Note: This is a reference cited in *AP 42, Compilation of Air Pollutant Emission Factors, Volume I Stationary Point and Area Sources.* AP42 is located on the EPA web site at www.epa.gov/ttn/chief/ap42/

The file name refers to the reference number, the AP42 chapter and section. The file name "ref02_c01s02.pdf" would mean the reference is from AP42 chapter 1 section 2. The reference may be from a previous version of the section and no longer cited. The primary source should always be checked.

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RESULTS OF THE MARCH 24 - 28, 1992 EPA-AIR EMISSION COMPLIANCE TESTS AT THE LOUISIANA-PACIFIC PLANT IN CORRIGAN, TEXAS

Submitted to:

LOUISIANA-PACIFIC CORPORATION
P.O. Box 3107
Conroe, Texas 77305

Attention:

Dr. Jim Boswell
Director of Environmental Control

Approved by:



Daniel J. Despen
Manager
Field Testing Support Group

Report Number 2-3532
May 18, 1992
SP/slp

Source category: Reconstituted wood products Date:
Plant name : Louisiana-Pacific Location:
Test date : Ref. No.:
Process : OSB Basis for process rate :

Source	Type of control	Pollutant	Run No.	Emission rate, lb/hr	Process rate, ton/hr	Emission factor kg/Mg	Emission factor lb/ton
		cond. inorg. PM	1	0.36	7.80	0.23	0.047
		cond. inorg. PM	2	0.47	9.60	0.24	0.049
		cond. inorg. PM	3	0.83	9.10	0.46	0.091
				AVERAGE		0.310	0.062
		cond. org. PM	1	0.63	7.80	0.41	0.081
		cond. org. PM	2	0.65	9.60	0.34	0.067
		cond. org. PM	3	0.81	9.10	0.45	0.090
				AVERAGE		0.397	0.079
		formaldehyde	1	0.1077	9.60	0.06	0.0112
		formaldehyde	2	0.1268	9.60	0.07	0.0132
		formaldehyde	3	0.1160	10.50	0.06	0.0110
				AVERAGE		0.0591	0.0118
		total hydrocarbon	1	0.1	8.70	0.06	0.01
		total hydrocarbon	2	0.1	10.00	0.06	0.01
		total hydrocarbon	3	0.1	7.00	0.08	0.02
				AVERAGE		0.07	0.01
Press vent Total	none	filt. PM	1	7.79	9.30	4.19	0.84
		filt. PM	2	9.11	8.40	5.42	1.08
		filt. PM	3	8.73	10.43	4.18	0.84
				AVERAGE		4.60	0.92
		cond. inorg. PM	1	0.65	9.30	0.35	0.070
		cond. inorg. PM	2	1.27	8.40	0.76	0.151
		cond. inorg. PM	3	1.23	10.43	0.59	0.118
				AVERAGE		0.566	0.113
		cond. org. PM	1	6.94	9.30	3.73	0.747
		cond. org. PM	2	6.85	8.40	4.08	0.816
		cond. org. PM	3	5.95	10.43	2.85	0.571
				AVERAGE		3.555	0.711
		formaldehyde	1	0.92	9.90	0.46	0.0929
		formaldehyde	2	0.78	8.40	0.46	0.0926
		formaldehyde	3	1.18	10.90	0.54	0.1082
				AVERAGE		0.4896	0.0979
		total hydrocarbon	1	30.61	9.60	15.94	3.19
		total hydrocarbon	2	28.49	8.53	16.69	3.34
		total hydrocarbon	3	20.79	9.73	10.68	2.14
				AVERAGE		14.44	2.89
Exh. vent 8	none	filt. PM	1	3.71	9.60	1.93	0.39
		filt. PM	2	4.42	9.60	2.30	0.46

Source category: Reconstituted wood products Date:
Plant name : Louisiana-Pacific Location:
Test date : Ref. No.:
Process : OSB Basis for process rate :

Source	Type of control	Pollutant	Run No.	Emission rate, lb/hr	Process rate, ton/hr	Emission factor kg/Mg	Emission factor lb/ton
		filt. PM	3	4.41	10.50	2.10	0.42
		AVERAGE				2.11	0.42
		cond. inorg. PM	1	0.48	9.60	0.25	0.050
		cond. inorg. PM	2	0.21	9.60	0.11	0.022
		cond. inorg. PM	3	0.33	10.50	0.16	0.031
		AVERAGE				0.171	0.034
		cond. org. PM	1	1.43	9.60	0.74	0.149
		cond. org. PM	2	1.30	9.60	0.68	0.136
		cond. org. PM	3	0.85	10.50	0.41	0.081
		AVERAGE				0.609	0.122
		formaldehyde	1	0.1085	7.80	0.07	0.0139
		formaldehyde	2	0.1012	9.60	0.05	0.0105
		formaldehyde	3	0.1383	9.10	0.08	0.0152
		AVERAGE				0.0661	0.0132

CORRIGAN

Source category: Reconstituted wood products
Plant name : Louisiana-Pacific
Test date :
Process : OSB

Date:
Location:
Ref. No.: (4)
Basis for process rate :

Source	Type of control	Pollutant	Run No.	Emission rate, lb/hr	Process rate, ton/hr	Emission factor kg/Mg	Emission factor lb/ton
Dryer No. 1	Unknown	filt. PM	1	15.23	7.65	1.00	1.99
		filt. PM	2	16.84	7.20	1.17	2.34
		filt. PM	3	13.09	7.20	0.91	1.82
				AVERAGE		1.02	2.05
		cond. inorg. PM		0.90	7.65	0.059	0.117
		cond. inorg. PM	2	0.85	7.20	0.059	0.117
		cond. inorg. PM	3	0.77	7.20	0.053	0.107
				AVERAGE		0.057	0.114
		cond. org. PM	1	4.92	7.65	0.322	0.644
		cond. org. PM	2	4.12	7.20	0.286	0.572
		cond. org. PM	3	4.06	7.20	0.282	0.564
				AVERAGE		0.297	0.593
		PM-10	1	18.90	6.75	1.40	2.80
		PM-10	2	16.69	6.75	1.24	2.47
		PM-10	3	23.21	7.50	1.55	3.09
				AVERAGE		1.39	2.79
		cond. inorg. PM	1	0.76	6.75	0.056	0.113
		cond. inorg. PM	2	0.47	6.75	0.035	0.070
		cond. inorg. PM	3	1.54	7.50	0.103	0.206
				AVERAGE		0.065	0.129
		cond. org. PM	1	0.99	6.75	0.073	0.146
		cond. org. PM	2	1.12	6.75	0.083	0.166
		cond. org. PM	3	2.08	7.50	0.139	0.277
				AVERAGE		0.098	0.197
		Total cond. PM	1	1.75	6.75	0.129	0.259
		Total cond. PM	2	1.60	6.75	0.118	0.237
		Total cond. PM	3	3.62	7.50	0.242	0.483
				AVERAGE		0.163	0.326
		CO	1	51	6.75	3.78	7.6
		CO	2	33	7.50	2.20	4.4
		CO	3	25	6.75	1.85	3.70
		CO	4	35	6.75	2.59	5.19
		CO	5	30	6.75	2.22	4.44
		CO	6	24	6.75	1.78	3.56
		CO	7	17	7.65	1.11	2.22
		CO	8	16	7.20	1.11	2.22
		CO	9	14	7.20	0.97	1.94
				AVERAGE		1.96	3.91

THC REPORTED AS CARBON

NEW PM-10 CONV

M201A/202 @ stack temp

Source category: Reconstituted wood products Date:
Plant name : Louisiana-Pacific Location:
Test date : Ref. No.:
Process : OSB Basis for process rate :

Source	Type of control	Pollutant	Run No.	Emission rate, lb/hr	Process rate, ton/hr	Emission factor kg/Mg	Emission factor lb/ton
		CO2	1	4,033	6.75	299	597
		CO2	2	3,607	7.50	240	481
		CO2	3	3,710	6.75	275	550
		CO2	4	5,688	6.75	421	843
		CO2	5	5,485	6.75	406	813
		CO2	6	6,085	6.75	451	902
		CO2	7	4,343	7.65	284	568
		CO2	8	4,908	7.20	341	682
		CO2	9	5,268	7.20	366	732
				AVERAGE		343	685
		formaldehyde	1	0.6314	6.75	0.0468	0.0935
		formaldehyde	2	0.2187	6.75	0.016	0.0324
		formaldehyde	3	0.0724	6.75	0.005	0.0107
				AVERAGE		0.0228	0.0456
AS CARBON	53.1 lb/hr	total hydrocarbon	1	49.4	6.75	3.66	7.32
		total hydrocarbon	2	47.6	6.75	3.53	7.05
		total hydrocarbon	3	62.2	6.75	4.61	9.21
				AVERAGE		3.93	7.86
Dryer No. 2A	Multiclone	filt. PM	1	9.83	6.45	0.76	1.52
		filt. PM	2	6.35	7.50	0.42	0.85
				AVERAGE		0.59	1.19
		cond. inorg. PM	1	1.97	6.45	0.153	0.305
		cond. inorg. PM	2	1.95	7.50	0.130	0.260
				AVERAGE		0.141	0.283
		cond. org. PM	1	6.24	6.45	0.484	0.967
		cond. org. PM	2	3.27	7.50	0.218	0.436
				AVERAGE		0.351	0.702
		PM-10	1	7.80	6.30	0.62	1.24
		PM-10	2	11.15	6.45	0.86	1.73
		PM-10	3	7.52	6.60	0.57	1.14
				AVERAGE		0.68	1.37
		cond. inorg. PM	1	0.86	6.30	0.068	0.136
		cond. inorg. PM	2	0.88	6.45	0.068	0.137
		cond. inorg. PM	3	0.58	6.60	0.044	0.089
				AVERAGE		0.060	0.121
		cond. org. PM	1	1.18	6.30	0.093	0.187
		cond. org. PM	2	1.41	6.45	0.110	0.219
		cond. org. PM	3	1.02	6.60	0.077	0.155

Source category: Reconstituted wood products
Plant name : Louisiana-Pacific
Test date :
Process : OSB

Date:
Location:
Ref. No.:
Basis for process rate :

Source	Type of control	Pollutant	Run No.	Emission rate, lb/hr	Process rate, ton/hr	Emission factor kg/Mg	Emission factor lb/ton
		AVERAGE				0.093	0.187
		CO	1	21	6.30	1.68	3.4
		CO	2	15	6.45	1.15	2.3
		CO	3	15	6.60	1.15	2.30
		CO	4	12	6.45	0.90	1.80
		CO	5	14	7.50	0.95	1.89
		AVERAGE				1.17	2.33
		CO2	1	3,477	6.30	276	552
		CO2	2	3,473	6.45	269	538
		CO2	3	3,348	6.60	254	507
		CO2	4	3,083	6.45	239	478
		CO2	5	3,178	7.50	212	424
		AVERAGE				250	500
		total hydrocarbon	1	23.4	6.30	1.86	3.71
		total hydrocarbon	2	26.9	6.60	2.04	4.08
		total hydrocarbon	3	21.5	6.75	1.59	3.19
		AVERAGE				1.83	3.66
Dryer No. 2B	Multiclone	filt. PM	1	7.63	6.30	0.61	1.21
		filt. PM	2	6.35	7.50	0.42	0.85
		AVERAGE				0.51	1.03
		cond. inorg. PM	1	1.11	6.30	0.088	0.176
		cond. inorg. PM	2	1.00	7.50	0.066	0.133
		AVERAGE				0.077	0.154
		cond. org. PM	1	2.31	6.30	0.184	0.367
		cond. org. PM	2	2.11	7.50	0.140	0.281
		AVERAGE				0.162	0.324
		CO	1	20	6.30	1.60	3.2
		CO	2	17	6.60	1.31	2.6
		CO	3	14	6.75	1.00	2.01
		CO	4	12	6.30	0.95	1.90
		CO	5	11	7.50	0.70	1.41
		AVERAGE				1.11	2.23
		CO2	1	3,218	6.30	255	511
		CO2	2	3,347	6.60	254	507
		CO2	3	3,342	6.75	248	495
		CO2	4	3,454	6.30	274	548
		CO2	5	3,443	7.50	230	459
		AVERAGE				252	504

Source category: Reconstituted wood products
Plant name : Louisiana-Pacific
Test date :
Process : OSB

Date:
Location:
Ref. No.:
Basis for process rate :

Source	Type of control	Pollutant	Run No.	Emission rate, lb/hr	Process rate, ton/hr	Emission factor kg/Mg	Emission factor lb/ton
		formaldehyde	1	0.0783	6.30	0.0062	0.0124
		formaldehyde	2	0.2425	6.60	0.018	0.0367
		formaldehyde	3	0.1460	6.75	0.011	0.0216
		AVERAGE				0.0118	0.0236
Dryer No. 2 total	Multiclone	filt. PM	1	17.47	6.38	1.37	2.74
		filt. PM	2	12.70	7.50	0.85	1.69
		AVERAGE				1.11	2.22
		cond. inorg. PM	1	3.08	6.38	0.241	0.483
		cond. inorg. PM	2	2.94	7.50	0.196	0.393
		AVERAGE				0.219	0.438
		cond. org. PM	1	8.56	6.38	0.671	1.342
		cond. org. PM	2	5.38	7.50	0.359	0.717
		AVERAGE				0.515	1.030
		PM-10	1	15.61	6.30	1.239	2.477
		PM-10	2	22.31	6.45	1.729	3.459
		PM-10	3	15.05	6.60	1.140	2.280
		AVERAGE				1.369	2.739
		cond. inorg PM	1	1.72	6.30	0.136	0.273
		cond. inorg PM	2	1.76	6.45	0.137	0.273
		cond. inorg PM	3	1.17	6.60	0.089	0.177
		AVERAGE				0.121	0.241
		cond. org. PM	1	2.35	6.30	0.187	0.374
		cond. org. PM	2	2.83	6.45	0.219	0.439
		cond. org. PM	3	2.04	6.60	0.155	0.310
		AVERAGE				0.187	0.374
		Total cond. PM	1	4.07	6.30	0.323	0.646
		Total cond. PM	2	4.59	6.45	0.356	0.712
		Total cond. PM	3	3.21	6.60	0.243	0.487
		AVERAGE				0.308	0.615
		CO	1	41.29	6.30	3.28	6.6
		CO	2	32.09	6.53	2.46	4.9
		CO	3	28.74	6.68	2.15	4.31
		CO	4	23.61	6.38	1.85	3.70
		CO	5	24.78	7.50	1.65	3.30
		AVERAGE				2.28	4.56
		CO2	1	6,695	6.30	531	1,063
		CO2	2	6,820	6.53	523	1,045
		CO2	3	6,690	6.68	501	1,002

Source category: Reconstituted wood products Date:
Plant name : Louisiana-Pacific Location:
Test date : Ref. No.:
Process : OSB Basis for process rate :

Source	Type of control	Pollutant	Run No.	Emission rate, lb/hr	Process rate, ton/hr	Emission factor kg/Mg	Emission factor lb/ton
		CO2	4	6,537	6.38	513	1,025
		CO2	5	6,621	7.50	441	883
				AVERAGE		502	1,004
		formaldehyde	1	0.1565	6.30	0.0124	0.0248
		formaldehyde	2	0.4850	6.60	0.037	0.0735
		formaldehyde	3	0.2919	6.75	0.022	0.0432
				AVERAGE		0.0236	0.0472
		THC	1	46.8000	6.30	3.7143	7.4286
		THC	2	53.8000	6.60	4.076	8.1515
		THC	3	43.0000	6.75	3.185	6.3704
				AVERAGE		3.6584	7.3168
Dryer No. 3	Multiclone	filt. PM	1	7.92	6.00	0.66	1.32
		filt. PM	2	8.18	6.00	0.68	1.36
		filt. PM	3	7.16	5.70	0.63	1.26
				AVERAGE		0.66	1.31
		cond. inorg. PM	1	0.71	6.00	0.059	0.118
		cond. inorg. PM	2	0.52	6.00	0.043	0.086
		cond. inorg. PM	3	1.20	5.70	0.105	0.210
				AVERAGE		0.069	0.138
		cond. org. PM	1	1.82	6.00	0.151	0.303
		cond. org. PM	2	1.81	6.00	0.151	0.302
		cond. org. PM	3	3.42	5.70	0.300	0.600
				AVERAGE		0.201	0.401
		PM-10	1	9.25	4.35	1.06	2.13
		PM-10	2	14.56	5.55	1.31	2.62
		PM-10	3	13.07	5.85	1.12	2.23
				AVERAGE		1.16	2.33
		cond. inorg. PM	1	0.72	4.35	0.082	0.164
		cond. inorg. PM	2	0.32	5.55	0.029	0.058
		cond. inorg. PM	3	1.09	5.85	0.093	0.187
				AVERAGE		0.068	0.137
		cond. org. PM	1	0.53	4.35	0.061	0.121
		cond. org. PM	2	0.95	5.55	0.085	0.170
		cond. org. PM	3	0.51	5.85	0.043	0.086
				AVERAGE		0.063	0.126
		Total cond. PM	1	1.24	4.35	0.143	0.286
		Total cond. PM	2	1.27	5.55	0.114	0.229
		Total cond. PM	3	1.60	5.85	0.137	0.273

Source category: Reconstituted wood products Date:
Plant name : Louisiana-Pacific Location:
Test date : Ref. No.:
Process : OSB Basis for process rate :

Source	Type of control	Pollutant	Run No.	Emission rate, lb/hr	Process rate, ton/hr	Emission factor kg/Mg	Emission factor lb/ton
				AVERAGE		0.131	0.263
		CO	1	44	4.35	5.05	10.1
		CO	2	29	5.55	2.58	5.2
		CO	3	31	5.85	2.67	5.34
		CO	4	43	4.35	4.90	9.80
		CO	5	29	5.55	2.60	5.21
		CO	6	34	6.15	2.73	5.45
		CO	7	42	6.00	3.47	6.94
		CO	8	38	6.00	3.21	6.42
		CO	9	45	5.70	3.91	7.81
				AVERAGE		3.46	6.92
		CO2	1	4,311	4.35	495	991
		CO2	2	3,775	5.55	340	680
		CO2	3	3,846	5.85	329	657
		CO2	4	4,328	4.35	498	995
		CO2	5	3,632	5.55	327	654
		CO2	6	3,447	6.15	280	560
		CO2	7	3,278	6.00	273	546
		CO2	8	4,107	6.00	342	685
		CO2	9	3,222	5.70	283	565
				AVERAGE		352	704
		formaldehyde	1	0.3154	4.35	0.0362	0.0725
		formaldehyde	2	0.1446	5.55	0.013	0.0261
		formaldehyde	3	0.3370	6.15	0.027	0.0548
				AVERAGE		0.0256	0.0511
	as carbon	total hydrocarbon	1	18.4	4.35	2.11	4.23
		total hydrocarbon	2	26.8	5.55	2.41	4.83
		total hydrocarbon	3	48.4	6.15	3.93	7.87
				AVERAGE		2.82	5.64
				lb/hr	MSF/hr	kg/MSM	lb/MSF
Press vent 4	none	filt. PM	1	2.42	9.60	1.26	0.25
		filt. PM	2	3.31	9.60	1.72	0.34
		filt. PM	3	3.56	10.50	1.70	0.34
				AVERAGE		1.56	0.31
		cond. inorg. PM	1	0.23	9.60	0.12	0.024
		cond. inorg. PM	2	0.11	9.60	0.06	0.012

Source category: Reconstituted wood products Date:
Plant name : Louisiana-Pacific Location:
Test date : Ref. No.:
Process : OSB Basis for process rate :

Source	Type of control	Pollutant	Run No.	Emission rate, lb/hr	Process rate, ton/hr	Emission factor kg/Mg	Emission factor lb/ton
		cond. inorg. PM	3	0.17	10.50	0.08	0.016
				AVERAGE		0.087	0.017
		cond. org. PM	1	3.13	9.60	1.63	0.326
		cond. org. PM	2	3.70	9.60	1.93	0.386
		cond. org. PM	3	2.23	10.50	1.06	0.212
				AVERAGE		1.540	0.308
		formaldehyde	1	0.3430	9.60	0.18	0.0357
		formaldehyde	2	0.3735	9.60	0.19	0.0389
		formaldehyde	3	0.5224	10.50	0.25	0.0498
				AVERAGE		0.2073	0.0415
		total hydrocarbon	1	14.7	9.60	7.66	1.53
		total hydrocarbon	2	19.9	9.60	10.36	2.07
		total hydrocarbon	3	9.1	10.50	4.32	0.86
				AVERAGE		7.45	1.49
Press vent 3	none	filt. PM	1	3.77	10.50	1.79	0.36
		filt. PM	2	3.84	6.00	3.20	0.64
		filt. PM	3	3.39	11.70	1.45	0.29
				AVERAGE		2.15	0.43
		cond. inorg. PM	1	0.06	10.50	0.03	0.005
		cond. inorg. PM	2	0.69	6.00	0.57	0.115
		cond. inorg. PM	3	0.23	11.70	0.10	0.020
				AVERAGE		0.233	0.047
		cond. org. PM	1	3.18	10.50	1.51	0.302
		cond. org. PM	2	2.50	6.00	2.08	0.417
		cond. org. PM	3	2.91	11.70	1.24	0.249
				AVERAGE		1.613	0.323
		formaldehyde	1	0.4692	10.50	0.22	0.0447
		formaldehyde	2	0.2778	6.00	0.23	0.0463
		formaldehyde	3	0.5409	11.70	0.23	0.0462
				AVERAGE		0.2287	0.0457
		total hydrocarbon	1	15.8	10.50	7.52	1.50
		total hydrocarbon	2	8.5	6.00	7.05	1.41
		total hydrocarbon	3	11.6	11.70	4.96	0.99
				AVERAGE		6.51	1.30
Press vent 2	none	filt. PM	1	1.60	7.80	1.03	0.21
		filt. PM	2	1.97	9.60	1.03	0.21
		filt. PM	3	1.78	9.10	0.98	0.20
				AVERAGE		1.01	0.20

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ABBREVIATIONS

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

Standard conditions are defined as 68 ^{o}F (20 ^{o}C) and 29.92 IN. of mercury pressure.

1 INTRODUCTION

During the period March 24 - 28, 1992 Interpoll Laboratories personnel conducted EPA-mandated air emission compliance tests at the Louisiana-Pacific Corporation (LP) Plant located in Corrigan, Texas. On-site testing was performed by Mark Kaehler, Duke Brennan, Curt Mosser, and Bob Aschenbach. Coordination between testing activities and plant operation was provided by Dr. Jim Boswell and Marty of LP. The test was witnessed by Jeffrey Burdette of IEA, who was representing the Environmental Protection Agency. Al Bandor of the Environmental Protection Agency (Denver) witnessed some of the tests.

The Louisiana-Pacific Corporation owns and operates a waferboard plant in Corrigan Texas. This plant operates an oil heater, three dryers and a fixed press. The exhaust gases from the thermal oil heater are vented through the No. 2 Dryer, this dryer has a split exhaust system (labeled 2A and 2B in this report). The No. 1 Dryer and the No. 3 Dryer each have their own stacks. The press gases are vented by three press vents and an exhaust fan vent.

Particulate evaluations were performed in accordance with EPA Methods 2-5, CFR Title 40, Part 60, Appendix A (revised July 1, 1991). A preliminary determination of the gas linear velocity profile was made before the first particulate determination at each test site to allow selection of the appropriate nozzle diameter for isokinetic sample withdrawal. An Interpoll Labs sampling train which meets or exceeds specifications in the above-cited reference was used to isokinetically extract particulate samples by means of a heated glass-lined probe. Wet catch samples were collected in the back half of the Method 5 sampling train in accordance with EPA Method 202 to determine total condensible organic and inorganic compounds. Yaw angle determinations were performed in accordance with EPA Method 1, Section 2.4 using an S-Type pitot tube system which allows rotation of the pitot tube on its long axis for nulling and measurement of the yaw angle.

PM-10 determinations were performed in accordance with EPA Method 201A (Ibid, Part 51, Appendix M). An Interpoll Labs sampling train which meets or exceeds specifications in the above-cited reference was used to extract PM-10 samples by means of an Anderson PM-10 cyclone and a stainless steel probe. The cyclone used in this work meets or exceeds the specifications of Method 201A. Velocity pressure measurements were made during each run to determine the proper dwell times at each traverse point.

Formaldehyde samples were collected in accordance with EPA Draft Method 0011 (SW 846 3rd Ed.). The samples were collected isokinetically using a Method 5 sampling train with an aqueous acidic 2,4-dinitrophenylhydrazine absorbing solution and analyzed by high performance liquid chromatography.

Total gaseous hydrocarbon concentrations were determined instrumentally using a Ratfisch Model RS 55 heated flame ionization detector (HFID) calibrated against propane in air standards. The THC concentration was continuously monitored by extracting a slipstream of exhaust gas by means of a heated probe and filter holder. A heat-traced teflon line was used to transport the sample gas from the filter holder outlet to the analyzer inlet.

Carbon monoxide determinations were performed in accordance with EPA Method 10 (Ibid). Concentrations were determined using a non-dispersive infrared (NDIR) continuous emission monitor.

Testing on the No. 1 Dryer was conducted from two test ports oriented at 90 degrees on the stack. The test ports are located greater than 8 stack diameters downstream of the nearest flow disturbance and greater than 2 stack diameters upstream of the stack exit. A 12-point traverse was used to isokinetically collect the particulate and formaldehyde samples. Each traverse point was sampled five minutes to give a total sampling time of sixty minutes per run. The PM-10 run times varied

from 85.2 to 93.5 minutes. A yaw angle determination was performed prior to sampling. The average of the absolute value was found to be 1° which meets the EPA specifications of less than 20°.

Testing on the No. 2A and 2B Dryer was conducted from two test ports oriented at 90 degrees on the stack. The test ports are located 4.9 diameters downstream of the nearest flow disturbance and greater than five diameters upstream of the stack exit. A 24-point traverse was used at each test site to isokinetically collect the particulate and formaldehyde samples. Each traverse point was sampled 2.5 minutes to give a total sampling time of sixty minutes per run. The PM-10 run times varied from 84.4 to 93.6 minutes.

Testing on the No. 3 Dryer was conducted from two test ports oriented at 90 degrees on the stack. The test ports are located 6.1 diameters downstream of the nearest flow disturbance and greater than five diameters upstream of the stack exit. A 12-point traverse was used to isokinetically collect the particulate and formaldehyde samples. Each traverse point was sampled 5 minutes to give a total sampling time of sixty minutes per run. The PM-10 run times varied from 83.5 to 86.0 minutes. A yaw angle determination was performed prior to sampling. The average absolute value was found to be < 1° which meets the EPA specifications of less than 20°.

Testing on the No. 2, 3, and 4 Press Vents and the No. 8 Exhaust Fan was conducted from two test ports oriented at 90 degrees on the stack. The test ports are located < 0.5 diameters downstream of the nearest flow disturbance (approved by the EPA) and 0.5 diameters upstream of the stack exit. A 24-point traverse was used at each test site to isokinetically collect the particulate and formaldehyde samples. Each traverse point was sampled 2.5 minutes to give a total sampling time of sixty minutes per run.

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 important results of the particulate and PM-10 emission compliance tests are summarized in Tables 1 - 11. An overview of the results is presented below:

	Emission Rates	
Source	Particulate (LB/HR)	PM-10 (LB/HR)
No. 1 Dryer	20.3	21.9
No. 2 Dryer	25.1[1]	22.1[2]
No. 3 Dryer	10.9	13.7
No. 2 Press Vent	3.03	NA
No. 3 Press Vent	6.85	NA
No. 4 Press Vent	6.29	NA
No. 8 Exhaust Fan	5.71	NA

1 - Result is the average of two runs each on the 2A and the 2B Stacks.

2 - Result extrapolated from the 2A PM-10 measurements and 2B vol. flows.

Carbon monoxide determinations were performed on the Nos 1-3 Dryers. the results of those determinations are summarized in Tables 12 - 15, and an overview provided below:

	Concentration	Emission rate
Source	(ppm,w)	(LB/HR)
No. 1 Dryer	145	27
No. 2 Dryer	174	30
No. 3 Dryer	242	37

Tables 16 - 17 summarize the results of the formaldehyde determinations. The average concentration and emission rates are summarized below:

Source	Concentration (ppm,w)	Emission rate (LB/HR)
No. 1 Dryer	1.5	0.31
No. 2 Dryer	1.7	0.32
No. 3 Dryer	1.6	0.27
No. 2 Press Vent	0.47	0.12
No. 3 Press Vent	1.6	0.43
No. 4 Press Vent	1.6	0.41
No. 8 Exhaust Fan	0.54	0.12

The results of the THC tests are summarized in Tables 18 - 19. The following table provides an overview:

Source	Concentration (ppmC,w)	Emission rate (LB/HR)
No. 1 Dryer	656	53.1
No. 2 Dryer	625	47.8
No. 3 Dryer	466	31.2
No. 2 Press Vent	26	2.5
No. 3 Press Vent	124	12.0
No. 4 Press Vent	159	14.5

No difficulties were encountered in the field by Interpoll Labs or in the laboratory evaluations of the samples which were conducted by Interpoll Labs. On the basis of this fact and a complete review of the entire 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 1. Summary of the Results of the March 24, 1992 Particulate Emission Test on the No. 1 Dryer at the Louisiana Pacific Plant Located in Corrigan, Texas.

ITEM		Run 1	Run 2	Run 3
Date of test		03-24-92	03-24-92	03-24-92
Time runs were done	(HRS)	1610/1712	1735/1838	1900/2002
Volumetric flow				
actual	(ACFM)	51613	52489	52112
standard	(DSCFM)	35149	35751	34885
Gas temperature	(DEG-F)	190	190	190
Moisture content	(%V/V)	15.72	15.75	17.19
Gas composition	(%V/V,dry)			
carbon dioxide		1.80	2.00	2.20
oxygen		18.90	18.70	18.70
nitrogen		79.30	79.30	79.10
Isokinetic variation	(%)	102.1	100.9	100.8
Particulate concentration				
actual	(GR/ACF)	.0476	.0485	.0401
standard	(GR/DSCF)	.0699	.0712	.0599
Part. emission rate	(LB/HR)	21.05	21.81	17.92

Note: Dry + Organic/Inorganic Wet Catch

Table 2. Summary of the Results of the March 25, 1992 Particulate Emission Test on the No. 2A Dryer at the Louisiana Pacific Plant Located in Corrigan, Texas.

ITEM		Run 1	Run 2
Date of test		03-25-92	03-25-92
Time runs were done	(HRS)	1615/1717	1825/1927
Volumetric flow			
actual	(ACFM)	23907	24205
standard	(DSCFM)	16040	15964
Gas temperature	(DEG-F)	201	200
Moisture content	(%V/V)	15.27	16.78
Gas composition	(%V/V,dry)		
carbon dioxide		2.80	2.90
oxygen		18.00	17.80
nitrogen		79.20	79.30
Isokinetic variation	(%)	98.7	101.1
Particulate concentration			
actual	(GR/ACF)	.0880	.0557
standard	(GR/DSCF)	0.131	.0845
Part. emission rate	(LB/HR)	18.04	11.57

Note: Dry + Organic/Inorganic Wet Catch

Table 3. Summary of the Results of the March 25, 1992 Particulate Emission Test on the No. 2B Dryer at the Louisiana Pacific Plant Located in Corrigan, Texas.

ITEM		Run 1	Run 2
Date of test		03-25-92	03-25-92
Time runs were done	(HRS)	1510/1612	1710/1848
Volumetric flow			
actual	(ACFM)	25149	25167
standard	(DSCFM)	16774	16717
Gas temperature	(DEG-F)	199	197
Moisture content	(%V/V)	16.06	16.62
Gas composition	(%V/V,dry)		
carbon dioxide		3.00	3.00
oxygen		17.90	17.80
nitrogen		79.10	79.20
Isokinetic variation	(%)	100.3	100.8
Particulate concentration			
actual	(GR/ACF)	.0513	.0438
standard	(GR/DSCF)	.0769	.0659
Part. emission rate	(LB/HR)	11.06	9.45

Note: Dry + Organic/Inorganic Wet Catch

Table 4. Summary of the Results of the March 26, 1992 Particulate Emission Test on the No. 3 Dryer at the Louisiana Pacific Plant Located in Corrigan, Texas.

ITEM	Run 1	Run 2	Run 3
Date of test	03-26-92	03-26-92	03-26-92
Time runs were done (HRS)	1555/1657	1725/1827	1900/2002
Volumetric flow			
actual (ACFM)	42034	42737	41460
standard (DSCFM)	29852	29917	29342
Gas temperature (DEG-F)	195	194	193
Moisture content (%V/V)	11.45	12.86	11.98
Gas composition (%V/V,dry)			
carbon dioxide	1.60	2.00	1.60
oxygen	19.30	18.80	19.20
nitrogen	79.10	79.20	79.20
Isokinetic variation (%)	97.4	100.8	100.2
Particulate concentration			
actual (GR/ACF)	.0290	.0287	.0331
standard (GR/DSCF)	.0408	.0410	.0468
Part. emission rate (LB/HR)	10.44	10.51	11.78

Note: Dry + Organic/Inorganic Wet Catch

Table 5. Summary of the Results of the March 27, 1992 Particulate Emission Test on the No. 4 Press Vent Stack at the Louisiana Pacific Plant Located in Corrigan, Texas.

ITEM		Run 1	Run 2	Run 3
Date of test		03-27-92	03-27-92	03-27-92
Time runs were done	(HRS)	915/1017	1100/1202	1242/1344
Volumetric flow				
actual	(ACFM)	50060	51836	52000
standard	(DSCFM)	48160	47970	48590
Gas temperature	(DEG-F)	85	95	98
Moisture content	(%V/V)	0.54	2.56	0.94
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	(%)	98.6	101.6	100.0
Particulate concentration				
actual	(GR/ACF)	.0135	.0160	.0134
standard	(GR/DSCF)	.0140	.0173	.0143
Part. emission rate	(LB/HR)	5.78	7.13	5.96

Note: Dry + Organic/Inorganic Wet Catch

Table 6. Summary of the Results of the March 27, 1992 Particulate Emission Test on the No. 3 Press Vent Stack at the Louisiana Pacific Plant Located in Corrigan, Texas.

ITEM		Run 1	Run 2	Run 3
Date of test		03-27-92	03-27-92	03-27-92
Time runs were done	(HRS)	1430/1532	1610/1712	1755/1857
Volumetric flow				
actual	(ACFM)	54441	57062	53077
standard	(DSCFM)	50592	53055	49555
Gas temperature	(DEG-F)	99	97	95
Moisture content	(%V/V)	1.40	1.61	1.62
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	(%)	99.9	100.0	100.1
Particulate concentration				
actual	(GR/ACF)	.0150	.0144	.0143
standard	(GR/DSCF)	.0161	.0154	.0154
Part. emission rate	(LB/HR)	7.00	7.02	6.53

Note: Dry + Organic/Inorganic Wet Catch

Table 7. Summary of the Results of the March 28, 1992 Particulate Emission Test on the No. 2 Press Vent at the Louisiana Pacific Plant Located in Corrigan, Texas.

ITEM		Run 1	Run 2	Run 3
Date of test		03-28-92	03-28-92	03-28-92
Time runs were done	(HRS)	1415/1517	1610/1719	1742/1845
Volumetric flow				
actual	(ACFM)	53416	57016	53092
standard	(DSCFM)	50446	53980	49976
Gas temperature	(DEG-F)	89	89	88
Moisture content	(%V/V)	1.37	1.18	1.87
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	(%)	98.9	99.4	101.0
Particulate concentration				
actual	(GR/ACF)	.00568	.00630	.00751
standard	(GR/DSCF)	.00601	.00666	.00799
Part. emission rate	(LB/HR)	2.60	3.08	3.42

Note: Dry + Organic/Inorganic Wet Catch

Table 8. Summary of the Results of the March 28, 1992 Particulate Emission Test on the No. 8 Exhaust Fan Stack at the Louisiana Pacific Plant Located in Corrigan, Texas.

ITEM		Run 1	Run 2	Run 3
Date of test		03-28-92	03-28-92	03-28-92
Time runs were done	(HRS)	830/ 932	1035/1137	1220/1322
Volumetric flow				
actual	(ACFM)	39353	39640	38771
standard	(DSCFM)	38060	38180	37382
Gas temperature	(DEG-F)	74	76	76
Moisture content	(%V/V)	1.78	1.92	1.69
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	(%)	100.6	99.9	99.8
Particulate concentration				
actual	(GR/ACF)	.0166	.0174	.0168
standard	(GR/DSCF)	.0172	.0181	.0174
Part. emission rate	(LB/HR)	5.62	5.93	5.59

Note: Dry + Organic/Inorganic Wet Catch

Table 9. Summary of the Results of the March 24, 1992 PM-10 Determinations on the No. 1 Dryer at the Louisiana Pacific Plant Located in Corrigan, Texas.

ITEM	Run 1	Run 2	Run 3
Date of test	03-24-92	03-24-92	03-24-92
Time runs were done (HRS)	930/1117	1200/1335	1437/1607
		0.0	0.0
Volumetric flow			
actual (ACFM)	53069	53874	53125
standard (DSCFM)	36719	37538	36033
Gas temperature (DEG-F)	186	187	189
Moisture content (%V/V)	14.94	14.21	16.22
Gas composition (%V/V,dry)			
carbon dioxide	1.60	1.40	1.50
oxygen	19.10	19.40	19.25
nitrogen	79.30	79.20	79.25
Isokinetic variation (%)	95.5	98.0	104.0
PM-10 concentration.....			
actual.....(GR/ACF)	.0454	.0396	.0589
dry standard.....(GR/DSCF)	.0656	.0568	.0869
PM-10 mass rate.....(LB/HR)	20.65	18.29	26.83

Note: Dry + Organic/Inorganic Wet Catch

Table 10. Summary of the Results of the March 25, 1992 PM-10 Determinations on the No. 2A Dryer at the Louisiana Pacific Plant Located in Corrigan, Texas.

ITEM		Run 1	Run 2	Run 3
Date of test		03-25-92	03-25-92	03-25-92
Time runs were done	(HRS)	930/1101	1145/1316	1345/1523
Volumetric flow				
actual	(ACFM)	25634	25609	26300
standard	(DSCFM)	16883	16866	17418
Gas temperature	(DEG-F)	198	201	202
Moisture content	(%V/V)	17.22	16.91	16.29
Gas composition	(%V/V,dry)			
carbon dioxide		3.00	3.00	2.80
oxygen		17.90	17.80	18.00
nitrogen		79.10	79.20	79.20
Isokinetic variation	(%)	103.8	100.6	98.4
PM-10 concentration.....				
actual.....(GR/ACF)		.0448	.0613	.0405
dry standard.....(GR/DSCF)		.0680	.0931	.0611
PM-10 mass rate.....(LB/HR)		9.84	13.45	9.13

Note: Dry + Organic/Inorganic Wet Catch

see p. 58

Table 11. Summary of the Results of the March 25, 26, 1992 PM-10 Determinations on the No. 3 Dryer at the Louisiana Pacific Plant Located in Corrigan, Texas.

ITEM	Run 1	Run 2	Run 3
Date of test	03-26-92	03-26-92	03-26-92
Time runs were done (HRS)	915/1043	1130/1259	1333/1517
Volumetric flow			
actual (ACFM)	44992	44726	44992
standard (DSCFM)	31400	30550	31132
Gas temperature (DEG-F)	204	200	196
Moisture content (%V/V)	11.76	14.21	13.54
Gas composition (%V/V,dry)			
carbon dioxide	2.00	1.80	1.80
oxygen	18.90	18.90	19.00
nitrogen	79.10	79.30	79.20
Isokinetic variation (%)	87.7	94.6	88.7
PM-10 concentration.....			
actual.....(GR/ACF)	.0272	.0413	.0380
dry standard.....(GR/DSCF)	.0390	.0605	.0550
PM-10 mass rate.....(LB/HR)	10.49	15.83	14.67

Note: Dry + Organic/Inorganic Wet Catch

Table 12. Summary of the March 24, 1992 **Carbon Monoxide** Emission Compliance Test on the No. 1 Dryer at the Louisiana Pacific Plant in Corrigan, Texas.

Date	Time (HRS)	Volumetric Flow Rate (DSCFM)	Concentration (ppm,w)	Emission Rate (LB/HR)
03-24-92	0930-1117	36720	272	51
03-24-92	1200-1335	37540	172	33
03-24-92	1437-1607	36035	134	25
Avg		36765	193	36
03-24-92	0955-1100	37665	182	35
03-24-92	1200-1337	38050	155	30
03-24-92	1403-1506	36940	127	24
Avg		37552	155	30
03-24-92	1610-1712	35150	96	17
03-24-92	1735-1838	35750	88	16
03-24-92	1900-2002	34885	77	14
Avg		35262	87	16

Table 13. Summary of the March 25, 1992 Carbon Monoxide Emission Compliance Test on the No. 2A Dryer at the Louisiana Pacific Plant in Corrigan, Texas.

Date	Time (HRS)	Volumetric Flow Rate (DSCFM)	Concentration (ppm,w)	Emission Rate (LB/HR)
03-25-92	0930-1101	16885	238	21
03-25-92	1145-1316	16865	168	15
03-25-92	1345-1523	17420	167	15
Avg		17057	191	17
03-25-92	1615-1717	16040	141	12
03-25-92	1825-1927	15965	170	14
Avg		16003	156	13

Table 14. Summary of the March 25, 1992 Carbon Monoxide Emission Compliance Test on the No. 2B Dryer at the Louisiana Pacific Plant in Corrigan, Texas.

Date	Time (HRS)	Volumetric Flow Rate (DSCFM)	Concentration (ppm,w)	Emission Rate (LB/HR)
(No. 2B Dryer)				
03-25-92	0930-1034	16745	231	20
03-25-92	1115-1218	16815	198	17
03-25-92	1255-1401	16790	154	14
Avg		16783	194	17
03-25-92	1510-1612	16775	138	12
03-25-92	1710-1848	16720	121	11
Avg		16748	130	12

Table 15. Summary of the March 26, 1992 **Carbon Monoxide** Emission Compliance Test on the No. 3 Dryer at the Louisiana Pacific Plant in Corrigan, Texas.

Date	Time (HRS)	Volumetric Flow Rate (DSCFM)	Concentration (ppm,w)	Emission Rate (LB/HR)
03-26-92	0915-1043	31400	283	44
03-26-92	1130-1259	30550	184	29
03-26-92	1333-1517	31130	199	31
Avg		31027	222	35
03-26-92	0916-1030	31530	273	43
03-26-92	1130-1251	31125	184	29
03-26-92	1400-1506	31385	212	34
Avg		31347	223	35
03-26-92	1555-1657	29850	283	42
03-26-92	1725-1827	29920	257	38
03-26-92	1900-2002	29340	306	45
Avg		29703	282	42

Table 16. Summary of the March 24-27, 1992 Formaldehyde Emission Compliance Test at the Louisiana Pacific Plant in Corrigan, Texas.

Date	Time (HRS)	Volumetric Flow Rate (DSCFM)	Concentration (ppm,w)	Emission Rate (LB/HR)
(No. 1 Dryer)				
03-24-92	0955-1100	37665	3.09	0.631
03-24-92	1200-1327	38048	1.07	0.219
03-24-92	1403-1506	36936	0.36	0.072
Avg		37550	1.51	0.307
(No. 2B Dryer)				
03-25-92	0930-1034	16746	0.84	0.078
03-25-92	1115-1218	16813	2.60	0.243
03-25-92	1255-1401	16789	1.55	0.146
Avg		16783	1.66	0.156
(No. 3 Dryer)				
03-26-92	0916-1030	31528	1.89	0.315
03-26-92	1130-1251	31125	0.86	0.145
03-26-92	1400-1506	31385	1.99	0.337
Avg		31346	1.58	0.266
(No. 4 Press Vent)				
03-27-92	0915-1017	53375	1.36	0.343
03-27-92	1100-1202	53125	1.48	0.374
03-27-92	1240-1345	56125	1.97	0.522
Avg		54208	1.60	0.413

Table 17. Summary of the March 27-28, 1992 Formaldehyde Emission Compliance Test at the Louisiana Pacific Plant in Corrigan, Texas.

Date	Time (HRS)	Volumetric Flow Rate (DSCFM)	Concentration (ppm,w)	Emission Rate (LB/HR)
(No. 3 Press Vent)				
03-27-92	1430-1531	58593	1.66	0.463
03-27-92	1610-1711	59434	1.04	0.278
03-27-92	1755-1856	57919	1.97	0.541
Avg		58649	1.56	0.427
(No. 2 Press Vent)				
03-28-92	0830-0943	52402	0.43	0.108
03-28-92	1033-1136	51778	0.51	0.127
03-28-92	1220-1324	52472	0.46	0.116
Avg		52217	0.47	0.117
(No. 8 Exhaust Fan Vent)				
03-28-92	1416-1518	45156	0.49	0.109
03-28-92	1600-1702	43365	0.48	0.101
03-28-92	1742-1847	43426	0.66	0.138
Avg		43982	0.54	0.116

Table 18. Summary of the March 24-27, 1992 Total Hydrocarbon Determinations at the Louisiana Pacific Plant in Corrigan, Texas.

Date	Time (HRS)	Volumetric Flow Rate (DSCFM)	Concentration (ppmC,w)	Emission Rate (LB/HR)
(No. 1 Dryer)				
03-24-92	0955-1100	36720	612	49.4
03-24-92	1200-1327	37540	582	47.6
03-24-92	1403-1538	36035	774	62.2
Avg		36765	656	53.1
(No. 2A Dryer)				
03-25-92	0955-1100	16885	615	23.4
03-25-92	1115-1225	16865	708	26.9
03-25-92	1255-1401	17420	552	21.5
Avg		17057	625	23.9
(No. 3 Dryer)				
03-26-92	0916-1030	31400	276	18.4
03-26-92	1135-1251	30550	402	26.8
03-26-92	1400-1506	31130	720	48.4
Avg		31027	466	31.2
(No. 4 Press Vent)				
03-27-92	0915-1019	48160	162	14.7
03-27-92	1100-1202	47970	216	19.9
03-27-92	1240-1345	48590	99	9.07
Avg		48240	159	14.5

$\times 2 = 47.8$

Table 19. Summary of the March 27, 1992 Total Hydrocarbon Determinations at the Louisiana Pacific Plant in Corrigan, Texas.

Date	Time (HRS)	Volumetric Flow Rate (DSCFM)	Concentration (ppmC,w)	Emission Rate (LB/HR)
(No. 3 Press Vent)				
03-27-92	1430-1531	50590	165	15.8
03-27-92	1610-1711	53055	84	8.46
03-27-92	1755-1856	49555	123	11.6
Avg		51067	124	12.0
(No. 2 Press Vent)				
03-27-92	1033-1140	50445	30	2.86
03-27-92	1148-1251	53980	18	1.83
03-27-92	1303-1406	49975	30	2.83
Avg		51467	26	2.51

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, PM-10, carbon monoxide and formaldehyde 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
No. 1 Dryer Stack

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

	Run 1	Run 2	Run 3
Date of run	03-24-92	03-24-92	03-24-92
Dry basis (orsat)			
carbon dioxide.....	1.60	1.40	1.50
oxygen.....	19.10	19.40	19.25
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	79.30	79.20	79.25
Wet basis (orsat)			
carbon dioxide.....	1.36	1.20	1.26
oxygen.....	16.25	16.64	16.13
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	67.45	67.94	66.39
water vapor.....	14.94	14.21	16.22
Dry molecular weight.....	29.02	29.00	29.01
Wet molecular weight.....	27.37	27.44	27.22
Specific gravity.....	0.946	0.948	0.940
Water mass flow.....(LB/HR)	18096	17446	19571
FO	1.125	1.071	1.100

Test No. 2
No. 1 Dryer

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

	Run 1	Run 2	Run 3
Date of run	03-24-92	03-24-92	03-24-92
Dry basis (orsat)			
carbon dioxide.....	2.20	2.10	2.40
oxygen.....	18.50	18.70	18.30
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	79.30	79.20	79.30
Wet basis (orsat)			
carbon dioxide.....	1.89	1.82	2.04
oxygen.....	15.92	16.22	15.54
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	68.25	68.71	67.33
water vapor.....	13.93	13.25	15.10
Dry molecular weight.....	29.09	29.08	29.12
Wet molecular weight.....	27.55	27.62	27.44
Specific gravity.....	0.952	0.954	0.948
Water mass flow.....(LB/HR)	0.00	0.00	0.00
FO	1.091	1.048	1.083

Test No. 4
No. 1 Dryer Stack

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

	Run 1	Run 2	Run 3
Date of run	03-24-92	03-24-92	03-24-92
Dry basis (orsat)			
carbon dioxide.....	1.80	2.00	2.20
oxygen.....	18.90	18.70	18.70
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	79.30	79.30	79.10
Wet basis (orsat)			
carbon dioxide.....	1.52	1.68	1.82
oxygen.....	15.93	15.75	15.49
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	66.83	66.81	65.50
water vapor.....	15.72	15.75	17.19
Dry molecular weight.....	29.04	29.07	29.10
Wet molecular weight.....	27.31	27.32	27.19
Specific gravity.....	0.943	0.944	0.939
Water mass flow.....(LB/HR)	18391	18751	20310
FO	1.111	1.100	1.000

Test No. 5
No. 2A Dryer Stack

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

	Run 1	Run 2	Run 3
Date of run	03-25-92	03-25-92	03-25-92
Dry basis (orsat)			
carbon dioxide.....	3.00	3.00	2.80
oxygen.....	17.90	17.80	18.00
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	79.10	79.20	79.20
Wet basis (orsat)			
carbon dioxide.....	2.48	2.49	2.34
oxygen.....	14.82	14.79	15.07
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	65.48	65.80	66.30
water vapor.....	17.22	16.91	16.29
Dry molecular weight.....	29.20	29.19	29.17
Wet molecular weight.....	27.27	27.30	27.35
Specific gravity.....	0.942	0.943	0.945
Water mass flow.....(LB/HR)	9848	9631	9506
FO	1.000	1.033	1.036

Test No. 6
No. 28 Dryer Stack

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

	Run 1	Run 2	Run 3
Date of run	03-25-92	03-25-92	03-25-92
Dry basis (orsat)			
carbon dioxide.....	2.80	2.90	2.90
oxygen.....	17.80	17.80	17.70
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	79.40	79.30	79.40
Wet basis (orsat)			
carbon dioxide.....	2.35	2.44	2.41
oxygen.....	14.93	14.97	14.70
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	66.58	66.68	65.95
water vapor.....	16.14	15.92	16.94
Dry molecular weight.....	29.16	29.18	29.17
Wet molecular weight.....	27.36	27.40	27.28
Specific gravity.....	0.945	0.946	0.942
Water mass flow.....(LB/HR)	0.00	0.00	0.00
FO	1.107	1.069	1.103

Test No. 8
No. 2A Dryer Stack

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

	Run 1	Run 2
Date of run	03-25-92	03-25-92
Dry basis (orsat)		
carbon dioxide.....	2.80	2.90
oxygen.....	18.00	17.80
carbon monoxide.....	0.00	0.00
nitrogen.....	79.20	79.30
Wet basis (orsat)		
carbon dioxide.....	2.37	2.41
oxygen.....	15.25	14.81
carbon monoxide.....	0.00	0.00
nitrogen.....	67.10	66.00
water vapor.....	15.27	16.78
Dry molecular weight.....	29.17	29.18
Wet molecular weight.....	27.46	27.30
Specific gravity.....	0.949	0.943
Water mass flow.....(LB/HR)	8110	9026
FO	1.036	1.069

Test No. 9
No. 2B Dryer Stack

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

	Run 1	Run 2
Date of run	03-25-92	03-25-92
Dry basis (orsat)		
carbon dioxide.....	3.00	3.00
oxygen.....	17.90	17.80
carbon monoxide.....	0.00	0.00
nitrogen.....	79.10	79.20
Wet basis (orsat)		
carbon dioxide.....	2.52	2.50
oxygen.....	15.03	14.84
carbon monoxide.....	0.00	0.00
nitrogen.....	66.40	66.04
water vapor.....	16.06	16.62
Dry molecular weight.....	29.20	29.19
Wet molecular weight.....	27.40	27.33
Specific gravity.....	0.946	0.944
Water mass flow.....(LB/HR)	9001	9343
FO	1.000	1.033

Test No. 10
No. 3 Dryer Stack

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

	Run 1	Run 2	Run 3
Date of run	03-26-92	03-26-92	03-26-92
Dry basis (orsat)			
carbon dioxide.....	2.00	1.80	1.80
oxygen.....	18.90	18.90	19.00
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	79.10	79.30	79.20
Wet basis (orsat)			
carbon dioxide.....	1.76	1.54	1.56
oxygen.....	16.68	16.21	16.43
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	69.79	68.03	68.48
water vapor.....	11.76	14.21	13.54
Dry molecular weight.....	29.08	29.04	29.05
Wet molecular weight.....	27.77	27.47	27.55
Specific gravity.....	0.959	0.949	0.952
Water mass flow.....(LB/HR)	11743	14191	13674
FO	1.000	1.111	1.056

Test No. 11
No. 3 Dryer Stack

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

	4 Run 1	5 Run 2	6 Run 3
Date of run	03-26-92	03-26-92	03-26-92
Dry basis (orsat)			
carbon dioxide.....	2.00	1.70	1.60
oxygen.....	18.90	19.10	19.20
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	79.10	79.20	79.20
Wet basis (orsat)			
carbon dioxide.....	1.76	1.47	1.39
oxygen.....	16.66	16.49	16.62
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	69.71	68.39	68.56
water vapor.....	11.87	13.65	13.43
Dry molecular weight.....	29.08	29.04	29.02
Wet molecular weight.....	27.76	27.53	27.54
Specific gravity.....	0.959	0.951	0.951
Water mass flow.....(LB/HR)	0.00	0.00	0.00
FO	1.000	1.059	1.062

Test No. 13
No. 3 Dryer

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

	7 Run 1	8 Run 2	9 Run 3
Date of run	03-26-92	03-26-92	03-26-92
Dry basis (orsat)			
carbon dioxide.....	1.60	2.00	1.60
oxygen.....	19.30	18.80	19.20
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	79.10	79.20	79.20
Wet basis (orsat)			
carbon dioxide.....	1.42	1.74	1.41
oxygen.....	17.09	16.38	16.90
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	70.04	69.02	69.71
water vapor.....	11.45	12.86	11.98
Dry molecular weight.....	29.03	29.07	29.02
Wet molecular weight.....	27.77	27.65	27.70
Specific gravity.....	0.959	0.955	0.957
Water mass flow.....(LB/HR)	10826	12381	11204
FO	1.000	1.050	1.062

Test No. 14
No. 4 Press Vent Stack

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

	Run 1	Run 2	Run 3
Date of run	03-27-92	03-27-92	03-27-92
Dry basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.90	20.90	20.90
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	79.07	79.07	79.07
Wet basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.79	20.36	20.70
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	78.65	77.05	78.33
water vapor.....	0.54	2.56	0.94
Dry molecular weight.....	28.84	28.84	28.84
Wet molecular weight.....	28.78	28.56	28.74
Specific gravity.....	0.994	0.987	0.993
Water mass flow.....(LB/HR)	728	3535	1293
FO	0.000	0.000	0.000

Test No. 15
No. 4 Press Vent Stack

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

	Run 1	Run 2	Run 3
Date of run	03-27-92	03-27-92	03-27-92
Dry basis (orsat)			
carbon dioxide.....	0.00	0.00	0.00
oxygen.....	0.00	0.00	0.00
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	100.00	100.00	100.00
Wet basis (orsat)			
carbon dioxide.....	0.00	0.00	0.00
oxygen.....	0.00	0.00	0.00
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	98.67	98.97	99.32
water vapor.....	1.33	1.03	0.68
Dry molecular weight.....	28.00	28.00	28.00
Wet molecular weight.....	27.87	27.90	27.93
Specific gravity.....	0.963	0.964	0.965
Water mass flow.....(LB/HR)	0.00	0.00	0.00
FO	0.000	0.000	0.000

Test No. 17
No. 3 Press Vent Stack

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

	Run 1	Run 2	Run 3
Date of run	03-27-92	03-27-92	03-27-92
Dry basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.90	20.90	20.90
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	79.07	79.07	79.07
Wet basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.61	20.56	20.56
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	77.96	77.79	77.79
water vapor.....	1.40	1.61	1.62
Dry molecular weight.....	28.84	28.84	28.84
Wet molecular weight.....	28.69	28.67	28.66
Specific gravity.....	0.991	0.990	0.990
Water mass flow.....(LB/HR)	2012	2442	2296
FO	0.000	0.000	0.000

Test No. 18
No. 3 Press Vent Stack

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

	Run 1	Run 2	Run 3
Date of run	03-27-92	03-27-92	03-27-92
Dry basis (orsat)			
carbon dioxide.....	0.00	0.00	0.00
oxygen.....	0.00	0.00	0.00
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	100.00	100.00	100.00
Wet basis (orsat)			
carbon dioxide.....	0.00	0.00	0.00
oxygen.....	0.00	0.00	0.00
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	98.35	98.63	98.14
water vapor.....	1.65	1.37	1.86
Dry molecular weight.....	28.00	28.00	28.00
Wet molecular weight.....	27.83	27.86	27.81
Specific gravity.....	0.961	0.962	0.961
Water mass flow.....(LB/HR)	0.00	0.00	0.00
FO	0.000	0.000	0.000

Test No. 20
No. 8 Exhaust Fan Stack

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

	Run 1	Run 2	Run 3
Date of run	03-28-92	03-28-92	03-28-92
Dry basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.90	20.90	20.90
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	79.07	79.07	79.07
Wet basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.53	20.50	20.55
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	77.66	77.55	77.74
water vapor.....	1.78	1.92	1.69
Dry molecular weight.....	28.84	28.84	28.84
Wet molecular weight.....	28.65	28.63	28.66
Specific gravity.....	0.990	0.989	0.990
Water mass flow.....(LB/HR)	1932	2095	1798
FO	0.000	0.000	0.000

Test No. 21
No. 2 Press Vent Stack

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

	Run 1	Run 2	Run 3
Date of run	03-28-92	03-28-92	03-28-92
Dry basis (orsat)			
carbon dioxide.....	0.00	0.00	0.00
oxygen.....	0.00	0.00	0.00
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	100.00	100.00	100.00
Wet basis (orsat)			
carbon dioxide.....	0.00	0.00	0.00
oxygen.....	0.00	0.00	0.00
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	97.86	98.03	98.46
water vapor.....	2.14	1.97	1.54
Dry molecular weight.....	28.00	28.00	28.00
Wet molecular weight.....	27.79	27.80	27.85
Specific gravity.....	0.960	0.960	0.962
Water mass flow.....(LB/HR)	0.00	0.00	0.00
FO	0.000	0.000	0.000

Test No. 23
No. 2 Press Vent

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

Date of run	Run 1 03-28-92	Run 2 03-28-92	Run 3 03-28-92
Dry basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.90	20.90	20.90
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	79.07	79.07	79.07
Wet basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.61	20.65	20.51
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	77.99	78.14	77.59
water vapor.....	1.37	1.18	1.87
Dry molecular weight.....	28.84	28.84	28.84
Wet molecular weight.....	28.69	28.71	28.64
Specific gravity.....	0.991	0.992	0.989
Water mass flow.....(LB/HR)	1965	1804	2666
FO	0.000	0.000	0.000

Test No. 24
No. 8 Exhaust Fan Vent Stack

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

	Run 1	Run 2	Run 3
Date of run	03-28-92	03-28-92	03-28-92
Dry basis (orsat)			
carbon dioxide.....	0.00	0.00	0.00
oxygen.....	0.00	0.00	0.00
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	100.00	100.00	100.00
Wet basis (orsat)			
carbon dioxide.....	0.00	0.00	0.00
oxygen.....	0.00	0.00	0.00
carbon monoxide.....	0.00	0.00	0.00
nitrogen.....	97.75	98.53	98.99
water vapor.....	2.25	1.47	1.01
Dry molecular weight.....	28.00	28.00	28.00
Wet molecular weight.....	27.78	27.85	27.90
Specific gravity.....	0.959	0.962	0.964
Water mass flow.....(LB/HR)	0.00	0.00	0.00
FO	0.000	0.000	0.000

3.2 Results of Particulate Determinations

Test No. 4
No. 1 Dryer

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

	Run 1	Run 2	Run 3
Date of run	03-24-92	03-24-92	03-24-92
Time run start/end.....(HRS)	1610/1712	1735/1838	1900/2002
Static pressure.....(IN.WC)	-0.75	-0.75	-0.75
Cross sectional area (SQ.FT)	12.57	12.57	12.57
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	113.0	113.0	122.0
desiccant.....(GRAMS)	8.0	9.0	10.0
total.....(GRAMS)	121.0	122.0	132.0
Total particulate material..			
.....collected(grams)	0.1385	0.1419	0.1165
Gas meter coefficient.....	1.0010	1.0098	1.0010
Barometric pressure..(IN.HG)	29.83	29.83	29.83
Avg. orif.pres.drop..(IN.WC)	0.83	0.83	0.81
Avg. gas meter temp..(DEF-F)	81.9	84.7	81.7
Volume through gas meter....			
at meter conditions...(CF)	31.40	31.47	30.78
standard conditions.(DSCF)	30.59	30.76	29.99
Total sampling time....(MIN)	60.00	60.00	60.00
Nozzle diameter.....(IN)	.181	.181	.181
Avg.stack gas temp ..(DEG-F)	190	190	190
Volumetric flow rate.....			
actual.....(ACFM)	51613	52489	52112
dry standard.....(DSCFM)	35149	35751	34885
Isokinetic variation.....(%)	102.1	100.9	100.8
Particulate concentration...			
actual.....(GR/ACF)	0.04757	0.04846	0.04011
dry standard.....(GR/DSCF)	0.06987	0.07117	0.05995
Particle mass rate...(LB/HR)	21.051	21.809	17.925

Test No. 8
No. 2A Dryer Stack

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

	Run 1	Run 2
Date of run	03-25-92	03-25-92
Time run start/end.....(HRS)	1615/1717	1825/1927
Static pressure.....(IN.WC)	-1.50	-1.50
Cross sectional area (SQ.FT)	4.59	4.59
Pitot tube coefficient.....	.840	.840
Water in sample gas		
condenser.....(ML)	0.0	0.0
impingers.....(GRAMS)	134.0	147.0
desiccant.....(GRAMS)	9.0	16.0
total.....(GRAMS)	143.0	163.0
Total particulate material..		
.....collected (grams)	0.3180	0.2089
Gas meter coefficient.....	0.9991	0.9991
Barometric pressure..(IN.HG)	29.77	29.77
Avg. orif.pres.drop..(IN.WC)	1.39	1.43
Avg. gas meter temp..(DEF-F)	89.4	84.6
Volume through gas meter....		
at meter conditions...(CF)	39.03	39.44
standard conditions.(DSCF)	37.40	38.13
Total sampling time....(MIN)	60.00	60.00
Nozzle diameter.....(IN)	.182	.182
Avg.stack gas temp ..(DEG-F)	201	200
Volumetric flow rate.....		
actual.....(ACFM)	23907	24205
dry standard.....(DSCFM)	16040	15964
Isokinetic variation.....(%)	98.7	101.1
Particulate concentration...		
actual.....(GR/ACF)	0.08798	0.05573
dry standard.....(GR/DSCF)	0.13118	0.08454
Particle mass rate...(LB/HR)	18.04	11.57

Test No. 9
No. 2B Dryer Stack

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

	Run 1	Run 2
Date of run	03-25-92	03-25-92
Time run start/end.....(HRS)	1510/1612	1710/1848
Static pressure.....(IN.WC)	-1.30	-1.30
Cross sectional area (SQ.FT)	4.59	4.59
Pitot tube coefficient.....	.840	.840
Water in sample gas		
condenser.....(ML)	0.0	0.0
impingers.....(GRAMS)	147.0	154.0
desiccant.....(GRAMS)	16.0	16.0
total.....(GRAMS)	163.0	170.0
Total particulate material..		
.....collected (grams)	0.2002	0.1719
Gas meter coefficient.....	1.0010	1.0010
Barometric pressure..(IN.HG)	29.77	29.77
Avg. orif.pres.drop..(IN.WC)	1.46	1.45
Avg. gas meter temp..(DEF-F)	87.2	83.2
Volume through gas meter....		
at meter conditions...(CF)	41.67	41.42
standard conditions.(DSCF)	40.17	40.23
Total sampling time....(MIN)	60.00	60.00
Nozzle diameter.....(IN)	.183	.183
Avg.stack gas temp ..(DEG-F)	199	197
Volumetric flow rate.....		
actual.....(ACFM)	25149	25167
dry standard.....(DSCFM)	16774	16717
Isokinetic variation.....(%)	100.3	100.8
Particulate concentration...		
actual.....(GR/ACF)	0.05127	0.04378
dry standard.....(GR/DSCF)	0.07689	0.06594
Particle mass rate...(LB/HR)	11.06	9.45

Test No. 13
No. 3 Dryer

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

	Run 1	Run 2	Run 3
Date of run	03-26-92	03-26-92	03-26-92
Time run start/end.....(HRS)	1555/1657	1725/1827	1900/2002
Static pressure.....(IN.WC)	-0.70	-0.70	-0.70
Cross sectional area (SQ.FT)	9.39	9.39	9.39
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	82.0	99.0	81.0
desiccant.....(GRAMS)	11.0	11.0	18.0
total.....(GRAMS)	93.0	110.0	99.0
Total particulate material..			
.....collected(grams)	0.0897	0.0934	0.1041
Gas meter coefficient.....	0.9991	0.9991	0.9991
Barometric pressure..(IN.HG)	29.82	29.82	29.82
Avg. orif.pres.drop..(IN.WC)	1.18	1.26	1.20
Avg. gas meter temp..(DEF-F)	92.4	89.5	86.1
Volume through gas meter....			
at meter conditions...(CF)	35.55	36.64	35.53
standard conditions.(DSCF)	33.92	35.15	34.29
Total sampling time....(MIN)	60.00	60.00	60.00
Nozzle diameter.....(IN)	.183	.183	.183
Avg.stack gas temp ..(DEG-F)	195	194	193
Volumetric flow rate.....			
actual.....(ACFM)	42034	42737	41460
dry standard.....(DSCFM)	29852	29917	29342
Isokinetic variation.....(%)	97.4	100.8	100.2
Particulate concentration...			
actual.....(GR/ACF)	0.02897	0.02869	0.03314
dry standard.....(GR/DSCF)	0.04081	0.04100	0.04684
Particle mass rate...(LB/HR)	10.442	10.513	11.781

Test No. 14
No. 4 Press Vent Stack

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

	Run 1	Run 2	Run 3
Date of run	03-27-92	03-27-92	03-27-92
Time run start/end.....(HRS)	915/1017	1100/1202	1242/1344
Static pressure.....(IN.WC)	-0.12	-0.12	-0.12
Cross sectional area (SQ.FT)	20.63	20.63	20.63
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	0.0	2.0	1.0
desiccant.....(GRAMS)	5.0	23.0	8.0
total.....(GRAMS)	5.0	25.0	9.0
Total particulate material..			
.....collected(grams)	0.0397	0.0504	0.0415
Gas meter coefficient.....	0.9991	0.9991	0.9991
Barometric pressure..(IN.HG)	29.86	29.86	29.86
Avg. orif.pres.drop..(IN.WC)	1.93	2.08	2.02
Avg. gas meter temp..(DEF-F)	86.7	94.6	93.7
Volume through gas meter....			
at meter conditions...(CF)	45.21	47.04	46.82
standard conditions.(DSCF)	43.73	44.86	44.72
Total sampling time....(MIN)	60.00	60.00	60.00
Nozzle diameter.....(IN)	.241	.241	.241
Avg.stack gas temp ..(DEG-F)	85	95	98
Volumetric flow rate.....			
actual.....(ACFM)	50060	51836	52000
dry standard.....(DSCFM)	48160	47970	48590
Isokinetic variation.....(%)	98.6	101.6	100.0
Particulate concentration...			
actual.....(GR/ACF)	0.01347	0.01604	0.01337
dry standard.....(GR/DSCF)	0.01401	0.01733	0.01432
Particle mass rate...(LB/HR)	5.783	7.127	5.963

Test No. 17
No. 3 Press Vent Stack

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

	Run 1	Run 2	Run 3
Date of run	03-27-92	03-27-92	03-27-92
Time run start/end.....(HRS)	1430/1532	1610/1712	1755/1857
Static pressure.....(IN.WC)	-0.10	-0.10	-0.10
Cross sectional area (SQ.FT)	20.63	20.63	20.63
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	0.0	0.0	3.0
desiccant.....(GRAMS)	14.0	17.0	13.0
total.....(GRAMS)	14.0	17.0	16.0
Total particulate material..			
.....collected(grams)	0.0487	0.0489	0.0455
Gas meter coefficient.....	0.9991	0.9991	0.9991
Barometric pressure..(IN.HG)	29.86	29.86	29.86
Avg. orif.pres.drop..(IN.WC)	2.23	2.47	2.16
Avg. gas meter temp..(DEF-F)	98.4	98.6	96.0
Volume through gas meter....			
at meter conditions...(CF)	49.13	51.54	48.00
standard conditions.(DSCF)	46.56	48.85	45.67
Total sampling time....(MIN)	60.00	60.00	60.00
Nozzle diameter.....(IN)	.241	.241	.241
Avg.stack gas temp ..(DEG-F)	99	97	95
Volumetric flow rate.....			
actual.....(ACFM)	54441	57062	53077
dry standard.....(DSCFM)	50592	53055	49555
Isokinetic variation.....(%)	99.9	100.0	100.1
Particulate concentration...			
actual.....(GR/ACF)	0.01499	0.01435	0.01435
dry standard.....(GR/DSCF)	0.01614	0.01544	0.01537
Particle mass rate...(LB/HR)	6.999	7.024	6.529

Test No. 20
No. 8 Exhaust Fan Stack

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

	Run 1	Run 2	Run 3
Date of run	03-28-92	03-28-92	03-28-92
Time run start/end.....(HRS)	830/ 932	1035/1137	1220/1322
Static pressure.....(IN.WC)	-0.25	-0.25	-0.25
Cross sectional area (SQ.FT)	21.48	21.48	21.48
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	0.0	4.0	3.0
desiccant.....(GRAMS)	13.0	10.0	9.0
total.....(GRAMS)	13.0	14.0	12.0
Total particulate material..			
.....collected(grams)	0.0378	0.0396	0.0373
Gas meter coefficient.....	0.9991	0.9991	0.9991
Barometric pressure..(IN.HG)	29.82	29.82	29.82
Avg. orif.pres.drop..(IN.WC)	1.30	1.32	1.27
Avg. gas meter temp..(DEF-F)	78.7	80.0	75.9
Volume through gas meter....			
at meter conditions...(CF)	34.61	34.55	33.54
standard conditions.(DSCF)	33.88	33.74	32.99
Total sampling time....(MIN)	60.00	60.00	60.00
Nozzle diameter.....(IN)	.241	.241	.241
Avg.stack gas temp ..(DEG-F)	74	76	76
Volumetric flow rate.....			
actual.....(ACFM)	39353	39640	38771
dry standard.....(DSCFM)	38060	38180	37382
Isokinetic variation.....(%)	100.6	99.9	99.8
Particulate concentration...			
actual.....(GR/ACF)	0.01664	0.01744	0.01681
dry standard.....(GR/DSCF)	0.01722	0.01811	0.01745
Particle mass rate...(LB/HR)	5.617	5.927	5.590

Test No. 23
No. 2 Press Vent

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

	Run 1	Run 2	Run 3
Date of run	03-28-92	03-28-92	03-28-92
Time run start/end.....(HRS)	1415/1517	1610/1719	1742/1845
Static pressure.....(IN.WC)	-0.12	-0.12	-0.12
Cross sectional area (SQ.FT)	21.48	21.48	21.48
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	1.0	2.0	2.0
desiccant.....(GRAMS)	12.0	10.0	16.0
total.....(GRAMS)	13.0	12.0	18.0
Total particulate material..			
.....collected(grams)	0.0172	0.0205	0.0231
Gas meter coefficient.....	1.0010	1.0010	1.0010
Barometric pressure..(IN.HG)	29.82	29.82	29.82
Avg. orif.pres.drop..(IN.WC)	1.86	2.11	1.83
Avg. gas meter temp..(DEF-F)	88.8	81.9	84.5
Volume through gas meter....			
at meter conditions...(CF)	45.79	48.61	45.95
standard conditions.(DSCF)	44.14	47.48	44.63
Total sampling time....(MIN)	60.00	60.00	60.00
Nozzle diameter.....(IN)	.241	.241	.241
Avg.stack gas temp ..(DEG-F)	89	89	88
Volumetric flow rate.....			
actual.....(ACFM)	53416	57016	53092
dry standard.....(DSCFM)	50446	53980	49976
Isokinetic variation.....(%)	98.9	99.4	101.0
Particulate concentration...			
actual.....(GR/ACF)	0.00568	0.00630	0.00751
dry standard.....(GR/DSCF)	0.00601	0.00666	0.00799
Particle mass rate...(LB/HR)	2.600	3.082	3.421

3.3 Results of PM-10 Determinations

Test No. 1
No. 1 Dryer Stack

Results of PM-10 Determinations

	Run 1	Run 2	Run 3
Date of run	03-24-92	03-24-92	03-24-92
Time run start/end.....(HRS)	930/1117	1200/1335	1437/1607
Static pressure.....(IN.WC)	-0.75	-0.75	-0.75
Cross sectional area (SQ.FT)	12.57	12.57	12.57
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	102.0	111.0	119.0
desiccant.....(GRAMS)	10.0	7.0	9.0
total.....(GRAMS)	112.0	118.0	128.0
Total PM-10 material.....			
.....collected(grams)	0.1278	0.1237	0.1755
Gas meter coefficient.....	0.9991	0.9991	0.9991
Barometric pressure..(IN.HG)	29.83	29.83	29.83
Avg. orif.pres.drop..(IN.WC)	0.38	0.43	0.45
Avg. gas meter temp..(DEF-F)	66.4	74.7	78.5
Volume through gas meter....			
at meter conditions...(CF)	30.07	34.12	31.89
standard conditions.(DSCF)	30.06	33.58	31.17
Total sampling time....(MIN)	87.87	93.51	85.21
Nozzle diameter.....(IN)	.150	.150	.150
Avg.stack gas temp ..(DEG-F)	186	187	189
Volumetric flow rate.....			
actual.....(ACFM)	53069	53874	53125
dry standard.....(DSCFM)	36719	37538	36033
Isokinetic variation.....(%)	95.5	98.0	104.0
PM-10 cutpoint.....(um)	10.54	10.31	9.96
PM-10 concentration.....			
actual.....(GR/ACF)	0.04538	0.03959	0.05891
dry standard.....(GR/DSCF)	0.06561	0.05684	0.08688
PM-10 mass rate.....(LB/HR)	20.648	18.289	26.834

Test No. 5
No. 2A Dryer Stack

Results of PM-10 Determinations ----------

	Run 1	Run 2	Run 3
Date of run	03-25-92	03-25-92	03-25-92
Time run start/end.....(HRS)	930/1101	1145/1316	1345/1523
Static pressure.....(IN.WC)	-1.50	-1.50	-1.50
Cross sectional area (SQ.FT)	4.59	4.59	4.59
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	126.0	121.0	124.0
desiccant.....(GRAMS)	7.0	9.0	11.0
total.....(GRAMS)	133.0	130.0	135.0
Total PM-10 material.....			
.....collected(grams)	0.1329	0.1816	0.1296
Gas meter coefficient.....	0.9991	0.9991	0.9991
Barometric pressure..(IN.HG)	29.79	29.79	29.77
Avg. orif.pres.drop..(IN.WC)	0.44	0.41	0.42
Avg. gas meter temp..(DEF-F)	86.3	88.4	89.8
Volume through gas meter....			
at meter conditions...(CF)	31.34	31.42	34.25
standard conditions.(DSCF)	30.15	30.11	32.71
Total sampling time....(MIN)	84.37	87.03	93.56
Nozzle diameter.....(IN)	.131	.131	.131
Avg.stack gas temp ..(DEG-F)	198	201	202
Volumetric flow rate.....			
actual.....(ACFM)	25634	25609	26300
dry standard.....(DSCFM)	16883	16866	17418
Isokinetic variation.....(%)	103.8	100.6	98.4
PM-10 cutpoint.....(um)	9.98	10.29	10.28
PM-10 concentration.....			
actual.....(GR/ACF)	0.04477	0.06126	0.04047
dry standard.....(GR/DSCF)	0.06801	0.09306	0.06113
PM-10 mass rate.....(LB/HR)	9.841	13.453	9.126

Test No. 10
No. 3 Dryer Stack

Results of PM-10 Determinations ----------

	Run 1	Run 2	Run 3
Date of run	03-26-92	03-26-92	03-26-92
Time run start/end.....(HRS)	915/1043	1130/1259	1333/1517
Static pressure.....(IN.WC)	-0.70	-0.70	-0.70
Cross sectional area (SQ.FT)	9.39	9.39	9.39
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	78.0	103.0	94.0
desiccant.....(GRAMS)	9.0	11.0	6.0
total.....(GRAMS)	87.0	114.0	100.0
Total PM-10 material.....			
.....collected(grams)	0.0777	0.1272	0.1073
Gas meter coefficient.....	0.9991	0.9991	0.9991
Barometric pressure..(IN.HG)	29.82	29.82	29.82
Avg. orif.pres.drop..(IN.WC)	0.44	0.50	0.45
Avg. gas meter temp..(DEF-F)	82.4	95.0	92.1
Volume through gas meter....			
at meter conditions...(CF)	31.72	34.23	31.60
standard conditions.(DSCF)	30.77	32.46	30.11
Total sampling time....(MIN)	85.54	86.04	83.53
Nozzle diameter.....(IN)	.150	.150	.150
Avg.stack gas temp ..(DEG-F)	204	200	196
Volumetric flow rate.....			
actual.....(ACFM)	44992	44726	44992
dry standard.....(DSCFM)	31400	30550	31132
Isokinetic variation.....(%)	87.7	94.6	88.7
PM-10 cutpoint.....(um)	10.53	9.93	10.31
PM-10 concentration.....			
actual.....(GR/ACF)	0.02718	0.04129	0.03803
dry standard.....(GR/DSCF)	0.03897	0.06047	0.05498
PM-10 mass rate.....(LB/HR)	10.488	15.834	14.672

3.4 Results of Carbon Monoxide Determinations

Test No. 1
No. 1 Dryer Stack

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

	Run 1	Run 2	Run 3
Date of run	03-24-92	03-24-92	03-24-92
Time run start/end.....(HRS)	0930-1117	1200-1335	1437-1607
Total sampling time....(MIN)	87.9	93.5	85.2
Moisture content.....(%V/V)	14.94	14.21	16.22
O2 Concentration.....(%V/V)	19.10	19.40	19.25
Volumetric flow rate (DSCFM)	36720	37540	36035
CO concentration.....			
(GR/DSCF).....	0.1628	0.1018	0.0814
(MG/DSCM).....	372.80	233.00	186.40
(PPM-WET).....	272.19	171.58	134.05
(PPM-DRY).....	320.00	200.00	160.00
(PPM-DRY @ 7% O2).....	2357.	1750.	1280.
CO emission rate.....(LB/HR)	51.248	32.745	25.146

CO = Carbon monoxide

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

Test No. 2
No. 1 Dryer Stack

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

	4 Run 1	5 Run 2	6 Run 3
Date of run	03-24-92	03-24-92	03-24-92
Time run start/end.....(HRS)	0955-1100	1200-1327	1403-1506
Total sampling time....(MIN)	60.0	60.0	60.0
Moisture content.....(%V/V)	13.93	13.25	15.10
O2 Concentration.....(%V/V)	18.50	18.70	18.30
Volumetric flow rate (DSCFM)	37665	38050	36940
CO concentration.....			
(GR/DSCF).....	0.1079	0.0911	0.0763
(MG/DSCM).....	246.98	208.53	174.75
(PPM-WET).....	182.47	155.28	127.35
(PPM-DRY).....	212.00	179.00	150.00
(PPM-DRY @ 7% O2).....	1187.	1089.	777.78
CO emission rate.....(LB/HR)	34.825	29.705	24.166

CO = Carbon monoxide

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

Test No. 4
No. 1 Dryer Stack

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

	7 Run 1	8 Run 2	9 Run 3
Date of run	03-24-92	03-24-92	03-24-92
Time run start/end.....(HRS)	1610-1712	1735-1838	1900-2002
Total sampling time....(MIN)	60.0	60.0	60.0
Moisture content.....(%V/V)	15.72	15.75	17.19
O2 Concentration.....(%V/V)	18.90	18.70	18.70
Volumetric flow rate (DSCFM)	35150	35750	34885
CO concentration.....			
(GR/DSCF).....	0.0580	0.0534	0.0473
(MG/DSCM).....	132.81	122.33	108.34
(PPM-WET).....	96.08	88.46	77.01
(PPM-DRY).....	114.00	105.00	93.00
(PPM-DRY @ 7% O2).....	760.00	639.13	566.09
CO emission rate.....(LB/HR)	17.476	16.371	14.150

CO = Carbon monoxide

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

Test No. 5
No. 2A Dryer Stack

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

	Run 1	Run 2	Run 3
Date of run	03-25-92	03-25-92	03-25-92
Time run start/end.....(HRS)	0930-1101	1145-1316	1345-1523
Total sampling time....(MIN)	84.4	87.0	93.6
Moisture content.....(%V/V)	17.22	16.91	16.29
O2 Concentration.....(%V/V)	17.90	17.80	18.00
Volumetric flow rate (DSCFM)	16885	16865	17420
CO concentration.....			
(GR/DSCF).....	0.1460	0.1028	0.1018
(MG/DSCM).....	334.35	235.33	233.00
(PPM-WET).....	237.58	167.84	167.42
(PPM-DRY).....	287.00	202.00	200.00
(PPM-DRY @ 7% O2).....	1296.	883.75	933.33
CO emission rate.....(LB/HR)	21.135	14.858	15.195

CO = Carbon monoxide

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

Test No. 8
No. 2A Dryer Stack

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

	Run 1	Run 2
Date of run	03-25-92	03-25-92
Time run start/end.....(HRS)	1615-1717	1825-1927
Total sampling time....(MIN)	60.0	60.0
Moisture content.....(%V/V)	15.27	16.78
O2 Concentration.....(%V/V)	18.00	17.80
Volumetric flow rate (DSCFM)	16040	15965
CO concentration.....		
(GR/DSCF).....	0.0845	0.1038
(MG/DSCM).....	193.39	237.66
(PPM-WET).....	140.65	169.77
(PPM-DRY).....	166.00	204.00
(PPM-DRY @ 7% O2).....	774.67	892.50
CO emission rate.....(LB/HR)	11.613	14.204

CO = Carbon monoxide

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

Test No. 6
No. 2B Dryer Stack

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

	Run 1	Run 2	Run 3
Date of run	03-25-92	03-25-92	03-25-92
Time run start/end.....(HRS)	0930-1034	1115-1218	1255-1401
Total sampling time....(MIN)	60.0	60.0	60.0
Moisture content.....(%V/V)	16.14	15.92	16.94
O2 Concentration.....(%V/V)	17.80	17.80	17.70
Volumetric flow rate (DSCFM)	16745	16815	16790
CO concentration.....			
(GR/DSCF).....	0.1404	0.1196	0.0941
(MG/DSCM).....	321.54	273.78	215.53
(PPM-WET).....	231.45	197.59	153.66
(PPM-DRY).....	276.00	235.00	185.00
(PPM-DRY @ 7% O2).....	1207.	1028.	784.85
CO emission rate.....(LB/HR)	20.157	17.234	13.547

CO = Carbon monoxide

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

Test No. 9
No. 2B Dryer Stack

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

	4 Run 1	5 Run 2
Date of run	03-25-92	03-25-92
Time run start/end.....(HRS)	1510-1612	1710-1848
Total sampling time....(MIN)	60.0	60.0
Moisture content.....(%V/V)	16.06	16.62
O2 Concentration.....(%V/V)	17.90	17.80
Volumetric flow rate (DSCFM)	16775	16720
CO concentration.....		
(GR/DSCF).....	0.0835	0.0738
(MG/DSCM).....	191.06	168.92
(PPM-WET).....	137.66	120.90
(PPM-DRY).....	164.00	145.00
(PPM-DRY @ 7% O2).....	740.65	634.37
CO emission rate.....(LB/HR)	11.999	10.574

CO = Carbon monoxide

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

Test No. 10
No. 3 Dryer Stack

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

	Run 1	Run 2	Run 3
Date of run	03-26-92	03-26-92	03-26-92
Time run start/end.....(HRS)	0915-1043	1130-1259	1333-1517
Total sampling time....(MIN)	85.5	86.0	83.5
Moisture content.....(%V/V)	11.76	14.21	13.54
O2 Concentration.....(%V/V)	18.90	18.90	19.00
Volumetric flow rate (DSCFM)	31400	30550	31130
CO concentration.....			
(GR/DSCF).....	0.1633	0.1094	0.1170
(MG/DSCM).....	373.97	250.48	267.95
(PPM-WET).....	283.25	184.45	198.86
(PPM-DRY).....	321.00	215.00	230.00
(PPM-DRY @ 7% O2).....	2140.	1433.	1610.
CO emission rate.....(LB/HR)	43.960	28.646	31.227

CO = Carbon monoxide

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

Test No. 11
No. 3 Dryer Stack

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

	4 Run 1	5 Run 2	6 Run 3
Date of run	03-26-92	03-26-92	03-26-92
Time run start/end.....(HRS)	0916-1030	1130-1251	1400-1506
Total sampling time....(MIN)	60.0	60.0	60.0
Moisture content.....(%V/V)	11.87	13.65	13.43
O2 Concentration.....(%V/V)	18.90	19.10	19.20
Volumetric flow rate (DSCFM)	31530	31125	31385
CO concentration.....			
(GR/DSCF).....	0.1577	0.1084	0.1247
(MG/DSCM).....	361.15	248.15	285.43
(PPM-WET).....	273.20	183.93	212.10
(PPM-DRY).....	310.00	213.00	245.00
(PPM-DRY @ 7% O2).....	2066.	1569.	1905.
CO emission rate.....(LB/HR)	42.629	28.914	33.536

CO = Carbon monoxide

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

Test No. 13
No. 3 Dryer

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

	Run 1	Run 2	Run 3
Date of run	03-26-92	03-26-92	03-26-92
Time run start/end.....(HRS)	1555-1657	1725-1827	1900-2002
Total sampling time....(MIN)	60.0	60.0	60.0
Moisture content.....(%V/V)	11.45	12.86	11.98
O2 Concentration.....(%V/V)	19.30	18.80	19.20
Volumetric flow rate (DSCFM)	29850	29920	29340
CO concentration.....			
(GR/DSCF).....	0.1628	0.1501	0.1771
(MG/DSCM).....	372.80	343.68	405.42
(PPM-WET).....	283.36	257.06	306.31
(PPM-DRY).....	320.00	295.00	348.00
(PPM-DRY @ 7% O2).....	2635.	1877.	2706.
CO emission rate.....(LB/HR)	41.660	38.495	44.531

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
No. 1 Dryer

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

	Run 1	Run 2	Run 3
Date of run	03-24-92	03-24-92	03-24-92
Time run start/end.....(HRS)	955/1100	1200/1327	1403/1506
Static pressure.....(IN.WC)	-0.75	-0.75	-0.75
Cross sectional area (SQ.FT)	12.57	12.57	12.57
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	104.0	100.0	120.0
desiccant.....(GRAMS)	10.0	12.0	10.0
total.....(GRAMS)	114.0	112.0	130.0
Formaldehyde in sample..(uG)	4200	1500	510
Gas meter coefficient.....	1.0010	1.0010	1.0010
Barometric pressure..(IN.HG)	29.83	29.83	29.83
Avg. orif.pres.drop..(IN.WC)	0.96	1.06	1.06
Avg. gas meter temp..(DEF-F)	67.8	76.7	82.5
Volume through gas meter....			
at meter conditions...(CF)	33.19	35.15	35.41
standard conditions.(DSCF)	33.20	34.59	34.47
Total sampling time....(MIN)	60.00	60.00	60.00
Nozzle diameter.....(IN)	.188	.188	.188
Avg.stack gas temp ..(DEG-F)	184	187	188
Volumetric flow rate.....			
actual.....(ACFM)	53651	53997	53617
dry standard.....(DSCFM)	37665	38048	36936
Isokinetic variation.....(%)	95.8	98.8	101.5
CH2O concentration.....			
(GR/DSCF).....	0.0020	0.0007	0.0002
(MG/DSCM).....	4.48	1.54	0.52
(PPM-DRY).....	3.59	1.23	0.42
(PPM-WET).....	3.09	1.07	0.36
CH2O emission rate...(LB/HR)	0.63141	0.21873	0.07244

CH2O = Formaldehyde

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

Test No. 6
No. 28 Dryer Stack

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

	Run 1	Run 2	Run 3
Date of run	03-25-92	03-25-92	03-25-92
Time run start/end.....(HRS)	930/1034	1115/1218	1255/1401
Static pressure.....(IN.WC)	-1.30	-1.30	-1.30
Cross sectional area (SQ.FT)	4.59	4.59	4.59
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	161.0	153.0	166.0
desiccant.....(GRAMS)	13.0	17.0	19.0
total.....(GRAMS)	174.0	170.0	185.0
Formaldehyde in sample..(uG)	1500	4600	2800
Gas meter coefficient.....	1.0010	1.0010	1.0010
Barometric pressure..(IN.HG)	29.77	29.77	29.77
Avg. orif.pres.drop..(IN.WC)	1.63	1.62	1.68
Avg. gas meter temp..(DEF-F)	79.0	86.5	90.8
Volume through gas meter....			
at meter conditions...(CF)	43.52	43.84	44.62
standard conditions.(DSCF)	42.61	42.34	42.76
Total sampling time....(MIN)	60.00	60.00	60.00
Nozzle diameter.....(IN)	.188	.188	.188
Avg.stack gas temp ..(DEG-F)	197	199	198
Volumetric flow rate.....			
actual.....(ACFM)	25069	25159	25387
dry standard.....(DSCFM)	16746	16813	16789
Isokinetic variation.....(%)	101.0	99.9	101.1
CH2O concentration.....			
(GR/DSCF).....	0.0005	0.0017	0.0010
(MG/DSCM).....	1.25	3.85	2.32
(PPM-DRY).....	1.00	3.09	1.86
(PPM-WET).....	0.84	2.60	1.55
CH2O emission rate...(LB/HR)	0.07826	0.24250	0.14595

CH2O = Formaldehyde

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

Test No. 11
No. 3 Dryer Stack

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

	Run 1	Run 2	Run 3
Date of run	03-26-92	03-26-92	03-26-92
Time run start/end.....(HRS)	916/1030	1130/1251	1400/1506
Static pressure.....(IN.WC)	-0.68	-0.68	-0.68
Cross sectional area (SQ.FT)	9.39	9.39	9.39
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	92.0	118.0	112.0
desiccant.....(GRAMS)	14.0	16.0	14.0
total.....(GRAMS)	106.0	134.0	126.0
Formaldehyde in sample..(uG)	2800	1400	3100
Gas meter coefficient.....	1.0010	1.0010	1.0010
Barometric pressure..(IN.HG)	29.82	29.82	29.82
Avg. orif.pres.drop..(IN.WC)	1.25	1.41	1.39
Avg. gas meter temp..(DEF-F)	72.4	72.4	96.4
Volume through gas meter....			
at meter conditions...(CF)	37.42	40.28	40.33
standard conditions.(DSCF)	37.12	39.98	38.30
Total sampling time....(MIN)	60.00	60.00	60.00
Nozzle diameter.....(IN)	.188	.188	.188
Avg.stack gas temp ..(DEG-F)	205	200	197
Volumetric flow rate.....			
actual.....(ACFM)	45251	45292	45331
dry standard.....(DSCFM)	31528	31125	31385
Isokinetic variation.....(%)	95.7	104.4	99.2
CH2O concentration.....			
(GR/DSCF).....	0.0012	0.0005	0.0013
(MG/DSCM).....	2.67	1.24	2.87
(PPM-DRY).....	2.14	0.99	2.30
(PPM-WET).....	1.89	0.86	1.99
CH2O emission rate...(LB/HR)	0.31537	0.14461	0.33702

CH2O = Formaldehyde

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

Test No. 15
No. 4 Press Vent Stack

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

	Run 1	Run 2	Run 3
Date of run	03-27-92	03-27-92	03-27-92
Time run start/end.....(HRS)	915/1017	1100/1202	1240/1345
Static pressure.....(IN.WC)	-0.12	-0.12	-0.12
Cross sectional area (SQ.FT)	21.48	21.48	21.48
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	0.0	0.0	-1.0
desiccant.....(GRAMS)	13.0	10.0	8.0
total.....(GRAMS)	13.0	10.0	7.0
Formaldehyde in sample..(uG)	2200	2400	3400
Gas meter coefficient.....	1.0010	1.0010	1.0010
Barometric pressure..(IN.HG)	29.86	29.86	29.86
Avg. orif.pres.drop..(IN.WC)	1.90	1.93	2.15
Avg. gas meter temp..(DEF-F)	83.1	92.2	96.6
Volume through gas meter....			
at meter conditions...(CF)	46.62	47.26	50.98
standard conditions.(DSCF)	45.47	45.34	48.55
Total sampling time....(MIN)	60.00	60.00	60.00
Nozzle diameter.....(IN)	.239	.239	.239
Avg.stack gas temp ..(DEG-F)	83	95	98
Volumetric flow rate.....			
actual.....(ACFM)	55773	56548	59815
dry standard.....(DSCFM)	53375	53125	56125
Isokinetic variation.....(%)	97.9	98.1	99.4
CH2O concentration.....			
(GR/DSCF).....	0.0007	0.0008	0.0011
(MG/DSCM).....	1.72	1.88	2.49
(PPM-DRY).....	1.38	1.50	1.99
(PPM-WET).....	1.36	1.48	1.97
CH2O emission rate...(LB/HR)	0.34300	0.37354	0.52240

CH2O = Formaldehyde

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

Test No. 18
No. 3 Press Vent Stack

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

	Run 1	Run 2	Run 3
Date of run	03-27-92	03-27-92	03-27-92
Time run start/end.....(HRS)	1430/1531	~~1410~~ 1610/1711	1755/1856
Static pressure.....(IN.WC)	-0.12	-0.12	-0.12
Cross sectional area (SQ.FT)	21.48	21.48	21.48
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	4.0	-2.0	7.0
desiccant.....(GRAMS)	14.0	17.0	13.0
total.....(GRAMS)	18.0	15.0	20.0
Formaldehyde in sample..(uG)	3000	1900	3500
Gas meter coefficient.....	1.0010	1.0010	1.0010
Barometric pressure..(IN.HG)	29.86	29.86	29.86
Avg. orif.pres.drop..(IN.WC)	2.40	2.48	2.34
Avg. gas meter temp..(DEF-F)	98.3	98.8	96.3
Volume through gas meter....			
at meter conditions...(CF)	53.16	53.80	52.28
standard conditions.(DSCF)	50.50	51.07	49.84
Total sampling time....(MIN)	60.00	60.00	60.00
Nozzle diameter.....(IN)	.239	.239	.239
Avg.stack gas temp ..(DEG-F)	99	98	95
Volumetric flow rate.....			
actual.....(ACFM)	63273	63804	62209
dry standard.....(DSCFM)	58593	59434	57919
Isokinetic variation.....(%)	99.1	98.8	98.9
CH2O concentration.....			
(GR/DSCF).....	0.0009	0.0006	0.0011
(MG/DSCM).....	2.11	1.32	2.50
(PPM-DRY).....	1.69	1.06	2.00
(PPM-WET).....	1.66	1.04	1.97
CH2O emission rate...(LB/HR)	0.46290	0.27777	0.54087

CH2O = Formaldehyde

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

Test No. 21
No. 2 Press Vent Stack

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

	Run 1	Run 2	Run 3
Date of run	03-28-92	03-28-92	03-28-92
Time run start/end.....(HRS)	830/ 940	1033/1136	1220/1324
Static pressure.....(IN.WC)	-0.12	-0.12	-0.12
Cross sectional area (SQ.FT)	21.48	21.48	21.48
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	4.0	3.0	-2.0
desiccant.....(GRAMS)	17.0	16.0	17.0
total.....(GRAMS)	21.0	19.0	15.0
Formaldehyde in sample..(uG)	700	820	750
Gas meter coefficient.....	1.0010	1.0010	1.0010
Barometric pressure..(IN.HG)	29.83	29.93	29.83
Avg. orif.pres.drop..(IN.WC)	1.93	1.83	1.91
Avg. gas meter temp..(DEF-F)	83.9	85.7	81.2
Volume through gas meter....			
at meter conditions...(CF)	46.49	45.72	46.10
standard conditions.(DSCF)	45.24	44.48	45.08
Total sampling time....(MIN)	60.00	60.00	60.00
Nozzle diameter.....(IN)	.239	.239	.239
Avg.stack gas temp ..(DEG-F)	80	80	82
Volumetric flow rate.....			
actual.....(ACFM)	54964	53982	54839
dry standard.....(DSCFM)	52402	51778	52472
Isokinetic variation.....(%)	99.2	98.7	98.8
CH2O concentration.....			
(GR/DSCF).....	0.0002	0.0003	0.0003
(MG/DSCM).....	0.55	0.65	0.59
(PPM-DRY).....	0.44	0.52	0.47
(PPM-WET).....	0.43	0.51	0.46
CH2O emission rate...(LB/HR)	0.10771	0.12677	0.11596

CH2O = Formaldehyde

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

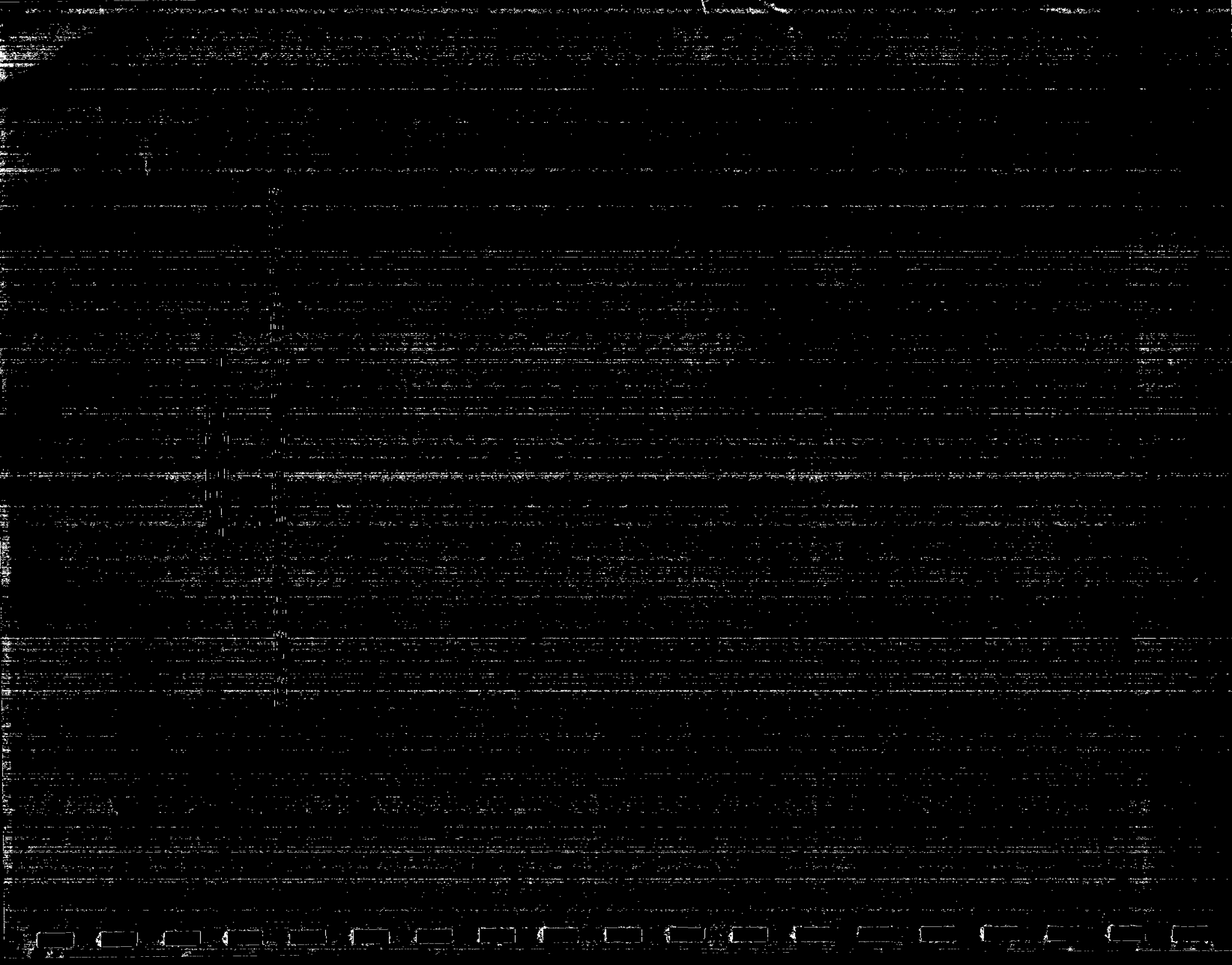
Test No. 24
No. 8 Exhaust Fan Vent Stack

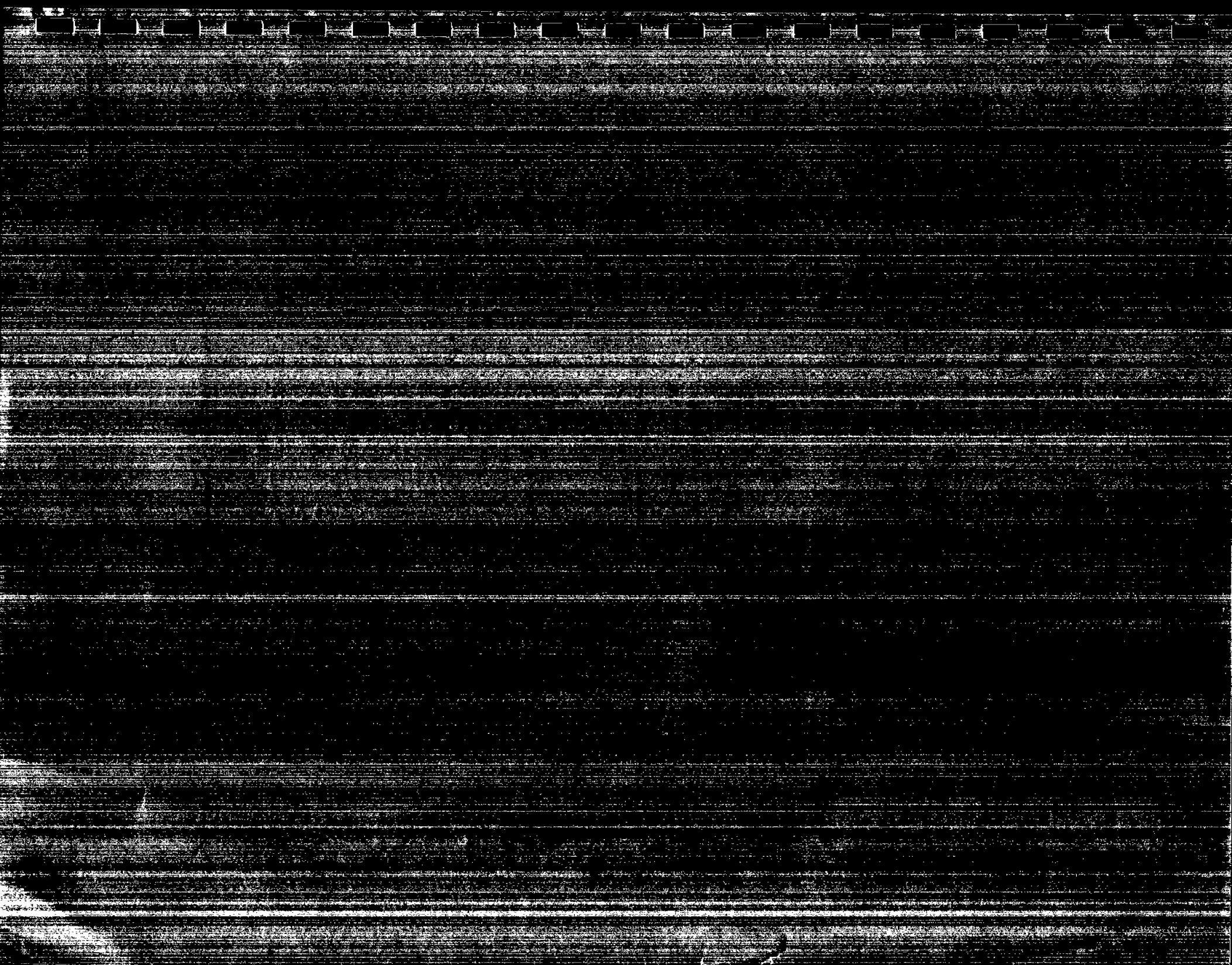
Results of Formaldehyde Tests ---------- EPA Method 0011

	Run 1	Run 2	Run 3
Date of run	03-28-92	03-28-92	03-28-92
Time run start/end.....(HRS)	1416/1518	1600/1702	1742/1847
Static pressure.....(IN.WC)	-0.25	-0.25	-0.25
Cross sectional area (SQ.FT)	21.48	21.48	21.48
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	3.0	2.0	-2.0
desiccant.....(GRAMS)	16.0	10.0	10.0
total.....(GRAMS)	19.0	12.0	8.0
Formaldehyde in sample..(uG)	690	650	880
Gas meter coefficient.....	0.9991	0.9991	0.9991
Barometric pressure..(IN.HG)	29.83	29.83	29.83
Avg. orif.pres.drop..(IN.WC)	1.67	1.59	1.55
Avg. gas meter temp..(DEF-F)	77.9	76.7	78.2
Volume through gas meter....			
at meter conditions...(CF)	39.68	38.60	37.82
standard conditions.(DSCF)	38.94	37.96	37.08
Total sampling time....(MIN)	60.00	60.00	60.00
Nozzle diameter.....(IN)	.239	.239	.239
Avg.stack gas temp ..(DEG-F)	74	73	73
Volumetric flow rate.....			
actual.....(ACFM)	46875	44594	44409
dry standard.....(DSCFM)	45156	43365	43426
Isokinetic variation.....(%)	99.1	100.6	98.2
CH2O concentration.....			
(GR/DSCF).....	0.0003	0.0003	0.0004
(MG/DSCM).....	0.63	0.61	0.84
(PPM-DRY).....	0.50	0.49	0.67
(PPM-WET).....	0.49	0.48	0.66
CH2O emission rate...(LB/HR)	0.10850	0.10122	0.13828

