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.

Background Report Reference

AP-42 Section Number: 10.6.1

Background Report Section: 4

Reference Number: 74

Title: Source Emissions Survey of Louisiana Pacific Corporation, Silsbee, Texas TNRCC Permit 19695 for ERM-Southwest, Inc., Volume 1

METCO, Environmental

January 1995

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METCO ENVIRONMENTAL
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SOURCE EMISSIONS SURVEY
OF
LOUISIANA-PACIFIC CORPORATION
SILSBEE, TEXAS
TNRCC PERMIT 19695
FOR
ERM-SOUTHWEST, INC.
VOLUME I

1063

JANUARY 1996

FILE NUMBER 96-11

MET 9611

METCO ENVIRONMENTAL

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SOURCE EMISSIONS SURVEY
LOUISIANA-PACIFIC CORPORATION
SILSBEE, TEXAS
TNRCC PERMIT 19695
FOR
ERM-SOUTHWEST, INC.
FILE NUMBER 96-11

INTRODUCTION

METCO Environmental, Dallas, Texas, conducted a source emissions survey of Louisiana-Pacific Corporation, located in Silsbee, Texas, for ERM-Southwest, Inc., on January 15, 16, 17, and 18, 1996. The purpose of these tests was to determine the concentrations and quantities of particulate matter, sulfur dioxide, formaldehyde, oxides of nitrogen, carbon monoxide, and total hydrocarbons being emitted to the atmosphere via the Dryer RTO Numbers 1 and 2 Stacks (EPNs RTO1 and RTO2). The concentrations and quantities of particulate matter, formaldehyde, oxides of nitrogen, carbon monoxide, and total hydrocarbons were also determined at the Dryer Numbers 2, 3, 4, and 5 Outlet Ducts.

The test results are reported to demonstrate compliance in accordance with the special conditions of Texas Natural Resource Conservation Commission Permit No. 19695 with performance objectives of a 95 percent total hydrocarbons control efficiency and a total particulate emission concentration of 0.0150 gr/dscf for each dryer RTO.

The sampling followed the procedures set forth in the Appendix to the Code of Federal Regulations, Title 40, Chapter I, Part 60, Methods 1, 2, 3B, 4, 5, 6, 7E, 10, and 25A; in the "Sampling Procedures Manual, Texas Air Control Board, Revised July 1985"; and in the "Test Methods for Evaluating Solid Waste, Volume II, November 1986," Method 0011.

SUMMARY OF RESULTS

Dryer RTO Numbers 1 and 2 (EPNs RTO1 and RTO2)

Run Number	Date	Time	Total Hydrocarbons as Propane to Dryer RTO Numbers 1 and 2 (lbs/hr)	Total Hydrocarbons Emissions from Dryer Numbers 1 and 2 Stacks as Propane (lbs/hr)	DRE (%)
1	01/16/96	1552-1735	264.02	12.54	95.25
2	01/17/96	0820-0955	222.04	13.77	93.80
3	01/17/96	1750-2141	318.91	9.16	97.13
Average			268.32	11.82	95.39

Run Number	Date	Time	*Formaldehyde to* Dryer RTO Numbers 1 and 2 (lbs/hr)	*Formaldehyde* Emissions from Dryer RTO Numbers 1 and 2 Stacks (lbs/hr)	DRE (%)
1	01/16/96	1550-1735	19.30	1.30	93.26
2	01/17/96	1210-1602	20.06	1.15	94.27
Average			19.68	1.23	93.77

SUMMARY OF RESULTS

Dryer Number 2 Outlet Duct

Run Number	Date	Time	Particulate Matter Emissions (gr/dscf*)	(lbs/hr)	Oxides of Nitrogen Emissions (ppm)	(lbs/hr)	Carbon Monoxide Emissions (ppm)	(lbs/hr)	Total Hydrocarbons Emissions as Propane (dry ppm)	(lbs/hr)
1	01/16/96	1315-1442	0.2737	63.08	26.1	5.03	620.9	72.88	533.2	98.53
2	01/17/96	0820-0955	0.1898	45.80	28.8	5.81	328.3	40.34	304.4	58.88
3	01/17/96	1750-2141	0.1857	45.12	30.2	6.14	363.6	45.00	635.1	123.73
Average			0.2164	51.33	28.4	5.66	437.6	52.74	490.9	93.71

Run Number	Date	Time	Formaldehyde Emissions (ppm)	(lbs/hr)	Oxides of Nitrogen Emissions (ppm)	(lbs/hr)	Carbon Monoxide Emissions (ppm)	(lbs/hr)	Total Hydrocarbons Emissions as Propane (dry ppm)	(lbs/hr)
1	01/16/96	1552-1735	40.8	5.27	**	**	**	**	552.5	104.81
2	01/17/96	1210-1547	42.1	6.04	28.4	6.24	374.4	50.11	857.6	180.71
Average			41.5	5.66	28.4	6.24	374.4	50.11	705.1	142.76

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

** No data available.

METCO ENVIRONMENTAL

SUMMARY OF RESULTS

Dryer Number 3 Outlet Duct

Run Number	Date	Time	Particulate Matter Emissions (gr/dscf*)	(lbs/hr)	Oxides of Nitrogen Emissions (ppm)	(lbs/hr)	Carbon Monoxide Emissions (ppm)	(lbs/hr)	Total Hydrocarbons Emissions as Propane (dry ppm)	(lbs/hr)
1	01/16/96	1315-1442	0.1625	40.47	24.2	5.04	266.5	33.79	188.1	37.55
2	01/17/96	0820-0955	0.2072	50.66	23.9	4.89	236.1	29.40	182.1	35.69
3	01/17/96	1750-2141	0.1861	44.10	18.6	3.68	358.4	43.24	283.3	53.81
Average			0.1853	45.08	22.2	4.54	287.0	35.48	217.8	42.35

Run Number	Date	Time	Formaldehyde Emissions (ppm)	(lbs/hr)	Oxides of Nitrogen Emissions (ppm)	(lbs/hr)	Carbon Monoxide Emissions (ppm)	(lbs/hr)	Total Hydrocarbons Emissions as Propane (dry ppm)	(lbs/hr)
1	01/16/96	1608-1726	49.2	6.66	25.6	5.31	323.7	40.91	127.6	25.39
2	01/17/96	1210-1602	39.8	5.36	21.9	4.51	373.1	46.80	287.0	56.68
Average			44.5	6.01	23.8	4.91	348.4	43.86	207.3	41.04

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

ENVIRONMENTAL

SUMMARY OF RESULTS

Dryer Number 4 Outlet Duct

Run Number	Date	Time	Particulate Matter Emissions (gr/dscf*)	(lbs/hr)	Oxides of Nitrogen Emissions (ppm)	(lbs/hr)	Carbon Monoxide Emissions (ppm)	(lbs/hr)	Total Hydrocarbons Emissions as Propane (dry ppm)	(lbs/hr)
1	01/16/96	1315-1442	0.1292	30.40	29.2	5.74	150.8	18.07	309.1	58.31
2	01/17/96	0820-0955	0.1144	28.69	31.5	6.60	76.9	9.82	263.1	52.90
3	01/17/96	1750-2142	0.1466	33.08	34.3	6.47	287.2	33.00	381.7	69.05
Average			0.1301	30.72	31.7	6.27	171.6	20.30	318.0	60.09

Run Number	Date	Time	Formaldehyde Emissions (ppm)	(lbs/hr)	Oxides of Nitrogen Emissions (ppm)	(lbs/hr)	Carbon Monoxide Emissions (ppm)	(lbs/hr)	Total Hydrocarbons Emissions as Propane (dry ppm)	(lbs/hr)
1	01/16/96	1551-1706	28.3	3.63	25.3	4.98	151.2	18.12	321.6	60.67
2	01/17/96	1210-1555	28.6	3.82	26.6	5.43	89.5	11.12	290.4	56.80
Average			28.5	3.73	26.0	5.21	120.4	14.62	306.0	58.74

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

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SUMMARY OF RESULTS

Dryer Number 5 Outlet Duct

Run Number	Date	Time	Particulate Matter Emissions (gr/dscf*)	Particulate Matter Emissions (lbs/hr)	Oxides of Nitrogen Emissions (ppm)	Oxides of Nitrogen Emissions (lbs/hr)	Carbon Monoxide Emissions (ppm)	Carbon Monoxide Emissions (lbs/hr)	Total Hydrocarbons Emissions as Propane (dry ppm)	Total Hydrocarbons Emissions as Propane (lbs/hr)
1	01/16/96	1315-1442	**	**	**	**	**	**	**	**
2	01/17/96	0820-1002	0.1404	32.69	29.2	5.68	185.1	21.94	399.6	74.57
3	01/17/96	1750-2141	0.1248	29.61	23.8	4.72	155.8	18.82	380.3	72.32
Average			0.1326	31.15	26.5	5.20	170.5	20.38	390.0	73.45

Run Number	Date	Time	Formaldehyde Emissions (ppm)	Formaldehyde Emissions (lbs/hr)	Oxides of Nitrogen Emissions (ppm)	Oxides of Nitrogen Emissions (lbs/hr)	Carbon Monoxide Emissions (ppm)	Carbon Monoxide Emissions (lbs/hr)	Total Hydrocarbons Emissions as Propane (dry ppm)	Total Hydrocarbons Emissions as Propane (lbs/hr)
1	01/16/96	1551-1740	29.2	3.74	24.9	4.87	187.3	22.32	389.9	73.15
2	01/17/96	1210-1556	38.3	4.84	28.2	5.45	230.0	27.07	465.0	86.16
Average			33.8	4.29	26.6	5.16	208.7	24.70	427.5	79.66

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

** Run Number 1 was considered invalid due to a leak in the sampling train.

METCO ENVIRONMENTAL

SUMMARY OF RESULTS

Dryer RTO Number 1 Stack (EPN RTO1)

Run Number	Date	Time	Particulate Matter Emissions (gr/dscf*)	Particulate Matter Emissions (lbs/hr)	Sulfur Dioxide Emissions (ppm)	Sulfur Dioxide Emissions (lbs/hr)	Oxides of Nitrogen Emissions (ppm)	Oxides of Nitrogen Emissions (lbs/hr)	Carbon Monoxide Emissions (ppm)	Carbon Monoxide Emissions (lbs/hr)	Total Hydrocarbons Emissions as Propane (dry ppm)	Total Hydrocarbons Emissions as Propane (lbs/hr)
1	01/16/96	1315-1442	0.0111	6.91	0.0	0.0	29.2	15.25	219.5	69.84	10.4	5.21
2	01/17/96	0820-0954	0.0084	5.39	0.0	0.0	28.8	15.49	94.3	30.90	10.6	5.47
3	01/17/96	1750-2141	0.0091	5.94	0.0	0.0	27.3	14.83	178.0	58.91	7.8	4.06
Average			0.0095	6.08	0.0	0.0	28.4	15.19	163.9	53.22	9.6	4.91
Allowable Emission Rate			----	15.43	----	0.87	----	23.96	----	18.23	----	2.00

Run Number	Date	Time	Formaldehyde Emissions (ppm)	Formaldehyde Emissions (lbs/hr)	Oxides of Nitrogen Emissions (ppm)	Oxides of Nitrogen Emissions (lbs/hr)	Carbon Monoxide Emissions (ppm)	Carbon Monoxide Emissions (lbs/hr)	Total Hydrocarbons Emissions as Propane (dry ppm)	Total Hydrocarbons Emissions as Propane (lbs/hr)
1	01/16/96	1550-1714	1.5	0.52	26.6	14.40	219.9	72.51	14.2	7.37
2	01/17/96	1210-1451	1.0	0.36	29.6	15.99	144.3	47.47	8.2	4.25
3	01/18/96	1215-1337	0.9	0.33	25.2	14.27	106.4	36.71	5.5	2.99
Average			1.1	0.40	27.1	14.89	156.9	52.23	9.3	4.87
Allowable Emission Rate			----	0.23	----	23.96	----	18.23	----	2.00

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

METCO ENVIRONMENTAL

SUMMARY OF RESULTS

Dryer RTO Number 2 Stack (EPN RTO2)

Run Number	Date	Time	Particulate Matter Emissions (gr/dscf*)	Particulate Matter Emissions (lbs/hr)	Sulfur Dioxide Emissions (ppm)	Sulfur Dioxide Emissions (lbs/hr)	Oxides of Nitrogen Emissions (ppm)	Oxides of Nitrogen Emissions (lbs/hr)	Carbon Monoxide Emissions (ppm)	Carbon Monoxide Emissions (lbs/hr)	Total Hydrocarbons Emissions as Propane (dry ppm)	Total Hydrocarbons Emissions as Propane (lbs/hr)
1	01/16/96	1315-1442	0.0082	5.32	0.0	0.0	27.4	14.81	242.3	79.77	16.7	8.66
2	01/17/96	0820-0954	0.0094	6.22	0.2	0.1	30.1	16.65	228.6	77.03	17.0	9.02
3	01/17/96	1750-2141	0.0095	6.34	0.0	0.0	32.5	18.08	154.1	52.23	9.5	5.07
Average			0.0090	5.96	< 0.1	< 0.1	30.0	16.51	208.3	69.68	14.4	7.58
Allowable Emission Rate			----	15.43	----	0.87	----	23.96	----	18.23	----	2.00

Run Number	Date	Time	Formaldehyde Emissions (ppm)	Formaldehyde Emissions (lbs/hr)	Oxides of Nitrogen Emissions (ppm)	Oxides of Nitrogen Emissions (lbs/hr)	Carbon Monoxide Emissions (ppm)	Carbon Monoxide Emissions (lbs/hr)	Total Hydrocarbons Emissions as Propane (dry ppm)	Total Hydrocarbons Emissions as Propane (lbs/hr)
1	01/16/96	1550-1714	2.2	0.78	27.9	15.04	230.4	75.64	10.0	5.17
2	01/17/96	1210-1551	2.3	0.79	30.3	15.95	234.4	75.18	18.4	9.29
3	01/18/96	1215-1337	2.4	0.88	25.5	14.54	147.7	51.31	19.9	10.88
Average			2.3	0.82	27.9	15.18	204.2	67.38	16.1	8.45
Allowable Emission Rate			----	0.23	----	23.96	----	18.23	----	2.00

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

METCO ENVIRONMENTAL

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SUMMARY OF RESULTS

Dryer Number 2 Outlet Duct
Particulate Matter

Run Number	1	2	3
Date	01/16/96	01/17/96	01/17/96
Time	1315-1442	0820-0955	1750-2141
Stack Flow Rate - ACFM	50,024	50,272	51,229
Stack Flow Rate - DSCFM*	26,897	28,155	28,359
% Water Vapor - % Vol.	28.79	26.72	26.50
% CO_2 - % Vol.	4.8	4.6	4.8
% O_2 - % Vol.	15.6	16.0	16.0
% Excess Air @ Sampling Point	284	317	321
Stack Temperature -°F	217	207	211
Stack Pressure - "Hg	28.86	28.78	28.53
Percent Isokinetic	104.2	100.8	104.6
Particulate Matter Emissions Probe & Filter Catch grains/dscf*	0.1937	0.1350	0.1181
grains/cf @ Stack Conditions	0.1038	0.0754	0.0651
lbs/hr	44.66	32.58	28.70
Total Catch grains/dscf*	0.2737	0.1898	0.1857
grains/cf @ Stack Conditions	0.1466	0.1059	0.1024
lbs/hr	63.08	45.80	45.12

35.31

51.36

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

SUMMARY OF RESULTS

Dryer Number 2 Outlet Duct

Run Number	1	2	3
Date	01/16/96	01/17/96	01/17/96
Time	1315-1442	0820-0955	1750-2141
Oxides of Nitrogen Emissions - ppm	26.1	28.8	30.2
Oxides of Nitrogen Emissions - lbs/hr*	5.03	5.81	6.14
Carbon Monoxide Emissions - ppm	620.9	328.3	363.6
Carbon Monoxide Emissions - lbs/hr*	72.88	40.34	45.00
Total Hydrocarbons Emissions as Propane - wet ppm	379.7	223.1	466.8
Total Hydrocarbons Emissions as Propane - dry ppm	533.2	304.4	635.1
Total Hydrocarbons Emissions as Propane - lbs/hr*	98.53	58.88	123.73

* Calculated using the flow rate (DSCFM) from the corresponding particulate matter tests.

METCO ENVIRONMENTAL

SUMMARY OF RESULTS

Dryer Number 2 Outlet Duct
Formaldehyde

Run Number	1	2
Date	01/16/96	01/17/96
Time	1552-1735	1210-1547
Stack Flow Rate - ACFM	51,969	53,515
Stack Flow Rate - DSCFM*	27,612	30,672
% Water Vapor - % Vol.	29.81	24.63
% CO_2 - % Vol.	5.8	4.4
% O_2 - % Vol.	15.2	16.4
% Excess Air @ Sampling Point	265	358
Stack Temperature -°F	215	208
Stack Pressure - "Hg	28.85	28.68
Percent Isokinetic	96.4	95.6
Volume Dry Gas Sampled - DSCF*	35.475	39.089
Formaldehyde - µg	51,156.60	58,149.00
Formaldehyde Emissions - ppm	40.8	42.1
Formaldehyde Emissions - lbs/hr	5.27	6.04

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

METCO ENVIRONMENTAL

SUMMARY OF RESULTS

Dryer Number 2 Outlet Duct

Run Number	1	2
Date	01/16/96	01/17/96
Time	1552-1735	1210-1547
Oxides of Nitrogen Emissions - ppm	**	28.4
Oxides of Nitrogen Emissions - lbs/hr*	**	6.24
Carbon Monoxide Emissions - ppm	**	374.4
Carbon Monoxide Emissions - lbs/hr*	**	50.11
Total Hydrocarbons Emissions as Propane - wet ppm	387.8	646.4
Total Hydrocarbons Emissions as Propane - dry ppm	552.5	857.6
Total Hydrocarbons Emissions as Propane - lbs/hr*	104.81	180.71

* Calculated using the flow rate (DSCFM) from the corresponding formaldehyde tests.

** No data available.

SUMMARY OF RESULTS

Dryer Number 3 Outlet Duct
Particulate Matter

Run Number	1	2	3
Date	01/16/96	01/17/96	01/17/96
Time	1315-1442	0820-0955	1750-2141
Stack Flow Rate - ACFM	48,798	49,321	49,178
Stack Flow Rate - DSCFM*	29,059	28,531	27,649
% Water Vapor - % Vol.	25.61	25.82	26.48
% CO_2 - % Vol.	3.8	4.2	4.2
% O_2 - % Vol.	16.6	16.2	16.2
% Excess Air @ Sampling Point	369	331	331
Stack Temperature -°F	183	198	208
Stack Pressure - "Hg	29.06	28.97	28.84
Percent Isokinetic	99.9	101.8	103.4
Particulate Matter Emissions Probe & Filter Catch grains/dscf*	0.1219	0.1488	0.1167
grains/cf @ Stack Conditions	0.0723	0.0858	0.0654
lbs/hr	30.35	36.39	27.66
Total Catch grains/dscf*	0.1625	0.2072	0.1861
grains/cf @ Stack Conditions	0.0964	0.1194	0.1043
lbs/hr	40.47	50.66	44.10

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

SUMMARY OF RESULTS

Dryer Number 3 Outlet Duct

Run Number	1	2	3
Date	01/16/96	01/17/96	01/17/96
Time	1315-1442	0820-0955	1750-2141
Oxides of Nitrogen Emissions - ppm	24.2	23.9	18.6
Oxides of Nitrogen Emissions - lbs/hr*	5.04	4.89	3.68
Carbon Monoxide Emissions - ppm	266.5	236.1	358.4
Carbon Monoxide Emissions - lbs/hr*	33.79	29.40	43.24
Total Hydrocarbons Emissions as Propane - wet ppm	139.9	135.1	208.3
Total Hydrocarbons Emissions as Propane - dry ppm	188.1	182.1	283.3
Total Hydrocarbons Emissions as Propane - lbs/hr*	37.55	35.69	53.81

* Calculated using the flow rate (DSCFM) from the corresponding particulate matter tests.

SUMMARY OF RESULTS

Dryer Number 3 Outlet Duct

Run Number	1	2
Date	01/16/96	01/17/96
Time	1608-1726	1210-1602
Oxides of Nitrogen Emissions - ppm	25.6	21.9
Oxides of Nitrogen Emissions - lbs/hr*	5.31	4.51
Carbon Monoxide Emissions - ppm	323.7	373.1
Carbon Monoxide Emissions - lbs/hr*	40.91	46.80
Total Hydrocarbons Emissions as Propane - wet ppm	94.3	214.0
Total Hydrocarbons Emissions as Propane - dry ppm	127.6	287.0
Total Hydrocarbons Emissions as Propane - lbs/hr*	25.39	56.68

* Calculated using the flow rate (DSCFM) from the corresponding formaldehyde tests.

SUMMARY OF RESULTS

Dryer Number 4 Outlet Duct

Run Number	1	2	3
Date	01/16/96	01/17/96	01/17/96
Time	1315-1442	0820-0955	1750-2142
Oxides of Nitrogen Emissions - ppm	29.2	31.5	34.3
Oxides of Nitrogen Emissions - lbs/hr*	5.74	6.60	6.47
Carbon Monoxide Emissions - ppm	150.8	76.9	287.2
Carbon Monoxide Emissions - lbs/hr*	18.07	9.82	33.00
Total Hydrocarbons Emissions as Propane - wet ppm	223.6	197.9	274.5
Total Hydrocarbons Emissions as Propane - dry ppm	309.1	263.1	381.7
Total Hydrocarbons Emissions as Propane - lbs/hr*	58.31	52.90	69.05

* Calculated using the flow rate (DSCFM) from the corresponding particulate matter tests.

SUMMARY OF RESULTS

Dryer Number 4 Outlet Duct
Formaldehyde

Run Number	1	2
Date	01/16/96	01/17/96
Time	1551-1706	1210-1555
Stack Flow Rate - ACFM	45,638	47,448
Stack Flow Rate - DSCFM*	27,461	28,471
% Water Vapor - % Vol.	26.00	26.01
% CO_2 - % Vol.	4.2	4.0
% O_2 - % Vol.	16.4	16.4
% Excess Air @ Sampling Point	353	349
Stack Temperature -°F	173	167
Stack Pressure - "Hg	29.06	28.71
Percent Isokinetic	101.7	105.2
Volume Dry Gas Sampled - DSCF*	40.166	41.091
Formaldehyde - µg	40,152.00	41,635.26
Formaldehyde Emissions - ppm	28.3	28.6
Formaldehyde Emissions - lbs/hr	3.63	3.82

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

SUMMARY OF RESULTS

Dryer Number 4 Outlet Duct

Run Number	1	2
Date	01/16/96	01/17/96
Time	1551-1706	1210-1555
Oxides of Nitrogen Emissions - ppm	25.3	26.6
Oxides of Nitrogen Emissions - lbs/hr*	4.98	5.43
Carbon Monoxide Emissions - ppm	151.2	89.5
Carbon Monoxide Emissions - lbs/hr*	18.12	11.12
Total Hydrocarbons Emissions as Propane - wet ppm	238.0	214.9
Total Hydrocarbons Emissions as Propane - dry ppm	321.6	290.4
Total Hydrocarbons Emissions as Propane - lbs/hr*	60.67	56.80

* Calculated using the flow rate (DSCFM) from the corresponding formaldehyde tests.

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SUMMARY OF RESULTS

Dryer Number 5 Outlet Duct
Particulate Matter

Run Number	2	3
Date	01/17/96	01/17/96
Time	0820-1002	1750-2141
Stack Flow Rate - ACFM	44,807	45,813
Stack Flow Rate - DSCFM*	27,165	27,679
% Water Vapor - % Vol.	26.12	26.03
% CO_2 - % Vol.	1.3	3.8
% O_2 - % Vol.	19.4	16.8
% Excess Air @ Sampling Point	1,202	396
Stack Temperature -°F	164	163
Stack Pressure - "Hg	28.91	28.73
Percent Isokinetic	99.6	100.2
Particulate Matter Emissions Probe & Filter Catch grains/dscf*	0.1159	0.0944
grains/cf @ Stack Conditions	0.0700	0.0569
lbs/hr	26.98	22.40
Total Catch grains/dscf*	0.1404	0.1248
grains/cf @ Stack Conditions	0.0848	0.0752
lbs/hr	32.69	29.61

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

Note: Run Number 1 was considered invalid due to a leak in the sampling train.

SUMMARY OF RESULTS

Dryer Number 5 Outlet Duct

Run Number	2	3
Date	01/17/96	01/17/96
Time	0820-1002	1750-2141
Oxides of Nitrogen Emissions - ppm	29.2	23.8
Oxides of Nitrogen Emissions - lbs/hr*	5.68	4.72
Carbon Monoxide Emissions - ppm	185.1	155.8
Carbon Monoxide Emissions - lbs/hr*	21.94	18.82
Total Hydrocarbons Emissions as Propane - wet ppm	295.2	281.3
Total Hydrocarbons Emissions as Propane - dry ppm	399.6	380.3
Total Hydrocarbons Emissions as Propane - lbs/hr*	74.57	72.32

- Calculated using the flow rate (DSCFM) from the corresponding particulate matter tests.

Note: Run Number 1 was considered invalid due to a leak in the sampling train.

SUMMARY OF RESULTS

Dryer Number 5 Outlet Duct
Formaldehyde

Run Number	1	2
Date	01/16/96	01/17/96
Time	1551-1740	1210-1556
Stack Flow Rate - ACFM	44,951	45,039
Stack Flow Rate - DSCFM*	27,310	26,970
% Water Vapor - % Vol.	25.81	26.67
% CO_2 - % Vol.	3.2	3.8
% O_2 - % Vol.	17.5	17.4
% Excess Air @ Sampling Point	498	500
Stack Temperature -°F	167	167
Stack Pressure - "Hg	28.99	28.91
Percent Isokinetic	96.8	100.8
Volume Dry Gas Sampled - DSCF*	36.156	37.158
Formaldehyde - µg	37,389.00	50,366.70
Formaldehyde Emissions - ppm	29.2	38.3
Formaldehyde Emissions - lbs/hr	3.74	4.84

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

SUMMARY OF RESULTS

Dryer Number 5 Outlet Duct

Run Number	1	2
Date	01/16/96	01/17/96
Time	1551-1740	1210-1556
Oxides of Nitrogen Emissions - ppm	24.9	28.2
Oxides of Nitrogen Emissions - lbs/hr*	4.87	5.45
Carbon Monoxide Emissions - ppm	187.3	230.0
Carbon Monoxide Emissions - lbs/hr*	22.32	27.07
Total Hydrocarbons Emissions as Propane - wet ppm	289.3	341.0
Total Hydrocarbons Emissions as Propane - dry ppm	389.9	465.0
Total Hydrocarbons Emissions as Propane - lbs/hr*	73.15	86.16

* Calculated using the flow rate (DSCFM) from the corresponding formaldehyde tests.

SUMMARY OF RESULTS

Dryer RTO Number 1 Stack (EPN RTO1)

Run Number	1	2	3
Date	01/16/96	01/17/96	01/17/96
Time	1315-1442	0820-0954	1750-2141
Oxides of Nitrogen Emissions - ppm	29.2	28.8	27.3
Oxides of Nitrogen Emissions - lbs/hr*	15.25	15.49	14.83
Carbon Monoxide Emissions - ppm	219.5	94.3	178.0
Carbon Monoxide Emissions - lbs/hr*	69.84	30.90	58.91
Total Hydrocarbons Emissions as Propane - wet ppm	7.9	8.2	6.1
Total Hydrocarbons Emissions as Propane - dry ppm	10.4	10.6	7.8
Total Hydrocarbons Emissions as Propane - lbs/hr*	5.21	5.47	4.06

* Calculated using the flow rate (DSCFM) from the corresponding particulate matter tests.

SUMMARY OF RESULTS

Dryer RTO Number 1 Stack (EPN RTO1)
Formaldehyde

Run Number	1	2	3
Date	01/16/96	01/17/96	01/18/96
Time	1550-1714	1210-1551	1215-1337
Stack Flow Rate - ACFM	147,421	146,978	143,295
Stack Flow Rate - DSCFM*	75,560	75,392	79,061
% Water Vapor - % Vol.	23.03	22.76	17.81
% CO_2 - % Vol.	4.0	3.9	3.8
% O_2 - % Vol.	15.9	16.2	15.9
% Excess Air @ Sampling Point	299	326	296
Stack Temperature -°F	335	331	327
Stack Pressure - "Hg	29.89	29.66	29.83
Percent Isokinetic	99.6	100.5	94.8
Volume Dry Gas Sampled - DSCF*	48.879	49.166	48.674
Formaldehyde - µg	2,523.58	1,768.01	1,517.12
Formaldehyde Emissions - ppm	1.5	1.0	0.9
Formaldehyde Emissions - lbs/hr	0.52	0.36	0.33

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

SUMMARY OF RESULTS

Dryer RTO Number 1 Stack (EPN RTO1)

Run Number	1	2	3
Date	01/16/96	01/17/96	01/18/96
Time	1550-1714	1210-1551	1215-1337
Oxides of Nitrogen Emissions - ppm	26.6	29.6	25.2
Oxides of Nitrogen Emissions - lbs/hr*	14.40	15.99	14.27
Carbon Monoxide Emissions - ppm	219.9	144.3	106.4
Carbon Monoxide Emissions - lbs/hr*	72.51	47.47	36.71
Total Hydrocarbons Emissions as Propane - wet ppm	10.9	6.3	4.5
Total Hydrocarbons Emissions as Propane - dry ppm	14.2	8.2	5.5
Total Hydrocarbons Emissions as Propane - lbs/hr*	7.37	4.25	2.99

* Calculated using the flow rate (DSCFM) from the corresponding formaldehyde tests.

SUMMARY OF RESULTS

Dryer RTO Number 2 Stack (EPN RTO2)
Particulate Matter/Sulfur Dioxide

Run Number	1	2	3
Date	01/16/96	01/17/96	01/17/96
Time	1315-1442	0820-0954	1750-2141
Stack Flow Rate - ACFM	147,209	149,075	152,667
Stack Flow Rate - DSCFM*	75,441	77,222	77,668
% Water Vapor - % Vol.	23.35	22.53	23.33
% CO_2 - % Vol.	3.6	3.6	3.8
% O_2 - % Vol.	15.6	16.6	16.2
% Excess Air @ Sampling Point	268	365	324
Stack Temperature -°F	332	327	328
Stack Pressure - "Hg	29.90	29.71	29.52
Percent Isokinetic	95.8	97.8	99.7
Particulate Matter Emissions Probe & Filter Catch grains/dscf*	0.0050	0.0055	0.0059
grains/cf @ Stack Conditions	0.0026	0.0028	0.0030
lbs/hr	3.26	3.64	3.93
Total Catch grains/dscf*	0.0082	0.0094	0.0095
grains/cf @ Stack Conditions	0.0042	0.0049	0.0048
lbs/hr	5.32	6.22	6.34
Sulfur Dioxide Emissions - ppm	0.0	0.2	0.0
Sulfur Dioxide Emissions - lbs/hr	0.0	0.1	0.0

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

SUMMARY OF RESULTS

Dryer RTO Number 2 Stack (EPN RTO2)

Run Number	1	2	3
Date	01/16/96	01/17/96	01/17/96
Time	1315-1442	0820-0954	1750-2141
Oxides of Nitrogen Emissions - ppm	27.4	30.1	32.5
Oxides of Nitrogen Emissions - lbs/hr*	14.81	16.65	18.08
Carbon Monoxide Emissions - ppm	242.3	228.6	154.1
Carbon Monoxide Emissions - lbs/hr*	79.77	77.03	52.23
Total Hydrocarbons Emissions as Propane - wet ppm	12.8	13.2	7.3
Total Hydrocarbons Emissions as Propane - dry ppm	16.7	17.0	9.5
Total Hydrocarbons Emissions as Propane - lbs/hr*	8.66	9.02	5.07

* Calculated using the flow rate (DSCFM) from the corresponding particulate matter tests.

SUMMARY OF RESULTS

Dryer RTO Number 2 Stack (EPN RTO2)
Formaldehyde

Run Number	1	2	3
Date	01/16/96	01/17/96	01/18/96
Time	1550-1714	1210-1551	1215-1337
Stack Flow Rate - ACFM	145,530	141,621	147,671
Stack Flow Rate - DSCFM*	75,235	73,497	79,614
% Water Vapor - % Vol.	23.00	22.65	18.58
% CO_2 - % Vol.	4.0	3.8	3.5
% O_2 - % Vol.	15.9	16.2	16.8
% Excess Air @ Sampling Point	299	324	389
Stack Temperature -°F	328	323	338
Stack Pressure - "Hg	29.87	29.66	29.83
Percent Isokinetic	104.1	99.0	95.8
Volume Dry Gas Sampled - DSCF*	37.983	35.292	37.006
Formaldehyde - µg	2,982.49	2,866.22	3,080.25
Formaldehyde Emissions - ppm	2.2	2.3	2.4
Formaldehyde Emissions - lbs/hr	0.78	0.79	0.88

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

SUMMARY OF RESULTS

Dryer RTO Number 2 Stack (EPN RTO2)

Run Number	1	2	3
Date	01/16/96	01/17/96	01/18/96
Time	1550-1714	1210-1551	1215-1337
Oxides of Nitrogen Emissions - ppm	27.9	30.3	25.5
Oxides of Nitrogen Emissions - lbs/hr*	15.04	15.95	14.54
Carbon Monoxide Emissions - ppm	230.4	234.4	147.7
Carbon Monoxide Emissions - lbs/hr*	75.64	75.18	51.31
Total Hydrocarbons Emissions as Propane - wet ppm	7.7	14.2	16.2
Total Hydrocarbons Emissions as Propane - dry ppm	10.0	18.4	19.9
Total Hydrocarbons Emissions as Propane - lbs/hr*	5.17	9.29	10.88

* Calculated using the flow rate (DSCFM) from the corresponding formaldehyde tests.

DISCUSSION OF RESULTS

Dryer Number 2 Outlet Duct

The three tests for particulate matter, oxides of nitrogen, carbon monoxide, and total hydrocarbons appeared to be valid representations of the actual emissions during the tests. All leak checks performed on the sampling train, the pitot tubes, and the monitors sampling systems showed no leaks before or after each test. The zero and calibration drift tests of the monitors were stable with no variations greater than 3.0 percent. The calibration error check, sampling system bias check, and NO_2 to NO conversion efficiency check performed on the reference method monitors prior to testing were valid. The indicative parameters calculated from the field data were in close agreement. The moisture percentages for the three tests were within 5.3 percent of the mean value. The measured flow rates (Q_s) for the tests were within 3.3 percent of the mean value. The rates of sampling for the three tests were within the specified limits (90 to 110 percent isokinetic). The greatest deviation from 100 percent isokinetic was 4.6 percent.

The calculated emissions (pounds per hour) of particulate matter for the three tests showed a range of -12.1 percent to +22.9 percent variation from the mean value.

The calculated emissions (pounds per hour) of oxides of nitrogen for the three tests showed a range of -11.1 percent to +8.5 percent variation from the mean value.

The calculated emissions (pounds per hour) of carbon monoxide for the three tests showed a range of -23.5 percent to +38.2 percent variation from the mean value.

The calculated emissions (pounds per hour) of total hydrocarbons for the three tests showed a range of -37.2 percent to +32.0 percent variation from the mean value.

The oxides of nitrogen and carbon monoxide monitors were not on line during Run Number 1 for formaldehyde.

The two tests for formaldehyde and total hydrocarbons; and the one test for oxides of nitrogen and carbon monoxide appeared to be valid representations of the actual emissions during the tests. All leak checks performed on the sampling train, the pitot tubes, and the monitors sampling systems showed no leaks before or after each test. The zero and calibration drift tests of the monitors were stable with no variations greater than 3.0 percent. The calibration error check, sampling system bias check, and NO_2 to NO conversion efficiency check performed on the reference method monitors prior to testing were valid. The indicative parameters calculated from the field data were in close agreement. The moisture percentages for the two tests were within 9.5 percent of the mean value. The measured flow rates (Q_s) for the tests were within 5.3 percent of the mean value. The rates of sampling for the two tests were within the specified limits (90 to 110 percent isokinetic). The greatest deviation from 100 percent isokinetic was 4.4 percent.

The calculated emissions (pounds per hour) of formaldehyde for the two tests showed a range of -6.8 percent to +6.8 percent variation from the mean value.

The calculated emissions (pounds per hour) of total hydrocarbons for the two tests showed a range of -26.6 percent to +26.6 percent variation from the mean value.

Dryer Number 3 Outlet Duct

The three tests for particulate matter, oxides of nitrogen, carbon monoxide, and total hydrocarbons appeared to be valid representations of the actual emissions during the tests. All leak checks performed on the sampling train, the pitot tubes, and the monitors sampling systems showed no leaks before or after each test. The zero and calibration drift tests of the monitors were stable with no variations greater than 3.0 percent. The calibration error check, sampling system bias check, and NO_2 to NO conversion efficiency check performed on the reference method monitors prior to testing were valid. The indicative parameters calculated from the field data were in close agreement. The moisture percentages for the three tests were within 2.0 percent of the mean value. The measured flow rates (Q_s) for the tests were within 2.7 percent of the mean value. The rates of sampling for the three tests were within the specified limits (90 to 110 percent isokinetic). The greatest deviation from 100 percent isokinetic was 3.4 percent.

The calculated emissions (pounds per hour) of particulate matter for the three tests showed a range of -10.2 percent to +12.4 percent variation from the mean value.

The calculated emissions (pounds per hour) of oxides of nitrogen for the three tests showed a range of -18.9 percent to +11.1 percent variation from the mean value.

The calculated emissions (pounds per hour) of carbon monoxide for the three tests showed a range of -17.1 percent to +21.9 percent variation from the mean value.

The calculated emissions (pounds per hour) of total hydrocarbons for the three tests showed a range of -15.7 percent to +27.1 percent variation from the mean value.

The two tests for formaldehyde, oxides of nitrogen, carbon monoxide, and total hydrocarbons appeared to be valid representations of the actual emissions during the tests. All leak checks performed on the sampling train, the pitot tubes, and the monitors sampling systems showed no leaks before or after each test. The zero and calibration drift tests of the monitors were stable with no variations greater than 3.0 percent. The calibration error check, sampling system bias check, and NO_2 to NO conversion efficiency check performed on the reference method monitors prior to testing were valid. The indicative parameters calculated from the field data were in close agreement. The moisture percentages for the two tests were within 1.3 percent of the mean value. The measured flow rates (Q_s) for the tests were within 0.4 percent of the mean value. The rates of sampling for the two tests were within the specified limits (90 to 110 percent isokinetic). The greatest deviation from 100 percent isokinetic was 1.3 percent.

The calculated emissions (pounds per hour) of formaldehyde for the two tests showed a range of -10.8 percent to +10.8 percent variation from the mean value.

The calculated emissions (pounds per hour) of oxides of nitrogen for the two tests showed a range of -8.1 percent to +8.1 percent variation from the mean value.

The calculated emissions (pounds per hour) of carbon monoxide for the two tests showed a range of -6.7 percent to +6.7 percent variation from the mean value.

The calculated emissions (pounds per hour) of total hydrocarbons for the two tests showed a range of -38.1 percent to +38.1 percent variation from the mean value.

Dryer Number 4 Outlet Duct

The three tests for particulate matter, oxides of nitrogen, carbon monoxide, and total hydrocarbons appeared to be valid representations of the actual emissions during the tests. All leak checks performed on the sampling train, the pitot tubes, and the monitors sampling systems showed no leaks before or after each test. The zero and calibration drift tests of the monitors were stable with no variations greater than 3.0 percent. The calibration error check, sampling system bias check, and NO_2 to NO conversion efficiency check performed on the reference method monitors prior to testing were valid. The indicative parameters calculated from the field data were in close agreement. The moisture percentages for the three tests were within 7.6 percent of the mean value. The measured flow rates (Q_s) for the tests were within 5.7 percent of the mean value. The rates of sampling for the three tests were within the specified limits (90 to 110 percent isokinetic). The greatest deviation from 100 percent isokinetic was 5.3 percent.

The calculated emissions (pounds per hour) of particulate matter for the three tests showed a range of -6.6 percent to +7.7 percent variation from the mean value.

The calculated emissions (pounds per hour) of oxides of nitrogen for the three tests showed a range of -8.5 percent to +5.3 percent variation from the mean value.

The calculated emissions (pounds per hour) of carbon monoxide for the three tests showed a range of -51.6 percent to +62.6 percent variation from the mean value.

The calculated emissions (pounds per hour) of total hydrocarbons for the three tests showed a range of -12.0 percent to +14.9 percent variation from the mean value.

The two tests for formaldehyde, oxides of nitrogen, carbon monoxide, and total hydrocarbons appeared to be valid representations of the actual emissions during the tests. All leak checks performed on the sampling train, the pitot tubes, and the monitors sampling systems showed no leaks before or after each test. The zero and calibration drift tests of the monitors were stable with no variations greater than 3.0 percent. The calibration error check, sampling system bias check, and NO_2 to NO conversion efficiency check performed on the reference method monitors prior to testing were valid. The indicative parameters calculated from the field data were in close agreement. The moisture percentages for the two tests were within < 0.1 percent of the mean value. The measured flow rates (Q_s) for the tests were within 1.8 percent of the mean value. The rates of sampling for the two tests were within the specified limits (90 to 110 percent isokinetic). The greatest deviation from 100 percent isokinetic was 5.2 percent.

The calculated emissions (pounds per hour) of formaldehyde for the two tests showed a range of -2.6 percent to +2.6 percent variation from the mean value.

The calculated emissions (pounds per hour) of oxides of nitrogen for the two tests showed a range of -4.3 percent to +4.3 percent variation from the mean value.

The calculated emissions (pounds per hour) of carbon monoxide for the two tests showed a range of -23.9 percent to +23.9 percent variation from the mean value.

The calculated emissions (pounds per hour) of total hydrocarbons for the two tests showed a range of -3.3 percent to +3.3 percent variation from the mean value.

Dryer Number 5 Outlet Duct

Run Number 1 for particulate matter was considered invalid due to a leak in the sampling train.

The two valid tests for particulate matter, oxides of nitrogen, carbon monoxide, and total hydrocarbons appeared to be accurate representations of the actual emissions during the tests. All leak checks performed on the sampling train, the pitot tubes, and the monitors sampling systems showed no leaks before or after each test. The zero and calibration drift tests of the monitors were stable with no variations greater than 3.0 percent. The calibration error check, sampling system bias check, and NO_2 to NO conversion efficiency check performed on the reference method monitors prior to testing were valid. The indicative parameters calculated from the field data were in close agreement. The moisture percentages for the two valid tests were within 0.2 percent of the mean value. The measured flow rates (Q_s) for the tests were within 0.9 percent of the mean value. The rates of sampling for the two valid tests were within the specified limits (90 to 110 percent isokinetic). The greatest deviation from 100 percent isokinetic was 0.4 percent.

The calculated emissions (pounds per hour) of particulate matter for the two valid tests showed a range of -4.9 percent to +4.9 percent variation from the mean value.

The calculated emissions (pounds per hour) of oxides of nitrogen for the two valid tests showed a range of -9.2 percent to +9.2 percent variation from the mean value.

The calculated emissions (pounds per hour) of carbon monoxide for the two valid tests showed a range of -7.7 percent to +7.7 percent variation from the mean value.

The calculated emissions (pounds per hour) of total hydrocarbons for the two valid tests showed a range of -1.5 percent to +1.5 percent variation from the mean value.

The two tests for formaldehyde, oxides of nitrogen, carbon monoxide, and total hydrocarbons appeared to be valid representations of the actual emissions during the tests. All leak checks performed on the sampling train, the pitot tubes, and the monitors sampling systems showed no leaks before or after each test. The zero and calibration drift tests of the monitors were stable with no variations greater than 3.0 percent. The calibration error check, sampling system bias check, and NO_2 to NO conversion efficiency check performed on the reference method monitors prior to testing were valid. The indicative parameters calculated from the field data were in close agreement. The moisture percentages for the two tests were within 1.6 percent of the mean value. The measured flow rates (Q_s) for the tests were within 0.6 percent of the mean value. The rates of sampling for the two tests were within the specified limits (90 to 110 percent isokinetic). The greatest deviation from 100 percent isokinetic was 3.2 percent.

The calculated emissions (pounds per hour) of formaldehyde for the two tests showed a range of -12.8 percent to +12.8 percent variation from the mean value.

The calculated emissions (pounds per hour) of oxides of nitrogen for the two tests showed a range of -5.6 percent to +5.6 percent variation from the mean value.

The calculated emissions (pounds per hour) of carbon monoxide for the two tests showed a range of -9.6 percent to +9.6 percent variation from the mean value.

The calculated emissions (pounds per hour) of total hydrocarbons for the two tests showed a range of -8.2 percent to +8.2 percent variation from the mean value.

Dryer RTO Number 1 Stack (EPN RTO1)

The three tests for particulate matter, sulfur dioxide, oxides of nitrogen, carbon monoxide, and total hydrocarbons appeared to be valid representations of the actual emissions during the tests. All leak checks performed on the sampling train, the pitot tubes, and the monitors sampling systems showed no leaks before or after each test. The zero and calibration drift tests of the monitors were stable with no variations greater than 3.0 percent. The calibration error check, sampling system bias check, and NO_2 to NO conversion efficiency check performed on the reference method monitors prior to testing were valid. The indicative parameters calculated from the field data were in close agreement. The moisture percentages for the three tests were within 4.4 percent of the mean value. The measured flow rates (Q_s) for the tests were within 2.3 percent of the mean value. The rates of sampling for the three tests were within the specified limits (90 to 110 percent isokinetic). The greatest deviation from 100 percent isokinetic was 0.9 percent.

The calculated emissions (pounds per hour) of particulate matter for the three tests showed a range of -11.3 percent to +13.7 percent variation from the mean value.

The concentrations of sulfur dioxide for the three tests were below the minimum detectable limit of the method.

The calculated emissions (pounds per hour) of oxides of nitrogen for the three tests showed a range of -2.4 percent to +2.0 percent variation from the mean value.

The calculated emissions (pounds per hour) of carbon monoxide for the three tests showed a range of -41.9 percent to +31.2 percent variation from the mean value.

The calculated emissions (pounds per hour) of total hydrocarbons for the three tests showed a range of -17.4 percent to +11.3 percent variation from the mean value.

The three tests for formaldehyde, oxides of nitrogen, carbon monoxide, and total hydrocarbons appeared to be valid representations of the actual emissions during the tests. All leak checks performed on the sampling train, the pitot tubes, and the monitors sampling systems showed no leaks before or after each test. The zero and calibration drift tests of the monitors were stable with no variations greater than 3.0 percent. The calibration error check, sampling system bias check, and NO_2 to NO conversion efficiency check performed on the reference method monitors prior to testing were valid. The indicative parameters calculated from the field data were in close agreement. The moisture percentages for the three tests were within 16.0 percent of the mean value. The measured flow rates (Q_s) for the tests were within 3.1 percent of the mean value. The rates of sampling for the three tests were within the specified limits (90 to 110 percent isokinetic). The greatest deviation from 100 percent isokinetic was 5.2 percent.

The calculated emissions (pounds per hour) of formaldehyde for the three tests showed a range of -18.2 percent to +28.9 percent variation from the mean value.

The calculated emissions (pounds per hour) of oxides of nitrogen for the three tests showed a range of -4.1 percent to +7.4 percent variation from the mean value.

The calculated emissions (pounds per hour) of carbon monoxide for the three tests showed a range of -29.7 percent to +38.8 percent variation from the mean value.

The calculated emissions (pounds per hour) of total hydrocarbons for the three tests showed a range of -38.6 percent to +51.3 percent variation from the mean value.

Dryer RTO Number 2 Stack (EPN RTO2)

The three tests for particulate matter, sulfur dioxide, oxides of nitrogen, carbon monoxide, and total hydrocarbons appeared to be valid representations of the actual emissions during the tests. All leak checks performed on the sampling train, the pitot tubes, and the monitors sampling systems showed no leaks before or after each test. The zero and calibration drift tests of the monitors were stable with no variations greater than 3.0 percent. The calibration error check, sampling system bias check, and NO_2 to NO conversion efficiency check performed on the reference method monitors prior to testing were valid. The indicative parameters calculated from the field data were in close agreement. The moisture percentages for the three tests were within 2.3 percent of the mean value. The measured flow rates (Q_s) for the tests were within 1.7 percent of the mean value. The rates of sampling for the three tests were within the specified limits (90 to 110 percent isokinetic). The greatest deviation from 100 percent isokinetic was 4.2 percent.

The calculated emissions (pounds per hour) of particulate matter for the three tests showed a range of -10.7 percent to +6.4 percent variation from the mean value.

The concentrations of sulfur dioxide for the three tests were below the minimum detectable limit of the method.

The calculated emissions (pounds per hour) of oxides of nitrogen for the three tests showed a range of -10.3 percent to +9.5 percent variation from the mean value.

The calculated emissions (pounds per hour) of carbon monoxide for the three tests showed a range of -25.0 percent to +14.5 percent variation from the mean value.

The calculated emissions (pounds per hour) of total hydrocarbons for the three tests showed a range of -33.1 percent to +18.9 percent variation from the mean value.

The three tests for formaldehyde, oxides of nitrogen, carbon monoxide, and total hydrocarbons appeared to be valid representations of the actual emissions during the tests. All leak checks performed on the sampling train, the pitot tubes, and the monitors sampling systems showed no leaks before or after each test. The zero and calibration drift tests of the monitors were stable with no variations greater than 3.0 percent. The calibration error check, sampling system bias check, and NO_2 to NO conversion efficiency check performed on the reference method monitors prior to testing were valid. The indicative parameters calculated from the field data were in close agreement. The moisture percentages for the three tests were within 13.2 percent of the mean value. The measured flow rates (Q_s) for the tests were within 4.6 percent of the mean value. The rates of sampling for the three tests were within the specified limits (90 to 110 percent isokinetic). The greatest deviation from 100 percent isokinetic was 4.2 percent.

The calculated emissions (pounds per hour) of formaldehyde for the three tests showed a range of -4.5 percent to +7.8 percent variation from the mean value.

The calculated emissions (pounds per hour) of oxides of nitrogen for the three tests showed a range of -4.2 percent to +5.1 percent variation from the mean value.

The calculated emissions (pounds per hour) of carbon monoxide for the three tests showed a range of -23.8 percent to +12.3 percent variation from the mean value.

The calculated emissions (pounds per hour) of total hydrocarbons for the three tests showed a range of -38.8 percent to +28.8 percent variation from the mean value.

DESCRIPTION OF PROCESS

The Silsbee OSB Plant was operated at the maximum achievable operating rates during the source testing period. The production data for the testing periods are presented in summary in Appendix G.

The manufacture of OSB at Silsbee begins with southern pine logs trucked to the facility, off-loaded and stored or fed into a whole log (drum) debarker. The bark from the logs is collected and sold for bark and mulch. The debarked log proceeds to a whole log waferizer which slices the logs into thin wafers, cutting with the grain of the wood not across it.

The wafers are collected on conveyer belts that transport them to green wafer storage bins above the triple-pass rotary dryers, into which they are fed via gravity and rotary air locks. The inlet temperatures of these dryers may range from 1,400°F to 1,500°F. The wafers are moved through the dryers by air flows of approximately 45,000-55,000 acfm. A primary cyclone removes the wood material and a screen separates the usable wafers from small fines. These dry fines are collected and pneumatically transported to storage bins for use as fuel for the wafer dryer burners and thermal oil heater while the exhaust air stream passes through a fabric filter. The fine material is also shipped to the Silsbee Particleboard Plant to be used as a feedstock. The exhaust air from this process passes through a multicyclone then to the RTOs for thermal oxidation. Of the five rotary dryers, a maximum of four will be in operation at one time. Each dryer's exhaust, after passing through a multicyclone, is collected in a single manifold which discharges to both Dryer RTOs.

The dry wafers (approximately 2% to 7% moisture) are collected and transported to bins via enclosed rake conveyers. These dry wafer bins supply wafers to the blenders (core and face) where resin and wax are added. The resinated wafers are fed out of the blenders to the forming line where four (4) mechanical formers lay down successive layers of wafers (bottom face-core-core-top face). This "mat" then passes via a caul system to the press loader where mats are stacked for loading into the press. The press is then loaded (12 mats) and closes with pressure and heat setting the resin. Thermal oil at approximately 420°F supplies the heat for this process. The thermal oil is heated in a wood fired thermal oil heater whose emissions are routed to each of the five (5) dryers and then the dryer RTOs. Emissions from the completely enclosed press area are collected via two exhaust fans and directed to the press RTO. The RTOs are operated between 1,400°F and 1,650°F.

OSB panels exit the press and are conveyed to finishing saws which cut them to the proper dimensions. The saw kerf and dust are collected and conveyed pneumatically to bag filters. The panels are then stacked and banded into a bundle with the KFI logo and edge seal applied. The bundles are finally stacked in the warehouse area for shipment via truck or rail.

DESCRIPTION OF SAMPLING LOCATIONS

The sampling location on the Dryer Number 2 Outlet Duct is approximately 44 feet above the ground. The sampling ports are located 35 feet 2 inches (10.11 duct diameters) downstream from a bend in the duct and 8 feet 10 inches (2.54 duct diameters) upstream from a bend in the duct.

The sampling location on the Dryer Number 3 Outlet Duct is approximately 44 feet above the ground. The sampling ports are located 35 feet 2 inches (10.11 duct diameters) downstream from a bend in the duct and 7 feet 7 1/2 inches (2.19 duct diameters) upstream from a bend in the duct.

The sampling location on the Dryer Number 4 Outlet Duct is approximately 41 feet above the ground. The sampling ports are located 35 feet 2 inches (10.05 duct diameters) downstream from a bend in the duct and 7 feet 2 inches (2.05 duct diameters) upstream from a bend in the duct.

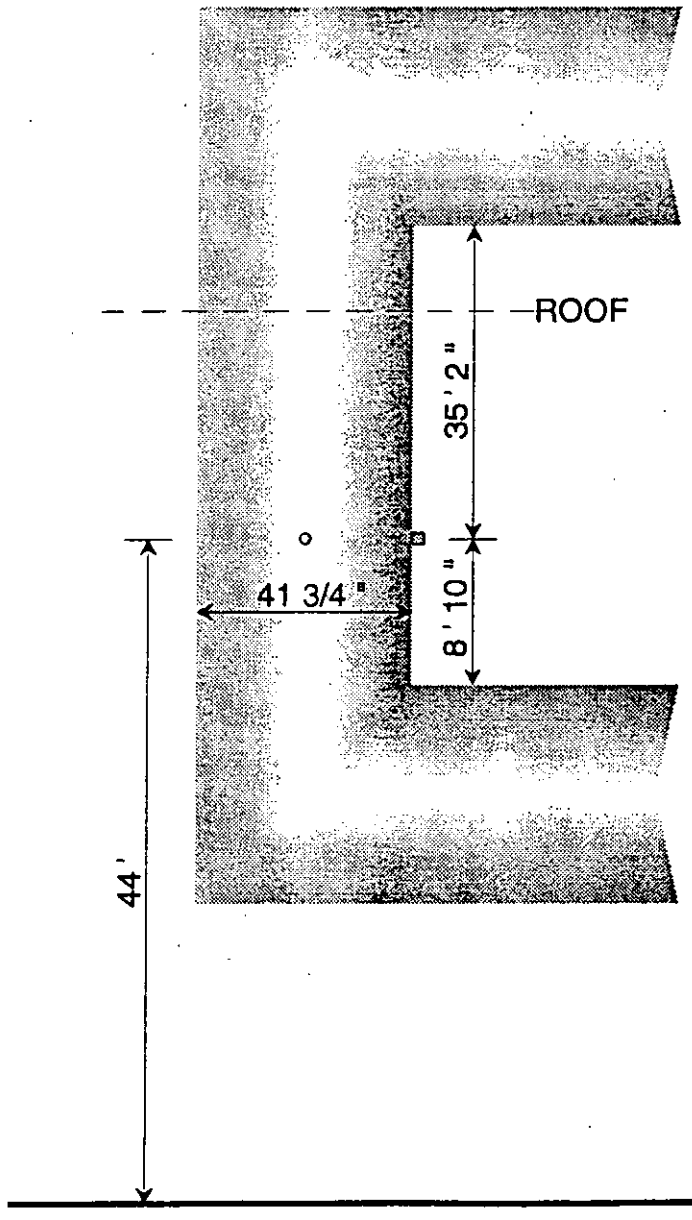
The sampling location on the Dryer Number 5 Outlet Duct is approximately 44 feet above the ground. The sampling ports are located 35 feet (10.07 duct diameters) downstream from a bend in the duct and 9 feet (2.59 duct diameters) upstream from a bend in the duct.

The sampling location on the Dryer RTO Number 1 Stack (EPN RTO1) is approximately 40 feet above the ground. The sampling ports are located 17 feet 7 inches (2.33 stack diameters) downstream from the inlet to the stack and 10 feet (1.32 stack diameters) upstream from the outlet of the stack.

The sampling location on the Dryer RTO Number 2 Stack (EPN RTO2) is approximately 40 feet above the ground. The sampling ports are located 17 feet 10 inches (2.36 stack diameters) downstream from the inlet to the stack and 10 feet 2 inches (1.34 stack diameters) upstream from the outlet of the stack.

SAMPLING LOCATION

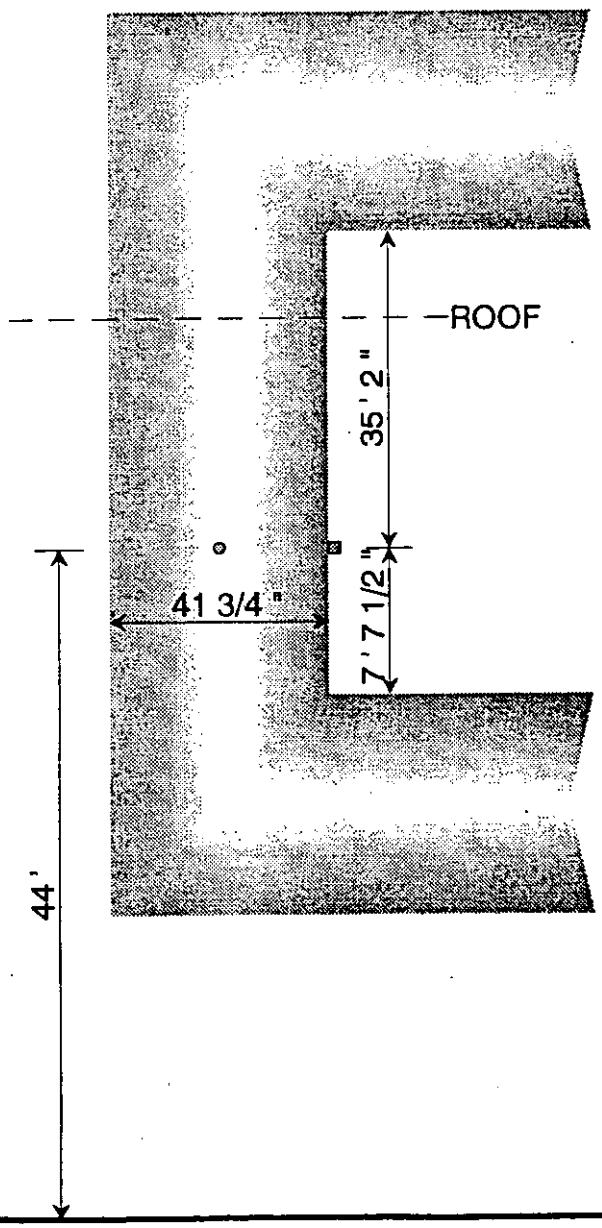
Dryer Number 2 Outlet Duct



Not to Scale

SAMPLING LOCATION

Dryer Number 3 Outlet Duct



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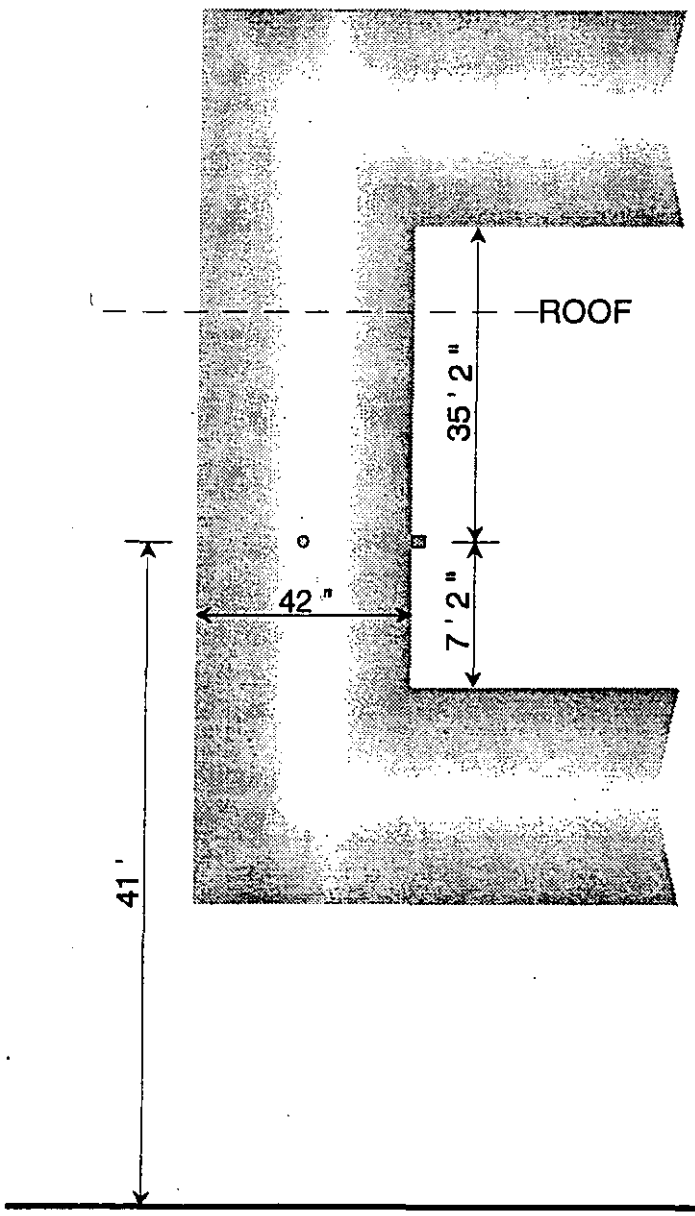
SAMPLING LOCATION

Dryer Number 4 Outlet Duct



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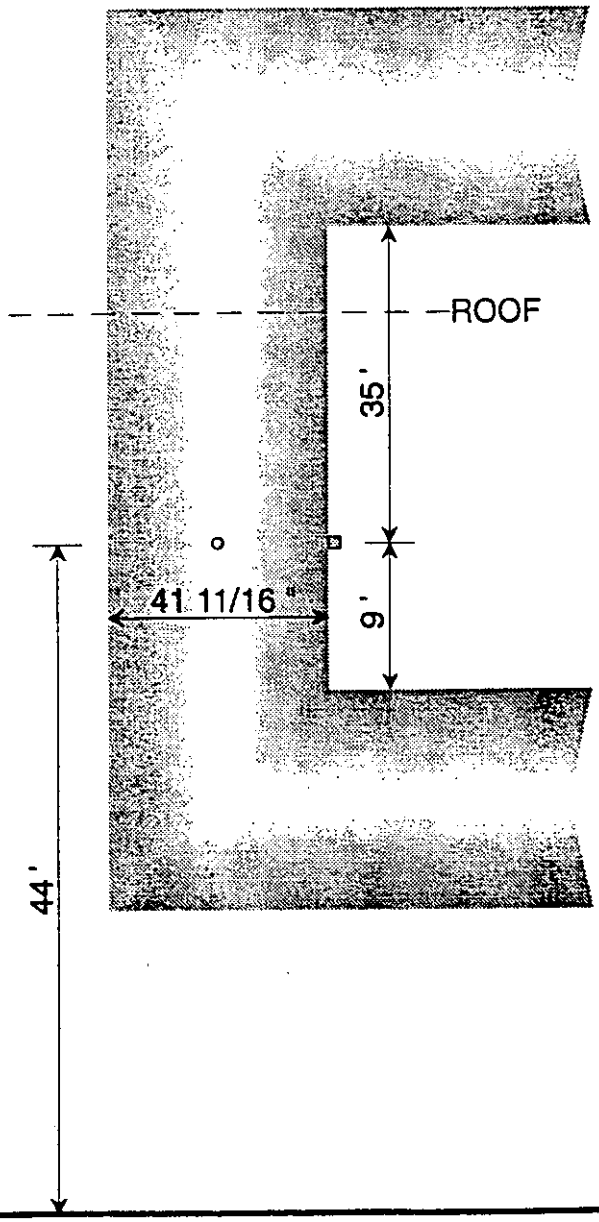
SAMPLING LOCATION

Dryer Number 5 Outlet Duct



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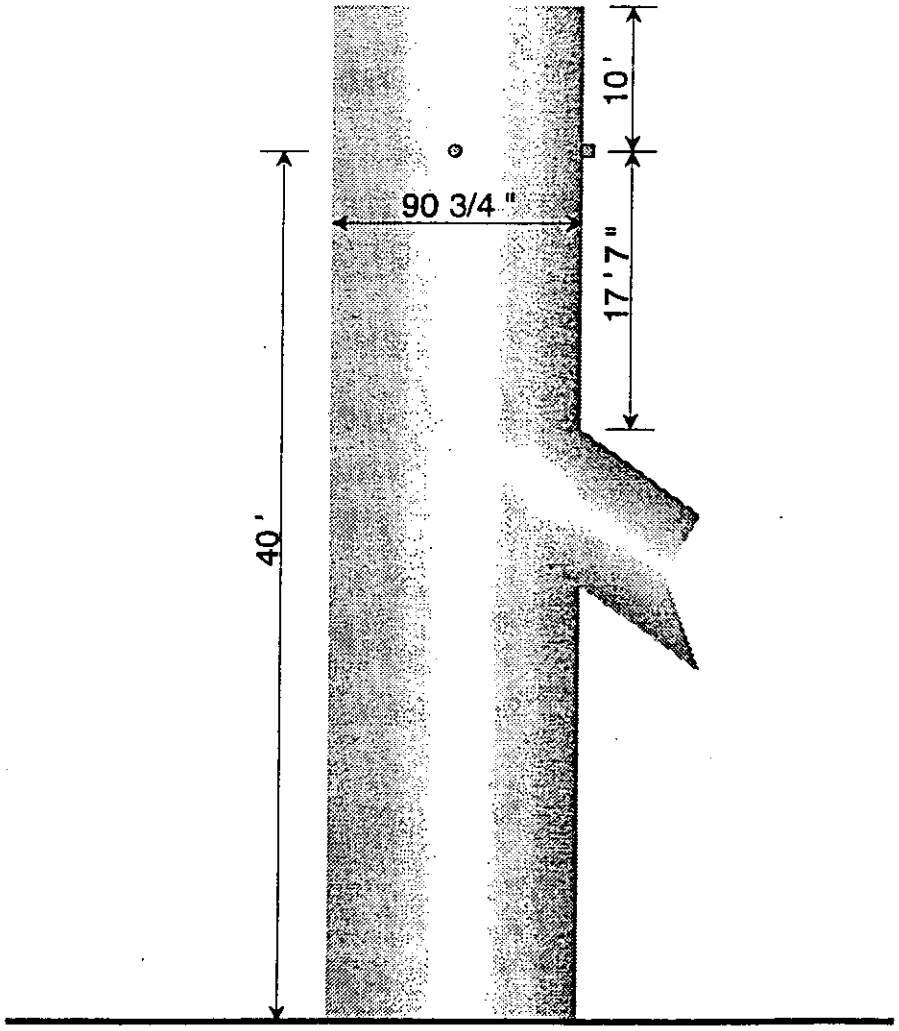
SAMPLING LOCATION

Dryer RTO Number 1 Stack (EPN RTO1)



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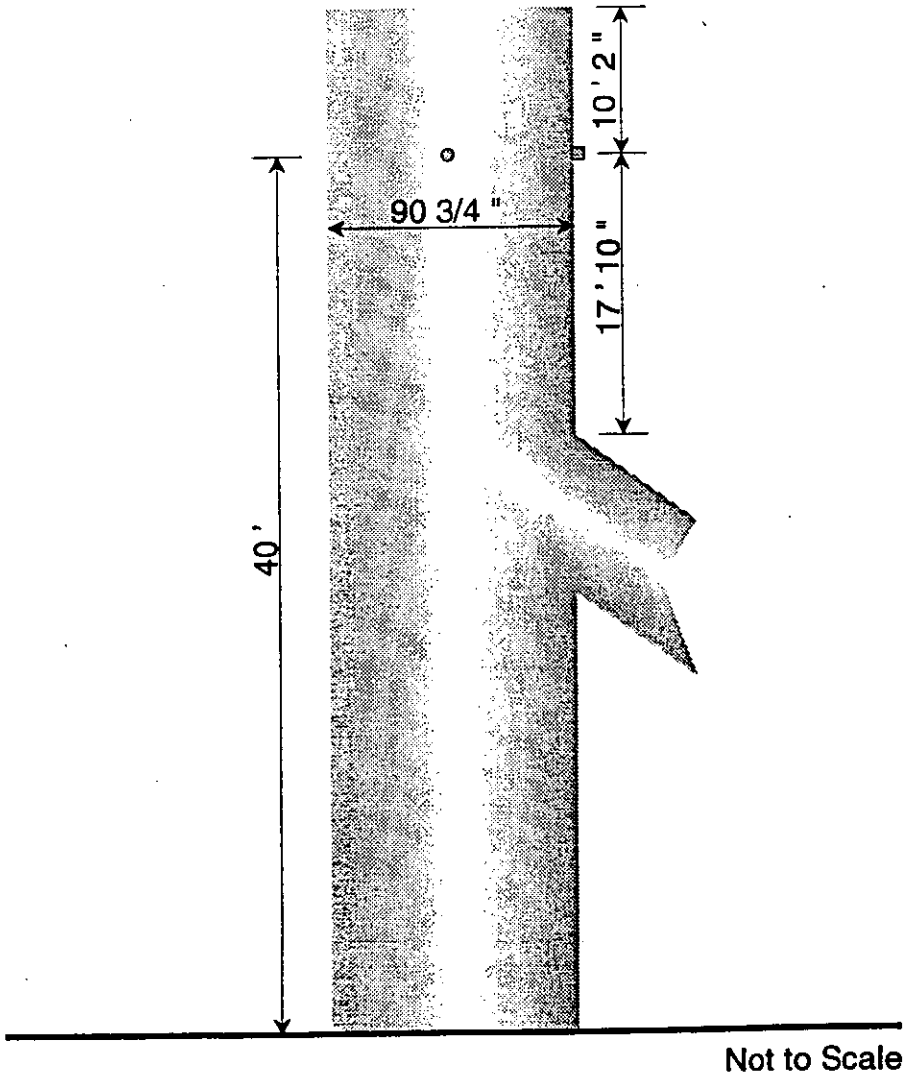
SAMPLING LOCATION

Dryer RTO Number 2 Stack (EPN RTO2)



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SAMPLING AND ANALYTICAL PROCEDURES

The sampling followed the procedures set forth in the Appendix to the Code of Federal Regulations, Title 40, Chapter I, Part 60, Methods 1, 2, 3B, 4, 5, 6, 7E, 10, and 25A; in the "Sampling Procedures Manual, Texas Air Control Board, Revised July 1985"; and in the "Test Methods for Evaluating Solid Waste, Volume II, November 1986," Method 0011.

A preliminary velocity traverse was made at each of the two ports on the Dryer Number 2 Outlet Duct, in order to determine the uniformity and magnitude of the flow prior to testing. All traverse points were checked for cyclonic flow and the average angle of flow was equal to 5.2 degrees. Alternate procedures would be required if the angle of cyclonic flow was greater than 20 degrees. Six traverse points were sampled from each of the two ports for a total of twelve traverse points.

A preliminary velocity traverse was made at each of the two ports on the Dryer Number 3 Outlet Duct, in order to determine the uniformity and magnitude of the flow prior to testing. All traverse points were checked for cyclonic flow and the average angle of flow was equal to 5.4 degrees. Alternate procedures would be required if the angle of cyclonic flow was greater than 20 degrees. Six traverse points were sampled from each of the two ports for a total of twelve traverse points.

A preliminary velocity traverse was made at each of the two ports on the Dryer Number 4 Outlet Duct, in order to determine the uniformity and magnitude of the flow prior to testing. All traverse points were checked for cyclonic flow and the average angle of flow was equal to 5.1 degrees. Alternate procedures would be required if the angle of cyclonic flow was greater than 20 degrees. Six traverse points were sampled from each of the two ports for a total of twelve traverse points.

A preliminary velocity traverse was made at each of the two ports on the Dryer Number 5 Outlet Duct, in order to determine the uniformity and magnitude of the flow prior to testing. All traverse points were checked for cyclonic flow and the average angle of flow was equal to 7.5 degrees. Alternate procedures would be required if the angle of cyclonic flow was greater than 20 degrees. Six traverse points were sampled from each of the two ports for a total of twelve traverse points.

