GR/DSCF).....	0.0041	0.0041	0.0046
(MG/DSCM).....	9.32	9.32	10.48
(PPM-WET).....	7.87	7.82	8.76
(PPM-DRY).....	8.00	8.00	9.00
(PPM-DRY @ 7% O2).....	373.33	373.33	420.00
CO emission rate.....(LB/HR)	2.555	2.580	2.862

CO = Carbon monoxide

A trailing '<' symbol indicates that the true value is less than or equal to the reported value

Test No. 5
Line 1 Dryer RTO Inlet

Results of CO Determinations ----------Method 10

	Run 1	Run 2	Run 3
Date of run	10-26-95	10-26-95	10-26-95
Time run start/end.....(HRS)	0900-1023	1200-1305	1420-1524
Total sampling time....(MIN)	60.0	60.0	60.0
Moisture content.....(%V/V)	22.75	22.06	24.23
O2 Concentration.....(%V/V)	17.50	17.50	17.40
Volumetric flow rate (DSCFM)	61174	62264	60178
CO concentration.....			
(GR/DSCF).....	0.2824	0.2193	0.3221
(MG/DSCM).....	646.57	502.12	737.44
(PPM-WET).....	428.74	335.92	479.62
(PPM-DRY).....	555.00	431.00	633.00
(PPM-DRY @ 7% O2).....	%2220.00	%1724.00	%2461.67
CO emission rate.....(LB/HR)	148.075	117.040	166.136

CO = Carbon monoxide

A trailing '<' symbol indicates that the true value is less than or equal to the reported value

Test No. 2
Line 1 Dryer RTO Stack

Results of CO Determinations ----------Method 10

	Run 1	Run 2	Run 3
Date of run	10-26-95	10-26-95	10-26-95
Time run start/end.....(HRS)	0900-1025	1200-1306	1420-1526
Total sampling time....(MIN)	64.0	64.0	64.0
Moisture content.....(%V/V)	21.33	21.46	23.08
O2 Concentration.....(%V/V)	17.10	17.40	16.90
Volumetric flow rate (DSCFM)	71317	72411	69592
CO concentration.....			
(GR/DSCF).....	0.0580	0.0224	0.0270
(MG/DSCM).....	132.81	51.26	61.75
(PPM-WET).....	89.68	34.56	40.77
(PPM-DRY).....	114.00	44.00	53.00
(PPM-DRY @ 7% O2).....	409.23	171.11	180.98
CO emission rate.....(LB/HR)	35.458	13.896	16.086

CO = Carbon monoxide

A trailing '<' symbol indicates that the true value is less than or equal to the reported value

3.5 Results of Formaldehyde Determinations

Test No. 2
Line 1 Dryer RTO Inlet

Results of Formaldehyde Tests ---------- EPA Method 0011

	Run 1	Run 2	Run 3
Date of run	10-26-95	10-26-95	10-26-95
Time run start/end.....(HRS)	900/1023	1200/1305	1420/1524
Static pressure.....(IN.WC)	-1.00	-1.00	-1.00
Cross sectional area (SQ.FT)	23.58	23.58	23.58
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	183.0	173.0	199.0
desiccant.....(GRAMS)	18.0	12.0	10.0
total.....(GRAMS)	201.0	185.0	209.0
Formaldehyde in sample..(uG)	40000	35000	44000
Gas meter coefficient.....	0.9934	0.9934	0.9934
Barometric pressure..(IN.HG)	28.54	28.54	28.54
Avg. orif.pres.drop..(IN.WC)	0.93	0.87	0.87
Avg. gas meter temp..(DEF-F)	57.3	64.0	68.6
Volume through gas meter....			
at meter conditions...(CF)	33.20	32.21	32.49
standard conditions.(DSCF)	32.17	30.81	30.81
Total sampling time....(MIN)	60.00	60.00	60.00
Nozzle diameter.....(IN)	.190	.190	.190
Avg.stack gas temp ..(DEG-F)	157	156	159
Volumetric flow rate.....			
actual.....(ACFM)	97273	97972	97910
dry standard.....(DSCFM)	61174	62264	60178
Isokinetic variation.....(%)	105.0	98.8	102.2
CH2O concentration.....			
(GR/DSCF).....	0.0192	0.0176	0.0221
(MG/DSCM).....	44.02	40.22	50.56
(PPM-DRY).....	35.26	32.21	40.50
(PPM-WET).....	27.24	25.11	30.69
CH2O emission rate...(LB/HR)	10.078	9.37164	11.387
	19.178 TFP	20.92	20.92
CH2O = Formaldehyde	.53 lb/TFP	.45 lb/TFP	.54 lb/TFP

A trailing '<' symbol indicates that the true value is less than or equal to the reported value

Test No. 2
Line 1 Dryer RTO Stack

Results of Formaldehyde Tests ---------- EPA Method 0011

	Run 1	Run 2	Run 3
Date of run	10-26-95	10-26-95	10-26-95
Time run start/end.....(HRS)	900/1025	1200/1306	1420/1526
Static pressure.....(IN.WC)	-0.53	-0.53	-0.53
Cross sectional area (SQ.FT)	36.23	36.23	36.23
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	227.0	235.0	252.0
desiccant.....(GRAMS)	12.0	11.0	14.0
total.....(GRAMS)	239.0	246.0	266.0
Formaldehyde in sample..(uG)	4300	3800	5500
Gas meter coefficient.....	1.0023	1.0023	1.0023
Barometric pressure..(IN.HG)	28.54	28.54	28.54
Avg. orif.pres.drop..(IN.WC)	1.36	1.42	1.39
Avg. gas meter temp..(DEF-F)	65.1	69.6	75.5
Volume through gas meter....			
at meter conditions...(CF)	43.10	44.40	44.20
standard conditions.(DSCF)	41.56	42.46	41.80
Total sampling time....(MIN)	64.00	64.00	64.00
Nozzle diameter.....(IN)	.248	.248	.248
Avg.stack gas temp ..(DEG-F)	262	261	261
Volumetric flow rate.....			
actual.....(ACFM)	130133	132136	129706
dry standard.....(DSCFM)	71317	72411	69592
Isokinetic variation.....(%)	98.4	99.0	101.4
CH2O concentration.....			
(GR/DSCF).....	0.0016	0.0014	0.0020
(MG/DSCM).....	3.67	3.17	4.66
(PPM-DRY).....	2.94	2.54	3.74
(PPM-WET).....	2.31	2.00	2.87
CH2O emission rate...(LB/HR)	0.97887	0.85990	1.21494

CH2O = Formaldehyde

A trailing '<' symbol indicates that the true value is less than or equal to the reported value

3.6 Results of Benzene Determinations

Interpoll Labs Report No. 5-6731
Louisiana Pacific Corporation
Hayward, Wisconsin

Test No. 4
Line 1 Dryer RTO Inlet

Results of Benzene Determinations——————————————————Method 18

	Run 1	Run 2	Run 3
Date of run	10-26-95	10-26-95	10-26-95
Time run start/end (HRS)	0920-1024	1200-1303	1340-1442
Total sampling time (MIN)	60	60	60
Moisture content (%V/V)	22.8	22.1	24.2
Oxygen Content (%V/V)	17.5	17.5	17.4
Volumetric flow rate (DSCFM)	61175	62265	60180
Benzene concentration			
ppm,dry	0.83	0.33	0.84
Benzene emission rate (LB/HR)	0.62	0.25	0.61

Interpoll Labs Report No. 5-6731
Louisiana Pacific Corporation
Hayward, Wisconsin

Test No. 4
Line 1 Dryer RTO Stack

Results of Benzene Determinations——————————————————Method 18

	Run 1	Run 2	Run 3
Date of run	10-26-95	10-26-95	10-26-95
Time run start/end (HRS)	0900-1025	1200-1306	1420-1526
Total sampling time (MIN)	60	60	60
Moisture content (%V/V)	21.3	21.5	23.1
Oxygen Content (%V/V)	17.1	17.4	16.9
Volumetric flow rate (DSCFM)	71320	72410	69590
Benzene concentration			
ppm,dry	0.035	0.015	0.034
Benzene emission rate (LB/HR)	0.031	0.013	0.028

Report No. 5-6731

LOUISIANA PACIFIC CORPORATION
Hayward, Wisconsin

BENZENE

Line 1 Dryer RTO Inlet

RUN	Vstd (DSCF)	MASS (ug)	CONC (ug/Nm3)	CONC (ppmv)	CONC (GR/DSCF)	FLOW (DSCFM)	E-RATE (LB/HR)
1	2.089	160	2705	0.833066	0.00118198	61175	0.619777
2	2.209	67	1071	0.329896	0.00046807	62265	0.249806
3	2.214	170	2712	0.835159	0.00118495	60180	0.611229

Line 1 Dryer RTO Stack

RUN	Vstd (DSCF)	MASS (ug)	CONC (ug/Nm3)	CONC (ppmv)	CONC (GR/DSCF)	FLOW (DSCFM)	E-RATE (LB/HR)
1	1.91	6.2	115	0.035307	5.0094E-05	71320	0.030623
2	1.862	2.5	47	0.014604	2.072E-05	72410	0.01286
3	1.883	5.8	109	0.033502	4.7534E-05	69590	0.028353

APPENDIX A

VOLUMETRIC FLOW RATE DETERMINATIONS

Test No. 1
Line 1 Press RTO Inlet

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

Date of Determination.....	10-25-95
Time of Determination.....(HRS)	750
Barometric pressure.....(IN.HG)	28.77
Pitot tube coefficient.....	.84
Number of sampling ports.....	1
Total number of points.....	12
Shape of duct.....	Round
Stack diameter.....(IN)	53.125
Duct area.....(SQ.FT)	15.39
Direction of flow.....	UP
Static pressure.....(IN.WC)	-5.2
Avg. gas temp.....(DEG-F)	108
Moisture content.....(% V/V)	1.50
Avg. linear velocity.....(FT/SEC)	87.1
Gas density.....(LB/ACF)	.06568
Molecular weight.....(LB/LBMOLE)	28.84
Mass flow of gas.....(LB/HR)	317052
Volumetric flow rate.....	
actual.....(ACFM)	80449
dry standard.....(DSCFM)	69889

Test No. 2
Line 1 Dryer RTO Inlet

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

Date of Determination.....	10-26-95
Time of Determination.....(HRS)	755
Barometric pressure.....(IN.HG)	28.54
Pitot tube coefficient.....	.84
Number of sampling ports.....	2
Total number of points.....	24
Shape of duct.....	Round
Stack diameter.....(IN)	65.75
Duct area.....(SQ.FT)	23.58
Direction of flow.....	HORIZONTAL
Static pressure.....(IN.WC)	-1
Avg. gas temp.....(DEG-F)	147
Moisture content.....(% V/V)	22.75
Avg. linear velocity.....(FT/SEC)	67.7
Gas density.....(LB/ACF)	.05735
Molecular weight.....(LB/LBMOLE)	29.24
Mass flow of gas.....(LB/HR)	329786
Volumetric flow rate.....	
actual.....(ACFM)	95837
dry standard.....(DSCFM)	61268

APPENDIX B

PRESS RTO FIELD DATA SHEETS

INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job LP/HAYWARD
Source LINE 1 PRESS RTO INLET
Test 1 Run 1 Date 10-25-95
Stack Dimen. 53.125 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☒ Reg. ☐ Exp ☐ Elec.
Barometric Pressure 29.77 IN.HG
Static Pressure -5.2 IN.WC
Operators E. TOOBRIDGE - S. FALSTA
Pitot No. 34V-E C_p .84
PM/NOx/CO

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: 6.5 IN.		Time Start: 0750 HRS	
A 1	.021	1.11	7.61	1.75	-
2	.067	3.56	10.06	1.85	108
3	.118	6.26	12.77	2.10	-
4	.177	9.40	15.9	2.30	-
5	.250	13.28	19.78	2.15	-
6	.356	18.91	25.41	1.90	-
7	.644	34.21	40.71	2.20	-
8	.750	39.84	46.34	2.35	-
9	.823	43.72	√0.22	2.30	108
10	.882	46.85	√3.35	2.15	-
11	.933	49.56	√6.06	2.20	-
12	.979	√2.00	58.50	2.20	

Temp. Meas. Device & S/N: POT = 11YC
Time End: (0810) HRS

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

INTERPOLL LABORATORIES, INC.
(612) 786-6020

Interpoll Laboratories EPA Method 5/17 Sample Log Sheet

Job LP/HAYWARD
Source LIME/ PRESS RTO INLET
Method 5 Filter holder: TE

Date 10-25-95 Test 1 Run 1
No. of traverse points 24
Filter type: GF

Sample Train Leak Check:
Pretest: ≤ 0.02 cfm at 15 IN.HG (vac) ☒
Post test: 0.00 cfm at 15 IN. HG (vac) ☒

Particulate Catch Data:
No. of filters used: 1071

Recovery solvent(s)
☒ acetone
☐ other(s)

No. of probe wash bottles: 1
Sample recovered by: ET

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1		100	
Impinger No. 2		100	0
Impinger No. 3		0	
Condenser			
Desiccant	1553	1535	18
Total			18

Integrated Gas Sampling Data:

Bag Pump No. 36A
Bag Material: 5-layer Aluminized Tedlar
Pretest leak check: 0.02
Time start: 0846
Sampling rate: 1100 cc

Box No. 13 Bag No. 1
Size: 44 L
cc/min at 20 IN.HG
(HRS) Time end: 0952 (HRS)
cc/min Operator: SF

S/N of O_2 Analyzer used to monitor train outlet: —

052394-G:\STACK\WP\FORMS\S-0046RR

EPA Method 5 Field Data Sheet

Job UP/HAYWARD
Source LIME / PRESS RTO INLET
Date 10-25-95 Test 1 Run 1

Operators [redacted]
Meter Box No. 4 ΔH@ 1.78 in.WC
Gasmeter Coeff. .9934

Nozzle No. 1-3
Nozzle Dia. .190 in.
Bar. Press. 28.77 in.Hg

Pitot No. V24-6
C_p .84
H_2O 2.25 %

Traverse Point No.	Sampling Time (min)	Sample Vol. (cf)	Velocity Head (in.WC)	Orifice Meter (in.WC)	Des. Vol. (cf)	VAC. (in.Hg)	Temperatures (°F) Stack	Probe	Oven	Imp.	Gas/In	Gas/Out	Oxygen (% v/v)
[redacted]	(0845)	464.80	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
12	2.5	467.11	2.25	2.62	7.07	11	110	225	260	34	45	43	
11	5	469.41	2.30	2.68	9.37	11	110				47	44	
10	7.5	471.79	2.40	2.81	1.73	12	109	225	257	34	49	44	
9	10	473.43	2.15	2.53	3.97	11.5	109				49	44	
8	12.5	476.20	2.00	2.35	6.13	10	110	225	265	38	51	45	
7	15	478.39	2.05	2.41	8.32	10	110				53	46	
6	17.5	480.51	1.90	2.24	0.44	10	110	227	268	40	54	47	
5	20	482.76	2.20	2.61	2.73	11	108	?			56	47	
4	22.5	485.04	2.20	2.61	5.02	11.5	108	228	270	43	58	47	
3	25	487.19	1.90	2.26	7.15	10	107				58	48	
2	27.5	489.30	1.85	2.21	9.26	9.5	107	230	267	45	59	48	
1	30	491.19	1.50	1.79	1.16	8	108				59	49	
12	32.5	493.17	1.66	1.97	3.14	8	108	230	267	45	60	50	
11	35	495.27	1.80	2.14	5.23	9	108				54	49	
10	37.5	497.48	2.05	2.44	7.44	10	108	227	265	44	57	50	
9	40	499.67	2.00	2.39	9.64	10.5	108				59	50	
8	42.5	502.10	2.50	2.95	2.09	13	109	225	268	44	60	51	
7	45	504.51	2.35	2.80	4.47	13	110				61	51	
6	47.5	506.91	2.40	2.87	6.87	13	109	225	263	44	61	52	
5	50	509.31	2.40	2.87	9.28	13	108				61	52	
4	52.5	511.72	2.45	2.93	1.71	13	105	224	264	45	61	52	
3	55	514.08	2.25	2.70	4.05	13	108				62	53	
2	57.5	516.41	2.20	2.64	6.36	12	108	226	260	44	61	53	
1	60	518.51	1.80	2.16	8.45	9	109				62	53	
	(953)												
[redacted]	0-60	V_m - 53.71	[redacted]	2.50 ΔH -	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Avg. - 52.6		[redacted]

INTERPOLL LABORATORIES, INC.
(612) 786-6020

Interpoll Laboratories EPA Method 5/17 Sample Log Sheet

Job CP/Hayward
Date 10-25-95 Test 1 Run 2
Source Line 1 Press ETO Inlet
No. of traverse points 24
Method 5 Filter holder: TE
Filter type: 6F

Sample Train Leak Check:

Pretest: ≤ 0.02 cfm at 15 IN.HG (vac) ☒
Post test: 0.00 cfm at 15 IN. HG (vac) ☒

Particulate Catch Data:

No. of filters used: 1069

Recovery solvent(s)
☒ acetone
☐ other(s)

No. of probe wash bottles: 1
Sample recovered by: R.T

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1		100	
Impinger No. 2		100	4
Impinger No. 3		0	
Condenser			
Desiccant	1330	1316	14
Total			18

Integrated Gas Sampling Data:

Bag Pump No. 36A
Box No. 13 Bag No. 2
Bag Material: 5-layer Aluminized Tedlar
Size: 44 L
Pretest leak check: 0.00 cc/min at 19 IN.HG
Time start: 1031 (HRS) Time end: 1206 (HRS)
Sampling rate: 400 cc/min Operator: SF

S/N of O_2 Analyzer used to monitor train outlet: —

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EPA Method 5 Field Data Sheet

Job LP/Hayward
Source Line 1 Press RTO Inlet
Date 10-25-95 Test 1 Run 3

Operators SF & SK
Meter Box No. 4 ΔH@ 1.78 in.WC
Gasmeter Coeff. .9934

Nozzle No. 1-3
Nozzle Dia. .190 in.
Bar. Press. 28.77 in.Hg

Pitot No. STY-6
C_p 0.84
H_2O ~~2.5~~ 1.75 %

Traverse Point No.	Sampling Time (min)	Sample Vol. (cf)	Velocity Head (in.WC)	Orifice Meter (in.WC)	Des. Vol. (cf)	VAC. (in.Hg)	Temperatures (°F) Stack	Probe	Oven	Imp.	Gas/In	Gas/Out	Oxygen (% v/v)
	(1030)	519.410											
B 12	2.5	521.41	~~1.65~~	1.97	1.39	9	111	226	260	44	52	51	
11	5	523.44	1.70	2.02	3.40	9.5	111				55	52	
10	7.5	525.38	1.95	2.34	5.27	10.5	108	225	265	44	57	53	
9	10	527.83	2.00	2.40	~~2.78~~	11.5	109				58	54	
8	12.5	530.06	2.20	2.65	0.09	12	109	225	270	44	60	54	
7	15	532.29	1.95	2.35	2.27	12	109				61	54	
6	17.5	534.75	2.30	2.78	4.64	13.5	109	227	268	45	62	55	
5	20	537.12	2.40	2.91	7.07	15	108				62	55	
4	22.5	539.40	2.15	2.60	9.37	13	108	225	271	45	62	55	
3	25	541.66	2.00	2.42	1.59	12	110				63	56	
2	27.5	543.84	1.95	2.36	3.78	11.5	110	224	270	45	64	56	
1	30	546.05	2.15	2.61	6.08	12	109				65	57	
A 12	32.5	548.42	2.25	2.73	8.44	13	110	226	272	45	60	57	
11	35	550.81	2.30	2.78	0.82	13	109				59	56	
10	37.5	553.21	2.30	2.78	3.19	13	109	225	271	45	60	56	
9	40	555.52	2.15	2.60	5.48	13	109				59	56	
8	42.5	557.85	2.20	2.66	7.80	13	109	227	270	45	60	56	
7	45	560.08	2.05	2.48	0.05	13	109				62	57	
6	47.5	562.39	2.10	2.54	2.32	12.5	109	226	265	46	62	57	
5	50	564.59	1.95	2.36	4.52	12	109				61	57	
4	52.5	566.82	2.10	2.55	6.79	12	108	226	263	46	63	58	
3	55	569.04	2.00	2.43	9.02	12	108				65	58	
2	57.5	571.27	2.05	2.49	1.28	12	109	225	268	46	65	59	
1	60	573.52	1.95	2.38	3.48	13	109				68	60	
	(1207)												
	θ = 60	V_m = 54.12		2.5, ΔH =							Avg. = 58.4		

INTERPOLL LABORATORIES, INC.
(612) 786-6020

Interpoll Laboratories EPA Method 5/17 Sample Log Sheet

Job LP/Hayward
Source No. 1 Press Inlet
Method 5 Filter holder: TE

Date 10-25-95 Test 1 Run 3
No. of traverse points 24
Filter type: Glass Fiber

Sample Train Leak Check:

Pretest: ≤ 0.02 cfm at 15 IN.HG (vac) ☒
Post test: 0 cfm at 15 IN. HG (vac) ☒

Particulate Catch Data:

No. of filters used: 1078

Recovery solvent(s)

☒ acetone
☐ other(s)

No. of probe wash bottles: 1
Sample recovered by: SF

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1		100	
Impinger No. 2	204	100	4
Impinger No. 3		0	
Condenser			
Desiccant	1571	1553	18
Total			22

Integrated Gas Sampling Data:

Bag Pump No. 36A
Bag Material: 5-layer Aluminized Tedlar
Pretest leak check: 0.02
Time start: 1250
Sampling rate: 400

Box No. 13 Bag No. 3
Size: 44 L
cc/min at 29 IN.HG
(HRS) Time end: 1401 (HRS)
cc/min Operator: SF

S/N of O_2 Analyzer used to monitor train outlet: —

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EPA Method 5 Field Data Sheet

Job LP/Hayward
Source No. 1 Press Inlet
Date 10-25-95 Test 1 Run 3

Operators SR / SK
Meter Box No. 4 ΔH@ 1.78 in.WC
Gasmeter Coeff. .9934

Nozzle No. 1-3
Nozzle Dia. .190 in.
Bar. Press. 28.77 in.Hg

Pitot No. U29-6
C_p 0.84
H_2O 1.60 %

Traverse Point No.	Sampling Time (min)	Sample Vol. (cf)	Velocity Head (in.WC)	Orifice Meter (in.WC)	Des. Vol. (cf)	VAC. (in.Hg)	Temperatures (°F) Stack	Probe	Oven	Imp.	Gas/In	Gas/Out	Oxygen (% v/v)
	(1250)	574.30											
A 12	2.5	577.15	2.20	2.65	7.11	14	113	230	264	44	60	59	
11	5	579.52	2.30	2.78	9.49	14	112				61	60	
10	7.5	581.55	2.15	2.62	1.80	14	109	232	264	45	63	61	
9	10	584.19	2.20	2.68	4.14	14	109				65	61	
8	12.5	586.52	2.15	2.62	6.46	14	111	231	269	45	65	61	
7	15	588.74	2.00	2.43	8.69	13	113				67	62	
6	17.5	590.95	1.95	2.38	0.90	12	113	235	271	46	68	62	
5	20	593.20	2.10	2.56	3.20	13	112				70	63	
4	22.5	595.50	2.05	2.51	5.47	13.5	112	237	270	45	71	64	
3	25	597.79	2.15	2.63	7.81	13.5	113				71	64	
2	27.5	600.23	2.30	2.82	0.22	15	112	239	267	45	72	64	
1	30	602.45	1.90	2.34	2.42	12	111				72	65	
B 12	32.5	604.62	1.80	2.22	4.56	11.5	111	236	269	46	66	64	
11	35	606.75	1.75	2.14	6.67	10.5	112				69	64	
10	37.5	609.04	2.10	2.58	8.97	14.0	111	237	265	46	71	65	
9	40	611.28	1.95	2.40	1.20	13	111				72	65	
8	42.5	613.59	2.10	2.59	3.51	13.5	111	237	266	46	72	66	
7	45	615.81	2.00	2.47	5.78	13.0	110				73	66	
6	47.5	618.17	2.25	2.78	8.18	14	110	240	271	46	74	67	
5	50	620.60	2.35	2.91	0.64	15	109				75	67	
4	52.5	623.06	2.35	2.91	3.09	15	110	239	268	45	74	67	
3	55	625.38	2.00	2.48	5.36	13.5	110				74	67	
2	57.5	627.65	1.95	2.42	7.61	13	110	235	268	45	74	68	
1	60	629.78	1.80	2.24	9.76	11	109				75	68	
	(1402)												
	θ = 60	V_m = 54.58		ΔH = 2.55							Avg. = 66.9		

1 A M2-CH 1

B-7

INTERPOLL LABORATORIES, INC.
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EPA Method 7 Sampling Collection Field Data Sheet

Job: L-P Hayward Date: 10-25-95 Bar Pressure: 28.77 IN.HG
Test Location: Line 1 Press, RTO Inlet Fuel Type: _____ Sample Train No: _____
Technician: SK Pump No: 36

No.	Test Run Point	Flask No.	Time (HRS)	Vacuum (IN.HG)	Flask Temp. (°F)	Leak Rate <0.4 IN.HG/MIN.	
1	1-1-1	74	0854	28.2	41	☑ YES	☐ NO
2	1-1-2	75	0905	28.4	37	☑ YES	☐ NO
3	1-1-1	76	0935	28.5	39	☑ YES	☐ NO
4	1-1-2	77	0945	28.5	42	☑ YES	☐ NO
5	1-2-1	78	1035	28.5	44	☑ YES	☐ NO
6	1-2-2	79	1045	28.5	47	☑ YES	☐ NO
7	1-2-1	37	1125	28.5	56	☑ YES	☐ NO
8	1-2-2	38	1143	28.5	56	☑ YES	☐ NO
9	1-3-1	39	1256	28.5	56	☑ YES	☐ NO
10	1-3-2	40	1300	28.4	56	☑ YES	☐ NO
11	1-3-1	41	1339	28.4	59	☑ YES	☐ NO
12	1-3-2	42	1347	28.4	59	☑ YES	☐ NO
13						☐ YES	☐ NO
14						☐ YES	☐ NO
15						☐ YES	☐ NO
16						☐ YES	☐ NO
17						☐ YES	☐ NO
18						☐ YES	☐ NO
19						☐ YES	☐ NO
20						☐ YES	☐ NO
21						☐ YES	☐ NO
22						☐ YES	☐ NO
23						☐ YES	☐ NO
24						☐ YES	☐ NO
25						☐ YES	☐ NO
26						☐ YES	☐ NO
27						☐ YES	☐ NO

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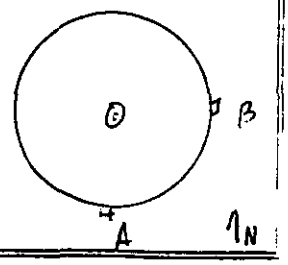
INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job L.P Hayward
Source Line 1 Press RTO Stack
Test 1 Run Date 10/25/95
Stack Dimen. 75.5 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☐ Elec.
Barometric Pressure 28.77 IN.HG
Static Pressure -.31 IN.WC
Operators D. Van Hoever & T. Lorenz
Pitot No. V23-8 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: 6.375 IN.		Time Start:	HRS
A 1	.026	1.96	8.31		
2	.082	6.19	12.57		
3	.146	11.02	17.44		
4	.226	17.06	23.44		
5	.342	25.82	32.2		
6	.658	49.68	56.05		
7	.774	58.44	64.81		
8	.854	64.48	70.85		
9	.918	69.31	75.68		
10	.974	73.54	79.91		
B 1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

Temp. Meas. Device & S/N: PDT #35 Time End: HRS

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

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

Interpoll Laboratories EPA Method 5/17 Sample Log Sheet

Job L.P. Hayward
Source Line 1 Press RTO Stack
Method 5 Filter holder: glass

Date 10/25/95 Test 1 Run 1
No. of traverse points 20
Filter type: glass fiber

Sample Train Leak Check:

Pretest: ≤ 0.02 cfm at 15 IN.HG (vac) ☑
Post test: 0 cfm at 10 IN. HG (vac) ☑

Particulate Catch Data:

No. of filters used:

8266

Recovery solvent(s)

☑acetone
☐other(s)

No. of probe wash bottles: 1
Sample recovered by: DH

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1		200	
Impinger No. 2	205		5
Impinger No. 3			
Condenser			
Desiccant	1442	1431	11
Total			16

Integrated Gas Sampling Data:

Bag Pump No. 2313
Bag Material: 5-layer Aluminized Tedlar
Pretest leak check: 0
Time start: 0950
Sampling rate: 400

Box No. 15 Bag No. 1
Size: 44 L
cc/min at 15 IN.HG
(HRS) Time end: 0953 (HRS)
cc/min Operator: DH

S/N of O_2 Analyzer used to monitor train outlet: 4

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EPA Method 5 Field Data Sheet