CH2O = Formaldehyde

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





Test No. 1
No. 1 Dryer Stack

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

Date of Determination.....	03-24-92
Time of Determination.....(HRS)	848
Barometric pressure.....(IN.HG)	29.83
Pitot tube coefficient.....	.84
Number of sampling ports.....	2
Total number of points.....	12
Shape of duct.....	Round
Stack diameter.....(IN)	48
Duct area.....(SQ.FT)	12.57
Direction of flow.....	UP
Static pressure.....(IN.WC)	-.75
Avg. gas temp.....(DEG-F)	185
Moisture content.....(% V/V)	14.94
Avg. linear velocity.....(FT/SEC)	73.0
Gas density.....(LB/ACF)	.05791
Molecular weight.....(LB/LBMOLE)	29.02
Mass flow of gas.....(LB/HR)	191217
Volumetric flow rate.....	
actual.....(ACFM)	55034
dry standard.....(DSCFM)	38133

Test No. 2
No. 1 Dryer

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

Date of Determination.....	03-24-92
Time of Determination.....(HRS)	848
Barometric pressure.....(IN.HG)	29.83
Pitot tube coefficient.....	.84
Number of sampling ports.....	2
Total number of points.....	12
Shape of duct.....	Round
Stack diameter.....(IN)	48
Duct area.....(SQ.FT)	12.57
Direction of flow.....	UP
Static pressure.....(IN.WC)	-.75
Avg. gas temp.....(DEG-F)	185
Moisture content.....(% V/V)	13.93
Avg. linear velocity.....(FT/SEC)	72.8
Gas density.....(LB/ACF)	.05827
Molecular weight.....(LB/LBMOLE)	29.09
Mass flow of gas.....(LB/HR)	191821
Volumetric flow rate.....	
actual.....(ACFM)	54861
dry standard.....(DSCFM)	38464

Test No. 4
No. 1 Dryer Stack

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

Date of Determination.....	03-24-92
Time of Determination.....(HRS)	848
Barometric pressure.....(IN.HG)	29.83
Pitot tube coefficient.....	.84
Number of sampling ports.....	2
Total number of points.....	12
Shape of duct.....	Round
Stack diameter.....(IN)	48
Duct area.....(SQ.FT)	12.57
Direction of flow.....	UP
Static pressure.....(IN.WC)	-.75
Avg. gas temp.....(DEG-F)	192
Moisture content.....(% V/V)	15.72
Avg. linear velocity.....(FT/SEC)	73.5
Gas density.....(LB/ACF)	.05715
Molecular weight.....(LB/LBMOLE)	29.04
Mass flow of gas.....(LB/HR)	190032
Volumetric flow rate.....	
actual.....(ACFM)	55419
dry standard.....(DSCFM)	37641

Test No. 5
No. 2A Dryer Stack

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

Date of Determination.....	03-25-92
Time of Determination.....(HRS)	830
Barometric pressure.....(IN.HG)	29.77
Pitot tube coefficient.....	.84
Number of sampling ports.....	2
Total number of points.....	12
Shape of duct.....	Round
Stack diameter.....(IN)	29
Duct area.....(SQ.FT)	4.59
Direction of flow.....	UP
Static pressure.....(IN.WC)	-1.5
Avg. gas temp.....(DEG-F)	191
Moisture content.....(% V/V)	17.22
Avg. linear velocity.....(FT/SEC)	94.4
Gas density.....(LB/ACF)	.05698
Molecular weight.....(LB/LBMOLE)	29.20
Mass flow of gas.....(LB/HR)	88835
Volumetric flow rate.....	
actual.....(ACFM)	25985
dry standard.....(DSCFM)	17309

Test No. 6
No. 2B Dryer Stack

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

Date of Determination.....	03-25-92
Time of Determination.....(HRS)	400
Barometric pressure.....(IN.HG)	29.77
Pitot tube coefficient.....	.84
Number of sampling ports.....	2
Total number of points.....	24
Shape of duct.....	Round
Stack diameter.....(IN)	29
Duct area.....(SQ.FT)	4.59
Direction of flow.....	UP
Static pressure.....(IN.WC)	-1.3
Avg. gas temp.....(DEG-F)	198
Moisture content.....(% V/V)	16.14
Avg. linear velocity.....(FT/SEC)	91.4
Gas density.....(LB/ACF)	.05654
Molecular weight.....(LB/LBMOLE)	29.16
Mass flow of gas.....(LB/HR)	85343
Volumetric flow rate.....	
actual.....(ACFM)	25156
dry standard.....(DSCFM)	16788

Test No. 9
No. 2B Dryer Stack

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

Date of Determination.....	03-25-92
Time of Determination.....(HRS)	1500
Barometric pressure.....(IN.HG)	29.77
Pitot tube coefficient.....	.84
Number of sampling ports.....	2
Total number of points.....	24
Shape of duct.....	Round
Stack diameter.....(IN)	29
Duct area.....(SQ.FT)	4.59
Direction of flow.....	UP
Static pressure.....(IN.WC)	-1.3
Avg. gas temp.....(DEG-F)	199
Moisture content.....(% V/V)	16.06
Avg. linear velocity.....(FT/SEC)	91.4
Gas density.....(LB/ACF)	.05654
Molecular weight.....(LB/LBMOLE)	29.20
Mass flow of gas.....(LB/HR)	85361
Volumetric flow rate.....	
actual.....(ACFM)	25163
dry standard.....(DSCFM)	16785

Test No. 10
No. 3 Dryer Stack

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

Date of Determination.....	03-26-92
Time of Determination.....(HRS)	830
Barometric pressure.....(IN.HG)	29.82
Pitot tube coefficient.....	.84
Number of sampling ports.....	2
Total number of points.....	12
Shape of duct.....	Round
Stack diameter.....(IN)	41.5
Duct area.....(SQ.FT)	9.39
Direction of flow.....	UP
Static pressure.....(IN.WC)	-.7
Avg. gas temp.....(DEG-F)	204
Moisture content.....(% V/V)	11.76
Avg. linear velocity.....(FT/SEC)	80.6
Gas density.....(LB/ACF)	.05706
Molecular weight.....(LB/LBMOLE)	29.08
Mass flow of gas.....(LB/HR)	155595
Volumetric flow rate.....	
actual.....(ACFM)	45447
dry standard.....(DSCFM)	31726

Test No. 11
No. 3 Dryer Stack

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

Date of Determination.....	03-26-92
Time of Determination.....(HRS)	730
Barometric pressure.....(IN.HG)	29.82
Pitot tube coefficient.....	.84
Number of sampling ports.....	2
Total number of points.....	20
Shape of duct.....	Round
Stack diameter.....(IN)	41.5
Duct area.....(SQ.FT)	9.39
Direction of flow.....	UP
Static pressure.....(IN.WC)	-.68
Avg. gas temp.....(DEG-F)	205
Moisture content.....(% V/V)	11.87
Avg. linear velocity.....(FT/SEC)	74.0
Gas density.....(LB/ACF)	.05695
Molecular weight.....(LB/LBMOLE)	29.08
Mass flow of gas.....(LB/HR)	142462
Volumetric flow rate.....	
actual.....(ACFM)	41689
dry standard.....(DSCFM)	29026

Test No. 14
No. 4 Press Vent Stack

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

Date of Determination.....	03-27-92
Time of Determination.....(HRS)	830
Barometric pressure.....(IN.HG)	29.86
Pitot tube coefficient.....	.84
Number of sampling ports.....	2
Total number of points.....	24
Shape of duct.....	Round
Stack diameter.....(IN)	61.5
Duct area.....(SQ.FT)	20.63
Direction of flow.....	UP
Static pressure.....(IN.WC)	-.12
Avg. gas temp.....(DEG-F)	82
Moisture content.....(% V/V)	0.54
Avg. linear velocity.....(FT/SEC)	39.5
Gas density.....(LB/ACF)	.07265
Molecular weight.....(LB/LBMOLE)	28.84
Mass flow of gas.....(LB/HR)	213206
Volumetric flow rate.....	
actual.....(ACFM)	48914
dry standard.....(DSCFM)	47286

Test No. 15
No. 4 Press Vent Stack

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

Date of Determination.....	03-27-92
Time of Determination.....(HRS)	900
Barometric pressure.....(IN.HG)	29.86
Pitot tube coefficient.....	.84
Number of sampling ports.....	2
Total number of points.....	24
Shape of duct.....	Round
Stack diameter.....(IN)	62.75
Duct area.....(SQ.FT)	21.48
Direction of flow.....	UP
Static pressure.....(IN.WC)	-.12
Avg. gas temp.....(DEG-F)	99
Moisture content.....(% V/V)	1.33
Avg. linear velocity.....(FT/SEC)	44.1
Gas density.....(LB/ACF)	.06820
Molecular weight.....(LB/LBMOLE)	28.00
Mass flow of gas.....(LB/HR)	232533
Volumetric flow rate.....	
actual.....(ACFM)	56829
dry standard.....(DSCFM)	52842

Test No. 18
No. 3 Press Vent Stack

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

Date of Determination.....	03-27-92
Time of Determination.....(HRS)	1420
Barometric pressure.....(IN.HG)	29.86
Pitot tube coefficient.....	.84
Number of sampling ports.....	2
Total number of points.....	24
Shape of duct.....	Round
Stack diameter.....(IN)	62.75
Duct area.....(SQ.FT)	21.48
Direction of flow.....	UP
Static pressure.....(IN.WC)	-.12
Avg. gas temp.....(DEG-F)	100
Moisture content.....(% V/V)	1.65
Avg. linear velocity.....(FT/SEC)	48.8
Gas density.....(LB/ACF)	.06800
Molecular weight.....(LB/LBMOLE)	28.00
Mass flow of gas.....(LB/HR)	256484
Volumetric flow rate.....	
actual.....(ACFM)	62867
dry standard.....(DSCFM)	58161

Test No. 20
No. 8 Exhaust Fan Stack

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

Date of Determination.....	03-28-92
Time of Determination.....(HRS)	800
Barometric pressure.....(IN.HG)	29.82
Pitot tube coefficient.....	.84
Number of sampling ports.....	2
Total number of points.....	24
Shape of duct.....	Round
Stack diameter.....(IN)	62.75
Duct area.....(SQ.FT)	21.48
Direction of flow.....	UP
Static pressure.....(IN.WC)	-.25
Avg. gas temp.....(DEG-F)	72
Moisture content.....(% V/V)	1.78
Avg. linear velocity.....(FT/SEC)	32.7
Gas density.....(LB/ACF)	.07354
Molecular weight.....(LB/LBMOLE)	28.84
Mass flow of gas.....(LB/HR)	185675
Volumetric flow rate.....	
actual.....(ACFM)	42078
dry standard.....(DSCFM)	40857

Test No. 21
No. 2 Press Vent Stack

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

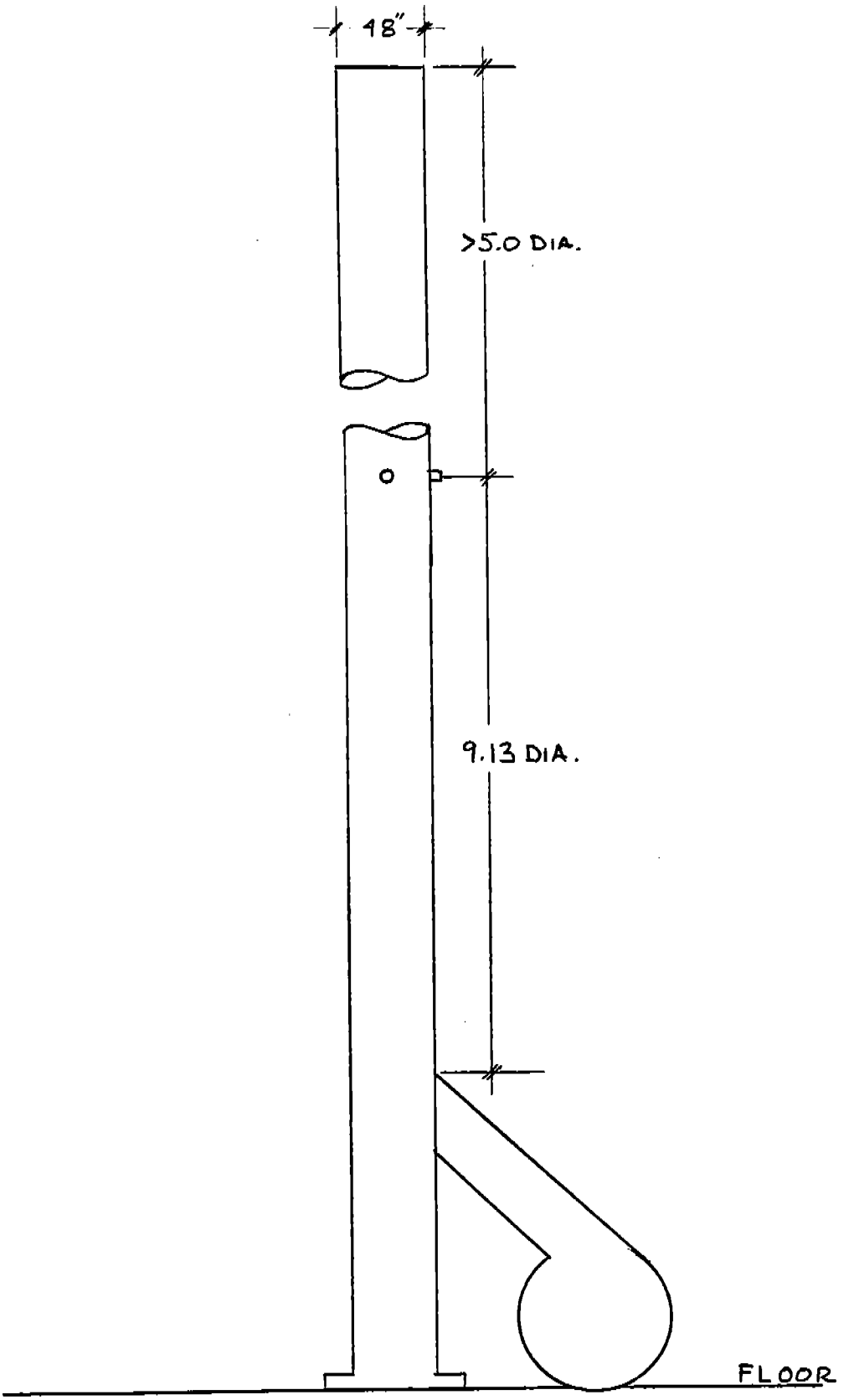
Date of Determination.....	03-28-92
Time of Determination.....(HRS)	830
Barometric pressure.....(IN.HG)	29.86
Pitot tube coefficient.....	.84
Number of sampling ports.....	2
Total number of points.....	24
Shape of duct.....	Round
Stack diameter.....(IN)	62.75
Duct area.....(SQ.FT)	21.48
Direction of flow.....	UP
Static pressure.....(IN.WC)	-.12
Avg. gas temp.....(DEG-F)	84
Moisture content.....(% V/V)	2.14
Avg. linear velocity.....(FT/SEC)	41.9
Gas density.....(LB/ACF)	.06987
Molecular weight.....(LB/LBMOLE)	28.00
Mass flow of gas.....(LB/HR)	226435
Volumetric flow rate.....	
actual.....(ACFM)	54011
dry standard.....(DSCFM)	51182

Test No. 24
No. 8 Exhaust Fan Vent Stack

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

Date of Determination.....	03-28-92
Time of Determination.....(HRS)	1400
Barometric pressure.....(IN.HG)	29.83
Pitot tube coefficient.....	.84
Number of sampling ports.....	2
Total number of points.....	24
Shape of duct.....	Round
Stack diameter.....(IN)	62.75
Duct area.....(SQ.FT)	21.48
Direction of flow.....	UP
Static pressure.....(IN.WC)	-.25
Avg. gas temp.....(DEG-F)	73
Moisture content.....(% V/V)	2.25
Avg. linear velocity.....(FT/SEC)	36.7
Gas density.....(LB/ACF)	.07119
Molecular weight.....(LB/LBMOLE)	28.00
Mass flow of gas.....(LB/HR)	202228
Volumetric flow rate.....	
actual.....(ACFM)	47343
dry standard.....(DSCFM)	45678

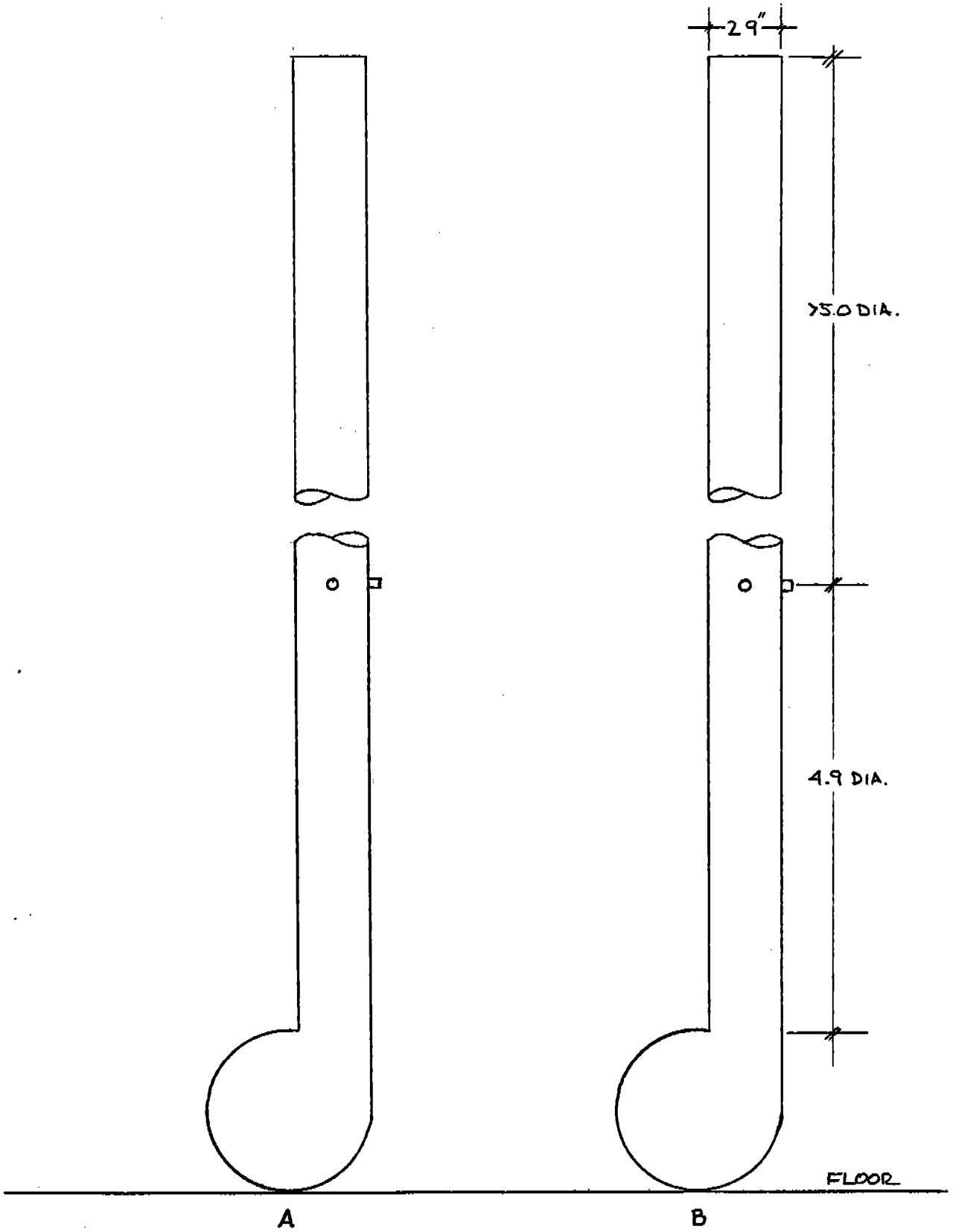
NO. 1 DRYER
L-P CORRIGAN, TX



NOT TO SCALE

NO. 2 DRYER

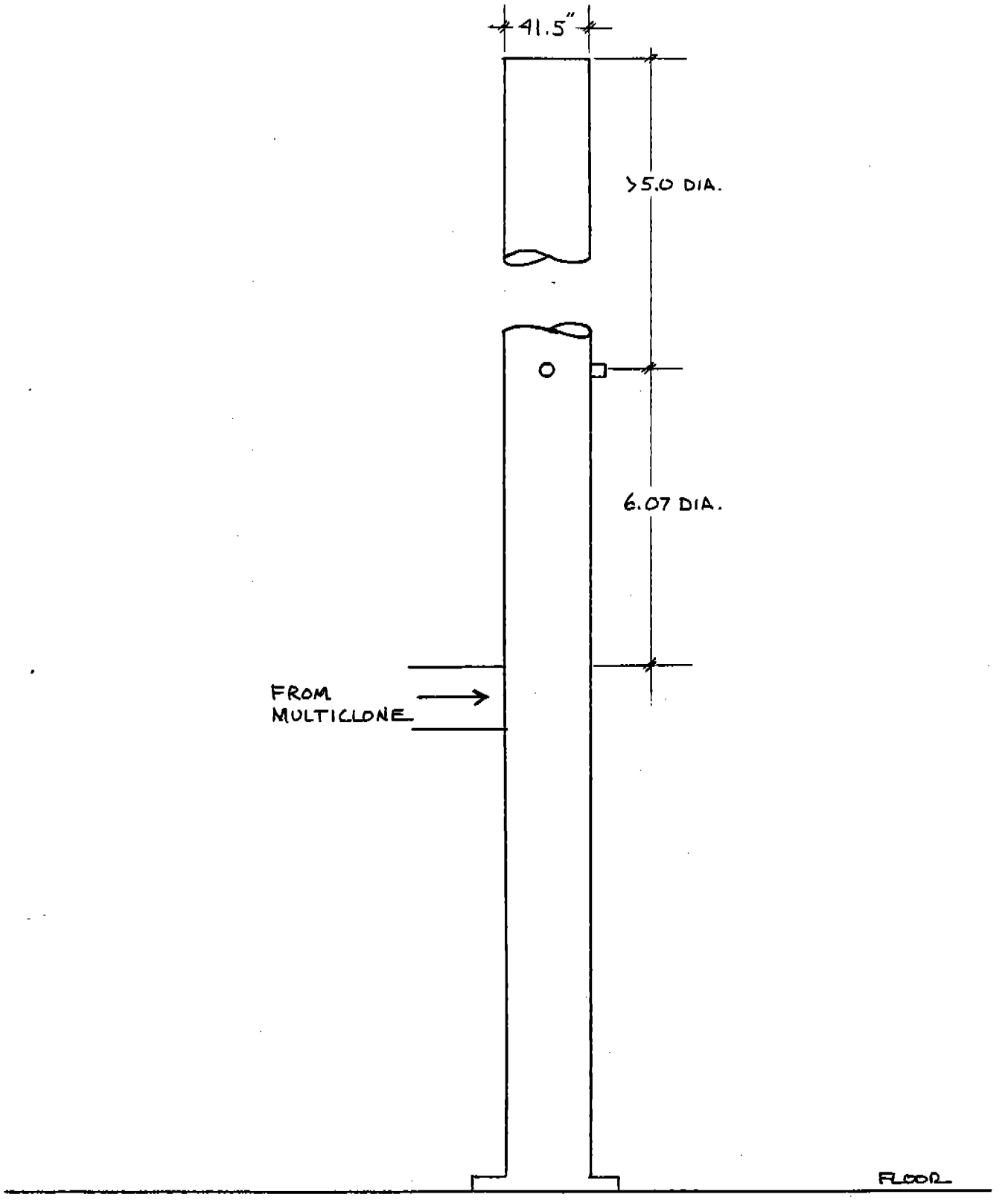
L-P CORRIGAN, TX



NOT TO SCALE

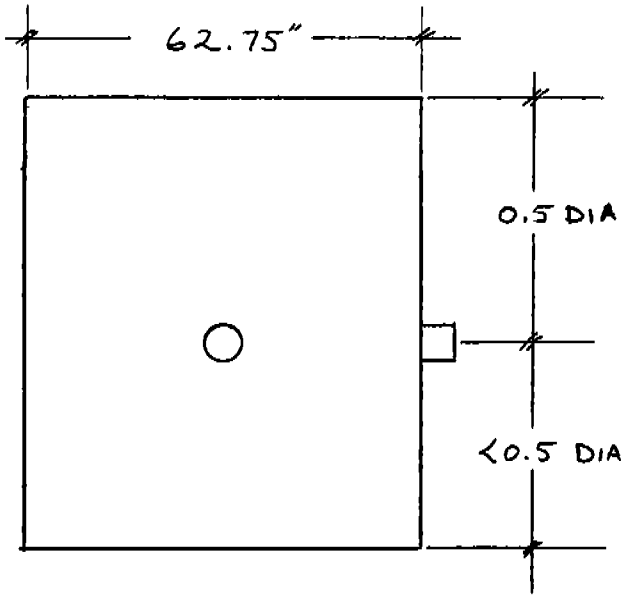
NO. 3 DRYER

L-P CORRIGAN, TX



NOT TO SCALE

PORTABLE PRESS VENT EXTENSION



NOTE: EXTENSION WAS APPROVED BY EPA

NOT TO SCALE

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job Louisiana Pacific (Corrigan, Tx.)

Source No. 1 Dryer

Test 1 Runs 1-3 Date 3/24/92

Stack dimen. 48" IN.

Dry bulb 187 °F Wet bulb 141 °F

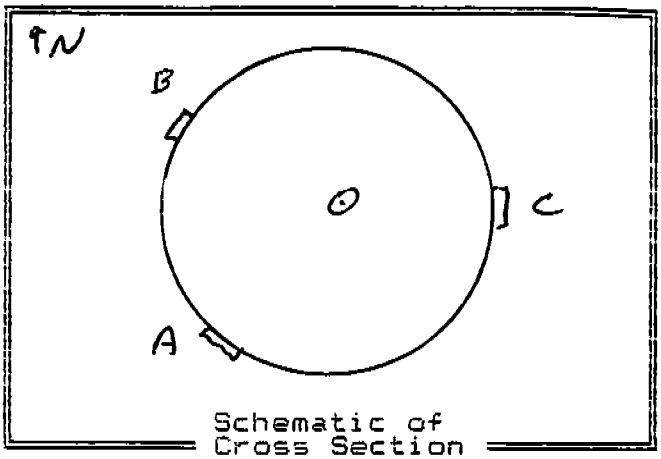
Manometer: ■ Reg. □ Exp. □ Elec.

Barometric pressure 29.83 in Hg

Static pressure -.75 in WC

Operators D. Brennan & B. Aschenbach

Pitot No. 24-4 Cp .84



Schematic of Cross Section

PM-10

Traverse & cyclonic flow

Traverse Point No.		Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
			Port length: 6 in.		Time start: 848 hrs	
A	1	.044	2.112	8.112	0° .92	185
	2	.146	7.008	13.008	0° 1.30	
	3	.296	14.208	20.208	0° 1.45	185
	4	.704	33.792	39.792	5° 1.40	
	5	.854	40.992	46.992	3° 1.50	185
	6	.956	45.888	51.888	0° 1.30	
B	1				0° .74	185
	2				0° 1.13	
	3				5° 1.35	185
	4				0° 1.60	
	5				0° 1.65	185
	6				5° 1.50	
				Avg	1°	
			Port C ≈ 4' above level of ports A & B			
Temp. meas. tool & S/N: PDT 3					Time end: 900 hrs	

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

S-392.1

INTERPOLL LABORATORIES EPA METHOD 201A SAMPLE LOG SHEET

Job LOUISIANA PACIFIC Date 3/24/92 Test 1 Run 1
Source NO. 1 DRYER No. of traverse points 12
Method 201 A Pm-10 Filter holder: STAINLESS STEEL Filter type: 2.5" G.E.

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ■
Postest: .005 cfm at 7 in. Hg. (vac) ■

Particulate Catch Data:

No.s of filters used: 1, 5709

Recovery solvent(s)
■ acetone PROBE + NOZZLE
□ other(s)

No. of probe wash bottles: 1
Sample recovered by: D.B.

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	596	494	102.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1414	1404	10.0
Total			112.0

Integrated Gas Sampling Data:

Bag Pump No. B-7 Box No. 11 Bag No. 1
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: .00 cc/min at 1L in. Hg.
Time start: (0930) (HRS) Time end: (1117) (HRS)
Sampling rate: 300 cc/min Operator: D. BRENNAN
S/N of O_2 Analyzer used to monitor train outlet: 9

CF-023

CF-D11

201 M

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: LOUISIANA-PACIFIC (CARTHAGE, TEXAS) Operators: D. BRZNWSKI & B. ASCHENBACH Pitot No.: 24-4 Cp: .84
Source: NO. 1 DRYER Meter Box No.: 3 ΔH: 1.8 IN WC Bar. Press.: 29.83 inHg H2O 18 %
Date: 3/24/92 Test: 1 Run: 1 Counter coeff.: .9991 Nozzle No.: PM10-2 Nozzle Dia: .150 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas In	Gas Out	Oxygen (xv/v)
	(0930)	991.500											
A- 6	7.53	994.06	1.10	.38	7.53	1.0	185	246	251	46	60	59	19.0
5	13.90	996.22	.93	.38	6.37	1.0	185	240	258	45	65	61	18.6
4	21.49	998.79	1.32	.38	7.58	1.0	185	246	263	45	67	62	18.7
3	29.30	1001.44	1.40	.38	7.81	1.0	185	253	270	45	69	63	18.5
2	36.83	1003.99	1.30	.38	7.53	1.0	185	240	269	50	70	64	18.3
1	43.50	1006.250	1.02	.38	6.67	1.0	184	242	266	50	71	65	18.6
B- 6	50.98	1008.82	1.28	.38	7.47	1.0	185	245	263	52	64	64	18.9
5	59.07	1011.591	1.50	.38	8.09	1.0	184	264	265	51	69	66	18.6
4	66.54	1014.16	1.28	.38	7.47	1.0	188	259	266	51	67	66	18.8
3	74.01	1016.73	1.28	.39	7.47	1.0	188	261	258	51	72	67	18.7
2	80.94	1019.15	1.10	.39	6.92	1.0	189	257	262	47	73	68	18.7
1	87.87	1021.568	1.10	.39	6.92	1.0	188	259	265	47	74	68	18.6
	(1117)												
	θ = 87.87	Vm = 30.068		ΔH = .38							Avg. = 66.4		

C-3

S-0037R

INTERPOLL LABORATORIES EPA METHOD 201A SAMPLE LOG SHEET

Job LOUISIANA-PACIFIC (CORRIGAN, TEXAS) Date 3/24/92 Test 1 Run 2
Source NO. 1 DRYER STACK No. of traverse points 12
Method 201A (PM-10) Filter holder: STAINLESS STEEL Filter type: 2.5" 6.F.

Sample Train Leak Check:

Pretest: ~~.015~~ .005 cfm at 15 in. Hg. (vac) ■
Postest: .005 cfm at 5 in. Hg. (vac) ■

Particulate Catch Data:

No.s of filters used: 1, 5711

Recovery solvent(s)
■ acetone PROBE + NOZZLE WASH
□ other(s) _____

No. of probe wash bottles: 1
Sample recovered by: D.B.

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	610	499	111.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1314	1307	7.0
Total			118.0

Integrated Gas Sampling Data:

Bag Pump No. B-7 Box No. 11 Bag No. 2
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: .00 cc/min at 15 in. Hg.
Time start: (1200) (HRS) Time end: (1335) (HRS)
Sampling rate: 300 cc/min Operator: D. BRENNAN
S/N of O_2 Analyzer used to monitor train outlet: 6

CF-023

CF-D11

INTERPOLL LABORATORIES EPA METHOD 2 (2H) FIELD DATA SHEET

Job: LOUISIANA - PACIFIC (CORRIGAN, TX) Operators: D. BRENNAN & B. ASCHENBACH Pitot No.: 24-4 Cp: .84
Source: NO. 1 DRYER STACK Water Box No.: 3 ΔH: 1.90 IN WC Bar. Press.: 29.83 inHg H2O 15 x
Date: 3/24/92 Test: 1 Run: 2 Coeff.: .9991 Nozzle No.: PN-10 (2) Nozzle Dia: .250 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (xv/v)
	(1208)	21.91											
A- 6	6.97	24.44	1.00	.43	6.97	1.0	186	245	269	46	68	68	18.9
5	14.76	27.26	1.25	.43	7.79	1.0	188	246	265	46	73	69	19.0
4	22.80	30.18	1.33	.43	8.03	1.0	188	255	257	47	75	70	19.0
3	31.33	33.29	1.50	.43	8.53	1.0	187	257	259	47	77	71	19.1
2	39.88	36.34	1.40	.43	8.24	1.0	187	256	260	47	78	72	19.0
1	46.72	38.930	1.05	.43	7.14	1.0	188	256	262	47	79	73	19.0
B- 6	54.67	41.75	1.30	.44	7.94	1.0	188	254	265	48	78	74	19.0
5	63.21	44.89	1.50	.44	8.53	1.0	186	255	263	48	79	74	18.7
4	71.60	47.98	1.45	.44	8.39	1.0	187	258	264	48	79	74	18.6
3	79.45	50.86	1.27	.44	7.85	1.0	187	254	261	48	79	75	18.5
2	87.09	53.67	1.20	.44	7.63	1.0	186	255	260	49	80	75	18.9
1	93.51	56.026	.85	.43	6.42	1.0	185	251	262	49	80	75	19.1
	(1335)												
	θ = 93.51	Vm = 34.116		ΔH = .43							Avg. = 74.7		

C-5

S-0037R

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job LOUISIANA - PACIFIC
Source NO. 1 DRYER STACK
Method 201 A (PM-10) Filter holder: STAINLESS STEEL

Date 3/24/92 Test 1 Run 3
No. of traverse points 12
Filter type: 2.5" G.F.

Sample Train Leak Check:

Pretest: (~~0.002~~ .002 cfm at 15 in. Hg. (vac)
Postest: .005 cfm at 6 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: 1 (5708)

Recovery solvent(s)
■ acetone PROBE + NOZZLE
□ other(s)

No. of probe wash bottles: 1
Sample recovered by: D. BRENNAN

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	617	498	119.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1423	1414	9.0
Total			128.0

Integrated Gas Sampling Data:

Bag Pump No. B-7 Box No. 11 Bag No. 3

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: .00 cc/min at 15 in. Hg.

Time start: 1437 (HRS) Time end: 1607 (HRS)

Sampling rate: 300 cc/min Operator: D. BRENNAN

S/N of O_2 Analyzer used to monitor train outlet: 6

CF-023

201A

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: LOUISIANA-PACIFIC
Source: NO. 1 DRYER STACK
Date: 3/24/92 Test 1 Run 3

Operators: D. BRENNAN & B. ASCHENBACH
Meter Box No. 3 ΔH@ 1.86 ΔH WC
Coeff.: ~~1.66~~ .9991

Pitot No. 24-4 Cp .84
Bar. Press. 29.83 inHg H2O 14 x
Nozzle No. PM-10 (2) Nozzle Dia .150 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas In	Gas Out	Oxygen (xv/v)
	1437	56.205											
A- 6	6.34	58.52	.96	.44	6.34	1.0	186	240	255	55	73	72	18.5
5	13.58	61.23	1.25	.45	7.24	1.0	190	242	259	54	76	74	18.5
4	20.97	63.99	1.30	.45	7.38	1.0	190	245	257	54	78	74	18.5
3	28.76	66.89	1.45	.45	7.79	1.0	190	246	258	54	79	75	18.6
2	36.15	69.66	1.30	.45	7.38	1.0	186	249	261	53	81	76	18.5
1	42.72	72.118	1.03	.45	6.57	1.0	188	270	260	43	82	77	18.6
B- 6	50.11	74.88	1.30	.45	7.38	1.0	187	266	257	43	82	77	18.6
5	57.91	77.83	1.45	.45	7.79	1.0	191	264	258	43	83	78	18.9
4	65.43	80.66	1.35	.45	7.52	1.0	192	265	258	42	83	78	19.0
3	72.58	83.34	1.22	.45	7.15	1.0	192	249	255	45	83	79	18.9
2	79.31	85.87	1.08	.45	6.73	1.0	188	251	256	45	83	79	18.7
1	85.21	88.095	.83	.45	5.90	2.0	188	250	254	45	84	79	19.0
	(1607)												
	θ = 85.21	Vm = 31.890		ΔH .45							Avg. =	76.5	

C-7

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, TX

Source No. 1 Dryer / Stack

Test 2 Run 0 Date 3-24-92

Stack dimen. 48 IN.

Dry bulb ____ °F Wet bulb ____ °F

Manometer: ☒ Reg. ☐ Exp. ☐ Elec.

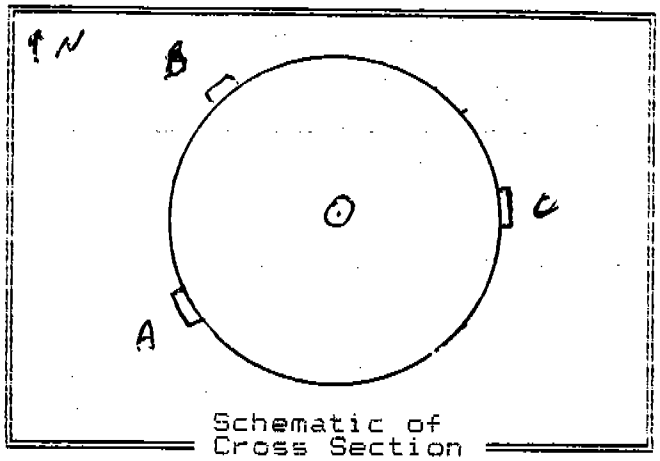
Barometric pressure 29.83 in Hg

Static pressure -.75 in WC

Operators M. Kaechler & C. Mosser

Pitot No. 29V-6-3 Cp .84

Formaldehyde



Schematic of Cross Section

Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length: 6 in.		Time start: 0848 hrs	
A-1	.044	2.11	8.11	.92	
2	.146	2.01	13.01	1.30	
3	.296	14.21	20.21	1.45	
4	.704	33.79	39.79	1.40	9
5	.854	40.99	46.99	1.50	
6	.956	45.89	51.89	1.30	185
B-1				.74	↓
2				1.13	
3				1.35	
4				1.60	
5				1.65	
6				1.50	
		Port C x 4' above level of ports A&B			
Temp. meas. tool & S/N: PDT-3 / Tc				Time end:	hrs

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

S-392.1

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pacific / Corrigan, TX Date 3-24-92 Test 2 Run 1
Source No. 1 Dryer / stack No. of traverse points 12
Method 0011 Filter holder: NA Filter type: NA

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: < 0.02 cfm at 5 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: NA

Recovery solvent(s)
☐ acetone
☒ other(s) CH_2Cl_2

No. of ~~probe~~ Imp wash bottles: 1
Sample recovered by: M. Kaechler & C. Massen

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	703	599	104
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1392	1382	10
Total			114

Integrated Gas Sampling Data:

Bag Pump No. B10 Box No. 30 Bag No. 1
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: 0 cc/min at 15 in. Hg.
Time start: 0955 (HRS) Time end: 1100 (HRS)
Sampling rate: 400 cc/min Operator: M. Kaechler
S/N of O_2 Analyzer used to monitor train outlet: 3

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, TX
Source No 1 Dryer Stack
Date 3-24-92 Test 2 Run 1

Operators M. Kaehler & C. Musser
Meter Box No. 4 ΔH 1.75 IN WC
Coeff. 1.0010

Pitot No. 29U-6 Cp .84
Bar. Press. 29.93 inHg H2O 18 X
Nozzle No. Glass Nozzle Dia .195 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas In	Gas Out	Oxygen (%v/v)
	(0955)	720.50											
B-1	5	722.64	.76	.56	2.60	2	185	247	253	39	57	56	18.7
2	10	725.10	1.05	.78	5.08	2.5	184				61	58	18.2
3	15	727.25	1.22	.91	7.77	2.5	184	245	257	41	65	59	18.5
4	20	730.72	1.45	1.09	0.72	3	182				69	62	18.5
5	25	733.71	1.53	1.16	3.77	3	182	249	261	44	72	63	18.3
6	30	736.69	1.42	1.09	6.71	3	183				78	66	18.4
A-1	35	739.22	1.05	.80	9.26	2.5	192	246	259	44	73	66	18.5
2	40	742.03	1.28	.98	2.07	3	183				75	67	18.4
3	45	745.02	1.41	1.08	5.02	3	185	244	263	46	77	68	18.5
4	50	748.06	1.48	1.13	8.05	3	185				77	69	18.6
5	55	750.99	1.38	1.05	0.98	3	187	242	262	45	78	70	18.5
6	60	753.69	1.10	.84	3.59	2.5	188				78	70	18.6
	(1100)												
	θ = 60	Vm = 33.19		ΔH = .96							Avg. = 67.8		

C-10

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pacific / Corrigan, TX Date 3-24-92 Test 2 Run 2
Source No. 1 Dryer / Stack No. of traverse points 12
Method 0011 Filter holder: NA Filter type: NA

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: < 0.02 cfm at 5 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: NA

Recovery solvent(s)
☐ acetone
☑ other(s) $MeCl_2$

No. of ~~probe~~ Imp wash bottles: 1
Sample recovered by: M. Kaehler & C. Mosser

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	698	598	100
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1327	1315	12
Total			112

Integrated Gas Sampling Data:

Bag Pump No. B10 Box No. 30 Bag No. 2
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: 0 cc/min at 15 in. Hg.
Time start: 1200 (HRS) Time end: 1327 (HRS)
Sampling rate: 400 cc/min Operator: M. Kaehler
S/N of O_2 Analyzer used to monitor train outlet: 3

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, TX
Source Abv. Dryer / Stack
Date 3-24-92 Test 2 Run 2

Operators M. Kaebler & C. Mosser
Meter Box No. 4 ΔH 1.75 IN WC
Calculator coeff. 1.0010

Pitot No. 29V-6 Cp .84
Bar. Press. 29.83 inHg H2O 14 x
Nozzle No. Glass Nozzle Dia .189 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (x v/v)
	(1200)	754.00											
B-1	5	756.36	.85	.68	6.36	2	188	263	258	46	69	69	18.9
2	10	759.15	1.17	.96	9.14	2.5	187				73	70	18.9
3	15	762.17	1.31	1.08	2.10	3	188	260	259	45	77	72	18.0
4	20	765.14	1.35	1.12	5.11	3	188				80	73	18.9
5	25	768.25	1.45	1.21	8.25	3	187	257	257	45	81	74	19.1
6	30	771.44	1.48	1.23	1.43	3	187				83	75	18.9
A-1	35	774.08	1.00	.83	4.05	2.5	187	253	261	44	75	73	19.0
2	40	776.99	1.28	1.06	6.99	3	187				79	75	18.8
3	45	780.11	1.41	1.18	0.09	3	185	256	260	45	82	76	18.7
4	50	783.14	1.32	1.10	3.10	3	186				80	77	18.4
5	55	786.13	1.30	1.09	6.09	3	186	253	259	47	85	78	18.5
6	60	789.15	1.33	1.12	9.13	3.5	187				86	79	18.5
	(1327)												
	θ = 60	Vm = 35.15		ΔH 1.06							Avg. = 76.7		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pacific / Corrigan, TX Date 3-24-92 Test 2 Run 3
Source No. 1 Dryer / Stack No. of traverse points 12
Method 0011 Filter holder: NA Filter type: NA

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: < 0.02 cfm at 5 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: NA

Recovery solvent(s)
☐ acetone
☒ other(s) $MeCl_2$

No. of ~~probe~~ Imp wash bottles: 1
Sample recovered by: M. Kaehler + C. Mosser

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	717	597	120
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1402	1392	10
Total			130

Integrated Gas Sampling Data:

Bag Pump No. B10 Box No. 30 Bag No. 3
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: 0 cc/min at 15 in. Hg.
Time start: 1403 (HRS) Time end: 1506 (HRS)
Sampling rate: 400 cc/min Operator: M. Kaehler
S/N of O_2 Analyzer used to monitor train outlet: 3

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 1 Dryer / Stack
Date 3-24-92 Test 2 Run 3

Operators M. Kaehler & C. Mosser
Meter Box No. 4 ΔH 1.75 IN WC
Coeff. 1.0010

Pitot No. 29U-6 Cp .84
Bar. Press. 29.83 inHg H2O 13.2 X
Nozzle No. glass Nozzle Dia .182 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impy.	Gas/In	Gas/Out	Oxygen (x v/v)
	(1403)	289.40											
A-1	5	292.10	1.07	.90	2.12	2.5	186	243	256	45	75	75	18.2
2	10	295.08	1.28	1.08	5.08	3	186				80	76	18.5
3	15	298.16	1.39	1.18	8.19	3	185	247	253	46	83	78	18.4
4	20	301.22	1.33	1.13	1.25	3	186				85	79	18.7
5	25	304.32	1.37	1.17	4.36	3	186	249	257	46	86	79	18.6
6	30	307.14	1.10	.94	7.15	3	187				87	80	18.3
B-1	35	309.62	.83	.71	9.57	2	187	252	260	47	85	80	17.9
2	40	312.34	1.07	.91	2.32	2.5	187				87	81	18.5
3	45	315.37	1.30	1.11	5.35	3	190	248	258	46	88	81	18.3
4	50	318.58	1.42	1.21	8.52	3.5	190				89	82	18.5
5	55	321.81	1.48	1.26	1.76	3.5	191	245	257	46	90	82	18.6
6	60	324.81	1.29	1.10	4.79	3	190				90	83	18.4
	(1506)												
	θ = 60	Vm = 35.41		ΔH 1.06							Avg. = 82.5		

C-14

S-0037R

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job Louisiana Pacific

Source No. 1 Dryer Stack

Test 4 Runs 1-3 Date 3/24/92

Stack dimen. 48" IN.

Dry bulb — °F Wet bulb — °F

Manometer: ☒ Reg. ☐ Exp. ☐ Elec.

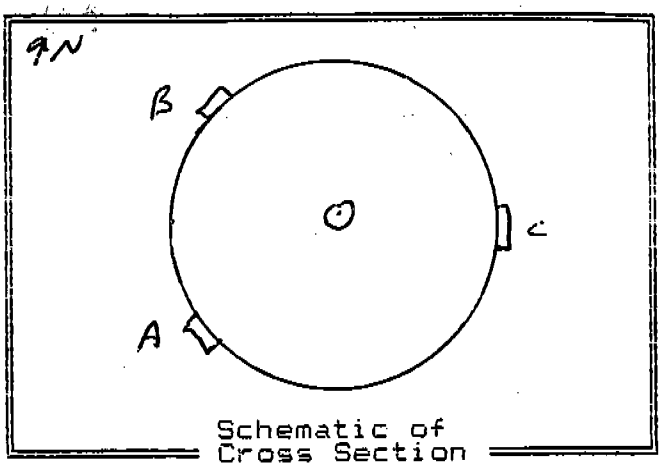
Barometric pressure 29.83 in Hg

Static pressure -.75 in WC

Operators M. Koehler + D. Brennan

Pitot No. 29-65 Cp .84

Particulate



Schematic of Cross Section

Traverse Point No.		Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
			Port length: 6 in.		Time start: 0848 hrs	
A	1	.044	2.11	8.11	.93	
	2	.196	2.01	13.01	1.30	
	3	.296	14.21	20.21	1.45	
	4	.704	33.79	39.79	1.40	191
	5	.854	40.99	46.99	1.50	192
	6	.956	45.89	51.89	1.30	
B	1				.74	↓
	2				1.13	
	3				1.35	
	4				1.60	
	5				1.65	
	6				1.50	
			Port C ≈ 4' above level			
			of ports A & B			

Temp. meas. tool & S/N: PDT-191TC Time end: hrs

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

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job LOUISIANA-PACIFIC Date 3/24/92 Test 4 Run 1
Source NO. 1 DRYER STACK No. of traverse points 12
Method 5 Filter holder: GLASS Filter type: 4" G.F.

Sample Train Leak Check:

Pretest: < .005 cfm at 17 in. Hg. (vac) ☒
Postest: .00 cfm at 6 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: 1 / 4040

Recovery solvent(s)
☒ acetone PROBE + NOZZLE
☐ other(s)

No. of probe wash bottles: 1
Sample recovered by: M.K.

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	600	487	113.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1410	1402	8.0
Total			121.0

Integrated Gas Sampling Data:

Bag Pump No. B-10 Box No. 2 Bag No. 1
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: .00 cc/min at 16 in. Hg.
Time start: 1610 (HRS) Time end: 1712 (HRS)
Sampling rate: 300 cc/min Operator: M.K. + D.B.
S/N of O_2 Analyzer used to monitor train outlet: 3

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 1 Dryer / Stack
Date 3-24-92 Test 4 Run 1

Operators M. Kuehler & C. Mosser
Meter Box No. 4 ΔH 1.25 IN WC
Cosmeter coeff. 1.0010

Pitot No. 29V-6 Cp .84
Bar. Press. 29.83 inHg H2O 13.5 X
Nozzle No. B-3 Nozzle Dia .191 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (xv/v)
	(1610)	825.10											
A-6	5	827.67	1.05	.76	7.59	3	189	239	263	46	76	76	18.7
5	10	830.31	1.19	.86	0.24	3	189				78	77	18.5
4	15	832.98	1.22	.88	2.93	3	189	243	260	46	80	77	18.5
3	20	835.72	1.25	.90	5.64	3	192				82	78	18.5
2	25	838.48	1.20	.87	8.32	3	190	245	258	45	83	78	18.5
1	30	840.85	1.00	.73	0.77	3	190				84	79	18.4
B-6	35	843.59	1.25	.91	3.51	3	190	246	259	45	85	80	18.7
5	40	846.40	1.35	.98	6.36	3.5	190				88	81	18.8
4	45	849.22	1.30	.95	9.17	3.0	190	248	257	45	89	81	19.0
3	50	851.86	1.15	.84	1.81	2.0	192				89	82	18.8
2	55	854.41	1.07	.78	4.37	2.0	192	248	259	44	90	82	19.0
1	60	856.502	.69	.50	6.42	1.5	190				89	82	18.8
	(1712)												
	θ = 60	Vm = 31.402		ΔH = 83							Avg. = 81.9		

C-17

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job LOUISIANA-PACIFIC Date 3/24/92 Test 4 Run 2
Source NO. 1 DRYER STACK No. of traverse points 12
Method 5 Filter holder: GLASS Filter type: 4" G.F.

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac)
Postest: .002 cfm at 8 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: 1 / 4119

Recovery solvent(s)
☒ acetone PROBE + NOZZLE
☐ other(s)

No. of probe wash bottles: 1
Sample recovered by: M.K.

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	603	490	113.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1323	1314	9.0
Total			122.0

Integrated Gas Sampling Data:

Bag Pump No. B-10 Box No. 2 Bag No. 2

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: .00 cc/min at 16 in. Hg.

Time start: 1735 (HRS) Time end: 1838 (HRS)

Sampling rate: 400 cc/min Operator: D.B. + M.K.

S/N of O_2 Analyzer used to monitor train outlet: 3

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: LOUISIANA-PACIFIC
Source: NO 1 DRYER STACK 2
Date: 3/24/92 Test 4 Run 2

Operators: M. KOEHLER + D. BRENNAN
Meter Box No. 4 ΔH 1.75 IN WC
Barometer corr't. 1.00/.98

Pitot No. 29-45 Cp .84
Bar. Press. 29.83 inHg H2O 45.7 X
Nozzle No. B-3 Nozzle Dia .184 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dev. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (xv/v)
	(1735)	857.00											
B-6	5	859.68	1.22	.86	9.67	3	191	243	252	47	83	80	18.7
5	10	862.53	1.38	.97	2.49	3	190				87	81	18.8
4	15	865.39	1.40	.98	5.35	3	190	247	256	45	88	82	18.9
3	20	867.99	1.17	.82	7.97	3	189				88	82	18.7
2	25	870.50	1.09	.77	0.49	2.5	190	246	258	44	88	82	18.8
1	30	872.68	.80	.56	2.66	2	189				88	82	19.1
A-6	35	875.27	1.12	.79	5.22	3	190	250	256	43	87	82	19.0
5	40	877.98	1.25	.88	7.93	3	190				88	82	19.1
4	45	880.58	1.20	.84	0.56	3	190	249	255	43	89	82	19.0
3	50	883.83	1.27	.89	3.30	3	191				89	82	19.2
2	55	885.95	1.21	.85	5.97	3	190	247	257	43	89	82	19.1
1	60	888.473	1.07	.75	8.48	2.5	189				89	82	19.2
	(1838)												
	θ = 60	Vm = 31.473		ΔH = 83							Avg. =	84.7	

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana - Pacific
Source NG 1 Dryer Stack
Method 5 Filter holder: Glass
Date 3/24/92 Test 4 Run 3
No. of traverse points 12
Filter type: 4" G.F.

Sample Train Leak Check:

Pretest: ≤ 0.02 cfm at 15 in. Hg. (vac)
Postest: .000 cfm at 9 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: 1, 4120

Recovery solvent(s)
☒ acetone
☐ other(s) Probe + Nozzle

No. of probe wash bottles: 1
Sample recovered by: M.K.

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	612	490	122.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1420	1410	10.0
Total			132.0

Integrated Gas Sampling Data:

Bag Pump No. B-10 Box No. 2 Bag No. 3

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: .00 cc/min at 15 in. Hg.

Time start: 1900 (HRS) Time end: 2002 (HRS)

Sampling rate: 400 cc/min Operator: D.B. & M.K.

S/N of O_2 Analyzer used to monitor train outlet: 3

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

CF-011

Job Louisiana-Pacific (Corrigan, Texas)
Source No. 1 Dryer Stack
Date 3/24/92 Test 4 Run 3

Operators M. Koehler & D. Brennan
Meter Box No. 4 ΔH 1.75 IN WC
Barometer coeff. 1.001

Pitot No. 29-65 Cp .84
Bar. Press. 29.53 inHg H2O 10 x
Nozzle No. S-3 Nozzle Dia .181 IN.

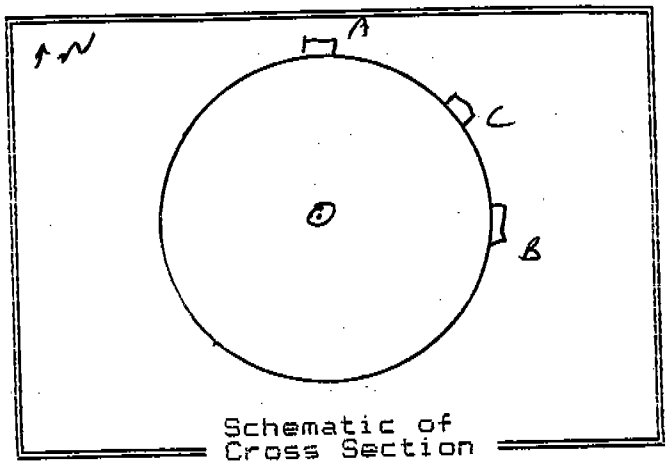
Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas In	Gas Out	Oxygen (xv/v)
	(1900)	888.900											
A- 6	5	891.23	1.08	.76	1.21	2.0	190	264	259	39	80	77	19.3
5	10	893.89	1.22	.84	3.81	3.0	191				83	78	19.6
4	15	896.50	1.20	.83	6.46	3.0	191	266	260	38	84	79	19.7
3	20	899.13	1.28	.89	9.18	3.0	190				84	79	19.5
2	25	901.79	1.21	.84	1.82	3.0	190	262	259	38	85	79	19.4
1	30	904.175	.95	.66	4.16	2.0	189				86	79	19.5
B- 6	35	906.82	1.20	.84	6.80	3.0	188	260	257	39	85	79	19.3
5	40	909.60	1.33	.93	9.57	3.5	190				86	79	19.8
4	45	912.34	1.31	.91	2.32	3.5	191	256	260	39	86	79	19.5
3	50	914.90	1.18	.82	4.93	3.0	191				86	79	19.5
2	55	917.43	1.10	.77	7.15	2.5	190	255	261	40	86	79	19.6
1	60	919.678	.84	.59	9.65	2.0	189				85	79	19.5
	(2002)												
	θ = 60	Vm = 30.978		ΔH .81							Avg. = 81.7		

C-21

S-0037R

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job Louisiana Pacific (Carrollton, Tx.)
Source No. 2A Dryer Stack
Test 5 Runs 1-3 Date 3/25/92
Stack dimen. 29" IN.
Dry bulb ____ °F Wet bulb ____ °F
Manometer: ■ Reg. □ Exp. □ Elec.
Barometric pressure 29.77 in Hg
Static pressure -1.5 in WC
Operators D. Brennan & B. Aschenbach
Pitot No. 24-4 (Pmax) Cp .84
PM-1C



Schematic of Cross Section

Traverse Point No.		Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
			Port length: 6 in.		Time start: 830 hrs	
A	1	.044	1.276	7.276	1.70	183
	2	.146	4.234	10.234	2.20	
	3	.296	8.584	14.584	2.15	184
	4	.704	20.416	26.416	2.60	
	5	.854	24.766	30.766	2.50	184
	6	.956	27.724	33.724	2.35	
B	1				1.70	195
	2				1.85	
	3				2.15	199
	4				2.35	
	5				2.20	198
	6				~~2.25~~ 2.15	
		port C ≈ 2' below level of ports A+B				
Temp. meas. tool & S/N: PDT-23					Time end: 850 hrs	

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

INTERPOLL LABORATORIES EPA METHOD 201A SAMPLE LOG SHEET

Job Louisiana Pacific (Corrigan, Tx.) Date 3/25/92 Test 5 Run 1
Source No. 2A Dryer No. of traverse points 12
Method 201A Filter holder: Stainless Steel Filter type: 2.5" G.F

Sample Train Leak Check:

Pretest: < 0.02 cfm at 10 in. Hg. (vac)
Postest: .002 cfm at 5 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: 1, 5635

Recovery solvent(s)
- [x] acetone Probe
- [ ] other(s)

No. of probe wash bottles: 1
Sample recovered by: D. Brennan

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	625	499	126.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1354	1347	7.0
Total			133.0

Integrated Gas Sampling Data:

Bag Pump No. B-7 Box No. 14 Bag No. 1
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: .00 cc/min at 15 in. Hg.
Time start: (0930) (HRS) Time end: (1101) (HRS)
Sampling rate: 300 cc/min Operator: D. Brennan
S/N of O_2 Analyzer used to monitor train outlet: 9

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job LOUISIANA PACIFIC (CORRILLON, TX) Operators D. BRENNAN & B. ASCHENBACH Pitot No. 24-4 Cp .84
Source NO. 2A DRYER STACK Meter Box No. 3 ΔH 1.82 IN WC Bar. Press. 29.77 inHg H2O 15 X
Date 3/25/92 Test 5 Run 1 Cosmeter coeff. .9991 Nozzle No. PM 10 (1) Nozzle Dia .131 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dgs. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Dryer	Impg.	Gas/In	Gas/Out	Oxygen (x v/v)
	(0930)	88.30											
A- 6	7.50	91.05	2.45	.43	7.50	1.0	198	240	255	46	71	71	18.1
5	15.40	94.00	2.60	.44	7.89	1.0	200	242	253	45	75	73	18.0
4	23.30	96.93	2.60	.44	7.89	1.5	200	246	260	42	78	74	18.0
3	29.87	99.37	1.80	.44	6.57	1.5	200	247	261	42	80	76	18.1
2	36.63	101.87	1.90	.44	6.75	1.5	198	247	263	42	82	77	18.2
1	43.11	104.273	1.75	.44	6.48	1.5	196	249	265	42	83	78	18.0
B- 6	49.59	106.68	1.75	.44	6.48	1.5	200	251	262	40	78	78	18.1
5	56.34	109.18	1.90	.44	6.75	1.5	199	250	260	40	86	81	17.9
4	63.35	111.81	2.05	.44	7.01	2.0	198	259	252	46	87	82	17.9
3	70.70	114.55	2.25	.44	7.34	2.0	198	261	250	47	88	83	17.9
2	77.80	117.18	2.10	.44	7.09	2.0	197	246	250	49	89	84	17.8
1	84.37	119.642	1.80	.44	6.57	2.0	196	240	248	49	90	84	17.7
	(1101)												
	θ = 84.37	Vm = 31.342		ΔH x44							Avg. = 86.3		

INTERPOLL LABORATORIES EPA METHOD ~~5~~ 201A SAMPLE LOG SHEET

Job LOUISIANA PACIFIC (CORRIGAN, TX) Date 3/25/92 Test 5 Run 2
Source NO. 2A DRYER STACK No. of traverse points 12
Method 201A Filter holder: STAINLESS STEEL Filter type: 2.5" 6.7

Sample Train Leak Check:

Pretest: ~~0.02~~ .00 cfm at ~~20~~ 10 in. Hg. (vac)
Postest: .000 cfm at 6 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: 1 (5637)

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

No. of probe wash bottles: 1
Sample recovered by: D. BRENNAN

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	616	495	121.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1402	1393	9.0
Total			130.0

Integrated Gas Sampling Data:

Bag Pump No. B-7 Box No. 14 Bag No. 2
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: .00 cc/min at 15 in. Hg.
Time start: 1145 (HRS) Time end: 1316 (HRS)
Sampling rate: 300 cc/min Operator: D. BRENNAN
S/N of O_2 Analyzer used to monitor train outlet: 9

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job LOUISIANA - PACIFIC (CORRIGAN, Tx.) Operators D. BRENNAN & B. ASCHENBACH Pitot No. 24-4 Cp .84
Source NO 2A DRYER Meter Box No. 3 ΔH 1.86 IN WC Bar. Press. 29.77 inHg H2O 12 X
Date 3/25/92 Test 5 Run 2 Cosmeter coeff. .9991 Nozzle No. PM10(L) Nozzle Dia .321 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dgs. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (XV/V)
	(1145)	121.90											
A- 6	7.66	124.67	2.30	.41	7.66	1.5	200	245	258	53	84	84	18.2
5	15.89	127.62	2.65	.41	8.22	1.5	203	262	266	48	87	84	18.0
4	24.12	130.59	2.65	.41	8.22	1.5	201	265	267	48	89	85	17.9
3	30.90	133.64	1.80	.41	6.78	1.5	202	262	267	48	90	85	17.9
2	39.78	135.52	1.85	.41	6.87	1.5	200	261	265	46	90	86	18.0
1	44.46	137.927	1.75	.41	6.68	1.5	199	261	266	46	91	86	17.9
B- 6	51.05	140.31	1.70	.41	6.59	2.0	200	257	264	47	91	87	18.3
5	58.02	142.82	1.90	.41	6.96	2.0	201	259	265	47	92	88	18.2
4	65.35	145.48	2.10	.41	7.32	2.0	202	260	266	47	92	88	17.9
3	73.01	148.25	2.30	.41	7.66	2.0	202	266	261	48	92	88	17.8
2	80.25	150.87	2.05	.41	7.23	2.0	200	268	257	48	93	88	17.9
1	87.03	153.320	1.80	.41	6.78	2.0	199	265	255	48	94	89	17.8
	(1316)												

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job LOUISIANA PACIFIC Date 3/25/92 Test 5 Run 3
Source NO. 2A DRYER STACK No. of traverse points 12
Method 201A Filter holder: STAINLESS STEEL Filter type: 2.5" G.F.

Sample Train Leak Check:

Pretest: ~~0.02~~ .012 cfm at ~~15~~ in. Hg. (vac) ☒
Postest: .002 cfm at 6 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: 1 (5647)

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

No. of probe wash bottles: 1
Sample recovered by: D. BRENNAN

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	621	497	124.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1407	1396	11.0
Total			135.0

Integrated Gas Sampling Data:

Bag Pump No. B-7 Box No. 14 Bag No. 3
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: .00 cc/min at 16 in. Hg.
Time start: 1345 (HRS) Time end: 1523 (HRS)
Sampling rate: 300 cc/min Operator: D. BRENNAN
S/N of O_2 Analyzer used to monitor train outlet: 9

CF-023

CF-011

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job LOUISIANA PACIFIC (CORRIGAN, TX) Operator D. BRENNAN & B. ASCHENBACH Pitot No. 24.4 Cp .84
Source NO. 2A DRYER STACK Meter Box No. 3 ΔH 1.86 TN WC Bar. Press. 29.77 inHg H2O 17 x
Date 3/25/92 Test 5 Run 3 Coeff. .9991 Nozzle No. INC-10 (1) Nozzle Dia .131 IN.

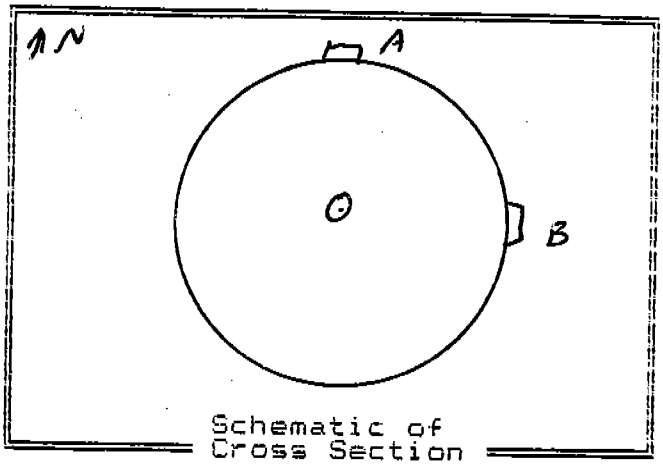
Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dgm. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Dryer	Impg.	Gas/In	Gas/Out	Oxygen (x v/v)
	(1345)	153.600											
A- 6	8.77	156.80	2.75	.42	8.77	1.0	203	271	240	45	88	87	18.3
5	17.78	160.09	2.90	.42	9.01	1.0	202	269	242	45	91	89	18.1
4	26.64	163.32	2.80	.42	8.85	1.0	202	270	243	44	92	88	18.2
3	34.57	166.23	2.25	.42	7.93	1.0	201	249	251	47	92	88	18.3
2	41.96	168.93	1.95	.42	7.38	2.0	201	246	254	47	93	89	18.2
1	48.76	171.424	1.65	.42	6.79	2.0	201	243	252	48	92	88	18.3
B- 6	55.76	174.00	1.75	.42	9.00	2.0	201	245	250	50	90	88	17.9
5	63.52	176.84	2.15	.42	7.75	2.0	202	248	254	50	92	88	17.7
4	71.72	179.83	2.40	.42	8.19	2.0	202	239	240	45	92	88	18.2
3	79.57	182.69	2.20	.42	7.84	2.0	202	240	243	45	92	88	18.0
2	86.76	185.36	1.85	.42	7.19	2.0	202	245	242	45	93	88	18.1
1	93.56	187.845	1.65	.42	6.79	2.0	200	244	245	46	93	88	18.0
	(1523)												
	θ = 93.56	Vm = 34.245		ΔH = .42							Avg. = 89.8		

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S-0037R

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 2B Dryer / Stack
Test 6 Run 0 Date 3-25-92
Stack dimen. 29 IN.
Dry bulb ____ °F Wet bulb ____ °F
Manometer: ☒ Reg. ☐ Exp. ☐ Elec.
Barometric pressure 29.77 in Hg
Static pressure -1.30 in WC
Operators M. Kaehler & C. Mosser
Pitot No. 29V-6 Cp .84



Schematic of Cross Section

Formaldehyde

Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length: 6 in.		Time start: 0900 hrs	
A-1	.021	0.61/1	6.61/7.00	1.61	
2	.067	1.94	7.94	1.90	
3	.118	3.42	9.42	1.95	
4	.177	5.13	11.13	2.21	
5	.250	7.25	13.25	2.33	
6	.356	10.32	16.32	2.58	198
7	.644	18.68	24.68	2.75	
8	.750	21.75	27.75	2.59	
9	.823	23.97	29.97	2.25	
10	.892	25.58	31.58	1.90	
11	.933	27.06	33.06	1.85	
12	.979	28.39/28.00	34.39/34.00	1.60	
B-1				1.17	
2				1.55	
3				2.10	
4				2.22	
5				2.27	198
6				2.42	
7				2.70	
8				2.25	
9				2.23	
10				1.90	
11				1.60	
12				.98	

Temp. meas. tool & S/N: PDT-3 / TC
Time end: hrs

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

S-392.1

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pacific / Corrigan, TX Date 3-25-92 Test 6 Run 1
Source No. 2B Dryer 1 Stack No. of traverse points 24
Method 0011 Filter holder: NA Filter type: NA

Sample Train Leak Check:

Pretest: (0.02 cfm at 15 in. Hg. (vac) ☒
Postest: ≤ 0.02 cfm at 19 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: NA

Recovery solvent(s)
☐ acetone
☒ other(s) $MeCl_2$

No. of ~~probe~~ Imp wash bottles: 1
Sample recovered by: M. Kaehler + C. Mosser

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	759	598	161
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1340	1327	13
Total			174

Integrated Gas Sampling Data:

Bag Pump No. 1310 Box No. 2 Bag No. 1
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: 0 cc/min at 15 in. Hg.
Time start: 0930 (HRS) Time end: 1034 (HRS)
Sampling rate: 400 cc/min Operator: M. Kaehler
S/N of O_2 Analyzer used to monitor train outlet: 3

CF-023

S-0046RR

CF-011

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: Louisiana Pacific / Corrigan, TX
Source: No. 2B Dryer / Stack
Date: 3-25-92 Test: 6 Run: 1

Operators: M. Kaehler + C. Mosser
Meter Box No.: 4 ΔH: 1.23 IN WC
Cosmeter coeff.: 1.0010

Pitot No.: 29U-6 Cp: .84
Bar. Press.: 29.77 inHg H2O .15 X
Nozzle No.: glass Nozzle Dia .198 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Des. Vol. (cf)	VAC. (inHg)	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (x v/v)
	(0930)	927.60											
B-12	2.5	929.28	1.65	1.32	9.23	4	191	243	256	46	68	68	18.0
11	5	930.85	1.60	1.27	0.93	4	195				70	68	17.9
10	7.5	932.61	2.05	1.63	2.64	5	198	249	252	48	72	69	17.8
9	10	934.67	2.45	1.94	4.62	6	199				75	70	17.6
8	12.5	936.63	2.63	2.10	6.68	7	198	255	254	48	77	71	17.7
7	15	938.72	2.82	2.26	8.82	8	198				79	72	17.7
6	17.5	940.75	2.50	2.01	0.84	7.5	198	253	254	48	80	73	17.7
5	20	942.68	2.13	1.71	2.71	7	198				81	73	17.6
4	22.5	944.35	1.80	1.445	4.43	6	198	245	258	46	82	74	17.8
3	25	946.03	1.58	1.27	6.05	6	198				83	75	17.8
2	27.5	947.32	.95	.77	7.31	4	197	248	255	46	83	75	17.8
1	30	948.47	.81	.65	8.47	3.5	197				84	76	17.8
A-12	32.5	950.14	1.61	1.30	0.11	7	198	249	258	47	80	75	17.5
11	35	951.86	1.95	1.57	1.90	7	197				85	77	17.5
10	32.5	953.64	1.92	1.56	3.69	7.5	198	253	255	47	86	78	17.7
9	40	955.57	2.26	1.84	5.64	10	198				87	78	17.7
8	42.5	957.59	2.48	2.02	7.68	11	198	250	259	48	88	79	17.8
7	45	959.75	2.77	2.26	9.84	12.5	198				88	79	17.7
6	47.5	961.88	2.62	2.13	1.93	12.5	198	247	255	48	88	80	17.6
5	50	963.89	2.33	1.90	3.92	12	198				88	80	17.5
4	52.5	965.83	2.21	1.80	5.85	10	198	249	258	48	88	81	17.5
3	55	967.71	1.95	1.59	7.67	7	197				88	81	17.3
2	57.5	969.47	1.90	1.55	9.46	6	197	252	260	48	89	81	17.4
1	60	971.12	1.61	1.32	1.11	5.5	197				90	82	17.4
	(1034)												
	θ = 60	Vm = 43.52		√ΔH 1.63							Avg. =	79.0	

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S-0037R

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 2B Dryer / Stack
Method 0011 Filter holder: NA

Date 3-25-92 Test 6 Run 2
No. of traverse points 24
Filter type: NA

Sample Train Leak Check:

Pretest: ≤ 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: ≤ 0.02 cfm at 17 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: NA

Recovery solvent(s)
☐ acetone
☒ other(s) $MeCl_2$

No. of ~~probe~~ Imp wash bottles: 1
Sample recovered by: M. Kaehler & C. Mosser

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	750	597	153
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1357	1340	17
Total			170

Integrated Gas Sampling Data:

Bag Pump No. 310 Box No. 6 Bag No. 2
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: 0 cc/min at 15 in. Hg.
Time start: 1115 (HRS) Time end: 1218 (HRS)
Sampling rate: 900 cc/min Operator: M. Kaehler
S/N of O_2 Analyzer used to monitor train outlet: 3

CF-023

S-0046RR

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 2 Dryer / Stack
Date 3-25-92 Test 6 Run 2

Operators M. Gaehler & C. Mosser
Meter Box No. 4 ΔH 1.75 IN WC
Coeaster coeff: 1.0010

Pitot No. 29U-6 Cp .84
Bar. Press. 29.77 inHg H2O 16.1 x
Nozzle No. Glass Nozzle Dia .199 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dry. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (xv/v)
	(1115)	971.40											
B-12	2.5	972.82	1.40	1.11	2.91	4.5	197	248	254	54	80	80	17.6
11	5	974.52	1.75	1.39	4.59	7	198				82	80	17.2
10	7.5	976.41	2.10	1.67	6.45	6	198	250	257	52	84	81	17.3
9	10	978.32	2.29	1.82	8.38	7	199				86	82	17.4
8	12.5	980.37	2.57	2.04	0.44	9	200	246	259	51	88	83	17.4
7	15	982.46	2.70	2.16	2.55	9.5	199				89	83	17.4
6	17.5	984.55	2.51	2.00	4.59	9	200	247	258	51	89	83	17.4
5	20	986.47	2.28	1.82	6.54	8	199				90	83	17.4
4	22.5	988.42	2.19	1.75	8.45	8	199	250	255	52	91	84	17.3
3	25	990.15	1.90	1.53	0.23	8	197				91	84	17.3
2	27.5	991.80	1.50	1.21	1.82	6	196	246	253	52	92	85	17.6
1	30	993.27	1.20	.97	3.24	5	197				92	85	17.6
B-12	32.5	994.70	1.33	1.07	4.74	5	199	245	256	50	89	84	17.7
11	35	996.42	1.77	1.42	6.46	7	199				91	85	17.2
10	37.5	998.37	2.18	1.75	8.37	9	199	248	260	50	92	85	17.1
9	40	1000.37	2.45	1.96	0.39	12	200				92	85	17.1
8	42.5	1002.47	2.70	2.16	2.52	14	200	249	258	49	92	85	17.2
7	45	1004.52	2.81	2.25	4.68	15	200				91	86	17.4
6	47.5	1006.55	2.40	1.92	6.69	14	200	242	255	49	90	85	17.2
5	50	1008.46	2.18	1.75	8.59	12	200				89	85	17.2
4	52.5	1010.37	2.00	1.60	0.42	13	200	245	257	49	89	85	17.1
3	55	1012.10	1.83	1.46	2.16	12	200				89	85	17.0
2	57.5	1013.77	1.48	1.19	3.74	9	199	247	260	50	91	86	17.1
1	60	1015.24	1.20	.97	5.16	6	198				92	86	17.1
	(1218)												
	θ =	Vm = 44.84		ΔH Avg							Avg. =	86.5	

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pacific / Corrigan, TX Date 3-25-92 Test 6 Run 3
Source No. 2B Dryer / Stack No. of traverse points 24
Method 0011 Filter holder: NA Filter type: NA

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: < 0.02 cfm at 10 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: NA

Recovery solvent(s)
☐ acetone
☒ other(s) $MeCl_2$

No. of ~~probe~~ Imp wash bottles: 1
Sample recovered by: M. Kaechler & C. Mosser

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	763	597	166
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1373	1354	19
Total			185

Integrated Gas Sampling Data:

Bag Pump No. B/O Box No. 6 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: 1401 (HRS)
Sampling rate: 400 cc/min Operator: M. Kaechler
S/N of O_2 Analyzer used to monitor train outlet: 3

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 2B Dryer / Stack
Date 3-25-92 Test 6 Run 3

Operators M. Kaehler & C. Mosser
Meter Box No. 4 ΔH 1.75 IN WC
Coeffic coeff. 1.0010

Pitot No. 290-6 Cp .84
Bar. Press. 29.77 inHg H2O 15.9%
Nozzle No. Glass Nozzle Dia .188 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas In	Gas Out	Oxygen (xx/x)
	(1255)	15.60											
B-12	2.5	17.10	1.30	1.05	1.07	3	198	241	256	48	82	82	17.8
11	5	18.79	1.28	1.42	8.79	4	198				85	83	17.1
10	7.5	20.62	2.10	1.68	0.65	4	199	247	258	48	87	84	17.0
9	10	22.62	2.43	1.95	2.66	5	198				89	84	17.0
8	12.5	24.72	2.72	2.19	4.79	6	198	249	257	48	91	85	16.8
7	15	26.95	2.87	2.31	6.99	6.5	198				92	86	17.1
6	17.5	29.05	2.61	2.11	9.09	6	198	245	259	49	94	87	17.1
5	20	31.03	2.31	1.87	1.07	6	198				95	87	16.8
4	22.5	32.92	1.89	1.54	2.86	4.5	197	248	262	50	95	87	16.9
3	25	34.62	1.63	1.32	4.53	4	197				95	87	17.0
2	27.5	35.92	1.07	.87	5.68	3	197	246	260	50	95	87	16.9
1	30	37.30	1.03	.84	7.21	3	197				95	88	16.9
A-12	32.5	39.04	1.98	1.61	9.05	4.5	197	243	258	48	94	88	17.0
11	35	40.83	1.92	1.48	0.81	4.5	197				95	88	17.4
10	37.5	42.80	2.15	1.75	2.72	5	198	247	260	48	96	89	17.2
9	40	44.75	2.35	1.91	4.73	5.5	197				97	89	17.1
8	42.5	46.82	2.63	2.14	6.85	6	198	251	263	49	98	89	17.2
7	45	49.10	2.85	2.32	9.06	7	198				98	90	17.2
6	47.5	51.20	2.67	2.18	1.20	6	198	249	263	51	98	90	17.3
5	50	53.21	2.37	1.93	3.22	6	198				98	90	17.2
4	52.5	55.18	2.13	1.74	5.13	5.5	198	247	261	51	98	90	17.2
3	55	56.97	1.91	1.56	6.95	5	197				98	90	17.2
2	57.5	58.68	1.64	1.32	8.62	4	197	249	261	49	98	90	17.2
1	60	60.22	1.41	1.15	0.18	4	197				98	91	17.2
	(1401)												
	θ = 60	Vm = 44.62		ΔH 1.68							Avg. = 90.8		

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job LOUISIANA PACIFIC

Source NO. 2A BARK STACK

Test 8 Runs 1-2 Date 3/25/92

Stack dimen. 29" IN.

Dry bulb ____ °F Wet bulb ____ °F

Manometer: ☐ Reg. ☐ Exp. ☐ Elec.

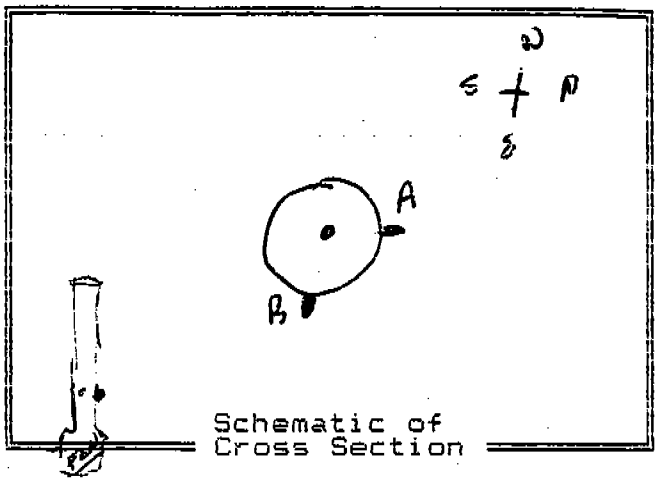
Barometric pressure 29.77 in Hg

Static pressure -1.5 in WC

Operators D. BRENNON & B. ASCHENBECH

Pitot No. 24-4 Cp .84

Particulate



Schematic of Cross Section

Traverse Point No.		Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
			Port length: in.		Time start: hrs	
A	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
	12					
B	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
	12					
Temp. meas. tool & S/N:					Time end: hrs	

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

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job LOUISIANA PACIFIC Date 3/25/92 Test 8 Run 1
Source NO. 2A DRYER STACK No. of traverse points
Method 5 Filter holder: GLASS Filter type: 4" G.F.

Sample Train Leak Check:

Pretest: ~~0.02~~ .006 cfm at 15 in. Hg. (vac) ☒
Postest: .005 cfm at 6 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: 1, 4123

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

No. of probe wash bottles: 1
Sample recovered by: D. BREEDLOVE

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	630	496	134.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1410	1401	9.0
Total			143.0

Integrated Gas Sampling Data:

Bag Pump No. B-7 Box No. 30 Bag No. 1

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: 00 cc/min at 16 in. Hg.

Time start: 1615 (HRS) Time end: 1717 (HRS)

Sampling rate: 400 cc/min Operator: D.B.

S/N of O_2 Analyzer used to monitor train outlet: 9

CF-023

(COALTRAIN ~~CONSTITUTION~~ TX.)

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job LOUISIANA PACIFIC (~~CONSTITUTION~~ TX.) Operators D. BRENNAN & B. ASCHENBACH Pitot No. 24-4 (L005) Cp .84
Source NO. 2A DRYER STACK Meter Box No. 3 ΔH@ 1.90 TN WC Bar. Press. 28.77 inHg H2O 16 x
Date 3/25/92 Test 8 Run 1 Counter coeff. .9991 Nozzle No. S-3 Nozzle Dia .182 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (x v/v)
	(1615)	188.100											
A- 12	2.5	189.81	1.95	1.48	9.79	4.0	200	269	254	48	84	84	18.3
11	5.0	191.54	2.10	1.58	1.53	4.5	200				87	85	18.3
10	7.5	193.34	2.20	1.66	3.31	5.0	201	270	255	47	88	85	18.1
9	10.0	195.17	2.35	1.77	5.16	5.0	201				89	85	18.2
8	12.5	196.99	2.35	1.77	7.01	5.0	201	267	255	47	90	86	18.1
7	15.0	198.81	2.30	1.74	8.84	5.0	201				91	86	18.2
6	17.5	200.57	2.00	1.51	0.55	5.0	201	261	256	44	91	87	18.0
5	20.0	202.28	1.95	1.47	2.24	4.5	203				91	87	18.3
4	22.5	203.89	1.85	1.40	3.88	4.0	203	260	265	44	92	87	18.4
3	25.0	205.48	1.70	1.29	5.46	4.0	202				92	87	18.4
2	27.5	206.96	1.45	1.10	6.97	3.5	201	258	265	43	92	87	18.3
1	30.0	208.109	.89	.68	8.07	2.0	198				92	87	18.2
B- 12	32.5	209.62	1.55	1.18	9.58	4.0	200	257	267	43	92	87	18.3
11	35.0	211.24	1.75	1.33	1.19	4.0	202				93	88	17.9
10	37.5	212.90	1.90	1.44	2.86	4.5	202	260	270	43	93	88	18.0
9	40.0	214.65	2.10	1.60	4.62	5.0	201				93	88	18.1
8	42.5	216.41	2.15	1.63	6.40	5.0	201	249	260	45	94	88	18.2
7	45.0	218.17	2.15	1.64	8.18	5.0	201				94	88	18.0
6	47.5	219.92	2.10	1.60	9.94	5.0	200	251	262	45	94	88	18.0
5	50.0	221.63	1.95	1.48	1.64	5.0	201				94	89	18.0
4	52.5	223.24	1.70	1.29	3.22	4.0	202	253	270	48	93	89	17.9
3	55.0	224.73	1.45	1.10	4.69	3.5	201				94	89	17.9
2	57.5	225.99	1.10	.84	5.96	3.0	200	255	268	48	93	89	17.9
1	60.0	227.134	.93	.71	7.14	2.5	200				93	89	17.8
	(1717)												
	θ = 60	Vm = 39.034		ΔH 1.39							Avg. =	89.4	

INTERFOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job LOUISIANA PACIFIC Date 3/25/92 Test 8 Run 2
Source No. 2A DRYER STACK No. of traverse points 24
Method 5 Filter holder: GLASS Filter type: 4" G.F.

Sample Train Leak Check:

Pretest: ~~0.02~~ .005 cfm at 15 in. Hg. (vac) ■
Postest: .005 cfm at 7 in. Hg. (vac) ■

Particulate Catch Data:

No.s of filters used: 1, 4124

Recovery solvent(s)
■ acetone FRONT HALF
□ other(s)

No. of probe wash bottles: 1
Sample recovered by: D. BRENNAN

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	644	497	147.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1423	1407	16.0
Total			163.0

Integrated Gas Sampling Data:

Bag Pump No. B-7 Box No. 30 Bag No. 2
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: -00 cc/min at 16 in. Hg.
Time start: 1825 (HRS) Time end: 1927 (HRS)
Sampling rate: 400 cc/min Operator: D. BRENNAN
S/N of O_2 Analyzer used to monitor train outlet: 9

CF-023

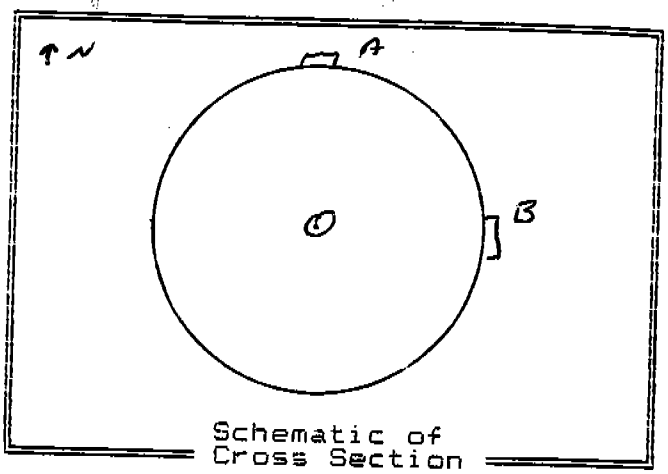
INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job LOUISIANA PACIFIC (CORRIGAN, TX) Operators D. BRENNAN & B. ASCHENBACH Pitot No. 24.46 Cp .84
Source NO. 2A DRYER STACK Water Box No. 5 ΔH@ 1.90 IN WC Bar. Press. 29.77 inHg H2O 4 %
Date 3/25/92 Test 8 Run 2 Gasometer coeff. .9991 Nozzle No. 8.5 Nozzle Dia .182 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dry. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (v/v)
	(1825)	228.000											
A- 12	2.5	229.64	1.85	1.44	9.66	4.0	200	246	252	48	81	81	17.9
11	5.0	231.42	2.20	1.68	1.45	5.0	201				81	81	17.6
10	7.5	233.23	2.30	1.75	3.27	5.0	201	245	254	48	82	81	17.5
9	10.0	235.09	2.35	1.79	5.12	5.5	201				83	81	17.4
8	12.5	236.95	2.35	1.79	6.97	5.5	201	246	255	46	83	81	17.7
7	15.0	238.81	2.30	1.75	8.80	5.5	202				84	81	18.1
6	17.5	240.55	2.05	1.56	6.53	5.0	202	249	258	46	81	81	18.2
5	20.0	242.21	1.95	1.49	2.21	4.5	201				85	81	17.9
4	22.5	243.86	1.85	1.41	3.86	4.5	201	250	257	46	86	82	17.7
3	25.0	245.42	1.65	1.27	5.42	4.0	200				86	82	17.7
2	27.5	246.92	1.50	1.15	6.90	3.5	200	251	258	46	87	83	17.6
1	30.0	248.086	.96	.74	8.10	3.0	198				87	83	17.7
B- 12	32.5	249.67	1.75	1.35	9.71	4.5	200	250	259	45	87	83	17.8
11	35.0	251.30	1.80	1.38	1.34	4.5	201				88	84	18.0
10	37.5	253.03	2.00	1.54	3.05	5.0	202	253	264	45	88	84	18.3
9	40.0	254.76	2.00	1.54	4.77	5.0	202				88	84	18.3
8	42.5	256.54	2.15	1.65	6.55	5.0	202	255	265	46	88	84	18.3
7	45.0	258.30	2.10	1.61	8.31	5.0	201				89	84	18.2
6	47.5	260.03	1.95	1.50	0.01	5.0	201	254	262	46	89	85	18.2
5	50.0	261.72	1.85	1.43	1.67	4.5	200				89	85	17.9
4	52.5	263.32	1.75	1.35	3.29	4.5	200	255	260	46	89	85	18.0
3	55.0	264.86	1.60	1.23	4.83	4.0	200				89	85	18.2
2	57.5	266.25	1.40	1.08	6.27	3.5	198	252	259	46	89	85	18.5
1	60.0	267.438	.98	.76	9.49	2.5	196				90	85	18.6
	(1927)												
	θ = 60	Vm = 39.438		ΔH = 1.43							Avg. =	84.6	

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job Louisiana Pac. Inc / Corrigan, TX
Source No. 2B Dryer / Stack
Test 9 Run 0 Date 3-25-92
Stack dimen. 29 IN.
Dry bulb ____ °F Wet bulb ____ °F
Manometer: ☒ Reg. ☐ Exp. ☐ Elec.
Barometric pressure 29.77 in Hg
Static pressure -1.30 in WC
Operators M. Kaehler & C. Mosser
Pitot No. 29V-4 Cp .84



Schematic of Cross Section

Recirculated 1202 Back-half

Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length: 6 in.		Time start: 1500 hrs	
A-1	.021	0.61/1	6.61/7	1.60	
2	.067	1.94	7.94	1.85	
3	.118	3.42	9.42	1.93	
4	.177	5.13	11.13	2.25	
5	.250	7.25	13.25	2.41	
6	.356	10.32	16.32	2.55	
7	.644	18.68	24.68	2.73	
8	.750	21.75	27.75	2.48	↑
9	.823	23.87	29.87	2.27	
10	.882	25.58	31.58	1.87	199
11	.933	27.06	33.06	1.87	
12	.979	28.34/28.00	34.34/34.00	1.55	↓
B-1				1.20	
2				1.50	
3				2.00	
4				2.19	
5				2.23	
6				2.40	
7				2.71	
8				2.21	
9				2.20	
10				1.85	
11				1.77	
12				1.00	

Temp. meas. tool & S/N: PDT-19/TC
Time end: hrs

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

S-392.1

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pacific / Corrigan, TX Date 3-25-92 Test 9 Run 1
Source No. 2B Dryer / Stack No. of traverse points 24
Method 5 Filter holder: 4" Glass Filter type: 4" G.F.

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: < 0.02 cfm at 11 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: 4122

Recovery solvent(s)
☒ acetone
☒ other(s) $MeCl_2$

No. of probe wash bottles: 1
Sample recovered by: M. Kaehler & C. Mosser

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	641	494	147
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1340	1324	16
Total			163

Integrated Gas Sampling Data:

Bag Pump No. B10 Box No. 4 Bag No. 1
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: 0 cc/min at 15 in. Hg.
Time start: 1510 (HRS) Time end: 1612 (HRS)
Sampling rate: 400 cc/min Operator: M. Kaehler
S/N of O_2 Analyzer used to monitor train outlet: 3

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 2B Dryer / Stack
Date 3-25-93 Test 9 Run 1

Operators M. Kaehler & C. Mosser
Meter Box No. 4 ΔH 1.75 IN WC
Coeff. 1.0010

Pitot No. 29U-4 Cp .84
Bar. Press. 29.77 inHg H2O 16 X
Nozzle No. 3-3 Nozzle Dia .183 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (x v/v)
	(1510)	61.25											
A-12	2.5	62.85	1.70	1.22	2.84	5.5	197	245	258	42	80	81	18.0
11	5	64.51	1.90	1.35	4.51	6	200				82	81	18.0
10	7.5	66.50	2.13	1.52	6.28	6.5	199	247	261	42	85	82	17.7
9	10	68.04	2.20	1.58	8.08	7	199				87	83	17.5
8	12.5	69.93	2.43	1.74	9.99	8	199	243	261	43	88	83	17.5
7	15	71.87	2.58	1.85	1.95	8.5	199				88	83	17.5
6	17.5	73.81	2.49	1.79	3.87	8.5	200	246	260	42	89	83	17.7
5	20	75.72	2.40	1.72	5.77	8.5	200				89	84	17.7
4	22.5	77.60	2.29	1.65	7.62	8.5	200	250	257	42	90	84	17.6
3	25	79.44	2.18	1.57	9.43	8	199				91	84	17.6
2	27.5	81.22	2.00	1.44	1.16	7	199	247	255	44	91	85	17.6
1	30	82.63	1.38	1.00	2.60	5	199				91	85	17.7
B-12	32.5	83.98	1.17	.84	3.93	4	199	251	260	44	90	84	17.6
11	35	85.61	1.87	1.35	5.61	6	200				91	85	17.7
10	37.5	87.36	2.13	1.54	7.40	7	199	253	262	44	93	85	17.9
9	40	89.23	2.38	1.72	9.30	8	200				93	86	17.7
8	42.5	91.20	2.53	1.83	1.25	8.5	199	249	261	43	93	86	17.9
7	45	93.23	2.67	1.93	3.26	9	199				93	86	17.8
6	47.5	95.17	2.49	1.80	5.20	9	199	247	255	45	93	86	17.7
5	50	97.08	2.20	1.59	7.03	8	200				93	86	17.9
4	52.5	98.82	2.00	1.45	8.77	7.5	199	245	253	45	93	86	17.8
3	55	100.40	1.60	1.16	0.33	5.5	198				93	86	17.8
2	57.5	101.73	1.18	.85	1.67	4	198	244	250	47	93	87	17.7
1	60	102.92	.85	.62	2.81	3.5	197				93	86	17.6
	(1612)												
	θ = 60	Vm = 41.67		ΔH 1.46							Avg. = 87.2		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 2B Dryer / Stack
Method 5 Filter holder: A-1

Date 3-25-92 Test 9 Run 2
No. of traverse points 24
Filter type: NA

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: < 0.02 cfm at 11 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: 4125

Recovery solvent(s)
☒ acetone
☒ other(s) $MeCl_2$

No. of probe wash bottles: 1
Sample recovered by: M. Kaehler & C. Mosser

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	650	496	154
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1356	1340	16
Total			170

Integrated Gas Sampling Data:

Bag Pump No. 1310 Box No. 4 Bag No. 2

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: 0.00 cc/min at 15 in. Hg.

Time start: 1110 (HRS) Time end: 1848 (HRS)

Sampling rate: 400 cc/min Operator: M. Kaehler

S/N of O_2 Analyzer used to monitor train outlet: 3

CF-023

CF-D11

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pac. Fin / Corrigan, TX
Source No. 213 Dryer / Stack
Date 3-25-92 Test 9 Run 2

Operators M. Kaehler & C. Mosser
Meter Box No. 4 ΔH 1.75 IN WC
Barometer coeff. 1.0010

Pitot No. 29V-6 Cp .84
Bar. Press. 29.77 inHg H2O 16 X
Nozzle No. 3 3 Nozzle Dia .183 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (xx/v)
	(1710)	103.20											
B-12	2.5	104.68	1.43	1.03	4.66	5	198	245	251	45	80	80	17.6
11	5	106.22	1.68	1.20	6.23	5	199				81	80	17.6
10	7.5	107.89	2.03	1.45	7.96	6	199	247	248	45	83	81	17.6
9	10	109.72	2.32	1.66	9.81	7.5	199				85	81	17.9
8	12.5	111.65	2.50	1.79	1.73	8	199	246	253	44	86	82	18.0
7	15	113.62	2.60	1.86	3.69	8.5	200				87	82	18.0
6	17.5	115.58	2.42	1.74	5.59	8.5	199	249	258	44	88	83	18.0
5	20	117.42	2.19	1.58	7.40	8	198				89	83	17.8
4	22.5	119.15	1.87	1.35	9.07	6.5	198	252	261	44	89	83	17.6
3	25	120.88	1.60	1.15	0.62	5.5	198				90	83	17.7
2	27.5	121.99	1.15	.83	1.94	4	196	251	263	45	90	83	17.6
1	30	123.20	1.06	.76	3.20	4	197				90	83	17.8
A-12	32.5	124.84	1.67	1.20	4.79	5.5	198	248	260	46	89	83	18.0
11	35	126.42	1.85	1.33	6.45	6	198				80	79	17.7
10	37.5	128.20	2.12	1.51	8.22	7	197	242	258	43	81	79	17.7
9	40	130.00	2.23	1.59	0.03	7	196				83	80	17.6
8	42.5	131.88	2.52	1.80	1.95	8	198	246	255	45	84	80	17.6
7	45	133.85	2.63	1.89	3.92	9	196				85	80	17.6
6	47.5	135.77	2.47	1.77	5.84	9	196	249	258	45	85	80	17.7
5	50	137.73	2.38	1.71	7.71	8.5	197				85	80	18.1
4	52.5	139.57	2.25	1.62	9.54	8	196	252	261	46	85	80	18.3
3	55	141.36	2.07	1.49	1.30	7.5	195				86	80	18.0
2	57.5	142.99	1.87	1.35	2.96	6.5	195	249	257	46	86	80	17.9
1	60	144.62	1.72	1.24	4.57	6	195				86	80	17.8
	(1840)												
	θ = 60	Vm = 41.42		ΔH 1.45							Avg. = 83.2		

Dryer Down 1744 / Restart 1820

C-45

S-0037R

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job Louisiana Pacific

Source No. 3 Dryer Stack

Test 10 Runs 1-3 Date 3/26/92

Stack dimen. 41.5" IN.

Dry bulb ____ °F Wet bulb ____ °F

Manometer: ☐ Reg. ☐ Exp. ☐ Elec.

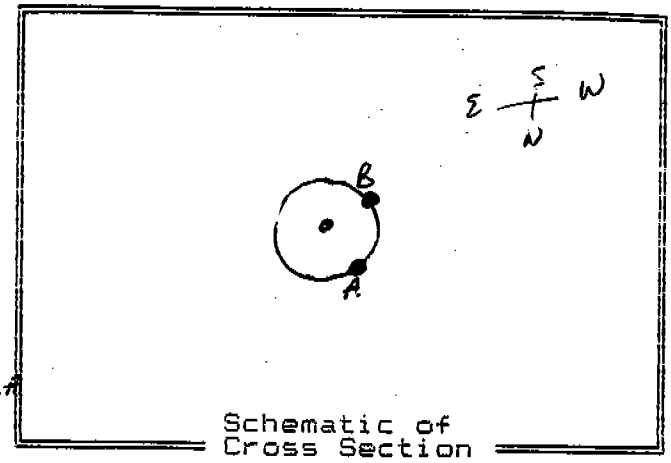
Barometric pressure 29.82 in Hg

Static pressure -.70 in WC

Operators D. Boerner & B. Aschenbach

Pitot No. 24-45 Cp .84

PM-10



Schematic of Cross Section

Traverse Point No.		Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
			Port length: 6 in.		Time start: 830 hrs	
A	1	.044	1.826	7.826	.93	204
	2	.146	6.059	12.059	1.20	
	3	.296	12.284	18.284	1.30	204
	4	.704	29.216	35.216	1.70	
	5	.854	35.441	41.441	2.40	203
	6	.956	39.674	45.674	2.60	
B	1				.86	204
	2				1.00	
	3				1.05	204
	4				1.70	
	5				2.40	204
	6				2.45	

Temp. meas. tool & S/N: PDT 23 Time end: 845 hrs

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

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job LOUISIANA PACIFIC
Source NO. 3 DRYER STACK
Method 201A Filter holder: STAINLESS STEEL

Date 3/26/92 Test 10 Run 1
No. of traverse points 12
Filter type: 2.5" GF.

Sample Train Leak Check:

Pretest: < 0.02 cfm at 10 in. Hg. (vac)
Postest: .004 cfm at 6.0 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: 1 (5648)

Recovery solvent(s)
[x] acetone PROBE
[ ] other(s)

No. of probe wash bottles: 1
Sample recovered by: D. BRENNAN

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	573	495	78.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1350	1341	9.0
Total			87.0

Integrated Gas Sampling Data:

Bag Pump No. B-7 Box No. 11 Bag No. 1
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: .00 cc/min at 15 in. Hg.
Time start: 0915 (HRS) Time end: 1043 (HRS)
Sampling rate: 300 cc/min Operator: D.B.
S/N of O_2 Analyzer used to monitor train outlet: 9

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pacific (Conroe, Tx.) Operators D. Brennan & B. Accardenbach Pitot No. 74-45 Cp .84
Source No. 3 Dryer Stack Meter Box No. 3 ΔH 1.86 TM WC Bar. Press. 29.54 inHg H2O .15 X
Date 3/26/92 Test 10 Run 1 Counter coeff. .9991 Nozzle No. Ma10(2) Nozzle Dia .150 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dgs. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (xv/v)
	0915	283.020											
A-6	9.21	286.33	2.35	.43	9.21	2.0	204	249	263	59	69	69	18.3
5	18.16	289.60	2.45	.44	8.94	2.0	204	253	265	54	76	72	18.1
4	25.51	292.29	1.65	.44	7.34	2.0	204	254	269	50	79	74	17.9
3	31.90	294.64	1.25	.44	6.39	2.0	204	249	267	48	82	76	18.0
2	38.16	296.97	1.20	.44	6.24	2.0	204	252	270	48	84	78	17.8
1	43.68	298.993	.93	.44	5.51	2.0	203	241	254	46	86	79	17.9
B-6	52.25	302.19	2.25	.44	8.57	2.0	204	239	252	46	87	81	17.8
5	61.02	305.48	2.35	.45	8.76	2.0	205	243	250	44	89	83	17.8
4	68.47	308.28	1.70	.45	7.45	2.0	205	245	246	45	90	84	17.8
3	74.41	310.52	1.08	.45	5.94	2.0	205	244	248	47	92	86	18.0
2	80.27	312.75	1.05	.45	5.85	2.5	205	245	249	50	93	87	18.0
1	85.54	314.740	.85	.45	5.27	2.5	203	249	256	52	94	88	18.1
	(1043)												

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job LOUISIANA PACIFIC (CORRALITOS) Date 3/26/92 Test 10 Run 2
Source NO. 3 DRYER STACK No. of traverse points 12
Method 201A Filter holder: STAINLESS STEEL Filter type: 2.5" 6.7

Sample Train Leak Check:

Pretest: (.005 cfm at 12 in. Hg. (vac) ■
Postest: ____ cfm at ____ in. Hg. (vac) □

Particulate Catch Data:

No.s of filters used: 1 (5722)

Recovery solvent(s)
■ acetone PROSE
□ other(s) ____

No. of probe wash bottles: 1
Sample recovered by: D. BRENNAN

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	598	495	103
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1338	1327	11.0
Total			114.0

Integrated Gas Sampling Data:

Bag Pump No. B-7 Box No. 11 Bag No. 2
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: .00 cc/min at 17 in. Hg.
Time start: 1130 (HRS) Time end: 1259 (HRS)
Sampling rate: 300 cc/min Operator: D. BRENNAN
S/N of O_2 Analyzer used to monitor train outlet: 9

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pacific (Corrigan, Tx.) Operators D. Brennan & B. Ashenbach Pitot No. 24-45 Cp .84
Source No. 3 Dryer Stack Meter Box No. 3 ΔH@ 1.86 Y 1.00 Bar. Press. 29.82 inHg H2O 12 X
Date 5/26/92 Test 10 Run 2 Coefficient .9991 Nozzle No PM-10 (2) Nozzle Dia .150 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dry Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (x v/v)
	1130	315.010											
A- 6	8.74	318.49	2.25	.50	8.71	2.0	203	250	263	55	92	92	18.3
5	17.67	322.05	2.35	.50	8.93	2.0	200	248	265	56	96	93	18.1
4	25.38	325.11	1.75	.50	7.70	2.0	200	245	269	56	97	93	19.1
3	32.03	327.74	1.30	.50	6.64	2.0	199	246	270	56	97	93	18.5
2	38.28	330.21	1.15	.50	6.25	2.0	200	245	270	57	98	93	18.0
1	43.81	332.384	.90	.49	5.52	2.0	198	249	268	57	98	94	18.2
B- 6	52.35	335.79	2.15	.50	8.54	2.0	200	253	269	55	97	93	18.3
5	61.09	339.26	2.25	.50	8.74	2.0	200	251	265	54	98	93	18.0
4	68.58	342.24	1.65	.50	7.48	2.0	199	255	265	49	98	93	18.0
3	74.64	344.67	1.08	.50	6.05	2.0	200	255	264	47	98	93	17.9
2	80.64	347.09	1.06	.50	6.00	2.0	200	257	262	46	98	93	18.2
1	86.04	349.245	.86	.49	5.40	2.0	199	254	260	44	98	93	18.0
	(1259)												

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pacific — Date 3/26/92 Test 10 Run 3
Source Corrigan, Tx. — No. of traverse points 12
Method 201A Filter holder: Stainless Steel — Filter type: 2.5" G.F.

Sample Train Leak Check:

Pretest: ~~0.02~~ .008 cfm at [redacted] in. Hg. (vac)
Postest: .005 cfm at 6 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: 1, 3723

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

No. of probe wash bottles: 1
Sample recovered by: D. Brennan

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1	590	496	94.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1356	1350	6.0
Total			100.0

Integrated Gas Sampling Data:

Bag Pump No. B-7 Box No. 11 Bag No. 3

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: .00 cc/min at 14 in. Hg.