A preliminary velocity traverse was made at each of the two ports on the Dryer RTO Number 1 Stack (EPN RTO1), in order to determine the uniformity and magnitude of the flow prior to testing. All traverse points were checked for cyclonic flow and the average angle of flow was equal to 5.8 degrees. Alternate procedures would be required if the angle of cyclonic flow was greater than 20 degrees. Twelve traverse points were sampled from each of the two ports for a total of twenty-four traverse points.

A preliminary velocity traverse was made at each of the two ports on the Dryer RTO Number 2 Stack (EPN RTO2), in order to determine the uniformity and magnitude of the flow prior to testing. All traverse points were checked for cyclonic flow and the average angle of flow was equal to 1.2 degrees. Alternate procedures would be required if the angle of cyclonic flow was greater than 20 degrees. Twelve traverse points were sampled from each of the two ports for a total of twenty-four traverse points.

The sampling trains were leak-checked at the nozzle at 15 inches of mercury vacuum before each test, and again after each test at the highest vacuum reading recorded during the test. This was done to predetermine the possibility of a diluted sample.

The pitot tube lines were checked for leaks before and after each test under both a vacuum and a pressure. The lines were also checked for clearance and the manometer was zeroed before each test.

An integrated orsat sample was collected and analyzed according to EPA Method 3B during each test.

Particulate Matter

Triplicate samples for particulate matter were collected at the Dryer Numbers 2, 3, 4, and 5 Outlet Ducts. The samples were taken according to EPA Methods 1, 2, 3B, 4, and 5; and the "Sampling Procedures Manual, Texas Air Control Board, Revised July 1985." For each run, samples of six-minute duration were taken isokinetically at each of the twelve traverse points for a total sampling time of 72 minutes. Data was recorded at three-minute intervals. Reagent blanks were submitted.

The " front-half " of the sampling train contained the following components:

Stainless Steel Nozzle
Heated Glass Probe @ 248°F ± 25°F
Heated Glass Fiber Filter and Glass Support @ 248°F ± 25°F

The " back-half " of the sampling train contained the following components:

Impinger Number	Contents	Amount	Parameter Collected
1	Deionized Water	100 ml	Particulate Matter and Moisture
2	Deionized Water	100 ml	Particulate Matter and Moisture
3	Empty	--------	Moisture
4	Silica Gel	200 g	Moisture

Particulate matter emissions were calculated from gravimetric analysis using both the " front-half " and " back-half " collections of the sampling train.

Particulate Matter/Sulfur Dioxide

Triplicate samples for particulate matter and sulfur dioxide were collected at the RTO Numbers 1 and 2 Stacks (EPNs RTO1 and RTO2). The samples were taken according to EPA Methods 1, 2, 3B, 4, 5, and 6; and the "Sampling Procedures Manual, Texas Air Control Board, Revised July 1985." Large impingers (500 ml), as specified in EPA Method 8, were used. For each run, samples of three-minute duration were taken isokinetically at each of the twenty-four traverse points for a total sampling time of 72 minutes. At the conclusion of each run, the sampling train was purged for fifteen minutes with ambient air at the same rate at which the sample was taken. Reagent blanks were submitted.

The " front-half " of the sampling train contained the following components:

Stainless Steel Nozzle
Heated Glass Probe @ 248°F ± 25°F
Heated Glass Fiber Filter and Glass Support @ 248°F ± 25°F

The " back-half " of the sampling train contained the following components:

Impinger Number	Contents	Amount	Parameter Collected
1	80% Isopropyl Alcohol	200 ml	Particulate Matter and Sulfur Trioxide
2	6% Hydrogen Peroxide	200 ml	Sulfur Dioxide
3	6% Hydrogen Peroxide	200 ml	Sulfur Dioxide
4	Empty	--------	Moisture
5	Silica Gel	200 g	Moisture

The isopropyl alcohol solution in the first impinger was checked for hydrogen peroxide contamination and none was found.

Particulate matter emissions were calculated from gravimetric analysis using both the " front-half " and " back-half " collections of the sampling train.

The sulfur dioxide and sulfur trioxide samples were analyzed by barium perchlorate titration using thorin indicator.

Formaldehyde

Duplicate samples for formaldehyde were collected at the Dryer Numbers 2, 3, 4, and 5 Ducts; and triplicate samples for formaldehyde were collected at the Dryer RTO Numbers 1 and 2 Stacks (EPNs RTO1 and RTO2). The samples were taken according to EPA Methods 1, 2, 3B, 4, and 5; and "Test Methods for Evaluating Solid Waste, Volume II, November 1986," Method 0011. For each run on the Dryer Numbers 2, 3, 4, and 4 Ducts, samples of six-minute duration were taken isokinetically at each of the twelve traverse points for a total sampling time of 72 minutes. For each run on the Dryer RTO Numbers 1 and 2 Stacks (EPNs RTO1 and RTO2), samples of three-minute duration were taken isokinetically at each of the twenty-four traverse points for a total sampling time of 72 minutes. Reagent blanks were submitted.

The " front-half " of the sampling train contained the following components:

Glass Nozzle
Heated Glass Probe @ 248°F ± 25°F
Heated Glass Fiber Filter and Glass Support @ 248°F ± 25°F

The " back-half " of the sampling train contained the following components:

Impinger Number*	Contents	Amount	Parameter Collected
1	DNPH	200 ml	Formaldehyde
2	DNPH	200 ml	Formaldehyde
3	Empty	--------	Moisture
4	Silica Gel	200 g	Moisture

* An extra impinger with 200 ml of DNPH was used during Run Number 2 on the Dryer Numbers 4 and 5 Outlet Ducts.

The formaldehyde samples were analyzed by High Pressure Liquid Chromatography.

Oxides of Nitrogen

The oxides of nitrogen sampling was performed according to EPA Method 7E. Five Thermo Environmental Model 10S Oxides of Nitrogen Analyzers and one Thermo Environmental Model 10AR Oxides of Nitrogen Analyzer were used to monitor the concentrations of oxides of nitrogen during each run. The reference method analyzers were operated at a range of 0 to 100 parts per million. A multi-point calibration was performed on the reference method analyzers prior to testing. An analyzer calibration error check, a sampling system bias check, and a NO_2 to NO conversion efficiency check were also conducted prior to testing. After each run, the zero and calibration drift of the reference method monitors was checked.

The calibration gases were as follows:

Zero Nitrogen

20.1 ppm NO in N_2 (BAL 4088)
20.1 ppm NO in N_2 (BLM 2008)
45.9 ppm NO in N_2 (BAL 1763)
46.2 ppm NO in N_2 (BAL 3110)
46.2 ppm NO in N_2 (BLM 3059)
47.9 ppm NO in N_2 (SG 9115542 ALC)
48.1 ppm NO in N_2 (ALM 49329)
50.0 ppm NO in N_2 (BLM 3007)
84.6 ppm NO in N_2 (BLM 2626)
84.6 ppm NO in N_2 (BAL 5243)
84.6 ppm NO in N_2 (BAL 5200)
84.7 ppm NO in N_2 (BLM 3395)
85.4 ppm NO in N_2 (ALM 38783)
86.1 ppm NO in N_2 (BAL 4137)

At each sampling location, the reference method sampling system consisted of a heated probe, a heated glass fiber filter, a chilled condenser, and a teflon sample line. The calibration gases for the bias and drift checks were introduced upstream of the chilled condenser.

Calibration gas certifications are included in Appendix C.

Carbon Monoxide

The carbon monoxide sampling was performed according to EPA Method 10 using the continuous sampling procedure. Six Thermo Environmental Model 48 Carbon Monoxide Analyzers were used to monitor the concentrations of carbon monoxide during each run. The reference method analyzers were operated at ranges of 0 to 500 parts per million and 0 to 1,000 parts per million. A multi-point calibration was performed on the reference method analyzers prior to testing. An analyzer calibration error check and a sampling system bias check were also conducted prior to testing. After each run, the zero and calibration drift of the reference method monitors was checked. The calibration gases were as follows:

Zero Nitrogen

84.6 ppm CO in N_2 (BLM 1502)
84.7 ppm CO in N_2 (BLM 3062)
89.3 ppm CO in N_2 (BAL 1208)
237.9 ppm CO in N_2 (BAL 1211)
242.1 ppm CO in N_2 (BLM 3980)
242.8 ppm CO in N_2 (BLM 1723)
245.0 ppm CO in N_2 (SG 9116300 ALD1)
247.1 ppm CO in N_2 (ALM 30956)
445.6 ppm CO in N_2 (AAL 17923)
460.7 ppm CO in N_2 (CAL 202)
466.5 ppm CO in N_2 (BLM 3965)
469.0 ppm CO in N_2 (BLM 407)
469.0 ppm CO in N_2 (BLM 3332)
911.7 ppm CO in N_2 (BAL 5213)
921.9 ppm CO in N_2 (CLM 3883)
925.3 ppm CO in N_2 (CAL 3528)

At each sampling location, the reference method sampling system consisted of a heated probe, a heated glass fiber filter, a chilled condenser, and a teflon sample line. The calibration gases for the bias and drift checks were introduced upstream of the chilled condenser.

Calibration gas certifications are included in Appendix C.

Total Hydrocarbons

The total hydrocarbons sampling was performed according to EPA Method 25A. Six J.U.M. Model VE-7 Total Hydrocarbon Analyzers were used to monitor the concentrations of total hydrocarbons during each run. The reference method analyzers were operated at ranges of 0 to 100 parts per million, 0 to 1,000 parts per million, and 0 to 10,000 parts per million. A multi-point calibration was performed on the reference method analyzers prior to testing. An analyzer calibration error check and a sampling system bias check were also conducted prior to testing. After each run, the zero and calibration drift of the reference method monitors was checked. The calibration gases were as follows:

Zero Nitrogen

23.2 ppm C_3H_8 in N_2 (BLM 3402)

47.1 ppm C_3H_8 in N_2 (ALM 48174)

88.5 ppm C_3H_8 in N_2 (BLM 1578)

219.0 ppm C_3H_8 in N_2 (CAL 11070)

224.0 ppm C_3H_8 in N_2 (CLM 5995)

227.5 ppm C_3H_8 in N_2 (CAL 7719)

233.0 ppm C_3H_8 in N_2 (BAL 1761)

249.8 ppm C_3H_8 in N_2 (CAL 8004)
471.1 ppm C_3H_8 in N_2 (BAL 5231)
475.1 ppm C_3H_8 in N_2 (BLM 4121)
475.1 ppm C_3H_8 in N_2 (BLM 4137)
486.1 ppm C_3H_8 in N_2 (BLM 2201)
489.0 ppm C_3H_8 in N_2 (BAL 2652)
969.1 ppm C_3H_8 in N_2 (CAL 8302)
977.5 ppm C_3H_8 in N_2 (BLM 4065)
979.5 ppm C_3H_8 in N_2 (CAL 12366)
979.5 ppm C_3H_8 in N_2 (CAL 12660)
980.3 ppm C_3H_8 in N_2 (CAL 12407)
2,268.0 ppm C_3H_8 in N_2 (BLM 2721)
4,530.0 ppm C_3H_8 in N_2 (SG 9116264)
9,454.0 ppm C_3H_8 in N_2 (CAL 10703)

At each sampling location, the reference method sampling system consisted of a heated probe and a heated teflon sample line. The calibration gases for the bias and drift checks were introduced upstream of the heated teflon sample line.

Calibration gas certifications are included in Appendix C.

DESCRIPTION OF TESTS

Personnel from METCO Environmental arrived at the plant at 12:45 p.m. on Monday, January 15, 1996. After meeting with plant personnel, the equipment was moved onto the Dryer Numbers 2, 3, 4, and 5 Outlet Ducts and Dryer RTO Numbers 1 and 2 Stacks (EPNs RTO1 and RTO2). Set-up was delayed due to a lack of adequate electrical power. The preliminary data was collected and the equipment was secured for the night. All work was completed at 8:30 p.m.

On Tuesday, January 16, work began at 6:30 a.m. The monitors were calibrated and the equipment was prepared for testing. Testing was delayed due to electrical and plant operational problems. The first set of tests for particulate matter, oxides of nitrogen, carbon monoxide, and total hydrocarbons on the Dryer Numbers 2, 3, 4, and 5 Outlet Ducts; and for particulate matter, sulfur dioxide, oxides of nitrogen, carbon monoxide, and total hydrocarbons on the Dryer RTO Numbers 1 and 2 Stacks (EPNs RTO1 and RTO2) began at 1:15 p.m. and was completed at 2:42 p.m. The first set of tests for formaldehyde, oxides of nitrogen, carbon monoxide, and total hydrocarbons on the Dryer Numbers 2, 3, 4, and 5 Outlet Ducts and Dryer RTO Numbers 1 and 2 Stacks (EPNs RTO1 and RTO2) began at 3:50 p.m. and was completed at 5:40 p.m. The monitors were calibrated and the samples were recovered. The equipment was secured for the night and all work was completed at 7:30 p.m.

On Wednesday, January 17, work began at 6:15 a.m. The monitors were calibrated and the equipment was prepared for testing. The second set of tests for particulate matter, oxides of nitrogen, carbon monoxide, and total hydrocarbons on the Dryer Numbers 2, 3, 4, and 5 Outlet Ducts; and for particulate matter, sulfur dioxide, oxides of nitrogen, carbon monoxide, and total hydrocarbons on the Dryer RTO Numbers 1 and 2 Stacks (EPNs RTO1 and RTO2) began at 8:20 a.m. Testing continued until the completion of the third set of tests at 9:42 p.m. The second set of tests for formaldehyde, oxides of nitrogen, carbon monoxide, and total hydrocarbons on the Dryer Numbers 2, 3, 4, and 5 Outlet Ducts and Dryer RTO Numbers 1 and 2 Stacks (EPNs RTO1 and RTO2) began at 12:10 p.m. and was completed at 4:02 p.m. The monitors were calibrated and the samples were recovered. The equipment was secured for the night and all work was completed at 11:00 p.m.

On Thursday, January 18, work began at 7:15 a.m. The monitors were calibrated and the equipment was prepared for testing. The third set of tests for formaldehyde, oxides of nitrogen, carbon monoxide, and total hydrocarbons on the Dryer RTO Numbers 1 and 2 Stacks (EPNs RTO1 and RTO2) began at 12:15 p.m. and was completed at 1:37 p.m.

The monitors were calibrated and secured for transport. The equipment was moved off of the sampling locations and loaded into the sampling van. The samples were recovered and transported to METCO Environmental's laboratory in Dallas, Texas, for analysis and evaluation.

Operations at Louisiana-Pacific Corporation, Dryer Numbers 2, 3, 4, and 5 Outlet Ducts and Dryer RTO Numbers 1 and 2 Stacks (EPNs RTO1 and RTO2), located in Silsbee, Texas, for ERM-Southwest, Inc., were completed at 3:00 p.m. on Thursday, January 18, 1996.

Billy J. Mullins, Jr.

Billy J. Mullins, Jr., P.E.
President

APPENDICES

A. Location of Sampling Points
B. Source Emissions Calculations
C. Calibration Data
D. Field Testing Data
E. Analytical Data
F. Reference Method Monitors Data
G. Plant Operational Data
H. TNRCC Permit
I. Chain of Custody
J. Resumes of Test Personnel

METCO ENVIRONMENTAL

APPENDIX A

Location of Sampling Points
Dryer Number 2 Outlet Duct

The sampling ports are located 35 feet 2 inches (10.11 duct diameters) downstream from a bend in the duct and 8 feet 10 inches (2.54 duct diameters) upstream from a bend in the duct. The locations of the sampling points were calculated as follows:

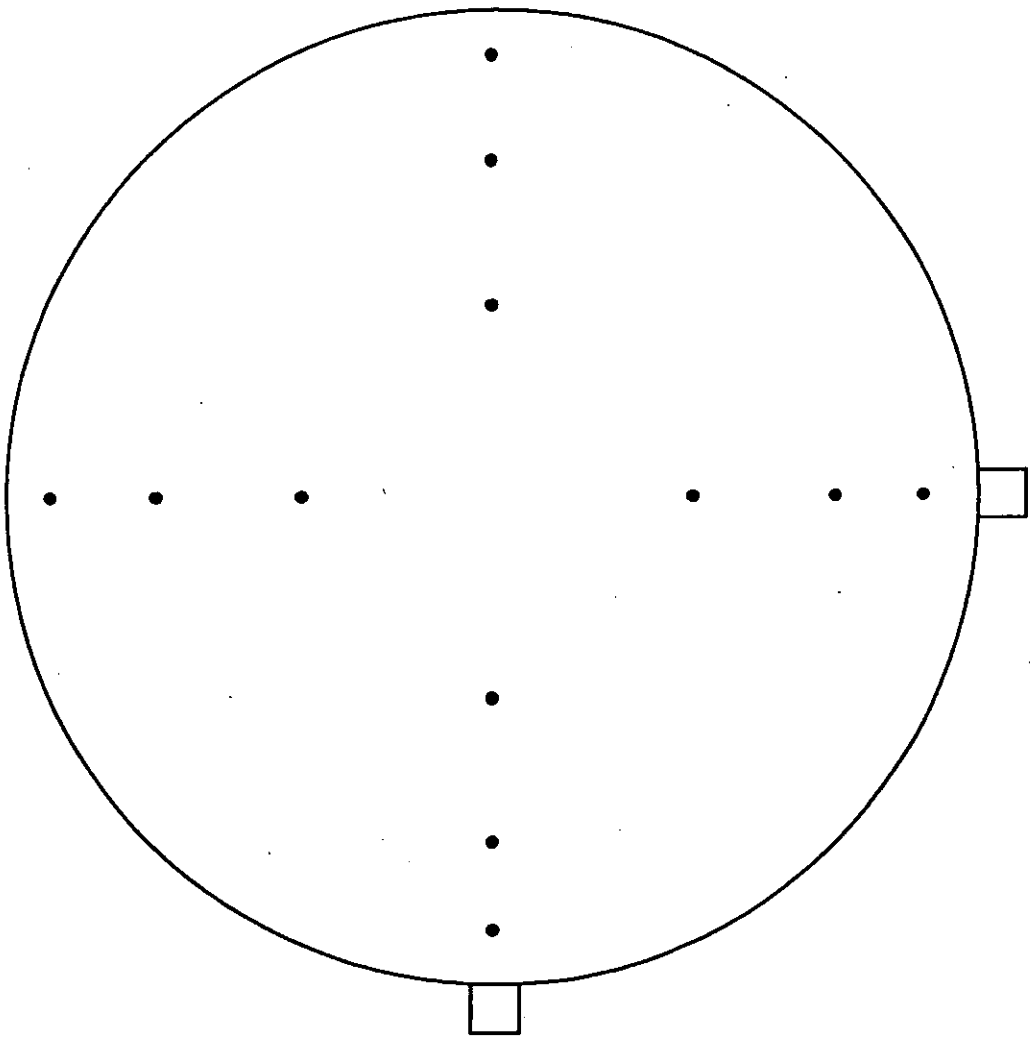
Port and Wall Thickness = 6 1/4 inches
Inside Duct Diameter = 41 3/4 inches

Point Number	Percent of Diameter From Wall	Distance From Wall
1	4.4	1 13/16 "
2	14.6	6 1/8 "
3	29.6	12 3/8 "
4	70.4	29 3/8 "
5	85.4	35 5/8 "
6	95.6	39 15/16 "

APPENDIX A

Location of Sampling Points

Dryer Number 2 Outlet Duct



METCO ENVIRONMENTAL

APPENDIX A

Location of Sampling Points
Dryer Number 3 Outlet Duct

The sampling ports are located 35 feet 2 inches (10.11 duct diameters) downstream from a bend in the duct and 7 feet 7 1/2 inches (2.19 duct diameters) upstream from a bend in the duct. The locations of the sampling points were calculated as follows:

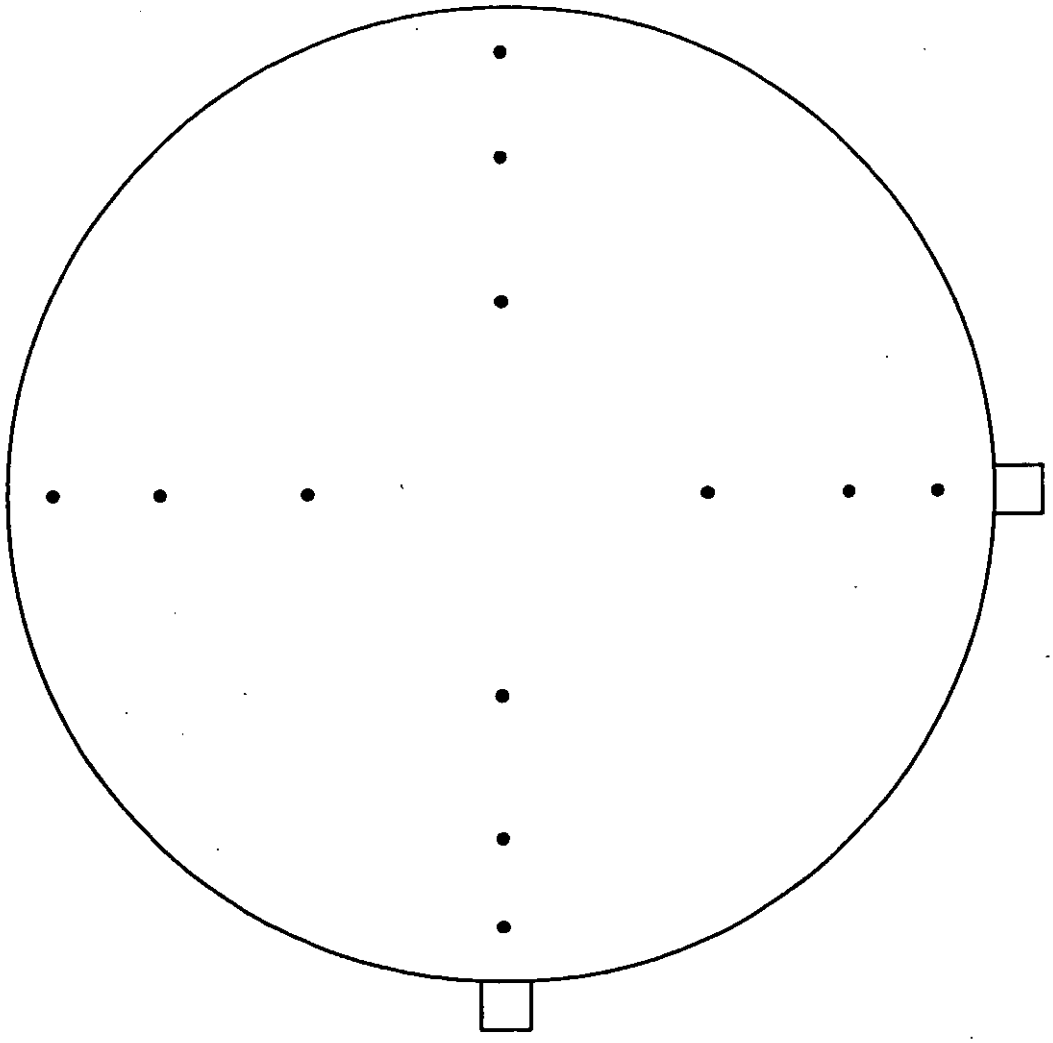
Port and Wall Thickness = 6 1/4 inches
Inside Duct Diameter = 41 3/4 inches

Point Number	Percent of Diameter From Wall	Distance From Wall
1	4.4	1 13/16 "
2	14.6	6 1/8 "
3	29.6	12 3/8 "
4	70.4	29 3/8 "
5	85.4	35 5/8 "
6	95.6	39 15/16 "

APPENDIX A

Location of Sampling Points

Dryer Number 3 Outlet Duct



APPENDIX A

Location of Sampling Points
Dryer Number 4 Outlet Duct

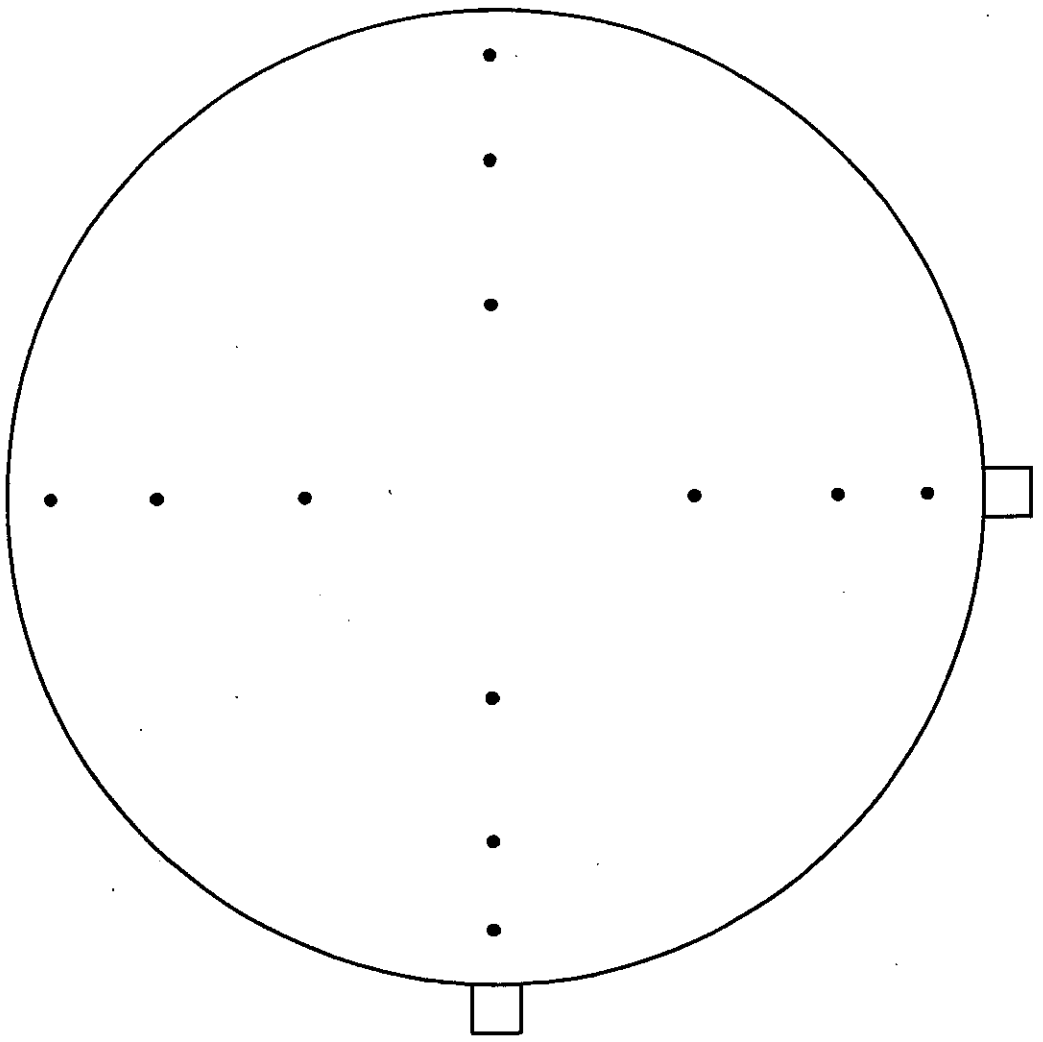
The sampling ports are located 35 feet 2 inches (10.05 duct diameters) downstream from a bend in the duct and 7 feet 2 inches (2.05 duct diameters) upstream from a bend in the duct. The locations of the sampling points were calculated as follows:

Port and Wall Thickness = 6 1/8 inches
Inside Duct Diameter = 42 inches

Point Number	Percent of Diameter From Wall	Distance From Wall
1	4.4	1 7/8 "
2	14.6	6 1/8 "
3	29.6	12 7/16 "
4	70.4	29 9/16 "
5	85.4	35 7/8 "
6	95.6	40 1/8 "

APPENDIX A

Location of Sampling Points
Dryer Number 4 Outlet Duct



APPENDIX A

Location of Sampling Points
Dryer Number 5 Outlet Duct

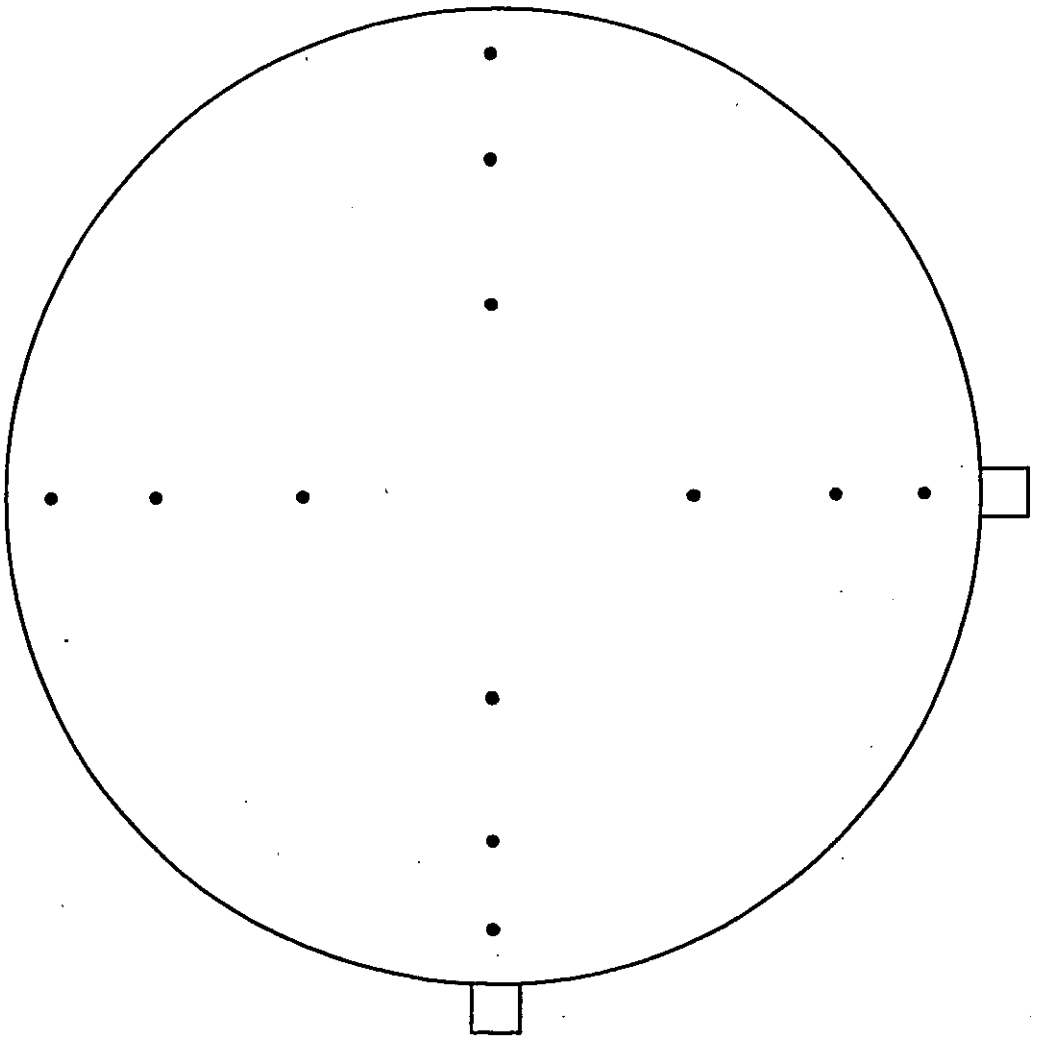
The sampling ports are located 35 feet (10.07 duct diameters) downstream from a bend in the duct and 9 feet (2.59 duct diameters) upstream from a bend in the duct. The locations of the sampling points were calculated as follows:

Port and Wall Thickness = 6 3/16 inches
Inside Duct Diameter = 41 11/16 inches

Point Number	Percent of Diameter From Wall	Distance From Wall
1	4.4	1 13/16 "
2	14.6	6 1/16 "
3	29.6	12 5/16 "
4	70.4	29 3/8 "
5	85.4	35 5/8 "
6	95.6	39 7/8 "

APPENDIX A

Location of Sampling Points
Dryer Number 5 Outlet Duct



APPENDIX A

Location of Sampling Points
Dryer RTO Number 1 Stack (EPN RTO1)

The sampling ports are located 17 feet 7 inches (2.33 stack diameters) downstream from the inlet to the stack and 10 feet (1.32 stack diameters) upstream from the outlet of the stack. The locations of the sampling points were calculated as follows:

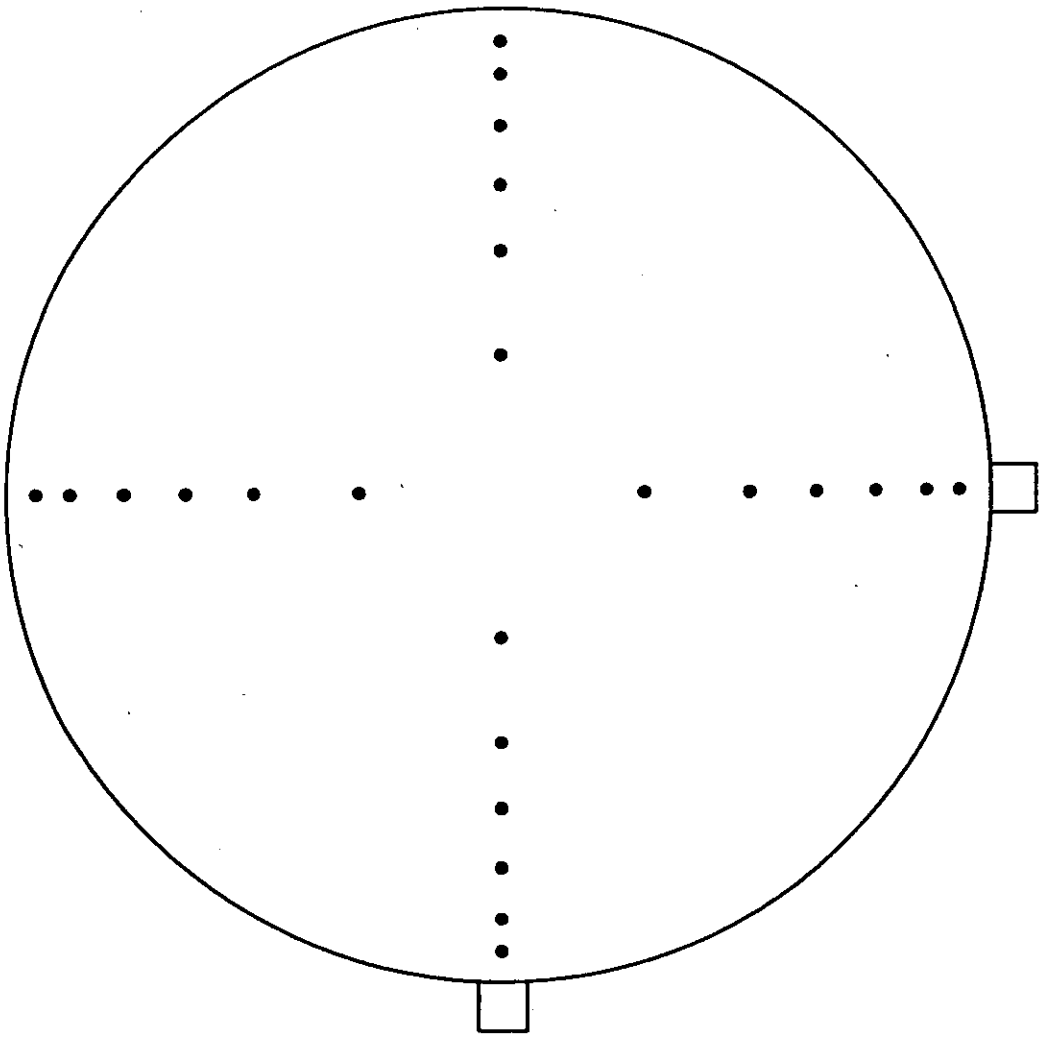
Port and Wall Thickness = 7 1/8 inches
Inside Stack Diameter = 90 3/4 inches

Point Number	Percent of Diameter From Wall	Distance From Wall
1	2.1	1 7/8 "
2	6.7	6 1/16 "
3	11.8	10 11/16 "
4	17.7	16 1/16 "
5	25.0	22 11/16 "
6	35.6	32 5/16 "
7	64.4	58 7/16 "
8	75.0	68 1/16 "
9	82.3	74 11/16 "
10	88.2	80 1/16 "
11	93.3	84 11/16 "
12	97.9	88 7/8 "

APPENDIX A

Location of Sampling Points

Dryer RTO Number 1 Stack (EPN RTO1)



METCO ENVIRONMENTAL

APPENDIX A

Location of Sampling Points
Dryer RTO Number 2 Stack (EPN RTO2)

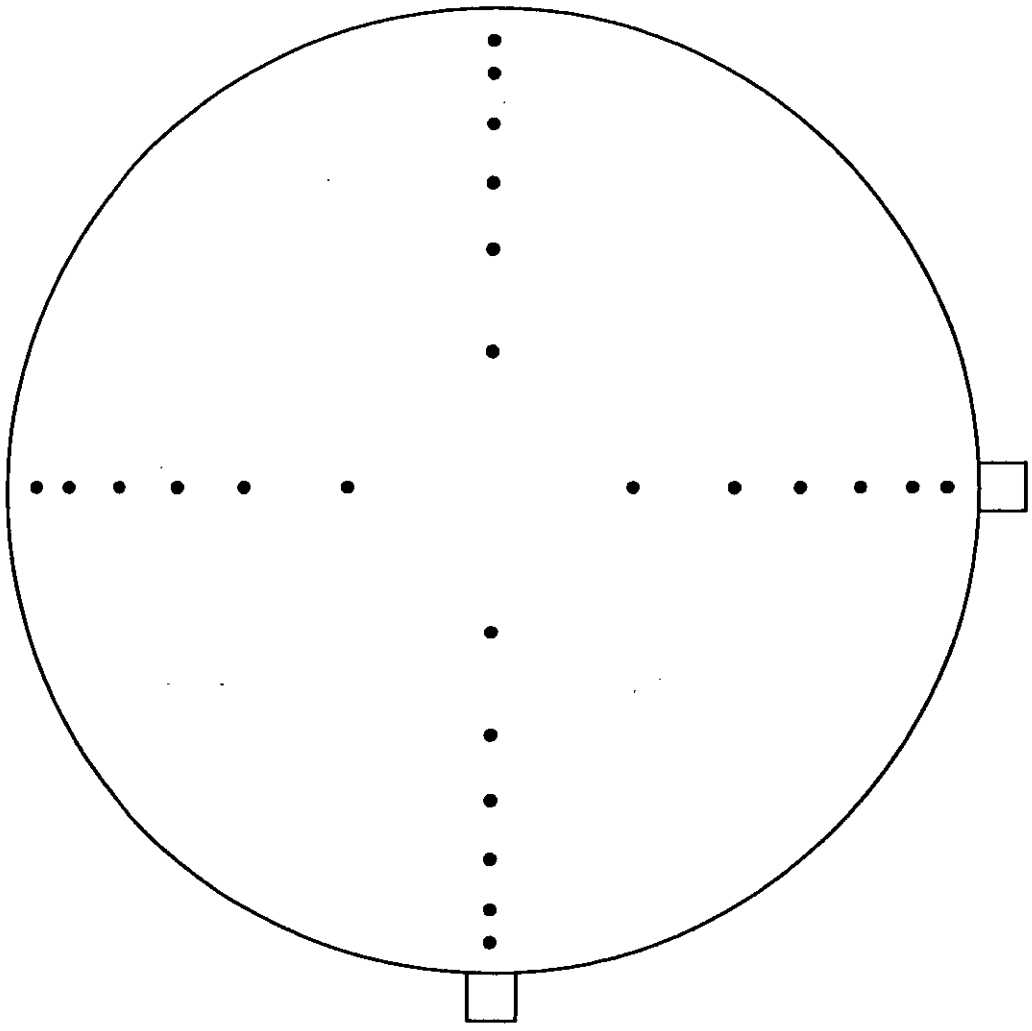
The sampling ports are located 17 feet 10 inches (2.36 stack diameters) downstream from the inlet to the stack and 10 feet 2 inches (1.34 stack diameters) upstream from the outlet of the stack. The locations of the sampling points were calculated as follows:

Port and Wall Thickness = 6 3/4 inches
Inside Stack Diameter = 90 3/4 inches

Point Number	Percent of Diameter From Wall	Distance From Wall
1	2.1	1 7/8 "
2	6.7	6 1/16 "
3	11.8	10 11/16 "
4	17.7	16 1/16 "
5	25.0	22 11/16 "
6	35.6	32 5/16 "
7	64.4	58 7/16 "
8	75.0	68 1/16 "
9	82.3	74 11/16 "
10	88.2	80 1/16 "
11	93.3	84 11/16 "
12	97.9	88 7/8 "

APPENDIX A

Location of Sampling Points
Dryer RTO Number 2 Stack (EPN RTO2)



APPENDIX B

Nomenclature and Equations
for
Calculation of Source Emissions

METCO ENVIRONMENTAL

NOMENCLATURE FOR CALCULATIONS

Symbol	English Units	Metric Units	Description
A_s	$in.^2$	m^2	Stack Area
C_{an}	gr/dscf*	g/dscm*	Particulate - probe, cyclone, and filter
C_{ao}	gr/dscf*	g/dscm*	Particulate - total
C_{at}	gr/CF @ stack conditions	g/m^3	Particulate - probe, cyclone, and filter
C_{au}	gr/CF @ stack conditions	g/m^3	Particulate - total
C_{aw}	lbs/hr	kg/hr	Particulate - probe, cyclone, and filter
C_{ax}	lbs/hr	kg/hr	Particulate - total
C_p			Pitot Tube Calibration Factor
D_n	in.	m	Sampling Nozzle Diameter
%EA			Percent Excess Air at sampling point
g	32.174 ft/sec^2		Acceleration of Gravity
%I			Percent Isokinetic
%M			Percent Moisture in the stack gas by volume
M_d			Mole fraction of dry gas
m_f	mg	mg	Particulate - probe, cyclone, and filter

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

Symbol	English Units	Metric Units	Description
M_{water}	18 lb/lb-mole		Molecular Weight of water
m_t	mg	mg	Particulate - total
MW	lb/lb-mole	g/g-mole	Molecular Weight of stack gas
MW_{air}	28.96 lb/ lb-mole		Molecular Weight of air
MW_d	lb/lb-mole	g/g-mole	Molecular Weight of dry stack gas
P_b	"Hg Absolute	mm Hg	Barometric Pressure
P_m	"H_2O	mm H_2O	Orifice Pressure drop
P_s	"Hg Absolute	mm Hg	Stack Pressure
ΔP	"H_2O	mm H_2O	Velocity Head of stack gas
P_{std}	29.92 "Hg	760 mm Hg	Standard Barometric Pressure
Q_a	ACFM	m^3/hr	Stack Gas Volume at actual stack conditions
Q_s	DSCFM*	dscm/hr*	Stack Gas Volume at 29.92 "Hg, 528°R, dry
R	21.83 "Hg-ft^3/lb-mole°R		Universal Gas Constant
T_m	°F	°C	Average Gas Meter Temperature

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

Symbol	English Units	Metric Units	Description
T_t	min	min	Net time of test
T_s	°F	°C	Stack Temperature
T_{std}	528°R	293°K	Standard Temperature
V_m	ft^3	m^3	Volume of dry gas sampled @ meter conditions
Vm_{std}	dscf*	dscm*	Volume of dry gas sampled @ standard conditions
V_s	fpm	m/sec	Stack velocity @ stack conditions
V_w	ml	ml	Total water collected in impingers and silica gel
Vw_{gas}	scf*	scm*	Volume of water vapor collected @ standard conditions
ρ_{air}	0.0752 lbs/ft^3		Density of Air
ρ_{water}	1 g/ml		Density of Water
ρ_{man}	62.32 lbs/ft^3		Density of Manometer Fluid

Standard Conditions: 29.92 "Hg, 68°F (760 mm Hg, 20°C)

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

METCO ENVIRONMENTAL

EXAMPLE CALCULATIONS

1. Volume of dry gas sampled at standard conditions.*

$$Vm_{std} = Vm \left(\frac{T_{std}}{T_m + 460} \right) \left[\frac{P_b + \frac{P_m}{13.6}}{P_{std}} \right]$$

$$Vm_{std} = 17.65\ Vm \left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460} \right] = dscf$$

$$Vm_{std} = dscf \times 0.028317 = dscm$$

2. Volume of water vapor collected at standard conditions.*

$$Vw_{gas} = \frac{(V_w - gms\ SO_2 - gms\ H_2S)\ \rho_{water}\ R\ T_{std}}{P_{std}\ M_{water}\ 453.6}$$

$$Vw_{gas} = 0.0472\ (V_w - gms\ SO_2 - gms\ H_2S) = scf$$

$$Vw_{gas} = scf \times 0.028317 = scm$$

3. Percent moisture in stack gas.

$$\%M = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \%$$

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

4. Mole fraction of dry gas.

$$M_d = \frac{100 - \%M}{100}$$

5. Average molecular weight of dry stack gas.

$$MW_d = \left[\%CO_2 \times \frac{44}{100}\right] + \left[\%O_2 \times \frac{32}{100}\right] + \left[\%N_2 \times \frac{28}{100}\right] + \left[\%CO \times \frac{28}{100}\right] = lb/lb\text{-}mole$$

$$= g/g\text{-}mole$$

6. Molecular weight of stack gas.

$$MW = MW_d \times M_d + 18\ (1 - M_d) = lb/lb\text{-}mole = g/g\text{-}mole$$

7. Percent excess air at sampling point.

$$\%EA = \frac{100\ (\%O_2 - 0.5\%\ CO)}{0.265\ (\%N_2) - [(\%O_2) + 0.5\ (\%CO)]}$$

8. Stack Pressure.

$$P_s = P_b + \frac{Stack\ Pressure\ "H_2O}{13.6} = "Hg\ Absolute$$

$$P_s = "Hg\ Abs. \times 25.4 + mm\ Hg$$

9. Stack velocity at stack conditions.

$$V_s = C_p\ 60 \left[\frac{2g \times \rho_{man} \times P_{std} \times MW_{air} \times (T_s + 460)}{12 \times \rho_{air} \times P_s \times MW \times T_{std}}\right]^{1/2} \sqrt{\Delta P}\ average = fpm$$

$$V_s = 5{,}123.8\ C_p \left[\frac{(T_s + 460)}{P_s \times MW}\right]^{1/2} \sqrt{\Delta P}\ average = fpm$$

$$V_s = fpm \times 0.00508 = m/sec$$

10. Dry stack gas volume at standard conditions.*

$$Q_s = \frac{1}{144}\ V_s \times A_s \times M_d \times \frac{T_{std}}{T_s + 460} \times \frac{P_s}{P_{std}}$$

$$Q_s = \frac{0.123\ V_s \times A_s \times M_d \times P_s}{T_s + 460} = DSCFM$$

$$Q_s = DSCFM \times 1.6990 = dscm/hr$$

11. Actual stack gas volume at stack conditions.

$$Q_a = \frac{V_s \times A_s}{144} = ACFM$$

$$Q_a = ACFM \times 1.6990 = m^3/hr$$

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

12. Percent isokinetic.

$$\%I = \frac{Vm_{std} \times (T_s + 460) \times P_{std} \times 100 \times 144}{M_d \times T_{std} \times P_s \times T_t \times V_s \left(\frac{\pi D_n^2}{4}\right)}$$

$$\%I = \frac{1039 \; V_{std} \times (T_s + 460)}{M_d \times P_s \times T_t \times V_s \times D_n^2}$$

13. Particulate - probe, cyclone, and filter.

$$C_{an} = \frac{m_f}{Vm_{std}} \times \frac{1 \; gr}{64.8 \; mg}$$

$$C_{an} = 0.0154 \times \frac{m_f}{Vm_{std}} = gr/dscf^*$$

$$C_{an} = gr/dscf \times 2.290 = g/dscm^*$$

14. Particulate total.

$$C_{ao} = 0.0154 \times \frac{m_t}{Vm_{std}} = gr/dscf^*$$

$$C_{ao} = gr/dscf \times 2.290 = g/dscm^*$$

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

15. Particulate - probe, cyclone, and filter at stack conditions.

$$C_{at} = C_{an} \times \frac{P_s}{P_{std}} \times \frac{(T_{std})}{(T_s + 460)} \times M_d$$

$$C_{at} = \frac{17.65 \times C_{an} \times P_s \times M_d}{T_s + 460} = gr/CF$$

$$C_{at} = gr/CF \times 2.290 = g/m^3$$

16. Particulate - total, at stack conditions.

$$C_{au} = \frac{17.65 \times C_{ao} \times P_s \times M_d}{T_s + 460} = gr/CF$$

$$C_{au} = gr/CF \times 2.290 = g/m^3$$

17. Particulate - probe, cyclone, and filter.

$$C_{aw} = C_{an} \times Q_s \times \frac{60 \text{ min}}{1 \text{ hr}} \times \frac{1 \text{ lb}}{7000 \text{ gr}}$$

$$C_{aw} = 0.00857 \times C_{an} \times Q_s = lbs/hr$$

$$C_{aw} = lbs/hr \times 0.4536 = kg/hr$$

18. Particulate - total.

$$C_{ax} = 0.00857 \times C_{ao} \times Q_s = lbs/hr$$

$$C_{ax} = lbs/hr \times 0.4536 = kg/hr$$

*29.92 "Hg, 68°F (760 mm Hg, 20°C)

EXAMPLE CALCULATIONS

$$\text{lbs/hr} = \frac{\text{mg}}{\text{Vm}_{std}} \times 2.205 \times 10^{-6} \text{ lbs/mg} \times \text{DSCFM*} \times 60 \text{ min/hr}$$

Vm_{std} = Volume of dry gas sampled (dscf*)

DSCFM* = Stack Flow Rate

$$\text{ppm} = \frac{\text{mg}}{\text{Vm}_{std}\ (\text{m}^3)} \times \frac{24.04}{\text{MW}}$$

24.04 = Ideal Gas Constant liters/g-mole

Vm_{std} = Volume of dry gas sampled (m^{3*})

MW = Molecular Weight

Compound	Molecular Weight
Formaldehyde	30.03

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

EXAMPLE CALCULATIONS

lbs/hr = ppm x CF x 60 min/hr x DSCFM*

CF = Conversion Factor for ppm to lbs/scf*

Compound	Conversion Factor
NO_x	1.194×10^{-7}
CO	7.273×10^{-8}
THC as Propane	1.145×10^{-7}

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

EXAMPLE CALCULATIONS

Equation 6C-1

$$C_{gas} = (\overline{C} - C_o) \frac{C_{ma}}{C_m - C_o}$$

Where: C_{gas} = *Effluent gas concentration - dry basis (ppm)*

$\overline{C}$ = *Average gas concentration indicated by gas analyzer - dry basis (ppm)*

C_o = *Average of initial and final system calibration bias check responses for the zero gas (ppm)*

C_m = *Average of initial and final system calibration bias check responses for the upscale calibration gas (ppm)*

C_{ma} = *Actual concentration of the upscale calibration gas (ppm)*

METCO ENVIRONMENTAL

SOURCE EMISSION SURVEY

JOB NUMBER:	96-11
JOB NAME:	ERM SOUTHWEST
LOCATION:	SILSBEE, TEXAS
UNIT TESTED:	DRYER #2 OUTLET DUCT - PARTICULATE

SOURCE EMISSION CALCULATIONS

SYMBOL	DESCRIPTION	UNITS			
RUN #			1	2	3
DATE			01-16-96	01-17-96	01-17-96
BEGIN TIME			1315	0820	1750
END TIME			1442	0955	2141
P(b)	BAROMETRIC PRESSURE	"Hg Abs. (mm Hg)	29.94 (760)	29.81 (757)	29.60 (752)
P(m)	ORIFICE PRESSURE DROP	"H2O (mm H2O)	0.855 (21.7)	0.871 (22.1)	0.899 (22.8)
V(m)	VOLUME DRY GAS SAMPLED @ METER CONDITIONS	ft.^3 (m^3)	36.704 (1.039)	37.036 (1.049)	39.142 (1.108)
T(m)	AVERAGE GAS METER TEMPERATURE	DEG.F (DEG.C)	84 (29)	80 (27)	82 (28)
V(m[std])*	VOLUME DRY GAS SAMPLED @ STANDARD CONDITIONS*	DSCF (DSCM)	35.729 (1.012)	36.163 (1.024)	37.814 (1.071)
V(w)	TOTAL WATER COLLECTED, IMPINGERS & SILICA GEL	ml	306.0	279.4	288.9
V(w[gas])	VOLUME WATER VAPOR COLLECTED @ STANDARD CONDITIONS*	SCF (SCM)	14.443 (0.409)	13.188 (0.373)	13.636 (0.386)
%M	MOISTURE IN STACK GAS BY VOLUME	%	28.79	26.72	26.50

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION CALCULATIONS

ERM SOUTHWEST
SILSBEE, TEXAS
DRYER #2 OUTLET DUCT - PARTICULATE

SYMBOL	DESCRIPTION	UNITS			
Md	MOL FRACTION OF DRY GAS		0.7121	0.7328	0.7350
CO2		%	4.8	4.6	4.8
O2		%	15.6	16.0	16.0
CO		%	0.0	0.0	0.0
N2		%	79.6	79.4	79.2
%EA	EXCESS AIR @ SAMPLING POINT	%	283.9	317.4	320.8
MWd	MOLECULAR WEIGHT OF DRY STACK GAS	LB/LB-MOLE (g/g-MOLE)	29.39 (29.39)	29.38 (29.38)	29.41 (29.41)
MW	MOLECULAR WEIGHT OF STACK GAS	LB/LB-MOLE (g/g-MOLE)	26.11 (26.11)	26.34 (26.34)	26.38 (26.38)
DELTA P	VELOCITY HEAD OF STACK GAS	"H2O (mm H20)	1.850 (47.0)	1.900 (48.3)	1.958 (49.7)
Ts	STACK TEMPERATURE	DEG. F (DEG. C)	217 (103)	207 (97)	211 (99)
Ps	STACK PRESSURE	"Hg Abs. (mm Hg)	28.86 (733)	28.78 (731)	28.53 (725)
Vs	STACK VELOCITY @ STACK CONDITIONS	FPM (m/SEC.)	5,262 (26.73)	5,288 (26.86)	5,389 (27.38)
As	STACK AREA	(SQ.INCHES) (SQ.METERS)	1,369 (0.88)	1,369 (0.88)	1,369 (0.88)
Qs	DRY STACK GAS VOLUME @ STANDARD CONDITIONS*	DSCFM (DSCM/HR)	26,897 (45,698)	28,155 (47,835)	28,359 (48,182)
Qa	ACTUAL STACK GAS VOLUME @ STACK CONDITIONS	ACFM (m^3/HR)	50,024 (84,991)	50,272 (85,412)	51,229 (87,038)

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

SOURCE EMISSION CALCULATIONS

ERM SOUTHWEST
SILSBEE, TEXAS
DRYER #2 OUTLET DUCT - PARTICULATE

SYMBOL	DESCRIPTION	UNITS			
Tt	NET TIME OF TEST	MINUTES	72	72	72
Dn	SAMPLING NOZZLE DIAM.	IN. (m)	0.176 (0.004)	0.176 (0.004)	0.176 (0.004)
%I	PERCENT ISOKINETIC	%	104.2	100.8	104.6
Mf	PARTICULATE - PROBE, CYCLONE AND FILTER	mg	449.5	317.1	290.0
Mt	PARTICULATE - TOTAL	mg	634.9	445.7	455.9
Can	PARTICULATE - PROBE, CYCLONE AND FILTER	gr/DSCF* (g/DSCM)	0.1937 (0.4437)	0.1350 (0.3092)	0.1181 (0.2705)
Cao	PARTICULATE - TOTAL	gr/DSCF* (g/DSCM)	0.2737 (0.6267)	0.1898 (0.4346)	0.1857 (0.4252)
Cat	PARTIC.-PROBE, CYCLONE AND FILTER @ STACK COND.	gr/CF (g/m3)	0.1038 (0.2377)	0.0754 (0.1726)	0.0651 (0.1492)
Cau	PARTICULATE - TOTAL @ STACK CONDITIONS	gr/CF (g/m3)	0.1466 (0.3357)	0.1059 (0.2425)	0.1024 (0.2345)
Caw	PARTICULATE - PROBE, CYCLONE AND FILTER	LBS/HR (Kg/HR)	44.66 (20.26)	32.58 (14.78)	28.70 (13.02)
Cax	PARTICULATE - TOTAL	LBS/HR (Kg/HR)	63.08 (28.61)	45.80 (20.77)	45.12 (20.47)

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

SOURCE EMISSION SURVEY

JOB NUMBER:	96-11
JOB NAME:	ERM SOUTHWEST
LOCATION:	SILSBEE, TEXAS
UNIT TESTED:	DRYER #2 OUTLET DUCT - FORMALDEHYDE

SOURCE EMISSION CALCULATIONS

SYMBOL	DESCRIPTION	UNITS			
RUN #			1	2	
DATE			01-16-96	01-17-96	
BEGIN TIME			1552	1210	
END TIME			1735	1547	
P(b)	BAROMETRIC PRESSURE	"Hg Abs. (mm Hg)	29.92 (760)	29.69 (754)	
P(m)	ORIFICE PRESSURE DROP	"H2O (mm H2O)	0.973 (24.7)	1.077 (27.4)	
V(m)	VOLUME DRY GAS SAMPLED @ METER CONDITIONS	ft.^3 (m^3)	36.457 (1.032)	40.396 (1.144)	
T(m)	AVERAGE GAS METER TEMPERATURE	DEG.F (DEG.C)	84 (29)	83 (28)	
V(m[std])*	VOLUME DRY GAS SAMPLED @ STANDARD CONDITIONS*	DSCF (DSCM)	35.475 (1.005)	39.089 (1.107)	
V(w)	TOTAL WATER COLLECTED, IMPINGERS & SILICA GEL	ml	319.2	270.7	
V(w[gas])	VOLUME WATER VAPOR COLLECTED @ STANDARD CONDITIONS*	SCF (SCM)	15.066 (0.427)	12.777 (0.362)	
%M	MOISTURE IN STACK GAS BY VOLUME	%	29.81	24.63	

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

SOURCE EMISSION CALCULATIONS

ERM SOUTHWEST
SILSBEE, TEXAS
DRYER #2 OUTLET DUCT - FORMALDEHYDE

SYMBOL	DESCRIPTION	UNITS		
Md	MOL FRACTION OF DRY GAS		0.7019	0.7537
CO2		%	5.8	4.4
O2		%	15.2	16.4
CO		%	0.0	0.0
N2		%	79.0	79.2
%EA	EXCESS AIR @ SAMPLING POINT	%	265.0	357.5
MWd	MOLECULAR WEIGHT OF DRY STACK GAS	LB/LB-MOLE (g/g-MOLE)	29.54 (29.54)	29.36 (29.36)
MW	MOLECULAR WEIGHT OF STACK GAS	LB/LB-MOLE (g/g-MOLE)	26.10 (26.10)	26.56 (26.56)
DELTA P	VELOCITY HEAD OF STACK GAS	"H2O (mm H20)	1.925 (48.9)	2.083 (52.9)
Ts	STACK TEMPERATURE	DEG. F (DEG. C)	215 (102)	208 (98)
Ps	STACK PRESSURE	"Hg Abs. (mm Hg)	28.85 (733)	28.68 (728)
Vs	STACK VELOCITY @ STACK CONDITIONS	FPM (m/SEC.)	5,466 (27.77)	5,629 (28.60)
As	STACK AREA	(SQ.INCHES) (SQ.METERS)	1,369 (0.88)	1,369 (0.88)
Qs	DRY STACK GAS VOLUME @ STANDARD CONDITIONS*	DSCFM (DSCM/HR)	27,612 (46,913)	30,672 (52,112)
Qa	ACTUAL STACK GAS VOLUME @ STACK CONDITIONS	ACFM (m^3/HR)	51,969 (88,295)	53,515 (90,922)

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

SOURCE EMISSION CALCULATIONS

ERM SOUTHWEST
SILSBEE, TEXAS
DRYER #2 OUTLET DUCT - FORMALDEHYDE

SYMBOL	DESCRIPTION	UNITS		
Tt	NET TIME OF TEST	MINUTES	72	72
Dn	SAMPLING NOZZLE DIAM.	IN. (m)	0.180 (0.005)	0.180 (0.005)
%I	PERCENT ISOKINETIC	%	96.4	95.6
Mf	PARTICULATE - PROBE, CYCLONE AND FILTER	mg	----	----
Mt	PARTICULATE - TOTAL	mg	----	----
Can	PARTICULATE - PROBE, CYCLONE AND FILTER	gr/DSCF* (g/DSCM)	----	----
Cao	PARTICULATE - TOTAL	gr/DSCF* (g/DSCM)	----	----
Cat	PARTIC.-PROBE, CYCLONE AND FILTER @ STACK COND.	gr/CF (g/m3)	----	----
Cau	PARTICULATE - TOTAL @ STACK CONDITIONS	gr/CF (g/m3)	----	----
Caw	PARTICULATE - PROBE, CYCLONE AND FILTER	LBS/HR (Kg/HR)	----	----
Cax	PARTICULATE - TOTAL	LBS/HR (Kg/HR)	----	----

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION SURVEY

JOB NUMBER:	96-11
JOB NAME:	ERM SOUTHWEST
LOCATION:	SILSBEE, TEXAS
UNIT TESTED:	DRYER #3 OUTLET DUCT - PARTICULATE

SOURCE EMISSION CALCULATIONS

SYMBOL	DESCRIPTION	UNITS			
RUN #			1	2	3
DATE			01-16-96	01-17-96	01-17-96
BEGIN TIME			1315	0820	1750
END TIME			1442	0955	2141
P(b)	BAROMETRIC PRESSURE	"Hg Abs. (mm Hg)	29.94 (760)	29.82 (757)	29.62 (752)
P(m)	ORIFICE PRESSURE DROP	"H2O (mm H2O)	0.710 (18.0)	0.687 (17.4)	0.672 (17.1)
V(m)	VOLUME DRY GAS SAMPLED @ METER CONDITIONS	ft.^3 (m^3)	37.756 (1.069)	37.699 (1.068)	37.729 (1.068)
T(m)	AVERAGE GAS METER TEMPERATURE	DEG.F (DEG.C)	80 (27)	77 (25)	82 (28)
V(m[std])*	VOLUME DRY GAS SAMPLED @ STANDARD CONDITIONS*	DSCF (DSCM)	37.012 (1.048)	37.012 (1.048)	36.453 (1.032)
V(w)	TOTAL WATER COLLECTED, IMPINGERS & SILICA GEL	ml	269.9	272.9	278.1
V(w[gas])	VOLUME WATER VAPOR COLLECTED @ STANDARD CONDITIONS*	SCF (SCM)	12.739 (0.361)	12.881 (0.365)	13.126 (0.372)
%M	MOISTURE IN STACK GAS BY VOLUME	%	25.61	25.82	26.48

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

SOURCE EMISSION CALCULATIONS

ERM SOUTHWEST
SILSBEE, TEXAS
DRYER #3 OUTLET DUCT - PARTICULATE

SYMBOL	DESCRIPTION	UNITS			
Md	MOL FRACTION OF DRY GAS		0.7439	0.7418	0.7352
CO2		%	3.8	4.2	4.2
O2		%	16.6	16.2	16.2
CO		%	0.0	0.0	0.0
N2		%	79.6	79.6	79.6
%EA	EXCESS AIR @ SAMPLING POINT	%	369.4	331.0	331.0
MWd	MOLECULAR WEIGHT OF DRY STACK GAS	LB/LB-MOLE (g/g-MOLE)	29.27 (29.27)	29.32 (29.32)	29.32 (29.32)
MW	MOLECULAR WEIGHT OF STACK GAS	LB/LB-MOLE (g/g-MOLE)	26.39 (26.39)	26.40 (26.40)	26.32 (26.32)
DELTA P	VELOCITY HEAD OF STACK GAS	"H2O (mm H20)	1.823 (46.3)	1.815 (46.1)	1.765 (44.8)
Ts	STACK TEMPERATURE	DEG. F (DEG. C)	183 (84)	198 (92)	208 (98)
Ps	STACK PRESSURE	"Hg Abs. (mm Hg)	29.06 (738)	28.97 (736)	28.84 (733)
Vs	STACK VELOCITY @ STACK CONDITIONS	FPM (m/SEC.)	5,133 (26.08)	5,188 (26.36)	5,173 (26.28)
As	STACK AREA	(SQ.INCHES) (SQ.METERS)	1,369 (0.88)	1,369 (0.88)	1,369 (0.88)
Qs	DRY STACK GAS VOLUME @ STANDARD CONDITIONS*	DSCFM (DSCM/HR)	29,059 (49,371)	28,531 (48,474)	27,649 (46,976)
Qa	ACTUAL STACK GAS VOLUME @ STACK CONDITIONS	ACFM (m^3/HR)	48,798 (82,908)	49,321 (83,796)	49,178 (83,553)

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION CALCULATIONS

ERM SOUTHWEST
SILSBEE, TEXAS
DRYER #3 OUTLET DUCT - PARTICULATE

SYMBOL	DESCRIPTION	UNITS			
Tt	NET TIME OF TEST	MINUTES	72	72	72
Dn	SAMPLING NOZZLE DIAM.	IN.	0.176	0.176	0.176
		(m)	(0.004)	(0.004)	(0.004)
%I	PERCENT ISOKINETIC	%	99.9	101.8	103.4
Mf	PARTICULATE - PROBE, CYCLONE AND FILTER	mg	292.9	357.7	276.3
Mt	PARTICULATE - TOTAL	mg	390.6	498.0	440.5
Can	PARTICULATE - PROBE, CYCLONE AND FILTER	gr/DSCF*	0.1219	0.1488	0.1167
		(g/DSCM)	(0.2791)	(0.3408)	(0.2673)
Cao	PARTICULATE - TOTAL	gr/DSCF*	0.1625	0.2072	0.1861
		(g/DSCM)	(0.3722)	(0.4745)	(0.4262)
Cat	PARTIC.-PROBE, CYCLONE AND FILTER @ STACK COND.	gr/CF	0.0723	0.0858	0.0654
		(g/m3)	(0.1656)	(0.1965)	(0.1498)
Cau	PARTICULATE - TOTAL @ STACK CONDITIONS	gr/CF	0.0964	0.1194	0.1043
		(g/m3)	(0.2208)	(0.2734)	(0.2388)
Caw	PARTICULATE - PROBE, CYCLONE AND FILTER	LBS/HR	30.35	36.39	27.66
		(Kg/HR)	(13.77)	(16.51)	(12.55)
Cax	PARTICULATE - TOTAL	LBS/HR	40.47	50.66	44.10
		(Kg/HR)	(18.36)	(22.98)	(20.00)

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION SURVEY

JOB NUMBER:	96-11
JOB NAME:	ERM SOUTHWEST
LOCATION:	SILSBEE, TEXAS
UNIT TESTED:	DRYER #3 OUTLET DUCT - FORMALDEHYDE

SOURCE EMISSION CALCULATIONS

SYMBOL	DESCRIPTION	UNITS		
RUN #			1	2
DATE			01-16-96	01-17-96
BEGIN TIME			1608	1210
END TIME			1726	1602
P(b)	BAROMETRIC PRESSURE	"Hg Abs. (mm Hg)	29.92 (760)	29.76 (756)
P(m)	ORIFICE PRESSURE DROP	"H2O (mm H2O)	0.720 (18.3)	0.709 (18.0)
V(m)	VOLUME DRY GAS SAMPLED @ METER CONDITIONS	ft.^3 (m^3)	38.403 (1.087)	38.230 (1.083)
T(m)	AVERAGE GAS METER TEMPERATURE	DEG.F (DEG.C)	85 (29)	79 (26)
V(m[std])*	VOLUME DRY GAS SAMPLED @ STANDARD CONDITIONS*	DSCF (DSCM)	37.277 (1.056)	37.321 (1.057)
V(w)	TOTAL WATER COLLECTED, IMPINGERS & SILICA GEL	ml	278.9	269.6
V(w[gas])	VOLUME WATER VAPOR COLLECTED @ STANDARD CONDITIONS*	SCF (SCM)	13.164 (0.373)	12.725 (0.360)
%M	MOISTURE IN STACK GAS BY VOLUME	%	26.10	25.43

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION CALCULATIONS

ERM SOUTHWEST
SILSBEE, TEXAS
DRYER #3 OUTLET DUCT - FORMALDEHYDE

SYMBOL	DESCRIPTION	UNITS			
Md	MOL FRACTION OF DRY GAS		0.7390	0.7457	
CO2		%	4.6	4.6	
O2		%	15.8	15.8	
CO		%	0.0	0.0	
N2		%	79.6	79.6	
%EA	EXCESS AIR @ SAMPLING POINT	%	298.5	298.5	
MWd	MOLECULAR WEIGHT OF DRY STACK GAS	LB/LB-MOLE (g/g-MOLE)	29.37 (29.37)	29.37 (29.37)	
MW	MOLECULAR WEIGHT OF STACK GAS	LB/LB-MOLE (g/g-MOLE)	26.40 (26.40)	26.48 (26.48)	
DELTA P	VELOCITY HEAD OF STACK GAS	"H2O (mm H20)	1.854 (47.1)	1.825 (46.4)	
Ts	STACK TEMPERATURE	DEG. F (DEG. C)	187 (86)	194 (90)	
Ps	STACK PRESSURE	"Hg Abs. (mm Hg)	29.04 (738)	28.91 (734)	
Vs	STACK VELOCITY @ STACK CONDITIONS	FPM (m/SEC.)	5,185 (26.34)	5,179 (26.31)	
As	STACK AREA	(SQ.INCHES) (SQ.METERS)	1,369 (0.88)	1,369 (0.88)	
Qs	DRY STACK GAS VOLUME @ STANDARD CONDITIONS*	DSCFM (DSCM/HR)	28,960 (49,203)	28,747 (48,841)	
Qa	ACTUAL STACK GAS VOLUME @ STACK CONDITIONS	ACFM (m^3/HR)	49,296 (83,754)	49,233 (83,647)	

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

SOURCE EMISSION CALCULATIONS

ERM SOUTHWEST
SILSBEE, TEXAS
DRYER #3 OUTLET DUCT - FORMALDEHYDE

SYMBOL	DESCRIPTION	UNITS			
Tt	NET TIME OF TEST	MINUTES	72	72	
Dn	SAMPLING NOZZLE DIAM.	IN. (m)	0.178 (0.005)	0.178 (0.005)	
%I	PERCENT ISOKINETIC	%	98.7	99.6	
Mf	PARTICULATE - PROBE, CYCLONE AND FILTER	mg	----	----	
Mt	PARTICULATE - TOTAL	mg	----	----	
Can	PARTICULATE - PROBE, CYCLONE AND FILTER	gr/DSCF* (g/DSCM)	----	----	
Cao	PARTICULATE - TOTAL	gr/DSCF* (g/DSCM)	----	----	
Cat	PARTIC.-PROBE, CYCLONE AND FILTER @ STACK COND.	gr/CF (g/m3)	----	----	
Cau	PARTICULATE - TOTAL @ STACK CONDITIONS	gr/CF (g/m3)	----	----	
Caw	PARTICULATE - PROBE, CYCLONE AND FILTER	LBS/HR (Kg/HR)	----	----	
Cax	PARTICULATE - TOTAL	LBS/HR (Kg/HR)	----	----	

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION SURVEY

JOB NUMBER: 96-11
JOB NAME: ERM SOUTHWEST
LOCATION: SILSBEE, TEXAS
UNIT TESTED: DRYER #4 OUTLET DUCT - PARTICULATE

SOURCE EMISSION CALCULATIONS

SYMBOL	DESCRIPTION	UNITS			
RUN #			1	2	3
DATE			1-16-96	1-17-96	1-17-96
BEGIN TIME			1315	0820	1750
END TIME			1442	0955	2142
P(b)	BAROMETRIC PRESSURE	"Hg Abs. (mm Hg)	29.86 (758)	29.71 (755)	29.50 (749)
P(m)	ORIFICE PRESSURE DROP	"H2O (mm H2O)	1.172 (29.8)	1.390 (35.3)	1.208 (30.7)
V(m)	VOLUME DRY GAS SAMPLED @ METER CONDITIONS	ft.^3 (m^3)	42.321 (1.198)	45.704 (1.294)	42.724 (1.210)
T(m)	AVERAGE GAS METER TEMPERATURE	DEG.F (DEG.C)	74 (23)	71 (22)	73 (23)
V(m[std])*	VOLUME DRY GAS SAMPLED @ STANDARD CONDITIONS*	DSCF (DSCM)	41.889 (1.186)	45.290 (1.282)	41.862 (1.185)
V(w)	TOTAL WATER COLLECTED, IMPINGERS & SILICA GEL	ml	339.2	316.3	346.5
V(w[gas])	VOLUME WATER VAPOR COLLECTED @ STANDARD CONDITIONS*	SCF (SCM)	16.010 (0.453)	14.929 (0.423)	16.355 (0.463)
%M	MOISTURE IN STACK GAS BY VOLUME	%	27.65	24.79	28.09