Job: L.P. Hayward
Source: Line 1 Press RTO Stack
Date: 10/25/95 Test: 1 Run: 1

Operators: DCH + J.L
Meter Box No.: 3 ΔH@ 1.73 in.WC
Gasmeter Coeff.: 1.0023

Nozzle No.: 7-4
Nozzle Dia.: .248 in.
Bar. Press.: 28.77 in.Hg

Pitot No.: V23-8
C_p: .84
H_2O: 2.5 %

Traverse Point No.	Sampling Time (min)	Sample Vol. (cf)	Velocity Head (in.WC)	Orifice Meter (in.WC)	Des. Vol. (cf)	VAC. (in.Hg)	Temperatures (°F) Stack	Probe	Oven	Imp.	Gas/In	Gas/Out	Oxygen (% v/v)
	0845	723.40											
A 10	3	724.89	.78	2.10	4.86	7.5	240	237	241	43	47	44	20.5
9	6	727.35	.75	2.02	7.28	7.5	241				55	46	20.8
8	9	729.86	.83	2.27	9.85	7.5	238	236	254	44	58	48	20.8
7	12	732.39	.79	2.17	2.37	7.5	237				62	49	20.8
6	15	734.68	.55	1.52	4.49	6.5	235	234	236	36	63	51	208
5	18	736.89	.60	1.67	6.71	6.5	235				70	52	20.8
4	21	739.12	.70	1.95	9.12	6.5	238	237	240	38	73	54	20.8
3	24	741.41	.64	1.79	1.44	6.5	238				77	58	20.8
2	27	743.62	.55	1.56	3.60	6	236	241	240	39	78	58	20.7
1	30	745.75	.51	1.45	5.70	6	235				78	59	20.7
B 10	33	748.37	.82	2.33	8.35	8	235	241	246	40	75	61	20.8
9	36	751.16	.91	2.59	1.14	8.5	233				79	58	208
8	39	753.81	.88	2.49	3.88	8.5	236	252	251	41	75	58	20.8
7	42	756.58	.88	2.47	6.60	8.5	240				79	64	206
6	45	759.19	.77	2.20	9.18	7.5	234	251	250	40	83	65	20.8
5	48	761.43	.50	1.44	1.28	6.5	233				84	66	20.8
4	51	763.82	.62	1.79	3.62	6.5	233	246	242	41	83	65	20.8
3	54	766.11	.65	1.85	6.00	6	240				83	65	20.8
2	57	768.41	.63	1.81	8.35	6	233				84	66	20.8
1	60	770.50	.53	1.52	0.51	6	235				84	67	20.8
	0953												
	0 - 60	V_m - 48.10		ΔH - 1.93							Avg. - 65.6		

INTERPOLL LABORATORIES, INC.
(612) 786-6020

Interpoll Laboratories EPA Method 5/17 Sample Log Sheet

Job L.P. Hayward
Source Line 1 Press RTO Stack
Method 5 Filter holder: glass

Date 10/25/95 Test 1 Run 2
No. of traverse points 20
Filter type: glass fiber

Sample Train Leak Check:

Pretest: ≤ 0.02 cfm at 15 IN.HG (vac) ☒
Post test: 0 cfm at 10 IN. HG (vac) ☒

Particulate Catch Data:

No. of filters used: 8213

Recovery solvent(s)

☒ acetone 1
☐ other(s)

No. of probe wash bottles: 1
Sample recovered by: DLH

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2	208	200	8
Impinger No. 3			
Condenser			
Desiccant	1476	1460	16
Total			24

Integrated Gas Sampling Data:

Bag Pump No. 233
Bag Material: 5-layer Aluminized Tedlar
Pretest leak check: 0
Time start: 1035
Sampling rate: 400 cc/min

Box No. 15 Bag No. 2
Size: 44 L
at 15 IN.HG
(HRS) Time end: 1202 (HRS)
Operator: DLH

S/N of O_2 Analyzer used to monitor train outlet: 4

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EPA Method 5 Field Data Sheet

Job: L.P. Hayward
Source: Line 1 Press RTO Stack
Date: 10/25/95 Test 1 Run 2

Operators: DHH & S.C.
Meter Box No. 2 ΔH@ 1.73 in.WC
Gasmeter Coeff. 1.0023

Nozzle No. 7-U
Nozzle Dia. .248 in.
Bar. Press. 28.77 in.Hg

Pitot No. U23-8
C_p .84
H_2O 2 %

Traverse Point No.	Sampling Time (min)	Sample Vol. (cf)	Velocity Head (in.WC)	Orifice Meter (in.WC)	Des. Vol. (cf)	VAC. (in.Hg)	Temperatures (°F) Stack	Probe	Oven	Imp.	Gas/In	Gas/Out	Oxygen (% v/v)
	1030	770.80											
B 10	3	773.52	.84	2.39	3.47	9	236	229	241	40	70	70	20.8
9	6	776.31	.86	2.46	6.20	9	238				72	68	20.6
8	9	778.97	.90	2.58	8.99	9	235	241	238	38	75	68	20.5
7	12	781.77	.84	2.42	1.70	9	233				78	68	20.5
6	15	784.49	.82	2.38	4.39	9	230	253	241	39	79	67	20.5
5	18	786.78	.63	1.82	6.75	7	236				82	68	20.6
4	21	789.19	.61	1.76	9.07	7	239	252	249	40	82	68	20.6
3	24	791.52	.64	1.84	1.44	7	239				89	70	20.6
2	27	793.66	.56	1.64	3.69	6	236	225	232	42	89	70	20.6
1	30	795.83	.51	1.49	5.83	6	235				90	69	20.6
A 10	33	798.29	.75	2.19	8.43	7.5	235	242	241	42	86	71	20.6
9	36	801.00	.79	2.28	1.08	7.5	242				80	70	20.5
8	39	803.65	.83	2.38	3.78	8	241	225	235	42	78	69	20.6
7	42	806.50	.83	2.38	6.47	8	240				82	69	20.6
6	45	808.68	.52	1.50	8.61	6	240	237	236	42	80	69	20.6
5	48	811.11	.70	2.00	1.08	7	246				80	69	20.6
4	51	813.65	.71	2.03	3.57	7	244	241	250	45	71	68	20.6
3	54	816.05	.68	1.93	5.99	7	244				72	67	20.6
2	57	818.51	.66	1.90	8.38	7	233	240	253	45	73	67	20.6
1	60	820.80	.66	1.87	0.77		243				74	67	20.6
	(1202)												
	θ - 60	V_m - 50.00		ΔH 2.0							Avg. - 73.8		

INTERPOLL LABORATORIES, INC.
(612) 786-6020

Interpoll Laboratories EPA Method 5/17 Sample Log Sheet

Job L.P. Hayward Date 10/25/95 Test 1 Run 3
Source Line 1 Press RTO Stack No. of traverse points 20
Method 5 Filter holder: glass Filter type: glass fiber

Sample Train Leak Check:

Pretest: ≤ 0.02 cfm at 15 IN.HG (vac) ☒
Post test: 0 cfm at 10 IN. HG (vac) ☒

Particulate Catch Data:

No. of filters used: 8235

Recovery solvent(s)

☒acetone
☐other(s)

No. of probe wash bottles: 1
Sample recovered by: DWH

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2	207	200	7
Impinger No. 3			
Condenser			
Desiccant	1463	1442	21
Total			28

Integrated Gas Sampling Data:

Bag Pump No. 23B Box No. 15 Bag No. 3
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: 0 cc/min at 15 IN.HG
Time start: 1255 (HRS) Time end: 1357 (HRS)
Sampling rate: 400 cc/min Operator: DWH

S/N of O_2 Analyzer used to monitor train outlet: 4

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EPA Method 5 Field Data Sheet

Job: L.P. Hayward
Source: Line 1 Press RTO Stack
Date: 10/25/95 Test 1 Run 3

Operators: D.H & J.C
Meter Box No.: 2 ΔH@ 1.73 in.WC
Gasmeter Coeff.: 1.00±3

Nozzle No.: 7-4
Nozzle Dia.: .248 in.
Bar. Press.: 28.77 in.Hg

Pitot No.: V23-8
C_p: .84
H_2O: 2.5 %

Traverse Point No.	Sampling Time (min)	Sample Vol. (cf)	Velocity Head (in.WC)	Orifice Meter (in.WC)	Des. Vol. (cf)	VAC. (in.Hg)	Temperatures (°F) Stack	Probe	Oven	Imp.	Gas/In	Gas/Out	Oxygen (% v/v)
	1250	821.10					234	241	253	43	62	62	20.6
A 10	3	823.67	.75	2.15	3.66	7							
9	6	826.16	.80	2.23	6.23	7	240				67	62	20.7
8	9	828.65	.77	2.15	8.77	7	241				70	62	20.6
7	12	831.30	.79	2.19	1.34	7	248	251	250	45	72	62	20.5
6	15	833.77	.57	1.60	3.53	7	241				72	63	20.6
5	18	836.17	.73	2.06	6.02	7	239	251	247	46	73	62	20.8
4	21	838.51	.66	1.87	8.40	7	236				76	63	20.7
3	24	840.89	.69	1.96	0.83	7	236	254	253	51	78	64	20.7
2	27	843.23	.56	1.59	3.03	6	239				80	64	20.7
1	30	845.20	.52	1.47	5.15	6	243	254	252	51	83	65	20.5
B 10	33	847.82	.82	2.32	7.81	8	243				79	65	20.5
9	36	850.44	.87	2.47	0.55	8	238				82	65	20.7
8	39	853.23	.81	2.28	3.18	8	246	225	242	46	86	66	20.7
7	42	855.83	.79	2.24	5.80	8	245				88	67	20.7
6	45	858.42	.81	2.30	8.46	8	247	237	241	47	89	67	20.7
5	48	861.04	.73	2.10	1.00	7	239				91	68	20.6
4	51	863.60	.6	1.73	3.31	7	239	240	243	47	91	68	20.5
3	54	865.76	.66	1.90	5.73	7	239				92	68	20.6
2	57	868.11	.61	1.76	8.06	7	240				93	70	20.7
1	60	870.30	.54	1.56	0.26	7	240	246	242	48	95	70	20.7
	(1351)												
	0 - 60	V_m - 49.20		ΔH - 2.0							Avg. - 73.0		

INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 7 Sampling Collection Field Data Sheet

Job: L.P Hayward | Date: 10/25/95 | Bar Pressure: 28.77 IN.HG
Test Location: Line 1 Press RTO Stack | Fuel Type: Natural Gas | Sample Train No: _____
Technician: J. Lorenz | Pump No: _____

No.	Test Run Point	Flask No.	Time (HRS)	Vacuum (IN.HG)	Flask Temp. (°F)	Leak Rate <0.4 IN.HG/MIN.	
1	1|1|1	61	8:50	27.5	43	☒ YES	☐ NO
2	1|1|2	62	9:01	27.5	44	☒ YES	☐ NO
3	1|1|3	63	9:13	27.6	42	☒ YES	☐ NO
4	1|1|1	64	9:35	27.4	41	☒ YES	☐ NO
5	1|2|3	65	10:31	27.3	41	☒ YES	☐ NO
6	1|2|3	66	10:41	27.5	42	☒ YES	☐ NO
7	1|2|1	67	10:57	27.5	44	☒ YES	☐ NO
8	1|2|2	8	11:26	27.5	47	☒ YES	☐ NO
9	1|3|3	9	12:51	27.5	50	☒ YES	☐ NO
10	1|3|1	10	1:03	27.5	53	☒ YES	☐ NO
11	1|3|2	11	1:10	27.3	55	☒ YES	☐ NO
12	1|3|3	12	1:26	27.4	55	☒ YES	☐ NO
13	Blank	56				☐ YES	☐ NO
14						☐ YES	☐ NO
15						☐ YES	☐ NO
16						☐ YES	☐ NO
17						☐ YES	☐ NO
18						☐ YES	☐ NO
19						☐ YES	☐ NO
20						☐ YES	☐ NO
21						☐ YES	☐ NO
22						☐ YES	☐ NO
23						☐ YES	☐ NO
24						☐ YES	☐ NO
25						☐ YES	☐ NO
26						☐ YES	☐ NO
27						☐ YES	☐ NO

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APPENDIX C

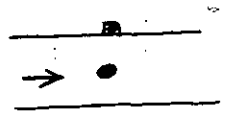
DRYER RTO FIELD DATA SHEETS

INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job LP/Haywood
Source Final Dryer RTO Inlet
Test 2 Run 2 Date 10-26-95
Stack Dimen. 65.75" IN.
Dry Bulb 154 °F Wet bulb 135 °F
Manometer ☐ Reg. ☐ Exp ☐ Elec.
Barometric Pressure 28.54 IN.HG
Static Pressure -1.0 IN.WC
Operators SF & SK
Pitot No. V24-6 C_p 0.84

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: 5 IN.		Time Start: 0755 HRS	
A 1		1.38		.50	
2		4.41		.91	
3		7.76		1.00	
4		11.84		1.10	147
5		16.44		1.05	
6		23.41		1.10	
7		42.34		1.20	
8		49.31		1.20	
9		54.11		1.25	147
10		57.99		1.25	
11		61.34		1.30	
12		64.37		1.20	
B 1				1.25	
2				1.25	147
3				1.20	
4				1.30	
5				1.25	
6				1.20	147
7				1.10	
8				1.10	
9				1.05	
10					
11					
12					

Temp. Meas. Device & S/N: PDT-#40 0810 Time End: HRS

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

ΔP 1.1

INTERPOLL LABORATORIES, INC.
(612) 786-6020

Interpoll Laboratories EPA Method 5/17 Sample Log Sheet

Job LP/Maywood — Date 10-26-95 Test 2 Run 1
Source Line 1 Dryer RTO INLET — No. of traverse points 24
Method 0011 Filter holder: — — Filter type: —

Sample Train Leak Check:

Pretest: ≤ 0.02 cfm at 15 IN.HG (vac) ☒
Post test: 0.00 cfm at 10 IN. HG (vac) ☒

Particulate Catch Data:

No. of filters used: —

Recovery solvent(s)

☐ acetone
☒ other(s) MeCl

No. of probe wash bottles: 1
Sample recovered by: SF

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2	654	471	183
Impinger No. 3			
Condenser			
Desiccant	1328	1310	18
Total			201

Integrated Gas Sampling Data:

Bag Pump No. 36A — Box No. 30 Bag No. 1
Bag Material: 5-layer Aluminized Tedlar — Size: 44 L
Pretest leak check: 0.00 — cc/min at 22 IN.HG
Time start: 901 — (HRS) Time end: 1023 (HRS)
Sampling rate: 400 — cc/min Operator: SF

S/N of O_2 Analyzer used to monitor train outlet: 36A

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EPA Method 5 Field Data Sheet

Job CP/Hayward
Source Line 1 Dryer RTO Inlet
Date 10-26-95 Test 2 Run 1

Operators SF & SK
Meter Box No. 4 ΔH@ 1.78 in.WC
Gasmeter Coeff. .9934

Nozzle No. 1-3
Nozzle Dia. .190 in.
Bar. Press. 28.54 in.Hg

Pitot No. U24-6
C_p .084
H_2O 18 %

Traverse Point No.	Sampling Time (min)	Sample Vol. (cf)	Velocity Head (in.WC)	Orifice Meter (in.WC)	Des. Vol. (cf)	VAC. (in.Hg)	Temperatures (°F) Stack	Probe	Oven	Imp.	Gas/In	Gas/Out	Oxygen (% v/v)
	(0900)	657.54											
A 12	2.5	652.90	1.05	.86	2.87	5	155	241	242	42	48	47	
11	5	654.14	1.05	.85	4.18	5	155				49	47	
10	7.5	655.49	1.05	.85	5.49	5	155	237	265	42	49	47	
9	10	656.77	1.03	.83	6.79	5	158				51	50	18.7
8	12.5	658.07	1.07	.87	8.11	5.5	159	240	276	43	55	50	18.0
7	15	659.41	1.1	.89	9.47	6	159				57	50	17.9
6	17.5	660.80	1.15	.94	0.85	6.5	160	239	269	43	59	51	18.1
5	20	662.27	1.25	1.03	2.30	7	156				60	51	18.1
4	22.5	663.71	1.20	.99	3.72	7	156	239	267	43	61	52	17.8
3	25	665.15	1.20	.99	5.14	7	158				62	53	17.8
2	27.5	666.43	1.00	.82	6.44	6	159	235	265	43	63	53	17.9
1	30	667.71	1.00	.82	7.75	6	159				64	54	18.1
B 12	32.5	669.20	1.30	1.07	9.23	7	158	235	266	44	62	53	17.9
11	35	670.75	1.35	1.11	0.75	8	158				63	55	18.4
10	37.5	672.27	1.30	1.08	2.24	8	155	236	271	45	65	55	18.1
9	40	673.77	1.30	1.08	3.73	7.5	156				65	56	17.6
8	42.5	675.21	1.25	1.04	5.20	7	153	239	270	44	66	56	17.7
7	45	676.63	1.20	1.00	6.64	7	155				66	56	17.6
6	47.5	678.98	1.10	.91	8.01	6	159	239	274	44	67	57	17.5
5	50	679.32	1.05	.87	9.34	6	158				67	58	17.6
4	52.5	680.66	1.05	.87	0.70	6	158	242	272	44	67	57	17.5
3	55	682.03	1.07	.89	2.06	6	159				68	58	17.6
2	57.5	683.38	1.03	.86	3.40	6	158	240	269	45	68	58	17.6
1	60	684.74	1.00	.84	4.72	6	153				68	58	17.7
	(10.23)												
	0 - 60	V_m - 33.20		0.93 ΔH -							Avg. - 57.3		

INTERPOLL LABORATORIES, INC.
(612) 786-6020

Interpoll Laboratories EPA Method 5/17 Sample Log Sheet

Job LP/Hayward Date 10-26 Test 2 Run 2
Source Line 1 Dryer RTO Inlet No. of traverse points 24
Method 0011 Filter holder: — Filter type: —

Sample Train Leak Check:
Pretest: ≤ 0.02 cfm at 15 IN.HG (vac) ☒
Post test: 0.00 cfm at 10 IN. HG (vac) ☒

Particulate Catch Data:
No. of filters used: Recovery solvent(s)

~ ☐acetone
— ☒other(s) MeCl

No. of probe wash bottles: 1
Sample recovered by: SF

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1	722	549	~~223~~ 173
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1366	1354	12
		3	
Total			~~385~~ 185

Integrated Gas Sampling Data:

Bag Pump No. 36A Box No. 30 Bag No. 2
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: 0.00 cc/min at 22 IN.HG
Time start: 1201 (HRS) Time end: 1304 (HRS)
Sampling rate: 400 cc/min Operator: SF

S/N of O_2 Analyzer used to monitor train outlet: 36A

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EPA Method 5 Field Data Sheet

Job LP/Hayward
Source Line 1 Dryer RTO Inlet
Date 10-26-95 Test 2 Run 2

Operators SS JSK
Meter Box No. 4 ΔH@ 1.78 in.WC
Gasmeter Coeff. .9934

Nozzle No. 1-3
Nozzle Dia. .190 in.
Bar. Press. 28.54 in.Hg

Pitot No. U24-6
C_p 0.84
H_2O 23 %

Traverse Point No.	Sampling Time (min)	Sample Vol. (cf)	Velocity Head (in.WC)	Orifice Meter (in.WC)	Des. Vol. (cf)	VAC. (in.Hg)	Temperatures (°F) Stack	Probe	Oven	Imp.	Gas/In	Gas/Out	Oxygen (% v/v)
	(1200)	6686.32											
B 12	2.5	687.69	1.30	0.97	7.73	5	155	237	261	43	57	56	18.0
11	5	689.10	1.35	1.00	9.16	6	156				58	56	18.5
10	7.5	690.55	1.35	1.00	0.60	6.5	155	239	260	43	60	57	18.7
9	10.	692.96	1.30	0.97	2.01	7	154				60	56	18.5
8	12.5	693.40	1.30	0.97	3.43	7	155	239	257	43	62	57	18.7
7	15	694.82	1.20	0.89	4.78	7	157				63	58	18.7
6	17.5	696.12	1.10	0.82	6.09	5	157	241	263	43	64	58	18.3
5	20	697.40	1.10	0.82	7.39	5	157				64	58	18.2
4	22.5	698.66	1.08	0.81	8.69	5	151	240	264	43	66	59	18.0
3	25	699.93	1.05	0.79	9.98	5	154				67	60	18.0
2	27.5	701.20	1.04	0.78	1.25	5	155	239	268	44	68	60	18.1
1	30	702.47	.93	0.70	2.46	5	155				68	60	18.1
A 12	32.5	703.76	1.10	0.83	3.78	5	156	239	262	44	67	61	18.1
11	35	705.05	1.10	0.83	5.09	5.5	155				69	61	18.0
10	37.5	706.36	1.09	0.82	6.40	6	157	236	260	45	70	62	18.0
9	40	707.66	1.05	0.79	7.69	6	156				70	62	17.9
8	42.5	709.00	1.00	0.83	9.01	6	155	239	267	45	71	63	18.0
7	45	710.33	1.10	0.83	0.33	6	157				72	63	18.1
6	47.5	711.72	1.25	0.94	1.74	6.5	158	243	271	45	73	63	18.2
5	50	713.15	1.30	0.98	3.18	7	157				73	65	17.9
4	52.5	714.58	1.25	0.95	4.59	7	157	245	273	46	74	65	17.8
3	55	715.90	1.10	0.83	5.92	6	158				74	65	17.7
2	57.5	717.20	1.10	0.83	7.24	6	159	241	270	46	74	65	17.7
1	60	718.53	1.03	0.78	8.52	6	159				74	65	17.8
	(1305)												
	θ = 60	V_m = 32.21		ΔH = 0.87							Avg. = 64.0		

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

Interpoll Laboratories EPA Method 5/17 Sample Log Sheet

Job LP/Hayward Dare 10-26-95 Test 2 Run 3
Source Line 1 Dryer RTO Inlet No. of traverse points 24
Method 0011 Filter holder: — Filter type: —

Sample Train Leak Check:
Pretest: ≤ 0.02 cfm at 15 IN.HG (vac) ☒
Post test: 000 cfm at 11 IN. HG (vac) ☒

Particulate Catch Data:
No. of filters used:

—
~

Recovery solvent(s)

☐ acetone
☒ other(s) MeCl

No. of probe wash bottles: 1
Sample recovered by: SF

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1	627	478	149
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1338	1328	10
Total			209

Integrated Gas Sampling Data:

Bag Pump No. 36A Box No. 30 Bag No. 3
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: 0.000 cc/min at 22 IN.HG
Time start: 1428 (HRS) Time end: 1523 (HRS)
Sampling rate: 400 cc/min Operator: SF

S/N of O_2 Analyzer used to monitor train outlet: 36A

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EPA Method 5 Field Data Sheet

Job LP/Hayward
Source Line 1 Dryer RTO Inlet
Date 10-26-95 Test 2 Run 3

Operators SF BSK
Meter Box No. 4 ΔH@ 1.78 in.WC
Gasmeter Coeff. .9934

Nozzle No. 1-3
Nozzle Dia. .190 in.
Bar. Press. 28.54 in.Hg

Pitot No. U24-6
C_p 0.84
H_2O 22 %

Traverse Point No.	Sampling Time (min)	Sample Vol. (cf)	Velocity Head (in.WC)	Orifice Meter (in.WC)	Des. Vol. (cf)	VAC. (in.Hg)	Temperatures (°F) Stack	Probe	Oven	Imp.	Gas/In	Gas/Out	Oxygen (% v/v)
	(1420)	719.80											
A 12	2.5	721.95	1.08	0.82	1.09	4	156	247	267	44	62	62	
11	5	722.36	1.10	0.84	2.41	4	157				63	62	18.0
10	7.5	723.65	1.05	0.80	3.70	6	157	242	271	45	65	62	17.8
9	10	725.03	1.03	0.79	4.99	6	156				66	63	17.3
8	12.5	726.31	1.10	0.84	6.31	5.5	160	240	272	45	67	63	17.5
7	15	727.61	1.08	0.83	7.63	5.5	160				68	63	18.0
6	17.5	728.96	1.20	0.92	9.01	6	160	242	268	45	69	64	17.9
5	20	730.39	1.25	0.96	0.43	6.5	160				70	64	17.9
4	22.5	731.82	1.30	1.00	1.88	7	160	245	264	44	71	64	18.0
3	25	733.29	1.25	0.96	3.30	7	160				72	65	17.8
2	27.5	734.55	0.99	0.76	4.57	5	161	244	264	45	73	65	17.7
B 1	30	735.81	0.95	0.73	5.81	5	161				73	65	17.7
B 12	32.5	737.32	1.35	1.04	7.29	7	161	241	261	45	72	66	17.7
11	35	738.77	1.30	1.00	8.74	7	159				72	66	18.0
10	37.5	740.22	1.30	1.00	0.19	7	160	240	257	46	74	67	18.0
9	40	741.64	1.25	0.97	1.62	6.5	157				75	67	17.7
8	42.5	743.02	1.20	0.93	3.03	6	160	238	259	45	75	67	17.7
7	45	744.38	1.15	0.89	4.40	6	159				76	68	17.8
6	47.5	745.73	1.10	0.85	5.74	6	160	236	264	45	75	67	17.7
5	50	747.08	1.08	0.84	7.07	6	158				76	68	17.7
4	52.5	748.41	1.05	0.81	8.39	5.5	160	239	265	45	76	68	17.6
3	55	749.71	1.05	0.81	9.70	5	160				77	68	17.6
2	57.5	751.02	1.04	0.81	1.01	5	160	240	268	46	78	69	17.7
1	60	752.29	1.00	0.78	2.30	5	160				78	69	17.8
	(1524)												
	0 - 60	V_m - 32.49		0.87 ΔH -							Avg. - 68.6		

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job L.P Hayward
Source Line 1 Dryer RTO Stack
Test 2 Run Date 10/24/95
Stack Dimen. 81.5 IN.
Dry Bulb ____ °F Wet bulb ____ °F
Manometer ☐ Reg. ☐ Exp ☐ Elec.
Barometric Pressure 28.54 IN.HG
Static Pressure -.53 IN.WC
Operators D. VanHoover & T. Lorenz
Pitot No. 123-8 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: 6.25 IN.		Time Start:	HRS
A 1	.072	2.61	8.85		
2	.105	8.56	14.8		
3	.194	15.81	22.06		
4	.323	26.32	32.51		
5	.677	55.17	61.42		
6	.806	65.68	71.93		
7	.895	72.94	79.19		
8	.968	78.89	85.14		
B 1					
2					
3					
4					
5					
6					
7					
8					

Temp. Meas. Device & S/N: PDT 35 Time End: HRS

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

INTERPOLL LABORATORIES, INC.
(612) 786-6020

Interpoll Laboratories EPA Method 5/17 Sample Log Sheet

Job L.P Hayward Date 10/26/95 Test 2 Run 1
Source Line 1 Dryer RTO Stack No. of traverse points 16
Method 0011 Filter holder: Glass NA Filter type: NA

Sample Train Leak Check:
Pretest: ≤ 0.02 cfm at 15 IN.HG (vac) ☒
Post test: 0 cfm at 10 IN. HG (vac) ☒

Particulate Catch Data:
No. of filters used: NA

Recovery solvent(s)
☐ acetone
☒ other(s) $MeCl_2$ & DI H_2O

No. of probe wash bottles:
Sample recovered by:

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2	427	200	227
Impinger No. 3			
Condenser			
Desiccant	1490	1478	12
Total			239

Integrated Gas Sampling Data:

Bag Pump No. 23 B Box No. 17 Bag No. 1
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: 0 cc/min at 15 IN.HG
Time start: 0905 (HRS) Time end: 1025 (HRS)
Sampling rate: 400 cc/min Operator: DAH

S/N of O_2 Analyzer used to monitor train outlet: 4

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(612) 786-6020

EPA Method 5 Field Data Sheet

Job: L.P. Hayward — Operators: DH + T.C — Nozzle No.: 7-4 — Pitot No.: U23-8
Source: Line 1 Dryer RTO Stack — Meter Box No.: 2 ΔH@ 1.73 in.WC — Nozzle Dia.: .248 in. — C_p: .84
Date: 10/26/95 Test: 2 Run: 1 — Gasmeter Coeff.: 1.0023 — Bar. Press.: 28.54 in.Hg — H_2O: 22 %

Traverse Point No.	Sampling Time (min)	Sample Vol. (cf)	Velocity Head (in.WC)	Orifice Meter (in.WC)	Des. Vol. (cf)	VAC. (in.Hg)	Temperatures (°F) Stack	Probe	Oven	Imp.	Gas/In	Gas/Out	Oxygen (% v/v)
	0900	879.30			1.83	4	261	243	251	45	55	55	17.0
A 8	4	881.98	.82	1.35	4.63	4	263				59	54	16.8
7	8	884.78	.82	1.49	7.42	4	260	260	241	41	69	55	16.4
6	12	887.50	.80	1.46	0.20	5	259				73	54	16.1
5	16	890.24	.78	1.44	2.81	5	260	263	244	42	74	55	16.3
4	20	892.85	.69	1.28	5.43	5	263				75	56	16.8
3	24	895.48	.69	1.27	7.94	4.5	263				76	56	16.4
2	28	897.99	.63	1.17	0.33	4.5	262	261	245	43	76	56	17.1
1	32	900.40	.57	1.06	3.09	5	262				70	57	16.6
B 8	36	903.14	.76	1.41	5.89	5	261	257	237	40	76	57	16.8
7	40	905.90	.79	1.46	8.75	5	259				78	57	17.2
6	44	908.67	.81	1.51	1.59	5	259	260	241	41	79	58	16.4
5	48	911.53	.80	1.49	4.31	5	266				80	58	16.6
4	52	914.40	.75	1.39	7.08	5	263	260	244	42	80	59	16.9
3	56	917.11	.74	1.38	9.77		266				81	59	17.2
2	60	919.93	.72	1.34	2.34		265				82	60	16.7
1	64	922.40	.65	1.24									
	(1025)												
	θ - 64	V_m - 43.10		ΔH - 1.36							Avg. - 65.1		