Time start: 1333 (HRS) Time end: 1517 (HRS)

Sampling rate: 300 cc/min Operator: D. Brennan

S/N of O_2 Analyzer used to monitor train outlet: 9

CF-023

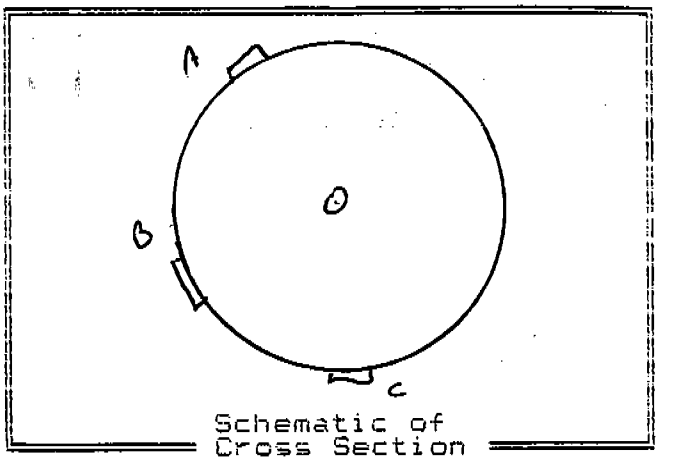
INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pacific (Cordillera Tx) Operators D. Brennan & B. Ashendorf Pitot No. 24-45 Cp .84
Source No. 3 Dryer Meter Box No. 3 ΔH 1.86 IN WC Bar. Press. 29.82 inHg H2O 15 X
Date 3/26/92 Test 10 Run 3 Counter coeff. 9991 Nozzle No. PM10-2 Nozzle Dia .150 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dgs. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (v/v)
	(1333)	349.50											
A-6	8.67	352.77	2.40	.45	8.67	2.0	201	240	236	59	89	89	17.8
5	17.44	356.06	2.45	.45	8.76	2.0	197	242	240	56	92	90	18.2
4	24.96	358.90	1.80	.45	7.51	2.0	197	249	242	50	93	90	18.0
3	31.47	361.36	1.35	.45	6.50	2.0	197	254	246	50	94	90	18.3
2	37.73	363.73	1.25	.45	6.26	2.0	197	259	250	46	95	90	18.2
1	43.13	365.761	.93	.45	5.40	2.0	197	262	251	45	95	91	18.0
B-6	51.44	368.93	2.20	.45	8.30	2.0	197	265	259	50	91	90	18.1
5	60.03	372.18	2.35	.45	8.58	2.0	195	260	260	52	93	90	18.0
4	67.12	374.87	1.60	.45	7.08	2.0	194	259	263	53	95	91	18.0
3	72.94	377.08	1.08	.45	5.82	2.5	195	257	257	55	96	91	18.0
2	78.68	379.25	1.05	.45	5.74	2.5	195	261	260	56	96	92	17.8
1	83.53	381.098	.75	.45	4.85	2.5	195	261	255	57	97	92	18.3
	(1517)												
	θ = 83.53	Vs = 31.598		ΔH = .45							Avg. = 92.1		

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 3 Dryer / Stack
Test 11 Run 0 Date 3-26-92
Stack dimen. 41.5" IN.
Dry bulb ____ °F Wet bulb ____ °F
Manometer: ☒ Reg. ☐ Exp. ☐ Elec.
Barometric pressure 29.82 in Hg
Static pressure -.68 in WC
Operators M. Karbler & C. Mosser
Pitot No. 29U-6 Cp .84
Formaldehyde



Schematic of Cross Section

Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length: 6 in.		Time start: 0730 hrs	
A-1	.026	1.08	7.08	.55	
2	.082	3.40	9.40	.60	
3	.146	6.06	12.06	1.00	
4	.226	9.38	15.38	1.23	
5	.342	14.19	20.19	1.15	
6	.658	27.31	33.31	1.40	
7	.774	32.12	38.12	2.00	
8	.854	35.44	41.44	2.18	
9	.918	38.10	44.10	2.20	
10	.974	40.42	46.42	2.00	205°
B-1				.44	
2				.74	
3				.89	
4				.92	
5				1.40	
6				2.00	
7				2.30	
8				1.70	
9				1.58	
10				1.43	
		Port C ≈ 2 ft below			
		ports A + B			
Temp. meas. tool & S/N: PDT-3 / TC				Time end:	hrs

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

S-392.1

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pacific / Corrigan, TX Date 3-26-92 Test 11 Run 1
Source No. 3 Dryer / Stack No. of traverse points 20
Method 0011 Filter holder: NA Filter type: NA

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: < 0.02 cfm at 7 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: NA

Recovery solvent(s)
☐ acetone
☒ other(s) $MeCl_2$

No. of ~~probe~~ Imp wash bottles: 1
Sample recovered by: M. Kaechler & C. Mosser

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	690	598	92
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1489	1475	14
Total			106

Integrated Gas Sampling Data:

Bag Pump No. 1310 Box No. 4 Bag No. 1
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: 0 cc/min at 15 in. Hg.
Time start: 0916 (HRS) Time end: 1030 (HRS)
Sampling rate: 900 cc/min Operator: M. Kaechler
S/N of O_2 Analyzer used to monitor train outlet: 3

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 3 Dryer / Stack
Date 3-26-92 Test 11 Run 1

Operators M. Kuehler & C. Messer
Meter Box No. 4 ΔH 1.75 IN WC
Cosmeter coeff: 1.0010

Pitot No. 29V-6 Cp .84
Bar. Press. 29.82 inHg H2O 16 X
Nozzle No. Glass Nozzle Dia. .186 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dry. Vol. (cf)	VAC. inHg	Temperatures (°F)						Oxygen
							Stack	Probe	Oven	Impg.	Gas In	Gas Out	(v/v)
	(0916)	153.70											
B-10	3	155.89	2.20	1.67	5.87	4.5	204	243	258	46	62	61	18.7
A	6	158.18	2.57	1.95	8.23	5.5	204				64	62	18.7
8	9	160.46	2.38	1.82	0.51	5	204	245	258	48	67	63	18.8
7	12	162.59	2.01	1.54	2.62	5	204				69	64	18.9
6	15	164.48	1.53	1.18	4.46	4	204	248	256	48	71	65	18.9
5	18	166.13	1.06	.82	6.00	3	204				72	66	18.8
4	21	167.62	1.05	.81	7.53	3	203	247	253	47	74	67	18.8
3	24	169.11	1.03	.80	9.06	3	203				75	67	18.9
2	27	170.57	.88	.68	0.47	2.5	204	249	250	48	75	68	19.0
1	30	171.85	.76	.59	1.78	2	204				76	69	19.0
A-10	33	174.22	2.52	1.96	4.17	5.5	204	246	254	48	72	69	18.7
9	36	176.59	2.69	2.08	6.62	5.5	205				75	70	18.7
8	39	178.94	2.48	1.92	8.99	5.5	206	242	261	47	78	71	18.7
7	42	181.20	2.12	1.65	1.18	5	206				80	72	18.6
6	45	183.10	1.57	1.22	3.08	4	206	245	260	47	81	73	18.6
5	48	184.83	1.30	1.01	4.81	3.5	206				82	74	18.7
4	51	186.54	1.19	.93	6.47	3	205	249	261	47	83	75	18.6
3	54	188.08	1.10	.86	8.07	3	205				84	76	18.6
2	57	189.69	1.08	.85	9.65	3	205	247	260	47	85	77	18.5
1	60	191.12	.89	.70	1110	3	205				85	77	18.6
	(1030)												
	θ = 60	Vm = 37.42		ΔH 1.20							Avg. = 72.4		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pacific / Corrigan, TX Date 3-26-92 Test 11 Run 2
Source No. 3 Dryer / Stack No. of traverse points 20
Method 0011 Filter holder: NA Filter type: NA

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: < 0.02 cfm at 10 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: NA

Recovery solvent(s)
☐ acetone
☑ other(s) $MeCl_2$

No. of ~~probe~~ Imp wash bottles: 1
Sample recovered by: M. Kaehler & C. Mosier

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	705	587	118
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1505	1489	16
Total			134

Integrated Gas Sampling Data:

Bag Pump No. B10 Box No. 4 Bag No. 2
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: 0 cc/min at 15 in. Hg.
Time start: 1130 (HRS) Time end: 1251 (HRS)
Sampling rate: 400 cc/min Operator: M. Kaehler
S/N of O_2 Analyzer used to monitor train outlet: 3

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 3 Dryer / Stack
Date 3-26-92 Test 11 Run 2

Operators M. Buehler + C. Mosser
Meter Box No. 4 ΔH 1.75 IN WC
Coefficient coeff. 1.0010

Pitot No. 29V-5 Cp .84
Bar. Press. 29.82 inHg H2O 11.8 x
Nozzle No. Glass Nozzle Dia .183 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas In	Gas Out	Oxygen (xx/y)
	(1130)	191.60											
B-10	3	193.95	2.24	1.88	3.94	5	205	246	258	48	80	78	18.5
9	6	196.46	2.59	2.21	6.49	6.5	203				85	80	18.0
8	9	199.02	2.53	2.18	9.03	6.5	200	247	261	48	88	81	17.9
7	12	201.34	2.10	1.82	1.36	5.5	200				90	82	17.9
6	15	203.42	1.60	1.39	3.39	4.5	200	248	260	47	92	83	18.0
5	18	205.12	1.07	.93	5.07	3	200				93	84	18.1
4	21	206.78	1.06	.92	6.74	3	200	243	261	46	93	84	18.0
3	24	208.40	1.05	.92	8.40	3	199				93	85	17.8
2	27	209.98	.91	.79	9.95	3	200	247	258	46	94	85	17.6
1	30	211.42	.74	.65	1.35	2.5	199				94	86	17.7
A-10	33	213.86	2.50	2.18	3.91	6.5	201	249	260	47	88	85	17.9
9	36	216.34	2.33	2.02	6.36	6	201				90	86	17.9
8	39	218.93	2.48	2.16	8.91	7	200	247	262	45	93	87	18.1
7	42	221.33	2.18	1.91	1.30	6.5	200				94	87	17.9
6	45	223.32	1.48	1.30	3.28	4.5	200	247	260	45	96	88	17.7
5	48	225.36	1.60	1.41	5.34	4.5	200				96	89	17.7
4	51	227.10	1.22	1.07	7.15	4	199	250	257	46	94	88	17.8
3	54	228.92	1.10	.97	8.85	3.5	199				96	90	17.9
2	57	230.44	.93	.82	0.43	3	199	246	250	48	97	90	18.0
1	60	231.88	.75	.66	1.85		198				97	90	18.1
	(125)												
	θ = 60	Vm = 40.28		ΔH .41							Avg. = 92.4		

INTERFOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 3 Dryer / Stack
Method 0011 Filter holder: NA

Date 3-26-92 Test 11 Run 3
No. of traverse points 20
Filter type: NA

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☐
Postest: <0.02 cfm at 8 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: NA

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

No. of ~~probe~~ Emy wash bottles: 1
Sample recovered by: McKaehler + C. Mosser

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	708	596	112
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1429	1415	14
Total			126

Integrated Gas Sampling Data:

Bag Pump No. B10 Box No. 4 Bag No. 3

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: 0 cc/min at 15 in. Hg.

Time start: 1400 (HRS) Time end: 1506 (HRS)

Sampling rate: 400 cc/min Operator: M. Kaehler

S/N of O_2 Analyzer used to monitor train outlet: 3

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 3 Dryer / Stack
Date 3-26-92 Test 11 Run 3

Operators M. Kaehler, R.C. Mozzee
Meter Box No. 4 ΔH 1.75 TR NC
Coefficient coeff. 1.0010

Pitot No. 29V-5 Cp .84
Bar. Press. 29.82 inHg H2O 14 x
Nozzle No. Glass Nozzle Dia .198 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas In	Gas Out	Oxygen (xx/x)
	(1400)	233.10											
B-10	3	235.45	2.28	1.97	5.48	5	204	247	258	45	93	89	18.1
9	6	237.99	2.53	2.11	8.00	6	204				93	89	18.3
8	9	240.43	2.35	1.98	0.45	6	197	251	262	46	95	90	18.3
7	12	242.62	1.95	1.65	2.68	5	197				98	91	18.3
6	15	244.76	1.60	1.36	4.72	4.5	198	248	261	47	96	91	18.3
5	18	246.40	1.00	.85	6.32	3	198				98	92	18.3
4	21	247.90	1.00	.85	7.93	3	197	246	258	47	99	92	18.3
3	24	249.60	1.03	.88	9.57	3.5	196				100	93	18.4
2	27	251.12	.85	.72	1.05	3	198	249	258	49	100	93	18.4
1	30	252.57	.81	.69	2.51	2.5	197				100	93	18.3
A-10	33	255.17	2.63	2.24	5.12	8	197	252	255	49	101	93	18.4
9	36	257.82	2.70	2.31	7.77	8	195				102	94	18.5
8	39	260.32	2.36	2.02	0.25	7	196	250	257	49	103	95	18.5
7	42	262.64	2.08	1.79	2.59	6.5	195				103	95	18.4
6	45	264.69	1.63	1.40	4.66	5	196	253	255	50	103	95	18.4
5	48	266.59	1.40	1.20	6.58	4.5	196				103	95	18.4
4	51	268.44	1.21	1.04	8.36	4	194	251	259	51	103	95	18.4
3	54	270.10	1.12	.96	0.08	4	194				103	95	18.4
2	57	271.81	1.10	.95	1.79	4	194	252	259	51	103	95	18.4
1	60	273.43	.97	.83	3.39	3.5	195				103	95	18.4
	(1506)												
	θ = 60	Vm = 40.33		ΔH 1.39							Avg. = 96.4		

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job LOUISIANA PACIFIC (COLLINS, TX)

Source NO. 3 DRYER

Test 13 Runs (1-3) Date 3/26/92

Stack dimen. 41.5" IN.

Dry bulb ____ °F Wet bulb ____ °F

Manometer: ☒ Reg. ☐ Exp. ☐ Elec.

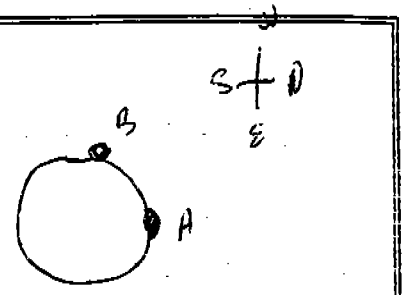
Barometric pressure 29.82 in Hg

Static pressure -.70 in WC

Operators D. BOZEMAN + B. ASCHENBACH

Pitot No. 24-45 Cp .84

Schematic of Cross Section



Postulate

Traverse Point No.		Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
			Port length: 6 in.		Time start:	hrs
A	1	.026	1.079	7.079		
	2	.082	3.403	9.403		
	3	.146	6.059	12.059		
	4	.226	9.379	15.379		
	5	.342	14.193	20.193		
	6	.658	27.307	33.307		
	7	.774	32.121	38.121		
	8	.854	35.441	41.441		
	9	.918	38.097	44.097		
	10	.974	40.421	46.421		
B	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
Temp. meas. tool & S/N: PIT-3 / TC					Time end:	hrs

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

S-392.1

INTERFOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pacific (Conshohocken, Tx.) Date 3/26/92 Test 13 Run 1
Source No. 3 Dryer Stack No. of traverse points 20
Method 5 Filter holder: Glass Filter type: 4" 6.5

Sample Train Leak Check:

Pretest: 0.005 cfm at 15 in. Hg. (vac)
Postest: .002 cfm at 10 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: 1 (4127)

Recovery solvent(s)
acetone PROBE + NOZZLE
other(s) BACK-HALF - D.I H_2O + $MgCl_2$

No. of probe wash bottles: 1
Sample recovered by: M. KOEHLER

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	581	499	82.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1349	1338	11.0
Total			93.0

Integrated Gas Sampling Data:

Bag Pump No. B-7 Box No. 6 Bag No. 1
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: .00 cc/min at 16 in. Hg.
Time start: 1555 (HRS) Time end: 1657 (HRS)
Sampling rate: 400 cc/min Operator: D. ROBINSON
S/N of O_2 Analyzer used to monitor train outlet: 9

CF-023

CF-011

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job LOUISIANA PACIFIC (CORRIGAN TX.) Operators D. BRENNAN & B. ASCHENBACH Pitot No. 24-46 Cp .84
Source #6 & 3 DRYER STACK Meter Box No. 3 ΔH 1.80 IN WC Bar. Press. 29.82 inHg H2O 14 x
Date 3/26/92 Test 13/13 Run 1 Counter coeff. .9991 Nozzle No. 8-3E Nozzle Dia .183 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (v/v)
	(555)	381.300											
B- 10	3	383.56	2.15	1.79	3.53	7.0	196	231	250	53	92	90	19.0
9	6	385.85	2.35	1.93	5.85	7.0	197	246	256	46	93	90	19.1
8	9	388.10	2.25	1.85	8.13	6.5	197				94	91	19.3
7	12	390.23	1.85	1.53	0.19	6.0	197	248	258	46	94	91	19.4
6	15	391.97	1.30	1.07	1.93	4.0	196	250	255	45	94	91	19.3
5	18	393.40	.91	.75	3.38	3.0	195				95	91	19.4
4	21	394.84	.93	.77	4.86	3.0	194	257	260	45	96	91	19.5
3	24	396.29	.90	.75	6.31	3.0	194	259	261	45	95	91	19.5
2	27	397.71	.86	.71	7.72	3.0	194				95	91	19.6
1	30	398.992	.70	.58	9.00	2.5	194	263	257	44	95	91	19.6
A- 10	33	401.18	2.15	1.78	1.23	6.5	196	261	254	44	95	91	19.0
9	36	403.50	2.30	1.91	3.54	7.0	195				95	91	19.3
8	39	405.76	2.15	1.78	5.77	6.5	195	265	249	44	94	91	19.2
7	42	407.89	1.85	1.53	7.84	6.0	195	266	247	44	94	91	19.0
6	45	409.70	1.40	1.16	9.64	4.5	195				94	91	19.4
5	48	411.29	1.15	.95	1.28	3.5	195	262	250	43	94	90	19.3
4	51	412.83	1.05	.87	2.84	3.5	195	255	259	43	94	90	19.3
3	54	414.36	1.00	.83	4.36	3.5	194				94	90	19.2
2	57	415.75	.82	.68	5.74	3.0	193	251	264	43	94	90	19.4
1	60	416.846	.50	.41	6.82	2.0	193	254	260	43	94	90	19.2
	(1657)												
	θ = 60	Vm = 35.546		ΔH .418							Avg. = 92.4		

C-62

S-0037R

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job LOUISIANA-PACIFIC
Source NO 3 Dryer
Method 5 Filter holder: GLASS

Date 3/26/92 Test 13 Run 2
No. of traverse points 20
Filter type: 4" G.F.

Sample Train Leak Check:

Pretest: ~~0.02~~ .002 cfm at 15 in. Hg. (vac)
Postest: .016 cfm at 11 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: 1, 4128

Recovery solvent(s)
☒ acetone PROBE + NOZZLE
☐ other(s)

No. of probe wash bottles: 1
Sample recovered by: D. BRENNAN

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	595	496	99.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1360	1349	11.0
Total			110.0

Integrated Gas Sampling Data:

Bag Pump No. B-7 Box No. 6 Bag No. 2

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: .00 cc/min at 15 in. Hg.

Time start: 1725 (HRS) Time end: 1827 (HRS)

Sampling rate: 400 cc/min Operator: D. BRENNAN

S/N of O_2 Analyzer used to monitor train outlet: 9

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job LOUISIANA PACIFIC (CORRIGAN, TX.) Operators D. BAZNOWN & C. MOSSER Pitot No. 24-4 B Cp .84
Source NO. 3 DAYZIL Meter Box No. 3 ΔH 1.50 IN WC Bar. Press. 29.92 inHg H2O 12 X
Date 3/24/90 Test 13 Run 2 Gasmeter coeff. .9991 Nozzle No. 3-3 Nozzle Dia .183 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas In	Gas Out	Oxygen (v/v)
	(1725	417.100											
B- 10	3	419.45	2.35	2.02	9.47	7.0	194	243	265	45	86	86	19.1
9	6	421.81	2.35	2.01	1.82	7.0	193				87	86	19.0
8	9	424.10	2.15	1.84	1.08	7.0	193	245	264	45	88	86	19.3
7	12	426.22	1.85	1.58	6.17	6.5	194				89	86	19.3
6	15	428.03	1.35	1.16	7.96	4.5	194	246	262	45	89	86	19.3
5	18	429.62	1.10	.94	9.58	4.0	195				90	87	19.4
4	21	431.20	1.10	.94	1.20	4.0	194	248	261	45	91	87	19.4
3	24	432.80	1.07	.92	2.80	4.0	194				91	87	19.3
2	27	434.28	.91	.78	4.28	3.0	193	250	259	45	92	87	19.5
1	30	435.611	.72	.62	5.59	3.0	193				92	88	19.6
A- 10	33	437.94	2.35	2.02	7.96	8.0	194	249	260	45	93	88	19.6
9	36	440.40	2.45	2.11	0.39	8.0	194				93	88	19.5
8	39	442.72	2.30	1.98	2.73	7.0	195	249	262	45	93	88	19.4
7	42	444.88	1.85	1.59	4.84	6.0	195				93	88	19.6
6	45	446.69	1.30	1.12	6.60	5.0	195	251	257	45	93	88	19.5
5	48	448.15	.92	.79	8.09	3.0	195				94	89	19.5
4	51	449.60	.93	.80	9.59	3.0	194	248	260	45	93	89	19.4
3	54	451.09	.93	.80	1.09	3.0	194				94	89	19.5
2	57	452.49	.80	.69	2.48	3.0	193	250	257	45	94	89	19.5
1	60	453.742	.65	.56	3.741	2.5	193				94	89	19.4
	(1827)												
	θ = 60	Vm = 36.642		ΔH 1.26							Avg. = 89.5		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job LOUISIANA PACIFIC (CORRIGAN, TX.) Date 3/26/92 Test 13 Run 3
Source NO. 3 DRYER No. of traverse points 20
Method 5 Filter holder: GLASS Filter type: 4" G.F.

Sample Train Leak Check:

Pretest: < ~~0.002~~ .005 cfm at 15 in. Hg. (vac)
Postest: .005 cfm at 12 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: 1, 4129

Recovery solvent(s)
☒ acetone PROBE + NOZZLE
☐ other(s)

No. of probe wash bottles: 1
Sample recovered by: D. BRENNAN

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	576	495	81.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1520	1502	18.0
Total			99.0

Integrated Gas Sampling Data:

Bag Pump No. B-7 Box No. 6 Bag No. 3
Bag Material: 5-layer Aluminized Tedlar Size: 44 L
Pretest leak check: .00 cc/min at 16 in. Hg.
Time start: 1900 (HRS) Time end: 2002 (HRS)
Sampling rate: 400 cc/min Operator: D. BRENNAN
S/N of O_2 Analyzer used to monitor train outlet: 9

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job LOUISIANA PACIFIC (CORRIGAN, TX.) Operators D. BREDDOW & B. ASCHENBACH Pitot No. 24.115 Cp .84
Source NB 3 DRYER STACK Meter Box No. 3 ΔH 1.90 TN NC Bar. Press. 29.52 inHg H2O 12.5 X
Date 3/22/92 Test 1 3 Run 3 Coefficient coeff. .9991 Nozzle No. S-3 Nozzle Dia .193 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dev. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (xv/v)
	1900	454.100											
B-10	3	456.31	2.10	1.79	6.31	6.5	194	236	240	49	82	81	19.0
9	6	458.58	2.35	1.97	8.63	7.0	194				83	82	19.2
8	9	460.83	2.20	1.85	0.88	6.5	194	238	240	49	85	82	19.5
7	12	462.93	1.85	1.56	2.95	6.0	195				86	82	19.4
6	15	464.74	1.35	1.14	4.72	4.5	194	242	245	47	86	83	19.4
5	18	466.20	.88	.74	6.16	3.0	194				88	83	19.4
4	21	467.65	.90	.76	7.61	3.0	194	240	259	45	88	83	19.4
3	24	469.07	.87	.74	9.04	3.0	193				89	84	19.5
2	27	470.41	.78	.66	6.39	3.0	193	243	255	45	89	84	19.4
1	30	471.488	.52	.44	1.50	2.0	193				89	84	19.4
A-10	33	473.88	2.35	1.99	3.85	7.5	194	245	258	44	90	84	19.3
9	36	476.21	2.40	2.03	6.22	7.5	194				90	85	19.1
8	39	478.50	2.15	1.83	8.47	7.0	193	246	260	44	90	85	19.3
7	42	480.62	1.85	1.57	0.55	6.0	193				90	85	19.2
6	45	482.35	1.35	1.15	2.34	4.5	193	244	262	44	90	85	19.3
5	48	483.99	1.08	.92	3.94	3.5	193				90	85	19.2
4	51	485.57	1.05	.89	5.51	3.5	194	249	265	44	90	85	19.2
3	54	487.12	1.05	.89	7.09	3.5	193				91	85	19.4
2	57	488.54	.84	.71	8.50	3.0	192	253	264	44	91	86	19.2
1	60	489.627	.52	.44	9.61	2.0	190				90	85	19.2
	(2002)												
	θ = 60	Vm = 55.527		ΔH 1.20							Avg. =	84.1	

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job LOUISIANA PACIFIC CORRIGAN TX.

Source NO. 4 PRESS VENT STACK

Test 14 Runs 1-3 Date 3/27/92

Stack dimen. 61.5 IN.

Dry bulb ____ °F Wet bulb ____ °F

Manometer: ☒ Reg. ☐ Exp. ☐ Elec.

Barometric pressure 29.86 in Hg

Static pressure -.12 in WC

Operators D. BRENNAN & B. ASCHENBACH

Pitot No. 21-6 Cp .84

Schematic of Cross Section

Particulate (.19)

Traverse Point No.		Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
			Port length: 6 in.		Time start: 0830 hrs	
B	1	.021	1.29	7.29	.40	81
	2	.067	4.12	10.12	.58	
	3	.118	~~10.38~~ 4.26	~~16.88~~ 13.26	.54	82
	4	.177	10.88	16.88	.61	
	5	.250	15.38	21.38	.43	82
	6	.356	21.89	27.89	.30	
	7	.644	39.61	45.61	.33	83
	8	.750	46.125	52.125	.50	
	9	.823	50.61	56.61	.72	85
	10	.882	54.24	60.24	.55	
	11	.933	57.38	63.38	.52	
	12	.979	60.21	66.21	.37	
A	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
	12					

Temp. meas. tool & S/N: Time end: hrs

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

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana-Pacific Corrigon, Tx. Date 3/27/92 Test 14 Run 1
Source Vent 4 No. of traverse points 24
Method 5 Filter holder: Glass Filter type: 4" G.F.

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac)
Postest: .011 cfm at 17 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: 1, 4130

Recovery solvent(s)
☒ acetone Probe + nozzle
☐ other(s)

No. of probe wash bottles: 1
Sample recovered by: D. Brennan

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	495	495	0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1395	1390	5.0
Total			5.0

Integrated Gas Sampling Data: Ambient Air

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: 915 (HRS) Time end: 1017 (HRS)

Sampling rate: _____ cc/min Operator: D. Brennan

S/N of O_2 Analyzer used to monitor train outlet: 9

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

CF-D11

Job Louisiana-Pacific (Conroe, Tx)
Source No. 4 (Recent) Press Vent
Date 3/27/92 Test 14 Run 1

Operators D. Breinan & B. Aschenbach
Meter Box No. 3 ΔH 1.40 TN NC
Coeff. .9991

Pitot No. 24-6 Cp .84
Bar. Press. 29.81 inHg H2O 5 x
Nozzle No. S-4 Nozzle Dia .341 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas In	Gas Out	Oxygen (x v/v)
	(0915)	513.700											
B-12	2.5	515.36	.38	1.41	5.34	6.0	83	240	251	46	82	80	20.8
11	5.0	517.41	.60	2.21	7.36	10.0	83				83	81	21.0
10	7.5	519.32	.51	1.88	9.27	8.5	84	236	250	45	84	81	20.9
9	10.0	521.41	.63	2.39	1.40	10.0	67				85	81	20.9
8	12.5	523.23	.43	1.64	3.17	7.5	66	237	248	45	86	81	20.8
7	15.0	524.61	.28	1.07	4.59	5.0	67				86	82	20.9
6	17.5	526.21	.34	1.30	6.17	5.5	67	240	246	44	87	82	20.9
5	20.0	528.24	.59	2.26	8.24	10.0	65				89	85	20.9
4	22.5	530.42	.69	2.54	6.45	12.5	86	239	245	44	89	83	20.9
3	25.0	532.29	.48	1.77	2.29	8.0	86				89	83	20.9
2	27.5	534.10	.45	1.66	4.07	7.5	88	240	245	43	89	84	20.9
1	30.0	535.548	.28	1.03	5.47	4.5	90				90	85	20.9
A-12	32.5	537.42	.53	1.95	7.41	9.0	89	242	246	40	92	85	20.9
11	35.0	539.86	.90	3.31	9.93	14.0	93				91	86	20.9
10	37.5	542.20	.80	2.91	2.29	13.5	95	245	250	40	91	86	20.9
9	40.0	544.85	1.0	3.67	4.94	15.0	90				91	86	20.9
8	42.5	546.59	.42	1.54	6.66	7.8	91	244	251	40	91	86	20.9
7	45.0	547.94	.24	.88	7.97	4.0	92				91	86	20.9
6	47.5	548.99	.15	.55	9.00	3.0	87	240	250	40	91	86	20.9
5	50.0	551.16	.69	2.55	1.21	12.0	87				93	87	20.9
4	52.5	553.50	.77	2.85	3.55	14.0	88	242	251	40	93	87	20.9
3	55.0	555.59	.59	2.15	5.59	12.0	98				93	87	20.9
2	57.5	557.35	.44	1.62	7.36	8.0	90	243	248	40	93	88	20.9
1	60.0	558.913	.34	1.241	8.91	6.0	97				93	88	20.9
	(1017)												
	θ = 60	Vm = 45.213		ΔH 1.93							Avg. = 82.7		

C-69

S-0037R

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job LOUISIANA PACIFIC (CORRIGAN, TX) Date 3/27/92 Test 14 Run 2
Source NO. 4 PRESS VENT STACK No. of traverse points 24
Method 5 Filter holder: GLASS Filter type: 4" G.F.

Sample Train Leak Check:

Pretest: (0.02 cfm at 15 in. Hg. (vac)
Postest: .01 cfm at 17 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: 1, 4132

Recovery solvent(s)
■ acetone PROBE & NOZZLE
□ other(s) _____

No. of probe wash bottles: 1
Sample recovered by: D. BRENNAN

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	497	495	2.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1418	1395	23.0
Total			25.0

Integrated Gas Sampling Data: AMBIENT AIR

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: 1100 (HRS) Time end: 1202 (HRS)

Sampling rate: _____ cc/min Operator: D. BRENNAN

S/N of O_2 Analyzer used to monitor train outlet: 9

CF-023

CF-D11

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pacific Corrigan, Tx.
Source No 4 Press Vent Stack
Date 3/23/92 Test 14 Run 2

Operators D. Brennan & B. Aschenbach
Meter Box No. 3 ΔH 1.90 TR NC
Gas meter coeff. .9991

Pitot No. 21-6 Cp
Bar. Press. 29.36 inHg H2O .5 x
Nozzle No. B-4 Nozzle Dia .241 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dgs. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (x v/v)
	(1100)	559.31											
A- 12	2.5	561.21	.50	1.90	1.23	8.0	94	230	253	46	90	88	20.9
11	5.0	563.76	.96	3.54	3.83	14.0	104				92	89	20.9
10	7.5	566.10	.75	2.83	6.16	14.0	93	232	255	46	93	89	20.9
9	10-0	568.74	.96	3.63	8.80	14.0	92				93	89	20.9
8	12.5	570.51	.43	1.62	0.58	7.0	95	232	257	45	93	90	20.9
7	15.0	572.22	.35	1.32	2.17	6.5	96				93	90	20.9
6	17.5	573.26	.15	.56	3.22	2.5	98	235	259	45	94	90	20.9
5	20.0	575.28	.58	2.20	5.28	10.5	92				97	92	20.9
4	22.5	577.70	.85	3.19	9.77	14.0	99	231	255	45	97	92	20.9
3	25.0	579.90	.60	2.28	9.87	11.0	93				97	92	20.9
2	27.5	581.83	.54	2.05	1.87	9.5	94	230	254	45	97	92	20.9
1	30.0	583.496	.37	1.41	3.53	6.0	94				98	93	20.9
B- 12	32.5	585.48	.53	2.02	5.51	8.5	93	233	255	45	96	92	20.9
11	35.0	587.93	.82	3.09	7.95	14.0	97				98	93	20.9
10	37.5	590.14	.68	2.58	0.19	13.0	96	232	254	45	99	93	20.9
9	40.0	592.43	.72	2.72	2.49	14.0	99				98	94	20.9
8	42.5	594.18	.37	1.41	4.15	7.0	96	231	252	43	98	94	20.9
7	45.0	595.80	.35	1.33	5.76	6.4	96				99	94	20.9
6	47.5	597.21	.26	.99	7.15	4.5	95	234	255	43	100	94	20.9
5	50.0	599.05	.45	1.73	8.99	7.0	91				100	95	20.9
4	52.5	601.20	.62	2.37	1.14	12.5	93	236	251	42	101	95	20.9
3	55.0	603.44	.73	2.81	3.48	14.0	89				101	95	20.9
2	57.5	605.30	.43	1.65	5.28	8.0	91	235	252	40	101	96	20.9
1	60.0	606.348	.16	.61	6.56	2.5	92				101	96	20.9
	(1202)												
	θ = 60	Vm = 47.038		ΔH 2.08							Avg. = 94.6		

C-71

S-0037R

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job COLUSA & PACIFIC
Source NO. 4 PRESS VENT
Method 5 Filter holder: GLASS

Date 3/27/92 Test 14 Run 3
No. of traverse points 24
Filter type: 4" 6.F

Sample Train Leak Check:

Pretest: ≤ 0.02 cfm at 15 in. Hg. (vac)
Postest: .01 cfm at 16 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used:
1
(4133)

Recovery solvent(s)
☒ acetone GRACE # 102215
☐ other(s)

No. of probe wash bottles: 1
Sample recovered by: D.B

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	496	495	1.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1431	1423	8.0
Total			9.0

Integrated Gas Sampling Data: AMBIENT AIR

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: 1242 (HRS) Time end: 1345 (HRS)

Sampling rate: _____ cc/min Operator: D. BRENNAN

S/N of O_2 Analyzer used to monitor train outlet: 9

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: LOUISIANA POLIFIC (CORRIBOR, TX.) Operators: D. BRENNAN + B. ASCHENBACH Pitot No.: 21-C Cp: .84
Source: NO. 4 PRESS VENT STACK Meter Box No.: 3 ΔH: 1.90 IN WC Bar. Press.: 29.86 inHg H2O 2 X
Date: 3/27/92 Test: 14 Run: 3 Cosmeter coeff.: .9991 Nozzle No.: B-4 Nozzle Dia: .241 IN.

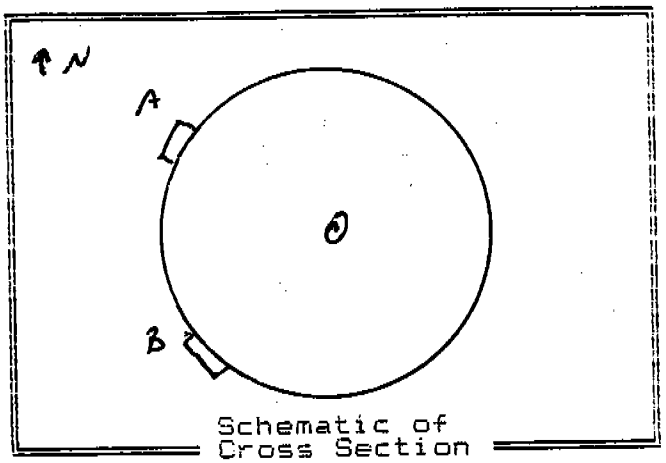
Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas In	Gas Out	Oxygen (x v/v)
	442	607.460											
B- 12	2.5	609.68	.65	2.42	9.64	10.5	95	240	263	43	95	94	20.9
11	5.0	612.03	.86	3.14	2.10	11.0	101				96	94	20.9
10	7.5	614.04	.52	1.91	4.03	9.5	99	243	265	42	97	94	20.9
9	10.0	616.15	.62	2.28	6.14	10.0	100				98	95	20.9
8	12.5	617.79	.35	1.30	6.73	6.0	94	241	265	42	98	95	20.9
7	15.0	619.17	.27	1.00	9.13	4.0	98				99	95	20.9
6	17.5	620.89	.40	1.49	0.84	6.5	93	245	262	42	99	95	20.9
5	20.0	622.87	.54	2.02	2.82	8.0	92				101	96	20.9
4	22.5	625.12	.70	2.60	5.08	11.5	96	248	260	42	101	96	20.9
3	25.0	626.99	.50	1.85	698	8.0	98				101	96	20.9
2	27.5	628.88	.48	1.79	8.85	7.5	96	246	263	42	101	96	20.9
1	30.0	630.536	.39	1.45	0.54	6.5	98				101	96	20.9
A- 12	32.5	632.40	.45	1.68	2.35	8.0	94	246	262	42	101	96	20.9
11	35.0	634.91	.92	3.41	4.93	14.0	96				101	96	20.9
10	37.5	637.10	.67	2.50	7.14	12.0	95	244	260	42	101	96	20.9
9	40.0	639.79	1.02	3.78	9.85	14.0	97				101	96	20.9
8	42.5	641.65	.43	1.59	1.61	7.5	101	240	261	42	101	96	20.9
7	45.0	643.27	.40	1.49	3.32	7.0	96				101	96	20.9
6	47.5	644.43	.16	.59	4.41	2.5	95	239	265	41	101	97	20.9
5	50.0	646.35	.54	2.01	6.39	8.5	97				101	97	20.9
4	52.5	648.80	.86	3.14	8.86	14.5	106	240	266	41	101	97	20.9
3	55.0	650.91	.58	2.11	0.90	10.0	110				101	97	20.9
2	57.5	652.86	.52	1.90	2.82	8.5	108	243	269	40	96	99	20.9
1	60.0	654.282	.28	1.03	4.24	4.0	108				101	97	20.9
	(1344)												
	θ = 60	Vm = 46.822		ΔH 2.02							Avg. =	93.7	

C-73

S-0037R

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 4 Press Vent / Stack
Test 15 Run 0 Date 3-27-92
Stack dimen. 62.75 IN.
Dry bulb ____ °F Wet bulb ____ °F
Manometer: ☒ Reg. ☐ Exp. ☐ Elec.
Barometric pressure 29.86 in Hg
Static pressure -.12 in WC
Operators M. Kaehler & C. Mosser
Pitot No. 294-6 Cp .84
Formaldehyde



Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length: 6 in.		Time start: 0900 hrs	
A-1	.041	1.32	7.37	.36	
2	.067	4.20	10.20	.48	
3	.118	7.40	13.40	.60	
4	.177	11.11	17.11	.70	
5	.250	15.69	21.69	.62	
6	.356	22.34	28.34	.24	
7	.644	40.41	46.41	.31	
8	.750	47.06	53.06	.40	9
9	.963	51.64	57.64	1.00	
10	.882	55.35	61.35	.81	99
11	.933	58.55	64.55	.95	
12	.979	61.43	67.43	.72	↓
B-1				.30	
2				.48	
3				.57	
4				.77	
5				.65	
6				.42	
7				.28	
8				.50	
9				.71	
10				.54	
11				.61	
12				.78	
Temp. meas. tool & S/N: PDT-3 / TC				Time end:	hrs

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

S-392.1

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pacific / Corrigan, TX Date 3-27-92 Test 15 Run 1
Source No. 4 Press Vent / Stack No. of traverse points 24
Method 0011 Filter holder: NA Filter type: NA

Sample Train Leak Check:

Pretest: ≤ 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: ≤ 0.02 cfm at 10 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: NA

Recovery solvent(s)
☐ acetone
☒ other(s) Me Cl₂

No. of ~~probe~~ Imp wash bottles: 1
Sample recovered by: M. Kaehler & C. Mosser

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	596	596	-
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1372	1359	13
Total			13

Integrated Gas Sampling Data: NA / Ambient

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

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

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 4 Press Vent / Stack
Date 3-27-92 Test 15 Run 1

Operators M. Kaehler & C. Mosser
Meter Box No. 4 ΔH 1.75 IN WC
Cosmeter coeff. 1.0010

Pitot No. 29U-6 Cp .84
Bar. Press. 29.86 inHg H2O 3 x
Nozzle No. Glass Nozzle Dia .239 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (xv/v)
	0915	283.00											
A-1	2.5	284.54	.35	1.12	4.50	3	83	240	249	45	72	72	20.9
2	5	286.28	.50	1.60	6.30	4	78				74	72	20.9
3	2.5	288.22	.58	1.88	8.26	5	73	242	253	45	77	74	20.9
4	10	290.38	.72	2.38	0.45	6	66				79	74	20.9
5	12.5	292.50	.65	2.15	2.54	5.5	67	245	255	44	81	75	20.9
6	15	293.87	.25	.83	3.84	2.5	67				82	76	20.9
7	17.5	295.27	.28	.93	5.23	3	65	240	256	44	83	76	20.9
8	20	296.94	.46	1.53	7.00	4	67				85	77	20.9
9	22.5	299.51	.99	3.24	9.57	8	76	242	254	44	87	78	20.9
10	25	301.82	.82	2.63	1.89	7	89				87	79	20.9
11	27.5	304.35	.98	3.17	4.44	8	83	244	253	45	88	79	20.9
12	30	306.60	.77	2.45	6.68	7	94				89	80	20.9
B-1	32.5	308.10	.32	1.03	8.15	3	97	240	256	46	87	80	20.9
2	35	309.90	.51	1.64	9.98	4	90				88	80	20.9
3	37.5	311.78	.55	1.75	1.89	4	94	238	255	46	90	81	20.9
4	40	314.07	.74	2.38	4.10	6	90				91	82	20.9
5	42.5	316.52	.62	2.96	6.57	2.5	91	241	258	46	92	82	20.9
6	45	318.15	.39	1.26	8.19	3.5	91				92	83	20.9
7	47.5	319.98	.26	.84	9.52	2.5	97	247	258	46	92	83	20.9
8	50	321.22	.47	1.53	1.30	4	87				92	83	20.9
9	52.5	323.38	.69	2.25	3.46	6	85	248	255	47	94	84	20.9
10	55	325.85	.53	1.69	5.34	4.5	98				94	85	20.9
11	57.5	327.35	.61	1.98	7.36	5	90	245	257	48	95	85	20.9
12	60	329.62	.78	2.50	9.64	6.5	97				95	86	20.9
	(1017)												
	θ = 60	Vm = 46.62		ΔH 1.90							Avg. =	83.1	

C-76

INTERFOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pacific / Corrigan, TX Date 3-27-92 Test 15 Run 2
Source No. 4 Press Vent / Stack No. of traverse points 24
Method 0011 Filter holder: NA Filter type: NA

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: <0.02 cfm at 10 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: NA

Recovery solvent(s)
☐ acetone
☒ other(s) $MeCl_2$

No. of ~~probe~~ Imp. wash bottles: 1
Sample recovered by: M. Kaehler & C. Moser

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	599	599	—
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1528	1518	10
Total			10

Integrated Gas Sampling Data: NA / Ambient

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

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

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Facility / Corrigan, TX
Source No. 4 Press Vent / Stack
Date 3-22-92 Test 15 Run 2

Operators M. Kaehler & C. Mosser
Meter Box No. 4 ΔH 1.75 IN WC
Gasmeter coeff. 1.0010

Pitot No. 240-6. Cp .84
Bar. Press. 29.86 inHg H2O 1.3 x
Nozzle No. Glass Nozzle Dia .239 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dgs. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Dyan	Impg.	Gas/In	Gas/Out	Oxygen (x/y/v)
	(1100)	330.00											
B-1	2.5	331.80	.44	1.44	1.72	4	95	245	253	47	93	82	20.9
2	5	333.61	.49	1.57	3.52	4	104				85	82	20.9
3	7.5	335.55	.55	1.80	5.45	4.5	93	248	255	47	87	83	20.9
4	10	337.72	.72	2.36	7.65	6	94				90	84	20.9
5	12.5	339.87	.68	2.24	9.81	6	95	249	258	48	91	85	20.9
6	15	341.38	.33	1.08	1.31	3.5	98				93	86	20.9
7	17.5	342.98	.38	1.25	2.92	3.5	98	246	255	46	93	86	20.9
8	20	344.99	.57	1.88	4.91	5	95				94	87	20.9
9	22.5	347.42	.89	2.92	7.37	7	99	244	259	45	96	88	20.9
10	25	349.62	.68	2.27	9.55	6	93				97	88	20.9
11	27.5	351.93	.74	2.47	1.82	6	93	248	257	45	97	89	20.9
12	30	353.92	.59	1.97	3.85	5	94				98	89	20.9
A-1	32.5	355.42	.34	1.13	5.39	3	94	247	256	47	96	89	20.9
2	35	357.25	.53	1.76	7.32	4	94				98	90	20.9
3	37.5	359.27	.58	1.93	9.33	4.5	97	245	255	47	99	90	20.9
4	40	361.70	.84	2.78	1.74	7	98				100	91	20.9
5	42.5	363.80	.63	2.10	3.84	6	96	248	259	47	100	91	20.9
6	45	365.10	.21	.70	5.06	2.5	96				100	92	20.9
7	47.5	366.18	.15	.50	6.09	2.5	95	245	261	48	100	92	20.9
8	50	367.93	.42	1.42	7.82	3.5	91				99	91	20.9
9	52.5	370.23	.86	2.87	0.28	6.5	94	244	261	48	100	92	20.9
10	55	372.41	.70	2.37	2.51	6	89				101	92	20.9
11	57.5	375.10	.95	3.19	5.10	9	92	246	258	48	102	93	20.9
12	60	377.26	.69	2.33	7.31	7	92				102	93	20.9
	(1202)												
	θ = 60	Vm = 47.26		ΔH 1.93							Avg. = 97.2		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 4 Press Vent / Stack
Method 0011 Filter holder: NA

Date 3-27-92 Test 15 Run 3
No. of traverse points 24
Filter type: NA

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: < 0.02 cfm at 10 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: NA

Recovery solvent(s)
☐ acetone
☒ other(s) $MeCl_2$

No. of ~~probe~~ Imp wash bottles: 1
Sample recovered by: M. Kaehler & C. Mosser

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	597	598	(1)
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1380	1372	8
Total			7

Integrated Gas Sampling Data: NA / Ambient

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

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

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 4 Press Vent / Stack
Date 3-27-92 Test 15 Run 3

Operators M. Kaehler + C. Mosser
Meter Box No. 4 ΔH 1.75 IN WC
Cosmeter coeff. 1.0010

Pitot No. 29U-6 Cp .84
Bar. Press. 29.86 inHg H2O / X
Nozzle No. Glass Nozzle Dia. .235 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Des. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (xv/v)
	(1240)	377.60											
A-1	2.5	379.31	.42	1.41	9.31	3	93	245	256	45	90	88	20.9
2	5	381.24	.55	1.83	1.26	4	95				90	88	20.9
3	7.5	393.55	.73	2.41	3.50	6	97	248	259	45	93	89	20.9
4	10	385.85	.85	2.80	5.92	7	100				95	90	20.9
5	12.5	387.90	.61	2.04	7.98	6	94	244	262	46	97	91	20.9
6	15	389.00	.16	.50	9.01	2	98				97	91	20.9
7	17.5	390.46	.30	1.01	0.47	3	93	247	260	46	97	91	20.9
8	20	392.30	.44	1.48	2.24	4	92				98	91	20.9
9	22.5	394.81	1.02	3.43	4.92	9	92	250	262	46	100	92	20.9
10	25	397.15	.74	2.47	7.20	7	98				101	93	20.9
11	27.5	399.73	.96	3.22	9.80	8	96	248	261	47	102	93	20.9
12	30	402.04	.74	2.48	2.09	6.5	98				102	93	20.9
B-1	32.5	403.94	.49	1.64	3.95	4	98	251	264	47	100	93	20.9
2	35	405.95	.56	1.87	5.93	4.5	100				101	94	20.9
3	37.5	408.27	.80	2.69	8.32	6.5	95	250	263	49	103	94	20.9
4	40	410.52	.73	2.44	0.59	6	101				103	95	20.9
5	42.5	412.77	.68	2.27	2.78	6	101	247	260	49	104	95	20.9
6	45	415.14	.81	2.73	5.18	7	96				104	95	20.9
7	47.5	416.75	.37	1.25	6.81	3.5	95	251	260	48	104	95	20.9
8	50	418.87	.59	2.00	8.87	5	95				104	96	20.9
9	52.5	421.20	.78	2.63	1.23	6.5	96	248	259	48	105	96	20.9
10	55	423.42	.70	2.32	3.45	6	107				105	96	20.9
11	57.5	425.68	.72	2.38	5.70	6	108	247	260	49	105	96	20.9
12	60	427.98	.72	2.39	7.95	6	105				105	97	20.9
	(1345)												
	θ = 60	Vm = 50.98		ΔH 2.15							Avg. = 96.6		

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S-0037R

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job LOUISIANA PACIFIC

Source NO. 3 PRESS VENT STACK

Test 17 Runs 1-3 Date 3/27/92

Stack dimen. 61.5 IN.

Dry bulb ____ °F Wet bulb ____ °F

Manometer: ☐ Reg. ☐ Exp. ☐ Elec.

Barometric pressure 29.86 in Hg

Static pressure -.10 in WC

Operators D. BRENNAN & B. ASCHENBACH

Pitot No. 21-G Cp .84

Schematic of Cross Section

Particulate

Traverse Point No.		Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
			Port length: 6 in.		Time start:	hrs
B	12	.021	1.29	7.29		
	11	.067	4.12	10.12		
	10	.118	7.26	13.26		
	9	.177	10.88	16.88		
	8	.250	15.38	21.38		
	7	.356	21.89	27.89		
	6	.644	39.61	45.61		
	5	.750	46.125	52.125		
	4	.823	50.61	56.61		
	3	.882	54.24	60.24		
	2	.933	57.38	63.38		
	1	.979	60.21	66.21		
A	12					
	11					
	10					
	9					
	8					
	7					
	6					
	5					
	4					
	3					
	2					
	1					
Temp. meas. tool & S/N:					Time end:	hrs

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

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job LOUISIANA PACIFIC Date 3/27/92 Test 17 Run 1
Source NO 5 PRESS TEMP STACK No. of traverse points 24
Method 5 Filter holder: SCOSS Filter type: 4" G.F.

Sample Train Leak Check:

Pretest: ~~0.02~~ .015 cfm at 15 in. Hg. (vac)
Postest: .015 cfm at 17 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: 1 4134

Recovery solvent(s)
☒ acetone PROBE + NOZZLE
☐ other(s)

No. of probe wash bottles: 1
Sample recovered by: D. BRENNAN

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	496	496	0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1413	1429	14.0
Total			14.0

Integrated Gas Sampling Data: AMBIENT AIR

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: 1430 (HRS) Time end: 1532 (HRS)

Sampling rate: _____ cc/min Operator: D. BRENNAN

S/N of O_2 Analyzer used to monitor train outlet: 9

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pacific (Corrigan Tx.) Operators D. Bazemore & B.H. Pitot No. 21-6 Cp .84
Source No. 3 Press Vent Stack Meter Box No. 3 ΔH@ .90 IN WC Bar. Press. 29.80 inHg H2O + x
Date 3/27/92 Test 17 Run 1 Counter coeff. .9991 Nozzle No. 8-1 Nozzle Dia .271 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas In	Gas Out	Oxygen (x v/v)
	(1430)	654.660											
A-12	2.5	656.61	.51	1.90	6.59	6.5	102	248	251	43	91	93	20.9
11	5.0	658.59	.55	2.02	8.57	7.0	102				95	94	
10	7.5	660.66	.60	2.22	0.64	8.0	100	250	253	41	97	94	20.9
9	10.0	663.66	.77	2.84	2.99	9.5	101				98	94	
8	12.5	664.89	.47	1.76	4.84	6.5	96	249	258	41	98	95	20.9
7	15.0	666.60	.42	1.57	6.59	5.0	96				99	95	
6	17.5	667.80	.20	.75	7.81	2.0	95	246	256	41	100	95	20.9
5	20.0	669.88	.62	2.29	9.92	7.5	100				101	96	
4	22.5	692.41	1.06	3.96	2.69	14.5	97	247	255	40	101	96	20.9
3	25.0	675.19	.93	3.44	5.28	14.5	103				101	96	
2	27.5	679.81	.93	3.44	7.87	14.5	103	244	254	40	100	96	20.9
1	30.0	680.049	.90	3.35	0.12	14.0	99				100	97	
B-12	32.5	682.43	.59	2.21	2.50	7.5	96	245	254	40	100	97	20.9
11	35.0	684.57	.63	2.34	4.64	8.0	101				100	97	
10	37.5	686.68	.56	2.09	6.66	7.5	99	245	251	40	101	97	20.9
9	40.0	689.06	.76	2.81	9.00	10.0	104				102	97	
8	42.5	690.83	.42	1.58	0.76	5.5	97	246	250	40	102	98	20.9
7	45.0	692.50	.39	1.46	2.46	5.0	99				103	98	
6	47.5	694.11	.35	1.32	4.07	4.0	96	245	252	41	103	98	20.9
5	50.0	696.60	.90	3.38	6.64	13.0	96				103	98	
4	52.5	699.14	.82	3.07	9.09	10.5	98	245	253	41	104	98	20.9
3	55.0	701.05	.48	1.80	0.97	6.0	99				103	99	
2	57.5	702.43	.27	1.01	2.39	3.5	98	246	253	40	103	99	20.9
1	60.0	703.789	.25	.94	3.75	3.0	98				104	99	
	(1538)												
	θ = 60	Vm = 49.129		ΔH 2.23							Avg. =	95.4	

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job LOUISIANA PACIFIC Date 3/27/92 Test 17 Run 2
Source NO 3 RECOV VENT STACK No. of traverse points 24
Method 5 Filter holder: GLASS Filter type: 4" 6-F

Sample Train Leak Check:

Pretest: < .012 cfm at 15 in. Hg. (vac)
Postest: .012 cfm at 17 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: 1 / 4135

Recovery solvent(s)
☒ acetone PROBE & NOZZLE
☐ other(s)

No. of probe wash bottles: 1
Sample recovered by: D. BRENNAN

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	494	494	0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1377	1360	17.0
Total			17.0

Integrated Gas Sampling Data: AMBIENT AIR

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: 1610 (HRS) Time end: 1712 (HRS)

Sampling rate: _____ cc/min Operator: D. BRENNAN

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

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job LOUISIANA PACIFIC (CORRIGAN TX.) Operators D. BRZEZINSKI + B. ASCHENBACH Pitot No. 21-6 Cp .84
Source NO. 3 PRESS VENT STACK Meter Box No. 3 ΔH@ 1.90 TR NC Bar. Press. 29.82 inHg H2O 1.5 x
Date 3/27/92 Test 17 Run 2 Coeff. .9991 Nozzle No. 2.4 Nozzle Dia .241 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas In	Gas Out	Oxygen (xx/v)
	(1610)	704.200											
B- 12	2.5	706.16	.54	2.00	6.18	8.0	102	229	239	56	97	96	20.9
11	5.0	708.42	.71	2.65	8.44	11.0	97				97	96	
10	7.5	710.32	.46	1.70	0.27	7.5	102	230	242	55	98	96	20.9
9	10.0	712.47	.64	2.39	2.13	10.0	96				99	96	
8	12.5	714.24	.42	1.57	4.18	9.0	96	230	245	55	100	97	20.9
7	15.0	715.85	.35	1.32	5.79	5.5	95				100	97	
6	17.5	717.55	.40	1.50	7.50	6.5	97	231	246	53	101	97	20.9
5	20.0	720.13	1.0	3.73	0.20	13.5	98				102	97	
4	22.5	722.79	.96	3.57	2.84	13.5	100	230	249	53	101	97	20.9
3	25.0	724.81	.58	2.15	4.88	9.0	97				101	98	
2	27.5	726.62	.43	1.62	6.66	7.5	96	233	250	53	100	98	20.9
1	30.0	728.175	.31	1.16	8.17	5.0	98				101	98	
A- 12	32.5	729.42	.67	2.51	0.39	11.0	98	232	251	51	102	98	20.9
11	35.0	732.94	.93	3.49	3.00	14.0	96				102	98	
10	37.5	735.26	.67	2.51	5.22	11.0	99	231	249	51	101	98	20.9
9	40.0	737.98	1.10	4.13	8.05	14.0	95				101	98	
8	42.5	740.16	.65	2.42	0.23	11.0	100	230	250	50	100	98	20.9
7	45.0	741.79	.30	1.13	1.72	5.0	94				100	98	
6	47.5	743.05	.22	.82	2.99	3.5	98	229	254	50	100	98	20.9
5	50.0	745.50	.90	3.39	5.56	14.0	93				101	98	
4	52.5	748.27	1.05	3.92	8.33	14.5	98	226	255	50	102	98	20.9
3	55.0	750.85	.92	3.46	0.92	14.0	95				101	98	
2	57.5	753.44	.91	3.39	3.50	14.0	100	228	258	48	101	98	20.9
1	60.0	755.742	.72	2.69	5.79	12.5	99				100	98	
	(1712)												
	θ = 60	Vm = 51.542		ΔH 2.47							Avg. =	98.6	

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S-0037R

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job COMISUSA Pacific (Corpus Christi, Tx.) Date 3/27/92 Test 17 Run 3
Source NG 3 PRESS VENT STACK No. of traverse points 24
Method 5 Filter holder: GLASS Filter type: GLASS

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac)
Postest: .002 cfm at 18 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: 1, 4136

Recovery solvent(s)
☒ acetone PROBE + NOZZLE
☐ other(s)

No. of probe wash bottles: 1
Sample recovered by: D. BRENNAN

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	499	496	3.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1391	1377	13.0
Total			16.0

Integrated Gas Sampling Data: AMBIENT AIR

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: 1755 (HRS) Time end: 1857 (HRS)

Sampling rate: _____ cc/min Operator: D. BRENNAN

S/N of O_2 Analyzer used to monitor train outlet: 9

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

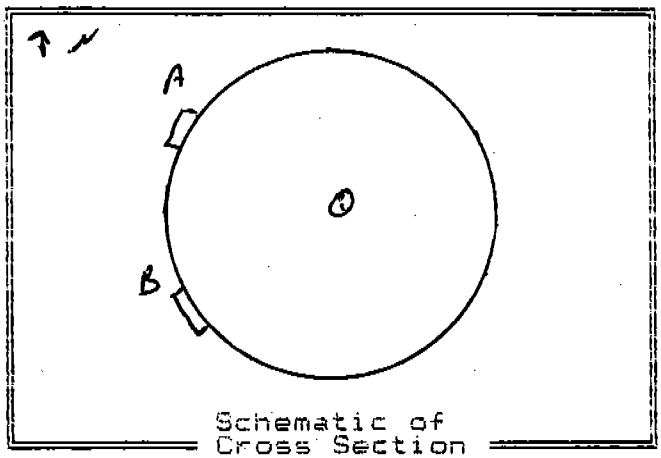
Job: LOUISIANA Pacific (Corrigan, Tx.) Operators: D. Brannon & B. Aschenbach Pitot No.: 21-6 Dp: .54
Source: No. 3 Power Plant Stack Meter Box No.: 5 ΔH: 1.90 IN WC Bar. Press.: 29.82 inHg H2O: 1.5 x
Date: 3/22/92 Test: 17 Run: 3 Counter coeff.: .9991 Nozzle No.: 8-7 Nozzle Dia: .241 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (xx/v)
	(1755)	756.200											
A-12	2.5	758.51	.75	2.82	8.55	12.0	95	246	260	58	94	93	20.9
11	5.0	760.67	.60	2.23	0.62	10.5	96				94	93	
10	7.5	762.60	.51	1.90	2.54	8.0	95	245	259	57	95	94	20.9
9	10.0	765.09	.86	3.19	5.03	13.5	97				96	94	
8	12.5	767.12	.58	2.17	7.08	10.5	95	245	254	57	96	94	20.9
7	15.0	769.10	.55	2.04	9.07	8.5	99				96	94	
6	17.5	770.27	.18	.67	0.22	2.5	93	246	257	52	96	94	20.9
5	20.0	772.15	.50	1.88	2.13	7.5	92				98	94	
4	22.5	774.87	1.08	4.00	4.92	13.0	98	248	259	52	99	95	20.9
3	25.0	777.46	.92	3.45	7.51	14.0	93				99	95	
2	27.5	779.87	.80	2.97	9.91	13.0	99	250	260	51	98	95	20.9
1	30.0	781.861	.51	1.90	1.53	8.5	99				98	95	
B-12	32.5	783.62	.42	1.58	3.59	7.5	93	249	262	51	97	95	20.9
11	35.0	785.89	.72	2.64	5.86	11.0	105				98	95	
10	37.5	787.73	.46	1.72	7.69	8.0	95	249	261	51	98	95	20.9
9	40.0	789.96	.68	2.55	9.92	11.0	93				98	95	
8	42.5	791.67	.41	1.54	1.65	7.5	95	253	260	50	98	95	20.9
7	45.0	792.89	.20	.75	2.87	3.0	92				98	95	
6	47.5	794.77	.48	1.80	4.74	8.5	95	252	261	50	99	95	20.9
5	50.0	797.61	1.08	4.06	7.55	15.0	91				100	95	
4	52.5	799.80	.68	2.55	9.78	11.0	95	250	263	48	99	95	20.9
3	55.0	801.31	.33	1.24	1.34	6.0	92				99	95	
2	57.5	802.95	.38	1.43	3.01	6.5	92	246	259	48	99	95	20.9
1	60.0	804.198	.19	.71	4.20	3.0	93				100	95	
	(1857)												
	θ = 60	Vm = 47.998		ΔH 2.14							Avg. =	92.0	

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INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 3 Press Vent / Stack
Test 1B Run 0 Date 3-27-92
Stack dimen. 62.75 IN.
Dry bulb ____ °F Wet bulb ____ °F
Manometer: ☒ Reg. ☐ Exp. ☐ Elec.
Barometric pressure 29.86 in Hg
Static pressure -.12 in WC
Operators M. Kuehler & C. Mosser
Pitot No. 29U-6 Cp .84
Formaldehyde



Schematic of Cross Section

Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length: 6 in.		Time start: 1420 hrs	
A-1	.021	1.32	7.32	.67	
2	.067	4.20	10.20	1.00	
3	.119	7.40	13.40	1.03	
4	.177	11.11	17.11	.63	
5	.250	15.69	21.69	.70	
6	.356	22.34	28.34	.49	
7	.644	40.41	46.41	.71	
8	.750	47.06	53.06	1.00	
9	.823	51.64	57.64	.80	
10	.882	55.35	61.35	.95	
11	.933	58.55	64.55	.93	
12	.979	61.43	67.43	.90	100°
B-1				.25	
2				.36	
3				.40	
4				.90	
5				.94	
6				.55	
7				.42	
8				.65	
9				.90	
10				.60	
11				.58	
12				.55	
Temp. meas. tool & S/N: PDT-3 / TC				Time end:	hrs

R or nothing= reg. manometer; S= ex[illegible]ed; E = electronic S-392.1

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 3 Pres. Vent / Stack
Method 0011 Filter holder: NA

Date 3-27-92 Test 18 Run 1
No. of traverse points 24
Filter type: NA

Sample Train Leak Check:

Pretest: ≤ 0.02 cfm at 15 in. Hg. (vac)
Postest: ≤0.02 cfm at 12 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: NA

Recovery solvent(s)
☐ acetone
☒ other(s) MeCl2

No. of ~~probe~~ Imp wash bottles: 1
Sample recovered by: M. Kaehler & C. Mosser

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	602	598	4
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1488	1474	14
Total			18

Integrated Gas Sampling Data: NA / Ambient

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

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

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 3 Press Vent Stack
Date 5-22-92 Test 1B Run 1

Operators M. Kaebler & C. Mossey
Meter Box No. 4 ΔH 1.75 TM NC
Counter coeff. 1.0010

Pitot No. 294-6 Cp .84
Bar. Press. 29.86 inHg H2O in.
Nozzle No. 6/32 Nozzle Dia .239 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impy.	Gas In	Gas Out	Oxygen (xx/y)
	(1430)	428.40											
B-1	2.5	429.86	.28	.94	9.80	3	98	245	250	44	90	90	20.9
2	5	431.39	.34	1.12	1.33	3	102				92	90	20.9
3	7.5	432.99	.37	1.23	2.44	3	98	248	252	44	94	91	20.9
4	10	435.39	.93	3.07	5.47	2.5	101				97	92	20.9
5	12.5	438.05	.95	3.17	8.04	8	96	253	256	45	99	93	20.9
6	15	439.99	.53	1.77	9.98	4	98				99	93	20.9
7	17.5	441.68	.39	1.31	1.64	3.5	95	250	255	47	100	94	20.9
8	20	443.86	.68	2.27	3.83	6	100				101	94	20.9
9	22.5	446.41	.97	3.25	6.44	8	97	247	253	47	102	95	20.9
10	25	448.40	.55	1.83	8.41	5	103				102	95	20.9
11	27.5	450.65	.70	2.33	0.63	6	103	246	250	46	103	95	20.9
12	30	452.69	.57	1.91	2.64	5	100				103	95	20.9
A-1	32.5	455.09	.82	2.75	5.05	2.5	99	245	248	46	102	95	20.9
2	35	457.27	.67	2.24	7.23	6	101				103	96	20.9
3	37.5	459.98	1.05	3.50	9.94	9	102	246	252	47	104	96	20.9
4	40	462.60	1.07	3.55	2.68	10	104				105	96	20.9
5	42.5	464.75	.60	2.03	4.76	6	97	248	255	47	104	96	20.9
6	45	467.08	.75	2.52	7.07	8	99				105	97	20.9
7	47.5	468.93	.47	1.59	8.90	5	98	247	254	48	105	97	20.9
8	50	471.25	.73	2.45	1.19	8	100				106	97	20.9
9	52.6	473.85	1.02	3.42	3.88	10	100	244	262	48	106	98	20.9
10	55	476.38	.85	2.86	6.34	9	100				106	98	20.9
11	57.5	478.99	.98	3.30	8.99	10	98	244	260	49	106	98	20.9
12	60	481.56	.92	3.10	1.55	10	98				106	98	20.9
	(1531)												
	θ = 60	Vm = 53.16		ΔH 2.40							Avg. = 98.3		

C-90

S-0037R

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pacific / Corrigan, TX Date 3-27-92 Test 18 Run 2
Source No. 3 Press Vent / Stack No. of traverse points 24
Method 0011 Filter holder: NA Filter type: NA

Sample Train Leak Check:

Pretest: ☐ 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: ☒ 0.02 cfm at 12 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: NA

Recovery solvent(s)
☐ acetone
☒ other(s) $MeCl_2$

No. of ~~probe~~ Imp wash bottles: 1
Sample recovered by: M. Sackler & C. Mosser

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	596	598	(2)
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1417	1400	17
Total			15

Integrated Gas Sampling Data: NA / Amb. ext

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

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

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pac. Fic / Corrigan, TX
Source No. 3 Press Vent / Stack
Date 3-27-92 Test 1B Run 2

Operators M. Kaehler & C. Mosser
Meter Box No. 4 ΔH 1.75 IN WC
Cosmeter coeff. 1.0010

Pitot No. 29U-6 Cp .84
Bar. Press. 29.86 inHg H2O / x
Nozzle No. Glass Nozzle Dia .235 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Cyc/In	Cyc/Out	Oxygen (x v/v)
	(1410)	482.10											
A-1	2.5	484.58	.86	2.98	4.57	2	102	248	256	45	92	91	20.9
2	5	487.12	.96	3.18	7.14	8	97				94	92	20.9
3	7.5	489.63	.93	3.09	9.68	8	97	245	258	45	96	93	20.9
4	10	492.40	1.10	3.63	2.44	9	102				99	94	20.9
5	12.5	494.63	.65	2.17	4.58	5.5	100	247	261	45	100	94	20.9
6	15	495.83	.20	.67	5.77	2	95				100	94	20.9
7	17.5	498.07	.70	2.35	8.00	6	97	250	258	46	101	95	20.9
8	20	500.18	.61	2.05	0.08	5	98				102	95	20.9
C	22.5	502.85	1.10	3.68	2.86	10	99	246	255	46	103	96	20.9
10	25	505.32	.81	2.73	5.26	7	97				104	96	20.9
11	27.5	508.02	1.12	3.77	8.08	10	96	245	253	47	104	96	20.9
12	30	510.62	.90	3.02	0.61	9	98				104	96	20.9
B-1	32.5	511.92	.22	.74	1.87	2.5	98	243	255	48	101	95	20.9
2	35	513.25	.28	.94	3.28	3	96				102	96	20.9
3	37.5	515.20	.53	1.78	5.23	4	99	247	260	48	103	96	20.9
4	40	517.73	.92	3.09	7.78	8	97				104	97	20.9
5	42.5	520.40	1.03	3.45	0.48	9	100	250	262	48	105	97	20.9
6	45	522.38	.55	1.87	2.48	5	94				105	97	20.9
7	47.5	524.30	.47	1.59	4.81	4	98	253	261	48	105	97	20.9
8	50	526.31	.54	1.81	6.28	4.5	101				105	97	20.9
C	52.5	528.92	1.00	3.36	8.95	9	98	250	258	49	105	97	20.9
10	55	531.16	.63	2.12	1.07	6	98				105	97	20.9
11	57.5	533.59	.87	2.95	3.57	7.5	95	247	256	50	106	98	20.9
12	60	535.90	.76	2.58	5.91	7	95				106	98	20.9
	(1711)												
	θ = 60	Vm = 53.80		ΔH 2.48							Avg. = 98.8		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pac. Inc / Corrigan, TX Date 3-27-92 Test 1B Run 3
Source No. 3 Press Vent / Stack No. of traverse points 24
Method 0011 Filter holder: NA Filter type: NA

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: < 0.02 cfm at 12 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: NA

Recovery solvent(s)
☐ acetone
☒ other(s) CH_2Cl_2

No. of ~~probe~~ Imp wash bottles: 1
Sample recovered by: M. Baehler + C. Mosser

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	606	599	7
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1501	1488	13
Total			20

Integrated Gas Sampling Data: NA / Ambient

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

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

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 3 Press Vent / Stack
Date 3-27-92 Test 1B Run 3

Operators M. Knehler + C. Mosser
Meter Box No. 4 ΔH 1.75 IN WC
Coeff. 1.0010

Pitot No. 29V-6 Cp .84
Bar. Press. 29.86 inHg H2O 1.4 X
Nozzle No. Glass Nozzle Dia .339 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dry. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas In	Gas Out	Oxygen (x v/v)
	(1755)	536.20											
B-1	2.5	537.72	.30	1.01	7.66	3	93	245	253	46	89	89	20.9
2	5	539.27	.40	1.32	9.32	3.5	95				91	90	20.9
3	7.5	541.10	.43	1.42	1.04	4	95	249	258	46	93	90	20.9
4	10	543.62	.94	3.10	3.58	2.5	97				96	91	20.9
5	12.5	546.14	.98	3.25	6.19	8	95	246	257	45	98	92	20.9
6	15	547.82	.35	1.17	7.76	3	93				98	92	20.9
7	17.5	549.60	.46	1.54	9.56	4	93	244	260	45	98	92	20.9
8	20	551.63	.57	1.90	1.56	5	94				99	93	20.9
9	22.5	553.99	.84	2.79	3.98	7	98	248	263	45	100	93	20.9
10	25	556.15	.67	2.08	6.08	5.5	93				101	93	20.9
11	27.5	558.46	.73	2.49	8.37	6.5	99	252	261	46	101	94	20.9
12	30	560.70	.69	2.31	0.58	6	95				102	94	20.9
A-1	32.5	562.99	.83	2.77	2.99	7	97	249	258	46	100	94	20.9
2	35	565.70	.99	3.26	5.61	9	103				101	94	20.9
3	37.5	568.28	.98	3.27	8.23	8.5	95	245	255	46	102	94	20.9
4	40	570.97	1.08	3.60	0.98	10	97				102	95	20.9
5	42.5	573.26	.73	2.45	3.26	7	95	240	253	47	102	95	20.9
6	45	574.42	.18	.61	4.39	2	92				101	95	20.9
7	47.5	576.52	.54	1.81	6.35	5	95	238	256	47	102	95	20.9
8	50	578.46	.58	1.96	8.39	5	91				102	95	20.9
9	52.5	581.20	1.10	3.68	1.17	11	95	239	255	48	102	95	20.9
10	55	583.47	.70	2.35	3.40	7	95				101	95	20.9
11	57.5	586.05	.94	3.13	5.97	9	97	243	252	48	101	95	20.9
12	60	588.48	.89	2.98	8.47	8	95				101	95	20.9
	(1856)												
	θ = 60	Vm = 52.28		ΔH 2.34							Avg. = 96.3		

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job LOUISIANA PACIFIC

Source NO. 8 EXHAUST FAN STACK

Test 20 Runs 1-3 Date 3/28/92

Stack dimen. 62.75 IN.

Dry bulb ____ °F Wet bulb ____ °F

Manometer: ☒ Reg. ☐ Exp. ☐ Elec.

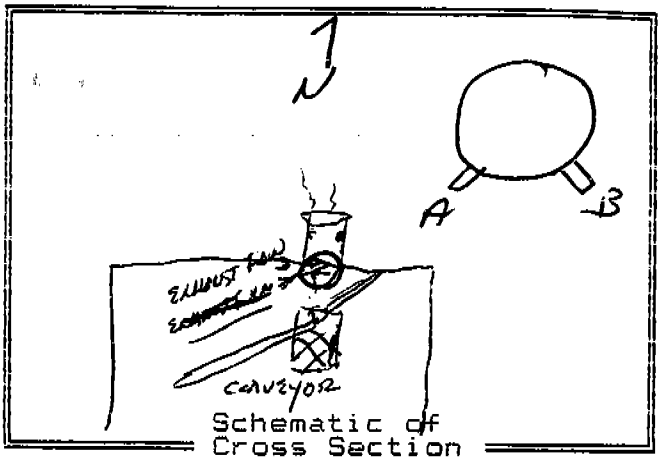
Barometric pressure 29.82 in Hg

Static pressure -.25 in WC

Operators D. BRENNAN

Pitot No. 21-C Cp .84

Particulate



Schematic of Cross Section

Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length: 6 in.		Time start: 8:00 hrs	
A	12				
	11				
	10				
	9				
	8				
	7				
	6				
	5				
	4				
	3				
	2				
	1				
B	12			.08	72
	11			.06	
	10			.35	73
	9			.79	
	8			.63	73
	7			.30	
	6			.55	70
	5			.60	
	4			.74	70
	3			.23	
	2			.12	71
	1			.13	
Temp. meas. tool & S/N:				Time end:	hrs

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

.381

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job LOUISIANA PACIFIC (CORRIGAN, TX.) Date 3/28/92 Test 20 Run 1
Source NO. 3 EXHAUST FAN STACK No. of traverse points 24
Method 5 Filter holder: GLASS Filter type: 4" G.F

Sample Train Leak Check:

Pretest: ~~0.02~~ .005 cfm at ~~5~~ 15 in. Hg. (vac) ☒
Postest: .005 cfm at 18 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: 1, 4157

Recovery solvent(s)
☒ acetone PROBE + NOZZLE
☐ other(s)

No. of probe wash bottles: 1
Sample recovered by: D. BRENNAN

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	490	490	6.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1398	1385	13.0
Total			13.0

Integrated Gas Sampling Data: AMBIENT AIR

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: 0830 (HRS) Time end: 0932 (HRS)

Sampling rate: _____ cc/min Operator: D. BRENNAN

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

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: COUISLAND Pacific
Source: NO. 8 EXHAUST FAN STACK
Date: 3/28/92 Test: 20 Run: 1

Operators: D. BRENNAN + B. ASCHENBRUM
Meter Box No.: 3 ΔH: 1.90 IN WC
Meter coeff.: .9991

Pitot No.: 21-6 Cp: .84
Bar. Press.: 29.82 inHg H2O: 1.0x
Nozzle No.: 8.11 Nozzle Dia: .241 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (xv/v)
	(0830)	821.700											
B-12	2.5	822.40	.07	.26	2.40	1.0	73	253	260	45	73	73	20.9
11	5.0	823.03	.06	.22	3.05	1.0	74				75	73	
10	7.5	824.75	.12	1.58	4.78	7.0	74	251	259	44	76	74	20.9
9	10.0	826.87	.64	2.41	6.90	10.5	75				79	75	
8	12.5	828.88	.52	1.96	8.83	9.0	75	248	262	44	79	75	20.9
7	15.0	830.23	.26	.98	0.19	4.0	75				79	75	
6	17.5	832.34	.62	2.34	2.29	10.0	75	248	260	44	81	76	20.9
5	20.0	834.61	.76	2.88	4.62	11.5	74				81	76	
4	22.5	836.74	.63	2.39	6.71	10.0	74	253	260	43	81	76	20.9
3	25.0	837.69	.11	.42	7.63	2.0	73				80	76	
2	27.5	838.54	.10	.38	8.49	1.5	73	255	257	43	81	76	20.9
1	30.0	839.470	.13	.49	9.46	2.0	72				81	77	
A-12	2.5	840.38	.12	.46	0.39	2.0	72	252	261	43	81	77	20.9
11	5.0	840.99	.05	.19	0.99	1.0	71				81	77	
10	7.5	842.18	.21	.80	2.22	3.0	75	253	257	43	81	77	20.9
9	10.0	844.47	.75	2.84	4.54	11.5	76				84	78	
8	12.5	846.52	.55	2.09	6.53	8.5	75	250	258	43	83	78	20.9
7	15.0	848.38	.46	1.75	8.35	7.0	76				83	78	
6	17.5	850.21	.45	1.71	0.15	7.0	76	251	259	42	83	78	20.9
5	20.0	852.33	.62	2.35	2.26	10.0	76				84	79	
4	22.5	853.98	.42	1.60	4.01	7.0	74	246	258	42	83	79	20.9
3	25.0	855.31	.22	.84	5.27	3.5	73				84	79	
2	27.5	855.93	.05	.19	5.88	1.0	73	248	255	42	83	79	20.9
1	30.0	856.313	.02	.07	6.26	1.0	72				82	79	
	(0432)												
	θ = 60	Vm = 34.613		ΔH 1.30							Avg. = 78.7		

C-97

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job LOUISIANA PACIFIC (CORRIGAN TX.) Date 3/28/92 Test 20 Run 2
Source NO. 3 EXHAUST FAN STACK No. of traverse points 24
Method 5 Filter holder: GLASS Filter type: 4" t.f.

Sample Train Leak Check:

Pretest: < ~~.002~~ .01 cfm at 15 in. Hg. (vac)
Postest: .005 cfm at 12 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: 1, 4158

Recovery solvent(s)
☒ acetone PROBE + NOZZLE
☐ other(s)

No. of probe wash bottles: 1
Sample recovered by: D. BRENNAN

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	494	490	4.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1423	1413	10.0
Total			(14.0)

Integrated Gas Sampling Data: AMBIENT AIR

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: 1035 (HRS) Time end: 1137 (HRS)

Sampling rate: _____ cc/min Operator: D. BRENNAN

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

CF-023

CF-011

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: LOUISIANA PACIFIC — Operators: D. BRENNAN & B. ACHENBACH — Pitot No.: 21-6 — Cp: .84

Source: NO 3 EXHAUST FAN STACK — Meter Box No.: 3 — ΔH: 1.90 IN WC — Bar. Press.: 29.82 inHg — H2O: X.XX

Date: 3/28/92 — Test: 20 — Run: 2 — Coefficient: .9991 — Nozzle No.: S-1 — Nozzle Dia: .24 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (x v/v)
	(1035)	857.200			7.85	1.0	75	230	246	45	75	75	20.9
A- 12	2.5	857.87	.06	.27	8.44	1.0	75				78	79	
11	5.0	858.44	.05	.18	9.60	2.0	76	232	245	45	80	77	20.9
10	7.5	859.61	.19	.70	1.92	8.5	76				81	78	
9	10.0	861.88	.77	2.86	3.89	6.0	76	232	246	45	83	78	20.9
8	12.5	863.92	.55	2.05	5.40	3.5	77				83	78	
7	15.0	865.46	.32	1.19	7.37	6.0	77	230	245	44	83	79	20.9
6	17.5	867.39	.55	2.05	9.19	5.0	77				83	79	
5	20.0	869.25	.47	1.75	0.79	4.0	76	231	246	44	83	79	20.9
4	22.5	870.80	.35	1.31	1.66	2.0	74				83	79	
3	25.0	871.69	.11	.41	2.26	1.0	74	230	243	43	82	78	20.9
2	27.5	872.31	.05	.18	2.86	1.0	74				80	78	
1	30.0	872.872	.05	.18	3.78	2.5	75	228	245	43	80	77	20.9
B- 12	32.5	873.81	.12	.45	4.43	1.0	75				81	78	
11	35.0	874.45	.06	.22	5.41	2.5	76	229	248	43	82	78	20.9
10	37.5	875.42	.135	.50	7.84	16.0	76				84	78	
9	40.0	877.85	.84	3.13	0.13	8.5	76	232	249	43	83	78	20.9
8	42.5	880.18	.75	2.80	2.32	7.5	77				83	78	
7	45.0	882.39	.67	2.50	4.39	7.0	77	231	246	43	83	79	20.9
6	47.5	884.42	.61	2.27	6.63	8.0	76				84	79	
5	50.0	886.61	.71	2.65	8.86	8.0	75	230	251	43	84	79	20.9
4	52.5	888.90	.70	2.62	9.00	2.0	75				84	79	
3	55.0	890.04	.18	.67	0.80	2.0	74	230	248	43	83	79	20.9
2	57.5	890.85	.09	.34	1.73	2.5	74				83	79	
1	60.0	891.755	.12	.45									
	(1137)												
	θ = 60	Vm = 31.555		ΔH = 1.33							Avg. = 80		

C-99

S-0037R

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job LOUISIANA PACIFIC (CORRALITOS, CA.) Date 3/25/92 Test 20 Run 3
Source NO. 8 BOILER EXHAUST FAN STACK No. of traverse points 24
Method 5 Filter holder: GLASS Filter type: 4" G.F.

Sample Train Leak Check:

Pretest: ~~.015~~ cfm at ~~17~~ in. Hg. (vac) ☒
Postest: .015 cfm at 18 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: 1, 4159

Recovery solvent(s)
☒ acetone PROBE & NOZZLE
☐ other(s)

No. of probe wash bottles: 1
Sample recovered by: D. BRENNAN

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	495	492	3.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1407	1398	9.0
Total			12.0

Integrated Gas Sampling Data: AMBIENT AIR

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: 1220 (HRS) Time end: 1322 (HRS)

Sampling rate: _____ cc/min Operator: D. BRENNAN

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

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

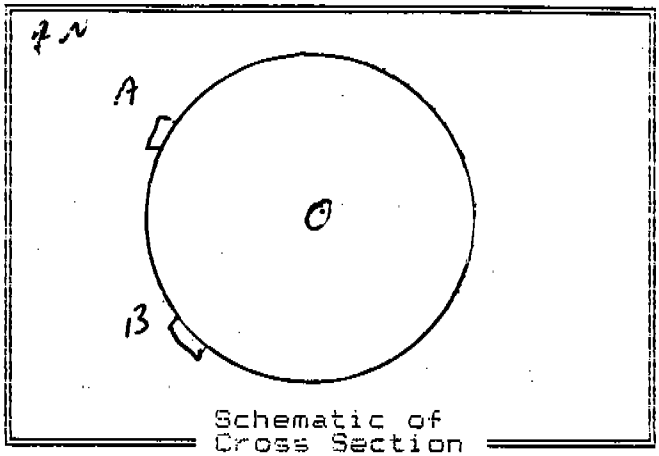
Job: LOUISIANA PACIFIC (CORRILLIN, Tx.) Operators: D. BRENNAN & B. ASCHENBACH Pitot No.: 21-C Cp: .84
Source: NO. 8 PAPER VENT Meter Box No.: 3 ΔH@ 1.90 IN WC Bar. Press.: 29.82 inHg H2O 2.0 x
Date: 3/28/92 Test: 20 Run: 3 Coeff.: .9991 Nozzle No.: S-7 Nozzle Dia: .247 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dev. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (x v/v)
	(1220)	892.40											
B-12	2.5	893.06	.06	.22	3.05	1.0	76	240	255	51	75	74	20.9
11	5.0	893.57	.04	.14	3.58	1.0	76				75	74	
10	7.5	894.80	.22	.81	4.82	3.0	76	240	254	50	78	75	20.9
9	10.0	897.18	.82	3.03	7.20	11.5	77				79	75	
8	12.5	899.33	.68	2.52	9.37	10.0	77	240	255	50	79	75	20.9
7	15.0	901.47	.60	2.22	1.42	10.0	77				78	75	
6	17.5	903.44	.56	2.07	3.39	8.5	78	239	257	48	78	75	20.9
5	20.0	905.55	.66	2.44	5.53	9.0	78				78	75	
4	22.5	907.64	.64	2.37	7.64	9.0	77	237	255	48	78	75	20.9
3	25.0	908.79	.18	.67	8.76	3.0	76				78	75	
2	27.5	909.35	.05	.18	9.36	1.0	75	238	256	48	77	74	20.9
1	30.0	910.207	.10	.37	0.20	1.5	75				77	74	
A-12	32.5	910.73	.04	.14	6.73	1.0	74	240	255	47	76	74	20.9
A-11	35.0	911.25	.04	.14	1.25	1.0	76				76	74	
10	37.5	912.82	.36	1.33	2.84	5.0	76	240	254	46	76	74	20.9
9	40.0	914.94	.66	2.43	4.97	10.0	77				79	75	
8	42.5	917.04	.61	2.26	7.03	9.5	77	238	250	46	78	75	20.9
7	45.0	918.68	.36	1.33	8.62	6.0	77				77	74	
6	47.5	920.65	.60	2.21	0.66	9.0	77	237	246	45	77	74	20.9
5	50.0	922.41	.40	1.48	2.33	6.5	76				78	74	
4	52.5	923.98	.36	1.33	3.92	5.0	76	238	245	45	78	74	20.9
3	55.0	924.85	.12	.44	4.83	2.0	76				79	74	
2	57.5	925.40	.04	.14	5.36	1.0	75	235	242	45	78	74	20.9
1	60.0	925.936	.04	.14	5.90	1.0	75				78	74	
	(1322)												
	θ = 60	Vs = 33.536		ΔH = 1.27							Avg. = 75.9		

C-101

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, Tx
Source No. 2 Precipitator / Stack
Test 21 Run 0 Date 3-24-92
Stack dimen. 82.75 IN.
Drv bulb ____ °F Wet bulb ____ °F
Manometer: ☒ Reg. ☐ Exp. ☐ Elec.
Barometric pressure 29.86 in Hg
Static pressure -.12 in WC
Operators M. Koehler & C. Mosser
Pitot No. 29V-6 Cp .84
Formaldehyde



Schematic of Cross Section

Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length: 6 in.		Time start: 09:30 hrs	
A-1	.021	1.32	7.32	.40	
2	.067	4.20	10.20	.55	
3	.118	7.40	13.40	.63	
4	.177	11.11	17.11	.93	
5	.250	15.69	21.69	.31	
6	.356	22.34	28.34	.23	
7	.644	40.41	46.41	.30	
8	.750	47.06	53.06	.67	↑
9	.823	51.64	57.64	.90	
10	.882	55.35	61.35	.71	84
11	.933	58.55	64.55	.90	
12	.979	61.43	67.43	.89	↓
B-1				.12	
2				.20	
3				.30	
4				.93	
5				.20	
6				.61	
7				.32	
9				.44	
9				.56	
10				.60	
11				.62	
12				.23	
Temp. meas. tool & S/N: PDT-3 ITC				Time end:	hrs

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

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 2 Press Vent / Stack
Method 0011 Filter holder: NA

Date 3-25-92 Test 21 Run 1
No. of traverse points 24
Filter type: AA

Sample Train Leak Check:

Pretest: ☒ 0.02 cfm at 15 in. Hg. (vac)
Postest: ☒ 0.02 cfm at 10 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: NA

Recovery solvent(s)
☐ acetone
☒ other(s) Me Cl2

No. of Imp probe wash bottles: 1
Sample recovered by: M. Kuebler + C. Mosser

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	604	600	4
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1422	1405	17
Total			21

Integrated Gas Sampling Data: NA / Ambient

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

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

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, TX Operators M. Kaehler + C. Musser Pitot No. 29U-6 Cp .84
Source No. 2 Process Vent / Stack Meter Box No. 4 ΔH 1.75 IN WC Bar. Press. 29.83 inHg H2O ( ) X
Date 3-28-92 Test 21 Run 1 Geometer coeff. 1.0010 Nozzle No. Glass Nozzle Dia .239 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dev. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas In	Gas Out	Oxygen (xv/v)
	(0830)	596.80											
B-12	2.5	599.02	.73	2.40	9.00	6	86	238	240	47	75	75	20.9
11	5	601.10	.62	2.04	1.03	5	85				77	75	20.9
10	7.5	603.15	.60	1.99	3.05	5	81	242	247	46	80	76	20.9
9	10	605.11	.59	1.95	5.05	5	85				81	77	20.9
8	12.5	606.83	.44	1.48	6.79	4	78	245	250	46	83	78	20.9
7	15	608.37	.32	1.08	8.28	3	78				84	78	20.9
6	17.5	610.37	.61	2.06	0.33	5	77	244	253	45	84	78	20.9
5	20	612.54	.70	2.36	2.54	6	77				86	79	20.9
4	22.5	615.13	.93	3.14	5.07	7.5	78	246	253	45	88	80	20.9
3	25	616.70	.30	1.01	6.52	3	80				88	81	20.9
2	27.5	617.82	.20	.68	7.71	2	80	245	256	45	88	81	20.9
1	30	618.75	.12	.41	8.63	2	76				87	80	20.9
A-12	32.5	621.25	.89	2.98	1.11	7.5	83	248	257	46	86	81	20.9
11	35	623.72	.90	3.02	3.60	7.5	83				89	82	20.9
10	37.5	625.88	.71	2.38	5.81	6	86	247	260	45	90	82	20.9
9	40	628.41	.90	3.04	8.32	7.5	82				92	83	20.9
8	42.5	630.30	.67	2.27	0.49	6	83	245	262	46	92	83	20.9
7	45	631.99	.30	1.03	1.95	3	75				91	83	20.9
6	47.5	633.35	.23	.78	3.23	2.5	81	249	261	46	90	83	20.9
5	50	634.75	.31	1.05	4.71	3	79				90	93	20.9
4	52.5	637.22	.93	3.19	7.28	8	79	252	258	47	92	84	20.9
3	55	639.64	.83	2.83	9.70	8	78				93	84	20.9
2	57.5	641.73	.55	1.88	1.68	5	78	251	258	47	93	85	20.9
1	60	643.29	.38	1.31	3.33	3.5	76				93	85	20.9
	(0940)												
	θ = 60	Vm = 46.49		ΔH .95							Avg. =	83.9	

C-104

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 2 Press vent / stack
Method 0011 Filter holder: NA

Date 3-28-92 Test 21 Run 2
No. of traverse points 24
Filter type: NA

Sample Train Leak Check:

Pretest: ≤ 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: ≤ 0.02 cfm at 12 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: NA

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

No. of Imp probe wash bottles: 1
Sample recovered by: M Kaehler & C. Masser

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	603	600	3
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1433	1417	16
Total			19

Integrated Gas Sampling Data: NA / Ambient

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

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

CF-023

S-0046RR

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan TX Operators N. Gable & C. Massey Pitot No. 29V-6 Cp .84
Source No. 2 Power Vent / Stack Meter Box No. 4 ΔH 1.75 IN WC Bar. Press. 29.93 inHg H2O 2 x
Date 3-28-92 Test 2 Run 2 Coeffic. coeff. 1.0010 Nozzle No. Glass Nozzle Dia .239 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dry Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (x/v)
	(1033)	643.60											
A-12	2.5	645.55	.55	1.81	5.53	5	85	245	253	47	79	78	20.9
11	5	647.45	.50	1.64	7.36	5	83				81	79	20.9
10	7.5	649.22	.48	1.58	9.16	4	82	248	258	47	83	79	20.9
9	10	651.64	.72	2.38	1.37	6.5	79				85	80	20.9
8	12.5	653.29	.49	1.62	3.20	4	81	247	260	47	86	80	20.9
7	15	658.20	.45	1.50	4.95	4	79				87	81	20.9
6	17.5	656.22	.20	.66	6.13	2	81	249	262	46	87	81	20.9
5	20	657.78	.37	1.24	7.73	3.5	80				87	81	20.9
4	22.5	660.42	1.06	3.51	0.41	9.5	81	252	264	46	89	82	20.9
3	25	662.93	.90	2.99	2.90	8	81				90	82	20.9
2	27.5	665.20	.75	2.51	5.17	7	79	252	260	46	91	83	20.9
1	30	667.51	.75	2.52	7.46	7	77				91	83	20.9
13-12	32.5	669.47	.56	1.88	9.44	5	78	249	258	47	89	93	20.9
11	35	671.50	.60	2.01	1.47	5	79				90	83	20.9
10	37.5	673.55	.58	1.94	3.48	5	79	250	255	48	91	84	20.9
9	40	675.53	.57	1.90	5.47	5	81				92	84	20.9
8	42.5	677.61	.64	2.15	7.58	5.5	79	247	256	48	92	84	20.9
7	45	679.25	.43	1.45	9.32	4	77				92	84	20.9
6	47.5	680.70	.15	.84	0.64	3	81	250	259	49	92	81	20.9
5	50	682.40	.41	1.37	2.33	4	80				92	84	20.9
4	52.5	684.49	.66	2.22	4.48	6	78	245	258	49	93	85	20.9
3	55	686.97	.90	3.03	6.98	8	77				94	85	20.9
2	57.5	688.37	.25	.84	8.31	3	79	247	260	50	93	85	20.9
1	60	689.32	.13	.44	9.27	2	76				91	85	20.9
	(1136)												
	θ = 60	Vm = 45.72		ΔH 1.03							Avg. = 85.7		

C-106

INTERFOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pacific / Corrugated
Source W.2 Power Boiler / Stack
Method 0011 Filter holder: NA

Date 3-28-92 Test 21 Run 3
No. of traverse points 24
Filter type: NA

Sample Train Leak Check:

Pretest: 0.02 cfm at 15 in. Hg. (vac)
Postest: 0.02 cfm at 12 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: NA

Recovery solvent(s)
☐ acetone
☒ other(s) MeCl2

No. of Imp probe wash bottles: 1
Sample recovered by: M. Gardner & C. Masser

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	597	595	(2)
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1439	1422	17
Total			15

Integrated Gas Sampling Data: NA / Ambient

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

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

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pac. Inc / Conroe, Tx — Operators M. Kaehler & C. Mosser — Pitot No. 290-6 — Cp .84
Source No. 2 Recip Vent / Stack — Meter Box No. 9 RH 1.75 TN NC — Bar. Press. 29.83 inHg — H2O 2 X
Date 3-28-92 — Test 21 — Run 3 — Counter coeff. 1.0010 — Nozzle No. Glass — Nozzle Dia .239 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impy.	Gas/In	Gas/Out	Oxygen (x v/v)
	(1220)	699.90											
B-12	2.5	691.97	.68	2.26	1.96	5.5	82	245	256	47	78	77	20.9
11	5	694.15	.70	2.29	4.12	6	82				80	78	20.9
10	7.5	696.37	.72	2.36	6.31	6	83	248	260	47	83	79	20.9
9	10	698.50	.63	2.07	8.37	6	83				84	90	20.9
8	12.5	699.81	.27	.89	9.72	3	85	246	260	46	85	80	20.9
7	15	701.62	.50	1.64	1.56	4	85				85	80	20.9
6	17.5	703.80	.75	2.49	3.83	7	78	249	263	45	88	81	20.9
5	20	706.14	.84	2.78	6.22	7	82				89	82	20.9
4	22.5	707.72	.29	.97	7.64	3	77	247	260	45	89	82	20.9
3	25	708.81	.17	.57	8.73	2	79				88	82	20.9
2	27.5	709.71	.12	.40	9.64	2	81	251	257	46	87	81	20.9
1	30	710.56	.10	.33	10.47	2	82				87	81	20.9
A-12	32.5	712.53	.55	1.82	2.41	5	83	248	255	45	86	81	20.9
11	35	714.25	.75	2.50	4.68	6.5	78				89	82	20.9
10	37.5	716.98	.73	2.42	6.92	6.5	82	245	256	46	90	83	20.9
9	40	719.60	1.00	3.32	9.53	9	82				91	83	20.9
8	42.5	721.64	.59	1.98	1.56	6	78	247	258	46	91	83	20.9
7	45	722.92	.22	.73	2.80	2	83				90	83	20.9
6	47.5	724.66	.45	1.50	4.56	4	83	245	257	46	90	83	20.9
5	50	727.28	1.03	3.42	7.21	8	82				91	83	20.9
4	52.5	729.68	.85	2.84	9.64	8	79	244	259	47	92	83	20.9
3	55	732.10	.77	2.55	1.94	7	86				92	84	20.9
2	57.5	734.22	.68	2.27	4.11	6	81	247	261	48	92	84	20.9
1	60	735.96	.46	1.54	5.90	4	80				91	84	20.9
	(1324)												
	θ = 60	Vm = 46.46		ΔH 1.91							Avg. = 81.2		

C-108

S-0037R

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job CP / COGENIN Tx.
Source No. 2 Pressvent
Test 23 Runs 1-3 Date 3/26/92
Stack dimen. 62.75 IN.
Dry bulb ____ °F Wet bulb ____ °F
Manometer: ☒ Reg. ☐ Exp. ☐ Elec.
Barometric pressure 29.82 in Hg
Static pressure -.12 in WC
Operators D. BRENNAN + R. ASHENBACH
Pitot No. 21-6 Cp .84

Schematic of Cross Section

PARTICULATE

Traverse Point No.		Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
			Port length: in.		Time start: hrs	
A	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
	12					
B	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
	12					
Temp. meas. tool & S/N:					Time end:	hrs

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

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job LOUISIANA PACIFIC Date 5/28/92 Test 23 Run 1
Source NO 2 PRESS VENT SCRUBBER No. of traverse points 24
Method 5 Filter holder: GLASS Filter type: 4" GF

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: .005 cfm at 12 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: 1 / 4160

Recovery solvent(s)
☒ acetone PROBE + NOZZLE
☐ other(s)

No. of probe wash bottles:
Sample recovered by:

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	499	498	1.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1434	1423	12.0
Total			13.0

Integrated Gas Sampling Data: AMBIENT AIR

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: 1415 (HRS) Time end: 1517 (HRS)

Sampling rate: _____ cc/min Operator: D. BRENNAN

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

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: LOUISIANA Pacific (CORRIGAN, TX.) Operators: D. BRENNAN + B. ASCASUBI Pitot No.: 21-L Cp: .84
Source: NO 2 PRESS HEAT STEEL Meter Box No.: 4 ΔH: 1.75 IN WC Bar. Press.: 29.82 inHg H2O: 1.0 x
Date: 3/28/92 Test: 23 Run: 1 Counter coeff.: 1.001 Nozzle No.: 3.4 Nozzle Dia: .241 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (xv/v)
	(1415)	736.222											
A-12	2.5	738.35	.63	2.13	8.31	7.5	85	232	244	46	80	77	20.9
11	5.0	740.69	.80	2.68	0.61	8.0	88				81	77	
10	7.5	742.57	.52	1.76	2.51	5.0	84	235	245	45	86	80	20.9
9	10.0	744.84	.78	2.65	4.88	8.0	85				88	81	
8	12.5	746.84	.54	1.84	6.83	6.0	85	233	246	45	89	81	20.9
7	15.0	748.46	.35	1.19	8.40	4.0	86				89	82	
6	17.5	749.60	.20	.68	9.59	1.0	86	234	248	45	90	82	20.9
5	20.0	751.94	.79	2.69	1.95	8.0	87				90	82	
4	22.5	754.41	.88	2.98	4.43	9.5	89	234	247	42	91	83	20.9
3	25.0	756.61	.67	2.26	6.60	7.5	94				91	83	
2	27.5	758.46	.47	1.60	8.42	5.0	89	236	245	42	91	83	20.9
1	30.0	759.366	.12	.40	9.34	1.0	92				89	82	
B-12	32.5	761.39	.62	2.10	1.42	7.0	90	235	246	42	90	83	20.9
11	35.0	763.72	.78	2.65	3.76	8.0	88				91	84	
10	37.5	765.80	.55	1.86	5.73	6.0	93	233	248	40	91	83	20.9
9	40.0	767.81	.60	2.02	7.78	7.0	95				91	84	
8	42.5	769.50	.41	1.39	9.47	4.0	93	234	247	39	91	83	20.9
7	45.0	770.88	.27	.91	6.85	3.0	95				90	83	
6	47.5	773.10	.74	2.51	3.13	7.5	90	234	250	39	90	83	20.9
5	50.0	775.43	.79	2.68	5.48	8.0	90				92	84	
4	52.5	777.95	.88	2.94	7.95	9.5	98	232	251	37	92	84	20.9
3	55.0	759.56	.35	1.18	9.52	4.0	93				91	82	
2	57.5	781.04	.31	1.06	1.01	3.5	87	230	246	36	91	84	20.9
1	60.0	782.016	.13	.44	1.97	1.0	84				90	83	
	(1517)												
	θ = 60	Vm = 45.794		ΔH 1.82							Avg. = 88.8		

C-111

S-0037R

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job LOUISIANA PACIFIC (CORRIGAN, TX.) Date 3/28/92 Test 23 Run 2
Source NO. 2 PRESS VENT STACK No. of traverse points 24
Method 5 Filter holder: GLASS Filter type: 4" G.F.

Sample Train Leak Check:

Pretest: ☒ 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: .005 cfm at 17 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: 1, 4175

Recovery solvent(s)
☒ acetone PROBE + NOZZLE
☐ other(s)

No. of probe wash bottles: 1
Sample recovered by: D. BRENNAN

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	500	498	2.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1413	1403	10.0
Total			12.0

Integrated Gas Sampling Data: AMBIENT AIR

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: 1610 (HRS) Time end: 1719 (HRS)

Sampling rate: _____ cc/min Operator: D. BRENNAN

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

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INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: LOUISIANA PACIFIC — Operators: D. BRENNAN + B. ASCHENBRENNER — Pitot No.: 21-C — Cp: .84
Source: NO. 2 RECOVERY STACK — Meter Box No.: 4 ΔH: 1.75 — Bar. Press.: 29.82 inHg — H2O: 1.8 x
Date: 3/28/92 — Test: 23 — Run: 2 — Counter coeff.: Local — Nozzle No.: B-4 — Nozzle Dia: .241 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dev. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (xv/v)
	1610	782.70											
B- 12	2.5	784.70	.57	1.93	4.69	7.0	85	239	261	58	75	74	20.9
11	5.0	786.82	.66	2.20	6.80	7.5	88				81	77	
10	7.5	789.03	.68	2.28	8.96	8.0	90	242	263	56	82	78	20.9
9	10.0	791.34	.84	2.82	1.36	10.0	89				85	78	
8	12.5	793.23	.47	1.60	3.17	6.0	85	243	260	55	85	79	20.9
7	15.0	794.42	.21	.71	4.39	2.0	87				85	79	
6	17.5	795.87	.30	1.00	5.83	4.0	96	245	258	55	85	79	20.9
5	20.0	798.08	.77	2.57	8.12	10.5	95				86	79	
4	22.5	800.54	.89	2.98	0.60	12.0	95	244	256	53	87	80	20.9
3	25.0	802.12	.34	1.15	2.14	5.0	89				87	80	
2	27.5	803.43	.23	.78	3.42	3.5	88	245	254	51	87	80	20.9
1	30.0	804.617	.20	.68	1.60	3.0	88				86	80	
A- 12	32.5	806.94	.80	2.71	6.96	12.0	88	245	251	50	87	80	20.9
11	35.0	809.53	1.05	3.57	9.17	15.5	92				88	80	
10	37.5	812.40	1.04	3.50	2.35	15.5	92	248	253	50	86	80	20.9
9	40.0	814.75	1.08	3.63	5.08	15.5	92				80	78	
8	42.5	817.01	.58	1.96	7.08	8.0	86	250	252	50	81	78	20.9
7	45.0	818.87	.50	1.69	8.94	7.0	88				82	78	
6	47.5	820.33	.26	.87	0.28	4.0	89	252	255	50	82	78	20.9
5	50.0	822.51	.72	2.43	2.51	10.0	87				85	79	
4	52.5	825.16	1.00	3.37	5.14	14.0	89	251	259	48	86	80	20.9
3	55.0	827.55	.80	2.72	7.51	13.0	87				88	81	
2	57.5	829.59	.58	1.97	9.52	8.5	89	246	261	48	88	81	20.9
1	60.0	831.314	.45	1.52	1.30	7.0	91				89	81	
	(179)												
	θ = 60	Vm = 48.614		ΔH 2.11							Avg. =	81.9	

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INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job LOUISIANA PACIFIC (CORRIGAN, TX.) Date 3/28/92 Test 23 Run 3
Source NO 2 PRESS VENT STACK No. of traverse points 24
Method 5 Filter holder: GLASS Filter type: 4" G.F.

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: .014 cfm at 12 in. Hg. (vac) ☒ LEAK CHECK BELOW 4% of Sampling RATE

APPROVED ON SITE BY E.P.A. (QB)

Particulate Catch Data:

No.s of filters used: 1 4176

Recovery solvent(s)
☐ acetone PROBE + NOZZLE
☐ other(s)

No. of probe wash bottles: 1
Sample recovered by: D. BRENNAN

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	499	497	2.0
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1429	1413	16.0
Total			18.0

Integrated Gas Sampling Data: AMBIENT AIR

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: 1742 (HRS) Time end: 1845 (HRS)

Sampling rate: _____ cc/min Operator: D. BRENNAN

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

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: LOUISIANA PACIFIC (CORRIGAN TX.) Operators: D. BRENNAN / B. ASCHENBACH Pitot No.: 21-6 Cp: .84
Source: NO 2 PAPER VENT STACK Meter Box No.: 4 ΔH: 1.75 IN WC Bar. Press.: 29.82 inHg H2O 1.5 x
Date: 4/28/92 Test: 23 Run: 3 Counter coeff.: 1.007 Nozzle No.: S-1 Nozzle Dia: .291 IN.