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

SOURCE EMISSION CALCULATIONS

ERM SOUTHWEST
SILSBEE, TEXAS
DRYER #4 OUTLET DUCT - PARTICULATE

SYMBOL	DESCRIPTION	UNITS			
Md	MOL FRACTION OF DRY GAS		0.7235	0.7521	0.7191
CO2		%	4.2	3.6	4.0
O2		%	16.4	16.4	16.4
CO		%	0.0	0.0	0.0
N2		%	79.4	80.0	79.6
%EA	EXCESS AIR @ SAMPLING POINT	%	353.4	341.7	349.4
MWd	MOLECULAR WEIGHT OF DRY STACK GAS	LB/LB-MOLE (g/g-MOLE)	29.33 (29.33)	29.23 (29.23)	29.30 (29.30)
MW	MOLECULAR WEIGHT OF STACK GAS	LB/LB-MOLE (g/g-MOLE)	26.20 (26.20)	26.45 (26.45)	26.12 (26.12)
DELTA P	VELOCITY HEAD OF STACK GAS	"H2O (mm H20)	1.644 (41.8)	1.750 (44.5)	1.529 (38.8)
Ts	STACK TEMPERATURE	DEG. F (DEG. C)	176 (80)	171 (77)	166 (74)
Ps	STACK PRESSURE	"Hg Abs. (mm Hg)	29.12 (740)	28.78 (731)	28.66 (728)
Vs	STACK VELOCITY @ STACK CONDITIONS	FPM (m/SEC.)	4,866 (24.72)	5,008 (25.44)	4,695 (23.85)
As	STACK AREA	(SQ.INCHES) (SQ.METERS)	1,385 (0.89)	1,385 (0.89)	1,385 (0.89)
Qs	DRY STACK GAS VOLUME @ STANDARD CONDITIONS*	DSCFM (DSCM/HR)	27,460 (46,655)	29,266 (49,723)	26,332 (44,738)
Qa	ACTUAL STACK GAS VOLUME @ STACK CONDITIONS	ACFM (m^3/HR)	46,802 (79,517)	48,164 (81,831)	45,156 (76,720)

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

SOURCE EMISSION CALCULATIONS

ERM SOUTHWEST
SILSBEE, TEXAS
DRYER #4 OUTLET DUCT - PARTICULATE

SYMBOL	DESCRIPTION	UNITS			
Tt	NET TIME OF TEST	MINUTES	72	72	72
Dn	SAMPLING NOZZLE DIAM.	IN.	0.199	0.199	0.199
		(m)	(0.005)	(0.005)	(0.005)
%I	PERCENT ISOKINETIC	%	94.7	96.1	98.7
Mf	PARTICULATE - PROBE, CYCLONE AND FILTER	mg	263.0	280.3	333.7
Mt	PARTICULATE - TOTAL	mg	351.4	336.4	398.5
Can	PARTICULATE - PROBE, CYCLONE AND FILTER	gr/DSCF*	0.0967	0.0953	0.1228
		(g/DSCM)	(0.2214)	(0.2183)	(0.2811)
Cao	PARTICULATE - TOTAL	gr/DSCF*	0.1292	0.1144	0.1466
		(g/DSCM)	(0.2958)	(0.2619)	(0.3357)
Cat	PARTIC.-PROBE, CYCLONE AND FILTER @ STACK COND.	gr/CF	0.0565	0.0577	0.0713
		(g/m3)	(0.1295)	(0.1321)	(0.1634)
Cau	PARTICULATE - TOTAL @ STACK CONDITIONS	gr/CF	0.0755	0.0693	0.0852
		(g/m3)	(0.1729)	(0.1587)	(0.1951)
Caw	PARTICULATE - PROBE, CYCLONE AND FILTER	LBS/HR	22.75	23.90	27.70
		(Kg/HR)	(10.32)	(10.84)	(12.57)
Cax	PARTICULATE - TOTAL	LBS/HR	30.40	28.69	33.08
		(Kg/HR)	(13.79)	(13.01)	(15.01)

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION SURVEY

JOB NUMBER:	96-11
JOB NAME:	ERM SOUTHWEST
LOCATION:	SILSBEE, TEXAS
UNIT TESTED:	DRYER #4 OUTLET DUCT - FORMALDEHYDE

SOURCE EMISSION CALCULATIONS

SYMBOL	DESCRIPTION	UNITS		
RUN #			1	2
DATE			1-16-96	1-17-96
BEGIN TIME			1551	1210
END TIME			1706	1555
P(b)	BAROMETRIC PRESSURE	"Hg Abs. (mm Hg)	29.82 (757)	29.60 (752)
P(m)	ORIFICE PRESSURE DROP	"H2O (mm H2O)	1.065 (27.1)	1.114 (28.3)
V(m)	VOLUME DRY GAS SAMPLED @ METER CONDITIONS	ft.^3 (m^3)	40.950 (1.160)	41.806 (1.184)
T(m)	AVERAGE GAS METER TEMPERATURE	DEG.F (DEG.C)	78 (26)	73 (23)
V(m[std])*	VOLUME DRY GAS SAMPLED @ STANDARD CONDITIONS*	DSCF (DSCM)	40.166 (1.137)	41.091 (1.164)
V(w)	TOTAL WATER COLLECTED, IMPINGERS & SILICA GEL	ml	299.0	306.0
V(w[gas])	VOLUME WATER VAPOR COLLECTED @ STANDARD CONDITIONS*	SCF (SCM)	14.113 (0.400)	14.443 (0.409)
%M	MOISTURE IN STACK GAS BY VOLUME	%	26.00	26.01

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

SOURCE EMISSION CALCULATIONS

ERM SOUTHWEST
SILSBEE, TEXAS
DRYER #4 OUTLET DUCT - FORMALDEHYDE

SYMBOL	DESCRIPTION	UNITS			
Md	MOL FRACTION OF DRY GAS		0.7400	0.7399	
CO2		%	4.2	4.0	
O2		%	16.4	16.4	
CO		%	0.0	0.0	
N2		%	79.4	79.6	
%EA	EXCESS AIR @ SAMPLING POINT	%	353.4	349.4	
MWd	MOLECULAR WEIGHT OF DRY STACK GAS	LB/LB-MOLE (g/g-MOLE)	29.33 (29.33)	29.30 (29.30)	
MW	MOLECULAR WEIGHT OF STACK GAS	LB/LB-MOLE (g/g-MOLE)	26.38 (26.38)	26.36 (26.36)	
DELTA P	VELOCITY HEAD OF STACK GAS	"H2O (mm H20)	1.610 (40.9)	1.729 (43.9)	
Ts	STACK TEMPERATURE	DEG. F (DEG. C)	173 (78)	167 (75)	
Ps	STACK PRESSURE	"Hg Abs. (mm Hg)	29.06 (738)	28.71 (729)	
Vs	STACK VELOCITY @ STACK CONDITIONS	FPM (m/SEC.)	4,745 (24.10)	4,933 (25.06)	
As	STACK AREA	(SQ.INCHES) (SQ.METERS)	1,385 (0.89)	1,385 (0.89)	
Qs	DRY STACK GAS VOLUME @ STANDARD CONDITIONS*	DSCFM (DSCM/HR)	27,461 (46,656)	28,471 (48,372)	
Qa	ACTUAL STACK GAS VOLUME @ STACK CONDITIONS	ACFM (m^3/HR)	45,638 (77,539)	47,448 (80,614)	

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

SOURCE EMISSION CALCULATIONS

ERM SOUTHWEST
SILSBEE, TEXAS
DRYER #4 OUTLET DUCT - FORMALDEHYDE

SYMBOL	DESCRIPTION	UNITS		
Tt	NET TIME OF TEST	MINUTES	72	72
Dn	SAMPLING NOZZLE DIAM.	IN. (m)	0.188 (0.005)	0.184 (0.005)
%I	PERCENT ISOKINETIC	%	101.7	105.2
Mf	PARTICULATE - PROBE, CYCLONE AND FILTER	mg	----	----
Mt	PARTICULATE - TOTAL	mg	----	----
Can	PARTICULATE - PROBE, CYCLONE AND FILTER	gr/DSCF* (g/DSCM)	----	----
Cao	PARTICULATE - TOTAL	gr/DSCF* (g/DSCM)	----	----
Cat	PARTIC.-PROBE, CYCLONE AND FILTER @ STACK COND.	gr/CF (g/m3)	----	----
Cau	PARTICULATE - TOTAL @ STACK CONDITIONS	gr/CF (g/m3)	----	----
Caw	PARTICULATE - PROBE, CYCLONE AND FILTER	LBS/HR (Kg/HR)	----	----
Cax	PARTICULATE - TOTAL	LBS/HR (Kg/HR)	----	----

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION SURVEY

JOB NUMBER:	96-11
JOB NAME:	ERM SOUTHWEST
LOCATION:	SILSBEE, TEXAS
UNIT TESTED:	DRYER #5 OUTLET DUCT - PARTICULATE

SOURCE EMISSION CALCULATIONS

SYMBOL	DESCRIPTION	UNITS			
RUN #			1	2	3
DATE			1-16-96	1-17-96	1-17-96
BEGIN TIME			1315	0820	1750
END TIME			1442	1002	2141
P(b)	BAROMETRIC PRESSURE	"Hg Abs. (mm Hg)	29.94 (760)	29.72 (755)	29.54 (750)
P(m)	ORIFICE PRESSURE DROP	"H2O (mm H2O)	0.851 (21.6)	0.866 (22.0)	0.921 (23.4)
V(m)	VOLUME DRY GAS SAMPLED @ METER CONDITIONS	ft.^3 (m^3)	37.769 (1.070)	37.644 (1.066)	39.011 (1.105)
T(m)	AVERAGE GAS METER TEMPERATURE	DEG.F (DEG.C)	73 (23)	69 (21)	72 (22)
V(m[std])*	VOLUME DRY GAS SAMPLED @ STANDARD CONDITIONS*	DSCF (DSCM)	37.524 (1.063)	37.408 (1.059)	38.320 (1.085)
V(w)	TOTAL WATER COLLECTED, IMPINGERS & SILICA GEL	ml	192.1	280.2	285.7
V(w[gas])	VOLUME WATER VAPOR COLLECTED @ STANDARD CONDITIONS*	SCF (SCM)	9.067 (0.257)	13.225 (0.374)	13.485 (0.382)
%M	MOISTURE IN STACK GAS BY VOLUME	%	19.46	26.12	26.03

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

SOURCE EMISSION CALCULATIONS

ERM SOUTHWEST
SILSBEE, TEXAS
DRYER #5 OUTLET DUCT - PARTICULATE

SYMBOL	DESCRIPTION	UNITS			
Md	MOL FRACTION OF DRY GAS		0.8054	0.7388	0.7397
CO2		%	2.2	1.3	3.8
O2		%	18.5	19.4	16.8
CO		%	0.0	0.0	0.0
N2		%	79.3	79.3	79.4
%EA	EXCESS AIR @ SAMPLING POINT	%	735.7	1,201.6	396.1
MWd	MOLECULAR WEIGHT OF DRY STACK GAS	LB/LB-MOLE (g/g-MOLE)	29.09 (29.09)	28.98 (28.98)	29.28 (29.28)
MW	MOLECULAR WEIGHT OF STACK GAS	LB/LB-MOLE (g/g-MOLE)	26.93 (26.93)	26.11 (26.11)	26.34 (26.34)
DELTA P	VELOCITY HEAD OF STACK GAS	"H2O (mm H20)	1.633 (41.5)	1.596 (40.5)	1.675 (42.5)
Ts	STACK TEMPERATURE	DEG. F (DEG. C)	165 (74)	164 (73)	163 (73)
Ps	STACK PRESSURE	"Hg Abs. (mm Hg)	29.24 (743)	28.91 (734)	28.73 (730)
Vs	STACK VELOCITY @ STACK CONDITIONS	FPM (m/SEC.)	4,683 (23.79)	4,727 (24.01)	4,833 (24.55)
As	STACK AREA	(SQ.INCHES) (SQ.METERS)	1,365 (0.88)	1,365 (0.88)	1,365 (0.88)
Qs	DRY STACK GAS VOLUME @ STANDARD CONDITIONS*	DSCFM (DSCM/HR)	29,626 (50,335)	27,165 (46,153)	27,679 (47,027)
Qa	ACTUAL STACK GAS VOLUME @ STACK CONDITIONS	ACFM (m^3/HR)	44,392 (75,422)	44,807 (76,127)	45,813 (77,836)

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION CALCULATIONS

ERM SOUTHWEST
SILSBEE, TEXAS
DRYER #5 OUTLET DUCT - PARTICULATE

SYMBOL	DESCRIPTION	UNITS			
Tt	NET TIME OF TEST	MINUTES	72	72	72
Dn	SAMPLING NOZZLE DIAM.	IN. (m)	0.183 (0.005)	0.183 (0.005)	0.183 (0.005)
%I	PERCENT ISOKINETIC	%	91.6	99.6	100.2
Mf	PARTICULATE - PROBE, CYCLONE AND FILTER	mg	185.8	281.5	235.0
Mt	PARTICULATE - TOTAL	mg	231.2	341.1	310.6
Can	PARTICULATE - PROBE, CYCLONE AND FILTER	gr/DSCF* (g/DSCM)	0.0763 (0.1746)	0.1159 (0.2654)	0.0944 (0.2163)
Cao	PARTICULATE - TOTAL	gr/DSCF* (g/DSCM)	0.0949 (0.2173)	0.1404 (0.3216)	0.1248 (0.2858)
Cat	PARTIC.-PROBE, CYCLONE AND FILTER @ STACK COND.	gr/CF (g/m3)	0.0507 (0.1161)	0.0700 (0.1603)	0.0569 (0.1302)
Cau	PARTICULATE - TOTAL @ STACK CONDITIONS	gr/CF (g/m3)	0.0631 (0.1445)	0.0848 (0.1942)	0.0752 (0.1722)
Caw	PARTICULATE - PROBE, CYCLONE AND FILTER	LBS/HR (Kg/HR)	19.36 (8.78)	26.98 (12.24)	22.40 (10.16)
Cax	PARTICULATE - TOTAL	LBS/HR (Kg/HR)	24.09 (10.93)	32.69 (14.83)	29.61 (13.43)

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION SURVEY

JOB NUMBER:	96-11
JOB NAME:	ERM SOUTHWEST
LOCATION:	SILSBEE, TEXAS
UNIT TESTED:	DRYER #5 OUTLET DUCT - FORMALDEHYDE

SOURCE EMISSION CALCULATIONS

SYMBOL	DESCRIPTION	UNITS		
RUN #			1	2
DATE			1-16-96	1-17-96
BEGIN TIME			1551	1210
END TIME			1740	1556
P(b)	BAROMETRIC PRESSURE	"Hg Abs. (mm Hg)	29.87 (759)	29.72 (755)
P(m)	ORIFICE PRESSURE DROP	"H2O (mm H2O)	0.838 (21.3)	0.885 (22.5)
V(m)	VOLUME DRY GAS SAMPLED @ METER CONDITIONS	ft.^3 (m^3)	36.683 (1.039)	37.532 (1.063)
T(m)	AVERAGE GAS METER TEMPERATURE	DEG.F (DEG.C)	76 (24)	71 (22)
V(m[std])*	VOLUME DRY GAS SAMPLED @ STANDARD CONDITIONS*	DSCF (DSCM)	36.156 (1.024)	37.158 (1.052)
V(w)	TOTAL WATER COLLECTED, IMPINGERS & SILICA GEL	ml	266.5	286.3
V(w[gas])	VOLUME WATER VAPOR COLLECTED @ STANDARD CONDITIONS*	SCF (SCM)	12.579 (0.356)	13.513 (0.383)
%M	MOISTURE IN STACK GAS BY VOLUME	%	25.81	26.67

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION CALCULATIONS

ERM SOUTHWEST
SILSBEE, TEXAS
DRYER #5 OUTLET DUCT - FORMALDEHYDE

SYMBOL	DESCRIPTION	UNITS		
Md	MOL FRACTION OF DRY GAS		0.7419	0.7333
CO2		%	3.2	3.8
O2		%	17.5	17.4
CO		%	0.0	0.0
N2		%	79.3	78.8
%EA	EXCESS AIR @ SAMPLING POINT	%	497.9	499.7
MWd	MOLECULAR WEIGHT OF DRY STACK GAS	LB/LB-MOLE (g/g-MOLE)	29.21 (29.21)	29.30 (29.30)
MW	MOLECULAR WEIGHT OF STACK GAS	LB/LB-MOLE (g/g-MOLE)	26.32 (26.32)	26.29 (26.29)
DELTA P	VELOCITY HEAD OF STACK GAS	"H2O (mm H20)	1.594 (40.5)	1.594 (40.5)
Ts	STACK TEMPERATURE	DEG. F (DEG. C)	167 (75)	167 (75)
Ps	STACK PRESSURE	"Hg Abs. (mm Hg)	28.99 (736)	28.91 (734)
Vs	STACK VELOCITY @ STACK CONDITIONS	FPM (m/SEC.)	4,742 (24.09)	4,751 (24.14)
As	STACK AREA	(SQ.INCHES) (SQ.METERS)	1,365 (0.88)	1,365 (0.88)
Qs	DRY STACK GAS VOLUME @ STANDARD CONDITIONS*	DSCFM (DSCM/HR)	27,310 (46,400)	26,970 (45,822)
Qa	ACTUAL STACK GAS VOLUME @ STACK CONDITIONS	ACFM (m^3/HR)	44,951 (76,372)	45,039 (76,521)

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION CALCULATIONS

ERM SOUTHWEST
SILSBEE, TEXAS
DRYER #5 OUTLET DUCT - FORMALDEHYDE

SYMBOL	DESCRIPTION	UNITS			
Tt	NET TIME OF TEST	MINUTES	72	72	
Dn	SAMPLING NOZZLE DIAM.	IN. (m)	0.182 (0.005)	0.182 (0.005)	
%I	PERCENT ISOKINETIC	%	96.8	100.8	
Mf	PARTICULATE - PROBE, CYCLONE AND FILTER	mg	----	----	
Mt	PARTICULATE - TOTAL	mg	----	----	
Can	PARTICULATE - PROBE, CYCLONE AND FILTER	gr/DSCF* (g/DSCM)	----	----	
Cao	PARTICULATE - TOTAL	gr/DSCF* (g/DSCM)	----	----	
Cat	PARTIC.-PROBE, CYCLONE AND FILTER @ STACK COND.	gr/CF (g/m3)	----	----	
Cau	PARTICULATE - TOTAL @ STACK CONDITIONS	gr/CF (g/m3)	----	----	
Caw	PARTICULATE - PROBE, CYCLONE AND FILTER	LBS/HR (Kg/HR)	----	----	
Cax	PARTICULATE - TOTAL	LBS/HR (Kg/HR)	----	----	

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION SURVEY

JOB NUMBER:	96-11
JOB NAME:	ERM SOUTHWEST
LOCATION:	SILSBEE, TEXAS
UNIT TESTED:	DRYER RTO #1 STACK - PARTICULATE

SOURCE EMISSION CALCULATIONS

SYMBOL	DESCRIPTION	UNITS			
RUN #			1	2	3
DATE			01-16-96	01-17-96	01-17-96
BEGIN TIME			1315	0820	1750
END TIME			1442	0954	2141
P(b)	BAROMETRIC PRESSURE	"Hg Abs. (mm Hg)	29.94 (760)	29.75 (756)	29.56 (751)
P(m)	ORIFICE PRESSURE DROP	"H2O (mm H2O)	1.173 (29.8)	1.224 (31.1)	1.212 (30.8)
V(m)	VOLUME DRY GAS SAMPLED @ METER CONDITIONS	ft.^3 (m^3)	44.130 (1.250)	45.167 (1.279)	45.317 (1.283)
T(m)	AVERAGE GAS METER TEMPERATURE	DEG.F (DEG.C)	80 (27)	75 (24)	75 (24)
V(m[std])*	VOLUME DRY GAS SAMPLED @ STANDARD CONDITIONS*	DSCF (DSCM)	43.310 (1.226)	44.464 (1.259)	44.327 (1.255)
V(w)	TOTAL WATER COLLECTED, IMPINGERS & SILICA GEL	ml	289.0	276.9	267.6
V(w[gas])	VOLUME WATER VAPOR COLLECTED @ STANDARD CONDITIONS*	SCF (SCM)	13.641 (0.386)	13.070 (0.370)	12.631 (0.358)
%M	MOISTURE IN STACK GAS BY VOLUME	%	23.95	22.72	22.18

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION CALCULATIONS

ERM SOUTHWEST
SILSBEE, TEXAS
DRYER RTO #1 STACK - PARTICULATE

SYMBOL	DESCRIPTION	UNITS			
Md	MOL FRACTION OF DRY GAS		0.7605	0.7728	0.7782
CO2		%	4.0	4.2	4.0
O2		%	16.0	15.8	16.0
CO		%	0.0	0.0	0.0
N2		%	80.0	80.0	80.0
%EA	EXCESS AIR @ SAMPLING POINT	%	307.7	292.6	307.7
MWd	MOLECULAR WEIGHT OF DRY STACK GAS	LB/LB-MOLE (g/g-MOLE)	29.28 (29.28)	29.30 (29.30)	29.28 (29.28)
MW	MOLECULAR WEIGHT OF STACK GAS	LB/LB-MOLE (g/g-MOLE)	26.58 (26.58)	26.74 (26.74)	26.78 (26.78)
DELTA P	VELOCITY HEAD OF STACK GAS	"H2O (mm H20)	0.614 (15.6)	0.645 (16.4)	0.641 (16.3)
Ts	STACK TEMPERATURE	DEG. F (DEG. C)	327 (164)	335 (168)	322 (161)
Ps	STACK PRESSURE	"Hg Abs. (mm Hg)	29.90 (759)	29.71 (755)	29.52 (750)
Vs	STACK VELOCITY @ STACK CONDITIONS	FPM (m/SEC.)	3,172 (16.11)	3,268 (16.60)	3,245 (16.48)
As	STACK AREA	(SQ.INCHES) (SQ.METERS)	6,468 (4.17)	6,468 (4.17)	6,468 (4.17)
Qs	DRY STACK GAS VOLUME @ STANDARD CONDITIONS*	DSCFM (DSCM/HR)	72,913 (123,879)	75,086 (127,571)	75,839 (128,850)
Qa	ACTUAL STACK GAS VOLUME @ STACK CONDITIONS	ACFM (m^3/HR)	142,487 (242,085)	146,771 (249,364)	145,739 (247,611)

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

SOURCE EMISSION CALCULATIONS

ERM SOUTHWEST
SILSBEE, TEXAS
DRYER RTO #1 STACK - PARTICULATE

SYMBOL	DESCRIPTION	UNITS			
Tt	NET TIME OF TEST	MINUTES	72	72	72
Dn	SAMPLING NOZZLE DIAM.	IN. (m)	0.260 (0.007)	0.260 (0.007)	0.260 (0.007)
%I	PERCENT ISOKINETIC	%	100.9	100.6	99.3
Mf	PARTICULATE - PROBE, CYCLONE AND FILTER	mg	22.4	17.7	18.4
Mt	PARTICULATE - TOTAL	mg	31.1	24.2	26.3
Can	PARTICULATE - PROBE, CYCLONE AND FILTER	gr/DSCF* (g/DSCM)	0.0080 (0.0182)	0.0061 (0.0140)	0.0064 (0.0146)
Cao	PARTICULATE - TOTAL	gr/DSCF* (g/DSCM)	0.0111 (0.0253)	0.0084 (0.0192)	0.0091 (0.0209)
Cat	PARTIC.-PROBE, CYCLONE AND FILTER @ STACK COND.	gr/CF (g/m3)	0.0041 (0.0093)	0.0031 (0.0072)	0.0033 (0.0076)
Cau	PARTICULATE - TOTAL @ STACK CONDITIONS	gr/CF (g/m3)	0.0056 (0.0128)	0.0043 (0.0098)	0.0047 (0.0108)
Caw	PARTICULATE - PROBE, CYCLONE AND FILTER	LBS/HR (Kg/HR)	4.98 (2.26)	3.94 (1.79)	4.15 (1.88)
Cax	PARTICULATE - TOTAL	LBS/HR (Kg/HR)	6.91 (3.13)	5.39 (2.45)	5.94 (2.69)

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SULFUR DIOXIDE EMISSION DATA

JOB NUMBER:	96-11
JOB NAME:	ERM SOUTHWEST
LOCATION:	SILSBEE, TEXAS
UNIT TESTED:	DRYER RTO #1 STACK - PARTICULATE

RUN NUMBER	1	2	3
DATE	01-16-96	01-17-96	01-17-96
START TIME	1315	0820	1750
END TIME	1442	0954	2141
N - NORMALITY OF Ba(ClO4)2	0.0100	0.0100	0.0100
ML(I)- ml IN IMPINGER 2	391.00	366.00	345.00
ML(I)- ml IN IMPINGER 3	325.00	352.00	320.00
ML(A)- ml IN ALIQUOT #2	10.00	10.00	10.00
ML(A)- ml IN ALIQUOT #3	10.00	10.00	10.00
ML(B) - ml OF Ba(ClO4)2 TO TITRATE #2	0.05	0.05	0.05
ML(B) - ml OF Ba(ClO4)2 TO TITRATE #3	0.05	0.05	0.05
ML(BB) - ml OF Ba(ClO4)2 TO TITRATE BLANK	0.05	0.05	0.05
Tm - AVERAGE GAS METER TEMPERATURE, DEG.F	80	75	75
Vm - VOLUME OF DRY GAS SAMPLED @ METER CONDITIONS, FT^3	44.130	45.167	45.317
Pb - BAROMETRIC PRESSURE, "Hg Abs.	29.94	29.75	29.56
Qs - STACK GAS VOLUME DRY @ STANDARD CONDITIONS, *SCFM	72,913	75,086	75,839
C(I) - SO2 IN IMPINGER #2 IN mgs	0.00	0.00	0.00
C(I) - SO2 IN IMPINGER #3 IN mgs	0.00	0.00	0.00
C(T) - TOTAL SO2 IN IMPINGERS, IN mgs	0.0	0.0	0.0
ppm SO2	0.0	0.0	0.0
C(SO2) - EMISSION RATE OF SO2, lbs/day	0.0	0.0	0.0
C(SO2) - EMISSION RATE OF SO2, lbs/hr	0.0	0.0	0.0
Cs - EMISSION RATE OF SULFUR, lbs/day	0.0	0.0	0.0

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

C(I) = ML(I) * [ML(B) - ML(BB)] * N * 32 / ML(A)
C(T) = C(I) #2 + C(I) #3
ppm SO2 = 0.7513 * C(T) * [Tm + 460] / Vm * Pb
C(SO2) = ppm SO2 * Qs * 0.0002392

METCO ENVIRONMENTAL

SULFUR TRIOXIDE EMISSION DATA

JOB NUMBER:	96-11
JOB NAME:	ERM SOUTHWEST
LOCATION:	SILSBEE, TEXAS
UNIT TESTED:	DRYER RTO #1 STACK - PARTICULATE

RUN NUMBER	1	2	3
DATE	01-16-96	01-17-96	01-17-96
START TIME	1315	0820	1750
END TIME	1442	0954	2141
N - NORMALITY OF Ba(ClO4)2	0.0100	0.0100	0.0100
ML(I) - ml IN IMPINGER	388.00	333.00	349.00
ML(A) - ml IN ALIQUOT	10.00	10.00	10.00
ML(B) - ml OF Ba(ClO4)2 TO TITRATE	0.05	0.05	0.05
ML(BB) - ml OF Ba(ClO4)2 TO TITRATE BLANK	0.05	0.05	0.05
Tm - AVERAGE GAS METER TEMPERATURE, DEG.F	80	75	75
Vm - VOLUME OF DRY GAS SAMPLED @ METER CONDITIONS, FT^3	44.130	45.167	45.317
Pb - BAROMETRIC PRESSURE, "Hg Abs.	29.94	29.75	29.56
Qs - STACK GAS VOLUME DRY @ STANDARD CONDITIONS, *SCFM	72,913	75,086	75,839
C(I) - SO3 IN IMPINGERS IN mgs	0.0	0.0	0.0
ppm SO3	0.0	0.0	0.0
C(SO3) - EMISSION RATE OF SO3, lbs/day	0.0	0.0	0.0
Cs - EMISSION RATE OF SULFUR, lbs/day	0.0	0.0	0.0

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

C(I) = ML(I) * [ML(B) - ML(BB)] * N * 40 / ML(A)
ppm SO3 = 0.6021 * C(I) * [Tm + 460] / Vm * Pb
C(SO3) = ppm SO3 * Qs * 0.0002991
Cs = C(SO3) / 2.5

METCO ENVIRONMENTAL

SOURCE EMISSION SURVEY

JOB NUMBER:	96-11
JOB NAME:	ERM SOUTHWEST
LOCATION:	SILSBEE, TEXAS
UNIT TESTED:	DRYER RTO #1 STACK - FORMALDEHYDE

SOURCE EMISSION CALCULATIONS

SYMBOL	DESCRIPTION	UNITS			
RUN #			1	2	3
DATE			01-16-96	01-17-96	01-18-96
BEGIN TIME			1550	1210	1215
END TIME			1714	1551	1337
P(b)	BAROMETRIC PRESSURE	"Hg Abs. (mm Hg)	29.90 (759)	29.70 (754)	29.86 (758)
P(m)	ORIFICE PRESSURE DROP	"H2O (mm H2O)	1.508 (38.3)	1.496 (38.0)	1.471 (37.4)
V(m)	VOLUME DRY GAS SAMPLED @ METER CONDITIONS	ft.^3 (m^3)	50.015 (1.416)	49.993 (1.416)	49.232 (1.394)
T(m)	AVERAGE GAS METER TEMPERATURE	DEG.F (DEG.C)	82 (28)	75 (24)	75 (24)
V(m[std])*	VOLUME DRY GAS SAMPLED @ STANDARD CONDITIONS*	DSCF (DSCM)	48.879 (1.384)	49.166 (1.392)	48.674 (1.378)
V(w)	TOTAL WATER COLLECTED, IMPINGERS & SILICA GEL	ml	309.8	306.9	223.4
V(w[gas])	VOLUME WATER VAPOR COLLECTED @ STANDARD CONDITIONS*	SCF (SCM)	14.623 (0.414)	14.486 (0.410)	10.544 (0.299)
%M	MOISTURE IN STACK GAS BY VOLUME	%	23.03	22.76	17.81

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

SOURCE EMISSION CALCULATIONS

ERM SOUTHWEST
SILSBEE, TEXAS
DRYER RTO #1 STACK - FORMALDEHYDE

SYMBOL	DESCRIPTION	UNITS			
Md	MOL FRACTION OF DRY GAS		0.7697	0.7724	0.8219
CO2		%	4.0	3.9	3.8
O2		%	15.9	16.2	15.9
CO		%	0.0	0.0	0.0
N2		%	80.1	79.9	80.3
%EA	EXCESS AIR @ SAMPLING POINT	%	298.5	325.7	295.6
MWd	MOLECULAR WEIGHT OF DRY STACK GAS	LB/LB-MOLE (g/g-MOLE)	29.28 (29.28)	29.27 (29.27)	29.24 (29.24)
MW	MOLECULAR WEIGHT OF STACK GAS	LB/LB-MOLE (g/g-MOLE)	26.68 (26.68)	26.71 (26.71)	27.24 (27.24)
DELTA P	VELOCITY HEAD OF STACK GAS	"H2O (mm H20)	0.652 (16.6)	0.647 (16.4)	0.634 (16.1)
Ts	STACK TEMPERATURE	DEG. F (DEG. C)	335 (168)	331 (166)	327 (164)
Ps	STACK PRESSURE	"Hg Abs. (mm Hg)	29.89 (759)	29.66 (753)	29.83 (758)
Vs	STACK VELOCITY @ STACK CONDITIONS	FPM (m/SEC.)	3,282 (16.67)	3,272 (16.62)	3,190 (16.21)
As	STACK AREA	(SQ.INCHES) (SQ.METERS)	6,468 (4.17)	6,468 (4.17)	6,468 (4.17)
Qs	DRY STACK GAS VOLUME @ STANDARD CONDITIONS*	DSCFM (DSCM/HR)	75,560 (128,376)	75,392 (128,091)	79,061 (134,325)
Qa	ACTUAL STACK GAS VOLUME @ STACK CONDITIONS	ACFM (m^3/HR)	147,421 (250,468)	146,978 (249,716)	143,295 (243,458)

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

SOURCE EMISSION CALCULATIONS

ERM SOUTHWEST
SILSBEE, TEXAS
DRYER RTO #1 STACK - FORMALDEHYDE

SYMBOL	DESCRIPTION	UNITS			
Tt	NET TIME OF TEST	MINUTES	72	72	72
Dn	SAMPLING NOZZLE DIAM.	IN. (m)	0.273 (0.007)	0.273 (0.007)	0.273 (0.007)
%I	PERCENT ISOKINETIC	%	99.6	100.5	94.8
Mf	PARTICULATE - PROBE, CYCLONE AND FILTER	mg	----	----	----
Mt	PARTICULATE - TOTAL	mg	----	----	----
Can	PARTICULATE - PROBE, CYCLONE AND FILTER	gr/DSCF* (g/DSCM)	----	----	----
Cao	PARTICULATE - TOTAL	gr/DSCF* (g/DSCM)	----	----	----
Cat	PARTIC.-PROBE, CYCLONE AND FILTER @ STACK COND.	gr/CF (g/m3)	----	----	----
Cau	PARTICULATE - TOTAL @ STACK CONDITIONS	gr/CF (g/m3)	----	----	----
Caw	PARTICULATE - PROBE, CYCLONE AND FILTER	LBS/HR (Kg/HR)	----	----	----
Cax	PARTICULATE - TOTAL	LBS/HR (Kg/HR)	----	----	----

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION SURVEY

JOB NUMBER:	96-11
JOB NAME:	ERM SOUTHWEST
LOCATION:	SILSBEE, TEXAS
UNIT TESTED:	DRYER RTO #2 STACK - PARTICULATE

SOURCE EMISSION CALCULATIONS

SYMBOL	DESCRIPTION	UNITS			
RUN #			1	2	3
DATE			01-16-96	01-17-96	01-17-96
BEGIN TIME			1315	0820	1750
END TIME			1442	0954	2141
P(b)	BAROMETRIC PRESSURE	"Hg Abs. (mm Hg)	29.94 (760)	29.75 (756)	29.56 (751)
P(m)	ORIFICE PRESSURE DROP	"H2O (mm H2O)	1.043 (26.5)	1.152 (29.3)	1.196 (30.4)
V(m)	VOLUME DRY GAS SAMPLED @ METER CONDITIONS	ft.^3 (m^3)	41.421 (1.173)	43.151 (1.222)	44.590 (1.263)
T(m)	AVERAGE GAS METER TEMPERATURE	DEG.F (DEG.C)	93 (34)	88 (31)	89 (32)
V(m[std])*	VOLUME DRY GAS SAMPLED @ STANDARD CONDITIONS*	DSCF (DSCM)	39.683 (1.124)	41.465 (1.174)	42.502 (1.204)
V(w)	TOTAL WATER COLLECTED, IMPINGERS & SILICA GEL	ml	256.1	255.5	274.0
V(w[gas])	VOLUME WATER VAPOR COLLECTED @ STANDARD CONDITIONS*	SCF (SCM)	12.088 (0.342)	12.060 (0.342)	12.933 (0.366)
%M	MOISTURE IN STACK GAS BY VOLUME	%	23.35	22.53	23.33

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

SOURCE EMISSION CALCULATIONS

ERM SOUTHWEST
SILSBEE, TEXAS
DRYER RTO #2 STACK - PARTICULATE

SYMBOL	DESCRIPTION	UNITS			
Md	MOL FRACTION OF DRY GAS		0.7665	0.7747	0.7667
CO2		%	3.6	3.6	3.8
O2		%	15.6	16.6	16.2
CO		%	0.0	0.0	0.0
N2		%	80.8	79.8	80.0
%EA	EXCESS AIR @ SAMPLING POINT	%	268.4	365.1	324.0
MWd	MOLECULAR WEIGHT OF DRY STACK GAS	LB/LB-MOLE (g/g-MOLE)	29.20 (29.20)	29.24 (29.24)	29.26 (29.26)
MW	MOLECULAR WEIGHT OF STACK GAS	LB/LB-MOLE (g/g-MOLE)	26.58 (26.58)	26.71 (26.71)	26.63 (26.63)
DELTA P	VELOCITY HEAD OF STACK GAS	"H2O (mm H20)	0.646 (16.4)	0.670 (17.0)	0.687 (17.4)
Ts	STACK TEMPERATURE	DEG. F (DEG. C)	332 (167)	327 (164)	328 (164)
Ps	STACK PRESSURE	"Hg Abs. (mm Hg)	29.90 (759)	29.71 (755)	29.52 (750)
Vs	STACK VELOCITY @ STACK CONDITIONS	FPM (m/SEC.)	3,277 (16.65)	3,319 (16.86)	3,399 (17.27)
As	STACK AREA	(SQ.INCHES) (SQ.METERS)	6,468 (4.17)	6,468 (4.17)	6,468 (4.17)
Qs	DRY STACK GAS VOLUME @ STANDARD CONDITIONS*	DSCFM (DSCM/HR)	75,441 (128,174)	77,222 (131,200)	77,668 (131,958)
Qa	ACTUAL STACK GAS VOLUME @ STACK CONDITIONS	ACFM (m^3/HR)	147,209 (250,108)	149,075 (253,278)	152,667 (259,381)

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

SOURCE EMISSION CALCULATIONS

ERM SOUTHWEST
SILSBEE, TEXAS
DRYER RTO #2 STACK - PARTICULATE

SYMBOL	DESCRIPTION	UNITS			
Tt	NET TIME OF TEST	MINUTES	72	72	72
Dn	SAMPLING NOZZLE DIAM.	IN. (m)	0.251 (0.006)	0.251 (0.006)	0.251 (0.006)
%I	PERCENT ISOKINETIC	%	95.8	97.8	99.7
Mf	PARTICULATE - PROBE, CYCLONE AND FILTER	mg	13.0	14.8	16.3
Mt	PARTICULATE - TOTAL	mg	21.2	25.3	26.3
Can	PARTICULATE - PROBE, CYCLONE AND FILTER	gr/DSCF* (g/DSCM)	0.0050 (0.0116)	0.0055 (0.0126)	0.0059 (0.0135)
Cao	PARTICULATE - TOTAL	gr/DSCF* (g/DSCM)	0.0082 (0.0188)	0.0094 (0.0215)	0.0095 (0.0218)
Cat	PARTIC.-PROBE, CYCLONE AND FILTER @ STACK COND.	gr/CF (g/m3)	0.0026 (0.0059)	0.0028 (0.0065)	0.0030 (0.0069)
Cau	PARTICULATE - TOTAL @ STACK CONDITIONS	gr/CF (g/m3)	0.0042 (0.0096)	0.0049 (0.0112)	0.0048 (0.0110)
Caw	PARTICULATE - PROBE, CYCLONE AND FILTER	LBS/HR (Kg/HR)	3.26 (1.48)	3.64 (1.65)	3.93 (1.78)
Cax	PARTICULATE - TOTAL	LBS/HR (Kg/HR)	5.32 (2.41)	6.22 (2.82)	6.34 (2.88)

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SULFUR DIOXIDE EMISSION DATA

JOB NUMBER:	96-11
JOB NAME:	ERM SOUTHWEST
LOCATION:	SILSBEE, TEXAS
UNIT TESTED:	DRYER RTO #2 STACK - PARTICULATE

RUN NUMBER	1	2	3
DATE	01-16-96	01-17-96	01-17-96
START TIME	1315	0820	1750
END TIME	1442	0954	2141
N - NORMALITY OF Ba(ClO4)2	0.0100	0.0100	0.0100
ML(I)- ml IN IMPINGER 2	385.00	385.00	410.00
ML(I)- ml IN IMPINGER 3	290.00	307.00	311.00
ML(A)- ml IN ALIQUOT #2	10.00	10.00	10.00
ML(A)- ml IN ALIQUOT #3	10.00	10.00	10.00
ML(B) - ml OF Ba(ClO4)2 TO TITRATE #2	0.05	0.05	0.05
ML(B) - ml OF Ba(ClO4)2 TO TITRATE #3	0.05	0.10	0.05
ML(BB) - ml OF Ba(ClO4)2 TO TITRATE BLANK	0.05	0.05	0.05
Tm - AVERAGE GAS METER TEMPERATURE, DEG.F	93	88	89
Vm - VOLUME OF DRY GAS SAMPLED @ METER CONDITIONS, FT^3	41.421	43.151	44.590
Pb - BAROMETRIC PRESSURE, "Hg Abs.	29.94	29.75	29.56
Qs - STACK GAS VOLUME DRY @ STANDARD CONDITIONS, *SCFM	75,441	77,222	77,668
C(I) - SO2 IN IMPINGER #2 IN mgs	0.00	0.00	0.00
C(I) - SO2 IN IMPINGER #3 IN mgs	0.00	0.49	0.00
C(T) - TOTAL SO2 IN IMPINGERS, IN mgs	0.0	0.5	0.0
ppm SO2	0.0	0.2	0.0
C(SO2) - EMISSION RATE OF SO2, lbs/day	0.0	2.9	0.0
C(SO2) - EMISSION RATE OF SO2, lbs/hr	0.0	0.1	0.0
Cs - EMISSION RATE OF SULFUR, lbs/day	0.0	1.5	0.0

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

C(I) = ML(I) * [ML(B) - ML(BB)] * N * 32 / ML(A)
C(T) = C(I) #2 + C(I) #3
ppm SO2 = 0.7513 * C(T) * [Tm + 460] / Vm * Pb
C(SO2) = ppm SO2 * Qs * 0.0002392

METCO ENVIRONMENTAL

SULFUR TRIOXIDE EMISSION DATA

JOB NUMBER:	96-11
JOB NAME:	ERM SOUTHWEST
LOCATION:	SILSBEE, TEXAS
UNIT TESTED:	DRYER RTO #2 STACK - PARTICULATE

RUN NUMBER	1	2	3
DATE	01-16-96	01-17-96	01-17-96
START TIME	1315	0820	1750
END TIME	1442	0954	2141
N - NORMALITY OF Ba(ClO4)2	0.0100	0.0100	0.0100
ML(I) - ml IN IMPINGER	352.00	358.00	403.00
ML(A) - ml IN ALIQUOT	10.00	10.00	10.00
ML(B) - ml OF Ba(ClO4)2 TO TITRATE	0.05	0.05	0.05
ML(BB) - ml OF Ba(ClO4)2 TO TITRATE BLANK	0.05	0.05	0.05
Tm - AVERAGE GAS METER TEMPERATURE, DEG.F	93	88	89
Vm - VOLUME OF DRY GAS SAMPLED @ METER CONDITIONS, FT^3	41.421	43.151	44.590
Pb - BAROMETRIC PRESSURE, "Hg Abs.	29.94	29.75	29.56
Qs - STACK GAS VOLUME DRY @ STANDARD CONDITIONS, *SCFM	75,441	77,222	77,668
C(I) - SO3 IN IMPINGERS IN mgs	0.0	0.0	0.0
ppm SO3	0.0	0.0	0.0
C(SO3) - EMISSION RATE OF SO3, lbs/day	0.0	0.0	0.0
Cs - EMISSION RATE OF SULFUR, lbs/day	0.0	0.0	0.0

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

C(I) = ML(I) * [ML(B) - ML(BB)] * N * 40 / ML(A)
ppm SO3 = 0.6021 * C(I) * [Tm + 460] / Vm * Pb
C(SO3) = ppm SO3 * Qs * 0.0002991
Cs = C(SO3) / 2.5

METCO ENVIRONMENTAL

SOURCE EMISSION SURVEY

JOB NUMBER: 96-11
JOB NAME: ERM SOUTHWEST
LOCATION: SILSBEE, TEXAS
UNIT TESTED: DRYER RTO #2 STACK - FORMALDEHYDE

SOURCE EMISSION CALCULATIONS

SYMBOL	DESCRIPTION	UNITS			
RUN #			1	2	3
DATE			01-16-96	01-17-96	01-18-96
BEGIN TIME			1550	1210	1215
END TIME			1714	1551	1337
P(b)	BAROMETRIC PRESSURE	"Hg Abs. (mm Hg)	29.90 (759)	29.70 (754)	29.86 (758)
P(m)	ORIFICE PRESSURE DROP	"H2O (mm H2O)	0.922 (23.4)	0.818 (20.8)	0.880 (22.4)
V(m)	VOLUME DRY GAS SAMPLED @ METER CONDITIONS	ft.^3 (m^3)	39.855 (1.129)	36.819 (1.043)	37.765 (1.069)
T(m)	AVERAGE GAS METER TEMPERATURE	DEG.F (DEG.C)	95 (35)	88 (31)	79 (26)
V(m[std])*	VOLUME DRY GAS SAMPLED @ STANDARD CONDITIONS*	DSCF (DSCM)	37.983 (1.076)	35.292 (0.999)	37.006 (1.048)
V(w)	TOTAL WATER COLLECTED, IMPINGERS & SILICA GEL	ml	240.4	219.0	178.9
V(w[gas])	VOLUME WATER VAPOR COLLECTED @ STANDARD CONDITIONS*	SCF (SCM)	11.347 (0.321)	10.337 (0.293)	8.444 (0.239)
%M	MOISTURE IN STACK GAS BY VOLUME	%	23.00	22.65	18.58

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION CALCULATIONS

ERM SOUTHWEST
SILSBEE, TEXAS
DRYER RTO #2 STACK - FORMALDEHYDE

SYMBOL	DESCRIPTION	UNITS			
Md	MOL FRACTION OF DRY GAS		0.7700	0.7735	0.8142
CO2		%	4.0	3.8	3.5
O2		%	15.9	16.2	16.8
CO		%	0.0	0.0	0.0
N2		%	80.1	80.0	79.7
%EA	EXCESS AIR @ SAMPLING POINT	%	298.5	324.0	388.8
MWd	MOLECULAR WEIGHT OF DRY STACK GAS	LB/LB-MOLE (g/g-MOLE)	29.28 (29.28)	29.26 (29.26)	29.23 (29.23)
MW	MOLECULAR WEIGHT OF STACK GAS	LB/LB-MOLE (g/g-MOLE)	26.68 (26.68)	26.71 (26.71)	27.15 (27.15)
DELTA P	VELOCITY HEAD OF STACK GAS	"H2O (mm H20)	0.641 (16.3)	0.606 (15.4)	0.655 (16.6)
Ts	STACK TEMPERATURE	DEG. F (DEG. C)	328 (164)	323 (162)	338 (170)
Ps	STACK PRESSURE	"Hg Abs. (mm Hg)	29.87 (759)	29.66 (753)	29.83 (758)
Vs	STACK VELOCITY @ STACK CONDITIONS	FPM (m/SEC.)	3,240 (16.46)	3,153 (16.02)	3,288 (16.70)
As	STACK AREA	(SQ.INCHES) (SQ.METERS)	6,468 (4.17)	6,468 (4.17)	6,468 (4.17)
Qs	DRY STACK GAS VOLUME @ STANDARD CONDITIONS*	DSCFM (DSCM/HR)	75,235 (127,824)	73,497 (124,871)	79,614 (135,264)
Qa	ACTUAL STACK GAS VOLUME @ STACK CONDITIONS	ACFM (m^3/HR)	145,530 (247,255)	141,621 (240,614)	147,671 (250,893)

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

SOURCE EMISSION CALCULATIONS

ERM SOUTHWEST
SILSBEE, TEXAS
DRYER RTO #2 STACK - FORMALDEHYDE

SYMBOL	DESCRIPTION	UNITS			
Tt	NET TIME OF TEST	MINUTES	72	72	72
Dn	SAMPLING NOZZLE DIAM.	IN. (m)	0.236 (0.006)	0.236 (0.006)	0.236 (0.006)
%I	PERCENT ISOKINETIC	%	104.1	99.0	95.8
Mf	PARTICULATE - PROBE, CYCLONE AND FILTER	mg	----	----	----
Mt	PARTICULATE - TOTAL	mg	----	----	----
Can	PARTICULATE - PROBE, CYCLONE AND FILTER	gr/DSCF* (g/DSCM)	----	----	----
Cao	PARTICULATE - TOTAL	gr/DSCF* (g/DSCM)	----	----	----
Cat	PARTIC.-PROBE, CYCLONE AND FILTER @ STACK COND.	gr/CF (g/m3)	----	----	----
Cau	PARTICULATE - TOTAL @ STACK CONDITIONS	gr/CF (g/m3)	----	----	----
Caw	PARTICULATE - PROBE, CYCLONE AND FILTER	LBS/HR (Kg/HR)	----	----	----
Cax	PARTICULATE - TOTAL	LBS/HR (Kg/HR)	----	----	----

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

APPENDIX C

Calibration Data

Equipment	Calibration Factor		Calibration Date
Pitot Tube #3	lowside	0.799	11/21/95
Pitot Tube #8-3-1 (46)	lowside	0.804	12/07/95
Pitot Tube #8-3-2 (67)	lowside	0.805	12/13/95
Pitot Tube #8-10-1 (50)		0.808	12/08/95
Pitot Tube #12-3-1	lowside	0.811	01/09/96
Pitot Tube #12-3-3	lowside	0.810	01/09/96
Pitot Tube #12-10-1 (29)		0.808	01/09/96
Pitot Tube #17-10-1 (56)		0.808	12/29/95
Pitot Tube #18-3-2	lowside	0.813	11/22/95
Pitot Tube #18-10-2 (54)		0.807	11/22/95
Pitot Tube #19-3-2 (65)	lowside	0.809	11/27/95
Pitot Tube #28-3-1	lowside	0.812	01/10/96
Probe Tip #II-3		0.199	01/03/96
Probe Tip #II-5		0.260	01/03/96
Probe Tip #V-2		0.183	01/04/96
Probe Tip #VIII-2		0.176	01/08/96
Probe Tip #XII-6		0.176	01/08/96
Probe Tip #96-11-A-1		0.180	01/16/96
Probe Tip #96-11-B-1		0.178	01/16/96
Probe Tip #96-11-C-1		0.182	01/16/96
Probe Tip #96-11-C-2		0.182	01/16/96
Probe Tip #96-11-D-1		0.188	01/16/96
Probe Tip #96-11-D-2		0.182	01/16/96
Probe Tip #96-11-E-1		0.236	01/15/96
Probe Tip #96-11-E-3		0.251	01/15/96
Probe Tip #96-11-F-1		0.273	01/16/96

METCO ENVIRONMENTAL

APPENDIX C

Calibration Data

Equipment	Calibration Factor	Calibration Date
Dry Gas Meter #8-1 (16)	1.020	12/15/95
Stack Unit Orifice #8-1 (16)		12/18/95
Digital Temperature Indicator #8-1 (16)		12/15/95
Dry Gas Meter #11-2 (20)	0.995	11/27/95
Stack Unit Orifice #11-2 (20)		11/27/95
Digital Temperature Indicator #11-2 (20)		11/22/95
Dry Gas Meter #12-2 (18)	0.997	01/09/96
Stack Unit Orifice #12-2 (18)		01/10/96
Digital Temperature Indicator #12-2 (18)		01/09/96
Dry Gas Meter #17-2 (17)	1.037	12/27/95
Stack Unit Orifice #17-2 (17)		12/28/95
Digital Temperature Indicator #17-2 (17)		12/27/95
Dry Gas Meter #18-1 (26)	0.972	01/03/96
Stack Unit Orifice #18-1 (26)		01/03/96
Digital Temperature Indicator #18-1 (26)		01/03/96
Dry Gas Meter #28-2 (24)	1.012	11/01/95
Stack Unit Orifice #28-2 (24)		11/01/95
Digital Temperature Indicator #28-2 (24)		11/01/95

METCO ENVIRONMENTAL

APPENDIX C

Calibration Data

Equipment	Calibration Factor	Calibration Date
Barometer #8-1 (15)		12/07/95
Barometer #12-1 (29)		01/10/96
Barometer #17-2 (10)		01/12/96
Barometer #18-2 (4)		11/21/95
Barometer #28-1		12/18/95

PITOT TUBE CALIBRATION

Date: 11/21/95 Time: 1538

Pitot No.: 3 T_s: 70 °F

Pitot Dimensions: 5' x 14" (cutback from 8') C_{pstd}: 0.990

Motor Setting	fps mark	Calibration Standard Start	Calibration Standard End	√Standard Average	High	√High	Cal. Factor	Low	√Low	Cal. Factor
4	20	0.100	0.100	0.316	0.155	0.394	0.795	0.150	0.387	0.808
20	30	0.220	0.220	0.469	0.330	0.574	0.808	0.340	0.583	0.796
31	40	0.340	0.335	0.581	0.520	0.721	0.798	0.510	0.714	0.805
39	50	0.540	0.540	0.735	0.820	0.906	0.803	0.830	0.911	0.799
49	60	0.800	0.810	0.897	1.25	1.118	0.794	1.25	1.118	0.794
57	70	1.00	1.00	1.000	1.60	1.265	0.783	1.60	1.265	0.783
68	80	1.30	1.30	1.140	2.00	1.414	0.798	1.95	1.396	0.808
76	90	1.60	1.60	1.265	2.40	1.549	0.808	2.45	1.565	0.800
39	50	0.540	0.540	0.735	0.820	0.906	0.803	0.830	0.911	0.799
39	50	0.540	0.540	0.735	0.810	0.900	0.808	0.810	0.900	0.808
Average							0.798			0.799

Summary of Results:

Normal high side calibration factor 0.798

variation + 1.25%

variation - 1.88%

Normal low side calibration factor 0.799

variation + 1.13%

variation - 2.00%

Calibrator: [signature]

Checked By: [signature]

PITOT TUBE CALIBRATION

Date: 12\7\95 Time: 1315

Pitot No.: S-3-1 (46) T_a: 71°F °F

Pitot Dimensions: 3' x 1/4" C_{pstd}: 0.990

Motor Setting	fps mark	Calibration Standard Start	Calibration Standard End	√Standard Average	High	√High	Cal. Factor	Low	√Low	Cal. Factor
4	20	0.10	0.10	0.316	0.15	0.387	0.808	0.15	0.387	0.808
20	30	0.22	0.22	0.469	0.33	0.574	0.808	0.33	0.574	0.808
31	40	0.34	0.34	0.583	0.50	0.707	0.816	0.51	0.714	0.808
39	50	0.54	0.54	0.735	0.83	0.911	0.799	0.82	0.906	0.803
49	60	0.80	0.80	0.894	1.20	1.095	0.808	1.20	1.095	0.808
57	70	1.00	1.00	1.00	1.50	1.225	0.808	1.50	1.225	0.808
68	80	1.30	1.30	1.140	2.00	1.414	0.798	2.00	1.414	0.798
76	90	1.60	1.60	1.265	2.50	1.581	0.792	2.50	1.581	0.792
39	50	0.54	0.54	0.735	0.82	0.906	0.803	0.82	0.906	0.803
39	50	0.54	0.54	0.735	0.82	0.906	0.803	0.82	0.906	0.803
Average							0.805			0.804

Summary of Results:

Normal high side calibration factor 0.805

variation + 1.37 %

variation - 1.61 %

Normal low side calibration factor 0.804

variation + 0.50 %

variation - 1.49 %

Calibrator: John Lambert

Checked By: Jesse Rocha

PITOT TUBE CALIBRATION

Date: 12\13\95 Time: 1545

Pitot No.: S-3-2 (67) T_s: 72° °F

Pitot Dimensions: 3' X 1/4" C_{pstd}: 0.990

Motor Setting	fps mark	Calibration Standard Start	Calibration Standard End	√Standard Average	High	√High	Cal. Factor	Low	√Low	Cal. Factor
4	20	0,10	0,10	0.316	0.15	0,387	0,808	0.15	0.387	0.808
20	30	0,22	0.22	0.469	0.34	0,583	0.796	0,33	0.574	0.808
31	40	0.34	0,34	0.583	0,51	0,714	0.808	0,51	0.714	0.808
39	50	0,54	0,54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
49	60	0,80	0,80	0,894	1.20	1.095	0.808	1.20	1.095	0.808
57	70	1,00	1,00	1,00	1,55	1.245	0.795	1,55	1.245	0.795
68	80	1,30	1,30	1,140	2,00	1.414	0.798	2,00	1,414	0.798
76	90	1,60	1,60	1.265	2,40	1,549	0.808	2,40	1,549	0.808
39	50	0,54	0,54	0.735	0.81	0.900	0,808	0,81	0.900	0.808
39	50	0,54	0,54	0,735	0.82	0,906	0.803	0.81	0.900	0.808
Average							0,804			0,805

Summary of Results:

Normal high side calibration factor 0,804

variation + 0.50% ✓

variation - 1.12% ✓

Normal low side calibration factor 0.805

variation + 0,37% ✓

variation - 1.24% ✓

Calibrator: John Lambert

Checked By: Jane Rocha

PITOT TUBE CALIBRATION

Date: 12/8/95 Time: 0830

Pitot No.: S-10-1 (50) T_s: 74°F °F

Pitot Dimensions: 10' x ¼" C_{pstd}: 0.990

Motor Setting	fps mark	Calibration Standard Start	Calibration Standard End	√Standard Average	High	√High	Cal. Factor	Low	√Low	Cal. Factor
4	20	0.10	0.10	0.316	0.15	0.387	0.808	0.15	0.387	0.808
20	30	0.22	0.22	0.469	0.33	0.574	0.808	0.33	0.574	0.808
31	40	0.34	0.34	0.583	0.51	0.714	0.808	0.51	0.714	0.808
39	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
49	60	0.80	0.80	0.894	1.20	1.095	0.808	1.20	1.095	0.808
57	70	1.00	1.00	1.00	1.50	1.225	0.808	1.50	1.225	0.808
68	80	1.30	1.30	1.140	1.95	1.396	0.808	1.95	1.396	0.808
76	90	1.60	1.60	1.265	2.40	1.549	0.808	2.40	1.549	0.808
39	50	0.54	0.54	0.735	0.81	0.900	0.808	.80	0.894	0.813
39	50	0.54	0.54	0.735	0.80	0.894	0.813	.81	0.900	0.808
Average							0.808			0.808

Summary of Results:

Normal high side calibration factor 0.808

variation + 0.00 ✓

variation - 0.00 ✓

Normal low side calibration factor 0.808

variation + 0.00 ✓

variation - 0.00 ✓

Calibrator: John Lambert

Checked By: Jesse Rochin

PITOT TUBE CALIBRATION

Date: 9 January 1996 Time: 1102

Pitot No.: 12-3-1 T_s: 76 °F

Pitot Dimensions: ¼" x 3' C_{pstd}: 0.990

Motor Setting	fps mark	Calibration Standard Start	End	√Standard Average	High	√High	Cal. Factor	Low	√Low	Cal. Factor
4	20	0.10	0.10	0.316	0.15	0.387	0.808	0.15	0.387	0.808
20	30	0.22	0.22	0.469	0.33	0.574	0.808	0.33	0.574	0.808
31	40	0.34	0.34	0.583	0.51	0.714	0.808	0.50	0.707	0.816
39	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
49	60	0.80	0.80	0.894	1.20	1.095	0.808	1.20	1.095	0.808
57	70	1.00	1.00	1.000	1.50	1.225	0.808	1.45	1.204	0.822
68	80	1.30	1.30	1.140	1.95	1.396	0.808	1.95	1.396	0.808
76	90	1.60	1.60	1.265	2.40	1.549	0.808	2.40	1.549	0.808
39	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
39	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
Average							0.808			0.811

Summary of Results:

Normal high side calibration factor 0.808

variation + 0.00%

variation - 0.00%

Normal low side calibration factor 0.811

variation + 1.36%

variation - 0.37%

Calibrator: Tim Startz

Checked By: GORDON SMITH #98

PITOT TUBE CALIBRATION

Date: 9 January 1996 Time: 1300

Pitot No.: 12-3-3 T_s: 72 °F

Pitot Dimensions: 3/8" x 3' C_{pstd}: 0.990

Motor Setting	fps mark	Calibration Standard Start	Calibration Standard End	√Standard Average	High	√High	Cal. Factor	Low	√Low	Cal. Factor
4	20	0.10	0.10	0.316	0.15	0.387	0.808	0.15	0.387	0.808
20	30	0.22	0.22	0.469	0.33	0.574	0.808	0.33	0.574	0.808
31	40	0.34	0.34	0.583	0.51	0.714	0.808	0.51	0.714	0.808
39	50	0.54	0.54	0.735	0.80	0.894	0.813	0.81	0.900	0.808
49	60	0.80	0.80	0.894	1.20	1.095	0.808	1.20	1.095	0.808
57	70	1.00	1.00	1.000	1.45	1.204	0.822	1.45	1.204	0.822
68	80	1.30	1.30	1.140	1.95	1.396	0.808	1.95	1.396	0.808
76	90	1.60	1.600	1.265	2.40	1.549	0.808	2.40	1.549	0.808
39	50	0.54	0.54	0.735	0.80	0.894	0.813	0.81	0.900	0.808
39	50	0.54	0.54	0.735	0.800	0.894	0.813	0.81	0.900	0.808
Average							0.810			0.810

Summary of Results:

Normal high side calibration factor 0.810

variation + 1.48%

variation - 0.25%

Normal low side calibration factor 0.810

variation + 1.48%

variation - 0.25%

Calibrator: Tim Startz

Checked By: GORDON SMITH #98

PITOT TUBE CALIBRATION

Date: 9 January 1996 Time: 0918

Pitot No.: 12-10-1 T_s: 76 °F

Pitot Dimensions: ¼" ℄ 10' C_{pstd}: 0.990

Motor Setting	fps mark	Calibration Standard Start	End	√Standard Average	High	√High	Cal. Factor	Low	√Low	Cal. Factor
4	20	0.10	0.10	0.316	0.15	0.387	0.808	0.15	0.387	0.808
20	30	0.22	0.22	0.469	0.33	0.574	0.808	0.33	0.574	0.808
31	40	0.34	0.34	0.583	0.51	0.714	0.808	0.51	0.714	0.808
39	50	0.54	0.54	0.735	0.8	0.900	0.808	0.81	0.900	0.808
49	60	0.80	0.80	0.894	1.20	1.095	0.808	1.20	1.095	0.808
57	70	1.00	1.00	1.000	1.50	1.225	0.808	1.50	1.225	0.808
68	80	1.30	1.30	1.140	1.95	1.396	0.808	1.95	1.396	0.808
76	90	1.60	1.60	1.265	2.40	1.549	0.808	2.35	1.533	0.817
39	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
39	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
Average							0.808			0.809

Summary of Results:

Normal high side calibration factor 0.808

variation + 0.001

variation - 0.001

Normal low side calibration factor 0.809

variation + 0.99%

variation - 0.12%

Calibrator: Tim Startz

Checked By: GORDON SMITH #98

PITOT TUBE CALIBRATION

Date: 12\29\95 Time: 1410

Pitot No.: 17-10-1 T_s: 71°F °F

Pitot Dimensions: 10X 1/4" C_{pstd}: 0.990

Motor Setting	fps mark	Calibration Standard Start	Calibration Standard End	√Standard Average	High	√High	Cal. Factor	Low	√Low	Cal. Factor
4	20	0.10	0.10	0.316	0.15	0.387	0.808	0.15	0.387	0.808
20	30	0.22	0.22	0.469	0.33	0.574	0.808	0.34	0.583	0.796
31	40	0.34	0.34	0.583	0.51	0.714	0.808	0.51	0.714	0.808
39	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
49	60	0.80	0.80	0.894	1.20	1.095	0.808	1.20	1.095	0.808
57	70	1.00	1.00	1.000	1.50	1.225	0.808	1.50	1.225	0.808
68	80	1.30	1.30	1.140	1.95	1.396	0.808	1.95	1.396	0.808
76	90	1.60	1.60	1.265	2.40	1.549	0.808	240	1.549	0.808
39	50	0.54	0.54	0.735	0.81	0.900	0.808	0.82	0.906	0.812
39	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
Average							0.808			0.807

Summary of Results:

Normal high side calibration factor 0.808

variation + 0.00 %

variation - 0.00 %

Normal low side calibration factor 0.807

variation + 0.12%

variation - 1.36%

Calibrator: John Lambert

Checked By: James McFarlane

PITOT TUBE CALIBRATION

Date: 11/22/95 Time: 1013

Pitot No.: 18-3-2 T_s: 70 °F

Pitot Dimensions: 3'x 1/4" C_{pstd}: 0.990

Motor Setting	fps mark	Calibration Standard Start	Calibration Standard End	√Standard Average	High	√High	Cal. Factor	Low	√Low	Cal. Factor
4	20	0.100	0.100	0.316	0.145	0.381	0.822	0.145	0.381	0.822
20	30	0.220	0.220	0469	0.330	0.574	0.808	0.330	0.574	0.808
31	40	0.340	0.346	0.583	0.500	0.707	0.816	0500	0.707	0.816
39	50	0.540	0.540	0.735	0795	0.892	0.816	0.800	0894	0.813
49	60	0.800	0.800	0.894	1.20	1.095	0808	1.20	1.095	0808
57	70	1.00	1.00	1.000	1.50	1.225	0.808	1.50	1,225	0.808
68	80	1.30	1.30	1.140	1.95	1.396	0.808	1,95	1.396	0.808
76	90	1.60	1.60	1.265	2.40	1.549	0.808	2.35	1.533	0.817
39	50	0.540	0.540	0.735	0.795	0.892	0816	0.800	0.894	0.813
39	50	0.540	0.540	0.735	0800	0.894	0.813	0.800	0.894	0.813
Average							0.812			0.813

Summary of Results:

Normal high side calibration factor 0.812

variation + 1.23%

variation - 0.49%

Normal low side calibration factor 0.813

variation + 1.11%

variation - 0.62%

Calibrator: [signature]

Checked By: David S Bailey

PITOT TUBE CALIBRATION

Date: 11/22/98 Time: 1150

Pitot No.: 16-10-2 T_s: 70 °F

Pitot Dimensions: 10" x 1/4" C_{pstd}: 0.990

Motor Setting	fps mark	Calibration Standard Start	Calibration Standard End	√Standard Average	High	√High	Cal. Factor	Low	√Low	Cal. Factor
4	20	0.100	0.100	0.316	0.150	0.387	0.808	0.150	0.387	0.808
20	30	0.220	0.220	0.469	0.330	0.574	0.808	0.330	0.574	0.808
31	40	0.340	0.340	0.583	0.510	0.714	0.808	0.510	0.714	0.808
39	50	0.540	0.540	0.735	0.800	0.894	0.813	0.800	0.894	0.813
49	60	0.800	0.800	0.894	1.20	1.095	0.808	1.20	1.095	0.808
57	70	1.00	1.00	1.000	1.50	1.225	0.808	1.50	1.225	0.808
68	80	1.30	1.30	1.140	2.00	1.414	0.798	1.95	1.396	0.808
76	90	1.60	1.60	1.265	2.40	1.549	0.808	2.40	1.549	0.808
39	50	0.540	0.540	0.735	0.800	0.894	0.813	0.800	0.894	0.813
39	50	0.540	0.540	0.735	0.795	0.894	0.813	0.800	0894	0.813
Average							0.807			0.809

Summary of Results:

Normal high side calibration factor 0.807

variation + 0.74

variation - -1.12

Normal low side calibration factor 0.809

variation + 0.49

variation - 0.12

Calibrator: Kevin McGinn

Checked By: Tim Starts

PITOT TUBE CALIBRATION

Date: 11/27/95 (After Filing)

Time: 1420

Pitot No.: 19-3-2

T_s: 70 °F

Pitot Dimensions: 3' x 1/4"

C_{pstd}: 0.990

Motor Setting	fps mark	Calibration Standard Start	Calibration Standard End	√Standard Average	High	√High	Cal. Factor	Low	√Low	Cal. Factor
4	20	0.10	0.10	0.316	0.15	0.387	0.808	0.15	0.387	0.808
20	30	0.22	0.22	0.469	0.33	0.574	0.808	0.33	0.574	0.808
31	40	0.34	0.34	0.583	0.51	0.714	0.808	0.50	0.707	0.816
39	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
49	60	0.80	0.80	0.894	1.20	1.095	0.808	1.20	1.095	0.808
57	70	1.00	1.00	1.000	1.50	1.225	0.808	1.50	1.225	0.808
68	80	1.30	1.30	1.140	2.00	1.414	0.798	1.95	1.396	0.808
76	90	1.60	1.60	1.265	2.40	1.549	0.808	2.40	1.549	0.808
39	50	0.54	0.54	0.735	0.81	0.900	0.808	0.80	0.894	0.813
39	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
Average							0.807			0.809

Summary of Results:

Normal high side calibration factor 0.807

variation + 0.12%

variation - 1.12%

Normal low side calibration factor 0.809

variation + 0.87%

variation - 0.12%

Calibrator: Dale Greenfeather

Checked By:

PITOT TUBE CALIBRATION

Date: 1/10/96 Time: 1420

Pitot No.: 28-3-1 T_s: 70 °F

Pitot Dimensions: 3' x 1/4" C_{psid}: 0.990

Motor Setting	fps mark	Calibration Standard Start	Calibration Standard End	√Standard Average	High	√High	Cal. Factor	Low	√Low	Cal. Factor
4	20	0.10	0.10	0.316	0.15	0.387	0.808	0.15	0.387	0.808
20	30	0.22	0.22	0.469	0.33	0.574	0.808	0.32	0.566	0.821
31	40	0.34	0.34	0.583	0.50	0.707	0.816	0.50	0.707	0.816
39	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
49	60	0.80	0.80	0.894	1.20	1.095	0.808	1.20	1.095	0.808
57	70	1.00	1.00	1.000	1.50	1.225	0.808	1.50	1.225	0.808
68	80	1.30	1.30	1.140	1.95	1.396	0.808	1.95	1.396	0.808
76	90	1.60	1.60	1.265	2.40	1.549	0.808	2.35	1.533	0.817
39	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
39	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
Average							0.809 ✓			0.812 ✓

Summary of Results:

Normal high side calibration factor 0.809 ✓

variation + 0.87% ✓

variation - 0.12% ✓

Normal low side calibration factor 0.812 ✓

variation + 1.11% ✓

variation - 0.49% ✓

Calibrator: J Brunson #179

Checked By: [signature] #173

METCO ENVIRONMENTAL

Checked #98 JH.