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INTERPOLL LABORATORIES, INC.
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Interpoll Laboratories EPA Method 5/17 Sample Log Sheet

Job L.P. Hayward
Source Line 1 Dryer RTO Stack
Method 0011 Filter holder: NA

Date 10/26/95 Test 2 Run 2
No. of traverse points 16
Filter type: NA

Sample Train Leak Check:

Pretest: ≤ 0.02 cfm at 15 IN.HG (vac) ☒
Post test: 0 cfm at 9 IN. HG (vac) ☒

Particulate Catch Data:

No. of filters used: NA

Recovery solvent(s)

☐ acetone
☒ other(s) $MeCl_2$ & DI H_2O

No. of probe wash bottles: 1
Sample recovered by: DVH

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2	435	200	235
Impinger No. 3			
Condenser			
Desiccant	1431	1420	11
Total			246

Integrated Gas Sampling Data:

Bag Pump No. 233
Bag Material: 5-layer Aluminized Tedlar
Pretest leak check: 0
Time start: 1204
Sampling rate: 400

Box No. 17 Bag No. 2
Size: 44 L
cc/min at 15 IN.HG
(HRS) Time end: 1306 (HRS)
cc/min Operator: DVH

S/N of O_2 Analyzer used to monitor train outlet: 4

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EPA Method 5 Field Data Sheet

Job L.P Hayward
Source Line 1 Dryer RTO Stack
Date 10/06/95 Test 2 Run 2

Operators DVH & J.L
Meter Box No. 2 ΔH@ 1.73 in.WC
Gasmeter Coeff. 1.0023

Nozzle No. 7-4
Nozzle Dia. .248 in.
Bar. Press. 28.48 in.Hg

Pitot No. U23-8
C_p .84
H_2O 22 %

Traverse Point No.	Sampling Time (min)	Sample Vol. (cf)	Velocity Head (in.WC)	Orifice Meter (in.WC)	Des. Vol. (cf)	VAC. (in.Hg)	Temperatures (°F) Stack	Probe	Oven	Imp.	Gas/In	Gas/Out	Oxygen (% v/v)
	1200	922.70											
B 8	4	925.42	.75	1.40	5.44	4	255	246	251	41	56	56	17.0
7	8	928.10	.73	1.34	8.11	4	256				66	56	17.2
6	12	930.72	.80	1.46	0.90	4	266				70	57	16.9
5	16	933.71	.85	1.57	3.81	5	260	253	254	42	74	57	17.3
4	20	936.76	.77	1.43	6.59	5	260				77	58	17.4
3	24	939.61	.79	1.47	9.41	5	260				78	58	17.1
2	28	942.27	.72	1.33	2.10	5	267	260	254	43	80	60	17.3
1	32	944.73	.70	1.31	4.77	5	260				81	60	17.5
A 8	36	947.63	.85	1.58	7.71	5	265	245	246	44	75	62	17.4
7	40	950.65	.88	1.64	0.69	6	262				83	62	17.2
6	44	953.70	.86	1.61	3.66	6	262				85	63	17.1
5	48	956.61	.81	1.53	6.55	5.5	262	260	254	45	85	64	17.0
4	52	959.34	.74	1.40	9.32	5	259				86	64	17.0
3	56	962.25	.71	1.34	2.03	5	263				86	65	16.9
2	60	964.70	.66	1.25	4.64	4.5	260				87	65	17.1
1	64	967.10	.57	1.08	7.10		257				87	66	17.3
	(1306)												
	θ - 64	V_m - 44.40		ΔH - 1.43							Avg. - 69.6		

INTERPOLL LABORATORIES, INC.
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Interpoll Laboratories EPA Method 5/17 Sample Log Sheet

Job L.P Hayward Date 10/26/95 Test 2 Run 3
Source Line 1 DRYER RTO Stack No. of traverse points 16
Method 0011 Filter holder: NA Filter type: NA

Sample Train Leak Check:
Pretest: ≤ 0.02 cfm at 15 IN.HG (vac) ☒
Post test: 0 cfm at 9 IN. HG (vac) ☒

Particulate Catch Data:
No. of filters used: NA

Recovery solvent(s)
☐ acetone
☒ other(s) MECL2 & DI H2O

No. of probe wash bottles: 1
Sample recovered by: DVH

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2	452	200	252
Impinger No. 3			
Condenser			
Desiccant	1504	1490	14
Total			266

Integrated Gas Sampling Data:

Bag Pump No. 23B Box No. 17 Bag No. 3
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: 0 cc/min at 15 IN.HG
Time start: 1425 (HRS) Time end: 1526 (HRS)
Sampling rate: 400 cc/min Operator: DVH

S/N of O_2 Analyzer used to monitor train outlet: 4

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EPA Method 5 Field Data Sheet

Job: L.P. Hayward
Source: Line 1 Dryer RTO Stack
Date: 10/26/95 Test 2 Run 3

Operators: Burt & T.C.
Meter Box No.: 2 ΔH@ 1.73 in.WC
Gasmeter Coeff.: 1.0123

Nozzle No.: 7-4
Nozzle Dia.: .248 in.
Bar. Press.: 28.54 in.Hg

Pitot No.: V23-8
C_p: .84
H_2O: 21.5 %

Traverse Point No.	Sampling Time (min)	Sample Vol. (cf)	Velocity Head (in.WC)	Orifice Meter (in.WC)	Des. Vol. (cf)	VAC. (in.Hg)	Temperatures (°F) Stack	Probe	Oven	Imp.	Gas/In	Gas/Out	Oxygen (% v/v)
	1420	967.40					264	242	228	37	62	63	16.9
A 8	4	970.39	.85	1.60	0.34	6	258				66	59	16.9
7	8	973.27	.84	1.57	3.25	6	258				71	60	17.3
6	12	976.14	.81	1.52	6.10	6	261	244	231	37	76	61	17.5
5	16	978.98	.80	1.50	8.94	6	255				80	62	17.3
4	20	981.63	.67	1.27	1.57	5	260	248	236	39	83	63	17.0
3	24	984.36	.67	1.27	4.21	5	258				85	64	17.0
2	28	986.90	.63	1.20	6.77	5	264				88	65	17.0
1	32	989.32	.57	1.08	9.21	5	264	249	234	39	86	67	17.1
B 8	36	991.97	.72	1.37	1.96	6	266				90	68	17.0
7	40	994.80	.75	1.43	4.76	6	264				92	70	17.0
6	44	997.49	.76	1.46	7.60	6	263	253	240	50	93	71	17.1
5	48	1000.36	.75	1.44	0.43	6	256				94	72	17.0
4	52	1003.24	.71	1.38	3.21	6	265				95	73	16.8
3	56	1006.10	.74	1.43	6.03	6	265				96	74	17.2
2	60	1008.86	.73	1.41	8.83	6	256				96	74	17.0
1	64	1011.60	.68	1.33	1.56								
	(1526)												
	0 - 64	V_m - 44.20		ΔH - 1.37							Avg. - 75.5		

INTERPOLL LABORATORIES, INC.
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EPA Method 2 Field Data Sheet

Job: LP/Hayward
Source: Coal Dryer RTO Inlet
Test: 3 Run: 0 Date: 10-26-95
Stack Dimen.: 65.75 IN.
Dry Bulb: ____ °F Wet bulb: ____ °F
Manometer: ☒ Reg. ☐ Exp ☐ Elec.
Barometric Pressure: 28.54 IN.HG
Static Pressure: -1.0 IN.WC
Operators: SC & SK
Pitot No.: V24-6 C_p 0.84

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: 5 IN.		Time Start:	HRS
A 1	.021	1.38	6.38		
2	.067	4.41	9.41		
3	.119	7.76	12.76		
4	.177	11.64	16.64		
5	.250	16.44	21.44		
6	.356	23.41	28.41		
7	.644	42.34	47.34		
8	.750	49.31	54.31		
9	.823	54.11	59.11		
10	.882	57.99	62.99		
11	.933	61.34	66.34		
12	.979	64.37	69.37		
Temp. Meas. Device & S/N:				Time End:	HRS

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

INTERPOLL LABORATORIES, INC.
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Interpoll Laboratories EPA Method 5/17 Sample Log Sheet

Job LP/Hayward Date 10-26-95 Test 3 Run 1
Source Unit 1 Dryer No. of traverse points 24
Method 5 Filter holder: T2 Filter type: GF

Sample Train Leak Check:
Pretest: ≤ 0.02 cfm at 15 IN.HG (vac) ☒
Post test: 0.00 cfm at 10 IN. HG (vac) ☒

Particulate Catch Data:
No. of filters used: 1536

Recovery solvent(s)
☑ acetone
☐ other(s)

No. of probe wash bottles: 1
Sample recovered by: SF

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1	681	492	189
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1373	1366	7
Total			196

Integrated Gas Sampling Data:

Bag Pump No. 36A Box No. 13 Bag No. 1
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: 0.00 cc/min at 20 IN.HG
Time start: 1619 (HRS) Time end: 1722 (HRS)
Sampling rate: 400 cc/min Operator: SF

S/N of O_2 Analyzer used to monitor train outlet: 36A

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EPA Method 5 Field Data Sheet

Job: LP/Hayward
Source: Line 1 Dryer R50 Inlet
Date: 10-26-95 Test 3 Run 1

Operators: SF 3SK
Meter Box No. 4 ΔH@ 1.78 in.WC
Gasmeter Coeff. .9934

Nozzle No. 1-53
Nozzle Dia. .190 in.
Bar. Press. 28.53 in.Hg

Pitot No. V2Y-6
C_p 0.84
H_2O 24 %

Traverse Point No.	Sampling Time (min)	Sample Vol. (cf)	Velocity Head (in.WC)	Orifice Meter (in.WC)	Des. Vol. (cf)	VAC. (in.Hg)	Temperatures (°F) Stack	Probe	Oven	Imp.	Gas/In	Gas/Out	Oxygen (% v/v)
	(1618)	753.60											
B 12	2.5	755.05	1.30	0.95	5.01	4.5	164	242	263	43	67	65	
11	5	756.41	1.25	0.91	6.39	4.5	163				67	65	17.9
10	7.5	757.78	1.30	0.95	7.80	5	163	245	265	43	69	66	18.0
9	10	759.16	1.25	0.91	9.19	5	165				71	66	17.8
8	12.5	760.54	1.20	0.89	0.55	5	158	240	271	44	72	66	17.9
7	15	761.90	1.15	0.85	1.89	5	160				73	67	18.1
6	17.5	763.23	1.10	0.82	3.21	5	155	240	269	44	74	67	18.1
5	20	764.53	1.05	0.78	4.49	4.5	159				75	67	18.1
4	22.5	765.82	1.08	0.80	5.79	4.5	158	239	265	44	75	67	18.1
3	25	767.09	1.00	0.74	7.04	4	160				75	68	18.1
2	27.5	768.35	.98	0.73	8.29	4	157	237	265	45	75	68	18.1
1	30	769.53	.95	0.71	9.51	4	158				76	68	18.0
A 12	32.5	770.86	1.10	0.82	0.83	4.5	158	241	260	45	74	67	18.1
11	35	772.21	1.15	0.85	2.17	4.5	158				75	68	18.0
10	37.5	773.53	1.10	0.82	3.49	5	160	244	258	45	75	68	18.0
9	40	774.91	1.25	0.93	4.89	5	160				76	69	18.1
8	42.5	776.25	1.10	0.82	6.20	5	160	244	261	45	76	69	18.1
7	45	777.57	1.10	0.82	7.52	5	159				77	69	18.1
6	47.5	778.92	1.15	0.86	8.87	5	159	240	263	46	77	69	18.1
5	50	780.31	1.25	0.93	0.28	5	159				77	70	18.1
4	52.5	781.69	1.20	0.89	1.65	5	160	238	263	46	78	70	18.0
3	55	783.07	1.25	0.93	3.06	5.5	160				78	70	18.1
2	57.5	784.45	1.20	0.89	4.44	5	160	236	260	46	77	70	18.0
1	60	785.83	1.15	0.86	5.79	5	160				78	70	18.1
	(1723)												
	θ = 60	V_m = 32.23		0.85 ΔH =							76.1 Avg. =		

INTERPOLL LABORATORIES, INC.
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Interpoll Laboratories EPA Method 5/17 Sample Log Sheet

Job CP/Hayward Date 10-26-95 Test 3 Run 2
Source Line 1 Dryer RTO Inlet No. of traverse points 24
Method 5 Filter holder: TE Filter type: 2" GF

Sample Train Leak Check:
Pretest: ≤ 0.02 cfm at 15 IN.HG (vac) ☒
Post test: 0.02 cfm at 10 IN. HG (vac) ☒

Particulate Catch Data:
No. of filters used: 1537

Recovery solvent(s)
☒ acetone 1
☐ other(s)

No. of probe wash bottles: 1
Sample recovered by: SF

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1	700	486	
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1358	1318	40
Total			224

Integrated Gas Sampling Data:

Bag Pump No. 36A Box No. 13 Bag No. 2
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: 0.00 cc/min at 22.0 IN.HG
Time start: 1756 (HRS) Time end: 1857 (HRS)
Sampling rate: 400 cc/min Operator: SF

S/N of O_2 Analyzer used to monitor train outlet: 36A

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EPA Method 5 Field Data Sheet

Job LP/Hayward | Operators SP 3K | Nozzle No. 1-3 | Pitot No. U24-6
Source Line 1 Dryer RTO Inlet | Meter Box No. 4 ΔH@ 1.78 in.WC | Nozzle Dia. .190 in. | C_p 0.84
Date 10-26-95 Test 3 Run 2 | Gasmeter Coeff. .9934 | Bar. Press. 28.54 in.Hg | H_2O 24 %

Traverse Point No.	Sampling Time (min)	Sample Vol. (cf)	Velocity Head (in.WC)	Orifice Meter (in.WC)	Des. Vol. (cf)	VAC. (in.Hg)	Temperatures (°F) Stack	Probe	Oven	Imp.	Gas/In	Gas/Out	Oxygen (% v/v)
	(1755)	787.38											
A 12	2.5	788.~~85~~	1.10	0.82	8.69	4	155	240	252	44	65	65	
11	5	790.07	1.15	0.85	0.03	4	156				67	65	18.0
10	7.5	791.39	1.10	0.81	1.33	4	160	243	259	44	70	66	18.0
9	10	792.65	1.10	0.81	2.63	4	160				71	66	18.0
8	12.5	793.98	1.07	0.80	3.93	4.5	161	245	257	44	72	66	18.1
7	15	795.23	1.00	0.74	5.18	4	160				72	67	18.1
6	17.5	796.53	1.15	0.85	6.52	4	161	240	261	45	74	67	18.1
5	20	797.93	1.20	0.89	7.88	4.5	162				74	68	18.1
4	22.5	799.29	1.20	0.89	9.25	5	162	240	266	45	75	68	18.0
3	25	800.68	1.25	0.92	0.6~~5~~	5	162				76	68	18.0
2	27.5	802.09	1.20	0.89	2.02	5	162	237	265	45	76	68	18.0
1	30	803.40	1.20	0.89	3.37	5	161				76	69	18.0
B 12	32.5	804.88	1.30	0.96	4.82	5.5	161	239	257	45	74	69	17.9
11	35	806.23	1.20	0.89	6.20	5	160				75	69	17.8
10	37.5	807.55	1.20	0.89	7.57	5	162	238	257	46	76	69	17.9
9	40	808.95	1.20	0.90	8.95	5	155				77	69	17.8
8	42.5	810.31	1.15	0.86	0.30	5	157	241	252	47	77	70	17.9
7	45	811.61	1.10	0.82	1.62	4.5	157				77	69	18.0
6	47.5	812.94	1.07	0.80	2.92	4.5	158	240	250	47	77	69	17.9
5	50	814.23	1.05	0.78	4.21	4	157				79	70	17.8
4	52.5	815.45	.95	0.71	5.44	4	160	242	255	47	72	70	17.9
3	55	816.67	.93	0.69	6.65	4	160				77	70	17.9
2	57.5	817.91	.97	0.72	7.89	4	160	242	261	46	77	70	17.9
1	60	819.16	.90	0.67	9.09	4	168				78	70	
	(18.58)												
	θ = 60	V_m = 31.78		0.83 ΔH =							Avg. = 76.3		

INTERPOLL LABORATORIES, INC.
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Interpoll Laboratories EPA Method 5/17 Sample Log Sheet

Job ZP/Hayward Date 10-26-98 Test 3 Run 3
Source Line 1 Dryer RTO INLET No. of traverse points 24
Method 5 Filter holder: TE Filter type: GF

Sample Train Leak Check:
Pretest: ≤ 0.02 cfm at 15 IN.HG (vac) ☒
Post test: 0.00 cfm at 10 IN. HG (vac) ☒

Particulate Catch Data:
No. of filters used: 1538

Recovery solvent(s)
☒ acetone
☐ other(s)

No. of probe wash bottles: 1
Sample recovered by: SF

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1	663	509	154
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1382	1373	9
Total			163

Integrated Gas Sampling Data:

Bag Pump No. 36A Box No. 13 Bag No. 3
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: 0.00 cc/min at 22 IN.HG
Time start: 1931 (HRS) Time end: 2040 (HRS)
Sampling rate: 400 cc/min Operator: SF

S/N of O_2 Analyzer used to monitor train outlet: 36A

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EPA Method 5 Field Data Sheet

Job: CP/Hayward
Source: Line 1 Dryer RTO Inlet
Date: 10-26-95 Test: 3 Run: 3

Operators: SF JSK
Meter Box No.: 4 ΔH@ 1.28 in.WC
Gasmeter Coeff.: .9934

Nozzle No.: 1-3
Nozzle Dia.: .190 in.
Bar. Press.: 28.54 in.Hg

Pilot No.: U2Y-6
C_p: 0.84
H_2O: 25 %

Traverse Point No.	Sampling Time (min)	Sample Vol. (cf)	Velocity Head (in.WC)	Orifice Meter (in.WC)	Des. Vol. (cf)	VAC. (in.Hg)	Temperatures (°F) Stack	Probe	Oven	Imp.	Gas/In	Gas/Out	Oxygen (% v/v)
	(1930)	820.20											
B 12	2.5	821.63	1.20	0.89	1.57	4	160	237	251	43	66	65	18.0
11	5	822.99	1.25	0.92	2.95	4	160				68	65	17.8
10	7.5	824.37	1.25	0.92	4.34	4	160	240	255	44	69	66	17.8
9	10	825.78	1.30	0.96	5.76	5	158				70	66	17.8
8	12.5	827.16	1.25	0.92	7.15	5	159	241	257	45	71	66	18.0
7	15	828.55	1.25	0.93	8.55	5	155				72	67	17.9
6	17.5	829.94	1.20	0.89	9.92	5	157	240	263	45	73	67	17.8
5	20	831.30	1.15	0.85	1.26	5	158				74	67	17.9
4	22.5	832.61	1.10	0.82	2.58	4.5	158	240	260	45	74	67	17.9
3	25	833.85	1.00	0.75	3.83	4	155				74	67	18.0
2	27.5	835.09	1.04	0.78	5.11	4	158	242	263	45	75	68	18.1
1	30	836.38	1.00	0.75	6.37	4	155				75	68	18.0
A 12	32.5	837.76	1.20	0.90	7.75	5	155	245	259	46	74	68	18.1
11	35	839.12	1.20	0.90	9.12	5	156				75	68	18.1
10	37.5	840.51	1.15	0.86	0.47	5	156	245	257	46	75	68	18.0
9	40	841.89	1.20	0.90	1.85	5	155				75	68	18.1
8	42.5	843.24	1.15	0.85	3.19	5	160	240	259	46	75	68	18.0
7	45	844.59	1.15	0.85	4.54	5	160				76	69	17.8
6	47.5	845.86	1.12	0.84	5.87	5	157	237	255	47	76	69	17.9
5	50	847.20	1.10	0.82	7.19	5	157				76	69	18.0
4	52.5		1.05				159	239	251	47			
3	55												
2	57.5							235	249	47			
1	60												
	(210)												
	0-60	V_m - 27.04		0.86 ΔH -							Avg. - 70.2		

INTERPOLL LABORATORIES, INC.
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EPA Method 7 Sampling Collection Field Data Sheet

Job LB Hayward Date 10-26-95 Bar Pressure 29.54 IN.HG
Test Location Line 1 Dryer RTO Inlet Fuel Type _____ Sample Train No _____
Technician S/C Pump No 36

No.	Test Run Point	Flask No.	Time (HRS)	Vacuum (IN.HG)	Flask Temp. (°F)	Leak Rate <0.4 IN.HG/MIN.	
1	3-1-1	25	1626	25.7	53	☒ YES	☐ NO
2	3-1-2	26	1640	25.7	53	☒ YES	☐ NO
3	3-1-1	27	1700	25.7	53	☒ YES	☐ NO
4	3-1-2	28	1713	25.7	52	☒ YES	☐ NO
5	3-2-1	29	1800	25.7	51	☒ YES	☐ NO
6	3-2-2	30	1815	25.7	54	☒ YES	☐ NO
7	3-2-1	31	1834	25.7	53	☒ YES	☐ NO
8	3-2-2	32	1844	25.7	53	☒ YES	☐ NO
9	3-3-1	33	1930	25.7	51	☒ YES	☐ NO
10	3-3-2	34	1937	25.7	51	☒ YES	☐ NO
11	3-3-1	35	1944	25.7	51	☒ YES	☐ NO
12	3-3-2	36	1955	25.7	52	☒ YES	☐ NO
13						☐ YES	☐ NO
14						☐ YES	☐ NO
15						☐ YES	☐ NO
16						☐ YES	☐ NO
17						☐ YES	☐ NO
18						☐ YES	☐ NO
19						☐ YES	☐ NO
20						☐ YES	☐ NO
21						☐ YES	☐ NO
22						☐ YES	☐ NO
23						☐ YES	☐ NO
24						☐ YES	☐ NO
25						☐ YES	☐ NO
26						☐ YES	☐ NO
27						☐ YES	☐ NO

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 2 Field Data Sheet

Job: L.P Hayward
Source: Line 1 Dryer R to Stack
Test: 3 Run Date: 10/26/95
Stack Dimen.: 81.5 IN.
Dry Bulb: °F Wet bulb: °F
Manometer: ☐ Reg. ☐ Exp ☐ Elec.
Barometric Pressure: 28.54 IN.HG
Static Pressure: -.53 IN.WC
Operators: D VanHoeven & J Lorentz
Pitot No.: U23-8 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:	IN.	Time Start:	HRS
A 1					
2					
3					
4					
5					
6					
7					
8					
B 1					
2					
3					
4					
5					
6					
7					
8					

Temp. Meas. Device & S/N: PDT #35
Time End: HRS

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

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

Interpoll Laboratories EPA Method 5/17 Sample Log Sheet

Job L.P Hayward Date 10/20/95 Test 3 Run 1
Source Line 1 Dryer RTO Stack No. of traverse points 16
Method 5 Filter holder: glass Filter type: glass fiber

Sample Train Leak Check:
Pretest: ≤ 0.02 cfm at 15 IN.HG (vac) ☒
Post test: 0 cfm at 10 IN. HG (vac) ☒

Particulate Catch Data:
No. of filters used: 8239

Recovery solvent(s)
☒ acetone
☐ other(s)

No. of probe wash bottles: 1
Sample recovered by: DAH

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2	456	200	256
Impinger No. 3			
Condenser			
Desiccant	1401	1391	10
Total			266

Integrated Gas Sampling Data:

Bag Pump No. 23B Box No. 19 Bag No. 1
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: 0 cc/min at 14 IN.HG
Time start: 1625 (HRS) Time end: 1625 (HRS)
Sampling rate: 400 cc/min Operator: DAH

S/N of O_2 Analyzer used to monitor train outlet: 4

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EPA Method 5 Field Data Sheet

Job: L.P. Hayward
Source: Line 1 Dryer RTO Stack
Date: 10/26/95 Test: 3 Run: 1

Operators: DCH & J.C
Meter Box No.: 3 ΔH@ 1.73 in.WC
Gasmeter Coeff.: 1.0023

Nozzle No.: 7-4
Nozzle Dia.: .248 in.
Bar. Press.: 28.54 in.Hg

Pitot No.: V73-8
C_p: .84
H_2O: 22 %

Traverse Point No.	Sampling Time (min)	Sample Vol. (cf)	Velocity Head (in.WC)	Orifice Meter (in.WC)	Des. Vol. (cf)	VAC. (in.Hg)	Temperatures (°F) Stack	Probe	Oven	Imp.	Gas/In	Gas/Out	Oxygen (% v/v)
	1630	11.90											
B 8	4	14.86	.83	1.57	4.83	6	261	231	241	50	68	68	17.0
7	8	17.81	.74	1.38	7.57	6	260				71	68	16.9
6	12	20.44	.75	1.40	0.32	6	263	241	239	51	78	67	16.7
5	16	23.16	.73	1.38	3.07	6	257				80	67	16.7
4	20	25.14	.72	1.35	5.19	6	267	243	240	50	84	68	16.7
3	24	28.60	.72	1.35	8.57	6	267				85	68	16.3
2	28	31.43	.72	1.35	1.24	6	270				85	68	16.5
1	32	33.90	.67	1.26	3.88	5	264	248	243	47	86	68	16.5
A 8	36	36.56	.74	1.40	6.65	6	264				84	69	16.5
7	40	39.41	.79	1.50	9.53	6	259	238	226	51	87	69	16.5
6	44	42.29	.76	1.44	2.35	6	266				90	70	16.6
5	48	45.16	.73	1.39	5.12	6	264	241	231	51	90	70	16.6
4	52	47.78	.65	1.23	7.73	5	265				91	71	16.5
3	56	50.43	.66	1.26	0.36	5	262	243	237	52	92	71	16.5
2	60	52.97	.62	1.18	2.94	5	264				92	71	16.5
1	64	55.55	.63	1.19	5.52	5	267				92	71	16.5
	(1725)												
	θ = 64	V_m = 43.65		ΔH = 1.35							Avg. = 76.9		

INTERPOLL LABORATORIES, INC.
(612) 786-6020

Interpoll Laboratories EPA Method 5/17 Sample Log Sheet

Job L.P. Hayward
Source Line 1 Dryer Rto Stack
Method 5 Filter holder: 9/455

Date 10/26/95 Test 3 Run 2
No. of traverse points 16
Filter type: glass fiber

Sample Train Leak Check:

Pretest: ≤ 0.02 cfm at 15 IN.HG (vac) ☒
Post test: 0 cfm at 10 IN. HG (vac) ☒

Particulate Catch Data:

No. of filters used: 8209

Recovery solvent(s)

☒ acetone
☐ other(s)

No. of probe wash bottles: 1
Sample recovered by: DVH

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2	461	200	261
Impinger No. 3			
Condenser			
Desiccant	1428	1417	11
Total			272

Integrated Gas Sampling Data:

Bag Pump No. 233
Bag Material: 5-layer Aluminized Tedlar
Pretest leak check: 0
Time start: 1800
Sampling rate: 400

Box No. 9 Bag No. 2
Size: 44 L
cc/min at 15 IN.HG
(HRS) Time end: 1900 (HRS)
cc/min Operator: DVH

S/N of O_2 Analyzer used to monitor train outlet: 4

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EPA Method 5 Field Data Sheet

Job: L.P Hayward
Source: Line 1 Dryer RTO Stack
Date: 10/26/95 Test: 3 Run: 2

Operators: DH & JC
Meter Box No.: 2 ΔH@ 1.93 in.WC
Gasmeter Coeff.: 1.0023

Nozzle No.: 7-4
Nozzle Dia.: .248 in.
Bar. Press.: 28.54 in.Hg

Pitot No.: Vz3-8
C_p: .84
H_2O: 23 %

Traverse Point No.	Sampling Time (min)	Sample Vol. (cf)	Velocity Head (in.WC)	Orifice Meter (in.WC)	Des. Vol. (cf)	VAC. (in.Hg)	Temperatures (°F) Stack	Probe	Oven	Imp.	Gas/In	Gas/Out	Oxygen (% v/v)
	1755	55.90											
B 8	4	58.56	.65	1.21	8.48	5	260	241	253	51	65	66	17.0
7	8	61.26	.77	1.41	1.23	6	257				73	66	16.4
6	12	64.11	.81	1.47	4.06	6	266	251	254	50	79	66	16.5
5	16	66.77	.75	1.37	6.80	6	266				83	66	164
4	20	69.53	.67	1.24	9.40	5	260	253	251	43	85	67	16.6
3	24	71.99	.65	1.20	1.97	5	266				87	67	16.4
2	28	74.66	.65	1.2	4.54	5	266				88	68	164
1	32	77.05	.60	1.10	7.01	5	268	254	250	43	89	68	164
A 8	36	79.81	.75	1.38	9.78	6	268				87	68	163
7	40	82.57	.76	1.41	2.56	6	264				91	69	16.2
6	44	85.35	.77	1.44	5.39	6	260	253	255	45	92	70	164
5	48	88.11	.78	1.46	8.23	6	260				93	71	164
4	52	91.00	.74	1.38	1.01	6	263				93	71	163
3	56	93.86	.74	1.39	3.79	6	260	257	257	50	94	71	16.3
2	60	96.56	.71	1.33	6.51	6	259				95	72	16.4
1	64	99.30	.69	1.30	9.21		259				96	73	16.5
	1900												
	θ - 64	V_m - 43.40		ΔH - 1.3							Avg. - 77		