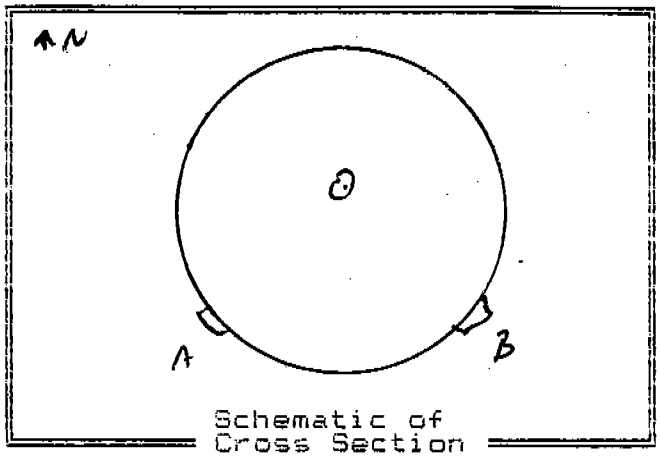
Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dns. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (xv/v)
	1742	831.60											
A-12	2.5	833.73	.68	2.30	3.77	9.0	90	240	255	46	78	77	20.9
11	5.0	835.88	.65	2.18	5.88	7.0	92				80	78	
10	7.5	837.81	.52	1.76	7.78	6.0	88	242	256	45	81	78	20.9
9	10.0	840.32	.93	3.13	0.30	12.0	89				84	79	
8	12.5	842.30	.54	1.83	2.24	7.0	89	245	255	45	85	79	20.9
7	15.0	843.83	.33	1.12	3.77	5.0	88				85	79	
6	17.5	845.16	.26	.89	5.12	3.5	86	244	259	43	86	80	20.9
5	20.0	847.50	.82	2.80	7.52	11.0	86				86	80	
4	22.5	850.03	.89	3.05	0.02	12.0	85	240	259	42	86	81	20.9
3	25.0	852.35	.77	2.64	2.36	11.0	85				83	81	
2	27.5	854.46	.61	2.08	4.43	9.0	88	242	260	40	88	81	20.9
1	30.0	855.475	.15	.51	5.16	1.0	90				88	81	
B-12	32.5	857.72	.70	2.39	7.68	10.5	89	245	262	39	89	82	20.9
11	35.0	860.07	.82	2.76	0.09	12.0	96				90	82	
10	37.5	862.12	.54	1.84	2.02	8.0	92	244	262	39	90	82	20.9
9	40.0	864.18	.61	2.09	4.11	8.0	87				90	83	
8	42.5	865.80	.38	1.31	5.76	6.0	85	244	259	38	90	83	20.9
7	45.0	867.12	.24	.83	7.07	4.0	86				90	83	
6	47.5	869.34	.68	2.33	9.27	9.0	89	240	256	38	90	83	20.9
5	50.0	871.35	.59	2.01	1.30	9.0	93				92	84	
4	52.5	873.85	.90	3.08	3.83	13.0	90	238	255	38	92	84	20.9
3	55.0	875.30	.29	1.00	5.27	4.0	88				91	84	
2	57.5	876.32	.14	.48	6.28	1.0	86	236	255	37	90	84	20.9
1	60.0	877.516	.11	.38	7.17	1.0	86				89	83	
	(15 MIN)												
	θ = 60	Vm = 45.916		ΔH 1.85							Avg. =	81.5	

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INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job Louisiana Pac. Inc / Corrigan, TX
Source No. 8 Exhaust Fan Vent/Stack
Test 24 Run 0 Date 3-28-92
Stack dimen. 62.75 IN.
Dry bulb ____ °F Wet bulb ____ °F
Manometer: ☒ Reg. ☐ Exp. ☐ Elec.
Barometric pressure 29.83 in Hg
Static pressure -.25 in WC
Operators M. Kuebler TC. Mosson
Pitot No. 29V-6 Cp .84
Formaldehyde



Schematic of Cross Section

Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length: 6 in.		Time start: 1400hrs	
A-1	.021	1.32	7.32	.05	
2	.067	4.20	10.20	.10	
3	.118	7.40	13.40	.40	
4	.177	11.11	17.11	.46	
5	.250	15.69	21.69	.73	
6	.356	22.34	28.34	.48	
7	.644	40.41	46.41	.85	
8	.750	47.06	53.06	.94	
9	.823	51.64	57.64	.75	↑
10	.882	55.35	61.35	.43	
11	.933	58.55	64.55	.10	73
12	.979	61.43	67.43	.05	
B-1				.09	↓
2				.18	
3				.70	
4				.75	
5				.63	
6				.74	
7				.85	
8				.90	
9				.48	
10				.47	
11				.10	
12				.13	
Temp. meas. tool & S/N: PDT-3/TC				Time end:	hrs

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

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pac. Fac / Cocrigan, TX Date 3-28-92 Test 24 Run 1
Source No. 8 Exhaust Fan Vent / Stack No. of traverse points 24
Method 0011 Filter holder: NA Filter type: NA

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: < 0.02 cfm at 12 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: NA

Recovery solvent(s)
☐ acetone
☒ other(s) MeCl2

No. of ~~probe~~ Imp wash bottles: 1
Sample recovered by: M. Kaeller & C. Mosser

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	592	589	3
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1449	1433	16
Total			19

Integrated Gas Sampling Data: NA / Ambient

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

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

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pac. Co. / Corrigan, TX Operators M. Kaehler & C. Messer Pitot No. 214-6 Cp .84
Source No. 8 Exhaust Fan Vent / Stack Meter Box No. 3 ΔH 1.90 IN WC Bar. Press. 29.83 inHg H2O 6.5 %
Date 3-28-92 Test 24 Run 1 Coeff. .9991 Nozzle No. Glass Nozzle Dia. .235 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dry. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1416)	926.70											
A-12	2.5	927.52	.10	.36	7.52	2	75	240	250	43	75	74	20.9
11	5	928.24	.08	.29	8.26	2	76				76	74	20.9
10	7.5	929.93	.44	1.60	9.99	4	73	242	253	43	78	74	20.9
9	10	932.33	.84	3.03	2.32	8	75				80	78	20.9
8	12.5	934.70	.82	2.95	4.72	8	75	245	250	44	80	77	20.9
7	15	937.08	.83	3.01	7.10	8	75				80	75	20.9
6	17.5	938.72	.42	1.52	8.79	4	76	247	252	44	80	75	20.9
5	20	941.00	.74	2.68	1.04	7	75				81	75	20.9
4	22.5	942.20	.43	1.56	2.76	4	75	245	255	44	81	76	20.9
3	25	944.35	.38	1.38	4.38	4	74				81	76	20.9
2	27.5	945.32	.12	.43	5.29	2	74	248	256	45	81	76	20.9
1	30	945.98	.06	.22	5.94	2	72				80	76	20.9
B-12	32.5	946.93	.13	.47	6.89	2	72	245	259	46	80	75	20.9
11	35	947.98	.15	.54	7.90	2	73				81	76	20.9
10	32.5	948.72	.10	.36	8.94	2	73	248	257	46	80	76	20.9
9	40	950.58	.51	1.80	0.61	5	73				81	76	20.9
8	42.5	953.37	.95	3.44	3.16	9	75	246	259	47	82	76	20.9
7	45	955.45	.82	2.98	5.53	8	74				82	77	20.9
6	47.5	957.73	.75	2.73	7.80	8	74	243	262	47	82	77	20.9
5	50	959.95	.63	2.30	9.88	6.5	74				82	77	20.9
4	52.5	962.20	.72	2.63	2.11	6.5	72	246	260	48	82	77	20.9
3	55	964.40	.74	2.71	4.32	7	72				82	77	20.9
2	57.5	965.63	.10	.73	5.55	2	73	248	260	48	82	77	20.9
1	60	966.38	.09	.33	6.35	2	72				81	77	20.9
	(1518)												
	Θ = 60	Vm = 39.68		ΔH 7.67							Avg. = 77.9		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pac. Co. / Corrigan, TX Date 3-28-92 Test 24 Run 2
Source No. 8 Exhaust Fan Vent / Stack No. of traverse points 24
Method 0011 Filter holder: NA Filter type: NA

Sample Train Leak Check:

Pretest: ☒ < 0.02 cfm at 15 in. Hg. (vac)
Postest: ☒ ≤ 0.02 cfm at 12 in. Hg. (vac)

Particulate Catch Data:

No.s of filters used: NA

Recovery solvent(s)
☐ acetone
☒ other(s) $MeCl_2$

No. of ~~probe~~ Imp wash bottles: 1
Sample recovered by: M. Keebler & L. Messer

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	602	600	2
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1349	1339	10
Total			12

Integrated Gas Sampling Data: NA / Ambient

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

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

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INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job Louisiana Pacific — Operators M. Kaehler KC. Mozzor — Pitot No. 2906 — Cp .84
Source No. 8 Exhaust Fan Vent / Stack — Meter Box No. #3 ΔH 1.90 IN WC — Bar. Press. 29.83 inHg H2O 2.2 X
Date 3-26-92 Test 24 Run 2 — Coefficient coeff. .9991 — Nozzle No. Glass Nozzle Dia .259 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (xv/v)
	(1600)	966.70											
B-12	2.5	967.48	.10	.36	7.52	2	72	240	253	44	72	72	20.9
11	5	968.19	.07	.25	8.21	2	72				73	72	20.9
10	7.5	970.00	.49	1.75	0.02	4	72	243	256	44	75	73	20.9
9	10	972.21	.75	2.68	2.26	6.5	73				76	73	20.9
8	12.5	974.60	.85	3.04	4.64	8	73	243	258	44	77	74	20.9
7	15	976.77	.72	2.58	6.84	7	73				78	74	20.9
6	17.5	978.84	.65	2.34	8.93	6	72	247	255	45	78	74	20.9
5	20	981.12	.76	2.73	1.19	7	73				79	74	20.9
4	22.5	983.30	.70	2.52	3.37	6.5	72	245	257	46	79	75	20.9
3	25	984.52	.18	.65	4.47	2	73				79	75	20.9
2	27.5	985.37	.11	.39	5.34	2	73	248	256	46	79	74	20.9
1	30	986.11	.09	.32	6.13	2	72				78	74	20.9
A-12	32.5	987.16	.16	.57	7.17	2	74	246	259	45	78	74	20.9
11	35	988.02	.10	.36	7.99	2	74				79	75	20.9
10	32.5	990.02	.63	2.26	0.05	6	74	243	262	45	81	75	20.9
9	40	992.42	.85	3.04	2.44	7.5	76				82	76	20.9
8	42.5	994.79	.87	3.12	4.87	8	75	245	260	46	81	76	20.9
7	45	996.58	.42	1.51	6.56	4	75				81	76	20.9
6	47.5	998.60	.64	2.30	8.64	6	74	247	258	47	81	76	20.9
5	50	1000.73	.63	2.27	0.71	6	74				81	76	20.9
4	52.5	1002.64	.51	1.84	2.58	5	73	249	260	47	82	76	20.9
3	55	1003.90	.22	.79	3.81	2.5	73				81	76	20.9
2	57.5	1004.63	.08	.29	4.55	2	71	246	257	48	80	76	20.9
1	60	1005.30	.07	.25	5.24	2	71				80	76	20.9
	(1702)												
	θ = 60	Vm = 38.60		ΔH 1.58							Avg. = 76.1		

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INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job Louisiana Pacific / Corrigan, TX Date 3-28-92 Test 24 Run 3
Source No. 8 Exhaust Fan Vent / Stack No. of traverse points 24
Method 0011 Filter holder: NA Filter type: NA

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: <0.02 cfm at 10 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: NA

Recovery solvent(s)
☐ acetone
☒ other(s) $MeCl_2$

No. of ~~probe~~ Imp wash bottles: 1
Sample recovered by: Mikaehler & C. Mosser

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	596	598	(2)
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1459	1449	10
Total			9

Integrated Gas Sampling Data: NA / Ambient

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

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

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INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

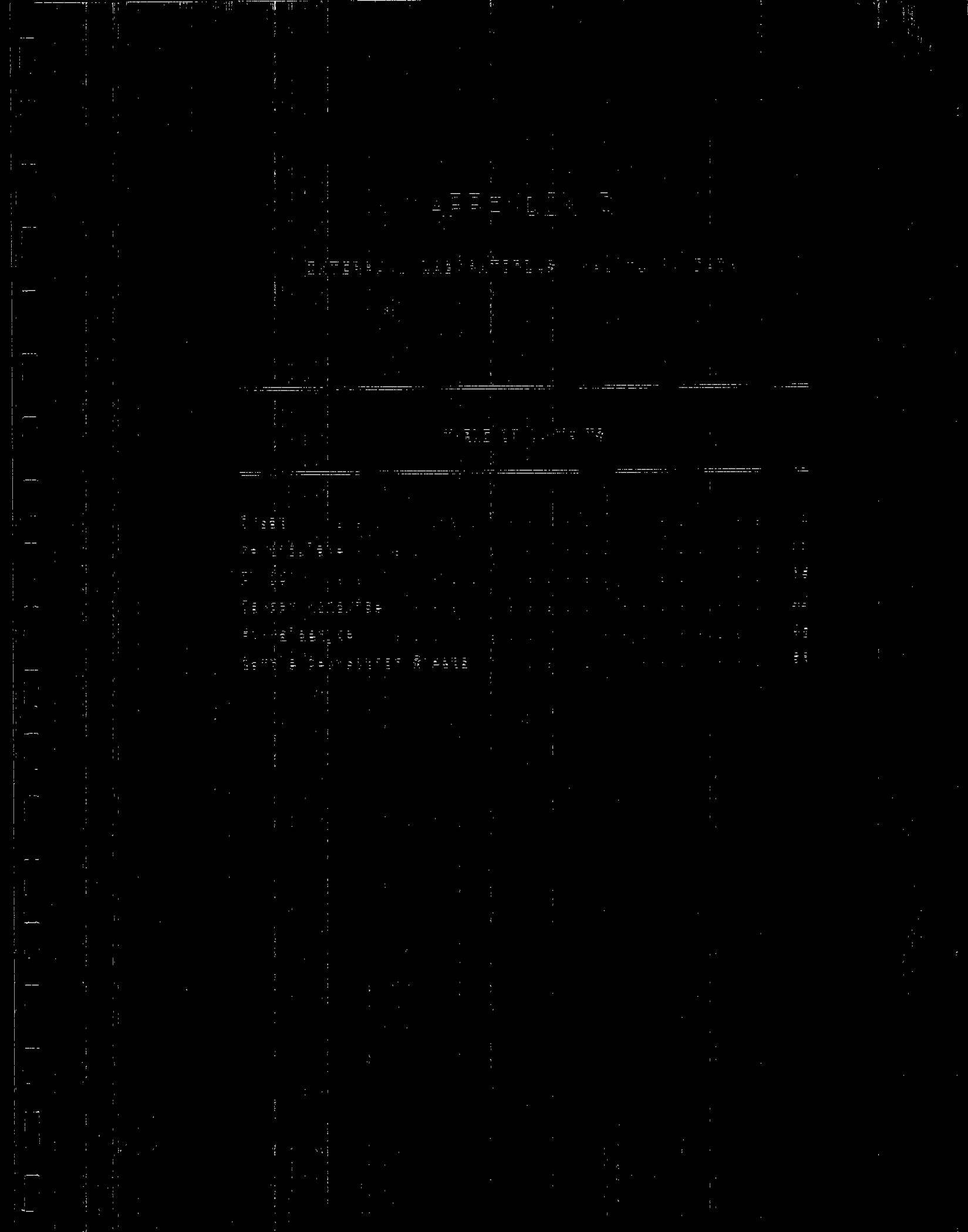
Job Louisiana Pacific / Corrigan, TX
Source No. 9 Exhaust Fan Vent / Stack
Date 3-28-92 Test 24 Run 3

Operators M. Knechler / C. Musser
Meter Box No. 3 ΔH 1.90 IN WC
Coeffic. coeff. .9991

Pitot No. 294-6 Cp .84
Bar. Press. 29.83 inHg H2O 1.5 X
Nozzle No. Glass Nozzle Dia. .259 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dgs. Vol. (cf)	VAC. inHg	Temperatures (°F)						Oxygen
							Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	(xx/x)
	(1742)	5.60											
A-12	2.5	6.55	.13	.47	6.54	2	72	243	255	45	73	73	20.9
11	5	7.35	.09	.32	7.33	2	72				74	73	20.9
10	7.5	8.15	.10	.36	8.15	2	73	245	253	45	75	73	20.9
9	10	10.55	.85	3.07	0.55	8	73				78	74	20.9
8	12.5	12.85	.15	2.72	2.80	7	73	248	256	46	79	75	20.9
7	15	14.82	.53	1.92	4.71	5	74				79	75	20.9
6	17.5	16.96	.73	2.65	6.94	6	74	247	255	46	80	75	20.9
5	20	18.87	.50	1.82	8.79	5	73				80	76	20.9
4	22.5	20.51	.41	1.50	0.47	4	73	250	258	45	81	76	20.9
3	25	21.68	.20	.73	1.65	2.5	72				81	76	20.9
2	27.5	22.43	.07	.25	2.35	2	71	248	260	45	80	76	20.9
1	30	22.99	.05	.18	2.94	2	71				79	76	20.9
B-12	32.5	23.63	.10	.36	3.77	2	72	245	261	46	79	76	20.9
11	35	24.45	.05	.18	4.36	2	72				80	76	20.9
10	37.5	26.24	.53	1.94	6.27	5	72	244	261	47	82	77	20.9
9	40	28.72	.86	3.14	8.71	8	73				83	77	20.9
8	42.5	31.11	.84	3.06	1.11	8	74	242	257	47	83	77	20.9
7	45	33.30	.20	2.56	3.31	7	73				93	78	20.9
6	47.5	35.46	.65	2.33	5.43	6	73	245	255	46	83	78	20.9
5	50	37.70	.74	2.70	2.69	6.5	74				93	78	20.9
4	52.5	40.03	.80	2.92	0.04	7	74	247	258	46	83	78	20.9
3	55	41.53	.30	1.10	1.49	3	72				83	78	20.9
2	57.5	42.50	.12	.44	2.41	2	71	245	256	46	93	78	20.9
1	60	43.42	.13	.48	3.36	2	71				83	78	20.9
	(1847)												
	θ = 60	Vm = 37.82		ΔH = 1.35							Avg. = 78.2		

C-122



Interpoll Laboratories
(612) 786-6020

EPA Method 3 Data Reporting Sheet
Orsat Analysis

Job Louisiana Pacific / Corrigan
Team Leader M. Brennan
Date Submitted 3-24-92
Test No. 1
Date of Analysis 3-24-92

Source No. 1 Dryer
Test Site Stack
Date of Test 3-24-92
No. of Runs Completed 3
Technician Mark Beane

Test/ Run	Sample Log Number 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
1/1		1	0.00	1.60	20.70	1.60	19.10	1.125
		2	0.00	1.60	20.70	1.60	19.10	1.125
	☒ B ☐ F	Avg				1.60	19.10	
1/2		1	0.00	1.40	20.80	1.40	19.40	1.000
		2	0.00	1.40	20.90	1.40	19.40	1.000
	☒ B ☐ F	Avg				1.40	19.40	
1/3		1	0.00	1.50	20.75	1.50	19.25	1.100
		2	0.00	1.50	20.75	1.50	19.25	1.100
	☒ B ☐ F	Avg				1.50	19.25	
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		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
(612) 786-6020

EPA Method 3 Data Reporting Sheet
Orsat Analysis

Job Louisiana Pacific / Corrigan, TX
Team Leader M. Kuehler
Date Submitted 3-24-92
Test No. 2
Date of Analysis 3-24-92

Source No. 1 Dryer
Test Site Stack
Date of Test 3-24-92
No. of Runs Completed 3
Technician Mark Gaskill

Test/ Run	Sample Log Number 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
2/1		1	0.00	2.20	20.70	2.20	18.50	1.091
		2	0.00	2.20	20.70	2.20	18.50	1.091
	☒ B ☐ F	Avg				2.20	18.50	
2/2		1	0.00	2.10	20.80	2.10	18.70	1.048
		2	0.00	2.10	20.80	2.10	18.70	1.048
	☒ B ☐ F	Avg				2.10	18.70	
2/3		1	0.00	2.40	20.70	2.40	18.30	1.083
		2	0.00	2.40	20.70	2.40	18.30	1.083
	☒ B ☐ F	Avg				2.40	18.30	
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		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
(612) 786-6020

EPA Method 3 Data Reporting Sheet
Orsat Analysis

Job Louisiana Pacific / Corrigan, TX
Team Leader Mike Kessler
Date Submitted 3-24-92
Test No. 4
Date of Analysis 3-24-92

Source No. 1 Dryer
Test Site Stack
Date of Test 3-24-92
No. of Runs Completed 3
Technician Mark Beebe

Test/ Run	Sample Log Number 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
4/1	____ ☒B ☐F	1	0.00	1.80	20.70	1.80	18.90	1.111
		2	0.00	1.80	20.70	1.80	18.90	1.111
		Avg				1.80	18.90	
4/2	____ ☒B ☐F	1	0.00	2.00	20.70	2.00	18.70	1.100
		2	0.00	2.00	20.70	2.00	18.70	1.100
		Avg				2.00	18.70	
4/3	____ ☒B ☐F	1	0.00	2.20	20.90	2.20	18.70	1.000
		2	0.00	2.20	20.90	2.20	18.70	1.000
		Avg				2.20	18.70	
	____ ☐B ☐F	1						
		2						
		Avg						
	____ ☐B ☐F	1						
		2						
		Avg						
	____ ☐B ☐F	1						
		2						
		Avg						
	____ ☐B ☐F	1						
		2						
		Avg						
	____ ☐B ☐F	1						
		2						
		Avg						
	____ ☐B ☐F	1						
		2						
		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
D-3 Wood/Wood Bark	1.000-1.130

LSC-04-BR

Interpoll Laboratories
(612) 786-6020

EPA Method 3 Data Reporting Sheet
Orsat Analysis

Job Louisiana Pacific / Corrigan, TX
Team Leader Bibergan
Date Submitted 3-25-92
Test No. 5
Date of Analysis 3-25-92

Source No. 2A Dryer
Test Site Stack
Date of Test 3-25-92
No. of Runs Completed 3
Technician Mark Babbitt

Test/ Run	Sample Log Number 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
5/1		1	0.00	3.00	20.90	3.00	17.90	1.000
		2	0.00	3.00	20.90	3.00	17.90	1.000
	☒ B ☐ F	Avg				3.00	17.90	
5/2		1	0.00	3.00	20.90	3.00	17.80	1.033
		2	0.00	3.00	20.90	3.00	17.80	1.033
	☒ B ☐ F	Avg				3.00	17.80	
5/3		1	0.00	2.80	20.80	2.80	18.00	1.036
		2	0.00	2.80	20.80	2.80	18.00	1.036
	☒ B ☐ F	Avg				2.80	18.00	
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		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
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EPA Method 3 Data Reporting Sheet
Orsat Analysis

Job Louisiana Pacific / Corrigan, Tx
Team Leader N. Kaehler
Date Submitted 3-25-92
Test No. 6
Date of Analysis 3-25-92

Source No. 2B Dryer
Test Site Stack
Date of Test 3-25-92
No. of Runs Completed 3
Technician Mark Kaehler

Test/ Run	Sample Log Number 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
6/1		1	0.00	2.80	20.60	2.80	17.80	1.107
		2	0.00	2.80	20.60	2.80	17.80	1.107
	☒ B ☐ F	Avg				2.80	17.80	
6/2		1	0.00	2.90	20.70	2.90	17.80	1.069
		2	0.00	2.90	20.70	2.90	17.80	1.069
	☒ B ☐ F	Avg				2.90	17.80	
6/3		1	0.00	2.90	20.60	2.90	17.70	1.103
		2	0.00	2.90	20.60	2.90	17.70	1.103
	☒ B ☐ F	Avg				2.90	17.70	
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		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
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EPA Method 3 Data Reporting Sheet
Orsat Analysis

Job Louisiana Pacific / Corrigan, TX
Team Leader D. Brennan
Date Submitted 3-25-92
Test No. 8
Date of Analysis 3-25-92

Source No. 2A Dryer
Test Site Stack
Date of Test 3-25-92
No. of Runs Completed 2
Technician Mark Baehren

Test/ Run	Sample Log Number 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
8/1		1	0.00	2.80	20.80	2.80	18.00	1.036
		2	0.00	2.80	20.80	2.80	18.00	1.036
	☒ B ☐ F	Avg				2.80	18.00	
8/2		1	0.00	2.90	20.70	2.90	17.80	1.069
		2	0.00	2.90	20.70	2.90	17.80	1.069
	☒ B ☐ F	Avg				2.90	17.80	
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		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
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EPA Method 3 Data Reporting Sheet
Orsat Analysis

Job Louisiana Pacific / Corrigan, TX
Team Leader M. Bachler
Date Submitted 3-25-92
Test No. 9
Date of Analysis 3-25-92

Source No. 2 & 3 Dryer #
Test Site Stack
Date of Test 3-25-92
No. of Runs Completed 2
Technician Mark Bachler

Test/ Run	Sample Log Number 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
9/1		1	0.00	3.00	20.90	3.00	17.90	1.000
		2	0.00	3.00	20.90	3.00	17.90	1.000
	☒ B ☐ F	Avg				3.00	17.90	
9/2		1	0.00	3.00	20.80	3.00	17.80	1.033
		2	0.00	3.00	20.80	3.00	17.80	1.033
	☒ B ☐ F	Avg				3.00	17.80	
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		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
(612) 786-6020

EPA Method 3 Data Reporting Sheet
Orsat Analysis

Job Louisiana Pacific / Corrigan, TX
Team Leader D. Brennan
Date Submitted 3-26-92
Test No. 10
Date of Analysis 3-26-92

Source No. 3 Dryer
Test Site Stack
Date of Test 3-26-92
No. of Runs Completed 3
Technician Mark Eachus

Test/ Run	Sample Log Number 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
10/1	_____ ☒ B ☐ F	1	0.00	2.00	20.90	2.00	18.90	1.000
		2	0.00	2.00	20.90	2.00	18.90	1.000
		Avg				2.00	18.90	
10/2	_____ ☒ B ☐ F	1	0.00	1.80	20.70	1.90	18.90	1.111
		2	0.00	1.90	20.70	1.80	18.90	1.111
		Avg				1.80	18.90	
10/3	_____ ☒ B ☐ F	1	0.00	1.80	20.80	1.90	19.00	1.056
		2	0.00	1.90	20.90	1.80	19.00	1.056
		Avg				1.80	19.00	
	_____ ☐ B ☐ F	1						
		2						
		Avg						
	_____ ☐ B ☐ F	1						
		2						
		Avg						
	_____ ☐ B ☐ F	1						
		2						
		Avg						
	_____ ☐ B ☐ F	1						
		2						
		Avg						
	_____ ☐ B ☐ F	1						
		2						
		Avg						
	_____ ☐ B ☐ F	1						
		2						
		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

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EPA Method 3 Data Reporting Sheet
Orsat Analysis

Job Louisiana Pacific / Corrigan, TX
Team Leader M. Kaehler
Date Submitted 3-26-92
Test No. 11
Date of Analysis 3-26-92

Source No. 3 Dryer
Test Site Stack
Date of Test 3-26-92
No. of Runs Completed 3
Technician Mark Kaehler

Test/ Run	Sample Log Number 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
11/1		1	0.00	2.00	20.90	2.00	18.90	1.000
		2	0.00	2.00	20.90	2.00	18.90	1.000
	☒ B ☐ F	Avg				2.00	19.90	
11/2		1	0.00	1.70	20.80	1.70	19.10	1.059
		2	0.00	1.70	20.80	1.70	19.10	1.059
	☒ B ☐ F	Avg				1.70	19.10	
11/3		1	0.00	1.60	20.80	1.60	19.20	1.063
		2	0.00	1.60	20.90	1.60	19.20	1.063
	☒ B ☐ F	Avg				1.60	19.20	
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		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

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EPA Method 3 Data Reporting Sheet
Orsat Analysis

Job Louisiana Pacific / Corrigan, TX
Team Leader Mike D. Brennan
Date Submitted 3-26-92
Test No. 13
Date of Analysis 3-26-92

Source No. 3 Dryer
Test Site Stack
Date of Test 3-26-92
No. of Runs Completed 3
Technician Mark Boehler

Test/ Run	Sample Log Number 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
13/1		1	0.00	1.60	20.90	1.60	19.30	1.000
		2	0.00	1.60	20.90	1.60	19.30	1.000
	☒ B ☐ F	Avg				1.60	19.30	
13/2		1	0.00	2.00	20.80	2.00	18.80	1.050
		2	0.00	2.00	20.80	2.00	18.80	1.050
	☒ B ☐ F	Avg				2.00	18.80	
13/3		1	0.00	1.60	20.80	1.60	19.20	1.063
		2	0.00	1.60	20.80	1.60	19.20	1.063
	☒ B ☐ F	Avg				1.60	19.20	
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		2						
	☐ B ☐ F	Avg						
		1						
		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
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EPA Method 5 Data Reporting Sheet
Impinger Catch/Wisconsin Protocol

Job L.P. Corrigan, TX
Team Leader DB
Date Submitted 4-13-92
Test No. 4
Date of Analysis 4-20-92

Source #1 Dryer Stack
Test Site Stack
Date of Test 3-24-92
No. of Runs Completed 3
Technician C. Helgeson

		Solvent Phase	Aqueous Phase
0	Test 4 Run 0 Field Blank Log Number 5792-26 Comments	Dish No. 84 Dish Tare Wt. 74.0145 g Dish+Sample Wt. 74.0149 g Sample Wt. 0.0004 g	Dish No. 400 Dish Tare Wt. 47.1015 g Dish+Sample Wt. 47.1019 g Sample Wt. 0.0004 g
1	Test 4 Run 1 Log Number -29 Comments	Dish No. 85 Dish Tare Wt. 73.9513 g Dish+Sample Wt. 73.9841 g Sample Wt. 0.0328 g	Dish No. 403 Dish Tare Wt. 47.0975 g Dish+Sample Wt. 47.1038 g Sample Wt. 0.0063 g
2	Test 4 Run 2 Log Number -33 Comments	Dish No. 87 Dish Tare Wt. 73.3550 g Dish+Sample Wt. 73.3822 g Sample Wt. 0.0272 g	Dish No. 410 Dish Tare Wt. 46.4714 g Dish+Sample Wt. 46.4773 g Sample Wt. 0.0059 g
3	Test 4 Run 3 Log Number -37 Comments	Dish No. 89 Dish Tare Wt. 71.7504 g Dish+Sample Wt. 71.7772 g Sample Wt. 0.0268 g	Dish No. 504 Dish Tare Wt. 50.0224 g Dish+Sample Wt. 50.0278 g Sample Wt. 0.0054 g
4	Test ____ Run ____ Log Number ____ Comments	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Log Number ____ Comments	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g

Blank Solvent Wt. 0.0004 g

Results Solvent Phase:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0324	0.0268	0.0264		

Results Aqueous Phase:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0059	0.0055	0.0050		

LSC-03WYF

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EPA Method 5 Data Reporting Sheet
Probe/Cyclone Wash

Job L.P. Corrigan TX
Team Leader DB
Date Submitted 4-13-92
Test No. 4
Date of Analysis 4-14-92
Transport Leakage [1 None] _____ ml

Source #1 Dryer
Test Site Stack
Date of Test 3-24-92
No. of Runs Completed 3
Technician C. Helgeson
Solvent Acetone

0
Test _____ Run 0
Field Blank
Log Number _____
Vol. of Solvent _____ ml
*Solvent Residue 3.33 ug/ml
Dish No. _____
Dish Tare Wt. _____ g
Dish+Sample Wt. _____ g
Sample Wt. _____ g

1
Test 4 Run 1
Vol. of Solvent 130 ml
Log Number 5792-27
Comments _____
Dish No. 405
Dish Tare Wt. 48.4904 g
Dish+Sample Wt. 48.5180 g
Sample Wt. 0.0276 g

2
Test 4 Run 2
Vol. of Solvent 140 ml
Log Number -31
Comments _____
Dish No. 410
Dish Tare Wt. 46.4687 g
Dish+Sample Wt. 46.4940 g
Sample Wt. 0.0253 g

3
Test 4 Run 3
Vol. of Solvent 150 ml
Log Number -35
Comments _____
Dish No. 411
Dish Tare Wt. 46.6833 g
Dish+Sample Wt. 46.6980 g
Sample Wt. 0.0147 g

4
Test _____ Run _____
Vol. of Solvent _____ ml
Log Number _____
Comments _____
Dish No. _____
Dish Tare Wt. _____ g
Dish+Sample Wt. _____ g
Sample Wt. _____ g

5
Test _____ Run _____
Vol. of Solvent _____ ml
Log Number _____
Comments _____
Dish No. _____
Dish Tare Wt. _____ g
Dish+Sample Wt. _____ g
Sample Wt. _____ g

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

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0272	0.0248 D-2	0.0142		

LSC-01YR

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EPA Method 5 Data Reporting Sheet
Filter Gravimetrics

Job L.P. Corrigan, Tx
Team Leader DB
Date Submitted 4-13-92
Test No. 4
Date of Analysis 4-14-92

Source #1 Dryer
Test Site Stack
Date of Test 3-24-92
No. of Runs Completed 3
Technician C. Helgeson

	Test 4 Run 0 Field Blank Log Number Comments	Filter No. 4131 Filter Type 4" GF Filter Tare Wt. .9559 g Filter+Sample Wt. .9562 g Sample Wt. 0.0003 g
1	Test 4 Run 1 Log Number 5792-28 Comments	Filter No. 4040 Filter Type 4" GF Filter Tare Wt. .9689 g Filter+Sample Wt. 1.0419 g Sample Wt. 0.0730 g
2	Test 4 Run 2 Log Number -32 Comments	Filter No. 4119 Filter Type 4" GF Filter Tare Wt. .9256 g Filter+Sample Wt. 1.0104 g Sample Wt. 0.0848 g
3	Test 4 Run 3 Log Number -36 Comments	Filter No. 4120 Filter Type 4" GF Filter Tare Wt. .9533 g Filter+Sample Wt. 1.0242 g Sample Wt. 0.0709 g
4	Test ____ Run ____ Log Number Comments	Filter No. Filter Type Filter Tare Wt. g Filter+Sample Wt. g Sample Wt. g
5	Test ____ Run ____ Log Number Comments	Filter No. Filter Type Filter Tare Wt. g Filter+Sample Wt. g Sample Wt. g

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0730	0.0848	0.0709		

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.1385	0.1419	0.1165		

LSC-02PR

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EPA Method 5 Data Reporting Sheet
Impinger Catch/Wisconsin Protocol

Job L.P. Corrigan Tx
Team Leader DB
Date Submitted 4-13-92
Test No. 8
Date of Analysis 4-27-92

Source #2A Dryer
Test Site Stack
Date of Test 3-25-92
No. of Runs Completed 2
Technician C. Helgeson

		Solvent Phase	Aqueous Phase
0	Test ____ Run 0 Field Blank Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
1	Test 8 Run 1 Log Number 5792-56 Comments ____	Dish No. 406 Dish Tare Wt. 49.6168 g Dish+Sample Wt. 49.7272 g Sample Wt. 0.1104 g	Dish No. 209 Dish Tare Wt. 43.2085 g Dish+Sample Wt. 43.2436 g Sample Wt. 0.0351 g
2	Test 8 Run 2 Log Number -59 Comments ____	Dish No. 408 Dish Tare Wt. 47.6250 g Dish+Sample Wt. 47.6845 g Sample Wt. 0.0595 g	Dish No. 515 Dish Tare Wt. 50.0130 g Dish+Sample Wt. 50.0486 g Sample Wt. 0.0356 g
3	Test ____ Run ____ Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
4	Test ____ Run ____ Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g

Blank Solvent Wt. 0.0004 g

Results Solvent Phase:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.1100	0.0591			

Results Aqueous Phase:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0347	0.0352			

LSC-03WY

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EPA Method 5 Data Reporting Sheet
Probe/Cyclone Wash

Job L.P. Corrigan Tx. | Source #2A Dryer
Team Leader DB | Test Site Stack
Date Submitted 4-13-92 | Date of Test 3-25-92
Test No. 8 | No. of Runs Completed 2
Date of Analysis 4-14-92 | Technician C. Helgeson
Transport Leakage [None] ml | Solvent Acetone

0	Test ___ Run 0 ___ Field Blank Log Number ___ Vol. of Solvent ___ ml *Solvent Residue 3.33 ug/ml	Dish No. ___ Dish Tare Wt. ___ g Dish+Sample Wt. ___ g Sample Wt. ___ g
1	Test 8 Run 1 Vol. of Solvent 210 ml Log Number 5792-54 Comments ___	Dish No. 200 Dish Tare Wt. 44.9364 g Dish+Sample Wt 45.0120 g Sample Wt. 0.0756 g
2	Test 8 Run 2 Vol. of Solvent 110 ml Log Number -57 Comments ___	Dish No. 212 Dish Tare Wt. 50.3579 g Dish+Sample Wt. 50.3715 g Sample Wt. 0.0136 g
3	Test ___ Run ___ Vol. of Solvent ___ ml Log Number ___ Comments ___	Dish No. ___ Dish Tare Wt. ___ g Dish+Sample Wt. ___ g Sample Wt. ___ g
4	Test ___ Run ___ Vol. of Solvent ___ ml Log Number ___ Comments ___	Dish No. ___ Dish Tare Wt. ___ g Dish+Sample Wt. ___ g Sample Wt. ___ g
5	Test ___ Run ___ Vol. of Solvent ___ ml Log Number ___ Comments ___	Dish No. ___ Dish Tare Wt. ___ g Dish+Sample Wt. ___ g Sample Wt. ___ g

*Solvent Residue ___ ug/ml = [(Sample Wt. ___ g)(10⁶)]/Vol. of Sol. ___ ml
EPA-MS Acetone Residue Blank Spec. ≤ 7.8 ug/ml

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0749	0.0132	D-15		

LSC-01YR

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EPA Method 5 Data Reporting Sheet
Filter Gravimetrics

Job L.P. Corrigan, Tx
Team Leader DB
Date Submitted 4-13-92
Test No. 8
Date of Analysis 4-14-92

Source # 2A Dryer
Test Site Stack
Date of Test 3-25-92
No. of Runs Completed 2
Technician C. Helgeson

0	Test ____ Run 0 Field Blank Log Number ____ Comments ____	Filter No. ____ Filter Type ____ Filter Tare Wt. ____ g Filter+Sample Wt. ____ g Sample Wt. ____ g
1	Test 8 Run 1 Log Number 5792-55 Comments ____	Filter No. 4123 Filter Type 4"GF Filter Tare Wt. .9554 g Filter+Sample Wt. 1.0538 g Sample Wt. 0.0984 g
2	Test 8 Run 2 Log Number -58 Comments ____	Filter No. 4124 Filter Type 4"GF Filter Tare Wt. .9366 g Filter+Sample Wt. 1.0380 g Sample Wt. 0.1014 g
3	Test ____ Run ____ Log Number ____ Comments ____	Filter No. ____ Filter Type ____ Filter Tare Wt. ____ g Filter+Sample Wt. ____ g Sample Wt. ____ g
4	Test ____ Run ____ Log Number ____ Comments ____	Filter No. ____ Filter Type ____ Filter Tare Wt. ____ g Filter+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Log Number ____ Comments ____	Filter No. ____ Filter Type ____ Filter Tare Wt. ____ g Filter+Sample Wt. ____ g Sample Wt. ____ g

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0984	0.1014			

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.3180	0.2089			

LSC-02PR

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EPA Method 5 Data Reporting Sheet
Impinger Catch/Wisconsin Protocol

Job L.P. Corrigan Tx
Team Leader MK
Date Submitted 4-14-92
Test No. 9
Date of Analysis 4-23-92

Source 2B Dryer
Test Site Stack
Date of Test 3-26-92
No. of Runs Completed 2
Technician C. Helgeson

		Solvent Phase	Aqueous Phase
0	Test 9 Run 0 Field Blank Log Number 5792-62 Comments	Dish No. 1A Dish Tare Wt. 44.1957 g Dish+Sample Wt. 44.1961 g Sample Wt. 0.0004 g	Dish No. 69 Dish Tare Wt. 47.9871 g Dish+Sample Wt. 47.9875 g Sample Wt. 0.0004 g
1	Test 9 Run 1 Log Number -65 Comments	Dish No. 5A Dish Tare Wt. 44.5327 g Dish+Sample Wt. 44.5750 g Sample Wt. 0.0423 g	Dish No. 105 Dish Tare Wt. 47.8621 g Dish+Sample Wt. 47.8826 g Sample Wt. 0.0205 g
2	Test 9 Run 2 Log Number -69 Comments	Dish No. 44 Dish Tare Wt. 47.6231 g Dish+Sample Wt. 47.6618 g Sample Wt. 0.0387 g	Dish No. 117 Dish Tare Wt. 47.3712 g Dish+Sample Wt. 47.3897 g Sample Wt. 0.0185 g
3	Test ____ Run ____ Log Number ____ Comments	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
4	Test ____ Run ____ Log Number ____ Comments	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Log Number ____ Comments	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g

Blank Solvent Wt. 0.0004 g

Results Solvent Phase:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0419	0.0383			

Results Aqueous Phase:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0201	0.0181			

LSC-03WYP

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EPA Method 5 Data Reporting Sheet
Probe/Cyclone Wash

Job L.P. Corrigan Tx
Team Leader DB
Date Submitted 4-13-92
Test No. 9
Date of Analysis 4-14-92
Transport Leakage [ ] None [ ] _____ ml

Source #2B Dryer
Test Site Stack
Date of Test 3-25-92
No. of Runs Completed 2
Technician C. Helgeson
Solvent Acetone

0	Test 9 Run 0 Field Blank Log Number 5792-60 Vol. of Solvent 90 ml *Solvent Residue 3.33 ug/ml	Dish No. 503 Dish Tare Wt. 48.3109 g Dish+Sample Wt 48.3112 g Sample Wt. 0.0003 g
1	Test 9 Run 1 Vol. of Solvent 190 ml Log Number -63 Comments	Dish No. 505 Dish Tare Wt. 48.4510 g Dish+Sample Wt. 48.4684 g Sample Wt. 0.0174 g
2	Test 9 Run 2 Vol. of Solvent 170 ml Log Number -67 Comments	Dish No. 514 Dish Tare Wt. 48.7126 g Dish+Sample Wt. 48.7260 g Sample Wt. 0.0134 g
3	Test ____ Run ____ Vol. of Solvent ____ ml Log Number ____ Comments	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
4	Test ____ Run ____ Vol. of Solvent ____ ml Log Number ____ Comments	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Vol. of Solvent ____ ml Log Number ____ Comments	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g

*Solvent Residue 3.33 ug/ml = [(Sample Wt. 0.0003 g)(10^6)]/Vol. of Sol. 90 ml
EPA-M5 Acetone Residue Blank Spec. < 7.8 ug/ml

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0168	0.0128	D-18		

LSC-01YR

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EPA Method 5 Data Reporting Sheet
Filter Gravimetrics

Job L.P. Corrigan, Tx.
Team Leader MK
Date Submitted 4-13-92
Test No. 9
Date of Analysis 4-14-92

Source #2B Dryer
Test Site Stack
Date of Test 3-25-92
No. of Runs Completed 2
Technician C. Helgeson

	Test 9 Run 0 Field Blank Log Number 5792-61 Comments	Filter No. 4126 Filter Type 4" GF Filter Tare Wt. .9445 g Filter+Sample Wt. .9450 g Sample Wt. .0005 g
1	Test 9 Run 1 Log Number -64 Comments	Filter No. 4122 Filter Type 4" GF Filter Tare Wt. .9352 g Filter+Sample Wt. 1.0566 g Sample Wt. 0.1214 g
2	Test 9 Run 2 Log Number -68 Comments	Filter No. 4125 Filter Type 4" GF Filter Tare Wt. .9543 g Filter+Sample Wt. 1.0570 g Sample Wt. 0.1027 g
3	Test ____ Run ____ Log Number ____ Comments	Filter No. ____ Filter Type ____ Filter Tare Wt. ____ g Filter+Sample Wt. ____ g Sample Wt. ____ g
4	Test ____ Run ____ Log Number ____ Comments	Filter No. ____ Filter Type ____ Filter Tare Wt. ____ g Filter+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Log Number ____ Comments	Filter No. ____ Filter Type ____ Filter Tare Wt. ____ g Filter+Sample Wt. ____ g Sample Wt. ____ g

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.1214	0.1027			

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.2002	0.1719			

LSC-02PR

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EPA Method 5 Data Reporting Sheet
Impinger Catch/Wisconsin Protocol

Job L.P. Corrigan Tx
Team Leader DB
Date Submitted 4-13-92
Test No. 13
Date of Analysis 4-23-92

Source #3 Dryer
Test Site Stack
Date of Test 3-26-92
No. of Runs Completed 3
Technician C. Nelson

		Solvent Phase	Aqueous Phase
0	Test ____ Run 0 Field Blank Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
1	Test 13 Run 1 Log Number 5792-88 Comments ____	Dish No. 57 Dish Tare Wt. 47.9137 g Dish+Sample Wt. 47.9297 g Sample Wt. 0.0160 g	Dish No. 513 Dish Tare Wt. 47.4124 g Dish+Sample Wt. 47.4189 g Sample Wt. 0.0065 g
2	Test 13 Run 2 Log Number -91 Comments ____	Dish No. 59 Dish Tare Wt. 50.1521 g Dish+Sample Wt. 50.1686 g Sample Wt. 0.0165 g	Dish No. 516 Dish Tare Wt. 49.2700 g Dish+Sample Wt. 49.2750 g Sample Wt. 0.0050 g
3	Test 13 Run 3 Log Number -94 Comments ____	Dish No. 61A Dish Tare Wt. 51.4728 g Dish+Sample Wt. 51.5034 g Sample Wt. 0.0306 g	Dish No. 518 Dish Tare Wt. 48.1019 g Dish+Sample Wt. 48.1129 g Sample Wt. 0.0110 g
4	Test ____ Run ____ Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g

Results Solvent Phase: Blank Solvent Wt. ____ g

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0156	0.0161	0.0302		

Results Aqueous Phase:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0061	0.0046	0.0106		

LSC-03WYF

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EPA Method 5 Data Reporting Sheet
Probe/Cyclone Wash

Job L.P. Corrigan, TX
Team Leader DB
Date Submitted 4-13-92
Test No. 13
Date of Analysis 4-14-92
Transport Leakage [None] [ ] ml

Source #3 Dryer
Test Site Stack
Date of Test 3-26-92
No. of Runs Completed 3
Technician C. Thelyeron
Solvent Acetone

0	Test ___ Run 0 Field Blank Log Number ___ Vol. of Solvent ___ ml *Solvent Residue 3.33 ug/ml	Dish No. ___ Dish Tare Wt. ___ g Dish+Sample Wt. ___ g Sample Wt. ___ g
1	Test 13 Run 1 Vol. of Solvent 110 ml Log Number 5792-86 Comments ___	Dish No. 6 Dish Tare Wt. 48.2702 g Dish+Sample Wt. 48.2860 g Sample Wt. 0.0158 g
2	Test 13 Run 2 Vol. of Solvent 110 ml Log Number -89 Comments ___	Dish No. 520 Dish Tare Wt. 48.5256 g Dish+Sample Wt. 48.5364 g Sample Wt. 0.0108 g
3	Test 13 Run 3 Vol. of Solvent 90 ml Log Number -92 Comments ___	Dish No. 524 Dish Tare Wt. 48.0396 g Dish+Sample Wt. 48.0507 g Sample Wt. 0.0111 g
4	Test ___ Run ___ Vol. of Solvent ___ ml Log Number ___ Comments ___	Dish No. ___ Dish Tare Wt. ___ g Dish+Sample Wt. ___ g Sample Wt. ___ g
5	Test ___ Run ___ Vol. of Solvent ___ ml Log Number ___ Comments ___	Dish No. ___ Dish Tare Wt. ___ g Dish+Sample Wt. ___ g Sample Wt. ___ g

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

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0154	0.0104	0.0108		

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EPA Method 5 Data Reporting Sheet
Filter Gravimetrics

Job L.P. Corrigan, Tx.
Team Leader DB
Date Submitted 4-13-92
Test No. 13
Date of Analysis 4-14-92

Source #3 Dryer
Test Site Stack
Date of Test 3-26-92
No. of Runs Completed 3
Technician C. Helgeson

0
Test ____ Run 0
Field Blank
Log Number ____
Comments ____
Filter No. ____
Filter Type ____
Filter Tare Wt. ____ g
Filter+Sample Wt. ____ g
Sample Wt. ____ g

1
Test 13 Run 1
Log Number 5792-87
Comments ____
Filter No. 4127
Filter Type 4" GF
Filter Tare Wt. .9331 g
Filter+Sample Wt. .9857 g
Sample Wt. 0.0526 g

2
Test 13 Run 2
Log Number -90
Comments ____
Filter No. 4128
Filter Type 4" GF
Filter Tare Wt. .9306 g
Filter+Sample Wt. .9929 g
Sample Wt. 0.0623 g

3
Test 13 Run 3
Log Number -93
Comments ____
Filter No. 4129
Filter Type 4" GF
Filter Tare Wt. .9539 g
Filter+Sample Wt. 1.0064 g
Sample Wt. 0.0525 g

4
Test ____ Run ____
Log Number ____
Comments ____
Filter No. ____
Filter Type ____
Filter Tare Wt. ____ g
Filter+Sample Wt. ____ g
Sample Wt. ____ g

5
Test ____ Run ____
Log Number ____
Comments ____
Filter No. ____
Filter Type ____
Filter Tare Wt. ____ g
Filter+Sample Wt. ____ g
Sample Wt. ____ g

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0526	0.0623	0.0525		

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0897	0.0934	0.1041		

LSC-02PR

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EPA Method 5 Data Reporting Sheet
Impinger Catch/Wisconsin Protocol

Job L.P. Carrigan, Tx
Team Leader DB
Date Submitted 4-13-92
Test No. 14
Date of Analysis 4-23-92

Source #4 Pressvent
Test Site Stack
Date of Test 3-27-92
No. of Runs Completed 3
Technician C. Helgeson

		Solvent Phase	Aqueous Phase
0	Test ___ Run 0 Field Blank Log Number ___ Comments ___	Dish No. ___ Dish Tare Wt. ___ g Dish+Sample Wt. ___ g Sample Wt. ___ g	Dish No. ___ Dish Tare Wt. ___ g Dish+Sample Wt. ___ g Sample Wt. ___ g
1	Test 14 Run 1 Log Number 5792-92 Comments ___	Dish No. 2 Dish Tare Wt. 46.2246 g Dish+Sample Wt. 46.2465 g Sample Wt. 0.0219 g	Dish No. 3 Dish Tare Wt. 52.1224 g Dish+Sample Wt. 52.1244 g Sample Wt. 0.0020 g
2	Test 14 Run 2 Log Number -100 Comments ___	Dish No. 17 Dish Tare Wt. 46.3755 g Dish+Sample Wt. 46.4021 g Sample Wt. 0.0266 g	Dish No. 29 Dish Tare Wt. 49.8009 g Dish+Sample Wt. 49.8021 g Sample Wt. 0.0012 g
3	Test 14 Run 3 Log Number -103 Comments ___	Dish No. 111 Dish Tare Wt. 42.7805 g Dish+Sample Wt 42.7964 g Sample Wt. 0.0159 g	Dish No. 34 Dish Tare Wt. 51.7552 g Dish+Sample Wt. 51.7568 g Sample Wt. 0.0016 g
4	Test ___ Run ___ Log Number ___ Comments ___	Dish No. ___ Dish Tare Wt. ___ g Dish+Sample Wt. ___ g Sample Wt. ___ g	Dish No. ___ Dish Tare Wt. ___ g Dish+Sample Wt. ___ g Sample Wt. ___ g
5	Test ___ Run ___ Log Number ___ Comments ___	Dish No. ___ Dish Tare Wt. ___ g Dish+Sample Wt. ___ g Sample Wt. ___ g	Dish No. ___ Dish Tare Wt. ___ g Dish+Sample Wt. ___ g Sample Wt. ___ g

Results Solvent Phase: Blank Solvent Wt. ___ g

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0215	0.0262	0.0155		

Results Aqueous Phase:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0016	0.0008	0.0012		

LSC-03WYF

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EPA Method 5 Data Reporting Sheet
Probe/Cyclone Wash

Job L.P. Corrigan Tx.
Team Leader DB
Date Submitted 4-13-92
Test No. 14
Date of Analysis 4-14-92
Transport Leakage [ ] None [ ] _____ ml

Source #4 Pres. Vent
Test Site Stack
Date of Test 3-27-92
No. of Runs Completed 3
Technician C. Nelgeson
Solvent Acetone

0	Test ____ Run 0 Field Blank Log Number ____ Vol. of Solvent ____ ml *Solvent Residue 3.33 ug/ml	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
1	Test 14 Run 1 Vol. of Solvent 110 ml Log Number 5792-95 Comments ____	Dish No. 3 Dish Tare Wt. 52.1200 g Dish+Sample Wt 52.1304 g Sample Wt. 0.0104 g
2	Test 14 Run 2 Vol. of Solvent 100 ml Log Number -98 Comments ____	Dish No. 24 Dish Tare Wt. 56.8221 g Dish+Sample Wt. 56.8330 g Sample Wt. 0.0109 g
3	Test 14 Run 3 Vol. of Solvent 90 ml Log Number -101 Comments ____	Dish No. 25 Dish Tare Wt. 44.3430 g Dish+Sample Wt. 44.3575 g Sample Wt. 0.0145 g
4	Test ____ Run ____ Vol. of Solvent ____ ml Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Vol. of Solvent ____ ml Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g

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

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0100	0.0106D-24	0.0142		

LSC-01YR

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EPA Method 5 Data Reporting Sheet
Impinger Catch/Wisconsin Protocol

Job L.P. Corrigan, TX
Team Leader DB
Date Submitted 4-13-92
Test No.
Date of Analysis 4-20-92

Source #1 Dryer Stack
Test Site Stack
Date of Test 3-24-92
No. of Runs Completed 3
Technician C. Helgeson

		Solvent Phase	Aqueous Phase
0	Test 4 Run 0 Field Blank Log Number 5792-26 Comments	Dish No. 84 Dish Tare Wt. 79.0145 g Dish+Sample Wt. 79.0149 g Sample Wt. 0.0004 g	Dish No. 400 Dish Tare Wt. 47.1015 g Dish+Sample Wt. 47.1019 g Sample Wt. 0.0004 g
1	Test 4 Run 1 Log Number -29 Comments	Dish No. 85 Dish Tare Wt. 73.9513 g Dish+Sample Wt. 73.9841 g Sample Wt. 0.0328 g	Dish No. 403 Dish Tare Wt. 47.0975 g Dish+Sample Wt. 47.1038 g Sample Wt. 0.0063 g
2	Test 4 Run 2 Log Number -33 Comments	Dish No. 87 Dish Tare Wt. 73.3550 g Dish+Sample Wt. 73.3822 g Sample Wt. 0.0272 g	Dish No. 410 Dish Tare Wt. 46.4714 g Dish+Sample Wt. 46.4773 g Sample Wt. 0.0059 g
3	Test 4 Run 3 Log Number -37 Comments	Dish No. 89 Dish Tare Wt. 71.7509 g Dish+Sample Wt. 71.7777 g Sample Wt. 0.0268 g	Dish No. 504 Dish Tare Wt. 50.0224 g Dish+Sample Wt. 50.0278 g Sample Wt. 0.0054 g
4	Test ____ Run ____ Log Number Comments	Dish No. Dish Tare Wt. g Dish+Sample Wt. g Sample Wt. g	Dish No. Dish Tare Wt. g Dish+Sample Wt. g Sample Wt. g
5	Test ____ Run ____ Log Number Comments	Dish No. Dish Tare Wt. g Dish+Sample Wt. g Sample Wt. g	Dish No. Dish Tare Wt. g Dish+Sample Wt. g Sample Wt. g

Blank Solvent Wt. 0.0004 g

Results Solvent Phase:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0324	0.0268	0.0264		

Results Aqueous Phase:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0059	0.0055	0.0050		

LSC-03WYP

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EPA Method 5 Data Reporting Sheet
Filter Gravimetrics

Job L. P. Corrigan, Tx
Team Leader DB
Date Submitted 4-13-92
Test No. 14
Date of Analysis 4-14-92

Source #4 Vent
Test Site Stack
Date of Test 3-27-92
No. of Runs Completed 3
Technician C. Helgeson

0
Test ____ Run 0
Field Blank
Log Number ____
Comments ____
Filter No. ____
Filter Type ____
Filter Tare Wt. ____ g
Filter+Sample Wt. ____ g
Sample Wt. ____ g

1
Test 14 Run 1
Log Number 5792-96
Comments ____
Filter No. 4130
Filter Type 4" GF
Filter Tare Wt. .9588 g
Filter+Sample Wt. .9654 g
Sample Wt. 0.0066 g

2
Test 14 Run 2
Log Number -99
Comments ____
Filter No. 4132
Filter Type 4" GF
Filter Tare Wt. .9435 g
Filter+Sample Wt. .9563 g
Sample Wt. 0.0128 g

3
Test 14 Run 3
Log Number -102
Comments ____
Filter No. 4133
Filter Type 4" GF
Filter Tare Wt. .9388 g
Filter+Sample Wt. .9494 g
Sample Wt. 0.0106 g

4
Test ____ Run ____
Log Number ____
Comments ____
Filter No. ____
Filter Type ____
Filter Tare Wt. ____ g
Filter+Sample Wt. ____ g
Sample Wt. ____ g

5
Test ____ Run ____
Log Number ____
Comments ____
Filter No. ____
Filter Type ____
Filter Tare Wt. ____ g
Filter+Sample Wt. ____ g
Sample Wt. ____ g

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0066	0.0128	0.0106		

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0347	0.0504	0.0415		

LSC-02PR

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EPA Method 5 Data Reporting Sheet
Impinger Catch/Wisconsin Protocol

Job C.P. Carrigan TX
Team Leader DB
Date Submitted 4-13-92
Test No. 17
Date of Analysis 4-23-92

Source #3 Press Vent
Test Site Stack
Date of Test 3-27-92
No. of Runs Completed 3
Technician C. Helgeson

		Solvent Phase	Aqueous Phase
0	Test ____ Run 0 Field Blank Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
1	Test 17 Run 1 Log Number 5792-111 Comments ____	Dish No. 404 Dish Tare Wt. 47.6390 g Dish+Sample Wt. 47.6615 g Sample Wt. 0.0225 g	Dish No. 405 Dish Tare Wt. 48.4906 g Dish+Sample Wt. 48.4914 g Sample Wt. 0.0008 g
2	Test 17 Run 2 Log Number -114 Comments ____	Dish No. 503 Dish Tare Wt. 48.3108 g Dish+Sample Wt. 48.3286 g Sample Wt. 0.0178 g	Dish No. 506 Dish Tare Wt. 48.6367 g Dish+Sample Wt. 48.6419 g Sample Wt. 0.0052 g
3	Test 17 Run 3 Log Number -117 Comments ____	Dish No. 509 Dish Tare Wt. 47.6202 g Dish+Sample Wt. 47.6409 g Sample Wt. 0.0207 g	Dish No. 508 Dish Tare Wt. 46.5023 g Dish+Sample Wt. 46.5043 g Sample Wt. 0.0020 g
4	Test ____ Run ____ Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g

Blank Solvent Wt. ____ g

Results Solvent Phase:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0221	0.0174	0.0203		

Results Aqueous Phase:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0004	0.0048	0.0016		

LSC-03WYF

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EPA Method 5 Data Reporting Sheet
Probe/Cyclone Wash

Job L.P. Corrigan Tx
Team Leader DB
Date Submitted 4-13-92
Test No. 17
Date of Analysis 4-14-92
Transport Leakage [None] _____ ml

Source #3 Press vent
Test Site stack
Date of Test 3-27-92
No. of Runs Completed 3
Technician C. Helgeson
Solvent Acetone

0	Test ____ Run 0 Field Blank Log Number ____ Vol. of Solvent ____ ml *Solvent Residue 3.33 ug/ml	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
1	Test 17 Run 1 Vol. of Solvent 100 ml Log Number 5792-109 Comments ____	Dish No. 22 Dish Tare Wt. 51.3604 g Dish+Sample Wt. 51.3713 g Sample Wt. 0.0109 g
2	Test 17 Run 2 Vol. of Solvent 80 ml Log Number -112 Comments ____	Dish No. 52 Dish Tare Wt. 49.8053 g Dish+Sample Wt. 49.8150 g Sample Wt. 0.0097 g
3	Test 17 Run 3 Vol. of Solvent 100 ml Log Number -115 Comments ____	Dish No. 98 Dish Tare Wt. 47.2113 g Dish+Sample Wt. 47.2177 g Sample Wt. 0.0064 g
4	Test ____ Run ____ Vol. of Solvent ____ ml Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Vol. of Solvent ____ ml Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g

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

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0106	0.0094	0.0061		

LSC-01YR

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EPA Method 5 Data Reporting Sheet
Filter Gravimetrics

Job LoP. Corrigan, Tx
Team Leader DB
Date Submitted 4-13-92
Test No. 17
Date of Analysis 4-13-92

Source #3 Press Vent
Test Site Stack
Date of Test 3-27-92
No. of Runs Completed 3
Technician C. Helgeson

0
Test ____ Run 0
Field Blank
Log Number ____
Comments ____
Filter No. ____
Filter Type ____
Filter Tare Wt. ____ g
Filter+Sample Wt. ____ g
Sample Wt. ____ g

1
Test 17 Run 1
Log Number 5792-110
Comments ____
Filter No. 4134
Filter Type 4" GF
Filter Tare Wt. .9706 g
Filter+Sample Wt. .9862 g
Sample Wt. 0.0156 g

2
Test 17 Run 2
Log Number -113
Comments ____
Filter No. 4135
Filter Type 4" GF
Filter Tare Wt. .9640 g
Filter+Sample Wt. .9813 g
Sample Wt. 0.0173 g

3
Test 17 Run 3
Log Number -116
Comments ____
Filter No. 4136
Filter Type 4" GF
Filter Tare Wt. .9312 g
Filter+Sample Wt. .9487 g
Sample Wt. 0.0175 g

4
Test ____ Run ____
Log Number ____
Comments ____
Filter No. ____
Filter Type ____
Filter Tare Wt. ____ g
Filter+Sample Wt. ____ g
Sample Wt. ____ g

5
Test ____ Run ____
Log Number ____
Comments ____
Filter No. ____
Filter Type ____
Filter Tare Wt. ____ g
Filter+Sample Wt. ____ g
Sample Wt. ____ g

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0156	0.0173	0.0175		

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0487	0.0489	0.0455		

LSC-02PR

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EPA Method 5 Data Reporting Sheet
Impinger Catch/Wisconsin Protocol

Job L.P. Corrigan Tx
Team Leader DB
Date Submitted 4-13-92
Test No. 20
Date of Analysis 4-23-92

Source #8 Exhaust Vent
Test Site Stack
Date of Test 3-28-92
No. of Runs Completed 3
Technician C. Helgeson

		Solvent Phase	Aqueous Phase
0	Test ____ Run 0 Field Blank Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
1	Test 20 Run 1 Log Number 5792-123 Comments ____	Dish No. 2 Dish Tare Wt. 50.0287 g Dish+Sample Wt. 50.0387 g Sample Wt. 0.0100 g	Dish No. 22 Dish Tare Wt. 51.3597 g Dish+Sample Wt. 51.3633 g Sample Wt. 0.0036 g
2	Test 20 Run 2 Log Number =126 Comments ____	Dish No. 14 Dish Tare Wt. 49.7330 g Dish+Sample Wt. 49.7421 g Sample Wt. 0.0091 g	Dish No. 24 Dish Tare Wt. 56.8221 g Dish+Sample Wt. 56.8239 g Sample Wt. 0.0018 g
3	Test 20 Run 3 Log Number -129 Comments ____	Dish No. 45 Dish Tare Wt. 50.8884 g Dish+Sample Wt. 50.8945 g Sample Wt. 0.0061 g	Dish No. 36 Dish Tare Wt. 43.5653 g Dish+Sample Wt. 43.5679 g Sample Wt. 0.0026 g
4	Test ____ Run ____ Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g

Results Solvent Phase: Blank Solvent Wt. ____ g

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0096	0.0087	0.0057		

Results Aqueous Phase:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0032	0.0014	0.0022		

LSC-03WY5

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EPA Method 5 Data Reporting Sheet
Probe/Cyclone Wash

Job L.P. Corrigan Tx
Team Leader DB
Date Submitted 4-13-92
Test No. 20
Date of Analysis 4-14-92
Transport Leakage (None) ☐ _____ ml

Source #8 Exhaust Fan
Test Site Stack
Date of Test 3-28-92
No. of Runs Completed 3
Technician C. Helgeson
Solvent Acetone

0	Test ____ Run 0 Field Blank Log Number ____ Vol. of Solvent 200 ml *Solvent Residue 3.33 ug/ml	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
1	Test 20 Run 1 Vol. of Solvent 100 ml Log Number 5792-121 Comments ____	Dish No. 2 Dish Tare Wt. 46.2264 g Dish+Sample Wt. 46.2490 g Sample Wt. 0.0226 g
2	Test 20 Run 2 Vol. of Solvent 110 ml Log Number -124 Comments ____	Dish No. 7 Dish Tare Wt. 50.0320 g Dish+Sample Wt. 50.0615 g Sample Wt. 0.0295 g
3	Test 20 Run 3 Vol. of Solvent 80 ml Log Number -127 Comments ____	Dish No. 29 Dish Tare Wt. 49.8009 g Dish+Sample Wt. 49.8273 g Sample Wt. 0.0264 g
4	Test ____ Run ____ Vol. of Solvent ____ ml Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Vol. of Solvent ____ ml Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g

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

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0223	0.0291 D-30	0.0261		

SC-01YR

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EPA Method 5 Data Reporting Sheet
Filter Gravimetrics

Job L.P. Corrigan, Tx
Team Leader DB
Date Submitted 4-13-92
Test No. 20
Date of Analysis 4-14-92

Source #8 Exhaust Fan
Test Site Stack
Date of Test 3-28-92
No. of Runs Completed 3
Technician C. Helgeson

0	Test ____ Run 0 Field Blank Log Number ____ Comments ____	Filter No. ____ Filter Type ____ Filter Tare Wt. ____ g Filter+Sample Wt. ____ g Sample Wt. ____ g
1	Test 20 Run 1 Log Number 5792-122 Comments ____	Filter No. 4157 Filter Type 4" GF Filter Tare Wt. .9358 g Filter+Sample Wt. .9385 g Sample Wt. 0.0027 g
2	Test 20 Run 2 Log Number -125 Comments ____	Filter No. 4158 Filter Type 4" GF Filter Tare Wt. .9511 g Filter+Sample Wt. .9515 g Sample Wt. 0.0004 g
3	Test 20 Run 3 Log Number -128 Comments ____	Filter No. 4159 Filter Type 4" GF Filter Tare Wt. .9524 g Filter+Sample Wt. .9557 g Sample Wt. 0.0033 g
4	Test ____ Run ____ Log Number ____ Comments ____	Filter No. ____ Filter Type ____ Filter Tare Wt. ____ g Filter+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Log Number ____ Comments ____	Filter No. ____ Filter Type ____ Filter Tare Wt. ____ g Filter+Sample Wt. ____ g Sample Wt. ____ g

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0027	0.0004	0.0033		

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0378	0.0396	0.0373		

LSC-02PR

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EPA Method 5 Data Reporting Sheet
Impinger Catch/Wisconsin Protocol

Job L.P. Corrigan TX
Team Leader DB
Date Submitted 4-13-92
Test No. 23
Date of Analysis 4-23-92

Source #2 Press Vent
Test Site Stack
Date of Test 3-28-92
No. of Runs Completed 3
Technician C. Helgeson

		Solvent Phase	Aqueous Phase
0	Test ____ Run 0 Field Blank Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
1	Test 23 Run 1 Log Number 5792-135 Comments ____	Dish No. 119 Dish Tare Wt. 47.7657 g Dish+Sample Wt. 47.7703 g Sample Wt. 0.0046 g	Dish No. 53 Dish Tare Wt. 44.3967 g Dish+Sample Wt. 44.3995 g Sample Wt. 0.0028 g
2	Test 23 Run 2 Log Number -138 Comments ____	Dish No. 512 Dish Tare Wt. 49.3554 g Dish+Sample Wt. 49.3601 g Sample Wt. 0.0047 g	Dish No. 402 Dish Tare Wt. 47.5800 g Dish+Sample Wt. 47.5835 g Sample Wt. 0.0035 g
3	Test 23 Run 3 Log Number -147 Comments ____	Dish No. 521 Dish Tare Wt. 50.5950 g Dish+Sample Wt. 50.6009 g Sample Wt. 0.0059 g	Dish No. 523 Dish Tare Wt. 49.8063 g Dish+Sample Wt. 49.8123 g Sample Wt. 0.0060 g
4	Test ____ Run ____ Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g

Blank Solvent Wt. ____ g

Results Solvent Phase:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0042	0.0043	0.0055		

Results Aqueous Phase:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0024	0.0031	0.0056		

LSC-03WYF

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EPA Method 5 Data Reporting Sheet
Probe/Cyclone Wash

Job C.P. Corrigan Jr. — Source #2 Press Vent
Team Leader DB — Test Site Stack
Date Submitted 4-13-92 — Date of Test 3-28-92
Test No. 23 — No. of Runs Completed 3
Date of Analysis 4-14-92 — Technician C. Helgeson
Transport Leakage [None] ____ ml — Solvent Acetone

0	Test ____ Run 0 Field Blank Log Number ____ Vol. of Solvent ____ ml *Solvent Residue 3.33 ug/ml	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	
1	Test 23 Run 1 Vol. of Solvent 70 ml Log Number 5792-133 Comments ____	Dish No. 31 Dish Tare Wt. 45.8034 g Dish+Sample Wt. 45.8107 g Sample Wt. 0.0073 g	
2	Test 23 Run 2 Vol. of Solvent 100 ml Log Number -136 Comments ____	Dish No. 36 Dish Tare Wt. 43.5634 g Dish+Sample Wt. 43.5685 g Sample Wt. 0.0051 g	
3	Test 23 Run 3 Vol. of Solvent 80 ml Log Number -147 Comments ____	Dish No. 112 Dish Tare Wt. 47.3842 g Dish+Sample Wt. 47.3884 g Sample Wt. 0.0042 g	
4	Test ____ Run ____ Vol. of Solvent ____ ml Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	
5	Test ____ Run ____ Vol. of Solvent ____ ml Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	

*Solvent Residue ___ ug/ml = [(Sample Wt. ____ g)(10⁶)]/Vol. of Sol. ____ ml
EPA-M5 Acetone Residue Blank Spec. ≤ 7.8 ug/ml

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0071	0.0048	0.0039		

DF 33

SC-01VR

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EPA Method 5 Data Reporting Sheet
Filter Gravimetrics

Job L. P. Corrigan, Tx
Team Leader DB
Date Submitted 4-13-92
Test No. 23
Date of Analysis Q. 4-14-92

Source #2 Press Vent
Test Site Stack
Date of Test 3-28-92
No. of Runs Completed 3
Technician C. Helgeson

0	Test ____ Run 0 Field Blank Log Number ____ Comments ____	Filter No. ____ Filter Type ____ Filter Tare Wt. ____ g Filter+Sample Wt. ____ g Sample Wt. ____ g
1	Test 23 Run 1 Log Number 5792-134 Comments ____	Filter No. 4160 Filter Type 4" GF Filter Tare Wt. .9378 g Filter+Sample Wt. .9413 g Sample Wt. 0.0035 g
2	Test 23 Run 2 Log Number -136 Comments ____	Filter No. 4175 Filter Type 4" GF Filter Tare Wt. .9566 g Filter+Sample Wt. .9649 g Sample Wt. 0.0083 g
3	Test 23 Run 3 Log Number -146 Comments ____	Filter No. 4176 Filter Type 4" GF Filter Tare Wt. .9361 g Filter+Sample Wt. .9442 g Sample Wt. 0.0081 g
4	Test ____ Run ____ Log Number ____ Comments ____	Filter No. ____ Filter Type ____ Filter Tare Wt. ____ g Filter+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Log Number ____ Comments ____	Filter No. ____ Filter Type ____ Filter Tare Wt. ____ g Filter+Sample Wt. ____ g Sample Wt. ____ g

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0035	0.0083	0.0081		

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0172	0.0205	0.0231		

LSC-02PR

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EPA Method 5 Data Reporting Sheet
Impinger Catch/Wisconsin Protocol

Job L.P. Corrigan Tx — Source #1 Dryer
Team Leader DB — Test Site Stack
Date Submitted 4-13-92 — Date of Test 3-24-92
Test No. 1 — No. of Runs Completed 3
Date of Analysis 4-20-92 — Technician C. Helgeson

		Solvent Phase	Aqueous Phase
0	Test 1 Run 0 Field Blank Log Number 592-03 Comments	Dish No. 72 Dish Tare Wt. 64.1115 g Dish+Sample Wt. 64.1119 g Sample Wt. 0.0004 g	Dish No. 39 Dish Tare Wt. 49.4390 g Dish+Sample Wt. 49.4394 g Sample Wt. 0.0004 g
1	Test 1 Run 1 Log Number -06 Comments	Dish No. 72A Dish Tare Wt. 80.0603 g Dish+Sample Wt. 80.0668 g Sample Wt. 0.0065 g	Dish No. 54 Dish Tare Wt. 51.8986 g Dish+Sample Wt. 51.9037 g Sample Wt. 0.0051 g
2	Test 1 Run 2 Log Number -10 Comments	Dish No. 74 Dish Tare Wt. 77.3105 g Dish+Sample Wt. 77.3185 g Sample Wt. 0.0080 g	Dish No. 60 Dish Tare Wt. 49.6275 g Dish+Sample Wt. 49.6311 g Sample Wt. 0.0036 g
3	Test 1 Run 3 Log Number -14 Comments	Dish No. 76 Dish Tare Wt. 70.2580 g Dish+Sample Wt 70.2720 g Sample Wt. 0.0140 g	Dish No. 61 Dish Tare Wt. 44.5908 g Dish+Sample Wt. 44.6013 g Sample Wt. 0.0105 g
4	Test ____ Run ____ Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g

Results Solvent Phase: Blank Solvent Wt. 0.0004 g

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0061	0.0076	0.0136		

Results Aqueous Phase:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0047	0.0032	0.0107		

LSC-03WYP

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EPA Method 5 Data Reporting Sheet
Probe/Cyclone Wash

Job L.P. Corrigan, TX
Team Leader D.B.
Date Submitted 4-13-92
Test No. 1
Date of Analysis 4-14-92
Transport Leakage ☐ None ☐ _____ ml

Source #1 Dryer
Test Site Stack
Date of Test 3-24-92
No. of Runs Completed 3
Technician C. Helgeson
Solvent Acetone

0	Test 1 Run 0 Field Blank Log Number 5792-01 Vol. of Solvent 90 ml *Solvent Residue 3.33 ug/ml	Dish No. 511 Dish Tare Wt. 45.5432 g Dish+Sample Wt. 45.5435 g Sample Wt. 0.0003 g
1	Test 1 Run 1 Vol. of Solvent 40 ml Log Number -04 Comments	Dish No. 513 Dish Tare Wt. 47.4119 g Dish+Sample Wt. 47.4145 g Sample Wt. 0.0026 g
2	Test 1 Run 2 Vol. of Solvent 40 ml Log Number -08 Comments	Dish No. 518 Dish Tare Wt. 48.1011 g Dish+Sample Wt. 48.1030 g Sample Wt. 0.0019 g
3	Test 1 Run 3 Vol. of Solvent 40 ml Log Number -12 Comments	Dish No. 519 Dish Tare Wt. 49.0517 g Dish+Sample Wt. 49.0537 g Sample Wt. 0.0020 g
4	Test ____ Run ____ Vol. of Solvent ____ ml Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Vol. of Solvent ____ ml Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g

*Solvent Residue 333 ug/ml = [(Sample Wt. 0.0003 g)(10⁶)]/Vol. of Sol. ____ ml
EPA-MS Acetone Residue Blank Spec. ≤ 7.8 ug/ml

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0025	0.0018 D-36	0.0019		

SC-01YR

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EPA Method 5 Data Reporting Sheet
Filter Gravimetrics
PM-10

Job L.P. Corrigan, Tx. | Source #1 Dryer
Team Leader DB | Test Site Stack
Date Submitted 4-13-92 | Date of Test 3-23-92
Test No. 1 | No. of Runs Completed 3
Date of Analysis 4-14-92 | Technician C. Helgeson

0	Test 1 Run 0 Field Blank Log Number 5792-02 Comments	Filter No. 5710 Filter Type 2.5" GF Filter Tare Wt. .2691 g Filter+Sample Wt. .2692 g Sample Wt. 0.0001 g
1	Test 1 Run 1 Log Number -05 Comments	Filter No. 5709 Filter Type 2.5" GF Filter Tare Wt. .2691 g Filter+Sample Wt. .3836 g Sample Wt. 0.1145 g
2	Test 1 Run 2 Log Number -09 Comments	Filter No. 5711 Filter Type 2.5" GF Filter Tare Wt. .2673 g Filter+Sample Wt. .3784 g Sample Wt. 0.1111 g
3	Test 1 Run 3 Log Number -13 Comments	Filter No. 5708 Filter Type 2.5" GF Filter Tare Wt. .2663 g Filter+Sample Wt. .4162 g Sample Wt. 0.1499 g
4	Test ____ Run ____ Log Number ____ Comments	Filter No. ____ Filter Type ____ Filter Tare Wt. ____ g Filter+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Log Number ____ Comments	Filter No. ____ Filter Type ____ Filter Tare Wt. ____ g Filter+Sample Wt. ____ g Sample Wt. ____ g

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.1145	0.1111	0.1499		

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.1278	0.1237	0.1755		

LSC-02PR

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EPA Method 5 Data Reporting Sheet
Impinger Catch/Wisconsin Protocol

Job L.P. Corrigan TX
Team Leader DB
Date Submitted 4-13-92
Test No. 5
Date of Analysis 4-23-92

Source #2A Dryer
Test Site Stack
Date of Test 4-25-92
No. of Runs Completed 3
Technician C. Helgeson

		Solvent Phase	Aqueous Phase
0	Test ____ Run 0 Field Blank Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
1	Test 5 Run 1 Log Number 5792-41 Comments ____	Dish No. 68 Dish Tare Wt. 55.9104 g Dish+Sample Wt. 55.9267 g Sample Wt. 0.0163 g	Dish No. 520 Dish Tare Wt. 48.5267 g Dish+Sample Wt. 48.5387 g Sample Wt. 0.0120 g
2	Test 5 Run 2 Log Number -44 Comments ____	Dish No. 303 Dish Tare Wt. 49.5938 g Dish+Sample Wt. 49.5933 g Sample Wt. 0.0195 g	Dish No. 522 Dish Tare Wt. 47.0005 g Dish+Sample Wt. 47.0128 g Sample Wt. 0.0123 g
3	Test 5 Run 3 Log Number -47 Comments ____	Dish No. 304 Dish Tare Wt. 60.5548 g Dish+Sample Wt. 60.5697 g Sample Wt. 0.0149 g	Dish No. 524 Dish Tare Wt. 48.0411 g Dish+Sample Wt. 48.0498 g Sample Wt. 0.0087 g
4	Test ____ Run ____ Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g

Results Solvent Phase:

Blank Solvent Wt. 0.0004 g

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0154	0.0141	0.0145		

Results Aqueous Phase:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0116	0.0119	0.0083		

LSC-03WYR

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EPA Method 5 Data Reporting Sheet
Probe/Cyclone Wash

Job L.P. Corrigan TX
Team Leader DB
Date Submitted 4-13-92
Test No. 5
Date of Analysis 4-14-92
Transport Leakage [None] [ ] ml

Source #2A Dryer
Test Site Stack
Date of Test 3-25-92
No. of Runs Completed 3
Technician C. Helgeson
Solvent Acetone

0	Test ___ Run 0 Field Blank Log Number ___ Vol. of Solvent ___ ml *Solvent Residue ___ ug/ml	Dish No. ___ Dish Tare Wt. ___ g Dish+Sample Wt. ___ g Sample Wt. ___ g
1	Test 5 Run 1 Vol. of Solvent 40 ml Log Number 5792-34 Comments ___	Dish No. 504 Dish Tare Wt. 50.0204 g Dish+Sample Wt. 50.0226 g Sample Wt. 0.0022 g
2	Test 5 Run 2 Vol. of Solvent 50 ml Log Number -42 Comments ___	Dish No. 508 Dish Tare Wt. 46.5023 g Dish+Sample Wt. 46.5055 g Sample Wt. 0.0032 g
3	Test 5 Run 3 Vol. of Solvent 60 ml Log Number -43 Comments ___	Dish No. 521 Dish Tare Wt. 50.5950 g Dish+Sample Wt. 50.5981 g Sample Wt. 0.0031 g
4	Test ___ Run ___ Vol. of Solvent ___ ml Log Number ___ Comments ___	Dish No. ___ Dish Tare Wt. ___ g Dish+Sample Wt. ___ g Sample Wt. ___ g
5	Test ___ Run ___ Vol. of Solvent ___ ml Log Number ___ Comments ___	Dish No. ___ Dish Tare Wt. ___ g Dish+Sample Wt. ___ g Sample Wt. ___ g

*Solvent Residue ___ ug/ml = [(Sample Wt. ___ g)(10⁶)]/Vol. of Sol. ___ ml
EPA-M5 Acetone Residue Blank Spec. ≤ 7.8 ug/ml

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0021	0.0030 D-39	0.0029		

LSC-01YR

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EPA Method 5 Data Reporting Sheet
Filter Gravimetrics
PM-10

Job L.P. Corrigan, Tx
Team Leader DB
Date Submitted 4-13-92
Test No. 5
Date of Analysis 4-14-92

Source #2A Dryer
Test Site Stack
Date of Test 3-25-92
No. of Runs Completed 3
Technician C. Helgeson

0
Test ____ Run 0
Field Blank
Log Number ____
Comments ____
Filter No. ____
Filter Type ____
Filter Tare Wt. ____ g
Filter+Sample Wt. ____ g
Sample Wt. ____ g

1
Test 5 Run 1
Log Number 5792-40
Comments ____
Filter No. 5635
Filter Type 2.5" GF
Filter Tare Wt. .2500 g
Filter+Sample Wt. .3533 g
Sample Wt. 0.1033 g

2
Test 5 Run 2
Log Number -43
Comments ____
Filter No. 5637
Filter Type 2.5" GF
Filter Tare Wt. .2535 g
Filter+Sample Wt. .4011 g
Sample Wt. 0.1476 g

3
Test 5 Run 3
Log Number -46
Comments ____
Filter No. 5647
Filter Type 2.5" GF
Filter Tare Wt. .2516 g
Filter+Sample Wt. .3555 g
Sample Wt. 0.1039 g

4
Test ____ Run ____
Log Number ____
Comments ____
Filter No. ____
Filter Type ____
Filter Tare Wt. ____ g
Filter+Sample Wt. ____ g
Sample Wt. ____ g

5
Test ____ Run ____
Log Number ____
Comments ____
Filter No. ____
Filter Type ____
Filter Tare Wt. ____ g
Filter+Sample Wt. ____ g
Sample Wt. ____ g

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.1033	0.1476	0.1039		

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.1329	0.1816	0.1296		

LSC-02PR

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EPA Method 5 Data Reporting Sheet
Filter Gravimetrics

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EPA Method 5 Data Reporting Sheet
Impinger Catch/Wisconsin Protocol

Job L.P. Corrigan TX
Team Leader D.B.
Date Submitted 4-13-92
Test No. 10
Date of Analysis 4-23-92

Source #3 Dryer
Test Site Stack
Date of Test 4-26-92
No. of Runs Completed 3
Technician C. Helgeson

		Solvent Phase	Aqueous Phase
0	Test 10 Run 0 Field Blank Log Number 5792-144 Comments	Dish No. 75 Dish Tare Wt. 80.5170 g Dish+Sample Wt. 80.5174 g Sample Wt. 0.0004 g	Dish No. 507 Dish Tare Wt. 47.8431 g Dish+Sample Wt. 47.8435 g Sample Wt. 0.0004 g
1	Test 10 Run 1 Log Number -73 Comments	Dish No. 78 Dish Tare Wt. 85.5453 g Dish+Sample Wt. 85.5496 g Sample Wt. 0.0043 g	Dish No. 511 Dish Tare Wt. 45.5430 g Dish+Sample Wt. 45.5487 g Sample Wt. 0.0057 g
2	Test 10 Run 2 Log Number -76 Comments	Dish No. 82 Dish Tare Wt. 60.7634 g Dish+Sample Wt 60.7714 g Sample Wt. 0.0080 g	Dish No. 514 Dish Tare Wt. 48.7145 g Dish+Sample Wt. 48.7175 g Sample Wt. 0.0030 g
3	Test 10 Run 3 Log Number -79 Comments	Dish No. 86 Dish Tare Wt. 73.5477 g Dish+Sample Wt. 73.5518 g Sample Wt. 0.0041 g	Dish No. 519 Dish Tare Wt. 49.0514 g Dish+Sample Wt. 49.0598 g Sample Wt. 0.0084 g
4	Test ____ Run ____ Log Number ____ Comments	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Log Number ____ Comments	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g

Blank Solvent Wt. 0.0004 g

Results Solvent Phase:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0034	0.0076	0.0037		

Results Aqueous Phase:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0053	0.0026	0.0080		

LSC-03WYR

LSC-02PR

EPA Method 10 NDIR Analysis

Job Name Louisiana Pacific / Corrigan, TX
Source No. 1 Dryer / Stacks
Date of Analysis 3-25-92
Technician Mark Baehler

NDIR Analyzer: ☒ Fuji ACS Model 3300
☐ Mon. Lab Model 8310
☐ Dasibi Model 3003
Range: 0 - 500 ppm
Flow rate: 1000 cc/min

Pretest Calibration

	Conc.	Reading	Vendor	Cyl. Number
Zero gas:	0 ppm	0 ppm	Scott	K000472
Upscale gas:	150 ppm	146 ppm	Scott	ALM 008826
Upscale gas:	237 ppm	242 ppm	Linde	HA 8854
Upscale gas:	ppm	ppm		

Post-test Calibration

	Conc.	Reading	Vendor	Cyl. Number
Zero gas:	0 ppm	0 ppm	Scott	K000472
Upscale gas:	150 ppm	150 ppm	Scott	ALM 008826
Upscale gas:	237 ppm	245 ppm	Linde	HA 8854
Upscale gas:	ppm	ppm		

Sample Description Test/Run	Sample Log Number	CO Conc. (ppm, Dry) Dilution Factor	Reading	Actual ppm
D-44 2/1		1	212	212
2/2		1	179	179
2/3		1	150	150
4/1		1	114	114
4/2		1	105	105
4/3		1	93	93
6/1		1	276	276
6/2		1	235	235
6/3		1	185	185

Sample Description Test/Run	Sample Log Number	CO Conc. (ppm, Dry) Dilution Factor	Reading	Actual ppm
5/1		1	287	287
5/2		1	202	202
5/3		1	200	200
9/1		1	164	164
9/2		1	145	145
8/1		1	166	166
8/2		1	204	204
1/1		E	320	320
1/2		E	200	200
1/3		E	160	160

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.

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S-305RR
(9/90)

EPA Method 10 NDIR Analysis

Job Name: Louisiana Pacific / Corrigan, TX
Source: No. 3 Dryer / Stack
Date of Analysis: 3-28-92
Technician: Mark Boehler

NDIR Analyzer: [X] Fuji ACS Model 3300
[ ] Mon. Lab Model 8310
[ ] Dasibi Model 3003
Range: 0 - 500 ppm
Flow rate: 1000 cc/min

Pretest Calibration

	Conc.	Reading	Vendor	Cyl. Number
Zero gas:	0 ppm	0 ppm	Scott	K000472
Upscale gas:	150 ppm	147 ppm	Scott	ALM003528
Upscale gas:	237 ppm	240 ppm	Linde	HA 8354
Upscale gas:	ppm	ppm		

Post-test Calibration

	Conc.	Reading	Vendor	Cyl. Number
Zero gas:	0 ppm	0 ppm	Scott	K000472
Upscale gas:	150 ppm	148 ppm	Scott	ALM003528
Upscale gas:	237 ppm	240 ppm	Linde	HA 8354
Upscale gas:	ppm	ppm		

Sample Description Test/Run	Sample Log Number	CO Conc. (ppm, Dry)		
		Dilution Factor	Reading	Actual ppm
D-45 10/1		1	321	321
10/2		1	215	215
10/3		1	230	230
13/1		1	320	320
13/2		1	295	295
13/3		1	348	348
11/1		1	310	310
11/2		1	213	213
11/3		1	245	245

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.

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Louisiana Pacific/Corrigan, TX
Laboratory Log No. 5792

Results of Formaldehyde Analysis

Test: 2
Source: No. 1 Dryer Stack
Sample Type: Impinger Catch

Sample Log No.	Sample Description	Formaldehyde[a] Total ug
5792-16	Run 0, Field Blank	1.7
5792-17	Run 0, Field Spike	600
5792-18	Run 1	4200
5792-19	Run 2	1500
5792-20	Run 3	510

[a]EPA Method 0011

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Louisiana Pacific/Corrigan, TX
Laboratory Log No. 5792

Results of Formaldehyde Analysis

Test: 6
Source: No. 1 Dryer Stack
Sample Type: Impinger Catch

Sample Log No.	Sample Description	Formaldehyde[a] Total ug
5792-48	Run 1	1500
5792-49	Run 2	4600
5792-50	Run 3	2800

[a]EPA Method 0011

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Louisiana Pacific/Corrigan, TX
Laboratory Log No. 5792

Results of Formaldehyde Analysis

Test: 11
Source: No. 3 Dryer Stack
Sample Type: Impinger Catch

Sample Log No.	Sample Description	Formaldehyde[a] Total ug
5792-80	Run 1	2800
5792-81	Run 2	1400
5792-82	Run 3	3100

[a]EPA Method 0011

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Louisiana Pacific/Corrigan, TX
Laboratory Log No. 5792

Results of Formaldehyde Analysis

Test: 15

Source: No. 4 Press Vent Stack

Sample Type: Impinger Catch

Sample Log No.	Sample Description	Formaldehyde[a] Total ug
5792-104	Run 0, Field Blank	5.2
5792-105	Run 0, Field Spike	600
5792-106	Run 1	2200
5792-107	Run 2	2400
5792-108	Run 3	3400

[a]EPA Method 0011

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Louisiana Pacific/Corrigan, TX
Laboratory Log No. 5792

Results of Formaldehyde Analysis

Test: 18
Source: No. 3 Press Vent Stack
Sample Type: Impinger Catch

Sample Log No.	Sample Description	Formaldehyde[a] Total ug
5792-118	Run 1	3000
5792-119	Run 2	1900
5792-120	Run 3	3500

[a]EPA Method 0011

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Louisiana Pacific/Corrigan, TX
Laboratory Log No. 5792

Results of Formaldehyde Analysis

Test: 21
Source: No. 2 Press Vent Stack
Sample Type: Impinger Catch

Sample Log No.	Sample Description	Formaldehyde[a] Total ug
5792-130	Run 1	700
5792-131	Run 2	820
5792-132	Run 3	750

[a]EPA Method 0011

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Louisiana Pacific/Corrigan, TX
Laboratory Log No. 5792

Results of Formaldehyde Analysis

Test: 24
Source: No. 8 Exhaust Fan Vent Stack
Sample Type: Impinger Catch

Sample Log No.	Sample Description	Formaldehyde[a] Total ug
5792-139	Run 1	690
5792-140	Run 2	650
5792-141	Run 3	880

[a]EPA Method 0011

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Chain of Custody
Sample Deposition Sheet

Job Louisiana Pacific / Corrigan, TX
Team Leader M.K.
Date Submitted
Test No. 1

Source Dryer #1
Test Site Stack
Date of Test 3/24/92
No. of Runs Completed 3

No. of Samples	Type of Sample	Analysis Required	Comments
3 + Blank	Probe Wash: ■ Acetone ☐ D.I. Water	☐ As per EPA M-5 ■ Other PM-10	
3 + Blank	Filter: ☐ 4" G.F. ☐ S.S. Thimble ■ 2.5" G.F. ☐ 47 mm G.F.	☐ As per EPA M-5 ☐ As per EPA M-17 ■ Other PM-10	
3 + Blank	Impinger Catch: ■ D.I. Water ☐ 3% H_2O_2 ☐ 4M5 Hg Only ☐ 4M5 Metals ☐ 1.0 N NaOH ☐ Other	☐ MN Protocol ☐ WI Protocol ☐ EPA M-6 or 8 ☐ Acid Gases ☐ Formaldehyde ☐ Metals ■ Other PM-10	
	Integrated Gas sample	☐ As per EPA M-3 ☐ As per EPA M-10 ☐ Other	
/	Oxides of Nitrogen (NO_x)	☐ As per EPA M-7A ☐ Other	Date Time (HRS)
/	☐ Fuel Sample ☐ Aggregate	☐ Attached fuel Form #S-0163RRR	
/	Particle Size	☐ X-Ray Sedigraph ☐ Bahco Method ☐ Other	
/	Audit Samples ☐ Sulfur Dioxide ☐ Oxides of Nit. ☐ Other	☐ As per EPA M-6 ☐ As per EPA M-7A ☐ Other	

Source Information

1) Type of Source: ☐ Boiler ☐ Asphalt Plant ☐ Incinerator ■ Dryer ☐ Other
2) Fuel: ☐ Coal ■ Wood ☐ Gas ☐ Oil ☐ RDF ☐ Other
3) Is sample combustible? ■ No ☐ Yes
4) Does sample need special handling? ■ No ☐ Yes If yes, explain

S-279RRRR

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Chain of Custody
Sample Deposition Sheet

Job Louisiana Pacific / Corrigan, TX
Team Leader M. Kaegler
Date Submitted _____
Test No. 2

Source No. 1 Dryer
Test Site Stack
Date of Test 3-24-92
No. of Runs Completed 3

No. of Samples	Type of Sample	Analysis Required	Comments
—	Probe Wash: ☐Acetone ☐D.I. Water	☐As per EPA M-5 ☐Other _____	
—	Filter: ☐4" G.F. ☐S.S. Thimble ☐2.5" G.F. ☐47 mm G.F.	☐As per EPA M-5 ☐As per EPA M-17 ☐Other _____	
3+1+1	Impinger Catch: ☐D.I. Water ☐3% H_2O_2 ☐4M5 Hg Only ☐4M5 Metals ☐1.0 N NaOH ☒Other 2-4 DNPH	☐MN Protocol ☐WI Protocol ☐EPA M-6 or 8 ☐Acid Gases ☒Formaldehyde ☐Metals ☐Other _____	
3	Integrated Gas sample	☒As per EPA M-3 ☒As per EPA M-10 ☐Other _____	
—	Oxides of Nitrogen (NO_x)	☐As per EPA M-7A ☐Other _____	Date _____ Time(HRS) _____
—	☐ Fuel Sample ☐ Aggregate	☐Attached fuel Form #S-0163RRR	
—	Particle Size	☐X-Ray Sedigraph ☐Bahco Method ☐Other _____	
—	Audit Samples ☐Sulfur Dioxide ☐Oxides of Nit. ☐Other _____	☐As per EPA M-6 ☐As per EPA M-7A ☐Other _____	

Source Information

1) Type of Source: ☐ Boiler ☐ Asphalt Plant ☐ Incinerator ☒ Dryer
☐ Other _____
2) Fuel: ☐ Coal ☒ Wood ☐ Gas ☐ Oil ☐ RDF ☐ Other _____
3) Is sample combustible? ☒ No ☐ Yes
4) Does sample need special handling? ☒ No ☐ Yes If yes, explain
_____

S-278RRRR

Interpoll Laboratories
(612) 786-6020

Chain of Custody
Sample Deposition Sheet

Job Louisiana Pacific / Corrigan, TX
Team Leader M. Kaehler
Date Submitted _____
Test No. 4

Source No. 1 Dryer
Test Site Stack
Date of Test 3-24-92
No. of Runs Completed 3

No. of Samples	Type of Sample	Analysis Required	Comments
3+1	Probe Wash: ☒ Acetone ☐ D.I. Water	☒ As per EPA M-5 ☐ Other _____	
3+1	Filter: ☒ 4" G.F. ☐ S.S. Thimble ☐ 2.5" G.F. ☐ 47 mm G.F.	☒ As per EPA M-5 ☐ As per EPA M-17 ☐ Other _____	
3+1	Impinger Catch: ☒ D.I. Water ☐ 3% H_2O_2 ☐ 4M5 Hg Only ☐ 4M5 Metals ☐ 1.0 N NaOH ☐ Other _____	☐ MN Protocol ☐ WI Protocol ☐ EPA M-6 or 8 ☐ Acid Gases ☐ Formaldehyde ☐ Metals ☒ Other Michigan Protocol	Method 202
3	Integrated Gas sample	☒ As per EPA M-3 ☒ As per EPA M-10 ☐ Other _____	
—	Oxides of Nitrogen (NO_x)	☐ As per EPA M-7A ☐ Other _____	Date _____ Time (HRS) _____
—	☐ Fuel Sample ☐ Aggregate	☐ Attached fuel Form #S-0163RRR	
—	Particle Size	☐ X-Ray Sedigraph ☐ Bahco Method ☐ Other _____	
—	Audit Samples ☐ Sulfur Dioxide ☐ Oxides of Nit. ☐ Other _____	☐ As per EPA M-6 ☐ As per EPA M-7A ☐ Other _____	

Source Information

1) Type of Source: ☐ Boiler ☐ Asphalt Plant ☐ Incinerator ☒ Dryer ☐ Other _____
2) Fuel: ☐ Coal ☒ Wood ☐ Gas ☐ Oil ☐ RDF ☐ Other _____
3) Is sample combustible? ☒ No ☐ Yes
4) Does sample need special handling? ☒ No ☐ Yes If yes, explain _____

S-278RRRR

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Chain of Custody
Sample Deposition Sheet

Job LOUISIANA PACIFIC (CORRIGAN, TX.)
Team Leader M. KOEHLER
Date Submitted —
Test No. 5

Source NO. 2A DRYER
Test Site STACK
Date of Test 3/25/92
No. of Runs Completed 3

No. of Samples	Type of Sample	Analysis Required	Comments
3	Probe Wash: ■ Acetone ☐ D.I. Water	☐ As per EPA M-5 ■ Other PM-10	
3	Filter: ☐ 4" G.F. ☐ S.S. Thimble ■ 2.5" G.F. ☐ 47 mm G.F.	☐ As per EPA M-5 ☐ As per EPA M-17 ■ Other PM-10	
3	Impinger Catch: ■ D.I. Water ☐ 3% H_2O_2 ☐ 4M5 Hg Only ☐ 4M5 Metals ☐ 1.0 N NaOH ☐ Other	☐ MN Protocol ☐ WI Protocol ☐ EPA M-6 or 8 ☐ Acid Gases ☐ Formaldehyde ☐ Metals ■ Other PM-10	
/	Integrated Gas sample	☐ As per EPA M-3 ☐ As per EPA M-10 ☐ Other	
/	Oxides of Nitrogen (NO_x)	☐ As per EPA M-7A ☐ Other	Date Time(HRS)
/	☐ Fuel Sample ☐ Aggregate	☐ Attached fuel Form #S-0163RRR	
/	Particle Size	☐ X-Ray Sedigraph ☐ Bahco Method ☐ Other	
/	Audit Samples ☐ Sulfur Dioxide ☐ Oxides of Nit. ☐ Other	☐ As per EPA M-6 ☐ As per EPA M-7A ☐ Other	

Source Information

1) Type of Source: ☐ Boiler ☐ Asphalt Plant ☐ Incinerator ■ Dryer ☐ Other
2) Fuel: ☐ Coal ■ Wood ☐ Gas ☐ Oil ☐ RDF ☐ Other
3) Is sample combustible? ■ No ☐ Yes
4) Does sample need special handling? ■ No ☐ Yes If yes, explain

S-278RRRR

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Chain of Custody
Sample Deposition Sheet

Job Louisiana Pacific / Corrigan, TX
Team Leader M. Kaehler
Date Submitted _____
Test No. 6

Source No. 1 Dryer
Test Site stack
Date of Test 3-24-92
No. of Runs Completed 3

No. of Samples	Type of Sample	Analysis Required	Comments
—	Probe Wash: ☐Acetone ☐D.I. Water	☐As per EPA M-5 ☐Other _____	
—	Filter: ☐4" G.F. ☐S.S. Thimble ☐2.5" G.F. ☐47 mm G.F.	☐As per EPA M-5 ☐As per EPA M-17 ☐Other _____	
3	Impinger Catch: ☐D.I. Water ☐3% H_2O_2 ☐4M5 Hg Only ☐4M5 Metals ☐1.0 N NaOH ☒Other 2-4 DNPH	☐MN Protocol ☐WI Protocol ☐EPA M-6 or 8 ☐Acid Gases ☒Formaldehyde ☐Metals ☐Other _____	
3	Integrated Gas sample	☒As per EPA M-3 ☒As per EPA M-10 ☐Other _____	
—	Oxides of Nitrogen (NO_x)	☐As per EPA M-7A ☐Other _____	Date _____ Time(HRS) _____
—	☐ Fuel Sample ☐ Aggregate	☐Attached fuel Form #S-0163RRR	
—	Particle Size	☐X-Ray Sedigraph ☐Bahco Method ☐Other _____	
✓	Audit Samples ☐Sulfur Dioxide ☐Oxides of Nit. ☐Other _____	☐As per EPA M-6 ☐As per EPA M-7A ☐Other _____	

Source Information

1) Type of Source: ☐ Boiler ☐ Asphalt Plant ☐ Incinerator ☒ Dryer ☐ Other _____
2) Fuel: ☐ Coal ☒ Wood ☐ Gas ☐ Oil ☐ RDF ☐ Other _____
3) Is sample combustible? ☒ No ☐ Yes
4) Does sample need special handling? ☒ No ☐ Yes If yes, explain _____

S-278RRRR

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Chain of Custody
Sample Deposition Sheet

Job: LOUISIANA PACIFIC (CORRIGAN TX)
Team Leader: M. KEHOE
Date Submitted:
Test No.: 8

Source: NO. 2A DRYER STACK
Test Site: STACK
Date of Test: 3/25/92
No. of Runs Completed: 2

No. of Samples	Type of Sample	Analysis Required	Comments
2	Probe Wash: ☒ Acetone ☐ D.I. Water	☒ As per EPA M-5 ☐ Other	
2	Filter: ☒ 4" G.F. ☐ S.S. Thimble ☐ 2.5" G.F. ☐ 47 mm G.F.	☒ As per EPA M-5 ☐ As per EPA M-17 ☐ Other	
2	Impinger Catch: ☒ D.I. Water ☐ 3% H_2O_2 ☐ 4M5 Hg Only ☐ 4M5 Metals ☐ 1.0 N NaOH ☐ Other	☐ MN Protocol ☐ WI Protocol ☐ EPA M-6 or 8 ☐ Acid Gases ☐ Formaldehyde ☐ Metals ☐ Other	RINSED IMPINGERS WITH D.I. H_2O & METHALYN CHLORIDE AS PER TEST METHOD.
0	Integrated Gas sample	☐ As per EPA M-3 ☐ As per EPA M-10 ☐ Other	
/	Oxides of Nitrogen (NO_x)	☐ As per EPA M-7A ☐ Other	Date Time (HRS)
/	☐ Fuel Sample ☐ Aggregate	☐ Attached fuel Form #S-0163RRR	
/	Particle Size	☐ X-Ray Sedigraph ☐ Bahco Method ☐ Other	
/	Audit Samples ☐ Sulfur Dioxide ☐ Oxides of Nit. ☐ Other	☐ As per EPA M-6 ☐ As per EPA M-7A ☐ Other	

Source Information

1) Type of Source: ☐ Boiler ☐ Asphalt Plant ☐ Incinerator ☒ Dryer ☐ Other
2) Fuel: ☐ Coal ☐ Wood ☒ Gas ☐ Oil ☐ RDF ☐ Other
3) Is sample combustible? ☒ No ☐ Yes
4) Does sample need special handling? ☒ No ☐ Yes If yes, explain

S-278RRRR

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Chain of Custody
Sample Deposition Sheet

Job Louisiana Pacific / Corrigan, TX
Team Leader M. Kaechler
Date Submitted 3
Test No. 9

Source No. 2B Dryer
Test Site Stack
Date of Test 3-25-92
No. of Runs Completed 2

No. of Samples	Type of Sample	Analysis Required	Comments
2+1	Probe Wash: ☒ Acetone ☐ D.I. Water	☒ As per EPA M-5 ☐ Other _____	
2+1	Filter: ☒ 4" G.F. ☐ S.S. Thimble ☐ 2.5" G.F. ☐ 47 mm G.F.	☒ As per EPA M-5 ☐ As per EPA M-17 ☐ Other _____	
2+1	Impinger Catch: ☒ D.I. Water ☐ 3% H_2O_2 ☐ 4M5 Hg Only ☐ 4M5 Metals ☐ 1.0 N NaOH ☐ Other _____	☐ MN Protocol ☐ WI Protocol ☐ EPA M-6 or 8 ☐ Acid Gases ☐ Formaldehyde ☐ Metals ☒ Other Michigan Protocol	202 Backhalf
3	Integrated Gas sample	☒ As per EPA M-3 ☒ As per EPA M-10 ☐ Other _____	
—	Oxides of Nitrogen (NO_x)	☐ As per EPA M-7A ☐ Other _____	Date _____ Time (HRS) _____
—	☐ Fuel Sample ☐ Aggregate	☐ Attached fuel Form #S-0163RRR	
—	Particle Size	☐ X-Ray Sedigraph ☐ Bahco Method ☐ Other _____	
—	Audit Samples ☐ Sulfur Dioxide ☐ Oxides of Nit. ☐ Other _____	☐ As per EPA M-6 ☐ As per EPA M-7A ☐ Other _____	

Source Information

1) Type of Source: ☐ Boiler ☐ Asphalt Plant ☐ Incinerator ☒ Dryer ☐ Other _____
2) Fuel: ☐ Coal ☒ Wood ☐ Gas ☐ Oil ☐ RDF ☐ Other _____
3) Is sample combustible? ☒ No ☐ Yes
4) Does sample need special handling? ☒ No ☐ Yes If yes, explain _____

S-278RRRR

Interpoll Laboratories
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Chain of Custody
Sample Deposition Sheet

Job LOUISIANA PACIFIC
Team Leader M. KAEWLER
Date Submitted –
Test No. 10

Source NO. 3 DRYER
Test Site STACK
Date of Test 3/26/92
No. of Runs Completed 3

No. of Samples	Type of Sample	Analysis Required	Comments
3	Probe Wash: ☒ Acetone ☐ D.I. Water	☐ As per EPA M-5 ☒ Other PM-10	
3	Filter: ☐ 4" G.F. ☐ S.S. Thimble ☒ 2.5" G.F. ☐ 47 mm G.F.	☐ As per EPA M-5 ☐ As per EPA M-17 ☒ Other PM-10	
3	Impinger Catch: ☒ D.I. Water ☐ 3% H_2O_2 ☐ 4M5 Hg Only ☐ 4M5 Metals ☐ 1.0 N NaOH ☐ Other	☐ MN Protocol ☐ WI Protocol ☐ EPA M-6 or 8 ☐ Acid Gases ☐ Formaldehyde ☐ Metals ☒ Other PM-10	
/	Integrated Gas sample	☐ As per EPA M-3 ☐ As per EPA M-10 ☐ Other	
/	Oxides of Nitrogen (NO_x)	☐ As per EPA M-7A ☐ Other	Date Time (HRS)
/	☐ Fuel Sample ☐ Aggregate	☐ Attached fuel Form #S-0163RRR	
/	Particle Size	☐ X-Ray Sedigraph ☐ Bahco Method ☐ Other	
/	Audit Samples ☐ Sulfur Dioxide ☐ Oxides of Nit. ☐ Other	☐ As per EPA M-6 ☐ As per EPA M-7A ☐ Other	

Source Information

1) Type of Source: ☐ Boiler ☐ Asphalt Plant ☐ Incinerator ☒ Dryer ☐ Other
2) Fuel: ☐ Coal ☒ Wood ☐ Gas ☐ Oil ☐ RDF ☐ Other
3) Is sample combustible? ☒ No ☐ Yes
4) Does sample need special handling? ☒ No ☐ Yes If yes, explain

S-278RRRR

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Chain of Custody
Sample Deposition Sheet

Job: WISVENA PACIFIC (CORRIGAN, TX.)
Team Leader: M. KAEHLER
Date Submitted:
Test No.: 13

Source: NO. 3 DRYER
Test Site: STACK
Date of Test: 3/26/92
No. of Runs Completed: 3

No. of Samples	Type of Sample	Analysis Required	Comments
3	Probe Wash: ☒ Acetone ☐ D.I. Water	☒ As per EPA M-5 ☐ Other	
3	Filter: ☒ 4" G.F. ☐ S.S. Thimble ☐ 2.5" G.F. ☐ 47 mm G.F.	☒ As per EPA M-5 ☐ As per EPA M-17 ☐ Other	
3	Impinger Catch: ☒ D.I. Water ☐ 3% H_2O_2 ☐ 4M5 Hg Only ☐ 4M5 Metals ☐ 1.0 N NaOH ☐ Other	☐ MN Protocol ☐ WI Protocol ☐ EPA M-6 or 8 ☐ Acid Gases ☐ Formaldehyde ☐ Metals ☒ Other METHOD 202	RINSED IMPINGERS WITH DI H_2O & $MeCl_2$ AND ADDED TO BACK-HALF
/	Integrated Gas sample	☐ As per EPA M-3 ☐ As per EPA M-10 ☐ Other	
/	Oxides of Nitrogen (NO_x)	☐ As per EPA M-7A ☐ Other	Date Time (HRS)
/	☐ Fuel Sample ☐ Aggregate	☐ Attached fuel Form #S-0163RRR	
/	Particle Size	☐ X-Ray Sedigraph ☐ Bahco Method ☐ Other	
/	Audit Samples ☐ Sulfur Dioxide ☐ Oxides of Nit. ☐ Other	☐ As per EPA M-6 ☐ As per EPA M-7A ☐ Other	