NOZZLE CALIBRATION

Nozzle Set No. II

Date 3-Jan-96 Calibrator: James M Grubbs

	1	2	3	4	5	6
Reading 1	0.120	0.173	0.199	0.248	0.260	0.308
Reading 2	0.120	0.172	0.198	0.249	0.261	0.309
Reading 3	0.120	0.172	0.198	0.250	0.260	0.309
Reading 4	0.120	0.172	0.198	0.249	0.260	0.309
Reading 5	0.120	0.173	0.199	0.250	0.260	0.308
Reading 6	0.120	0.173	0.199	0.249	0.261	0.308
Reading 7	0.120	0.171	0.198	0.249	0.260	0.308
Reading 8	0.120	0.172	0.198	0.248	0.261	0.308
Reading 9	0.120	0.172	0.199	0.249	0.260	0.308
Reading 10	0.120	0.173	0.199	0.248	0.260	0.308
Average	0.120	0.172	0.199	0.249	0.260	0.308

	7	8	9	10	11	12
Reading 1	0.320	0.361	0.423	0.481	0.635	
Reading 2	0.323	0.359	0.423	0.480	0.634	
Reading 3	0.323	0.361	0.424	0.480	0.635	
Reading 4	0.320	0.360	0.423	0.480	0.634	
Reading 5	0.321	0.361	0.424	0.480	0.635	
Reading 6	0.320	0.359	0.423	0.480	0.635	
Reading 7	0.320	0.359	0.424	0.480	0.636	
Reading 8	0.322	0.360	0.423	0.481	0.635	
Reading 9	0.321	0.359	0.423	0.480	0.636	
Reading 10	0.320	0.361	0.423	0.481	0.635	
Average	0.321	0.360	0.423	0.480	0.635	

METCO ENVIRONMENTAL

VMG54

NOZZLE CALIBRATION

Nozzle Set No. XII

Date: January 8, 1996 Calibrator: Matthew Lindquist

	1 16	2 20	3 18	4 14	5 12
Reading 1	0.489	0.616	0.565	0.435	0.363
Reading 2	0.490	0.617	0.564	0.435	0.366
Reading 3	0.490	0.617	0.565	0.435	0.365
Reading 4	0.491	0.616	0.565	0.435	0.366
Reading 5	0.490	0.617	0.565	0.436	0.365
Reading 6	0.491	0.616	0.564	0.435	0.365
Reading 7	0.490	0.616	0.565	0.434	0.366
Reading 8	0.491	0.616	0.565	0.435	0.367
Reading 9	0.490	0.617	0.565	0.435	0.366
Reading 10	0.490	0.617	0.565	0.435	0.365
Average	0.490 ✓	0.617 ✓	0.565 ✓	0.435 ✓	0.365 ✓

	6 10	7 11	8 8	9 4	10 6
Reading 1	0.309	0.311	0.242	0.112	0.175
Reading 2	0.310	0.312	0.242	0.112	0.175
Reading 3	0.310	0.312	0.241	0.113	0.176
Reading 4	0.311	0.311	0.241	0.112	0.176
Reading 5	0.310	0.311	0.243	0.112	0.175
Reading 6	0.311	0.311	0.242	0.113	0.175
Reading 7	0.310	0.312	0.243	0.113	0.175
Reading 8	0.310	0.312	0.243	0.112	0.176
Reading 9	0.310	0.312	0.243	0.112	0.176
Reading 10	0.310	0.311	0.241	0.112	0.176
Average	0.310 ✓	0.312 ✓	0.242 ✓	0.112 ✓	0.176 ✓

✓ by RTS

96-11 A-1 Pyrex 1-16-96

0.182
0.181
0.180
0.180
0.180
0.179
0.179
0.180
0.180
0.180
0.180

B

96 - 11 (~~#3 Exhaust Stack~~) - 1

1 0.178

2 0.179

3 0.178

4 0.178

5 0.179

6 0.178

7 0.178

8 0.179

9 0.179

10 0.178

Avg. 0.178 #111(2)0

96-11
ERM Southwest
Silsbee, TX

1/16/96
Todd Staley

Nozzle Field Cal

Quartz Nozzle Set #1

96-011-C

	~~I-8~~-1	~~I-8-15~~	~~E-8~~-2	~~I-8~~-3	~~I-8~~-4
Reading 1:	0.182	0.189	0.182	0.123 ~~0.127~~	0.102
2:	0.182	0.189	0.182	0.124	0.100
3:	0.182	0.189	0.182	0.124	0.101
4:	0.182	0.188	0.182	0.123	0.101
5:	0.182	0.189	0.182	0.125	0.101
6:	0.182	0.189	0.182	0.124	0.101
7:	0.182	0.189	0.182	0.124	0.100
8:	0.182	0.188	0.182	0.125	0.101
9:	0.182	0.189	0.182	0.124	0.101
10:	0.182	0.189	0.182	0.124	0.101
Avg	0.182	0.189	0.182	0.124	0.101

METCO ENVIRONMENTAL

NOZZLE CALIBRATION

Nozzle Set No. _____

Date: 1/16/96 D Calibrator: Adams

96-11-~~28~~-

	1	2	3	4	5
Reading 1	0.187	0.183			
Reading 2	0.188	0.182			
Reading 3	0.188	0.181			
Reading 4	0.189	0.181			
Reading 5	0.188	0.182			
Reading 6	0.187	0.182			
Reading 7	0.187	0.182			
Reading 8	0.189	0.182			
Reading 9	0.189	0.183			
Reading 10	0.188	0.182			
Average	0.188	0.182			

	6	7	8	9	10
Reading 1					
Reading 2					
Reading 3					
Reading 4					
Reading 5					
Reading 6					
Reading 7					
Reading 8					
Reading 9					
Reading 10					
Average					

METCO ENVIRONMENTAL

NOZZLE CALIBRATION E

Nozzle Set No. 96-011-2

Date: 1/15/96 Calibrator: Lance Hudson

	1	2	3	4	5
Reading 1	0.236	0.235	0.250		
Reading 2	0.236	0236	0.251		
Reading 3	0.236	0 235	0.250		
Reading 4	0.236	0.236	0.251		
Reading 5	0.235	0.235	0.252		
Reading 6	0.236	0.235	0.251		
Reading 7	0.235	0.235	0.250		
Reading 8	0.236	0.235	0.251		
Reading 9	0.236	0.236	0.251		
Reading 10	0.236	0.236	0.250		
Average	0.236 ✓	0.235 ✓	0.251 ✓		

	6	7	8	9	10
Reading 1					
Reading 2					
Reading 3					
Reading 4					
Reading 5					
Reading 6					
Reading 7					
Reading 8					
Reading 9					
Reading 10					
Average					

Nozzle Calibration (Metro 17)

E-1

Nozzle # 96-011-~~E~~

1	0.273
2	0.273
3	0.273
4	0.272
5	0.273
6	0.273
7	0.273
8	0.273
9	0.273
10	0.273
Avg	0.273

16 Jan 96

James M Grubbs #130

METCO ENVIRONMENTAL

Dry Gas Meter Calibration

Dry Gas Meter Number 8-1

Date: 12/15/95

ΔH ("H_2O)	C_{DG}
0.5	1.028
1.0	1.015
1.5	1.024
2.0	1.017
3.0	1.019
4.0	1.019
Average	1.020

Variation: + 0.78%

- 0.49%

Calibrator: [signature]

Checked by: Jesse Porter

C_{DG} @ 2 liters/min. = 1.016

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 8-1 Calibrator: T. Schlei

Date: 12/15/95

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 0.5 "H_2O P_b: 29.39 "Hg

Control Module Vacuum: 5.0 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1119	5.730 cf	75 °F	-0.80 "H_2O	938.698 cf	77 °F	74 °F	0.50 "H_2O
Start	1105	0.000 cf	75 °F	-0.80 "H_2O	933.192 cf	77 °F	72 °F	0.50 "H_2O
Avg.		5.730 cf	75 °F	-0.80 "H_2O	5.506 cf	75 °F		0.50 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 5.730 \left[\frac{29.39 + \frac{-0.80}{13.6}}{75 + 460}\right] \times 0.991 \ (C_f) = 5.495 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 5.506 \left[\frac{29.39 + \frac{0.50}{13.6}}{75 + 460}\right] = 5.345 \text{ dcsf}$$

$$C_{DG} = \frac{5.495}{5.345} = \boxed{1.028}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 8-1 Calibrator: T. Stele

Date: 12/15/95

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 1.0 "H_2O

P_b: 29.39 "Hg

Control Module Vacuum: 5.0 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1156	5.720 cf	75 °F	-1.4 "H_2O	950.894 cf	78 °F	73 °F	1.00 "H_2O
Start	1146	0.000 cf	75 °F	-1.4 "H_2O	945.342 cf	77 °F	73 °F	1.00 "H_2O
Avg.		5.720 cf	75 °F	-1.4 "H_2O	5.552 cf	75 °F		1.00 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 5.720 \left[\frac{29.39 + \frac{-1.4}{13.6}}{75 + 460} \right] \times 0.991\ (C_f) = 5.477 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 5.552 \left[\frac{29.39 + \frac{1.00}{13.6}}{75 + 460} \right] = 5.397 \text{ dcsf}$$

$$C_{DG} = \frac{5.477}{5.397} = \boxed{1.015}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 8-1 Calibrator: T. Stile

Date: 12/15/95

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 1.5" H_2O P_b: 29.39 "Hg

Control Module Vacuum: 5.0 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1445	10.950 cf	73 °F	-1.9 "H_2O	963.402 cf	79 °F	72 °F	1.50 "H_2O
Start	1430	0.000 cf	73 °F	-1.9 "H_2O	452.989 cf	71 °F	71 °F	1.50 "H_2O
Avg.	1445	10.950 cf	73 °F	-1.9 "H_2O	~~963.402~~ cf 10.413	73 °F		1.50 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 10.850 \left[\frac{29.39 + \frac{-1.9}{13.6}}{73 + 460}\right] \times 0.991\ (C_p) = 10.415 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 10.413 \left[\frac{29.39 + \frac{1.50}{13.6}}{73 + 460}\right] = 10.172 \text{ dcsf}$$

$$C_{DG} = \frac{10.415}{10.172} = \boxed{1.024}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 8-1 Calibrator: T. Staley

Date: 12/15/95

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 2.0" H_2O P_b: 29.39 "Hg

Control Module Vacuum: 5.0 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1505	11.420 cf	73 °F	-2.00 "H_2O	974.782 cf	80 °F	72 °F	2.00 "H_2O
Start	1452	0.000 cf	73 °F	-2.00 "H_2O	963.728 cf	75 °F	72 °F	2.00 "H_2O
Avg.		11.420 cf	73 °F	-2.00 "H_2O	11.054 cf	75 °F		2.00 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 11.420 \left[\frac{29.39 + \frac{-2.00}{13.6}}{73 + 460}\right] \times 0.991 \ (C_i) = \cancel{11.009}\ 10.959 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 11.054 \left[\frac{29.39 + \frac{2.00}{13.6}}{75 + 460}\right] = 10.772 \text{ dcsf}$$

$$C_{DG} = \frac{\cancel{11.009}\ 10.959}{10.772} = \boxed{\cancel{1.022}\ 1.017}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 8-1 Calibrator: T. Stolc-/

Date: 12/15/95

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 3.0 "H_2O P_b: 29.39 "Hg

Control Module Vacuum: 5.0 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1524	10.885 cf	73 °F	-2.50 "H_2O	985.910 cf	93 °F	74 °F	3.00 "H_2O
Start	1514	0.000 cf	73 °F	-2.50 "H_2O	975.391 cf	78 °F	72 °F	3.00 "H_2O
Avg.		10.885 cf	73 °F	-2.50 "H_2O	10.519 cf	77 °F		3.0 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 10.885 \left[\frac{29.39 + \frac{-2.50}{13.6}}{73 + 460}\right] \times 0.991\ (C_f) = 10.433 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 10.519 \left[\frac{29.39 + \frac{3.00}{13.6}}{78 + 460}\right] = 10.237 \text{ dcsf}$$

$$C_{DG} = \frac{10.433}{10.237} = \boxed{1.019}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 8-1 Calibrator: J. Staley

Date: 12-15-95

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 4.0 "H2O P_b: 29.39 "Hg

Control Module Vacuum: 5.0 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1540	11.310 cf	73 °F	-3.80 "H_2O	999.365 cf	90 °F	74 °F	4.00 "H_2O
Start	1530	0.000 cf	73 °F	-3.80 "H_2O	986.452 cf	80 °F	73 °F	4.00 "H_2O
Avg.		11.310 cf	73 °F	-3.80 "H_2O	10.913 cf	79 °F		4.00 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 11.310 \left[\frac{29.39 + \frac{-3.80}{13.6}}{73 + 460}\right] \times 0.991 \quad (C_f) = 10.805 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 10.913 \left[\frac{29.39 + \frac{4.00}{13.6}}{79 + 460}\right] = 10.608 \text{ dcsf}$$

$$C_{DG} = \frac{10.805}{10.608} = \boxed{1.019}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 8-1 Calibrator: T. Staley

Date: 12-15-95

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 2 L/min P_b: 29.39 "Hg

Control Module Vacuum: — "Hg

	Wet Test Meter (No. 1)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1649	2.125 cf	73 °F	-1.00 "H_2O	2.250 cf	73 °F	73 °F	0.01 "H_2O
Start	1620	0.000 cf	73 °F	-1.00 "H_2O	0.182 cf	73 °F	74 °F	0.01 "H_2O
Avg.		2.125 cf	73 °F	-1.00 "H_2O	2.068 cf	73 °F		0.01 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 2.125 \left[\frac{29.39 + \frac{-1.00}{13.6}}{73 + 460} \right] \times 0.991\ (C_f) = 2.044 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 2.068 \left[\frac{29.39 + \frac{0.01}{13.6}}{73 + 460} \right] = 2.013 \text{ dcsf}$$

$$C_{DG} = \frac{2.044}{2.013} = \boxed{1.016}$$

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JJR #102

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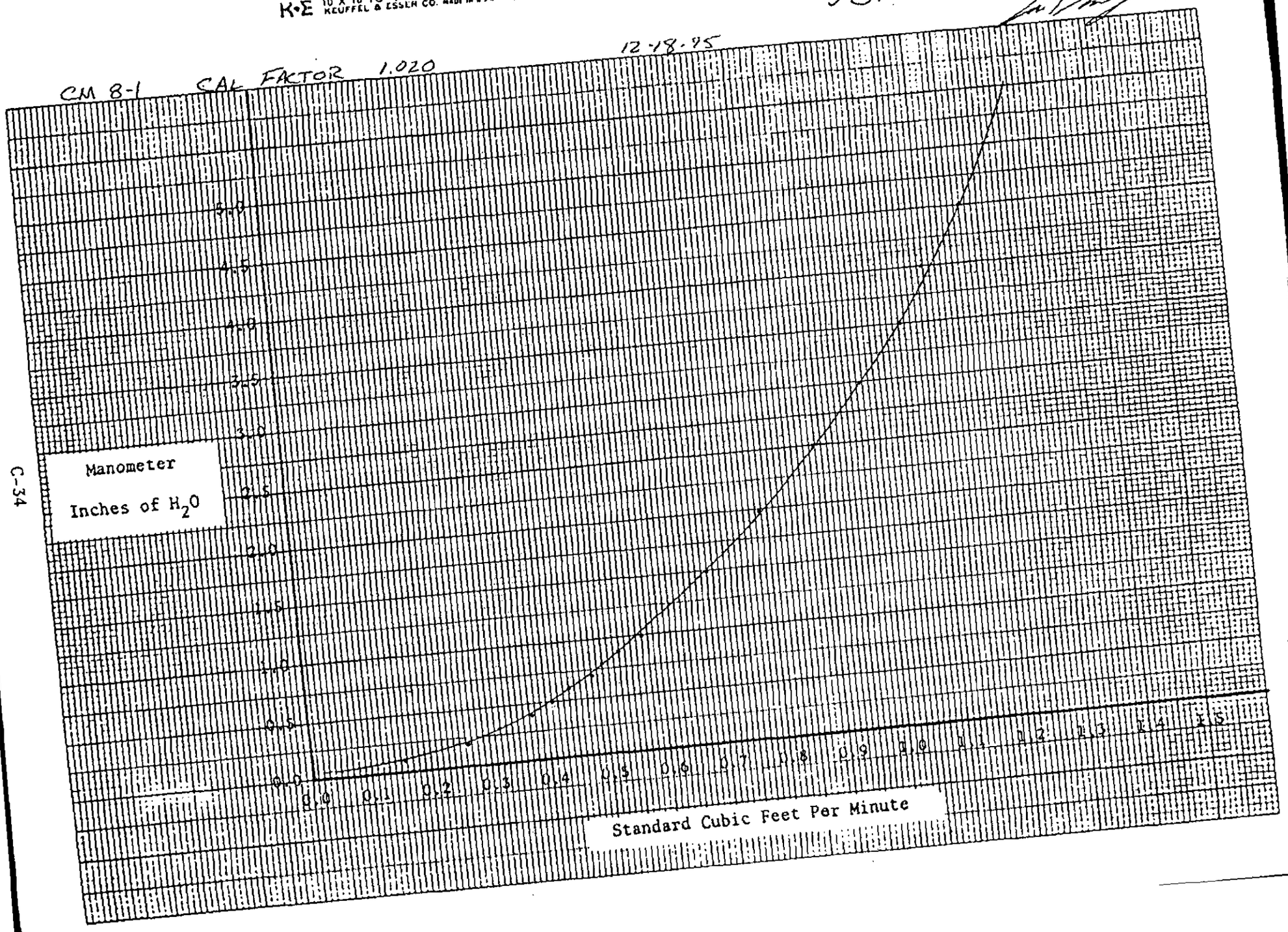
CM 8-1 CAL FACTOR 1.020

12-18-95



METCO ENVIRONMENTAL

DIGITAL TEMPERATURE INDICATOR NO. 8-1

CALIBRATION DATA

Date: 12\15\95

Media	Time	Mercury Temperature (°F)	DTI (°F)
Ambient Air	0840	72° F	70° F
Ice Bath	0850	32° F	32° F
Boiling Water	0905	212° F	212° F
Oven	0920	254°F	252°F
Oven	0955	300°F	300°F
Oven	1020	352°F	351°F
Oven	1045	377°F	375°F

Meter Adjusted? Yes _____ No ✓

John Lombardo

Signature of Calibrator

METCO ENVIRONMENTAL

Dry Gas Meter Calibration

Dry Gas Meter Number 11-2(20)

Date: 11/27/95

ΔH ("H_2O)	C_{DG}
0.5	0.988 ✓
1.0	0.990 ✓
1.5	0.993 ✓
2.0	0.995 ✓
3.0	0.999 ✓
4.0	1.002 ✓
Average	0.995 ✓

Variation: + 0.70% ✓

- 0.70% ✓

Calibrator: Robert Theuerkauf

Checked by: Mark Gliva

C_{DG} @ 2 liters/min. = 0.989 ✓

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 11-2(20) Calibrator: Matt Lindquist

Date: November 22, 1995

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } V_{m_{std}}}{\text{Dry Gas Meter } V_{m_{std}}}$$

Run No.: 2 @ 0.50" H_2O P_b: 30.12 "Hg

Control Module Vacuum 5.0 "Hg

	WET TEST METER (No. 2)				DRY GAS METER			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1412	5.162 cf	73 °F	-0.95 "H_2O	764.013 cf	81 °F	79 °F	0.50 "H_2O
Start	1359	0.000 cf	73 °F	-0.95 "H_2O	758.775 cf	80 °F	79 °F	0.50 "H_2O
	13	5.162 cf	73 °F	-0.95 "H_2O	5.238 cf	80 °F		0.50 "H_2O

$$\text{Wet Test Meter } V_{m_{std}} = 17.65 \times 5.162 \left(\frac{30.12 + \frac{-0.95}{13.6}}{73 + 460} \right) \times \underset{(C_f)}{0.993} = 5.101 \text{ dscf}$$

$$\text{Dry Gas Meter } V_{m_{std}} = 17.65 \times 5.238 \left(\frac{30.12 + \frac{0.50}{13.6}}{80 + 460} \right) = 5.163 \text{ dscf}$$

$$C_{DG} = \frac{5.101}{5.163} = \boxed{0.988}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 11-2(20) Calibrator: Matt Lindquist

Date: November 22, 1995

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } V_{m_{std}}}{\text{Dry Gas Meter } V_{m_{std}}}$$

Run No.: 2 @ 1.00" H_2O P_b: 30.11 "Hg

Control Module Vacuum 5.0 "Hg

	WET TEST METER (No. 2)				DRY GAS METER			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1424	5.031 cf	73 °F	-1.50 "H_2O	769.667 cf	85 °F	79 °F	1.00 "H_2O
Start	1415	0.000 cf	73 °F	-1.45 "H_2O	764.578 cf	81 °F	79 °F	1.00 "H_2O
	9	5.031 ✓ cf	73 ✓ °F	-1.475 ✓ "H_2O	5.089 ✓ cf	81 ✓ °F		1.00 ✓ "H_2O

$$\text{Wet Test Meter } V_{m_{std}} = 17.65 \times 5.031 \left(\frac{30.11 + \frac{-1.475}{13.6}}{73 + 460} \right) \times \underset{(C_f)}{0.993} = 4.963 \text{ dscf}$$

$$\text{Dry Gas Meter } V_{m_{std}} = 17.65 \times 5.089 \left(\frac{30.11 + \frac{1.000}{13.6}}{81 + 460} \right) = 5.011 \text{ dscf}$$

$$C_{DG} = \frac{4.963}{5.011} = \boxed{0.990}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 11-2(20) Calibrator: Matt Lindquist

Date: November 22, 1995

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } V_{m_{std}}}{\text{Dry Gas Meter } V_{m_{std}}}$$

Run No.: 2 @ 1.50" H_2O P_b: 30.10 "Hg

Control Module Vacuum 5.0 "Hg

	WET TEST METER (No. 2)				DRY GAS METER			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1447	10.082 cf	73 °F	-2.00 "H_2O	780.246 cf	89 °F	80 °F	1.50 "H_2O
Start	1432	0.000 cf	73 °F	-2.00 "H_2O	770.067 cf	83 °F	80 °F	1.50 "H_2O
	15	10.082 cf	73 °F	-2.00 "H_2O	10.179 cf	83 °F		1.50 "H_2O

$$\text{Wet Test Meter } V_{m_{std}} = 17.65 \times 10.082 \left(\frac{30.10 + \frac{-2.000}{13.6}}{73 + 460} \right) \times \underset{(C_f)}{0.993} = 9.930 \text{ dscf}$$

$$\text{Dry Gas Meter } V_{m_{std}} = 17.65 \times 10.179 \left(\frac{30.10 + \frac{1.500}{13.6}}{83 + 460} \right) = 9.996 \text{ dscf}$$

$$C_{DG} = \frac{9.930}{9.996} = \boxed{0.993}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 11-2(20) Calibrator: Matt Lindquist

Date: November 27, 1995

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } V_{m_{std}}}{\text{Dry Gas Meter } V_{m_{std}}}$$

Run No.: 2 @ 2.00" H_2O P_b: 29.81 "Hg

Control Module Vacuum 5.0 "Hg

	WET TEST METER (No. 2)				DRY GAS METER			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	0840	10.178 cf	72 °F	-2.90 "H_2O	807.316 cf	86 °F	76 °F	2.00 "H_2O
Start	0827	0.000 cf	72 °F	-2.90 "H_2O	797.153 cf	80 °F	75 °F	2.00 "H_2O
	13	10.178 cf	72 °F	-2.90 "H_2O	10.163 cf	79 °F		2.00 "H_2O

Wet Test Meter $V_{m_{std}}$ = $17.65 \times 10.178 \left(\frac{29.81 + \frac{-2.90}{13.6}}{72 + 460} \right) \times 0.993$ (C_f) = 9.924 dscf

Dry Gas Meter $V_{m_{std}}$ = $17.65 \times 10.163 \left(\frac{29.81 + \frac{2.00}{13.6}}{79 + 460} \right)$ = 9.970 dscf

$$C_{DG} = \frac{9.924}{9.970} = \boxed{0.995}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 11-2(20) Calibrator: Matt Lindquist

Date: November 27, 1995

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } V_{m_{std}}}{\text{Dry Gas Meter } V_{m_{std}}}$$

Run No.: 2@ 3.00" H_2O P_b: 29.82 "Hg

Control Module Vacuum 5.0 "Hg

	WET TEST METER (No. 2)				DRY GAS METER			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	0907	10.705 cf	72 °F	-4.00 "H_2O	818.624 cf	88 °F	78 °F	3.00 "H_2O
Start	0856	0.000 cf	72 °F	-4.00 "H_2O	807.985 cf	82 °F	77 °F	3.00 "H_2O
	11	10.705 cf	72 °F	-4.00 "H_2O	10.639 cf	81 °F		3.00 "H_2O

$$\text{Wet Test Meter } V_{m_{std}} = 17.65 \times 10.705 \left(\frac{29.82 \; \overset{-4.000}{+ 13.6}}{72 \; + \; 460} \right) \times \underset{(C_f)}{0.993} = 10.413 \text{ dscf}$$

$$\text{Dry Gas Meter } V_{m_{std}} = 17.65 \times 10.639 \left(\frac{29.82 \; \overset{3.000}{+ 13.6}}{81 \; + \; 460} \right) = 10.427 \text{ dscf}$$

$$C_{DG} = \frac{10.413}{10.427} = \boxed{0.999}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 11-2 (20) Calibrator: Robert Theuerkauf

Date: 11/27/95

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } V_{m_{std}}}{\text{Dry Gas Meter } V_{m_{std}}}$$

Run No.: 2 @ 4.00 "H_2O

P_b: 29.82 "Hg

Control Module Vacuum 5.0 "Hg

	WET TEST METER (No. 2)				DRY GAS METER			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	0932	11.220 cf	72 °F	-4.90 "H_2O	830189 cf	88 °F	79 °F	4.00 "H_2O
Start	0922	0.000 cf	72 °F	-4.90 "H_2O	819.106 cf	82 °F	78 °F	4.00 "H_2O
	10	11.220 cf	72 °F	-4.90 "H_2O	11.083 cf	82 °F		4.00 "H_2O

$$\text{Wet Test Meter } V_{m_{std}} = 17.65 \times 11.220 \left(\frac{29.82 + \frac{-4.900}{13.6}}{72 + 460} \right) \times \underset{(C_f)}{0.993} = 10.889 \text{ dscf}$$

$$\text{Dry Gas Meter } V_{m_{std}} = 17.65 \times 11.083 \left(\frac{29.82 + \frac{4.00}{13.6}}{82 + 460} \right) = 10.869 \text{ dscf}$$

$$C_{DG} = \frac{10.889}{10.869} = \boxed{1.002}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 11-2(20) Calibrator: Robert Theuerkauf

Date: 11/27/95

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } V_{m_{std}}}{\text{Dry Gas Meter } V_{m_{std}}}$$

Run No.: 1 @ 2 L/min P_b: 29.82 "Hg

Control Module Vacuum 570 "Hg

	WET TEST METER (No. 2)				DRY GAS METER			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1019	2.142 cf	72 °F	-0.40 "H_2O	833.215 cf	90 °F	80 °F	0.01 "H_2O
Start	0946	0.000 cf	72 °F	-0.40 "H_2O	831.021 cf	82 °F	79 °F	0.01 "H_2O
	33	2.142 cf	72 °F	-0.40 "H_2O	2.194 cf	83 °F		0.01 "H_2O

$$\text{Wet Test Meter } V_{m_{std}} = 17.65 \times 2.142 \left(\frac{29.82 \overset{-0.400}{+ 13.6}}{72 + 460} \right) \times \underset{(C_f)}{0.993} = 2.102 \text{ dscf}$$

$$\text{Dry Gas Meter } V_{m_{std}} = 17.65 \times 2.194 \left(\frac{29.82 \overset{0.010}{+ 13.6}}{83 + 460} \right) = 2.127 \text{ dscf}$$

$$C_{DG} = \frac{2.102}{2.127} = \boxed{0.989}$$

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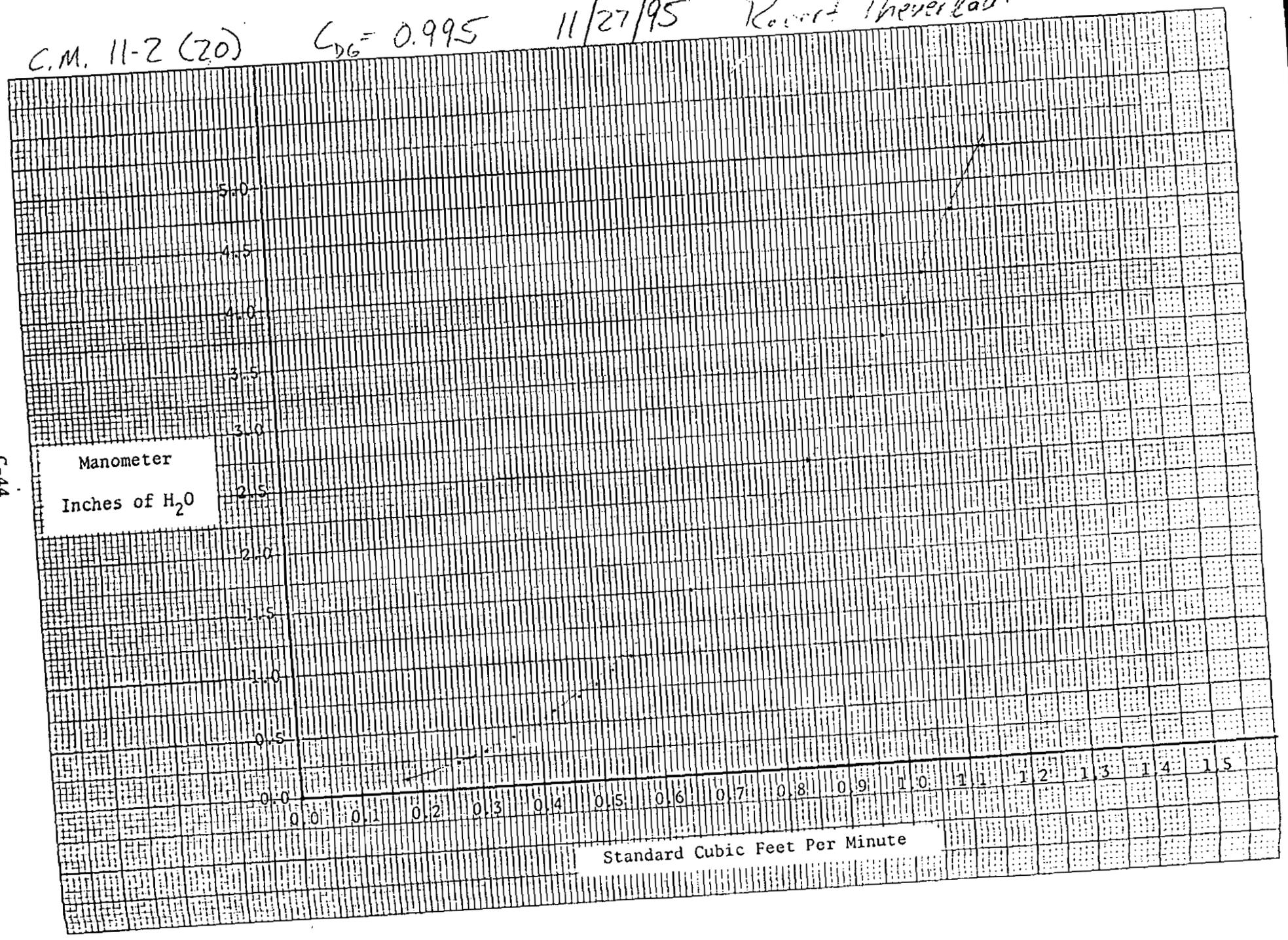
C.M. 11-2 (20) C_{DG} = 0.995 11/27/95 Robert Thieverkauf ✓JD



METCO ENVIRONMENTAL

JMG

DIGITAL TEMPERATURE INDICATOR NO. 11-2(20)

CALIBRATION DATA

Date: November 22, 1995

Media	Time	Mercury Thermometer (°F)	DTI (°F)
Ice Bath	1400	32	33
Ambient Air	0846	73	74
Boiling Water	0852	212	212
Oven	0914	250	251
Oven	0937	302	303
Oven	1006	351	351
Oven	1010	375	375

Meter Adjusted? Yes _____ No ✓

Matt Lundquist
Signature of Calibrator

METCO ENVIRONMENTAL

Dry Gas Meter Calibration

Dry Gas Meter Number 12-2

Date: 4-96

ΔH ("H_2O)	C_{DG}
0.5	0.998
1.0	0.996
1.5	0.999
2.0	0.993
3.0	1.001
4.0	0.992
Average	0.997

Variation: + 0.40%

- 0.50%

Calibrator: Jeff Brunz

Checked by: Tim Startz

C_{DG} @ 2 liters/min. = 1.004

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 12-2 Calibrator: Dewayne Brock

Date: 1-9-96

$$\textit{Calibration Factor } (C_{DG}) = \frac{\textit{Wet Test Meter } Vm_{std}}{\textit{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 0.5" H_2O P_b: 29.49 "Hg

Control Module Vacuum: 5.0 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	0907	5.415 cf	72 °F	-0.90 "H_2O	341.795 cf	77 °F	73 °F	0.50 "H_2O
Start	0855	0.000 cf	72 °F	-0.90 "H_2O	336.400 cf	77 °F	73 °F	0.50 "H_2O
Avg.	12	5.415 cf	72 °F	-0.90 "H_2O	5.395 cf	75 °F		0.50 "H_2O

$$\textit{Wet Test Meter } Vm_{std} = 17.65 \times 5.415 \left[\frac{29.49 + \frac{-0.90}{13.6}}{72 + 460} \right] \times 0.992\ (C_p) = 5.244 \textit{ dcsf}$$

$$\textit{Dry Gas Meter } Vm_{std} = 17.65 \times 5.395 \left[\frac{29.49 + \frac{0.50}{13.6}}{75 + 460} \right] = 5.255 \textit{ dcsf}$$

$$C_{DG} = \frac{5.244}{5.255} = \boxed{0.998\ \checkmark}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 12-2 Calibrator: Jeff Brunson

Date: 1-9-96

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 1.0" H_2O P_b: 29.49 "Hg

Control Module Vacuum: 5.0 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	0923	5.062 cf	72 °F	-1.20 "H_2O	347.542cf	73 °F	76 °F	1.00 "H_2O
Start	0915	0.000 cf	72 °F	-1.20 "H_2O	342.500cf	75 °F	76 °F	1.00 "H_2O
Avg.	0008	5.062 cf	72 °F	-1.20 "H_2O	005.042cf	75 °F		1.00 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 5.062 \left[\frac{29.49 + \frac{-1.20}{13.6}}{72 + 460} \right] \times 0.992\ (C_i) = 4.898 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 5.042 \left[\frac{29.49 + \frac{1.00}{13.6}}{75 + 460} \right] = 4.918 \text{ dcsf}$$

$$C_{DG} = \frac{4.898}{4.918} = \boxed{0.996}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 12-2 Calibrator: Dewayne Brock

Date: 1-9-96

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 1.5" H_2O P_b: 29.49 "Hg

Control Module Vacuum: 5.0 "Hg

Wet Test Meter (No. 3)

	Time	Meter Reading	Temp.	P_m
End	0944	10.739 cf	72 °F	-1.90 "H_2O
Start	0930	0.000 cf	72 °F	-1.90 "H_2O
Avg.	14	10.739 cf	72 °F	-1.90 "H_2O

Dry Gas Meter

	Meter Reading	Temp. In	Temp. Out	P_m
End	359.974 cf	84 °F	73 °F	1.50 "H_2O
Start	349.300 cf	78 °F	73 °F	1.50 "H_2O
Avg.	10.674 cf	77 °F		1.50 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 10.739 \left[\frac{29.49 + \frac{-1.90}{13.6}}{72 + 460} \right] \times 0.992\ (C_f) = 10.373 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 10.674 \left[\frac{29.49 + \frac{1.50}{13.6}}{77 + 460} \right] = 10.385 \text{ dcsf}$$

$$C_{DG} = \frac{10.373}{10.385} = \boxed{0.999}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 12-2 Calibrator: Jeff Brunson

Date: 1-9-96

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 20" H_2O P_b: 29.49 "Hg

Control Module Vacuum: 5.0 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	0958	10.549 cf	72 °F	-2.20 "H_2O	371.150 cf	84 °F	68 °F	2.00 "H_2O
Start	0945	0.000 cf	72 °F	-2.20 "H_2O	360.642 cf	82 °F	69 °F	2.00 "H_2O
Avg.	0013	10.549 cf	72 °F	-2.20 "H_2O	10.508 cf	76 °F		2.00 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 10.549 \left[\frac{29.49 + \frac{-2.20}{13.6}}{72 + 460} \right] \times 0.992\ (C_f) = 10.182 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 10.508 \left[\frac{29.49 + \frac{2.00}{13.6}}{76 + 460} \right] = 10.255 \text{ dcsf}$$

$$C_{DG} = \frac{10.182}{10.255} = \boxed{0.993}\ \checkmark$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 12-2 Calibrator: Jeff Brunson

Date: 1-9-96

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 2 @ 3.0 "H_2O P_b: 29.52 "Hg

Control Module Vacuum: 5.0 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1441	10.605 cf	71 °F	-3.10 "H_2O	432.611 cf	79 °F	71 °F	3.00"H_2O
Start	1430	0.000 cf	71 °F	-3.10 "H_2O	422.204 cf	70 °F	75 °F	3.00"H_2O
Avg.	0011	10.605 cf	71 °F	-3.10 "H_2O	10.407 cf	74 °F		3.00"H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 10.605 \left[\frac{29.52 + \frac{-3.10}{13.6}}{71 + 460}\right] \times 0.992\,(C_f) = 10.243 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 10.407 \left[\frac{29.52 + \frac{3.00}{13.6}}{74 + 460}\right] = 10.230 \text{ dcsf}$$

$$C_{DG} = \frac{10.243}{10.230} = \boxed{1.001\ \checkmark}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 12-2 Calibrator: Jeff Brunson

Date: 1-9-96

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } V_{m_{std}}}{\text{Dry Gas Meter } V_{m_{std}}}$$

Run No.: 1@4.0" H_2O P_b: 29.49 "Hg

Control Module Vacuum 5.0 "Hg

	WET TEST METER (No. 3)				DRY GAS METER			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1028	10.749 cf	72 °F	-3.80 "H_2O	395.744 cf	89 °F	70 °F	4.00 "H_2O
Start	1017	0.000 cf	72 °F	-3.80 "H_2O	385.103 cf	80 °F	69 °F	4.00 "H_2O
	0011	10.749 cf	72 °F	-3.80 "H_2O	10.641 cf	77 °F		4.00 "H_2O

$$\text{Wet Test Meter } V_{m_{std}} = 17.65 \times 10.749 \left(\frac{29.49 + \frac{-3.80}{13.6}}{72 + 460} \right) \times \underset{(C_f)}{0.992} = 10.334 \text{ dscf}$$

$$\text{Dry Gas Meter } V_{m_{std}} = 17.65 \times 10.641 \left(\frac{29.49 + \frac{4.00}{13.6}}{77 + 460} \right) = 10.417 \text{ dscf}$$

$$C_{DG} = \frac{10.334}{10.417} = \boxed{0.992 \checkmark}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 12-2 Calibrator: Jeff Brunson

Date: 1-9-96

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 2.0 L/min P_b: 29.52 "Hg

Control Module Vacuum: 5.0 "Hg

	Wet Test Meter (No. 1)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1559	2.060 cf	72 °F	-1.10 "H_2O	435.845 cf	70 °F	70 °F	0.010 "H_2O
Start	1529	0.000 cf	72 °F	-1.10 "H_2O	433.805 cf	70 °F	71 °F	0.010 "H_2O
Avg.	0030	2.060 cf	72 °F	-1.10 "H_2O	2.040 cf	70 °F		0.010 "H_2O

$$Vm_{std} = 17.65 \times 2.060 \left[\frac{29.52 + \frac{-1.10}{13.6}}{72 + 460}\right] \times 1.001 \; (C_f) = 2.014 \text{ dcsf}$$

$$Vm_{std} = 17.65 \times 2.040 \left[\frac{29.52 \pm \frac{0.010}{13.6}}{70 + 460}\right] = 2.006 \text{ dcsf}$$

$$C_{DG} = \frac{2.014}{2.006} = \boxed{1.004 \checkmark}$$

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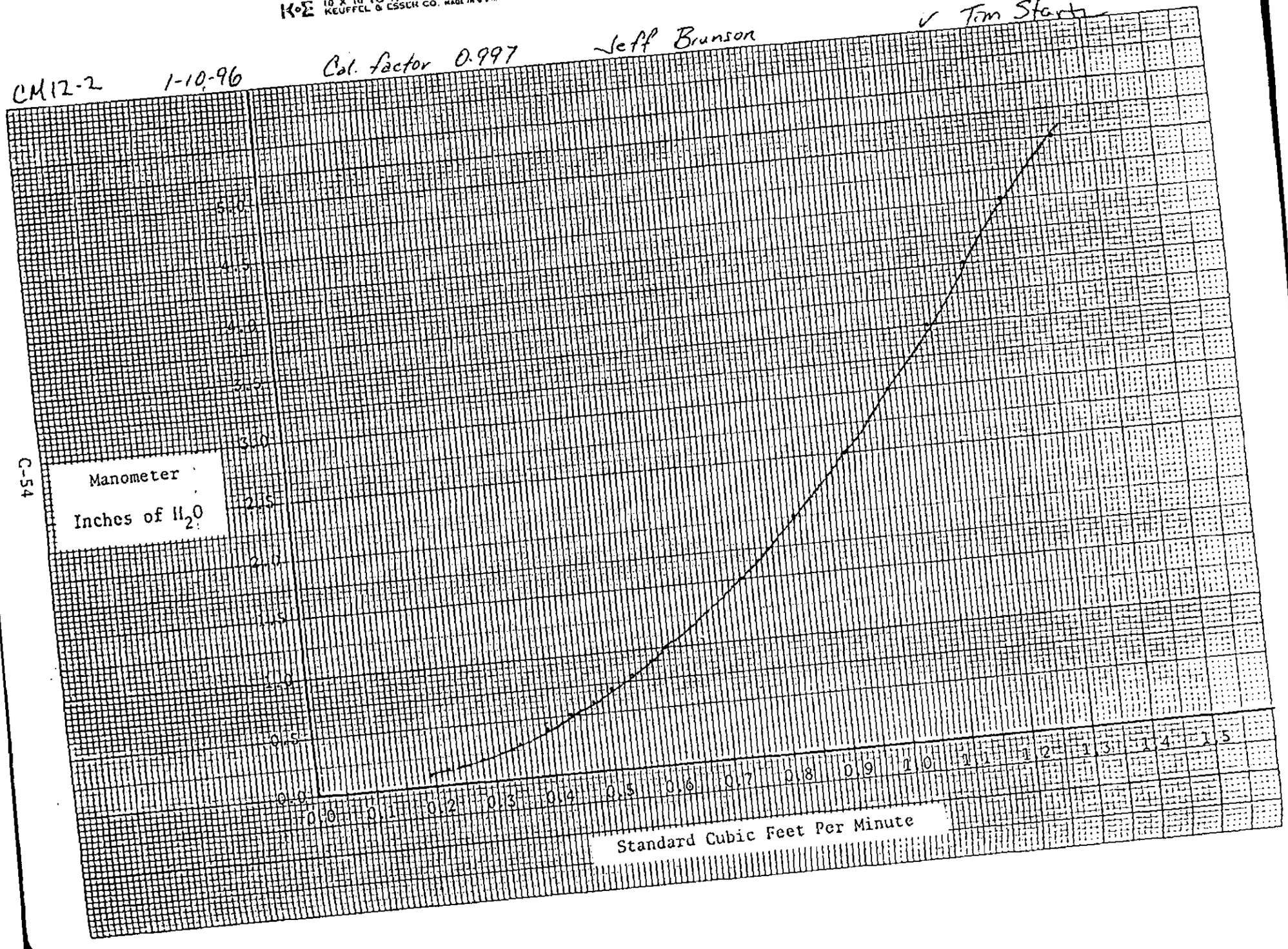
CM12-2 1-10-96 Cal. factor 0.997 Jeff Brunson ✓ Tim Starts



METCO ENVIRONMENTAL

DIGITAL TEMPERATURE INDICATOR NO. 12-2

CALIBRATION DATA

Date: 1-9-96

Media	Time	Mercury Temperature (°F)	DTI (°F)
Ambient Air	0850	71	71
Ice Bath	0855	32	31
Boiling Water	0906	212	212
Oven	0919	251	251
Oven	0930	350	349
Oven	0937	372	372
Oven	0941	299	300

Meter Adjusted? Yes _____ No ✓

Calibrator: [signature]

Checked By: Tim Stertz

METCO ENVIRONMENTAL

Dry Gas Meter Calibration

Dry Gas Meter Number 17-2

Date: 12\27\95

ΔH ("H_2O)	C_{DG}
0.5	1.034
1.0	1.036
1.5	1.034
2.0	1.036
3.0	1.037
4.0	1.042
Average	1.037 ✓

Variation: + 0.48 %

- 0.29 %

Calibrator: John Lambert

Checked by: Jesse Rocha

C_{DG} @ 2 liters/min. = 0.987

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 17-2 Calibrator: John Lambert

Date: 12/27/95

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 2.0 in H2O P_b: 29.61 "Hg

Control Module Vacuum: 5.0 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	15:14	10.540 cf	72 °F	-2.10 "H_2O	458.992 cf	95 °F	76 °F	2.00 "H_2O
Start	15:02	0.00 cf	72 °F	-2.00 "H_2O	448.819 cf	80 °F	76 °F	2.00 "H_2O
Avg.	0:12	10.540 cf	72 °F	-2.050 "H_2O	10.173 cf	82 °F		2.00 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 10.540 \left[\frac{29.61 + \frac{-2.050}{13.6}}{72 + 460}\right] \times 0.991 \text{ (C)} = 10.209 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 10.173 \left[\frac{29.61 + \frac{2.000}{13.6}}{82 + 460}\right] = 9.858 \text{ dcsf}$$

$$C_{DG} = \frac{10.209}{9.858} = \boxed{1.036}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 17-2 Calibrator: John Lambert

Date: 12/27/95

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 3.0 in H_2O P_b: 29.61 "Hg

Control Module Vacuum: 5.0 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	15:59	10.968 cf	72 °F	-3.00 "H_2O	482.782 cf	98 °F	79 °F	3.0 "H_2O
Start	15:48	0.00 cf	72 °F	-3.00 "H_2O	472.199 cf	86 °F	78 °F	3.0 "H_2O
Avg.	0:11	10.968 cf	72 °F	-3.0 "H_2O	10.583 cf	85 °F		3.0 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 10.968 \left[\frac{29.61 + \frac{-3.00}{13.6}}{72 + 460}\right] \times 0.991 \quad (C_f) = 10.598 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 10.583 \left[\frac{29.61 + \frac{3.0}{13.6}}{85 + 460}\right] = 10.224 \text{ dcsf}$$

$$C_{DG} = \frac{10.598}{10.224} = \boxed{1.037}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 17-2 Calibrator: John Rembert

Date: 12/27/95

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 4.0 in H2O P_b: 29.61 "Hg

Control Module Vacuum: 5.2 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	16:17	11.501 cf	72 °F	-3.80 "H_2O	496.994 cf	103 °F	80 °F	4.0 "H_2O
Start	16:09	00.00 cf	72 °F	-3.80 "H_2O	485.925 cf	93 °F	79 °F	4.0 "H_2O
Avg.	0.08	11.501 cf	72 °F	-3.80 "H_2O	11.069 cf	89 °F		4.0 "H_2O

$$Vm_{std} = 17.65 \times 11.501 \left[\frac{29.61 + \frac{-3.80}{13.6}}{72 + 460}\right] \times 0.991\ (C_f) = 11.091 \text{ dcsf}$$

$$Vm_{std} = 17.65 \times 11.069 \left[\frac{29.61 + \frac{4.0}{13.6}}{89 + 460}\right] = 10.642 \text{ dcsf}$$

$$C_{DG} = \frac{11.091}{10.642} = \boxed{1.042}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 17-2 Calibrator: John Lambert

Date: 12\28\95

$$\textit{Calibration Factor } (C_{DG}) = \frac{\textit{Wet Test Meter } Vm_{std}}{\textit{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 2L/min P_b: 29.77 "Hg

Control Module Vacuum: 1 "Hg

	Wet Test Meter (No. 1)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	9:14	2.033 cf	73° °F	-1.30 "H_2O	501.328cf	73 °F	73 °F	0.0"H_2O
Start	8:42	0.00 cf	73° °F	-1.30 "H_2O	499.269 cf	72 °F	72 °F	0.0"H_2O
Avg.	32	2.033 cf	73° °F	-1.30 "H_2O	2.059 cf	73° °F		0.0"H_2O

$$\textit{Wet Test Meter } Vm_{std} = 17.65 \times 2.033 \left[\frac{29.77 + \frac{-1.30}{13.6}}{73^\circ + 460}\right] \times 1.003 \ (C_i) = 2.004 \text{ dcsf}$$

$$\textit{Dry Gas Meter } Vm_{std} = 17.65 \times 2.059 \left[\frac{29.77 + \frac{0.01}{13.6}}{73^\circ + 460}\right] = 2.030 \text{ dcsf}$$

$$C_{DG} = \frac{2.004}{2.030} = \boxed{0.987}$$

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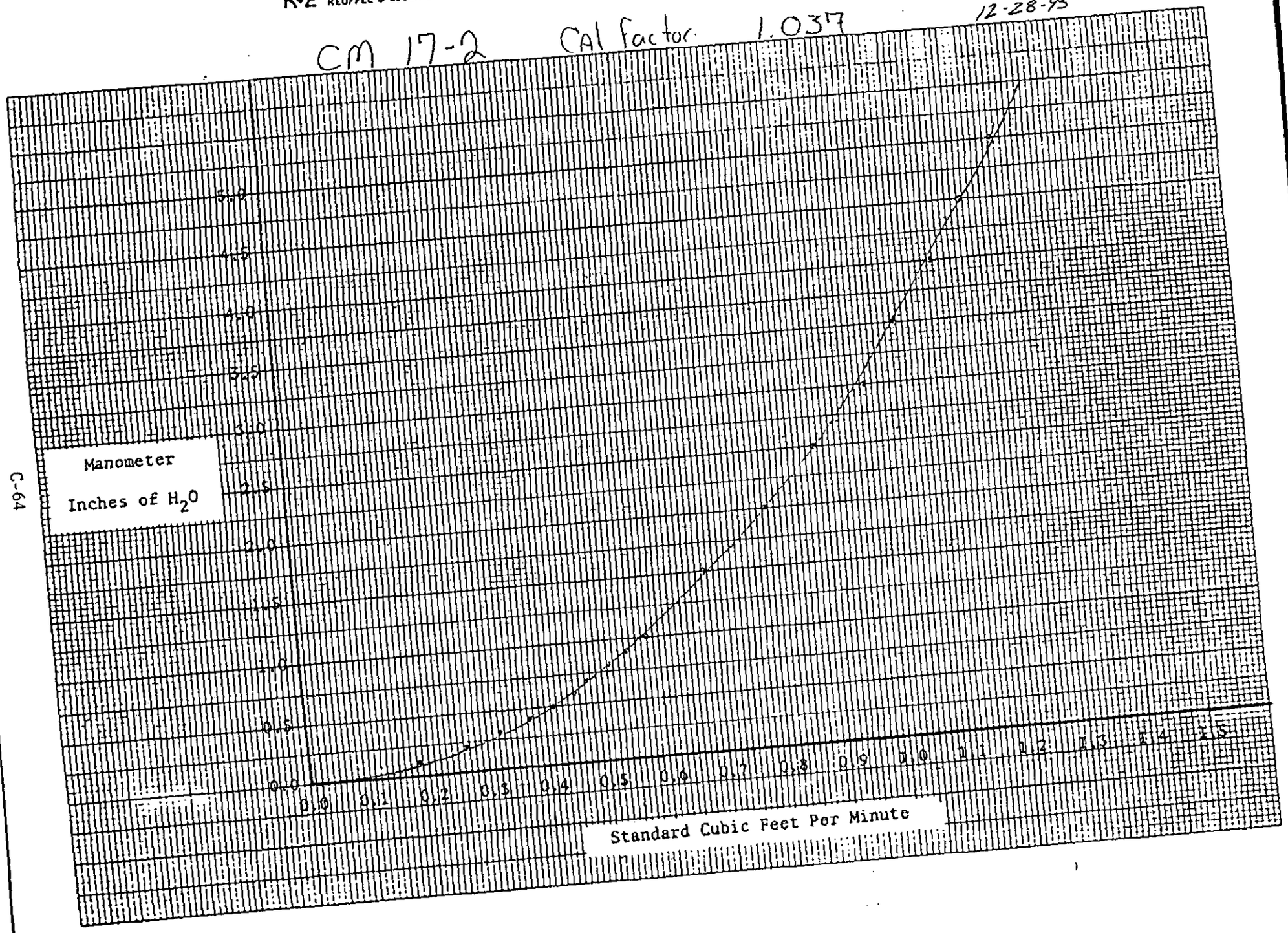
CM 17-2 Cal factor 1.037 12-28-95



METCO ENVIRONMENTAL

DIGITAL TEMPERATURE INDICATOR NO. 17-2

CALIBRATION DATA

Date: 12\27\95

Media	Time	Mercury Temperature (°F)	DTI (°F)
Ambient Air	1030	69°F	69°F
Ice Bath	1020	32°F	32°F
Boiling Water	1045	212°F	213°F
Oven	1155	250°F	252°F
Oven	1315	300°F	302°F
Oven	1415	374°F	376°F
Oven	1436	354°F	355°F

Meter Adjusted? Yes _____ No X

Calibrator: John Umbrite

Checked By: Jesse Rocha

METCO ENVIRONMENTAL

Dry Gas Meter Calibration

Dry Gas Meter Number 18-1(26)

Date: January 3, 1996

ΔH ("H_2O)	C_{DG}
0.5	0.966 ✓
1.0	0.973 ✓
1.5	0.974 ✓
2.0	0.977 ✓
3.0	0.974 ✓
4.0	0.969 ✓
Average	0.972 ✓

Variation: + 0.51% ✓

- 0.62%

Calibrator: Matt Lindquist

Checked by: Mark Glicer

C_{DG} @ 2 liters/min. = 0.958 ✓

METCO ENVIRONMENTAL

JMG

DRY GAS METER CALIBRATION

Meter Number: 18-1(26) Calibrator: Matt Lindquist #172

Date: January 3, 1996

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } V_{m_{std}}}{\text{Dry Gas Meter } V_{m_{std}}}$$

Run No.: 1 @ 0.50" H_2O P_b: 30.16 "Hg

Control Module Vacuum 5.0 "Hg

	WET TEST METER (No. 2)				DRY GAS METER			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	0931	5.022 cf	68 °F	-1.20 "H_2O	704.499 cf	76 °F	72 °F	0.50 "H_2O
Start	0918	0.000 cf	68 °F	-1.25 "H_2O	699.312 cf	74 °F	71 °F	0.50 "H_2O
		5.022 ✓ cf	68 ✓ °F	-1.225 ✓ "H_2O	5.187 ✓ cf	73 ✓ °F		0.50 ✓ "H_2O

$$\text{Wet Test Meter } V_{m_{std}} = 17.65 \times 5.022 \left(\frac{30.16 + \frac{-1225}{13.6}}{68 + 460} \right) \times \underset{(C_f)}{0.993} = 5.013 \text{ dscf}$$

$$\text{Dry Gas Meter } V_{m_{std}} = 17.65 \times 5.187 \left(\frac{30.16 + \frac{0.500}{13.6}}{73 + 460} \right) = 5.187 \text{ dscf}$$

$$C_{DG} = \frac{5.013}{5.187} = \boxed{0.966}$$

METCO ENVIRONMENTAL

JMG

DRY GAS METER CALIBRATION

Meter Number: 18-1(26) Calibrator: Matt Lindquist

Date: January 3, 1996

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } V_{m_{std}}}{\text{Dry Gas Meter } V_{m_{std}}}$$

Run No.: 1 @ 1.00" H_2O P_b: 30.16 "Hg

Control Module Vacuum 5.0 "Hg

	WET TEST METER (No. 2)				DRY GAS METER			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	0946	5.394 cf	68 °F	−1.80 "H_2O	710.585 cf	84 °F	73 °F	1.00 "H_2O
Start	0936	0.000 cf	68 °F	−1.80 "H_2O	705.023 cf	77 °F	72 °F	1.00 "H_2O
		5.394 cf	68 °F	−1.80 "H_2O	5.562 cf	77 °F		1.000 "H_2O

$$\text{Wet Test Meter } V_{m_{std}} = 17.65 \times 5.394 \left(\frac{30.16 + \frac{-1.80}{13.6}}{68 + 460} \right) \times \underset{(C_f)}{0.993} = 5.376 \text{ dscf}$$

$$\text{Dry Gas Meter } V_{m_{std}} = 17.65 \times 5.562 \left(\frac{30.16 + \frac{1.000}{13.6}}{77 + 460} \right) = 5.527 \text{ dscf}$$

$$C_{DG} = \frac{5.376}{5.527} = \boxed{0.973}$$

METCO ENVIRONMENTAL

JMG

DRY GAS METER CALIBRATION

Meter Number: 18-1(26) Calibrator: Matt Lindquist

Date: January 3, 1996

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } V_{m_{std}}}{\text{Dry Gas Meter } V_{m_{std}}}$$

Run No.: 1 @ 1.50" H_2O P_b: 30.15 "Hg

Control Module Vacuum 5.0 "Hg

	WET TEST METER (No. 2)				DRY GAS METER			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1014	10.335 cf	69 °F	-2.15 "H_2O	721.627 cf	85 °F	75 °F	1.50 "H_2O
Start	0958	0.000 cf	69 °F	-2.15 "H_2O	711.009 cf	79 °F	74 °F	1.50 "H_2O
		10.335 cf	69 °F	-2.150 "H_2O	10.618 cf	78 °F		1.500 "H_2O

$$\text{Wet Test Meter } V_{m_{std}} = 17.65 \times 10.335 \left(\frac{30.15 + \frac{-2.150}{13.6}}{69 + 460} \right) \times \underset{(C_f)}{0.993} = 10.270 \text{ dscf}$$

$$\text{Dry Gas Meter } V_{m_{std}} = 17.65 \times 10.618 \left(\frac{30.15 + \frac{1.500}{13.6}}{78 + 460} \right) = 10.541 \text{ dscf}$$

$$C_{DG} = \frac{10.270}{10.541} = \boxed{0.974}$$

METCO ENVIRONMENTAL

JMG

DRY GAS METER CALIBRATION

Meter Number: 18-1(26) Calibrator: Matt Lindquist

Date: January 3, 1996

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } V_{m_{std}}}{\text{Dry Gas Meter } V_{m_{std}}}$$

Run No.: 1 @ 2.00 " H_2O P_b: 30.15 "Hg

Control Module Vacuum 5.0 "Hg

	WET TEST METER (No. 2)				DRY GAS METER			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1032	10.469 cf	69 °F	-2.55 "H_2O	733.159 cf	89 °F	76 °F	2.00 "H_2O
Start	1018	0.000 cf	69 °F	-2.55 "H_2O	722.398 cf	83 °F	75 °F	2.00 "H_2O
		10.469 cf	69 °F	-2.550 "H_2O	10.761 cf	81 °F		2.00 "H_2O

$$\text{Wet Test Meter } V_{m_{std}} = 17.65 \times 10.469 \left(\frac{30.15 + \frac{-2.550}{13.6}}{69 + 460} \right) \times \underset{(C_f)}{0.993} = 10.393 \text{ dscf}$$

$$\text{Dry Gas Meter } V_{m_{std}} = 17.65 \times 10.761 \left(\frac{30.15 + \frac{2.00}{13.6}}{81 + 460} \right) = 10.637 \text{ dscf}$$

$$C_{DG} = \frac{10.393}{10.637} = \boxed{0.977}$$

METCO ENVIRONMENTAL

JMG

DRY GAS METER CALIBRATION

Meter Number: 18-1 (96) Calibrator: Matt Lindquist

Date: January 3, 1996

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } V_{m_{std}}}{\text{Dry Gas Meter } V_{m_{std}}}$$

Run No.: 1 @ 3.00 "H_2O P_b: 30.15 "Hg

Control Module Vacuum 5.0 "Hg

	WET TEST METER (No. 2)				DRY GAS METER			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1058	10.141 cf	69 °F	-3.35 "H_2O	751.709 cf	88 °F	78 °F	3.00 "H_2O
Start	1047	0.000 cf	69 °F	-3.35 "H_2O	741.262 cf	87 °F	77 °F	3.00 "H_2O
		10.141 cf	69 °F	-3.350 "H_2O	10.447 cf	83 °F		3.000 "H_2O

$$\text{Wet Test Meter } V_{m_{std}} = 17.65 \times 10.141 \left(\frac{30.15 + \frac{-3.350}{13.6}}{69 + 460} \right) \times \underset{(C_f)}{0.993} = 10.047 \text{ dscf}$$

$$\text{Dry Gas Meter } V_{m_{std}} = 17.65 \times 10.447 \left(\frac{30.15 + \frac{3.000}{13.6}}{83 + 460} \right) = 10.313 \text{ dscf}$$

$$C_{DG} = \frac{10.047}{10.313} = \boxed{0.974}$$

METCO ENVIRONMENTAL

VMG

DRY GAS METER CALIBRATION

Meter Number: 18-1 (26)

Calibrator: Matt Lindquist

Date: January 3, 1996

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } V_{m_{std}}}{\text{Dry Gas Meter } V_{m_{std}}}$$

Run No.: 1@ 4.00" H_2O

P_b: 30.15 "Hg

Control Module Vacuum 5.0 "Hg

	WET TEST METER (No. 2)				DRY GAS METER			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1113	10.585 cf	69 °F	-4.25 "H_2O	764.351 cf	87 °F	78 °F	4.00 "H_2O
Start	1103	0.000 cf	69 °F	-4.30 "H_2O	753.464 cf	85 °F	78 °F	4.00 "H_2O
		10.585 cf	69 °F	-4.275 "H_2O	10.887 cf	82 °F		4.000 "H_2O

$$\text{Wet Test Meter } V_{m_{std}} = 17.65 \times 10.585 \left(\frac{30.15 + \frac{-4.275}{13.6}}{69 + 460} \right) \times \underset{(C_f)}{0.993} = 10.463 \text{ dscf}$$

$$\text{Dry Gas Meter } V_{m_{std}} = 17.65 \times 10.887 \left(\frac{30.15 + \frac{4.000}{13.6}}{82 + 460} \right) = 10.793 \text{ dscf}$$

$$C_{DG} = \frac{10.463}{10.793} = \boxed{0.969}$$

METCO ENVIRONMENTAL

JMG

DRY GAS METER CALIBRATION

Meter Number: 18-1(26) Calibrator: Matt Lindquist

Date: January 3, 1996

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } V_{m_{std}}}{\text{Dry Gas Meter } V_{m_{std}}}$$

Run No.: 1 @ 2 liters/min. P_b: 30.15 "Hg

Control Module Vacuum 5.0 "Hg

	WET TEST METER (No. 2)				DRY GAS METER			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1158	2.050 cf	69 °F	-0.35 "H_2O	767.243 cf	82 °F	79 °F	0.01 "H_2O
Start	1128	0.000 cf	69 °F	-0.35 "H_2O	765.075 cf	81 °F	78 °F	0.01 "H_2O
		2.050 cf	69 °F	-0.350 "H_2O	2.168 cf	80 °F		0.01 "H_2O

Wet Test Meter $V_{m_{std}}$ = $17.65 \times 2.050 \left(\frac{30.15 + \frac{-0.350}{13.6}}{69 + 460} \right) \times 0.993 \ (C_f)$ = 2.046 dscf

Dry Gas Meter $V_{m_{std}}$ = $17.65 \times 2.168 \left(\frac{30.15 + \frac{0.010}{13.6}}{80 + 460} \right)$ = 2.137 dscf

$$C_{DG} = \frac{2.046}{2.137} = \boxed{0.958}$$

K&E 10 X 10 TO ½ INCH 7 X 10 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.

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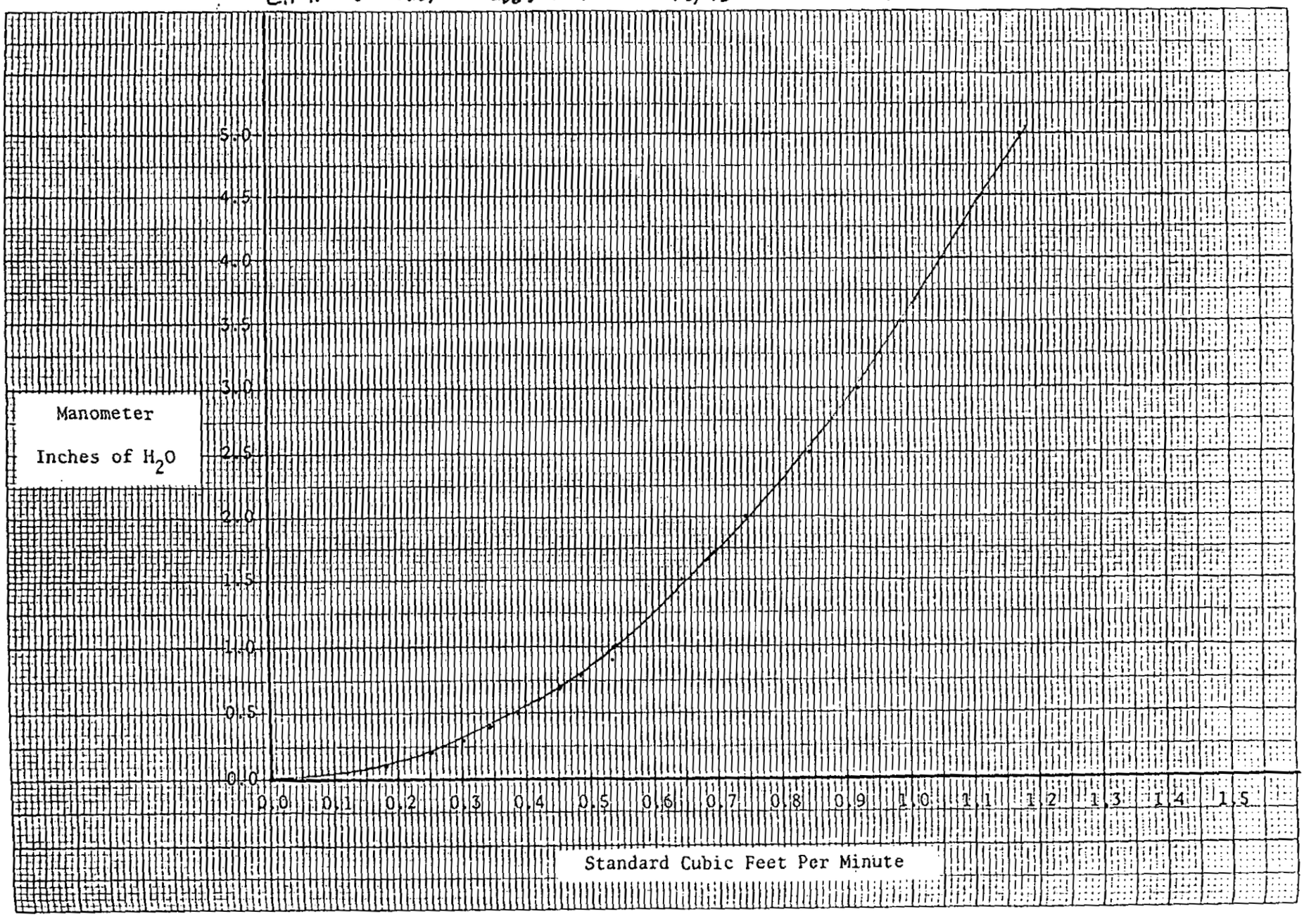
C.M. 18-1(26) C_{D6}: 0.972 1/3/96 MATT LINDQUIST



METCO ENVIRONMENTAL

VMG

DIGITAL TEMPERATURE INDICATOR NO. 18-1(26)

CALIBRATION DATA

Date: January 3, 1996

Media	Time	Mercury Thermometer (°F)	DTI (°F)
Ice Bath	0915	32	32 ✓
Ambient Air	0925	76	75 ✓
Boiling Water	0938	212	212 ✓
Oven	1053	250	252 ✓
Oven	1110	300	300 ✓
Oven	1130	350	350 ✓
Oven	1145	375	375 ✓

Meter Adjusted? Yes _____ No ✓

Matt Ledgerwood
Signature of Calibrator

METCO ENVIRONMENTAL

Dry Gas Meter Calibration

Dry Gas Meter Number 28-2 (24)

Date: 11/1/95

ΔH ("H_2O)	C_{DG}
0.5	1.008
1.0	1.007
1.5	1.012
2.0	1.016
3.0	1.014
4.0	1.013
Average	1.012

Variation: + 0.40%

- 0.49%

Calibrator: [signature] 187

Checked by: Jean Rochon

C_{DG} @ 2 liters/min. = 1.005

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 28-2 (24) Calibrator: J. Stalf

Date: 11/1/95

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 0.50 "H_2O P_b: 29.22 "Hg

Control Module Vacuum: 4.5 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	0941	5.240 cf	74 °F	-1.10 "H_2O	180.665 cf	81 °F	74 °F	0.50 "H_2O
Start	0928	0.000 cf	74 °F	-1.10 "H_2O	175.505 cf	79 °F	74 °F	0.50 "H_2O
Avg.		5.240 cf	74 °F	-1.10 "H_2O	5.160 cf	77 °F		0.50 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 5.240 \left(\frac{29.22}{74} + \frac{\frac{-1.100}{13.6}}{+460} \right) \times 0.991\ (C_1) = 5.001 \text{ dcs}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 5.160 \left(\frac{29.22}{77} + \frac{\frac{0.500}{13.6}}{+460} \right) = 4.962 \text{ dcsf}$$

$$C_{DG} = \frac{5.001}{4.962} = \boxed{1.008}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 28-2 (24) Calibrator: T. Stala

Date: 11/1/95

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 1.00 "H_2O P_b: 29.22 "Hg

Control Module Vacuum: 5.0 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1005	5.148 cf	74 °F	-1.60 "H_2O	186.321 cf	80 °F	80 °F	1.00 "H_2O
Start	0956	0.000 cf	74 °F	-1.60 "H_2O	181.268 cf	77 °F	74 °F	1.00 "H_2O
Avg.		5.148 cf	74 °F	-1.60 "H_2O	5.053 cf	76 °F		1.00 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 5.148 \left(\frac{29.22}{74} + \frac{\frac{-1.600}{13.6}}{+460} \right) \times 0.991 (C_l) = 4.907 \text{ dcs}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 5.053 \left(\frac{29.22}{76} + \frac{\frac{1.600}{13.6}}{+460} \right) = 4.874 \text{ dcsf}$$

$$C_{DG} = \frac{4.907}{4.874} = \boxed{1.007}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 28-2 (24) Calibrator: T. Staker

Date: 11/1/95

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 1.50 "H_2O P_b: 29.22 "Hg

Control Module Vacuum: 5.00 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1025	10.243 cf	74 °F	-2.000 "H_2O	197.009 cf	86 °F	75 °F	1.500 "H_2O
Start	1010	0.000 cf	74 °F	-2.000 "H_2O	186.976 cf	79 °F	74 °F	1.500 "H_2O
Avg.		10.243 cf	74 °F	-2.000 "H_2O	10.033 cf	79 °F		1.500 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 10.243 \left(\frac{29.22}{74} + \frac{\frac{-2.000}{13.6}}{+460} \right) \times 0.991\,(C_f) = 9.754 \text{ dcs}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 10.033 \left(\frac{29.22}{79} + \frac{\frac{1.500}{13.6}}{+460} \right) = 9.636 \text{ dcsf}$$

$$C_{DG} = \frac{9.754}{9.636} = \boxed{1.012}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 28-2 (24) Calibrator: T. Staley

Date: 11/1/95

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 2.00 "H_2O P_b: 29.22 "Hg

Control Module Vacuum: 5.0 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1041	10.325 cf	74 °F	-2.20 "H_2O	207.453 cf	89 °F	76 °F	2.00 "H_2O
Start	1028	0.000 cf	74 °F	-2.20 "H_2O	197.360 cf	84 °F	75 °F	2.00 "H_2O
Avg.		10.325 cf	74 °F	-2.20 "H_2O	10.093 cf	81 °F		2.00 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 10.325 \left(\frac{29.22}{74} + \frac{\frac{-2.200}{13.6}}{+460} \right) \times 0.991\ (C_i) = 9.827 \text{ dcs}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 10.093 \left(\frac{29.22}{81} + \frac{\frac{2.000}{13.6}}{+460} \right) = 9.670 \text{ dcsf}$$

$$C_{DG} = \frac{9.827}{9.670} = \boxed{1.016}$$

METCO ENVIRONMENTAL

DIGITAL TEMPERATURE INDICATOR NO. 28-2 (24)

CALIBRATION DATA

Date: 11/1/95

Media	Time	Mercury Thermometer (°F)	DTI (°F)
Ice Bath	0905	34	33
Ambient Air	0901	76	75
Boiling Water	0919	211	211
Oven	0953	248	247
Oven	1020	298	300
Oven	1050	350	353
Oven	1116	370	373

Meter Adjusted? Yes _____ No ✓

Signature of Calibrator

METCO ENVIRONMENTAL

BAROMETER CALIBRATION

Barometer No. 8-1

Date: 12/7/95

Time: 1600

Barometric Pressure @ Addison Field @ 719 ft.	=	30.12
	-	0.719
Absolute Pressure at Addison Field	=	29.401
	+	0.083
Absolute Pressure @ METCO @ 636 ft.	=	29.484
Barometer Reading	=	29.48
Variation	=	0.00

Barometer Adjusted? Yes ✓ No ____

Jesse Rourke
Signature of Calibrator

METCO ENVIRONMENTAL

BAROMETER CALIBRATION

Barometer No. 12-1 (29)

Date: 10 January 1996

Time: 1000

Barometric Pressure @ Addison Airport @ 719 ft.	=	30.14
	-	0.719
Absolute Pressure @ Addison Airport	=	29.421
	+	0.083
Absolute Pressure @ METCO @ 636 ft.	=	29.504
Barometer Reading	=	29.48
Variation	=	- 0024

Barometer Adjusted? Yes ✓ No _____

Tim Starta JP.