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

Interpoll Laboratories EPA Method 5/17 Sample Log Sheet

Job L.P Hayward
Source Line 1 Dryer Rto Stack
Method 5 Filter holder: glass

Date 10/26/95 Test 3 Run 3
No. of traverse points 16
Filter type: glass fiber

Sample Train Leak Check:

Pretest: ≤ 0.02 cfm at 15 IN.HG (vac) ☒
Post test: 0 cfm at 10 IN. HG (vac) ☒

Particulate Catch Data:

No. of filters used: 8x10

Recovery solvent(s)

☒ acetone
☐ other(s)

No. of probe wash bottles: 1
Sample recovered by: DVH

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2	407	200	207
Impinger No. 3			
Condenser			
Desiccant	1490	1477	13
Total			220

Integrated Gas Sampling Data:

Bag Pump No. 23B
Bag Material: 5-layer Aluminized Tedlar
Pretest leak check: 0
Time start: 1934
Sampling rate: 400

Box No. 19 Bag No. 3
Size: 44 L
cc/min at 14 IN.HG
(HRS) Time end: 2025 (HRS)
cc/min Operator: DVH

S/N of O_2 Analyzer used to monitor train outlet: 4

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EPA Method 5 Field Data Sheet

Job: L.P. Hayward — Operators: D.H. + J.C. — Nozzle No.: 7-4 — Pitot No.: U23-8
Source: Line 1 Dryer RTO Stk — Meter Box No.: 2 ΔH@ 1.73 in.WC — Nozzle Dia.: .248 in. — C_p: .84
Date: 10/26/95 Test: 3 Run: 3 — Gasmeter Coeff.: 1.0023 — Bar. Press.: 28.54 in.Hg — H_2O: 23 %

Traverse Point No.	Sampling Time (min) 1930	Sample Vol. (cf)	Velocity Head (in.WC)	Orifice Meter (in.WC)	Des. Vol. (cf)	VAC. (in.Hg)	Temperatures (°F) Stack	Probe	Oven	Imp.	Gas/In	Gas/Out	Oxygen (% v/v)
	0730	99.60			2.29	5	261	240	226	41	72	72	16.0
A 8	4	102.40	.71	1.32	4.89	5	263				81	72	16.1
7	8	104.96	.67	1.23	7.69	5	260				85	70	16.3
6	12	107.81	.77	1.43	0.49	5	264	246	239	43	89	71	16.2
5	16	110.58	.77	1.42	3.20	5	264				92	72	16.2
4	20	113.21	.71	1.32	5.98	5	261				91	73	16.8
3	24	115.99	.74	1.39	8.70	5	259	253	246	44	94	73	16.3
2	28	118.74	.71	1.33	1.41	5	259				95	74	16.5
1	32	121.43	.70	1.32	4.33	6	259				93	75	16.4
B 8	36	124.29	.81	1.53	7.19	6	263	254	253	45	95	75	16.4
7	40	127.24	.78	1.46	0.03	6	259				95	76	16.2
6	44	130.11	.76	1.44	2.74	6	264				94	75	16.0
5	48	132.90	.70	1.31	5.55		261				94	75	
4	52	135.	.75	1.41									
3	56												
2	60												
1	64	30.16											
	(2025)												
		134.49											
		Stop Run Dryer Down											
	θ - 50.16	V_m - 34.89		ΔH - 1.38							Avg. -	81.6	

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 7 Sampling Collection Field Data Sheet

Job LP Hayward Date 10-26-95 Bar Pressure 28.54 IN.HG
Test Location Line 1 Dryer RTO Stack Fuel Type _____ Sample Train No _____
Technician J.C Pump No _____

No.	Test Run Point	Flask No.	Time (HRS)	Vacuum (IN.HG)	Flask Temp. (°F)	Leak Rate <0.4 IN.HG/MIN.	
1	3|1|1	19	4:35	27.1	53	☒ YES	☐ NO
2	3|1|2	20	4:43	27.2	55	☒ YES	☐ NO
3	3|1|3	21	4:58	27.1	54	☒ YES	☐ NO
4	3|1|1	22	5:14	27.1	53	☒ YES	☐ NO
5	3|2|2	23	5:55	27.1	53	☒ YES	☐ NO
6	3|2|3	24	6:05	27.1	52	☒ YES	☐ NO
7	3|2|1	49	6:14	27.2	53	☒ YES	☐ NO
8	3|2|2	50	6:43	27.1	50	☒ YES	☐ NO
9	3|3|3	51	7:26	27.2	49	☒ YES	☐ NO
10	3|3|1	52	7:30	27.2	53	☒ YES	☐ NO.
11	3|3|2	53	7:41	27.2	48	☒ YES	☐ NO
12	3|3|3	54	7:55	27.2	47	☒ YES	☐ NO
13	Blank	55				☐ YES	☐ NO
14						☐ YES	☐ NO
15						☐ YES	☐ NO
16						☐ YES	☐ NO
17						☐ YES	☐ NO
18						☐ YES	☐ NO
19						☐ YES	☐ NO
20						☐ YES	☐ NO
21						☐ YES	☐ NO
22						☐ YES	☐ NO
23						☐ YES	☐ NO
24						☐ YES	☐ NO
25						☐ YES	☐ NO
26						☐ YES	☐ NO
27						☐ YES	☐ NO

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

BTX - 10 Field Data Sheet

Job LP/Hayward
Source Line 1 Dryer RTO Inlet
Date 10-26-95 Test 4 Run 1

Operator(s) JF JSK
Meter Box No. 6S Meter Coef. .9985
Barometric Pressure 28.54 IN.HG

Sample Train Leak Check:

Pretest: 0.00 cc/min at 5 IN.HG
Post test: 0.00 cc/min at 5 IN.HG

Trav. point No.	Sample Time (min)	Sample Volume (cf)	Sample Rate (cc/min)	Vac. (IN.HG)	Temperatures (°F)		
					Stack	Probe	Gasmeter
	0920	391.680					
	5	391.837	1000	4			70
	10	391.995	1000	4			72
	15	392.185	1000	4			72
	20	392.378	1000	6			74
	25	392.565	1000	7			76
	30	392.758	1000	9			78
	35	392.945	1000	9.5			78
	40	393.138	1000	9.5			79
	45	393.330	1000	9.0			79
	50	393.521	1000	9.5			80
	55	393.712	1000	9.5			80
	60	393.908	1000	9.5			80
	θ = 60	V_m = 2.228					t_m = 76.5

1024

V_{STD} = 2.089

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

18
BTX **Field Data Sheet**

Job LP/Hayward
Source Line 1 Dryer RTO Inlet
Date 10-26-95 Test 4 Run 2

Operator(s) SF TSK
Meter Box No. #65 Meter Coef. .9985
Barometric Pressure 28.54 IN.HG

Sample Train Leak Check:

Pretest: 0.00 cc/min at 15 IN.HG
Post test: 0.00 cc/min at 15 IN.HG

Trav. point No.	Sample Time (min)	Sample Volume (cf)	Sample Rate (cc/min)	Vac. (IN.HG)	Temperatures (°F)		
					Stack	Probe	Gasmeter
	(1200)	393.970					
	5	394.151	1000	4			70
	10	394.350	1000	4			71
	15	394.537	1000	4			71
	20	394.732	1000	6			72
	25	394.564	1000	7			73
	30	395.125	1000	9			74
	35	395.328	1000	9			74
	40	395.530	1000	9			75
	45	395.725	1000	9			76
	50	395.926	1000	9			78
	55	396.119	1000	9.5			78
	60	396.317	1000	9.5			80
	θ = 60	V_m = 2.347					t_m = 74.3

1303

V_{STD} = 2.209

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

18 **Field Data Sheet**

Job C2/Hayward
Source Line 1 Dryer RTO Inlet
Date 10-26-95 Test 4 Run 3

Operator(s) SF 3SK
Meter Box No. 65 Meter Coef. .9985
Barometric Pressure 28.54 IN.HG

Sample Train Leak Check:

Pretest: 0.00 cc/min at 15 IN.HG
Post test: 0.00 cc/min at 15 IN.HG

Trav. point No.	Sample Time (min)	Sample Volume (cf)	Sample Rate (cc/min)	Vac. (IN.HG)	Temperatures (°F)		
					Stack	Probe	Gasmeter
	1320 (1920)	396.360					
	5	396.556	1000	4			72
	10	396.755	1000	5			73
	15	396.945	1000	5			75
	20	397.140	1000	5.5			76
	25	397.330	1000	7			77
	30	397.525	1000	8			78
	35	397.721	1000	9.5			78
	40	397.918	1000	9.5			78
	48	398.122	1000	9.5			79
	50	398.322	1000	10			80
	55	398.530	1000	10			80
	60	398.725	1000	10			80
	θ = 60	V_m = 2.365					t_m = 77.2

1442

V_{STD} = 2.214

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

BENZENE **Field Data Sheet**

Job L.P Hayward Operator(s) D. Van Hoeven

Source Line 1 Dryer RTO ~~INLET~~ STACK Meter Box No. 15 Meter Coef. .9918

Date 10/26/95 Test 4 Run 1 Barometric Pressure 28.54 IN.HG

Sample Train Leak Check:

Pretest: 0 cc/min at 16 IN.HG

Post test: 0 cc/min at 16 IN.HG

Trav. point No.	Sample Time (min)	Sample Volume (cf)	Sample Rate (cc/min)	Vac. (IN.HG)	Temperatures (°F)		
					Stack	Probe	Gasmeter
	0920	758.60					
	5	758.770	1000	4	261		60
	10	758.922	1000	4			62
	15	759.085	1000	4			62
	20	759.240	1000	4	263		64
	25	759.395	1000	4			66
	30	759.550	1000	4			68
	35	759.713	1000	4	263		68
	40	759.890	1000	4			68
	45	760.074	1000	4			72
	50	760.254	1000	4	263		72
	55	760.436	1000	4			74
	60	760.617	1000	4			76
	θ = 60	V_m = 2.017					t_m = 67.66

(1024)

V_{STD} = 1.910

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

M18 **Field Data Sheet**

Job K.P. Hayward
Source Line 1 Dryer RTO Stack
Date 10/26/01 Test 4 Run 2

Operator(s) DHT
Meter Box ~~No.~~ 15 Meter Coef. .9918
Barometric Pressure 28.54 IN.HG

Sample Train Leak Check:

Pretest: 0 cc/min at 16 IN.HG
Post test: 0 cc/min at 16 IN.HG

Trav. point No.	Sample Time (min)	Sample Volume (cf)	Sample Rate (cc/min)	Vac. (IN.HG)	Temperatures (°F)		
					Stack	Probe	Gasmeter
	1200	760.70					
	5	760.781	1000	4	263		70
	10	761.084	1000	4			74
	15	761.253	1000	4	266		74
	20	761.493	1000	4			74
	25	761.577	1000	4	266		78
	30	761.738	1000	5			78
	35	761.905	1000	5	262		80
	40	762.065	1000	5			80
	45	762.226	1000	5	260		82
	50	762.390	1000	5			82
	55	762.545	1000	5			84
	60	762.707	1000	5			84
	θ = 60	V_m = 2.007					t_m = 78.33

(1303)

V_{STD} = 1.862

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

M18 Field Data Sheet

Job L.P. Hayward
Source Line 1 Dryer RTO ~~Stack~~ Stack
Date 10/26/95 Test 4 Run 3

Operator(s) ~~Diff~~
Meter Box No. 15 Meter Coef. .9918
Barometric Pressure 28.54 IN.HG

Sample Train Leak Check:

Pretest: 0 cc/min at 15 IN.HG
Post test: 0 cc/min at 16 IN.HG

Trav. point No.	Sample Time (min)	Sample Volume (cf)	Sample Rate (cc/min)	Vac. (IN.HG)	Temperatures (°F)		
					Stack	Probe	Gasmeter
	1340	762.800					
	5	762.971	1000	5	257		82
	10	763.194	1000	5			74
	15	763.395	1000	5			76
	20	763.540	1000	5	260		78
	25	763.704	1000	5			80
	30	763.860	1000	5	265		82
	35	764.023	1000	5			84
	40	764.180	1000	5	264		86
	45	764.349	1000	5			87
	50	764.515	1000	5	256		88
	55	764.677	1000	5			89
	60	764.847	1000	5			92
	θ = 60	V_m = 2.047					t_m = 83.17

(1347)

V_{STD} = 1.883

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APPENDIX D

INTERPOLL LABORATORIES ANALYTICAL DATA

TABLE OF CONTENTS

INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 3 Data Reporting Sheet
Orsat Analysis

Job: LP/Hayward
Team Leader: SLB
Date Submitted: 10-31-95
Test No.: 1
Date of Analysis: 11-7-95

Source: LINE 1 Press Rto CO
Test Site: STACK
Date of Test: 10-25-95
No. of Runs Completed: 3
Technician: SLB

Test/ Run	Sample Log No. and Type	No. of An.	Buret Readings (ml) Zero Pt.	After CO_2	After O_2	Conc. CO_2 %v/v Dry	Conc. O_2 %v/v Dry	F_o
1/0		1	0.00	0.00	20.9	0.00	20.9	—
		2	0.00	0.00	20.9	0.00	20.9	—
	☐B☐F	Avg				0.00	20.9	
1/1			0.00	.20	20.9	.20	20.7	1
	6731-42	2	0.00	.20	20.9	.20	20.7	1
	☒B☐F	Avg				.20	20.7	
1/2			0.00	.20	20.9	.20	20.7	1
	6731-43	2	0.00	.20	20.9	.20	20.7	1
	☒B☐F	Avg				.20	20.7	
1/3			0.00	.20	20.9	.20	20.7	1
	6731-44	2	0.00	.20	20.9	.20	20.7	1
	☒B☐F	Avg				.20	20.7	
		2						
	☐B☐F	Avg						
		2						
	☐B☐F	Avg						
		2						
	☐B☐F	Avg						
		2						
	☐B☐F	Avg						
		2						
	☐B☐F	Avg						

☒ Ambient Air QA Check
☐ Orsat Analyzer System Leak Check
☐ F_o Within EPA M-3 Guidelines for fuel type

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

F = Flask (250 cc all glass)

B = Tedlar Bag (5 layer)

EPA Method 3 Guidelines

Fuel Type	F_o Range
Coal:	
Anthracite/Lignite	1.016-1.130
Bituminous	1.083-1.230
Oil:	
Distillate	1.260-1.413
Residual	1.210-1.370
Gas:	
Natural	1.600-1.836
Propane	1.434-1.586
Butane	1.405-1.553
Wood/Wood Bark	1.000-1.130

100395-G:\STACK\WP\FORMS\S-569

INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 3 Data Reporting Sheet
Orsat Analysis

Job	LP HAYWARD	Source	LINEL DRYER RTO
Team Leader	SF	Test Site	INLET
Date Submitted	10-31-95	Date of Test	10-26-95
Test No.	2	No. of Runs Completed	3
Date of Analysis	11-7-95	Technician	SLB

Test/ Run	Sample Log No. and Type	No. of An.	Buret Readings (ml)			Conc. CO_2 %v/v Dry	Conc. O_2 %v/v Dry	F_o
			Zero Pt.	After CO_2	After O_2			
2/0		1	0.00	0.00	20.9	0.00	20.9	—
		2	0.00	0.00	20.9	0.00	20.9	—
	☐B☐F	Avg				0.00	20.9	
2/1	6731-10		0.00	3.4	20.9	3.4	17.5	1.00
		2	0.00	3.4	20.9	3.4	17.5	1.00
	☒B☐F	Avg				3.4	17.5	
2/2	6731-11		0.00	3.4	20.9	3.4	17.5	1.00
		2	0.00	3.4	20.9	3.4	17.5	1.00
	☒B☐F	Avg				3.4	17.5	
2/3	6731-12		0.00	3.5	20.9	3.5	17.4	1.00
		2	0.00	3.5	20.9	3.5	17.4	1.00
	☒B☐F	Avg				3.5	17.4	
		2						
	☐B☐F	Avg						
		2						
	☐B☐F	Avg						
		2						
	☐B☐F	Avg						
		2						
	☐B☐F	Avg						
		2						
	☐B☐F	Avg						

☒ Ambient Air QA Check
☒ Orsat Analyzer System Leak Check
☒ F_o Within EPA M-3 Guidelines for fuel type

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

F = Flask (250 cc all glass)

B = Tedlar Bag (5 layer)

EPA Method 3 Guidelines

Fuel Type	Fo Range
Coal:	
Anthracite/Lignite	1.016-1.130
Bituminous	1.083-1.230
Oil:	
Distillate	1.260-1.413
Residual	1.210-1.370
Gas:	
Natural	1.600-1.836
Propane	1.434-1.586
Butane	1.405-1.553
Wood/Wood Bark	1.000-1.130

INTERPOLL LABORATORIES, INC.
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EPA Method 3 Data Reporting Sheet
Orsat Analysis

Job: LP - HAMM ARCO
Team Leader: DVH
Date Submitted: 10-31-95
Test No.: 2
Date of Analysis: 11-2-95

Source: LINE 1 DRYER RTO
Test Site: STACK
Date of Test: 10-26-95
No. of Runs Completed: 3
Technician: SCH

METHANE

Test/ Run	Sample Log No. and Type	No. of An.	Buret Readings (ml) Zero Pt.	After CO_2	After O_2	Conc. CO_2 %v/v Dry	Conc. O_2 %v/v Dry	F_o
2/0		1	0.00	0.00	20.9	0.00	20.9	—
		2	0.00	0.00	20.9	0.00	20.9	
	☐B☐F	Avg				0.00	20.9	
2/1	6731-50		0.00	3.6	20.7	3.6	17.1	1.06
		2	0.00	3.6	20.7	3.6	17.1	1.06
	☒B☐F	Avg				3.6	17.1	
2/2	6731-51		0.00	3.3	20.7	3.3	17.4	1.06
		2	0.00	3.3	20.7	3.3	17.4	1.06
	☒B☐F	Avg				3.3	17.4	
2/3	6731-52		0.00	3.8	20.7	3.8	16.9	1.05
		2	0.00	3.8	20.7	3.8	16.9	1.05
	☒B☐F	Avg				3.8	16.9	
		2						
	☐B☐F	Avg						
		2						
	☐B☐F	Avg						
		2						
	☐B☐F	Avg						
		2						
	☐B☐F	Avg						
		2						
	☐B☐F	Avg						

☒ Ambient Air QA Check
☐ Orsat Analyzer System Leak Check
☐ F_o Within EPA M-3 Guidelines for fuel type

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

F = Flask (250 cc all glass)

B = Tedlar Bag (5 layer)

EPA Method 3 Guidelines

Fuel Type	F_O Range
Coal:	
Anthracite/Lignite	1.016-1.130
Bituminous	1.083-1.230
Oil:	
Distillate	1.260-1.413
Residual	1.210-1.370
Gas:	
Natural	1.600-1.836
Propane	1.434-1.586
Butane	1.405-1.553
Wood/Wood Bark	1.000-1.130

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INTERPOLL LABORATORIES, INC.
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EPA Method 3 Data Reporting Sheet
Orsat Analysis

CO

Job: LP HAYWARD
Team Leader: SF
Date Submitted: 10-31-95
Test No.: 3
Date of Analysis: 11-2-95

Source: LIME/DRYER RTO
Test Site: INCER
Date of Test: 10-26-95
No. of Runs Completed: 3
Technician: SLB

Test/ Run	Sample Log No. and Type	No. of An.	Buret Readings (ml) Zero Pt.	After CO_2	After O_2	Conc. CO_2 %v/v Dry	Conc. O_2 %v/v Dry	F_o
3/0		1	0.00	0.00	20.9	0.00	20.9	-
		2	0.00	0.00	20.9	0.00	20.9	-
	☐B☐F	Avg				0.00	20.9	
3/1	6731-17		0.00	3.4	20.6	3.4	17.2	109
		2	0.00	3.4	20.6	3.4	17.2	109
	☒B☐F	Avg				3.4	17.2	
3/2	6731-18		0.00	3.4	20.6	3.4	17.2	109
		2	0.00	3.4	20.6	3.4	17.2	109
	☒B☐F	Avg				3.4	17.2	
3/3	6731-19		0.00	3.4	20.6	3.4	17.2	109
		2	0.00	3.4	20.6	3.4	17.2	109
	☒B☐F	Avg				3.4	17.2	
		2						
	☐B☐F	Avg						
		2						
	☐B☐F	Avg						
		2						
	☐B☐F	Avg						
		2						
	☐B☐F	Avg						
		2						
	☐B☐F	Avg						

☒ Ambient Air QA Check
☒ Orsat Analyzer System Leak Check
☒ F_o Within EPA M-3 Guidelines for fuel type.

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

F = Flask (250 cc all glass)

B = Tedlar Bag (5 layer)

EPA Method 3 Guidelines

Fuel Type	F0 Range
Coal:	
Anthracite/Lignite	1.016-1.130
Bituminous	1.083-1.230
Oil:	
Distillate	1.260-1.413
Residual	1.210-1.370
Gas:	
Natural	1.600-1.836
Propane	1.434-1.586
Butane	1.405-1.553
Wood/Wood Bark	1.000-1.130

INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 3 Data Reporting Sheet
Orsat Analysis

Job: LP / HAYWARD
Team Leader: DVH
Date Submitted: 10-31-95
Test No.: 3
Date of Analysis: 11-7-95

Source: LINE 1 DRYER RTO
Test Site: STACK
Date of Test: 10-26-95
No. of Runs Completed: 3
Technician: GLB

CO methane

Test/ Run	Sample Log No. and Type	No. of An.	Buret Readings (ml) Zero Pt.	After CO_2	After O_2	Conc. CO_2 %v/v Dry	Conc. O_2 %v/v Dry	F_o
3/0		1	0.00	0.00	20.8	0.00	20.9	—
		2	0.00	0.00	20.8	0.00	20.9	—
	☐B☐F	Avg				0.00	20.9	
3/1	6731-57		0.00	3.50	20.5	3.5	17.0	1.11
		2	0.00	3.50	20.5	3.5	17.0	1.11
	☒B☐F	Avg				3.5	17.0	
3/2	6731-58		0.00	3.70	20.5	3.7	16.8	1.11
		2	0.00	3.70	20.5	3.7	16.8	1.11
	☒B☐F	Avg				3.7	16.8	
3/3	6731-59		0.00	3.70	20.6	3.7	16.9	1.08
		2	0.00	3.70	20.6	3.7	16.9	1.08
	☒B☐F	Avg				3.70	16.9	
		2						
	☐B☐F	Avg						
		2						
	☐B☐F	Avg						
		2						
	☐B☐F	Avg						
		2						
	☐B☐F	Avg						
		2						
	☐B☐F	Avg						

☒ Ambient Air QA Check
☒ Orsat Analyzer System Leak Check
☒ F_o Within EPA M-3 Guidelines for fuel type.

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

F = Flask (250 cc all glass)

B = Tedlar Bag (5 layer)

EPA Method 3 Guidelines

Fuel Type	F0 Range
Coal:	
Anthracite/Lignite	1.016-1.130
Bituminous	1.083-1.230
Oil:	
Distillate	1.260-1.413
Residual	1.210-1.370
Gas:	
Natural	1.600-1.836
Propane	1.434-1.586
Butane	1.405-1.553
Wood/Wood Bark	1.000-1.130

INTERPOLL LABORATORIES, INC.
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Impinger Catch Data Reporting Sheet

Protocol: ☐Minnesota ☒Wisconsin ☐Iowa ☐EPA Method 202 ☐Other _____

Job: C.P. Haywood — Source/Site: Line 1 Press RTO / Inlet
Date Submitted: 10-25-95 — Test No.: 1
Date of Analysis: 11-3-95 — Technician: JMK

	Solvent Phase		Aqueous Phase	
Test: 1 Run: 0	Dish No:	40	Dish No:	709
Log No: 6731-01I	Dish + Sample Wt:	47.6429 g	Dish + Sample Wt:	46.3763 g
Color & Appearance:	Dish Tare Wt:	47.6428 g	Dish Tare Wt:	46.3760 g
	Fraction Wt:	.0001 g	Fraction Wt:	.0003 g
Comments:	Smpl Vol: 200 ml, Aliqt: 200 ml, Factor:	1.000	Smpl Vol: 200 ml, Aliqt: 100 ml, Factor:	2.000
	Sample Wt:	.0001 g	Sample Wt:	.0006 g
Test: 1 Run: 1	Dish No:	39	Dish No:	609
Log No: -02I	Dish + Sample Wt:	49.4393 g	Dish + Sample Wt:	45.5620 g
Color & Appearance:	Dish Tare Wt:	49.4378 g	Dish Tare Wt:	45.5602 g
	Fraction Wt:	.0015 g	Fraction Wt:	.0018 g
Comments:	Smpl Vol: 290 ml, Aliqt: 290 ml, Factor	1.000	Smpl Vol: 290 ml, Aliqt: 100 ml, Factor	2.900
	Sample Wt:	.0015 g	Sample Wt:	.0052 g
Test: 1 Run: 2	Dish No:	35	Dish No:	607
Log No: -03I	Dish + Sample Wt:	51.0924 g	Dish + Sample Wt:	47.3970 g
Color & Appearance:	Dish Tare Wt:	51.0916 g	Dish Tare Wt:	47.3957 g
	Fraction Wt:	.0008 g	Fraction Wt:	.0013 g
Comments:	Smpl Vol: 300 ml, Aliqt: 300 ml, Factor	1.000	Smpl Vol: 300 ml, Aliqt: 100 ml, Factor	3.000
	Sample Wt:	.0008 g	Sample Wt:	.0039 g
Test: 1 Run: 3	Dish No:	6006	Dish No:	601
Log No: -04I	Dish + Sample Wt:	48.5740 g	Dish + Sample Wt:	47.6698 g
Color & Appearance:	Dish Tare Wt:	48.5717 g	Dish Tare Wt:	47.6664 g
	Fraction Wt:	.0023 g	Fraction Wt:	.0034 g
Comments:	Smpl Vol: 300 ml, Aliqt: 300 ml, Factor	1.000	Smpl Vol: 300 ml, Aliqt: 100 ml, Factor	3.000
	Sample Wt:	.0023 g	Sample Wt:	.0072 g

Note: Factor = Sample Volume/Aliquot Volume

Blank Solvent Wt. .0000 g

V48

	RUN 0	RUN 1	RUN 2	RUN 3
Results of Solvent Phase g	.0001	.0014	.0007	.0029
Results of Aqueous Phase g	.0006 D-6	.0046	.0033	.0066

INTERPOLL LABORATORIES, INC.
(612) 786-6020

Solvent Rinse Data Reporting Sheet

☒ EPA Method 5 Probe Wash ☐ EPA Method 29 Probe Wash ☐ EPA Method 202 Cup & Tube Wash

Job	LP / Haywood	Source/Site	Line 1 Press RTO / Inlet
Date Submitted	10-27-95	Test No.	1
Date of Analysis	10-31-95	Technician	B. O.

Transport Leakage ☐ None ☒ _____ ml Solvent Acetone

Test: 1	Run: 0	Dish No:	795
Log No:	6731-01P	Dish + Sample Wt:	44.0319 g
Volume of Solvent	100 ml	Dish Tare Wt:	44.0317 g
*Solvent Residue	2.0 ug/ml	Sample Wt:	0.0002 g
Test: 1	Run: 1	Dish No:	797
Vol. of Solvent	90 ml	Dish + Sample Wt:	43.0526 g
Log Number	-02P	Dish Tare Wt:	43.0483 g
Comments		Sample Wt:	0.0043 g
Test: 1	Run: 2	Dish No:	804
Vol. of Solvent	90 ml	Dish + Sample Wt:	46.6887 g
Log Number	-03P	Dish Tare Wt:	46.6850 g
Comments		Sample Wt:	0.0037 g
Test: 1	Run: 3	Dish No:	807
Vol. of Solvent	100ml	Dish + Sample Wt:	46.0321 g
Log Number	-04P	Dish Tare Wt:	46.0301 g
Comments		Sample Wt:	0.0020 g

*Solvent Residue 2.0 ug/ml = [(Sample Wt. 0.0002 g) (10^6)]/Vol. of Sol. 100 ml

EPA-M5 Acetone Residue Blank Spec. ≤ 7.8 ug/ml

	RUN	RUN 1	RUN 2	RUN 3
Results of Solvent Rinse g	D-7	0.0041	0.0035	0.0018

INTERPOLL LABORATORIES, INC.
(612) 786-6020

Filter Gravimetrics Reporting Sheet

Fiter Type: ☒ EPA Method 5 ☐ EPA Method 29 ☐ EPA Method 202 ☐ Other_____

Job	LPI Hayward	Source/Site	Line 1 Press RTO / Inlet
Date Submitted	10-27-05	Test No.	1
Date of Analysis	10-31-05	Technician	B.O.