Source Information

1) Type of Source: ☐ Boiler ☐ Asphalt Plant ☐ Incinerator ☒ Dryer ☐ Other
2) Fuel: ☐ Coal ☒ Wood ☐ Gas ☐ Oil ☐ RDF ☐ Other
3) Is sample combustible? ☒ No ☐ Yes
4) Does sample need special handling? ☒ No ☐ Yes If yes, explain

S-278RRRR

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Chain of Custody
Sample Deposition Sheet

Job LOUISIANA PACIFIC
Team Leader M. KLEHLEN
Date Submitted
Test No. 14

Source NO 4 PRESS VENT
Test Site STACK
Date of Test 3/27/92
No. of Runs Completed 3

No. of Samples	Type of Sample	Analysis Required	Comments
3	Probe Wash: ☒ Acetone ☐ D.I. Water	☒ As per EPA M-5 ☐ Other	
3	Filter: ☒ 4" G.F. ☐ S.S. Thimble ☐ 2.5" G.F. ☐ 47 mm G.F.	☒ As per EPA M-5 ☐ As per EPA M-17 ☐ Other	
3	Impinger Catch: ☒ D.I. Water ☐ 3% H_2O_2 ☐ 4M5 Hg Only ☐ 4M5 Metals ☐ 1.0 N NaOH ☐ Other	☐ MN Protocol ☐ WI Protocol ☐ EPA M-6 or 8 ☐ Acid Gases ☐ Formaldehyde ☐ Metals ☒ Other METHOD 202	IMPINGERS RINSED W/1H DI. H_2O + $MgCl_2$ + ADDED TO BACK HALF.
/	Integrated Gas sample	☐ As per EPA M-3 ☐ As per EPA M-10 ☐ Other	AMBIENT AIR
/	Oxides of Nitrogen (NO_x)	☐ As per EPA M-7A ☐ Other	Date Time(HRS)
/	☐ Fuel Sample ☐ Aggregate	☐ Attached fuel Form #S-0163RRR	
/	Particle Size	☐ X-Ray Sedigraph ☐ Bahco Method ☐ Other	
/	Audit Samples ☐ Sulfur Dioxide ☐ Oxides of Nit. ☐ Other	☐ As per EPA M-6 ☐ As per EPA M-7A ☐ Other	

Source Information

1) Type of Source: ☐ Boiler ☐ Asphalt Plant ☐ Incinerator ☐ Dryer ☒ Other PRESS VENT
2) Fuel: ☐ Coal ☐ Wood ☐ Gas ☐ Oil ☐ RDF ☐ Other
3) Is sample combustible? ☒ No ☐ Yes
4) Does sample need special handling? ☒ No ☐ Yes If yes, explain

S-278RRRR

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Chain of Custody
Sample Deposition Sheet

Job Louisiana Pacific / Corrigan, TX
Team Leader M. Koehler
Date Submitted _____
Test No. 15

Source No. 4 Press Vent
Test Site stack
Date of Test 3-27-92
No. of Runs Completed 3

No. of Samples	Type of Sample	Analysis Required	Comments
—	Probe Wash: ☐Acetone ☐D.I. Water	☐As per EPA M-5 ☐Other _____	
—	Filter: ☐4" G.F. ☐S.S. Thimble ☐2.5" G.F. ☐47 mm G.F.	☐As per EPA M-5 ☐As per EPA M-17 ☐Other _____	
3+1+1	Impinger Catch: ☐D.I. Water ☐3% H_2O_2 ☐4M5 Hg Only ☐4M5 Metals ☐1.0 N NaOH ☒Other 24 DNPH	☐MN Protocol ☐WI Protocol ☐EPA M-6 or 8 ☐Acid Gases ☒Formaldehyde ☐Metals ☐Other _____	
—	Integrated Gas sample	☐As per EPA M-3 ☐As per EPA M-10 ☐Other _____	Ambient
—	Oxides of Nitrogen (NO_x)	☐As per EPA M-7A ☐Other _____	Date _____ Time(HRS) _____
—	☐ Fuel Sample ☐ Aggregate	☐Attached fuel Form #S-0163RRR	
—	Particle Size	☐X-Ray Sedigraph ☐Bahco Method ☐Other _____	
—	Audit Samples ☐Sulfur Dioxide ☐Oxides of Nit. ☐Other _____	☐As per EPA M-6 ☐As per EPA M-7A ☐Other _____	

Source Information

1) Type of Source: ☐ Boiler ☐ Asphalt Plant ☐ Incinerator ☒ Dryer ☐ Other Press
2) Fuel: ☐ Coal ☒ Wood ☐ Gas ☐ Oil ☐ RDF ☐ Other N/A
3) Is sample combustible? ☒ No ☐ Yes
4) Does sample need special handling? ☒ No ☐ Yes If yes, explain _____

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Chain of Custody
Sample Deposition Sheet

Job LOUISIANA PACIFIC
Team Leader M. KAEHLER
Date Submitted
Test No. 17

Source NO. 3 PRESS VENT
Test Site STACK
Date of Test 3/27/92
No. of Runs Completed 3

No. of Samples	Type of Sample	Analysis Required	Comments
3	Probe Wash: ☒ Acetone ☐ D.I. Water	☒ As per EPA M-5 ☐ Other	
3	Filter: ☒ 4" G.F. ☐ S.S. Thimble ☐ 2.5" G.F. ☐ 47 mm G.F.	☒ As per EPA M-5 ☐ As per EPA M-17 ☐ Other	
3	Impinger Catch: ☒ D.I. Water ☐ 3% H_2O_2 ☐ 4M5 Hg Only ☐ 4M5 Metals ☐ 1.0 N NaOH ☐ Other	☐ MN Protocol ☐ WI Protocol ☐ EPA M-6 or 8 ☐ Acid Gases ☐ Formaldehyde ☐ Metals ☒ Other METHOD 202	IMPINGERS RINSED WITH DI H_2O + $MeCl_2$ AND ADDED TO BULK-HOLE
/	Integrated Gas sample	☐ As per EPA M-3 ☐ As per EPA M-10 ☐ Other	AMBIENT AIR
/	Oxides of Nitrogen (NO_x)	☐ As per EPA M-7A ☐ Other	Date Time (HRS)
/	☐ Fuel Sample ☐ Aggregate	☐ Attached fuel Form #S-0163RRR	
/	Particle Size	☐ X-Ray Sedigraph ☐ Bahco Method ☐ Other	
/	Audit Samples ☐ Sulfur Dioxide ☐ Oxides of Nit. ☐ Other	☐ As per EPA M-6 ☐ As per EPA M-7A ☐ Other	

Source Information

1) Type of Source: ☐ Boiler ☐ Asphalt Plant ☐ Incinerator ☐ Dryer ☒ Other PRESS VENT
2) Fuel: ☐ Coal ☐ Wood ☐ Gas ☐ Oil ☐ RDF ☐ Other
3) Is sample combustible? ☒ No ☐ Yes
4) Does sample need special handling? ☒ No ☐ Yes If yes, explain

S-278RRRR

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Chain of Custody
Sample Deposition Sheet

Job Louisiana Pacific / Corrigan, TX
Team Leader M. Kaebler
Date Submitted _____
Test No. 11

Source No. 3 Dryer
Test Site stack
Date of Test 3-26-92
No. of Runs Completed 3

No. of Samples	Type of Sample	Analysis Required	Comments
—	Probe Wash: ☐ Acetone ☐ D.I. Water	☐ As per EPA M-5 ☐ Other _____	
—	Filter: ☐ 4" G.F. ☐ S.S. Thimble ☐ 2.5" G.F. ☐ 47 mm G.F.	☐ As per EPA M-5 ☐ As per EPA M-17 ☐ Other _____	
3	Impinger Catch: ☐ D.I. Water ☐ 3% H_2O_2 ☐ 4M5 Hg Only ☐ 4M5 Metals ☐ 1.0 N NaOH ☒ Other 24 DNPH	☐ MN Protocol ☐ WI Protocol ☐ EPA M-6 or 8 ☐ Acid Gases ☒ Formaldehyde ☐ Metals ☒ Other _____	
3	Integrated Gas sample	☒ As per EPA M-3 ☒ As per EPA M-10 ☐ Other _____	
—	Oxides of Nitrogen (NO_x)	☐ As per EPA M-7A ☐ Other _____	Date _____ Time (HRS) _____
—	☐ Fuel Sample ☐ Aggregate	☐ Attached fuel Form #S-0163RRR	
—	Particle Size	☐ X-Ray Sedigraph ☐ Bahco Method ☐ Other _____	
—	Audit Samples ☐ Sulfur Dioxide ☐ Oxides of Nit. ☐ Other _____	☐ As per EPA M-6 ☐ As per EPA M-7A ☐ Other _____	

Source Information

1) Type of Source: ☐ Boiler ☐ Asphalt Plant ☐ Incinerator ☒ Dryer ☐ Other _____
2) Fuel: ☐ Coal ☒ Wood ☐ Gas ☐ Oil ☐ RDF ☐ Other _____
3) Is sample combustible? ☒ No ☐ Yes
4) Does sample need special handling? ☒ No ☐ Yes If yes, explain _____

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Chain of Custody
Sample Deposition Sheet

Job Louisiana Pacific / Corrigan, TX
Team Leader M. Kaehler
Date Submitted
Test No. 18

Source No. 3 Press Vent
Test Site Stack
Date of Test 3-27-92
No. of Runs Completed 3

No. of Samples	Type of Sample	Analysis Required	Comments
—	Probe Wash: ☐Acetone ☐D.I. Water	☐As per EPA M-5 ☐Other	
—	Filter: ☐4" G.F. ☐S.S. Thimble ☐2.5" G.F. ☐47 mm G.F.	☐As per EPA M-5 ☐As per EPA M-17 ☐Other	
3	Impinger Catch: ☐D.I. Water ☐3% H_2O_2 ☐4M5 Hg Only ☐4M5 Metals ☐1.0 N NaOH ☒Other 2-4 DNPH	☐MN Protocol ☐WI Protocol ☐EPA M-6 or 8 ☐Acid Gases ☒Formaldehyde ☐Metals ☐Other	
—	Integrated Gas sample	☐As per EPA M-3 ☐As per EPA M-10 ☐Other	Ambient
—	Oxides of Nitrogen (NO_x)	☐As per EPA M-7A ☐Other	Date Time(HRS)
—	☐ Fuel Sample ☐ Aggregate	☐Attached fuel Form #S-0163RRR	
—	Particle Size	☐X-Ray Sedigraph ☐Bahco Method ☐Other	
—	Audit Samples ☐Sulfur Dioxide ☐Oxides of Nit. ☐Other	☐As per EPA M-6 ☐As per EPA M-7A ☐Other	

Source Information

1) Type of Source: ☐ Boiler ☐ Asphalt Plant ☐ Incinerator ☐ Dryer ☒ Other Press Vent
2) Fuel: ☐ Coal ☐ Wood ☐ Gas ☐ Oil ☐ RDF ☐ Other NA
3) Is sample combustible? ☒ No ☐ Yes
4) Does sample need special handling? ☒ No ☐ Yes If yes, explain

S-278RRRR

Interpoll Laboratories
(612) 786-6020

Chain of Custody
Sample Deposition Sheet

Job LOUISIANA PACIFIC
Team Leader D. Brennan
Date Submitted
Test No. 8 20

Source Exhaust Fan No. 8
Test Site Stack
Date of Test 3-20-92
No. of Runs Completed 3

No. of Samples	Type of Sample	Analysis Required	Comments
3	Probe Wash: ☐Acetone ☐D.I. Water	☐As per EPA M-5 ☐Other	
3	Filter: ☐4" G.F. ☐S.S. Thimble ☐2.5" G.F. ☐47 mm G.F.	☐As per EPA M-5 ☐As per EPA M-17 ☐Other	
3	Impinger Catch: ☐D.I. Water ☐3% H_2O_2 ☐4M5 Hg Only ☐4M5 Metals ☐1.0 N NaOH ☐Other	☐MN Protocol ☐WI Protocol ☐EPA M-6 or 8 ☐Acid Gases ☐Formaldehyde ☐Metals ☐Other	
	Integrated Gas sample	☐As per EPA M-3 ☐As per EPA M-10 ☐Other	
	Oxides of Nitrogen (NO_x)	☐As per EPA M-7A ☐Other	Date Time(HRS)
	☐ Fuel Sample ☐ Aggregate	☐Attached fuel Form #S-0163RRR	
	Particle Size	☐X-Ray Sedigraph ☐Bahco Method ☐Other	
	Audit Samples ☐Sulfur Dioxide ☐Oxides of Nit. ☐Other	☐As per EPA M-6 ☐As per EPA M-7A ☐Other	

Source Information

1) Type of Source: ☐ Boiler ☐ Asphalt Plant ☐ Incinerator ☐ Dryer ☐ Other
2) Fuel: ☐ Coal ☐ Wood ☐ Gas ☐ Oil ☐ RDF ☐ Other
3) Is sample combustible? ☐ No ☐ Yes
4) Does sample need special handling? ☐ No ☐ Yes If yes, explain

S-278RRRR

Interpoll Laboratories
(612) 786-6020

Chain of Custody
Sample Deposition Sheet

Job Louisiana Pacific / Corrigan, TX
Team Leader M. Koehler
Date Submitted _____
Test No. 21

Source No. 2 Press Vent
Test Site Stack
Date of Test 3-26-92
No. of Runs Completed 3

No. of Samples	Type of Sample	Analysis Required	Comments
–	Probe Wash: ☐Acetone ☐D.I. Water	☐As per EPA M-5 ☐Other _____	_____
–	Filter: ☐4" G.F. ☐S.S. Thimble ☐2.5" G.F. ☐47 mm G.F.	☐As per EPA M-5 ☐As per EPA M-17 ☐Other _____	_____
3	Impinger Catch: ☐D.I. Water ☐3% H_2O_2 ☐4M5 Hg Only ☐4M5 Metals ☐1.0 N NaOH ☒Other 1-4 DNPH	☐MN Protocol ☐WI Protocol ☐EPA M-6 or 8 ☐Acid Gases ☒Formaldehyde ☐Metals ☐Other _____	_____
–	Integrated Gas sample	☐As per EPA M-3 ☐As per EPA M-10 ☐Other _____	Ambient
–	Oxides of Nitrogen (NO_x)	☐As per EPA M-7A ☐Other _____	Date _____ Time(HRS) _____
–	☐ Fuel Sample ☐ Aggregate	☐Attached fuel Form #S-0163RRR	_____
–	Particle Size	☐X-Ray Sedigraph ☐Bahco Method ☐Other _____	_____
–	Audit Samples ☐Sulfur Dioxide ☐Oxides of Nit. ☐Other _____	☐As per EPA M-6 ☐As per EPA M-7A ☐Other _____	_____

Source Information

1) Type of Source: ☐ Boiler ☐ Asphalt Plant ☐ Incinerator ☐ Dryer ☒ Other Press Vent
2) Fuel: ☐ Coal ☐ Wood ☐ Gas ☐ Oil ☐ RDF ☒ Other NA
3) Is sample combustible? ☒ No ☐ Yes
4) Does sample need special handling? ☒ No ☐ Yes If yes, explain _____

S-279RRRR

Interpoll Laboratories
(612) 786-6020

Chain of Custody
Sample Deposition Sheet

Job ECOLOGY & PACIFIC / CORRIGAN TX
Team Leader M. KLEHLER
Date Submitted
Test No. 23

Source NO. 2 PRESS VENT
Test Site STACK
Date of Test 3/28/92
No. of Runs Completed 3

No. of Samples	Type of Sample	Analysis Required	Comments
3	Probe Wash: ■ Acetone ☐ D.I. Water	■ As per EPA M-5 ☐ Other	
3	Filter: ■ 4" G.F. ☐ S.S. Thimble ☐ 2.5" G.F. ☐ 47 mm G.F.	■ As per EPA M-5 ☐ As per EPA M-17 ☐ Other	
3	Impinger Catch: ■ D.I. Water ☐ 3% H_2O_2 ☐ 4M5 Hg Only ☐ 4M5 Metals ☐ 1.0 N NaOH ☐ Other	☐ MN Protocol ☐ WI Protocol ☐ EPA M-6 or 8 ☐ Acid Gases ☐ Formaldehyde ☐ Metals ■ Other METHOD 202	IMPINGERS RINSED WITH D.I. H_2O & $MeCl_2$ AND ADDED TO BACK HALF
/	Integrated Gas sample	☐ As per EPA M-3 ☐ As per EPA M-10 ☐ Other	
/	Oxides of Nitrogen (NO_x)	☐ As per EPA M-7A ☐ Other	Date Time (HRS)
/	☐ Fuel Sample ☐ Aggregate	☐ Attached fuel Form #S-0163RRR	
/	Particle Size	☐ X-Ray Sedigraph ☐ Bahco Method ☐ Other	
/	Audit Samples ☐ Sulfur Dioxide ☐ Oxides of Nit. ☐ Other	☐ As per EPA M-6 ☐ As per EPA M-7A ☐ Other	

Source Information

1) Type of Source: ☐ Boiler ☐ Asphalt Plant ☐ Incinerator ☐ Dryer ■ Other PRESS VENT
2) Fuel: ☐ Coal ☐ Wood ☐ Gas ☐ Oil ☐ RDF ☐ Other N/A
3) Is sample combustible? ■ No ☐ Yes
4) Does sample need special handling? ■ No ☐ Yes If yes, explain

S-278RRRR

Interpoll Laboratories
(612) 786-6020

Chain of Custody
Sample Deposition Sheet

Job Louisiana Pacific / Corrigan, TX
Team Leader M. Kaehler
Date Submitted _____
Test No. 24

Source No. 8 Exhaust Fan Vent
Test Site Stack
Date of Test 3-20-92
No. of Runs Completed 3

No. of Samples	Type of Sample	Analysis Required	Comments
—	Probe Wash: ☐Acetone ☐D.I. Water	☐As per EPA M-5 ☐Other _____	_____
—	Filter: ☐4" G.F. ☐S.S. Thimble ☐2.5" G.F. ☐47 mm G.F.	☐As per EPA M-5 ☐As per EPA M-17 ☐Other _____	_____
3	Impinger Catch: ☐D.I. Water ☐3% H_2O_2 ☐4M5 Hg Only ☐4M5 Metals ☐1.0 N NaOH ☒Other 2-4 DNPH	☐MN Protocol ☐WI Protocol ☐EPA M-6 or 8 ☐Acid Gases ☒Formaldehyde ☐Metals ☐Other _____	_____
—	Integrated Gas sample	☐As per EPA M-3 ☐As per EPA M-10 ☐Other _____	Ambient
—	Oxides of Nitrogen (NO_x)	☐As per EPA M-7A ☐Other _____	Date _____ Time (HRS) _____
—	☐ Fuel Sample ☐ Aggregate	☐Attached fuel Form #S-0163RRR	_____
—	Particle Size	☐X-Ray Sedigraph ☐Bahco Method ☐Other _____	_____
—	Audit Samples ☐Sulfur Dioxide ☐Oxides of Nit. ☐Other _____	☐As per EPA M-6 ☐As per EPA M-7A ☐Other _____	_____

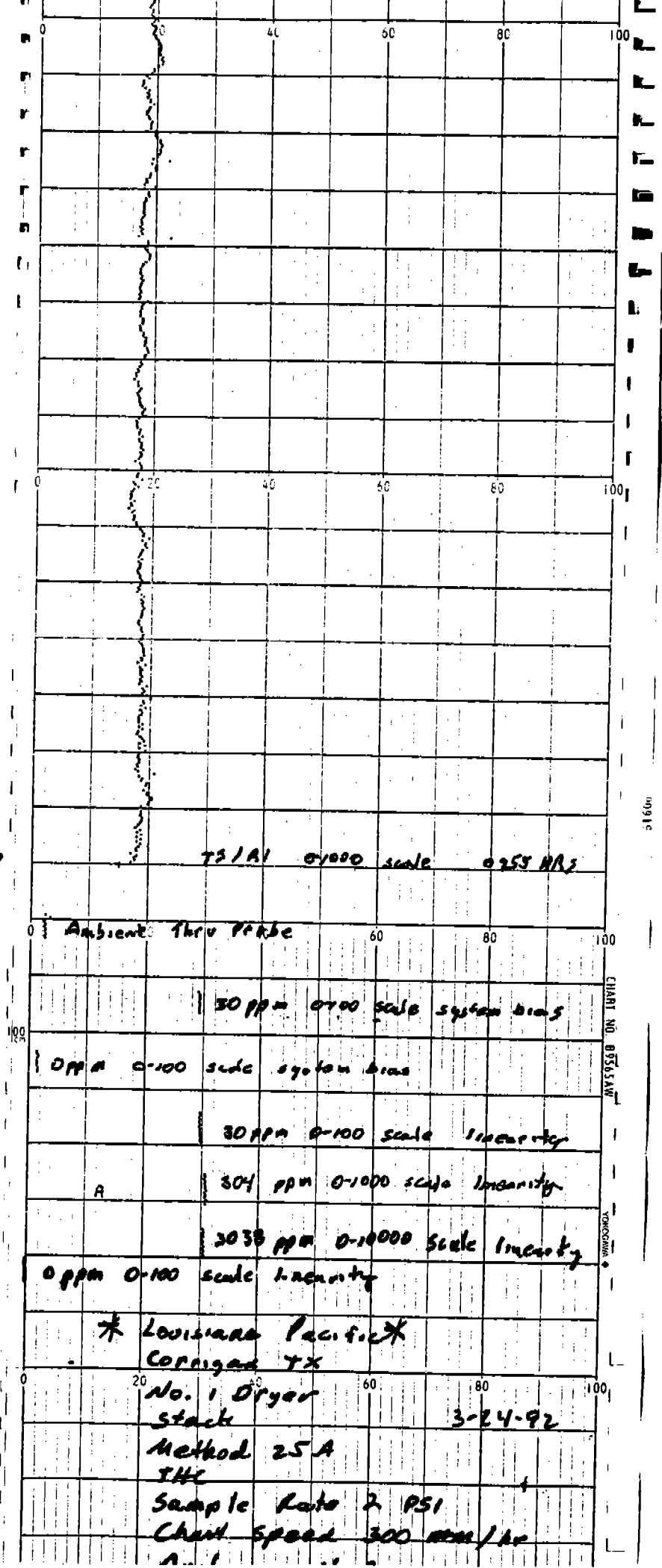
Source Information

1) Type of Source: ☐ Boiler ☐ Asphalt Plant ☐ Incinerator ☐ Dryer ☒ Other Conveyor Belt
2) Fuel: ☐ Coal ☐ Wood ☐ Gas ☐ Oil ☐ RDF ☐ Other NA
3) Is sample combustible? ☒ No ☐ Yes
4) Does sample need special handling? ☒ No ☐ Yes If yes, explain

_____

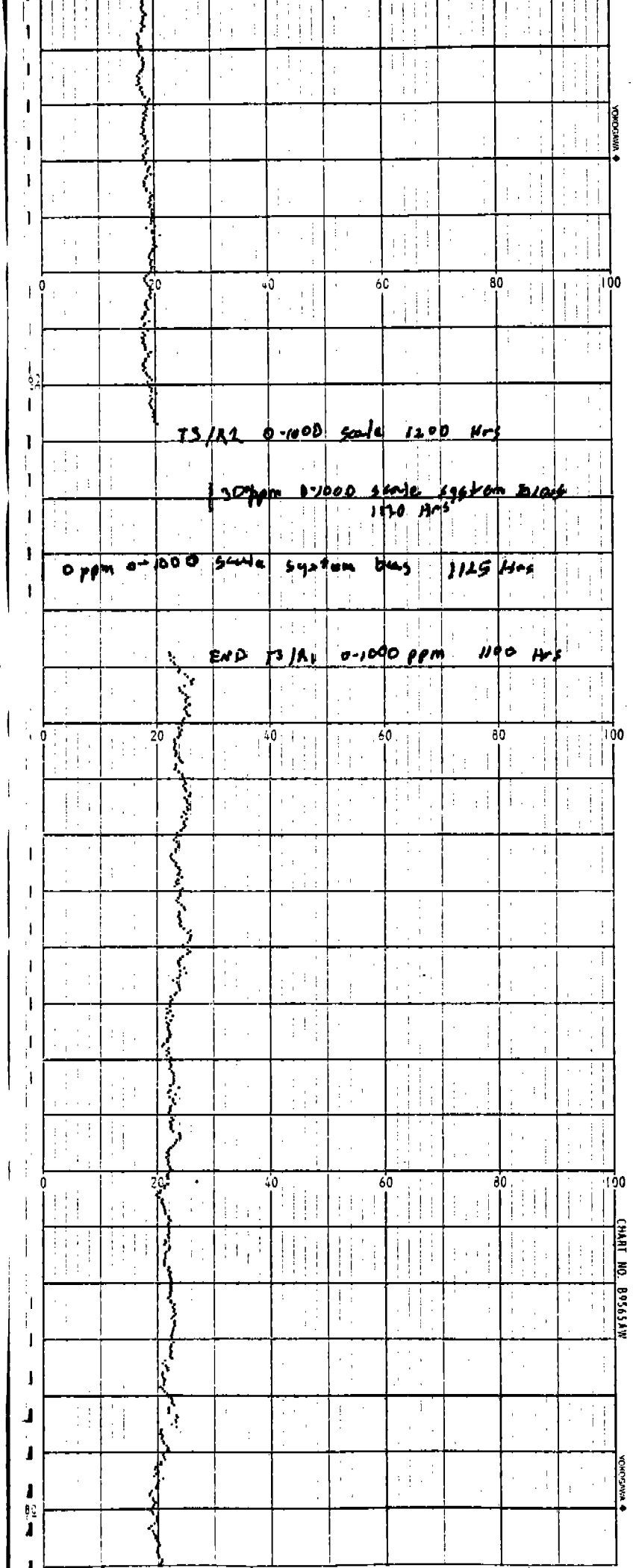
S-278RRRR





TEST 3
RUN 1 →
START
No. 1 Dryer
LP-
Corrigan

Total
Hydro-
Carbons



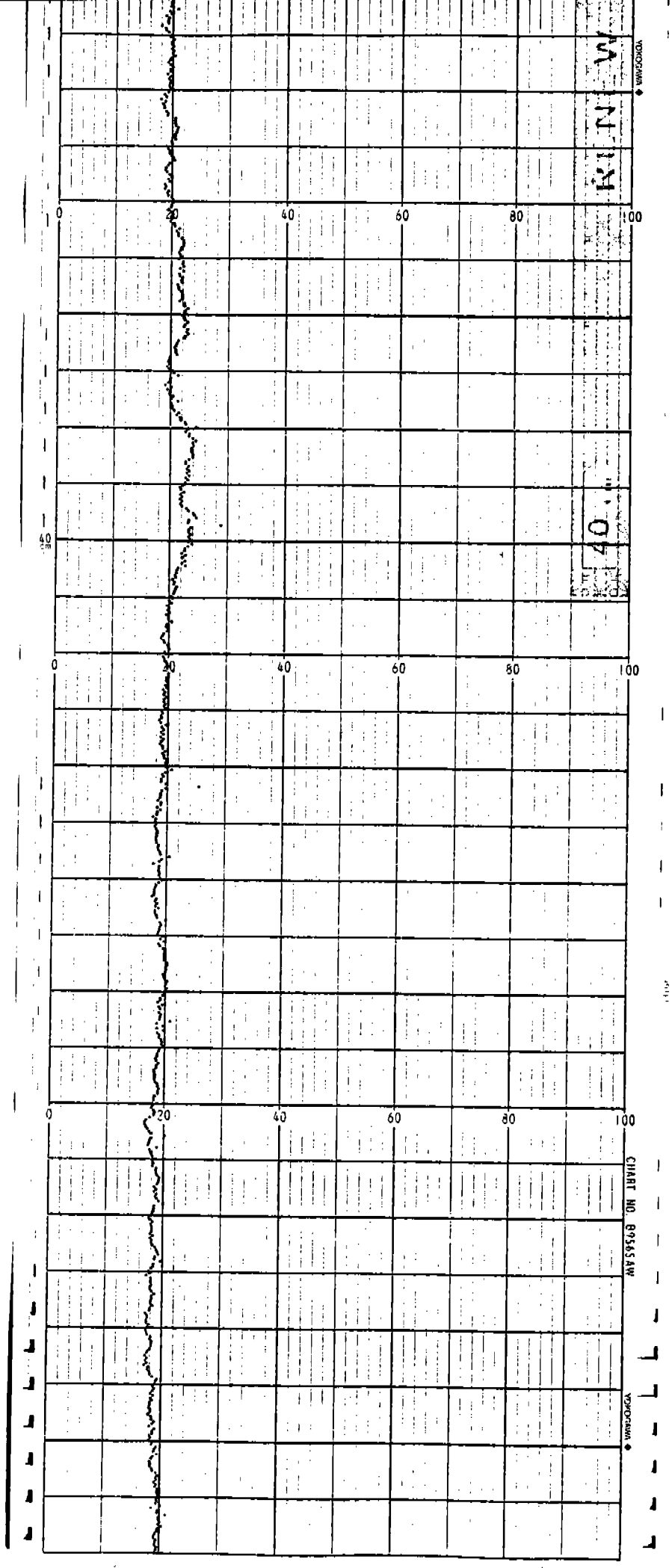
LP-
Corrigan
(cont.)

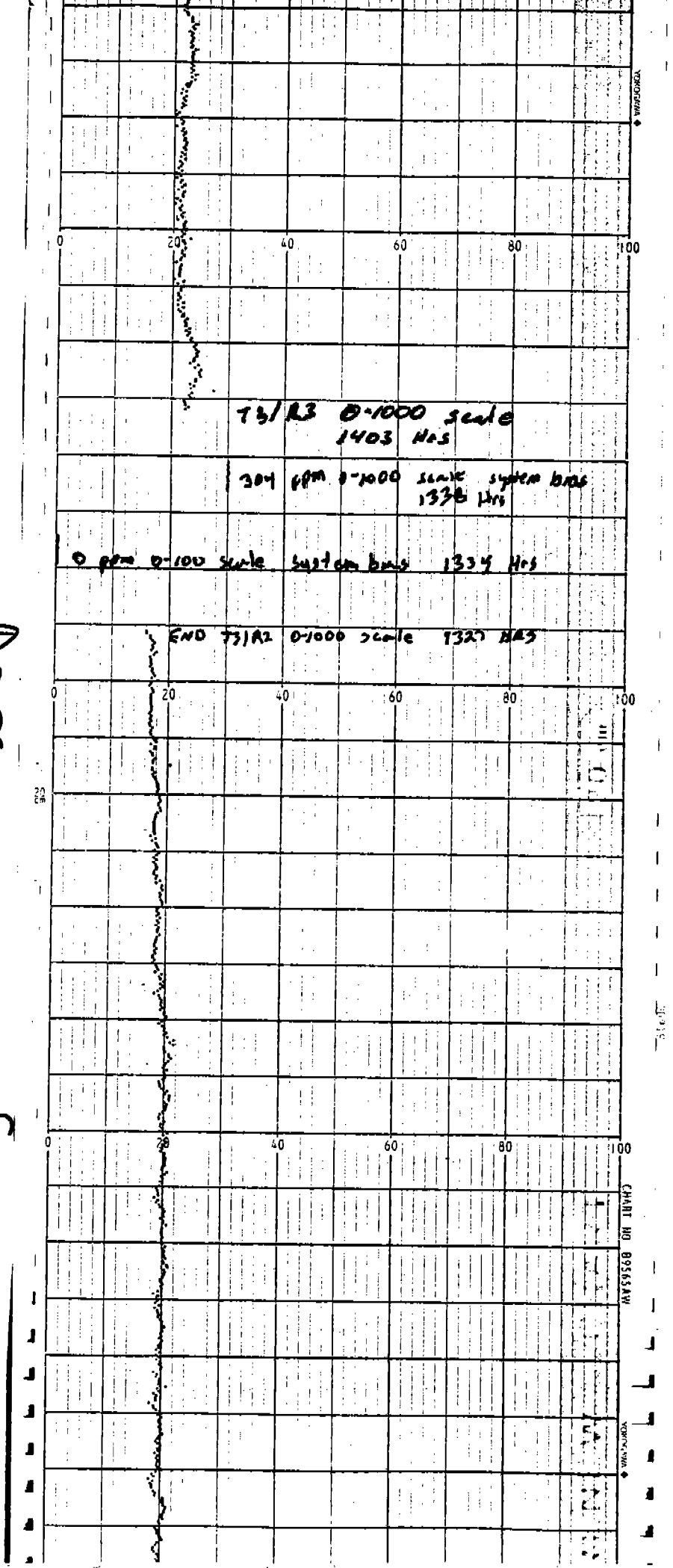
THC

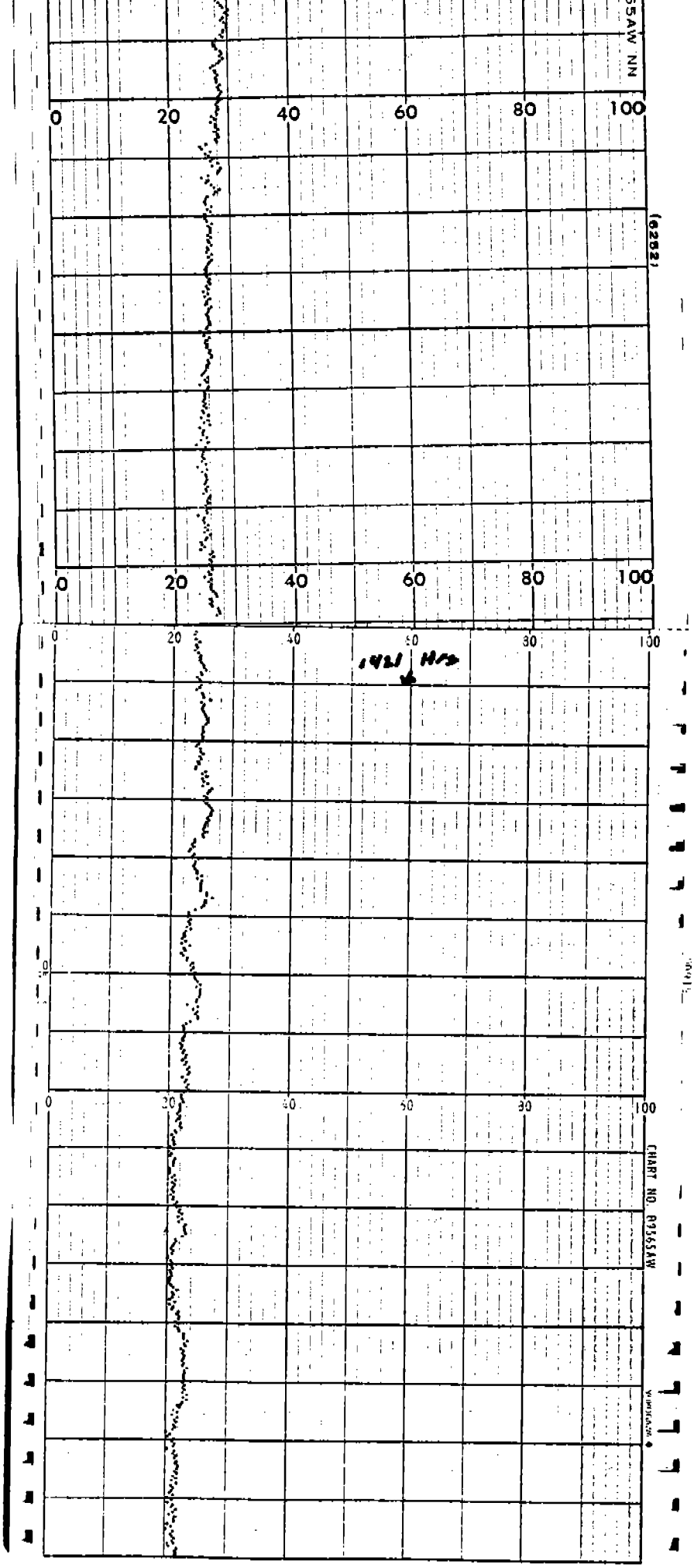
TEST 3
RUN 2

LP-
Corrigan
(cont.)

No. 1
Dryer
Stack

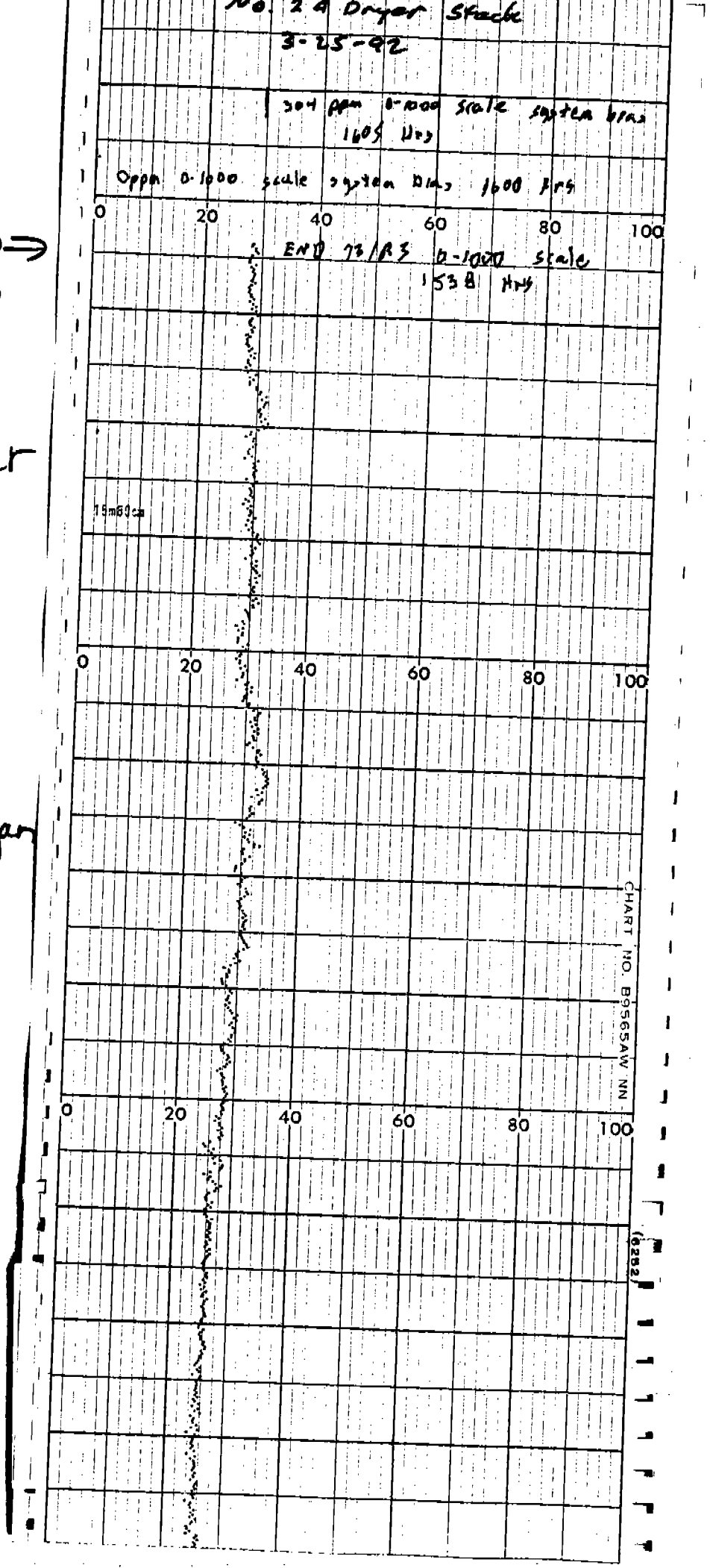



T3R3 START
T3/R3 0-1000 scale
1403 Hrs
304 ppm 0-1000 scale system bias
1338 Hrs
0 ppm 0-100 scale system bias 1334 Hrs
TEST 3 RUN 2 END
END T3/R2 0-1000 scale 1327 Hrs
LP-Corrigan (cont.)
0
20
40
60
80
100
CHART NO B9565AW



LP-
Corrigan
(cont.)

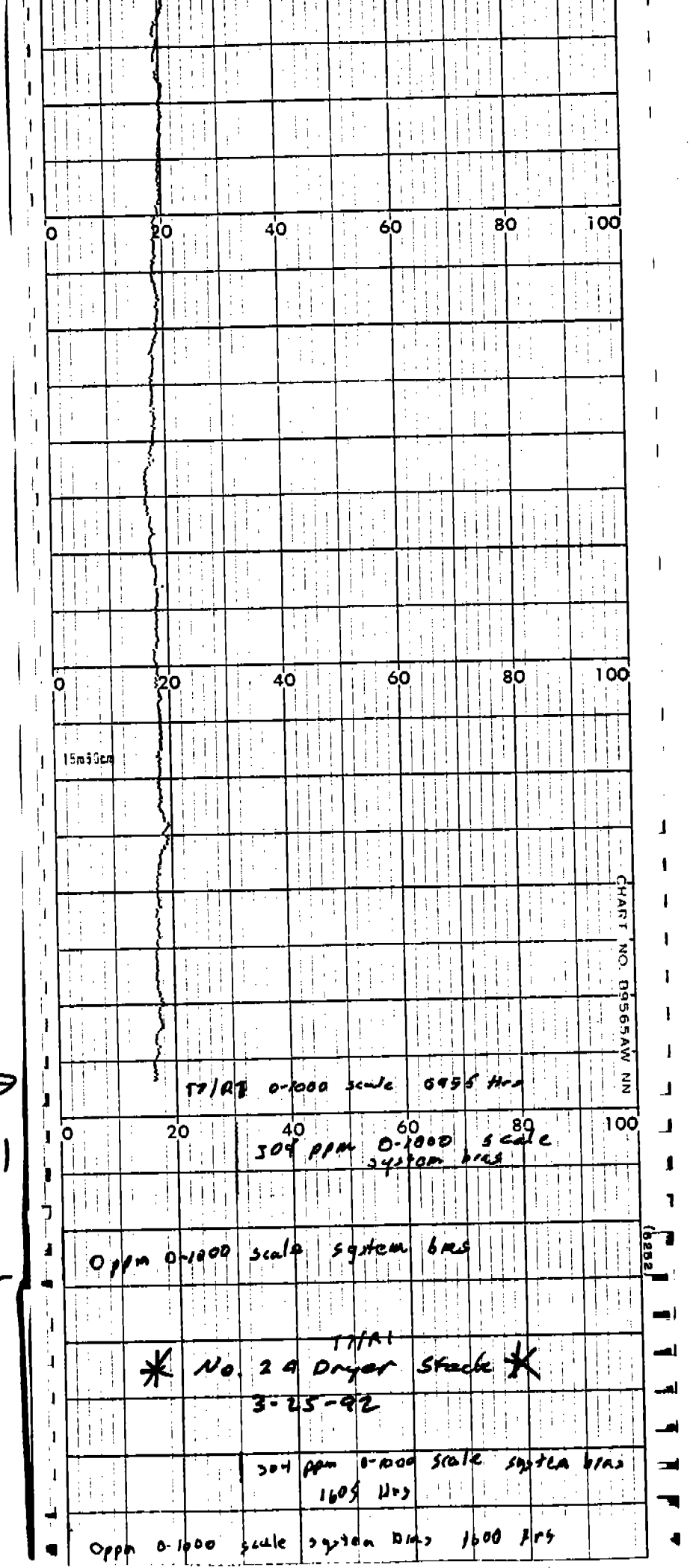
$T_3 R_3$
(cont.)



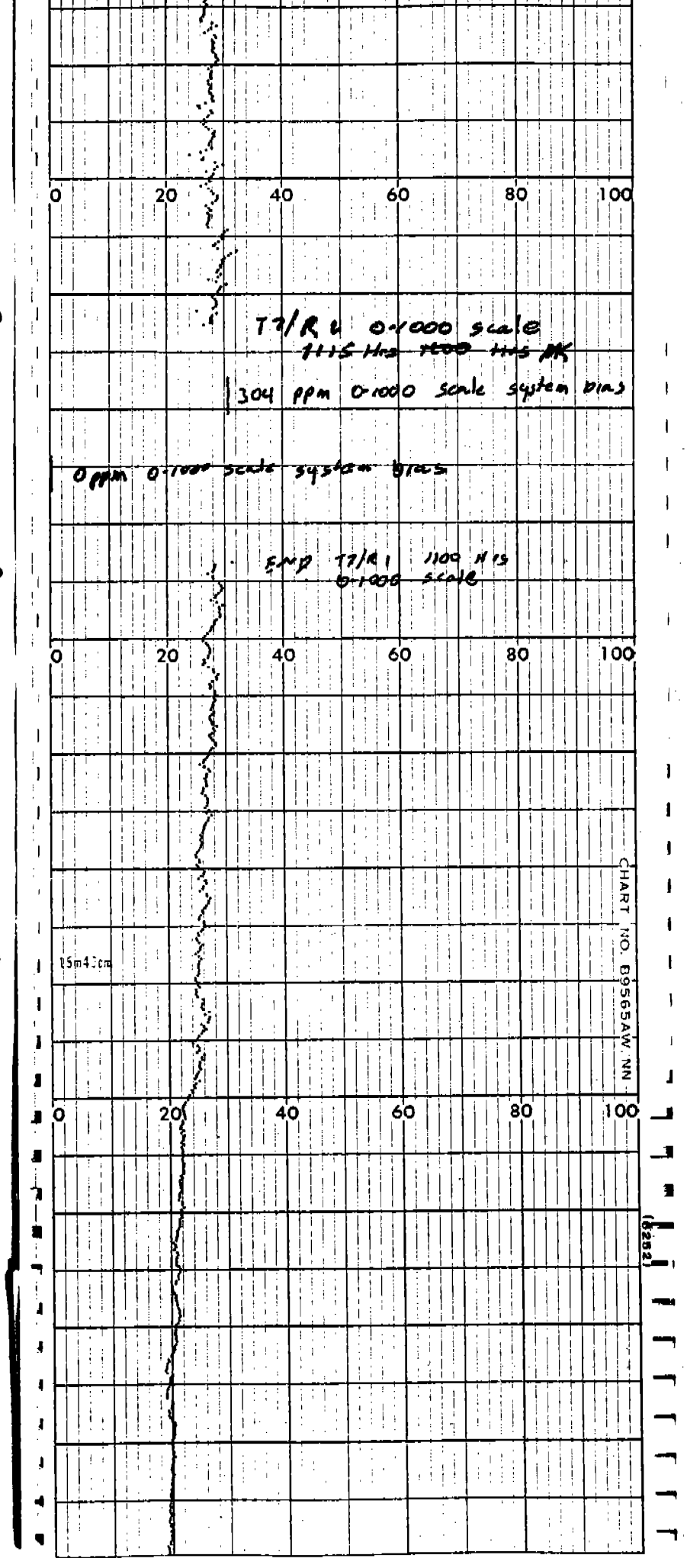
$T_3 R_3 \Rightarrow$ END

No. 1 dryer

LP - Corrigan



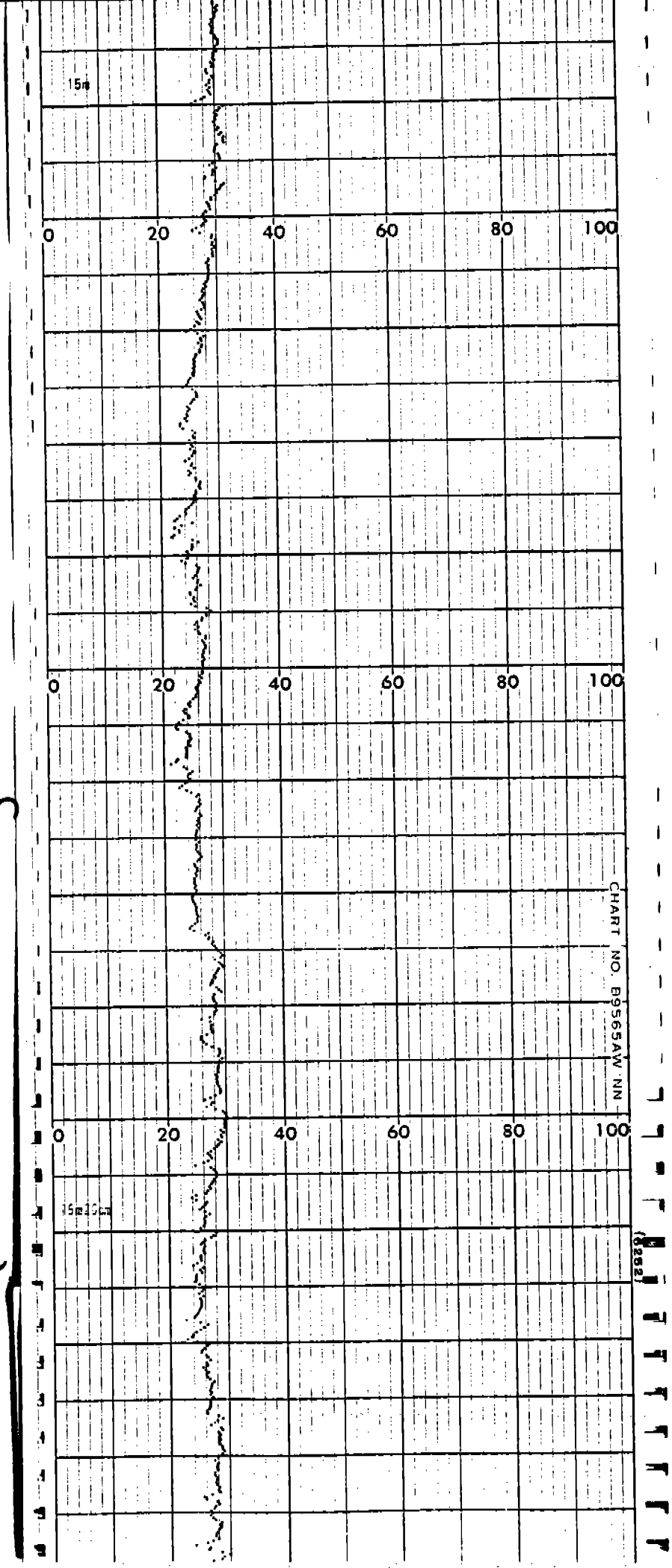
TEST 7
RUN 1
START
No. 2A Dryer Stack



T_7R_2 ⇒ START

T_7R_1 ⇒ END

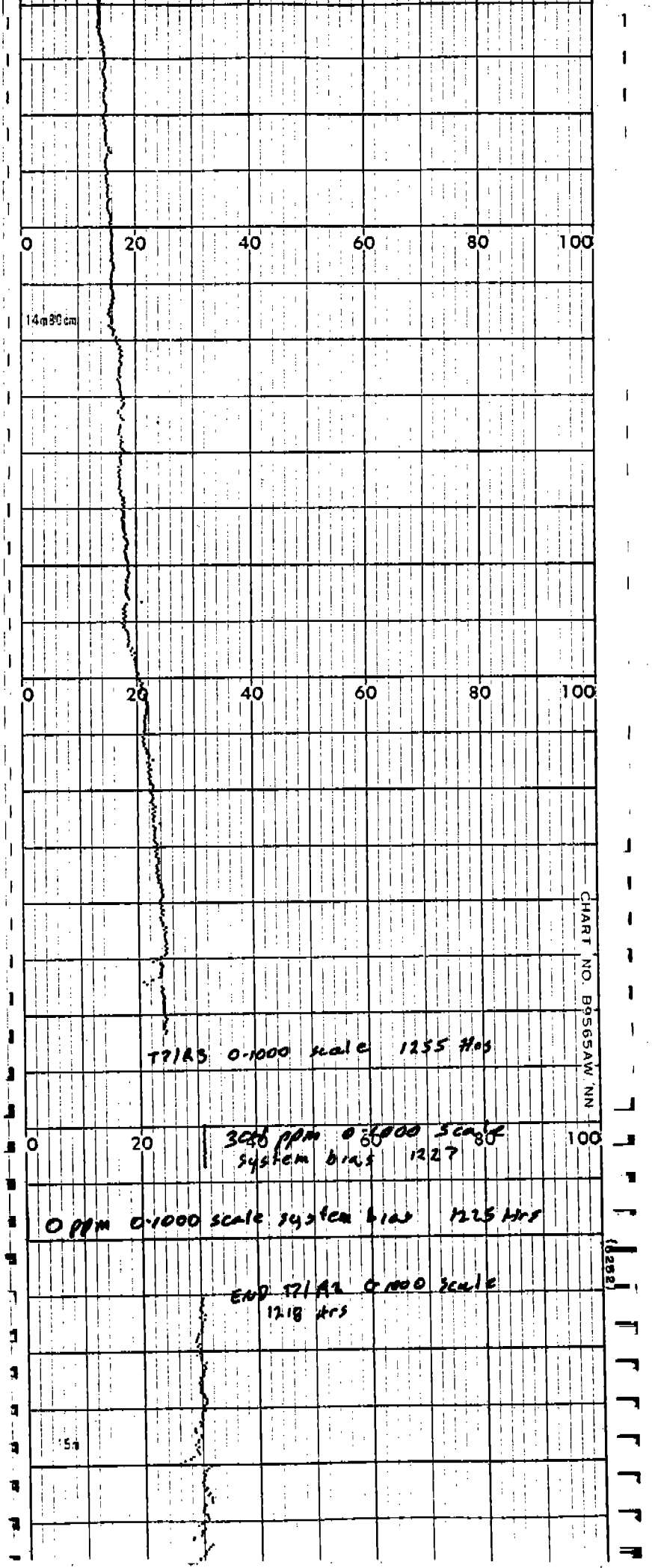
LP-Corrigan (cont.)



LP-
Corrigan

Test 7
Run 2
(cont.)

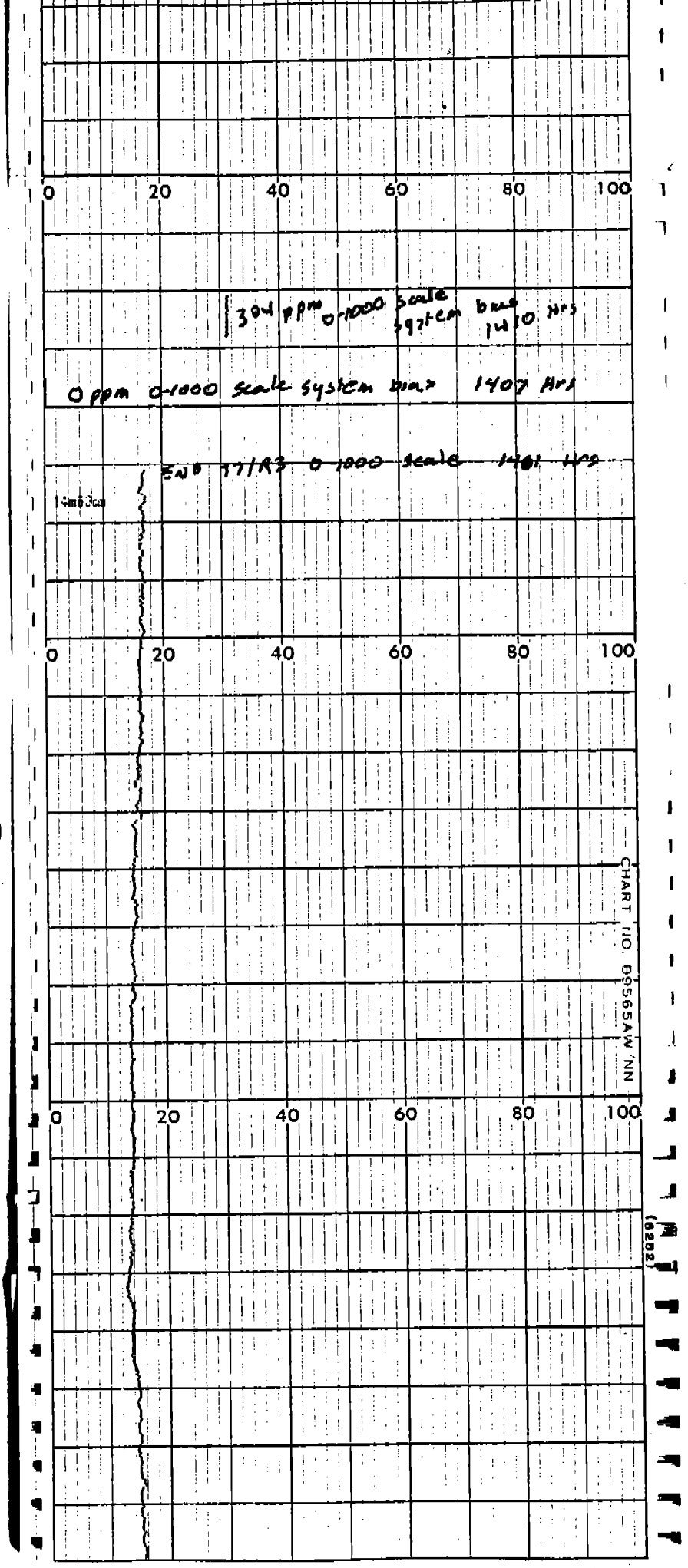
No. 2A
Dryer
Stack



LP–
Corrigan
(cont.)

T_7 Run 3 →
START

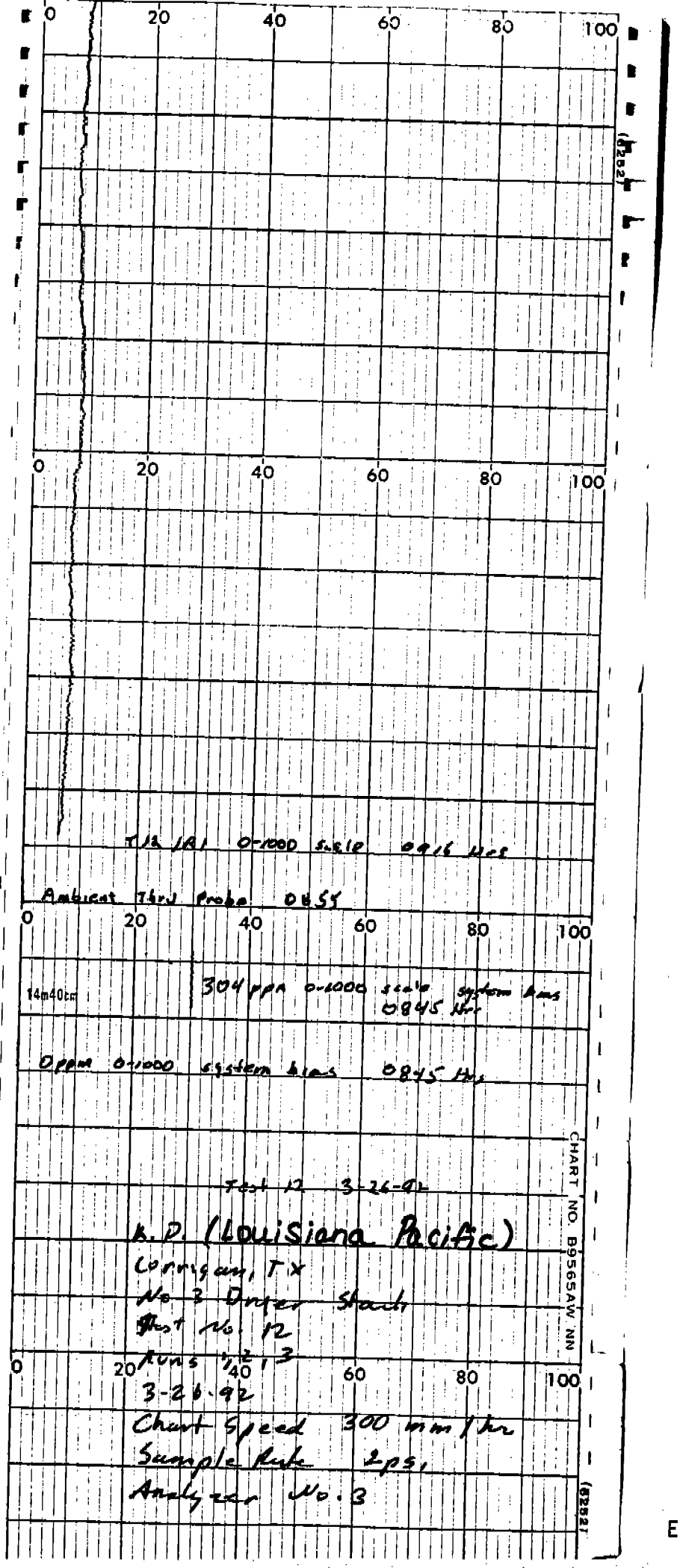
→
$T_7 R_2$
END



T7R3⇒ END

LP-Corrigan (cont.)

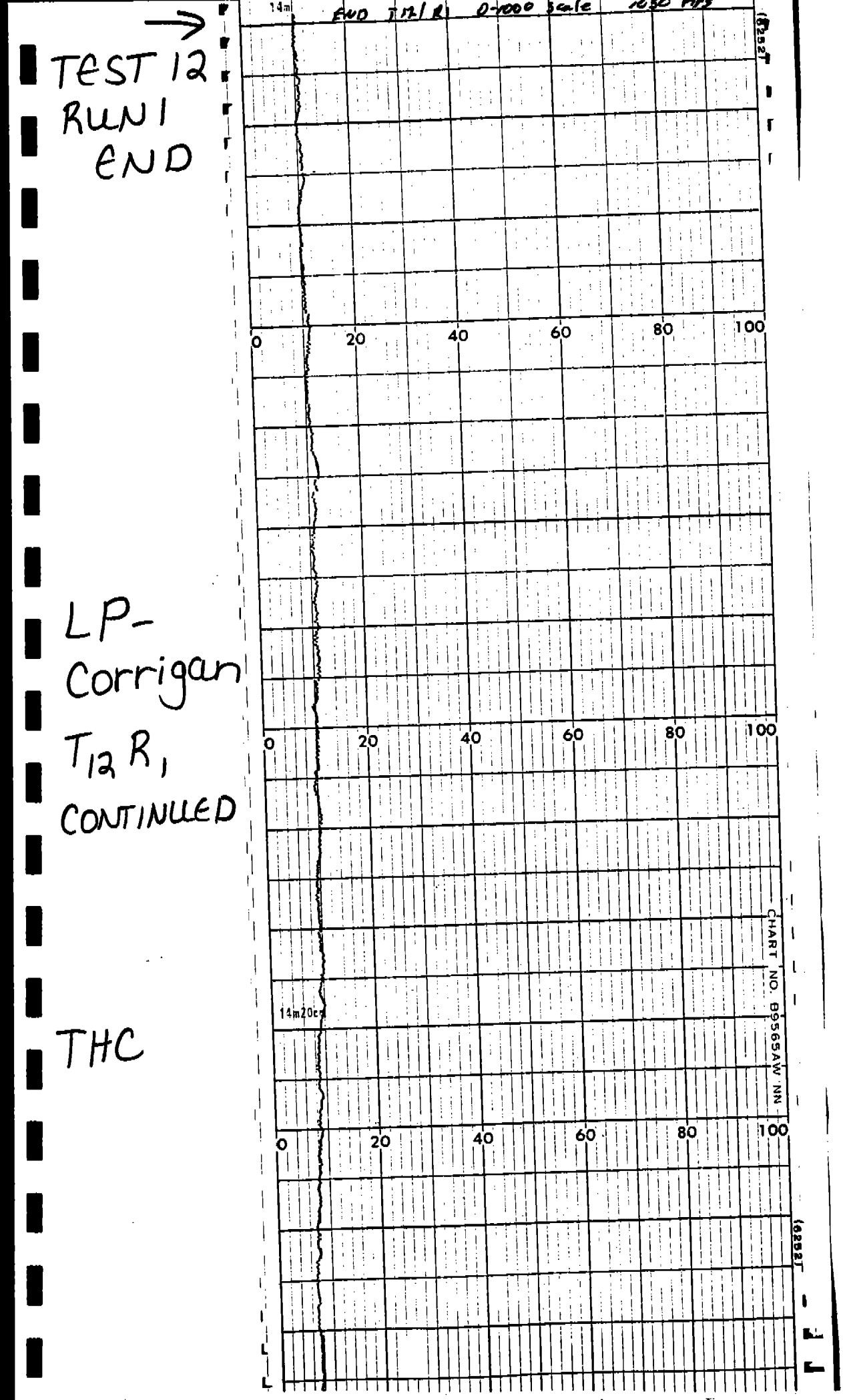
No. 2A Dryer Stack

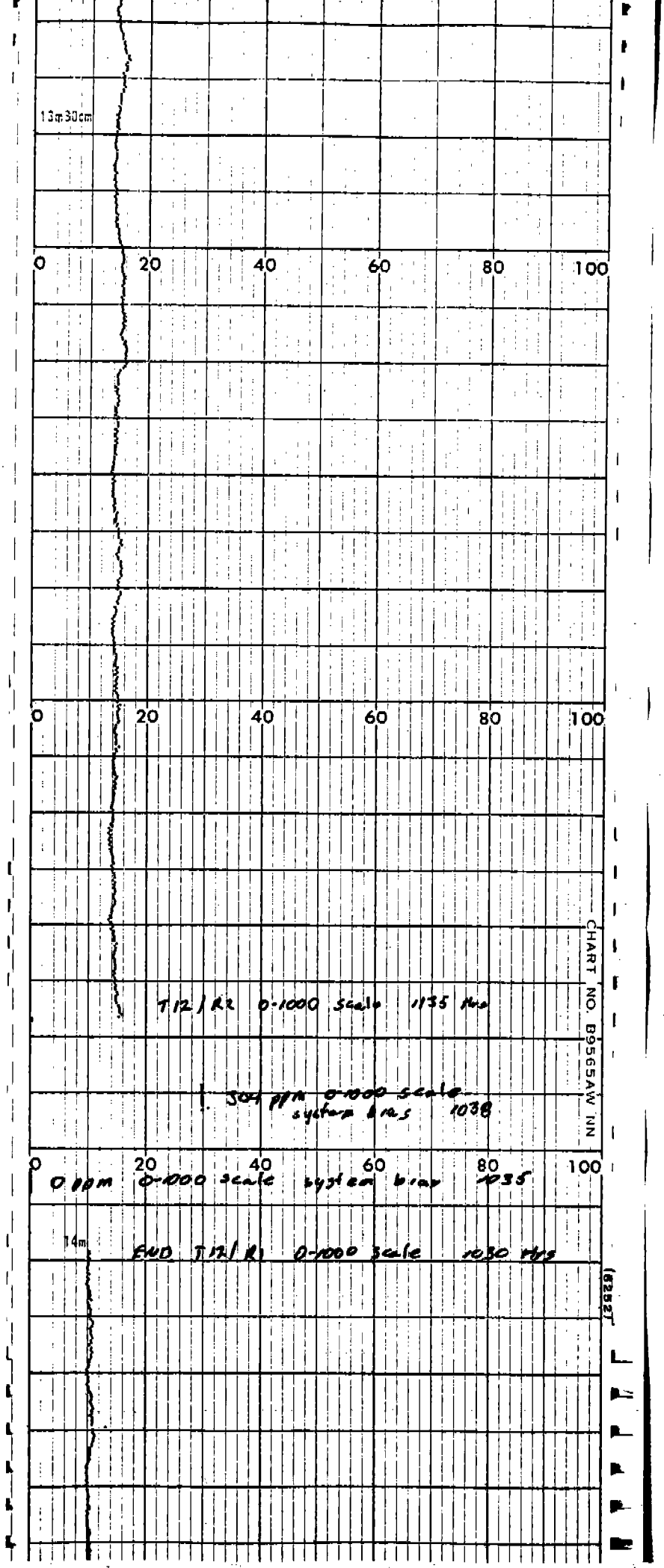


TEST 12
RUN 1
START →

No. 3 Dryer
Stack

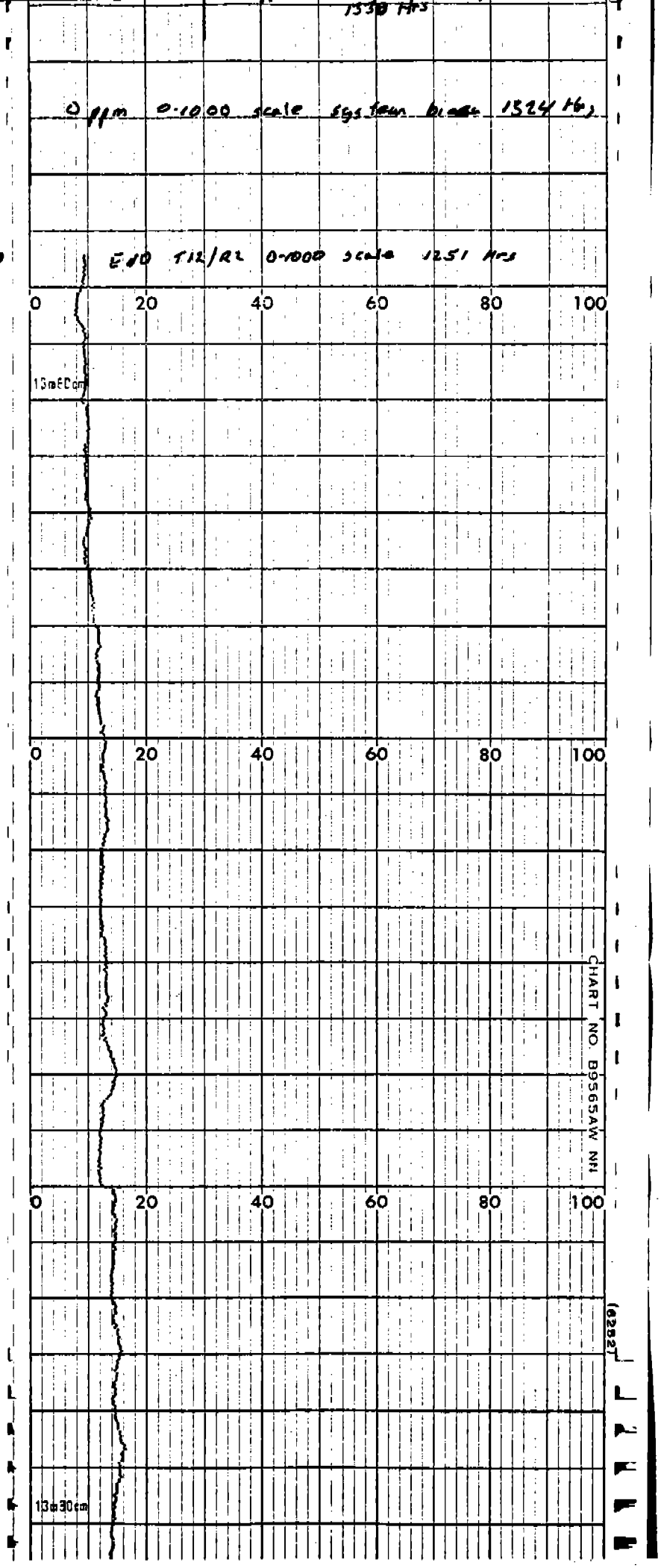
TEST 12
LP-Corrigan
TOTAL
HYDRO-
CARBONS


TEST 12
RUN 1
END
LP-
Corrigan
T12 R1
CONTINUED
THC
14m
END T12/R1 0-1000 Scale 1250 PPS
0
20
40
60
80
100
14m20e
CHART NO. B9565AW NN



TEST 12
RUN 2 →
START

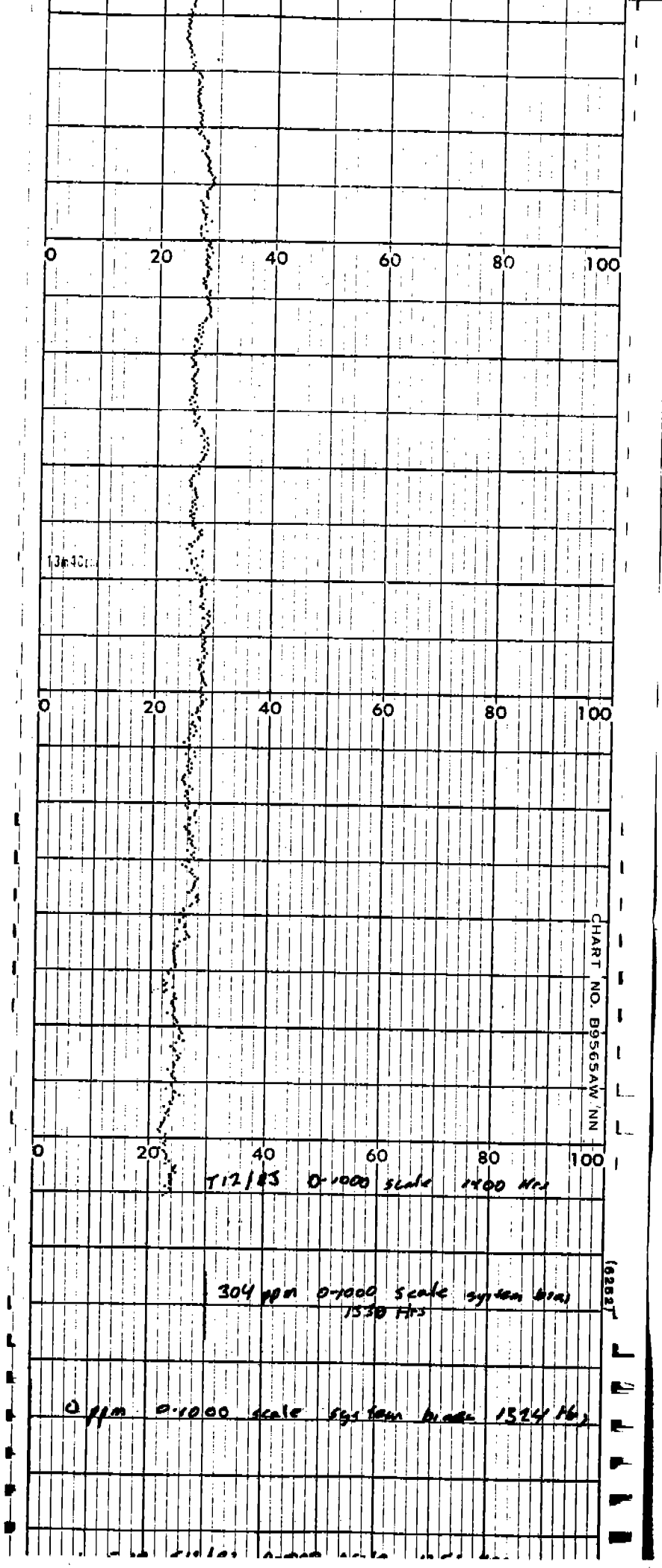
LP-
Corrigan
THC



$T_{12} R_2$ END →

LP-Corrigan (cont.)

THC

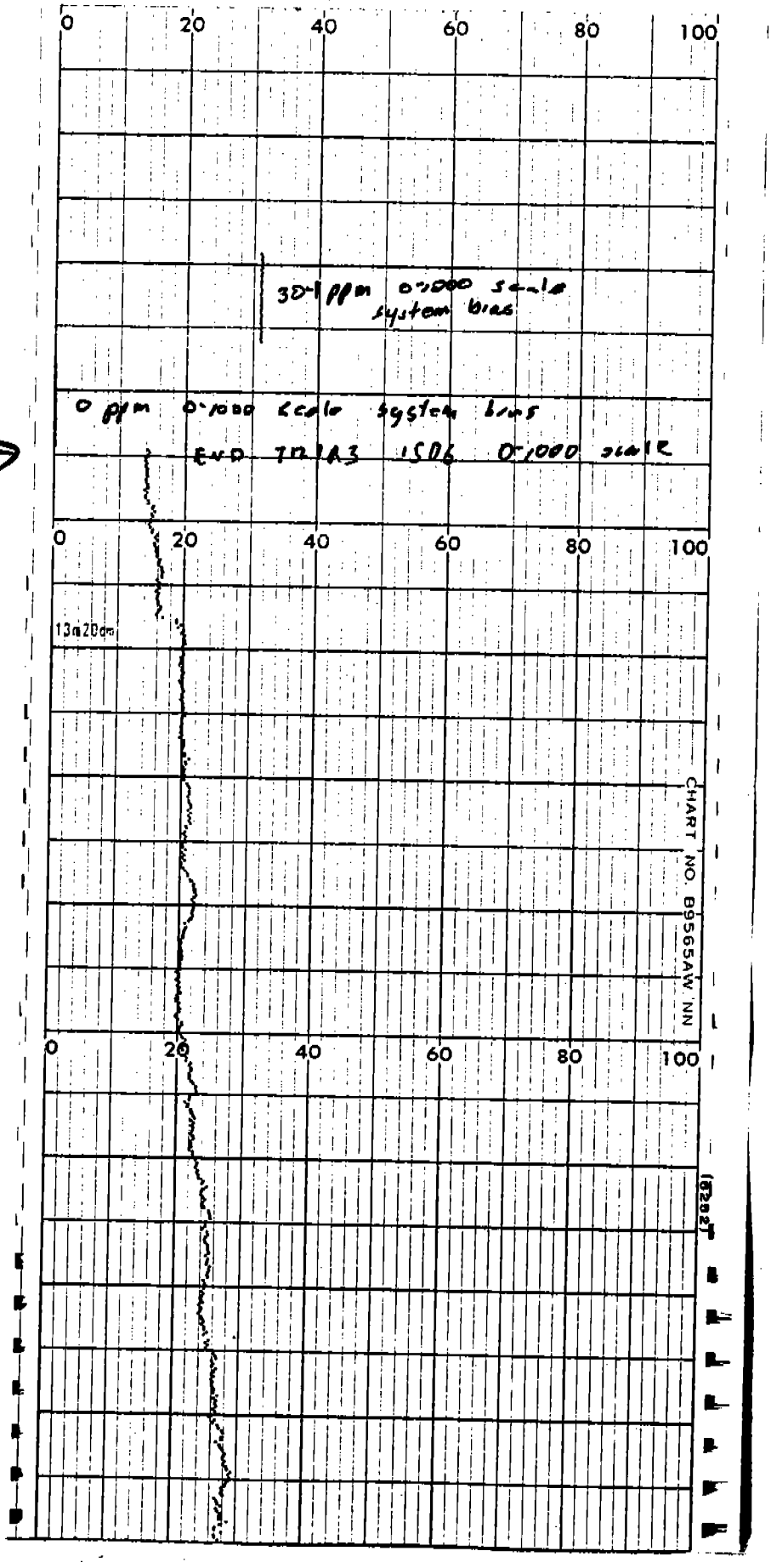


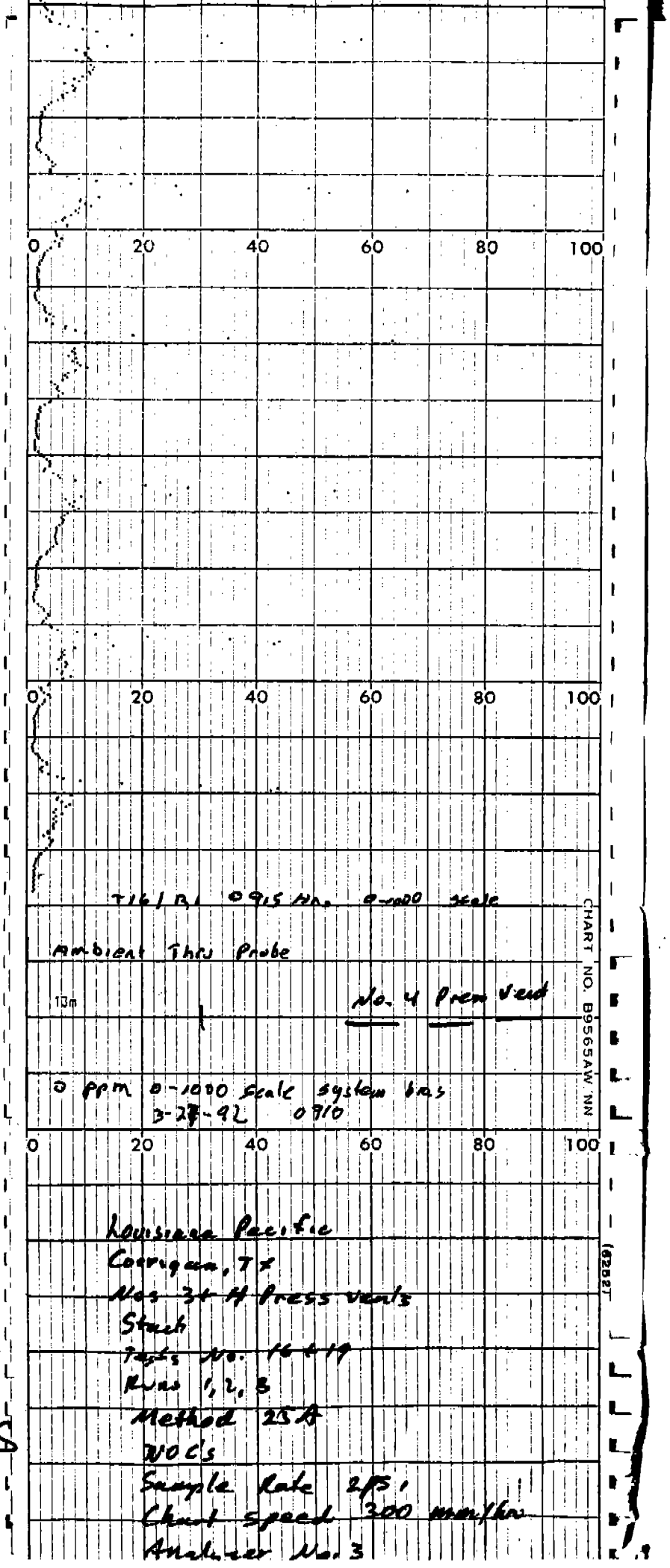
LP-
Corrigan
(cont.)
THC

TEST 12
RUN 3
START

TEST 12
RUN 3 →
END

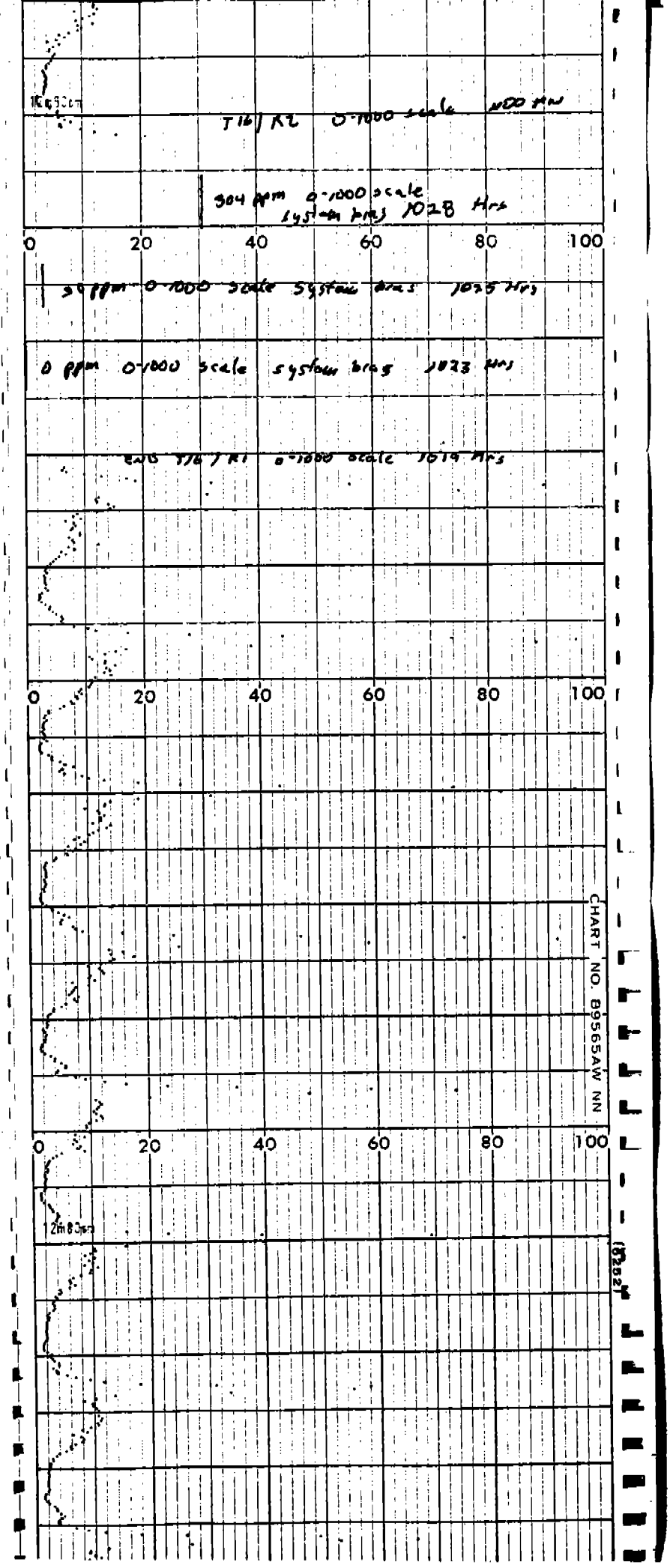
LP-
Corrigan
THC





TEST 16
RUN 1 →
START
No. 4 Press
Vent

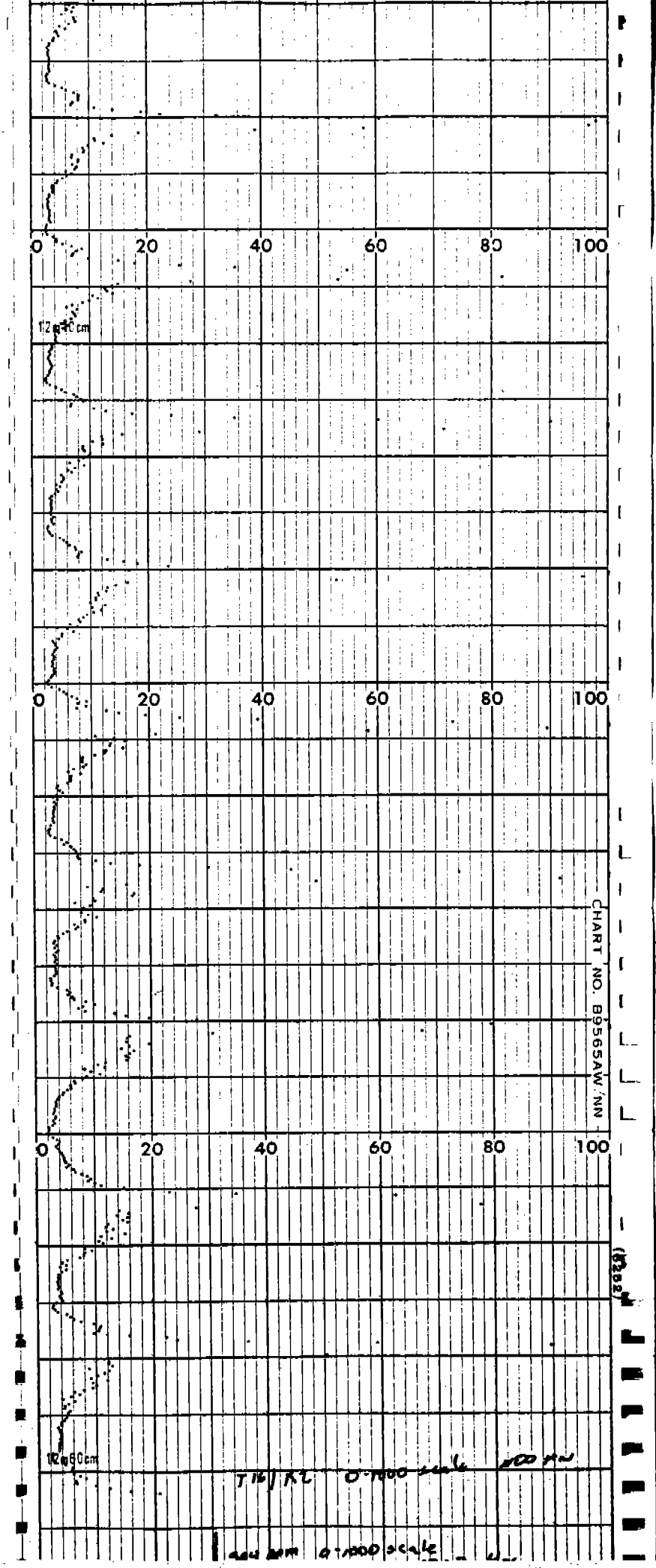
LP-
Corrigan
Total
Hydro-
Carbons



TEST 16
RUN 1
END →

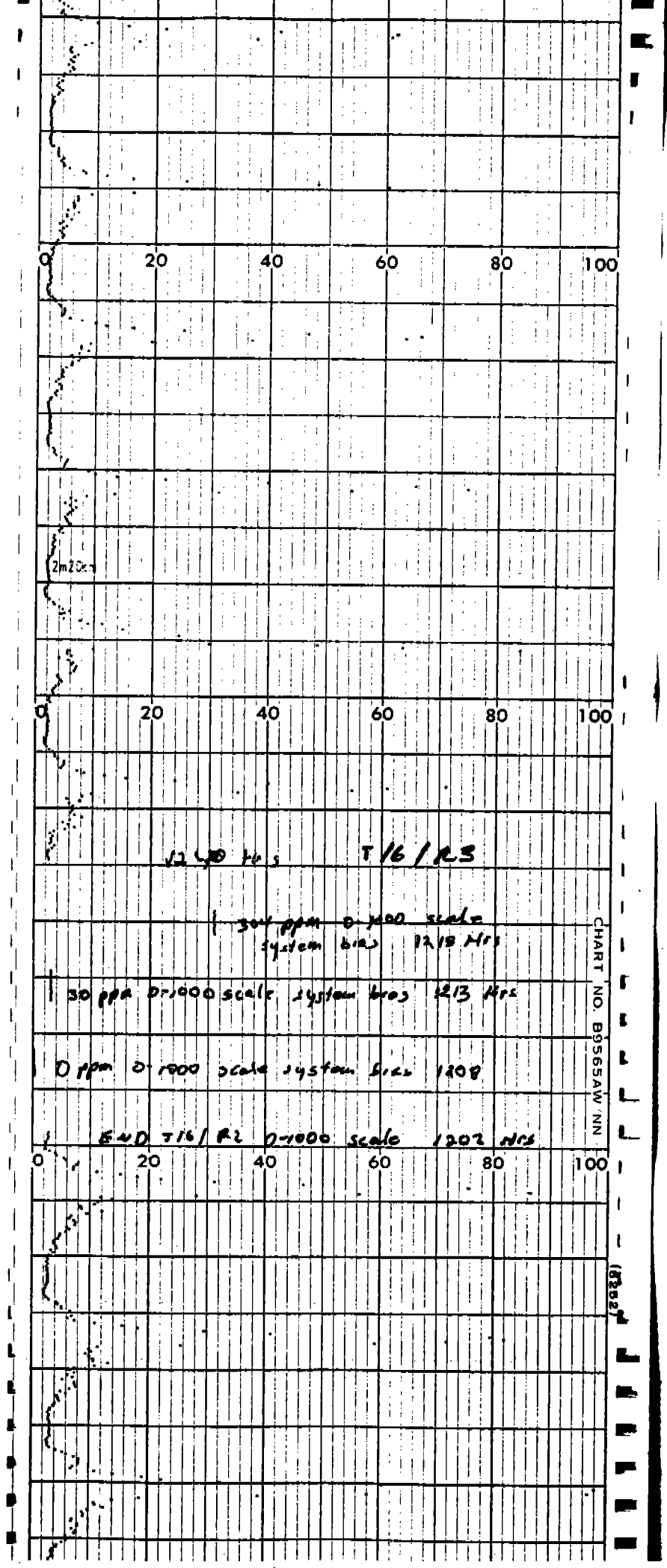
LP-Corrigan
(cont.)

THC



LP-
Corrigan
(cont.)
THC

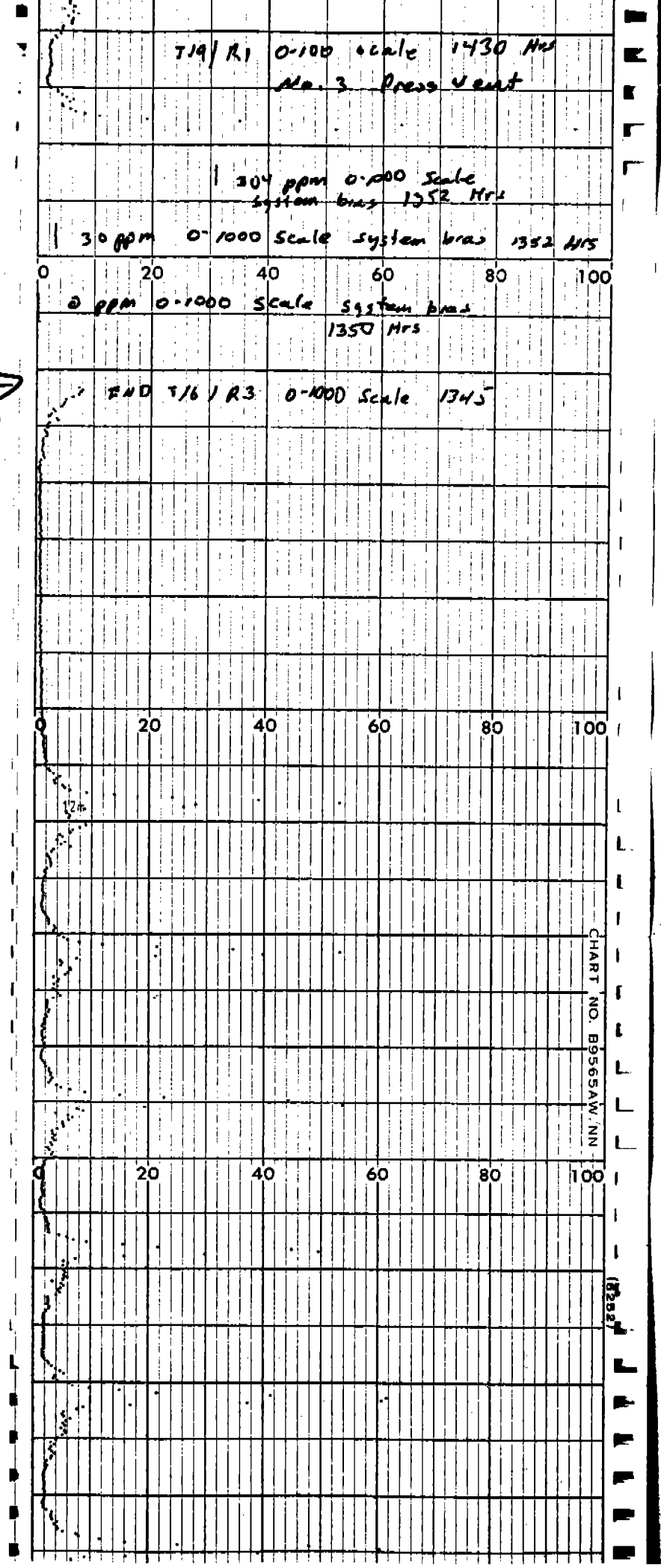
TEST 16
RUN 2
START →



LP-Corrigan (cont.)

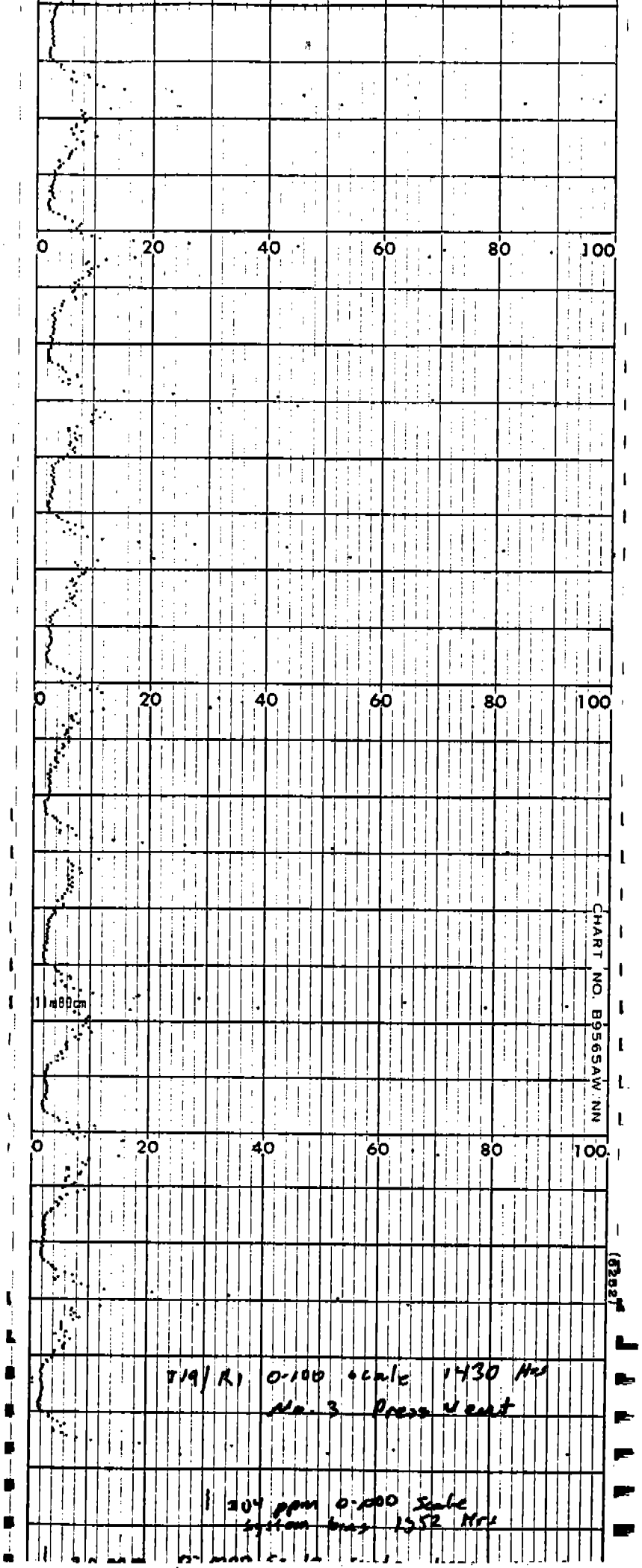
TEST 16 ⇒ RUN 3 START

TEST 16 ⇒ RUN 2 END



TEST 16
RUN 3
END

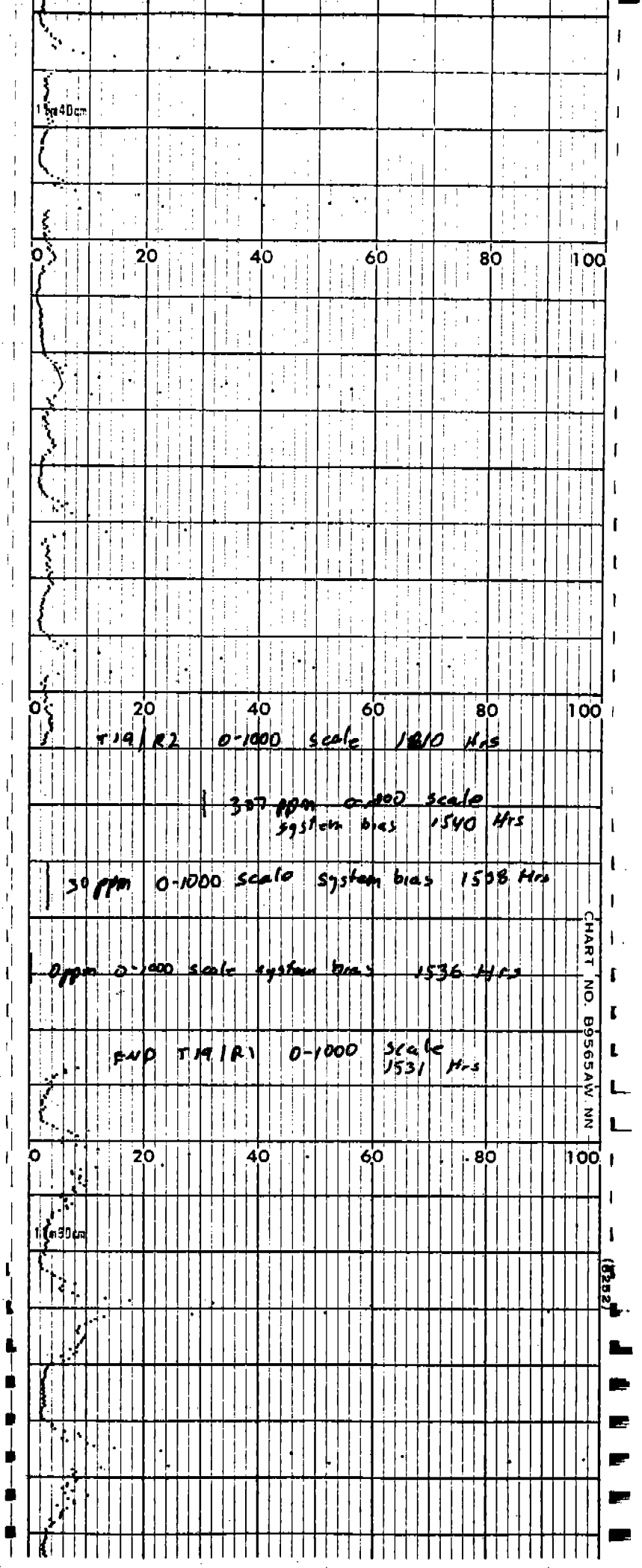
LP-
Corrigan



LP-
Corrigan
(Cont.)

No. 3 Press
Vent

TEST 19
RUN →
START



TEST 19
RUN 2
START

LP-
Corrigan

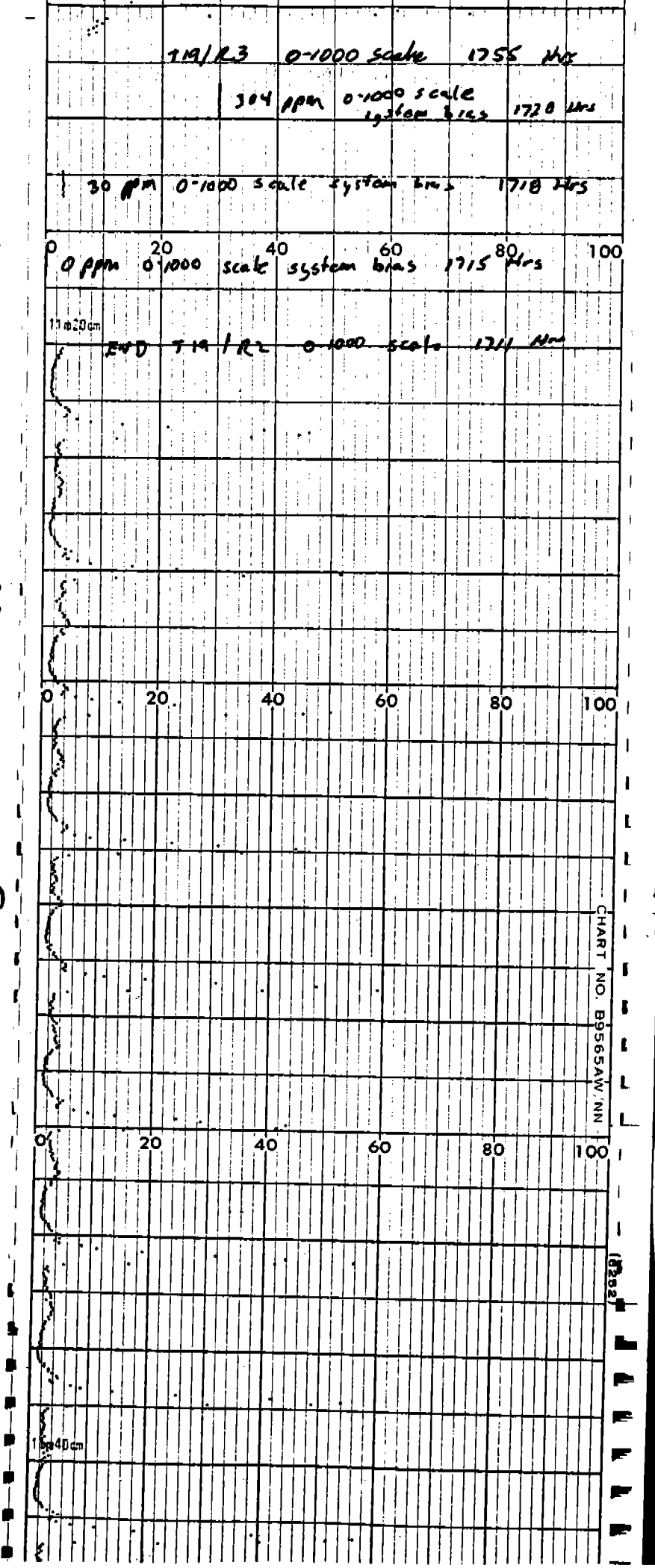
TEST 19
RUN 1
END

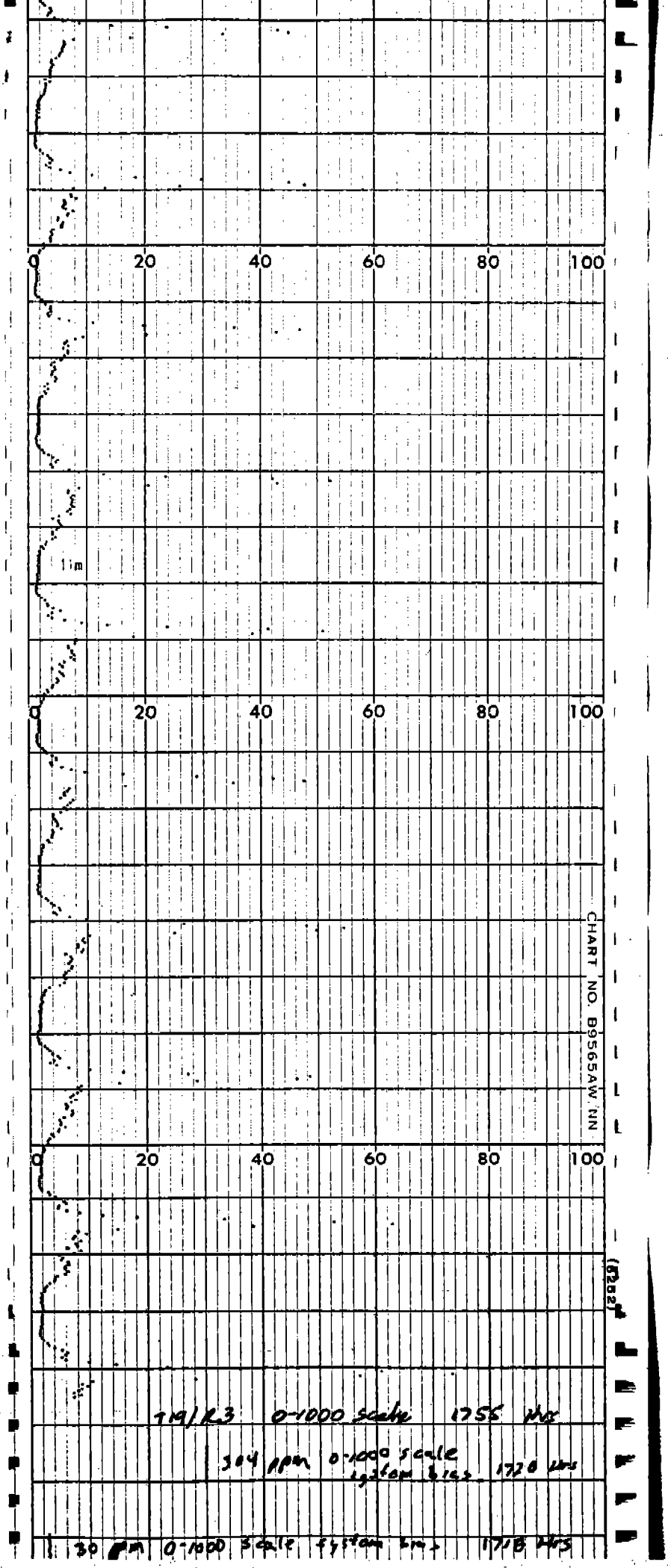
TEST 19
RUN 2
END

NO. 3 Press
Vent

LP-
Corrigan
(cont.)