Signature of Calibrator

METCO ENVIRONMENTAL

BAROMETER CALIBRATION

Barometer No. 172

Date: 1-12-96

Time: 0900

Barometric Pressure @ Addison Field @ 719 ft.	=	30.230
	-	0.719
Absolute Pressure at Addison Field	=	29.511
	+	0.083
Absolute Pressure @ METCO @ 636 ft.	=	29.594
Barometer Reading	=	29.580
Variation	=	-0.014

Barometer Adjusted? Yes ✓ No ____

#137

Signature of Calibrator

MG 54

BAROMETER CALIBRATION

Barometer No. 18-2

Date: Nov 21 1995

Time: 1410

Barometric Pressure @ Hobby Airport @ 45 ft.	=	30.240 ✓
	-	0.045
Absolute Pressure @ Hobby Airport	=	30.195 ✓
	+	0.018
Absolute Pressure @ METCO @ 27 ft.	=	30.213 ✓
Barometer Reading	=	30.205 ✓
Variation	=	0.035 ✓

Barometer Adjusted? Yes ✓ No _____

M. Chris D. Wood #188

Signature of Calibrator

METCO ENVIRONMENTAL

BAROMETER CALIBRATION

Barometer No. 28-1

Date: 12/18/95

Time: 0900

Barometric Pressure @ Addison Field @ 719 ft.	=	29.82
	-	0.719
Absolute Pressure at Addison Field	=	29.101
	+	0.083
Absolute Pressure @ METCO @ 636 ft.	=	29.18
Barometer Reading	=	30.46
Variation	=	+1.276

Barometer Adjusted? Yes ✓ No ____

Signature of Calibrator

Scott Specialty Gases, Inc.

2600 CAJON BOULEVARD, SAN BERNARDINO, CA 92411 (909) 887-2571 FAX: (909) 887-0549

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer	Assay Laboratory		
METCO ENVIRONMENTAL	Scott Specialty Gases	Purchase Order	3384
PO BOX 598	*2600 Cajon Boulevard*	Project #	39098.01B
ADDISON, TX 75001	San Bernardino, CA 92411		

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September 1993.

Cylinder Number BAL4088 Certification Date 06/26/95 Exp. Date 06/26/97
Cylinder Pressure+ 1925 PSIG

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
(NITRIC OXIDE)	20.09 PPM	±1% NIST TRACEABLE
TOTAL OXIDES OF NITROGEN	20.30 PPM	REFERENCE VALUE ONLY
(Nitrogen)	*Balance Gas*	

+Do not use when cylinder pressure is below 150 psig.

*Analytical uncertainty is inclusive of usual known error sources which at least includes reference standard error & precision of the measurement processes.

REFERENCE STANDARD

Type/SRM Sample No.	Expiration Date	Cylinder Number	Concentration
NTRM 2629	11/21/96	ALM008353	19.86 PPM NO/N2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
FTIR/8220A/AAB9400261	06/08/95	INFRARED SPECTRA LINEAR CURVE

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: NITRIC OXIDE

First Triad Analysis

Date: 06/19/95 Response Units: mv

Z1= 0.00	R1= 19.86	T1= 20.10	
R2= 19.84	Z2= 0.00	T2= 20.16	
Z3= 0.00	T3= 20.19	R3= 19.83	

Avg. Conc. of Cust Cyl. 20.15 PPM

Second Triad Analysis

Date:06/26/95 Response Units: mv

Z1= 0.01	R1= 19.86	T1= 20.04	
R2= 19.86	Z2= 0.00	T2= 20.01	
Z3= 0.00	T3= 20.02	R3= 19.90	

Avg. Conc. of Cust Cyl. 20.02 PPM

Calibration Curve

Concentration= $Ax^4+Bx^3+Cx^2+DX+E$

A =-8.411
B =7.127
C =2.604
D =3.272
E =1.254

Date: Response Units: mv
Z1= R1= T1=
R2= Z2= T2=
Z3= T3= R3=
Avg. Conc. of Cust Cyl.

Date: Response Units: mv
Z1= R1= T1=
R2= Z2= T2=
Z3= T3= R3=
Avg. Conc. of Cust Cyl.

Concentration=

Date: Response Units:mv
Z1= R1= T1=
R2= Z2= T2=
Z3= T3= R3=
Avg. Conc. of Cust Cyl.

Date: Response Units:mv
Z1= R1= T1=
R2= Z2= T2=
Z3= T3= R3=
Avg. Conc. of Cust Cyl.

Concentration=

Analyst: Diana Hardin

Scott Specialty Gases, Inc.

2600 CAJON BOULEVARD, SAN BERNARDINO, CA 92411 (909) 887-2571 FAX: (909) 887-0549

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer	Assay Laboratory		
METCO ENVIRONMENTAL	Scott Specialty Gases	Purchase Order	3384
PO BOX 598	2600 Cajon Boulevard	Project #	39098.01A
ADDISON, TX 75001	San Bernardino, CA 92411		

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and *Certification of Gaseous Calibration Standards;* Procedure G1; September 1993.

Cylinder Number BLM002008 Certification Date 06/26/95 Exp. Date 06/26/97
Cylinder Pressure+ 1925 PSIG

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
(NITRIC OXIDE)	20.11 PPM	±1% NIST TRACEABLE
TOTAL OXIDES OF NITROGEN	20.25 PPM	REFERENCE VALUE ONLY
(Nitrogen)	Balance Gas	

+Do not use when cylinder pressure is below 150 psig.

*Analytical uncertainty is inclusive of usual known error sources which at least includes reference standard error & precision of the measurement processes.

REFERENCE STANDARD

Type/SRM Sample No.	Expiration Date	Cylinder Number	Concentration
NTRM 2629	11/21/96	ALM008353	19.86 PPM NO/N2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
FTIR/8220A/AAB9400261	06/08/95	INFRARED SPECTRA LINEAR CURVE

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: NITRIC OXIDE

First Triad Analysis

Date: 06/19/95 Response Units: mv

Z1= 0.00	R1= 19.86	T1= 20.23
R2= 19.84	Z2= 0.00	T2= 20.10
Z3= 0.00	T3= 20.13	R3= 19.83

Avg. Conc. of Cust Cyl. 20.15 PPM

Second Triad Analysis

Date: 06/26/95 Response Units: mv

Z1= 0.01	R1= 19.86	T1= 20.07
R2= 19.86	Z2= 0.00	T2= 20.05
Z3= 0.00	T3= 20.08	R3= 19.90

Avg. Conc. of Cust Cyl. 20.07 PPM

Calibration Curve

Concentration= $Ax^4+Bx^3+Cx^2+DX+E$

A =-8.411
B =7.127
C =2.604
D =3.272
E =1.254

Date:	Response Units: mv	
Z1=	R1=	T1=
R2=	Z2=	T2=
Z3=	T3=	R3=

Avg. Conc. of Cust Cyl.

Concentration=

Date:	Response Units:mv	
Z1=	R1=	T1=
R2=	Z2=	T2=
Z3=	T3=	R3=

Avg. Conc. of Cust Cyl.

Concentration=

Analyst: Diana Hardin

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
16115 DOOLEY ROAD
DALLAS, TX 75244

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 2972
Scott Project # : 569139

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : BAL1763
Cylinder Pressure + : 1900 psig
Certificate Date : 8/9/94
Previous Certificate Date : None
Expiration Date : 8/9/96

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Nitric Oxide	45.85 ppm	±1% NIST Directly Traceable
Total Oxides of Nitrogen	46.20 ppm	Reference Value Only

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	*Expiration Date*	*Cylinder Number*	Concentration
NTRM 1684	4/1/96	ALM-024582	95.2 ppm Nitric Oxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
NO : Horiba/OPE-235/483814	7/15/94	Chemiluminesence

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Nitric Oxide

First Triad Analysis

Date: 8/2/94	Response Units: mv	
Z1=0.00	R1=95.20	T1=45.80
R2=95.20	Z2=0.00	T2=45.80
Z3=0.00	T3=45.80	R3=95.20
Avg. Conc. of Cust. Cyl. 45.80 ppm		

Second Triad Analysis

Date: 8/9/94	Response Units: mv	
Z1=0.00	R1=95.20	T1=45.90
R2=95.20	Z2=0.00	T2=45.90
Z3=0.00	T3=45.90	R3=95.20
Avg. Conc. of Cust. Cyl: 45.90 ppm		

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4	
r=0.99999	NTRM 1684
Constants:	A=0.000000000
B=1.000000000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes

Don Eichler Jr

Analyst

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
16115 DOOLEY ROAD
DALLAS, TX 75244

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 2972
Scott Project # : 569139

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : BAL3110
Cylinder Pressure + : 1900 psig
Certificate Date : 8/9/94
Previous Certificate Date : None
Expiration Date : 8/9/96

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Nitric Oxide	46.20 ppm	±1% NIST Directly Traceable
Total Oxides of Nitrogen	46.50 ppm	Reference Value Only

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1684	4/1/96	ALM-024582	95.2 ppm Nitric Oxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
NO : Horiba/OPE-235/483814	7/15/94	Chemiluminesence

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components
Nitric Oxide

First Triad Analysis

Date: 8/2/94	Response Units: mv	
Z1=0.00	R1=95.20	T1=46.10
R2=95.20	Z2=0.00	T2=46.10
Z3=0.00	T3=46.10	R3=95.20
Avg. Conc. of Cust. Cyl. 46.10 ppm		

Second Triad Analysis

Date: 8/9/94	Response Units: mv	
Z1=0.00	R1=95.20	T1=46.30
R2=95.20	Z2=0.00	T2=46.30
Z3=0.00	T3=46.30	R3=95.20
Avg. Conc. of Cust. Cyl: 46.30 ppm		

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4	
r=0.99999	NTRM 1684
Constants:	A=0.000000000
B=1.000000000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes

Don Eichler Jr
Analyst

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
ATTN : SCOTT JACKSON
PO BOX 598
ADDISON, TX 75001

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 3254
Scott Project # : 578278

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : BLM003059
Cylinder Pressure + : 1900 psig
Certificate Date : 3/17/95
Previous Certificate Date : None
Expiration Date : 3/17/97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Nitric Oxide	46.22 ppm	±1% NIST Directly Traceable
Total Oxides of Nitrogen	*46.60 ppm*	*Reference Value Only*

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1684	4/1/96	ALM-024582	95.2 ppm Nitric Oxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
NO : Horiba/OPE-235/483814	3/10/95	Chemiluminescence

ANALYZER READINGS *(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)*

Components
Nitric Oxide

First Triad Analysis

Date: 3/10/95	Response Units: mv	
Z1=0.00	R1=95.20	T1=46.20
R2=95.20	Z2=0.00	T2=46.20
Z3=0.00	T3=46.20	R3=95.20
Avg. Conc. of Cust. Cyl. 46.20 ppm		

Second Triad Analysis

Date: 3/17/95	Response Units: mv	
Z1=0.00	R1=95.20	T1=46.20
R2=95.20	Z2=0.00	T2=46.30
Z3=0.00	T3=46.20	R3=95.20
Avg. Conc. of Cust. Cyl 46.23 ppm		

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4	
r=0.99999	NTRM 1684
Constants:	A=0.000000000
B=1.000000000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes
ITEM #810

Mail

Rahul Patel
Analyst

MSP/P-1

Air Products and Chemicals, Inc.
SPECIALTY GAS DEPARTMENT
12722 S. WENTWORTH AVENUE
CHICAGO, IL 60628

Certificate of Analysis - EPA Protocol Gas Standard

PERFORMED ACCORDING TO EPA TRACEABILITY PROTOCOL FOR ASSAY AND CERTIFICATION OF GASEOUS CALIBRATION STANDARDS (PROCEDURE #G1)

Customer:
APCI
3415 BANNING ST
DALLAS,TX. TX 75233

Notes:

PO: 2878 Rel:

Order No: 36A-006516-07
Batch No: 861-18903

Cylinder No: SG9115542ALC
Cylinder Pressure*: 2000 psig
Certification Date: 06/28/94
Expiration Date: 06/28/96

*** Certified Concentration ***		********* Reference Standards *********			********** Analytical Instrumentation **********			
Component	Certified Concentration	Cylinder #	Standard Number	Concentration	Instrument Make/Model	Serial Number	Last Calibration	Measurement Principal
NITRIC OXIDE	47.9 ±0.43 PPM	SG9113414BAL	GMIS	43.1800 PPM	Rosemount 951a	0101877	05/31/94	CHEMILUMINESCENCE

Balance Gas: Nitrogen

Contaminent	
Nitrogen Dioxide	.200 PPM

C-96

* Standard should not be used below 150 psig

Analyst: Richard VanDyke

Approved By: Robert McNear

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
Attn : Jim Monfries
16115 Dooley Road
Dallas, TX 75244

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 3067
Scott Project # : 572186

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : ALM049329 **Certificate Date :** 10/26/94 **Expiration Date :** 10/26/96
Cylinder Pressure + : 1900 psig **Previous Certificate Date :** None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Nitric Oxide	48.07 ppm	±1% NIST Directly Traceable
Total Oxides of Nitrogen	48.60 ppm	Reference Value Only

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1684	4/1/96	ALM-024582	95.2 ppm Nitric Oxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
NO : Horiba/OPE-235/483814	10/25/94	Chemiluminescence

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Nitric Oxide

First Triad Analysis

Date: 10/19/94	Response Units: mv	
Z1=0.00	R1=95.20	T1=48.10
R2=95.20	Z2=0.00	T2=47.70
Z3=0.00	T3=47.70	R3=95.20
Avg. Conc. of Cust. Cyl. 47.83 ppm		

Second Triad Analysis

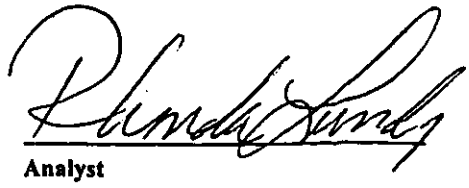
Date: 10/26/94	Response Units: mv	
Z1=0.00	R1=95.20	T1=48.30
R2=95.20	Z2=0.00	T2=48.30
Z3=0.00	T3=48.30	R3=95.20
Avg. Conc. of Cust. Cyl: 48.30 ppm		

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4	
r=0.99999	NTRM 1684
Constants:	A=0.000000000
B=1.000000000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes

Customer



Analyst

Scott Specialty Gases, Inc.
1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 · FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
16115 DOOLEY ROAD
DALLAS, TX 75244

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 2880
Scott Project # : 566456

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : BLM003007
Cylinder Pressure + : 1900 psig
Certificate Date : 6/17/94
Previous Certificate Date : None
Expiration Date : 6/17/96

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Nitric Oxide	50.00 ppm	±1% NIST Directly Traceable
Total Oxides of Nitrogen	50.10 ppm	Reference Value Only

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1684	4/1/96	ALM-024582	95.2 ppm Nitric Oxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
NO : Horiba/OPE-235/483814	6/27/94	Chemiluminesence

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Nitric Oxide

First Triad Analysis

Date: 6/6/94	Response Units: mv	
Z1=0.00	R1=95.20	T1=50.00
R2=95.20	Z2=0.00	T2=50.00
Z3=0.00	T3=50.00	R3=95.20
Avg. Conc. of Cust. Cyl. 50.00 ppm		

Second Triad Analysis

Date: 6/17/94	Response Units: mv	
Z1=0.00	R1=95.20	T1=50.00
R2=95.20	Z2=0.00	T2=50.00
Z3=0.00	T3=50.00	R3=95.20
Avg. Conc. of Cust. Cyl. 50.00 ppm		

Calibration Curve

$Concentration = A + Bx + Cx^2 + Dx^3 + Ex^4$	
r=0.99999	NTRM 1684
Constants:	A=0.000000000
B=1.000000000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes

Rhonda Lundy
Analyst Rhonda Lundy

MSP/P-1

Scott Specialty Gases, Inc.

2600 CAJON BOULEVARD, SAN BERNARDINO, CA 92411 (909) 887-2571 FAX: (909) 887-0549

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer	Assay Laboratory		
METCO ENVIRONMENTAL C/O SCOTT SPECIALTY GASES 3714 LAPAS DR. HOUSTON, TX 77023	Scott Specialty Gases 2600 Cajon Boulevard San Bernardino, CA 92411	Purchase Order Project #	1988 LARRY-(43944) 39101.001

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards: Procedure G1: September 1993.

Cylinder Number BLM002636 Certification Date 06/30/95 Exp. Date 06/30/97
Cylinder Pressure+ 2000 PSIG

ANALYZED CYLINDER

Component	Certified Concentration	Analytical Uncertainty*
NITRIC OXIDE	84.61 PPM	±1% NIST TRACEABLE
TOTAL OXIDES OF NITROGEN	85.49 PPM	REFERENCE VALUE ONLY
(Nitrogen)	Balance Gas	

+Do not use when cylinder pressure is below 150 psig.
*Analytical uncertainty is inclusive of most known error sources which at least includes reference standard error & precision of the measurement processes.

REFERENCE STANDARD

Type/SRM Sample No.	Expiration Date	Cylinder Number	Concentration
SRM/1684B	06/99	CLM008433	96.8 PPM NO/N2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
TECO / 10AR / 14853-150	06/09/95	Chemi-Luminescent

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: NITRIC OXIDE

First Triad Analysis

Date:06/23/95
Z1= 0.00 R1= 92.5 T1= 80.7
R2= 92.5 Z2= 0.00 T2= 80.7
Z3= 0.00 T3= 80.7 R3= 92.6
Avg. Conc. of Cert Cyl. 84.54 PPM

Date: Response Units: mv
Z1= R1= T1=
R2= Z2= T2=
Z3= T3= R3=
Avg. Conc. of Cert Cyl.

Date: Response Units: mv
Z1= R1= T1=
R2= Z2= T2=
Z3= T3= R3=
Avg. Conc. of Cert Cyl.

Second Triad Analysis

Date:06/30/95 Response Units: mv
Z1= 0.00 R1= 92.5 T1= 80.8
R2= 92.5 Z2= 0.00 T2= 80.9
Z3= 0.00 T3= 80.8 R3= 92.5
Avg. Conc. of Cert Cyl. 84.68 PPM

Date: Response Units: mv
Z1= R1= T1=
R2= Z2= T2=
Z3= T3= R3=
Avg. Conc. of Cert Cyl.

Date: Response Units: mv
Z1= R1= T1=
R2= Z2= T2=
Z3= T3= R3=
Avg. Conc. of Cert Cyl.

Calibration Curve

Concentration= A2 + B
A = 1.047
B = 0.008985

Concentration=

Concentration=

Special Notes:

Analyst: Diana Hardin

TOTAL P.02

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
16115 DOOLEY ROAD
DALLAS, TX 75244

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 2922
Scott Project # : 567579

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : BAL5243
Cylinder Pressure + : 1900 psig
Certificate Date : 7/5/94
Previous Certificate Date : None
Expiration Date : 7/5/96

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Nitric Oxide	84.62 ppm	±1% NIST Directly Traceable
Total Oxides of Nitrogen	85.60 ppm	Reference Value Only

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1684	4/1/96	ALM-024582	95.2 ppm Nitric Oxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
NO : Horiba/OPE-235/483814	6/27/94	Chemiluminesence

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Nitric Oxide

First Triad Analysis

Date: 6/27/94	Response Units: mv	
Z1=0.00	R1=95.20	T1=84.50
R2=95.20	Z2=0.00	T2=84.80
Z3=0.00	T3=84.90	R3=95.20
Avg. Conc. of Cust. Cyl. 84.73 ppm		

Second Triad Analysis

Date: 7/5/94	Response Units: mv	
Z1=0.00	R1=95.20	T1=84.50
R2=95.20	Z2=0.00	T2=84.50
Z3=0.00	T3=84.50	R3=95.20
Avg. Conc. of Cust. Cyl 84.50 ppm		

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4	
r=0.99999	NTRM 1684
Constants:	A=0.000000000
B=1.000000000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes

Analyst Rhonda Lundy

MISP/P-1

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
ATTN : SCOTT JACKSON
16115 DOOLEY ROAD
DALLAS, TX 75244-1012

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 3188 REPLCMNT
Scott Project # : 576851

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : BAL5200
Cylinder Pressure + : 1900 psig
Certificate Date : 2/15/95
Previous Certificate Date : None
Expiration Date : 2/15/97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Nitric Oxide	84.63 ppm	±1% NIST Directly Traceable
Total Oxides of Nitrogen	84.63 ppm	Reference Value Only

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1684	4/1/96	ALM-024582	95.2 ppm Nitric Oxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
NO : Horiba/OPE-235/483814	2/9/95	Chemiluminescence

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components
Nitric Oxide

First Triad Analysis

Date: 2/8/95	Response Units: mv	
Z1=0.00	R1=95.20	T1=85.00
R2=95.20	Z2=0.00	T2=85.00
Z3=0.00	T3=85.00	R3=95.20
Avg. Conc. of Cust. Cyl. 85.00 ppm		

Second Triad Analysis

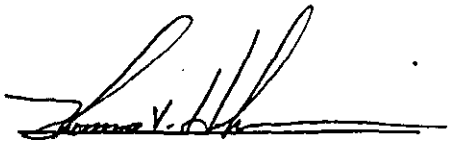
Date: 2/15/95	Response Units: mv	
Z1=0.00	R1=95.20	T1=84.20
R2=95.20	Z2=0.00	T2=84.30
Z3=0.00	T3=84.30	R3=95.20
Avg. Conc. of Cust. Cyl. 84.27 ppm		

Calibration Curve

Concentration=$A+Bx+Cx^2+Dx^3+Ex^4$	
r=0.99999	NTRM 1684
Constants:	A=0.000000000
B=1.000000000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes

Cylinder



Analyst

MISP/P-1

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
ATTN : SCOTT JACKSON
16115 DOOLEY ROAD
DALLAS, TX 75244-1012

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 3188 REPLCMNT
Scott Project # : 576851

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : BLM003395
Cylinder Pressure + : 1900 psig
Certificate Date : 2/15/95
Previous Certificate Date : None
Expiration Date : 2/15/97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Nitric Oxide	84.65 ppm	±1% NIST Directly Traceable
Total Oxides of Nitrogen	84.65 ppm	Reference Value Only

Balance Gas: Nitrogen

+Do not use when cylinder pressure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1684	4/1/96	ALM-024582	95.2 ppm Nitric Oxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
NO : Horiba/OPE-235/483814	2/9/95	Chemiluminescence

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components
Nitric Oxide

First Triad Analysis

Date: 2/8/95	Response Units: mv	
Z1=0.00	R1=95.20	T1=85.00
R2=95.20	Z2=0.00	T2=85.00
Z3=0.00	T3=85.00	R3=95.20
Avg. Conc. of Cust. Cyl. 85.00 ppm		

Second Triad Analysis

Date: 2/15/95	Response Units: mv	
Z1=0.00	R1=95.20	T1=84.20
R2=95.20	Z2=0.00	T2=84.40
Z3=0.00	T3=84.30	R3=95.20
Avg. Conc. of Cust. Cyl. 84.30 ppm		

Calibration Curve

Concentration = $A+Bx+Cx^2+Dx^3+Ex^4$	
r=0.99999	NTRM 1684
Constants:	A=0.000000000
B=1.000000000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes

Mail

Analyst

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
Attn : Jim Monfries
16115 Dooley Road
Dallas, TX 75244

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 3067
Scott Project # : 572186

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : ALM038783 **Certificate Date :** 10/26/94 **Expiration Date :** 10/26/96
Cylinder Pressure + : *1900 psig* **Previous Certificate Date :** None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Nitric Oxide	85.40 ppm	±1% NIST Directly Traceable
Total Oxides of Nitrogen	86.10 ppm	Reference Value Only

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1684	4/1/96	ALM-024582	95.2 ppm Nitric Oxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
NO : Horiba/OPE-235/483814	10/25/94	Chemiluminescence

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Nitric Oxide

First Triad Analysis

Date: 10/19/94	Response Units: mv	
Z1=0.00	R1=95.20	T1=85.50
R2=95.20	Z2=0.00	T2=85.10
Z3=0.00	T3=85.00	R3=95.20
Avg. Conc. of Cust. Cyl. 85.20 ppm		

Second Triad Analysis

Date: 10/26/94	Response Units: mv	
Z1=0.00	R1=95.20	T1=85.60
R2=95.20	Z2=0.00	T2=85.60
Z3=0.00	T3=85.60	R3=95.20
Avg. Conc. of Cust. Cyl. 85.60 ppm		

Calibration Curve

Concentration=A+Bx+Cx²+Dx³+Ex⁴	
r=0.99999	NTRM 1684
Constants:	A=0.000000000
B=1.000000000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes

Customer

C-103

Analyst

MISP/P-1

Scott Specialty Gases, Inc.

2600 CAJON BOULEVARD, SAN BERNARDINO, CA 92411 (909) 887-2571 FAX: (909) 887-0549

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
SCOTT/METCO
****INVENTORY****
3714 LAPAS DRIVE
HOUSTON, TX 77023

PROJECT # 40851.002
P.O. # 1613-LARRY

Assay Laboratory
Scott Specialty Gases
2600 Cajon Boulevard
San Bernardino, CA 92411

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September 1993.

Cylinder Number BAL4137 Certification Date 09/12/95 Exp. Date 09/12/97
Cylinder Pressure 2000 PSIG

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
(NITRIC OXIDE)	86.13 PPM	±1% NIST TRACEABLE
TOTAL OXIDES OF NITROGEN	87.26 PPM	REFERENCE VALUE ONLY
(Nitrogen)	Balance Gas	

*Data not valid when cylinder pressure is below 150 psig.
Analytical uncertainty is inclusive of assay known error sources which at least includes reference standard error & precision of the measurement processes.

REFERENCE STANDARD

Type/SRM Sample No.	Expiration Date	Cylinder Number	Concentration
NTRM 1684	06/07/97	ALM047610	94.4 PPM NO/N2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
TECO/42C/52245/291	08/16/95	CHEMI-LUMINESCENT

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: NITRIC OXIDE

First Triad Analysis

Date: 09/05/95 Response Units: mv
Z1= 85.652 R1= 111855 T1= 102434
R2= 111758 Z2= 93.2 T2= 102390
Z3= 116.4 T3= 102478 R3= 11840
Avg. Conc. of Cust Cyl. 86.44 PPM

Date: Response Units: mv
Z1= R1= T1=
R2= Z2= T2=
Z3= T3= R3=
Avg. Conc. of Cust Cyl.

Date: Response Units: mv
Z1= R1= T1=
R2= Z2= T2=
Z3= T3= R3=
Avg. Conc. of Cust Cyl.

Second Triad Analysis

Date: 09/12/95 Response Units: mv
Z1= 94.8 R1= 111567 T1= 101594
R2= 111636 Z2= 97.4 T2= 101543
Z3= 77.6 T3= 101947 R3= 111767
Avg. Conc. of Cust Cyl. 85.82 PPM

Date: Response Units: mv
Z1= R1= T1=
R2= Z2= T2=
Z3= T3= R3=
Avg. Conc. of Cust Cyl.

Date: Response Units: mv
Z1= R1= T1=
R2= Z2= T2=
Z3= T3= R3=
Avg. Conc. of Cust Cyl.

Calibration Curve

Concentration= Ax + R
A =0.000543183
B =0.005575

Concentration=

Concentration=

Special Notes: ITEM #813

Analyst: Diana Hardin

Scott Specialty Gases, Inc.

PO#3228

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
SCOTT SPECIALTY GASES
3714 LAPAS DRIVE
ATTN NORA
HOUSTON, TX 77023-3203

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 1460 RENEE
Scott Project # : 572793

#215

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : BLM001502
Cylinder Pressure + : 1900 psig
Certificate Date : 11/12/94
Previous Certificate Date : None
Expiration Date : 11/12/97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	84.61 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1679	8/11/96	ALM037782	97.10 ppm Carbon Monoxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
CO:Horiba/OPE-135/565607092	11/11/94	Non-Dispersive Infared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Carbon Monoxide

First Triad Analysis

Date: 11/2/94 Response Units: mv

Z1=0.00	R1=80.00	T1=70.30
R2=80.00	Z2=0.00	T2=70.40
Z3=0.00	T3=70.40	R3=80.00

Avg. Conc. of Cust. Cyl. 84.59 ppm

Second Triad Analysis

Date: 11/12/94 Response Units: mv

Z1=0.00	R1=80.00	T1=70.40
R2=80.00	Z2=0.00	T2=70.40
Z3=0.00	T3=70.40	R3=80.00

Avg. Conc. of Cust. Cyl. 84.63 ppm

Calibration Curve

Concentration=$A+Bx+Cx^2+Dx^3+Ex^4$

r=1.00000	70.4
Constants:	A=0.059415000
B=1.202500000	C=-0.001100400
D=0.000015397	E=0.000000000

Special Notes

Cylinder

Tina Danielson
Analyst

Scott Specialty Gases, Inc.

PO # 3384

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
SCOTT SPECIALTY GASES
3714 LAPAS DRIVE
ATTN NORA
HOUSTON, TX 77023-3203

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 1460 RENEE
Scott Project # : 572793

#215

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : BLM003062
Cylinder Pressure + : *1900 psig*
Certificate Date : 11/12/94
Previous Certificate Date : None
Expiration Date : 11/12/97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	84.70 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1679	8/11/96	ALM037782	97.10 ppm Carbon Monoxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
CO:Horiba/OPE-135/565607092	11/11/94	Non-Dispersive Infared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Carbon Monoxide

First Triad Analysis

Date: 11/3/94	Response Units: mv	
Z1=0.00	R1=80.00	T1=70.40
R2=80.00	Z2=0.00	T2=70.40
Z3=0.00	T3=70.40	R3=80.00
Avg. Conc. of Cust. Cyl. 84.63 ppm		

Second Triad Analysis

Date: 11/12/94	Response Units: mv	
Z1=0.00	R1=80.00	T1=70.50
R2=80.00	Z2=0.00	T2=70.50
Z3=0.00	T3=70.50	R3=80.00
Avg. Conc. of Cust. Cyl: 84.76 ppm		

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4	
r=1.00000	70.4
Constants:	A=0.059415000
B=1.202500000	C=-0.001100400
D=0.000015397	E=0.000000000

Special Notes

Cylinder

Tim Sanderson
Analyst

MISP/P-1

Scott Specialty Gases

500 WEAVER PARK ROAD, LONGMONT, CO 80501 (303) 442-4700, (303) 651-3094 FAX: (303) 772-7673

CERTIFICATE OF ANALYSIS: EPA Protocol Gas

Customer
METCO ENVIRONMENTAL
16115 DOOLEY ROAD
DALLAS, TX 75244

Assay Laboratory
Scott Specialty Gases, Inc.
500 Weaver Park Road
Longmont, CO 80501

Purchase Order 3344
Scott Project # 0819240
CGA Fitting 350
QC Number 15249510
File Number 19240-03

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number BAL-1208
Cylinder Pressure 1879 psig

Certification Date 05/23/95
Previous Certification Dates None

Expiration Date 05/23/98

ANALYZED CYLINDER

Components	*Certified Concentration*	Analytical Uncertainty*
(Carbon Monoxide)	89.3 ppm	±1% Directly NIST Traceable
(Nitrogen)	Balance	

*Analytical uncertainty is inclusive of usual known error sources which at least includes precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1679	08/11/96	ALM-041528	97.1 ppm CO / N2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	*Analytical Principle*
Nicolet FTIR / 8220 / AAB9400251	05/03/95	Scott Enhanced FTIR TM

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components (Carbon Monoxide)

First Triad Analysis

Date 05/15/95	Response Units: ppm	
Z1 = -0.334	R1 = 97.100	T1 = 89.147
R2 = 96.978	Z2 = 0.136	T2 = 89.055
Z3 = 0.114	T3 = 89.443	R3 = 97.319
Avg. Conc. of Cyl. =	89.22 ppm	

Second Triad Analysis

Date 05/23/95	Response Units: ppm	
Z1 = -0.299	R1 = 97.100	T1 = 89.460
R2 = 97.334	Z2 = 0.032	T2 = 89.417
Z3 = 0.038	T3 = 89.447	R3 = 97.258
Avg. Conc. of Cyl. =	89.44 ppm	

Calibration Curve

Concentration =	A+Bx+Cx2+Dx3+Ex4
r = 0.9999901	
Constants:	A = -0.334825
B = 0.23567	C = 0.000327832
D = 3.21983E-06	E = -2.61508E-09

Special Notes: Do not use when cylinder pressure is below 150 psig.
ITEM #215

Analyst Tanya Bayha

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
ATTN : JIM MONFRIES
16115 DOOLEY ROAD
DALLAS, TX 75244-1012

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 3092
Scott Project # : 572936

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : BAL1211
Cylinder Pressure + : 1900 psig
Certificate Date : 11/11/94
Previous Certificate Date : None
Expiration Date : 11/11/97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	237.9 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1681	4/21/96	ALM-024826	966.0 ppm Carbon Monoxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
CO : Beckman/864/102528	10/25/94	Non-Dispersive Infrared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Carbon Monoxide

First Triad Analysis

Date: 11/4/94	Response Units: mv	
Z1=0.00	R1=100.00	T1=28.20
R2=100.00	Z2=0.00	T2=28.20
Z3=0.00	T3=28.20	R3=100.00
Avg. Conc. of Cust. Cyl. 237.0 ppm		

Second Triad Analysis

Date: 11/11/94	Response Units: mv	
Z1=0.00	R1=100.00	T1=28.40
R2=100.00	Z2=0.00	T2=28.40
Z3=0.00	T3=28.40	R3=100.00
Avg. Conc. of Cust. Cyl 238.8 ppm		

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4	
r=1.00000	NTRM 1681
Constants:	A=-0.162760000
B=7.918200000	C=0.017444000
D=0.000000000	E=0.000000000

Special Notes

Cylinder

Analyst

ITEM 220

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO C/O SCOTT
HWY 3 & ELDORADO
WEBSTER, TX 77598

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 3242
Scott Project # : 577406

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : BLM003980
Cylinder Pressure + : 1900 psig

Certificate Date : 3/1/95
Previous Certificate Date : None

Expiration Date : 3/1/98

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	242.1 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1681	4/21/96	ALM-024826	966.0 ppm Carbon Monoxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
CO : Beckman/864/102528	2/21/95	Non-Dispersive Infrared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Carbon Monoxide

First Triad Analysis

Date: 2/22/95	Response Units: mv	
Z1=0.00	R1=100.00	T1=28.70
R2=100.00	Z2=0.00	T2=28.70
Z3=0.00	T3=28.70	R3=100.00
Avg. Conc. of Cust. Cyl. 241.5 ppm		

Second Triad Analysis

Date: 3/1/95	Response Units: mv	
Z1=0.00	R1=100.00	T1=28.90
R2=100.00	Z2=0.00	T2=28.80
Z3=0.00	T3=28.80	R3=100.00
Avg. Conc. of Cust. Cyl: 242.6 ppm		

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4	
r=1.00000	NTRM 1681
Constants:	A=-0.162760000
B=7.918200000	C=0.017444000
D=0.000000000	E=0.000000000

Special Notes
ITEM # 220

Cylinder

Analyst

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
ATTN : JIM MONFRIES
16115 DOOLEY ROAD
DALLAS, TX 75244-1012

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 3145
Scott Project # : 574709

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : BLM001723
Cylinder Pressure + : 1900 psig
Certificate Date : 12/27/94
Previous Certificate Date : None
Expiration Date : 12/27/97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	242.8 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1681	4/21/96	ALM-024826	966.0 ppm Carbon Monoxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
CO : Beckman/864/102528	11/29/94	Non-Dispersive Infrared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components
Carbon Monoxide

First Triad Analysis

Date: 12/20/94	Response Units: mv	
Z1=0.00	R1=100.00	T1=28.80
R2=100.00	Z2=0.00	T2=28.80
Z3=0.00	T3=28.80	R3=100.00
Avg. Conc. of Cust. Cyl. 242.4 ppm		

Second Triad Analysis

Date: 12/27/94	Response Units: mv	
Z1=0.00	R1=100.00	T1=28.90
R2=100.00	Z2=0.00	T2=28.90
Z3=0.00	T3=28.90	R3=100.00
Avg. Conc. of Cust. Cyl: 243.2 ppm		

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4	
r=1.00000	NTRM 1681
Constants:	A=-0.162760000
B=7.918200000	C=0.017444000
D=0.000000000	E=0.000000000

Special Notes

Cylinder

Analyst

MISP/P-1

Air Products and Chemicals, Inc.
SPECIALTY GAS DEPARTMENT
12722 S. WENTWORTH AVENUE
CHICAGO, IL 60628

Certificate of Analysis - EPA Protocol Gas Standard

PERFORMED ACCORDING TO EPA TRACEABILITY PROTOCOL FOR ASSAY AND CERTIFICATION OF GASEOUS CALIBRATION STANDARDS (PROCEDURE #G1)

Customer:
APCI
3415 BANNING ST
DALLAS,TX. TX 75233

Notes:

PO: 2878 Rel:

Order No: 36A-006516-0
Batch No: 861-18778

Cylinder No: SG9116300ALD
Cylinder Pressure*: 2000 psig
Certification Date: 06/27/94
Expiration Date: 06/27/97

*** Certified Concentration ***			********* Reference Standards *********			********** Analytical Instrumentation **********			
Component	Certified Concentration	Cylinder #	Standard Number	Concentration		Instrument Make/Model	Serial Number	Last Calibration	Measurement Principal
CARBON MONOXIDE	245 ±1.0 PPM	SG9113586BAL	GMIS	252.2000 PPM		Gow-Mac 750	59405U	05/31/94	GC-FID

Balance Gas: Nitrogen

* Standard should not be used below 150 psig

C-111

Analyst: James Laas
James Laas

Approved By: Robert McNear
Robert McNear

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (313) 589-2950 FAX: (313) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIROMENTAL
16115 DOOLEY ROAD
DALLAS TX 75244

Assay Laboratory
Scott Specialty Gases, Inc.
1290 Combermere
Troy, MI 48083

Purchase Order 2657
Scott Project # 559051

ANALYTICAL INFORMATION

Certified to exceed the minimum specifications of *EPA Protocol 1 Procedure #G1, Section Number 3.0.4*

Cylinder Number ALM030956
Cylinder Pressure 1900 psig
Certification Date 12-13-93
Previous Certification Dates None
Expiration Date 12-13-96

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	247.1 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

*Analytical uncertainty is inclusive of usual known error sources which at least includes reference standard error & precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
CRM 1680	2-11-94	ALM013311	475 PPM CO IN N_2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
BECKMAN/867/100157	10-4-93	Non-Dispersive Infrared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
Carbon Monoxide	Date: 12-6-93 Response Units: mv Z1=0.00 R1=96.00 T1=55.80 R2=96.00 Z2=0.00 T2=55.80 Z3=0.00 T3=55.80 R3=96.00 Avg. Conc. of Cust. Cyl. 247.1 ppm	Date: 12-13-93 Response Units: mv Z1=0.00 R1=96.00 T1=55.80 R2=96.00 Z2=0.00 T2=55.80 Z3=0.00 T3=55.80 R3=96.00 Avg. Conc. of Cust. Cyl. 247.1 ppm	Concentration=A+Bx+Cx^2+Dx^3+Ex^4 r=0.99999 CRM 1680 Constants: A=0.5385984 B=3.69229 C=0.01302101 D=0 E=0
			Concentration=A+Bx+Cx^2+Dx^3+Ex^4
			Concentration=A+Bx+Cx^2+Dx^3+Ex^4

Special Notes

F.P. Doran

Analyst Frank P. Doran

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (313) 589-2950 FAX: (313) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIROMENTAL
16115 DOOLEY ROAD
DALLAS TX 75244

Assay Laboratory
Scott Specialty Gases, Inc.
1290 Combermere
Troy, MI 48083

Purchase Order 2657
Scott Project # 559051

ANALYTICAL INFORMATION

Certified to exceed the minimum specifications of EPA Protocol 1 Procedure #G1, Section Number 3.0.4

Cylinder Number AAL17923
Cylinder Pressure 1900 psig
Certification Date 12-13-93
Previous Certification Dates None
Expiration Date 12-13-96

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	445.6 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

*Analytical uncertainty is inclusive of usual known error sources which at least includes reference standard error & precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
CRM 1680	2-11-94	ALM013311	475 PPM CO IN N_2

INSTRUMENTATION

Instrument/Model/Serial #	*Last Date Calibrated*	Analytical Principle
BECKMAN/867/100157	10-4-93	Non-Dispersive Infrared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
Carbon Monoxide	Date: 12-6-93 Response Units: mv Z1=0.00 R1=96.00 T1=91.20 R2=96.00 Z2=0.00 T2=91.20 Z3=0.00 T3=91.20 R3=96.00 Avg. Conc. of Cust. Cyl. 445.6 ppm	Date: 12-13-93 Response Units: mv Z1=0.00 R1=96.00 T1=91.20 R2=96.00 Z2=0.00 T2=91.20 Z3=0.00 T3=91.20 R3=96.00 Avg. Conc. of Cust. Cyl. 445.6 ppm	Concentration=A+Bx+Cx^2+Dx^3+Ex^4 r=0.99999 CRM 1680 Constants: A=0.5385984 B=3.69229 C=0.01302101 D=0 E=0
			Concentration=A+Bx+Cx^2+Dx^3+Ex^4
			Concentration=A+Bx+Cx^2+Dx^3+Ex^4

Special Notes

Analyst Frank P. Doran

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer	Assay Laboratory	
METCO ENVIRONMENTAL 16115 DOOLEY ROAD DALLAS, TX 75244	Scott Specialty Gases, Inc 1290 Combermere Troy, MI 48083	Purchase Order : 2967 Scott Project # : 568816

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : CAL202
Cylinder Pressure + : 1900 psig
Certificate Date : 8/3/94
Previous Certificate Date : None
Expiration Date : 8/3/97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	460.7 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1681	4/21/96	ALM-024826	966.0 ppm Carbon Monoxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
CO : Beckman/864/102528	7/28/94	Non-Dispersive Infrared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Carbon Monoxide

First Triad Analysis

Date: 7/27/94	Response Units: mv	
Z1=0.00	R1=100.00	T1=52.20
R2=100.00	Z2=0.00	T2=52.20
Z3=0.00	T3=52.20	R3=100.00
Avg. Conc. of Cust. Cyl. 460.7 ppm		

Second Triad Analysis

Date: 8/3/94	Response Units: mv	
Z1=0.00	R1=100.00	T1=52.20
R2=100.00	Z2=0.00	T2=52.20
Z3=0.00	T3=52.20	R3=100.00
Avg. Conc. of Cust. Cyl: 460.7 ppm		

Calibration Curve

Concentration=$A+Bx+Cx^2+Dx^3+Ex^4$	
r=1.00000	NTRM 1681
Constants:	A=-0.182760000
B=7.918200000	C=0.017444000
D=0.000000000	E=0.000000000

Special Notes

Don Eichler Jr.
Analyst

MISP/P-1

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
ATTN : SCOTT JACKSON
16115 DOOLEY ROAD
DALLAS, TX 75244-1012

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 3254
Scott Project # : 577719

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : BLM003965
Cylinder Pressure + : 1900 psig
Certificate Date : 3/20/95
Previous Certificate Date : None
Expiration Date : 3/20/98

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	466.5 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1681	4/21/96	ALM-024826	966.0 ppm Carbon Monoxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
CO : Beckman/864/102528	2/21/95	Non-Dispersive Infrared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Carbon Monoxide

First Triad Analysis

Date: 3/20/95	Response Units: mv	
Z1=0.00	R1=100.00	T1=52.80
R2=100.00	Z2=0.00	T2=52.80
Z3=0.00	T3=52.80	R3=100.00
Avg. Conc. of Cust. Cyl. 466.5 ppm		

Second Triad Analysis

Date: 3/11/95	Response Units: mv	
Z1=0.00	R1=100.00	T1=52.80
R2=100.00	Z2=0.00	T2=52.80
Z3=0.00	T3=52.80	R3=100.00
Avg. Conc. of Cust. Cyl: 466.5 ppm		

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4	
r=1.00000	NTRM 1681
Constants:	A=-0.162760000
B=7.918200000	C=0.017444000
D=0.000000000	E=0.000000000

Special Notes
ITEM #225

Cylinder

Analyst

MSP/P-1

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
ATTN : SCOTT JACKSON
16115 DOOLEY ROAD
DALLAS, TX 75244-1012

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 3228
Scott Project # : 576921

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : BLM000407 **Certificate Date :** 2/20/95 **Expiration Date :** 2/20/98
Cylinder Pressure + : 1900 psig **Previous Certificate Date :** None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	469.0 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1681	4/21/96	ALM-024826	966.0 ppm Carbon Monoxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
CO : Beckman/864/102528	1/30/95	Non-Dispersive Infrared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Carbon Monoxide

First Triad Analysis

Date: 2/13/95	Response Units: mv	
Z1=0.00	R1=100.00	T1=53.00
R2=100.00	Z2=0.00	T2=53.00
Z3=0.00	T3=53.00	R3=100.00
Avg. Conc. of Cust. Cyl. 468.5 ppm		

Second Triad Analysis

Date: 2/20/95	Response Units: mv	
Z1=0.00	R1=100.00	T1=53.10
R2=100.00	Z2=0.00	T2=53.10
Z3=0.00	T3=53.10	R3=100.00
Avg. Conc. of Cust. Cyl: 469.5 ppm		

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4	
r=1.00000	NTRM 1681
Constants:	A=-0.162760000
B=7.918200000	C=0.017444000
D=0.000000000	E=0.000000000

Special Notes
ITEM #225

Cylinder

Analyst

MSP/P-1

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
ATTN : SCOTT JACKSON
16115 DOOLEY ROAD
DALLAS, TX 75244-1012

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 3228
Scott Project # : 576921

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : BLM003332 **Certificate Date :** 2/20/95 **Expiration Date :** 2/20/98
Cylinder Pressure + : 1900 psig **Previous Certificate Date :** None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	469.0 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1681	4/21/96	ALM-024826	966.0 ppm Carbon Monoxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
CO : Beckman/864/102528	1/30/95	Non-Dispersive Infrared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Carbon Monoxide

First Triad Analysis

Date: 2/13/95	Response Units: mv	
Z1=0.00	R1=100.00	T1=53.00
R2=100.00	Z2=0.00	T2=53.00
Z3=0.00	T3=53.00	R3=100.00
Avg. Conc. of Cust. Cyl. 468.5 ppm		

Second Triad Analysis

Date: 2/20/95	Response Units: mv	
Z1=0.00	R1=100.00	T1=53.10
R2=100.00	Z2=0.00	T2=53.10
Z3=0.00	T3=53.10	R3=100.00
Avg. Conc. of Cust. Cyl. 469.5 ppm		

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4	
r=1.00000	NTRM 1681
Constants:	A=-0.162760000
B=7.918200000	C=0.017444000
D=0.000000000	E=0.000000000

Special Notes
ITEM #225

Cylinder

Analyst

MISP/P-1

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

#230

Customer
SCOTT SPECIALTY GASES
ATTN: NORA
3714 LAPAS DRIVE
HOUSTON, TX 77023-3203

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 1480 RENE
Scott Project # : 574160
Pr;# 4-38160-001

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : BAL5213
Cylinder Pressure + : 1900 psig
Certificate Date : 12/12/94
Previous Certificate Date : None
Expiration Date : 12/12/97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	911.7 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1681	4/21/96	ALM-024826	966.0 ppm Carbon Monoxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
CO : Beckman/864/102528	11/29/94	Non-Dispersive Infrared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Carbon Monoxide

First Triad Analysis

Date: 12/5/94	Response Units: mv	
Z1=0.00	R1=100.00	T1=95.10
R2=100.00	Z2=0.00	T2=95.10
Z3=0.00	T3=95.10	R3=100.00
Avg. Conc. of Cust. Cyl. 910.6 ppm		

Second Triad Analysis

Date: 12/12/94	Response Units: mv	
Z1=0.00	R1=100.00	T1=95.40
R2=100.00	Z2=0.00	T2=95.20
Z3=0.00	T3=95.30	R3=100.00
Avg. Conc. of Cust. Cyl: 912.9 ppm		

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4	
r=1.00000	NTRM 1681
Constants:	A=-0.162760000
B=7.918200000	C=0.017444000
D=0.000000000	E=0.000000000

Special Notes

Mail

Analyst

MISP/P-1

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
16115 DOOLEY ROAD
DALLAS, TX 75244

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 2794
Scott Project # : 563746

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : CLM003883 **Certificate Date :** 4/1/94 **Expiration Date :** 4/1/97
Cylinder Pressure + : 1900 psig **Previous Certificate Date :** None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	* 921.9 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
CRM 1681	7/19/95	ALM-024827	966.1 ppm Carbon Monoxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
CO : Beckman/864/102528	3/14/94	Non-Dispersive Infrared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Carbon Monoxide

First Triad Analysis

Date: 3/25/94	Response Units: mv	
Z1=0.00	R1=100.00	T1=96.10
R2=100.00	Z2=0.00	T2=96.10
Z3=0.00	T3=96.10	R3=100.00
Avg. Conc. of Cust. Cyl. 921.9 ppm		

Second Triad Analysis

Date: 4/1/94	Response Units: mv	
Z1=0.00	R1=100.00	T1=96.10
R2=100.00	Z2=0.00	T2=96.10
Z3=0.00	T3=96.10	R3=100.00
Avg. Conc. of Cust. Cyl: 921.9 ppm		

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4	
r=1.00000	CRM 1681
Constants:	A=-0.162760000
B=7.918200000	C=0.017444000
D=0.000000000	E=0.000000000

Special Notes

Tim Sanderson

Analyst Tim Sanderson

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
16115 DOOLEY ROAD
DALLAS, TX 75244

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 2967
Scott Project # : 568816

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : CAL3528
Cylinder Pressure + : 1900 psig
Certificate Date : 8/3/94
Previous Certificate Date : None
Expiration Date : 8/3/97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	925.3 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1681	4/21/96	ALM-024826	966.0 ppm Carbon Monoxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
CO : Beckman/864/102528	7/28/94	Non-Dispersive Infrared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Carbon Monoxide

First Triad Analysis

Date: 7/27/94	Response Units: mv	
Z1=0.00	R1=100.00	T1=96.40
R2=100.00	Z2=0.00	T2=96.40
Z3=0.00	T3=96.40	R3=100.00
Avg. Conc. of Cust. Cyl. 925.3 ppm		

Second Triad Analysis

Date: 8/3/94	Response Units: mv	
Z1=0.00	R1=100.00	T1=96.40
R2=100.00	Z2=0.00	T2=96.40
Z3=0.00	T3=96.40	R3=100.00
Avg. Conc. of Cust. Cyl. 925.3 ppm		

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4	
r=1.00000	NTRM 1681
Constants:	A=-0.162760000
B=7.918200000	C=0.017444000
D=0.000000000	E=0.000000000

Special Notes

Analyst

MISP/P-1

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
Attn : Jim Monfries
16115 Dooley Road
Dallas, TX 75244

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 3040
Scott Project # : 570449

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : BLM003402 **Certificate Date :** 9/6/94 **Expiration Date :** 9/6/97
Cylinder Pressure + : 1900 psig **Previous Certificate Date :** None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	23.23 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM 2643A	3/23/98	SX20290	99.1 ppm Propane in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Propane : Varian 6000 08963016	9/6/94	Flame Ionization Detector

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Propane

First Triad Analysis

Date: 9/6/94	Response Units: Area	
Z1=0.00	R1=399.34	T1=93.51
R2=399.82	Z2=0.00	T2=93.62
Z3=0.00	T3=93.65	R3=399.25
Avg. Conc. of Cust. Cyl. 23.23 ppm		

Second Triad Analysis

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4

r=1.00000	SRM 2643A
Constants:	A=0.011456110
B=0.248093500	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes

Analyst

MISP/P-1

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
Attn : Jim Monfries
16115 Dooley Road
Dallas, TX 75244

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 3067
Scott Project # : 572186

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : ALM048174
Cylinder Pressure + : 1900 psig
Certificate Date : 10/14/94
Previous Certificate Date : None
Expiration Date : 10/14/97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	47.09 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM 2643A	3/28/98	SX-20290	99.12 ppm Propane in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Propane : Beckman/400/1002059	9/22/94	Flame Ionization Detector

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Propane

First Triad Analysis

Date: 10/14/94 Response Units: mv

Z1=0.00	R1=99.10	T1=47.10
R2=99.10	Z2=0.00	T2=47.10
Z3=0.00	T3=47.10	R3=99.10

Avg. Conc. of Cust. Cyl. 47.09 ppm

Second Triad Analysis

Calibration Curve

Concentration=$A+Bx+Cx^2+Dx^3+Ex^4$

r=1.00000	SRM 2643A
Constants:	A=-0.034421000
B=1.000500000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes

Customer

Analyst

MISP/P-1

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
ATTN : JIM MONFRIES
16115 DOOLEY ROAD
DALLAS, TX 75244-1012

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 3092
Scott Project # : 572936

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : BLM001578
Cylinder Pressure + : 1900 psig
Certificate Date : 11/10/94
Previous Certificate Date : None
Expiration Date : 11/10/97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	88.51 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM 2643A	3/28/98	SX-20290	99.12 ppm Propane in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Propane : Beckman/400/1002059	11/4/94	Flame Ionization Detector

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components
Propane

First Triad Analysis

Date: 11/10/94 Response Units: mv
Z1=0.00 R1=99.10 T1=88.50
R2=99.10 Z2=0.00 T2=88.50
Z3=0.00 T3=88.50 R3=99.10
Avg. Conc. of Cust. Cyl. 88.51 ppm

Second Triad Analysis

Calibration Curve

Concentration=A+Bz+Cz^2+Dz^3+Ez^4
r=1.00000 SRM 2643A
Constants: A=-0.034421000
B=1.000500000 C=0.000000000
D=0.000000000 E=0.000000000

Special Notes

Cylinder

C-123

Rhonda Lindy
Analyst

MISP/P-1

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (313) 589-2950 FAX: (313) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS RECERTIFICATION

Customer
SCOTT SPECIALTY GASES
3714 LAPAS
HOUSTN, TX, 77023

Assay Laboratory
Scott Specialty Gases, Inc.
1290 Combermere
Troy, MI 48083

Purchase Order 2924
Scott Project # 567804

ANALYTICAL INFORMATION

Certified to exceed the minimum specifications of EPA Protocol 1 Procedure #G1, Section Number 3.0.4

Cylinder Number CAL11070
Cylinder Pressure 2000 psig
Certification Date 6-29-94
Previous Certification Dates 11-17-92
Expiration Date 6-29-97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	219.0 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

*Analytical uncertainty is inclusive of usual known error sources which at least includes reference standard error & precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM 2648A	1-3-98	FF-27147	4901 ppm Propane in N_2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Prop:/400/1002059	6-29-94	Flame Ionization Detector

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	Previous Certification	Third Triad Analysis	Calibration Curve
Propane	Date: 5-17-94 Concentration: 219.0 ppm	Date: 6-29-94 Z1=0.00 R1=130.0 T1=5.800 R2=130.0 Z2=0.00 T2=5.800 Z3=0.00 T3=5.800 R3=130.0 Avg. Conc. of Cust. Cyl. 218.9 ppm	Concentration=A+Bx+Cx^2+Dx^3+Ex^4 r=0.99999 SRM 2648A Constants: A=0.277799 B=37.69786 C=0 D=0 E=0
			Concentration=A+Bx+Cx^2+Dx^3+Ex^4
			Concentration=A+Bx+Cx^2+Dx^3+Ex^4

Special Notes

Tim Sanderson
Analyst Tim Sanderson

MISP/P-1

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
16115 DOOLEY ROAD
DALLAS, TX 75244

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 2835
Scott Project # : 565362

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : CLM005995
Cylinder Pressure + : 1900 psig
Certificate Date : 5/11/94
Previous Certificate Date : None
Expiration Date : 5/11/97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	224.0 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM2645A	4/7/96	FF-26859	498.5 ppm Propane in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Propane: Beckman/400/1002059	4/25/94	Flame Ionization Detector

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Propane

First Triad Analysis

Date: 5/11/94 Response Units: mv

Z1=0.00	R1=100.00	T1=45.00
R2=100.00	Z2=0.00	T2=45.00
Z3=0.00	T3=45.00	R3=100.00

Avg. Conc. of Cust. Cyl. 224.0 ppm

Second Triad Analysis

Calibration Curve

Concentration=$A+Bx+Cx^2+Dx^3+Ex^4$

r=1.00000	SRM2645A
Constants:	A=-0.513420000
B=4.990100000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes

Analyst Don Eichler, Jr

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (313) 589-2950 FAX: (313) 589-2134

RECEIVED JUN 2 9 1993

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIROMENTAL
16115 DOOLEY ROAD
DALLAS TX 75244

Assay Laboratory
Scott Specialty Gases, Inc.
1290 Combermere
Troy, MI 48083

Purchase Order 2345
Scott Project # 552412

ANALYTICAL INFORMATION

Certified to exceed the minimum specifications of EPA Protocol 1 Procedure # G1, Section Number 3.0.4

Cylinder Number CAL7719
Cylinder Pressure 1900 psig
Certification Date 6-22-93
Previous Certification Dates None
General Exp. Date 6-22-96
Acid Rain Exp. Date 12-22-94

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	227.5 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

*Analytical uncertainty is inclusive of usual known error sources which at least includes reference standard error & precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM 2645A	1-2-96	FF26816	498.5 ppm Propane in N_2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Prop: Beckman/400/1002059	5-18-93	Flame Ionization Detector

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
Propane	Date: 6-22-93 Response Units: mv Z1=0.00 R1=100.0 T1=45.70 R2=100.0 Z2=0.00 T2=45.70 Z3=0.00 T3=45.70 R3=100.0 Avg. Conc. of Cust. Cyl. 227.5 ppm		Concentration=A+Bx+Cx²+Dx³+Ex⁴ r=0.99999 SRM 2645A Constants: A=-0.6014043 B=4.991014 C=0 D=0 E=0
			Concentration=A+Bx+Cx²+Dx³+Ex⁴
			Concentration=A+Bx+Cx²+Dx³+Ex⁴

Special Notes
If this product is used for Acid Rain Rule Compliance, the *Acid Rain Expiration Date* noted above applies per 40 CFR Part 75, Appendix H. Otherwise, the *General Expiration Date* applies.

Analyst Frank P. Doran

Scott Specialty Gases

500 WEAVER PARK ROAD, LONGMONT, CO 80501 (303) 442-4700, (303) 651-3094 FAX: (303) 772-7673

PO# 3378
ITEM# 935

CERTIFICATE OF ANALYSIS: EPA Protocol Gas

Customer
METCO ENVIRONMENTAL
C/O SCOTT SPECIALTY GASES
3714 LAPAS DRIVE
HOUSTON, TX 77023

Assay Laboratory
Scott Specialty Gases, Inc.
500 Weaver Park Road
Longmont, CO 80501

Purchase Order 1587 / LARRY
Scott Project # 0819993
CGA Fitting 350
QC Number 16079515
File Number 19993-03

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number BAL-1761
Cylinder Pressure 2000 psig
Certification Date 06/07/95
Previous Certification Dates None
Expiration Date 06/07/98

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
(Propane)	233 ppm	±1% Directly NIST Traceable
(Nitrogen)	Balance	

*Analytical uncertainty is inclusive of usual known error sources which at least includes precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM 2645A	01/05/96	FF-27139	497.7 ppm C3H8 / Air

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Hewlett Packard 5890A 3115A34623	06/07/95	Flame Ionization

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components (Propane)

First Triad Analysis

Date 06/07/95 Response Units: V
Z1 = 0.000 R1 = 501.500 T1 = 232.000
R2 = 501.000 Z2 = 0.000 T2 = 233.500
Z3 = 0.000 T3 = 233.600 R3 = 505.200
Avg. Conc. of Cyl. = 233.03 ppm

Second Triad Analysis

Calibration Curve

Concentration = A+Bx+Cx2+Dx3+Ex4
r = 1
Constants: A = 0.416
B = 0.000939 C = 9.16E-12
D = 0 E = 0

Special Notes: Do not use when cylinder pressure is below 150 psig.
STOCK #935

Analyst Tanya Bayha

Scott Specialty Gases, Inc.
1290 COMBERMERE STREET, TROY, MI 48083 (313) 589-2950 FAX: (313) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS RECERTIFICATION

Customer
METCO ENVIRONMENTAL
16115 DOOLEY ROAD
DALLAS, TX. 75244

Assay Laboratory
Scott Specialty Gases, Inc.
1290 Combermere
Troy, MI 48083

Purchase Order 2749
Scott Project # 562373

ANALYTICAL INFORMATION

Certified to exceed the minimum specifications of EPA Protocol 1 Procedure #G1, Section Number 3.0.4

Cylinder Number CAL-8004
Cylinder Pressure 1700 psig
Certification Date 3-21-94
Previous Certification Dates 8-27-92
Expiration Date 3-21-97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	249.8 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

*Analytical uncertainty is inclusive of usual known error sources which at least includes reference standard error & precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM 2645A	4-7-96	FF-26859	498.5 ppm Propane in N_2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Prop: Beckman/400/1002059	3-10-94	Flame Ionization Detector

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	Previous Certification	Third Triad Analysis	Calibration Curve
Propane	Date: 8-27-92 Concentration: 249.9 ppm	Date: 3-21-94 Z1=0.00 R1=100.0 T1=50.10 R2=100.0 Z2=0.00 T2=50.10 Z3=0.00 T3=50.10 R3=100.0 Avg. Conc. of Cust. Cyl. 249.5 ppm	Concentration=A+Bx+Cx^2+Dx^3+Ex^4 r=0.99999 SRM 2645A Constants: A=-0.5134239 B=4.990134 C=0 D=0 E=0
			Concentration=A+Bx+Cx^2+Dx^3+Ex^4
			Concentration=A+Bx+Cx^2+Dx^3+Ex^4

Special Notes

Don Eichler Jr

Analyst Don Eichler, Jr.

Scott Specialty Gases, Inc.
1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
ATTN : JIM MONFRIES
16115 DOOLEY ROAD
DALLAS, TX 75244-1012

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 3145
Scott Project # : 574709

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : BAL5231
Cylinder Pressure + : 1900 psig
Certificate Date : 12/22/94
Previous Certificate Date : None
Expiration Date : 12/22/97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	471.1 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 2646	10/14/95	AAL18426	973.2 ppm Propane in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Propane : Beckman/400/1002059	12/22/94	Flame Ionization Detection

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components
Propane

First Triad Analysis

Date: 12/22/94 Response Units: mv

Z1=0.00	R1=97.30	T1=47.10
R2=97.30	Z2=0.00	T2=47.10
Z3=0.00	T3=47.10	R3=97.30

Avg. Conc. of Cust. Cyl. 471.1 ppm

Second Triad Analysis

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4

r=1.00000	NTRM 2646
Constants:	A=0.049241000
B=10.002000000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes
ITEM #940

Mail

Don Ewell Jr
Analyst

MISP/P-1

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
ATTN : SCOTT JACKSON
16115 DOOLEY ROAD
DALLAS, TX 75244-1012

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 3228
Scott Project # : 576921

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : BLM004121
Cylinder Pressure + : 1900 psig
Certificate Date : 2/18/95
Previous Certificate Date : None
Expiration Date : 2/18/98

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	475.1 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 2646	10/14/95	AAL18426	973.2 ppm Propane in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Propane : Beckman/400/1002059	2/20/95	Flame Ionization Detection

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components
Propane

First Triad Analysis

Date: 2/18/95	Response Units: mv	
Z1=0.00	R1=97.30	T1=47.50
R2=97.30	Z2=0.00	T2=47.50
Z3=0.00	T3=47.50	R3=97.30
Avg. Conc. of Cust. Cyl. 475.1 ppm		

Second Triad Analysis

Calibration Curve

Concentration=A+Bx+Cx²+Dx³+Ex⁴	
r=1.00000	NTRM 2646
Constants:	A=0.049241000
B=10.002000000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes
ITEM #940

Cylinder

Analyst

MSP/P-1

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
ATTN : SCOTT JACKSON
16115 DOOLEY ROAD
DALLAS, TX 75244-1012

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 3228
Scott Project # : 576921

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : BLM004137 **Certificate Date :** 2/18/95 **Expiration Date :** 2/18/98
Cylinder Pressure + : 1900 psig **Previous Certificate Date :** None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	475.1 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 2646	10/14/95	AAL18426	973.2 ppm Propane in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Propane : Beckman/400/1002059	2/20/95	Flame Ionization Detection

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components
Propane

First Triad Analysis

Date: 2/18/95	Response Units: mv	
Z1=0.00	R1=97.30	T1=47.50
R2=97.30	Z2=0.00	T2=47.50
Z3=0.00	T3=47.50	R3=97.30
Avg. Conc. of Cust. Cyl. 475.1 ppm		

Second Triad Analysis

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4	
r=1.00000	NTRM 2646
Constants:	A=0.049241000
B=10.002000000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes
ITEM #940

Cylinder

Analyst

MISP/P-1

Scott Specialty Gases, Inc.

P.O. #3189
ITEM #940

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer	*Assay Laboratory*	
SCOTT SPECIALTY GASES ATTN: NORA 3714 LAPAS DRIVE HOUSTON, TX 77023-3203	Scott Specialty Gases, Inc 1290 Combermere Troy, MI 48083	**Purchase Order :** 1527 RENEE **Scott Project # :** 576094

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : BLM002201	**Certificate Date :** 1/27/95	**Expiration Date :** 1/27/98
Cylinder Pressure + : 1900 psig	**Previous Certificate Date :** None	

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	486.1 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 2646	10/14/95	AAL18426	973.2 ppm Propane in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Propane : Beckman/400/1002059	1/19/95	Flame Ionization Detection

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	*First Triad Analysis*	*Second Triad Analysis*	Calibration Curve
Propane	Date: 1/27/95 Response Units: ppm Z1=0.00 R1=97.30 T1=48.60 R2=97.30 Z2=0.00 T2=48.60 Z3=0.00 T3=48.60 R3=97.30 Avg. Conc. of Cust. Cyl. 486.1 ppm		Concentration=A+Bx+Cx²+Dx³+Ex⁴ r=1.00000 NTRM 2646 Constants: A=0.049241000 B=10.002000000 C=0.000000000 D=0.000000000 E=0.000000000

Special Notes

Cylinder

Analyst

MISP/P-1

Scott Specialty Gases

500 WEAVER PARK ROAD, LONGMONT, CO 80501 (303) 442-4700, (303) 651-3094 FAX: (303) 772-7673

PO# 3378
ITEM# 940

CERTIFICATE OF ANALYSIS: EPA Protocol Gas

Customer	**Assay Laboratory**	**Purchase Order**	1587 / LARRY
METCO ENVIRONMENTAL	Scott Specialty Gases, Inc.	**Scott Project #**	0819993
C/O SCOTT SPECIALTY GASES	500 Weaver Park Road	**CGA Fitting**	350
3714 LAPAS DRIVE	Longmont, CO 80501	**QC Number**	16079514
HOUSTON, TX 77023		**File Number**	19993-04

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number	BAL-2652	**Certification Date**	06/07/95	**Expiration Date**	06/07/98
Cylinder Pressure	2000 psig	**Previous Certification Dates**	None		

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
(Propane)	489 ppm	±1% Directly NIST Traceable
(Nitrogen)	Balance	

*Analytical uncertainty is inclusive of usual known error sources which at least includes precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM 2645A	01/05/96	FF-27139	497.7 ppm C3H8 / Air

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Hewlett Packard 5890A 3115A34623	06/07/95	Flame Ionization

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
(Propane)	Date 06/07/95 Response Units: V Z1 = 0.000 R1 = 501.500 T1 = 487.200 R2 = 501.000 Z2 = 0.000 T2 = 491.400 Z3 = 0.000 T3 = 489.600 R3 = 505.200 Avg. Conc. of Cyl. = 489.40 ppm		Concentration = A+Bx+Cx2+Dx3+Ex4 r = 1 Constants: A = 0.416 B = 0.000939 C = 9.16E-12 D = 0 E = 0

Special Notes Do not use when cylinder pressure is below 150 psig.
STATE #940

Analyst Tanya Bayha

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
16115 DOOLEY ROAD
DALLAS, TX 75244

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 2972
Scott Project # : 569139

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : CAL8302
Cylinder Pressure + : 1900 psig
Certificate Date : 8/2/94
Previous Certificate Date : None
Expiration Date : 8/2/97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	969.1 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM 2648A	1/3/98	FF-26599	4901 ppm Propane in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	*Last Date Calibrated*	**Analytical Principle**
Propane : Beckman/400/1002059	7/15/94	Flame Ionization Detector

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components
Propane

First Triad Analysis

Date: 8/2/94 Response Units: mv

Z1=0.00	R1=130.00	T1=25.70
R2=130.00	Z2=0.00	T2=25.70
Z3=0.00	T3=25.70	R3=130.00

Avg. Conc. of Cust. Cyl. 969.1 ppm

Second Triad Analysis

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4

r=1.00000	SRM 2648A
Constants:	A=0.277800000
B=37.698000000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes

Analyst Don Eichler, Jr

MSP/P-1

ITEM 945

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO C/O SCOTT
HWY 3 & ELDORADO
WEBSTER, TX 77598

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 3242
Scott Project # : 577406

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : BLM004065
Cylinder Pressure + : 1900 psig
Certificate Date : 3/2/95
Previous Certificate Date : None
Expiration Date : 3/2/98

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	*977.5 ppm*	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM 2648A	1/4/99	FF27121	4892 ppm Propane in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Propane : Varian 6000 08963016	3/2/95	Flame Ionization Detector

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
Propane	Date: 3/2/95 Response Units: mv Z1=0.00 R1=179.50 T1=35.80 R2=179.70 Z2=0.00 T2=35.97 Z3=0.00 T3=35.94 R3=179.70 Avg. Conc. of Cust. Cyl. 977.5 ppm		Concentration=A+Bx+Cx^2+Dx^3+Ex^4 r=1.00000 SRM 2648A Constants: A=-0.573606700 B=27.241500000 C=0.000000000 D=0.000000000 E=0.000000000

Special Notes

Cylinder

Analyst

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
16115 DOOLEY ROAD
DALLAS, TX 75244

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 2835
Scott Project # : 565362

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : CAL12366
Cylinder Pressure + : 1900 psig
Certificate Date : 5/11/94
Previous Certificate Date : None
Expiration Date : 5/11/97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	979.5 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM 2647A	2/25/95	FF-27109	2450 ppm Propane in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Propane : Beckman/400/1002059	4/23/94	Flame Ionization Detector

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Propane

First Triad Analysis

Date: 5/11/94 Response Units: mv

Z1=0.00	R1=120.00	T1=48.00
R2=120.00	Z2=0.00	T2=48.00
Z3=0.00	T3=48.00	R3=120.00

Avg. Conc. of Cust. Cyl. 979.5 ppm

Second Triad Analysis

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4

r=1.00000	SRM 2647A
Constants:	A=-0.811650000
B=20.423000000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes

Don Eichler Jr

Analyst Don Eichler, Jr

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
16115 DOOLEY ROAD
DALLAS, TX 75244

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 2835
Scott Project # : 565362

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : CAL12660
Cylinder Pressure + : 1900 psig
Certificate Date : 5/11/94
Previous Certificate Date : None
Expiration Date : 5/11/97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	979.5 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM 2647A	2/25/95	FF-27109	2450 ppm Propane in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Propane : Beckman/400/1002059	4/23/94	Flame Ionization Detector

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Propane

First Triad Analysis

Date: 5/11/94 Response Units: mv

Z1=0.00	R1=120.00	T1=48.00
R2=120.00	Z2=0.00	T2=48.00
Z3=0.00	T3=48.00	R3=120.00

Avg. Conc. of Cust. Cyl. 979.5 ppm

Second Triad Analysis

Calibration Curve

Concentration=$A+Bx+Cx^2+Dx^3+Ex^4$

r=1.00000	SRM 2647A
Constants:	A=-0.811650000
B=20.423000000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes

Don Eichler Jr

Analyst Don Eichler, Jr

Scott Specialty Gases

1290 COMBERMERE STREET, TROY, MICHIGAN 48084 (313) 589-2950

Shipped From : Scott Michigan
Our Project # : 546669
Your P.O. # : 2120
Expiration Date : 2-2-96
Cylinder Number : CAL12407
Cylinder Pressure : 1900 psig
Certification Date : 2-2-93
1 of 1 Component(s)

Customer :
METCO ENVIROMENTAL
16115 DOOLEY ROAD
DALLAS TX 75244

**** CERTIFICATE OF ANALYSIS - EPA PROTOCOL GASES ****

PERFORMED ACCORDING TO SECTION 3.0.4

Certified Per Traceability Protocol # 1 Procedure # G1

LAB #0504

Certified Accuracy 1 % NIST Traceable

ANALYZED CYLINDER		REFERENCE STANDARDS			INSTRUMENTATION		
COMPONENT	CERTIFIED CONCENTRATION	SRM # (CRM #)	CYLINDER NUMBER	CONCENTRATION	INSTRUMENT/ MODEL/SERIAL #	LAST CALIBRATION DATE	ANALYTICAL PRINCIPLE
PROPANE	980.3 PPM	2646	AAL-18432	973.2 PPM	BECKMAN 400 1002059	1-15-93	FLAME IONIZATION DETECTOR
		GMIS*	A14907	250.6 PPM			
BALANCE GAS : NITROGEN							

EPA PROTOCOL

C-138

ANALYSIS DATE : 2-2-93

ZERO GAS (mV)	TEST GAS (mV)	CURVE RESULTS PPM	REFERENCE GAS CONCENTR.	(mV)	CURVE RESULTS PPM
0.00	97.10	982.2	973.2 PPM	96.40	975.1
0.00	97.10	982.2		96.40	975.1
0.00	97.10	982.2		96.40	975.1

CALCULATED RESULTS 980.3
980.3
980.3

AVERAGE : 980.3 PPM

CALIBRATION CURVE 1 st DEGREE

SRM # (CRM #)	CONC. PPM	SPLIT PT (%)	DVM (mV)	FITTED VALUE	PERCENT ERROR
GMIS	1012	100	100.0	1012	0.00
2646	973.2	96	96.40	975.1	0.20
GMIS	799.8	79	79.10	800.3	0.05
GMIS	250.6	25	24.70	250.4	-0.08
GMIS	189.2	19	18.60	188.7	-0.24
	0.0000	0	*******	0.0000	0.00
		0		0.00	0.00
GMIS	250.6	LOW	24.70	250.4	-0.08
2646	973.2	HIGH	96.40	975.1	0.20

* GMIS - GAS MANUFACTURER'S INTERNAL STANDARD

Analyst : F Doran
FRANK P. DORAN

Approved By : J. C. Shapiro

Revised : 3/31/92 RML

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, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
METCO ENVIRONMENTAL
ATTN : SCOTT JACKSON
16115 DOOLEY ROAD
DALLAS, TX 75244-1012

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 3240
Scott Project # : 577263

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous *Calibration Standards; Procedure G1, September, 1993.*

Cylinder Number : BLM002721
Cylinder Pressure + : 1900 psig
Certificate Date : 2/21/95
Previous Certificate Date : None
Expiration Date : 2/21/98

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	2268 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 2646	10/15/95	AAL18426	973.2 ppm Propane in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
C3:Beckman/400/1002059	1/30/95	Flame Ionization Detection

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components
Propane

First Triad Analysis

Date: 2/21/95	Response Units: mv	
Z1=0.00	R1=99.20	T1=22.70
R2=99.20	Z2=0.00	T2=22.70
Z3=0.00	T3=22.70	R3=99.20
Avg. Conc. of Cust. Cyl. 2268 ppm		

Second Triad Analysis

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4	
r=1.00000	NTRM 2646
Constants:	A=-1.435700000
B=99.964000000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes

Mail

Analyst

MSP/P-1

AIR PRODUCTS
4822 INDUSTRY LANE
DURHAM, NC 27713

CERTIFICATE OF ANALYSIS-EPA PROTOCOL MIXTURES

REFERENCE #: 88-32146 CYLINDER #:SG9116264 CYL. PRESSURE:2000PSIG
EXPIRATION DATE:6/27/97 LAST ANALYSIS DATE:6/27/94
CUSTOMER: P.O.#

METHOD: ANALYZED ACCORDING TO EPA TRACEABILITY PROTOCOL FOR ASSAY AND CERTIFICATION OF GASEOUS CALIBRATION STANDARDS-SEPTEMBER 1993:G-1

STANDARD:	INSTRUMENT:BECKMAN THC	
SRM #:2648A	MODEL #:400	
CYL #:FF27155	SERIAL #:1003052	
CONC.:4892PPM	LAST CAL.:6/21/94	
VAL. DATE:2/28/94	EXP. DATE:2/28/98	
COMPONENT:PROPANE	COMPONENT:	COMPONENT:
MEAN CONC:4530PPM	MEAN CONC:	MEAN CONC:
REPLICATE CONC.	REPLICATE CONC.	REPLICATE CONC.
DATE:6/27/94 DATE:	DATE: DATE:	DATE: DATE:
4533PPM		
4533PPM		
4533PPM		

BALANCE GAS:N2

REPLICATE DATA — COMPONENT:PROPANE

DATE: 6/27/94						DATE:		
Z	0	R	321.6	C	298.0	Z	R	C
R	321.5	Z	0	C	298.0	R	Z	C
Z	0	C	298.0	R	321.5	Z	C	R

REPLICATE DATA — COMPONENT:

DATE:						DATE:		
Z		R		C		Z	R	C
R		Z		C		R	Z	C
Z		C		R		Z	C	R

REPLICATE DATA — COMPONENT:

DATE:						DATE:		
Z		R		C		Z	R	C
R		Z		C		R	Z	C
Z		C		R		Z	C	R

Z=ZERO C=CANDIDATE R=REFERENCE

ANALYST: Richard Sykes APPROVED BY: T. Painter

"THIS REPORT STATED ACCURATELY THE RESULTS OF THE INVESTIGATION MADE UPON THE MATERIAL SUBMITTED TO THE ANALYTICAL LABORATORY. EVERY EFFORT HAS BEEN MADE TO DETERMINE OBJECTIVELY, THE INFORMATION REQUESTED; HOWEVER, IN CONNECTION WITH ITS RENDERING OF THIS REPORT, NATIONAL SPECIALTY GASES SHALL HAVE NO LIABILITY IN EXCESS OF ITS ESTABLISHED CHARGE FOR THE SERVICE."