Test: 1	Run: 0	Filter No:	1072	
Field Blank:		Filter Type:	3.52" GF	
Log No: 6731-01F		Filter + Sample Wt:	0.5455	g
Color:		Filter Tare Wt:	0.5455	g
		Sample Wt:	0.0000	g
Test: 1	Run: 1	Filter No:	1071	
Log No: -02F		Filter Type:	3.52" GF	
Color:		Filter + Sample Wt:	0.5503	g
		Filter Tare Wt:	0.5497	g
		Sample Wt:	0.0006	g
Test: 1	Run: 2	Filter No:	1069	
Log No: -03F		Filter Type:	3.52" GF	
Color:		Filter + Sample Wt:	0.5510	g
		Filter Tare Wt:	0.5503	g
		Sample Wt:	0.0007	g
Test: 1	Run: 3	Filter No:	1078	
Log No: -04F		Filter Type:	3.52" GF	
Color:		Filter + Sample Wt:	0.5428	g
		Filter Tare Wt:	0.5423	g
		Sample Wt:	0.0005	g

✓ SAB

		RUN	RUN 1	RUN 2	RUN 3
Results of Filter Analysis	g		0.0006	0.0007	0.0005

		RUN	RUN 1	RUN 2	RUN 3
Total Mass	g		0.0107	0.0082	0.0111

INTERPOLL LABORATORIES, INC.
(612) 786-6020

Impinger Catch Data Reporting Sheet

Protocol: ☐Minnesota ☒Wisconsin ☐Iowa ☐EPA Method 202 ☐Other

Job: LP Hayward | Source/Site: Unit 1 Press ICP / stack
Date Submitted: 10-27-95 | Test No.: 1
Date of Analysis: 11-3-95 | Technician: RR

	Solvent Phase	Aqueous Phase
Test: 1 Run: 0	Dish No: 885	Dish No: 325
Log No: 6731-38I	Dish + Sample Wt: 41.0195 g	Dish + Sample Wt: 47.6628 g
Color & Appearance:	Dish Tare Wt: 41.0194 g	Dish Tare Wt: 47.6624 g
	Fraction Wt: .0001 g	Fraction Wt: .0004 g
Comments:	Smpl Vol: 200 ml, Alqt: 200 ml, Factor: 1.000	Smpl Vol: 200 ml, Alqt: 100 ml, Factor: 2.000
	Sample Wt: .0001 g	Sample Wt: .0008 g
Test: 1 Run: 1	Dish No: 885B	Dish No: 316
Log No: -39I	Dish + Sample Wt: 41.9551 g	Dish + Sample Wt: 44.8261 g
Color & Appearance:	Dish Tare Wt: 41.9540 g	Dish Tare Wt: 44.8241 g
	Fraction Wt: .0011 g	Fraction Wt: .0020 g
Comments:	Smpl Vol: 200 ml, Alqt: 200 ml, Factor 1.000	Smpl Vol: 200 ml, Alqt: 100 ml, Factor 2.000
	Sample Wt: .0011 g	Sample Wt: .0040 g
Test: 1 Run: 2	Dish No: 894	Dish No: 315
Log No: -40I	Dish + Sample Wt: 34.2132 g	Dish + Sample Wt: 42.6413 g
Color & Appearance:	Dish Tare Wt: 34.2123 g	Dish Tare Wt: 42.6403 g
	Fraction Wt: .0009 g	Fraction Wt: .0010 g
Comments:	Smpl Vol: 200 ml, Alqt: 200 ml, Factor 1.000	Smpl Vol: 200 ml, Alqt: 100 ml, Factor 2.000
	Sample Wt: .0009 g	Sample Wt: .0020 g
Test: 1 Run: 3	Dish No: 888	Dish No: 313
Log No: -41I	Dish + Sample Wt: 37.8997 g	Dish + Sample Wt: 46.4605 g
Color & Appearance:	Dish Tare Wt: 37.8989 g	Dish Tare Wt: 46.4595 g
	Fraction Wt: .0008 g	Fraction Wt: .0010 g
Comments:	Smpl Vol: 200 ml, Alqt: 200 ml, Factor 1.000	Smpl Vol: 200 ml, Alqt: 100 ml, Factor 2.000
	Sample Wt: .0008 g	Sample Wt: .0020 g

Note: Factor = Sample Volume/Aliquot Volume

Blank Solvent Wt. .0000 g

	RUN 0	RUN 1	RUN 2	RUN 3
Results of Solvent Phase g	.0001	.0010	.0008	.0007
Results of Aqueous Phase g	.0008 D-9	.0032	.0012	.0012

INTERPOLL LABORATORIES, INC.
(612) 786-6020

Solvent Rinse Data Reporting Sheet

☒ EPA Method 5 Probe Wash ☐ EPA Method 29 Probe Wash ☐ EPA Method 202 Cup & Tube Wash

Job	LP / Hayward	Source/Site	Line 1 Finish RTO / Stack
Date Submitted	10-27-95	Test No.	1
Date of Analysis	10-31-95	Technician	B.D.

Transport Leakage ☐ None ☑ _____ ml Solvent Acetone

Test: 1	Run: 0	Dish No:	707
Log No: 6731-38P		Dish + Sample Wt:	46.6019 g
Volume of Solvent	100 ml	Dish Tare Wt:	46.6017 g
*Solvent Residue	2.0 ug/ml	Sample Wt:	0.0002 g
Test: 1	Run: 1	Dish No:	735
Vol. of Solvent	150 ml	Dish + Sample Wt:	43.1970 g
Log Number -39P		Dish Tare Wt:	43.1892 g
Comments		Sample Wt:	0.0078 g
Test: 1	Run: 2	Dish No:	747
Vol. of Solvent	160 ml	Dish + Sample Wt:	46.1400 g
Log Number -40P		Dish Tare Wt:	46.1323 g
Comments		Sample Wt:	0.0077 g
Test: 1	Run: 3	Dish No:	749
Vol. of Solvent	140 ml	Dish + Sample Wt:	43.2937 g
Log Number -41P		Dish Tare Wt:	43.2892 g
Comments		Sample Wt:	0.0045 g

*Solvent Residue 2.0 ug/ml = [(Sample Wt. [illegible] g) (10^6)]/Vol. of Sol. 100 ml

EPA-M5 Acetone Residue Blank Spec. ≤ 7.8 ug/ml

	RUN	RUN 1	RUN 2	RUN 3
Results of Solvent Rinse g	D-10	0.0075	0.0074	0.0042

INTERPOLL LABORATORIES, INC.
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Filter Gravimetrics Reporting Sheet

Fiter Type: ☒ EPA Method 5 ☐ EPA Method 29 ☐ EPA Method 202 ☐ Other _____

Job	LP / Hayward	Source/Site	Line 1 Press RTO / Stack
Date Submitted	10-27-95	Test No.	1
Date of Analysis	10-31-95	Technician	B.U.

Test: 1	Run: 0	Filter No:	8236	
Field Blank:		Filter Type:	4"GF	
Log No: 6731-38F		Filter + Sample Wt:	.9348	g
Color:		Filter Tare Wt:	.9347	g
		Sample Wt:	0.0001	g
Test: 1	Run: 1	Filter No:	8266	
Log No: -39F		Filter Type:	4"GF	
Color:		Filter + Sample Wt:	.9385	g
		Filter Tare Wt:	.9352	g
		Sample Wt:	0.0033	g
Test: 1	Run: 2	Filter No:	8213	
Log No: -40F		Filter Type:	4"GF	
Color:		Filter + Sample Wt:	.9128	g
		Filter Tare Wt:	.9122	g
		Sample Wt:	0.0006	g
Test: 1	Run: 3	Filter No:	8235	
Log No: -41F		Filter Type:	4"GF	
Color:		Filter + Sample Wt:	.9310	g
		Filter Tare Wt:	.9305	g
		Sample Wt:	0.0005	g

		RUN	RUN 1	RUN 2	RUN 3
Results of Filter Analysis	g		0.0033	0.0006	0.0005

		RUN	RUN 1	RUN 2	RUN 3
Total Mass	g		0.0150	0.0100	0.0066

INTERPOLL LABORATORIES, INC.
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Impinger Catch Data Reporting Sheet

Protocol: ☐Minnesota ☒Wisconsin ☐Iowa ☐EPA Method 202 ☐Other

Job: L.P. Harward — Source/Site: Line 1 Driver RTO Inlet/Stack
Date Submitted: 10-26-95 — Test No.: 3
Date of Analysis: 11-3-95 — Technician: MRK

	Solvent Phase	Aqueous Phase
Test: Run:	Dish No:	Dish No:
Log No:	Dish + Sample Wt: g	Dish + Sample Wt: g
Color & Appearance:	Dish Tare Wt: g	Dish Tare Wt: g
	Fraction Wt: g	Fraction Wt: g
Comments:	Smpl Vol: ml, Alqt: ml, Factor:	Smpl Vol: ml, Alqt: ml, Factor:
	Sample Wt: g	Sample Wt: g
Test: 3 Run: 1	Dish No: 520	Dish No: 509
Log No: 6731-14I	Dish + Sample Wt: 48.5455 g	Dish + Sample Wt: 47.6251 g
Color & Appearance:	Dish Tare Wt: 48.5270 g	Dish Tare Wt: 47.6211 g
	Fraction Wt: .0185 g	Fraction Wt: .0040 g
Comments:	Smpl Vol: 475 ml, Alqt: 475 ml, Factor 1.000	Smpl Vol: 475 ml, Alqt: 100 ml, Factor 4.750
	Sample Wt: .0185 g	Sample Wt: .0190 g
Test: 3 Run: 2	Dish No: 521	Dish No: 502
Log No: -15I	Dish + Sample Wt: 50.6242 g	Dish + Sample Wt: 46.9051 g
Color & Appearance:	Dish Tare Wt: 50.5956 g	Dish Tare Wt: 46.9009 g
	Fraction Wt: .0286 g	Fraction Wt: .0042 g
Comments:	Smpl Vol: 475 ml, Alqt: 475 ml, Factor 1.000	Smpl Vol: 475 ml, Alqt: 100 ml, Factor 4.750
	Sample Wt: .0286 g	Sample Wt: .0200 g
Test: 3 Run: 3	Dish No: 528	Dish No: 54
Log No: -16I	Dish + Sample Wt: 46.5250 g	Dish + Sample Wt: 47.7590 g
Color & Appearance:	Dish Tare Wt: 46.5032 g	Dish Tare Wt: 47.7580 g
	Fraction Wt: .0218 g	Fraction Wt: .0010 g
Comments:	Smpl Vol: 425 ml, Alqt: 425 ml, Factor 1.000	Smpl Vol: 425 ml, Alqt: 100 ml, Factor 4.250
	Sample Wt: .0218 g	Sample Wt: .0042 g

Note: Factor = Sample Volume/Aliquot Volume

Blank Solvent Wt. .0000 g

	RUN	RUN 1	RUN 2	RUN 3
Results of Solvent Phase g		.0184	.0285	.0217
Results of Aqueous Phase g	D-12	.0184	.0194	.0036

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Solvent Rinse Data Reporting Sheet

☒ EPA Method 5 Probe Wash ☐ EPA Method 29 Probe Wash ☐ EPA Method 202 Cup & Tube Wash

Job: LP / Hayward
Date Submitted: 10-27-95
Date of Analysis: 10-31-95
Source/Site: Line 1 Dryer RTO / Inlet
Test No.: 3
Technician: B.J.

Transport Leakage ☐ None ☒ _____ ml
Solvent: Acetone

Test:	Run:	Dish No:	
Log No:		Dish + Sample Wt:	g
Volume of Solvent	ml	Dish Tare Wt:	g
*Solvent Residue	2.0 ug/ml	Sample Wt:	g
Test: 3	Run: 1	Dish No:	404
Vol. of Solvent	80 ml	Dish + Sample Wt:	47.6460 g
Log Number	6731-14P	Dish Tare Wt:	47.6422 g
Comments		Sample Wt:	0.0038 g
Test: 3	Run: 2	Dish No:	405
Vol. of Solvent	80 ml	Dish + Sample Wt:	38.9447 g
Log Number	-15P	Dish Tare Wt:	38.9392 g
Comments		Sample Wt:	0.0055 g
Test: 3	Run: 3	Dish No:	411
Vol. of Solvent	100 ml	Dish + Sample Wt:	46.6944 g
Log Number	-16P	Dish Tare Wt:	46.6852 g
Comments		Sample Wt:	0.0092 g

*Solvent Residue _____ ug/ml = [(Sample Wt. _____ g) (10^6)]/Vol. of Sol. _____ ml
EPA-M5 Acetone Residue Blank Spec. ≤ 7.8 ug/ml

	RUN	RUN 1	RUN 2	RUN 3
Results of Solvent Rinse g	D-13	0.0036	0.0053	0.0090

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Filter Gravimetrics Reporting Sheet

Fiter Type: ☑ EPA Method 5 ☐ EPA Method 29 ☐ EPA Method 202 ☐ Other_____

Job	LP / Hayward	Source/Site	No. 1 Dryer RTO / Inlet
Date Submitted	10-27-95	Test No.	3
Date of Analysis	10-31-95	Technician	B.D.

Test: 3	Run: 0	Filter No:	1534	
Field Blank:		Filter Type:	3.52" Pallflex	
Log No: 6731-13F		Filter + Sample Wt:	0.3863	g
Color:		Filter Tare Wt:	0.3863	g
		Sample Wt:	0.0000	g
Test: 3	Run: 1	Filter No:	1536	
Log No: -14F		Filter Type:	3.52" Pallflex	
Color:		Filter + Sample Wt:	0.3781	g
		Filter Tare Wt:	0.3776	g
		Sample Wt:	0.0005	g
Test: 3	Run: 2	Filter No:	1537	
Log No: -15F		Filter Type:	3.52" Pallflex	
Color:		Filter + Sample Wt:	0.3856	g
		Filter Tare Wt:	0.3851	g
		Sample Wt:	0.0005	g
Test: 3	Run: 3	Filter No:	1535	
Log No: -16F		Filter Type:	3.52" Pallflex	
Color:		Filter + Sample Wt:	0.3797	g
		Filter Tare Wt:	0.3793	g
		Sample Wt:	0.0004	g

Lgnts

		RUN	RUN 1	RUN 2	RUN 3
Results of Filter Analysis	g		0.0005	0.0005	0.0004

		RUN	RUN 1	RUN 2	RUN 3
Total Mass	g		0.0409	0.0537	0.0317

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Impinger Catch Data Reporting Sheet

Protocol: ☐Minnesota ☑Wisconsin ☐Iowa ☐EPA Method 202 ☐Other

Job: EPA Hayward
Date Submitted: 12-27-95
Date of Analysis: 1-3-96
Source/Site: Cyclone Inlet RT/Stack
Test No.: 3
Technician: MAK

	Solvent Phase	Aqueous Phase
Test: 3 Run: 0	Dish No: 901	Dish No: 803
Log No: 0731-53I	Dish + Sample Wt: 35.9881 g	Dish + Sample Wt: 41.4453 g
Color & Appearance:	Dish Tare Wt: 35.9880 g	Dish Tare Wt: 41.4450 g
	Fraction Wt: .0001 g	Fraction Wt: .0003 g
Comments:	Smpl Vol: 200 ml, Alqt: 200 ml, Factor: 1.000	Smpl Vol: 200 ml, Alqt: 100 ml, Factor: 2.000
	Sample Wt: .0001 g	Sample Wt: .0006 g
Test: 3 Run: 1	Dish No: 612	Dish No: 783
Log No: -54I	Dish + Sample Wt: 49.6270 g	Dish + Sample Wt: 43.0898 g
Color & Appearance:	Dish Tare Wt: 49.6245 g	Dish Tare Wt: 43.0877 g
	Fraction Wt: .0025 g	Fraction Wt: .0021 g
Comments:	Smpl Vol: 450 ml, Alqt: 450 ml, Factor 1.000	Smpl Vol: 450 ml, Alqt: 100 ml, Factor 4.500
	Sample Wt: .0025 g	Sample Wt: .0094 g
Test: 3 Run: 2	Dish No: C116	Dish No: 775
Log No: -55I	Dish + Sample Wt: 50.9260 g	Dish + Sample Wt: 46.8044 g
Color & Appearance:	Dish Tare Wt: 50.9231 g	Dish Tare Wt: 46.8016 g
	Fraction Wt: .0029 g	Fraction Wt: .0028 g
Comments:	Smpl Vol: 450 ml, Alqt: 450 ml, Factor 1.000	Smpl Vol: 450 ml, Alqt: 100 ml, Factor 4.500
	Sample Wt: .0029 g	Sample Wt: .0126 g
Test: 3 Run: 3	Dish No: 517	Dish No: 771
Log No: -56I	Dish + Sample Wt: 46.6373 g	Dish + Sample Wt: 40.8746 g
Color & Appearance:	Dish Tare Wt: 46.6359 g	Dish Tare Wt: 40.8730 g
	Fraction Wt: .0014 g	Fraction Wt: .0016 g
Comments:	Smpl Vol: 400 ml, Alqt: 400 ml, Factor 1.000	Smpl Vol: 400 ml, Alqt: 100 ml, Factor 4.000
	Sample Wt: .0014 g	Sample Wt: .0064 g

Note: Factor = Sample Volume/Aliquot Volume

Blank Solvent Wt. .0000 g

		RUN 0	RUN 1	RUN 2	RUN 3
Results of Solvent Phase	g	.0001	.0024	.0028	.0013
Results of Aqueous Phase	g	.0006 - D-15 .0088		.0126	.0058

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Solvent Rinse Data Reporting Sheet

☒ EPA Method 5 Probe Wash ☐ EPA Method 29 Probe Wash ☐ EPA Method 202 Cup & Tube Wash

Job	LPI Hayward	Source/Site	Line 1 Dryer RTO / Stack
Date Submitted	10-27-95	Test No.	3
Date of Analysis	10-31-95	Technician	A.O.
Transport Leakage ☐	None ☒ ml	Solvent	Acetone

Test: 3	Run: 0	Dish No:	51
Log No:		Dish + Sample Wt:	44.7350 g
Volume of Solvent	100 ml	Dish Tare Wt:	44.7348 g
*Solvent Residue	2.0 ug/ml	Sample Wt:	0.0002 g
Test: 3	Run: 1	Dish No:	60
Vol. of Solvent	240 ml	Dish + Sample Wt:	43.5885 g
Log Number		Dish Tare Wt:	43.5644 g
Comments		Sample Wt:	0.0241 g
Test: 3	Run: 2	Dish No:	64
Vol. of Solvent	180 ml	Dish + Sample Wt:	43.1613 g
Log Number		Dish Tare Wt:	43.1494 g
Comments		Sample Wt:	0.0119 g
Test: 3	Run: 3	Dish No:	98
Vol. of Solvent	170	Dish + Sample Wt:	42.7139 g
Log Number		Dish Tare Wt:	42.7050 g
Comments		Sample Wt:	0.0089 g

*Solvent Residue 2.0 ug/ml = [(Sample Wt. 0.0002 g) (10^6)]/Vol. of Sol. 100 ml

EPA-M5 Acetone Residue Blank Spec. ≤ 7.8 ug/ml

	RUN	RUN 1	RUN 2	RUN 3
Results of Solvent Rinse g	D-16	0.0236	0.0115	0.0086

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Filter Gravimetrics Reporting Sheet

Fiter Type: ☒ EPA Method 5 ☐ EPA Method 29 ☐ EPA Method 202 ☐ Other _____

Job	LP/Hayward	Source/Site	Line 1 Dryer RTO / Stack
Date Submitted	10-27-95	Test No.	3
Date of Analysis	10-31-95	Technician	B.D.

Test: 3	Run: 0	Filter No:	8238	
Field Blank:		Filter Type:	4"GF	
Log No: 6731-53F		Filter + Sample Wt:	.9209	g
Color:		Filter Tare Wt:	.9209	g
		Sample Wt:	0.0000	g
Test: 3	Run: 1	Filter No:	8239	
Log No: -54F		Filter Type:	4"GF	
Color:		Filter + Sample Wt:	.9327	g
		Filter Tare Wt:	.9303	g
		Sample Wt:	0.0024	g
Test: 3	Run: 2	Filter No:	8209	
Log No: -55F		Filter Type:	4"GF	
Color:		Filter + Sample Wt:	.9232	g
		Filter Tare Wt:	.9216	g
		Sample Wt:	0.0016	g
Test: 3	Run: 3	Filter No:	8240	
Log No: -56F		Filter Type:	4"GF	
Color:		Filter + Sample Wt:	.9305	g
		Filter Tare Wt:	.9282	g
		Sample Wt:	0.0023	g

	RUN	RUN 1	RUN 2	RUN 3
Results of Filter Analysis g		0.0024	0.0016	0.0023

	RUN	RUN 1	RUN 2	RUN 3
Total Mass g		0.0372	0.0279	0.0180

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EPA Method 7A Recovery and Analysis Data Sheet (1)

**********SOURCE**********
Job LP/Haywood
Source Line 1 Press RTO Inlet
Date of Sampling 10/25/95
Test No(s) 1

**********RECOVERY**********
Date of Recovery 11-2-95
Recovered by B.D.
Recovery volume 500 ml
Barometric at time 28.98 IN.HG.

**********ANALYTICAL**********
Date of Analysis 11/8/95
Analyst MJG
Eluent A54N
Chromatograph: Dionex System 4000i

Samples collected in accordance with EPA Method 7, CFR Title 40, Part 60, Appendix A. Samples analyzed in accordance with EPA Method 7A by ion chromatography. Mercury manometers used to measure flask pressures/vacuums in sampling and in recovery. Thommen Model TX 19 jewel barometer calibrated against laboratory mercury in glass barometer used to measure field barometric pressure. Three field blanks are prepared and the average used to correct measured nitrate concentrations. All samples are analyzed as a batch using a Dionex Model 4270 Chromatograph Data Intergrator. The integrator is programmed to give the actual concentration of the 500 ml recovered sample even if a subsequent dilution was made. The dilution is indicated here as well as on the chromatogram.

$$C_{RS} = DF(C_{DS}) \qquad M_{NO_3} = (C_{RS} - \overline{C}_B)V_R \qquad \overline{C}_B = (C_{B1} + C_{B2} + C_{B3})/3$$

where: C_{RS} = concentration of nitrate in 500 ml recovered sample in ug/ml

DF = dilution factor

C_{DS} = concentration of nitrate of a 500 ml recovered sample which has been diluted by a factor of DF to bring it into the proper range for the ion chromatograph. This value is an intermediate number and is not outputted by the electronic integrator which is programmed to output the concentration of the original undiluted 500 ml recovered sample.

M_{NO_3} = total mass of nitrate in micrograms in the 500 ml recovered sample and/or in the 2L flask.

C_B = average conc. of nitrate in 500 ml recovered samples from the three field blanks (ug/ml)

C_{B1}, C_{B2}, C_{B3} = conc. of nitrate in 500 ml recovered samples from the three field blanks (ug/ml)

V_R = recovery volume for samples and field blanks in ml

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EPA Method 7A Recovery and Analysis Data Sheet (2)

	Sample Log ID No.	Flask No.	Test/ Run	Final Flask Conditions t_f (°F)	+	-	Δ Pg (IN.HG.)	Chrom Run No.	DF	Nitrate Concentration (ug/ml) Uncorr. for blank C_{RS}	Corr. for blank ($C_{RS} - C_B$)	Total nitrate in Sample (ug) ($M_{NO_3^-}$)
1	6731-86	74	1/1/1	78	✓		0.70	46	1	11/13/95 ~~0.0182~~ <0.025	<0.025	<12.5
2	-87	75	1/1/2		✓		0.80	47	1	~~0.0174~~ <0.025		<12.5
3	-88	76	1/1/1		✓		0.40	48	1	~~0.0207~~ <0.025		<12.5
4	-89	77	1/1/2			✓	0.80	49	1	~~0.0153~~ <0.025		<12.5
5	-90	78	1/2/1			✓	0.50	52	1	~~0.0102~~ <0.025		<12.5
6	-91	79	1/2/2			✓	0.10	53	1	~~0.0217~~ <0.025		<12.5
7	-92	37	1/2/1			✓	0.10	54	1	0.0279		14.0
8	-93	38	1/2/2			✓	0.30	57	1	~~0.0194~~ <0.025		<12.5
9	-94	39	1/3/1		✓		0.10	58	1	0.0374		18.7
10	-95	40	1/3/2			✓	0.80	59	1	0.0267		13.4
11	-96	41	1/3/1			✓	1.50	63	1	<0.025		<12.5
12	-97	42	1/3/2		✓		1.30	64	1	<0.025		<12.5
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
Blank 1									1	CB1		
Blank 2									1	CB2		
Blank 3									1	CB3		

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$\bar{C}_B$ = _____

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EPA Method 7A Recovery and Analysis Data Sheet (1)

SOURCE

Job LP / Hayward
Source Line 1 Press RTO Stack
Date of Sampling 10/25/95
Test No(s) 1

RECOVERY

Date of Recovery 11-2-95
Recovered by B.D.
Recovery volume 500 ml
Barometric at time 28.98 IN.HG.

ANALYTICAL

Date of Analysis 11/8/95
Analyst MFK
Eluent ASYA
Chromatograph: Dionex System 4000i

Samples collected in accordance with EPA Method 7, CFR Title 40, Part 60, Appendix A. Samples analyzed in accordance with EPA Method 7A by ion chromatography. Mercury manometers used to measure flask pressures/vacuums in sampling and in recovery. Thommen Model TX 19 jewel barometer calibrated against laboratory mercury in glass barometer used to measure field barometric pressure. Three field blanks are prepared and the average used to correct measured nitrate concentrations. All samples are analyzed as a batch using a Dionex Model 4270 Chromatograph Data Intergrator. The integrator is programmed to give the actual concentration of the 500 ml recovered sample even if a subsequent dilution was made. The dilution is indicated here as well as on the chromatogram.

$$C_{RS} = DF(C_{DS}) \qquad M_{NO_3} = (C_{RS} - \bar{C}_B)V_R \qquad \bar{C}_B = (C_{B1} + C_{B2} + C_{B3})/3$$

where: C_{RS} = concentration of nitrate in 500 ml recovered sample in ug/ml

DF = dilution factor

C_{DS} = concentration of nitrate of a 500 ml recovered sample which has been diluted by a factor of DF to bring it into the proper range for the ion chromatograph. This value is an intermediate number and is not outputted by the electronic integrator which is programmed to output the concentration of the original undiluted 500 ml recovered sample.

M_{NO_3} = total mass of nitrate in micrograms in the 500 ml recovered sample and/or in the 2L flask.

C_B = average conc. of nitrate in 500 ml recovered samples from the three field blanks (ug/ml)

C_{B1}, C_{B2}, C_{B3} = conc. of nitrate in 500 ml recovered samples from the three field blanks (ug/ml)

V_R = recovery volume for samples and field blanks in ml

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EPA Method 7A Recovery and Analysis Data Sheet (2)

	Sample Log ID No.	Flask No.	Test/ Run	Final Flask Conditions: t_f (°F)	+	-	ΔP_g (IN.HG.)	Chrom Run No.	DF	Nitrate Concentration (ug/ml): Uncorr. for blank C_{RS}	Corr. for blank ($C_{RS} - C_B$)	Total nitrate in Sample (ug) ($M_{NO_3^-}$)
1	6731-73	61	1/1/1	78	✓		0.80	26	1	0.179	<0.025	89.5
2	-74	62	1/1/2		✓		0.60	29	1	0.269		134
3	-75	63	1/1/3		✓		0.10	32	1	0.143		71.5
4	-76	64	1/1/1		✓		1.20	33	1	0.140		70.0
5	-77	65	1/2/2			✓	0.90	34	1	0.0903		45.2
6	-78	66	1/2/3		✓		1.00	35	1	0.0868		43.4
7	-79	7	1/2/1		✓		1.50	36	1	0.153		76.5
8	-80	8	1/2/2		✓		0.30	37	1	0.104		52.0
9	-81	9	1/3/3		✓		0.20	38	1	0.189		94.5
10	-82	10	1/3/1		✓		0.20	39	1	0.232		116
11	-83	11	1/3/2		✓		0.10	44	1	0.275		138
12	-84	12	1/3/3	↓		✓	0.80	45	1	0.179	↓	89.5
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
Blank 1	-85	56			✓		0.10	25	1	CB1 <0.025		
Blank 2									1	CB2		
Blank 3									1	CB3		

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$\bar{C}_B$ = <0.025

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EPA Method 7A Recovery and Analysis Data Sheet (1)

SOURCE
Job: LPI Haywood
Source: Line 1 Dryer RTO Inlet
Date of Sampling: 10/26/95
Test No(s): 3

RECOVERY
Date of Recovery: 11-3-95
Recovered by: B.D.
Recovery volume: 500 ml
Barometric at time: 29.17 IN.HG.

ANALYTICAL
Date of Analysis: 11/9/95
Analyst: MJG
Eluent: AS4A
Chromatograph: Dionex System 4000i

Samples collected in accordance with EPA Method 7, CFR Title 40, Part 60, Appendix A. Samples analyzed in accordance with EPA Method 7A by ion chromatography. Mercury manometers used to measure flask pressures/vacuums in sampling and in recovery. Thommen Model TX 19 jewel barometer calibrated against laboratory mercury in glass barometer used to measure field barometric pressure. Three field blanks are prepared and the average used to correct measured nitrate concentrations. All samples are analyzed as a batch using a Dionex Model 4270 Chromatograph Data Intergrator. The integrator is programmed to give the actual concentration of the 500 ml recovered sample even if a subsequent dilution was made. The dilution is indicated here as well as on the chromatogram.

$$C_{RS} = DF(C_{DS}) \qquad M_{NO_3} = (C_{RS} - \bar{C}_B)V_R \qquad \bar{C}_B = (C_{B1} + C_{B2} + C_{B3})/3$$

where: C_{RS} = concentration of nitrate in 500 ml recovered sample in ug/ml

DF = dilution factor

C_{DS} = concentration of nitrate of a 500 ml recovered sample which has been diluted by a factor of DF to bring it into the proper range for the ion chromatograph. This value is an intermediate number and is not outputted by the electronic integrator which is programmed to output the concentration of the original undiluted 500 ml recovered sample.

M_{NO_3} = total mass of nitrate in micrograms in the 500 ml recovered sample and/or in the 2L flask.