THC





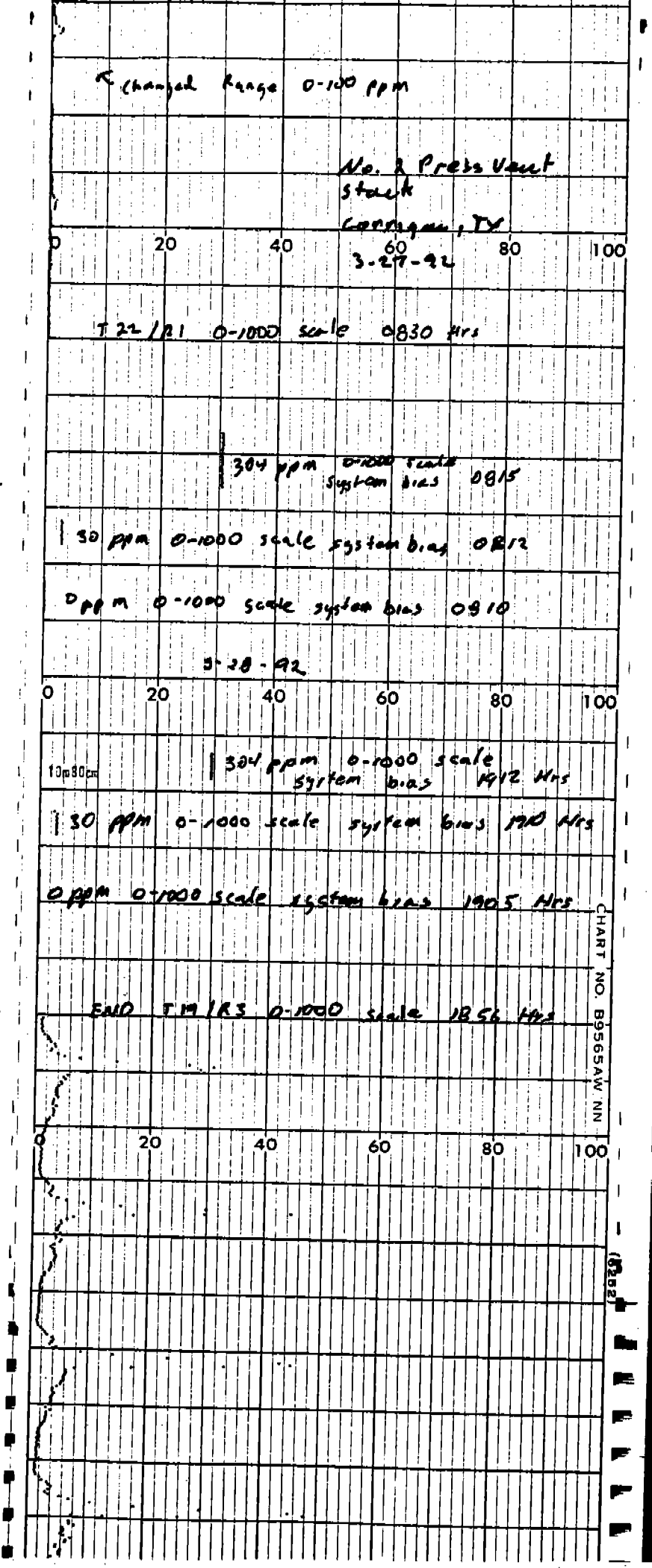
LP-
Corrigan
(cont.)

TEST 19
RUN 3
START →

TEST 22
RUN 1 ⇒
START
No. 2 Press
Vent Stack

LP-
Corrigan
(cont.)

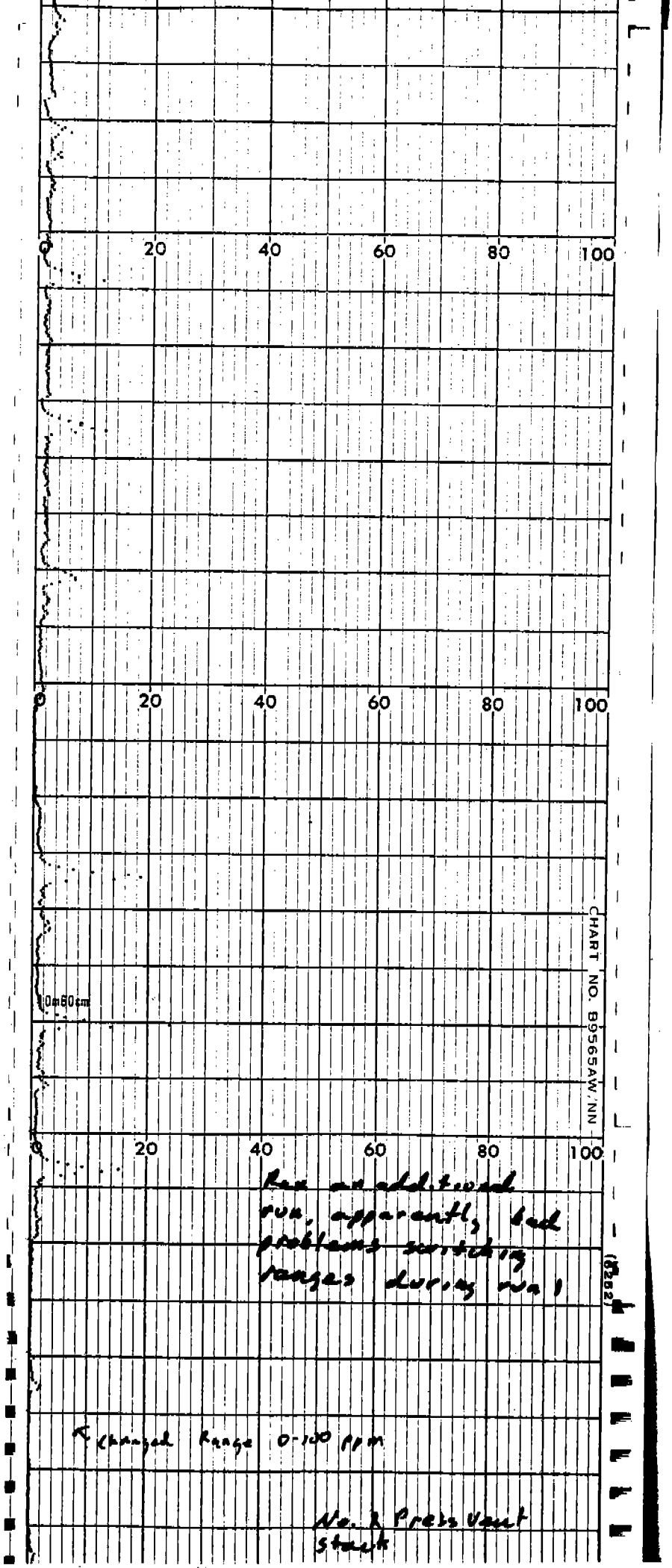
TEST 19
RUN 3 →
END

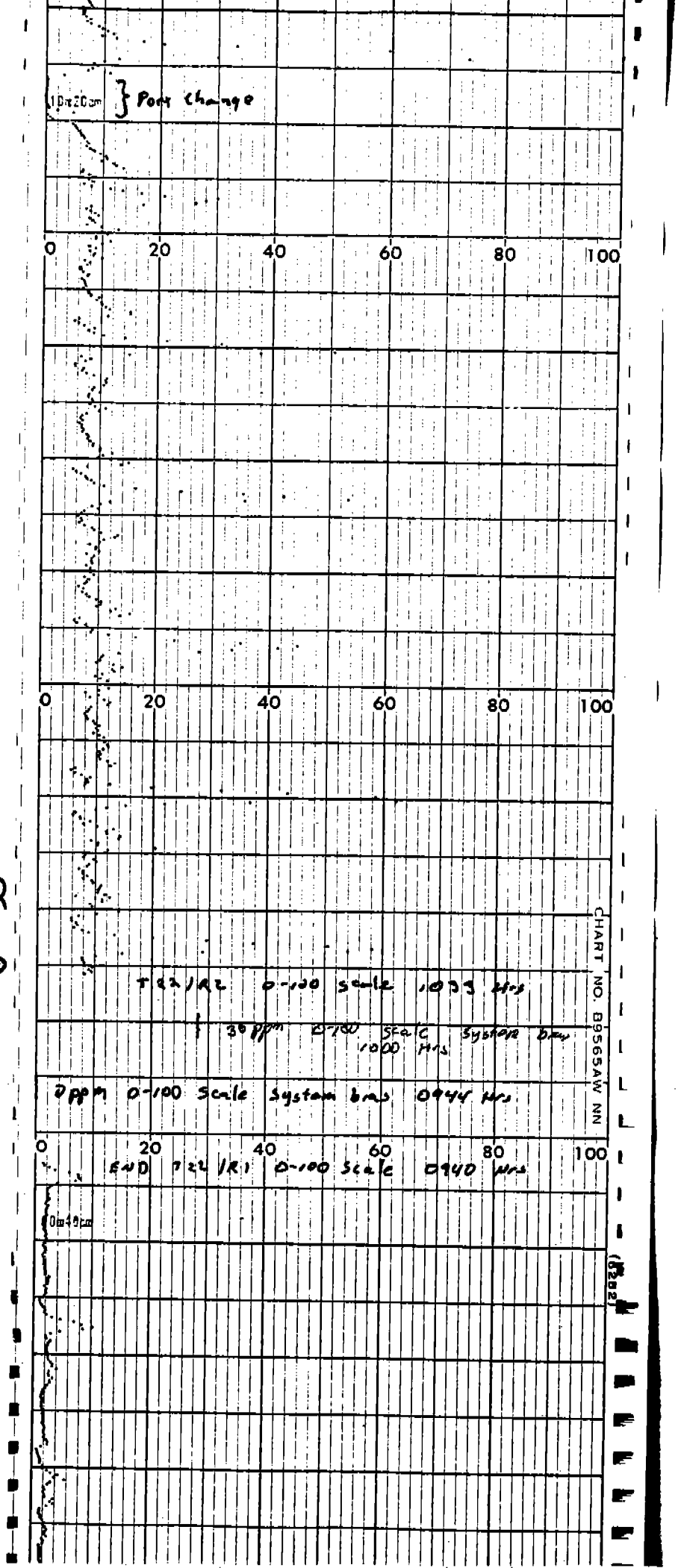


TEST 22
RUN 1
(cont.)

LP-
Corrigan
(cont.)

THC

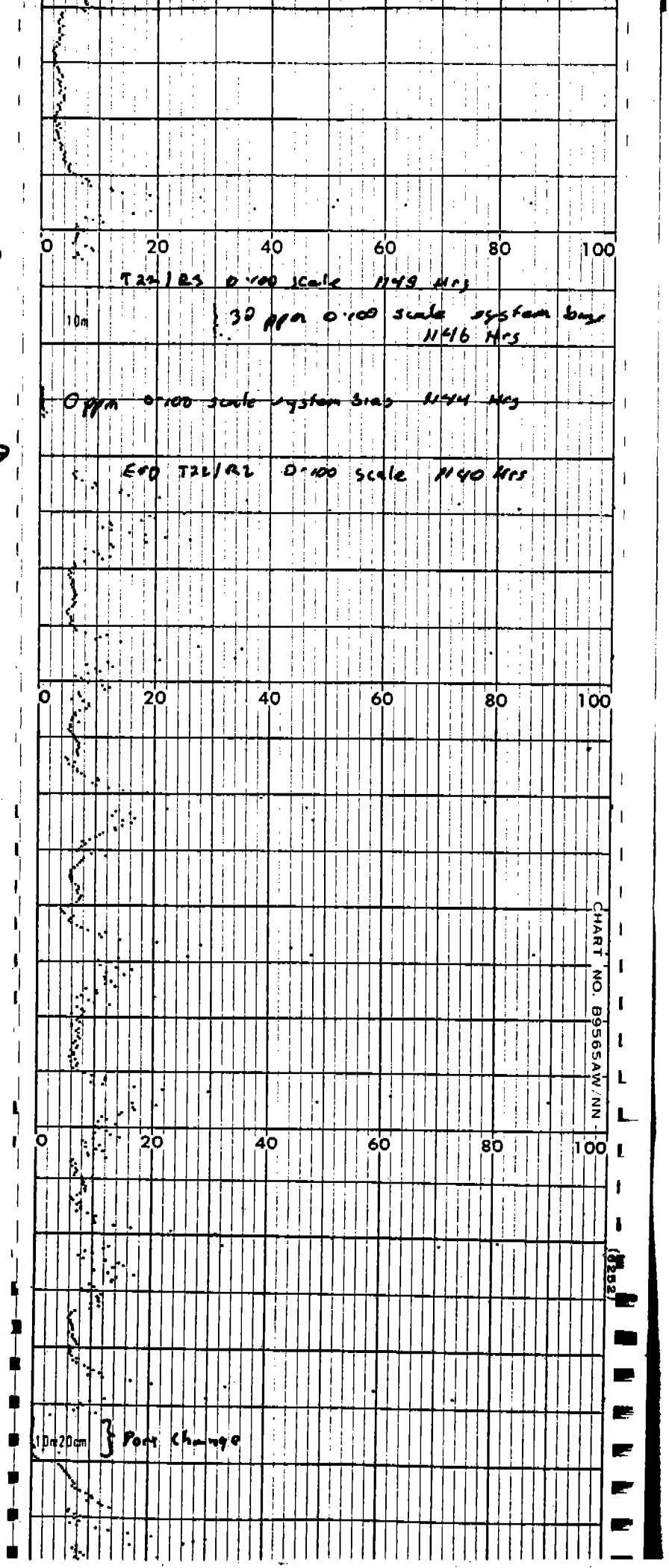




TEST 22
RUN 2
START →

No. 2 Press
Vent Stack

TEST 22
RUN 1
END



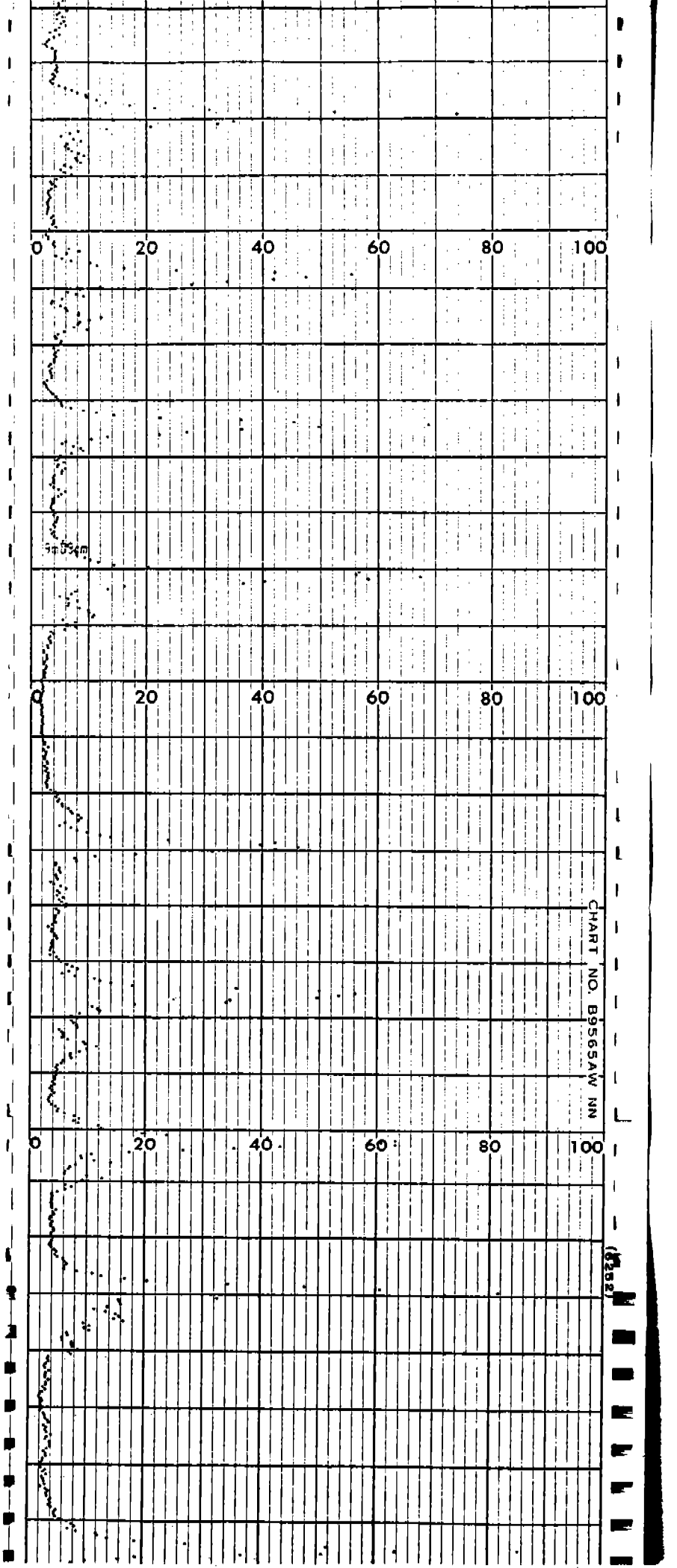
LP-
Corrigan
(cont.)

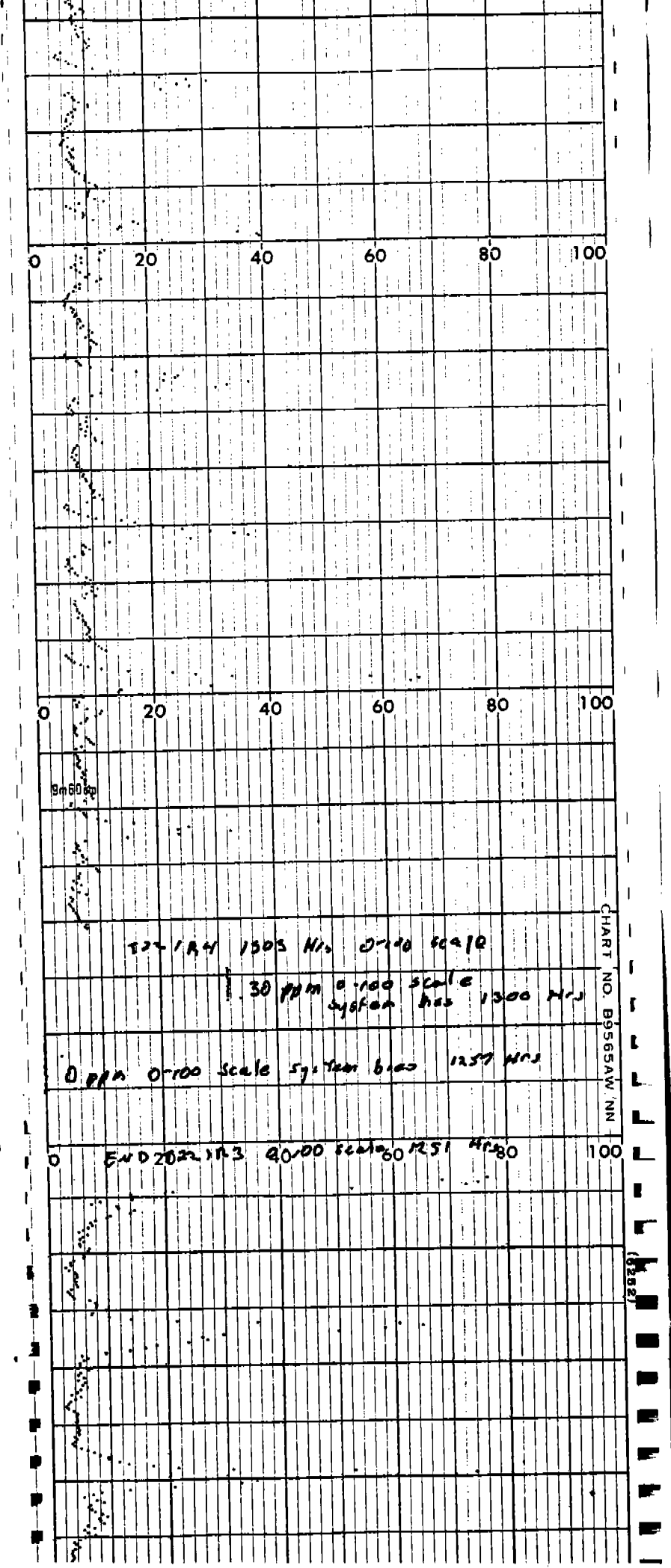
THC

TEST 22
RUN 3
(cont.)

LP-
Corrigan

No. 2
Press vent
Stack





LP-
Corrigan

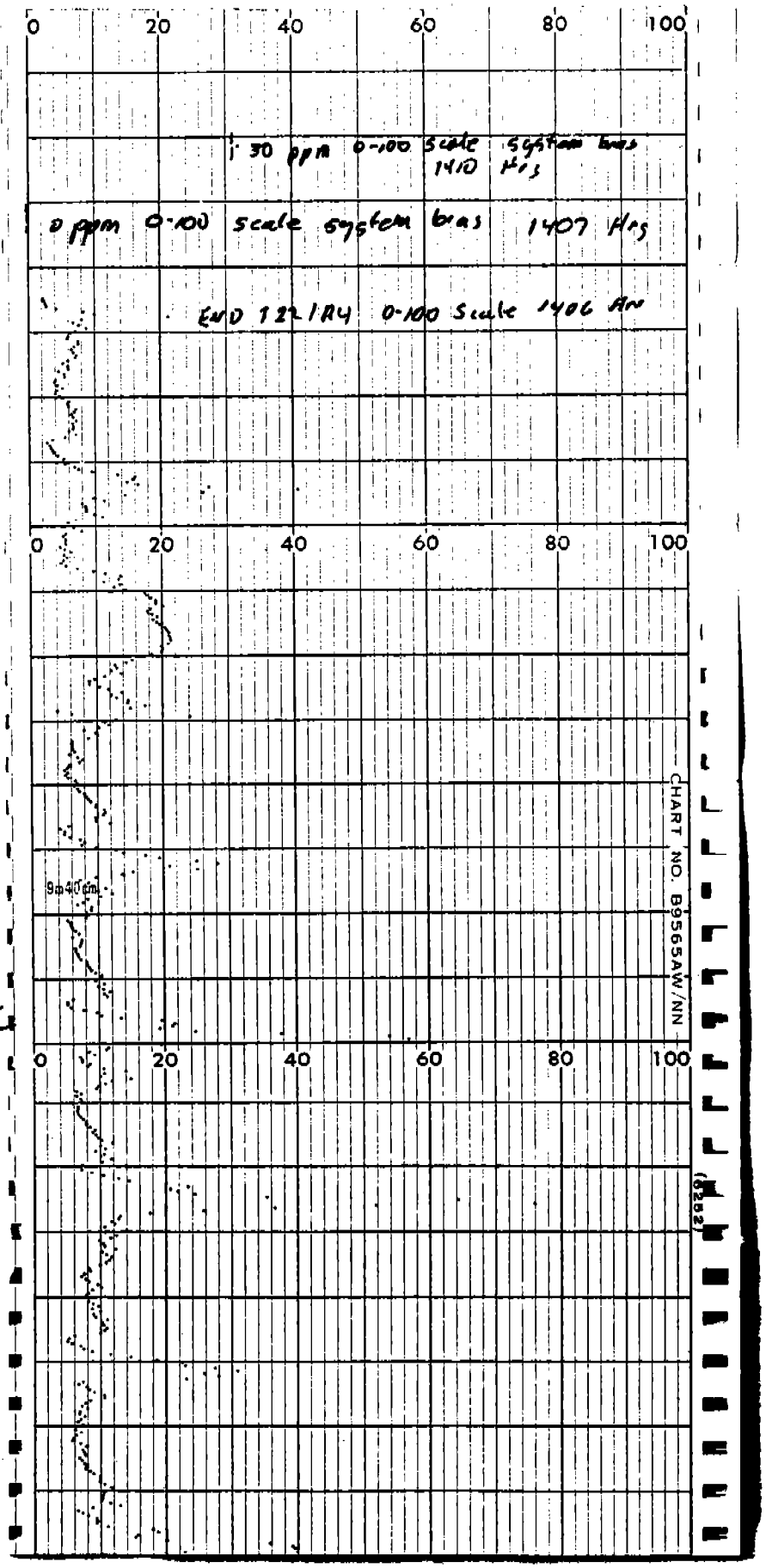
TEST 22
RUN 4
START →

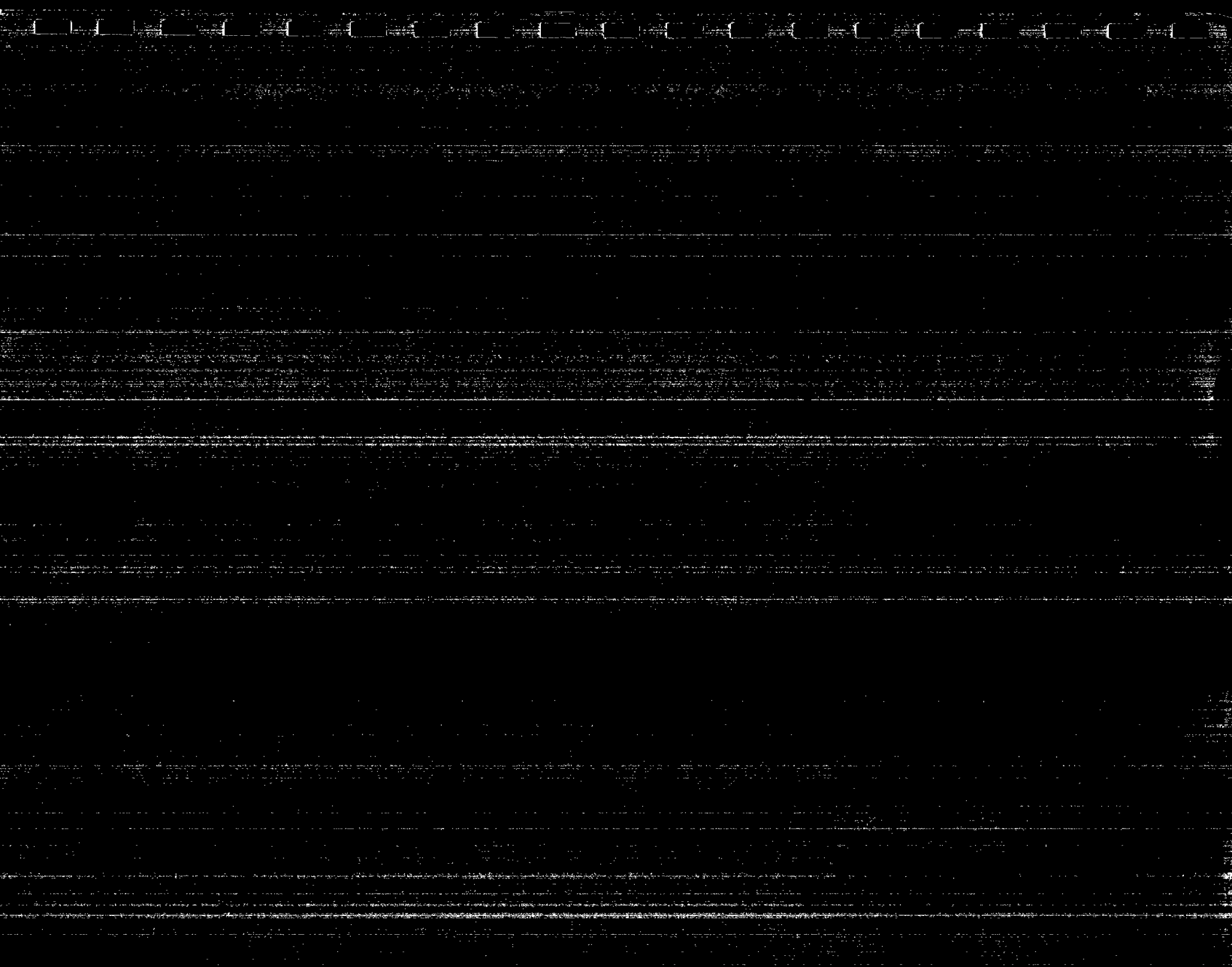
TEST 22
RUN 3
END →

TEST 22
RUN 4
END

LP-
Corrigan

No. 2
Press vent
Stack





Ratfisch INSTRUMENTE

TOTAL HYDROCARBON ANALYZER (FLAME IONIZATION
Model RS 55

TECHNICAL DATES

MAINS : 115V/60H
RECORDER OUTPUT : 0 - 5 V / 4-20mA

MODEL: X Manual switching
__ Solenoid valves
HOUSING: __ Case, __ 19"-Rack
MEASURING RANGES:

1 = 0 –	10	C_1-
2 = 0 –	100	C_1
3 = 0 –	1,000	C_1
4 = 0 –	10,000	C_1

SPECIAL OPTIONS:

Flame out alarm .....
1 Alarm .....
Sample line .....
.....

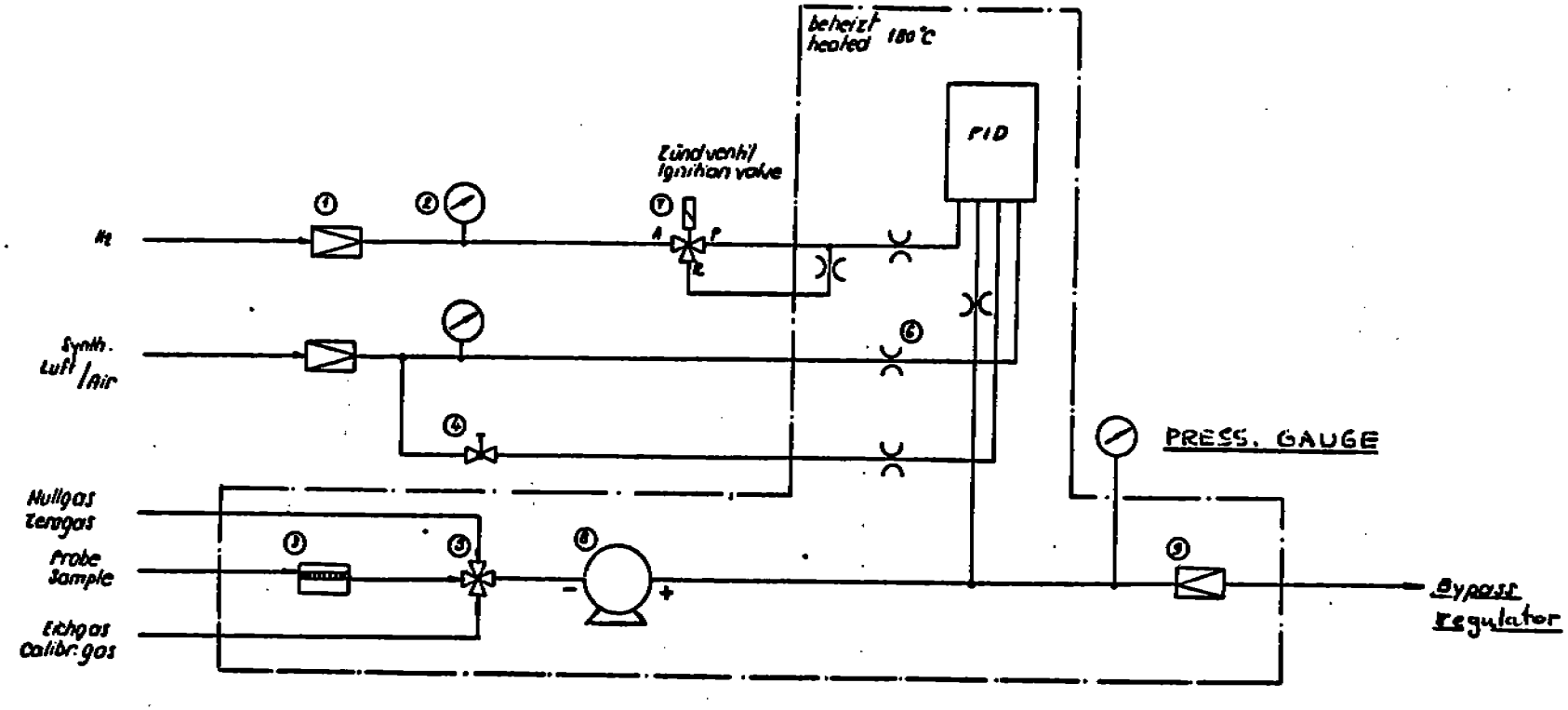
ANALYZER CONDITIONS:

Temperature : 160 °C

Zero Point : 3,90
Gain : 7,70

Pressure Setting: Sample/Spangas/Zerogas: 200 mbar
Fuel: Hydrogen : 0,35 bar
Combustion Air : 0,80 bar

Span Gases : 300 ppm C_1
24.000 ppm C_1



1 Druckregler
Pressure regulator
2 Manometer
Gauge
3 Filter
4 Nadelventil
Needle valve
5 3 Wege Ventil
3 way valve
6 Kapillare
capillary
7 Magnet Ventil
Solenoid valve
8 Pumpe
pump
9 Rückdruckregler
Boot pressure regulator

Zündventil
Ignition valve

P-A angezogen
energised
R-A stromlos
at rest

Handumschaltung
Manuel switching

Ratfisch
INSTRUMENTE
Analysen-Systeme · Donaustauf

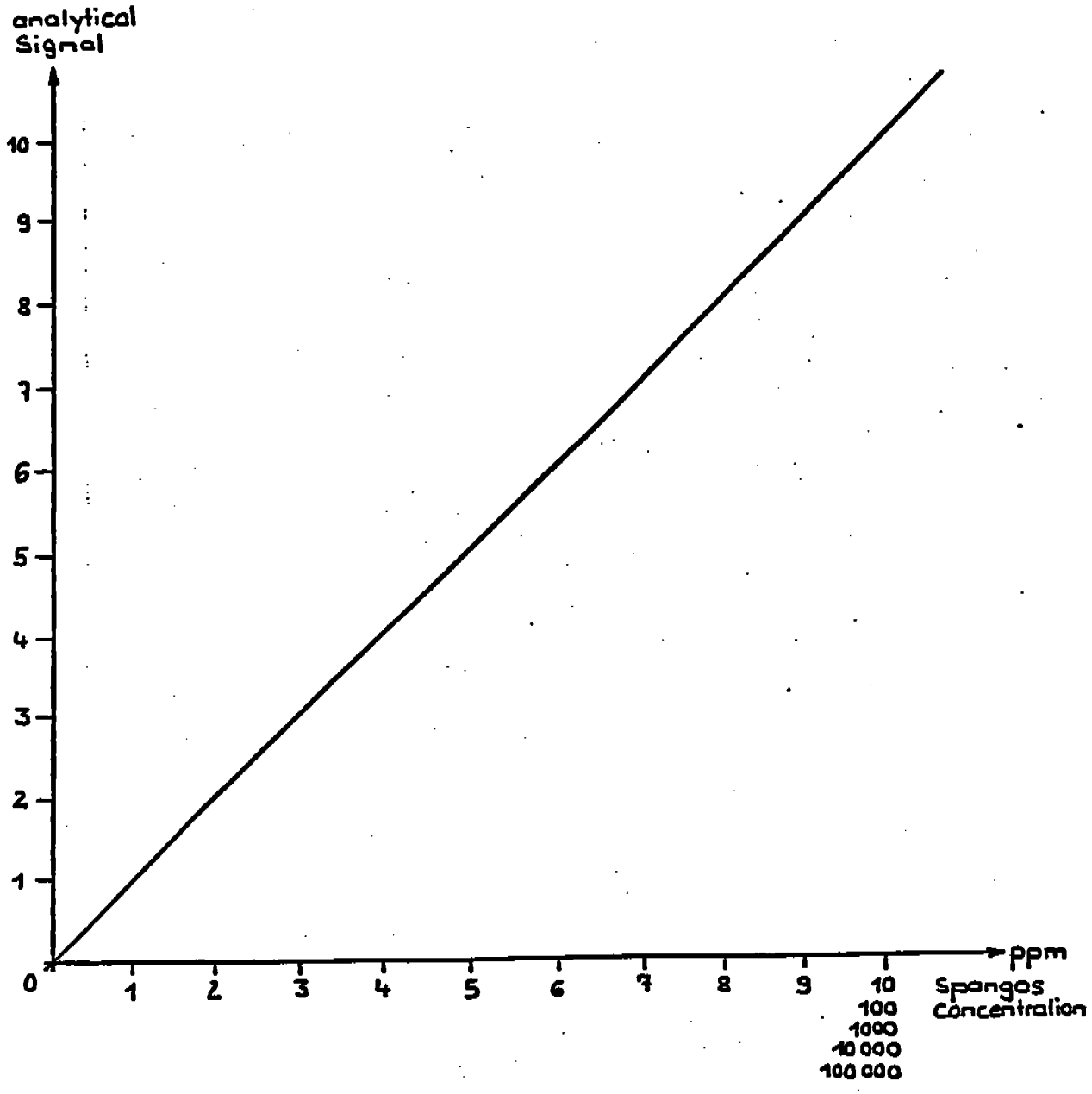
FLAMMEN IONISATIONS DETEKTOR
Flame Ionisation Detector

Fließplan
Flowdiagram

RS 55

13.04.88 dk

CALIBRATION DIAGRAMM



APPENDIX A

PLAINTIFF'S STEEL PURCHASE SPECIAL TOOLS

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, TX

Source No. 1 Dryer / Stack

Test #3 Run 0 Date 3-24-92

Stack dimen. 48 IN.

Dry bulb ____ °F Wet bulb ____ °F

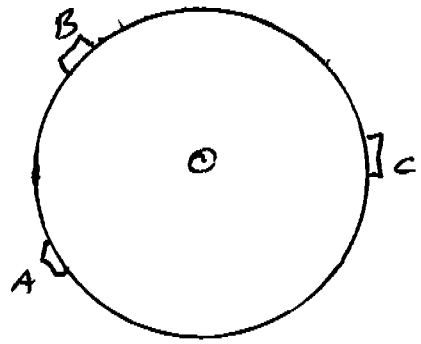
Manometer: ☐ Reg. ☐ Exp. ☐ Elec.

Barometric pressure 29.83 in Hg

Static pressure -.75 in WC

Operators M. Lackler & C. Masser

Pitot No. Inst Cp NA



Schematic of Cross Section

Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length: 6 in.		Time start:	hrs
E-1	1/6	8.00	14.00		
2	3/6	24.00	30.00		
3	5/6	40.00	46.00		

INTERPOLL LABORATORIES
EPA Method 25A
Calibration Error Check & Drift Determination

Job Louisiana Pac. Co. / Corrigan, TX

Test #3 Run 1,2,3 Date 3-28-92
Operator M. Kaechler & C. Mosser

THC Calibration (Low Range): Time (HRS) 0845

*** A	Cylinder Value (ppm)	Analyzer Response (ppm)	Difference (ppm)	Span Value (ppm)	Percent of Span
Zero gas	0	0	0	100	0
Low level	30	30	0	100	0
Mid level	304	307	3	1000	.003
High level	3038	3042	4	10000	.0004

THC Calibration (High Range): Time (HRS) _____

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

O_2 Calibration: Time (HRS) _____

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

CO_2 Calibration: Time (HRS) _____

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

Must be within 2% of the span for each calibration gas S-420-14

INTERPOLL LABORATORIES
(612) 786-6020

___ System Bias Check

Job Louisiana Pacific / Corrigan, TX Source No. 1 Dryer /
Test 22 Run 1,2,3 Date 3-24-92 Site Stack
Operator Wikoehler & C. Moser

Run	Time (HRS)	***	Cylinder Value (ppm)	Analyzer Resp (ppm)		Diff. CE-SB (ppm)	Span Val (PPM)	% of span
				Cal Err	Sys Bias			
1	0910	Zero gas	0	0	1	1	100	1
		Upscale	30	30	29	1	100	1
2	1125	Zero gas	0	0	1	1	1000	.1
		Upscale	304	307	297	10	1000	1
3	1333	Zero gas	0	0	3	3	1000	.3
		Upscale	304	307	300	7	1000	.7
4	1600	Zero gas	0	0	1	1	1000	.1
		Upscale	304	307	299	8	1000	.8
5		Zero gas	0					
		Upscale						
6		Zero gas	0					
		Upscale						
7		Zero gas	0					
		Upscale						
8		Zero gas	0					
		Upscale						
9		Zero gas	0					
		Upscale						
10		Zero gas	0					
		Upscale						
11		Zero gas	0					
		Upscale						
12		Zero gas	0					
		Upscale						

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

S420-11R

INTERPOLL LABORATORIES

EPA Method 6C/7E Response Time

Job Louisiana Pacific / Conroe TX
Source No. 1 Dryer / Stack
Date of test 3-24-92

Technician Mark Gaskie
System flow rate 2 PSI

Moisture removal: Via Model MK-1 Condenser

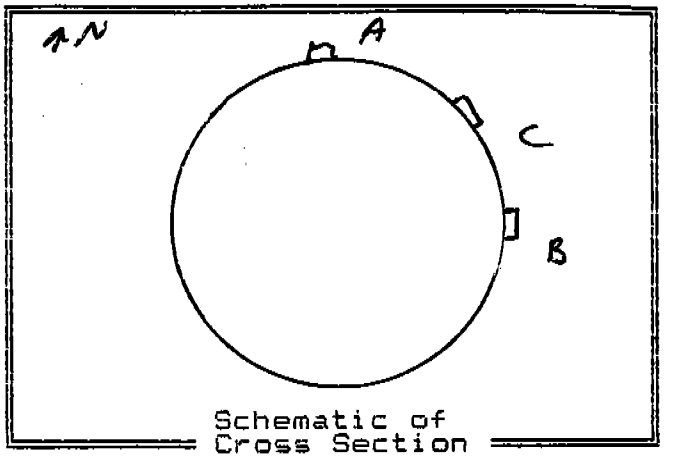
	Response Time (secs)		
Analyzer type:	SO_2/NO_x	THC as C	CO_2
Analyzer S/N:		3	
Analyzer Range:		0-1000	
High level span gas conc. (ppm or %)		304	
Upscale 1		20	
Upscale 2			
Upscale 3			
Average:			
Downscale 1			
Downscale 2			
Downscale 3			
Average:			

System Response Time: 20 seconds

1. *Introduce gases at the 3-way valve on the probe. Use zero and stack gas for the upscale tests and high-level span gas and stack gas for the downscale tests. Alternatively, use zero and high-level gases for a more stringent test. Record the time in seconds from the moment of introduction until a stable response is achieved.*
2. *The response time test need only be conducted prior to the initial field use of the measurement system.*
3. *Attach a copy of the flow system schematic to this test.*

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 2A Dryer / Stack
Test 2 Run 0 Date 3-25-92
Stack dimen. 29 IN.
Dry bulb ____ °F Wet bulb ____ °F
Manometer: ☐ Reg. ☐ Exp. ☐ Elec.
Barometric pressure 29.77 in Hg
Static pressure -1.5 in WC
Operators M. Kaehler + B. Aschenbach
Pitot No. Inst Cp NA



Schematic of Cross Section

Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length: 6 in.		Time start:	hrs
C-1	1/6	4.83	10.83		
2	3/6	14.50	20.50		
3	5/6	24.17	30.17		
		Port C 2' below level			
			of ports	A+B	
Temp. meas. tool & S/N:				Time end:	hrs

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

INTERPOLL LABORATORIES
(612) 786-6020

System Bias Check

Job Louisiana Pacific / Conyers, TX Source No. 2A Dryer
Test 7 Run 1,2,3 Date 3-25-92 Site Stack
Operator M. Koehler

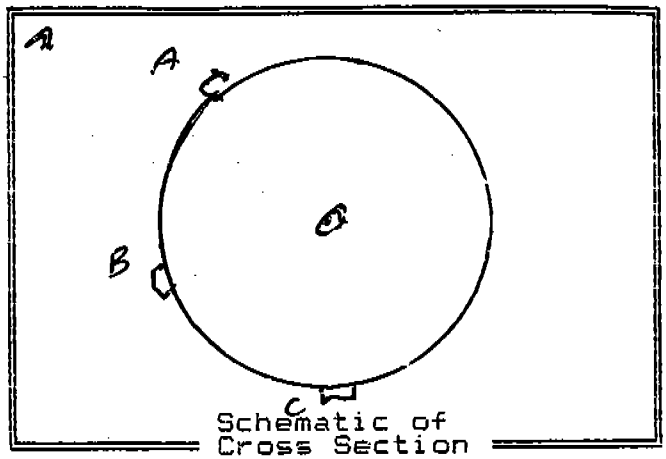
Run	Time (HRS)	***	Cylinder Value (ppm)	Analyzer Resp (ppm)		Diff. CE-SB (ppm)	Span Val (PPM)	% of span
				Cal Err	Sys Bias			
1	0930	Zero gas	0	0	0	0	1000	
		Upscale	304	307	303	4	1,000	
2	0955	Zero gas	0	0	1	1	1000	
	1100	Upscale	304	307	308	1	1,000	
3	1225	Zero gas	0	0	2	2	1000	
		Upscale	304	307	312	5	1000	
4	1405	Zero gas	0	0	3	3	1000	
		Upscale	304	307	314	7	1000	
5		Zero gas	0					
		Upscale						
6		Zero gas	0					
		Upscale						
7		Zero gas	0					
		Upscale						
8		Zero gas	0					
		Upscale						
9		Zero gas	0					
		Upscale						
10		Zero gas	0					
		Upscale						
11		Zero gas	0					
		Upscale						
12		Zero gas	0					
		Upscale						

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

S420-11R

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 3 Dryer / Stack
Test 12 Run 0 Date 3-26-92
Stack dimen. 41.5 IN.
Dry bulb ____ °F Wet bulb ____ °F
Manometer: ☐ Reg. ☐ Exp. ☐ Elec.
Barometric pressure 29.02 in Hg
Static pressure -.68 in WC
Operators M. Kaebler & C. Mosser
Pitot No. Inst Cp NA



Schematic of Cross Section

Traverse Point No.		Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
			Port length: 6 in.		Time start:	hrs
	C-1	1/6	6.92	12.92		
	2	3/6	20.75	26.75		
	3	5/6	34.58	40.58		
		Port C ≈ 2 PH below ports A + B				
Temp. meas. tool & S/N:					Time end:	hrs

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

INTERPOLL LABORATORIES
(612) 786-6020

___ System Bias Check

Job Louisiana Pacific / Corrigan, TX Source No. 3 Dryer
Test 12 Run 1,2,3 Date 3-26-92 Site Stack
Operator M. Koehler

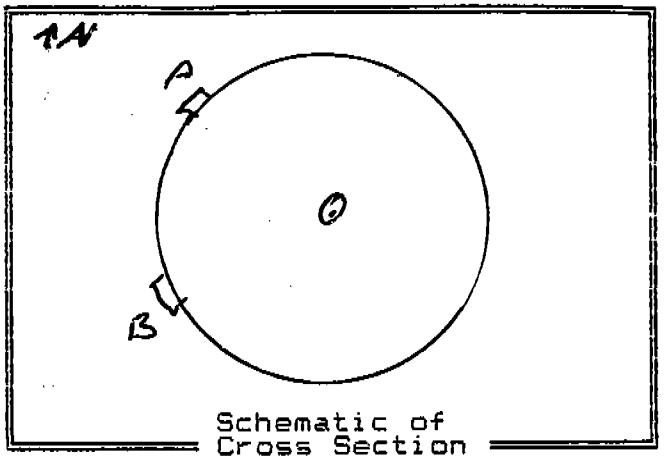
Run	Time (HRS)	***	Cylinder Value (ppm)	Analyzer Resp (ppm)		Diff. CE-SB (ppm)	Span Val (PPM)	% of span
				Cal Err	Sys Bias			
1	0845	Zero gas	0	0	0	0	1000	
		Upscale	304	307	303	4	1000	
2	1035	Zero gas	0	0	3	3	1000	
		Upscale	304	307	300	7	1000	
3	1322	Zero gas	0	0	3	3	1000	
		Upscale	304	307	304	3	1000	
4	1530	Zero gas	0	0	2	2	1000	
		Upscale	304	307	313	6	1000	
5		Zero gas	0					
		Upscale						
6		Zero gas	0					
		Upscale						
7		Zero gas	0					
		Upscale						
8		Zero gas	0					
		Upscale						
9		Zero gas	0					
		Upscale						
10		Zero gas	0					
		Upscale						
11		Zero gas	0					
		Upscale						
12		Zero gas	0					
		Upscale						

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

S420-11R

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job Louisiana Pacific Corrigan, TX
Source No. 3+4 Press Vents / Stacks
Test 1 of 1 Run 0 Date 3-27-92
Stack dimen. 62.75 IN.
Dry bulb ____ °F Wet bulb ____ °F
Manometer: ☐ Reg. ☐ Exp. ☐ Elec.
Barometric pressure 29.56 in Hg
Static pressure -.12 in WC
Operators M. Kaehler & C. Mosser
Pitot No. Inst Cp .84



Schematic of Cross Section

Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length: 6 in.		Time start:	hrs
B-1	1/6	10.46	16.46		
2	3/6	31.38	37.38		
3	5/6	52.29	58.29		

INTERPOLL LABORATORIES
(612) 786-6020

System Bias Check

Job Louisiana Pacific / Corrigan, TX Source No. 3 & 4 Press Vents
Test 1649 Run 1, 2, 3 Date 3-27-92 Site Stacks
Operator MKaehler

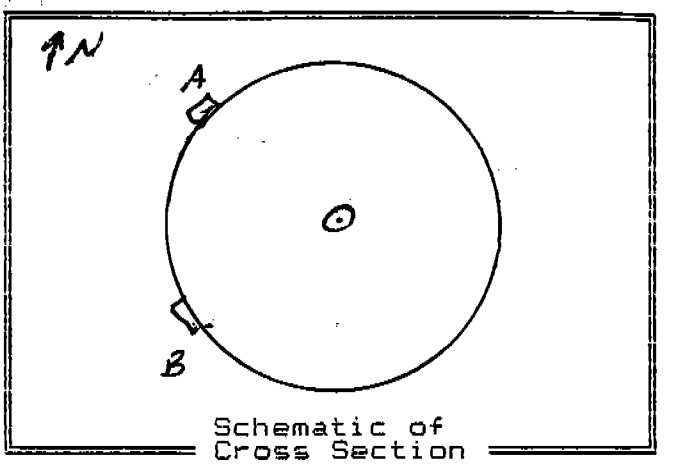
Run	Time (HRS)	***	Cylinder Value (ppm)	Analyzer Resp (ppm)		Diff. CE-SB (ppm)	Span Val (PPM)	% of span
				Cal Err	Sys Bias			
1	0910	Zero gas	0	0	0	0	1000	
		Upscale	304	307	307	0	1000	
2	1021	Zero gas	0	0	2	2	1000	
		Upscale	304	307	308	1	1000	
3		Zero gas	30	30	32	2	1000	
		Upscale						
4	1207	Zero gas	0	0	2	2	1000	
		Upscale	304	307	311	4	1000	
5		Zero gas	30	30	32	2	1000	
		Upscale						
6	1348	Zero gas	0	0	3	3	1000	
		Upscale	304	307	312	5	1000	
7		Zero gas	30	30	33	3	1000	
		Upscale						
8	1535	Zero gas	0	0	3	3	1000	
		Upscale	304	307	307	0	1000	
9		Zero gas	30	30	32	2	1000	
		Upscale						
10	1714	Zero gas	0	0	3	3	1000	
		Upscale	304	307	302	5	1000	
11		Zero gas	30	30	31	1	1000	
		Upscale						
12	1900	Zero gas	0	0	1	1	1000	
		Upscale	304	307	297	10	1000	
			30	30	30	0	1000	

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

S420-11R

INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job Louisiana Pacific / Corrigan, TX
Source No. 2 Press Vent / Stack
Test 22 Run 0 Date 3-27-92
Stack dimen. 82.75 IN.
Dry bulb ____ °F Wet bulb ____ °F
Manometer: ☐ Reg. ☐ Exp. ☐ Elec.
Barometric pressure 29.96 in Hg
Static pressure -1.12 in WC
Operators M. Kuehler + C. Messer
Pitot No. Inst Cp N/A



Schematic of Cross Section

Traverse Point No.		Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
			Port length:	6 in.	Time start:	hrs
	A-1	1/6	10.46	16.46		
	2	3/6	31.38	37.38		
	3	5/6	52.29	58.29		

INTERPOLL LABORATORIES
(612) 786-6020

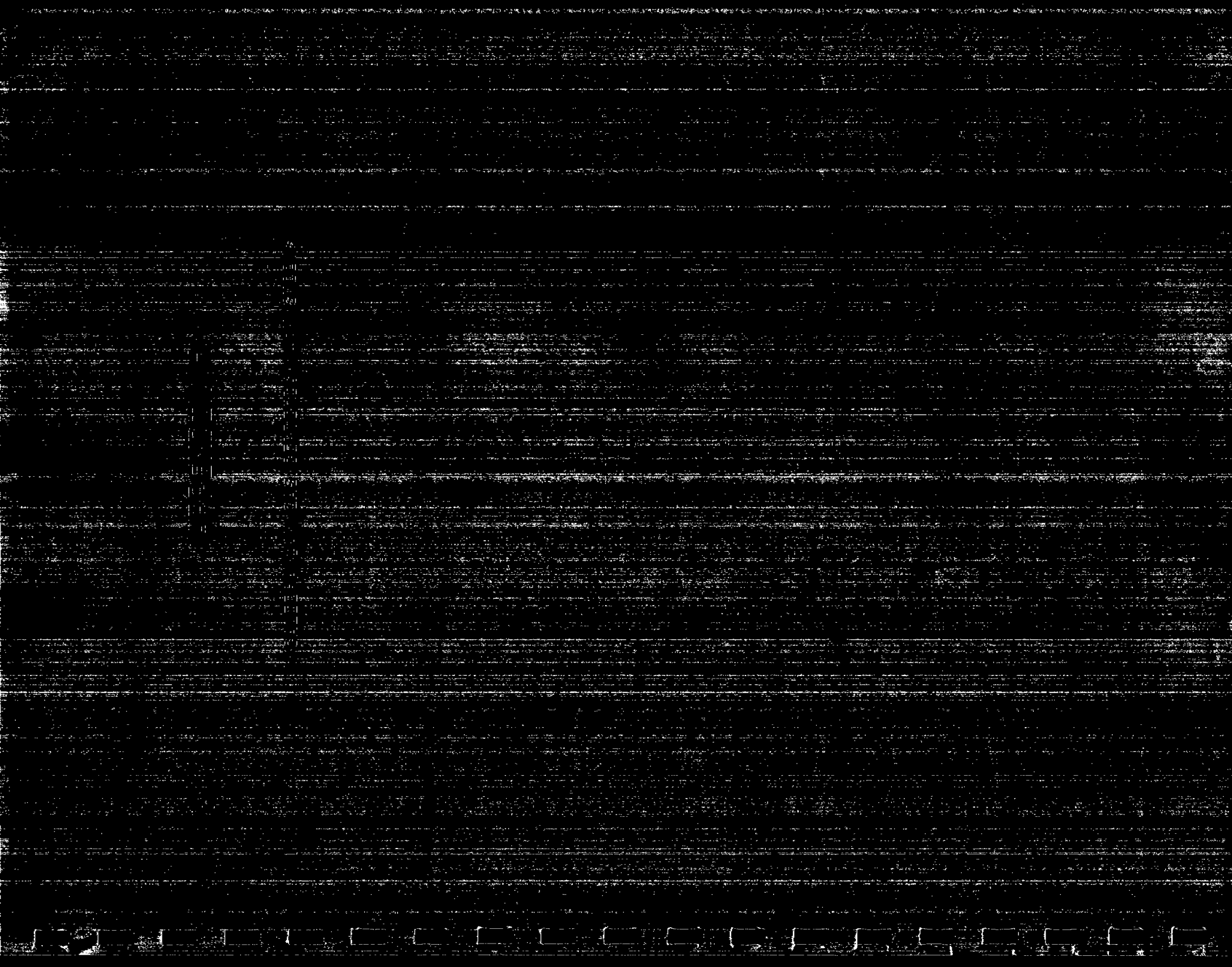
___ System Bias Check

Job Louisiana Pac. Fc / Corrigan, TX Source No 2 Press Vent
Test 22 Run 1,2,3,4 Date 3-27-92 Site Stack
Operator MiLaehler

Run	Time (HRS)	***	Cylinder Value (ppm)	Analyzer Resp (ppm)		Diff. CE-SB (ppm)	Span Val (PPM)	% of span
				Cal Err	Sys Bias			
1	0810	Zero gas	0	0	0	0	1000	
		Upscale						
2		Zero gas	30	30	30	0	1000	
		Upscale						
3	0943	Zero gas	0	0	0	0	100	
		Upscale	30	28	28	2	100	
4	1143	Zero gas	0	0	1	0	100	
		Upscale	30	30	30	0	100	
5	1256	Zero gas	0	0	0	0	100	
		Upscale	30	32	2	0	100	
6	1407	Zero gas	0	0	0	0	100	
		Upscale	30	30	31	1	100	
7		Zero gas	0					
		Upscale						
8		Zero gas	0					
		Upscale						
9		Zero gas	0					
		Upscale						
10		Zero gas	0					
		Upscale						
11		Zero gas	0					
		Upscale						
12		Zero gas	0					
		Upscale						

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

S420-11R



Scott Specialty Gases

a division of Scott Environmental Technology, Inc.

1290 COMBERMERE STREET, TROY, MICHIGAN 48084 (313) 589-2950

Shipped From : Scott Michigan

Our Project # : 933339

Your P.O. # : 6033WW

Expiration Date : 8-18-93

Cylinder Number : BLM-001040

Cylinder Pressure 1900 psig

1 OF 1 COMPONENT(S)

Customer :
BENEX
2455 CLEVELAND AVENUE N.
ROSEVILLE, MN. 55113

**** CERTIFICATE OF ANALYSIS - EPA PROTOCOL GASES ****
PERFORMED ACCORDING TO SECTION 3.0.4

Certified Per Traceability Protocol # 1

Procedure # G1

File # PO-2217

Certified Accuracy 1 % NBS Traceable

ANALYZED CYLINDER		REFERENCE STD			INSTRUMENTATION		
COMPONENT	CERTIFIED CONC.	SRM # (CRM #)	CYLINDER NUMBER	CONC.	INSTR/MODEL/SERIAL #	LAST CALIBRATION DATE	ANALYTICAL PRINCIPLE
PROPANE	30.07 PPM	1667B	FF-26980	47.80 PPM	BECKMAN	2-18-92	FLAME IONIZATION DETECTOR
		GM19¢	ALM-008846	31.20 PPM	400		

BALANCE GAS : AIR

I-H

ANALYSIS DATE : 2-18-92

ZERO GAS (mV)	TEST GAS (mV)	RESULTS PPM	REFERENCE GAS CONC.	(mV)	RESULTS PPM
0.00	30.20	30.07	47.80 PPM	47.80	47.80
0.00	30.20	30.07		47.80	47.80
0.00	30.20	30.07		47.80	47.80
CALCULATED RESULTS		30.07			
		30.07			
		30.07			
AVERAGE :		30.07 PPM			

CALIBRATION CURVE 3 rd DEGREE

SRM # (CRM #)	CONC. PPM	SPLIT PT (%)	DVM (mV)	FITTED VALUE	PERCENT ERROR
1667B	47.80	100	47.80	47.80	0.00
	31.20	65	31.40	31.26	0.20
	22.61	47	22.60	22.53	-0.35
	8.17	17	8.20	8.23	0.70
	0.00	0	0.00	0.00	0.00
		0		0.0000	0.00
		0		0.00	0.00
GM19	8.17	LOW	8.20	8.23	0.70
1684B	47.80	HIGH	47.80	47.80	0.00

¢ GM19 - GAS MANUFACTURER'S INTERNAL STANDARD

The only liability of this Company for gas which fails to comply with this analysis shall be replacement thereof by the Company without extra cost.

Approved By: S. Shapiro

Scott Specialty Gases

a division of Scott Environmental Technology, Inc.

1290 COMBERMERE STREET, TROY, MICHIGAN 48084 (313) 589-2950

13328RE

Shipped From : Scott Michigan

Our Project # : 533339

Your P.O. # : 6033NW

Expiration Date : 8-6-93

Cylinder Number : BLM-000633

Cylinder Pressure 1900 psig

1 OF 1 COMPONENTS

Customer :
GENEX
2455 CLEVELAND AVENUE N.
ROSEVILLE, MN. 55113

CERTIFICATE OF ANALYSIS - EPA PROTOCOL GASES # # #
PERFORMED ACCORDING TO SECTION 3.0.4

Certified Per Traceability Protocol # 1

Procedure # G1

File # PO-2183

Certified Accuracy 1% NBS TRACEABLE

ANALYZED CYLINDER		REFERENCE STD		
COMPONENT	CERTIFIED CONC.	SRM # (CRM #)	CYLINDER NUMBER	CONC.
PROPANE	304.3 PPM	1669B	CLM-000702	466.0 PPM
		1668B	CLM-000694	95.00 PPM

BALANCE GAS : AIR

INSTRUMENTATION

INSTR/MODEL/SERIAL #	LAST CALIBRATION DATE	ANALYTICAL PRINCIPLE
BECKMAN 400 1002059	1-23-92	FLAME IONIZATION DETECTOR

H-2

ANALYSIS DATE : 2-6-92

ZERO GAS (mV)	TEST GAS (mV)	RESULTS PPM	REFERENCE GAS CONC.	(mV)	RESULTS PPM
0.00	65.70	304.3	466.0 PPM	100.00	466.0
0.00	65.70	304.3		100.00	466.0
0.00	65.70	304.3		100.00	466.0
	CALCULATED RESULTS	304.3			
		304.3			
		304.3			
	AVERAGE :	304.3 PPM			

CALIBRATION CURVE 2 nd DEGREE

SRM # (CRM #)	CONC. PPM	SPLIT PT (%)	DVM (mV)	FITTED VALUE	PERCENT ERROR
1669B	466.0	100	100.00	466.0	0.00
	315.8	68	68.10	315.6	-0.08
	199.9	43	43.30	199.7	-0.10
1668B	95.00	20	20.80	95.45	0.47
	0.0000	0	0.00	0.0000	0.00
		0		0.0000	0.00
		0		0.00	0.00
1668B	95.00	LOW	20.80	95.45	0.47
1669B	466.0	HIGH	100.00	466.0	0.00

: GMIS - GAS MANUFACTURER'S INTERNAL STANDARD

Analyst : F. C. Dix

Approved By : L Shapiro

The Only liability of this Company for gas which fails to comply with this analysis shall be replacement thereof by the Company without extra cost.

Scott Specialty Gases

a division of Scott Environmental Technology, Inc.

1290 COMBERMERE STREET, TROY, MICHIGAN 48084 (313) 589-2950

Shipped From : Scott Michigan

Our Project # : 533359

Your P.O. # : 6033NM

Expiration Date : 8-6-93

Cylinder Number : BLM-001645

Cylinder Pressure 1665 psig

1 OF 1 COMPONENTS

Customer :
BENEX
2455 CLEVELAND AVENUE N.
ROSEVILLE, MN. 55113

CERTIFICATE OF ANALYSIS - EPA PROTOCOL GASES
PERFORMED ACCORDING TO SECTION 2.0.7.

Certified Per Traceability Protocol # 2 Procedure # 82

File # PO-2194

Certified Accuracy 2% ANALYTICAL UNCERTAINTY

ANALYZED CYLINDER

COMPONENT	CERTIFIED CONC.
PROPANE	3038 PPM

BALANCE GAS : AIR

REFERENCE STD

SRM # (CRM #)	CYLINDER NUMBER	CONC.
1669B	CLM-000702	466.0 PPM
1668B	CLM-000694	95.00 PPM

INSTRUMENTATION

INSTR/MODEL/SERIAL #	LAST CALIBRATION DATE
BECKMAN 400 1002059	1-23-92

ANALYTICAL PRINCIPLE: FLAME IONIZATION DETECTOR

ANALYSIS

DATE : 2-6-92

ZERO GAS (mV)	TEST GAS (mV)	RESULTS PPM	REFERENCE GAS CONC.	(mV)	RESULTS PPM
0.00	65.60	303.8	466.0 PPM	100.00	466.0
0.00	65.60	303.8		100.00	466.0
0.00	65.60	303.8		100.00	466.0

CALCULATED RESULTS: 303.8, 303.8, 303.8

AVERAGE : 303.8 PPM

SAMPLE GAS SPLIT @ 10% OF FULL CONC. 303.8 PPM DIVIDED BY 10% = 3038 PPM.

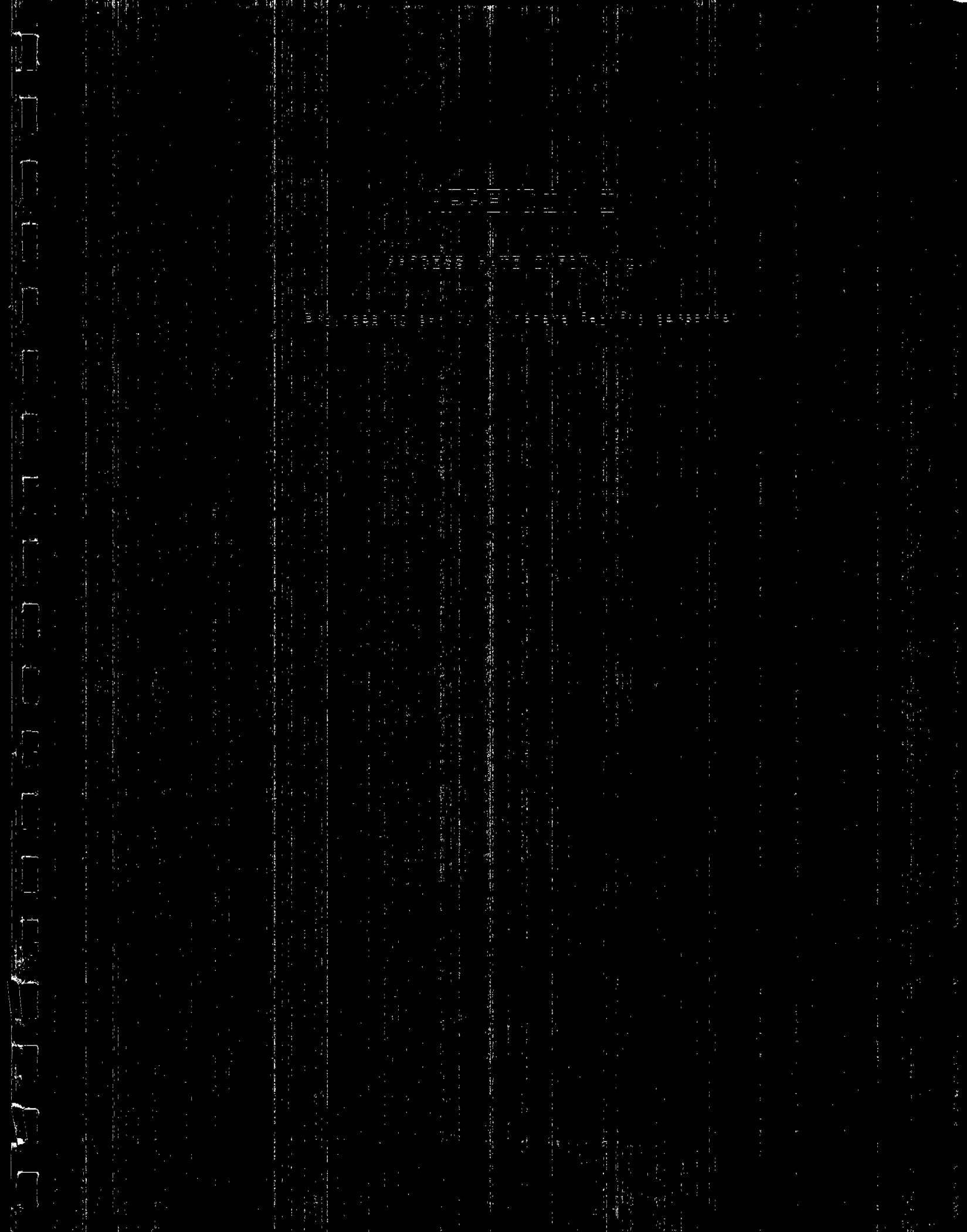
CALIBRATION CURVE 2 nd DEGREE

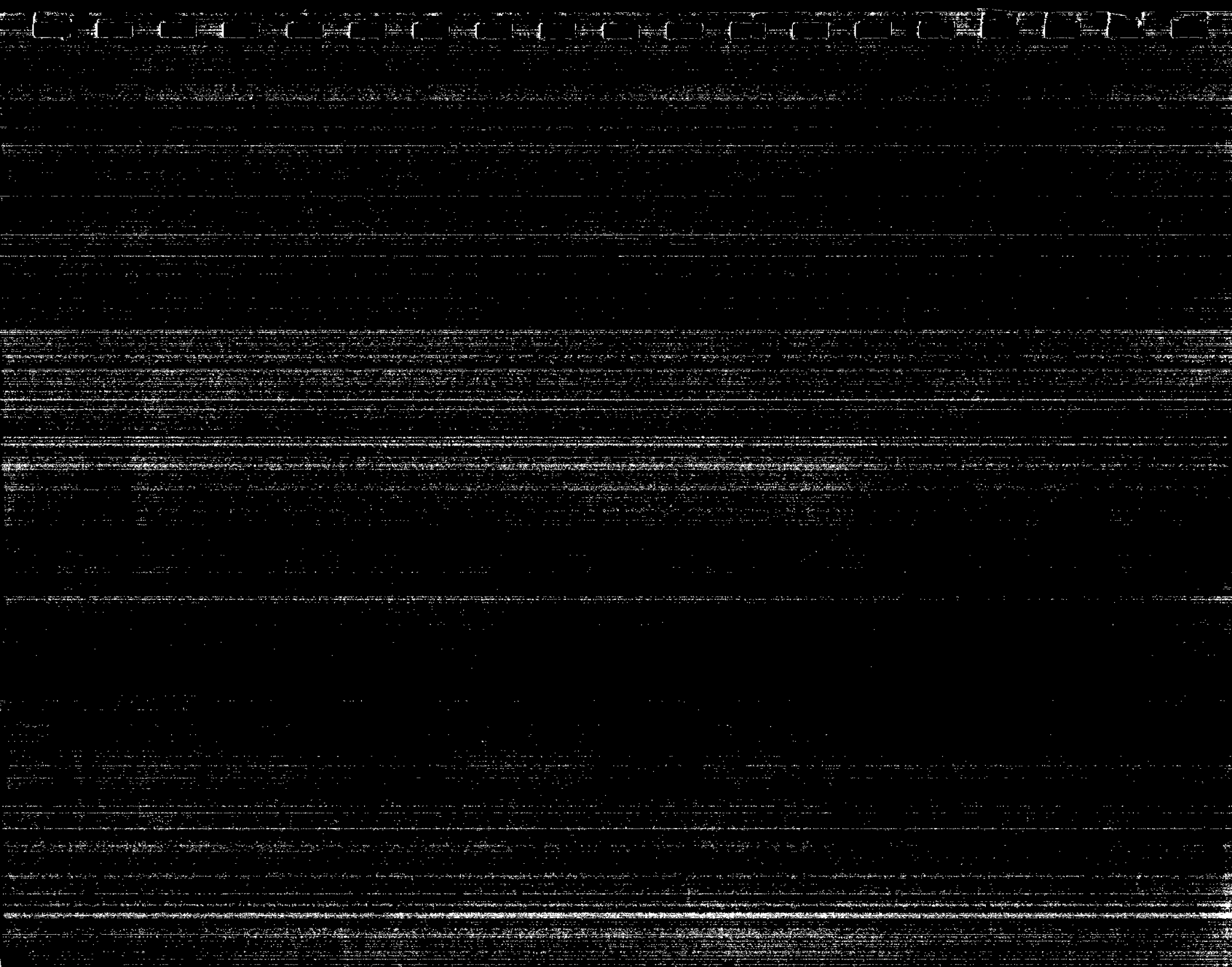
SRM # (CRM #)	CONC. PPM	SPLIT PT (%)	DVM (mV)	FITTED VALUE	PERCENT ERROR
1669B	466.0	100	100.00	466.0	0.00
	315.8	68	68.10	315.6	-0.08
	199.9	43	43.30	199.7	-0.10
1668B	95.00	20	20.80	95.45	0.47
	0.0000	0	0.00	0.0000	0.00
		0		0.0000	0.00
		0		0.00	0.00
1668B	95.00	LOW	20.80	95.45	0.47
1669B	466.0	HIGH	100.00	466.0	0.00

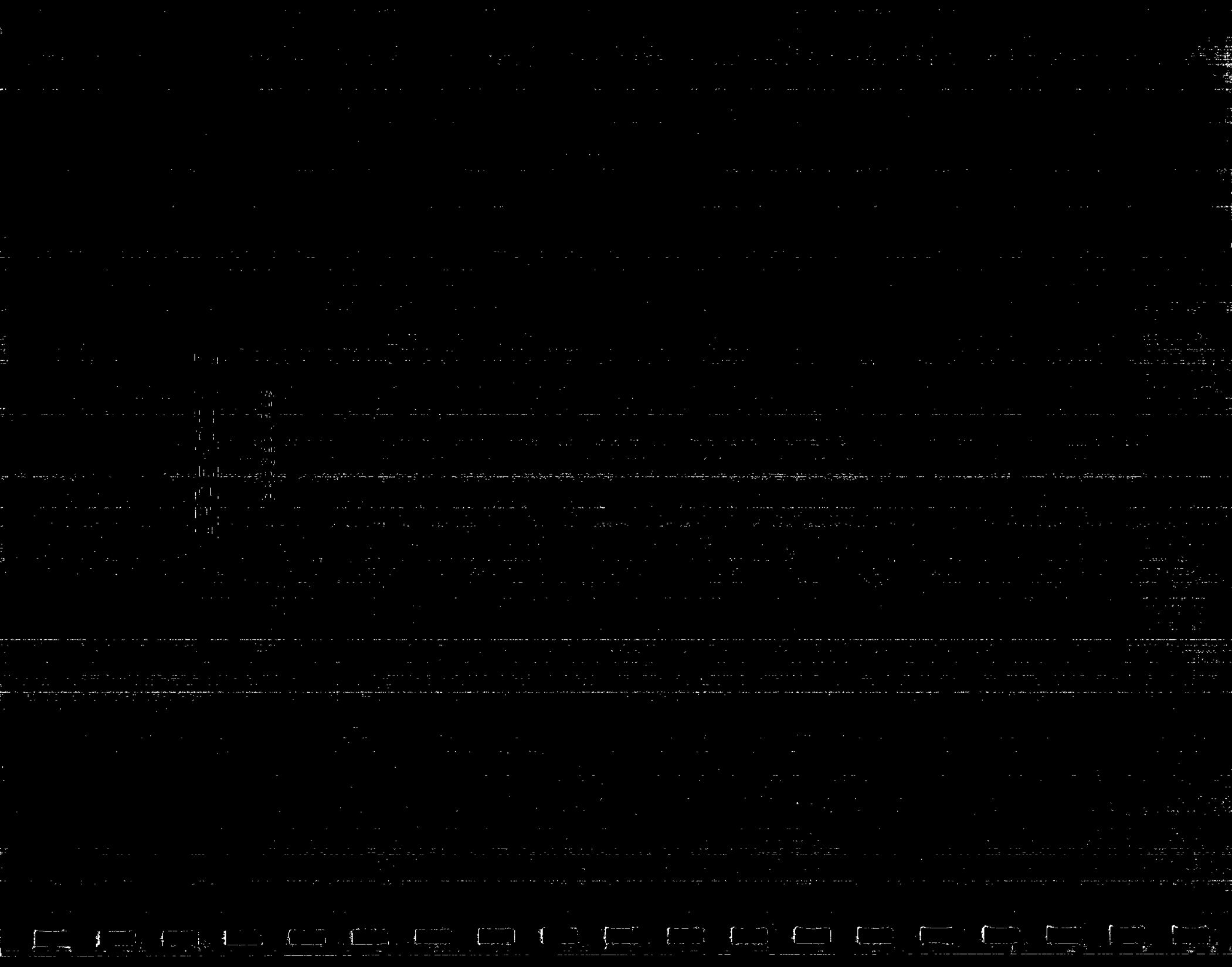
Approved By : I Shapiro

GMIS - GAS MANUFACTURER'S INTERNAL STANDARD

This certificate is the property of this Company for the use of the purchaser to whom it is issued and may not be reproduced except in full without the written approval of this Company. Any cylinder which fails to comply with this analysis shall be replaced or refilled by the Company without extra cost.







Particulate Loadings and Emission Rates

The particulate emission rates were determined per EPA Methods 1-5, CFR title 40, Part 60, Appendix A (revised July 1, 1987). In this procedure, a preliminary velocity profile of the gases in the flue is obtained by means of a temperature and velocity traverse. On the basis of these values, sampling nozzles of appropriate diameter are selected to allow isokinetic sampling, a necessary prerequisite for obtaining a representative sample.

The sampling train consists of a heated glass-lined sampling probe equipped with a Type S pitot and a thermocouple. The probe is attached to a sampling module which houses the all-glass in line filter holder in a temperature controlled oven. In addition, the sampling module also houses the impinger case and a Drierite drying column. The sampling module is connected by means of an umbilical cord to the control module which houses the dry test gasmeter, the calibrated orifice, a leakless pump, two inclined manometers, and all controls required for operating the sampling train.

Particulate samples were collected as follows: The sample gas was drawn in through the sampling probe isokinetically and passed through a 4-inch diameter Gelman Type A/E glass fiber filter. The particulates were removed at this point and collected on the filter. The gases then passed through an ice-cooled impinger train and a desiccant-packed drying column which quantitatively absorb all moisture from the sample gas stream after which the sample gas passes through the pump and the dry test gasmeter which integrates the sample gas flow throughout the course of the test. A calibrated orifice attached to the outlet of the gasmeter provides instantaneous flow rate data.

A representative particulate sample was acquired by sampling for equal periods of time at the centroid of a number of equal area regions in the duct. The sampling rate is adjusted at each site such that an isokinetic sampling condition prevails. Nomographs are used to aid in the rapid determination of the sampling rate.

After sampling is complete, the filter is removed and placed in a clean container. The nozzle and inlet side of the filter holder are quantitatively washed with acetone and the washings are stored in a second container. A brush is often used in the cleaning step to help dislodge deposits. The samples are returned to the laboratory where they are logged in and analyzed. The volume of the acetone rinse ("probe wash") is noted and then the rinse is quantitatively transferred to a tared 120 cc porcelain evaporating dish and the acetone evaporated off at 97-105 ^{o}F. This temperature is used to prevent condensation of atmospheric moisture due to the cooling effect induced by the evaporation of acetone. The acetone-free sample is then transferred to an oven and dried at 105 ^{o}C for 30 minutes, cooled in a desiccator over Drierite, and then weighed to the nearest .01 mg. The filter sample is quantitatively transferred to a 6-inch watch glass and dried in an oven at 105 ^{o}C for two hours. The filter and watch glass are then cooled in a desiccator and the filter weighed to the nearest .01 mg. All weighings are performed in a balance room where the relative humidity is hydrostatted to less than 50% relative humidity. Microscopic examination of the samples is performed if any unusual characteristics are observed. The weight of the acetone rinse is corrected for the acetone blank. The Drierite column is weighed on-site and the water collected by Drierite is added to the condensate so that the total amount of absorbed water may be ascertained.

Integrated gas samples for Orsat analysis were collected at a constant flow rate throughout each particulate run. The gas samples were analyzed using al all-glass Orsat analyzer. Standard commercially prepared solutions were used in the Orsat analyzer (sat. KOH for carbon dioxide and reduced methylene blue for oxygen). In addition to the above, the oxygen content of the flue gas was measured at each traverse during the particulate determinations using a Teledyne Model 320P-4 Portable Oxygen Analyzer to sample the effluent from the Method 5 train.

3a P2(7)

Interpoll Laboratories
(612)786-6020

Condensible Organic Compounds Analysis

(State of Wisconsin - EPA Method 5)

Method II-8672-WI

Equipment: Separatory funnel - 500 cc with Teflon stopcock

Powder funnel - 75 mm ID with a glass wood plug

Evaporating dish(es) - 200 cc or 250 cc beaker

Reagents: Methylene chloride

Sodium sulfate - (ACS) granular anhydrous (purified by heating for four hours in a shallow tray)

SAMPLING:

An all-glass impinger assembly is used in the back half of the EPA Method 5 sampling train when an organic wet catch is to be collected. The impinger assembly consists of a modified impinger, a Greenburg Smith impinger followed by another modified impinger. The third impinger should have a temperature measuring device at the outlet upstream of a final impinger or desiccant column to monitor the temperature of the outlet gas stream. Prior to the start of the test, each of the first two impingers should be charged with 100 g of Class I water. The Method 5 train should be operated as provided for in EPA Method 5. Ice should be added to the impinger bath to keep the temperature of the gas at the outlet at or less than 68 ^{o}F. After the post test leak check, the impinger train is removed and impinger contents poured into a tared all-glass sample bottle and closed with a Teflon-lined cap. The sample bottle is then weighed and the total condensate calculated by subtraction of the bottle tare weight and the

weight of initial water added to the impingers (200 g). A label is affixed and the sample is returned to the laboratory for analysis. The sample should be stored at 4 °C if the analysis is not conducted within 48 hours.

ANALYSIS:

1. Sample bottles are removed from storage and the contents quantitatively transferred to a clean 500 cc separatory funnel equipped with a Teflon stopcock.

2. Rinse the sample container with distilled water and add to separatory funnel.

3. Then rinse the sample container with acetone and pour through sodium sulfate into a tare beaker marked A.

4. The sample is then extracted consecutively with three 50 cc aliquots of methylene chloride. The extraction is performed according to normal laboratory practice observing the customary safety precaution of releasing excess pressure after each shaking.

5. After each of the three extractions are completed, the organic solvent should be dried by passing it through a funnel containing anhydrous sodium sulfate and collecting it and two 50 cc rinses in the tared beaker marked A (the same one used to catch the acetone container rinse).

6. Evaporate to dryness in a hood at 70 °F or less. Do not evaporate so quickly as to allow evaporative cooling to lower the temperature of the container below the dew point otherwise water will be condensed in the container.

7. Desiccate for two hours in a sealed desiccator and final weigh. Report all results in grams. All weighings should be made to nearest 0.1 mg (four places).

8. The remaining liquid in the separatory funnel is then transferred to a tared beaker marked B and is evaporated to dryness at 220 °F ± 10 °F. The analyst may take an aliquot of the sample, transferring it to a tared beaker and evaporate to dryness at 220 °F ± 10 °F. If an aliquot is used, the weight of the sample and aliquot will have to be taken to correct for the total sample weight.

9. After the drying step, the sample is cooled in a desiccator and weighted to a constant weight to the nearest 0.1 mg.

   Calculation (if aliquot is taken):

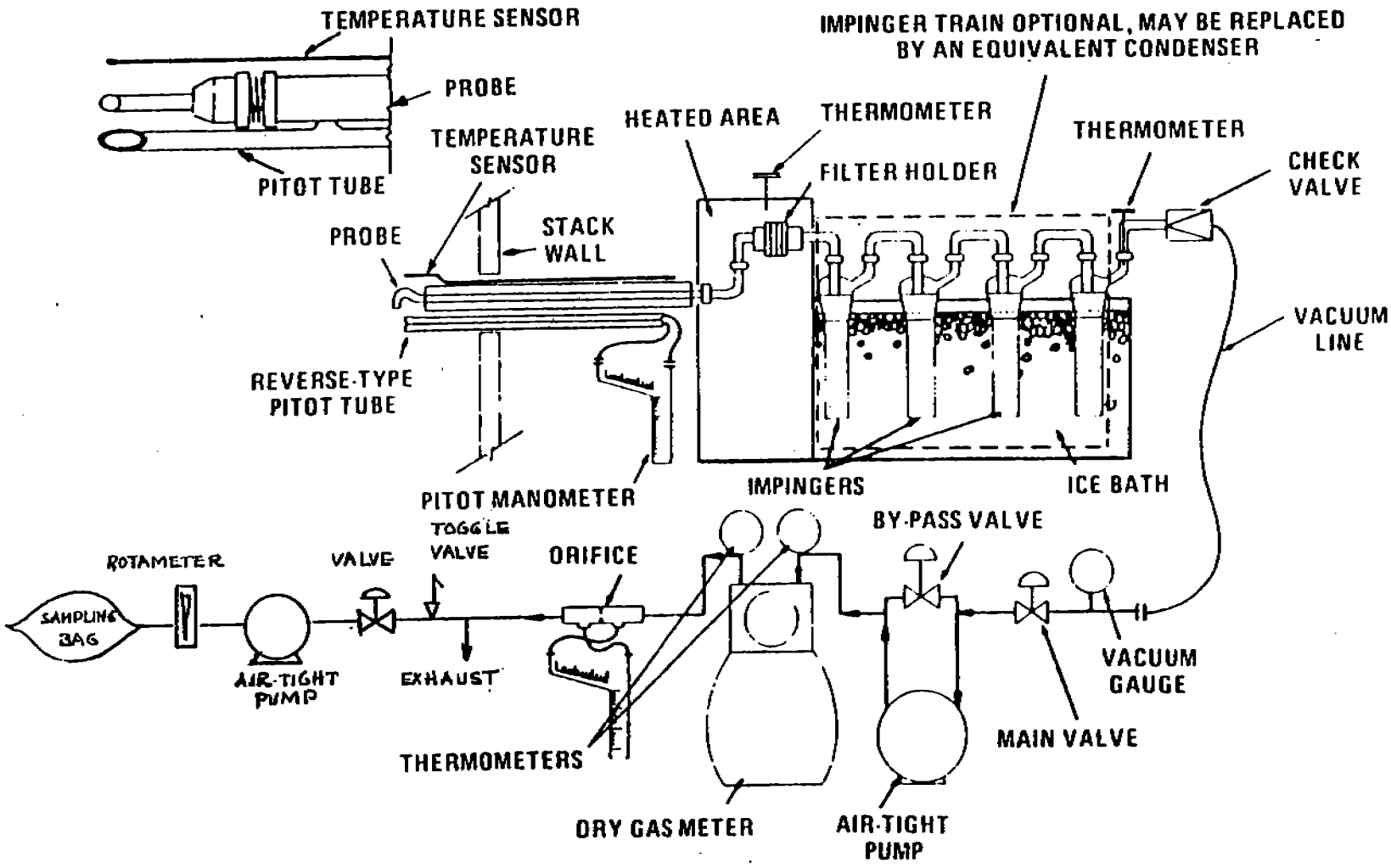
$$\text{grams} = \frac{(\text{grams recovered from aliquot}) \times (\text{total volume (ml) or grams of sample})}{(\text{aliquot volume (ml) or grams used})}$$

   If volume is used, it must be used for both the aliquot and sample. The same goes for using weight.

10. A field blank should be analyzed in an identical manner. If a field blank is not submitted, take an aliquot of Class I water equal in volume to the samples and analyze in a similar manner.

11. The results for container A are to be marked in the organic section of Interpoll Form #LSC-036.

12. The results for container B are to be marked in the inorganic section of Interpoll Form #LSC-036.



Particulate-sampling train.

4500 BALL ROAD N.E.
CIRCLE PINES, MN 55014-1819
(612) 786-6020

Current as of 3-26-91

METHOD 201A - DETERMINATION OF PM_{10} EMISSIONS (Constant Sampling Rate Procedure)

(55 FR 14246)

1. Applicability and Principle

1.1 Applicability. This method applies to the in-stack measurement of particulate matter (PM) emissions equal to or less than an aerodynamic diameter of nominally 10 μm (PM_{10}) from stationary sources. The EPA recognizes that condensible emissions not collected by an in-stack method are also PM_{10}, and that emissions that contribute to ambient PM_{10} levels are the sum of condensible emissions and emissions measured by an in-stack PM_{10} method, such as this method or Method 201. Therefore, for establishing source contributions to ambient levels of PM_{10}, such as for emission inventory purposes, EPA suggests that source PM_{10} measurement include both in-stack PM_{10} and condensible emissions. Condensible emissions may be measured by an impinger analysis in combination with this method.

1.2 Principle. A gas sample is extracted at a constant flow rate through an in-stack sizing device, which separates PM greater than PM_{10}. Variations from isokinetic sampling conditions are maintained within well-defined limits. The particulate mass is determined gravimetrically after removal of uncombined water.

2. Apparatus

NOTE: Methods cited in this method are part of 40 CFR Part 60, Appendix A.

2.1 Sampling Train. A schematic of the Method 201A sampling train is shown in Figure 1. With the exception of the PM_{10} sizing device and in-stack filter, this train is the same as an EPA Method 17 train.

2.1.1 Nozzle. Stainless steel (316 or equivalent) with a sharp tapered leading edge. Eleven nozzles that meet the design specifications in Figure 2

This version is a corrected version of (55 FR 14246 Apr 17 1990)

are recommended. A large number of nozzles with small nozzle increments increase the likelihood that a single nozzle can be used for the entire traverse. If the nozzles do not meet the design specifications in Figure 2, then the nozzles must meet the criteria in Section 5.2.

2.1.2 PM_{10} Sizer. Stainless steel (316 or equivalent), capable of determining the PM_{10} fraction. The sizing device shall be either a cyclone that meets the specifications in Section 5.2 or a cascade impactor that has been calibrated using the procedure in Section 5.4.

2.1.3 Filter Holder. 63-mm, stainless steel. An Andersen filter, part number SE274, has been found to be acceptable for the in-stack filter. NOTE: Mention of trade names or specific products does not constitute endorsement by the Environmental Protection Agency.

2.1.4 Pitot Tube. Same as in Method 5, Section 2.1.3. The pitot lines shall be made of heat resistant tubing and attached to the probe with stainless steel fittings.

2.1.5 Probe Liner. Optional, same as in Method 5, Section 2.1.2.

2.1.6 Differential Pressure Gauge, Condenser, Metering System, Barometer, and Gas Density Determination Equipment. Same as in Method 5, Sections 2.1.4, and 2.1.7 through 2.1.10, respectively.

2.2 Sample Recovery.

2.2.1 Nozzle, Sizing Device, Probe, and Filter Holder Brushes. Nylon bristle brushes with stainless steel wire shafts and handles, properly sized and shaped for cleaning the nozzle, sizing device, probe or probe liner, and filter holders.

2.2.2 Wash Bottles, Glass Sample Storage Containers, Petri Dishes, Graduated Cylinder and Balance, Plastic Storage Containers, Funnel and Rubber

Policeman, and Funnel. Same as in Method 5, Sections 2.2.2 through 2.2.8, respectively.

2.3 Analysis. Same as in Method 5, Section 2.3.

3. Reagents

The reagents for sampling, sample recovery, and analysis are the same as that specified in Method 5, Sections 3.1, 3.2, and 3.3, respectively.

4. Procedure

4.1 Sampling. The complexity of this method is such that, in order to obtain reliable results, testers should be trained and experienced with the test procedures.

4.1.1 Pretest Preparation. Same as in Method 5, Section 4.1.1.

4.1.2 Preliminary Determinations. Same as in Method 5, Section 4.1.2, except use the directions on nozzle size selection and sampling time in this method. Use of any nozzle less than greater that 0.16 in. in diameter require a sampling port diameter of 6 inches. Also, the required maximum number of traverse points at any location shall be 12. ? See pg 22

4.1.2.1 The sizing device must be in-stack or maintained at stack temperature during sampling. The blockage effect of the CSR sampling assembly will be minimal if the cross-sectional area of the sampling assemble is 3 percent or less of the cross-sectional area of the duct. i.e. $D_s \geq 17.5$ inches If the cross-sectional area of the assembly is greater than 3 percent of the cross-sectional area of the duct, then either determine the pitot coefficient at sampling conditions or use a standard pitot with a known coefficient in a configuration with the CSR sampling assembly such that flow disturbances are minimized.

* when $D_s \leq 17.5$ inches, blockage exceeds 3%

4.1.2.2 The setup calculations can be performed by using the following procedures.

4.1.2.2.1 In order to maintain a cut size of 10 μm in the sizing device, the flow rate through the sizing device must be maintained at a constant, discrete value during the run. If the sizing device is a cyclone that meets the design specifications in Figure 3, use the equations in Figure 4 to calculate three orifice pressure drops (ΔH): one at the average stack temperature, and the other two at temperatures ±28°C (±50°F) of the average stack temperature. Use the ΔH calculated at the average stack temperature as the orifice pressure head for the sample flow rate as long as the stack temperature during the run is within 28°C (50°F) of the average stack temperature. If the stack temperature varies by more than 28°C (50°F), then use the appropriate ΔH.

4.1.2.2.3 To select a nozzle, use the equations in Figure 5 to calculate Δp_{min} and Δp_{max} for each nozzle at all three temperatures. If the sizing device is a cyclone that does not meet the design specifications in Figure 3, the example worksheets can be used.

4.1.2.2.4 Correct the Method 2 pitot readings to Method 201A pitot readings by multiplying the Method 2 pitot readings by the square of a ratio of the Method 201A pitot coefficient to the Method 2 pitot coefficient. Select the nozzle for which Δp_{min} and Δp_{max} bracket all of the corrected Method 2 pitot readings. If more than one nozzle meets this requirement,

select the nozzle giving the greatest symmetry. Note that if the expected pitot reading for one or more points is near a limit for a chosen nozzle, it may be outside the limits at the time of the run.

4.1.2.2.5 Vary the dwell time, or sampling time, at each traverse point proportionately with the point velocity. Use the equations in Figure 6 to calculate the dwell time at the first point and at each subsequent point. It is recommended that the number of minutes sampled at each point be rounded to the nearest 15 seconds.

4.1.3 Preparation of Collection Train. Same as in Method 5, Section 4.1.3, except omit directions about a glass cyclone.

4.1.4 Leak-Check Procedure. The sizing device is removed before the post-test leak-check to prevent any disturbance of the collected sample prior to analysis.

4.1.4.1 Pretest Leak-Check. A pretest leak-check of the entire sampling train, including the sizing device, is required. Use the leak-check procedure in Method 5, Section 4.1.4.1 to conduct a pretest leak-check.

4.1.4.2 Leak-Checks During Sample Run. Same as in Method 5, Section 4.1.4.1.

4.1.4.3 Post-Test Leak-Check. A leak-check is required at the conclusion of each sampling run. Remove the cyclone before the leak-check to prevent the vacuum created by the cooling of the probe from disturbing the collected sample and use the procedure in Method 5, Section 4.1.4.3 to conduct a post-test leak-check.

4.1.5 Method 201A Train Operation. Same as in Method 5, Section 4.1.5, except use the procedures in this section for isokinetic sampling and flow rate adjustment. Maintain the flow rate calculated in Section 4.1.2.2.1

throughout the run provided the stack temperature is within 28°C (50°F) of the temperature used to calculate ΔH. If stack temperatures vary by more than 28°C (50°F), use the appropriate ΔH value calculated in Section 4.1.2.2.1. Calculate the dwell time at each traverse point as in Figure 6.

4.2 Sample Recovery. If a cascade impactor is used, use the manufacturer's recommended procedures for sample recovery. If a cyclone is used, use the same sample recovery as that in Method 5, Section 4.2, except an increased number of sample recovery containers is required.

4.2.1 Container Number 1 (In-Stack Filter). The recovery shall be the same as that for Container Number 1 in Method 5, Section 4.2.

4.2.3 Container Number 2 (Cyclone or Large PM Catch). This step is optional. The anisokinetic error for the cyclone PM is theoretically larger than the error for the PM_{10} catch. Therefore, adding all the fractions to get a total PM catch is not as accurate as Method 5 or Method 201. Disassemble the cyclone and remove the nozzle to recover the large PM catch. Quantitatively recover the PM from the interior surfaces of the nozzle and cyclone, excluding the "turn around" cup and the interior surfaces of the exit tube. The recovery shall be the same as that for Container Number 2 in Method 5, Section 4.2.

4.2.4 Container Number 3 (PM_{10}). Quantitatively recover the PM from all of the surfaces from the cyclone exit to the front half of the in-stack filter holder, including the "turn around" cup inside the cyclone and the interior surfaces of the exit tube. The recovery shall be the same as that for Container Number 2 in Method 5, Section 4.2.

4.2.6 Container Number 4 (Silica Gel). The recovery shall be the same as that for Container Number 3 in Method 5, Section 4.2.

4.2.7 Impinger Water. Same as in Method 5, Section 4.2, under "Impinger Water."

4.3 Analysis. Same as in Method 5, Section 4.3, except handle Method 201A Container Number 1 like Container Number 1, Method 201A Container Numbers 2 and 3 like Container Number 2, and Method 201A Container Number 4 like Container Number 3. Use Figure 7 to record the weights of PM collected. Use Figure 5-3 in Method 5, Section 4.3, to record the volume of water collected.

4.4 Quality Control Procedures. Same as in Method 5, Section 4.4.

4.5 PM_{10} Emission Calculation and Acceptability of Results. Use the procedures in Section 6 to calculate PM_{10} emissions and the criteria in Section 6.3.5 to determine the acceptability of the results.

5. Calibration

Maintain an accurate laboratory log of all calibrations.

5.1 Probe Nozzle, Pitot Tube, Metering System, Probe Heater Calibration, Temperature Gauges, Leak-check of Metering System, and Barometer. Same as in Method 5, Section 5.1 through 5.7, respectively.

6. Calculations

Calculations are as specified in Method 5, Sections 6.3 through 6.7, and 6.9 through 6.11, with the addition of the following:

6.1 Nomenclature.

B_{ws} = Moisture fraction of stack, by volume, dimensionless.

C_1 = Viscosity constant, 51.12 micropoise for °K (51.05 micropoise for °R).

C_2 = Viscosity constant, 0.372 micropoise/°K (0.207 micropoise/°R).

C_3 = Viscosity constant, 1.05×10^{-4} micropoise/°K^2 (3.24×10^{-5} micropoise/°R^2).

C_4 = Viscosity constant, 53.147 micropoise/fraction O_2.

C_5 = Viscosity constant, 74.143 micropoise/fraction H_2O.

D_{50} = Diameter of particles having a 50 percent probability of penetration, μm.

f_o = Stack gas fraction O_2, by volume, dry basis.

K_1 = 0.3858 °K/mm Hg (17.64 °R/in. Hg).

M_w = Wet molecular weight of the stack gas, g/g-mole (lb/lb-mole).

M_d = Dry molecular weight of stack gas, g/g-mole (lb/lb-mole).

P_{bar} = Barometric pressure at sampling site, mm Hg (in. Hg).

P_s = Absolute stack pressure, mm Hg (in. Hg).

Q_s = Total cyclone flow rate at wet cyclone conditions, m^3/min (ft^3/min). YES!

$Q_{s(std)}$ = Total cyclone flow rate at dry standard conditions, dscm/min (dscf/min). DSCFM YES!

T_m = Average absolute temperature of dry meter, °K (°R).

T_s = Average absolute stack gas temperature, °K (°R).

$V_{m(std)}$ = Volume of gas measured by the dry gas meter, corrected to standard conditions, dscm (dscf).

$V_{w(std)}$ = Volume of water vapor in gas sample (standard conditions), scm (scf).

θ = Total sampling time, min.

μ_s = Viscosity of stack gas, micropoise.

6.2 Analysis of Cascade Impactor Data. Use the manufacturer's recommended procedures to analyze data from cascade impactors.

6.3 Analysis of Cyclone Data. Use the following procedures to analyze data from a single stage cyclone.

6.3.1 PM_{10} Weight. Determine the PM catch in the PM_{10} range from the sum of the weights obtained from Container Numbers 1 and 3 less the acetone blank.

6.3.2 Total PM Weight (optional). Determine the PM catch for greater than PM_{10} from the weight obtained from Container Number 2 less the acetone blank, and add it to the PM_{10} weight.

6.3.3 PM_{10} Fraction. Determine the PM_{10} fraction of the total particulate weight by dividing the PM_{10} particulate weight by the total particulate weight.

6.3.4 Aerodynamic Cut Size. Calculate the stack gas viscosity as follows:

$$\mu_s = C_1 + C_2 T_s + C_3 T_s^2 + C_4 f_{02} - C_5 B_{ws}$$

No! Use equation on page 24

$V_{w(std)} = .04707 (V_f - V_i)$

$T_s = \bar{t}_s + 460$

but $Q_{s(std)} = \frac{V_{m(std)}}{\theta}$

$K_1 = 17.64$

Substituting gives:

$Q_s = \frac{5.669 \times 10^{-2} (\bar{t}_s + 460)}{\theta P_s} [V_{m(std)} - .04707 (V_f$

6.3.4.1 The PM_{10} flow rate, at actual cyclone conditions, is calculated as follows:

$$Q_s = \frac{T_s}{K_1 P_s} \left[Q_{s(std)} + \frac{V_{w(std)}}{\theta} \right]$$

6.3.4.2 Calculate the molecular weight on a wet basis of the stack gas as follows:

$$M_w = M_d (1 - B_{ws}) + 18.0 (B_{ws})$$

6.3.4.3 Calculate the actual D_{50} of the cyclone for the given conditions as follows:

$$D_{50} = \beta_1 \left[\frac{T_s}{M_w P_s} \right]^{0.2091} \left[\frac{\mu_s}{Q_s} \right]^{0.7091}$$

actual cutpoint achieved during run

where $\beta_1 = 0.027754$ for metric units (0.15625 for English units).

6.3.5 Acceptable Results. The results are acceptable if two conditions are met. The first is that 9.0 μm $\leq D_{50} \leq$ 11.0 μm. The second is that no sampling points are outside Δp_{min} and Δp_{max}, or that 80 percent $\leq I \leq$ 120 percent and no more than one sampling point is outside Δp_{min} and Δp_{max}. If D_{50} is less than 9.0 μm, reject the results and repeat the test.

7. Bibliography

1. Same as Bibliography in Method 5.

2. McCain, J.D., J.W. Ragland, and A.D. Williamson. Recommended Methodology for the Determination of Particle Size Distributions in Ducted Sources, Final Report. Prepared for the California Air Resources Board by Southern Research Institute. May 1986.

3. Farthing, W.E., S.S. Dawes, A.D. Williamson, J.D. McCain, R.S. Martin, and J.W. Ragland. Development of Sampling Methods for Source PM_{10} Emissions. Southern Research Institute for the Environmental Protection Agency. April 1989. NTIS PB 89 190375, EPA/600/3-88-056.