Scott Specialty Gases, Inc.
1290 COMBERMERE STREET, TROY, MI 48083 (313) 589-2950 FAX: (313) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS RECERTIFICATION

Customer
METCO ENVIRONMENTAL
16115 DOOLEY ROAD
DALLAS, TX. 75244

Assay Laboratory
Scott Specialty Gases, Inc.
1290 Combermere
Troy, MI 48083

Purchase Order 2749
Scott Project # 562373

ANALYTICAL INFORMATION

Certified to exceed the minimum specifications of EPA Protocol 1 Procedure #G1, Section Number 3.0.4

Cylinder Number CAL-10703
Cylinder Pressure 1700 psig
Certification Date 3-21-94
Previous Certification Dates 7-13-92
Expiration Date 3-21-97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	9454 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

*Analytical uncertainty is inclusive of usual known error sources which at least includes reference standard error & precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM 2648A	1-3-98	FF-26599	4901 ppm C3 in N_2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
THC: Beckman/MODEL 400/1002059	3-10-94	Flame Ionization Detector

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	Previous Certification	Third Triad Analysis	Calibration Curve
Propane	Date: 7-13-92 Concentration: 9455 ppm	Date: 3-21-94 Z1=0.00 R1=75.00 T1=71.50 R2=75.00 Z2=0.00 T2=71.50 Z3=0.00 T3=71.50 R3=75.00 Avg. Conc. of Cust. Cyl. 9452 ppm	Concentration=A+Bx+Cx^2+Dx^3+Ex^4 r=0.99999 SRM 2648A Constants: A=3.240786 B=132.1568 C=0 D=0 E=0
			Concentration=A+Bx+Cx^2+Dx^3+Ex^4
			Concentration=A+Bx+Cx^2+Dx^3+Ex^4

Special Notes

Don Eichler Jr.
Analyst Don Eichler, Jr.

METCO ENVIRONMENTAL
P.O. Box 598
Addison, TX 75001
(214) 931-7127

SOURCE EMISSIONS SURVEY
OF
LOUISIANA-PACIFIC CORPORATION
SILSBEE, TEXAS
TNRCC PERMIT 19695
FOR
ERM-SOUTHWEST, INC.
VOLUME II

2 of 3

JANUARY 1996

FILE NUMBER 96-11

APPENDIX D

Field Testing Data

METCO ENVIRONMENTAL

Particulate Field Data

Read and record at the start of each test point.

Job Number 96-11
Job Name ERM Southwest
Run Number 1
Unit 2 Dryer Outlet
Date 1-16-96
Operator M.E. N. H. Lindquist / Theuerkauf
Sample Box No. 34 Meter Box No. (26) 18-1

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 80
Assumed Moisture % —
Probe Length 5'
C Factor 10-4.6 to reference
Initial Leak @ 15.0 "Hg = 0.000 cfm
Final Leak @ 17.0 "Hg = 0.000 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O ΔPs	Orifice ΔH "H2O Desired	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage Pm	Stack Temp °F Ts	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet Tm	Dry Gas Temp. °F Outlet Tm	Remarks
Pt. A6	1315	411.833	1.40	0.65	0.65	6.0	220	242	250	90	82	82	int orsat
	1318	413.23	1.40	0.65	0.65	6.0	222	251	250	72	83	82	
5	1321	415.14	1.70	0.78	0.78	7.0	224	235	251	68	84	82	
	1324	416.09	1.70	0.78	0.78	7.0	220	241	250	66	85	83	
4	1327	417.71	1.90	0.88	0.88	7.5	216	245	250	64	85	81	
	1330	419.80	1.90	0.88	0.88	8.0	214	250	250	63	85	82	
3	1333	421.52	2.10	0.97	0.97	8.0	214	249	250	63	84	82	
	1336	422.81	2.10	0.97	0.97	8.0	217	251	250	63	8482	82	
2	1339	423.89	1.90	0.88	0.88	10.0	218	249	250	64	84	82	
	1342	425.71	1.90	0.88	0.88	11.0	217	254	250	66	85	82	
1	1345	426.82	1.70	0.78	0.78	13.0	215	251	250	67	85	82	
	1348	428.82	1.70	0.78	0.78	15.0	215	253	250	68	85	82	
End	1351	430.214	—	—	—	—	—	—	—	—	—	—	ch. filter & Leak chk.
Pt A6	1406	430.304	2.10	0.97	0.97	6.0	215	248	228	80	95	82	
	1408	432.54	2.10	0.97	0.97	6.0	216	250	234	72	85	82	
5	1412	433.43	2.10	0.97	0.97	6.0	217	251	236	68	86	82	
	1415	435.56	2.20	0.97	0.97	6.0	220	250	241	66	86	82	
4	1418	437.44	2.30	1.10	1.10	6.0	221	248	243	65	87	82	

Pitot Tube Calibration Factor C_p 0.799 ✓
Volume Collected V_m 36.704 ✓ ft³
Water Collected V_w 306.0 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -14.7 ✓ "H2O

Pitot Tube No. 3
Baro. Press. P_b 29.94 ✓ "Hg
Probe Tip Dia. D_n 0.176 ✓ in.
% CO_2 4.8 ✓ % CO 0.0 ✓
% O_2 15.6 ✓ % N_2 79 by
Area Stack A_s 1369 ✓ in²

Barometer No. 4
Probe Tip No. 6 set XII
Total Volume of Leak Checks After Start: 0.090 ft³
V_m = Dry Gas Meter Calibration Factor 37.761 X 0.972 ✓

[Dry Gas Meter Reading — ft³ - (T_t — min. X Leak Rate — cfm)]

Impinger Box No. 34

			Water Weight Gain		
Impinger 1	Final Weight	860.0		Impinger 1	230.0
	Initial Weight	630.0		Impinger 2	59.3
	Increase	230.0		Impinger 3	5.1
Impinger 2	Final Weight	669.1		Impinger 4	11.6
	Initial Weight	609.8	V_w =	Impinger 5	—
	Increase	59.3	g SO_2 =	Impinger 6	—
Impinger 3	Final Weight	539.8	V_w =	Impinger 7	—
	Initial Weight	534.7		Total	306.0 ✓ = V_w
	Increase	5.1			
Impinger 4	Final Weight	816.1			
	Initial Weight	804.5			
	Increase	11.6			
Impinger 5	Final Weight	—			
	Initial Weight	—			
	Increase				
Impinger 6	Final Weight	—			
	Initial Weight	—			
	Increase				
Impinger 7	Final Weight	—			
	Initial Weight	—			
	Increase				

P_b =	29.94 ✓		%CO_2 =	4.8 ✓
V_m =	36.704 ✓		%O_2 =	15.6 ✓
V_w =	306.0 ✓		%CO =	0.0 ✓
P_m =	0.855 ✓		%N_2 =	79.6 ✓
Avg ΔP =	1.850 ✓		A_s =	1369 ✓
			D_n =	0.176 ✓
Avg $\sqrt{\Delta P}$ =	1.356 ✓		T_t =	72 ✓
C_p =	0.799 ✓			
P_s =	−1.47 ✓	"H_2O	28.86 ✓	"Hg
T_m =	84 ✓	°F	544 ✓	°R
T_s =	217 ✓	°F	677 ✓	°R

Moisture Content: %M = 28.79 ✓ M_d = 0.7121 ✓ MW_d = 29.392 ✓ MW = 26.11 ✓

$$Vm_{std} = 17.65\ Vm \left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 36.704 \left[\frac{29.94 + \frac{0.855}{13.6}}{84 + 460}\right] = \frac{35.729 \text{ ✓ sft}^3}{0.496 \text{ ✓ scfm}}$$

$Vw_{gas} = 0.0472 \times Vw = 0.0472 \times 306.0 = 14.443$ ✓ sft³

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{14.443}{35.729 + 14.443} \times 100 = 28.79$ ✓ %

$V_s = 5123.8 \times 0.799 \sqrt{\frac{677}{28.86 \times 26.11}} \times 1.356 = 5262$ ✓ fpm

ACFM: 50,024 ✓

SCFM: 26,897 ✓

%EA: 283.9 ✓

$\%I = \frac{1{,}039 \times 35.729 \times 677}{0.712 \times 28.86 \times 5262 \times 72 \times (0.176)^2} = 104.2$ ✓ %

Run Number 1

Unit 2 Dryer Outlet

Date 1-16-96

Particulate FIELD DATA

			ΔP_s			P_m	T_s				T_m		
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
Init	1421	438.835	2.00	0.93	0.93	6.0	216	250	261	65	86	82	
3	1424	440.64	2.00	0.93	0.93	6.0	217	260	264	62	87	83	
	1427	442.80	2.00	0.93	0.93	6.0	218	250	269	60	86	82	
2	1430	443.94	1.80	0.83	0.83	6.0	216	251	269	60	86	82	
	1433	445.75	1.80	0.83	0.83	6.0	217	253	269	61	86	83	
1	1436	446.94	1.30	0.60	0.60	6.0	215	251	269	62	86	83	
	1439	448.45	1.30	0.60	0.60	6.0	214	253	269	63	86	83	
End	1442	449.684	—	—	—	—	—	—	—	—	—	—	

METCO ENVIRONMENTAL

Particulate Field Data

Read and record at the start of each test point.

Job Number 96-11
Job Name ERM Southwest
Run Number 2
Unit 2 Dryer Outlet
Date 1-17-96
Operator McNutt / Lindquist / Theuer Kaus
Sample Box No. 44 Meter Box No. 18-126

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 80
Assumed Moisture % —
Probe Length 5'
C Factor 10-4.6 to reference
Initial Leak @ 15.0 "Hg = 0.000 cfm
Final Leak @ 24.0 "Hg = 0.001 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O ΔPs	Orifice ΔH "H2O Desired	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage Pm	Stack Temp °F Ts	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet Tm	Dry Gas Temp. °F Outlet	Remarks
Init BP#6	0820	500.821	1.50	0.70	0.70	7.0	211	262	269	90	79	78	Init. Orsat
	0823	502.24	1.50	0.70	0.70	7.0	208	260	270	72	79	77	
5	0826	503.74	1.90	0.88	0.88	8.0	206	256	270	68	79	77	
	0829	505.26	1.90	0.88	0.88	8.5	205	255	271	64	79	78	
4	0832	506.82	2.00	0.92	0.92	8.5	208	256	270	62	81	78	
	0835	508.67	2.00	0.92	0.92	8.9.0	213	254	269	61	81	78	
3	0838	510.14	2.10	0.97	0.97	9.0	213	255	268	60	81	78	
	0841	511.83	2.10	0.97	0.97	9.0	211	256	268	60	81	78	
2	0844	514.08	2.10	0.97	0.97	9.0	202	257	267	60	81	78	
	0847	515.74	1.90	0.88	0.88	9.0	199	255	267	60	81	78	
1	0850	517.01	1.90	0.88	0.88	9.0	199	256	267	62	81	78	
	0853	518.50	1.90	0.88	0.88	9.0	202	257	267	62	81	79	
Final	0856	520.053	—	—	—	—	—	—	—	—	—	—	
Init AH#6	0910	520.053	1.60	0.74	0.74	9.5	212	268	270	84	80	79	
	0913	521.93	1.70	0.78	0.78	10.0	211	263	274	72	82	79	
5	0916	522.94	1.80	~~0.88~~ 0.83	0.83	10.0	209	258	270	62	80	79	
	0919	524.31	2.00	0.92	0.92	13.0	208	259	269	59	82	80	
4	0922	526.05	2.20	1.00	1.00	15.5	206	261	268	56	83	80	

Pitot Tube Calibration Factor C_p 0.799 ✓
Volume Collected V_m 37.036 ✓ ft³
Water Collected V_w 279.4 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -14.0 ✓ "H_2O

Pitot Tube No. 3 ✓
Baro. Press. P_b 29.81 ✓ "Hg
Probe Tip Dia. D_n 0.176 ✓ in.
% CO_2 4.6 ✓ % CO 0.0 ✓
% O_2 16.0 ✓ % N_2 79.4 ✓
Area Stack A_s 1369 ✓ in²

Barometer No. 4
Probe Tip No. 6 Set XII
Total Volume of Leak Checks After Start: 0.294 ft³
V_m = Dry Gas Meter Calibration Factor 38.103 X 0.972 ✓

[Dry Gas Meter Reading — ft³ - (T_t — min. X Leak Rate — cfm)]

Impinger Box No. 44

			Water Weight Gain		
Impinger 1	Final Weight	819.5		Impinger 1	219.6
	Initial Weight	599.9			
	Increase	219.6		Impinger 2	39.9
Impinger 2	Final Weight	647.8		Impinger 3	4.8
	Initial Weight	607.9			
	Increase	39.9		Impinger 4	15.1
			V_w =		
Impinger 3	Final Weight	499.9	g SO_2 =	Impinger 5	—
	Initial Weight	495.1	V_w =		
	Increase	4.8		Impinger 6	—
Impinger 4	Final Weight	899.8		Impinger 7	—
	Initial Weight	884.7			
	Increase	15.1		Total	279.4 ✓ = V_w

Impinger 5	Final Weight	—	P_b =	29.81 ✓	%CO_2 =	4.6 ✓	
	Initial Weight	—	V_m =	37.036 ✓	%O_2 =	16.0 ✓	
	Increase		V_w =	279.4 ✓	%CO =	0.0 ✓	
			P_m =	0.871 ✓	%N_2 =	79.4 ✓	
Impinger 6	Final Weight	—	Avg ΔP =	1.900 ✓	A_s =	1369 ✓	
	Initial Weight	—			D_n =	0.176 ✓	
	Increase		Avg$\sqrt{\Delta P}$ =	1.377 ✓	T_t =	72 ✓	
			C_p =	0.799 ✓			
Impinger 7	Final Weight	—	P_s =	-14.0 ✓ "H_2O		28.78 ✓	"Hg
	Initial Weight	—	T_m =	80 ✓ °F		540 ✓	°R
	Increase	—	T_s =	207 ✓ °F		667 ✓	°R

Moisture Content: %M = 2672 ✓ M_d = 0.7328 ✓ MW_d = 29.376 ✓ MW = 2634 ✓

$$Vm_{std} = 17.65\ Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 37.036\left[\frac{29.81 + \frac{0.871}{13.6}}{80 + 460}\right] = \frac{36.163 \checkmark \text{ sft}^3}{0.502 \checkmark \text{ scfm}}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 279.4 = 13.188 ✓ sft³

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{13.188}{36.163 + 13.188} \times 100 =$ 26.72 ✓ %

$V_s = 5123.8 \times 0.799\sqrt{\frac{667}{28.78 \times 2634}} \times 1.377 =$ 5288 ✓ fpm

ACFM: 50,272 ✓

SCFM: 28,155 ✓

%I = $\frac{1{,}039 \times 36.163 \times 667}{0.7328 \times 28.78 \times 5288 \times 72 \times (0.176)^2} =$ 100.8 ✓ %

%EA: 91.5 / 317.4 ✓

Run Number 2 ~~Dryer Outlet~~ Particulate FIELD DATA

Unit 2 Dryer Outlet

Date 1-17-96

			ΔP_s			P_m	T_s				T_m		
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
~~Lt A~~ A-4	0925	527.52	2.10	1.00	1.00	16.0	208	259	268	55	83	80	
3	0928	529.13	2.10	1.00	0.95	22.0	209	258	268	55	84	80	Pump off ch. Filter
	0931	530.83	2.00	0.92	0.78	23.0	208	256	268	56	85	81	0932 531.352
0943 2	~~0934~~	532.81	2.00	0.92	0.92	6.5	211	261	247	67	83	80	0941 531.9646 0.000
	0946	534.11	1.90	0.88	0.88	6.5	208	257	263	62	85	80	
1	0949	536.41	1.70	0.78	0.78	6.5	204	255	266	62	86	81	
	0952	537.74	1.70	0.78	0.78	6.5	206	258	272	62	86	81	
End	0955	539.218	—	—	—	—	—	—	—	—	—	—	

METCO ENVIRONMENTAL

Particulate Field Data

Job Number 96-11
Job Name ERM Southwest
Run Number 3
Unit 2 Dryer Outlet
Date 7-17-96
Operator McNutt/Lindquist/Thorver Kaus
Sample Box No. 34 Meter Box No. 18-1 26

Read and record at the start of each test point.

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 85
Assumed Moisture % —
Probe Length 5'
C Factor 10-4.6 to reference
Initial Leak @ 15.0 "Hg = .002 cfm
Final Leak @ 25.0 "Hg = .001 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" ΔP_s "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum P_m "Hg Guage	Stack Temp T_s °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet T_m	Remarks
Pt A P16	1750	584.097	1.70	0.78	0.78	8.5	208	252	264	90	81	80	init wset
	1753	585.85	1.70	0.78	0.78	7.5	208	247	270	76	81	80	
5	1756	587.54	2.00	0.94	0.94	8.0	211	260	271	68	82	80	
	1759	588.92	2.10	0.97	0.97	8.0	212	270	272	65	83	80	
4	1802	590.94	2.50	1.15	1.15	10.0	214	272	272	64	84	80	Pump off 1805 592.322
1825	~~1805~~	592.322	2.10	0.97	0.97	9.5	212	268	268	63	84	80	
3	1828	594.17	2.20	1.00	1.00	11.5	210	259	267	67	81	80	
	1831	595.74	2.20	1.00	1.00	13.0	210	264	266	64	83	80	ch. filter 0.337
2	1834	598.13	1.90	0.88	0.88	17.5	209	270	272	63	85	80	Pump off Pump on
	1837	599.14	1.90	0.88	0.88	22.0	210	269	271	64	85	80	1839 599.947, 1910 600.282
1	1911	601.23	1.40	0.65	0.65	5.0	213	248	270	87	82	80	
	1914	602.56	1.40	0.65	0.65	5.0	215	242	270	77	84	80	
End	1917	604.009	—	—	—	—	—	—	—	—	—	—	
Pt A P16	1927	604.009	1.50	0.70	0.70	5.0	206	270	271	90	82	80	
	1930	605.77	1.70	0.79	~~0.79~~ 0.79	5.0	208	270	272	67	84	81	
5	1933	607.32	2.20	1.00	1.00	6.0	212	265	269	63	86	81	
	1936	608.94	2.20	1.00	1.00	6.0	210	269	270	59	87	81	
4	1939	611.47	2.40	1.10	1.10	6.0	215	265	268	59	87	81	

Pitot Tube Calibration Factor C_p ~~0.80~~ 0.799 ✓
Volume Collected V_m 39.142 ✓ ft³
Water Collected V_w 288.9 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -14.5 ✓ "H_2O

Pitot Tube No. 3
Baro. Press. P_b 29.60 ✓ "Hg
Probe Tip Dia. D_p 0.176 ✓ in.
% CO_2 4.8 ✓ % CO 0.0 ✓
% O_2 16.0 ✓ % N_2 79.2 ✓
Area Stack A_s 1369 ✓ in²

Barometer No. 4
Probe Tip No. 6 S&T XII
Total Volume of Leak Checks After Start: 0.337 ft³
V_m = Dry Gas Meter Calibration Factor 40.270 X 0.972

[Dry Gas Meter Reading — ft³ - (T_t — min. X Leak Rate — cfm)]

Impinger Box No. 34

			Water Weight Gain		
Impinger 1	Final Weight	809.9		Impinger 1	196.4
	Initial Weight	613.5			
	Increase	196.4		Impinger 2	66.0
Impinger 2	Final Weight	679.9		Impinger 3	14.5
	Initial Weight	613.9			
	Increase	66.0		Impinger 4	12.0
			V_w =		
Impinger 3	Final Weight	548.7	g SO_2 =	Impinger 5	—
	Initial Weight	534.2	V_w =		
	Increase	14.5		Impinger 6	—
		827.4			
Impinger 4	Final Weight	~~824.3~~		Impinger 7	—
	Initial Weight	815.4			
	Increase	12.0		Total	288.9 = V_w

Impinger 5	Final Weight	—	P_b =	29.60	%CO_2 =	4.8
	Initial Weight	—	V_m =	39.142	%O_2 =	16.0
	Increase		V_w =	288.9	%CO =	0.0
			P_m =	0.899	%N_2 =	79.2
Impinger 6	Final Weight	—	Avg ΔP =	1.958	A_s =	1369
	Initial Weight	—			D_n =	0.176
	Increase		Avg$\sqrt{\Delta P}$ =	1.394	T_t =	72
			C_p =	0.799		
Impinger 7	Final Weight	—	P_s =	-14.5 H_2O		28.53 "Hg
	Initial Weight	—	T_m =	82 °F		542 °R
	Increase	—	T_s =	211 °F		671 °R

Moisture Content: %M = 26.50 M_d = 0.7356 MW_d = 29.408 MW = 26.38

$$Vm_{std} = 17.65\ Vm \left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 39.142 \left[\frac{29.60 + \frac{0.899}{13.6}}{82 + 460}\right] = \frac{37.814 \text{ sft}^3}{0.525 \text{ scfm}}$$

$Vw_{gas} = 0.0472 \times Vw = 0.0472 \times 288.9 = 13.6396$ sft³

$$\%\ \text{Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{13.636}{37.814 + 13.636} \times 100 = 26.50\ \%$$

$$V_s = 5123.8 \times 0.799 \sqrt{\frac{671}{28.53 \times 26.38}} \times 1.394 = 5389 \text{ fpm}$$

ACFM: 51,229

SCFM: 28,359

$$\%I = \frac{1{,}039 \times 37.814 \times 671}{0.7350 \times 28.53 \times 5389 \times 72 \times (0.176)^2} = 104.6\ \%$$

%EA: 320.8

Run Number 3

Unit 2 Dryer Outlet

Date 1-17-95

Particulate FIELD DATA

			ΔP_s			P_m	T_s				T_m		
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Pump off Remarks
Port Adj	1942	612.49	2.40	1.10	1.10	6.5	212	268	270	58	87	81	1943 613.558, 2010
3	2012	615.32	2.20	1.00	1.00	6.0	210	271	268	72	83	81	
	2015	616.56	2.20	1.00	1.00	6.5	211	272	269	65	85	81	
2	2018	618.42	2.10	0.98	0.98	6.5	210	270	271	64	86	81	Pump off Pump on
	2021	620.01	1.90	0.88	0.88	6.0	210	271	272	64	86	81	2024 621.693, 2135
2035	~~2024~~	621.693	1.80	0.78	0.78	7.0	213	263	271	90	81	80	
	2038	623.03	1.30	0.60	0.60	7.0	212	268	270	67	83	80	
End	2141	624.704	—	—	—	—	—	—	—	—	—	—	

METCO ENVIRONMENTAL

Formaldehyde Field Data

Read and record at the start of each test point.

Job Number 96-11
Job Name ERM
Run Number 1
Unit 2 Dryer Outlet
Date 1-16-96
Operator MENath/Lindquist/Thoeresen
Sample Box No. 1-2 Meter Box No. (26) 15-1

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 80
Assumed Moisture % —
Probe Length 3'
C Factor 10-5.4 to reference
Initial Leak @ 15.0 "Hg = 0.00 cfm
Final Leak @ 27.0 "Hg = 0.000 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O	Orifice ΔH "H2O Desired (ΔPs)	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage (Pm)	Stack Temp °F (Ts)	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet (Tm)	Dry Gas Temp. °F Outlet	Remarks
Port A #6	1552	450.541	1.50	0.82	0.82	5.0	215	254	261	86	83	82	int. onset
	1555	452.33	1.50	0.82	0.82	5.0	216	251	270	74	84	82	
5	1558	453.54	1.90	1.00	1.00	5.0	219	244	272	68	85	83	
	1601	454.61	1.80	0.98	0.98	5.0	218	242	264	67	86	82	
4	1604	457.02	1.90	1.00	1.00	5.0	223	240	260	63	86	82	
	1607	459.21	1.90	1.00	1.00	5.0	225	241	259	63	87	82	
3	1610	460.12	2.00	1.10	1.10	5.0	215	241	257	63	86	82	
	1613	461.10	2.10	1.15	1.15	5.0	212	243	258	63	86	82	
2	1616	463.50	1.90	1.00	1.00	5.0	209	250	259	63	86	82	
	1619	465.30	1.90	1.00	1.00	5.5	214	252	257	63	86	82	
1	1622	467.84	1.80	0.98	0.98	6.5	216	248	261	65	87	82	
	1625	468.52	1.80	0.98	0.98	10.0	213	260	262	65	87	82	
End	1628	469.968	—	—	—	—	—	—	—	—	—	—	ch. Filter
Port B #6	1659	471.879	2.10	1.15	1.15	6.0	218	270	266	85	85	83	
6	1702	473.03	1.90	1.00	1.00	6.0	217	273	250	70	87	83	
5	1705	474.69	2.10	1.15	1.15	6.0	215	267	251	67	86	82	
	1708	476.56	2.10	1.15	1.15	6.0	213	263	259	65	86	82	
4	1711	478.38	2.00	1.10	1.10	6.0	210	259	269	64	86	82	

Pitot Tube Calibration Factor C_p 0.813 ✓
Volume Collected V_m 36.457 ✓ ft³
Water Collected V_w 319.2 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -14.5 ✓ "H2O

Pitot Tube No. 18-3-2 ✓
Baro. Press. P_b 29.92 ✓ "Hg
Probe Tip Dia. D_n 0.180 ✓ in.
% CO_2 5.8 ✓ % CO 0.0 ✓
% O_2 15.2 ✓ % N_2 79.0 ✓
Area Stack A_s 1369 ✓ in²

Barometer No. 4
Probe Tip No. Pyrex 96-11-A-1
Total Volume of Leak Checks After Start: 1.911 ft³
V_m = Dry Gas Meter Calibration Factor 37.507 X 0.972 ✓

[Dry Gas Meter Reading ___ ft³ - (T_t ___ min. X Leak Rate ___ cfm)]

Impinger Box No. M-2

			Water Weight Gain		
Impinger 1	Final Weight	820.4		Impinger 1	114.7
	Initial Weight	705.7			
	Increase	114.7		Impinger 2	107.9
Impinger 2	Final Weight	811.8		Impinger 3	~~574.8~~ 82.0
	Initial Weight	703.9			
	Increase	107.9		Impinger 4	14.6
			V_w =		
Impinger 3	Final Weight	574.8	g SO_2 =	Impinger 5	—
	Initial Weight	492.8	V_w =		
	Increase	82.0		Impinger 6	—
Impinger 4	Final Weight	890.5		Impinger 7	—
	Initial Weight	875.9			
	Increase	14.6		Total	319.2 ✓ = V_w

Impinger 5	Final Weight	—	P_b =	29.92 ✓	$\%CO_2$ =	5.8 ✓
	Initial Weight	—	V_m =	36.457 ✓	$\%O_2$ =	15.2 ✓
	Increase		V_w =	319.2 ✓	%CO =	0.0 ✓
			P_m =	0.973 ✓	$\%N_2$ =	79.0 ✓
Impinger 6	Final Weight	—	Avg ΔP =	1.925 ✓	A_s =	1369 ✓
	Initial Weight	—			D_n =	0.180 ✓
	Increase		Avg$\sqrt{\Delta P}$ =	1.386 ✓	T_1 =	72 ✓
			C_p =	0.813 ✓		
Impinger 7	Final Weight	—	P_s =	−14.5 ✓ $"H_2O$		28.85 ✓ "Hg
	Initial Weight	—	T_m =	84 ✓ °F		544 ✓ °R
	Increase	—	T_s =	215 ✓ °F		~~674~~ ✓ °R
						675

Moisture Content: %M = 29.81 ✓ M_d = 0.7019 ✓ MW_d = 29.536 ✓ MW = 26.10 ✓

$$Vm_{std} = 17.65\ Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 36.457\left[\frac{29.92 + \frac{0.973}{13.6}}{84 + 460}\right] = \frac{35.475}{0.493} \frac{\checkmark}{\checkmark} \frac{sft^3}{scfm}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 319.2 = 15.066 ✓ sft^3

$$\%\ Moisture = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{15.066}{35.475 + 15.066} \times 100 = 29.81 \checkmark \%$$

$$V_s = 5123.8 \times 0.813 \sqrt{\frac{674675}{28.85 \times 26.10}} \times 1.386 = \frac{5460}{5462}\ fpm \checkmark$$

ACFM: 51,969 ✓ / ~~51,934~~ 27,612 ✓

SCFM: ~~27,633~~

$$\%I = \frac{1{,}039 \times 35.475 \times 674675}{0.7019 \times 28.85 \times 5462 \times 72 \times (0.180)^2} = \frac{96.3}{96.4 \checkmark} \%$$

5460

%EA: 265.0 ✓

Run Number 1

Unit 2 Dryer Outlet

Date 1-16-96

Formaldehyde FIELD DATA

			ΔP_s		P_m		T_s				T_m		
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
Run B.4	1714	479.90	2.10	1.15	1.15	6.0	211	259	270	63	86	82	
3	1717	481.89	1.80	0.98	0.98	6.0	209	258	271	63	87	82	
	1720	483.33	2.10	1.15	1.15	6.5	208	249	270	63	87	82	
2	1723	485.12	2.00	1.10	1.10	8.0	206	268	272	63	87	82	
	1726	487.91	2.00	1.10	1.10	13.0	212	270	269	64	87	82	
1	1729	488.32	2.00	1.10	0.30	25.0	218	270	266	64	87	82	
	1732	489.16	2.00	1.10	0.20	25.5	225	264	266	67	87	82	
End	1735	489.959	—	—	—	—	—	—	—	—	—	—	

METCO ENVIRONMENTAL

Formaldehyde Field Data

Read and record at the start of each test point.

Job Number 96-11
Job Name ERM Southwest
Run Number 2
Unit 2 Dryer Outlet
Date 1-17-95
Operator McNutt/Lindquist/TheurerKauf
Sample Box No. M2 Meter Box No. 26

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 80
Assumed Moisture % —
Probe Length 31
C Factor 10-5.35 to reference
Initial Leak @ 15.0 "Hg = 0.002 cfm
Final Leak @ 25.0 "Hg = 0.000 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O	Orifice ΔH "H2O Desired (ΔP_s)	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage (P_m)	Stack Temp °F (T_s)	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet (T_m)	Dry Gas Temp. °F Outlet	Remarks
Port A Pt 6	1210	539.845	2.10	1.10	1.10	5.5	202	270	270	90	80	80	int. Orsat
	1213	541.74	2.00	1.10	1.10	5.5	200	270	269	72	81	80	
5	1216	543.87	2.10	1.10	1.10	5.5	199	261	267	66	83	80	
	1219	545.43	2.20	1.20	1.20	6.0	204	260	267	61	85	80	
4	1222	546.98	2.20	1.20	1.20	6.5	208	258	267	61	86	80	0.296
	1225	548.92	2.20	1.20	1.20	15.0	212	257	266	62	86	80	Pump off Ch. Filter
3	1228	550.51	2.20	1.20	0.30	23.0	212	266	267	64	86	80	1230 550.967 0.002
	1318	551.97	2.00	1.10	1.10	5.5	199	270	270	89	84	82	1317 551.263 Pump on
1348 2	~~1321~~	553.82	1.90	1.00	1.00	6.0	200	261	269	90	84	82	Pump off 1320 553.28, Pump on 1347
1351	~~1324~~	555.52	1.90	1.00	1.00	5.5	202	261	267	80	85	81	Pump on
1	1354	557.24	2.10	1.10	1.10	6.0	212	271	265	93	83	82	Pump off 1354 557.45, 1406
	1409	559.32	2.10	1.10	1.10	6.0	210	268	263	76	84	82	
End	1412	560.940	—	—	—	—	—	—	—	—	—	—	
Port B Pt 6	1445	560.940	2.10	1.10	1.10	6.0	213	271	267	90	84	81	0.340
	1448	562.63	2.10	1.10	1.10	6.0	212	267	265	76	86	81	Ch. filter 0.000
5	1451	564.35	2.10	1.10	1.10	20.0	208	263	264	68	87	81	Pump off Pump on 1454 565.707, 1516 566.047
	1516	566.047	2.20	1.20	1.20	5.5	199	270	246	77	83	81	
4	1519	567.77	2.20	1.20	1.20	5.5	207	272	266	60	85	81	

Pitot Tube Calibration Factor C_p 0.813 ✓
Volume Collected V_m 40.396 ✓ ft³
Water Collected V_w 270.7 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -13.7 ✓ "H_2O

Pitot Tube No. 18-3-2 ✓
Baro. Press. P_b 29.68 ✓ "Hg
Probe Tip Dia. D_n 0.180 ✓ in.
% CO_2 4.4 ✓ % CO 0.0 ✓
% O_2 16.4 ✓ % N_2 79.2
Area Stack A_s 1369 ✓ in²

Barometer No. 4
Probe Tip No. 96-11 Pyrex 0.180
Total Volume of Leak Checks After Start: 0.636 ft³
V_m = Dry Gas Meter Calibration Factor 41.560 X 0.972 ✓

[Dry Gas Meter Reading ___ ft³ - (T_t ___ min. X Leak Rate ___ cfm)]

Impinger Box No. M2

			Water Weight Gain		
Impinger 1	Final Weight	835.0		Impinger 1	123.4
	Initial Weight	711.6			
	Increase	123.4		Impinger 2	95.3
Impinger 2	Final Weight	803.0		Impinger 3	41.6
	Initial Weight	707.7			
	Increase	95.3		Impinger 4	10.4
			V_w =		
Impinger 3	Final Weight	587.6	g SO_2 =	Impinger 5	—
	Initial Weight	546.0	V_w =		—
	Increase	41.6		Impinger 6	
Impinger 4	Final Weight	901.4			—
	Initial Weight	891.0		Impinger 7	
	Increase	10.4		Total	270.7 ✓ = V_w

Impinger 5	Final Weight	—	P_b =	29.69 ✓	$\%CO_2$ =	4.4 ✓
	Initial Weight	—	V_m =	40.396 ✓	$\%O_2$ =	16.4 ✓
	Increase		V_w =	270.7 ✓	%CO =	0.0 ✓
			P_m =	1.114 / 1.077 ✓	$\%N_2$ =	79.2 ✓
Impinger 6	Final Weight	—	Avg ΔP =	2.083 ✓	A_s =	1369 ✓
	Initial Weight	—			D_n =	0.180 ✓
	Increase		Avg $\sqrt{\Delta P}$ =	1.443 ✓	T_t =	72 ✓
			C_p =	0.813 ✓		
Impinger 7	Final Weight	—	P_s =	−13.7 ✓ $"H_2O$	28.68 ✓	"Hg
	Initial Weight	—	T_m =	83 ✓ °F	543 ✓	°R
	Increase	—	T_s =	208 ✓ °F	668 ✓	°R

Moisture Content: %M = 24.63 ✓ M_d = 0.7537 ✓ MW_d = 29.360 ✓ MW = 26.56 ✓

$$Vm_{std} = 17.65\ Vm \left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 40.396 \left[\frac{29.69 + \frac{1.114\ /\ 1.077}{13.6}}{83 + 460}\right] = \frac{39.092\ /\ 39.089}{0.543}\ \text{sft}^3\ /\ \text{scfm}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 270.7 = ~~12.778~~ 12.777 ✓ sft^3

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}}$ x 100 = $\frac{12.777}{39.092 + 12.777}$ x 100 = 24.63 ✓ %

V_s = 5123.8 x $0.813\sqrt{\frac{668}{28.68 \times 26.56}}$ x 1.443 = 5629 ✓ fpm

ACFM: 53,515 ✓

SCFM: 30,672 ✓

%I = $\frac{1{,}039 \times 39.092 \times 668}{0.7537 \times 28.68 \times 5629 \times 72 \times (0.180)^2}$ = 95.6 ✓ %

%EA: 357.5 ✓

Run Number 2

Unit 2 Dryer Outlet

Date 1-17-95

Formaldehyde FIELD DATA

			ΔP_s		P_m		T_s				T_m		
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
6+BA4	1522	568.94	2.10	1.10	1.10	6.0	208	264	260	57	87	81	
3	1525	571.64	2.10	1.10	1.10	6.0	214	258	260	56	86	80	Pump off 1529 573.564 Pump on 1533
	1528	573.33	2.10	1.10	1.10	6.0	209	274	272	67	82	81	
2	1535	575.12	2.20	1.20	1.20	6.0	215	270	270	61	84	81	
	1538	576.62	2.20	1.20	1.20	6.0	216	267	269	58	87	82	
1	1541	578.31	1.80	0.97	0.97	6.0	214	265	269	58	89	82	
	1544	580.56	1.80	0.97	0.97	5.0	209	265	261	58	88	82	
End	1547	582.041	—	—	—	—	—	—	—	—	—	—	

METCO ENVIRONMENTAL

Job Number 96-011
Job Name ERM Southwest
Run Number 1
Unit Dryer #3 Outlet
Date 16 Jan 96
Operator Dunn / Goldman / Startz
Sample Box No. 12-1 Meter Box No. 12-2

Particulate Field Data

Read and record at the start of each test point.

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 84
Assumed Moisture % 9.7
Probe Length 3
C Factor 10-3.8 to reference
Initial Leak @ 15.0 "Hg = 0.004 cfm
Final Leak @ 10.0 "Hg = 0.002 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O	Orifice ΔH "H2O Desired	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
B6	1315	523.534	1.70	0.66	0.66	5.0	192	247	258	81	75	75	@ Integrated
6	1318	525.10	1.75	0.68	0.68	5.0	191	246	258	67	76	75	Orsat
5	1321	526.63	1.85	0.72	0.72	5.0	188	238	258	64	77	75	
5	1324	528.21	1.85	0.72	0.72	5.0	188	240	256	64	78	75	
4	1327	529.80	1.95	0.80	0.80	5.0	188	236	255	64	79	75	
4	1330	531.46	1.95	0.80	0.80	5.0	192	241	257	61	80	75	
END3	1333	533.12	2.05	0.84	0.84	5.0	191	240	257	61	81	75	
A-63	1336	534.87	2.00	0.82	0.82	5.0	189	241	255	61	83	76	
8	1339	536.56	1.90	0.78	0.78	5.0	187	239	257	63	83	76	
42	1342	538.20	1.85	0.76	0.76	5.0	185	239	254	65	84	76	
31	1345	539.83	1.50	0.62	0.62	5.0	183	242	256	66	85	76	
21	1348	541.33	1.45	0.60	0.60	5.0	182	240	257	67	85	77	
END	1351	542.836	—	—	—	—	—	—	—	—	—	—	
A6	~~END A1 1358~~ 1406	542.836	1.80	0.74	0.74	5.0	178	248	258	80	82	79	
6	1409	544.36	1.80	0.74	0.74	5.0	178	245	259	67	82	79	Temporary
5	1412	545.91	1.90	0.70	0.70	5.0	182	249	258	65	83	79	flame burn out
5	1415	547.48	1.85	0.68	0.68	5.0	183	241	258	63	84	79	
4	1418	549.02	2.00	0.74	0.74	5.0	187	238	257	64	85	79	

Pitot Tube Calibration Factor C_p 0.811 ✓
Volume Collected V_m 37.756 ✓ ft³
Water Collected V_w 269.9 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -12.0 ✓ "H_2O

Pitot Tube No. 12-3-1 ✓
Baro. Press. P_b 29.94 ✓ "Hg
Probe Tip Dia. D_n 0.176 ✓ in.
% CO_2 3.8 ✓ % CO 0.6 ✓
% O_2 16.6 ✓ % N_2 79.6 ✓
Area Stack A_s 1369 ✓ in²

Barometer No. 12-1
Probe Tip No. VIII-2
Total Volume of Leak Checks After Start: — ft³
V_m = Dry Gas Meter Calibration Factor 0.997 X 37.870

[Dry Gas Meter Reading — ft³ - (T_t — min. X Leak Rate — cfm)]

Impinger Box No. 12-1

			Water Weight Gain		
Impinger 1	Final Weight	925.0		Impinger 1	213.5
	Initial Weight	711.5			
	Increase	213.5		Impinger 2	39.8
Impinger 2	Final Weight	729.9		Impinger 3	4.2
	Initial Weight	690.1			
	Increase	39.8		Impinger 4	12.4
			V_w =		
Impinger 3	Final Weight	503.6	g SO_2 = -	Impinger 5	
	Initial Weight	~~495.8~~ 499.4	V_w =		
	Increase	4.2		Impinger 6	
Impinger 4	Final Weight	830.0		Impinger 7	
	Initial Weight	817.6			
	Increase	12.4		Total	269.9 ✓ = V_w

Impinger 5	Final Weight		P_b =	29.94 ✓	$\%CO_2$ =	3.8 ✓
	Initial Weight		V_m =	37.756 ✓	$\%O_2$ =	16.6 ✓
	Increase		V_w =	269.9 ✓	%CO =	0.0 ✓
			P_m =	0.710 ✓	$\%N_2$ =	79.6 ✓
Impinger 6	Final Weight		Avg ΔP =	1.823 ✓	A_s =	1369 ✓
	Initial Weight				D_n =	0.176 ✓
	Increase		Avg $\sqrt{\Delta P}$ =	1.349 ✓	T_t =	72 ✓
			C_p =	0.811 ✓		
Impinger 7	Final Weight		P_s =	-12.0 ✓ "H_2O	29.06 ✓	"Hg
	Initial Weight		T_m =	80 ✓ °F	540 ✓	°R
	Increase		T_s =	183 ✓ °F	643 ✓	°R

Moisture Content: %M = 25.61 ✓ M_d = 0.7439 ✓ MW_d = 29.272 ✓ MW = 26.39 ✓

$$Vm_{std} = 17.65\ Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 37.756\left[\frac{29.94 + \frac{0.710}{13.6}}{80 + 460}\right] = \frac{37.012}{0.514}\ \text{scfm}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 269.9 = 12.739 ✓ sft^3

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{12.739}{37.012 + 12.739} \times 100$ = 25.61 ✓ %

V_s = 5123.8 x $0.811\sqrt{\frac{643}{29.06 \times 26.39}} \times 1.349$ = 5133 ✓ fpm

ACFM: 48798

SCFM: 29059 ✓

%I = $\frac{1,039 \times 37.012 \times 643}{0.7439 \times 29.06 \times 5133 \times 72 \times (0.176)^2}$ = 99.9 ✓ %

%EA: 369 ✓

Run Number 1

Unit Dryer # 3 Outlet

Date 16 Jan 96

Particulate FIELD DATA P. 2

			ΔP_s			P_m	T_s				T_m		
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
A 4	1421	550.64	1.95	0.72	0.72	5.0	178	239	258	67	86	80	
3	1424	552.26	1.95	0.72	0.72	5.0	172	238	259	67	86	80	
3	1427	553.87	2.00	0.74	0.74	5.0	170	241	259	65	88	80	
2	1430	555.56	1.80	0.66	0.66	5.0	168	240	258	64	88	81	
2	1433	556.96	1.80	0.66	0.66	5.0	167	237	258	63	88	81	
1	1436	558.49	1.50	0.56	0.56	5.0	180	241	259	66	89	81	
1	1439	559.92	1.60	0.58	0.58	5.0	187	242	258	67	89	82	
ENDAI	1442	561.404	—	—	—	—	—	—	—	—	—	—	

METCO ENVIRONMENTAL

Particulate Field Data

Job Number 96-011
Job Name ERM Southwest
Run Number 2
Unit Dryer #3 outlet
Date 17 Jan 96
Operator Dunn/Goldman/Starts
Sample Box No. 35 Meter Box No. 12-2

Read and record at the start of each test point.

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 82
Assumed Moisture % 25
Probe Length 3'
C Factor 10-3.8 to reference
Initial Leak @ 15.0 "Hg = 0.002 cfm
Final Leak @ 10.0 "Hg = 0.002 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H₂O (ΔP_s)	Orifice ΔH "H₂O Desired	Orifice ΔH "H₂O Actual	Pump Vacuum "Hg Guage (P_m)	Stack Temp °F (T_s)	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet (T_m)	Dry Gas Temp. °F Outlet (T_m)	Remarks
B 6	0810	612.062	1.80	0.70	0.70	5.0	207	258	254	83	73	72	
6	~~0833~~	623.78	1.75	0.68	0.68	5.0	207	255	256	67	73	72	
5	0826	615.32	1.85	0.72	0.72	5.0	207	249	257	64	74	72	
5	0829	616.91	1.90	0.74	0.74	5.0	203	246	257	58	75	72	
4	0832	618.52	1.90	0.74	0.74	5.0	198	245	259	58	76	72	Integrated
4	0835	620.12	2.05	0.80	0.80	5.0	195	241	260	58	76	72	ORSAT
3	0838	621.79	1.90	0.74	0.74	5.0	198	244	261	59	78	73	
3	0841	623.40	1.95	0.76	0.76	5.0	201	245	262	59	78	73	
2	0844	625.03	1.75	0.68	0.68	5.0	204	246	262	61	80	73	
2	0847	626.58	1.75	0.68	0.68	5.0	203	246	264	62	80	73	
1	0850	628.13	1.60	0.62	0.62	5.0	198	243	262	65	81	74	
1	0853	629.62	1.50	0.58	0.58	5.0	196	244	262	65	82	74	
End	0856	631.116	—	—	—	—	—	—	—	—	—	—	
A 6	0910	631.116	1.80	0.66	0.66	5.0	193	258	262	78	79	77	
6	0913	632.61	1.75	0.64	0.64	5.0	193	254	264	69	79	77	
5	0916	634.12	1.80	0.66	0.66	5.0	194	247	261	66	80	77	
5	0919	635.64	1.85	0.68	0.68	5.0	195	249	260	64	81	77	
4	0922	637.20	1.90	0.70	0.70	5.0	197	247	259	63	82	77	

Pitot Tube Calibration Factor C_p 0.811 ✓
Volume Collected V_m 37.699 ✓ ft³
Water Collected V_w 272.9 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -11.5 ✓ "H₂O

Pitot Tube No. 12-3-1 ✓
Baro. Press. P_b 29.82 ✓ "Hg
Probe Tip Dia. D_n 0.176 ✓ in.
% CO_2 2 ~~4~~ 4.2 % CO 0.0 ✓
% O_2 ~~17.6~~ 16.2 % N_2 79.6 ✓
Area Stack A_s 1369 ✓ in²

Barometer No. 12-1
Probe Tip No. VIII-2
Total Volume of Leak Checks After Start: — ft³
V_m = Dry Gas Meter Calibration Factor 0.997 X 37.812 ✓

[Dry Gas Meter Reading — ft³ - (T_t — min. X Leak Rate — cfm)]

Impinger Box No. 35

			Water Weight Gain		
Impinger 1	Final Weight	826.1		Impinger 1	234.3
	Initial Weight	591.8			
	Increase	234.3		Impinger 2	26.5
Impinger 2	Final Weight	610.0		Impinger 3	2.2
	Initial Weight	583.5			
	Increase	26.5		Impinger 4	9.9
			V_w =		
Impinger 3	Final Weight	522.0	g SO_2 =	Impinger 5	
	Initial Weight	519.8	V_w =		
	Increase	2.2		Impinger 6	
Impinger 4	Final Weight	853.2		Impinger 7	
	Initial Weight	843.3			
	Increase	9.9		Total	272.9 = V_w
Impinger 5	Final Weight		P_b = 29.82	$\%CO_2$ =	~~2.8~~ 4.2
	Initial Weight		V_m = 37.699	$\%O_2$ =	~~17.6~~ 16.2
	Increase		V_w = 272.9	%CO =	0.0
			P_m = 0.687	$\%N_2$ =	79.6
Impinger 6	Final Weight		Avg ΔP = 1.815	A_s =	1369
	Initial Weight			D_n =	0.176
	Increase		Avg$\sqrt{\Delta P}$ = 1.346	T_t =	72
			C_p = 0.811		
Impinger 7	Final Weight		P_s = -11.5 "H_2O		~~28.97~~ "Hg
	Initial Weight		T_m = 77 °F		.537 °R
	Increase		T_s = 198 °F		658 °R

29.320 26.40

Moisture Content: %M = ~~25.82~~ M_d = 0.7418 MW_d = ~~29.152~~ MW = ~~26.27~~

$$Vm_{std} = 17.65\ Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 37.699\left[\frac{29.82 + \frac{+0.687}{13.6}}{77 + 460}\right] = \frac{37.062\ sft^3}{0.514\ scfm}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 272.9 = 12.881 sft^3

$$\%\ Moisture = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{12.881}{37.062 + 12.881} \times 100 = 25.82\ \%$$

$$V_s = 5123.8 \times 0.811 \sqrt{\frac{658}{28.97 \times \frac{26.27}{26.40}}} \times 1.346 = \frac{5188}{5201}\ fpm$$

$$\%I = \frac{1{,}039 \times 37.062 \times 658}{0.7418 \times \frac{5201}{5188} \times 28.97 \times 72 \times (0.176)^2} = 101.8\ \%$$

ACFM: 4932 / 49443 / 28531

SCFM: ~~28603~~

%EA: ~~503.7~~ / 96.2 / 331.0

Run Number 2 Dryer #3 outlet

Unit Dryer #3 outlet

Date 17 Jan. 96

Particulate FIELD DATA

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H₂O	Orifice ΔH "H₂O Desired (ΔP_s)	Orifice ΔH "H₂O Actual	Pump Vacuum "Hg Guage (P_m)	Stack Temp °F (T_s)	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet (T_m)	Dry Gas Temp. °F Outlet (T_m)	Remarks
A4	0925	638.77	2.00	0.74	0.74	6.0	196	243	258	64	83	77	
3	0928	640.40	2.00	0.74	0.74	6.0	196	245	258	64	84	77	
3	0931	642.04	1.90	0.70	0.70	6.0	197	246	256	65	84	78	Pump off 0932
2	0934	643.85	1.85	0.68	0.68	6.0	196	255	257	72	82	79	Blinding problems on other sources
2	0946	645.43	1.90	0.70	0.70	6.0	195	255	255	67	83	80	
1	0949	647.02	1.50	0.56	0.56	6.0	194	248	254	65	84	80	(Pump on 0941)
1	0952	648.44	1.60	0.59	0.59	6.0	194	253	255	65	84	80	
FINAL	0955	649.87	—	—	—	—	—	—	—	—	—	—	

METCO ENVIRONMENTAL

Particulate Field Data

Read and record at the start of each test point.

Job Number 96-011
Job Name ERM Southwest
Run Number 3
Unit Dryer #3 outlet
Date 17 Jan. 96
Operator Dubn/Goldman/Stortz
Sample Box No. 62-1 Meter Box No. 62-2

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 88
Assumed Moisture % 25
Probe Length 3'
C Factor 10-3.8 to reference
Initial Leak @ 15.0 "Hg = 0.004 cfm
Final Leak @ 10.0 "Hg = 0.004 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O	Orifice ΔH "H2O Desired	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
		ΔPs		Pm		Ts					Tm		
B6	1750	694.029	1.70	0.67	0.67	5.0	204	255	268	83	82	82	
6	1753	695.67	1.65	0.65	0.65	5.0	206	251	261	70	82	82	
5	1756	697.22	1.90	0.75	0.75	5.0	208	245	255	65	82	82	Integrated
5	1759	698.84	1.90	0.75	0.75	5.0	207	241	226	64	83	82	Orsat
4	1802	700.47	2.00	0.79	0.79	5.0	208	239	240	65	84	82	1805 pump off
4	1805	702.12	1.95	0.74	0.74	5.0	204	246	234	78	82	82	/
3	1828	703.78	1.80	0.68	0.68	5.0	203	242	233	67	82	82	1825 pump on
3	1831	705.36	1.90	0.72	0.72	5.0	203	239	233	65	83	82	
2	1834	706.97	1.85	0.70	0.70	5.0	204	241	234	63	83	82	
2	1837	708.56	1.80	0.68	0.68	5.0	205	240	238	63	84	82	
1	1840	710.17	1.55	0.58	0.58	5.0	204	258	249	79	82	82	1839 pump off
1	1914	711.648	1.55	0.58	0.58	5.0	207	258	250	70	83	82	1910 pump on
END	1917	713.126	—	—	—	—	—	—	—	—	—	—	
A6	1927	713.126	1.65	0.62	0.62	5.0	209	258	252	83	82	82	
6	1930	714.65	1.65	0.62	0.62	5.0	211	255	252	69	82	82	
5	1933	716.15	1.80	0.68	0.68	5.0	210	254	253	63	83	82	
5	1936	717.73	1.75	0.66	0.66	5.0	205	246	253	59	83	82	
4	1939	719.30	1.90	0.72	0.72	5.0	208	245	252	56	84	82	

Pitot Tube Calibration Factor C_p 0.81 ✓
Volume Collected V_m 37.729 ✓ ft³
Water Collected V_w 278.1 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -10.6 ✓ "H2O

Pitot Tube No. 62-3-1 ✓
Baro. Press. P_b 29.62 ✓ "Hg
Probe Tip Dia. D_n 0.176 ✓ in.
% CO_2 4.2 ✓ % CO 0.0 ✓
% O_2 16.2 ✓ % N_2 79.6 ✓
Area Stack A_s 1.369 ✓ in²

Barometer No. 62-1
Probe Tip No. VIII-2
Total Volume of Leak Checks After Start: 0.228 ft³
V_m = Dry Gas Meter Calibration Factor 0.997 X 37.843

[Dry Gas Meter Reading — ft³ - (T_t — min. X Leak Rate — cfm)]

Impinger Box No. 12-1

			Water Weight Gain		
Impinger 1	Final Weight	912.3		Impinger 1	214.1
	Initial Weight	598.2			
	Increase	214.1		Impinger 2	47.2
Impinger 2	Final Weight	631.5		Impinger 3	3.2
	Initial Weight	584.3			
	Increase	47.2		Impinger 4	13.6
			V_w =		
Impinger 3	Final Weight	506.8	g SO_2 =	Impinger 5	
	Initial Weight	503.6	V_w =		
	Increase	3.2		Impinger 6	
Impinger 4	Final Weight	868.8		Impinger 7	
	Initial Weight	855.2			
	Increase	13.6		Total	278.1 ✓ = V_w

Impinger 5	Final Weight		P_b =	29.62 ✓	$\%CO_2$ =	4.2 ✓
	Initial Weight		V_m =	37.729 ✓	$\%O_2$ =	16.2 ✓
	Increase		V_w =	278.1 ✓	%CO =	0.0 ✓
			P_m =	0.672 ✓	$\%N_2$ =	79.6 ✓
Impinger 6	Final Weight		Avg ΔP =	1.765 ✓	A_s =	1369 ✓
	Initial Weight				D_n =	0.176 ✓
	Increase		Avg $\sqrt{\Delta P}$ =	1.327 ✓	T_t =	72 ✓
			C_p =	0.811 ✓		
Impinger 7	Final Weight		P_s =	-10.6 ✓ $"H_2O$		28.84 ✓ "Hg
	Initial Weight		T_m =	82 ✓ °F		542 ✓ °R
	Increase		T_s =	208 ✓ °F		668 ✓ °R

Moisture Content: %M = 26.48 ✓ M_d = 0.7352 ✓ MW_d = 29.320 ✓ MW = 26.32 ✓

$$Vm_{std} = 17.65\ Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 37.729\left[\frac{29.62 + \frac{0.672}{13.6}}{82 + 460}\right] = \frac{36.453\ \text{sft}^3}{0.506\ \text{scfm}}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 278.1 = 13.126 ✓ sft^3

$$\%\ \text{Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{13.126}{36.453 + 13.126} \times 100 = 26.48\ \%$$

$$V_s = 5123.8 \times 0.811\sqrt{\frac{668}{28.84 \times 26.32}} \times 1.327 = 5173\ \text{fpm}$$

ACFM: 49178 ✓

SCFM: 27649 ✓

$$\%I = \frac{1{,}039 \times 36.453 \times 668}{0.7352 \times 5173 \times 28.84 \times 72 \times (0.176)^2} = 103.4\ \%$$

%EA: 331.0 ✓

Run Number 3
Unit Dryer #3 outlet
Date 17 Jan. 96

Particulate FIELD DATA

				ΔP_s		P_m	T_s				T_m		
	Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
A4	~~1942~~	1942	720.91	1.85	0.70	0.70	5.0	213	248	253	56	85	89	
	3	2012	722.75	1.90	0.72	0.72	6.0	210	252	229	67	82	83	Pump off 1943
	3	2015	724.39	1.90	0.72	0.72	6.0	210	249	233	62	82	83	Filter blinded
	2	2018	725.99	1.70	0.64	0.64	6.0	208	250	238	60	83	83	Leak ✓ meter 721.706
	2	2021	727.53	1.65	0.62	0.62	7.0	209	246	240	60	84	83	meter 721.934
	~~2024~~	~~2024~~	729.07	1.55	0.58	0.58	7.0	220	257	259	82	80	81	Pump on 2010
	F	2138	730.61	1.50	0.56	0.56	7.0	216	253	258	72	79	81	
	END A11	2141	732.100	—	—	—	—	—	—	—	—	—	—	Pump off 2023
														Pump on 2135

D-25

METCO ENVIRONMENTAL

Formaldehyde Field Data

Job Number 96-011
Job Name ERM Southwest
Run Number 1
Unit Dryer #3 outlet
Date 16 Jan. 96
Operator Dunn/Goldman/Startz
Sample Box No. M-4 Meter Box No. 62

Read and record at the start of each test point.

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 84
Assumed Moisture % 25
Probe Length 3
C Factor 10-3.8 to reference
Initial Leak @ 15.0 "Hg = 0.002 cfm
Final Leak @ 20.0 "Hg = 0.004 cfm

Point	Clock Time	Dry Gas Meter, CF (V_m)	"Pitot" "H_2O (ΔP_s)	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage (P_m)	Stack Temp °F (T_s)	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet (T_m)	Dry Gas Temp. °F Outlet (T_m)	Remarks
A 6	1608	566.238	1.70	0.66	0.66	5.0	197	225	232	78	82	82	Integrated bag
6	1611	567.77	1.70	0.66	0.66	5.0	194	226	248	67	82	83	
5	1614	569.31	1.90	0.74	0.74	5.0	191	241	255	64	83	82	
5	1617	570.92	1.95	0.76	0.76	5.0	193	240	259	64	84	82	
4	1620	572.58	2.05	0.80	0.80	5.0	194	247	264	62	85	82	
4	1623	574.23	2.00	0.78	0.78	5.0	189	250	266	61	85	82	
3	1626	575.89	2.05	0.80	0.80	6.0	185	248	266	63	87	82	
3	1629	577.59	1.90	0.74	0.74	6.0	182	253	264	64	87	82	
2	1632	579.19	1.85	0.68	0.68	7.0	181	253	265	66	88	83	
2	1635	580.72	1.90	0.74	0.74	9.0	181	252	263	66	89	83	
1	1638	582.32	1.50	0.58	0.58	10.0	179	253	262	67	89	83	
1	1641	583.84	1.50	0.58	0.58	10.0	179	258	262	65	89	83	
END	1644	585.360	—	—	—	—	—	—	—	—	—	—	
A 6	1650	585.360	2.00	0.78	0.78	12.0	174	252	264	78	87	84	
6	1653	586.96	1.85	0.72	0.72	12.0	178	256	263	66	87	84	
5	1656	588.57	1.90	0.74	0.74	12.0	182	252	262	64	87	84	
5	1659	590.20	1.90	0.74	0.74	13.0	185	246	262	61	88	84	
4	1702	591.84	2.05	0.80	0.80	14.0	185	245	261	60	88	85	

Pitot Tube Calibration Factor C_p 0.810 ✓
Volume Collected V_m 38.403 ft³
Water Collected V_w 278.9 ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -12.0 ✓ "H_2O

Pitot Tube No. 62-3-3
Baro. Press. P_b 29.92 "Hg
Probe Tip Dia. D_n 0.178 in.
% CO_2 4.6 % CO 0.0
% O_2 15.8 % N_2 79.6
Area Stack A_s 1369 in²

Barometer No. 62-1
Probe Tip No. 96-011-B (96-011-B Dryer Stack)
Total Volume of Leak Checks After Start: — ft³
V_m = Dry Gas Meter Calibration Factor 0.997 X 38.519

[Dry Gas Meter Reading — ft³ - (T_t — min. X Leak Rate — cfm)]

Impinger Box No. M4

			Water Weight Gain		
Impinger 1	Final Weight	846.0		Impinger 1	146.3
	Initial Weight	699.7			
	Increase	146.3		Impinger 2	101.4
Impinger 2	Final Weight	809.6		Impinger 3	13.8
	Initial Weight	708.2			
	Increase	101.4		Impinger 4	17.4
			V_w =		
Impinger 3	Final Weight	521.2	g SO_2 =	Impinger 5	
	Initial Weight	507.4	V_w =		
	Increase	13.8		Impinger 6	
Impinger 4	Final Weight	863.4		Impinger 7	
	Initial Weight	846.0			
	Increase	17.4		Total	278.9 = V_w

Impinger 5	Final Weight		P_b =	29.92	%CO_2 =	4.6	
	Initial Weight		V_m =	38.403	%O_2 =	15.8	
	Increase		V_w =	278.9	%CO =	0.0	
			P_m =	0.720	%N_2 =	79.6	
Impinger 6	Final Weight		Avg ΔP =	1.854	A_s =	1.369	
	Initial Weight				D_n =	0.178	
	Increase		Avg$\sqrt{\Delta P}$ =	1.360	T_t =	72	
			C_p =	0.810			
Impinger 7	Final Weight		P_s =	-2.0 H_2O		29.04	'Hg
	Initial Weight		T_m =	85 °F		545	°R
	Increase		T_s =	187 °F		647	°R

Moisture Content: %M = 26.10 M_d = 0.7390 MW_d = 29.368 MW = 26.40

$$Vm_{std} = 17.65\ Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 38.403\left[\frac{29.92 + \frac{0.720}{13.6}}{85 + 460}\right] = \frac{37.277\ \text{sft}^3}{0.518\ \text{scfm}}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 278.9 = 13.164 sft³

$$\%\ \text{Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{13.164}{37.277 + 13.164} \times 100 = 26.10\%$$

$$V_s = 5123.8 \times \frac{0.810}{\sqrt{\frac{647}{29.04 \times 26.40}}} \times 1.360 = 5185\ \text{fpm}$$

ACFM: 49296

SCFM: 28960

$$\%I = \frac{1{,}039 \times 37.277 \times 647}{0.7390 \times 29.04 \times 5185 \times 72 \times (0.178)^2} = 98.7\%$$

%EA: 298.5

Run Number 1

Unit Dryer #3 outlet

Date 16 Jan. 96

Formaldehyde FIELD DATA

			ΔP_s			P_m	T_s				T_m		
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
A 4	1705	593.51	2.10	0.82	0.82	15.0	185	242	260	60	88	85	
3	1708	595.22	1.90	0.74	0.74	15.0	187	243	259	62	89	85	
3	1711	596.85	1.95	0.76	0.76	16.0	192	244	258	65	89	86	
2	1714	598.50	1.85	0.72	0.72	17.0	194	244	257	67	89	86	
2	1717	600.12	2.00	0.78	0.78	19.0	195	240	256	68	89	86	
1	1720	601.79	1.50	0.58	0.58	19.0	188	244	255	65	88	86	
1	1723	603.25	1.50	0.58	0.58	20.0	187	243	255	64	88	86	
END All	1726	604.757	—	—	—	—	—	—	—	—	—	—	

METCO ENVIRONMENTAL

Formaldehyde Field Data

Job Number 96-011
Job Name ERM Southwest
Run Number 2
Unit Dryer #3 outlet
Date 17 Jan. 96
Operator Dillon / Goldman / Startz
Sample Box No. 3 M4 Meter Box No. 12-2

Read and record at the start of each test point.

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 86
Assumed Moisture % 25
Probe Length 3'
C Factor 10 - 3.8 to reference
Initial Leak @ 15.0 "Hg = 0.002 cfm
Final Leak @ 15.0 "Hg = 0.006 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O	Orifice ΔH "H2O Desired (ΔPs)	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage (Pm)	Stack Temp °F (Ts)	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet (Tm)	Dry Gas Temp. °F Outlet	Remarks
A6	~~1210~~	650.309	1.70	0.65	0.65	5.0	190	~~249~~	262	78	77	78	
6	1213	651.93	1.80	0.68	0.68	5.0	190	246	261	66	77	78	Integrated
5	1216	653.49	1.85	0.70	0.70	5.0	191	246	261	64	78	78	OK SAT
5	1219	655.10	1.90	0.72	0.72	5.0	192	242	259	61	78	78	
4	1222	656.68	2.00	0.76	0.76	5.0	193	238	260	61	81	79	
4	1225	658.33	1.90	0.72	0.72	5.0	191	233	261	60	80	78	
3	1228	659.05	1.90	0.72	0.72	5.0	192	240	262	60	80	78	1229 pump off
3	1319	661.51	2.00	0.76	0.76	5.0	197	252	260	84	82	78	(Filter blinding on
2	13~~49~~	663.15	1.75	0.67	0.67	6.0	195	248	261	73	78	78	other source)
2	1352	664.72	1.75	0.67	0.67	9.0	197	242	260	67	79	78	Pump on 1317
1 HD	~~1355~~	666.39	1.80	0.68	0.68	5.0	196	245	224	69	79	79	(
1	1410	667.95	1.60	0.61	0.61	5.0	193	241	250	64	79	79	1320 pumpoff)
END	1413	669.466	—	—	—	—	—	—	—	—	—	—	(Filter blinding)
B6	1445	669.466	1.75	0.69	0.69	5.0	194	254	263	78	80	79	1347 pumpon
6	1448	670.90	1.75	0.69	0.69	5.0	195	252	261	67	79	79	(1354 pump off
5	1451	672.62	1.90	0.76	0.76	5.0	194	245	263	63	80	79	Filter blinding
5	1454	674.27	1.85	0.74	0.74	5.6	192	239	265	62	81	79	Meter 665.665 Leak Vac ~~Meter 665.868~~
4	1457	675.89	2.00	0.79	0.79	6.0	193	239	263	62	82	79	1406 pump on

Pitot Tube Calibration Factor C_p 0.810 ✓
Volume Collected V_m 38.230 ✓ ft³
Water Collected V_w 269.6 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -11.6 ✓ "H2O

Pitot Tube No. 12-3-3
Baro. Press. P_b 29.76 ✓ "Hg
Probe Tip Dia. D_n 0.178 ✓ in.
% CO_2 4.6 ✓ % CO 0.0 ✓
% O_2 15.8 ✓ % N_2 79.6
Area Stack A_s 1369 ✓ in²

Barometer No. 12-1
Probe Tip No. 96-11 ~~B~~ -1
Total Volume of Leak Checks After Start: ~~0.003~~ ft³ ~~0.003~~ 0.513
V_m = Dry Gas Meter Calibration Factor 0.997 X 38.230 = 38.345

[Dry Gas Meter Reading — ft³ - (T_t — min. X Leak Rate — cfm)]

Impinger Box No. M4

			Water Weight Gain		
Impinger 1	Final Weight	860.2		Impinger 1	158.2
	Initial Weight	704.0			
	Increase	1582		Impinger 2	96.4
Impinger 2	Final Weight	803.1		Impinger 3	3.7
	Initial Weight	706.7			
	Increase	96.4		Impinger 4	11.3
			V_w =		
Impinger 3	Final Weight	565.4	g SO_2 =	Impinger 5	
	Initial Weight	561.7	V_w =		
	Increase	3.7		Impinger 6	
Impinger 4	Final Weight	875.0		Impinger 7	
	Initial Weight	863.7			
	Increase	11.3		Total	269.6 = V_w

Impinger 5	Final Weight		P_b =	29.76	$\%CO_2$ =	4.6
	Initial Weight		V_m =	38.230	$\%O_2$ =	15.8
	Increase		V_w =	269.6	%CO =	0.0
			P_m =	0.709	$\%N_2$ =	79.6
Impinger 6	Final Weight		Avg ΔP =	1.825	A_n =	1369
	Initial Weight				D_n =	0.178
	Increase		Avg$\sqrt{\Delta P}$ =	1.350	T_t =	72
			C_p =	0.810		
Impinger 7	Final Weight		P_s =	-11.6 H_2O	28.91	"Hg
	Initial Weight		T_m =	79 °F	539	°R
	Increase		T_s =	194 °F	654	°R

Moisture Content: %M = ~~25.37~~ 25.43 M_d = ~~0.7463~~ 0.7457 MW_d = ~~29.37~~ 29.368 MW = 26.49

$$Vm_{std} = 17.65\ Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 38.230\left[\frac{29.76 + \frac{0.709}{13.6}}{79 + 460}\right] = \frac{37.321}{0.518} = \frac{37.424}{0.520}\ scfm$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 269.6 = 12.725 / 25.43 sft^3

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}}$ x 100 = $\frac{12.725}{37.424 + 12.725}$ x 100 = ~~25.37~~ %

V_s = 5123.8 x $0.810\sqrt{\frac{654}{28.91 \times \frac{29.37}{26.48}}}$ x 1.350 = 5179 fpm

ACFM: 49233

28,747

SCFM: ~~28770~~

%I = $\frac{1{,}039 \times \frac{37.321}{37.424} \times 654}{\frac{0.7463}{0.7457} \times 5179 \times 28.91 \times 72 \times (0.178)^2}$ = $\frac{99.6}{99.8}$ %

%EA: 298.5

Run Number 2

Unit Dryer #3 outlet

Date 17Jan.96

Formaldehyde FIELD DATA

			ΔP_s			P_m	T_s				T_m		
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
B4	~~1533~~	677.51	1.95	0.78	0.78	5.0	196	~~258~~	~~268~~	84	80	80	Pump off 1500
3	1536	679.31	1.90	0.76	0.76	5.0	196	~~252~~	~~267~~	66	80	80	Pump on 1533
3	1539	680.97	1.95	0.78	0.78	5.0	196	~~250~~	~~266~~	64	80	80	
2	1542	682.63	1.80	0.71	0.71	6.0	196	~~247~~	~~264~~	64	81	80	
2	1545	684.24	1.80	0.71	0.71	7.0	197	~~246~~	~~260~~	67	82	80	
1	1548	685.84	1.60	0.63	0.63	12.0	196	~~248~~	~~261~~	65	82	80	Pump off 1550
1	1551	687.50	1.60	0.63	0.63	5.0	197	~~225~~	~~225~~	71	83	81	Pump on 1551
END AI	~~1602~~ 1602	689.167	—	—	—	—	—	—	—	—	—	—	Leak: Meter 687.066 Meter 687.376

METCO ENVIRONMENTAL

Job Number 95-011
Job Name ERM Southwest
Run Number 1
Unit #4 Dryer Outlet Duct
Date 1/16/96
Operator Mlynar/Brunson
Sample Box No. 28-1 Meter Box No. 28-2 (24)

Part. Field Data

Read and record at the start of each test point.