C_B = average conc. of nitrate in 500 ml recovered samples from the three field blanks (ug/ml)

C_{B1}, C_{B2}, C_{B3} = conc. of nitrate in 500 ml recovered samples from the three field blanks (ug/ml)

V_R = recovery volume for samples and field blanks in ml

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EPA Method 7A Recovery and Analysis Data Sheet (2)

	Sample Log ID No.	Flask No.	Test/ Run	Final Flask Conditions t_f (°F)	+	-	Δ Pg (IN.HG.)	Chrom Run No.	DF	Nitrate Concentration (ug/ml) Uncorr. for blank C_{RS}	Corr. for blank ($C_{RS} - C_B$)	Total nitrate in Sample (ug) ($M_{NO_3^-}$)
1	6731-111	25	3/1/1	78		✓	2.20	84	1	0.0974	0.0255	36.0
2	-112	26	3/1/2			✓	1.40	87	1	0.116		42.2
3	-113	27	3/1/1			✓	1.50	88	1	0.0903		32.4
4	-114	28	3/1/2			✓	2.60	89	1	0.0774		26.0
5	-115	29	3/2/1			✓	0.80	90	1	0.102		38.2
6	-116	30	3/2/2			✓	2.90	93	1	0.0954		35.0
7	-117	31	3/2/1			✓	3.00	94	1	0.118		46.2
8	-118	32	3/2/2		✓		0.10	95	1	0.109		41.8
9	-119	33	3/3/1			✓	1.10	96	1	0.122		48.2
10	-120	34	3/3/2			✓	0.10	97	1	0.154		64.2
11	-121	35	3/3/1			✓	3.80	98	1	0.123		48.8
12	-122	36	3/3/2			✓	0.10	99	1	0.197		83.8
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
Blank 1									1	CB1		
Blank 2									1	CB2		
Blank 3									1	CB3		

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$\bar{C}_B$ = _____

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EPA Method 7A Recovery and Analysis Data Sheet (1)

**********SOURCE**********	**********RECOVERY**********	**********ANALYTICAL**********
Job LP / Hayward	Date of Recovery 11-3-95	Date of Analysis 11/8/95
Source Line 1 Dryer RTO Stack	Recovered by B.D.	Analyst MG
Date of Sampling 10/26/95	Recovery volume 500 ml	Eluent A54A
Test No(s) 3	Barometric at time 29.17 IN.HG.	Chromatograph: Dionex System 4000i

Samples collected in accordance with EPA Method 7, CFR Title 40, Part 60, Appendix A. Samples analyzed in accordance with EPA Method 7A by ion chromatography. Mercury manometers used to measure flask pressures/vacuums in sampling and in recovery. Thommen Model TX 19 jewel barometer calibrated against laboratory mercury in glass barometer used to measure field barometric pressure. Three field blanks are prepared and the average used to correct measured nitrate concentrations. All samples are analyzed as a batch using a Dionex Model 4270 Chromatograph Data Intergrator. The integrator is programmed to give the actual concentration of the 500 ml recovered sample even if a subsequent dilution was made. The dilution is indicated here as well as on the chromatogram.

$C_{RS} = DF(C_{DS})$ $\quad M_{NO_3} = (C_{RS} - \bar{C}_B)V_R$ $\quad \bar{C}_B = (C_{B1} + C_{B2} + C_{B3})/3$

where: C_{RS} = concentration of nitrate in 500 ml recovered sample in ug/ml

DF = dilution factor

C_{DS} = concentration of nitrate of a 500 ml recovered sample which has been diluted by a factor of DF to bring it into the proper range for the ion chromatograph. This value is an intermediate number and is not outputted by the electronic integrator which is programmed to output the concentration of the original undiluted 500 ml recovered sample.

M_{NO_3} = total mass of nitrate in micrograms in the 500 ml recovered sample and/or in the 2L flask.

C_B = average conc. of nitrate in 500 ml recovered samples from the three field blanks (ug/ml)

C_{B1}, C_{B2}, C_{B3} = conc. of nitrate in 500 ml recovered samples from the three field blanks (ug/ml)

V_R = recovery volume for samples and field blanks in ml

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(612)786-6020

EPA Method 7A Recovery and Analysis Data Sheet (2)

	Sample Log ID No.	Flask No.	Test/ Run	Final Flask Conditions t_f (°F)	+	-	ΔPg (IN.HG.)	Chrom Run No.	DF	Nitrate Concentration (ug/ml) Uncorr. for blank C_{RS}	Corr. for blank ($C_{RS} - C_B$)	Total nitrate in Sample (ug) ($M_{NO_3^-}$)
1	6731-98	19	3/1/1	78		✓	2.20	65	1	0.141	0.0255	57.8
2	-99	20	3/1/2	↓	✓		0.30	66	1	<0.025	↓	<12.5
3	-100	21	3/1/3			✓	2.70	67	1	0.135		54.8
4	-101	22	3/1/1			✓	0.10	68	1	0.0989		~~54.8~~ 36.7
5	-102	23	3/2/2			✓	0.90	71	1	0.194		84.2
6	-103	24	3/2/3			✓	0.20	72	1	0.178		76.2
7	-104	49	3/2/1			✓	1.40	75	1	0.149		61.8
8	-105	50	3/2/2			✓	1.70	76	1	0.162		68.2
9	-106	51	3/3/3			✓	1.00	77	1	0.172		73.2
10	-107	52	3/3/1			✓	1.40	78	1	0.159		66.8
11	-108	53	3/3/2			✓	2.70	79	1	0.142		58.2
12	-109	54	3/3/3	↓		✓	0.50	80	1	0.164	↓	69.2
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
Blank 1	-110	59		78		✓	0.20	13	1	CB1 0.0255		
Blank 2									1	CB2		
Blank 3									1	CB3		

$\bar{C}_B$ = 0.0255

REVIEWED
NOV 16 1995
Dusty W. Anderson

D-25

S-340(2) R-9/85

INTERPOLL LABORATORIES
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S-305RR
(9/90)

EPA Method 10 NDIR Analysis

Job Name LP-HAYWARD
Source LINE 1 PRESS RTO STACK
Date of Analysis 11-14-95
Technician SLB

NDIR Analyzer: ☒ Fuji ACS Model 3300
☐ Mon. Lab Model 8310
☐ Dasibi Model 3003
Range: 0 - 1000 ppm
Flow rate: 1000 cc/min

Pretest Calibration	Conc.	Reading	Vendor	Cyl. Number
Zero gas:	0 ppm	0 ppm	TCO	MM23572
Upscale gas:	157 ppm	157 ppm	AP	SG9148314
Upscale gas:	294 ppm	295 ppm	AP	SG902872
Upscale gas:	609 ppm	609 ppm	AP	SG9164993

Post-test Calibration	Conc.	Reading	Vendor	Cyl. Number
Zero gas:	0 ppm	0 ppm	TCO	MM23572
Upscale gas:	157 ppm	157 ppm	AP	SG9148314
Upscale gas:	295 ppm	297 ppm	AP	SG902872
Upscale gas:	609 ppm	600 ppm	AP	SG9164993

Sample Description Test/Run	Sample Log Number	CO Conc. (ppm, Dry) Dilution Factor	Reading	Actual ppm
1-1	6731-43	0	8	8
1-2	-43	0	8	8
1-3	-44	0	9	9

Sample Description Test/Run	Sample Log Number	CO Conc. (ppm, Dry) Dilution Factor	Reading	Actual ppm

Note 1: If sample dilution is required the sample is diluted with CO-free gas prior to analysis.
Note 2: The Fuji ACS model 3300 has a rejection ratio for CO to CO_2 greater then 100,000: 1 and the Mon. Labs Model 8310 and Dasibi Model 3003 have rejection ratios greater then 200,000:1 and thus CO_2 removal prior to analysis is not required.
Note 3: The analyzer must be zeroed and spanned immediately before and after sample analysis. Additional checks may be performed between sample analyses if required.

INTERPOLL LABORATORIES
(612) 786-6020

S-305RR
(9/90)

EPA Method 10 NDIR Analysis

Job Name LP - LAYWARD
Source LINE 1 RTO DRYER STACK
Date of Analysis 11-14-95
Technician SCB

NDIR Analyzer: [X] Fuji ACS Model 3300
[ ] Mon. Lab Model 8310
[ ] Dasibi Model 3003
Range: 0 - 1000 ppm
Flow rate: 1000 cc/min

Pretest Calibration

	Conc.	Reading	Vendor	Cyl. Number
Zero gas:	0 ppm	0 ppm	TCO	MM23572
Upscale gas:	157 ppm	157 ppm	AP	SG9148314
Upscale gas:	294 ppm	295 ppm	AP	SG902872
Upscale gas:	609 ppm	609 ppm	AP	SG9164993

Post-test Calibration

	Conc.	Reading	Vendor	Cyl. Number
Zero gas:	0 ppm	0 ppm	TCO	MM23572
Upscale gas:	157 ppm	157 ppm	AP	SG9148314
Upscale gas:	294 ppm	297 ppm	AP	SG902872
Upscale gas:	609 ppm	600 ppm	AP	SG9164993

Sample Description Test/Run	Sample Log Number	CO Conc. (ppm, Dry)		
		Dilution Factor	Reading	Actual ppm
3-1	6731-57	0	64	64
3-2	-58	0	125	1315
3-3	-59	0	77	179

Sample Description Test/Run	Sample Log Number	CO Conc. (ppm, Dry)		
		Dilution Factor	Reading	Actual ppm

Note 1: If sample dilution is requried the sample is diluted with CO-free gas prior to analysis.
Note 2: The Fuji ACS model 3300 has a rejection ratio for CO to CO_2 greater then 100,000: 1 and the Mon. Labs Model 8310 and Dasibi Model 3003 have rejection ratios greater then 200,000:1 and thus CO_2 removal prior to analysis is not required.
Note 3: The analyzer must be zeroed and spanned immediately before and after sample analysis. Additional checks may be performed between sample analyses if required.

INTERPOLL LABORATORIES
(612) 786-6020

S-305RR
(9/90)

EPA Method 10 NDIR Analysis

Job Name LP- HAYWARD
Source LINE 1 DRYER RTO STACK
Date of Analysis 11-14-95
Technician SLB

NDIR Analyzer:
- [x] Fuji ACS Model 3300
- [ ] Mon. Lab Model 8310
- [ ] Dasibi Model 3003

Range: 0 - 1000 ppm
Flow rate: 1000cc/min

Pretest Calibration	Conc.	Reading	Vendor	Cyl. Number
Zero gas:	0 ppm	0 ppm	TCO	CC23572
Upscale gas:	157 ppm	157 ppm	AP	SG9148314
Upscale gas:	294 ppm	295 ppm	AP	SG902872
Upscale gas:	609 ppm	609 ppm	AP	SG9164493

Post-test Calibration	Conc.	Reading	Vendor	Cyl. Number
Zero gas:	0 ppm	0 ppm	TCO	CC23572
Upscale gas:	157 ppm	157 ppm	AP	SG9148314
Upscale gas:	295 ppm	297 ppm	AP	SG902872
Upscale gas:	609 ppm	600 ppm	AP	SG9164493

Sample Description Test/Run	Sample Log Number	CO Conc. (ppm, Dry) Dilution Factor	Reading	Actual ppm
2-1	6731-50	0	114	114
2-2	51	0	44	44
2-3	52	0	53	53

Sample Description Test/Run	Sample Log Number	CO Conc. (ppm, Dry) Dilution Factor	Reading	Actual ppm

Note 1: If sample dilution is required the sample is diluted with CO-free gas prior to analysis.
Note 2: The Fuji ACS model 3300 has a rejection ratio for CO to CO_2 greater then 100,000: 1 and the Mon. Labs Model 8310 and Dasibi Model 3003 have rejection ratios greater then 200,000:1 and thus CO_2 removal prior to analysis is not required.
Note 3: The analyzer must be zeroed and spanned immediately before and after sample analysis. Additional checks may be performed between sample analyses if required.

INTERPOLL LABORATORIES INC.
612-786-6020

Results of the Formaldehyde Analysis
EPA Method 0011 (Units: Total ug)
Client: L. P. Hayward
Report No.: 6731

	Field Spike			Test: 2		Source: Line 1 Dryer RTO Inlet	
	Actual	Found	% Rec.	Run 0	Run 1	Run 2	Run 3
Date Collected		10/26/95		10/26/95	10/26/95	10/26/95	10/26/95
Log #		6731-05		6731-06	6731-07	6731-08	6731-09
Formaldehyde	750	540	72.0%	**1.9**	**40000**	**35000**	**44000**

	Field Spike			Test: 2		Source: Line 1 Dryer RTO Stack	
	Actual	Found	% Rec.	Run 0	Run 1	Run 2	Run 3
Date Collected		10/26/95		10/26/95	10/26/95	10/26/95	10/26/95
Log #		6731-46		6731-45	6731-47	6731-48	6731-49
Formaldehyde	750	530	70.7%	**1.6**	**4300**	**3800**	**5500**

Footnotes:

ug = micrograms

Trip Blank contained 3.2ug of formaldehyde.

Sample matrix consisted of a 2,4-DNPH impinger solution.

Reviewed by:

Gregg W. Holman
Laboratory Director

Interpoll Laboratories, Inc.
(612)786-6020

Due 11/10/95

Air Samples (Charcoal Tubes) by NIOSH Method 1501 Data Reporting Sheet

Client: I.D.020 / L.P. Hayward

Sample Collected:

Sample Received: 10/27/95

Sample Log #: 6731-31

Line 1 Dryer RTO Inlet

Sample Description: Test 4/ Run 0

			FRONT			BACK		
Parameter	Units	Analysis Date & Initials	Detection Limit Front	Analytical Result Front	Method Blank Front	Detection Limit Back	Analytical Result Back	Method Blank Back
BENZENE	Total ug	SMN. 11-8-95	2.1	<2.1	<2.1	.61	<.61	<.61
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
Dilution factor								

REVIEWED
NOV 19 1995

Footnotes:

In-House Comments:

LCI-136

Interpoll Laboratories, Inc.
(612)786-6020

Due 11/10/95

Air Samples (Charcoal Tubes) by NIOSH Method 1501 Data Reporting Sheet

Client: I.D.020 / L.P. Hayward

Sample Collected: _____

Sample Received: 10/27/95

Sample Log #: 6731-26

Liner Dryer RTO Inlet

Sample Description: Test 4 Run 1

			FRONT			BACK		
Parameter	Units	Analysis Date & Initials	Detection Limit Front	Analytical Result Front	Method Blank Front	Detection Limit Back	Analytical Result Back	Method Blank Back
Benzene	Total ug	MN 11-8-95	2.1	160	<2.1	.601	<.601	<.601
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
Dilution factor								

Footnotes: _____

In-House Comments: Charcoal was wet

LCI-136

Interpoll Laboratories, Inc.
(612)786-6020

Due 11/10/95

Air Samples (Charcoal Tubes) by NIOSH Method 1501 Data Reporting Sheet

Client: I.D.020 / L.P. Hayward

Sample Collected: _____

Sample Received: 10/27/95

Sample Log #: 6731-31

Line 1 Dryer RTO Inlet

Sample Description: Test 4 / Run 2

			FRONT			BACK		
Parameter	Units	Analysis Date & Initials	Detection Limit Front	Analytical Result Front	Method Blank Front	Detection Limit Back	Analytical Result Back	Method Blank Back
Benzene	Total ug	~~MM~~ 1/8/96	2.1	67	<2.1	.161	<.161	<.161
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
Dilution factor								

Footnotes: _____

In-House Comments: Charcoal was wet

LCI-136

Interpoll Laboratories, Inc.
(612)786-6020

Due 11/10/95

Air Samples (Charcoal Tubes) by NIOSH Method 1501 Data Reporting Sheet

Client: I.D.020 / L.P. Hayward

Sample Collected: _____

Sample Received: 10/27/95

Sample Log #: 6731-36

Line 1 Dryer RTO Inlet

Sample Description: Test 4 / Run 3

			FRONT			BACK		
Parameter	Units	Analysis Date & Initials	Detection Limit Front	Analytical Result Front	Method Blank Front	Detection Limit Back	Analytical Result Back	Method Blank Back
Benzene	Total ug	11/7/95	2.1	170	<2.1	.61	<.61	<.61
	Total ug	11/8/95						
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
Dilution factor								

Footnotes: _____

In-House Comments: Charcoal wasset

LCI-136

Interpoll Laboratories, Inc.
(612)786-6020

Due 11/10/95

Air Samples (Charcoal Tubes) by NIOSH Method 1501 Data Reporting Sheet

Client: I.D.020 / L.P. Hayward

Sample Collected: _____

Sample Received: 10/27/95

Sample Log #: 6731-63

Line 1 Dryer RTO Stack

Sample Description: Test 4 / Run 1

			FRONT			BACK		
Parameter	Units	Analysis Date & Initials	Detection Limit Front	Analytical Result Front	Method Blank Front	Detection Limit Back	Analytical Result Back	Method Blank Back
Benzene	Total ug	11/8	2.1	6.2	<2.1	.101	<.101	<.101
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
Dilution factor								

Footnotes: _____

In-House Comments: Charcoal was wet

LCI-136

Interpoll Laboratories, Inc.
(612)786-6020

Due 11/10/95

Air Samples (Charcoal Tubes) by NIOSH Method 1501 Data Reporting Sheet

Client: I.D.020 / L.P. Hayward

Sample Collected: _____

Sample Received: 10/27/95

Sample Log #: 6731-67

Line 1 Dryer RTO Stack

Sample Description: Test 4/Run 2

			FRONT			BACK		
Parameter	Units	Analysis Date & Initials	Detection Limit Front	Analytical Result Front	Method Blank Front	Detection Limit Back	Analytical Result Back	Method Blank Back
Benzene	Total ug	[illegible]	2.1	2.5	<2.1	.61	<.61	<.61
	Total ug	11-8-95						
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
Dilution factor								

Footnotes: _____

In-House Comments: Charcoal was wet

LCI-136

Interpoll Laboratories, Inc.
(612)786-6020

Due 11/10/95

Air Samples (Charcoal Tubes) by NIOSH Method 1501 Data Reporting Sheet

Client: I.D.020 / L.P. Hayward

Sample Collected: _____

Sample Received: 10/27/95

Sample Log #: 6731-71

Line 1 Dryer RTO Stack

Sample Description: Test 4 / Run 3

			FRONT			BACK		
Parameter	Units	Analysis Date & Initials	Detection Limit Front	Analytical Result Front	Method Blank Front	Detection Limit Back	Analytical Result Back	Method Blank Back
Benzene	Total ug	11/7 11/8/95	2.1	5.8	<2.1	.161	<.161	<.161
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
	Total ug							
Dilution factor								

Footnotes: _____

In-House Comments: Charcoal was wet

LCI-136

Due Date: 11/10/95

Interpoll Laboratories
(612)786-6020

Data Reporting Sheet

CLIENT: I.D.030 / LP Hayward

JOB:
CLIENT NO:
P.O. NO:
PROJECT MGR:

PHONE:

DATE:

CONTACT:

LABORATORY REPORT #:
SAMPLES COLLECTED:
SAMPLES RECEIVED:

	Invoicing	Signature	Report Routing
PL	☐	☐	☐
Lab Mgr	☐	☐	☐
Ino Mgr	☐	☐	☐
Org Mgr	☐	☐	☐

Line 1
Dryer RTO Stack

SAMPLE ID:	2/1	2/2	2/3	
SAMPLE TYPE:	I.G.S. →		→	
LOG NO:	6731-50	-51	-52	

PARAMETER	UNITS	DETECT LIMIT	ANALYSIS DATE & INITIALS	METHOD				
Methane	ppm	2	11/17/95 BWM	GC/FID	BDL	BDL	BDL	
		1						

Footnotes:

In-House Comments:

LC1-01R

Due Date: 11/10/95

Interpoll Laboratories
(612)786-6020

Data Reporting Sheet

CLIENT: I.D.030 / LP Hayward

JOB:
CLIENT NO:
P.O. NO:
PROJECT MGR:

PHONE:

DATE:

CONTACT:

LABORATORY REPORT #:
SAMPLES COLLECTED:
SAMPLES RECEIVED:

	Invoicing	Signature	Report Routing
PL	☐	☐	☐
Lab Mgr	☐	☐	☐
Ino Mgr	☐	☐	☐
Org Mgr	☐	☐	☐

Line 1 Dryer RTO Stack

SAMPLE ID:	3/1	3/2	3/3	
SAMPLE TYPE:	I.6.5	→	→	
LOG NO:	6731-57	-58	-59	

PARAMETER	UNITS	DETECT LIMIT	ANALYSIS DATE & INITIALS	METHOD				
Methane	ppm	2		GC/FID	BDL	BDL	BDL	

Footnotes:

In-House Comments:

INTERPOLL LABORATORIES, INC.
(612) 786-6020

Sample Chain of Custody

Job LP/HASTINGS Source KINDER MORGAN ATO Site INLET Log No. 6731
Field Engineer E.T. LOWBRIDGE Date of Test 10-25-95 Test No. 1 No. of Runs 3

No. Items	Sample Type		Analysis		Sequence No.	Comments
4	**Probe Wash:** ☒ Acetone ☐ $MeCl_2$	☐DI Water ☐_____	☒EPA M-5 ☐EPA M-29	☐EPA M-201A ☐_____		
4	**Filter:** ☒ Glass ☐ SS Thimble	☐Pallflex ☐2.5" Glass	☒EPA M-5 ☐EPA M-29 ☐EPA M-201A	☐EPA M-17		
4	**Impingers:** ☒DI Water ☐3%H_2O_2 ☐1N NaOH ☐2,4-DNPH	☐H_2SO_4 ☐HNO_3/H_2O_2 ☐$KMnO_4/H_2SO_4$ ☒ Knott, Knox	☐MN Protocol ☒WI Protocol ☐EPA M-202 ☐EPA M6,8 ☐Acid Gases	☐IA Protocol ☐Formaldehyde ☐EPA M-29 ☐EPA M-26 ☐_____		
3	**Integrated Gas:** ☐Tedlar Bag	☐_____	☒EPA M-3 ☐_____	☒EPA M-10		Combine in the Field
13	**Oxides of Nitrogen:**		☒EPA M-7A ☐_____			
	Fuel Lab: ☐Fuel Sample	☐Aggregate	☐Per S-0163			
	Particle Sizing:		☐X-Ray Sdgraph ☐_____	☐Cascade Imp		
	Miscellaneous:	☐_____	☐_____			

Fuel Type: Coal: ☐Bituminous ☐Anthracite ☐Lignite Wood: ☒Wood Waste ☐Dust ☐Bark Oil: ☐Waste Oil ☐No. 2 ☐No. 6 Misc: ☐Natural Gas ☐RDF ☐_____

Relinquished by/Affiliation	Accepted by/Affiliation	Date
E. Lowbridge / Interpoll	Bob Berg, III (10/27/95 1000)	10-25-95

033094-G:\STACK\WP\FORMS\S-278.2

INTERPOLL LABORATORIES, INC.
(612) 786-6020

Sample Chain of Custody

Job: L.P Hayward — Source: Line 1 RCESS RTO — Site: Stack — Log No. 6731
Field Engineer: DVH — Date of Test: 10/25/95 — Test No. 1 — No. of Runs 3

No. Items	Sample Type		Analysis		Sequence No.	Comments
4	**Probe Wash:** ☒ Acetone ☐ $MeCl_2$	☐DI Water ☐_____	☒EPA M-5 ☐EPA M-29	☐EPA M-201A ☐_____		
4	**Filter:** ☒ 4" Glass ☐ SS Thimble	☐Pallflex ☐2.5" Glass	☒EPA M-5 ☐EPA M-29 ☐EPA M-201A	☐EPA M-17		
4	**Impingers:** ☒DI Water ☐3%H_2O_2 ☐1N NaOH ☐2,4-DNPH	☐H_2SO_4 ☐HNO_3/H_2O_2 ☐$KMnO_4/H_2SO_4$ ☐_____	☐MN Protocol ☒WI Protocol ☐EPA M-202 ☐EPA M6,8 ☐Acid Gases	☐IA Protocol ☐Formaldehyde ☐EPA M-29 ☐EPA M-26 ☐_____		
3	**Integrated Gas:** ☒Tedlar Bag	☐_____	☒EPA M-3 ☐_____	☒EPA M-10		Co Also
13	**Oxides of Nitrogen:**		☒EPA M-7A ☐_____			
	Fuel Lab: ☐Fuel Sample	☐Aggregate	☐Per S-0163			
	Particle Sizing:		☐X-Ray Sdgraph ☐_____	☐Cascade Imp		
	Miscellaneous:	☐_____	☐_____			

Fuel Type: Coal: ☐Bituminous ☐Anthracite ☐Lignite — Wood: ☐Wood Waste ☐Dust ☐Bark — Oil: ☐Waste Oil ☐No. 2 ☐No. 6 — Misc: ☐Natural Gas ☐RDF ☐_____

Relinquished by/Affiliation	Accepted by/Affiliation	Date
Duane VanHowe	B&S, Inc Project	10/27/95 (1000)

033094-G:\STACK\WP\FORMS\S-278.2

INTERPOLL LABORATORIES, INC.
(612) 786-6020

Sample Chain of Custody

Job LP/Hayward Source Line 1 Dryer RTO Inlet Site Stack Log No. 6731
Field Engineer S. Fiebig Date of Test 10-26-95 Test No. 2 No. of Runs 3

No. Items	Sample Type	Analysis	Sequence No.	Comments
3	**Probe Wash:** 3 IMP RINSE ☐ Acetone ☐DI Water ☒ $MeCl_2$ ☐_____	☐EPA M-5 ☐EPA M-201A ☐EPA M-29 ☒ Gravimetric		
	Filter: ☐ 4" Glass ☐Pallflex ☐ SS Thimble ☐2.5" Glass	☐EPA M-5 ☐EPA M-17 ☐EPA M-29 ☐EPA M-201A		
5	**Impingers:** ☐DI Water ☐H_2SO_4 ☐3%H_2O_2 ☐HNO_3/H_2O_2 ☐1N NaOH ☐$KMnO_4/H_2SO_4$ ☒2,4-DNPH ☐_____	☐MN Protocol ☐IA Protocol ☐WI Protocol ☒Formaldehyde ☐EPA M-202 ☐EPA M-29 ☐EPA M6,8 ☐EPA M-26 ☐Acid Gases ☐_____		
3	**Integrated Gas:** ☒Tedlar Bag ☐_____	☒EPA M-3 ☐EPA M-10 ☐_____		
	Oxides of Nitrogen:	☐EPA M-7A ☐_____		
	Fuel Lab: ☐Fuel Sample ☐Aggregate	☐Per S-0163		
	Particle Sizing:	☐X-Ray Sdgraph ☐Cascade Imp ☐_____		
	Miscellaneous: ☐_____	☐_____		

Fuel Type: Coal: ☐Bituminous ☐Anthracite ☐Lignite Wood: ☒Wood Waste ☐Dust ☐Bark Oil: ☐Waste Oil ☐No. 2 ☐No. 6 Misc: ☐Natural Gas ☐RDF ☐_____

Relinquished by/Affiliation	Accepted by/Affiliation	Date
Scott Fiebig Interpoll Labs	Bob Say, III (10/27/95 1000)	10-26-95

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

Sample Chain of Custody

Job L.P Hayward Source Line 1 Diverter to Site Stack Log No. 6731
Field Engineer DAH Date of Test 10/26/95 Test No. 2 No. of Runs 3

No. Items	Sample Type	Analysis	Sequence No.	Comments
3	**Probe Wash:** ☐ Acetone ☒ $MeCl_2$ ☒ DI Water ☐ _____	☐EPA M-5 ☐EPA M-29 ☐EPA M-201A ☒ 0011		Runs 1, 2, 3
	Filter: ☐ 4" Glass ☐ SS Thimble ☐Pallflex ☐2.5" Glass	☐EPA M-5 ☐EPA M-29 ☐EPA M-201A ☐EPA M-17		
5	**Impingers:** ☐DI Water ☐3%H_2O_2 ☐1N NaOH ☒2,4-DNPH ☐H_2SO_4 ☐HNO_3/H_2O_2 ☐$KMnO_4/H_2SO_4$ ☐ _____	☐MN Protocol ☐WI Protocol ☐EPA M-202 ☐EPA M6,8 ☐Acid Gases ☐IA Protocol ☐Formaldehyde ☐EPA M-29 ☐EPA M-26 ☒ 0011		1 Blank 1 Spike 3 Runs
3	**Integrated Gas:** ☒Tedlar Bag ☐ _____	☒EPA M-3 ☒ methane ☐EPA M-10		
	Oxides of Nitrogen:	☐EPA M-7A ☐ _____		
	Fuel Lab: ☐Fuel Sample ☐Aggregate	☐Per S-0163		
	Particle Sizing:	☐X-Ray Sdgraph ☐ _____ ☐Cascade Imp		
	Miscellaneous: ☐ _____	☐ _____		

Fuel Type: Coal: ☐Bituminous ☐Anthracite ☐Lignite Wood: ☐Wood Waste ☐Dust ☐Bark Oil: ☐Waste Oil ☐No. 2 ☐No. 6 Misc: ☐Natural Gas ☐RDF ☐ _____

Relinquished by/Affiliation	Accepted by/Affiliation	Date
Duane Van Hoeven	Bob Boy, Interpoll	10/26/95 (1000)

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

Sample Chain of Custody

Job LP/Hazard Source Line 1 Drier RTO Inlet Site Stack Log No. 6731
Field Engineer S. Fiehler Date of Test 10-26-95 Test No. 3 No. of Runs 3