4. Application Guide for Source PM_{10} Measurement with Constant Sampling Rate, EPA/600/3-88-057.

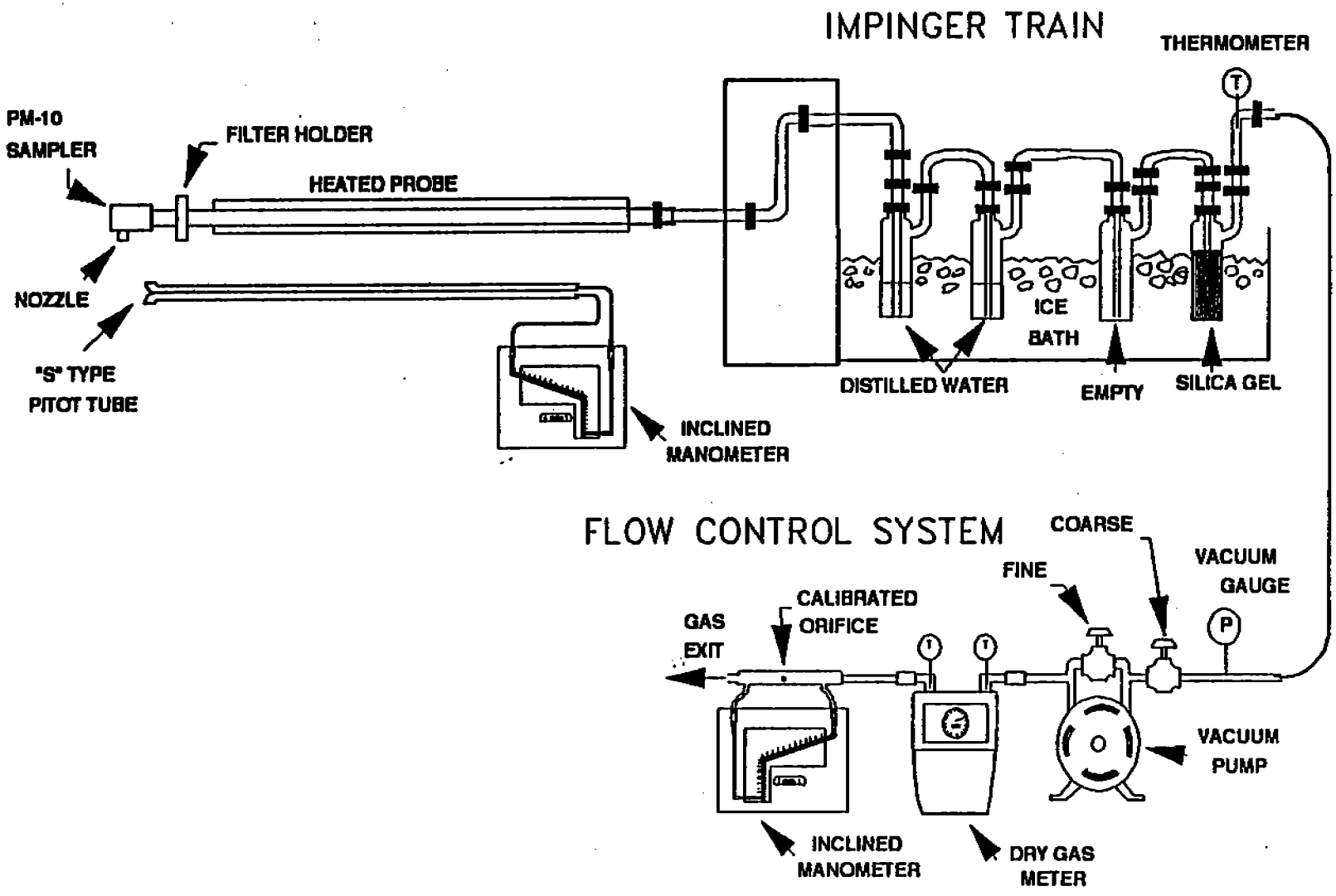
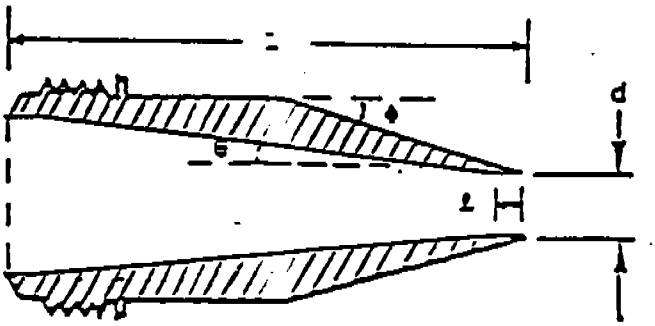


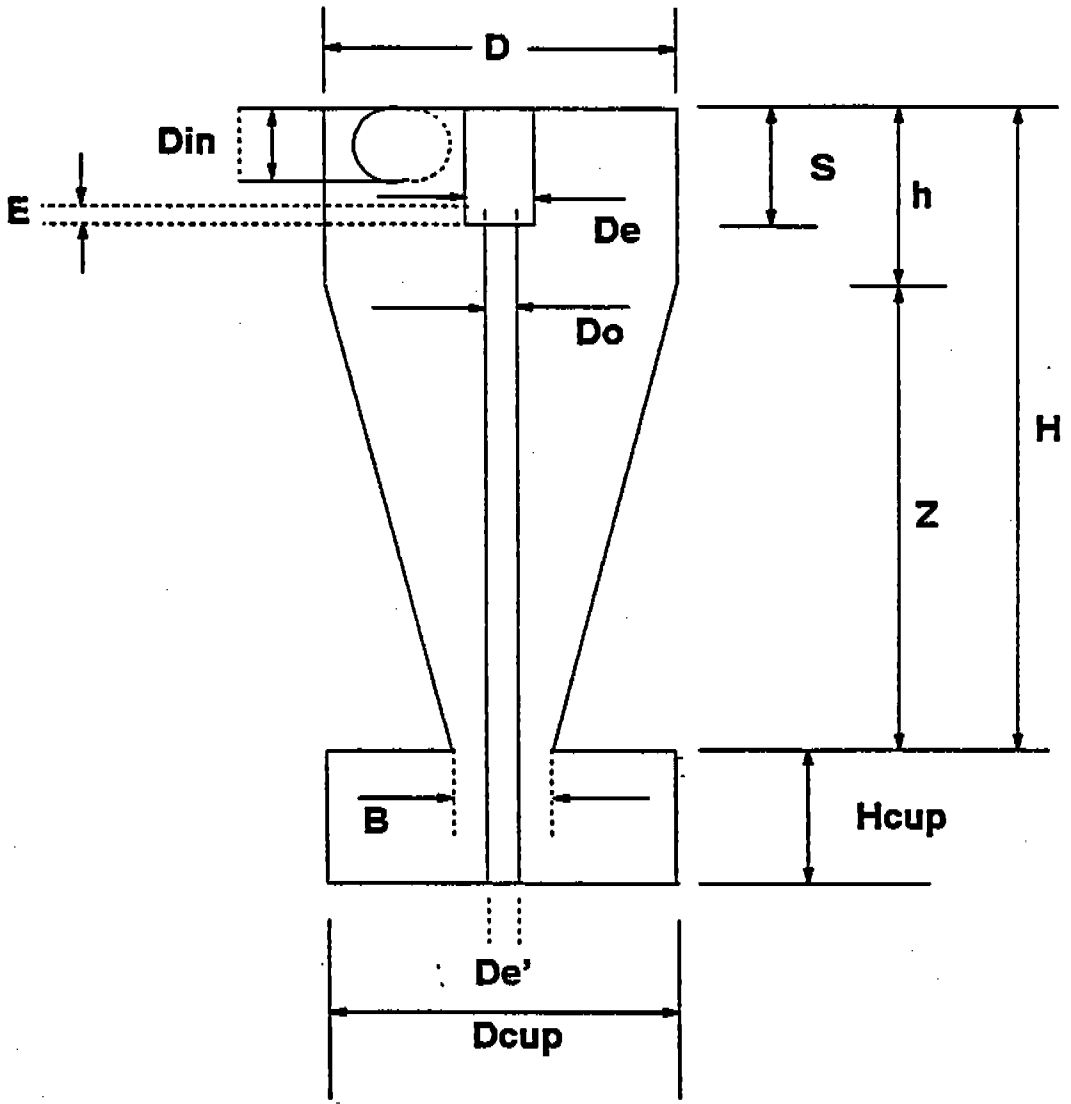
Figure 1. CSR Sampling Train



Nozzle Diameter (inches)	Cone Angle, θ (degrees)	Outside taper, ϕ (degrees)	Straight inlet length, ℓ (inches)	Total Length L (inches)
0.136	4	5	<0.05	2.653±0.05
0.150	4	5	<0.05	2.553±0.05
0.164	5	5	<0.05	1.970±0.05
0.180	6	5	<0.05	1.572±0.05
0.197	6	5	<0.05	1.491±0.05
0.215	6	5	<0.05	1.45 ±0.05
0.233	6	5	<0.05	1.45 ±0.05
0.264	5	5	<0.05	1.45 ±0.05
0.300	4	5	<0.05	1.48 ±0.05
0.342	4	5	<0.05	1.45 ±0.05
0.390	3	5	<0.05	1.45 ±0.05

Figure 2. Nozzle design specifications.

Cyclone Interior Dimensions



	Dimensions (+0.02 cm, +0.01 in.)												
	Din	D	De	B	H	h	Z	S	Hcup	Dcup	De'	Do	E
cm	1.27	4.47	1.50	1.88	6.95	2.24	4.71	1.57	2.25	4.45	1.02	1.24	0.25
in.	0.50	1.76	0.59	0.74	2.74	0.88	1.85	0.62	0.89	1.75	0.40	0.49	0.10

Figure 3. Cyclone design specifications.

Barometric pressure, P_{bar}, in. Hg = _____
Stack static pressure, P_g, in. H_2O = _____
Average stack temperature, t_s, °F = _____
Meter temperature, t_m, °F = _____
Orifice ΔH_a, in. H_2O = _____

Gas analysis:

$\%CO_2$ = _____
$\%O_2$ = _____
$\%N_2 + \%CO$ = _____
Fraction moisture content, B_{ws} = _____

Molecular weight of stack gas, dry basis:

$$M_d = 0.44(\%CO_2) + .32(\%O_2) + 0.28(\%N_2 + \%CO) = _____ \text{lb/lb mole}$$

Molecular weight of stack gas, wet basis:

$$M_w = M_d(1 - B_{ws}) + 18(B_{ws}) = _____ \text{lb/lb mole}$$

Absolute stack pressure:

$$P_s = P_{bar} + \frac{P_g}{13.6} = _____ \text{in. Hg}$$

Viscosity of stack gas:

$$\mu_s = 152.418 + 0.2552\ t_s + 3.2355 \times 10^{-5}\ t_s^2 + 0.53147\ (\%O_2) - 74.143\ B_{ws} = ____ \text{ micropoise}$$

Cyclone flow rate:

$$Q_s = 0.002837\ \mu_s \left[\frac{t_s + 460}{M_w\ P_s}\right]^{0.2949} = ___ \text{ ft}^3/\text{min}$$

Figure 4. Example worksheet 1 (Page 1 of 2), cyclone flow rate and ΔH.

Orifice pressure head (ΔH) needed for cyclone flow rate:

$$\Delta H = \left[\frac{Q_s(1-B_{ws})P_s}{t_s+460}\right]^2 \frac{(t_m+460)\ M_d\ (1.083)\ \Delta H_a}{P_{bar}} = _____ \text{ in. } H_2O$$

Calculate ΔH for three temperatures:

t_s, °F			
ΔH, in. H_2O			

Figure 4. Example worksheet 1 (Page 2 of 2), cyclone flow rate and ΔH.

Stack viscosity, μ_s, micropoise = _____
Absolute stack pressure, P_s, in. Hg = _____
Average stack temperature, t_s, °F = _____
Meter temperature, t_m, °F = _____
Method 201A pitot coefficient, C_p = _____
Cyclone flow rate, ft^3/min, Q_s = _____
Method 2 pitot coefficient, C_p = _____
Molecular weight of stack gas, wet basis, M_w = _____
Nozzle diameter, D_n, in. = _____

Nozzle velocity

$$v_n = \frac{3.056\ Q_s}{D_n^2} = _____ \text{ft/sec}$$

Maximum and minimum velocities:

Calculate R_{min}.

$$R_{min} = 0.2457 + \sqrt{0.3072 - \frac{0.2603\ (\sqrt{Q_s})\ \mu_s}{v_n^{1.5}}} = ____$$

If R_{min} is less than 0.5, or if an imaginary number occurs when calculating R_{min}, use Equation 1 to calculate v_{min}. Otherwise, use Equation 2.

Eq. 1 $v_{min} = v_n\ (0.5) = _____$ ft/sec

Eq. 2 $v_{min} = v_n\ R_{min} = _____$ ft/sec

Calculate R_{max}.

$$R_{max} = 0.4457 + \sqrt{0.5690 + \frac{0.2603\ (\sqrt{Q_s})\ \mu_s}{v_n^{1.5}}} = ____$$

Figure 5. Example worksheet 2 (page 1 of 2), nozzle selection.

If R_{max} is greater than 1.5, use Equation 3 to calculate v_{max}. Otherwise, use Equation 4.

Eq. 3 $v_{max} = v_n\ (1.5) =$ _____ ft/sec

Eq. 4 $v_{max} = v_n\ R_{max} =$ _____ ft/sec

Maximum and minimum velocity head values:

$$\Delta p_{min} = 1.3686 \times 10^{-4} \frac{P_s\ M_w\ (v_{min})^2}{(t_s + 460)\ C_p^2} = _____ \text{ in. } H_2O$$

$$\Delta p_{max} = 1.3686 \times 10^{-4} \frac{P_s\ M_w\ (v_{max})^2}{(t_s + 460)\ C_p^2} = _____ \text{in. } H_2O$$

Nozzle Number				
D_n, in.				
v_n, ft/sec				
v_{min}, ft/sec				
v_{max}, ft/sec				
Δp_{min}, in. H_2O				
Δp_{max}, in. H_2O				

Velocity traverse data:

incorrect

$$\Delta p(\text{Method 201A}) = \Delta p(\text{Method 2}) \left[\frac{C_p}{C_p'}\right]^2 = \Delta p^{M2} \left(\frac{C_p^{M2}}{C_p^{201A}}\right)^2$$

4-11-91 PE

Figure 5. Example worksheet 2 (page 2 of 2), nozzle selection.

Total run time, minutes = _____

Number of traverse points = _____

$$t_1 = \left[\frac{\Delta p_1'}{\Delta p_{avg}'} \right] \left(\frac{\text{Total run time}}{\text{Number of points}} \right)$$

where:

t_1 = dwell time at first traverse point, minutes.

$\Delta p'_1$ = the velocity head at the first traverse point (from a previous traverse), in. H_2O.

$\Delta p'_{avg}$ = the square of the average square root of the Δp's (from a previous velocity traverse), in. H_2O.

At subsequent traverse points, measure the velocity Δp and calculate the dwell time by using the following equation:

$$t_n = \frac{t_1}{\sqrt{\Delta p_1}} \sqrt{\Delta p_n}, \text{ where } n = 2,3,....\text{total number of sampling points}$$

where:

t_n = dwell time at traverse point n, minutes.

Δp_n = measured velocity head at point n, in. H_2O.

Δp_1 = measured velocity head at point 1, in. H_2O.

Figure 6. Example worksheet 3 (page 1 of 2), dwell time.

Port No_____ Port No_____ Port No_____ Port No_____

Point Number	Δp	t	Δp	t	Δp	t	Δp	t
1								
2								
3								
4								
5								
6								

Figure 6. Example worksheet 3 (page 2 of 2), dwell time.

Plant _____

Date _____

Run no. _____

Filter no. _____

Amount of liquid lost during transport _____

Acetone blank volume, ml _____

Acetone wash volume, ml (4) _____ (5) _____

Acetone blank conc., mg/mg (Equation 5-4, Method 5) _____

Acetone wash blank, mg (Equation 5-5, Method 5) _____

Container number	Weight of PM_{10} (mg)		
	Final weight	Tare weight	Weight gain
1			
3			
		Total.....	
		Less acetone blank.....	
		Weight of PM10.....	

Figure 7. Method 201A analysis sheet.

TABLE 1. PERFORMANCE SPECIFICATIONS FOR SOURCE PM_{10} CYCLONES AND NOZZLE COMBINATIONS

Parameter	Units	Specification
1. Collection efficiency	Percent	Such that collection efficiency falls within envelope specified by Section 5.2.6 and Figure 8.
2. Cyclone cut size (D_{50})	μm	10 ± 1 μm aerodynamic diameter

TABLE 2. PARTICLE SIZES AND NOMINAL GAS VELOCITIES FOR EFFICIENCY

Particle size (μm)[a]	Target gas velocities (m/sec)		
	7 ± 1.0	15 ± 1.5	25 ± 2.5
5 ± 0.5			
7 ± 0.5			
10 ± 0.5			
14 ± 1.0			
20 ± 1.0			

(a) Mass median aerodynamic diameter.

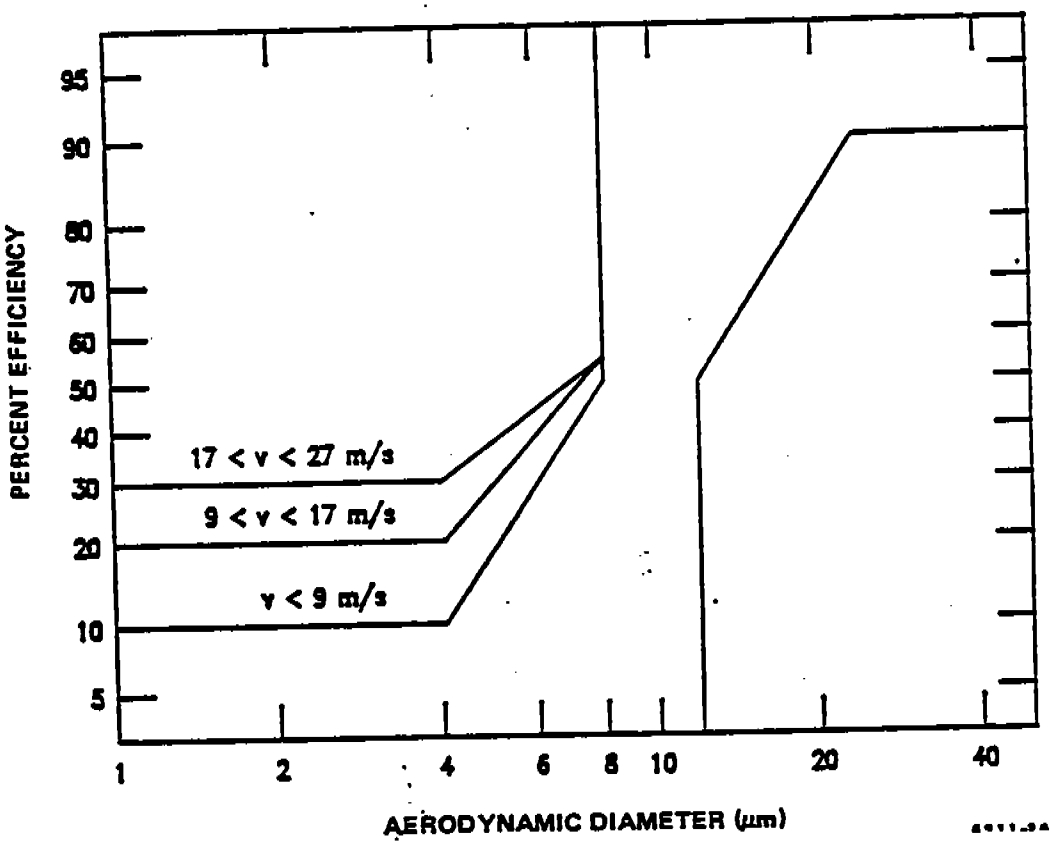


Figure 8. Efficiency envelope for the PM_{10} cyclone.

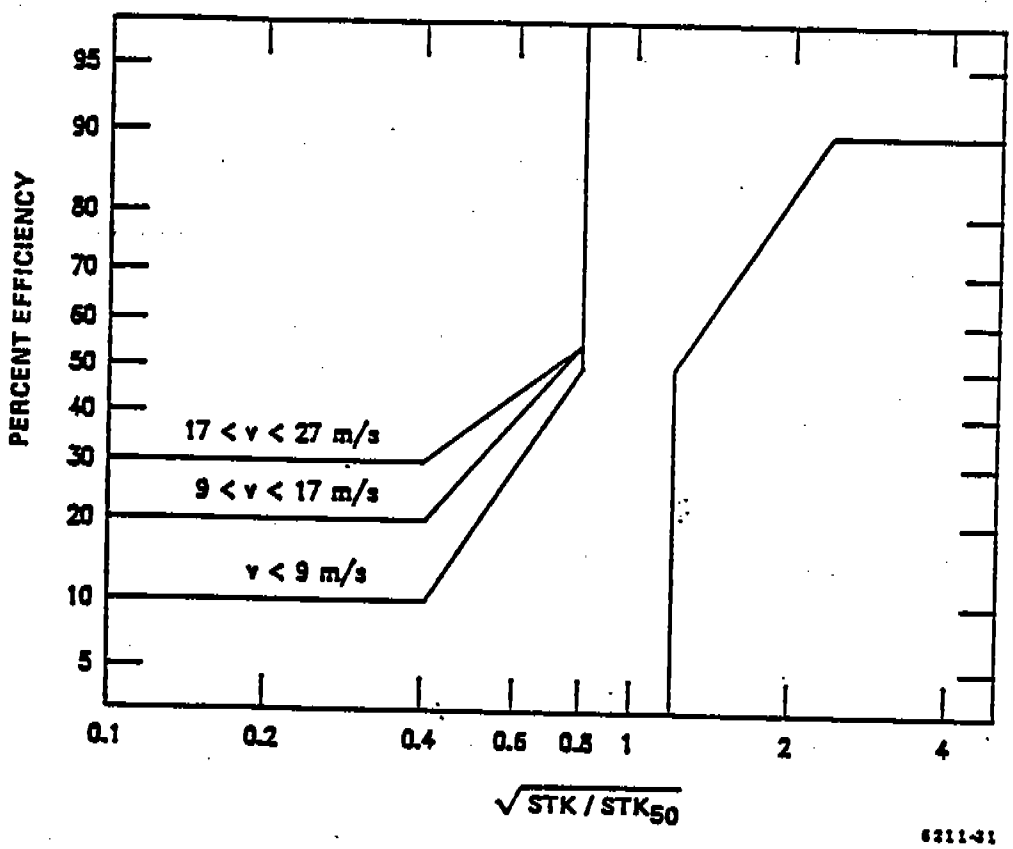


Figure 9. Efficiency envelope for first calibration stage.

(CO) content using a Luft-type nondispersive infrared analyzer (NDIR) or equivalent.

1.2 Applicability. This method is applicable for the determination of carbon monoxide emissions from stationary sources only when specified by the test procedures for determining compliance with new source performance standards. The test procedure will indicate whether a continuous or an integrated sample is to be used.

2. *Range and Sensitivity*

2.1 Range. 0 to 1,000 ppm.

2.2 Sensitivity. Minimum detectable concentration is 20 ppm for a 0 to 1,000 ppm span.

3. *Interferences*

Any substance having a strong absorption of infrared energy will interfere to some extent. For example, discrimination ratios for water (H_2O) and carbon dioxide (CO_2) are 3.5 percent H_2O per 7 ppm CO and 10 percent CO_2 per 10 ppm CO, respectively, for devices measuring in the 1,500 to 3,000 ppm range. For devices measuring in the 0 to 100 ppm range, interference ratios can be as high as 3.5 percent H_2O per 25 ppm CO and 10 percent CO_2 per 50 ppm CO. The use of silica gel and ascarite traps will alleviate the major interference problems. The measured gas volume must be corrected if these traps are used.

4. *Precision and Accuracy*

4.1 Precision. The precision of most NDIR analyzers is approximately ±2 percent of span.

4.2 Accuracy. The accuracy of most NDIR analyzers is approximately ±5 percent of span after calibration.

5. *Apparatus*

5.1 Continuous Sample (Figure 10-1).

5.1.1 Probe. Stainless steel or sheathed Pyrex[1] glass, equipped with a filter to remove particulate matter.

5.1.2 Air-Cooled Condenser or Equivalent. To remove any excess moisture.

5.2 Integrated Sample (Figure 10-2).

5.2.1 Probe. Stainless steel or sheathed Pyrex glass, equipped with a filter to remove particulate matter.

5.2.2 Air-Cooled Condenser or Equivalent. To remove any excess moisture.

5.2.3 Valve. Needle valve, or equivalent, to to adjust flow rate.

5.2.4 Pump. Leak-free diaphragm type, or equivalent, to transport gas.

5.2.5 Rate Meter. Rotameter, or equivalent, to measure a flow range from 0 to 1.0 liter per min (0.035 cfm).

METHOD 10—DETERMINATION OF CARBON MONOXIDE EMISSIONS FROM STATIONARY SOURCES

1. *Principle and Applicability*

1.1 Principle. An integrated or continuous gas sample is extracted from a sampling point and analyzed for carbon monoxide

[1] Mention of trade names or specific products does not constitute endorsement by the Environmental Protection Agency.

5.2.6 Flexible Bag. Tedlar, or equivalent, with a capacity of 60 to 90 liters (2 to 3 ft^3). Leak-test the bag in the laboratory before using by evacuating bag with a pump followed by a dry gas meter. When evacuation is complete, there should be no flow through the meter.

5.2.7 Pitot Tube. Type S, or equivalent, attached to the probe so that the sampling rate can be regulated proportional to the stack gas velocity when velocity is varying with the time or a sample traverse is conducted.

5.3 Analysis (Figure 10–3).

5.3.1 Carbon Monoxide Analyzer. Nondispersive infrared spectrometer, or equivalent. This instrument should be demonstrated, preferably by the manufacturer, to meet or exceed manufacturer's specifications and those described in this method.

5.3.2 Drying Tube. To contain approximately 200 g of silica gel.

5.3.3 Calibration Gas. Refer to section 6.1.

5.3.4 Filter. As recommended by NDIR manufacturer.

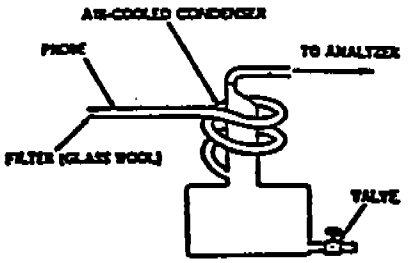


Figure 10-1. Continuous sampling train.

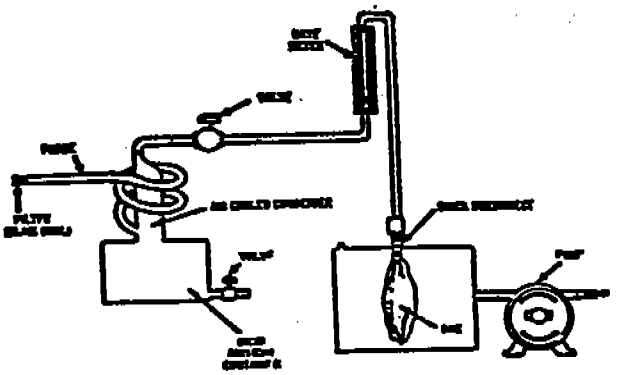


Figure 10-2. Integrated gas sampling train.

5.3.5 CO_2 Removal Tube. To contain approximately 500 g of ascarite.

5.3.6 Ice Water Bath. For ascarite and silica gel tubes.

5.3.7 Valve. Needle valve, or equivalent, to adjust flow rate

5.3.8 Rate Meter. Rotameter or equivalent to measure gas flow rate of 0 to 1.0 liter per min (0.035 cfm) through NDIR.

5.3.9 Recorder (*optional*). To provide permanent record of NDIR readings.

6. *Reagents*

6.1 Calibration Gases. Known concentration of CO in nitrogen (N_2) for instrument span, prepurified grade of N_2 for zero, and two additional concentrations corresponding approximately to 60 percent and 30 percent span. The span concentration shall not exceed 1.5 times the applicable source performance standard. The calibration gases shall be certified by the manufacturer to be within ±2 percent of the specified concentration.

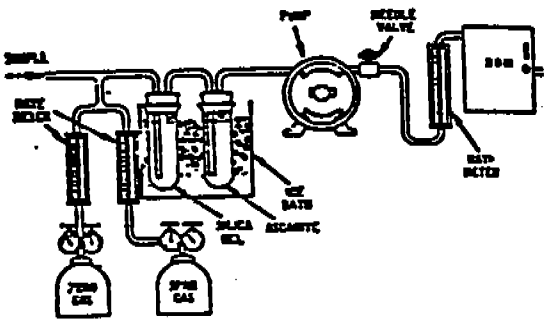


Figure 10-3. Analytical equipment.

6.2 Silica Gel. Indicating type, 6 to 16 mesh, dried at 175° C (347° F) for 2 hours.

6.3 Ascarite. Commercially available.

7. *Procedure*

7.1 Sampling.

7.1.1 Continuous Sampling. Set up the equipment as shown in Figure 10–1 making sure all connections are leak free. Place the probe in the stack at a sampling point and purge the sampling line. Connect the analyzer and begin drawing sample into the analyzer. Allow 5 minutes for the system to stabilize, then record the analyzer reading as required by the test procedure. (See section 7.2 and 8). CO_2 content of the gas may be determined by using the Method 3 integrated sample procedure, or by weighing the ascarite CO_2 removal tube and computing CO_2 concentration from the gas volume sampled and the weight gain of the tube.

7.1.2 Integrated Sampling. Evacuate the flexible bag. Set up the equipment as shown in Figure 10–2 with the bag disconnected. Place the probe in the stack and purge the sampling line. Connect the bag, making sure that all connections are leak free. Sample at a rate proportional to the stack velocity. CO_2 content of the gas may be determined by using the Method 3 integrated sample procedures, or by weighing the ascarite CO_2 removal tube and computing CO_2 concentra-

tion from the gas volume sampled and the weight gain of the tube.

7.2 CO Analysis. Assemble the apparatus as shown in Figure 10-3, calibrate the instrument, and perform other required operations as described in section 8. Purge analyzer with N_2 prior to introduction of each sample. Direct the sample stream through the instrument for the test period, recording the readings. Check the zero and span again after the test to assure that any drift or malfunction is detected. Record the sample data on Table 10-1.

8. *Calibration*

Assemble the apparatus according to Figure 10-3. Generally an instrument requires a warm-up period before stability is obtained. Follow the manufacturer's instructions for specific procedure. Allow a minimum time of 1 hour for warm-up. During this time check the sample conditioning apparatus, i.e., filter, condenser, drying tube, and CO_2 removal tube, to ensure that each component is in good operating condition. Zero and calibrate the instrument according to the manufacturer's procedures using, respectively, nitrogen and the calibration gases.

TABLE 10-1—FIELD DATA

Comments	
Location	
Test	
Date	
Operator	
Clock time	Rotameter setting, liters per minute (cubic feet per minute)

9. *Calculation*

Concentration of carbon monoxide. Calculate the concentration of carbon monoxide in the stack using Equation 10-1.

$$C_{CO\ stack} = C_{CO\ NDIR}(1 - F_{CO_2})$$

Eq. 10-1

Where:

$C_{CO\ stack}$ = Concentration of CO in stack, ppm by volume (dry basis).

$C_{CO\ NDIR}$ = Concentration of CO measured by NDIR analyzer, ppm by volume (dry basis).

F_{CO_2} = Volume fraction of CO_2 in sample, i.e., percent CO_2 from Orsat analysis divided by 100.

10. Alternative Procedures

10.1 Interference Trap. The sample conditioning system described in Method 10A, sections 2.1.2 and 4.2, may be used as an alternative to the silica gel and ascarite traps.

11. *Bibliography*

11.1 McElroy, Frank, The Intertech NDIR-CO Analyzer, Presented at 11th Methods Conference on Air Pollution, University of California, Berkeley, CA. April 1, 1970.

11.2 Jacobs, M. B., et al., Continuous Determination of Carbon Monoxide and Hydrocarbons in Air by a Modified Infrared Analyzer, J. Air Pollution Control Association, 9(2): 110-114. August 1959.

11.3 MSA LIRA Infrared Gas and Liquid Analyzer Instruction Book, Mine Safety Appliances Co., Technical Products Division, Pittsburgh, PA.

11.4 Models 215A, 315A, and 415A Infrared Analyzers, Beckman Instruments, Inc., Beckman Instructions 1635-B, Fullerton, CA. October 1967.

11.5 Continuous CO Monitoring System, Model A5611, Intertech Corp., Princeton, NJ.

11.6 UNOR Infrared Gas Analyzers, Bendix Corp., Ronceverte, WV

ADDENDA

A. PERFORMANCE SPECIFICATIONS FOR NDIR CARBON MONOXIDE ANALYZERS

Range (minimum)	0-1000 ppm.
Output (minimum)	0-10mV.
Minimum detectable sensitivity.	20 ppm.
Rise time, 90 percent (maximum).	30 seconds.
Fall time, 90 percent (maximum).	30 seconds.
Zero drift (maximum)	10% in 8 hours.
Span drift (maximum)	10% in 8 hours.
Precision (minimum)	±2% of full scale.
Noise (maximum)	±1% of full scale.
Linearity (maximum deviation)	2% of full scale.
Interference rejection ratio	CO_2—1000 to 1, H_2O—500 to 1.

B. *Definitions of Performance Specifications.*

Range—The minimum and maximum measurement limits.

Output—Electrical signal which is proportional to the measurement; intended for connection to readout or data processing devices. Usually expressed as millivolts or milliamps full scale at a given impedance.

Full scale—The maximum measuring limit for a given range.

Minimum detectable sensitivity—The smallest amount of input concentration that can be detected as the concentration approaches zero.

Accuracy—The degree of agreement between a measured value and the true value; usually expressed as ± percent of full scale.

Time to 90 percent response—The time interval from a step change in the input concentration at the instrument inlet to a reading of 90 percent of the ultimate recorded concentration.

Rise Time (90 percent)—The interval between initial response time and time to 90 percent response after a step increase in the inlet concentration.

Fall Time (90 percent)—The interval between initial response time and time to 90 percent response after a step decrease in the inlet concentration.

Zero Drift—The change in instrument output over a stated time period, usually 24 hours, of unadjusted continuous operation when the input concentration is zero; usually expressed as percent full scale.

Span Drift—The change in instrument output over a stated time period, usually 24 hours, of unadjusted continuous operation when the input concentration is a stated upscale value; usually expressed as percent full scale.

Precision—The degree of agreement between repeated measurements of the same concentration, expressed as the average deviation of the single results from the mean.

Noise—Spontaneous deviations from a mean output not caused by input concentration changes.

Linearity—The maximum deviation between an actual instrument reading and the reading predicted by a straight line drawn between upper and lower calibration points.

Method 10A—Determination of Carbon Monoxide Emissions in Certifying Continuous Emission Monitoring Systems at Petroleum Refineries

1. Applicability and Principle

1.1 Applicability. This method applies to the measurement of carbon monoxide (CO) at petroleum refineries. This method serves as the reference method in the relative accuracy test for nondispersive infrared (NDIR) CO continuous emission monitoring systems (CEMS's) that are required to be installed in petroleum refineries on fluid catalytic cracking unit catalyst regenerators [40 CFR Part 60.105(a)(2)].

1.2 Principle. An integrated gas sample is extracted from the stack, passed through an alkaline permanganate solution to remove sulfur and nitrogen oxides, and collected in a Tedlar bag. The CO concentration in the sample is measured spectrophotometrically using the reaction of CO with p-sulfaminobenzoic acid.

1.3. Range and Sensitivity.

1.3.1 Range. Approximately 3 to 1800 ppm CO. Samples having concentrations below 400 ppm are analyzed at 425 nm, and samples having concentrations above 400 ppm are analyzed at 600 nm.

1.3.2 Sensitivity. The detection limit is 3 ppm based on three times the standard deviation of the mean reagent blank values.

1.4 Interferences. Sulfur oxides, nitric oxide, and other acid gases interfere with the colorimetric reaction. They are removed by passing the sampled gas through an alkaline potassium permanganate scrubbing solution. Carbon dioxide (CO_2) does not interfere, but, because it is removed by the scrubbing solution, its concentration must be measured independently and an appropriate volume correction made to the sampled gas.

1.5 Precision, Accuracy, and Stability.

1.5.1 Precision. The estimated intralaboratory standard deviation of the method is 3 percent of the mean for gas samples analyzed in duplicate in the concentration range of 39 to 412 ppm. The interlaboratory precision has not been established.

1.5.2 Accuracy. The method contains no significant biases when compared to an NDIR analyzer calibrated with National Bureau of Standards (NBS) standards.

1.5.3 Stability. The individual components of the colorimetric reagent are stable for at least 1 month. The colorimetric reagent must be used within 2 days after preparation to avoid excessive blank correction. The samples in the Tedlar [1] bag should be stable for at least 1 month if the bags are leak-free.

2. Apparatus

2.1 Sampling. The sampling train is shown in Figure 10A-1, and component parts are discussed below:

[1] Mention of trade names or commercial products in this publication does not constitute the endorsement or recommendation for use by the Environmental Protection Agency.

EPA
METHOD 0011

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JUL 16 1990
INTERPOLL LABORATORIES

SAMPLING FOR FORMALDEHYDE EMISSIONS FROM STATIONARY SOURCES

1.0 SCOPE AND APPLICATION

1.1 This method is applicable to the determination of Destruction and Removal Efficiency (DRE) of formaldehyde, CAS Registry number 50-00-0, and possibly other aldehydes and ketones from stationary sources as specified in the regulations. The methodology has been applied specifically to formaldehyde; however, many laboratories have extended the application to other aldehydes and ketones. Compounds derivatized with 2,4-dinitrophenylhydrazine can be detected as low as 6.4×10^{-8} lbs/cu ft (1.8 ppbv) in stack gas over a 1 h sampling period, sampling approximately 45 cu ft.

2.0 SUMMARY OF METHOD

2.1 Gaseous and particulate pollutants are withdrawn isokinetically from an emission source and are collected in aqueous acidic 2,4-dinitrophenylhydrazine. Formaldehyde present in the emissions reacts with the 2,4-dinitrophenylhydrazine to form the formaldehyde dinitrophenylhydrazone derivative. The dinitrophenylhydrazone derivative is extracted, solvent-exchanged, concentrated, and then analyzed by high performance liquid chromatography.

3.0 INTERFERENCES

3.1 A decomposition product of 2,4-dinitrophenylhydrazine, 2,4-dinitroaniline, can be an analytical interferent if concentrations are high. 2,4-dinitroaniline can coelute with the 2,4-dinitrophenylhydrazone of formaldehyde under high performance liquid chromatography conditions which may be used for the analysis. High concentrations of highly oxygenated compounds, especially acetone, that have the same retention time or nearly the same retention time as the dinitrophenylhydrazone of formaldehyde and that also absorb at 360 nm will interfere with the analysis.

Formaldehyde, acetone, and 2,4-dinitroaniline contamination of the aqueous acidic 2,4-dinitrophenylhydrazine (DNPH) reagent is frequently encountered. The reagent must be prepared within five days of use in the field and must be stored in an uncontaminated environment both before and after sampling in order to minimize blank problems. Some level of acetone contamination is unavoidable, because acetone is ubiquitous in laboratory and field operations. However, the acetone contamination must be minimized.

4.0 APPARATUS AND MATERIALS

4.1 A schematic of the sampling train is shown in Figure 1. This sampling train configuration is adapted from EPA Method 5 procedures. The sampling train consists of the following components: Probe Nozzle, Pitot Tube, Differential Pressure Gauge, Metering System, Barometer, and Gas Density Determination Equipment.

4.1.1 Probe Nozzle: Quartz or glass with sharp, tapered (30° angle) leading edge. The taper shall be on the outside to preserve a constant inner diameter. The nozzle shall be buttonhook or elbow design. A range of nozzle sizes suitable

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for isokinetic sampling should be available in increments of 0.16 cm (1/16 in), e.g., 0.32 to 1.27 cm (1/8 to 1/2 in), or larger if higher volume sampling trains are used. Each nozzle shall be calibrated according to the procedures outlined in Section 8.1.

4.1.2 Probe Liner: Borosilicate glass or quartz shall be used for the probe liner. The tester should not allow the temperature in the probe to exceed 120 ± 14°C (248 ± 25°F).

4.1.3 Pitot Tube: The Pitot tube shall be Type S, as described in Section 2.1 of EPA Method 2, or any other appropriate device. The pitot tube shall be attached to the probe to allow constant monitoring of the stack gas velocity. The impact (high pressure) opening plane of the pitot tube shall be even with or above the nozzle entry plane (see EPA Method 2, Figure 2-6b) during sampling. The Type S pitot tube assembly shall have a known coefficient, determined as outlined in Section 4 of EPA Method 2.

4.1.4 Differential Pressure Gauge: The differential pressure gauge shall be an inclined manometer or equivalent device as described in Section 2.2 of EPA Method 2. One manometer shall be used for velocity-head readings and the other for orifice differential pressure readings.

4.1.5 Impingers: The sampling train requires a minimum of four impingers, connected as shown in Figure 1, with ground glass (or equivalent) vacuum-tight fittings. For the first, third, and fourth impingers, use the Greenburg-Smith design, modified by replacing the tip with a 1.3-cm inside diameter (1/2 in) glass tube extending to 1.3 cm (1/2 in) from the bottom of the flask. For the second impinger, use a Greenburg-Smith impinger with the standard tip. Place a thermometer capable of measuring temperature to within 1°C (2°F) at the outlet of the fourth impinger for monitoring purposes.

4.1.6 Metering System: The necessary components are a vacuum gauge, leak-free pump, thermometers capable of measuring temperature within 3°C (5.4°F), dry-gas meter capable of measuring volume to within 1%, and related equipment as shown in Figure 1. At a minimum, the pump should be capable of 4 cfm free flow, and the dry gas meter should have a recording capacity of 0-999.9 cu ft with a resolution of 0.005 cu ft. Other metering systems may be used which are capable of maintaining sampling rates within 10% of isokinetic collection and of determining sample volumes to within 2%. The metering system may be used in conjunction with a pitot tube to enable checks of isokinetic sampling rates.

4.1.7 Barometer: The barometer may be mercury, aneroid, or other barometer capable of measuring atmospheric pressure to within 2.5 mm Hg (0.1 in Hg). In many cases, the barometric reading may be obtained from a nearby National Weather Service Station, in which case the station value (which is the absolute barometric pressure) is requested and an adjustment for elevation differences between the weather station and sampling point is applied at a rate of minus 2.5 mm Hg (0.1 in Hg) per 30 m (100 ft) elevation increase (vice versa for elevation decrease).

4.1.8 Gas Density Determination Equipment: Temperature sensor and pressure gauge (as described in Sections 2.3 and 2.4 of EPA Method 2), and gas analyzer, if necessary (as described in EPA Method 3). The temperature sensor ideally should be permanently attached to the pitot tube or sampling probe in a fixed

configuration such that the tip of the sensor extends beyond the leading edge of the probe sheath and does not touch any metal. Alternatively, the sensor may be attached just prior to use in the field. Note, however, that if the temperature sensor is attached in the field, the sensor must be placed in an interference-free arrangement with respect to the Type S pitot tube openings (see EPA Method 2, Figure 2-7). As a second alternative, if a difference of no more than 1% in the average velocity measurement is to be introduced, the temperature gauge need not be attached to the probe or pitot tube.

4.2 Sample Recovery

4.2.1 Probe Liner: Probe nozzle and brushes; Teflon® bristle brushes with stainless steel wire handles are required. The probe brush shall have extensions of stainless steel, Teflon®, or inert material at least as long as the probe. The brushes shall be properly sized and shaped to brush out the probe liner, the probe nozzle, and the impingers.

4.2.2 Wash Bottles: Three wash bottles are required. Teflon® or glass wash bottles are recommended; polyethylene wash bottles should not be used because organic contaminants may be extracted by exposure to organic solvents used for sample recovery.

4.2.3 Graduated Cylinder and/or Balance: A graduated cylinder or balance is required to measure condensed water to the nearest 1 mL or 1 g. Graduated cylinders shall have divisions not >2 mL. Laboratory balances capable of weighing to ±0.5 g are required.

4.2.4 Amber Glass Storage Containers: One-liter wide-mouth amber flint glass bottles with Teflon®-lined caps are required to store impinger water samples. The bottles must be sealed with Teflon® tape.

4.2.5 Rubber Policeman and Funnel: A rubber policeman and funnel are required to aid in the transfer of materials into and out of containers in the field.

5.0 REAGENTS

Reagent grade chemicals or better grades shall be used in all tests. Unless otherwise indicated, all reagents shall conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available.

5.1 Water: HPLC-grade water is used in preparation of DNPH reagent and in all other applications in the sampling train.

5.2 Silica Gel: Silica gel shall be indicating type, 6-16 mesh. If the silica gel has been used previously, dry at 175°C (350°F) for 2 h before using. New silica gel may be used as received. Alternatively, other types of desiccants (equivalent or better) may be used.

5.3 Crushed Ice: Quantities ranging from 10-50 lb may be necessary during a sampling run, depending upon ambient temperature. Samples which have been taken must be stored and shipped cold; sufficient ice for this purpose must be allowed.

5.4 2,4-Dinitrophenylhydrazine Reagent: The 2,4-dinitrophenylhydrazine reagent must be prepared in the laboratory within five days of sampling use in the field. Preparation of DNPH can also be done in the field, with consideration of appropriate procedures required for safe handling of solvent in the field. When a container of prepared DNPH reagent is opened in the field, the contents of the opened container should be used within 48 hours. All laboratory glassware must be washed with detergent and water and rinsed with water, methanol, and methylene chloride prior to use.

NOTE: The glassware must not be rinsed with acetone or unacceptable levels of acetone contamination will be introduced. If field preparation of DNPH is performed, caution must be exercised in avoiding acetone contamination.

Reagent bottles for storage of cleaned DNPH derivatizing solution must be rinsed with acetonitrile and dried before use. Baked glassware is not essential for preparation of DNPH reagent.

NOTE: DNPH crystals or DNPH solution should be handled with plastic gloves at all times, with prompt and extensive use of running water in case of skin exposure.

5.4.1 Preparation of Aqueous Acidic DNPH: The following materials and reagents are required for preparation of the reagent.

5.4.1.1 Bottles/Caps: amber 1- or 4 L bottles with Teflon®-lined caps are required for storing cleaned DNPH solution. Additional 4-L bottles are required to collect waste organic solvents.

5.4.1.2 Large Glass Container: at least one large glass container (8 to 16 L) is required for mixing the aqueous acidic DNPH solution.

5.4.1.3 Stir Plate/Large Stir Bars/Stir Bar Retriever: a magnetic stir plate and large stir bar are required for the mixing of the aqueous acidic DNPH solution. A stir bar retriever is needed for removing the stir bar from the large container holding the DNPH solution.

5.4.1.4 Buchner Filter/Filter Flask/Filter Paper: a large filter flask (2-4 L) with a buchner filter, appropriate rubber stopper, filter paper, and connecting tubing are required for filtering the aqueous acidic DNPH solution prior to cleaning.

5.4.1.5 Separatory Funnels: at least one large separatory funnel (2 L) is required for cleaning the DNPH prior to use.

5.4.1.6 Beakers: beakers (150 mL, 250 mL, and 400 mL) are useful for holding/measuring organic liquids when cleaning the aqueous acidic DNPH solution and for weighing DNPH crystals.

5.4.1.7 Funnels: at least one large funnel is needed for pouring the aqueous acidic DNPH into the separatory funnel.

5.4.1.8 Graduated Cylinders: at least one large graduated cylinder (1 to 2 L) is required for measuring HPLC-grade water and acid when preparing the DNPH solution.

5.4.1.9 Top-Loading Balance: a one-place top loading balance is needed for weighing out the DNPH crystals used to prepare the aqueous acidic DNPH solution.

5.4.1.10 Spatulas: spatulas are needed for weighing out DNPH when preparing the aqueous DNPH solution.

5.4.1.11 HPLC-Grade Water: water (HPLC-grade) is required to mix the aqueous DNPH solution.

5.4.1.12 Hydrochloric Acid: reagent grade hydrochloric acid (approximately 12N) is required for acidifying the aqueous DNPH solution.

5.4.1.13 2,4-Dinitrophenylhydrazine: a supply of moist solid 2,4-dinitrophenylhydrazine (DNPH) is required for preparation of aqueous acidic DNPH solution. The quantity of water may vary from 10 to 30%. Reagent grade or equivalent is required.

5.4.1.14 Methylene Chloride: methylene chloride (suitable for residue and pesticide analysis, GC/MS, HPLC, GC, Spectrophotometry or equivalent) is required for cleaning the aqueous acidic DNPH solution, rinsing glassware, and recovery of sample trains.

5.4.1.15 Cyclohexane: cyclohexane (HPLC grade) is required for cleaning the aqueous acidic DNPH solution.

NOTE: Do not use spectroanalyzed grades of cyclohexane if this sampling methodology is extended to aldehydes and ketones with four or more carbon atoms.

5.4.1.16 Methanol: methanol (HPLC grade or equivalent) is required for rinsing glassware.

5.4.1.17 Acetonitrile: acetonitrile (HPLC grade or equivalent) is required for rinsing glassware.

5.4.1.18 Formaldehyde: Analytical grade or equivalent formaldehyde is required for preparation of standards. If other aldehydes or ketones are used, analytical grade or equivalent is required.

5.4.2 Preparation of Aqueous Acidic DNPH Derivatizing Reagent: Each batch of DNPH reagent should be prepared and purified within five days of sampling, according to the procedure described below.

5.4.2.1 Place an 8-L container under a fume hood on a magnetic stirrer. Add a large stir bar and fill the container half full of HPLC-grade water. Save the empty bottle from HPLC-grade water. Start the stirring bar and adjust the stir rate to be as fast as possible. Using a graduated cylinder, measure 1.4 mL of concentrated hydrochloric acid. Slowly pour the acid into the stirring water. Fumes may be generated and the water may become warm. Weigh the DNPH crystals on a one-place balance (see Table 1 for approximate amounts) and add to the stirring acid solution. Fill the 8 L container to the 8 L mark with HPLC water and stir overnight. If all of the DNPH crystals have dissolved overnight, add additional DNPH and stir for two more hours. Continue the process of adding DNPH with additional stirring until a saturated solution has been formed. Filter the DNPH solution using vacuum filtration. Gravity filtration may be used, but a

much longer time is required. Store the filtered solution in an amber bottle at room temperature.

TABLE 1. APPROXIMATE AMOUNT OF CRYSTALLINE DNPH USED TO PREPARE A SATURATED SOLUTION

Amount of Moisture in DNPH	Weight Required per 8 L of Solution
10 weight percent	31 g
15 weight percent	33 g
30 weight percent	40 g

Within five days of proposed use, place about 1.6 L of the DNPH reagent in a 2 L separatory funnel. Add approximately 200 mL of methylene chloride and stopper the funnel. Wrap the stopper of the funnel with paper towels to absorb any leakage. Invert and vent the funnel. Then shake vigorously for 3 minutes. Initially, the funnel should be vented frequently (every 10 - 15 sec). After the layers have separated, discard the lower (organic) layer.

Extract the DNPH a second time with methylene chloride and finally with cyclohexane. When the cyclohexane layer has separated from the DNPH reagent, the cyclohexane layer will be the top layer in the separatory funnel. Drain the lower layer (the cleaned extracted DNPH reagent solution) into an amber bottle that has been rinsed with acetonitrile and allowed to dry.

5.4.3 Quality Control: Take two aliquots of the extracted DNPH reagent. The size of the aliquots is dependent upon the exact sampling procedure used, but 100 mL is reasonably representative. To ensure that the background in the reagent is acceptable for field use, analyze one aliquot of the reagent according to the procedure of EPA Draft Method 8315. Save the other aliquot of aqueous acidic DNPH for use as a method blank when the analysis is performed.

5.4.4 Shipment to the Field: Tightly cap the bottle containing extracted DNPH reagent using a Teflon®-lined cap. Seal the bottle with Teflon® tape. After the bottle is labeled, the bottle may be placed in a friction-top can (paint can or equivalent) containing a 1 -2 inch layer of granulated charcoal and stored at ambient temperature until use.

If the DNPH reagent has passed the Quality Control criteria, the reagent may be packaged to meet necessary shipping requirements and sent to the sampling area. If the Quality Control criteria are not met, the reagent solution may be re-extracted or the solution may be re-prepared and the extraction sequence repeated.

If the DNPH reagent is not used in the field within five days of extraction, an aliquot may be taken and analyzed as described Draft Method 8315. If the reagent meets the Quality Control requirements, the reagent may be used. If the reagent does not meet Quality Control requirements, the reagent must be discarded and new reagent must be prepared and tested.

5.4.5 Calculation of Acceptable Levels of Impurities in DNPH Reagent: The acceptable impurity level (AIL, µg/mL) is calculated from the expected analyte level in the sampled gas (EAL, ppbv), the volume of air that will be sampled at standard conditions (SVOL, L), the formula weight of the analyte (FW, g/mol), and the volume of DNPH reagent that will be used in the impingers (RVOL, mL):

$$AIL = 0.1 \times [EAL \times SVOL \times FW/22.4 \times (FW + 180)/FW]/(RVOL \times 1000).$$

where 0.1 is the acceptable contaminant level, 22.4 is a factor relating ppbv to g/L, 180 is a factor relating the underivatized analyte to the derivatized analyte, and 1000 is a unit conversion factor.

5.4.6 Disposal of Excess DNPH Reagent: Excess DNPH reagent may be returned to the laboratory and recycled or treated as aqueous waste for disposal purposes. 2,4-Dinitrophenylhydrazine is a flammable solid when dry so water should not be evaporated from the solution of the reagent.

5.5 Field Spike Standard Preparation: To prepare a formaldehyde field spiking standard at 4.01 mg/mL, use a 500µL syringe to transfer 0.5 mL of 37% by weight of formaldehyde (401 mg/mL) to a 50 mL volumetric flask containing approximately 40 mL of methanol. Dilute to 50 mL with methanol.

6.0 SAMPLE COLLECTION, PRESERVATION, AND HANDLING

6.1 Because of the complexity of this method, field personnel should be trained in and experienced with the test procedures in order to obtain reliable results.

6.2 Laboratory Preparation:

6.2.1 All the components shall be maintained and calibrated according to the procedure described in APTD-0576, unless otherwise specified.

6.2.2 Weigh several 200- to 300-g portions of silica gel in airtight containers to the nearest 0.5 g. Record on each container the total weight of the silica gel plus containers. As an alternative to preweighing the silica gel, it may instead be weighed directly in the impinger or sampling holder just prior to train assembly.

6.3 Preliminary Field Determinations:

6.3.1 Select the sampling site and the minimum number of sampling points according to EPA Method 1 or other relevant criteria. Determine the stack pressure, temperature, and range of velocity heads using EPA Method 2. A leak-check of the pitot lines according to EPA Method 2, Section 3.1, must be performed. Determine the stack gas moisture content using EPA Approximation Method 4 or its alternatives to establish estimates of isokinetic sampling-rate settings. Determine the stack gas dry molecular weight, as described in EPA Method 2, Section 3.6. If integrated EPA Method 3 sampling is used for molecular weight determination, the integrated bag sample shall be taken simultaneously with, and for the same total length of time as, the sample run.

6.3.2 Select a nozzle size based on the range of velocity heads so that it is not necessary to change the nozzle size in order to maintain isokinetic sampling rates below 28 L/min (1.0 cfm). During the run, do not change the nozzle.

Ensure that the proper differential pressure gauge is chosen for the range of velocity heads encountered (see Section 2.2 of EPA Method 2).

6.3.3 Select a suitable probe liner and probe length so that all traverse points can be sampled. For large stacks, to reduce the length of the probe, consider sampling from opposite sides of the stack.

6.3.4 A minimum of 45 ft^3 of sample volume is required for the determination of the Destruction and Removal Efficiency (DRE) of formaldehyde from incineration systems (45ft^3 is equivalent to one hour of sampling at 0.75 dscf). Additional sample volume shall be collected as ecessitated by the capacity of the DNPH reagent and analytical detection limit constraints. To determine the minimum sample volume required, refer to sample calculations in Section 10.

6.3.5 Determine the total length of sampling time needed to obtain the identified minimum volume by comparing the anticipated average sampling rate with the volume requirement. Allocate the same time to all traverse points defined by EPA Method 1. To avoid timekeeping errors, the length of time sampled at each traverse point should be an integer or an integer plus 0.5 min.

6.3.6 In some circumstances (e.g., batch cycles) it may be necessary to sample for shorter times at the traverse points and to obtain smaller gas-volume samples. In these cases, careful documentation must be maintained in order to allow accurate calculation of concentrations.

6.4 Preparation of Collection Train:

6.4.1 During preparation and assembly of the sampling train, keep all openings where contamination can occur covered with Teflon® film or aluminum foil until just prior to assembly or until sampling is about to begin.

6.4.2 Place 100 mL of cleaned DNPH solution in each of the first two impingers, and leave the third impinger empty. If additional capacity is required for high expected concentrations of formaldehyde in the stack gas, 200 mL of DNPH per impinger may be used or additional impingers may be used for sampling. Transfer approximately 200 to 300 g of pre-weighed silica gel from its container to the fourth impinger. Care should be taken to ensure that the silica gel is not entrained and carried out from the impinger during sampling. Place the silica gel container in a clean place for later use in the sample recovery. Alternatively, the weight of the silica gel plus impinger may be determined to the nearest 0.5 g and recorded.

6.4.3 With a glass or quartz liner, install the selected nozzle using a Viton-A O-ring when stack temperatures are <260°C (500°F) and a woven glass-fiber gasket when temperatures are higher. See APTD-0576 (Rom, 1972) for details. Other connecting systems utilizing either 316 stainless steel or Teflon® ferrules may be used. Mark the probe with heat-resistant tape or by some other method to denote the proper distance into the stack or duct for each sampling point.

6.4.4 Assemble the train as shown in Figure 1. During assembly, do not use any silicone grease on ground-glass joints upstream of the impingers. Use Teflon® tape, if required. A very light coating of silicone grease may be used on ground-glass joints downstream of the impingers, but the silicone grease should be limited to the outer portion (see APTD-0576) of the ground-glass joints to

minimize silicone grease contamination. If necessary, Teflon® tape may be used to seal leaks. Connect all temperature sensors to an appropriate potentiometer/display unit. Check all temperature sensors at ambient temperature.

6.4.5 Place crushed ice all around the impingers.

6.4.6 Turn on and set the probe heating system at the desired operating temperature. Allow time for the temperature to stabilize.

6.5 Leak-Check Procedures:

6.5.1 Pre-test Leak Check:

6.5.1.1 After the sampling train has been assembled, turn on and set the probe heating system at the desired operating temperature. Allow time for the temperature to stabilize. If a Viton-A O-ring or other leak-free connection is used in assembling the probe nozzle to the probe liner, leak-check the train at the sampling site by plugging the nozzle and pulling a 381-mm Hg (15 in Hg) vacuum.

NOTE: A lower vacuum may be used, provided that the lower vacuum is not exceeded during the test.

6.5.1.2 If an asbestos string is used, do not connect the probe to the train during the leak check. Instead, leak-check the train by first attaching a carbon-filled leak check impinger to the inlet and then plugging the inlet and pulling a 381-mm Hg (15 in Hg) vacuum. (A lower vacuum may be used if this lower vacuum is not exceeded during the test.) Then connect the probe to the train and leak-check at about 25 mm Hg (1 in Hg) vacuum. Alternatively, leak-check the probe with the rest of the sampling train in one step at 381 mm Hg (15 in Hg) vacuum. Leakage rates in excess of 4% of the average sampling rate or >0.00057 m^3/min (0.02 cfm), whichever is less, are acceptable.

6.5.1.3 The following leak check instructions for the sampling train described in APTD-0576 and APTD-0581 may be helpful. Start the pump with the fine-adjust valve fully open and coarse-adjust valve completely closed. Partially open the coarse-adjust valve and slowly close the fine-adjust valve until the desired vacuum is reached. Do not reverse direction of the fine-adjust valve, as liquid will back up into the train. If the desired vacuum is exceeded, either perform the leak check at this higher vacuum or end the leak check, as shown below, and start over.

6.5.1.4 When the leak check is completed, first slowly remove the plug from the inlet to the probe. When the vacuum drops to 127 mm (5 in) Hg or less, immediately close the coarse-adjust valve. Switch off the pumping system and reopen the fine-adjust valve. Do not reopen the fine-adjust valve until the coarse-adjust valve has been closed to prevent the liquid in the impingers from being forced backward into the sampling line and silica gel from being entrained backward into the third impinger.

6.5.2 Leak Checks During Sampling Runs:

6.5.2.1 If, during the sampling run, a component change (i.e., impinger) becomes

necessary, a leak check shall be conducted immediately after the interruption of sampling and before the change is made. The leak check shall be done according to the procedure described in Section 6.5.1, except that it shall be done at a vacuum greater than or equal to the maximum value recorded up to that point in the test. If the leakage rate is found to be no greater than 0.00057 m^3/min (0.02 cfm) or 4% of the average sampling rate (whichever is less), the results are acceptable. If a higher leakage rate is obtained, the tester must void the sampling run.

NOTE: Any correction of the sample volume by calculation reduces the integrity of the pollutant concentration data generated and must be avoided.

6.5.2.2 Immediately after a component change and before sampling is re-initiated, a leak check similar to a pre-test leak check must also be conducted.

6.5.3 Post-test Leak Check:

6.5.3.1 A leak check is mandatory at the conclusion of each sampling run. The leak check shall be done with the same procedures as the pre-test leak check, except that the post-test leak check shall be conducted at a vacuum greater than or equal to the maximum value reached during the sampling run. If the leakage rate is found to be no greater than 0.00057 m^3/min (0.02 cfm) or 4% of the average sampling rate (whichever is less), the results are acceptable. If, however, a higher leakage rate is obtained, the tester shall record the leakage rate and void the sampling run.

6.6 Sampling Train Operation:

6.6.1 During the sampling run, maintain an isokinetic sampling rate to within 10% of true isokinetic, below 28 L/min (1.0 cfm). Maintain a temperature around the probe of 120° ± 14°C (248° ± 25°F).

6.6.2 For each run, record the data on a data sheet such as the one shown in Figure 2. Be sure to record the initial dry-gas meter reading. Record the dry-gas meter readings at the beginning and end of each sampling time increment, when changes in flow rates are made, before and after each leak check, and when sampling is halted. Take other readings required by Figure 2 at least once at each sample point during each time increment and additional readings when significant adjustments (20% variation in velocity head readings) necessitate additional adjustments in flow rate. Level and zero the manometer. Because the manometer level and zero may drift due to vibrations and temperature changes, make periodic checks during the traverse.

6.6.3 Clean the stack access ports prior to the test run to eliminate the chance of sampling deposited material. To begin sampling, remove the nozzle cap, verify that the filter and probe heating systems are at the specified temperature, and verify that the pitot tube and probe are properly positioned. Position the nozzle at the first traverse point, with the tip pointing directly into the gas stream. Immediately start the pump and adjust the flow to isokinetic conditions. Nomographs, which aid in the rapid adjustment of the isokinetic sampling rate without excessive computations, are available. These nomographs are designed for use when the Type S pitot tube coefficient is 0.84 ± 0.02 and the stack gas equivalent density (dry molecular weight) is equal to 29 ± 4. APTD-0576 details the procedure for using the nomographs. If the stack gas molecular weight and

the pitot tube coefficient are outside the above ranges, do not use the nomographs unless appropriate steps are taken to compensate for the deviations.

6.6.4 When the stack is under significant negative pressure (equivalent to the height of the impinger stem), take care to close the coarse-adjust valve before inserting the probe into the stack in order to prevent liquid from backing up through the train. If necessary, the pump may be turned on with the coarse-adjust valve closed.

6.6.5 When the probe is in position, block off the openings around the probe and stack access port to prevent unrepresentative dilution of the gas stream.

6.6.6 Traverse the stack cross section, as required by EPA Method 1, being careful not to bump the probe nozzle into the stack walls when sampling near the walls or when removing or inserting the probe through the access port, in order to minimize the chance of extracting deposited material.

6.6.7 During the test run, make periodic adjustments to keep the temperature around the probe at the proper levels. Add more ice and, if necessary, salt, to maintain a temperature of <20°C (68°F) at the silica gel outlet. Also, periodically check the level and zero of the manometer.

6.6.8 A single train shall be used for the entire sampling run, except in cases where simultaneous sampling is required in two or more separate ducts or at two or more different locations within the same duct, or in cases where equipment failure necessitates a change of trains. An additional train or additional trains may also be used for sampling when the capacity of a single train is exceeded.

6.6.9 When two or more trains are used, separate analyses of components from each train shall be performed. If multiple trains have been used because the capacity of a single train would be exceeded, first impingers from each train may be combined, and second impingers from each train may be combined.

6.6.10 At the end of the sampling run, turn off the coarse-adjust valve, remove the probe and nozzle from the stack, turn off the pump, record the final dry gas meter reading, and conduct a post-test leak check. Also, leak check the pitot lines as described in EPA Method 2. The lines must pass this leak check in order to validate the velocity-head data.

6.6.11 Calculate percent isokineticity (see Method 2) to determine whether the run was valid or another test should be made.

7.0 SAMPLE RECOVERY

7.1 Preparation:

7.1.1 Proper cleanup procedure begins as soon as the probe is removed from the stack at the end of the sampling period. Allow the probe to cool. When the probe can be handled safely, wipe off all external particulate matter near the tip of the probe nozzle and place a cap over the tip to prevent losing or gaining particulate matter. Do not cap the probe tip tightly while the sampling train is cooling because a vacuum will be created, drawing liquid from the impingers back through the sampling train.

7.1.2 Before moving the sampling train to the cleanup site, remove the probe from the sampling train and cap the open outlet, being careful not to lose any condensate that might be present. Remove the umbilical cord from the last impinger and cap the impinger. If a flexible line is used, let any condensed water or liquid drain into the impingers. Cap off any open impinger inlets and outlets. Ground glass stoppers, Teflon® caps, or caps of other inert materials may be used to seal all openings.

7.1.3 Transfer the probe and impinger assembly to an area that is clean and protected from wind so that the chances of contaminating or losing the sample are minimized.

7.1.4 Inspect the train before and during disassembly, and note any abnormal conditions.

7.1.5 Save a portion of all washing solutions (methylene chloride, water) used for cleanup as a blank. Transfer 200 mL of each solution directly from the wash bottle being used and place each in a separate, pre-labeled sample container.

7.2 Sample Containers:

7.2.1 Container 1: Probe and Impinger Catches. Using a graduated cylinder, measure to the nearest mL, and record the volume of the solution in the first three impingers. Alternatively, the solution may be weighed to the nearest 0.5 g. Include any condensate in the probe in this determination. Transfer the impinger solution from the graduated cylinder into the amber flint glass bottle. Taking care that dust on the outside of the probe or other exterior surfaces does not get into the sample, clean all surfaces to which the sample is exposed (including the probe nozzle, probe fitting, probe liner, first impinger, and impinger connector) with methylene chloride. Use less than 500 mL for the entire wash (250 mL would be better, if possible). Add the washings to the sample container.

7.2.1.1 Carefully remove the probe nozzle and rinse the inside surface with methylene chloride from a wash bottle. Brush with a Teflon® bristle brush, and rinse until the rinse shows no visible particles or yellow color, after which make a final rinse of the inside surface. Brush and rinse the inside parts of the Swagelok® fitting with methylene chloride in a similar way.

7.2.1.2 Rinse the probe liner with methylene chloride. While squirting the methylene chloride into the upper end of the probe, tilt and rotate the probe so that all inside surfaces will be wetted with methylene chloride. Let the methylene chloride drain from the lower end into the sample container. The tester may use a funnel (glass or polyethylene) to aid in transferring the liquid washes to the container. Follow the rinse with a Teflon® brush. Hold the probe in an inclined position, and squirt methylene chloride into the upper end as the probe brush is being pushed with a twisting action through the probe. Hold the sample container underneath the lower end of the probe, and catch any methylene chloride, water, and particulate matter that is brushed from the probe. Run the brush through the probe three times or more. With stainless steel or other metal probes, run the brush through in the above prescribed manner at least six times since there may be small crevices in which particulate matter can be entrapped. Rinse the brush with methylene chloride or water, and quantitatively collect these washings in the sample container. After the brushings, make a final rinse

of the probe as described above.

NOTE: Two people should clean the probe in order to minimize sample losses. Between sampling runs, brushes must be kept clean and free from contamination.

7.2.1.3 Rinse the inside surface of each of the first three impingers (and connecting tubing) three separate times. Use a small portion of methylene chloride for each rinse, and brush each surface to which sample is exposed with a Teflon® bristle brush to ensure recovery of fine particulate matter. Water will be required for the recovery of the impingers in addition to the specified quantity of methylene chloride. There will be at least two phases in the impingers. This two-phase mixture does not pour well, and a significant amount of the impinger catch will be left on the walls. The use of water as a rinse makes the recovery quantitative. Make a final rinse of each surface and of the brush, using both methylene chloride and water.

7.2.1.4 After all methylene chloride and water washings and particulate matter have been collected in the sample container, tighten the lid so that solvent, water, and DNPH reagent will not leak out when the container is shipped to the laboratory. Mark the height of the fluid level to determine whether leakage occurs during transport. Seal the container with Teflon® tape. Label the container clearly to identify its contents.

7.2.1.5 If the first two impingers are to be analyzed separately to check for breakthrough, separate the contents and rinses of the two impingers into individual containers. Care must be taken to avoid physical carryover from the first impinger to the second. The formaldehyde hydrazone is a solid which floats and froths on top of the impinger solution. Any physical carryover of collected moisture into the second impinger will invalidate a breakthrough assessment.

7.2.2 Container 2: Sample Blank. Prepare a blank by using an amber flint glass container and adding a volume of DNPH reagent and methylene chloride equal to the total volume in Container 1. Process the blank in the same manner as Container 1.

7.2.3 Container 3: Silica Gel. Note the color of the indicating silica gel to determine whether it has been completely spent and make a notation of its condition. The impinger containing the silica gel may be used as a sample transport container with both ends sealed with tightly fitting caps or plugs. Ground-glass stoppers or Teflon® caps may be used. The silica gel impinger should then be labeled, covered with aluminum foil, and packaged on ice for transport to the laboratory. If the silica gel is removed from the impinger, the tester may use a funnel to pour the silica gel and a rubber policeman to remove the silica gel from the impinger. It is not necessary to remove the small amount of dust particles that may adhere to the impinger wall and are difficult to remove. Since the gain in weight is to be used for moisture calculations, do not use water or other liquids to transfer the silica gel. If a balance is available in the field, the spent silica gel (or silica gel plus impinger) may be weighed to the nearest 0.5 g.

7.2.4 Sample containers should be placed in a cooler, cooled by although not in contact with ice. Sample containers must be placed vertically and, since they are glass, protected from breakage curing shipment. Samples should be cooled during shipment so they will be received cold at the laboratory.

8.0 CALIBRATION

8.1 Probe Nozzle: Probe nozzles shall be calibrated before their initial use in the field. Using a micrometer, measure the inside diameter of the nozzle to the nearest 0.025 mm (0.001 in). Make measurements at three separate places across the diameter and obtain the average of the measurements. The difference between the high and low numbers shall not exceed 0.1 mm (0.004 in). When the nozzles become nicked or corroded, they shall be replaced and calibrated before use. Each nozzle must be permanently and uniquely identified.

8.2 Pitot tube: The Type S pitot tube assembly shall be calibrated according to the procedure outlined in Section 4 of EPA Method 2, or assigned a nominal coefficient of 0.84 if it is not visibly nicked or corroded and if it meets design and intercomponent spacing specifications.

8.3 Metering system:

8.3.1 Before its initial use in the field, the metering system shall be calibrated according to the procedure outlined in APTD-0576. Instead of physically adjusting the dry-gas meter dial readings to correspond to the wet-test meter readings, calibration factors may be used to correct the gas meter dial readings mathematically to the proper values. Before calibrating the metering system, it is suggested that a leak check be conducted. For metering systems having diaphragm pumps, the normal leak check procedure will not detect leakages within the pump. For these cases, the following leak check procedure will apply: make a ten-minute calibration run at 0.00057 m^3/min (0.02 cfm). At the end of the run, take the difference of the measured wet-test and dry-gas meter volumes and divide the difference by 10 to get the leak rate. The leak rate should not exceed 0.00057 m^3/min (0.02 cfm).

8.3.2 After each field use, check the calibration of the metering system by performing three calibration runs at a single intermediate orifice setting (based on the previous field test). Set the vacuum at the maximum value reached during the test series. To adjust the vacuum, insert a valve between the wet-test meter and the inlet of the metering system. Calculate the average value of the calibration factor. If the calibration has changed by more than 5%, recalibrate the meter over the full range of orifice settings, as outlined in APTD-0576.

8.3.3 Leak check of metering system: The portion of the sampling train from the pump to the orifice meter (see Figure 1) should be leak-checked prior to initial use and after each shipment. Leakage after the pump will result in less volume being recorded than is actually sampled. Use the following procedure: Close the main valve on the meter box. Insert a one-hole rubber stopper with rubber tubing attached into the orifice exhaust pipe. Disconnect and vent the low side of the orifice manometer. Close off the low side orifice tap. Pressurize the system to 13 - 18 cm (5 - 7 in) water column by blowing into the rubber tubing. Pinch off the tubing and observe the manometer for 1 min. A loss of pressure on the manometer indicates a leak in the meter box. Leaks must be corrected.

NOTE: If the dry-gas-meter coefficient values obtained before and after a test series differ by >5%, either the test series must be voided or calculations for test series must be performed using whichever meter coefficient value (i.e., before or after) gives the lower value of total sample volume.

8.4 Probe heater: The probe heating system must be calibrated before its initial use in the field according to the procedure outlined in APTD-0576. Probes constructed according to APTD-0581 need not be calibrated if the calibration curves in APTD-0576 are used.

8.5 Temperature gauges: Each thermocouple must be permanently and uniquely marked on the casting. All mercury-in-glass reference thermometers must conform to ASTM E-1 63C or 63F specifications. Thermocouples should be calibrated in the laboratory with and without the use of extension leads. If extension leads are used in the field, the thermocouple readings at ambient air temperatures, with and without the extension lead, must be noted and recorded. Correction is necessary if the use of an extension lead produces a change >1.5%.

8.5.1 Impinger and dry-gas meter thermocouples: For the thermocouples used to measure the temperature of the gas leaving the impinger train, three-point calibration at ice water, room air, and boiling water temperatures is necessary. Accept the thermocouples only if the readings at all three temperatures agree to ±2°C (3.6°F) with those of the absolute value of the reference thermometer.

8.5.2 Probe and stack thermocouple: For the thermocouples used to indicate the probe and stack temperatures, a three-point calibration at ice water, boiling water, and hot oil bath temperatures must be performed. Use of a point at room air temperature is recommended. The thermometer and thermocouple must agree to within 1.5% at each of the calibration points. A calibration curve (equation) may be constructed (calculated) and the data extrapolated to cover the entire temperature range suggested by the manufacturer.

8.6 Barometer: Adjust the barometer initially and before each test series to agree to within ±2.5 mm Hg (0.1 in Hg) of the mercury barometer or the corrected barometric pressure value reported by a nearby National Weather Service Station (same altitude above sea level).

8.7 Triple-beam balance: Calibrate the triple-beam balance before each test series, using Class S standard weights. The weights must be within ±0.5% of the standards, or the balance must be adjusted to meet these limits.

9.0 CALCULATIONS

Carry out calculations, retaining at least one extra decimal figure beyond that of the acquired data. Round off figures after final calculation.

9.1 Calculation of Total Formaldehyde:

To determine the total formaldehyde in mg, use the following equation:

Total mg formaldehyde = $C_d \times V \times DF \times$

([g/mole aldehyde]/[g/mole DNPH derivative]) x

10^{-3} mg/μg

where:

C_d = measured concentration of DNPH-formaldehyde derivative, μg/mL

V = organic extract volume, mL

DF = dilution factor

9.2 Formaldehyde concentration in stack gas:

Determine the formaldehyde concentration in the stack gas using the following equation:

C_f = K [total formaldehyde, mg] / $V_{m(std)}$

where:

K = 35.31 ft^3/m^3 if $V_{m(std)}$ is expressed in English units

= 1.00 m^3/m^3 if $V_{m(std)}$ is expressed in metric units

$V_{m(std)}$ = volume of gas sample as measured by dry gas meter, corrected to standard conditions, dscm (dscf)

9.3 Average Dry Gas Meter Temperature and Average Orifice Pressure Drop are obtained from the data sheet.

9.4 Dry Gas Volume: Calculate $V_{m(std)}$ and adjust for leakage, if necessary, using the equation in Section 6.3 of EPA Method 5.

9.5 Volume of Water Vapor and Moisture Content: Calculate the volume of water vapor and moisture content from equations 5-2 and 5-3 of EPA Method 5.

10.0 DETERMINATION OF VOLUME TO BE SAMPLED

To determine the minimum sample volume to be collected, use the following sequence of equations.

10.1 From prior analysis of the waste feed, the concentration of formaldehyde (FORM) introduced into the combustion system can be calculated. The degree of destruction and removal efficiency that is required is used to determine the maximum amount of FORM allowed to be present in the effluent. This amount may be expressed as:

Max $FORM_i$ Mass =

[(WF) ($FORM_i$ conc) (100 - %DRE)] / 100

where:

WF = mass flow rate of waste feed per h, g/h (lb/h)

$FORM_i$ = concentration of FORM (wt %) introduced into the combustion process

DRE = percent Destruction and Removal Efficiency required

Max FORM = mass flow rate (g/h [lb/h]) of FORM emitted from the combustion source

10.2 The average discharge concentration of the FORM in the effluent gas is determined by comparing the Max FORM with the volumetric flow rate being exhausted from the source. Volumetric flow rate data are available as a result of preliminary EPA Method 1 - 4 determinations:

Max $FORM_i$ conc = [Max $FORM_i$ Mass] / $DV_{eff(std)}$

where:

$DV_{eff(std)}$ = volumetric flow rate of exhaust gas, dscm (dscf)

$FORM_i$ conc = anticipated concentration of the FORM in the exhaust gas stream, g/dscm (lb/dscf)

10.3 In making this calculation, it is recommended that a safety margin of at least ten be included.

$[LDL_{FORM} \times 10] / [FORM_{i\ conc}] = V_{tbc}$

where:

LDL_{FORM} = detectable amount of FORM in entire sampling train

V_{tbc} = minimum dry standard volume to be collected at dry-gas meter

10.4 The following analytical detection limits and DNPH Reagent Capacity (based on a total volume of 200 mL in two impingers) must also be considered in determining a volume to be sampled.

Table 2. Instrument Detection Limits and Reagent Capacity for Formaldehyde Analysis[1]

Analyte	Detection Limit, ppbv[2]	Reagent Capacity, ppmv
formaldehyde	1.8	66
acetaldehyde	1.7	70
acrolein	1.5	75
acetone/propionaldehyde	1.5	75
butyraldehyde	1.5	79
methyl ethyl ketone	1.5	79
valeraldehyde	1.5	84
isovaleraldehyde	1.4	84
hexaldehyde	1.3	88
benzaldehyde	1.4	84
o-/m-/p-tolualdehyde	1.3	89
dimethylbenzaldehyde	1.2	93

[1] Oxygenated compounds in addition to formaldehyde are included for comparison with formaldehyde; extension of the methodology to other compounds is possible.

[2] Detection limits are determined in solvent. These values therefore represent the optimum capability of the methodology.

11.0 QUALITY CONTROL

11.1 Sampling: See EPA Manual 600/4-77-027b for Method 5 quality control.

11.2 Analysis: The quality assurance program required for this method includes the analysis of field and method blanks, procedure validations, and analysis of field spikes. The assessment of combustion data and positive identification and quantitation of formaldehyde are dependent on the integrity of the samples received and the precision and accuracy of the analytical methodology. Quality Assurance procedures for this method are designed to monitor the performance of the analytical methodology and to provide the required information to take corrective action if problems are observed in laboratory operations or in field sampling activities.

11.2.1 Field Blanks: Field blanks must be submitted with the samples collected at each sampling site. The field blanks include the sample bottles containing aliquots of sample recovery solvents, methylene chloride and water, and unused DNPH reagent. At a minimum, one complete sampling train will be assembled in the field staging area, taken to the sampling area, and leak-checked at the beginning and end of the testing (or for the same total number of times as the actual sampling train). The probe of the blank train must be heated during the sample test. The train will be recovered as if it were an actual test sample. No gaseous sample will be passed through the Blank sampling train.

11.2.2 Method Blanks: A method blank must be prepared for each set of analytical operations, to evaluate contamination and artifacts that can be derived from glassware, reagents, and sample handling in the laboratory.

11.2.3 Field Spike: A field spike is performed by introducing 200 µL of the Field Spike Standard into an impinger containing 200 mL of DNPH solution. Standard impinger recovery procedures are followed and the field spike sample is returned to the laboratory for analysis. The field spike is used as a check on field handling and recovery procedures. An aliquot of the field spike standard is retained in the laboratory for derivatization and comparative analysis.

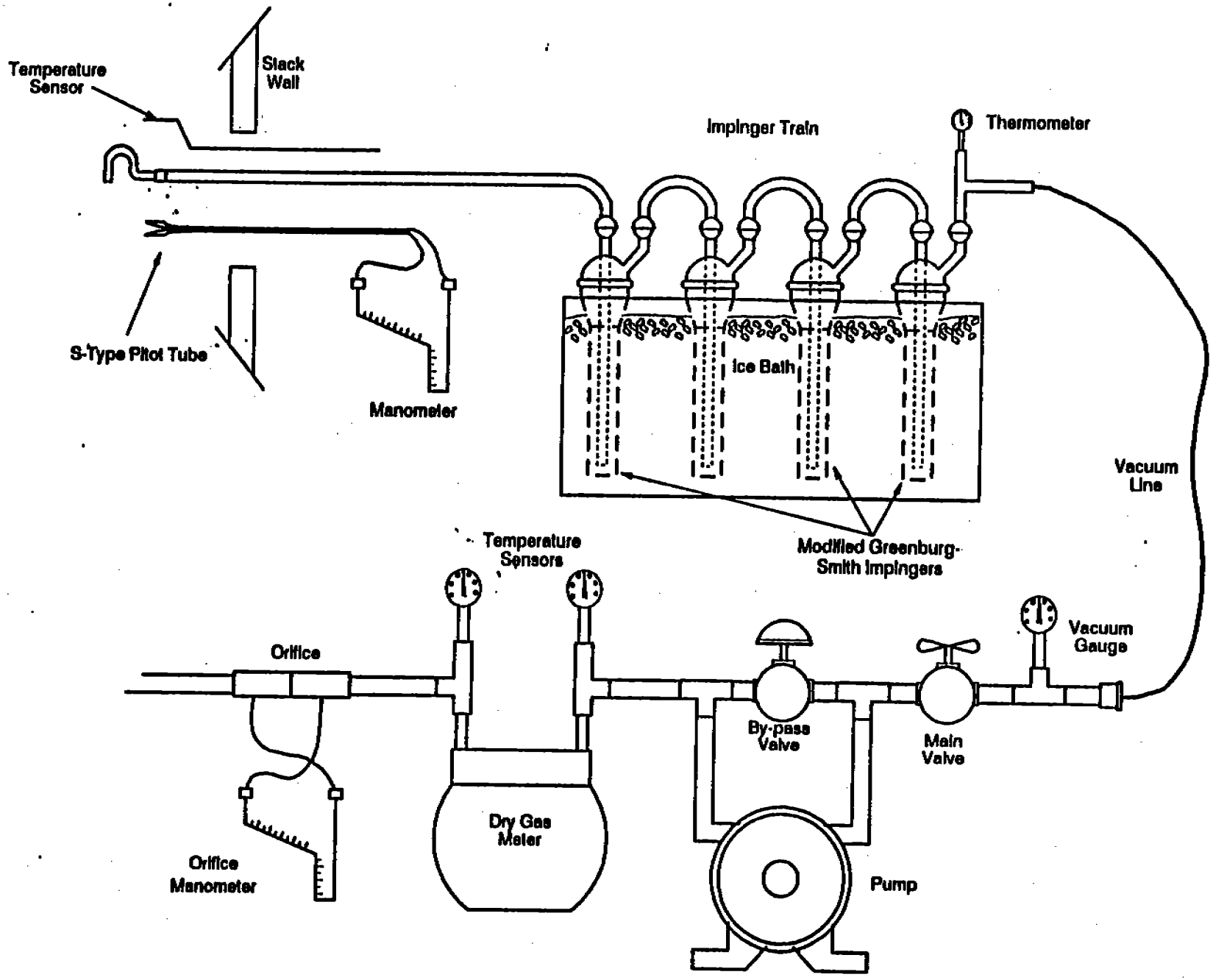
12.0 METHOD PERFORMANCE

12.1 Method performance evaluation: The following expected method performance parameters for precision, accuracy, and detection limits are provided in Table 3.

Table 3. Expected Method Performance for Formaldehyde

Parameter	Precision	[1]Accuracy[2]	Detection Limit[3]
Matrix: Dual trains	±15% RPD	±20%	1.5×10^{-7} lb/ft^3 (1.8 ppbv)

[1] Relative percent difference limit for dual trains.
[2] Limit for field spike recoveries.
[3] The lower reporting limit having less than 1% probability of false positive detection.



Formaldehyde Sampling Train

3404345R

Plant _____

Location _____

Operator _____

Date _____

Run No. _____

Sample Box No. _____

Meter Box No. _____

Meter H@ _____

C Factor _____

Pilot Tube Coefficient C_p _____

Schematic of Stack Cross Section

Ambient Temperature _____

Barometric Pressure _____

Assumed Moisture % _____

Probe Length, m(ft) _____

Nozzle Identification No. _____

Average Calibrated Nozzle Diameter, cm (in) _____

Probe Heating Setting _____

Leak Rate, m^3/min. (cfm) _____

Probe Liner Material _____

Static Pressure, mm Hg (in. Hg) _____

Filter No. _____

Traverse Point Number	Sampling Time (θ) Min.	Vacuum mm Hg (in. Hg)	Stack Temperature (T_s) °C (°F)	Velocity Head (P_s) mm (in) H_2O	Pressure Differential Across Orifice Meter mm (H_2O) (in H_2O)	Gas Sample Volume m^3 (ft^3)	Gas Sample Temp. at Dry Gas Meter		Filter Holder Temperature °C(°F)	Temperature of Gas Leaving Last Impinger °C(°F)
							Inlet °C(°F)	Outlet °C(°F)		
Total							Avg.	Avg.		
Average										

Figure 2. Field Data Sheet

340134ER

METHOD 25A—DETERMINATION OF TOTAL GASEOUS ORGANIC CONCENTRATION USING A FLAME IONIZATION ANALYZER

1. *Applicability and Principle*

1.1 Applicability. This method applies to the measurement of total gaseous organic concentration of vapors consisting primarily of alkanes, alkenes, and/or arenes (aromatic hydrocarbons). The concentration is expressed in terms of propane (or other appropriate organic calibration gas) or in terms of carbon.

1.2 Principle. A gas sample is extracted from the source through a heated sample line, if necessary, and glass fiber filter to a flame ionization analyzer (FIA). Results are reported as volume concentration equivalents of the calibration gas or as carbon equivalents.

2. *Definitions*

2.1 Measurement System. The total equipment required for the determination of the gas concentration. The system consists of the following major subsystems:

2.1.1 Sample Interface. That portion of the system that is used for one or more of the following: sample acquisition, sample transportation, sample conditioning, or protection of the analyzer from the effects of the stack effluent.

2.1.2 Organic Analyzer. That portion of the system that senses organic concentration and generates an output proportional to the gas concentration.

2.2 Span Value. The upper limit of a gas concentration measurement range that is specified for affected source categories in the applicable part of the regulations. The span value is established in the applicable regulation and is usually 1.5 to 2.5 times the applicable emission limit. If no span value is provided, use a span value equivalent to 1.5 to 2.5 times the expected concentration. For convenience, the span value should correspond to 100 percent of the recorder scale.

2.3 Calibration Gas. A known concentration of a gas in an appropriate diluent gas.

2.4 Zero Drift. The difference in the measurement system response to a zero level calibration gas before and after a stated period of operation during which no unscheduled maintenance, repair, or adjustment took place.

2.5 Calibration Drift. The difference in the measurement system response to a mid-level calibration gas before and after a stated period of operation during which no unscheduled maintenance, repair or adjustment took place.

2.6 Response Time. The time interval from a step change in pollutant concentration at the inlet to the emission measurement system to the time at which 95 percent of the corresponding final value is reached as displayed on the recorder.

2.7 Calibration Error. The difference between the gas concentration indicated by the measurement system and the known concentration of the calibration gas.

3. *Apparatus*

A schematic of an acceptable measurement system is shown in Figure 25A-1. The essential components of the measurement system are described below:

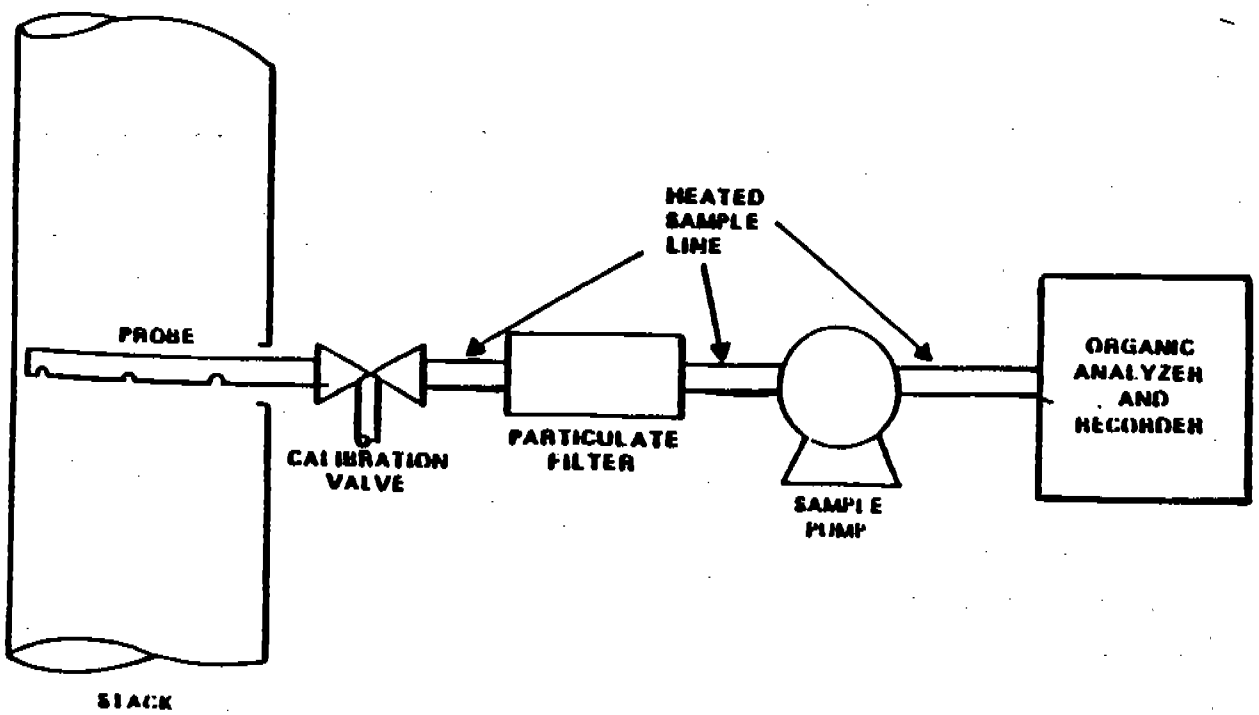


Figure 25A-1. Organic Concentration Measurement System.

3.1 Organic Concentration Analyzer. A flame ionization analyzer (FIA) capable of meeting or exceeding the specifications in this method.

3.2 Sample Probe. Stainless steel, or equivalent, three-hole rake type. Sample holes shall be 4 mm in diameter or smaller and located at 16.7, 50, and 83.3 percent of the equivalent stack diameter. Alternatively, a single opening probe may be used so that a gas sample is collected from the centrally located 10 percent area of the stack cross-section.

3.3 Sample Line. Stainless steel or Teflon* tubing to transport the sample gas to the analyzer. The sample line should be heated, if necessary, to prevent condensation in the line.

3.4 Calibration Valve Assembly. A three-way valve assembly to direct the zero and calibration gases to the analyzers is recommended. Other methods, such as quick-connect lines, to route calibration gas to the analyzers are applicable.

3.5 Particulate Filter. An in-stack or an out-of-stack glass fiber filter is recommended if exhaust gas particulate loading is significant. An out-of-stack filter should be heated to prevent any condensation.

3.6 Recorder. A strip-chart recorder, analog computer, or digital recorder for recording measurement data. The minimum data recording requirement is one measurement value per minute. Note: This method is often applied in highly explosive areas. Caution and care should be exercised in choice of equipment and installation.

4. *Calibration and Other Gases*

Gases used for calibrations, fuel, and combustion air (if required) are contained in compressed gas cylinders. Preparation of calibration gases shall be done according to the procedure in Protocol No. 1, listed in Reference 9.2. Additionally, the manufacturer of the cylinder should provide a recommended shelf life for each calibration gas cylinder over which the concentration does not change more than ±2 percent from the certified value. For calibration gas values not generally available (i.e., organics between 1 and 10 percent by volume), alternative methods for preparing calibration gas mixtures, such as dilution systems, may be used with prior approval of the Administrator.

Calibration gases usually consist of propane in air or nitrogen and are determined in terms of the span value. Organic compounds other than propane can be used following the above guidelines and making the appropriate corrections for response factor.

4.1 Fuel. A 40 percent H_2/60 percent He or 40 percent H_2/60 percent N_2 gas mixture is recommended to avoid an oxygen synergism effect that reportedly occurs when oxygen concentration varies significantly from a mean value.

4.2 Zero Gas. High purity air with less than 0.1 parts per million by volume (ppmv) of organic material (propane or carbon equivalent) or less than 0.1 percent of the span value, whichever is greater.

4.3 Low-level Calibration Gas. An organic calibration gas with a concentration equivalent to 25 to 35 percent of the applicable span value.

4.4 Mid-level Calibration Gas. An organic calibration gas with a concentration equivalent to 45 to 55 percent of the applicable span value.

4.5 High-level Calibration Gas. An organic calibration gas with a concentration equivalent to 80 to 90 percent of the applicable span value.

5. *Measurement System Performance Specifications*

5.1 Zero Drift. Less than ±3 percent of the span value.

5.2 Calibration Drift. Less than ±3 percent of span value.

5.3 Calibration Error. Less than ±5 percent of the calibration gas value.

6. *Pretest Preparations*

6.1 Selection of Sampling Site. The location of the sampling site is generally specified by the applicable regulation or purpose of the test; i.e., exhaust stack, inlet line, etc. The sample port shall be located at least 1.5 meters or 2 equivalent diameters upstream of the gas discharge to the atmosphere.

6.2 Location of Sample Probe. Install the sample probe so that the probe is centrally located in the stack, pipe, or duct and is sealed tightly at the stack port connection.

6.3 Measurement System Preparation. Prior to the emission test, assemble the measurement system following the manufacturer's written instructions in preparing the sample interface and the organic analyzer. Make the system operable.

FIA equipment can be calibrated for almost any range of total organics concentrations. For high concentrations of organics (>1.0 percent by volume as propane) modifications to most commonly available analyzers are necessary. One accepted method of equipment modification is to decrease the size of the sample to the analyzer through the use of a smaller diameter sample capillary. Direct and continuous measurement of organic concentration is a necessary consideration when determining any modification design.

6.4 Calibration Error Test. Immediately prior to the test series, (within 2 hours of the start of the test) introduce zero gas and

* Mention of trade names or specific products does not constitute endorsement by the Environmental Protection Agency.

high-level calibration gas at the calibration valve assembly. Adjust the analyzer output to the appropriate levels, if necessary. Calculate the predicted response for the low-level and mid-level gases based on a linear response line between the zero and high-level responses. Then introduce low-level and mid-level calibration gases successively to the measurement system. Record the analyzer responses for low-level and mid-level calibration gases and determine the differences between the measurement system responses and the predicted responses. These differences must be less than 5 percent of the respective calibration gas value. If not, the measurement system is not acceptable and must be replaced or repaired prior to testing. No adjustments to the measurement system shall be conducted after the calibration and before the drift check (Section 7.3). If adjustments are necessary before the completion of the test series, perform the drift checks prior to the required adjustments and repeat the calibration following the adjustments. If multiple electronic ranges are to be used, each additional range must be checked with a mid-level calibration gas to verify the multiplication factor.

6.5 Response Time Test. Introduce zero gas into the measurement system at the calibration valve assembly. When the system output has stabilized, switch quickly to the high-level calibration gas. Record the time from the concentration change to the measurement system response equivalent to 95 percent of the step change. Repeat the test three times and average the results.

7. *Emission Measurement Test Procedure*

7.1 Organic Measurement. Begin sampling at the start of the test period, recording time and any required process information as appropriate. In particular, note on the recording chart periods of process interruption or cyclic operation.

7.2 Drift Determination. Immediately following the completion of the test period and hourly during the test period, reintroduce the zero and mid-level calibration gases, one at a time, to the measurement system at the calibration valve assembly. (Make no adjustments to the measurement system until after both the zero and calibration drift checks are made.) Record the analyzer response. If the drift values exceed the specified limits, invalidate the test results preceding the check and repeat the test following corrections to the measurement system. Alternatively, recalibrate the test measurement system as in Section 6.4 and report the results using both sets of calibration data (i.e., data determined prior to the test period and data determined following the test period).

8. *Organic Concentration Calculations*

Determine the average organic concentration in terms of ppmv as propane or other calibration gas. The average shall be determined by the integration of the output recording over the period specified in the applicable regulation.

If results are required in terms of ppmv as carbon, adjust measured concentrations using Equation 25A-1.

$$C_c = K\,C_{meas} \qquad \text{Eq. 25A-1}$$

Where:

C_c = Organic concentration as carbon, ppmv.

C_{meas} = Organic concentration as measured, ppmv.

K = Carbon equivalent correction factor,

K = 2 for ethane.

K = 3 for propane.

K = 4 for butane.

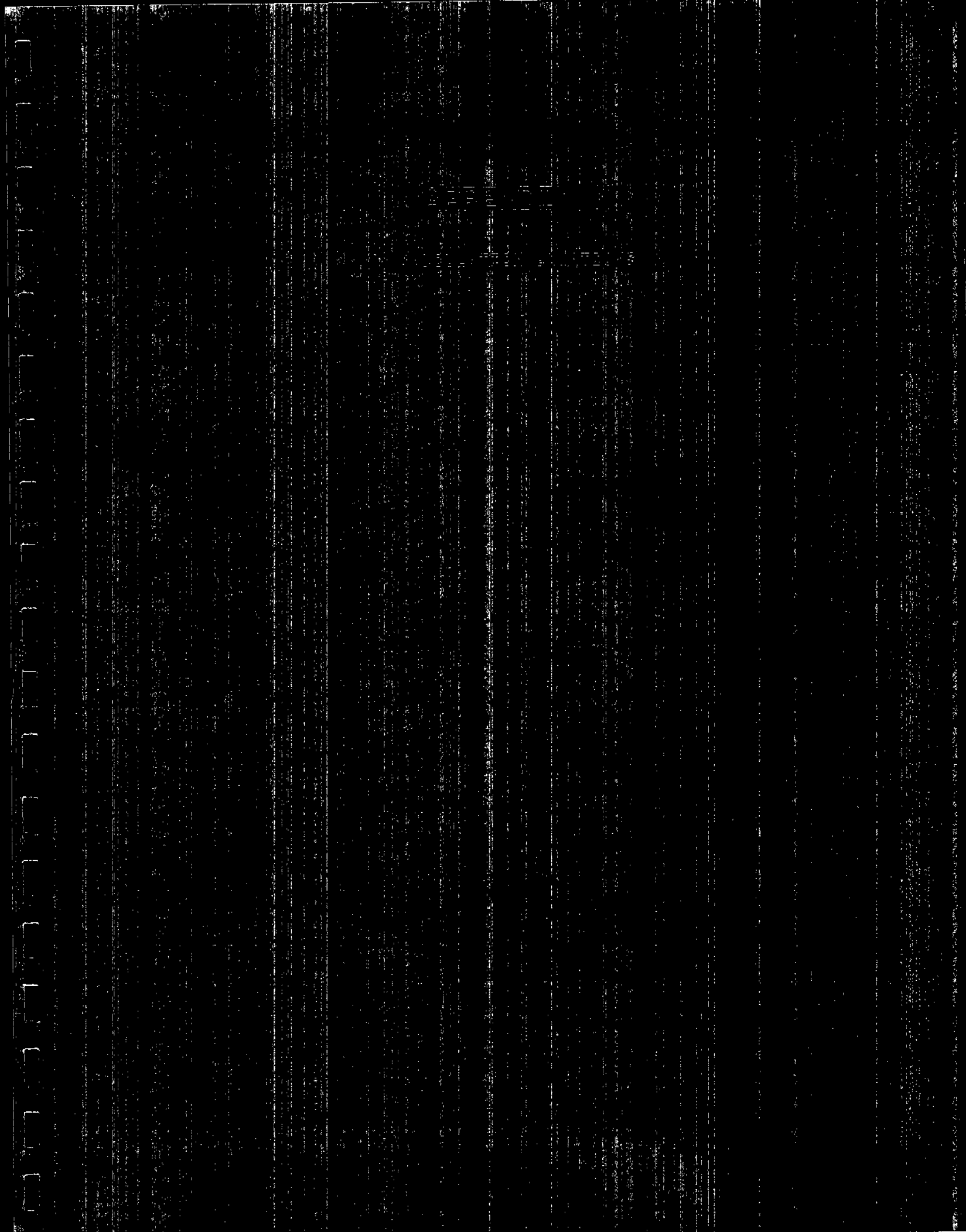
K = Appropriate response factor for other organic calibration gases.

9. *Bibliography*

9.1 Measurement of Volatile Organic Compounds—Guideline Series. U.S. Environmental Protection Agency. Research Triangle Park, NC. Publication No. EPA-450/2-78-041. June 1978. p. 46-54.

9.2 Traceability Protocol for Establishing True Concentrations of Gases Used for Calibration and Audits of Continuous Source Emission Monitors (Protocol No. 1). U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory. Research Triangle Park, NC. June 1978.

9.3 Gasoline Vapor Emission Laboratory Evaluation—Part 2. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. Research Triangle Park, NC. EMB Report No. 75-GAS-6. August 1975.



CALCULATION EQUATIONS

METHOD 2

$$\bar{V}_s = 85.48\ C_p\ (\sqrt{\Delta p})_{avg}\ \sqrt{\frac{T_{s(avg)}}{P_s\ M_s}}$$

$$Q_{s,d} = 60(1 - B_{ws})\ \bar{V}_s\ A\ (\frac{528}{T_{s(avg)}})\ (\frac{P_s}{29.92})$$

$$Q_a = 60\ \bar{V}_s\ A$$

$$\dot{m}_g = \frac{4.995\ Q_{s,d}\ G_d}{1 - B_{ws}}$$

$$RH^* = 100\ (vp_{twb}\ 0.0003641\ P_s\ (T_{db} - T_{wb}))/vp_{tdb}$$

$$B^*_{ws} = RH(vp_{tdb})/P_s$$

$$= \frac{4.585 \times 10^{-2}\ P_s M_s}{T_s\ (avg)}$$

*Alternate equations for calculating moisture content from wet bulb and dry buld data.

SYMBOLS

A	=	Cross sectional area of stack, SQ. FT.
A_n	=	Cross sectional area of nozzle, SQ. FT.
B_{ws}	=	Water vapor in gas stream, proportion by volume
C_p	=	Pitot tube coefficient, dimensionless
C_a	=	Concentration of particulate matter in stack gas, wet basis, GR/ACF
C_s	=	Concentration of particulate matter in stack gas, dry basis, corrected to standard conditions, GR/DSCF
EA	=	Excess air, percent by volume
γ	=	Dry test meter correction factor, dimensionless
G_d	=	Specific gravity (relative to air), dimensionless
I	=	Isokinetic variation, percent by volume
M_d	=	Molecular weight of stack gas, dry basis, g/g - mole.
$\dot{m}_g$	=	Mass flow of wet flue gas, LB/HR
$\dot{m}_p$	=	Particulate mass flow, LB/HR
M_s	=	Molecular weight of stack gas, wet basis, g/g, mole.
M_p	=	Total amount of particulate matter collected, g
P_{bar}	=	Atmospheric pressure, IN. HG. (uncompensated)
P_g	=	Stack static gas pressure, IN. WC.

P_s = Absolute pressure of stack gas, IN.HG.

P_{std} = Standard absolute pressure, 29.92 IN. HG.

A_a = Actual volumetric stack gas flow rate, ACFM

$Q_{s,d}$ = Dry volumetric stack gas flow rate corrected to standard conditions, DSCFM

RH = Relative humidity, %

T_{db} = Dry bulb temperature of stack gas, ^{o}F

T_{wb} = Wet bulb temperature of stack gas, ^{o}F

$T_{m(avg)}$ = Absolute average dry gas meter temperature, ^{o}R

$T_s(avg)$ = Absolute average stack temperature, ^{o}F

T_{std} = Standard absolute temperature, 528 ^{o}F (68 ^{o}F)

θ = Total sampling time, min.

V_{lc} = Total volume of liquid collected in impingers and silica gel, ml

V_m = Volume of gas sample as measured by dry gas meter, CF

$V_{m(std)}$ = Volume of gas sample measured by the dry gas meter corrected to standard conditions, DSCF

$V_{w(std)}$ = Volume of water vapor in the gas sample corrected to standard conditions, SCF

$\overline{V}_s$ = Average actual stack gas velocity, FT/SEC

vp_{tdb} = Vapor pressure at T_{db}, IN. HG.

vp_{twb} = Vapor pressure at T_{wb}, IN. HG

$\overline{\Delta H}$ = Average pressure differential across the orifice meter, IN. WC.

ΔP = Velocity pressure of stack gas, IN. WC.

γ = Dry test meter correction coefficient, dimensionless

ρ = Actual gas density, LB/ACF

CALCULATION EQUATIONS

METHOD 3

$$\%EA = \frac{100(\%O_2 -).5\%\ CO)}{0.264\%\ N_2 - \%O_2 + 0.5\%\ CO}$$

$$M_d = 0.44(\%CO_2) + 0.32\ (\%O_2) + 0.28\ (\%N_2 + \%CO)$$

$$M_s = M_d\ (I - B_{ws}) + 0.18\ B_{ws}$$

$$B_{ws} = \frac{V_{w(std)}}{V_{w(std)} + V_{m(std)}}$$

CALCULATION EQUATIONS

METHOD 5

$$V_{m(std)} = 17.65\ V_m\ \gamma\ \left(\frac{P_{bar} + \overline{\Delta H}/13.6}{T_{m(avg)}}\right)$$

$$V_{w(std)} = 0.0472\ V_{Is}$$

$$B_{ws} = \frac{V_{w(std)}}{V_{w(std)} + V_{m(std)}}$$

$$I = 0.0944\ \left(\frac{T_{s(avg)}\ V_{m(std)}}{P_s\ V_s\ A_n\ \theta\ (1 - B_{ws})}\right)$$

$$C_s = \frac{15.43\ M_p}{V_{m(std)}}$$

$$C_a = \frac{272.3\ M_p\ P_s}{T_{s(avg)}\ (V_{w(std)} + V_{m(std)})}$$

$$(\dot{m}_p)_1 = 8.5714 \times 10^{-3}\ C_s\ Q_{s,d}$$

$$(\dot{m}_p)_2 = \frac{1.3228 \times 10^{-1}\ M_p\ A}{\theta\ A_n}$$

$$\dot{m}_p = \frac{(\dot{m}_p)_1 + (\dot{m}_p)_2}{2}$$

SYMBOLS

A = Cross sectional area of stack, SQ. FT.

A_n = Cross sectional area of nozzle, SQ. FT.

B_{ws} = Water vapor in gas stream, proportion by volume

C_p = Pitot tube coefficient, dimensionless

C_a = Concentration of particulate matter in stack gas, wet basis, GR/ACF

C_s = Concentration of particulate matter in stack gas, dry basis, corrected to standard conditions, GR/DSCF

EA = Excess air, percent by volume

γ = Dry test meter correction factor, dimensionless

G_d = Specific gravity (relative to air), dimensionless

I = Isokinetic variation, percent by volume

M_d = Molecular weight of stack gas, dry basis, g/g - mole.

$\dot{m}_g$ = Mass flow of wet flue gas, LB/HR

$\dot{m}_p$ = Particulate mass flow, LB/HR

M_s = Molecular weight of stack gas, wet basis, g/g, mole.

M_p = Total amount of particulate matter collected, g

P_{bar} = Atmospheric pressure, IN. HG. (uncompensated)

P_g = Stack static gas pressure, IN. WC.

P_s = Absolute pressure of stack gas, IN.HG.

P_{std} = Standard absolute pressure, 29.92 IN. HG.

A_a = Actual volumetric stack gas flow rate, ACFM

$Q_{s,d}$ = Dry volumetric stack gas flow rate corrected to standard conditions, DSCFM

RH = Relative humidity, %

T_{db} = Dry bulb temperature of stack gas, ^{o}F

T_{wb} = Wet bulb temperature of stack gas, ^{o}F

$T_{m(avg)}$ = Absolute average dry gas meter temperature, ^{o}R

$T_s(avg)$ = Absolute average stack temperature, ^{o}F

T_{std} = Standard absolute temperature, 528 ^{o}F (68 ^{o}F)

θ = Total sampling time, min.

V_{lc} = Total volume of liquid collected in impingers and silica gel, ml

V_m = Volume of gas sample as measured by dry gas meter, CF

$V_{m(std)}$ = Volume of gas sample measured by the dry gas meter corrected to standard conditions, DSCF

$V_{w(std)}$ = Volume of water vapor in the gas sample corrected to standard conditions, SCF

$\overline{V}_s$ = Average actual stack gas velocity, FT/SEC

vP_{tdb} = Vapor pressure at T_{db}, IN. HG.

vp_{twb} = Vapor pressure at T_{wb}, IN. HG

$\overline{\Delta H}$ = Average pressure differential across the orifice meter, IN. WC.

ΔP = Velocity pressure of stack gas, IN. WC.