Purge to: -
Purge time: -
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 85
Assumed Moisture % 27 70
Probe Length 3'
C Factor 5038 to reference
Initial Leak @ 15.0 "Hg = 0.000 cfm
Final Leak @ 8.0 "Hg = 0.002 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O	Orifice ΔH "H2O Desired	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
BG	1315	960.639	1.60	1.20	1.20	4.5	178	238	270	69	70	70	Int Dryer
6	1318	962.54	1.80	1.35	1.35	4.5	176	238	269	67	70	69	
5	1321	964.30	1.55	1.15	1.15	5.0	177	230	269	64	71	69	
5	1324	966.11	1.70	1.30	1.30	5.0	175	237	270	62	72	70	
4	1327	967.93	1.65	1.25	1.25	5.0	175	239	267	61	73	70	
4	1330	969.80	1.80	1.35	1.35	5.0	175	241	264	63	74	70	
3	1333	971.56	1.90	1.45	1.45	5.5	176	242	261	64	76	70	
3	1336	973.39	1.70	1.30	1.30	5.0	177	242	259	64	77	70	
2	1339	975.30	1.75	1.35	1.35	5.0	176	243	258	65	78	70	
2	1342	977.12	1.40	1.05	1.05	5.0	177	244	256	64	78	70	
1	1345	978.84	1.80	1.35	1.35	5.0	176	243	254	64	79	70	
1	1348	980.71	1.70	1.30	1.30	5.0	177	246	253	60	80	70	
END	1351	982.511	-	-	-	-	-	-	-	-	-	-	change ref 10→6.6
BG	1406	982.511	1.70	1.15	1.15	5.0	175	269	254	69	74	71	
6	1409	984.19	1.60	1.05	1.05	5.0	175	255	252	65	75	71	
5	1412	985.89	1.40	0.94	0.94	5.0	175	250	252	63	76	71	
5	1415	987.56	1.40	0.94	0.94	5.0	175	245	251	63	77	71	
4	1418	989.09	1.80	1.20	1.20	5.0	174	245	248	65	78	72	

Pitot Tube Calibration Factor C_p 0.812 ✓
Volume Collected V_m 42.321 ✓ ft³
Water Collected V_w 339.2 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s 29.1 - 18.0 ✓ "H_2O

Pitot Tube No. 28-3-1 ✓
Baro. Press. P_b 29.86 ✓ "Hg
Probe Tip Dia. D_n 0.199 ✓ in.
% CO_2 4.2 ✓ % CO 0.0 ✓
% O_2 16.4 ✓ % N_2 79.4 ✓
Area Stack A_s 1385 ✓ in²

Barometer No. 28-1 Probe Tip No. 11-3
Total Volume of Leak Checks After Start: - ft³
V_m = Dry Gas Meter Calibration Factor 1.012 X 41.819

[Dry Gas Meter Reading ___ ft³ - (T_t ___ min. X Leak Rate ___ cfm)]

Impinger Box No. 28-1

			Water Weight Gain		
Impinger 1	Final Weight	843.3		Impinger 1	211.9
	Initial Weight	631.4			
	Increase	211.9		Impinger 2	109.9
Impinger 2	Final Weight	732.7		Impinger 3	4.4
	Initial Weight	622.8			
	Increase	109.9		Impinger 4	13.0
			V_w =		
Impinger 3	Final Weight	501.0	g SO_2 = -	Impinger 5	-
	Initial Weight	496.6	V_w =		
	Increase	4.4		Impinger 6	-
Impinger 4	Final Weight	856.5		Impinger 7	-
	Initial Weight	843.5			
	Increase	13.0		Total	339.2 ✓ = V_w

Impinger 5	Final Weight	-	P_b = 29.86 ✓	$\%CO_2$ = 4.2 ✓	
	Initial Weight	-	V_m = 42.321 ✓	$\%O_2$ = 16.4 ✓	
	Increase		V_w = 339.2 ✓	%CO = 0.0 ✓	
			P_m = ~~1.328~~ 1.172 ✓	$\%N_2$ = 79.4 ✓	
Impinger 6	Final Weight	-	Avg ΔP = 1.644 ✓	A_s = 1385 ✓	
	Initial Weight	-		D_n = 0.199 ✓	
	Increase		Avg $\sqrt{\Delta P}$ = 1.281 ✓	T_1 = 72 ✓	
			C_p = 0.812 ✓		
Impinger 7	Final Weight	-	P_s = 29.86 ✓ "H_2O	29.12 ✓ "Hg	
	Initial Weight	-	T_m = 74 ✓ °F	534 ✓ °R	
	Increase		T_s = 176 ✓ °F	636 ✓ °R	

Moisture Content: %M = ~~27.64~~ 27.65 ✓ M_d = ~~0.7236~~ 0.7235 ✓ MW_d = 29,328 ✓ MW = 26.20 ✓

$$Vm_{std} = 17.65\ Vm \left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 42.321 \left[\frac{29.86 + \frac{1.172}{13.6}}{74 + 460}\right] = \frac{41.889 \text{ ✓}}{\text{~~41.905~~ sft}^3} \quad \frac{0.582 \text{ ✓ scfm}}{}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 339.2 = 16.010 ✓ sft^3

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}}$ x 100 = $\frac{16.010}{16.010 + \text{~~41.905~~ } 41.889}$ x 100 = ~~27.64~~ 27.65 ✓ %

V_s = 5123.8 x 0.812 ✓ $\sqrt{\frac{636}{29.12 \times 26.20}}$ x 1.281 = 4866 ✓ fpm

ACFM: 46802 ✓ ~~27464~~ 27460 ✓

SCFM: ~~27464~~

%I = $\frac{1{,}039 \times 636 \times \text{~~41.905~~ } 41.889}{\text{~~0.7236~~ } 0.7235 \times 29.12 \times 4866 \times 72 \times (0.199)^2}$ = 94.7 ✓ %

%EA: 353.4 ✓

Run Number 1

Unit #4 Dryer Outlet Duct

Date 1/16/96

Perf. FIELD DATA

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H₂O	Orifice ΔH "H₂O Desired	Orifice ΔH "H₂O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
			ΔP_s			P_m	T_s					T_m	
A 4	1421	990.79	1.60	1.05	1.05	5.5	176	243	248	64	78	72	
3	1424	992.45	1.40	0.94	0.94	5.5	175	245	247	67	79	72	
3	1427	994.22	1.60	1.05	1.05	5.0	176	243	247	66	80	72	
2	1430	995.65	1.60	1.05	1.05	5.0	177	242	248	64	80	72	
2	1433	997.34	1.70	1.15	1.15	5.0	174	242	245	61	81	72	
1	1436	999.08	1.65	1.10	1.10	5.0	174	244	246	60	82	72	
1	1439	1000.78	1.65	1.10	1.10	5.0	173	245	245	61	82	72	
END	1442	1002.458	-	-	-	-	-	-	-	-	-	-	

METCO ENVIRONMENTAL

Job Number 96-11
Job Name ERM
Run Number 2
Unit #4 Dryer Outlet Duct
Date 1/17/96
Operator MG, MV, Brunson, Adams
Sample Box No. 28-2 Meter Box No. 28-2

Part Field Data

Read and record at the start of each test point.

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 83
Assumed Moisture % 27
Probe Length 3'
C Factor 1.008 to reference
Initial Leak @ 15.0 "Hg = 0.008 cfm
Final Leak @ 11.0 "Hg = 0.006 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O	Orifice ΔH "H2O Desired	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F (T_s)	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet (T_m)	Dry Gas Temp. °F Outlet (T_m)	Remarks
A6	820	46.092	1.85	1.45	1.45	6.5	172	249	267	63	67	66	Int Orsat
6	823	48.03	1.85	1.45	1,45	7.0	172	247	258	56	67	67	
5	826	50.00	1.80	1.45	1.45	7.0	173	244	255	57	68	67	
5	829	51.90	1.65	1.30	1.30	6.5	172	244	254	58	69	67	
4	832	53.82	1.70	1.35	1,35	6.5	172	240	254	60	71	67	
4	835	55.70	2.00	1.60	1,60	7.0	172	241	255	61	72	67	
3	838	56.92	2.00	1.60	1.60	7.5	172	240	255	61	73	67	
3	840	58.91	1.50	1.20	1.20	6.5	172	240	258	62	74	67	
2	843	60.82	1.80	1.45	1.45	6.5	171	239	260	63	75	67	
2	846	62.69	1.70	1.35	1,35	7.0	172	240	260	63	76	67	
1	849	64.58	1.80	1.45	1.45	7.5	172	239	261	64	77	68	
1	852	66.49	1.80	1.45	1.45	7.0	172	241	262	64	78	68	
6W1	856	68.432	—	—	—	—	—	—	—	—	—	—	
30	910	68.432	1.65	1.30	1.30	7.0	171	261	259	69	72	~~72~~ 68	
6	913	70.28	1.40	1.10	1.10	6.5	170	247	258	67	72	68	
5	916	72.11	2.00	1.60	1.60	8.0	171	241	261	67	74	69	
5	919	74.20	1.95	1.55	1.55	8.0	171	239	261	65	75	69	
4	922	76.30	1.90	1.50	1.50	8.0	170	240	261	64	76	69	

Pitot Tube Calibration Factor C_p 0.812 ✓
Volume Collected V_m 45.704 ✓ ft³
Water Collected V_w 316.3 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -12.7 ✓ "H_2O

Pitot Tube No. 28-3-1 ✓
Baro. Press. P_b 29.71 ✓ "Hg
Probe Tip Dia. D_n 0.199 ✓ in.
% CO_2 3.6 ✓ % CO 0.0 ✓
% O_2 16.4 ✓ % N_2 80.0 ✓
Area Stack A_s 1385 ✓ in²

Barometer No. 28-1 Probe Tip No. II-3
Total Volume of Leak Checks After Start: — ft³
V_m = Dry Gas Meter Calibration Factor 1.012 X 45.162

[Dry Gas Meter Reading ____ ft³ - (T_t ____ min. X Leak Rate ____ cfm)]

Run Number 2

Unit #4 Dryer Outlet Duct

Date 1/17/96

Part. FIELD DATA

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H₂O	Orifice ΔH "H₂O Desired	Orifice ΔH "H₂O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
			ΔP_s		P_m		T_s				T_m		
3 4	925	78.25	1.60	1.25	1.25	7.0	169	240	261	63	78	69	
3	928	80.20	1.60	1.25	1.25	6.5	169	244	261	63	78	69	
3	931	81.98	1.70	1.35	1.35	7.0	170	243	261	64	79	69	933 pump off 85.202 942 pump on 83.202
2	937	83.75	1.70	1.35	1.35	7.0	170	268	267	69	74	69	
2	946	85.64	1.70	1.35	1.35	7.0	171	261	268	64	76	70	
1	949	87.52	1.70	1.35	1.35	7.0	170	255	265	64	76	70	
1	952	89.39	1.65	1.30	1.30	7.0	170	255	266	64	78	70	
END	955	91.254	-	-	-	-	-	-	-	-	-	-	

METCO ENVIRONMENTAL

Job Number 96-11
Job Name EZM
Run Number 3
Unit #4 Dryer Outlet Duct
Date 11/7/96
Operator McGuire / Brunson / Adams
Sample Box No. 28-2 Meter Box No. 28-2

Port Field Data

Read and record at the start of each test point.

Purge to: -
Purge time: -
Pitot Leak Check Initial ✓ Final ____

Ambient Temp. °F 85
Assumed Moisture % 27
Probe Length 3'
C Factor 1.00.80 to reference
Initial Leak @ 15.0 "Hg = .004 cfm
Final Leak @ 9.5 "Hg = .002 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage (P_m)	Stack Temp °F (T_s)	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet (T_m)	Dry Gas Temp. °F Outlet	Remarks
BG	1750	141.773	1.40	1.10	1.10	5.0	170	240	232	69	71	71	int or seat
6	1753	143.50	1.55	1.20	1.20	6.0	169	230	232	66	71	71	
5	1756	145.26	1.45	1.15	1.15	5.0	169	243	232	61	72	71	
5	1759	146.98	1.40	1.10	1.10	5.5	172	253	235	59	73	71	
4	1802	148.69	1.45	1.15	1.15	5.5	174	254	236	57	75	71	
4	1805	150.382	1.40	1.10	1.10	5.0	168	250	249	69	72	71	pump off 1805 150.382 pump on 1825 150.387
3	1828	152.07	1.35	1.05	1.05	5.5	170	262	250	61	73	71	
3	1831	153.72	1.25	1.00	1.00	5.5	171	246	247	59	74	71	
2	1834	155.52	1.25	1.00	1.00	5.5	172	237	247	59	75	71	
2	1837	157.16	1.25	1.00	1.00	5.5	172	239	247	62	74	72	pump off 1838 157.713 pump on 1910 157.713
1	1912	158.79	1.70	1.35	1.35	6.0	172	254	256	65	73	71	
1	1915	160.57	1.70	1.35	1.35	6.0	171	247	254	60	73	72	
END	1918	162.308	—	—	—	—	—	—	—	—	—	—	
BG	1927	162.308	1.90	1.50	1.50	7.0	167	253	249	69	73	72	
6	1930	164.30	1.55	1.25	1.25	6.0	165	245	248	60	74	72	
5	1933	166.32	1.60	1.25	1.25	6.0	164	238	246	61	75	72	
5	1936	168.01	1.65	1.30	1.30	6.5	161	239	245	62	76	72	
4	1939	169.73	1.80	1.45	1.45	6.5	165	239	244	61	77	72	

Pitot Tube Calibration Factor C_p 0.812 ✓
Volume Collected V_m 42.724 ✓ ft³
Water Collected V_w 346.5 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -11.4 ✓ "H_2O

Pitot Tube No. 28-3-1 ✓
Baro. Press. P_b 29.50 ✓ "Hg
Probe Tip Dia. D_n 0.199 ✓ in.
% CO_2 4.0 ✓ % CO 0.0 ✓
% O_2 16.4 ✓ % N_2 79.6 ✓
Area Stack A_s 1385 ✓ in²

Barometer No. 28-1 Probe Tip No. "II-3
Total Volume of Leak Checks After Start: 0.332 ft³
V_m = Dry Gas Meter Calibration Factor 1.012 X 42.217

[Dry Gas Meter Reading ____ ft³ - (T_t ____ min. X Leak Rate ____ cfm)]

Impinger Box No. 28-2

			Water Weight Gain		
Impinger 1	Final Weight	879.9		Impinger 1	243.3
	Initial Weight	636.6			
	Increase	243.3		Impinger 2	86.5
Impinger 2	Final Weight	758.0		Impinger 3	3.4
	Initial Weight	671.5			
	Increase	86.5		Impinger 4	13.3
			V_w =		
Impinger 3	Final Weight	496.6	g SO_2 =	Impinger 5	–
	Initial Weight	493.2	V_w =		
	Increase	3.4		Impinger 6	–
Impinger 4	Final Weight	848.4		Impinger 7	–
	Initial Weight	835.1			
	Increase	13.3		Total	346.5 ✓ = V_w
Impinger 5	Final Weight	–	P_b =	29.50 ✓	$\%CO_2$ = 4.0 ✓
	Initial Weight	–	V_m =	42.724 ✓	$\%O_2$ = 16.4 ✓
	Increase		V_w =	346.5 ✓	%CO = 0.0 ✓
			P_m =	1.208 ✓	$\%N_2$ = 79.6 ✓
Impinger 6	Final Weight	–	Avg ΔP =	1.529 ✓	A_s = 1385 ✓
	Initial Weight	–			D_n = 0.199 ✓
	Increase		Avg$\sqrt{\Delta P}$ =	1.234 ✓	T_1 = 72 ✓
			C_p =	0.812 ✓	
Impinger 7	Final Weight	–	P_s =	-11.4 ✓ "H_2O	28.66 ✓ "Hg
	Initial Weight	–	T_m =	73 ✓ °F	533 ✓ °R
	Increase		T_s =	166 ✓ °F	626 ✓ °R

Moisture Content: %M = 28.09 ✓ M_d = 0.7191 ✓ MW_d = 29.296 ✓ MW = 26.12 ✓

$$Vm_{std} = 17.65\ Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 42.724\left[\frac{29.50 + \frac{1.208}{13.6}}{73 + 460}\right] = \frac{41.862 \text{ sft}^3}{0.581 \text{ scfm}} \checkmark$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 346.5 = 16.355 ✓ sft³

$$\%\text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{16.355}{16.355 + 41.862} \times 100 = 28.09 \checkmark \%$$

$$V_s = 5123.8 \times 0.812\sqrt{\frac{622}{28.66 \times 26.12}} \times 1.234 = 4695 \checkmark \text{ fpm}$$

ACFM: 45156 ✓

SCFM: 26332 ✓

$$\%I = \frac{1,039 \times 622 \times 41.862}{0.7191 \times 2860 \times 4695 \times 72 \times (0.199)^2} = 98.9\ \%$$ 98.7 ✓

%EA: 349.4 ✓

Run Number 3

Unit Dry Dryer Outlet Duct

Date 1/17/96

Pkt. FIELD DATA

			ΔP_s		P_m		T_s				T_m		
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
3 d	1942	~~171.383~~ 171.251	1.60	1.25	1.25	6.0	161	~~288~~	240	69	73	72	pump off 1942 171.251
3	~~1945~~ 1943	173.32	1.25	1.00	1.00	5.5	159	265	238	68	73	72	IK chk ~~15.0~~ 15.0" 0.000
3	2016	175.02	1.60	1.25	1.25	5.5	158	260	238	68	74	72	IK chk ok 15.5 0.000 ~~pump on 171.583 20~~
2	2019	176.92	1.70	1.35	1.35	6.0	151	253	244	65	76	72	
2	2022	178.67	1.40	1.10	1.10	6.0	150	251	~~248~~	64	77	72	2024 pump off 179.897
1	2136	180.20	1.80	1.40	1.40	6.0	164	251	270	69	71	71	2135 pump on 179.897
1	2139	182.35	1.70	1.35	1.35	7.0	162	262	~~269~~	65	71	71	
End Pkt	2142	184.322	—	—	—	—	—	—	—	—	—	—	

METCO ENVIRONMENTAL

Formaldehyde Field Data

Read and record at the start of each test point.

Job Number 96-11
Job Name EEM
Run Number 1
Unit #4 Dryer Outlet Duct
Date 11/16/96
Operator Ulcena / Bronson / Adams
Sample Box No. 20 Meter Box No. 28-2

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 85
Assumed Moisture % 27.64
Probe Length 3'
C Factor 1.05 - 1.644 to reference
Initial Leak @ 5.0 "Hg = 0.008 cfm
Final Leak @ 23.5 "Hg = 0.009 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O	Orifice ΔH "H2O Desired	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F (T_s)	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet (T_m)	Dry Gas Temp. °F Outlet	Remarks
A C	1548	4.973	1.90	1.25	1.25	4.5	173	247	250	69	73	73	Int. Orsat
C	1554	7.01	1.85	1.20	1.20	5.0	172	247	267	58	74	73	
5	1557	8.54	1.80	1.20	1.20	5.0	173	248	267	57	75	73	
5	1600	10.31	1.60	1.05	1.05	5.0	173	248	267	58	76	73	
4	1603	12.03	1.10	0.73	0.73	4.0	175	247	268	59	77	73	
4	1606	13.41	1.60	1.05	1.05	5.0	173	246	266	61	78	73	
3	1609	15.06	1.70	1.10	1.10	5.0	173	246	265	60	80	73	
3	1612	16.09	1.50	1.00	1.00	5.0	173	248	268	61	81	73	
2	1615	18.53	1.50	1.00	1.00	5.0	172	247	263	63	81	73	
2	1618	20.19	1.45	0.96	0.96	5.0	172	247	264	64	82	73	
1	1621	21.82	1.75	1.15	1.15	5.5	172	245	261	66	83	73	
1	1624	23.61	1.50	1.00	1.00	6.0	171	245	262	63	83	74	
END	1627	24.978	-	-	-	-	-	-	-	-	-	-	
B C	1630	24.978	1.60	1.05	1.05	5.0	172	242	264	68	81	74	
C	1633	26.63	1.80	1.20	1.20	5.0	173	242	264	65	82	74	
5	1636	28.38	1.90	1.25	1.25	5.0	173	242	262	65	83	74	
5	1639	30.27	1.65	1.10	1.10	5.0	174	242	264	65	84	74	
4	1642	31.88	1.50	1.00	1.00	5.0	174	240	262	65	84	74	

Pitot Tube Calibration Factor C_p ~~0.809~~ 0.805 ✓
Volume Collected V_m 40.950 ✓ ft³
Water Collected V_w 299.0 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -10.3 ✓ "H_2O

Pitot Tube No. ~~A-7-7~~ B-3-2 ✓
Baro. Press. P_b 29.82 ✓ "Hg
Probe Tip Dia. D_n 0.188 ✓ in.
% CO_2 4.2 ✓ % CO 0.0 ✓
% O_2 16.4 ✓ % N_2 79.4 ✓
Area Stack A_s 1385 ✓ in²

Barometer No. 28-1
Probe Tip No. 96-11-~~28~~P-1
Total Volume of Leak Checks After Start: — ft³
V_m = Dry Gas Meter Calibration Factor 1.012 X 40.464

[Dry Gas Meter Reading ___ ft³ - (T_t ___ min. X Leak Rate ___ cfm)]

Impinger Box No. 20

			Water Weight Gain		
Impinger 1	Final Weight	868.1		Impinger 1	165.0
	Initial Weight	703.1			
	Increase	165.0		Impinger 2	116.3
Impinger 2	Final Weight	813.8		Impinger 3	3.8
	Initial Weight	697.5			
	Increase	116.3		Impinger 4	13.9
			V_w =		
Impinger 3	Final Weight	490.7	g SO_2 = -	Impinger 5	-
	Initial Weight	486.9	V_w =		
	Increase	3.8		Impinger 6	-
Impinger 4	Final Weight	853.8		Impinger 7	-
	Initial Weight	839.9			
	Increase	13.9		Total	299.0 ✓ = V_w

Impinger 5	Final Weight	-	P_b =	29.82 ✓	$\%CO_2$ =	4.2 ✓	
	Initial Weight	-	V_m =	40.950 ✓	$\%O_2$ =	16.4 ✓	
	Increase		V_w =	299.0 ✓	%CO =	0.0 ✓	
			P_m =	1.065 ✓	$\%N_2$ =	79.4 ✓	
Impinger 6	Final Weight	-	Avg ΔP =	1.610 ✓	A_s =	1385 ✓	
	Initial Weight	-			D_n =	0.188 ✓	
	Increase		Avg$\sqrt{\Delta P}$ =	1.266 ✓	T_t =	72 ✓	
			C_p =	0.805 ✓			
Impinger 7	Final Weight	-	P_s =	-10.3 ✓ "H_2O		29.06 ✓ "Hg	
	Initial Weight	-	T_m =	78 ✓ °F		538 ✓ °R	
	Increase		T_s =	173 ✓ °F		633 ✓ °R	

Moisture Content: %M = 26.00 ✓ M_d = 0.7400 ✓ MW_d = 29.328 ✓ MW = 26.38 ✓

$$Vm_{std} = 17.65\ Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 40.950\left[\frac{29.82 + \frac{1.065}{13.6}}{78 + 460}\right] = \frac{40.166 \text{ ✓ sft}^3}{0.558 \text{ ✓ scfm}}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 299 = 14.113 ✓ sft^3

$$\%\text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{14.113}{14.113 + 40.166} \times 100 = 26.00 \text{ ✓ \%}$$

$$V_s = 5123.8 \times 0.805\sqrt{\frac{633}{29.06 \times 26.38}} \times 1.266 = 4745 \text{ ✓ fpm}$$

ACFM: 45638 ✓

SCFM: 27461 ✓

$$\%I = \frac{1{,}039 \times 633 \times 40.166}{0.7400 \times 29.06 \times 4745 \times 72 \times (0.188)^2} = 101.7 \text{ ✓ \%}$$

%EA: 353.4 ✓

Run Number 1

Unit #4 Dryer Outlet Duct

Date 1/16/96

Form. FIELD DATA

			ΔP_s		P_m		T_s					T_m	
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
1 3 4	1645	33.53	1.85	1.25	1.85	5.5	173	238	262	65	85	75	
3	1648	35.36	1.70	1.10	1.10	6.0	173	239	259	62	85	75	
3	1651	37.18	1.90	1.25	1.25	8.5	173	239	259	62	85	75	
2	1654	38.62	1.40	0.94	0.94	9.5	173	241	262	61	85	75	
2	1657	40.22	1.40	0.94	0.94	11.5	174	241	262	62	85	75	
1	1700	41.82	1.40	0.94	0.94	20.0	173	241	262	61	84	75	
1	1703	43.42	1.30	0.86	0.86	21.0	173	241	262	63	83	75	
End	1706	45.437	—	—	—	—	—	—	—	—	—	—	

METCO ENVIRONMENTAL

Job Number 96-11
Job Name EPM
Run Number 2
Unit #4 Dryer Outlet Duct
Date 11/17/96
Operator M.G.M./Brisson/Adams
Sample Box No. 20 Meter Box No. 28-2

Form Field Data

Read and record at the start of each test point.

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F
Assumed Moisture % 27
Probe Length 3'
C Factor 2-D1.3 to reference
Initial Leak @ 15.0 "Hg = 0.009 cfm
Final Leak @ 12.0 "Hg = 0.006 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O	Orifice ΔH "H2O Desired	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
		ΔPs				Pm	Ts				Tm		
B6	1210	99.126	1.70	1.10	1.10	5.0	172	269	270	69	71	71	Int Orsat
6	1213	100.81	1.65	1.05	1.05	5.0	170	269	271	68	71	71	
5	1216	102.62	1.80	1.15	1.15	5.5	172	267	269	63	73	71	
5	1219	104.18	1.60	1.05	1.05	5.5	171	266	270	58	73	71	
4	1222	105.85	1.80	1.15	1.15	5.5	171	264	271	55	76	71	
4	1225	107.63	1.80	1.15	1.15	5.5	172	267	269	53	76	71	
3	1228	109.28	1.80	1.05	1.05	5.5	172	260	263	55	74	71	pump off 1229 109.903 pump on 1247 761.503
3	1349	111.78	1.65	1.05	1.05	5.5	160	263	266	66	72	71	lk chk @ 80" 0.006 + 1228 lk chk one jump 15.0 0.0 12 pump on 1349 110.688
2	1352	113.59	1.50	0.96	0.96	5.5	165	265	267	62	72	71	
2	1355	115.177	1.70	1.10	1.10	5.5	166	270	272	67	72	71	pump off 1355 115.177 pump on 1410 115.177 change nozzle
1	1413	116.84	1.80	1.15	1.15	6.0	167	267	274	61	73	71	
1	1416	118.53	1.60	1.05	1.05	6.5	167	262	272	58	74	71	
END	1419	120.337	—	—	—	—	—	—	—	—	—	—	change filter lk chk 9.5 0.008 (0.192 lk chk 15.0 0.006
A6	1446	120.529	1.90	1.25	1.25	5.0	165	263	238	69	72	71	
6	1449	122.46	1.40	0.92	0.92	5.0	166	264	240	61	73	72	
5	1452	123.93	1.70	1.10	1.10	5.0	166	257	241	58	71	71	
5	1455	125.64	1.80	1.15	1.15	5.0	166	253	263	55	75	72	pump off 1500 128.568
4	1458	127.44	1.80	1.15	1.15	5.0	167	254	270	54	76	72	pump on 1533 128.568

Pitot Tube Calibration Factor C_p 0.805 ✓
Volume Collected V_m 41.866 ✓ ft³
Water Collected V_w 305.2 ml 306.0 ✓
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -12.1 ✓ "H2O

Pitot Tube No. S-3-2 ✓
Baro. Press. P_b 29.60 ✓ "Hg
Probe Tip Dia. D_n 0.188 (0.182) ✓ in.
% CO_2 4.0 ✓ % CO 0.0 ✓
% O_2 16.4 ✓ % N_2 79.6 ✓
Area Stack A_s 1385 ✓ in²

Barometer No. 28-1
Probe Tip No. 96-11-28-1 D 96-11-28-2 D C
Total Volume of Leak Checks After Start: 0.977 ft³
V_m = Dry Gas Meter Calibration Factor 1.012 X 41.310

[Dry Gas Meter Reading ___ ft³ - (T_t ___ min. X Leak Rate ___ cfm)]

Impinger Box No. 20

			Water Weight Gain		
Impinger 1	Final Weight	895.1		Impinger 1	188.6 ✓
	Initial Weight	706.5			
	Increase	188.6 ✓		Impinger 2	99.3 ✓
Impinger 2	Final Weight	800.0		Impinger 3	~~0.4~~ 1.2 ✓
	Initial Weight	700.7			
	Increase	99.3 ✓		Impinger 4	1.4 ✓
			V_w =		
Impinger 3	Final Weight	538.3	g SO_2 =	Impinger 5	15.5 ✓
	Initial Weight	537.1	V_w =		
	Increase	1.2 ~~0.4~~ ✓		Impinger 6	–
Impinger 4	Final Weight	502.6		Impinger 7	–
	Initial Weight	501.2			306.0 ✓
	Increase	1.4 ✓		Total	~~305.2~~ = V_w

Impinger 5	Final Weight	851.9	P_b =	29.60 ✓	$\%CO_2$ =	4.0 ✓
	Initial Weight	836.4	V_m =	41.806 ✓	$\%O_2$ =	~~6.4~~ ✓
	Increase	15.5 ✓	V_w =	306.0 ✓	%CO =	0.0 ✓
			P_m =	1.114 ✓	$\%N_2$ =	79.6 ✓
Impinger 6	Final Weight	–	Avg ΔP =	1.729 ✓	A_s =	1385 ✓
	Initial Weight	–			D_n =	~~0.184~~ 0.188/0.182 = ✓ 0.184
	Increase		Avg$\sqrt{\Delta P}$ =	1.314 ✓	T_t =	72 ✓
			C_p =	0.805 ✓		
Impinger 7	Final Weight	–	P_s =	-12.1 ✓ $"H_2O$		28.71 ✓ "Hg
	Initial Weight	–	T_m =	73 ✓ °F		533 ✓ °R
	Increase		T_s =	167 ✓ °F		627 ✓ °R

Moisture Content: %M = ~~25.96~~ 26.01 ✓ M_d = ~~0.7404~~ 0.7399 ✓ MW_d = 29.296 ✓ MW = 26.36 ✓

$$Vm_{std} = 17.65\ Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 41.806\left[\frac{29.60 + \frac{1.114}{13.6}}{73 + 460}\right] = \frac{41.691}{0.571}\ \text{sft}^3\ \text{scfm} \checkmark$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x ~~305.2~~ 306.0 = ~~14.405~~ 14.443 sft^3

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{14.405}{14.443\ 14.405 + 41.091} \times 100 =$ ~~25.96~~ 26.01 ✓ %

V_s = 5123.8 x $0.805\sqrt{\frac{627}{28.71 \times 26.36}} \times 6.34 =$ 4933 ✓ fpm

ACFM: 47448 ✓ 28471 ✓

SCFM: ~~28490~~

%I = $\frac{1{,}039 \times 627 \times 41.091}{0.7404 \times 28.71 \times 4933 \times 72 \times (0.188)^2} =$ 105.2 ✓ % 0.184

$\left(\frac{A}{72} \times 6.188^2\right) + \frac{53}{72} \times (0.182^2)$

%EA: 349.4 ✓

Run Number 2

Unit #4 Dryer Outlet Duct

Date 11/17/90

Form FIELD DATA

Point	Clock Time	Dry Gas Meter, CF	ΔP_s "Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	P_m Pump Vacuum "Hg Guage	T_s Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	T_m Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
A4	1534	129.21	1.80	1.15	1.15	5.0	167	270	270	69	73	72	
3	1537	130.87	1.80	1.15	1.15	5.5	167	265	271	62	73	72	
3	1540	132.61	1.90	1.25	1.25	5.5	166	260	271	60	75	72	
2	1543	134.43	1.80	1.15	1.15	5.5	165	254	265	58	76	72	
2	1546	136.24	1.80	1.15	1.15	6.0	165	253	266	58	77	72	
1	1549	137.95	1.80	1.15	1.15	6.0	165	253	270	59	78	72	
1	1552	139.67	1.80	1.15	1.15	8.0	166	251	267	60	78	72	
END	1555	141.413	-	-	-	-	-	-	-	-	-	-	

METCO ENVIRONMENTAL

Job Number 96-11
Job Name ERM Southwest
Run Number 1
Unit No. 5 Dryer Outlet Stack
Date 1/16/96
Operator J. Stapley, J. Pemberton, J Rocha
Sample Box No. 8-1 Meter Box No. 8-1

Particulate Field Data

Read and record at the start of each test point.

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 66
Assumed Moisture % 27
Probe Length 4'
C Factor ΔP10 → ~~5.53~~ 5.4 to reference
Initial Leak @ 15 "Hg = 0.000 cfm
Final Leak @ 5 "Hg = 0.000 cfm

Point	Clock Time	Dry Gas Meter, CF (V_m)	"Pitot" "H_2O (ΔP_s)	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F (T_s)	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet (T_m)	Dry Gas Temp. °F Outlet (T_m)	Remarks
B 6	1315	~~86.368~~ 75.796	1.70	0.86	0.86	2.0	167	251	263	67	70	70	Intg. Bag
6	1318	83.120	1.70	0.86	0.86	2.0	171	250	263	66	70	69	
5	1321	84.660	1.80	0.92	0.92	2.0	169	250	262	63	71	70	
5	1324	86.240	1.80	0.92	0.92	2.0	169	250	261	63	71	70	
4	1327	87.825	1.60	0.82	0.82	2.0	169	252	260	63	72	69	
4	1330	89.420	1.60	0.82	0.82	2.0	169	252	259	64	72	69	
3	1333	90.925	1.70	0.86	0.86	2.0	168	254	258	64	74	69	
3	1336	92.460	1.70	0.86	0.86	2.0	158	252	258	64	75	70	
2	1339	94.030	1.30	0.66	0.66	2.0	159	252	258	63	75	70	
2	1342	95.420	1.40	0.72	0.72	2.0	155	254	258	64	75	70	
1	1345	96.790	1.40	0.72	0.72	2.0	157	254	256	64	75	70	
1	1348	98.250	1.40	0.72	0.72	2.0	156	254	256	64	75	70	
END	1351	99.543	—	—	—	—	—	—	—	—	—	—	
A 6	1406	99.543	1.60	0.82	0.82	2.0	164	251	259	62	74	70	
6	1409	101.150	1.60	0.82	0.82	2.0	166	256	261	63	75	72	
5	1412	102.530	1.90	0.98	0.98	2.0	169	260	259	66	76	72	
5	1415	104.320	1.90	0.98	0.98	2.0	169	264	261	65	77	72	Change to ΔP10 → 5.3
4	1418	105.730	1.70	0.96	0.96	2.0	169	257	264	64	78	72	

Pitot Tube Calibration Factor C_p ~~0.805~~ 0.804
Volume Collected V_m 37.769 ✓ ft³
Water Collected V_w 192.1 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -9.50 ✓ "H_2O

Pitot Tube No. S-3-1 ✓
Baro. Press. P_b 29.94 ✓ "Hg
Probe Tip Dia. D_n 0.183 ✓ in.
% CO_2 2.2 ✓ % CO 0.0 ✓
% O_2 18.5 ✓ % N_2 79.3 ✓
Area Stack A_s 1365 ✓ in²

Barometer No. S-1
Probe Tip No. IV-2
Total Volume of Leak Checks After Start: — ft³
V_m = Dry Gas Meter Calibration Factor 1.020 X 37.028

[Dry Gas Meter Reading ____ ft³ - (T_t ____ min. X Leak Rate ____ cfm)]

Impinger Box No. 8-1

			Water Weight Gain		
Impinger 1	Final Weight	758.7		Impinger 1	149.8
	Initial Weight	608.9			
	Increase	149.8		Impinger 2	28.5
Impinger 2	Final Weight	648.7		Impinger 3	2.2
	Initial Weight	620.2			
	Increase	28.5		Impinger 4	11.6
			V_w =		
Impinger 3	Final Weight	516.8	g SO_2 = -	Impinger 5	
	Initial Weight	514.6	V_w =		
	Increase	2.2		Impinger 6	
Impinger 4	Final Weight	835.9		Impinger 7	
	Initial Weight	824.3			
	Increase	11.6		Total	192.1 ✓ = V_w

Impinger 5	Final Weight		P_b =	29.94 ✓	$\%CO_2$ =	2.2 ✓
	Initial Weight		V_m =	37.769 ✓	$\%O_2$ =	18.5 ✓
	Increase		V_w =	192.1 ✓	%CO =	0.0 ✓
			P_m =	0.851 ✓	$\%N_2$ =	79.3 ✓
Impinger 6	Final Weight		Avg ΔP =	1.633 ✓	A_s =	1365 ✓
	Initial Weight				D_n =	0.183 ✓
	Increase		Avg$\sqrt{\Delta P}$ =	1.276 ✓	T_t =	72 ✓
			C_p =	0.804 ✓		
Impinger 7	Final Weight		P_s =	-.850 ✓ "H_2O		29.24 ✓ "Hg
	Initial Weight		T_m =	73 ✓ °F		533 ✓ °R
	Increase		T_s =	165 ✓ °F		625 ✓ °R

Moisture Content: %M = ~~0~~ 19.46 ✓ M_d = 0.8054 ✓ MW_d = 29.092 ✓ MW = ~~27.59~~ 26.93 ✓

$$Vm_{std} = 17.65\ Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 37.769\left[\frac{29.9 + \frac{0.85}{13.6}}{73 + 460}\right] = \frac{37.524\ \text{sft}^3}{0.5218\ \text{scfm}}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 192.1 = 9,067 ✓ sft^3

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{9.067}{37.524 + 9.067} \times 100 =$ 19.46 ✓ %

$V_s = 5123.8 \times 0.804 \sqrt{\frac{625}{29.24 \times \frac{27.59}{26.93}}} \times 1.276 =$ ~~4627~~ 4683 ✓ fpm

ACFM: ~~43,858~~ 44,392 ✓

SCFM: ~~29,272~~ 29,626 ✓

$\%I = \frac{1{,}039 \times 37.524 \times 625}{0.8054 \times 72 \times 29.24 \times \frac{4627}{4683} \times (0.183)^2} =$ ~~92.7~~ 91.6 ✓ %

%EA: ~~135.7~~ 135.7 ✓

Run Number 1

Unit No. 5 Dryer Outlet Stack

Date 1/16/96

Pollutech FIELD DATA

			ΔP_s			P_m	T_s				T_m		
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
A4	1421	107.310	1.60	0.86	0.86	2.0	170	257	249	64	79	72	
3	1424	108.970	1.80	0.96	0.96	2.0	163	256	257	64	80	72	
3	1427	110.730	1.70	0.92	0.92	2.0	164	256	251	65	80	72	
2	1430	112.835	1.80	0.96	0.96	2.0	160	254	252	64	82	72	
2	1433	114.130	1.70	0.92	0.92	2.0	166	252	253	65	82	73	
1	1436	115.550	1.40	0.75	0.75	2.0	165	251	252	65	82	73	
1	1439	117.075	1.40	0.75	0.75	2.0	168	252	253	65	82	73	
END	1442	118.596	–	–	–	–	–	–	–	–	–	–	

METCO ENVIRONMENTAL

Particulate Field Data

Job Number 96-11
Job Name ERM Southwest
Run Number 2 Particulate
Unit No. 5 Dryer Outlet
Date 1/17/96
Operator T. Stoke, J. Pemberton, J. Rabe
Sample Box No. 8-2 Meter Box No. 8-1

Read and record at the start of each test point.

Purge to: _____
Purge time: _____
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 70
Assumed Moisture % 25
Probe Length 4'
C Factor ΔP 10 → 5.5 to reference
Initial Leak @ 15 "Hg = 0.000 cfm
Final Leak @ 5 "Hg = 0.000 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O	Orifice ΔH "H2O Desired (ΔPs)	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage (Pm)	Stack Temp °F (Ts)	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet (Tm)	Remarks
B6	0820	164.855	1.75	0.94	0.94	2.0	166	247	270	66	65	65	Integrated bag
6	0823	166.420	1.80	0.96	0.96	2.0	167	252	269	66	67	65	
5	0826	168.070	1.85	0.98	0.98	2.5	167	254	265	65	68	65	
5	0829	169.715	1.75	0.94	0.94	2.5	168	254	269	64	69	65	
4	0832	171.390	1.85	0.98	0.98	2.5	167	254	266	63	69	65	
4	0835	173.205	1.80	0.96	0.96	2.0	166	255	266	63	71	65	
3	0838	174.730	1.40	0.77	0.77	2.5	164	256	266	63	72	65	
3	0841	176.260	1.50	0.80	0.80	2.5	164	256	267	62	72	65	
2	0844	177.920	1.65	0.87	0.87	2.5	166	258	268	61	73	66	
2	0847	179.620	1.60	0.84	0.84	2.5	162	256	268	61	74	66	
1	0850	181.030	1.46	0.77	0.77	2.5	162	257	265	65	74	66	
1	0853	182.403	1.40	0.77	0.77	2.5	163	256	259	64	75	66	
END	0856	183.763	—	—	—	—	—	—	—	—	—	—	Leak Check 183.763 to
A6	0910	184.105	1.60	0.84	0.84	2.5	161	257	261	65	72	66	184.105
6	0913	185.430	1.70	0.90	0.90	2.5	164	261	270	64	71	67	
5	0916	187.570	1.70	0.90	0.90	2.5	164	260	271	63	71	67	
5	09A	188.630	1.50	0.84	0.84	2.5	166	250	271	62	73	67	ΔP 10 → 5.5
7	0922	190.365	1.50	0.84	0.84	2.5	164	251	266	63	74	65	

Pitot Tube Calibration Factor C_p 0.84 ✓
Volume Collected V_m 37.644 ✓ ft³
Water Collected V_w 280.2 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -11.0 ✓ "H_2O

Pitot Tube No. S-S-1 ✓
Baro. Press. P_b 29.72 ✓ "Hg
Probe Tip Dia. D_n 0.183 ✓ in.
% CO_2 1.30 ✓ % CO 0.0 ✓
% O_2 19.4 ✓ % N_2 79.3 ✓
Area Stack A_s 1365 ✓ in²

Barometer No. S-1 Probe Tip No. T-2 ✓
Total Volume of Leak Checks After Start: 0.483 ft³
V_m = Dry Gas Meter Calibration Factor 1.020 X 36.906

[Dry Gas Meter Reading ____ ft³ - (T_t ____ min. X Leak Rate ____ cfm)]

Impinger Box No. B-2

			Water Weight Gain		
Impinger 1	Final Weight	847.2		Impinger 1	224.7
	Initial Weight	622.5			
	Increase	224.7		Impinger 2	42.1
Impinger 2	Final Weight	649.9		Impinger 3	2.4
	Initial Weight	607.8			
	Increase	42.1		Impinger 4	11.0
			V_w =		
Impinger 3	Final Weight	509.9	g SO_2 =	Impinger 5	
	Initial Weight	507.5	V_w =		
	Increase	2.4		Impinger 6	
Impinger 4	Final Weight	844.8		Impinger 7	
	Initial Weight	833.8			
	Increase	11.0		Total	280.2 ✓ = V_w

Impinger 5	Final Weight		P_b =	29.72 ✓	%CO_2 =	1.3 ✓	
	Initial Weight		V_m =	37.647 ✓	%O_2 =	19.4 ✓	
	Increase		V_w =	280.2 ✓	%CO =	0.0 ✓	
			P_m =	0.866 ✓	%N_2 =	79.3 ✓	
Impinger 6	Final Weight		Avg ΔP =	1.596 ✓	A_s =	136.5 ✓	
	Initial Weight				D_n =	0.183 ✓	
	Increase		Avg$\sqrt{\Delta P}$ =	1.262 ✓	T_t =	72 ✓	
			C_p =	0.804 ✓			
Impinger 7	Final Weight		P_s =	-11.0 ✓ "H_2O		28.91 ✓	"Hg
	Initial Weight		T_m =	69 ✓ °F		529 ✓	°R
	Increase		T_s =	164 ✓ °F		624 ✓	°R

Moisture Content: %M = 26.12 ✓ M_d = 0.7388 ✓ MW_d = 28.984 ✓ MW = 26.11 ✓

$$Vm_{std} = 17.65\ Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 37.647 \left[\frac{29.72 + \frac{0.866}{13.6}}{69 + 460}\right] = \frac{37.408}{0.520624} \text{ sft}^3 \checkmark \text{ scfm}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 280.2 = 13.225 ✓ sft³

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}}$ x 100 = $\frac{13.225}{37.408 + 13.225}$ x 100 = 26.12 ✓ %

V_s = 5123.8 x 0.804 ✓ $\sqrt{\frac{624}{28.91 \times 26.11}}$ x 1.262 = 4727 ✓ fpm

ACFM: 44,807 ✓ (44,511)

SCFM: 27,165 ✓

%I = $\frac{1{,}039 \times 37.408 \times 624}{0.7388 \times 72 \times 29.91 \times 4727 \times (0.183)^2}$ = 99.40% ✓

%EA: 1201.6 ✓

Run Number 2 Particulate

Unit No. 5 Dryer Outlet

Date 1/17/96

Particulate FIELD DATA

			ΔP_s		P_m		T_s					T_m	
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
A4	0925	191.430	1.50	0.84	0.84	2.5	166	250	264	62	75	68	Stop @ 0926 Blinded Filter @ 191.862
3	0944	193.250	1.60	0.88	0.88	2.5	161	251	262	60	71	68	Leak check good @ 15 in hg Pitot leak check
3	0947	194.730	1.50	0.84	0.84	2.5	164	261	249	63	72	68	Final 0.000 @ 15 in Hg →
2	0950	196.230	1.50	0.84	0.84	2.5	166	262	246	62	73	68	192.003 Start @ 0952
2	0953	197.860	1.65	0.92	0.92	2.5	163	271	235	65	74	68	0.141 cf
1	0956	199.430	1.40	0.78	0.78	2.5	160	268	241	65	75	68	
1	0959	200.840	1.40	0.78	0.78	2.5	160	259	251	66	75	68	
END	1002	202.244	—	—	—	—	—	—	—				

METCO ENVIRONMENTAL

Particulate Field Data

Job Number 96-11
Job Name ERM Southwest
Run Number 3 Particulate
Unit No. 5 Dryer Outlet
Date 1/17/96
Operator T. Staley / J. Pemberton, J. Rocha
Sample Box No. 8-1 Meter Box No. 8-1

Read and record at the start of each test point.

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final —

Ambient Temp. °F 75
Assumed Moisture % 25
Probe Length 4'
C Factor ΔP 10 - 5.5 to reference
Initial Leak @ 15 "Hg = 0.000 cfm
Final Leak @ 15 "Hg = 0.000 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O	Orifice ΔH "H2O Desired	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F (T_s)	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet (T_m)	Dry Gas Temp. °F Outlet (T_m)	Remarks
B6	1750	243.614	1.70	0.94	0.94	2.0	161	246	257	64	70	71	Integ. Bag
6	1753	245.370	1.80	0.98	0.98	2.0	166	249	256	54	70	71	
5	1756	247.301	1.80	0.98	0.98	2.0	166	249	259	58	71	71	
5	1759	248.830	1.90	1.05	1.05	2.0	166	254	253	58	72	70	(Filter blinded)
4	1802	250.530	1.65	0.92	0.92	5.0	167	256	251	59	72	71	Pump down @ 1804 / 251.873
4	1805	252.320	1.70	0.94	0.94	2.0	166	263	259	62	71	71	Leak check ok @ 15"-Hg-cfm / Start @ 251.873 @ 1825
3	1829	253.960	1.70	0.94	0.94	2.0	168	270	266	65	72	71	
3	1832	255.590	1.60	0.88	0.88	2.0	164	262	280	63	72	71	
2	1835	257.260	1.65	0.92	0.92	2.0	158	262	297	63	74	71	
2	1838	258.840	1.70	0.94	0.94	2.0	165	277	291	64	72	70	Pump down @ 1838 / Restart @ 1910
1	1913	260.530	1.50	0.82	0.82	2.0	163	268	289	62	71	71	Leak Check OK at 10"-cfm
1	1916	261.902	1.50	0.82	0.82	2.5	162	264	290	62	72	71	
END	1919	263.422	—	—	—	—	—	—	—	—	—	—	Leak Check OK @ 10"-cfm (0.
A6	1927	263.576	1.50	0.82	0.82	2.5	163	273	291	64	71	71	
6	1930	265.080	1.50	0.82	0.82	2.5	163	266	290	62	72	71	
5	1933	266.710	1.70	0.94	0.94	2.5	163	261	290	64	73	71	
5	1936	268.530	1.70	0.94	0.94	2.5	161	259	290	62	75	71	
4	1939	269.850	1.40	0.98	0.98	5.0	160	257	294	63	75	71	

Pitot Tube Calibration Factor C_p 0.804 ✓
Volume Collected V_m 39.011 ✓ ft³
Water Collected V_w 285.7 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -11.0 ✓ "H_2O

Pitot Tube No. S-3-1 ✓
Baro. Press. P_b 29.54 ✓ "Hg
Probe Tip Dia. D_n 0.183 ✓ in.
% CO_2 3.8 ✓ % CO 0.0 ✓
% O_2 16.8 ✓ % N_2 79.4 ✓
Area Stack A_s 13.05 ✓ in²

Barometer No. S-1 Probe Tip No. #2
Total Volume of Leak Checks After Start: 1.918 ft³
V_m = Dry Gas Meter Calibration Factor 1.020 X 38.246

[Dry Gas Meter Reading ___ ft³ - (T_t ___ min. X Leak Rate ___ cfm)]

Impinger Box No. 8-1

			Water Weight Gain		
Impinger 1	Final Weight	843.5		Impinger 1	230.8
	Initial Weight	612.7			
	Increase	230.8		Impinger 2	27.3
Impinger 2	Final Weight	629.0		Impinger 3	132
	Initial Weight	601.7			
	Increase	27.3		Impinger 4	14.4
			V_w =		
Impinger 3	Final Weight	517.9	g SO_2 =	Impinger 5	
	Initial Weight	504.7	V_w =		
	Increase	13.2		Impinger 6	
Impinger 4	Final Weight	850.0		Impinger 7	
	Initial Weight	835.6			
	Increase	14.4		Total	285.7 = V_w

Impinger 5	Final Weight		P_b =	29.54	$\%CO_2$ =	3.8
	Initial Weight		V_m =	38.011	$\%O_2$ =	16.8
	Increase		V_w =	285.7	%CO =	0.0
			P_m =	0.921	$\%N_2$ =	79.4
Impinger 6	Final Weight		Avg ΔP =	1.675	A_s =	1365
	Initial Weight				D_n =	0.183
	Increase		Avg$\sqrt{\Delta P}$ =	1.293	T_t =	72
			C_p =	0.804		
Impinger 7	Final Weight		P_s =	-11.0 "H_2O		28.73 "Hg
	Initial Weight		T_m =	72 °F		532 °R
	Increase		T_s =	163 °F		623 °R

Moisture Content: %M = 26.03 M_d = 0.7397 MW_d = 29.280 MW = 26.34

$$Vm_{std} = 17.65\ Vm \left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 38.011 \left[\frac{29.54 + \frac{0.921}{13.6}}{72 + 460}\right] = \frac{38.320\ sft^3}{0.532\ scfm}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 285.7 = 13.485 sft^3

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}}$ x 100 = $\frac{13.485}{38.320 + 13.485}$ x 100 = 26.03 %

V_s = 5123.8 x 0.804 $\sqrt{\frac{623}{28.73 \times 26.34}}$ x 1.293 = 4832 (4833) fpm

ACFM: 45,813 (45,805)

SCFM: 27,634 (27,679)

%I = $\frac{1{,}039 \times 38.320 \times 623}{0.7397 \times 72 \times 28.73 \times 4833 \times (0.183)^2}$ = 100.2 %

%EA: 396.1

Run Number 3 Particulate

Unit No. 5 Dryer Outlet

Date 1/17/96

Particulate FIELD DATA

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
			ΔP_s		P_m		T_s				T_m		
A4	1942	271.500	1.80	0.98	0.98	10.0	161	264	295	64	75	71	Pump@1943 272.020 (0.964)
3	2012	271.240	1.70	0.94	0.94	2.0	165	269	295	64	72	71	Leak check @ 15" = 0.000 cfm Reading 272.498 @ 1910
3	2015	275.625	1.80	0.98	0.98	20	165	264	296	63	73	71	
2	2018	277.340	1.50	0.83	0.83	2.0	159	263	300	62	74	71	
2	2021	279.220	1.50	0.83	0.83	2.0	159	260	301	62	75	71	Pump down @ 2024 280.327 Reading @ 2135
1	2135 2025	280.327	1.70	0.94	0.94	20	160	280	300	63	71	72	
1	2138	282.025	1.80	0.98	0.98	2.0	162	281	300	64	71	72	
END	2141	283.808	—	—	—	—	—	—	—	—	—	—	(1.918)

METCO ENVIRONMENTAL

Formaldehyde Field Data

Read and record at the start of each test point.

Job Number 96-11
Job Name EEM Southwest
Run Number 1
Unit #5 Dryer Outlet
Date 11/6/96
Operator T. Stiles, J. Pemberton, J. Rocha
Sample Box No. M6 Meter Box No. 8-1

Purge to: –
Purge time: –
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 84
Assumed Moisture % 25
Probe Length 4'
C Factor 5/10 → 5.3 to reference
Initial Leak @ 15 "Hg = 0.000 cfm
Final Leak @ 5 "Hg = 0.000 cfm

			ΔP_s		P_m		T_s				T_m		
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
A 6	~~1548~~ 1551	121.924	1.60	0.86	0.86	2.0	169	247	252	63	74	74	Init. orsat
6	1554	123.530	1.60	0.86	0.86	2.0	168	242	256	63	74	74	
5	1557	125.020	1.70	0.90	0.90	2.0	169	252	257	64	74	74	
5	1600	126.802	1.80	0.96	0.96	2.0	169	247	260	63	75	73	
4	1603	128.220	1.50	0.80	0.80	2.0	170	250	260	64	76	73	
4	1606	129.870	1.60	0.86	0.86	2.0	168	250	259	64	76	74	
3	1609	131.957	1.60	0.86	0.86	2.0	168	251	256	64	77	74	
3	1612	133.030	1.60	0.86	0.86	2.0	168	250	255	63	77	74	
2	1615	134.335	1.40	0.75	0.75	2.0	166	251	256	62	77	74	
2	1618	135.840	1.50	0.80	0.80	2.0	167	250	255	62	77	74	
1	1621	137.630	1.60	0.86	0.86	2.0	168	250	256	62	77	74	
1	1624	139.370	1.60	0.86	0.86	2.0	167	251	254	63	78	74	
END	1627	140.580	–	–	–	–	–	–	–	–	–	–	
B 6	1637	140.580	1.60	0.86	0.86	2.0	166	250	256	66	78	73	
6	1640	142.230	1.70	0.87	0.87	2.0	168	251	254	64	78	74	ΔP 10 → 5.1
5	1643	143.720	1.80	0.92	0.92	2.0	169	253	270	66	79	74	
5	1646	145.330	1.70	0.87	0.87	2.0	169	250	269	67	80	74	Grab Orsat
4	1649	146.81	1.65	0.84	0.87	5.0	168	244	264	68	79	74	Pump off @ 1651 @ 147.29 96-11-6-2 Leak Chec

Pitot Tube Calibration Factor C_p 0.809 ✓
Volume Collected V_m 36.683 ✓ ft^3
Water Collected V_w 266.5 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s –12.0 ✓ "H_2O

Pitot Tube No. 19-3-2 ✓
Baro. Press. P_b 29.87 ✓ "Hg
Probe Tip Dia. D_n 0.182 ✓ in.
% CO_2 3.2 ✓ % CO 0.0 ✓
% O_2 17.5 ✓ % N_2 79.3 ✓
Area Stack A_s 1365 ✓ in^2

Barometer No. 8-1
Probe Tip No. 8-2 ✓
Total Volume of Leak Checks After Start: 2.058 ft^3
V_m = Dry Gas Meter Calibration Factor 1.020 X 35.964 ✓

[Dry Gas Meter Reading ___ ft^3 - (T_t ___ min. X Leak Rate ___ cfm)]

Impinger Box No. M6

			Water Weight Gain		
Impinger 1	Final Weight	879.5		Impinger 1	180.4
	Initial Weight	699.1			
	Increase	180.4		Impinger 2	69.2
Impinger 2	Final Weight	765.5		Impinger 3	3.0
	Initial Weight	696.3			
	Increase	69.2		Impinger 4	13.9
			V_w =		
Impinger 3	Final Weight	516.6	g SO_2 =	Impinger 5	
	Initial Weight	513.6	V_w =		
	Increase	3.0		Impinger 6	
Impinger 4	Final Weight	871.6		Impinger 7	
	Initial Weight	857.7			
	Increase	13.9		Total	266.5 = V_w

Impinger 5	Final Weight		P_b =	29.87	$\%CO_2$ =	3.2	
	Initial Weight		V_m =	36.683	$\%O_2$ =	17.5	
	Increase		V_w =	266.5	%CO =	0.0	
			P_m =	0.838	$\%N_2$ =	79.3	
Impinger 6	Final Weight		Avg ΔP =	1.594	A_s =	1365	
	Initial Weight				D_n =	0.182	
	Increase		Avg$\sqrt{\Delta P}$ =	1.262	T_t =	72	
			C_p =	0.809			
Impinger 7	Final Weight		P_s =	−12.0 $'H_2O$		28.99 'Hg	
	Initial Weight		T_m =	76 °F		536 °R	
	Increase		T_s =	167 °F		627 °R	

Moisture Content: %M = 25.81 / 0.74 M_d = 0.7419 MW_d = 29.212 MW = 26.32

$$Vm_{std} = 17.65\ Vm \left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 36.683 \left[\frac{29.87 + \frac{0.838}{13.6}}{76 + 460}\right] = \frac{36.156}{0.502}\ \text{sft}^3/\text{scfm}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 266.5 = 12.579 sft^3

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}}$ x 100 = $\frac{12.579}{36.156 + 12.579}$ x 100 = 25.81 %

V_s = 5123.8 x $0.809\sqrt{\frac{627}{28.99 \times 26.32}}$ x 1.262 = 4742 fpm

ACFM: 44,951 / 44,195

SCFM: 27,310 / 27,795

%I = $\frac{1{,}039 \times 36.156 \times 627}{0.7419 \times 72 \times 28.99 \times 4742 \times (0.182)^2}$ = 96.8 / 95.2 %

%EA: 497.9

Run Number 1

Unit #5 Dryer Outlet

Date 1/16/96

Formaldehyde FIELD DATA

			ΔP_s			P_m	T_s				T_m		
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
B4	1719	149.750	1.60	0.820	0.82	2.0	166	254	226	62	75	77	Start 149.356 @ 1718
3	1722	151.230	1.50	0.77	0.77	2.0	167	248	220	63	77	75	
3	1725	152.530	1.60	0.82	0.82	2.5	167	246	260	61	78	75	
2	1728	154.320	1.50	0.77	0.77	2.5	160	250	257	61	78	75	
2	1731	155.630	1.50	0.77	0.77	2.5	160	251	258	61	78	75	
1	1734	156.930	1.50	0.77	0.77	2.5	162	251	256	62	80	75	
1	1737	158.510	1.50	0.77	0.77	2.5	160	254	257	62	80	75	
END	1740	159.946	-	-	-	-	-	-	-	-	-	-	

METCO ENVIRONMENTAL

Formaldehyde Field Data

Read and record at the start of each test point.

Job Number 96-11
Job Name ERM South West
Run Number 2 Formaldehyde
Unit No. 5 Dryer Outlet
Date 1/17/96
Operator T. Staley, J. Pemberton, J. Rocha
Sample Box No. M6 Meter Box No. 8-1

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 72
Assumed Moisture % 25
Probe Length 4'
C Factor ΔP 10 → 5.5 to reference
Initial Leak @ 15 "Hg = 0.000 cfm
Final Leak @ 5 "Hg = 0.000 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired (ΔP_s)	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage (P_m)	Stack Temp °F (T_s)	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet (T_m)	Dry Gas Temp. °F Outlet	Remarks
A6	1210	203.568	1.60	0.88	0.88	2.0	168	236	256	64	69	70	Integrated bag
6	1213	205.160	1.50	0.83	0.83	2.0	179	266	270	64	68	68	
5	1216	206.890	1.75	0.97	0.97	2.0	178	267	275	62	69	68	
5	1219	208.295	1.65	0.92	0.92	2.5	176	265	269	61	69	68	
4	1222	210.015	1.70	0.96	0.96	2.5	176	251	272	61	71	68	Grab Orsat
4	1225	211.560	1.70	0.96	0.96	2.5	176	256	274	62	72	68	
3	1228	213.070	1.50	0.83	0.83	3.0	175	256	272	62	73	68	Pump down @ 1229 213.600
3	1311	214.800	1.50	0.83	0.83	3.0	170	256	259	66	70	67	Resume Run @ 1317 213.600
2	1349	216.620	1.40	0.78	0.78	2.0	168	258	262	63	69	69	Pump down @ 1320 215.065
2	1352	218.020	1.60	0.88	0.88	2.0	160	254	251	64	69	69	Leak check Resume @
1	1406	219.548	1.50	0.83	0.83	2.0	167	255	254	63	69	70	1347 Leak check @ 10 1/2 215.631 0.000 cfm
1	1409	221.220	1.60	0.88	0.88	2.0	167	250	256	64	70	70	Pump down @ 1355 Resume @ 1406
END	1412	222.377	—	—	—	—	—	—	—	—	—	—	Leak Check 15" Hg 0.000 cfm
B6	1445	222.625	1.60	0.88	0.88	2.5	163	250	254	65	70	70	
6	1448	224.320	1.70	0.96	0.96	2.5	162	251	256	62	70	70	
5	1451	225.735	1.75	0.97	0.97	3.0	163	256	261	60	71	70	
5	1454	227.660	1.80	0.98	0.98	3.5	162	248	270	57	72	70	
4	1457	228.940	1.60	0.88	0.88	6.0	161	248	264	51	72	70	Pump down @ 1458 229.417

96-11-C-1

Pitot Tube Calibration Factor C_p 0.809 ✓
Volume Collected V_m 37.532 ✓ ft³
Water Collected V_w 286.3 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -11.0 ✓ "H_2O

Pitot Tube No. 19-3-2 ✓
Baro. Press. P_b 29.72 ✓ "Hg
Probe Tip Dia. D_n 0.182 ✓ in.
% CO_2 3.80 ✓ % CO 0.0 ✓
% O_2 17.4 ✓ % N_2 78.8 ✓
Area Stack A_s 1365 ✓ in²

Barometer No. 8-1
Probe Tip No. ~~Z-8-4~~ ✓
Total Volume of Leak Checks After Start: ~~2.985~~ 3.085 ft³
V_m = Dry Gas Meter Calibration Factor 1.020 X 36.796

[Dry Gas Meter Reading ____ ft³ - (T_t ____ min. X Leak Rate ____ cfm)]

Impinger Box No. M6

			Water Weight Gain		
Impinger 1	Final Weight	871.9		Impinger 1	172.9
	Initial Weight	699.0			
	Increase	172.9		Impinger 2	94.4
Impinger 2	Final Weight	790.0		Impinger 3	3.2
	Initial Weight	695.6			
	Increase	94.4		Impinger 4	1.0
			V_w =		
Impinger 3	Final Weight	570.8	g SO_2 = -	Impinger 5	14.8
	Initial Weight	567.6	V_w =		
	Increase	3.2		Impinger 6	
Impinger 4	Final Weight	527.4		Impinger 7	
	Initial Weight	526.4			
	Increase	1.0		Total	286.3 ✓ = V_w
Impinger 5	Final Weight	817.8	P_b = 29.72 ✓	$\%CO_2$ =	3.80 ✓
	Initial Weight	803.0	V_m = 37.532 ✓	$\%O_2$ =	17.4 ✓
	Increase	14.8	V_w = 286.3 ✓	%CO =	0.0 ✓
			P_m = 0.885 ✓	$\%N_2$ =	78.8 ✓
Impinger 6	Final Weight		Avg ΔP = 1.544 ✓	A_s =	1365 ✓
	Initial Weight			D_n =	0.182 ✓
	Increase		Avg$\sqrt{\Delta P}$ = 1.262 ✓	T_t =	72 ✓
			C_p = 0.809 ✓		
Impinger 7	Final Weight		P_s = -11.0 ✓ $"H_2O$		28.91 ✓ "Hg
	Initial Weight		T_m = 71 ✓ °F		531 ✓ °R
	Increase		T_s = 167 ✓ °F		627 ✓ °R

Moisture Content: %M = 26.67 ✓ M_d = 0.7333 ✓ MW_d = 29.304 ✓ MW = 26.29 ✓

$$Vm_{std} = 17.65\ Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 37.532\left[\frac{29.72 + \frac{0.885}{13.6}}{71 + 460}\right] = \frac{37.158 \text{ ✓ sft}^3}{0.516 \text{ ✓ scfm}}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 286.3 = 13.513 ✓ sft^3

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}}$ x 100 = $\frac{13.513}{37.158 + 13.513}$ x 100 = 26.67 ✓ %

V_s = 5123.8 x $\frac{0.809}{\sqrt{\frac{627}{28.91}}}$ x 1.262 = 4751 ✓ fpm

ACFM: 45,039 ✓ / 26,970 ✓

SCFM: 26,970

%I = $\frac{1,039 \times 37.158 \times 627}{0.7333 \times 72 \times 28.91 \times 4751 \times (0.182)^2}$ = 100.8% ✓

%EA: 499.7 ✓

Run Number 2 Formaldehyde
Unit No. 5 Dryer Outlet
Date 1/17/96

Formaldehyde FIELD DATA

			ΔP_s		P_m		T_s				T_m		
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
B4	1535	232.410	1.45	0.80	0.80	2.0	167	266	241	61	72	70	Reset @ 1533 231.508
3	1536	234.060	1.70	0.96	0.96	2.0	167	259	251	56	74	70	
3	1541	235.930	1.70	0.96	0.96	2.0	165	252	246	55	75	70	
2	1544	237.230	1.50	0.83	0.83	2.0	161	247	251	56	76	71	
2	1547	238.750	1.50	0.83	0.83	2.5	162	249	256	57	77	70	
1	1550	240.220	1.45	0.80	0.80	2.5	163	246	257	59	78	70	
1	1553	242.020	1.50	0.83	0.83	2.5	158	247	259	61	79	70	
END	1556	243.269	-	-	-	-	-	-	-	-	-	-	

METCO ENVIRONMENTAL

Job Number 96-011
Job Name ERM Southwest
Run Number 1
Unit RTO Dryer Stack ~~#~~ #1
Date 16 Jan 96
Operator Grubbs, Smith, Smith
Sample Box No. 17-2 Meter Box No. 17-2

SO_2/PART. Field Data

Read and record at the start of each test point.

Purge to: 651.395
Purge time: 1445 - 1500
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 70
Assumed Moisture % 22.16
Probe Length 10'
C Factor ΔH10- ΔP5.50 to reference
Initial Leak @ 16.0 "Hg = 0.000 cfm
Final Leak @ 14.0 "Hg = 0.000 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H₂O	Orifice ΔH "H₂O Desired	Orifice ΔH "H₂O Actual	Pump Vacuum "Hg Guage	Stack Temp °F (T_s)	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet (T_m)	Dry Gas Temp. °F Outlet (T_m)	Remarks
B 12	1315	598.745	0.40	0.76	0.76	4.5	322	235	259	72	76	74	INT ORSAT
11	1318	600.20	0.50	0.94	0.94	5.0	328	237	247	66	77	74	
10	1321	601.74	0.50	0.94	0.94	5.0	324	237	252	60	78	74	
9	1324	603.41	0.58	1.10	1.10	5.0	315	229	257	53	80	74	
8	1327	605.11	0.60	1.15	1.15	5.0	325	230	253	52	81	74	
7	1330	606.87	0.60	1.15	1.15	5.0	336	230	257	52	82	75	
6	1333	608.65	0.58	1.10	1.10	5.0	327	251	259	53	84	75	
5	1336	610.40	0.60	1.15	1.15	5.0	340	239	258	53	85	75	
4	1339	612.13	0.72	1.35	1.35	6.0	340	237	259	54	86	75	
3	1342	613.99	0.82	1.55	1.55	6.0	313	225	261	54	87	76	
2	1345	616.03	0.89	1.70	1.70	7.0	331	235	253	55	88	76	
1	1348	618.15	0.80	1.50	1.50	7.0	321	241	262	56	89	76	
End	1951	620.335	-	-	-	-	-	-	-	-	-	-	
A 12	1406	620.335	0.40	0.79	0.79	5.0	320	230	240	70	81	77	Δ10 - 5.10
11	1409	621.80	0.40	0.79	0.79	5.0	326	236	241	65	81	77	
10	1412	623.31	0.33	0.62	0.62	5.0	333	233	246	62	82	77	
9	1415	624.70	0.33	0.62	0.62	5.0	338	236	231	62	83	77	
8	1418	626.04	0.33	0.62	0.62	5.0	337	230	242	62	84	77	

Pitot Tube Calibration Factor C_p 0.808 ✓
Volume Collected V_m 44.130 ✓ ft³
Water Collected V_w 289.0 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -0.50 ✓ "H_2O

Pitot Tube No. 17-10-1 ✓
Baro. Press. P_b 29.94 ✓ "Hg
Probe Tip Dia. D_n 0.260 ✓ in.
% CO_2 4.0 ✓ % CO 0.0 ✓
% O_2 16.0 ✓ % N_2 80.0 ✓
Area Stack A_s ~~6459~~ 6468 ✓ in²

Barometer No. 17-2 Probe Tip No. 17-II-5
Total Volume of Leak Checks After Start: 0 ft³
V_m = Dry Gas Meter Calibration Factor 1.037 X 42.555

[Dry Gas Meter Reading ___ ft³ - (T_t ___ min. X Leak Rate ___ cfm)]

Impinger Box No. 17-2

			Water Weight Gain		
Impinger 1	Final Weight	826.4		Impinger 1	137.9
	Initial Weight	688.5			
	Increase	137.9		Impinger 2	93.7
Impinger 2	Final Weight	804.2		Impinger 3	31.8
	Initial Weight	710.5			
	Increase	93.7		Impinger 4	1.2
			V_w =		
Impinger 3	Final Weight	721.0	g SO_2 = -	Impinger 5	24.4
	Initial Weight	689.2	V_w =		
	Increase	31.8		Impinger 6	
Impinger 4	Final Weight	495.2		Impinger 7	
	Initial Weight	~~493.0~~ 494.0			
	Increase	1.2		Total	289.0 = V_w

Impinger 5	Final Weight	867.4	P_b =	29.94	%CO_2 =	4.0	
	Initial Weight	843.0	V_m =	44.130	%O_2 =	16.6	
	Increase	24.4	V_w =	289.0	%CO =	0.0	
			P_m =	1.173	%N_2 =	80.6	
Impinger 6	Final Weight		Avg ΔP =	0.614	A_n =	~~6459~~ 6468	
	Initial Weight				D_n =	0.260	
	Increase		Avg$\sqrt{\Delta P}$ =	0.770	T_t =	72	
			C_p =	0.808			
Impinger 7	Final Weight		P_s =	-0.50 "H_2O		29.90	"Hg
	Initial Weight		T_m =	80 °F		540	°R
	Increase		T_s =	327 °F		787	°R

Moisture Content: %M = ~~0.7605~~ 23.95 M_d = 0.7605 MW_d = 29.280 MW = 26.58

$$Vm_{std} = 17.65\ Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 44.130\left[\frac{29.94 + \frac{1.173}{13.6}}{80 + 460}\right] = \frac{43.310 \text{ sft}^3}{0.602 \text{ scfm}}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 289.0 = 13.641 sft^3

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{13,641}{43,310 + 13,641} \times 100 = 23.95\%$

V_s = 5123.8 x $0.808\sqrt{\frac{787}{2990 \times 26.58}}$ x 0.770 = 3172 fpm

ACFM: ~~142,280~~ 142,487 / 72,913

SCFM: ~~72,811~~

%EA: ~~30.7~~

%I = $\frac{1,039 \times 43.310 \times 787}{0.7605 \times 29.90 \times 3172 \times 72 \times (0.260)^2}$ = 100.9%

Run Number 1

Unit RTO Dryer Stack #2 #1

Date 16 Jan 96

SO2/Part FIELD DATA

			ΔP_s			P_m	T_s				T_m		
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
7	1421	627.38	0.35	0.64	0.64	5.0	300	227	201	62	84	77	
6	1424	628.75	0.38	0.67	0.67	5.0	333	232	240	61	86	77	
5	1427	630.15	0.96	1.75	1.75	8.0	318	236	240	60	87	77	
4	1430	632.11	1.00	1.95	1.95	9.0	344	241	240	58	89	77	
3	1433	634.41	1.00	1.95	1.95	9.0	323	240	238	58	90	77	
2	1436	636.77	0.96	1.75	1.75	8.5	350	236	247	64	93	79	
1	1439	639.05	0.82	1.60	1.60	8.0	315	236	251	62	91	78	
End All	1442	641.300	-	-	-	-	-	-	-	-	-	-	

METCO ENVIRONMENTAL

Particulate/SO2 Field Data

Read and record at the start of each test point.