No. Items	Sample Type		Analysis		Sequence No.	Comments
3	**Probe Wash:** ☒ Acetone ☐ $MeCl_2$	☐ DI Water ☐ _____	☒ EPA M-5 ☐ EPA M-29	☐ EPA M-201A ☐ _____		
3	**Filter:** ☐ 4" Glass ☐ SS Thimble	☒ Rallflex ☐ 2.5" Glass	☒ EPA M-5 ☐ EPA M-29 ☐ EPA M-201A	☐ EPA M-17 ☒ Organic / Inorganic fraction		Hold Run 2 Filter is out as dirty as Run 1 & 2
3	**Impingers:** ☒ DI Water ☐ 3% H_2O_2 ☐ 1N NaOH ☐ 2,4-DNPH	☐ H_2SO_4 ☐ HNO_3/H_2O_2 ☐ $KMnO_4/H_2SO_4$ ☒ Cumbilicate Rinse	☐ MN Protocol ☐ WI Protocol ☐ EPA M-202 ☐ EPA M6,8 ☐ Acid Gases	☐ IA Protocol ☐ Formaldehyde ☐ EPA M-29 ☐ EPA M-26 ☒ organic / inorganic fraction		Hold
3	**Integrated Gas:** ☒ Tedlar Bag	☐ _____	☒ EPA M-3 ☐ _____	☒ EPA M-10		
3	**Oxides of Nitrogen:**		☒ EPA M-7A ☐ _____			
	Fuel Lab: ☐ Fuel Sample	☐ Aggregate	☐ Per S-0163			
	Particle Sizing:		☐ X-Ray Sdgraph ☐ _____	☐ Cascade Imp		
	Miscellaneous:	☐ _____	☐ _____			

Fuel Type: Coal: ☐ Bituminous ☐ Anthracite ☐ Lignite Wood: ☒ Wood Waste ☐ Dust ☐ Bark Oil: ☐ Waste Oil ☐ No. 2 ☐ No. 6 Misc: ☐ Natural Gas ☐ RDF ☐ _____

Relinquished by/Affiliation	Accepted by/Affiliation	Date
Scott Fiehler Interpoll-Labs	B.B. Bay, ILI (10/27/95 1000)	10-26-95

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

Sample Chain of Custody

Job L.P Hayward Source Line 1 Diverter Site Stack Log No. 6731
Field Engineer DVH Date of Test 10/26/95 Test No. 5 No. of Runs 3

No. Items	Sample Type		Analysis		Sequence No.	Comments
4	**Probe Wash:** ☒ Acetone ☐ $MeCl_2$	☐DI Water ☐_____	☒EPA M-5 ☐EPA M-29	☐EPA M-201A ☐_____		
4	**Filter:** ☒ 4" Glass ☐ SS Thimble	☐Pallflex ☐2.5" Glass	☒EPA M-5 ☐EPA M-29 ☐EPA M-201A	☐EPA M-17		
4	**Impingers:** ☒DI Water ☐3%H_2O_2 ☐1N NaOH ☐2,4-DNPH	☐H_2SO_4 ☐HNO_3/H_2O_2 ☐$KMnO_4/H_2SO_4$ ☐_____	☐MN Protocol ☒WI Protocol ☐EPA M-202 ☐EPA M6,8 ☐Acid Gases	☐IA Protocol ☐Formaldehyde ☐EPA M-29 ☐EPA M-26 ☐_____		
3	**Integrated Gas:** ☒Tedlar Bag	☐_____	☒EPA M-3 ☒ Methane	☒EPA M-10		
13	**Oxides of Nitrogen:**		☒EPA M-7A ☐_____			
	Fuel Lab: ☐Fuel Sample	☐Aggregate	☐Per S-0163			
	Particle Sizing:		☐X-Ray Sdgraph ☐_____	☐Cascade Imp		
	Miscellaneous:	☐_____	☐_____			

Fuel Type: Coal: ☐Bituminous ☐Anthracite ☐Lignite Wood: ☐Wood Waste ☐Dust ☐Bark Oil: ☐Waste Oil ☐No. 2 ☐No. 6 Misc: ☐Natural Gas ☐RDF ☐_____

Relinquished by/Affiliation	Accepted by/Affiliation	Date
Duane VanHouten	Bob Berg, Interpoll	10/26/95 1000

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

Sample Chain of Custody

Job LP/Hayward | Source Line 1 Dryer RTO Inlet | Site Stack | Log No. 6731
Field Engineer S. Fields | Date of Test 10-26-95 | Test No. 4 | No. of Runs 3

No. Items	Sample Type		Analysis		Sequence No.	Comments
	Probe Wash: ☐ Acetone ☐ $MeCl_2$	☐DI Water ☐_____	☐EPA M-5 ☐EPA M-29	☐EPA M-201A ☐_____		
	Filter: ☐ 4" Glass ☐ SS Thimble	☐Pallflex ☐2.5" Glass	☐EPA M-5 ☐EPA M-29 ☐EPA M-201A	☐EPA M-17		
	Impingers: ☐DI Water ☐3%H_2O_2 ☐1N NaOH ☐2,4-DNPH	☐H_2SO_4 ☐HNO_3/H_2O_2 ☐$KMnO_4/H_2SO_4$ ☐_____	☐MN Protocol ☐WI Protocol ☐EPA M-202 ☐EPA M6,8 ☐Acid Gases	☐IA Protocol ☐Formaldehyde ☐EPA M-29 ☐EPA M-26 ☐_____		
	Integrated Gas: ☐Tedlar Bag	☐_____	☐EPA M-3 ☐_____	☐EPA M-10		
	Oxides of Nitrogen:		☐EPA M-7A ☐_____			
	Fuel Lab: ☐Fuel Sample	☐Aggregate	☐Per S-0163			
	Particle Sizing:		☐X-Ray Sdgraph ☐_____	☐Cascade Imp		
4	**Miscellaneous:**	☒Charcoal tubes	☒M-18 BTX			

Fuel Type:
Coal: ☐Bituminous ☐Anthracite ☐Lignite
Wood: ☒Wood Waste ☐Dust ☐Bark
Oil: ☐Waste Oil ☐No. 2 ☐No. 6
Misc: ☐Natural Gas ☐RDF ☐_____

Relinquished by/Affiliation	Accepted by/Affiliation	Date
Scott Fields Interpoll Labs	Bob Berg, ILI (10/27/95 1000)	10-26-95

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

Sample Chain of Custody

Job L.P. Hayward Source Line 1 Dryer RTO Site Stack Log No. 6731
Field Engineer DH Date of Test 10/26/95 Test No. 4 No. of Runs 3

No. Items	Sample Type		Analysis		Sequence No.	Comments
	Probe Wash: ☐ Acetone ☐ $MeCl_2$	☐DI Water ☐_____	☐EPA M-5 ☐EPA M-29	☐EPA M-201A ☐_____		
	Filter: ☐ 4" Glass ☐ SS Thimble	☐Pallflex ☐2.5" Glass	☐EPA M-5 ☐EPA M-29 ☐EPA M-201A	☐EPA M-17		
	Impingers: ☐DI Water ☐3%H_2O_2 ☐1N NaOH ☐2,4-DNPH	☐H_2SO_4 ☐HNO_3/H_2O_2 ☐$KMnO_4/H_2SO_4$ ☐_____	☐MN Protocol ☐WI Protocol ☐EPA M-202 ☐EPA M6,8 ☐Acid Gases	☐IA Protocol ☐Formaldehyde ☐EPA M-29 ☐EPA M-26 ☐_____		
	Integrated Gas: ☐Tedlar Bag	☐_____	☐EPA M-3 ☐_____	☐EPA M-10		
	Oxides of Nitrogen:		☐EPA M-7A ☐_____			
	Fuel Lab: ☐Fuel Sample	☐Aggregate	☐Per S-0163			
	Particle Sizing:		☐X-Ray Sdgraph ☐_____	☐Cascade Imp		
3	**Miscellaneous:**	X_____	X M18			BENZENE

Fuel Type: Coal: ☐Bituminous ☐Anthracite ☐Lignite Wood: ☐Wood Waste ☐Dust ☐Bark Oil: ☐Waste Oil ☐No. 2 ☐No. 6 Misc: ☐Natural Gas ☐RDF ☐_____

Relinquished by/Affiliation	Accepted by/Affiliation	Date
Duane Van Hoven	Bob Berg, Interpoll	10/27/95 (1000)

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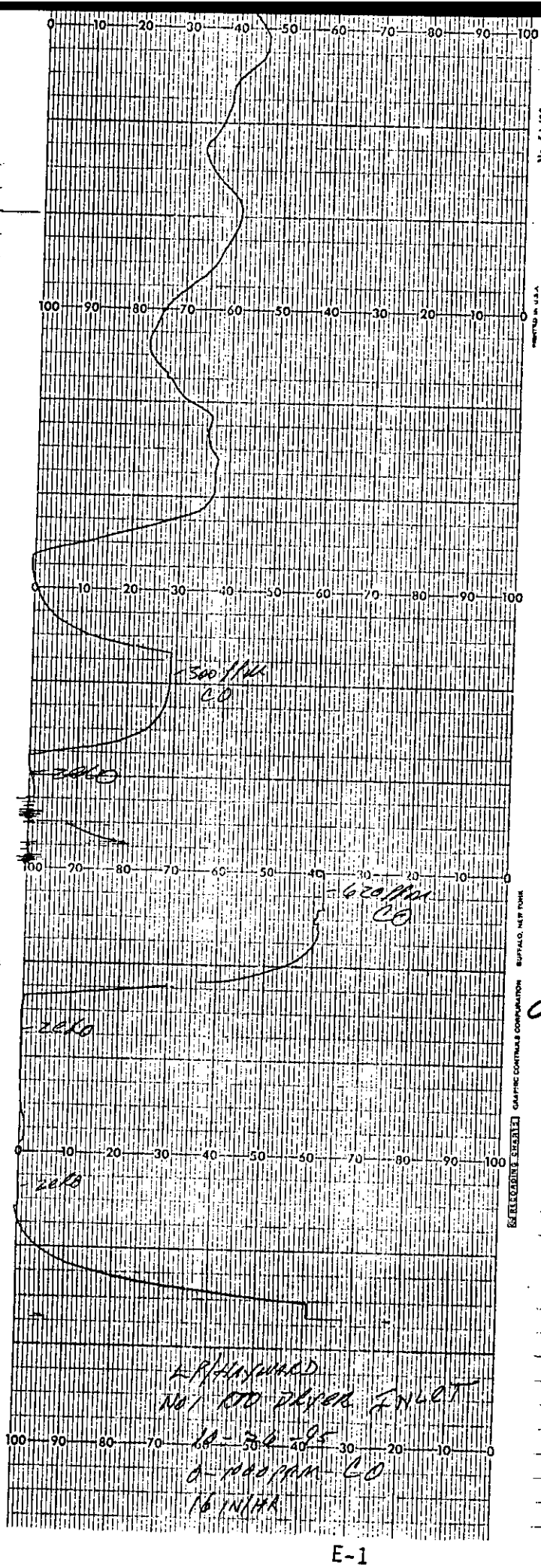
APPENDIX E

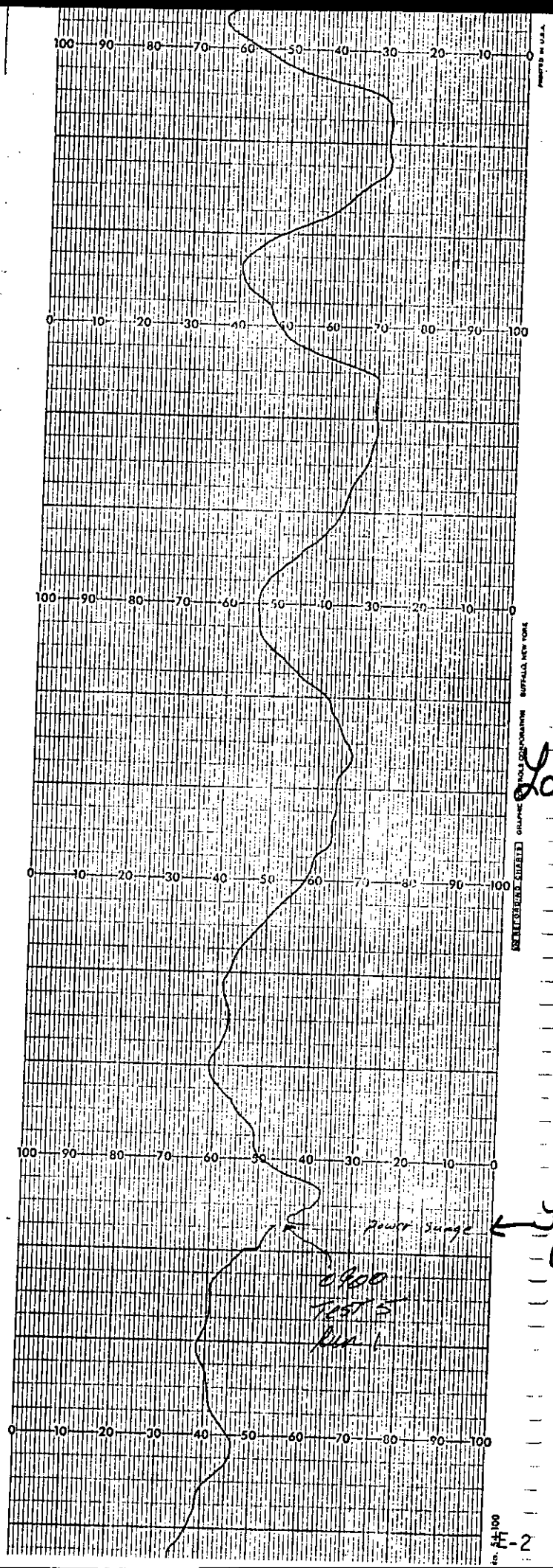
CARBON MONOXIDE STRIPCHART



Louisiana Pacific
Hayward, WI
10-26-95
CO

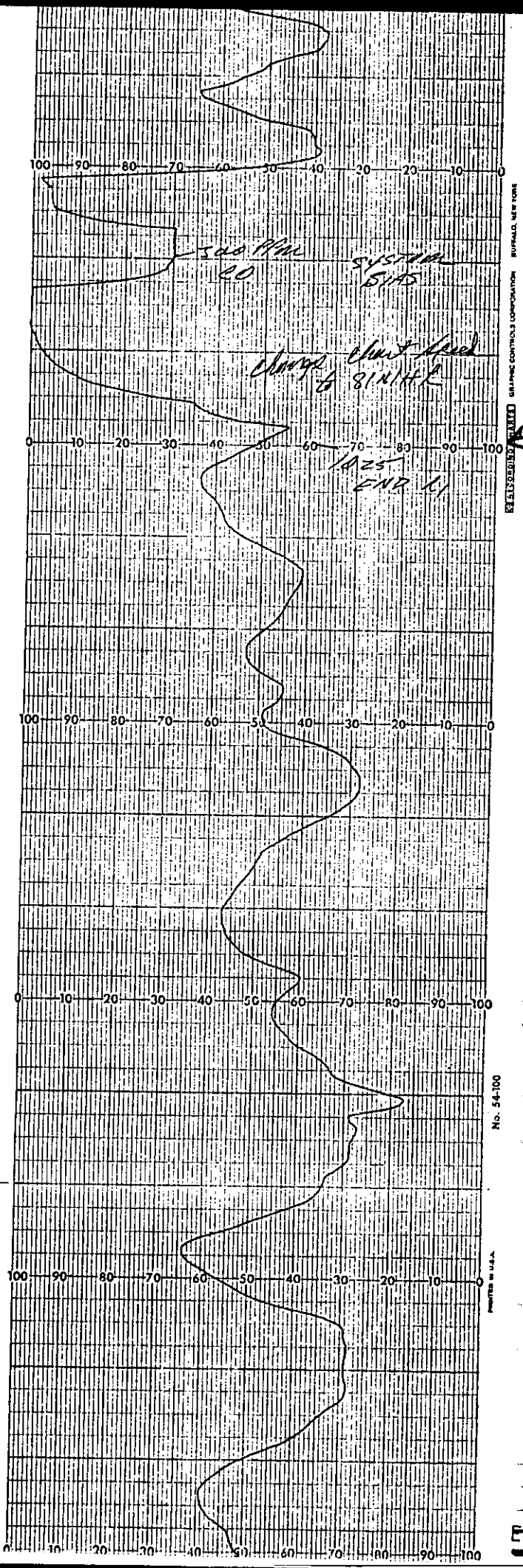
Line 1 Dryer RTO
Inlet

Scale 0-1000ppm



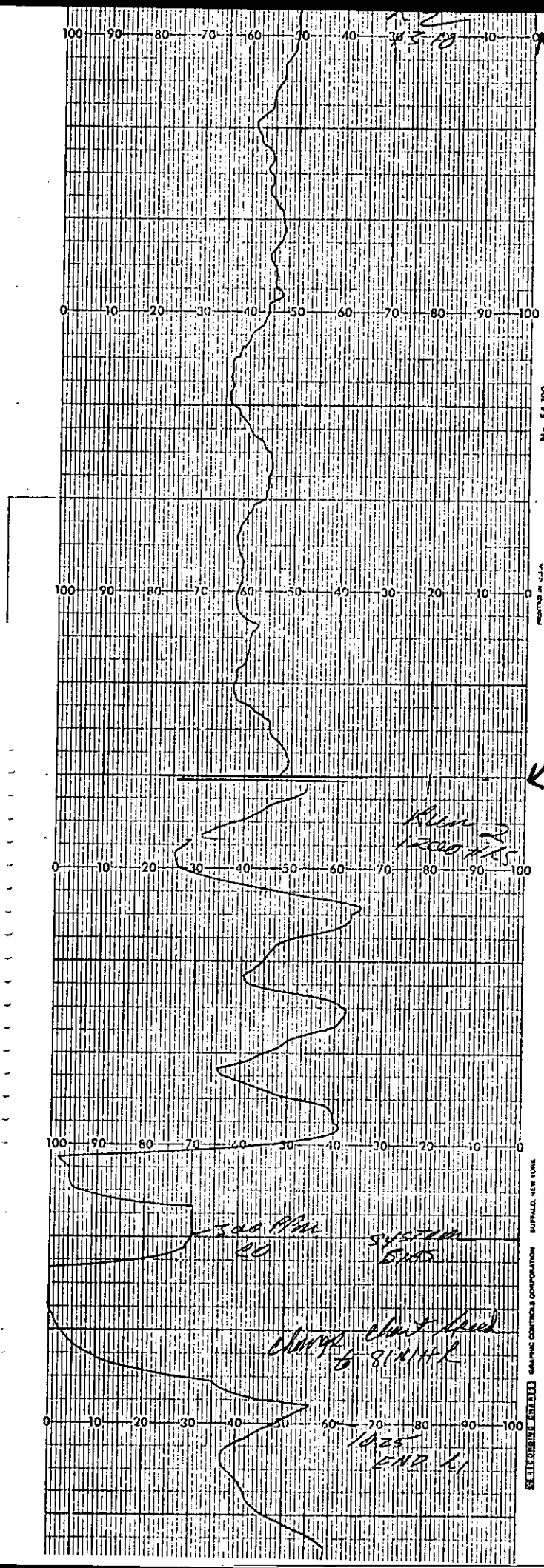
Louisiana Pacific
Hayward, WI
10-26-95
CO

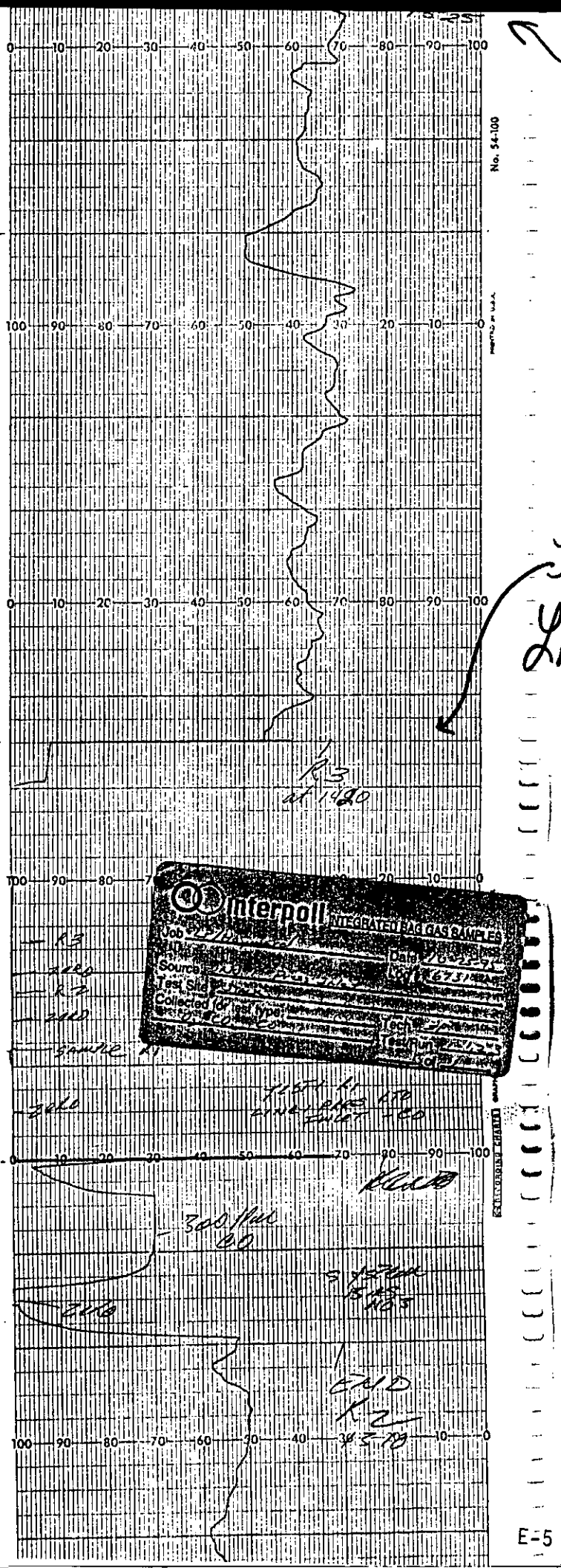
← Run / Start
0900 HRS

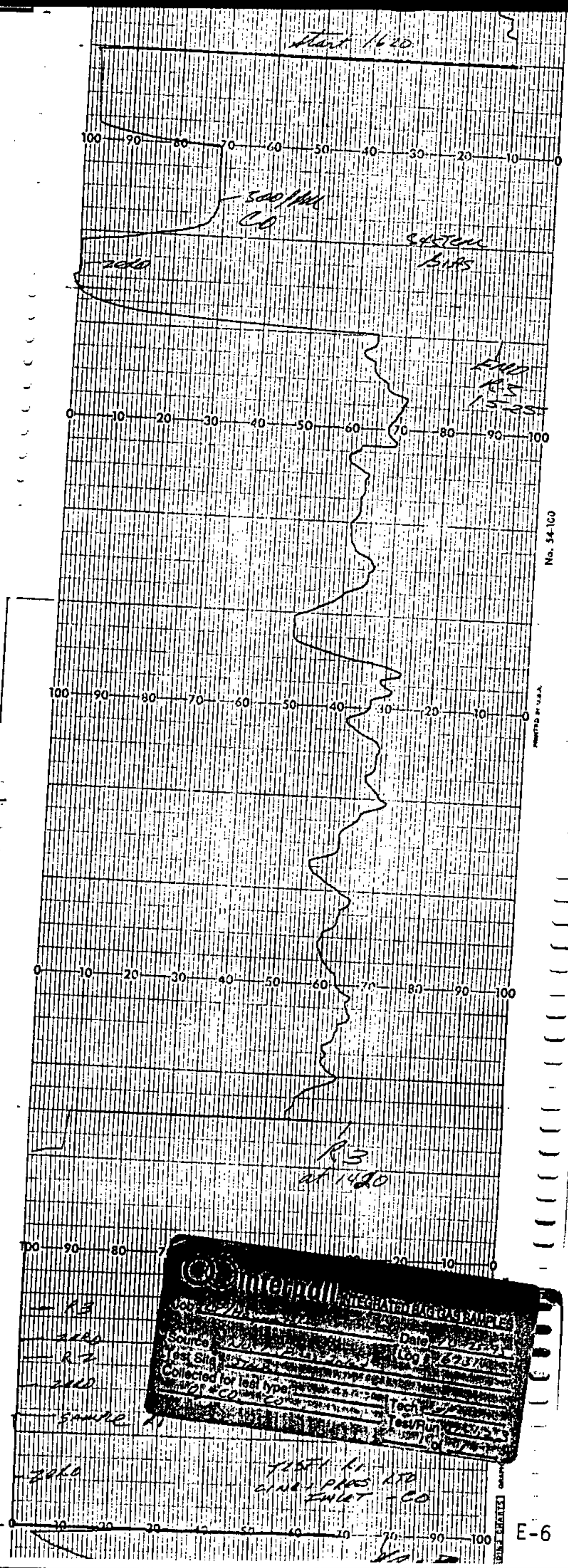


Run 1 End
1025 HRS

LP Hayward
10-26-95


Run 2
End
1310 HRS
Run 2
1200 HRS
LP-Hayward
CO
10-26-95


Run 3 End
1525 HRS
Run 3 Start
1420 HRS
LP-Hayward
10-26-95
Interpoll
INTEGRATED BAG GAS SAMPLER
Job
Source
Test Site
Collected for
Test type
Date
Tech
Test/Run
of
No. 54-100


Start 1620
100 90 80 70 60 50 40 30 20 10 0
500 ppm CO
System Bias
zero
End R3 1525
0 10 20 30 40 50 60 70 80 90 100
No. 54-100
R3 at 1420
R3
zero
R2
zero
Sample R1
zero
Interpoll INTEGRATED BAG GAS SAMPLES
Job
Source
Date
Log #
Test Site
Collected for test type
Tech
Test/Run
Test 1 R1
Inlet - CO

APPENDIX F

MEASUREMENT SYSTEMS PERFORMANCE SPECIFICATIONS

INTERPOLL LABORATORIES, INC
(612) 786-6020

CO System Bias Check

Job LP/HAYWARD Source NO1 DRYER RTO
Test ✓ Run 1 2 3 Date 10-26-95 Site INLET
Operator E Trawicky

Instrument	***	Cylinder Value (PPM)	Analyzer Resp (PPM)		Diff. CE-SB (PPM)	Span Val. (PPM)	% of Span
			Cal. Err.	Sys. Bias			
	Zero Gas	0	0	0	0	1000	0
	Upscale	300	290	300	10	1000	
	Zero Gas	0	0	0	0	1000	0
	Upscale	300	290	300	10	1000	1
	Zero Gas	0	0	0	0	1000	0
	Upscale	300	290	290	0	1000	1
	Zero Gas	0					
	Upscale						
	Zero Gas	0					
	Upscale						
	Zero Gas	0					
	Upscale						
	Zero Gas	0					
	Upscale						
	Zero Gas	0					
	Upscale						
	Zero Gas	0					
	Upscale						
	Zero Gas	0					
	Upscale						
	Zero Gas	0					
	Upscale						

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

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

Calibration Error Check

Job LP/HAYWARD

Test _____ Run _____ Date 10-26-95

Operator [signature]

SO_2 Calibration: Time (HRS)_____

***	Cylinder Value (PPM)	Analyzer Response (PPM)	Difference (PPM)	Span Value (PPM)	Percent of Span
Zero Gas	Ø				
Mid Level					
High Level					

NO_x Calibration: Time (HRS)_____

***	Cylinder Value (PPM)	Analyzer Response (PPM)	Difference (PPM)	Span Value (PPM)	Percent of Span
Zero Gas	Ø				
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	Ø				
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	Ø				
Mid Level					
High Level					

CO Calibration Time (HRS)_____

***	Cylinder Value (PPM)	Analyzer Response (PPM)	Difference (PPM)	Span Value (PPM)	Percent of Span
Zero Gas	Ø	0	0	1000	0
Mid Level	300.1	290	10	1000	1
High Level	620	620	0	1000	0

APPENDIX G

CALIBRATION GAS CERTIFICATION SHEETS

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 #: 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: Laura L. Ora
ANALYST

APPROVED BY: L. Shapiro
SUPERVISOR

NATIONAL SPECIALTY GASES
630 UNITED DRIVE
DURHAM, NC 27713
(919) 544-3772

CERTIFICATE OF ANALYSIS-EPA PROTOCOL MIXTURES

REFERENCE #: 88-25249 CYLINDER #:CC44391 CYL. PRESSURE: 2000PSIG

EXPIRATION DATE: 7-7-96 LAST ANALYSIS DATE:7-7-93

CUSTOMER:TWIN CITY OXYGEN P.O.# 5337
METHOD: EPA PROTOCOL # 13.0.4.G-1

STANDARD:

SRM #:1681B

CYL #:CLM4470

CONC.:975PPM

INSTRUMENT:
BECKMAN
COMPONENT: NDIR

MODEL #: 865

SERIAL #: 0103409

LAST CAL.: 4-2-93

COMPONENT:	CO		REPLICATE CONC.
MEAN CONC:	620PPM	DATE: 6-30-93	DATE: 7-7-93
		623PPM	618PPM
		620PPM	616PPM
		621PPM	619PPM

COMPONENT:		REPLICATE CONC.
MEAN CONC:	DATE:	DATE:

COMPONENT:		REPLICATE CONC.
MEAN CONC:	DATE:	DATE:

BALANCE GAS:N2

APPENDIX H

SAMPLING TRAIN CALIBRATION DATA

INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 5 Gas Metering System Quality Control Check Data Sheet

Job L.P. Hayward Date 10-25-95

Operator S Tvelstra Module No. 4

Instructions:
Operate the control module at a flow rate equal to ΔH@ for 10 minutes before attaching the umbilical.