γ = Dry test meter correction coefficient, dimensionless

ρ = Actual gas density, LB/ACF

Interpoll Laboratories
PM-10 Equations

Preliminary Run Calculations:

$$M_d = 0.44\,B_{CO_2} + 0.32\,B_{O_2} + 0.28\,(B_{N_2} + B_{CO})$$

$$M_s = M_d\left(1 - \frac{MC}{100}\right) + 0.18\,(MC)$$

$$P_s = P_b + \frac{P_g}{13.6}$$

$$\mu = 152.418 + 0.2552\,t_s + 3.2355x10^{-5}\,t_s^2 + 0.53147\,(B_{O_2}) - 0.74143\,MC$$

$$Q_s = 2.837x10^{-3}\,\mu\left[\frac{(t_s + 460)}{(M_s P_s)}\right]^{0.2949}$$

$$\Delta H = \frac{1.083\,(t_s + 460)\,M_d\,\Delta H_c}{P_b}\left[\frac{Q_s\left(1 - \frac{MC}{100}\right)P_s}{t_s + 460}\right]^2$$

$$\Delta_P^{M201A} = \Delta_P^{M2}\left(\frac{C_P^{M2}}{C_P^{M201A}}\right)^2$$

Dwell Times:

$$\textit{Firstpoint} \qquad \Delta t_1 = \left[\frac{\sqrt{\Delta P_i}}{(\sqrt{\Delta P})_{AVG}}\right]$$

$$\textit{OtherPoints} \qquad \Delta t_n = \left(\frac{\Delta t_1}{\sqrt{\Delta P_1}}\right)\sqrt{\Delta P_n} \quad \textit{where } n = 2,\ 3,\ \ldots,\ 12$$

9-5-91/PL

Post Test Calculations:

$$V_{m(std)} = 17.64\,\gamma\,V_m\left(\frac{P_b + \frac{\Delta\bar{H}}{13.6}}{(\bar{t}_m + 460)}\right)$$

$$Q_s = \frac{5.669 x10^{-2}\,(\bar{t}_s + 460)}{\Theta\,P_s}\left[V_{m(std)} + 0.04707\,(V_f - V_i)\right]$$

$$\mu = 152.418 + 0.2552\,\bar{t}_s + 3.2355x10^{-5}\,\bar{t}_s^2 + 0.53147\,B_{O_2} - 0.74143\,MC$$

$$M_s = M_d\left(1 - \frac{MC}{100}\right) + 0.18\,MC$$

$$D_{50} = 0.15625\left(\frac{\bar{t}_s + 460}{M_s P_s}\right)^{0.2091}\left(\frac{\mu}{Q_s}\right)^{0.7091}$$

where

M_d = dry molecular weight of exhaust gas

B_{CO2} = percent volume of CO_2 in exhaust gas on a dry basis

B_{O2} = percent by volume of O_2 in exhaust gas on a dry basis

B_{N2} = percent by volume of N_2 in exhaust gas on a dry basis

B_{CO} = percent by volume of CO in exhaust gas on a dry basis

MC = percent by volume of water vapor in exhaust gas

M_s = actual molecular weight of exhaust gas

P_s = absolute pressure of exhaust gas, IN.HG

P_g = static pressure of exhaust gas, IN.WC

P_b = absolute barometric pressure, IN.HG

t_s = average exhaust gas temperature from preliminary determination or point gas temperature, ^0F

Q_s = cyclone flow rate at actual (or stack) conditions, ACFM

$Q_{s(std)}$ = cyclone flow rate at dry standard conditions, DSCFM

ΔH = pressure drop across calibrated orifice, IN.WC

$\Delta H_@$ = orifice coefficient or pressure drop across calibrated orifice @ 0.75 DSCFM, IN.WC

t_m = temperature of dry test meter, ^0F

Δp^{M201A} = velocity pressure of gas stream as measured with S-type pitot attached to cyclone, IN.WC

Δp^{M2} = velocity pressure of gas stream as measured with S-type pitot tube as per EPA Method 2 (preliminary traverse), IN.WC

C_p^{M201A} = pitot tube coefficient of S-type pitot tube attached to cyclone, dimensionless

C_p^{M2} = pitot tube coefficient of S-type pitot tube used in preliminary traverse, dimensionless

Δt_n = dwell time at traverse point n, where n = 2, 3, ..., 12, minutes

Δt_1 = dwell time at the first sampling point, minutes

$\bar{t}_s$ = average stack gas temperature during test run, ^0F

θ = total run time, minutes

$V_{m(std)}$ = total dry volume of gas sampled, DSCF

V_f = final volume of water in sampling train condenser system, mℓ

V_i = initial volume of water in sampling train condenser system, mℓ

$\bar{t}_m$ = average temperature of dry test meter during run, ^0F

γ = dry test meter coefficient, dimensionless

$\overline{\Delta H}$ = average pressure drop across the calibrated orifice in the sampling train during the run, IN.WC

V_m = volume of dry gas sampled as measured by the dry test meter at meter conditions, CF

D_{50} = actual or achieved 50% cutpoint for a given run of the device or cyclone used to remove or skim off those particles with aerodynamic equivalent diameters greater than or equal to 10 microns, microns

CALCULATION EQUATIONS

METHOD 10

$$CO\text{-}PPM\text{-}DRY = CO_{CO_2\text{-free,dry,avg}} \left(1 - CO_{2,d}/100\right)$$

$$CO\text{-}PPM\text{-}WET = CO\text{-}PPM\text{-}DRY \left(1 - MC/100\right)$$

$$GR/DSCF = 5.0885 \times 10^{-4} \left(CO\text{-}PPM\text{-}DRY\right)$$

$$mg/dscm = 1.165 \left(CO\text{-}PPM\text{-}DRY\right)$$

$$\dot{m} = 8.5714 \times 10^{-3} \left(GR/DSCF\right)\left(Q_{s,d}\right)$$

$$E = \frac{2.9857 \times 10^{-3} F_d \left(GR/DSCF\right)}{20.9 - O_{2,d}}$$

Where

$CO_{CO_2\text{-free,dry,avg}}$ = average of two determinations of carbon monoxide on a dry, CO_2-free integrated flue gas sample reported in ppm by volume

$CO_{2,d}$ = carbon dioxide concentration of flue gas on a dry percent by volume basis

$O_{2,d}$ = oxygen concentration of flue gas on a dry percent by volume basis

MC	= moisture content of flue gas on a percent by volume basis
CO·PPM·DRY	= carbon monoxide concentration in ppm by volume on a dry basis
CO·PPM·WET	= carbon monoxide concentration in ppm by volume on a wet or actual basis
GR/DSCF	= concentration of carbon monoxide in flue gas on a grains per dry standard cubic foot basis (68 ^{O}F, 29.92 IN.HG.)
mg/dscm	= concentration of carbon monoxide in flue gas on a milligrams per dry standard cubic meter basis (60 ^{O}F, 29.92 IN.HG.)
$\dot{m}$	= emission or mass rate of carbon monoxide on a LB/HR basis
$Q_{s,d}$	= volumetric flow rate of flue gas in dry standard cubic feet per minute
E	= emission factor of carbon monoxide in pounds of carbon monoxide emitted per million BTU heat input (LB/MMBTU)
F_d	= F-Factor of respective fuel in dry standard cubic feet of exhaust gas at 0% oxygen per million BTU of heat input (DSCF/MMBTU)

CALCULATION EQUATIONS

Chromotropic Acid Method for Formaldehyde

$$m_t = \frac{m_a \times V_{soln}}{V_{aliq}}$$

where m_t = mass of formaldehyde in total sample in ug

m_a = mass of formaldehyde in aliquot in ug

V_{soln} = volume of total sample in cc (500 cc normally)

V_{aliq} = volume of aliquot taken for analysis in cc

$$PPM\text{-}DRY = \frac{.0283\ m_t}{V_{std}}$$

$$PPM\text{-}WET = PPM\ DRY\ (1\text{-}MC/100)$$

$$GR/DSCF = 5.45 \times 10^{-4}\ (PPM\text{-}DRY)$$

$$mg/dscm = 1.249\ (PPM\text{-}DRY)$$

$$\dot{m} = 8.5714 \times 10^{-3}\ (GR/DSCF)\ (Q_{s,d})$$

where PPM-DRY = concentration of formaldehyde in parts per million by volume on a dry basis

PPM-WET = concentration of formaldehyde in parts per million by volume on an actual or wet basis

MC = moisture content of gas on a percent by volume basis

GR/DSCF = concentration of formaldehyde in gas on a grains per dry standard cubic foot basis ($68^{o}F$, 29.92 IN.HG.)

$\dot{m}$ = emission or mass rate of formaldehyde in pounds per hour (LB/HR)

Method 25A

Total Gaseous Organics Calculation Equations

$$\text{GR C/SCF} = 2.180 \times 10^{-4} \text{ (ppm,w)}$$

$$\text{GR C/DSCF} = 2.180 \times 10^{-4} \text{ (ppm,w)/(1 - MC/100)}$$

$$\text{LB C/HR} = 8.5714 \times 10^{-3} \text{ (GR/DSCF) (DSCFM)}$$

where:

GR C/SCF = grains of total gaseous organics as carbon per actual (wet) standard cubic foot

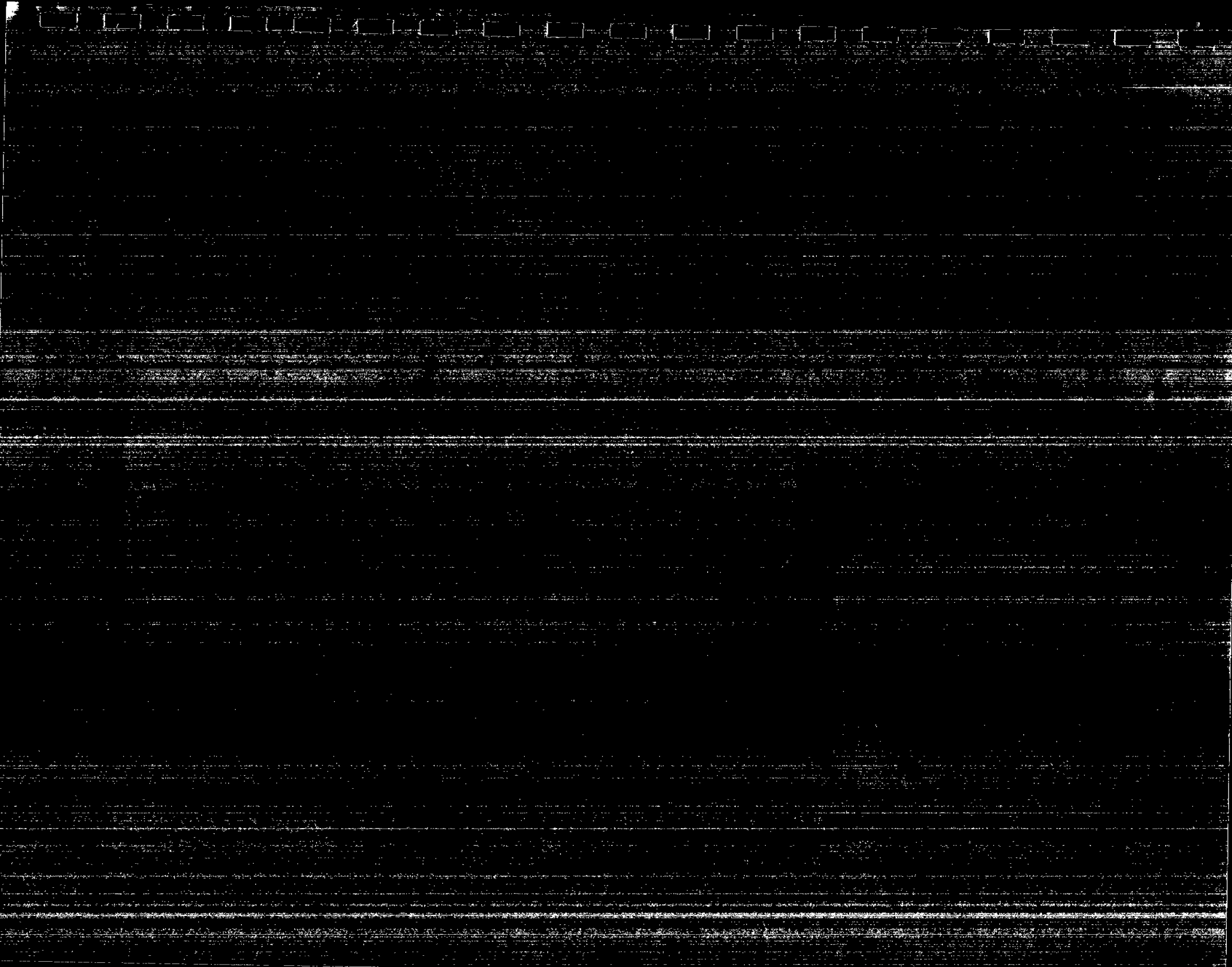
GR C/DSCF = grains of total gaseous organics as carbon per dry standard cubic foot

LB C/HR = pounds of total gaseous organics as carbon emitted per hour

Note 1: The Ratfisch Model RS55 Heated FID Analyzer as normally operated with a heated filter, heated sample line and heated detector oven gives ppm,w.

Note 2: ppm,C = ppm as carbon = ppm methane





Interpoll Laboratories. Inc.
(612) 786-6060

EPA Method 5 Gas Metering System Quality Control Check Data Sheet

Job LOUISIANA PACIFIC Date 3/23/92

Operator D. BRENNAN Module No. 3

Instructions: Operate the control module at a flow rate equal to ^H@ for 10 minutes before attaching the umbilical. Record the following data:

Bar press 29.85 in. Hg. γ = .9991 ^H@ 1.90 in. W.C.

Time (min)	Volume (CF)	Meter Temp. (°F)	
		Inlet	Outlet
[redacted]	(984.00)	[redacted]	
2.5	985.85	68	63
5.0	987.68	70	64
7.5	989.53	71	65
10	991.363	73	66
[redacted]	V_m = 7.363	Avg(t_m) =	67.5 °F

Calculate Y_{cn} as follows:

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

$$Y_{cn} = \frac{1.786}{(.9991)(7.363)}\left[\frac{(67.5) + 460}{(29.85)}\right]^{0.5}$$ (527.5)

$$Y_{cn} = 1.020$$

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

S-432R

Interpoll Laboratories, Inc.
(612) 786-6060

EPA Method 5 Gas Metering System Quality Control Check Data Sheet

Job LOUISIANA PACIFIC (CORRIGAN, TX.) Date 3/26/92

Operator D. BRENNAN Module No. 3

Instructions: Operate the control module at a flow rate equal to ^H@ for 10 minutes before attaching the umbilical. Record the following data:

Bar press 29.82 in. Hg. γ = .9991 ^H@ 1.90 in. W.C.

Time (min)	Volume (CF)	Meter Temp. (°F)	
		Inlet	Outlet
[redacted]	(275.50)	[redacted]	
2.5	279.36	64	57
5.0	279.23	65	58
7.5	281.08	67	59
10	282.928	68	60
[redacted]	V_m = 7.428	Avg(t_m) = 62.25	°F

Calculate Y_{en} as follows:

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

$$Y_{en} = \frac{1.786}{(7.428)(.9991)}\left[\frac{(62.25) + 460}{(29.82)}\right]^{0.5}$$

Y_{en} = 1.0071

If Y_{en} 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

S-432R

Interpoll Laboratories, Inc.
(612) 786-6060

EPA Method 5 Gas Metering System Quality Control Check Data Sheet

Job LOUISIANA PACIFIC (CORRIGAN TX.) Date 3/27/92

Operator S. BRENNAN Module No. 3

Instructions: Operate the control module at a flow rate equal to ^H@ for 10 minutes before attaching the umbilical. Record the following data:

Bar press 29.86 in. Hg. γ = .9991 ^H@ 1.90 in. W.C.

Time (min)	Volume (CF)	Meter Temp. (°F)	
		Inlet	Outlet
[redacted]	(506.00)	[redacted]	
2.5	509.88	80	72
5.0	509.75	81	73
7.5	511.63	81	73
10	513.485	82	74
[redacted]	V_m = 7.485	Avg(t_m) =	°F

Calculate Y_{cn} as follows:

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

$$Y_{cn} = \frac{1.786}{(.9991)(7.485)}\left[\frac{537.0}{(29.86)}\right]^{0.5}$$

Y_{cn} = 1.013

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

S-432R

Interpoll Laboratories, Inc.
(612) 786-6060

EPA Method 5 Gas Metering System Quality Control Check Data Sheet

Job COUISIOND PACIFIC CORRIGON, Tx. Date 3/28/92

Operator D. BRENNAN Module No. 3

Instructions: Operate the control module at a flow rate equal to ^H@ for 10 minutes before attaching the umbilical. Record the following data:

Bar press 29.83 in. Hg. γ = .9991 ^H@ 1.90 in. W.C.

Time (min)	Volume (CF)	Meter Temp. (°F)	
		Inlet	Outlet
[redacted]	(814.00)	[redacted]	
2.5	815.90	82	75
5.0	817.79	82	75
7.5	819.68	83	75
10	821.561	83	76
[redacted]	V_m= 7.561	Avg(t_m)=	°F

Calculate Y_{en} as follows:

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

$$Y_{en} = \frac{1.786}{(.9991)(7.561)}\left[\frac{538.875}{(78.875) + 460 \over (29.83)}\right]^{0.5}$$

$$Y_{en} = 1.0049$$

If Y_{en} 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

S-432R

Interpoll Laboratories. Inc.
(612) 786-6060

EPA Method 5 Gas Metering System Quality Control Check Data Sheet

Job LP / Corrigan, TX Date 3-23-92

Operator M. Kuehler Module No. 4

Instructions: Operate the control module at a flow rate equal to ^H@ for 10 minutes before attaching the umbilical. Record the following data:

Bar press 29.85 in. Hg. γ = 1.0010 ^H@ 1.75 in. W.C.

Time (min)	Volume (CF)	Meter Temp. (°F)	
		Inlet	Outlet
[redacted]	(709.80)	[redacted]	
2.5	711.64	57	55
5.0	713.48	58	56
7.5	715.42	61	57
10	717.18	63	58
[redacted]	V_m = 7.38	Avg(t_m) = 58.13	°F

Calculate Y_{cn} as follows:

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

$$Y_{cn} = \frac{1.786}{(1.0010)(7.38)}\left[\frac{(58.13) + 460}{(29.85)}\right]^{0.5}$$

Y_{cn} = 1.007

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

Interpoll Laboratories, Inc.
(612) 786-6060

EPA Method 5 Gas Metering System Quality Control Check Data Sheet

Job Louisiana Pacific / Corrigan, TX Date 3-25-92

Operator M. Kaehler Module No. 4

Instructions: Operate the control module at a flow rate equal to ^H@ for 10 minutes before attaching the umbilical. Record the following data:

Bar press 29.77 in. Hg. τ = 1.0010 ^H@ 1.75 in. W.C.

Time (min)	Volume (CF)	Meter Temp. (°F)	
		Inlet	Outlet
[redacted]	(920.00)	[redacted]	
2.5	921.83	63	62
5.0	923.68	65	63
7.5	925.57	67	64
10	927.45	68	65
[redacted]	V_m = 7.45	Avg (t_m) = 64.63	°F

Calculate Y_{cn} as follows:

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

$$Y_{cn} = \frac{1.786}{(1.0010)(7.45)}\left[\frac{(64.63) + 460}{(29.77)}\right]^{0.5}$$

$$Y_{cn} = 1.005$$

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

Interpoll Laboratories, Inc.
(612) 786-6060

EPA Method 5 Gas Metering System Quality Control Check Data Sheet

Job Louisiana Pac. Fac / Corrigan, TX Date 3-26-92

Operator M. Kuehler Module No. 4

Instructions: Operate the control module at a flow rate equal to ^H@ for 10 minutes before attaching the umbilical. Record the following data:

Bar press 29.82 in. Hg. γ = 1.0010 ^H@ 1.75 in. W.C.

Time (min)	Volume (CF)	Meter Temp. (°F)	
		Inlet	Outlet
[redacted]	(146.10)	[redacted]	
2.5	147.97	55	55
5.0	149.85	57	55
7.5	151.69	59	56
10	153.56	60	57
[redacted]	V_m = 7.46	Avg(t_m) = 56.75	°F

Calculate Y_{en} as follows:

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

$$Y_{en} = \frac{1.786}{(1.0010)(7.46)}\left[\frac{(56.75) + 460}{(24.92)}\right]^{0.5}$$

Y_{en} = 0.996

If Y_{en} 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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EPA Method 5 Gas Metering System Quality Control Check Data Sheet

Job Louisiana Pacific / Corrigan, TX Date 3-22-92

Operator M. Kaebler Module No. 4

Instructions: Operate the control module at a flow rate equal to ^H@ for 10 minutes before attaching the umbilical. Record the following data:

Bar press 29.96 in. Hg. τ = 1.0010 ^H@ 1.75 in. W.C.

Time (min)	Volume (CF)	Meter Temp. (°F)	
		Inlet	Outlet
[redacted]	(278.20)	[redacted]	
2.5	277.11	71	70
5.0	279.02	72	71
7.5	280.90	74	71
10	282.83	76	72
[redacted]	V_m = 7.63	Avg(t_m) = 72.13	°F

Calculate Y_{cn} as follows:

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

$$Y_{cn} = \frac{1.786}{(1.0010)(7.63)}\left[\frac{(72.13) + 460}{(29.86)}\right]^{0.5}$$

$$Y_{cn} = .987$$

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

Interpoll Laboratories. Inc.
(612) 786-6060

EPA Method 5 Gas Metering System Quality Control Check Data Sheet

Job Louisiana Pacific / Corrigan, TX Date 3-28-92

Operator M. Kaehler Module No. 4

Instructions: Operate the control module at a flow rate equal to ^H@ for 10 minutes before attaching the umbilical. Record the following data:

Bar press 29.83 in. Hg. γ = 1.0010 ^H@ 1.75 in. W.C.

Time (min)	Volume (CF)	Meter Temp. (°F)	
		Inlet	Outlet
[redacted]	(638.80)	[redacted]	
2.5	580.71	75	75
5.0	592.62	76	76
7.5	594.53	78	77
10	596.47	80	77
[redacted]	V_m=	Avg(t_m)=	°F

Calculate Y_{en} as follows:

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

$$Y_{en} = \frac{1.786}{(\quad)(\quad)}\left[\frac{(\quad) + 460}{(\quad)}\right]^{0.5}$$

Y_{en} = _____

If Y_{en} 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

S-432R

Interpoll Laboratories, Inc.
(612) 786-6020

Meter Box Calibration and Usage Status

Date of Report: April 17, 1992

Meter Box No. : 3 (Rockwell Dry Test Meter Serial No. 712852)

Date of Last Calibration: March 18, 1992
Calibration Technician: D. Brennan
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.)
March 24, 1992	2-3532	984.00	2043.42	1059.42	1059.42

* Total volume through meter since last calibration.

Interpoll Laboratories, Inc.
(612) 786-6020

Meter Box Calibration and Usage Status

Date of Report: April 17, 1992

Meter Box No. : 4 (Rockwell Dry Test Meter Serial No. 964553)

Date of Last Calibration: March 17, 1992
Calibration Technician: D. Brennan
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.)
March 24, 1992	2-3532	709.80	1877.54	1167.74	1167.74

* Total volume through meter since last calibration.

Date 3/18/92

Bar. Press. 29.21 in. Hg

INTERPOLL LABORATORIES, INC.
METER CALIBRATION SHEET
EPA METHOD 5

Control Module No. 3
Serial No. DTM 712.852
Wet Test Meter No. AL-20
Technician D. BRENNAN

ΔH (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)		Gas temperatures			Time θ (min/sec)	Meter Coeff. Y	Orifice Const. ΔHΘ	C_f
nominal	actual				V_{d1}	V_{df}	Wet Test t_w (°F)	Dry Test t_{d1} (°F)	Dry Test t_{do} (°F)				
0.5	.50	2	99.85	0.01	972.500	974.551	62.5	80	72	5.11	.9975	1.86	
1.2	1.2	3	99.91	0.025	975.000	978.068	62.5	82	73	5:04	1.0019	1.89	
2.0	2.0	3	99.93	0.055	957.000	960.058	62.0	80	70	3:55	.9996	1.89	
3.3	3.3	5	100.00	0.09	961.000	966.109	62.5	82	72	5:08	.9982	1.92	
4.7	4.7	5	100.02	0.12	967.000	972.111	62.0	85	73	4:20	.9982	1.94	
3	3	4	5	6	7		8	9	10	11/12 Avg.	.9991	1.90	

Positive leak check performed by D. BRENNAN
Meter was in tolerance ☑
Meter was not in tolerance ☐; readjusted linkage
Meter was not in tolerance ☐; changed dry test meters

Approved by Daniel R. Deye Date 3/18/92

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

Date 3/17/92

Bar. Press. 29.21 in. Hg

INTERPOLL LABORATORIES, INC.
METER CALIBRATION SHEET
EPA METHOD 5

Control Module No. 4
Serial No. DTM 964 553
Wet Test Meter No. AL-20
Technician D. BRENNAN

ΔH (in. WC)		Gas Volume Wet Test Meter (ft^3)	* Cal. Index θ (X)	* Diff. Wet Test Meter ΔP_w (in.WC)	Gas Volume Dry test meter (ft^3)		Gas temperatures			Time θ (min/sec)	Meter Coeff. Y	Orifice Const. ΔHθ	C_f
							Wet Test	Dry Test					
nominal	actual				V_{di}	V_{df}	t_w (°F)	t_{di} (°F)	t_{do} (°F)				
0.6	.50	2	99.85	0.01	703.500	705.550	63.5	82	75	4.57	1.0008	1.70	
1.2	1.2	3	99.91	0.025	706.000	709.077	63.5	82	75	4.51	.9989	1.74	
2.0	2.0	3	99.93	0.055	688.000	691.068	63.5	82	75	3.46	1.0000	1.74	
3.3	3.3	5	100.00	0.09	692.000	697.110	63.5	85	76	4.56	1.0017	1.77	
4.7	4.7	5	100.02	0.12	698.000	703.098	63.5	87	77	4.10	1.0035	1.79	
		8	9	4	6	7	8	8	10	11/12 avg	1.00098	1.75	

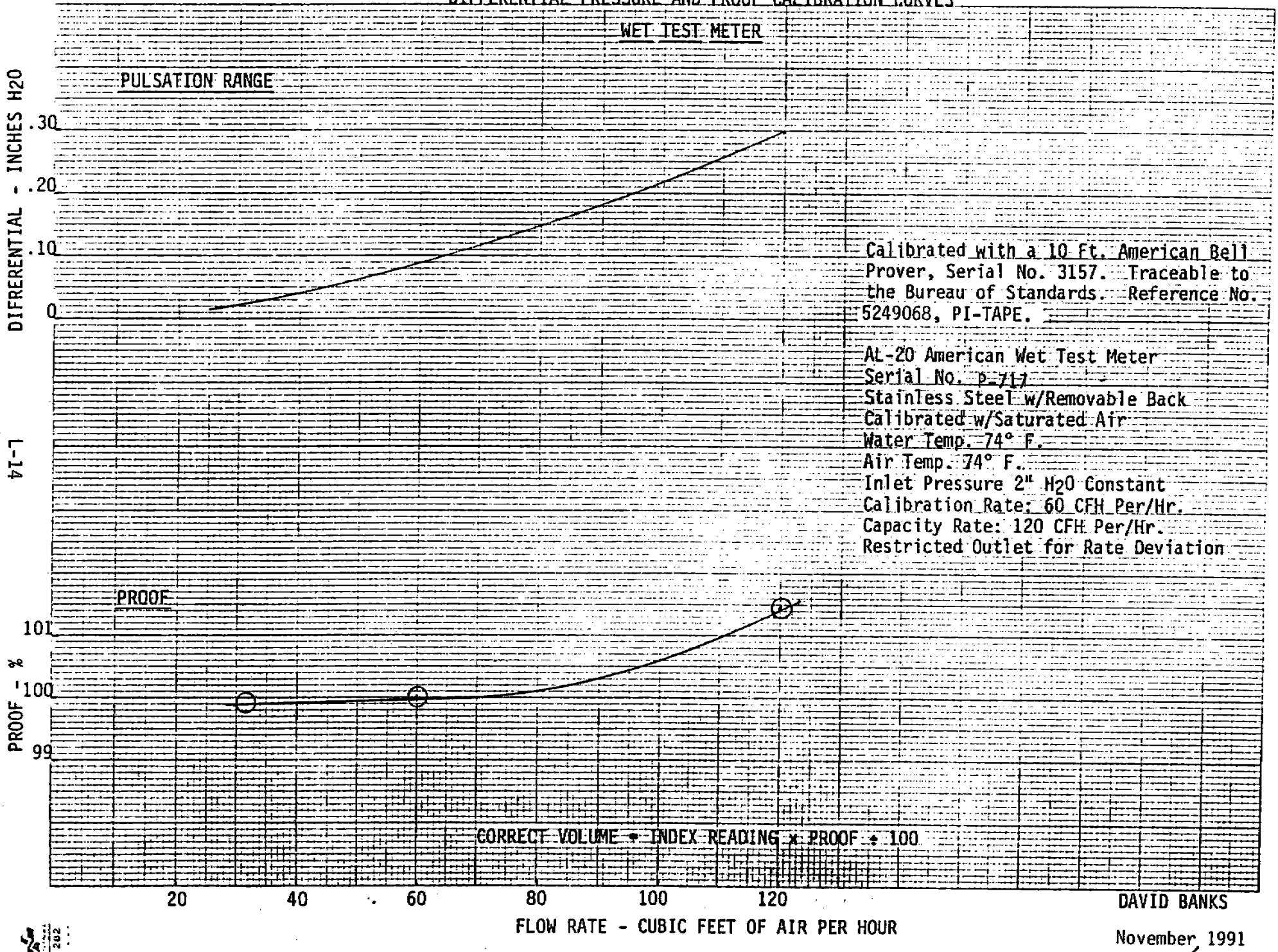
Positive leak check performed by D. BRENNAN
Meter was in tolerance ☑
Meter was not in tolerance ☐; readjusted linkage
Meter was not in tolerance ☐; changed dry test meters

Approved by Daniel R. Deye Date 3/17/92

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

DIFFERENTIAL PRESSURE AND PROOF CALIBRATION CURVES

WET TEST METER



DAVID BANKS

November 1991

20 Squares to the Inch

Interpoll Laboratories, Inc.
(612) 786-6020

Nozzle Calibration
Data Sheet

Date of Calibration: 03-27-92
Technician: M. Kaehler

Nozzle : Glass

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	.239
2	.239
3	.239
Average:	.239

Interpoll Laboratories, Inc.
(612) 786-6020

Nozzle Calibration
Data Sheet

Date of Calibration: 03-24-92 Nozzle : Glass
Technician: M. Kaehler

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	.188
2	.188
3	.187
Average:	.188

Interpoll Laboratories, Inc.
(612) 786-6020

Nozzle Calibration
Data Sheet

Date of Calibration: 03-25-92
Technician: M. Kaehler

Nozzle Number 3-3

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	.184
2	.183
3	.182
Average:	.183

Interpoll Laboratories, Inc.
(612) 786-6020

Nozzle Calibration
Data Sheet

Date of Calibration: 03-24-92 Nozzle Number 8-3
Technician: M. Kaehler

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	.181
2	.180
3	.181
Average:	.181

Interpoll Laboratories, Inc.
(612) 786-6020

Nozzle Calibration
Data Sheet

Date of Calibration: 03-27-92 Nozzle Number 8-4
Technician: D. Brennan

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	.241
2	.241
3	.240
Average:	.241

Interpoll Laboratories, Inc.
(612) 786-6020

Nozzle Calibration
Data Sheet

Date of Calibration: 03-25-92 Nozzle PM1-1
Technician: D. Brennan

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	.131
2	.131
3	.131
Average:	.131

Interpoll Laboratories, Inc.
(612) 786-6020

Nozzle Calibration
Data Sheet

Date of Calibration: 03-24-92 Nozzle : PM1-2
Technician: D. Brennan

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	.150
2	.150
3	.150
Average:	.150

Interpoll Laboratories, Inc.
(612) 786-6020

Nozzle Calibration
Data Sheet

Date of Calibration: 03-26-92 Nozzle PM1-2
Technician: D. Brennan

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	.130
2	.131
3	.130
Average:	.130

Interpoll Laboratories, Inc.

Temperature Measurement Device Calibration Sheet

Unit under test:

Vendor: Atkins

Model: Model # 39658-K — Serial Number: PDT #3

Range: -- 1999 °F — Thermocouple Type: K

Date of Calibration: 3/19/91 — 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	0	-4	4	.87
100	100	93.5	6.5	1.16
200	200	195.8	4.2	.64
300	300	294	6	.79
400	400	390	10	1.16
500	500	489	11	1.14
600	600	591	9	.85
700	700	690	10	.86
800	800	794	6	.48
900	900	895	5	.37
1000	1000	999	1	.01
1100	1100	1100	—	—
1200	1200	1205	5	.30
1300	1300	1304	4	.23
1400	1400	1407	7	.38
1500	1500	1502	2	.10
1600	1600	1602	2	.10
1700	1700	1695	5	.23
1800	1800	1791	9	.40
1900	1900	1881	19	.80
2000	2000	1974	26	1.06
2100				
		Averages:		.57

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.

Interpoll Laboratories, Inc.

Temperature Measurement Device Calibration Sheet

Unit under test:

Vendor Beckman Industrial

Model HD 110T Serial Number PDT-19

Range 0-2000 °F Thermocouple Type K

Date of Calibration 3-20-92 Technician Mark Kachlan

Method of Calibration:

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

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

Desired Temp (°F) Nominal	Temperature of Standard or Simulated Temp (°F)	Response of Unit Under Test (°F)	Deviation Δt (°F)	Deviation (%)
0	0	-001	1	.22
100	100	96	4	.71
200	200	198	2	.30
300	300	297	3	.35
400	400	394	6	.70
500	500	494	6	.63
600	600	596	6	.57
700	700	697	3	.26
800	800	802	2	.16
900	900	904	4	.29
1000	1000	1009	9	.62
1100	1100	1113	13	.83
1200	1200	1219	19	1.14
1300	1300	1319	19	1.08
1400	1400	1424	24	1.29
1500	1500	1522	22	1.12
1600	1600	1623	23	1.12
1700	1700	1718	18	.83
1800	1800	1816	16	.71
1900	1900	1909	9	.38
2000				
2100				
		Averages:	10.45	0.67

OF = off scale response by unit under test (°F)

% dev = 100 Δt / (460 + t)

☑ Unit in tolerance

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

S-433

Duke

Interpoll Laboratories, Inc.

Temperature Measurement Device
Calibration Sheet

Unit under test:
Vendor Beckman Industrial
Model HD110 T Serial Number #23
Range 0 - 1999 °F Thermocouple Type K
Date of Calibration 1/24/92 Technician Duane 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)	(%)
0	0	0	0	0
100	100	97	3	53
200	200	200	0	0
300	300	299	1	.13
400	400	396	4	.46
500	500	495	5	.52
600	600	598	2	.18
700	700	699	1	.08
800	800	803	3	.24
900	900	906	6	.44
1000	1000	1011	11	.73
1100	1100	1114	14	.89
1200	1200	1220	20	1.2
1300	1300	1321	21	1.19
1400	1400	1426	26	1.37
1500	1500	1523	23	1.17
1600	1600	1625	25	1.21
1700	1700	1720	20	.92
1800	1800	1818	18	.80
1900	1900	1911	11	.46
2000	—	—	—	—
2100	—	—	—	—
		Averages:		.62

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

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

S-433

(612)786-6020

S-Type Pitot Tube Inspection Sheet

Pitobe No. 24-4

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) .462 IN.

Alignment:

4. α_1 <10° 0
5. α_2 <10° 0

6. B_1 <5° 0
7. B_2 < 5° 1

8. Z <.125" .02
9. W <.0625" .01

Distance from Pitot to Probe Components:

10. Pitot to 0.500 IN. nozzle .760 IN.
11. Pitot to probe sheath 3.00 IN.
12. Pitot to thermocouple (parallel to probe) 3.00 IN.
13. Pitot to thermocouple (perpendicular to probe) .761 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: 3-2-92

Inspected by: [signature]

CFR Title 40 Part 60 Appendix A Method 2

(612)786-6020

S-Type Pitot Tube Inspection Sheet

Pitobe No. 6-29

Pitot tube dimensions:

1. External tubing diameter (D_t) .316 IN.
2. Base to Side A opening plane (P_A) .462 IN.
3. Base to Side B opening plane (P_B) .462 IN.

Alignment:

4. $\alpha_1 < 10^0$ 0
5. $\alpha_2 < 10^0$ 0

6. $B_1 < 5^0$ 1
7. $B_2 < 5^0$ 1

8. Z <.125" .02
9. W <.0625" .02

Distance from Pitot to Probe Components:

10. Pitot to 0.500 IN. nozzle .762 IN.
11. Pitot to probe sheath 3.00 IN.
12. Pitot to thermocouple (parallel to probe) 3.00 IN.
13. Pitot to thermocouple (perpendicular to probe) .763 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: 2-29-92

Inspected by: G Tenwalde

CFR Title 40 Part 60 Appendix A Method 2

(612)786-6020

S-Type Pitot Tube Inspection Sheet

Pitobe No. 4-29

Pitot tube dimensions:

1. External tubing diameter (D_t) .316 IN.
2. Base to Side A opening plane (P_A) .463 IN.
3. Base to Side B opening plane (P_B) .462 IN.

Alignment:

4. α_1 <10° 0
5. α_2 <10° 0

6. B_1 <5° 2
7. B_2 < 5° 1

8. Z <.125" .02
9. W <.0625" .01

Distance from Pitot to Probe Components:

10. Pitot to 0.500 IN. nozzle .760 IN.
11. Pitot to probe sheath 3.00 IN.
12. Pitot to thermocouple (parallel to probe) 3.00 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: 2-29-92

Inspected by: E Trenholme

CFR Title 40 Part 60 Appendix A Method 2

INTERPOLL LABORATORIES
(612)786-6020

Stack Sampling Department - QA
Aneroid Barometer Calibration Sheet

Date 11/4/91

Technician DUKE BRENDAN

Mercury Column Barometer No. LAB

Aneroid Barometer No. 90222001 (Duke's)

Actual Mercury Barometer Read	Ambient Temp.	Temperature Correction Factor	Adjsted Mercury Barometer Read	Initial Aneriod Barometer Read	Difference (P_{ba}-P_{bm})
29.47	69°	.108	29.361	29.37	-.009

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

S-312

INTERPOLL LABORATORIES
(612)786-6020

Stack Sampling Department - QA
Aneroid Barometer Calibration Sheet

Date 3-20-92
Technician Mark Kaehler
Mercury Column Barometer No. Lab 1
Aneroid Barometer No. 560815

Actual Mercury Barometer Read	Ambient Temp.	Temperature Correction Factor	Adjsted Mercury Barometer Read	Initial Aneriod Barometer Read	Difference (P_{ba}-P_{bm})
29.260	76	.126	29.134	29.150	.016

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

S-312

Mead Corp TX Lufkin mill - White's Capetown

CORE = 11698

FACE = 14057

Fed Ex # 1067-99-78-4

SQUARE DEAL

one of highest months

Dryer $\frac{lbs}{hr.} = \frac{lbs(FP)/hr.}{1-.15}$

7/91 → $\frac{14 \times 10^6 ft^2/mo. \times .03125 ft \times 42 \frac{lbs}{ft^3}}{744 hrs/mo} = \frac{}{.85}$

= 29,055 lbs/hr. (3 dryers)

= 9,685 lbs/hr. (1 dryer)

CLASS PROGRAM

24

NAME _____ ADDRESS @ 155 mm ft²/yr. ?

SCHOOL _____ CLASS = $\frac{155 \times 10^6 \times .03125 \times 42}{8760 \times .85}$ = 27,321 (3 dryers)

= 9100 lbs/hr per dryer @ 15% fines/thin less

		PERIOD 1	PERIOD 2	PERIOD 3	PERIOD 4	PERIOD 5	PERIOD 6	PERIOD 7	PERIOD 8
TIME	FROM TO...								
MONDAY	SUBJECT								
	ROOM								
	INSTRUCTOR	La Quinta Inn				(409) 634-3351			
TUESDAY	SUBJECT					x	250		
	ROOM								
	INSTRUCTOR	Corrigan Plant				(409)	398-2581		
WEDNESDAY	SUBJECT			fax →		(409)	398-5202		fax ←
	ROOM								
	INSTRUCTOR								
THURSDAY	SUBJECT								
	ROOM								
	INSTRUCTOR								
FRIDAY	SUBJECT								
	ROOM								
	INSTRUCTOR								
SATURDAY	SUBJECT								
	ROOM								
	INSTRUCTOR								

FOR AP-42 REF (4) 10/95

3/24/9

1H

inlet T lbs/hr

TAPPI CPB checklist face mills

wood Fuel use

inlet wood moisture

outlet moisture

STACK FLOW

STACK Temp

lbs steam/hr

TFP tons/hr.

ft²/day

density

Cycle Time

board Thick

Resin in FP

Resin usage

Wax usage

04 1240

Corrigan, TX

3/24/92

Whole Book — Do NOT Release for FOIA Request
Enforcement Sensitive

Historical Benchmarks

	#1 FACE Dryer	FACE #2 T-Chester	#3 ~~FACE~~ core	
inlet T	1050°F	1300	1000	(1990-91 data)
lbs/hr	—	—	12,000	#3 permit limit
	9,700	9,700	9,900	avg. during high production of 7/91 (14 MMft²/yr.)
	9,100	9,100	9,100	@ 155 MMft²/yr. (15% loss to trim/fines) production rate
	10,300	10,300	10,300	@ 155 MMft²/yr. } with 25% loss to trim/fines
	14 057	11 698 ←	14,057	
Wood Fuel use →	13,500	13,500	13,500	↔ protocol max, with opacity < 20% based on TACB checklist and 8200 hrs. op.
	2.7 tph	3.4 tph	2.7 tph	
Inlet Wood moisture	46-56%			
Outlet moisture	dryers 1,3	6-10%		
	dryer 2	4-7%		
STACK Flow	ΔP .64-1.1, 6149 ft/sec,	(1) 62.5 ft/sec.	ΔP 0.49-1.70	
STACK Temp	205°	(3) 193°F		
		(4) 73.4 ft/sec.		
		(2) 206°F	ΔP 0.7-2.1	

TACB checklist face 11/1989

Press

Press loads/hr.	16.74	(12/90)	12.9	(1/91)	
TFP tons/hr.	17.23	(12/90)	13.41	(2/91)	
ft²/day	450,000	(7-15-91)	456,000	(7-8-91)	450K 18,750 ft²/hr. 400K 16,700 ft²/hr.
density	42 lbs/ft³ ± 2 lbs/ft³				
Cycle Time	4-5 min	(?)			
board Thickness	1/4, 3/8, 7/16, 15/32				
Resin in FP	1.5% - 2.5% (?)				04 1241
Resin used	2,559,707 lbs/yr.	(1988)	1.2%		18.9 lbs/1000 ft² 70,010 lbs/day
Wax used	1,374,704 lbs/yr.	(1988)	0.6%		10.1 lbs/1000 ft² 37800 lbs/day

ft x 42 lbs/ft³

- (3 dryers)
1 dryer)

=27,321 (3 dryers)

9100 lbs/hr

2 dryers

150% max/min loss

To do

- get daily production records – last 2yrs.
  daily during test
- get stack test field data sheets daily
- when was 3rd dryer added? → 1987 (?)
- when was it permitted ?
- (*) explain 16s/hr. → ton/yr. calculations
  Boswell has will respond
- % resin wrap. In lab calc. with 114 submitted by J.B. said 25% or less. Figures we have look like 15% or less. This must be on production records
- ✓ photos
- ✓ measure cycle times
- ✓ how resin and wax are measured ? (witness it)
- ✓ Process flow chart
- ✓ Telephone
- ✓ Tour – identify other sources
  Blender
  forming line
  aspiration system
- ✓ Estimate fugitives loss (OK to test ?)

04 1242

Re Marty Niesumdes:

<16hrs/wk Nominal

cycle time 5/8 op → 1/4 155 ± 20 (160)

% of production — 3/8 ~200 sec. } more downstream variable

— 98% 7/16 217 sec + 10 sec. = 227 sec

— 2% 15/32 5/8

down 15/32

I remit at 4:45 pm on 3/25/92 aa

These times do not include all loading/unloading and do not consider variations which may occur due to line speed

ns

itely
be 15%
epds

2

USI AO

04 1243

Names	Pos.	Shift
Mike Wendorfer	MEC	
Frank Oldwiler project designer	MEC	
Jim Boswell	LP	
Monty Naesmander	LP	
John Keenan	LP - PM	
Mark Kaehler	Interpell	
Lyle Tidwell	Mgr of Silvi bee, Corrigan, cleveland plywood	

Using small dia logs (plantation logs) can't get equipment in forests where large logs are - too wet. Small dia logs - can only debark one at a time in each debarker, so volume of wood available is much less than normal.

Running 2 minute dumps to get wafer production

multiply x 30 to get per minute.

04 1244

16.7 lbs/ft3 wood fuel density - analyzed 3/24/91

↓ for burner use

Page #1

DRYER

inlet T

fuel gas

OUTLET T

Moist. in

MOIST. OUT

opacity

Wet bot. speed

fuel rat

DRYER 2

inlet T

OUTLET T

fuel Gas

M IN

M OUT

opacity

wet bot speed (fu

DRYER 3

inlet T

OUTlet T

M IN

M OUT

opacity

wet bot. speed

DRYERS

	3/24 10:55 AM	2pm	4pm (10)	5 (15)	6pm	7pm	3/25 9am	10:45	12n	1:50 pm	both #1 and #2 drying to 80% of finish 4:30	6:05
Fuel #1 wood DRYER 44 mm Btu/hr output	green	green	green	green	green	green	green	green	green	green		
inlet T	725	726	850	775	800	800	725	800	775	780	700	725
fuel counter	265933	267302 70%	268567 1.2 dial rate	269218	269678 72.4	270244 69.4	270720 61.0	271870 68.9	272870 55.6	65.2	281046 63.3	281804
OUTlet T	218	215	220	219	221	220	218	212	208	210	209	206
Moist. in	44.2–52.3	46.2–50.8	49-54	48.8–50.4	51.2	50.6–55	—					
Moist. OUT	7.2-10	7.0-8.4	8-10	7.8–8.0	8.6	9.0–9.2	—	8.9–9.0	5.2 6.0	28–10	10	
opacity probe of sample taken in way of CEM	—	—	—	—	—	—	—	16	19	15	18	12
Wet bot. Speed (feedrate)	287	290	284	277	277	275	240	265	235	265	250	231
DRYER 2 wood 30 mm Btu/hr.	green →											
inlet T	Cover this day											
#	800	825	875	850	850	850	900	860	875	850	850	849
OUTlet T	230	226	225	234	225	240	247	230	229	228	229	224
fuel counter	510241	← wood fuel gauge for #2 and #3 not working				92.1	88.1	88.5	84.7	84.3	72.2	
M in	71.4% of high MEC for calc using sheets, and OP to estimate fuel usage											
	16.5 Amps 115 V.	96.5%	—	—	—	—	49.1–52.2		44.6–51.9	48.0	43.7–55.2	
M OUT	—	—	—	—	—	—	6.0–6.8		5.2–6.0	5.0–6.4	5.6–6.4	
opacity	No CEM on #2 stacks											
wet bot. speed (feedrate)	250	255	260	260	255	255	285	285	280	270	270	290
DRYER 3 wood 36 mm Btu/hr.												
inlet T	down to keep from running out of wood											
OUTlet T												
M in												
M OUT	Sweing dryer can either be fuel or core											
opacity												
wet bot. speed										04 1245		

Dryer # 1 Dump to determine dryer production

11:57 AM

13720 truck full - 2 min dump
13280 truck empty
440 lbs
x 30
13,200 lbs/hr.

4PM

13750
- 13250
500
x 30
15,000 lbs/hr

No conveyors along the way, This is a dump direct from cyclone → same for all dryers at this plant. Dryer operator cut back on feed rate compared to 1st 2 dumps to maintain temperature. Fines also included in dump, according to process flow sheets.

MATERIAL COMING OUT OF DRYER

Flue gas damper "open" – to atmosphere
"closed" – goes through # 2 dryer

Fuel meter not working for T-O heaters (on for #2, #3 dryers)

use "Cores" (no bark) as backup when Debarker or Slasher deck are down

Champion getting large dia logs – Inland LOP using more, larger logs also as of 2pm 3/24/92.

04 1246

Board
cycle ti
Press lds/
density
T (p
Resin
Wax
linespeed

Board
cycle time
Press lds/
density
T
Resin
Wax
linespe

PRESS

	3/24					3/25			
	2:30pm	4:16 pm	6pm	7pm	9pm 10:30	12 N	1:50 pm		4:30
Board 15/32"									"
cycle time									5:02
Press lds/hr.									11
density									
T (press)									425
Resin									
Wax									
line speed				We were able to speed up because dry bins were full					66.8
Board 7/16"				↓					
cycle time	7:36	7:35		nominal 5		7:33		press down	
Press lds/hr.	8+	8+		10		9		9	
density	43.3								
T T2 heater final → / T0 ramp →	52.9% / high fire	414	53.5%	51.0%	69.6% 315887	58.5 315887	57.5 315887	49.7 ←	419 This meter doesn't work either. MEC is counting revolutions of auger feed.	64.5
Resin ?	~~14 lbs~~ /hr.								
Wax									
line speed	45.2	45.4		65		45.9		0	

04 1247

Board 3/8"

- Cycle time
- press lds/hr.
- density
- T
- Resin
- Wax
- LineSpeed

Board 1/4"

- cycle time
- press lds/hr.
- density
- T
- Resin
- Wax
- linespeed

04 1248

To test

Boswell
Deactivate
To test

Core

To test

- Conveyor from blender — test for pollutants (will be estimated) MeOH, PM — Shut one vent down and test the other
- Cooling wheel — test for pollutants — estimate
- 1/4" pressvent sampling — do 1 vent on 1/4" do others on 7/16
- re-estr. drop average Temps if necessary
- Confirm that pressvent (new one in middle of building identified with shut off fan — This one is outside partial hood of pressvent) which is not functioning will not be turned on during test — is it permitted?) Shut down due to fire — will not restart according to Marty N.

Boswell to estimate to test

Pa Sleeve (QA room)

190 wax used as 9o of FP

≤ 2% resin used

Resin room — Total resin used as of 2:30pm 4:30pm — 2:30pm (8hrs) 1.4% resin of 9o of what comes across scale (must be actual %. They test board quality to make sure quality is ok). Calibrate meter

949 lbs / 8 hrs. = 119 lbs/hr.

Core ~~Set point 14,000 lbs/hr.~~

8-12 hrs down for maintenance every other week.

0021 10

04 1249

Tres seen at 96 ppm but not for long. Has seen it run at 50 well.

65 fpm (7pm) 3/24/92 7/14 per Joel (Pressoperator) 5–6 min

Lynn { Highest line speed ^ Operator has seen (Lynn - 4pm 3/24/92) } 70 fpm 7/16 4 425°F–430°F

Cycle time – 5 min.

ran this last winter when they had log supply of larger dia logs.

(*) 4/12/88 – } Dryer #3 #1

7/21/88 – #3

12/16/88 – #3

Steve (QA) to get these dryer, wax, ft² reports and board thickness reports and density for 1-91 through 3-92 (Steve only keeps for one year. J. Boswell will see if he has copies of them)

(*) Thermal oil heat exhausting ~~through~~ to atmosphere, not through #2 dryer. Valve has not been ~~not~~ working. They will fix for tomorrow's run on #2.

Joel said thermo logs started coming in just around OCT 91 and have continued ever since

04 1250

Skip

2 # 3/

1 # 3/

2 – 3/

1 – 3/

? – 3/

1 – 3/

(*)

3/25/92

(*)

fire

430°F

Shift Density of board from press sheets

2nd	3/23/92	7/16"	42.2 lbs/ft³	—	44.6
1st	3/23/92	1/4"	49.5	—	55.0
2	3/22/92	7/16	41.9	—	45.0
1	3/22/92	7/16	41.7	—	44.8
?	3/21/92	7/16	41.4	—	45.3
1	3/9/92	1/4	49.6	—	52.4

larger

(*) Corrigan permit application 8/9/89
Baswell to figure out why VOC ~~thru~~ may 2x lbs/hr.

Reason for not wanting to run 1/4" — changeover time — more time down.

almost unity yr 3-92 (one year has expired now)

3/25/92

untrimmed

untrimmed board size 52" x 296" 37" 1539 in² 1076 ft²

Can adjust length but not width

(*) Trimmed to 48" width

Length trim — 2" on each end

loss
4" x 52" + 296 x 4" = 9.7 ft²

[recycle of trim loss] Trim loss % = 9.7/107 = 9%

T-O heater now venting through #2 dryer

- have valve fixed in position with rope

fire loss — 12% per past J. Boswell permits Application

total loss = 9 + 12 = 21%

04 1251

Zaremi said OK to test stacks 2A and 2B

2 runs on each stack for PM10, PM, HCOH pollutants

(both branches go through own set of Multiclones and ∴ will not necessarily have same PM- and PM10) ~~but~~ but CO, VOC can be done on one side only if LP wants.

Blue haze outside bldg. in back of press line

Also - sludge pit - metal - grey sludge coming out - took photo - roof over it in back of press building

No residences nearby - all open LP land where plume impacts - but haze and odor evident - I was standing in plume as it impacted

Emissions from Champion International plant (plywood) next door — 500 yds away — seemed much greater — got photos of boiler stack on 3/24/92 which showed 50 - 75% opacity on and off over several hours

TACB

Trayon out back also with aeration + foam on surface. — drains to creek which goes under RR bridge and then toward Champion property. — got photo. Metal dike (?) looks like it tried to prevent migration to RR Bridge

Re: Press fugitives (VOC) — Curtain around press only comes down 10' from ceiling. VOCs escape around curtain. Guess at how much → maybe add 5% more for leakage around press and unloader.

Use ☒ Latex semi gloss paint to paint edges of board (red). Exhausts out side of bldg. Lots of particulate on nearby duct work — got photo. This is not a constant emission source. NOT same coat schedule is.

Fugitives (HCOH particulate ?) near blenders hard to estimate but it's noticeable in odor and sight. We also noted this in our inspection report.

04 1253

Steve (QA) said metal containers for wastewater were for sanitary waste only. They have permit

and sample. Aeration pond is for run-off from log storage. They also have permit and sample it. His supervision is in W.W. Treatment operator training school today. Have had at least one dumping problem (unspecified pollutants).

They lose lots of wafers in forming line (don't use suction to mat as at Clayton) and some from pressing operation.

Dump — 1:39 pm — 13720 — 3/25
#2 dryer test — 13240
480
30
14,400

(*) Real moist wafers going to dryer — Nugent / Bandeen felt them. Much more moist than those at Silsbee (really damp)

Dump: 6:43 pm
#2 dryer 13760
13220
540 x 30 = 16,200 lbs/hr — 3/25

04 1254

3/4" → 7/16" production 319,872 ft²
3/8" production would have been $\left(\frac{7/16}{3/8}\right) \times 319,872 = 373,184$

used 3/8" basis

7/16 as

DRYER TARNISHPOT ??

Average dryer temps, dryer #1 3/24/92: (see 7/16" board)

10:52 am	460 lbs	~~430~~ =	13,800 lbs/hr
11:52	440	=	13,200
12:53 pm	460	=	13,800
1:50	400	=	12,000
2:52	500	=	15,000
3:56	500	=	15,000
4:47	520	=	15,600
5:46	500	=	15,000
6:54 pm	460	=	13,800
7:48	500	=	15,000

average 14,220 lbs/hr.

3/24 → 7/16" production 319,872 ft²
3/8" production unrecharacterized (7/16)/(3/8) × 319,872 = 373,183

On This day They ran 319,872 ft² on 7/16" basis, according to Resin/wax use/production sheets.

used 3/8" basis

$$\text{to dryer } \frac{\text{lbs}}{\text{hr.}} = \frac{373{,}183\ \text{ft}^2 \times .03125\ \text{ft}}{24\ \text{hrs}\ (1 - .25\ \text{loss to fines/trim})} \times \frac{43\ \text{lbs}}{\text{ft}^3}$$

"7/16" density throughout day was ~ 43.2 lbs/ft² during our test day (roughly 9:30 am – 8:00 pm)
assume 3/8" density is the same

$$\text{dryer } \frac{\text{lbs}}{\text{hr}} = 27{,}859\ \frac{\text{lbs}}{\text{hr.}} \quad (2 \text{ dryers})$$

$$\text{1 dryer} \rightarrow 13{,}930\ \frac{\text{lbs}}{\text{hr.}}$$

04 1255

based on press calculation

I checked with Mike Weinberger of MEC – he said he would expect 10-12 % loss to finish at Covington (better than Silsbee due to typical wrapping) but again, it could be as high as 16% (my guess based on my estimate of 25% loss to trim and fines – and we know trim is ~ 9%). My 16% makes dryer production based on press look much more like dryer production based on dumps.

Jeff Bundette noted Hcdt reagent holding time had expired by the first day of testing (5 days) – OK to use it if it passes a QC test. Intertek will have it tested and report to Jeff.

JB
Marty-J
Marty
Steve

Lynn R
set records for p.t. per hour (but several yrs ago)

7/16"	161 p.t./Shift	73-74 fpm line speed
1/4"	177 p.t./Shift	80 fpm

did That for 4 days with no down time

3/26/92

For Entrepall

1) Get field notes last 2 days
2) Get BAIOC check sheets from MN lab for HCOH reagent

Comments for Lorami on 3/26:

1) HCOH reagent holding time
2) Production OK, conversion OK
3) Need more than copy of requisition to keep working beyond 3/31 — need WA signed by ESD Contracting Officer.

Questions for J. Boswell / Marty / Steve

JB 1) Moisture at Silsbee vs moisture at Corrigan
Marty-JB 2) production sq ft on daily sheets
Marty - 3) resin % — looks low — how calculated — how can I
Steve(QA) 4) wood use check? use figure — 1-91 → present (annual not daily)

Questions for MEC:

1) Does wafer size affect max throughput through dryer? How, why? . . .
2) Moisture — Silsbee vs Corrigan again
3) wood fuel use rate — factors used (lbs/sec, etc. (Mike W. didn't have yet)

~~All 3 dryers running on 3/26/92 each day~~

3/26/92 10:30 am — talked to dryer operators — #3 running normally at 290-300 feed rate and 850°F 1st run showed they were running too slow. I told them to increase feed rate and they did. Prop 12/5/97 Had been low during 1st test. Run 2 would

be on higher feedrate (temp. will increase as feed rate increases). Set at 295 at 10:35

concentrations may be low for → { 2nd run of HCOH; 1st run of PM-10; 1st run of VOC } on 3/26/92

(Later) → NO — Plant mgr. (John K) said occasionally #3 dryer does go higher but during more production months (summer 1991) they looked at records and it was more like 700°F as average.

I looked at the months (Feb 92) and they showed it (#3) averaged more like 800-850°F

John Knieman said they get in opacity trouble above 750°F and that's why overall average for #3 would have been more like 700°F. John said he would run dryer #3 at 750°F which, he feels, is on high side of average. They have operated #1 and #2 dryers on high side of average also — so this is consistent (i.e. their temp averages are accurate).

04 1258

#1 DRYER wood
inlet T
outlet T
moisture OUT
opacity
feedrate
fuel counter
% of high fire ra
#2 DRYER wood
inlet T
OUTlet T
Moisture out
Opacity
feedrate
% of high fire ra
T-O % high fire ra
T-O Temp
#3 DRYER wood
inlet T
OUTlet T.
Opacity moisture o
feedrate
% high fire rat
Opacity CL
Moisture i
#A

DRYERS

	3/26/92 10 AM						
#1 DRYER		11:40	2:20	3:46	5:15		
Wood	green	slightly less green			(Slightly less green Some real green, some metal)		
inlet T	675	700	650	675	625	625	
outlet T	215	222	216	224	216	218	
Moisture OUT	9.6	5.6	6.6	9.4		9.0	
Opacity	14	24	26	15	09	08	
feed rate	250	260	220	220	220	220	
fuel counter	288524	289448	290182	291306	292171	292515	
% of high fire rate	88.7%	79	68.2		57.7	48.6	
Meter Varies a lot 55-100% — might be bad Thermocouple; Maybe working on it							
#2 DRYER							
Wood	green	slightly less green			See above		
inlet T	775	750	875	800	775	775	
outlet T	230	236	232	240	237	240	
Moisture out	5.4	5.0	5.4	7.2		5.2	
Opacity	XXXX

Interpoll using our gas at 304 ppm for method 25A VOC we would like

Method requires two more:
alternative (1) 500 ppm propane in air
550 ppm " "

~~600 ppm propane in air cylinder~~

alternative (2) — I audit gas cylinder around 200 ppm
I told Laramie to Call Interpoll

Dryer #3 } 12:15 pm — had to cut back on feedrate and temp. — Wafer's getting too dry.
(it's less than 5% moisture — glue won't adhere properly, burning edges of wafers — haven't gotten yet, but could. I told Marty N/ John K to cut back but keep it as high as possible. Al Barden checked opacity it was 30-40% — confirmed feedrate with Marty N and John K. — we told them again it was OK to lower feedrate (and temp).

Al Barden / Al Nugent / Jeff Burdette tried to figure out why VOCs increased during 2:00-2:30 — we couldn't. Toilet, type of wood, steam, some and moisture, in went down slightly.

but see later notes - 16 s/hr. was the reason

Al B. calculated that, at speed belt was moving, (290) a wafer would take 108 min to go from entry of wet bin to the exit. Mike Wendorf 11/1260

Board Thic
cycle time
press loads
density
Press tem
line spe

PRESS

	3/24/94 10AM	2:05	4pm
Board Thickness	7/16	7/16	7/16
cycle time		5:19	5:24
press loads/hr.	10	11+ ~~#13~~	11+
density	See press reports		
Press Temp	424	425	424
line speed	55.4	65.1	65.1

04 1261

Q MEC said it takes ~ 8 min for a wafer to go through the dryer. Mike estimates it takes ~ 2 hrs. to go from dryer exit to the forming

Dump Test #3 dryer 3/26/92 3:25 pm

3:36 pm 13 660 lbs

2 min run − 13240 lbs

420 lbs x 30 = 12,600 lbs/hr

VIC Plant 170-180 Run 1 150-160 Run 2 240-250 Run 3 ~200

		Line speed,	dump lbs/hr	+
0916 − 1030		266	9000 − 8400	650-700
1135 − 1251		305-290 (ft/hr)	10,800 − 11,400	700
1400 − 1506		290	12,100 − 12,600	700

VICs seem to correlate best to lbs/hr through dryer.

for 3/27 − ✓ (1a) − Call Marcia to coordinate Sat − when, where? I don't have the key.

✓ (1) − Call Hester re CA

(2) Call Rich D − get dump manually lbs/hr and Temp and any other key issues

(3) get protocol for Jeff

✓ (4) Call Julie

✓ (5) Tell Yoka

(6) ? Dump Data approx.

04 1262

Juliet

Dump, dryer #3 6:30pm 3/26/92

13640 lbs

13240 lbs

400 x30 = 12,000 lbs/hr.

Inlet Temp of dryer #3 dipped from 3:30 → 4:30pm
750°F → 550°F, Then climbed again
550 → 750°F 4:30 → 6:30 pm
(Might have been caused by incoming moisture
drop - see MEC dryer reports which they cleared
and us in stack test report)

04 1263

#2

Check of production vs dump truck loads to calculate dryer lbs/hr. on 3/25/92:

Press

press loads	85	7/16	85 × 1568 ft² =	133,280 ft²
	31	15/32	31 × 1680 =	52,080
	106	7/16	106 × 1568 =	166,208 ft²
	4	15/32	4 × 1680 =	6,720
				358,288

for 3/8" basis

133,280
+ 166,208
299,488 ft² × 7/16 / 3/8 = 349,602

52080
6720
58800 × 15/32 / 3/8 = 73,520

+ 423,902 ft²

7/16 / 3/8 = 7/16 × 8/3 = 2 1/4 = 1.167

15/32 / 3/8 = 15/32 × 8/3 = 40/32 = 1.25

423,002 ft²/24hrs. × .03125 ft × 43 lbs/ft³ = 568,409 lbs/24hrs

dryer (lbs/hr) = 568,409 lbs / 1 − .25 = 757,878 lbs/24hrs.

On 3/25/92, all 3 dryers operated but #3 only operated for ~3 hrs (shift 1) + 6 hrs. = 9 hr total dryers operating = 2.375 dryers

04 1264

$$\frac{757,878 \text{ lbs/24 hrs}}{2.375 \text{ dumps}} = 319,107 \frac{\text{lbs}}{24 \text{ hrs}} \text{ per dump}$$

$$= 13,296 \frac{\text{lbs}}{\text{hr.}}$$

Using dump truck Wts:

3	
	440
	440
	400
	400
	480
	420
	460
	540
	420
	440
	4440 × 30 = 133,200 lbs/hr.
	÷ 10 = 13,320 lbs/hr

Good agreement

2 drop

1 for Monday 3/30 — ① get units on Log production from Donna at Corrigan (tons, pounds 1000 tons ?)

② Tell Linda C what Artus and Gary Phillips need on MI training

③ Hand in expense report / Pick up checks

④ Check Tina to see if Time sheet arrived

⑤ Call Jeff Burdette re Schedule of sampling, New Waverly operating parameters old stack tests etc.

⑥ file overtime report

20 lbs hr.

Summary of Corrigan:

(1) Previously unidentified point sources:
- blender conveyer line – tested
- paint booth exhaust – not tested batch operation water based paints

(2) Production records appear to be kept on as produced thickness basis instead of 3/8" basis. (underestimates production)

(3) Cycle times we have been given in 114 do not reflect variability possible from adjusting line speed.

(4) Mass loads during our tests may be less than 114 data because facility (and neighboring plants) had mostly small dia logs which slows their production (debarker only takes one log at a time) dry production could go much higher for same reason

(5) Champion International plywood mill next door had opacity problem on fossil fired boiler through my dates on-site. Also significant emissions from other sources – appear worse than LP.

04 1267

(6) Question unanswered – What is Variability and range of their resin use? 114 gives higher amount than we saw during our tests and during other records we looked at

(7) What is average temp (inlet) on dryers. They ran tests at what they said was high side of average rate. They wouldn't run any higher (reasons – don't run that high due to opacity regulations and due to potential to burn wafers. – ~~Operators~~ we should calculate mean, std deviation, range based on last year or so of operation to check their statements.

(8) They (like Silsbee) also have operated T-O heater ~~continuously~~ while venting directly to atmosphere. They said

Electronic Valve was broken. Had to use rope during our tests to close valve and to exhaust T-O Through Dryer #2. Had been venting to atmosphere for some time, but we couldn't determine how long.

(9) Line speed VS cycle time during our tests: 65 FPM = 5 min 20 sec. cycle
46 FPM = 7 min 35 sec. cycle
They said they have been at 70 - Robert was several yrs ago

(10) possible Wastewater permit problems - but probably not major. Looks like stormwater runoff from pine is only effluent unless someone dumps something. They treat with aeration and put into creek. They say they have permit. Someone (State, EPA) should check status.

(11) Question about moisture of incoming wipers - They were wet to the touch here but had same measured moisture content as the ones at Stickeen which did not feel wet. Why?

J. Boswell

Foreign

143,668,000 ft² (3/8" basis)

42 lbs/ft³

wood used

3.5% resin

: 128 ft³)

fines 10% loss

1 cord

2.568 lb VOC/1000 lb wafers

(or 5.136 lb/ton wafers)

242.73 ton VOC

Actual 3/8" ft²

$\frac{7/16}{3/8} \times 143\,668\,000 = 167,660,550$

43 lbs/ft³

2.5% resin + wax

fines + trim 25% loss

9 lbs/ton wafers

Even accepting the ~~dead wood argument~~ ~~back using FIA's best stat~~ ~~climbers + dead trees~~

~~167,660,550~~ ~~7,209,380,000~~ 225,299,840 lb FP

231,076,710 lb

~~225,299,840 lbs × .975 = 219,667,340~~ (resin/wax)

~~231,076,710 × .87 × 9/2000 +~~

~~231,076,710 × .13 × 4.5/2000 =~~

~~1,809,332,900 + 135,180,000~~

~~= 1,944,512,900 lbs~~

= 972256

231,076,710 lb (with resin/wax correction)

231,076,710/.75 = 308,102,660 lb (with + resin/fines correction)

70

04 1271

Wet wood portion

154,000 tons wafers
~~308 to 2 660 lbs~~ × .87 × 5.136 lb VOC
2000 lbs/ton ton wafers

= 344 tons VOC

dry wood portion

154,000 tons wafers × .13 × 2.568 lb VOC
2000 lb/ton ton wafers

= 26 tons VOC

total dryer VOC emissions 370 tpy

or, ~~app~~ 123 tpy per dryer

So plant is probably became major in 1986-7 when 3rd dryer was added. Should have had PSD review for any mods since then (MDF application?, application to increase production to 155mm ft²/yr. ?)
Also - was the switch to OSB from particleboard a major modification acc. by itself - must evaluate this as well.

TSI 10 04 1272

NOTES

460

NOTES

500

Carrier

FOR
AQ-412
REF (4)

KDB

10.5)

DRYER
No 1

19.5)

04 0553

Dowell Tnk.

013600 LB 09:45 AM 03/24/92

013100 LB 09:51 AM 03/24/92

2 min Temp 050C

15000 lb

Danger No. 1

NOTES Dowell Tnk

013600 LB 10:52 AM 03/24/92

013120 LB 10:57 AM 03/24/92

460

NOTES Dowell Tnk

013720 LB 11:52 AM 03/24/92

013200 LB 11:58 AM 03/24/92

470

013200

NOTES

013520 LB 12:53 PM 03/24

460

013120 LB 12:58 PM 03/

NOTES

013760 LB 01:50 PM 03/24

013360 LB 01:54 PM 03/24

460

NOTES

013900 LB 02:52 PM 03/24

013300 LB 02:55 PM 03/24/92

560

Danger No. 1

04 0554

NOTES

D-1280 LE 04:00 PM 03/24/92

D-1280 LE 04:00 PM 03/24/92

14.00

NOTES

D-1280 LE 04:45 PM 03/24/92

D-1280 LE 04:45 PM 03/24/92

Drum No 1

16:51 Y30

NOTES

D-1280 LE 05:45 PM 03/24/92

D-1280 LE 05:45 PM 03/24/92

17:56

04 0555

LOUISIANA-PACIFIC CORPORATION
SOUTHERN DIVISION
WAFERWOOD

7/16" = .4375 in
= .03646 ft

Daily Resin and Wax Usage

Date: 3-24-92

Beginning Inventory	74 270	lbs.
Incoming Resin	36 000	lbs.
Total	110 270	lbs.

Resin Room:

_____ Bags in Resin Room:

3133 FACE Totalizer

2589 CORE Totalizer

111
+ 93
204 press loads x 14 openings/press load x 112 ft²/opening = (This is actually on 7/16" basis since they were running 7/16" all day)

Ending Total 104548 lbs.

24 Hour Usage 5722 lbs.

Shift 1 6am-6pm, Shift 2 6pm-6am

Footage for Day 93 + 111

319,872 ft² (7/16") x 7/16/3/8 = 373,683 (3/8") ft²

319 872 ft² 3/8" Basis

LBS/24 Hrs
M Feet 3/8 Basis 17.9 lbs/msf

Wax Room:

(Usage: (Gallons) X 6.57 = Lbs.)

Beginning Inventory	55 819	lbs.
Incoming Wax	-	lbs.
Total	55 819	lbs.

Storage Tank Level

13'9" 7920 Gal 52034 lbs.

Ending Total 52 034 lbs.

24 Hour Usage 3785 lbs.

LBS/24 Hrs
M Feet 3/8 Basis 11.8 lbs/msf

7/16" 7/16" 7/16"

FP → 319,872 ft² x .03646 ft x 42.3 lb/ft³ = 493,325 lbs

RESIN → 5722 lbs / 493,325 lbs x 100% = 1.16 %

WAX → 3785 lbs / 493,325 lbs = 0.8 %

04 0556

DRYER REPORT

DATE: 24 MAR 92 SHIFT: 1 CREW: 1

FOREMAN: J. Wilson OPERATOR: L. [illegible]

TIME	#I DRYER OUT-LET	#I DRYER INLET	#I DRYER CENCO	#I DRYER SPEED	#I DRYER OPAC MON	#II DRYER OUT-LET	#II DRYER INLET	#II DRYER CENCO	#II DRYER SPEED	#III DRYER OUT-LET	#III DRYER INLET	#III DRYER CENCO	#III DRYER SPEED	#III DRYER OPAC MON	KONUS
6:30	START	UP				START	UP			START	UP				
7:00	215	650	7.8	2.70	12/12	230	750	8.8	2.60	245	800	7.8	2.80	0/155	489
7:30	220	550	9.0	2.80	15/15	235	775	7.8	2.70	245	250	7.0	3.20	0/108	489
8:00	220	600	8.0	2.60	cal	230	725	6.0	2.70	Down					490
8:30	216	700	7.8	2.80	cal	220	675	5.8	2.70	Down					488
9:00	215	650	8.4	2.90		START UP				Down					489
9:30	215	710	7.2	2.90		230	750	7.0	2.50	Down					486
10:00	215	800	10.0	2.85		230	750	6.0	2.50	Down					490
10:30	215	725	9.0	2.85		230	750	7.0	2.50	Down					489
11:00	220	700	8.8	2.87		236	800	6.0	2.50	Down					489
11:30	220	700	7.8	2.87		225	810	5.8	2.50	Down					489
12:00	220	700	7.6	2.87		225	800	5.8	2.50	Down					489
12:30	220	675	7.0	2.90		230	800	5.0	2.50	Down					489
1:00	220	750	8.4	2.90		230	675	5.6	2.50	Down					489
1:30	215	700	10.0	2.90		230	800	6.4	2.70	Down					489
2:00	215	725	9.0	2.90		230	825	6.8	2.55	Down					489
2:30	215	800	10.0	2.88		230	825	8.0	2.55	Down					489
3:00	220	800	9.4	2.90		230	850	7.6	2.55	Down					489
3:30	220	800	8.0	2.84		230	825	6.0	2.60	Down					489
4:00	220	850	9.4	2.81		235	825	6.0	2.60	Down					489
4:30	220	850	8.0	2.77		235	850	6.2	2.60	Down					489
5:00	220	775	7.8	2.77		235	850	6.0	2.60	Down					490
5:30	220	850	8.6	2.77	cal	235	875	6.0	2.60	Down				04 0557	488
AVG	734					AVG	790			AVG	525				

DRYER REPORT DATE: 24 March 1992 SHIFT: 1 CREW: 2

FOREMAN: Tony L OPERATOR: Karen C.

	#I DRYER					#II DRYER				#III DRYER					
TIME	OUT-LET	INLET	CENCO	SPEED	OPAC MON	OUT-LET	INLET	CENCO	SPEED	OUT-LET	INLET	CENCO	SPEED	OPAC MON	KONUS
6:30	220	825	9.2	275	51/51	235	825	8.4	255	Down				/	490
7:00	220	800	9.2	275	49/51	235	840	5.2	255	Down				/	489
7:30	220	811	9.4	275	48/51	235	825	7.2	255	245	650	5.0	260	05/04	489
8:00	220	775	8.4	275	52/52	235	850	7.4	255			5.0	265	09/06	484
8:30	225	900	9.0	275	13/12	235	950	7.0	260			7.0	270	07/07	484
9:00	230	875	8.2	275	15/16	240	850	5.8	260			6.2	270	06/07	491
9:30	230	830	7.6	280	15/16	245	950	5.6	270			6.8	280	07/05	488
10:00	230	830	7.0	265	12/12	250	840	4.0	255			6.0	265	04/05	488
10:30	230	800	8.4	255	08/12	250	800	4.4	255			5.8	260	05/05	488
11:00	230	790	12.2	240	07/06	250	800	3.6	255			6.2	260	08/05	486
11:30	240	725	6.8	240	05/11	250	800	5.0	255	Down				/	484
12:00	240	750	7.2	240	07/08	245	775	5.0	255	Down				/	486
12:30	240	725	6.6	240	09/11	245	800	6.2	255	Down				/	48
1:00	235	750	7.8	250	10/13	240	800	5.4	255	Down				/	484
1:30	235	790	7.0	250	15/13	240	850	5.6	255	255	625	7.0	265	05/05	48
2:00	230	750	7.4	250	13/14	240	850	5.0	255	255	700	8.2	265	06/05	48
2:30	230	725	7.2	250	14/14	240	850	5.8	255	255	700	6.0	265	07/08	49
3:00	230	710	5.6	250	09/12	240	750	5.4	255	255	800	4.8	270	05/07	48
3:30	230	710	8.0	250	11/12	240	775	5.2	255	255	650	5.6	250	06/09	492
4:00	Down				/									/	487
4:30	Start up				/							04 0558		/	488
5:00	230	725	5.8	230	09/08	240	750	3.4	255	255	600	4.2	250	04/05	487
5:30	220	725	6.6	255	09/10	240	775	5.8	255	255	700	5.8	275	04/05	49

AV 791 AV 805 AV 651

Louisiana-Pacific

ORIENTED STRUCTURAL BOARD

NAME CB
DATE/SHIFT 3-24-92 - 1
NOMINAL THICKNESS 7/16
TYPE RS

NUMBER OF LOADS 93
STORAGE TANK LEVEL
FACE RESIN TOTALIZER
CORE RESIN TOTALIZER

PRESSLOAD	4	10	21	27	31	37	43	50	64	70	74	81	88						
BOARD	1	1	1	1	1	1	1	1	1	1	1	1	1						
TIME	6:47	7:29	8:43	9:30	10:00	10:47	11:32	12:26	2:14	2:59	3:30	4:23	5:26						
LINE SPD.	60	60	45	45	45	45	45	45	45	45	45	45	45						
SL	145	144	144	145	147	147	149	149	149	151	152	150	150	151					
CL																			
T.T.P.	159	160	145	104	133	82	114	146	92	95	109	141							
O.T.	220	220	310	330	330	330	330	330	330	325	320	—	320						
D.T.	65	65	—	—	—	—	—	65	65	65	70	—	70						
D.P.	25	25	—	—	—	—	—	25	25	25	20	—	22						
POS. #2	450	450	—	—	—	—	—	450	450	450	460	—	—						
TEMP.	427	427	427	420	421	420	417	415	415	415	415	—	—						
WEIGHT																			
THICKNESS																			
DENSITY	43.2	44.1	42.0	41.9	44.5	42.7	44.3	42.8	41.9	42.0	45.0	43.6	42.5						
M.C. (F/C)																			
M.O.E.																			
M.O.R.																			
I.B.					78														

04 0559

LOUISIANA-PACIFIC CORPORATION
SOUTHERN DIVISION
WAFERWOOD

Daily Resin and Wax Usage

Date: 3-25-92

Beginning Inventory	104 548	lbs.
Incoming Resin	36 000	lbs.
Total	- 140 548	lbs.

Resin Room:

_____ Bags in Resin Room:

3535 Face Totalizer

2866 Core Totalizer

Ending Total	134 147	lbs.
24 Hour Usage	6'401	lbs.
Footage for Day 85 + 31(7/32) + 106 + 4(7/32)	355'152	ft^2 3/8"Basis
LBS/24 Hrs M Feet 3/8 Basis	18.0	lbs/msf

Wax Room:

(Usage:(Gallons) X 6.57 = Lbs.)

Beginning Inventory	52034	lbs.
Incoming Wax	-	lbs.
Total	52 034	lbs.

Storage Tank Level

12'9" 7344 Gal 48 250 lbs.

Ending Total	48'250	lbs.
24 Hour Usage	3784	lbs.
LBS/24 Hrs M Feet 3/8 Basis	10.7	lbs/msf

04 0560

Louisiana-Pacific

ORIENTED STRUCTURAL BOARD

NAME PS
DATE/SHIFT 3-25-92-2
NOMINAL THICKNESS 7/16
TYPE PS

NUMBER OF LOADS 1264
STORAGE TANK LEVEL 12'9"
FACE RESIN TOTALIZER 3735
CORE RESIN TOTALIZER 2866

PRESSLOAD	2	14	24	32	43	57	65	71	81	87	93	100						
BOARD	1	2	3	4	5	6	7	8	9	10	11	1						
TIME	6:29	7:33	8:21	9:06	10:04	11:28	12:43	1:29	2:46	3:36	4:21	5:11						
LINE SPD.	65	-	-	-	-	50	45	-	-	-	-	50						
SL																		
CL	154	-	-	152	151		-	-	-	-	-	-						
T.T.P.		103	113	124	160	154	119	112	166	168	122	138						
O.T.	210	-	-	-	205	-	310	-	-	-	-	280						
D.T.	55	-	-	-	-	-	75	-	-	-	-	60						
D.P.	26	-	-	-	-	-	27	-	-	-	-	-						
POS. #2	450		-	-	-	-	-	-	-	-	-	-						
TEMP.	420	-	-	-	-	-	-	-	-	-	-	-						
WEIGHT	743	757	758	746	762	770	736	725	717	736	739	747						
THICKNESS																		
DENSITY	437	445	446	439	448	453	433	426	432	433	435	437						
M.C. (F/C)																		
M.O.E.																		
M.O.R.																		
I.B.			61															

04 0561

04 0560

Louisiana-Pacific

ORIENTED STRUCTURAL BOARD

NAME CB
DATE/SHIFT 3-25-92 - 1
NOMINAL THICKNESS 7/16
TYPE RS

NUMBER OF LOADS 96 134
STORAGE TANK LEVEL
FACE RESIN TOTALIZER
CORE RESIN TOTALIZER

5/10 32

PRESSLOAD	4	14	23	30	40	49	59	67	73	2	10	26							
BOARD	1	1	1	1	1	1	1	1	1	1	1	1							
TIME	6:35	7:28	8:23	9:00	10:02	11:01	12:05	1:05	1:47	3:17	3:59	5:26							
LINE SPD.	68	65	65	65	50	55	45	45	50	65	65	67							
SL	147	148	150	149	149	148	147	149	151	156	157	158							
CL																			
T.T.P.	140	151	186	140	131	146	115	110	95	150	135	141							
O.T.	210	200	200	—	280	265	310	310	295	220	225	215							
D.T.	55	55	55	—	55	—	—	—	—	40	35	35							
D.P.	29	29	29	—	29	—	—	—	—	35	35	35							
POS. #2	450	450	450	—	450	—	—	—	—	465	465	465							
TEMP.	429	429	429	423	423	419	—	—	—	422	422	425							
WEIGHT																			
THICKNESS											462								
DENSITY	42.0	44.3	44.7	43.2	45.3	44.6	41.9	41.5	41.7	42.3	43.2	41.5							
M.C. (F/C)																			
M.O.E.																			
M.O.R.																			
I.B.				67															

04 0562

DRYER REPORT

DATE: 25 MAR 92 SHIFT: 1 CREW: 1

FOREMAN: J. Wilson OPERATOR: J. Perkins

TIME	#I DRYER OUT-LET	#I DRYER INLET	#I DRYER CENCO	#I DRYER SPEED	#I DRYER OPAC MON	#II DRYER OUT-LET	#II DRYER INLET	#II DRYER CENCO	#II DRYER SPEED	#III DRYER OUT-LET	#III DRYER INLET	#III DRYER CENCO	#III DRYER SPEED	#III DRYER OPAC MON	KONUS
6:30	Down					235	825	6.0	2.75	Down					
7:00	START	UP				230	600	4.4	2.75	START	UP				485
7:30	230	650	7.0	2.40	08/09	230	825	5.0	2.90	Down					490
8:00	225	700	7.4	2.40	06/04	230	825	5.8	2.90	Down					489
8:30	225	700	7.8	2.40	07/05	230	875	6.6	2.85	START	UP				489
9:00	220	700	9.6	2.40	06/06	230	850	6.0	2.85	Down			2.70		489
9:30	220	725	7.8	2.50	07/07	230	900	6.4	2.85	Down					489
10:00	220	750	9.0	2.70	11/11	230	850	6.0	2.85	Down					489
10:30	216	750	9.4	2.80	15/15	230	875	6.8	2.85	Down					489
11:00	216	800	7.8	2.65	13/12	230	825	6.0	2.80	Down					488
11:30	215	775	6.4	2.60	22/17	230	850	5.2	2.80	Down					490
12:00	216	750	8.8	2.55	19/21	230	875	5.4	2.80	Down					489
12:30	210	750	8.6	2.55	16/17	230	875	5.6	2.80	Down					490
1:00	210	775	10.0	2.40	13/12	230	900	5.0	2.88	Down					488
1:30	210	800	7.8	2.50	12/12	230	900	6.4	2.70	Down					487
2:00	210	775	8.0	2.65	17/16	230	810	6.4	2.70	Down					489
2:30	210	800	8.0	2.65	15/14	230	850	6.0	2.70	Down					489
3:00	210	775	7.8	2.65	16/17	230	850	6.6	2.70	Down					489
3:30	210	775	7.8	2.50	19/21	230	850	6.0	2.70	START	UP				487
4:00	210	775	10.0	2.50	15/16	230	850	6.0	2.70	250	800	5.0	3.10	14/14	489
4:30	210	775	9.0	2.30	20/20	230	825	5.6	2.70	250	650	5.6	3.10	04/04	489
5:00	210	700	8.0	230	19/20	230	850	6.4	2.70	245	650	6.2	3.10	05/06	489
5:30	210	675	8.8	230	14/18	230	875	6.8	2.70	245	800	6.8	3.10	05/05	489
		742					855				225			04	0562H

DRYER REPORT

DATE: 25 March 92 SHIFT: 1 CREW: 2

FOREMAN: Tony L OPERATOR: John Snyder

TIME	#I DRYER OUT-LET	INLET	CENCO	SPEED	OPAC MON	#II DRYER OUT-LET	INLET	CENCO	SPEED	#III DRYER OUT-LET	INLET	CENCO	SPEED	OPAC MON	KONU
6:30	210	660	9.6	230	12/12	230	950	8.2	270						
7:00	210	675	13.4	270	12/12	230	850	7.4	265	245	575	7.8	251	04/05	489
7:30	210	650	11.0	230	11/11	230	850	7.4	260	245	625	9.6	250	05/04	488
8:00	210	700	12.0	235	11/13	230	850	6.8	260	245	500	7.6	250	04/04	489
8:30	215	550	9.4	241	05/06	235	850	6.8	260	245	600	5.6	250	05/05	489
9:00	210	725	7.0	240	10/11	235	800	5.6	260	245	650	5.6	260	06/06	489
9:30	220	660	6.0	240	09/10	235	775	5.2	260	245	550	5.2	260	05/05	488
10:00	220	660	9.0	240	12/12	235	750	5.0	260	245	650	5.2	260	09/07	489
10:30	220	625	7.4	240	07/10	235	725	5.0	260	245	600	5.2	260	06/07	489
11:00	225	625	6.8	240	09/11	235	725	4.8	260	240	600		260	07/07	489
11:30	220	600	7.2	240	06/10	230	750	5.6	260	Down					489
12:00	220	625	7.0	240	09/12	230	750	8.2	270	Down					488
12:30	Start up					230	725	5.0	270	Down					488
1:00	215	600	7.6	240	14/11	230	725	5.6	270	Down					489
1:30	225	650	7.2	250	13/16	230	700	5.2	270	Down					488
2:00	220	675	7.4	250	12/13	230	740	6.0	270	Down					489
2:30	220	675	7.4	250	13/13	230	750	6.8	270	Down					489
3:00	220	675	7.6	250	12/14	230	750	5.2	270	Down					489
3:30	220	700	8.0	250	11/13	230	750	5.6	270	Down					488
4:00	220	675	8.2	250	12/12	230	750	6.2	270	Down					489
4:30	220	675	7.6	260	13/15	230	750	5.8	270	Down					489
5:00	220	675	7.6	260	14/15	230	750	7.2	270	Start up				04/07	489
5:30	220	660	7.6	260	09/14	230	750	6.0	270	240	700	7.0	240	06/07	489

627 773 625

04 0563

Louisiana-Pacific

ORIENTED STRUCTURAL BOARD

NAME [illegible]
DATE/SHIFT [illegible]
NOMINAL THICKNESS
TYPE

NUMBER OF LOADS 111
STORAGE TANK LEVEL 13'9"
FACE RESIN TOTALIZER 3133
CORE RESIN TOTALIZER 2589

PRESSLOAD	3	10	21	27	41	50	66	79	87	97	103							
BOARD	1	2	3	4	5	6	7	8	9	10	1							
TIME	6:19	7:12	8:34	9:13	10:32	11:27	12:41	1:52	2:39	4:16	5:08							
LINE SPD.	45	-	55	60	65	-	-	-	-	-	-							
SL																		
CL	150	-	-	-	-	148	147	-	-	-	-							
T.T.P.	132	123	123	124	169	154	121	130	116	158	157							
O.T.	3.20	-	250	230	205	-	-	-	-	-	-							
D.T.	70	-	-	-	50	-	-	-	-	-	-							
D.P.	22	-	27	-	29	-	-	-	-	-	-							
POS. #2	450	-	-	-	-	-	-	-	-	-	-							
TEMP.	720	-	-	-	-	-	-	-	-	-	-							
WEIGHT	744	740	756	725	773	765	737	724	723	745	730							
THICKNESS																		
DENSITY	43.8	43.5	44.4	42.9	45.5	45.0	43.3	42.1	42.5	43.8	42.9							
M.C. (F/C)																		
M.O.E.																		
M.O.R.																		
I.B.					66													

04 0564

Louisiana-Pacific

ORIENTED STRUCTURAL BOARD

NAME CB
DATE/SHIFT 5-24-92 - 1
NOMINAL THICKNESS 7/16
TYPE FS

NUMBER OF LOADS 93
STORAGE TANK LEVEL
FACE RESIN TOTALIZER
CORE RESIN TOTALIZER

PRESSLOAD	4	10	21	27	31	37	43	50	64	70	74	81	88						
BOARD	1	1	1	1	1	1	1	1	1	1	1	1	1						
TIME	6:47	7:29	8:43	9:30	10:00	10:47	11:32	12:26	2:14	2:59	3:30	4:23	5:26						
LINE SPD.	60	60	45	45	45	45	45	45	45	45	45	45	45						
SL	145	144	144	145	147	147	149	149	149	151	152	150	150	151					
CL																			
T.T.P.	169	160	145	104	133	82	114	146	92	95	109	141							
O.T.	220	220	310	330	330	330	330	330	330	325	320	—	320						
D.T.	65	65	—	—	—	—	—	65	65	65	70	—	70						
D.P.	25	25	—	—	—	—	—	25	25	25	20	—	22						
POS. #2	450	450	—	—	—	—	—	450	450	450	450	—	—						
TEMP.	427	427	427	420	421	420	417	415	415	415	415	—	—						
WEIGHT																			
THICKNESS																			
DENSITY	43.2	44.1	42.0	41.9	44.5	42.7	44.3	42.8	41.9	42.0	45.0	43.6	42.5						
M.C. (F/C)																			
M.O.E.																			
M.O.R.																			
I.B.					78														

04 0565

Louisiana-Pacific

ORIENTED STRUCTURAL BOARD

shift 2 6:00pm-6AM

NAME RS
DATE/SHIFT 3-24-92-2
NOMINAL THICKNESS 7/16
TYPE

NUMBER OF LOADS 111
STORAGE TANK LEVEL 13'9"
FACE RESIN TOTALIZER 3133
CORE RESIN TOTALIZER 2587

										10								
PRESSLOAD	3	10	21	27	41	50	66	79	87	97	103							
BOARD	1	2	3	4	5	6	7	8	9	10	1							
TIME	6:19	7:12	8:34	9:13	10:32	11:22	12:40	1:52	2:39	4:36	5:08							
LINE SPD.	45	-	55	60	65	-	-	-	-	-	-							
SL																		
CL	150	-	-	-	-	148	147	-	-	-	-							
T.T.P.	132	129	133	124	167	154	121	130	116	158	157							
O.T.	320	-	250	230	205	-	-	-		-	-							
D.T.	70	-	-	-	50	-	-	-	-	-	-							
D.P.	22	-	27	-	29	-	-	-	-	-	-							
POS. #2	450	-	-	-	-	-	-	-	-	-	-							
TEMP.	420	-	-	-	-	-	-	-	-	-	-							
WEIGHT	744	740	756	725	773	765	737	724	723	745	730							
THICKNESS																		
DENSITY	438	435	447	427	455	453	433	421	425	438	429							
M.C. (F/C)																		
M.O.E.																		
M.O.R.																		
I.B.					66													

Drizer #2
Test Dumper

NOTES

13560
[illegible] LB 11:48 AM 03/25/92
13120
[illegible] LB 11:52 AM 03/25/92

440

NOTES

13560
[illegible] LB 10:45 AM 03/25/92
13120
[illegible] LB 10:47 AM 03/25/92

440

Dryer No 2

NOTES

[illegible] LB 09:20 AM 03/25/92
013520 LB 09:49 AM 03/25/92

400

[illegible]

[illegible]

Dryer #2
Test Dumps

NOTES

D13780 LB 02:42 PM 03/25/92

D13330 LB 02:46 PM 03/25/92

460

NOTES

D13720 LB 01:39 PM 03/25/92

D13340 LB 01:43 PM 03/25/92

480

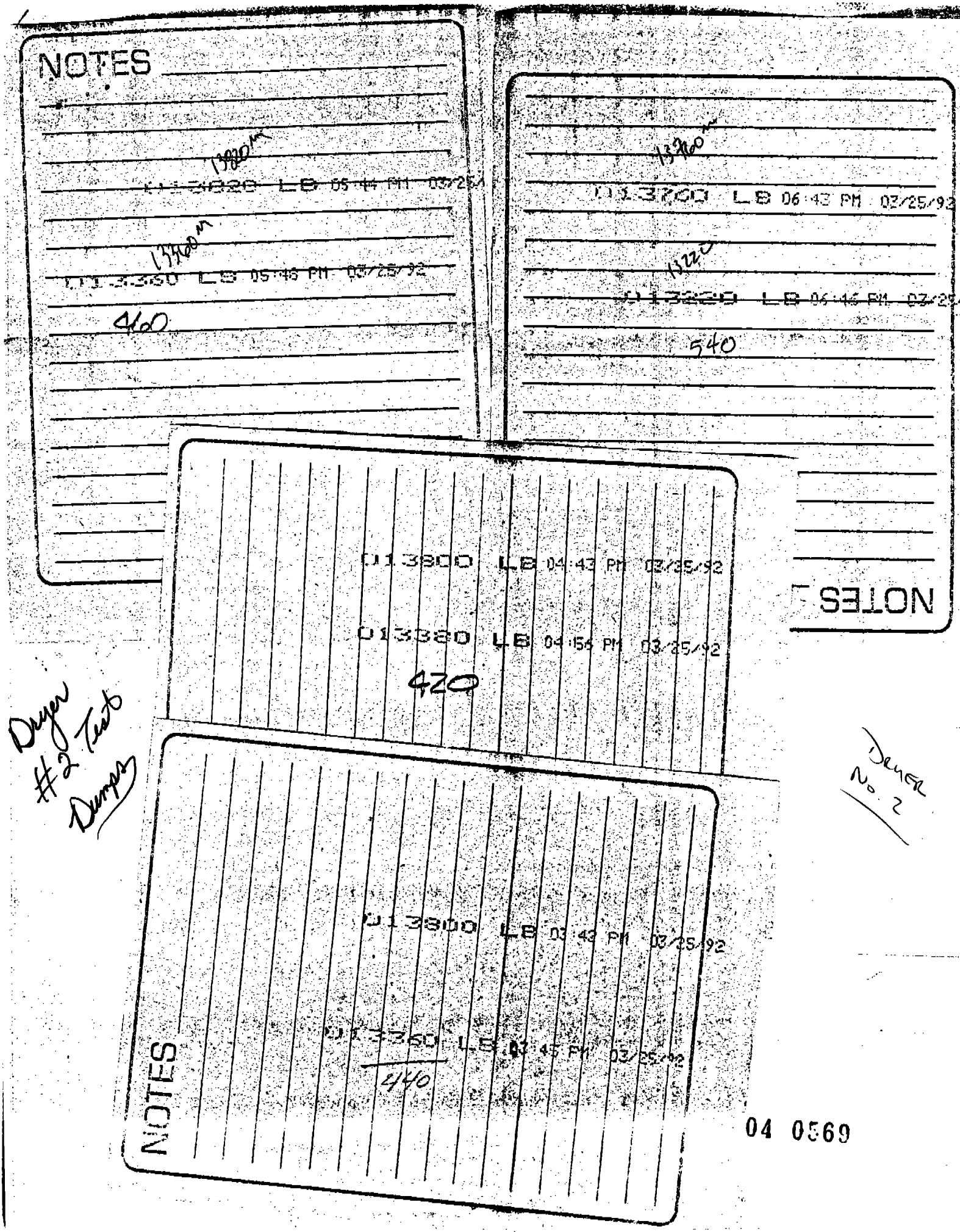
Dryer No. 2

NOTES

~~D13740 LB 12:42 PM 03/25/92~~

D13320 LB 12:44 PM 03/25/92

420


NOTES
13920
13360 LB 05:44 PM 03/25/
13960
13360 LB 05:46 PM 03/25/92
460
13960
13360 LB 06:43 PM 03/25/92
13920
13360 LB 06:46 PM 03/25/9
540
13380 LB 04:43 PM 03/25/92
13380 LB 04:54 PM 03/25/92
420
NOTES
Dryer #2 Test Dumps
13380 LB 03:43 PM 03/25/92
13360 LB 03:45 PM 03/25/92
440
NOTES
Dryer No. 2

Dryer #3
03/26/92

NOTES

13620M

13320M

300

9:40
5,000 lb/hr

NOTES

13680M

13900M

280

10:34
8,400 lb/hr

Dryer No. 3

Jeff —
This copy's
for you —
LB

11:32 AM 03/26/92

11:36 AM 03/26/92

11:36
10,800

13440M

13080M

Dryer #3

NOTES

[illegible] LB 12:35 PM 03/26/92

[illegible] LB 12:39 PM 03/26/92

380

12:39

NOTES

1340°

[illegible] LB 01:30 PM 03/26/92

1308°

[illegible] LB 01:35 PM 03/26/92

380

1:35

Dryer No. 3

NOTES

1336°

[illegible] LB 03:35 PM [illegible]

1324°

[illegible] LB 03:39 PM 03/26/92

420

04 0616

Dryer #3

NOTES

13800m

03/26/92 LB 02:27 PM

13400m

03/26/92 LB 03:37 PM

400

14:37

NOTES

13490m

03/26/92 LB 04:34 PM

13060m

03/26/92 LB 04:37 PM

330

Dryer No. 3

16:37

NOTES

13490m

03/26/92 LB 05:20 PM

13080m

03/26/92 LB 05:23 PM

400

17:33

04 0617

Dryer #3

NOTES

1360 m

[illegible] 06:37 PM 03/26/92

1320 m

[illegible] 06:42 PM 03/26/92

18.42

NOTES

1320 m

[illegible]

1306.0 m

[illegible] 07:32 PM 03/26/92

Dryer No. 3

19.32

Press Operating Data

3/27

	0955	1100	1200	1250	1344	1437	1555 *	1700	1800 N
Board Thickness	7/16	7/16	7/16	7/16	7/16	7/16	1/4	1/4	7/16
Cycle Time	5:20	5:21	5:20	5:20	5:19	5:20	4:57	4:56	5:19
Press Loads/Hour	11.5	11.5	10.0	12.0	11.0	11.0	12.0	12.0	11.0
Density	43.1	43.0	42.0	43.8	41.2	43.2	53.4		
Press Temp.	424	425	423	424	427	423	413	401	423
Line Speed	65	65	65	65	65	65	70	70	65.5

the press rods didn't have as much red (potassium) caking on the impinger glassware (sides & stem)

1235-1335 Lunch w/ Al Bandur

1330-1340 Press stopped for 10 minutes - Back operational at 1340

1340-1345 Conversation w/ Cathy ( ) of Interpoll she informed me that she had tested protocol 1 gas cylinders of propane in air from CAE in the 550ppm and 850 ppm range. She said they would Fed-x to the

04 0704

3/27/92

Time	start 9:15	10:15	11:15	12:15	1:15	2:15	3:15	4:15	5:15	6:15	finished 6:55
Pounds of wax	10% 12.1	155.2	137	152.7	160.9	129.6	176.8	112.5	144.7	129.6	129.6
		12¼"	14⅜"	17.0"	19½	21½	24¼	26	28¼	2½	4½
Pounds of Resin	F 5745	168.2	61.7	294.3	194.4	127.3	166.6	133.8	123.1	192.5	175.6
	C 457.1	140.5	129.2	135.2	142.5	104.7	146.8	113.3	104.1	147.5	120.7
# of Press Loads		11	10	11	12	8	12	3+8(¼)	12(¼)	10	9 ←
Press Temp	423	424	424	424	424	424	424	403	400	428	428
# of Sheets Produced / # BOARDS PRODUCED KDB		154 154	140	154	168	112	168	154	169	140	126
Tons of Finished Product		11.6	10.3	11.8	12.1	8.5	12.7	8.2	9.0	11.0	9.5

04 0705

PRESS OPERATING DATA

	0815	0945	1100	1155	1319	1450	1550	1640	1737
Board Thickness	7/16	7/16	7/16	7/16	7/16	7/16	7/16	7/16	7/16
Cycle Time	5:18	5:19	5:19	5:18	5:19	5:18	5:17	5:18	5:17
Press Loads/ Hour	10	11	11	11	11	10	10	10	12
Density	42.6	45.9	41.2	43.7	42.2	43.2	43.7	41.2	43.3
Press Temp.	425	425	424	425	425	425	424	424	424
Line Speed	65.5	66.6	65.9	65.5	66.3	66.0	66.5	65.5	65.5

1011 Press still having some problems - No testing has started yet

1015 Press OK back on line

1030 Test run # 2 of the day started

1130-1100 Make-out list of production records needed from facility before leaving site today

1100 Observe/record process data on press - VOC concentration observed to be about 30 ppm at maximum - might run a 4th test for VOC on the #2 vent.

1118 Informed by Dryer operator that he switched the No.2 dryer back to wood from Natural gas

3/25/92

TIME	8:30	9:30	10:30	11:30	12:30	1:30	2:30	3:30	4:30	5:30	6:30	End of test 6:45
ounds of wax		144.7	112.5	160.16	144.7	112.5	144.7	144.7	176.8	160.6	112.5	16.1
	9½"	11¾	13½	16	18¼	20	22¼	24½	27	29½	1¾	2
ounds of F		176.8	112.8	171.3	157.7	183.1	131.4	127.9	168.7	171.8	181.9	41.4
esin C		141.6	95.5	143.6	290.4	148.6	93.7	109.2	139.	138.4	109.2	26.2
of Pressloads		11	8	11	10	12	7	9	10	11	10	3
ess Temp	425	425	424	424	424	425	424	424	424	424	425	425
f Sheets Produced	# BOARDS PRODUCED	154	112	154	140	168	98	126	140	154	140	42
n of finished oduct		11.8	8.1	11.1	10.5	12.7	7.4	9.1	10.3	11.7	10.8	3.3

DRYER REPORT

DATE: 3-28-92 SHIFT: 1 CREW: 3

FOREMAN: GLEN OPERATOR: Chuck

TIME	#I DRYER OUT-LET	INLET	CENCO	SPEED	OPAC MON	#II DRYER OUT-LET	INLET	CENCO	SPEED	#III DRYER OUT-LET	INLET	CENCO	SPEED	OPAC MON	KONUS
6:30	215	650	8.2	260	12/12	230	800	7.0	270	230	550	7.4	285	02/00	489
7:00	215	600	7.6	260	11/12	230	750	5.0	270	230	506	7.6	305	01/00	489
7:30	220	650	7.6	260	11/12	230	750	6.2	270	230	600	6.4	305	03/01	489
8:00	220	650	7.0	260	12/14	225	825	5.6	270	230	700	5.8	305	07/06	490
8:30	215	650	5.8	260	20/22	235	875	5.4	270	235	600	5.8	305	07/06	490
9:00	220	625	6.4	240	16/20	230	800	5.8	270	235	700	6.6	305	12/10	489
9:30	210	650	7.0	240	15/16	235	900	4.8	270	235	700	6.0	305	09/10	489
10:00	210	675	8.0	250	16/16	230	1000	7.6	210	235	650	6.6	310	06/06	489
10:30	215	700	8.8	250	16/16	240	700	8.6	210	235	500	9.0	310	01/00	489
11:00	215	650	9.2	250	15/15	240	685	8.8	200	235	650	6.8	310	05/05	488
11:30	215	700	7.8	250	15/15	245	750	6.6	215	235	750	6.0	310	07/06	490
12:00	215	700	8.2	260	16/16	240	750	6.4	235	235	600	6.2	310	01/05	488
12:30	220	850	8.9	260	16/16	230	850	6.8	235	235	650	7.4	310	02/00	490
1:00	220	800	7.0	260	18/18	235	800	11.8	245	—	0	—	—	02/0	489
1:30	220	750	6.8	260	17/15	235	850	5.2	245	235	200	8.8	310	04/04	489
2:00	220	700	5.6	260	16/16	240	900	6.4	245	DOWN	—	—	—	00/0	488
2:30	220	750	7.2	260	20/19	240	900	6.8	220	235	650	—	240	01/03	490
3:00	220	700	6.4	200	17/22	DOWN	—	—	—	DOWN	—	—	—	—	488
3:30	225	800	7.8	230	22/21	STARTING UP				STARTING UP				—	489
4:00	230	800	7.6	240	22/22	245	850	5.4	250	230	600	7.6	270	03/03	490
4:30	215	800	7.8	260	16/16	240	900	5.0	216	230	650	7.2	310	05/04	490
5:00	220	800	7.2	260	18/18	240	850	6.2	260	235	650	6.8	310	03/02	490
5:30	220	800	7.0	260	19/19	240	900	4.8	260	235	650	6.2	310	03/06	489

AVG 715 AVG 824 AVG 634

04 0761

Louisiana-Pacific

ORIENTED STRUCTURAL BOARD

NAME RM
DATE/SHIFT 3-28-92
NOMINAL THICKNESS 7/16
TYPE A/C

NUMBER OF LOADS
STORAGE TANK LEVEL
FACE RESIN TOTALIZER
CORE RESIN TOTALIZER

PRESSLOAD	2	13	23	31	44	59	65	74	83	90	100	105	112						
BOARD	1	3	5	6	8	9	10	2	3	5	7	9	10						
TIME	605	703	800	905	1017	1134	1214	101	150	252	350	423	502						
LINE SPD.	65	65	65	65	65	65	65	65	65	65	65	65	65						
SL																			
CL	154	152	152	152	150	152	154	147	152	154	152	152	152						
T.T.P.	139	123	129	144	121	98	94	133	96	84	111	134	122						
O.T.	210	205	205	215	215	215	196	210	195	190	200	200	200						
D.T.	45	55	55	45	45	45	68	50	69	45	55	45	55						
D.P.	30	30	30	21	30	30	25	30	96	24	21	17	29						
POS. #2	450	400	450	450	450	450	440	450	450	450	450	450	450						
TEMP.	420	420	424	424	423	43	424	424	424	423	423	420	424						
WEIGHT	767	745	724	792	701	701	743	718	735	735	701	714	736						
THICKNESS																			
DENSITY	451	427	426	466	412	410	437	422	432	437	412	420	433						
M.C. (F/C)									9.4/7.4										
M.O.E.																			
M.O.R.																			
I.B.				34															

04 0765