Record the following data:

Bar press 28.77 in.Hg θ = .9934 ΔH@ 1.78 in.WC.

Time (min)	Volume (CF)	Meter Temp (°F)	
		Inlet	Outlet
	(432-fpc) 456.90		
2.5	~~334~~ 458.78	41	39
5.0	460.68	44	39
7.5	462.59	47	41
10	464.51	49	42
	V_m = 7.61	Avg(t_m) = 42.8	°F

Calculate Y_{cm} as follows:

$$Y_{cm} = \frac{1.786}{\theta\, V_m} \left[\frac{(t_m + 460)}{P_b}\right]^{0.5}$$

$$Y_{cm} = \frac{1.786}{(.9934)\,(7.61)} \left[\frac{(42.8) + 460}{(28.77)}\right]^{0.5} \quad 17.477$$

$$Y_{cm} = .98766$$

If Y_{cm} is not within the range of 0.97 to 1.03, "the volume metering system should be investigated before beginning."

CFR Title 40, Part 60, Appendix A, Method 5, Section 4.4.1

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 5 Gas Metering System Quality Control Check Data Sheet

Job L.P. Hayward Date 10/24/95

Operator DWH Module No. 2

Instructions:
Operate the control module at a flow rate equal to ΔH@ for 10 minutes before attaching the umbilical.

Record the following data:

Bar press 28.68 in.Hg θ = 1.0023 ΔH@ 1.73 in.WC.

Time (min)	Volume (CF)	Meter Temp (°F)	
		Inlet	Outlet
	(714.20)		
2.5	716.10	56	52
5.0	717.99	61	53
7.5	719.87	64	54
10	721.75	66	54
	V_m = 7.55	Avg(t_m) = 57.50	°F

Calculate Y_{cm} as follows:

$$Y_{cm} = \frac{1.786}{\theta\ V_m}\ \left[\frac{(t_m + 460)}{P_b}\right]^{0.5}$$

$$Y_{cm} = \frac{1.786}{(1.0023)\ (7.55)}\ \left[\frac{(57.50) + 460}{(28.68)}\right]^{0.5}$$

$$Y_{cm} = 1.00$$

If Y_{cm} is not within the range of 0.97 to 1.03, "the volume metering system should be investigated before beginning."

CFR Title 40, Part 60, Appendix A, Method 5, Section 4.4.1

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 5 Gas Metering System Quality Control Check Data Sheet

Job CP/Hayward Date 10-26-95

Operator S.Fyelstad Module No. 4

Instructions:
Operate the control module at a flow rate equal to ΔH@ for 10 minutes before attaching the umbilical.

Record the following data:

Bar press 28.54 in.Hg θ = .9934 ΔH@ 1.28 in.WC.

Time (min)	Volume (CF)	Meter Temp (°F)	
		Inlet	Outlet
	(643.80)		
2.5	645.66	51	43
5.0	647.52	53	46
7.5	649.39	57	47
10	651.25	59	48
	V_m = 7.45	Avg(t_m) = 50.5	°F

Calculate Y_{cm} as follows:

$$Y_{cm} = \frac{1.786}{\theta\, V_m}\left[\frac{(t_m + 460)}{P_b}\right]^{0.5}$$

$$Y_{cm} = \frac{1.786}{(.9934)\,(7.45)}\left[\frac{(50.5) + 460}{(28.54)}\right]^{0.5}$$

$$Y_{cm} = 1.021$$

If Y_{cm} is not within the range of 0.97 to 1.03, "the volume metering system should be investigated before beginning."

CFR Title 40, Part 60, Appendix A, Method 5, Section 4.4.1

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

EPA Method 5 Gas Metering System Quality Control Check Data Sheet

Job L.P Hayward Date 10/25/95

Operator DVH Module No. 2

Instructions:
Operate the control module at a flow rate equal to ΔH@ for 10 minutes before attaching the umbilical.

Record the following data:

Bar press 28.54 in.Hg θ = 1.0023 ΔH@ 1.73 in.WC.

Time (min)	Volume (CF)	Meter Temp (°F)	
		Inlet	Outlet
	(871.40)		
2.5	873.33	53	47
5.0	875.20	57	47
7.5	877.10	60	48
10	878.98	63	49
	V_m = 7.58	Avg(t_m) = 53	°F

Calculate Y_{cn} as follows:

$$Y_{cn} = \frac{1.786}{\theta\, V_m} \left[\frac{(t_m + 460)}{P_b}\right]^{0.5}$$

$$Y_{cn} = \frac{1.786}{(1.0023)\,(7.58)} \left[\frac{(53) + 460}{(28.54)}\right]^{0.5}$$

$$Y_{cn} = 1.00$$

If Y_{cn} is not within the range of 0.97 to 1.03, "the volume metering system should be investigated before beginning."

CFR Title 40, Part 60, Appendix A, Method 5, Section 4.4.1

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Interpoll Laboratories, Inc.
(612) 786-6020

Meter Box Calibration and Usage Status

Date of Report: November 2, 1995

Meter Box No. : 2 (Rockwell Dry Test Meter Serial No. 964551)

Date of Last Calibration: August 29, 1995
Calibration Technician: E. Trowbridge
Wet Test Meter No.: American Meter AL-20

Date of Use	Report No.	Initial Meter Reading	Final Meter Reading	Volume/Job (cu. ft.)	Total Volume* (cu. ft.)
September 12, 1995	5-6471	137.01	278.88	141.87	141.87
October 10, 1995	5-6649	287.70	566.20	278.50	420.37
October 12, 1995	5-6651	574.90	713.42	138.52	558.89
October 25, 1995	5-6731	722.40	1134.49	412.09	970.98

* Total volume through meter since last calibration.

Interpoll Laboratories, Inc.
(612) 786-6020

Meter Box Calibration and Usage Status

Date of Report: November 2, 1995

Meter Box No. : 4 (Rockwell Dry Test Meter Serial No. 964552)

Date of Last Calibration: June 12, 1995
Calibration Technician: E. Trowbridge
Wet Test Meter No.: American Meter AL-20

Date of Use	Report No.	Initial Meter Reading	Final Meter Reading	Volume/Job (cu. ft.)	Total Volume* (cu. ft.)
August 01, 1995	5-6183	556.39	752.24	195.85	195.85
September 18, 1995	5-6503	762.20	927.10	164.90	360.75
October 10, 1995	5-6648	939.60	1453.77	514.17	874.92
October 25, 1995	5-6731	1464.80	1847.24	382.44	1257.36

* Total volume through meter since last calibration.

Interpoll Laboratories, Inc.
(612) 786-6020

Meter Box Calibration and Usage Status

Date of Report: November 2, 1995

Meter Box Number: 1-S (Rockwell Dry Test Meter Serial No. 64710)

Date of Last Calibration: April 26, 1994
Calibration Technician: E. Trowbridge
Wet Test Meter Number: American Meter AL-17 (0.05 CF/REV)

Date of Use	Report No.	Initial Meter Reading	Final Meter Reading	Volume/Job (cu. ft.)	Total Volume* (cu. ft.)
May 15, 1995	5-5474	601.401	616.123	14.722	14.722
July 06, 1995	5-5958	629.900	693.285	63.385	78.107
September 19, 1995	5-6417	693.300	695.619	2.319	80.426
September 21, 1995	5-6418	695.80	697.640	1.840	82.266
October 04, 1995	5-6597	707.300	721.580	14.280	96.546
October 10, 1995	5-6648	721.914	733.464	11.550	108.096
October 26, 1995	5-6731	758.60	764.847	6.247	114.343

* Total volume through meter since last calibration.

Interpoll Laboratories, Inc.
(612) 786-6020

Meter Box Calibration and Usage Status

Date of Report: November 2, 1995

Meter Box No. : 6-S (Rockwell Dry Test Meter Serial No. 649078)

Date of Last Calibration: March 23, 1995
Calibration Technician: E. Trowbridge
Wet Test Meter No.: American Meter AL-17 (0.05 CF/REV)

Date of Use	Report No.	Initial Meter Reading	Final Meter Reading	Volume/Job (cu. ft.)	Total Volume* (cu. ft.)
May 16, 1995	5-5474	375.600	377.900	2.300	2.300
June 22, 1995	5-5765	378.000	378.775	0.775	3.075
September 20, 1995	5-6416	378.795	386.245	7.450	10.525
October 26, 1995	5-6731	391.680	398.725	7.045	17.570

* Total volume through meter since last calibration.

INTERPOLL LABORATORIES, INC.
(612) 786-6020

Meter Calibration Sheet EPA/Method 5

Date 8-29-95
Bar. Press. 29.14 IN.HG
Wet Test Meter No. AL-20

Control Module No. 2
Serial No. DTM 964551
Technician G Tomlinson

ΔH (IN.WC)		Gas Volume Wet Test Meter	* Cal. Index	* Diff. Wet Test Meter	Gas Volume Dry Test Meter (ft³)		Gas Temperatures			Time	Meter Coeff.	Orifice Const.	C_f
							Wet Test	Dry Test					
Nominal	Actual	(ft³)	(%)	ΔP_w (IN.WC.)	V_{di}	V_{df}	t_w (°F)	t_{di} (°F)	t_{do} (°F)	θ (Min/Sec)	Y	ΔH@	
0.5	.5	2	99.85	0.01	106,700	109,734	69.5	81	72	4/55	.9935	1.72	
1.2	1.2	3	99.91	0.025	103.500	106,525	69.5	78	71	4/44	.9971	1.71	
2.0	2.0	3	99.93	0.055	109.000	112.024	69.5	88	73	3/42	1.0067	1.72	
3.3	3.3	6	100.00	0.09	112.500	118.563	69.5	94	75	5/50	1.0090	1.75	
4.7	4.7	5	100.02	0.12	119.500	124.582	69.5	98	77	4/06	1.0052	1.76	
	2	1	4	5	6	7	8	9	10	11/12 Avg	1.0023	1.73	

Positive leak check performed by
Meter was in tolerance
Approved by

Meter was not in tolerance
Meter was not in tolerance
Date 9/13/95

☐: readjusted linkage
☐: changed dry test meter

*Based on AL-20 wet test meter calibration in Nov. 1991 against Bell Prover (NBS Traceable) - Carl Poe Co.

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

Meter Calibration Sheet EPA/Method 5

Date 9-20-95
Bar. Press. 29.33 IN.HG
Wet Test Meter No. AL-20

Control Module No. 3
Serial No. DTM 94423
Technician [signature]

ΔH (IN.WC) Nominal	ΔH (IN.WC) Actual	Gas Volume Wet Test Meter (ft^3)	* Cal. Index ϕ (%)	* Diff. Wet Test Meter ΔP_w (IN.WC.)	Gas Volume Dry Test Meter (ft^3) V_{di}	Gas Volume Dry Test Meter (ft^3) V_{df}	Gas Temperatures Wet Test t_w (°F)	Gas Temperatures Dry Test t_{di} (°F)	Gas Temperatures Dry Test t_{df} (°F)	Time θ (Min/Sec)	Meter Coeff. Y	Orifice Const. ΔH@	C_f
0.5	1.5	2	99.85	0.01	386.500	388.535	67	80	73	4/56	.9977	1.70	
1.2	1.2	3	99.91	0.025	389.000	392.046	67	84	74	4/46	1.0033	1.69	
2.0	2.0	3	99.93	0.055	383.000	386.048	67	80	73	3/42	.9961	1.70	
3.3	3.3	5	100.00	0.09	392.500	397.610	67	89	76	4/54	.9987	1.75	
4.7	4.7	5	100.02	0.12	398.000	403.130	67	91	77	4/08	.9942	1.77	
	2	3	4	5	6	7	8	9	10	11/12 Avg	.9980	1.72	

Positive leak check performed by [signature]
Meter was in tolerance
Approved by [signature]

Meter was not in tolerance ☐: readjusted linkage
Meter was not in tolerance ☐: changed dry test meter
Date 9/25/95

*Based on AL-20 wet test meter calibration in Nov. 1991 against Bell Prover (NBS Traceable) - Carl Poe Co.

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

Minimodule Calibration Sheet/Flow Rate Range 0-0.13 CFM/(0-4 LPM)

Date 4-26-95
Bar. Press. 29.12 IN.HG
Wet Test Meter No. AL-17 (.05 CF/FEV)

Meter Box No. 15
Serial No. DTM 64710
Technician E Trevitt

Rota-meter Reading (cc/Min)	ΔP_d (IN.WC)	Gas Volume Wet Test Meter (ft^3)	** Cal Index ϕ (%)	Diff. Wet Test Meter ΔP_w (IN.WC)	Gas Volume Dry Test Meter (ft^3) V_{di}	Gas Volume Dry Test Meter (ft^3) V_{df}	Gas Temperature Wet Test t_w (°F)	Gas Temperature Dry Test t_{di} (°F)	Gas Temperature Dry Test	Time θ (Min/Sec)	Meter Coeff. Y	Rota-meter Coeff. Z
1000	.001		99.55	0.04	600.500	600.704	68	74			.9905	
1000	.001		99.55	0.04	600.800	601.005	68	78			.9930	
1000	.001		99.55	0.04	601.100	601.306	68	80			.9919	
1	2	3	4	5	6	7	8	9		10/11 Avg.	.9918	

Meter was in tolerance ☒
Meter was not in tolerance ☐: readjusted linkage
Meter was not in tolerance ☐: changed dry test meters
Approved by [signature] Date 5/8/95

Gas Meter Bimetallic Therm. Calibration/Verification *
☐ ≥ ± 5°F (Out of control)
☒ ≤ ± 5°F (In control)
☐ Recalibrated _/_/_
☒ No action required

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

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

INTERPOLL LABORATORIES, INC.
(612) 786-6020

Minimodule Calibration Sheet/Flow Rate Range 0-0.13 CFM/(0-4 LPM)

Date 3-23-95
Bar. Press. 29.10 IN.HG
Wet Test Meter No. AL-17 (.05 CF/FEV)

Meter Box No. 6S
Serial No. DTM 64078
Technician E Trowbridge

Rota-meter Reading (cc/Min)	ΔP_d (IN.WC)	Gas Volume Wet Test Meter (ft^3)	** Cal Index ϕ (%)	Diff. Wet Test Meter ΔP_w (IN.WC)	Gas Volume Dry Test Meter (ft^3) V_{di}	Gas Volume Dry Test Meter (ft^3) V_{df}	Gas Temperature Wet Test t_w (°F)	Gas Temperature Dry Test t_{di} (°F)	Gas Temperature Dry Test	Time θ (Min/Sec)	Meter Coeff. Y	Rota-meter Coeff. Z
1000	.001	.2	99.55	0.04	369.150	369.350	67	71		5/17	1.0065	
1000	.001	.2	99.55	0.04	369.450	369.652	67	72		5/18	.9984	
1000	.001	.2	99.55	0.04	369.700	369.904	67	73		5/19	.9905	
1	2	3	4	5	6	7	8	9		10/11 Avg.	.9985	

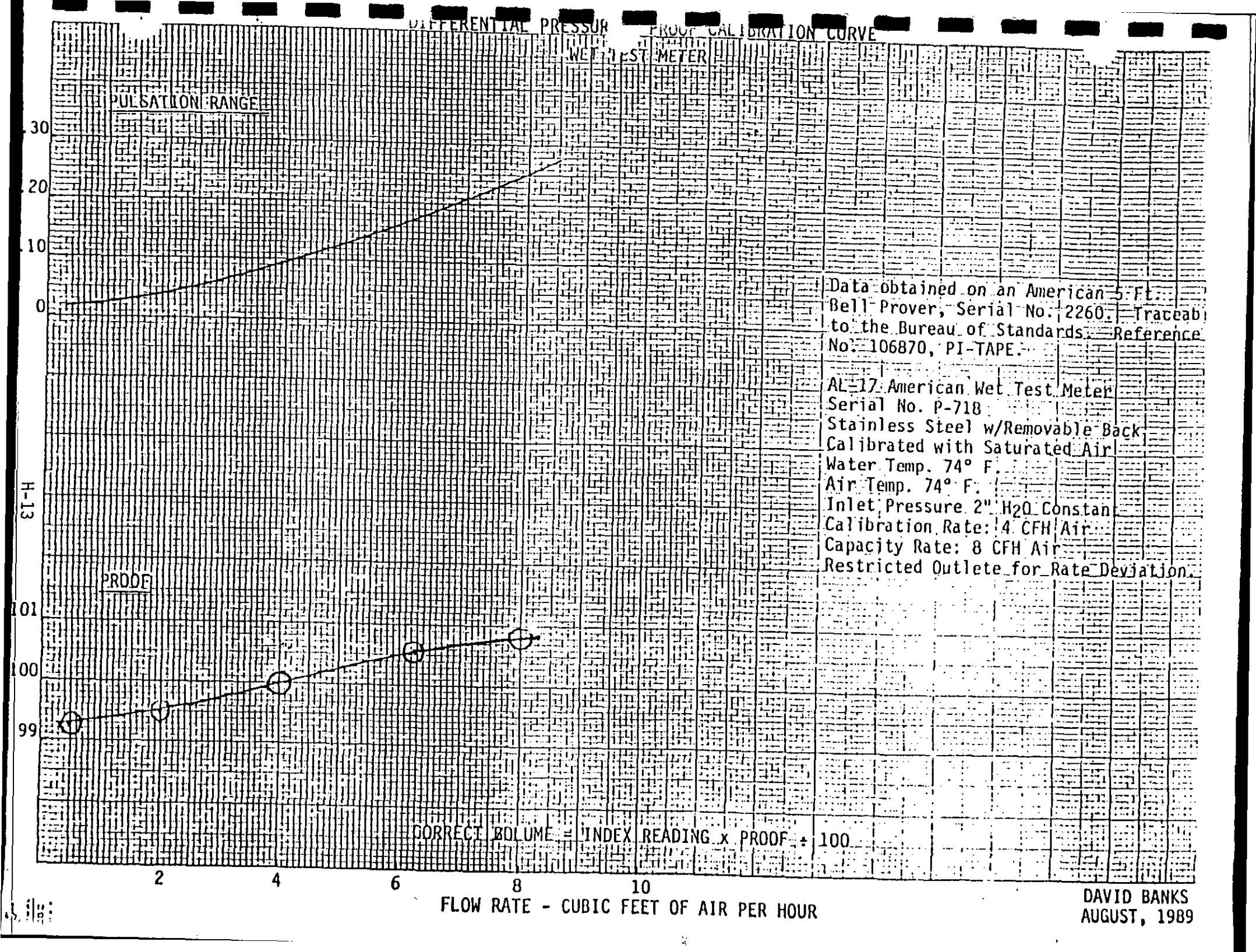
Meter was in tolerance ☒
Meter was not in tolerance ☐: readjusted linkage
Meter was not in tolerance ☐: changed dry test meters
Approved by _____ Date _____

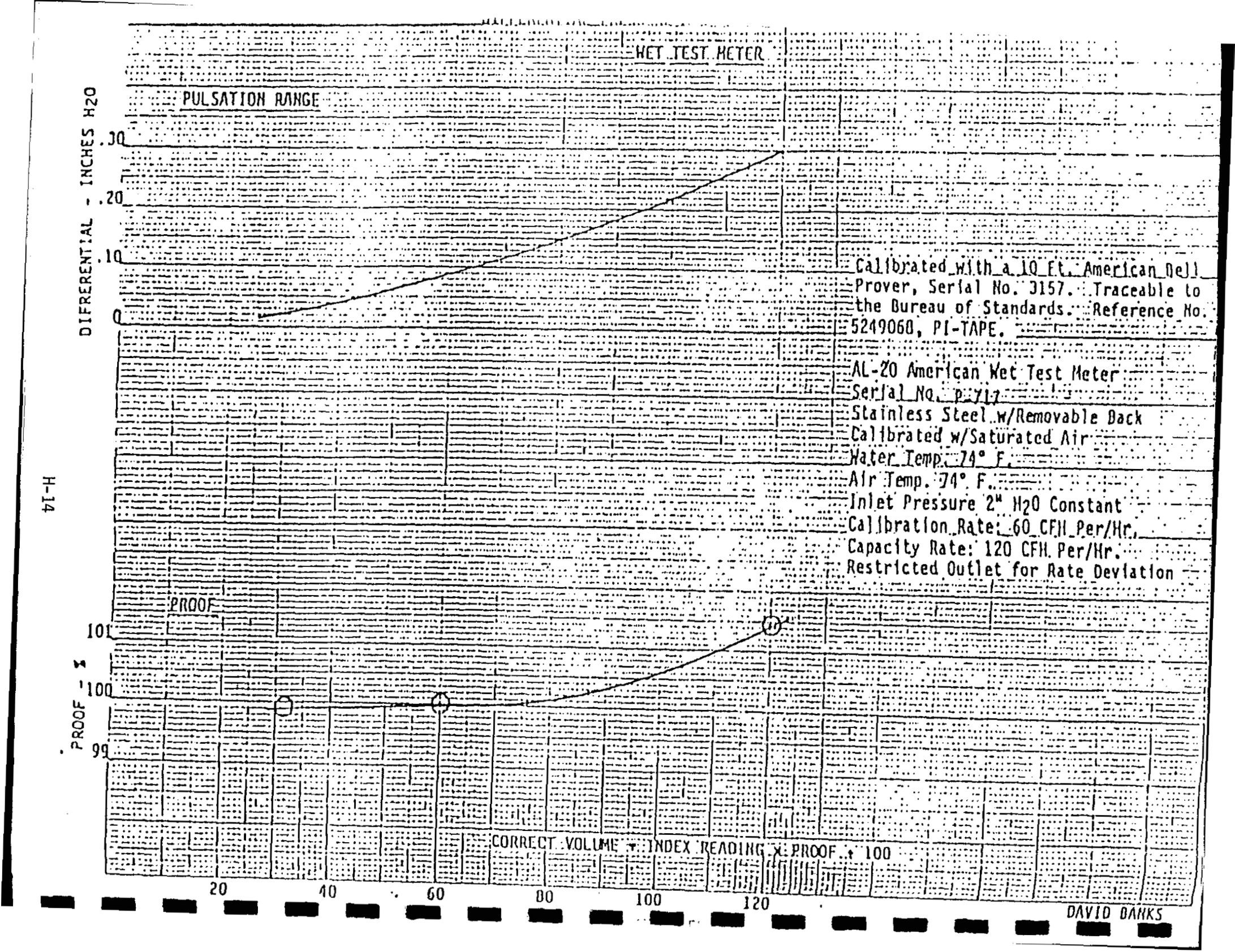
Gas Meter Bimetallic Therm. Calibration/Verification *
☐ ≥ ± 5°F (Out of control)
☒ ≤ ± 5°F (In control)

☐ Recalibrated _/_/_
☒ No action required

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

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


DIFFERENTIAL PRESSUR
PROOF CALIBRATION CURVE
WET TEST METER
PULSATION RANGE
30
20
10
0
H-13
PROOF
101
100
99
Data obtained on an American 5 Ft.
Bell Prover, Serial No. 2260. Traceab
to the Bureau of Standards. Reference
No. 106870, PI-TAPE.
AL-17 American Wet Test Meter
Serial No. P-718
Stainless Steel w/Removable Back
Calibrated with Saturated Air
Water Temp. 74° F.
Air Temp. 74° F.
Inlet Pressure 2" H2O Constan
Calibration Rate: 4 CFH Air
Capacity Rate: 8 CFH Air
Restricted Outlete for Rate Deviation.
CORRECT BOLUME = INDEX READING x PROOF ÷ 100
2
4
6
8
10
FLOW RATE - CUBIC FEET OF AIR PER HOUR
DAVID BANKS
AUGUST, 1989


WET TEST METER
PULSATION RANGE
DIFRENTIAL - INCHES H2O
.30
.20
.10
0
Calibrated with a 10 Ft. American Bell Prover, Serial No. 3157. Traceable to the Bureau of Standards. Reference No. 5249060, PI-TAPE.
AL-20 American Wet Test Meter
Serial No. P 717
Stainless Steel w/Removable Back
Calibrated w/Saturated Air
Water Temp. 74° F.
Air Temp. 74° F.
Inlet Pressure 2" H2O Constant
Calibration Rate: 60 CFH Per/Hr.
Capacity Rate: 120 CFH Per/Hr.
Restricted Outlet for Rate Deviation
PROOF
101
100
99
PROOF - %
CORRECT VOLUME = INDEX READING X PROOF ÷ 100
20
40
60
80
100
120
DAVID BANKS

Interpoll Laboratories, Inc.
(612) 786-6020

Nozzle Calibration
Data Sheet

Date of Calibration: 10-25-95 Nozzle Number 1-3
Technician: Scott Fjelsta

The nozzle is rotated in 60 degree increments and the diameter at each point is measured to the nearest 0.001 inch. The observed readings and average are shown below.

Position	Diameter (inches)
1	.190
2	.190
3	.190
Average:	.190

Interpoll Laboratories, Inc.
(612) 786-6020

Nozzle Calibration
Data Sheet

Date of Calibration: 10-25-95 Nozzle Number 7-4
Technician: Duane Van Hoever

The nozzle is rotated in 60 degree increments and the diameter at each point is measured to the nearest 0.001 inch. The observed readings and average are shown below.

Position	Diameter (inches)
1	.248
2	.248
3	.248
Average:	.248

Interpoll Laboratories, Inc.

Temperature Measurement Device Calibration Sheet

Unit under test:
Vendor Omega
Model HH 81 Serial Number PDT #35
Range -160°C – 1372°C °F Thermocouple Type K
Date of Calibration 7/26/95 Technician D. Van Hoever

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		1	1	.22
100		101	1	.18
200		203	3	.45
300		302	2	.26
400		402	2	.23
500		502	2	.21
600		603	3	.28
700		703	3	.26
800		805	5	.40
900		903	3	.22
1000		1004	4	.27
1100		1102	2	.13
1200		1204	4	.24
1300		1303	3	.17
1400		1406	6	.32
1500		1503	3	.15
1600		1606	6	.26
1700		1705	5	.23
1800		1807	7	.31
1900		1904	4	.17
2000		2005	5	.20
2100		2102	2	.08
		Averages:		.22

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.

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

Temperature Measurement Device Calibration Sheet

Unit Under Test:

Vendor: OMEGA
Model: HH81
Range: 0-2200 °F
Date of Calibration: 9-22-95
Serial Number:
Thermocouple Type: K
Technician: S. FJELSTA
PDT No.: 40

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)	(%)
0	0	-3	3	.652
100	100	98	2	.357
200	200	200	0	0.00
300	300	298	2	.263
400	400	398	2	.233
500	500	499	1	.104
600	600	601	1	.094
700	700	699	1	.086
800	800	802	2	.159
900	900	900	0	0.00
1000	1000	1001	1	.068
1100	1100	1100	0	0.00
1200	1200	1201	1	.060
1300	1300	1299	1	.057
1400	1400	1402	2	.108
1500	1500	1501	1	.051
1600	1600	1603	3	.146
1700	1700	1701	1	.046
1800	1800	1803	3	.133
1900	1900	1901	1	.043
2000	2000	2001	1	.041
2100	2100	2099	1	.039
		Averages:	1.36	0.124

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.

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Interpoll Laboratories, Inc.
(612) 786-6020

S-Type Pitot Tube Inspection Sheet

Pitot Tube No. 23-8

Pitot tube dimensions:

1. External tubing diameter (D_t) .316 IN.
2. Base to Side A opening plane (P_A) .760 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" .03
9. W <.0625" .02

Distance from Pitot to Probe Components:

10. Pitot to 0.500 IN. nozzle .760 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: 4-8-94

Inspected by: [signature]

CFR Title 40 Part 60 Appenidix A Method 2

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Interpoll Laboratories, Inc.
(612) 786-6020

S-Type Pitot Tube Inspection Sheet

Pitot Tube No. 24-6

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" .02
9. W <.0625" 0

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) .750 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:

4-8-94

Inspected by:

CFR Title 40 Part 60 Appenidix A Method 2

S-348

INTERPOLL LABORATORIES, INC.
(612) 786-6020

Stack Sampling Department - QA
Aneroid Barometer Calibration Sheet

Date 9-22-95
Technician E. TROWBRIDGE
Mercury Column Barometer No.
Aneroid Barometer No. 01002007

Actual Mercury Barometer Read	Ambient Temp.	Temperature Correction Factor	Adjusted Mercury Barometer Read	Initial Aneroid Barometer Read	Difference (P_{ba} - P_{bm})
29.45	74	.121	29.33	29.32	.01

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

Has problem been alleviated? Yes/No. How? No

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. Aneroid barometer will be calibrated to the adjusted mercury barometer readings.

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INTERPOLL LABORATORIES, INC.
(612) 786-6020

Stack Sampling Department - QA
Aneroid Barometer Calibration Sheet

Date 7/26/95
Technician D. Van Hoeven
Mercury Column Barometer No. 26121L
Aneroid Barometer No. DVH 5

Actual Mercury Barometer Read	Ambient Temp.	Temperature Correction Factor	Adjusted Mercury Barometer Read	Initial Aneroid Barometer Read	Difference (P_{ba} - P_{bm})
29.12	88	.155	28.965	28.93	.035

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

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. Aneroid barometer will be calibrated to the adjusted mercury barometer readings.

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