Job Number 96-011
Job Name ERM Southwest
Run Number 2
Unit RTO Number 1 Stack
Date 17 Jan 96
Operator Grubbs, Smith, Smith 6
Sample Box No. 17-2 Meter Box No. 17-2

Purge to: 763.200
Purge time: 0953-1012
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 65
Assumed Moisture % 23.0
Probe Length 10
C Factor ΔH@-ΔP 5.1 to reference
Initial Leak @ 15.0 "Hg = 0.000 cfm
Final Leak @ 16.5 "Hg = 0.000 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O	Orifice ΔH "H2O Desired	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
			ΔP_s		P_m		T_s				T_m		
B12	0820	712.800	0.40	0.78	0.78	4.5	323	233	274	64	70	68	Integrated Orsat
11	0823	714.28	0.50	0.97	0.97	5.0	342	230	266	57	71	68	
10	0826	715.94	0.50	0.97	0.97	5.0	325	231	257	55	72	68	
9	0829	717.62	0.63	1.20	1.20	5.0	318	230	249	54	74	68	
8	0832	719.38	0.67	1.30	1.30	5.5	344	231	243	54	76	68	
7	0835	721.23	0.60	1.15	1.15	5.0	317	223	244	55	78	68	
6	0838	723.03	0.65	1.25	1.25	5.5	354	230	245	57	79	68	
5	0841	724.87	0.58	1.15	1.15	5.0	334	230	240	57	80	69	
4	0844	726.70	0.70	1.35	1.35	6.0	344	236	236	58	82	69	
3	0847	728.65	0.83	1.60	1.60	7.0	347	238	235	59	83	70	
2	0850	730.75	0.90	1.75	1.75	7.5	344	234	231	60	84	70	
1	0853	732.92	0.95	1.85	1.85	8.0	340	236	228	61	85	70	
End	0856	735.258	-	-	-	-	-	-	-	-	-	-	
A12	0910	735.258	0.45	0.86	0.86	5.0	336	236	249	67	77	71	Δ10-5.3
11	0913	736.776	0.40	0.76	0.76	4.5	333	235	252	66	77	71	
10	0916	738.26	0.34	0.60	0.60	4.5	324	234	246	65	78	71	
9	0919	739.60	0.30	0.56	0.56	4.5	332	244	245	66	79	71	
8	0922	740.97	0.30	0.56	0.56	4.5	323	237	246	67	80	71	

Pitot Tube Calibration Factor C_p 0.808 ✓
Volume Collected V_m 45.167 ✓ ft³
Water Collected V_w 276.9 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -0.60 ✓ "H_2O

Pitot Tube No. 17-10-1 ✓
Baro. Press. P_b 29.75 ✓ "Hg
Probe Tip Dia. D_n 0.260 ✓ in.
% CO_2 4.2 ✓ % CO 0.0 ✓
% O_2 15.8 ✓ % N_2 80.0 ✓
Area Stack A_s ~~6459~~ 6468 ✓ in²

Barometer No. 17-2 Probe Tip No. 17-II-5
Total Volume of Leak Checks After Start: 0 ft³
V_m = Dry Gas Meter Calibration Factor 1.037 X 43.555

[Dry Gas Meter Reading ___ ft³ - (T_t ___ min. X Leak Rate ___ cfm)]

Impinger Box No. 17-2

			Water Weight Gain		
Impinger 1	Final Weight	778.2		Impinger 1	83.8
	Initial Weight	694.4			
	Increase	83.8		Impinger 2	94.3
Impinger 2	Final Weight	801.0		Impinger 3	78.0
	Initial Weight	706.7			
	Increase	94.3		Impinger 4	0.8
			V_w =		
Impinger 3	Final Weight	763.5	g SO_2 =	Impinger 5	20.0
	Initial Weight	685.5	V_w =		
	Increase	78.0		Impinger 6	
Impinger 4	Final Weight	496.5		Impinger 7	
	Initial Weight	495.7			
	Increase	0.8		Total	276.9 ✓ = V_w

Impinger 5	Final Weight	889.0	P_b =	29.75 ✓	$\%CO_2$ =	4.2 ✓
	Initial Weight	869.0	V_m =	45.167 ✓	$\%O_2$ =	15.8 ✓
	Increase	20.0	V_w =	276.9 ✓	%CO =	0.0 ✓
			P_m =	1.224 ✓	$\%N_2$ =	80.0 ✓
Impinger 6	Final Weight		Avg ΔP =	0.645 ✓	A_s =	~~6459~~ 6468 ✓
	Initial Weight				D_n =	0.260 ✓
	Increase		Avg$\sqrt{\Delta P}$ =	0.789 ✓	T_t =	72 ✓
			C_p =	0.808 ✓		
Impinger 7	Final Weight		P_s =	-0.60 H_2O	29.71 ✓	"Hg
	Initial Weight		T_m =	75 ✓ °F	535 ✓	°R
	Increase		T_s =	335 ✓ °F	795 ✓	°R

Moisture Content: %M = 22.72 ✓ M_d = 0.7728 ✓ MW_d = 29.304 ✓ MW = 26.74 ✓

$$Vm_{std} = 17.65\ Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 45.167\left[\frac{29.75 + \frac{1.224}{13.6}}{75 + 460}\right] = \frac{44.464 \text{ ✓ sft}^3}{0.618 \text{ ✓ scfm}}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 276.9 = 13070 ✓ sft^3

$$\%\text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{13.070}{44.464 + 13.070} \times 100 = 22.72 \text{ ✓ \%}$$

$$V_s = 5123.8 \times 0.808\sqrt{\frac{795}{29.71 \times 26.74}} \times 0.789 = 3268 \text{ ✓ fpm}$$

ACFM: 146,771 ✓ ~~146569~~

SCFM: ~~74,982~~ 75,086 ✓

$$\%I = \frac{1{,}039 \times 44.464 \times 795}{0.7728 \times 29.71 \times 3268 \times 72 \times (0.260)^2} = 100.6\%$$

%EA: 292.6 ✓

Run Number 2

Unit RTO Number 1 Stack

Date 17 Jan 96

Particulate SO2 FIELD DATA

			ΔP_s			P_m	T_s				T_m		
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
7	0925	742.14	0.35	0.61	0.61	4.5	345	232	245	66	80	72	
6	0928	743.47	0.75	1.40	1.40	6.5	351	231	243	63	82	72	
5	0931	745.34	0.86	1.60	1.60	7.0	332	241	234	63	84	72	0933 pump OFF
4	0938	747.38	0.86	1.60	1.60	7.0	332	252	241	63	80	72	746.727 0941 on
3	0945	749.47	1.05	1.95	1.95	8.0	337	231	236	60	82	73	
2	0948	751.78	1.05	1.95	1.95	8.0	325	242	251	60	83	73	
1	0951	754.13	0.85	1.60	1.60	8.0	333	241	252	61	84	73	
End	0954	756.355	-	-	-	-	-	-	-	-	-	-	

METCO ENVIRONMENTAL

Job Number 96-011
Job Name ERM - Southwest
Run Number 3
Unit RTO Number 1 Stack
Date 17 Jan 96
Operator Grubbs, Smith, Smith G
Sample Box No. 17-2 Meter Box No. 17-2

Orifice Set Field Data

Read and record at the start of each test point.

Purge to: 863.258
Purge time: 2143 - 2158
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 76
Assumed Moisture % 22.7
Probe Length 10
C Factor Δ10 - 5.3 to reference
Initial Leak @ 15.0 "Hg = 0.000 cfm
Final Leak @ 15.0 "Hg = 0.000 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O	Orifice ΔH "H2O Desired (ΔPs)	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage (Pm)	Stack Temp °F (Ts)	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet (Tm)	Dry Gas Temp. °F Outlet	Remarks
B12	1750	812.020	0.53	1.00	1.00	5.0	301	238	225	58	73	73	Integrated Orsat
11	1753	813.69	0.56	1.05	1.05	5.0	321	234	235	52	73	72	
10	1756	815.43	0.45	0.85	0.85	5.0	307	235	240	51	75	72	
9	1759	817.02	0.67	1.30	1.30	6.0	345	239	240	51	76	72	
8	1802	818.86	0.64	1.20	1.20	6.0	313	242	241	49	78	72	
7	1805	820.716	0.74	1.40	1.40	7.0	313	235	258	60	75	73	Pumpoff @ 1805
6	1828	822.71	0.74	1.40	1.40	7.0	337	239	261	51	76	73	Pumpon @ 1825
5	1831	824.74	0.62	1.15	1.15	7.0	331	241	261	50	78	73	
4	1834	826.64	0.62	1.15	1.15	7.0	310	240	259	50	78	73	
3	1837	828.41	0.66	1.25	1.25	7.0	337	239	263	52	80	73	
2	1840	830.247	0.84	1.60	1.60	7.0	313	231	272	66	74	73	Pumpoff @ 1840
1	1913	832.32	0.84	1.60	1.60	7.0	347	237	273	53	75	73	Pumpon @ 1910
End	1916	834.483	-	-	-	-	-	-	-	-	-	-	
A12	1927	834.483	0.42	0.80	0.80	5.0	331	246	272	60	77	74	
11	1930	835.93	0.38	0.74	0.74	5.0	306	270	276	56	76	73	
10	1933	837.40	0.35	0.66	0.66	5.0	323	266	265	55	77	73	
9	1936	838.79	0.35	0.66	0.66	5.0	303	259	246	55	77	73	
8	1939	840.16	0.30	0.56	0.56	4.5	337	240	241	55	78	73	

Pitot Tube Calibration Factor C_p 0.808 ✓
Volume Collected V_m 45.317 ✓ ft³
Water Collected V_w 267.6 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -0.50 ✓ "H_2O

Pitot Tube No. 17-10-1 ✓
Baro. Press. P_b 29.56 ✓ "Hg
Probe Tip Dia. D_n 0.260 ✓ in.
% CO_2 4.0 ✓ % CO 0.0 ✓
% O_2 16.0 ✓ % N_2 80.0 ✓
Area Stack A_s ~~0.459~~ 0.468 ✓ in²

Barometer No. 17-2 Probe Tip No. 17-II-5
Total Volume of Leak Checks After Start: 0 ft³
V_m = Dry Gas Meter Calibration Factor 1.037 X 43.700

[Dry Gas Meter Reading ___ ft³ - (T_t ___ min. X Leak Rate ___ cfm)]

Impinger Box No. 17-2

			Water Weight Gain		
Impinger 1	Final Weight	828.3		Impinger 1	133.3
	Initial Weight	695.0			
	Increase	133.3		Impinger 2	87.4
Impinger 2	Final Weight	796.4		Impinger 3	801.25.0
	Initial Weight	709.0			
	Increase	87.4		Impinger 4	0.8
			V_w =		
Impinger 3	Final Weight	713.5	g SO_2 = -	Impinger 5	21.1
	Initial Weight	688.5	V_w =		
	Increase	25.0		Impinger 6	
Impinger 4	Final Weight	497.3		Impinger 7	
	Initial Weight	496.5			
	Increase	0.8		Total	267.6 ✓ = V_w
Impinger 5	Final Weight	823.5	P_b = 29.56 ✓	$\%CO_2$ = 4.0 ✓	
	Initial Weight	802.4	V_m = 45.317 ✓	$\%O_2$ = 16.0 ✓	
	Increase	21.1	V_w = 267.6 ✓	%CO = 0.0 ✓	
			P_m = 1.212 ✓	$\%N_2$ = 80.0 ✓	
Impinger 6	Final Weight		Avg ΔP = 0.641 ✓	A_s = 4459 6468 ✓	
	Initial Weight			D_n = 0.260 ✓	
	Increase		Avg$\sqrt{\Delta P}$ = 0.788 ✓	T_t = 72 ✓	
			C_p = 0.808 ✓		
Impinger 7	Final Weight		P_s = -0.50 ✓ "H_2O	29.52 ✓ "Hg	
	Initial Weight		T_m = 75 ✓ °F	535 ✓ °R	
	Increase		T_s = 322 ✓ °F	782 ✓ °R	

Moisture Content: %M = 22.18 ✓ M_d = 0.7782 ✓ MW_d = 29.280 ✓ MW = 26.78 ✓

$$Vm_{std} = 17.65\ Vm \left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 45.317 \left[\frac{29.56 + \frac{+1.212}{13.6}}{75 + 460}\right] = \frac{44.327 \text{ ✓ sft}^3}{0.6116 \text{ ✓ scfm}}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 267.6 = 12.631 ✓ sft^3

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}}$ x 100 = $\frac{12.631}{44.327 + 12.631}$ x 100 = 22.18 ✓ %

V_s = 5123.8 x 0.808 $\sqrt{\frac{782}{29.52 \times 26.78}}$ x 0.788 = 3245 ✓ fpm

145739 ✓

ACFM: 145,537 / 75839 ✓

SCFM: 75,733

%EA: 307.7 ✓

$$\%I = \frac{1{,}039 \times 44.327 \times 782}{0.7782 \times 29.52 \times 3245 \times 72 \times (0.260)^2} = 99.3\ \%$$

Run Number 3

Unit RTO Number 1 Stack

Date 17 Jan 96

Particulate/SO2 FIELD DATA

			ΔP_s			P_m	T_s				T_m		
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O	Orifice ΔH "H2O Desired	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
7	1942	841.40	0.30	0.56	0.56	4.5	308	239	234	56	79	73	
6	1945	842.672	0.75	1.40	1.40	7.0	313	240	250	65	75	73	Pump off @ 1945
5	2013	844.70	0.82	1.55	1.55	7.5	333	234	250	56	76	73	Pump on @ 2015
4	2016	846.76	0.90	1.70	1.70	7.5	313	242	252	54	78	73	
3	2019	848.88	0.90	1.70	1.70	8.0	349	229	256	53	80	73	Lost Power
2	2022	851.03	1.00	1.90	1.90	9.5	314	239	256	66	81	73	Pump off @ 2022
1	2138	853.32	1.00	1.90	1.90	9.5	314	249	251	61	82	37	Pump on @ 2135
End	2141	855.720	-	-	-	-	-	-	-	-	-	-	

METCO ENVIRONMENTAL

Formaldehyde Field Data

Job Number 96-011
Job Name ERM Southwest
Run Number 1
Unit RTO Dryer Stack #1
Date 16 Jan 96
Operator Grubbs, Smith, Smith
Sample Box No. M1 Meter Box No. 17-2

Read and record at the start of each test point.

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 72
Assumed Moisture % 23.0
Probe Length 10
C Factor ΔH10 - ΔP24.40 to reference
Initial Leak @ 16.0 "Hg = 0.010 cfm
Final Leak @ 17.0 "Hg = 0.006 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O	Orifice ΔH "H2O Desired (ΔPs)	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage (Pm)	Stack Temp °F (Ts)	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet (Tm)	Remarks
A12	1550	651.710	0.40	0.94	0.94	6.0	313	227	249	67	78	79	just orsat
11	1553	653.31	0.45	1.05	1.05	6.0	330	236	238	60	79	78	
10	1558	655.01	0.33	0.74	0.74	5.5	326	244	234	58	80	79	
9	1559	656.52	0.33	0.74	0.74	5.0	338	243	236	58	80	78	
8	1602	657.97	0.33	0.74	0.74	5.0	310	228	235	62	82	78	
7	1605	659.45	0.36	0.78	0.78	5.0	352	235	235	63	83	78	
6	1608	660.94	0.85	2.00	2.00	11.5	338	229	235	62	85	78	
5	1611	663.12	0.85	2.00	2.00	11.5	348	239	237	62	86	78	
4	1614	665.50	1.05	2.35	2.35	13.0	336	235	236	63	89	79	
5	1617	667.99	1.05	2.35	2.35	13.0	373	239	235	63	89	79	
2	1620	670.51	1.05	2.35	2.35	13.0	327	231	234	64	90	79	
1	1623	673.05	0.85	2.00	2.00	13.0	306	228	230	64	90	79	
End	1626	675.600	-	-	-	-	-	-	-	-	-	-	
B12	1638	675.600	0.50	1.15	1.15	7.0	337	225	229	69	82	79	
11	1641	677.28	0.46	1.10	1.16	7.0	308	249	226	63	83	79	
10	1644	679.09	0.50	1.15	1.15	7.0	348	267	230	60	84	79	
9	1647	680.91	0.58	1.35	1.35	8.0	323	266	262	59	85	79	
8	1650	682.82	0.58	1.35	1.35	8.0	352	256	261	58	87	79	

D-71

F-1

Pitot Tube Calibration Factor C_p 0.808 ✓
Volume Collected V_m 50.015 ✓ ft³
Water Collected V_w 309.8 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -0.20 ✓ "H2O

Pitot Tube No. 8-10-1
Baro. Press. P_b 29.90 ✓ "Hg
Probe Tip Dia. D_n 0.273 ✓ in.
% CO_2 4.0 ✓ % CO 0.0 ✓
% O_2 15.9 ✓ % N_2 80.1 ✓
Area Stack A_s ~~6459~~ 6468 ✓ in²

Barometer No. 17-2
Probe Tip No. 96-011-3
Total Volume of Leak Checks After Start: 0 ft³
V_m = Dry Gas Meter Calibration Factor 1.037 X 48.230

[Dry Gas Meter Reading — ft³ - (T_t — min. X Leak Rate — cfm)]

Impinger Box No. M-1

			Water Weight Gain		
Impinger 1	Final Weight	867.4		Impinger 1	156.8
	Initial Weight	710.6			
	Increase	156.8		Impinger 2	136.0
Impinger 2	Final Weight	861.8		Impinger 3	1.4
	Initial Weight	725.8			
	Increase	136.0		Impinger 4	15.6
			V_w =		
Impinger 3	Final Weight	487.6	g SO_2 =	Impinger 5	
	Initial Weight	486.2	V_w =		
	Increase	1.4		Impinger 6	
Impinger 4	Final Weight	849.6		Impinger 7	
	Initial Weight	834.0			
	Increase	15.6		Total	309.8 ✓ = V_w

Impinger 5	Final Weight		P_b =	29.90 ✓	$\%CO_2$ =	4.0 ✓
	Initial Weight		V_m =	50.015 ✓	$\%O_2$ =	15.9 ✓
	Increase		V_w =	309.8 ✓	%CO =	0.0 ✓
			P_m =	1.508 ✓	$\%N_2$ =	80.1 ✓
Impinger 6	Final Weight		Avg ΔP =	0.652 ✓	A_s =	6459 6468 ✓
	Initial Weight				D_n =	0.273 ✓
	Increase		Avg$\sqrt{\Delta P}$ =	0.794 ✓	T_t =	72 ✓
			C_p =	0.808 ✓		
Impinger 7	Final Weight		P_s =	-0.20 ✓ H_2O	29.89 ✓	"Hg
	Initial Weight		T_m =	82 ✓ °F	542 ✓	°R
	Increase		T_s =	335 ✓ °F	795 ✓	°R

Moisture Content: %M = 23.03 ✓ M_d = 0.7697 ✓ MW_d = 29.276 ✓ MW = 26.68 ✓

$$Vm_{std} = 17.65\ Vm \left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 50.015 \left[\frac{29.90 + \frac{1.508}{13.6}}{82 + 460}\right] = \frac{48.879 \text{ sft}^3 \checkmark}{0.679 \text{ scfm} \checkmark}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 309.8 = 14.623 ✓ sft^3

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}}$ x 100 = $\frac{14.623}{48.879 + 14.623}$ x 100 = 23.03 ✓ %

V_s = 5123.8 x 0.808 $\sqrt{\frac{795}{29.89 \times 26.68}}$ x 0.794 = 3282 ✓ fpm

ACFM: 147,421 ✓ 147,216 / 75,560 ✓

SCFM: 75,455

%I = $\frac{1{,}039 \times 48.879 \times 795}{0.7697 \times 29.89 \times 3282 \times 72 \times (.273)^2}$ = 99.6 ✓ %

%EA: 298.5 ✓

Run Number 1

Unit RTO Dryer Stack # 1

Date 16 Jan 96

Formaldehyde FIELD DATA

Point	Clock Time	Dry Gas Meter, CF	ΔP_s "Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	P_m Pump Vacuum "Hg Guage	T_s Stack Temp °F	T_m Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
7	1653	684.74	0.58	1.35	1.35	8.0	325	267	233	60	88	79	
6	1656	686.64	0.60	1.40	1.40	8.5	367	265	258	59	89	79	
5	1659	688.58	0.65	1.55	1.55	10.0	336	258	257	57	89	79	
4	1702	690.65	0.70	1.65	1.65	10.0	351	252	252	58	90	79	
3	1705	692.80	0.78	1.85	1.85	11.5	325	252	262	59	90	79	
2	1708	695.09	0.87	2.05	2.05	12.0	315	254	263	61	91	80	
1	1711	697.44	0.95	2.20	2.20	13.0	346	250	268	61	91	80	
End	1714	699.940	-	-	-	-	-	-	-	-	-	-	

METCO ENVIRONMENTAL

Job Number 96-011
Job Name ERM- Southwest
Run Number 2
Unit RTO Number 1 Stack
Date 17 Jan 96
Operator Grubbs, Smith, Smith G
Sample Box No. M-1 Meter Box No. 17-2

Formaldehyde Field Data

Read and record at the start of each test point.

Purge to: -
Purge time: -
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 69
Assumed Moisture % 23.0
Probe Length 10
C Factor ΔH10 - ΔP4.3 to reference
Initial Leak @ 15.5 "Hg = 0.000 cfm
Final Leak @ 16.5 "Hg = 0.000 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O	Orifice ΔH "H2O Desired	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F (T_s)	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet (T_m)	Dry Gas Temp. °F Outlet	Remarks
A12	1210	763.400	0.45	1.05	1.05	6.5	328	263	242	65	73	73	Integrated Orsat
11	1213	765.13	0.40	0.95	0.95	6.0	327	256	247	59	75	73	
10	1216	766.80	0.40	0.95	0.95	6.0	346	272	239	56	76	73	
9	1219	768.45	0.30	0.71	0.71	5.0	348	265	255	56	77	73	
8	1222	769.98	0.30	0.71	0.71	5.0	336	256	274	58	78	73	
7	1225	771.35	0.35	0.77	0.77	6.0	315	252	280	59	79	73	
6	1228	772.85	0.65	1.55	1.55	9.0	326	256	276	58	81	73	
5	1231	774.87	0.85	2.00	2.00	11.0	326	260	271	58	83	73	
4	1234	776.99	0.95	2.20	2.20	12.0	374	259	274	58	84	73	Pump on
3	1237	779.800	1.00	2.35	2.35	12.5	338	247	252	62	76	73	Pump off 1237 1347
2	1320	782.25	1.00	2.35	2.35	12.5	333	244	253	55	77	74	
1	1323	784.795	1.00	2.35	2.35	12.5	331	253	261	77	74	74	Pump off 1323
End	1350	787.340	-	-	-	-	-	-	-	-	-	-	Pump on 1347
B12	1406	787.340	0.40	0.92	0.92	6.0	323	246	245	66	75	73	ΔH10-4.40
11	1409	788.90	0.50	1.15	1.15	6.5	341	249	235	60	76	73	
10	1412	790.67	0.50	1.15	1.15	6.5	318	248	253	55	78	73	
9	1415	792.500	0.60	1.35	1.35	7.0	312	248	230	70	75	74	Pump off @ 1415
8	1448	794.39	0.65	1.50	1.50	8.0	327	247	232	57	76	74	Pump on @ 1451

Pitot Tube Calibration Factor C_p 0.808 ✓
Volume Collected V_m 49.993 ✓ ft³
Water Collected V_w 306.9 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -0.60 ✓ "H_2O

Pitot Tube No. S-10-1
Baro. Press. P_b 29.70 ✓ "Hg
Probe Tip Dia. D_n 0.273 ✓ in.
% CO_2 3.9 ✓ % CO 0.0 ✓
% O_2 16.2 ✓ % N_2 79.9 ✓
Area Stack A_s ~~4459~~ 6460 ✓ in²

Barometer No. 17-2
Probe Tip No. 96-011 - E
Total Volume of Leak Checks After Start: 0 ft³
V_m = Dry Gas Meter Calibration Factor 1.037 X 48.209

[Dry Gas Meter Reading - ft³ - (T_t - min. X Leak Rate - cfm)]

Impinger Box No. m1

			Water Weight Gain		
Impinger 1	Final Weight	854.0		Impinger 1	152.0
	Initial Weight	702.0			
	Increase	152.0		Impinger 2	141.4
Impinger 2	Final Weight	858.9		Impinger 3	3.0
	Initial Weight	717.5			
	Increase	141.4		Impinger 4	10.5
			V_w =		
Impinger 3	Final Weight	488.0	g SO_2 =	Impinger 5	
	Initial Weight	485.0	V_w =		
	Increase	3.0		Impinger 6	
Impinger 4	Final Weight	860.5		Impinger 7	
	Initial Weight	850.0			
	Increase	10.5		Total	306.9 = V_w
Impinger 5	Final Weight		P_b = 29.70	$\%CO_2$ = ~~3~~3.9	
	Initial Weight		V_m = 49.993	$\%O_2$ = 16.2	
	Increase		V_w = 306.9	%CO = 0.0	
			P_m = 1.496	$\%N_2$ = 79.9	
Impinger 6	Final Weight		Avg ΔP = 0.647	A_s = ~~6459~~ 6468	
	Initial Weight			D_n = 0.273	
	Increase		Avg$\sqrt{\Delta P}$ = 0.791	T_t = 72	
			C_p = 0.808		
Impinger 7	Final Weight		P_s = -0.60 H_2O	29.66 "Hg	
	Initial Weight		T_m = 75 °F	535 °R	
	Increase		T_s = 331 °F	791 °R	

Moisture Content: %M = 22.76 M_d = 0.7724 MW_d = 29.272 MW = 26.71

$$Vm_{std} = 17.65\ Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 49.993\left[\frac{29.70 + \frac{1.496}{13.6}}{75 + 460}\right] = \frac{49.166 \text{ sft}^3}{0.683 \text{ scfm}}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 306.9 = 14.486 sft^3

$$\%\text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{14.486}{49.166 + 14.486} \times 100 = 22.76\ \%$$

$$V_s = 5123.8 \times 0.808\sqrt{\frac{791}{29.66 \times 26.71}} \times 0.791 = 3272 \text{ fpm}$$

146,978

ACFM: ~~146,774~~

SCFM: ~~75,392~~ ~~75,287~~

$$\%I = \frac{1.039 \times 49.166 \times 791}{0.7724 \times 29.66 \times 3272 \times 72 \times (0.273)^2} = 100.5\ \%$$

%EA: 325.7

Run Number 2

Unit RTO Number 1 Stack

Date 17 Jan 96

Formaldehyde FIELD DATA

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O	Orifice ΔH "H2O Desired	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
			ΔP$_s$			P$_m$	T$_s$				T$_m$		
7	1457	796.48	0.55	1.25	1.25	8.0	310	246	236	50	77	73	Pump off @ 1500
6	1500	798.358	0.70	1.60	1.60	9.0	334	248	248	60	76	74	Pump on @ 1533
5	1536	800.38	0.68	1.55	1.55	9.0	319	254	253	52	76	74	
4	1539	802.43	0.70	1.60	1.60	9.0	327	249	242	49	78	73	
3	1542	804.52	0.70	1.60	1.60	9.0	325	253	241	49	79	73	
2	1545	806.62	1.00	2.25	2.25	13.5	355	247	253	48	80	74	
1	1548	809.06	0.90	2.05	2.05	13.0	317	243	252	49	81	74	
End	1551	811.609	-	-	-	-	-	-	-	-	-	-	

METCO ENVIRONMENTAL

Job Number 96-011
Job Name ERM Southwest
Run Number 3
Unit RTO Number 1 Stack
Date 18 Jan 96
Operator Grubbs, Smith, Smith 6
Sample Box No. M-1 Meter Box No. 17-2

Formaldehyde Field Data

Read and record at the start of each test point.

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 45
Assumed Moisture % 22.50
Probe Length 10
C Factor ΔH10 - ΔP4.46 to reference
Initial Leak @ 15.0 "Hg = 0.000 cfm
Final Leak @ 16.5 "Hg = 0.000 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O	Orifice ΔH "H2O Desired	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
A12	1215	902.330	0.44	1.00	1.00	6.0	338	260	201	49	70	69	Integrated Orsat
11	1218	903.92	0.38	0.78	0.78	5.0	315	263	210	43	70	69	
10	1221	905.44	0.38	0.78	0.78	5.0	328	264	223	42	71	69	
9	1224	906.95	0.38	0.78	0.78	5.0	316	280	227	45	72	69	
8	1227	908.44	0.30	0.69	0.69	5.0	333	241	230	49	73	69	
7	1230	909.87	0.30	0.69	0.69	5.0	323	233	226	43	74	69	
6	1233	911.30	0.30	0.69	0.69	5.0	330	267	229	41	76	69	
5	1236	912.70	0.70	1.60	1.60	8.0	325	267	236	41	78	69	
4	1239	914.63	0.85	1.95	1.95	10.0	312	268	235	40	80	70	
3	1242	916.85	1.00	2.30	2.30	12.0	318	261	229	39	81	70	
2	1245	919.26	1.00	2.30	2.30	12.0	311	265	228	38	82	70	
1	1248	921.74	1.10	2.50	2.50	14.5	320	262	230	38	83	70	
End	1251	924.533	—	—	—	—	—	—	—	—	—	—	
B12	1301	924.533	0.52	1.25	1.25	7.0	312	276	270	44	76	71	Δ10 - 4.20
11	1304	926.44	0.52	1.25	1.25	7.0	314	265	278	39	77	71	
10	1307	928.35	0.60	1.45	1.45	7.5	327	241	253	39	79	71	
9	1310	930.22	0.66	1.45	1.45	7.5	340	244	243	39	80	71	
8	1313	932.24	0.65	1.55	1.55	8.5	350	255	232	40	81	72	

Pitot Tube Calibration Factor C_p 0.808 ✓
Volume Collected V_m 49.232 ✓ ft³
Water Collected V_w 223.4 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -0.40 ✓ "H_2O

Pitot Tube No. 8-10-1 ✓
Baro. Press. P_b 29.86 ✓ "Hg
Probe Tip Dia. D_n 0.273 ✓ in.
% CO_2 3.8 ✓ % CO 0.0 ✓
% O_2 15.9 ✓ % N_2 80.3 ✓
Area Stack A_s ~~6459~~ 6468 ✓ in²

Barometer No. 17-2
Probe Tip No. 96-011-~~1~~ F-1
Total Volume of Leak Checks After Start: — ft³
V_m = Dry Gas Meter Calibration Factor 1.037 x 47.475

[Dry Gas Meter Reading — ft³ - (T_t — min. X Leak Rate — cfm)]

D-77

Impinger Box No. M-1

			Water Weight Gain		
Impinger 1	Final Weight	852.6		Impinger 1	143.6
	Initial Weight	709.0			
	Increase	143.6		Impinger 2	66.7
Impinger 2	Final Weight	787.7		Impinger 3	3.1
	Initial Weight	721.0			
	Increase	66.7		Impinger 4	10.0
			V_w =		
Impinger 3	Final Weight	488.8	g SO_2 =	Impinger 5	
	Initial Weight	485.7	V_w =		
	Increase	3.1		Impinger 6	
Impinger 4	Final Weight	870.0		Impinger 7	
	Initial Weight	860.0			
	Increase	10.0		Total	223.4 = V_w

Impinger 5	Final Weight		P_b =	29.86	$\%CO_2$ =	3.8
	Initial Weight		V_m =	49.232	$\%O_2$ =	15.9
	Increase		V_w =	223.4	%CO =	0.0
			P_m =	~~1.463~~ 1.471	$\%N_2$ =	80.3
Impinger 6	Final Weight		Avg ΔP =	~~0.604~~ 0.634	A_s =	~~0.459~~ 0.468
	Initial Weight				D_n =	0.273
	Increase		Avg $\sqrt{\Delta P}$ =	~~0.776~~ 0.783	T_t =	72
			C_p =	0.808		
Impinger 7	Final Weight		P_s =	0.40 "H_2O	29.83	"Hg
	Initial Weight		T_m =	75 °F	535	°R
	Increase		T_s =	327 °F	787	°R

Moisture Content: %M = 17.81 M_d = 0.8219 MW_d = 29.244 MW = 27.24

$$Vm_{std} = 17.65\ Vm \left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 49.232 \left[\frac{29.86 + \frac{1.463\ (1.471)}{13.6}}{75 + 460}\right] = \frac{48.674}{48.673}\ \text{sft}^3 = 0.676\ \text{scfm}$$

$Vw_{std} = 0.0472 \times Vw = 0.0472 \times 223.4 = 10.544\ \text{sft}^3$

$$\%\ \text{Moisture} = \frac{Vw_{std}}{Vm_{std} + Vw_{std}} \times 100 = \frac{10.544}{48.673\ (48.674) + 10.544} \times 100 = 17.81\ \%$$

$$V_s = 5123.8 \times 0.808 \sqrt{\frac{787}{29.83 \times 27.24}} \times \frac{0.776}{0.783} = 3162\ (3190)\ \text{fpm}$$

ACFM: 143,295 (141816) (79,061)

SCFM: 78258

$$\%I = \frac{1{,}039 \times 48.673\ (44.674) \times 787}{0.8219 \times 29.83 \times 3162\ (3190) \times 72 \times (0.273)^2} = 95.2\ (94.8)\ \%$$

%EA: 295.6

Run Number 96-011

Unit ERM South West

Date 18 Jan 96

formaldehyde FIELD DATA

Point	Clock Time	Dry Gas Meter, CF	ΔP_s "Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	P_m Pump Vacuum "Hg Guage	T_s Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	T_m Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
7	1316	934.07	0.68	1.65	1.65	10.0	358	254	232	41	83	72	
6	1319	936.42	0.64	1.50	1.50	9.5	330	252	232	41	84	72	
5	1322	938.51	0.70	1.65	1.65	10.0	317	247	243	42	84	72	
4	1325	940.65	0.77	1.85	1.85	10.0	341	242	250	43	85	73	
3	1328	942.88	0.70	1.65	1.65	10.0	328	243	260	43	85	73	
2	1331	945.00	0.85	2.00	2.00	12.0	340	235	268	44	86	73	
1	1334	947.35	085	2.00	2.00	12.0	317	229	258	45	86	73	
End	1337	949.805	-	-	-	-	-	-	-	-	-	-	

METCO ENVIRONMENTAL

Job Name 96-011
Job Number ERM Southwest
Run Number 1
Location RTO #2 Dryer Outlet
Date 1/16/96
Operator Hudson / Wood
Sample Box No. 11-1 Meter Box No. 11-2

Part SO_2 Field Data

Read and record at the start of each test point.

Purge to: 632.53
Purge time: 1446 - ~~1501~~
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 80
Assumed Moisture % 24.0
Probe Length 10'
C Factor 1.88 → 1.0 to reference
Initial Leak @ 17.0 "Hg = 0.007 cfm
Final Leak @ 10.0 "Hg = 0.000 cfm

Point	Clock Time	Dry Gas Meter, CF (ΔP_s)	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage (P_m)	Stack Temp °F (T_s)	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet (T_m)	Remarks
A 12	1315	583.919	0.52	0.80	0.80	4.0	348	244	245	68	88	87	init
11	1318	585.52	0.42	0.65	0.65	3.5	355	244	249	65	89	87	init
10	1321	586.82	0.43	0.66	0.66	3.5	307	238	246	65	90	87	
9	1324	588.11	0.33	0.49	0.49	3.5	349	237	246	65	91	87	
8	1327	589.51	0.38	0.44	0.44	3.5	310	239	244	67	92	87	
7	1330	590.64	0.40	0.62	0.62	3.5	344	239	245	67	93	87	
6	1333	592.32	0.59	0.90	0.90	4.0	342	241	244	67	95	88	
5	1336	593.91	0.89	1.40	1.40	5.5	306	235	253	67	97	87	
4	1339	595.58	0.90	1.40	1.40	5.5	355	239	251	67	99	88	
3	1342	597.45	0.95	1.45	1.45	6.0	308	242	257	67	100	88	
2	1345	599.53	1.00	1.50	1.50	6.5	342	241	255	66	101	89	
1	1348	601.36	0.94	1.45	1.45	6.5	327	244	260	66	102	89	
End A	1351	603.832	–	–	–	–	–	–	–	–	–	–	
B 12	1406	603.932	0.48	0.800	0.80	4.0	313	253	249	67	94	89	No mag ΔH 1.65-1
11	1409	605.33	0.55	0.90	0.90	4.5	346	251	239	67	95	89	
10	1412	606.91	0.52	0.88	0.88	4.5	304	241	251	67	95	89	
9	1415	608.59	0.60	1.10	1.10	5.0	343	250	248	66	97	90	
8	1418	610.34	0.71	1.20	1.20	5.0	351	245	239	64	98	90	

D-80

Pitot Tube Calibration Factor C_p 0.809 ✓
Volume Collected V_m 41.421 ✓ ft³
Water Collected V_w 266.1 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -0.5 ✓ "H_2O

Pitot Tube No. 12-10-1 ✓
Baro. Press. P_b 29.94 ✓ "Hg
Probe Tip Dia. D_n 0.251 ✓ in.
% CO_2 3.6 ✓ % CO 0.0 ✓
% O_2 15.6 ✓ % N_2 80.8 ✓
Area Stack A_s 6468 ✓ in²

Barometer No. #26 Probe Tip No. 95-011-3 E
Total Volume of Leak Checks After Start: – ft³
V_m = Dry Gas Meter Calibration Factor 0.995 x 41.629

[Dry Gas Meter Reading ___ ft³ - (T_t ___ min. X Leak Rate ___ cfm)]

Impinger Box No. 11-1

			Water Weight Gain		
Impinger 1	Final Weight	788.8		Impinger 1	106.0
	Initial Weight	682.8			
	Increase	106.0		Impinger 2	92.7
Impinger 2	Final Weight	782.7		Impinger 3	30.6
	Initial Weight	690.0			
	Increase	92.7		Impinger 4	3.6
			V_w =		
Impinger 3	Final Weight	728.0	g SO_2 =	Impinger 5	21.2
	Initial Weight	695.4	V_w =		
	Increase	32.6		Impinger 6	
Impinger 4	Final Weight	519.1		Total	256.1 ✓ = V_w
	Initial Weight	515.5			
	Increase	3.6	P_b = 29.94 ✓	$\%CO_2$ = 3.6 ✓	
			V_m = 41.421 ✓	$\%O_2$ = 15.6 ✓	
Impinger 5	Final Weight	848.5	V_w = 256.1 ✓	%CO = 0.0 ✓	
	Initial Weight	827.3	P_m = 1.043 ✓	$\%N_2$ = 80.8 ✓	
	Increase	21.2	Avg ΔP = 0.646 ✓	A_s = 6463 ✓	
				D_n = 0.251 ✓	
Impinger 6	Final Weight		Avg$\sqrt{\Delta P}$ = 0.793 ✓	T_t = 72 ✓	
	Initial Weight		C_p = 0.809 ✓		
	Increase		P_s = -0.50 ✓ "H_2O	29.90 ✓ "Hg	
			T_m = 93 ✓ °F	553 ✓ °R	
Impinger 7	Final Weight		T_s = 332 ✓ °F	792 ✓ °R	
	Initial Weight				
	Increase				

Moisture Content: %M = 23.35 ✓ M_d = 0.7665 ✓ MW_d = 29.200 ✓ MW = 26.58 ✓

$$Vm_{std} = 17.65\ Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 41.421\left[\frac{29.94 + \frac{1.043}{13.6}}{93 + 460}\right] = \frac{39.683\ \text{sft}^3}{0.551\ \text{scfm}}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 256.1 = 12.088 sft³

$$\%\ \text{Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{12.088}{39.683 + 12.088} \times 100 = 23.35\ \%$$

$$V_s = 5123.8 \times 0.809\sqrt{\frac{792}{29.90 \times 26.58}} \times 0.793 = 3277\ \text{fpm}$$

ACFM: 147209 ✓

SCFM: 75441 ✓

$$\%I = \frac{1{,}039 \times 39.683 \times 792}{0.7665 \times 72 \times 3277 \times 29.90 \times (0.251)^2} = 95.8\ \%$$

%EA: 268.4 ✓

Run Number #1

Unit RTO #2 Dryer Outlet

Date 1/16/96

Particulate SO_2 FIELD DATA

			ΔP_s			P_m	T_s				T_m		
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
7	1421	612.23	0.76	1.25	1.25	5.5	310	239	237	64	100	90	
6	1424	614.51	0.70	1.20	1.30	5.5	350	240	240	65	101	90	
5	1427	616.10	0.61	1.05	1.05	5.0	320	240	237	65	102	91	
4	1430	617.90	0.50	0.85	0.85	5.0	349	240	245	66	102	91	
3	1433	619.53	0.75	1.30	1.30	5.0	335	240	245	68	103	91	
2	1436	621.39	0.87	1.50	1.50	6.0	304	240	241	66	104	91	
1	1439	623.65	0.72	1.25	1.25	6.0	344	239	237	66	105	91	
End All	1442	625.547	—	—	—	—	—	—	—	—	—	—	

METCO ENVIRONMENTAL

Job Number 96-011
Job Name ERM Southwest
Run Number 2
Unit RTO #2 Dryer Outlet (Stk)
Date 1/17/96
Operator Hudson/Wood
Sample Box No. 11-1 Meter Box No. 11-2

Part SO2 Field Data

Read and record at the start of each test point.

Purge to: 726.749
Purge time: 0957-1012
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 65
Assumed Moisture % 23
Probe Length 10'
C Factor 1.7 ⇒ 1.0 to reference
Initial Leak @ 16.5 "Hg = 0.00 cfm
Final Leak @ 8.0 "Hg = 0.00 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O ΔPs	Orifice ΔH "H2O Desired	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage Pm	Stack Temp °F Ts	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet Tm	Dry Gas Temp. °F Outlet Tm	Remarks
A 12	0820	676.308	0.50	0.85	0.85	3.0	340	253	270	61	84	83	Integrated Orsat
11	0823	677.98	0.42	0.72	0.72	3.0	335	250	269	57	84	83	
10	0826	679.36	0.44	0.74	0.74	3.0	335	251	268	57	85	84	
9	0829	680.87	0.31	0.53	0.53	3.0	329	246	264	59	86	83	
8	0832	682.22	0.31	0.53	0.53	3.0	328	247	263	59	86	83	
7	0835	683.46	0.41	0.70	0.70	3.0	349	252	262	60	89	83	
6	0838	684.82	0.50	0.85	0.85	3.5	306	251	264	60	89	84	
5	0841	686.31	0.95	1.60	1.60	5.0	337	252	264	59	90	84	
4	0844	688.39	0.94	1.60	1.60	5.0	311	252	263	57	93	84	
3	0847	690.59	1.10	1.90	1.90	5.0	340	253	261	57	94	84	
2	0850	692.89	1.10	1.90	1.90	5.5	332	255	263	58	97	84	
1	0853	694.61	0.96	1.60	1.60	5.0	304	253	264	59	98	85	
End A	0856	697.545	–	–	–	–	–	–	–	–	–	–	
B 12	0910	697.545	0.50	0.87	0.87	3.5	329	241	245	68	89	85	
11	0913	699.09	6.48	0.84	0.84	3.5	303	241	249	65	90	85	
10	0916	700.70	0.50	0.87	0.87	3.5	328	241	246	62	91	85	
9	0919	702.23	0.69	1.20	1.20	4.0	335	241	245	62	93	85	
8	0922	704.19	0.57	1.00	1.00	4.0	327	237	245	61	94	86	

Pitot Tube Calibration Factor C_p 0.808 ✓
Volume Collected V_m 43.151 ✓ ft³
Water Collected V_w 255.5 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -0.55 ✓ "H2O

Pitot Tube No. 12-10-1 ✓
Baro. Press. P_b 29.75 ✓ "Hg
Probe Tip Dia. D_n 0.251 ✓ in.
% CO_2 3.6 ✓ % CO 0.0 ✓
% O_2 16.6 ✓ % N_2 79.8 ✓
Area Stack A_s 6468 ✓ in²

Barometer No. 17-2 Probe Tip No. 96-011-E-3
Total Volume of Leak Checks After Start: – ft³
V_m = Dry Gas Meter Calibration Factor 43368 X 0.995

[Dry Gas Meter Reading ____ ft³ - (T_t ____ min. X Leak Rate ____ cfm)]

Impinger Box No. 11-2

			Water Weight Gain		
Impinger 1	Final Weight	770.0		Impinger 1	~~86.6~~ 112
	Initial Weight	~~683.4~~ 658.0			
	Increase	~~86.6~~ 112		Impinger 2	~~118.8~~ 94.7
Impinger 2	Final Weight	807.5		Impinger 3	~~29.9~~ 26.3
	Initial Weight	~~688.7~~ 712.8			
	Increase	~~118.8~~ 94.7		Impinger 4	2.4
			V_w =		
Impinger 3	Final Weight	724.9	g SO_2 = -	Impinger 5	20.1
	Initial Weight	~~694.9~~ 698.5	V_w =		
	Increase	~~29.9~~ 26.3		Impinger 6	
Impinger 4	Final Weight	491.8		Impinger 7	
	Initial Weight	~~519.4~~ 489.4			
	Increase	2.4		Total	255.5 ✓ = V_w

Impinger 5	Final Weight	904.3	P_b =	29.75 ✓	%CO_2 =	3.6 ✓	
	Initial Weight	~~848.5~~ 894.2	V_m =	43.151 ✓	%O_2 =	16.6 ✓	
	Increase	20.1	V_w =	255.5 ✓	%CO =	0.0 ✓	
			P_m =	1.152 ✓	%N_2 =	79.8 ✓	
Impinger 6	Final Weight		Avg ΔP =	0.670 ✓	A_s =	6468 ✓	
	Initial Weight				D_n =	0.251 ✓	
	Increase		Avg$\sqrt{\Delta P}$ =	0.805 ✓	T_t =	6472 ✓	
			C_p =	0.808 ✓			
Impinger 7	Final Weight		P_s =	-0.55 ✓ "H_2O		29.71 ✓	"Hg
	Initial Weight		T_m =	88 ✓ °F		548 ✓	°R
	Increase		T_s =	327 ✓ °F		787 ✓	°R

Moisture Content: %M = 22.53 ✓ M_d = 0.7747 ✓ MW_d = 29.24 ✓ MW = 26.71 ✓

$$Vm_{std} = 17.65\ Vm \left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 43.151 \left[\frac{29.75 + \frac{+1.152}{13.6}}{88 + 460}\right] = \frac{41.465 \text{ ✓ sft}^3}{0.576 \text{ ✓ scfm}}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 255.5 = 12.060 ✓ sft^3

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}}$ x 100 = $\frac{12.060}{41.465 + 12.060}$ x 100 = ~~0~~22.53 ✓ %

V_s = 5123.8 x $\frac{0.808}{\sqrt{\frac{787}{29.71 \times 26.71}}}$ x 0.805 = 3319 ✓ fpm

ACFM: 149,075 ✓

SCFM: 77,222 ✓

%I = $\frac{1,039 \times 787 \times 41.465}{0.7747 \times 72 \times 3319 \times 29.71 \times (0.251)^2}$ = 97.8 ✓ %

%EA: 365.1 ✓

Run Number 2

Unit RTO #2 Dryer Outlet (stk)

Date 1/17/96

Particulate SO_2 FIELD DATA

			ΔP_s		P_m		T_s				T_m		
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
7	0925	705.92	0.72	1.25	1.25	4.5	326	242	245	61	95	85	
6	0928	707.87	0.80	1.40	1.40	4.5	337	243	241	61	96	86	
5	0931	710.05	0.70	1.20	1.20	5.0	343	242	247	63	98	86	Pump off 711.083 0933 Re Pump On 0
4	0934	711.65	0.75	1.30	1.30	5.0	310	239	243	68	92	86	
3	0945	713.52	0.70	1.20	1.20	4.5	331	237	234	66	94	86	
2	0948	715.60	0.86	1.50	1.50	5.0	305	239	236	65	95	86	
1	0951	717.63	0.86	1.50	1.50	5.0	328	237	232	66	97	87	
End Run	0954	719.676	–	–	–	–	–	–	–	–	–	–	

METCO ENVIRONMENTAL

Job Number 96-011
Job Name ERM Southwest
Run Number 3
Unit RTO #2 Dryer Outlet (Stk)
Date 1/17/95
Operator Hudson / Wood
Sample Box No. 11-2 Meter Box No. 11-2

Port SO2 Field Data

Read and record at the start of each test point.

Purge to: 819.387
Purge time: 2144 - 2159
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 65
Assumed Moisture % 22.7
Probe Length 10'
C Factor 1.7 = 21.0 to reference
Initial Leak @ 15.0 "Hg = 0.000 cfm
Final Leak @ 8.0 "Hg = 0.000 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O	Orifice ΔH "H2O Desired	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
		ΔPs				Pm		Ts				Tm	
A 12	1750	767.044	0.56	0.98	0.98	3.0	365	240	241	68	88.85	86	
11	1753	768.69	0.40	0.69	0.69	3.0	331	254	247	67	86	86	
10	1756	770.29	0.40	0.69	0.69	3.0	328	254	251	66	88	86	
9	1759	771.56	0.49	0.83	0.83	3.0	339	241	260	66	89	86	
8	1802	773.25	0.35	0.60	0.60	3.0	329	250	261	64	91	87	
7	1805	774.781	0.55	0.94	0.94	3.0	333	240	270	68	88	87	Pump off 1805 774.78 on Pump off @ 18
6	1828	776.59	0.75	1.30	1.30	3.0	315	241	272	68	89	87	
5	1831	778.32	0.84	1.45	1.45	4.0	372	240	265	68	92	86	
4	1834	780.54	0.95	1.60	1.60	4.5	319	241	264	67	93	87	
3	1837	782.87	1.00	1.70	1.70	4.5	322	240	261	67	95	87	
2	1840	784.912	1.10	1.85	1.85	5.0	335	242	260	68	89	87	Pump off 1840 784.912 Pump on 19
1	1913	787.36	0.86	1.45	1.45	4.5	319	240	258	67	90	87	Leak Ck. 785.110 - 0.198
End A	1918	789.443	-	-	-	-	-	-	-	-	-	-	
B 12	1927	789.751	0.50	0.90	0.90	3.0	317	239	241	68	89	87	Leak Ck. -0.308
11	1930	791.31	0.65	1.15	1.15	3.5	327	243	240	64	90	87	
10	1933	793.12	0.60	1.10	1.10	3.5	311	251	239	61	92	87	
9	1936	795.31	0.70	1.25	1.25	4.0	324	256	242	60	93	88	
8	1939	796.95	0.70	1.25	1.25	4.0	321	232	243	60	95	88	

Pitot Tube Calibration Factor C_p 0.809 ✓
Volume Collected V_m 44.590 ✓ ft³
Water Collected V_w 274.0 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -0.50 ✓ "H2O

Pitot Tube No. 12-10-1 ✓
Baro. Press. P_b 29.56 ✓ "Hg
Probe Tip Dia. D_n 0.251 ✓ in.
% CO_2 3.8 ✓ % CO 0.0 ✓
% O_2 16.2 ✓ % N_2 80.0 ✓
Area Stack A_s 6460 ✓ in²

Barometer No. 18-1
Probe Tip No. 95-011-3E
Total Volume of Leak Checks After Start: 0.506 ft³
V_m = Dry Gas Meter Calibration Factor 44.814 X 0.995

[Dry Gas Meter Reading ___ ft³ - (T_t ___ min. X Leak Rate ___ cfm)]

Impinger Box No. 11-2

			Water Weight Gain		
Impinger 1	Final Weight	785.0		Impinger 1	127.0
	Initial Weight	658.0			
	Increase	127.0		Impinger 2	96.6
Impinger 2	Final Weight	810.0		Impinger 3	27.3
	Initial Weight	713.4			
	Increase	96.6		Impinger 4	2.5
			V_w =		
Impinger 3	Final Weight	726.1	g SO_2 =	Impinger 5	20.6
	Initial Weight	698.8	V_w =		
	Increase	27.3		Impinger 6	
Impinger 4	Final Weight	494.0		Impinger 7	
	Initial Weight	491.5			
	Increase	2.5		Total	274.0 ✓ = V_w

Impinger 5	Final Weight	925.1	P_b =	29.56 ✓	%CO_2 =	3.8 ✓
	Initial Weight	904.5	V_m =	44.590 ✓	%O_2 =	16.2 ✓
	Increase	20.6	V_w =	274.0 ✓	%CO =	0.0 ✓
			P_m =	~~1.207~~ 1.196 ✓	%N_2 =	80.0 ✓
Impinger 6	Final Weight		Avg ΔP =	0.687 ✓	A_n =	6468 ✓
	Initial Weight				D_n =	0.251 ✓
	Increase		Avg$\sqrt{\Delta P}$ =	0820 ✓	T_t =	72 ✓
			C_p =	0.808 ✓		
Impinger 7	Final Weight		P_s =	-0.50 ✓ "H_2O		29.52 ✓ "Hg
	Initial Weight		T_m =	89 ✓ °F		549 ✓ °R
	Increase		T_s =	328 ✓ °F		~~786788~~ 786788 °R

Moisture Content: %M = 23.33 ✓ M_d = 0.7667 ✓ MW_d = 29.256 ✓ MW = 26.63 ✓

$$Vm_{std} = 17.65\ Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 44.590\left[\frac{29.56 + \frac{1.196}{13.6}}{89 + 460}\right] = \frac{42.502 \checkmark}{\text{~~42.503~~ sft}^3}$$

$$0.590 \checkmark \text{ scfm}$$

$Vw_{std} = 0.0472 \times Vw = 0.0472 \times 274.0 = 12.933$ ✓ sft³

$$\% \text{ Moisture} = \frac{Vw_{std}}{Vm_{std} + Vw_{std}} \times 100 = \frac{12.933}{42.502 \text{ ~~42.503~~} + 12.933} \times 100 = 23.33 \checkmark \%$$

$$V_s = 5123.8 \times 0.908 \sqrt{\frac{786788}{29.52 \times 26.63}} \times 0.920 = \text{~~3395~~ } 3399 \checkmark \text{ fpm}$$

ACFM: ~~152,473~~ 152,667 ✓ ~~77,668~~

SCFM: ~~77,774~~

$$\%I = \frac{1{,}039 \times \text{~~42.503~~ } 42.502 \times 786788}{0.7667 \times 3395 \times 72 \times 29.52 \times (0.251)^2} = \text{~~99.6~~ } 99.7 \checkmark \%$$

%EA: 324.0 ✓

Run Number #3 — Part SO2 — FIELD DATA

Unit RTO #2 Dryer Outlet (STK)

Date 1/17/95

Point	Clock Time	Dry Gas Meter, CF	ΔP_s "Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	P_m Pump Vacuum "Hg Guage	T_s Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	T_m Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
7	1942	799.00	0.67	1.20	1.20	4.0	308	236	241	59	96	88	
6	1945	800.798	0.64	1.05	1.05	3.5	324	239	236	68	89	88	Pump off @ 1945 Become Pump on @ 2010
5	2013	802.51	0.600	1.05	1.05	3.5	330	241	235	62	90	88	
4	2016	804.38	0.55	0.98	0.98	3.5	314	245	238	59	91	87	
3	2019	806.31	0.85	1.50	1.50	4.0	344	250	241	58	93	87	Pump on @ 2021 808.167
2	2022	808.167	0.98	1.60	1.60	4.0	317	240	230	67	86	86	Unit Down Pump off @ 2025
1	2138	810.12	0.87	1.50	1.50	4.5	319	235	232	66	87	86	
End All	2141	812.364	—	—	—	—	—	—	—	—	—	—	

METCO ENVIRONMENTAL

Job Number 96-011
Job Name ERM Southwest
Run Number 1
Unit RTO #2 Dryer Outlet
Date 1/16/96
Operator Hudson / Wood
Sample Box No. 11-1 Meter Box No. 11-2

Formaldehyde Field Data

Read and record at the start of each test point.

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 83
Assumed Moisture % 23
Probe Length 10'
C Factor 1.4⇒1.0 to reference
Initial Leak @ 15.0 "Hg = 0.021 cfm
Final Leak @ 12.0 "Hg = 0.000 cfm

Point	Clock Time	Dry Gas Meter, CF (V_m)	"Pitot" "H_2O (ΔP_s)	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage (P_m)	Stack Temp °F (T_s)	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet (T_m)	Dry Gas Temp. °F Outlet (T_m)	Remarks
B12	1550	632.845	0.45	0.62	0.62	3.5	332	234	240	68	92	91	int orsat
11	1553	634.00	0.48	0.68	0.68	4.0	347	235	241	68	92	91	
10	1556	635.29	0.66	0.92	0.92	4.5	331	244	242	61	93	91	
9	1559	637.18	0.58	0.80	0.80	4.5	311	251	237	58	94	91	
8	1602	638.61	0.36	0.50	0.50	3.5	304	232	236	60	95	91	
7	1605	639.91	0.70 0.52	0.97	0.97	4.5	341	235	238	61	96	91	
6	1608	641.70	0.88	1.20	1.20	5.0	337	240	242	61	97	91	
5	1611	643.28	0.65	0.92	0.92	4.5	329	250	248	60	98	91	
4	1614	645.16	0.63	0.87	0.87	4.5	319	252	243	61	99	91	
3	1617	646.61	0.81	1.10	1.10	5.0	340	229	242	61	100	91	
2	1620	648.47	0.86	1.20	1.20	5.0	327	229	243	61	101	91	
1	1623	650.25	0.83	1.15	1.15	5.0	309	231	254	62	102	91	
End B	1626	652.033	—	—	—	—	—	—	—	—	—	—	
A 12	1638	652.033	0.040	0.560	0.56	3.0	314	230	245	65	096	92	
11	1641	653.25	0.44	0.60	0.60	3.0	341	232	258	62	96	92	
10	1644	654.61	0.35	0.56	0.56	3.0	331	236	261	61	97	92	
9	1647	655.95	0.40	0.60	0.60	3.0	332	231	268	60	97	92	
8	1650	657.40	0.30	0.48	0.48	3.0	340	237	257	62	97	92	

Pitot Tube Calibration Factor C_p 0.807 ✓
Volume Collected V_m 39.855 ✓ ft³
Water Collected V_w 240.4 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -0.35 ✓ "H_2O

Pitot Tube No. 18-102 ✓
Baro. Press. P_b 29.90 ✓ "Hg
Probe Tip Dia. D_n 0.236 ✓ in.
% CO_2 4.0 ✓ % CO 0.0 ✓
% O_2 15.9 ✓ % N_2 80.1 ✓
Area Stack A_s 6468 ✓ in²

Barometer No. 26
Probe Tip No. 96-011E1
Total Volume of Leak Checks After Start: — ft³
V_m = Dry Gas Meter Calibration Factor 40.055 X 0.995 ✓

[Dry Gas Meter Reading — ft³ - (T_t — min. X Leak Rate — cfm)]

Impinger Box No. 21

			Water Weight Gain		
Impinger 1	Final Weight	847.8		Impinger 1	156.1
	Initial Weight	691.7			
	Increase	156.1		Impinger 2	69.0
Impinger 2	Final Weight	787.0		Impinger 3	0.0
	Initial Weight	718.0			
	Increase	69.0		Impinger 4	15.3
			V_w =		
Impinger 3	Final Weight	485.0	g SO_2 =	Impinger 5	
	Initial Weight	485.0	V_w =		
	Increase	0.0		Impinger 6	
Impinger 4	Final Weight	845.3		Impinger 7	
	Initial Weight	830.0			
	Increase	15.3		Total	240.4 = V_w

Impinger 5	Final Weight		P_b =	29.90	$\%CO_2$ =	4.0
	Initial Weight		V_m =	39.855	$\%O_2$ =	15.9
	Increase		V_w =	240.4	%CO =	0.0
			P_m =	0.922	$\%N_2$ =	80.1
Impinger 6	Final Weight		Avg ΔP =	~~0.933~~ 0.641	A_s =	6469
	Initial Weight				D_n =	0.236
	Increase		Avg$\sqrt{\Delta P}$ =	0.788	T_t =	72
			C_p =	0.807		
Impinger 7	Final Weight		P_s =	-0.35 H_2O		29.87 °Hg
	Initial Weight		T_m =	95 °F		555 °R
	Increase		T_s =	328 °F		788 °R

Moisture Content: %M = 23.00 M_d = 0.7700 MW_d = 29.276 MW = 26.68

$$Vm_{std} = 17.65\ Vm \left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 39.855 \left[\frac{29.90 + \frac{0.922}{13.6}}{95 + 460}\right] = \frac{37.983}{0.528}\ \text{scfm}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 240.4 = 11.347 sft^3

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{11.347}{37.983 + 11.347} \times 100 = 23.00$ %

$V_s = 5123.8 \times 0.807 \sqrt{\frac{788}{29.87 \times 26.68}} \times 0.788 = 328$ fpm

ACFM: 145530

SCFM: 75235

$\%I = \frac{1{,}039 \times 37.983 \times 788}{0.7700 \times 72 \times 3240 \times 29.87 \times (0.236)^2} = 104.0$ %

%EA: 298.5

Run Number 1

Unit RTO #2 Dryer Outlet (STK)

Date 1/16/96

Formaldehyde (0011) FIELD DATA

			ΔP_s			P_m	T_s				T_m		
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H$_2$O	Orifice ΔH "H$_2$O Desired	Orifice ΔH "H$_2$O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
7	1653	658.69	0.35	0.56	0.56	3.0	311	239	247	60	98	92	
6	1656	659.94	0.55	0.88	0.88	3.5	331	238	244	60	99	92	
5	1659	661.48	0.88	1.40	1.40	4.5	326	236	238	57	101	92	
4	1702	663.80	0.90	1.45	1.45	5.0	317	239	243	56	103	92	
3	1705	665.45	0.95	1.50	1.50	5.0	341	238	242	56	104	92	
2	1708	667.78	0.99	1.60	1.60	5.0	315	237	241	56	105	92	
1	1711	669.87	0.99	1.60	1.00	5.0	347	239	242	56	106	92	
End Avg	1714	672.970	-	—	—	—	-	-	—	—	—	—	

METCO ENVIRONMENTAL

Job Number 96-011
Job Name ERM Southwest
Run Number 2
Unit RTO #2 Dryer Outlet (STK)
Date 1/17/96
Operator Hudson / Wood
Sample Box No. 21 Meter Box No. 11-2

~~FORMALDEHYDE~~ Field Data

Read and record at the start of each test point.

Purge to: -
Purge time: -
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 70
Assumed Moisture % 22.5
Probe Length 10'
C Factor 1.33 → 1.0 to reference
Initial Leak @ 15.0 "Hg = 0.005 cfm
Final Leak @ 11.5 "Hg = 0.004 cfm

Point	Clock Time	Dry Gas Meter, CF (V_m)	"Pitot" "H_2O (ΔP_s)	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage (P_m)	Stack Temp °F (T_s)	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet (T_m)	Dry Gas Temp. °F Outlet (T_m)	Remarks
B12	1210	727.160	0.43	0.58	0.58	2.5	311	241	251	67	86	86	Integrated Orsat
11	1213	728.58	0.40	0.54	0.54	2.5	329	240	250	67	86	86	
10	1216	729.81	0.50	0.67	0.67	3.0	330	241	246	65	87	86	
9	1219	731.11	0.70	0.94	0.94	3.5	320	244	239	62	88	86	
8	1222	732.78	0.65	0.87	0.87	3.5	323	243	245	61	90	87	
7	1225	734.43	0.82	1.10	1.10	3.5	310	246	249	60	91	87	
6	1228	736.19	0.82	1.10	1.10	3.5	335	245	249	62	93	86	
5	1231	737.88	0.66	0.89	0.89	3.5	329	247	251	62	94	86	
4	1234	739.71	0.70	0.94	0.94	3.5	332	246	250	62	95	86	Pump off at 1237 741.356 Pump on @ 1237
3	1237	741.356	0.83	1.10	1.10	4.0	329	250	242	67	89	87	
2	1320	742.99	0.80	1.05	1.05	4.0	325	248	241	66	89	87	
1	1323	744.917	0.85	1.15	1.15	4.0	323	247	248	68	88	87	Pump off @ 1323 744.917 Pump on @ 1324
END B	1350	746.796	-	-	-	-	-	-	-	-	-	-	
A 12	1406	746.796	0.47	0.64	0.64	3.0	312	240	241	71	89	87	
11	1409	748.00	0.43	0.59	0.59	3.0	355	245	270	65	89	87	
10	1412	749.60	0.38	0.52	0.52	3.0	306	250	270	64	89	87	
9	1415	750.676	0.35	0.48	0.48	3.0	313	241	256	68	88	87	Pump off @ 1415 750.676 Pump on @ 1415
8	1454	751.88	0.30	0.41	0.41	2.5	337	240	256	66	89	87	

Pitot Tube Calibration Factor C_p 0.807 ✓
Volume Collected V_m 36.819 ✓ ft^3
Water Collected V_w 219.0 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -0.60 ✓ "H_2O

Pitot Tube No. 18-10-2 ✓
Baro. Press. P_b 29.70 ✓ "Hg
Probe Tip Dia. D_n 0.236 ✓ in.
% CO_2 3.3 ✓ % CO 0.0 ✓
% O_2 16.2 ✓ % N_2 80.0 ✓
Area Stack A_s 6468 ✓ in^2

Barometer No. 17-1
Probe Tip No. 96-011-B
Total Volume of Leak Checks After Start: - ft^3
V_m = Dry Gas Meter Calibration Factor 37.004 X 0.995 ←

[Dry Gas Meter Reading ___ ft^3 - (T_t ___ min. X Leak Rate ___ cfm)]

Impinger Box No. 21

			Water Weight Gain		
Impinger 1	Final Weight	883.0		Impinger 1	197.7
	Initial Weight	685.3			
	Increase	197.7		Impinger 2	14.5
Impinger 2	Final Weight	725.0		Impinger 3	6.8
	Initial Weight	710.5			
	Increase	14.5		Impinger 4	6.0
			V_w =		
Impinger 3	Final Weight	487.8	g SO_2 = -	Impinger 5	
	Initial Weight	487.0	V_w =		
	Increase	0.8		Impinger 6	
Impinger 4	Final Weight	850.0		Impinger 7	
	Initial Weight	844.0			
	Increase	6.0		Total	219.0 = V_w

Impinger 5	Final Weight		P_b =	29.70	%CO_2 =	3.8
	Initial Weight		V_m =	36.819	%O_2 =	16.2
	Increase		V_w =	219.0	%CO =	0.0
			P_m =	0.818	%N_2 =	80.0
Impinger 6	Final Weight		Avg ΔP =	0.606	A_s =	6468
	Initial Weight				D_n =	0.236
	Increase		Avg$\sqrt{\Delta P}$ =	0.767	T_t =	72
			C_p =	0.807		
Impinger 7	Final Weight		P_s =	-0.60 H_2O		29.66 "Hg
	Initial Weight		T_m =	89 °F		548 °R
	Increase		T_s =	323 °F		783 °R

Moisture Content: %M = 22.65 M_d = 0.7735 MW_d = 29.256 MW = 26.71

$$Vm_{std} = 17.65\ Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 36.819\left[\frac{29.70 + \frac{+0.818}{13.6}}{88 + 460}\right] = \frac{35.292\ \text{sft}^3}{0.490\ \text{scfm}}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 219.0 = 10.337 sft^3

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{10.337}{35.292 + 10.337} \times 100 = 22.65\%$

V_s = 5123.8 x $0.807\sqrt{\frac{783}{29.66 \times 26.71}}$ x 0.767 = 3153 fpm

ACFM: 141,621

SCFM: 73,497

%I = $\frac{1{,}039 \times 35.292 \times 783}{0.7735 \times 72 \times 29.66 \times 3153 \times (0.236)^2} = 99.0\%$

%EA: 324

Run Number 2

Unit RTO #2 Dryer Outlet

Date 1/17/96

Formaldehyde FIELD DATA

			ΔP_s		P_m		T_s				T_m		
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks 754.10 ~~755.80~~
7	1457	752.80	0.30	0.41	0.41	2.5	312	240	256	65	89	87	Pump off @ 1500 Pump on @ 15
6	1500	754.106	0.36	0.49	0.49	2.5	333	241	255	67	88	87	
5	1536	755.19	0.71	0.97	0.97	4.0	315	238	256	65	89	87	
4	1539	757.00	0.80	1.10	1.10	4.0	320	242	254	62	91	88	
3	1542	758.76	0.90	1.20	1.20	4.5	318	241	249	59	91	87	
2	1545	760.74	0.70	0.96	0.96	4.0	305	245	259	58	93	87	
1	1548	762.50	0.68	0.93	0.93	4.0	336	246	251	62	94	89	
End	1551	764.164	—	—	—	—	—	—	—	—	—	—	

METCO ENVIRONMENTAL

Job Number 96-011
Job Name ERM Southwest
Run Number 3
Unit RTO #2 Dryer Outlet (STK)
Date 1/18/96
Operator Hudson/Wood
Sample Box No. 21 Meter Box No. 11-2

Formaldehyde Field Data

Read and record at the start of each test point.

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 63 48
Assumed Moisture % 22.5
Probe Length 10'
C Factor 1.33 → 1.0 to reference
Initial Leak @ 5.0 "Hg = 0.004 cfm
Final Leak @ 6.0 "Hg = 0.007 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O	Orifice ΔH "H2O Desired	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
		ΔPs				Pm	Ts				Tm		
B12	1215	830.125	0.47	0.63	0.63	3.0	333	231	256	64	77	76	Integrated Orsat
11	1218	831.44	0.58	0.75	0.75	3.0	341	234	250	63	77	76	
10	1221	832.99	0.50	0.67	0.67	3.0	309	236	251	63	77	76	
9	1224	834.28	0.41	0.55	0.55	2.5	349	240	243	66	77	76	
8	1227	835.59	0.62	0.83	0.83	3.0	314	240	236	67	78	76	
7	1230	837.11	0.60	0.80	0.80	3.0	337	241	237	62	79	76	
6	1233	838.79	0.72	0.97	0.97	3.0	360	242	236	61	81	76	
5	1236	840.21	0.74	0.99	0.99	3.5	361	241	250	60	82	76	
4	1239	842.04	0.82	1.10	1.10	3.5	340	241	268	59	83	76	
3	1242	844.00	0.88	1.20	1.20	4.0	356	239	241	58	85	76	
2	1245	845.79	0.82	1.10	1.10	4.0	314	241	241	57	86	76	
1	1248	847.61	0.91	1.20	1.20	4.0	367	242	232	56	87	76	
End B	1251	849.300	—	—	—	—	—	—	—	—	—	—	
A-12	1301	849.300	0.45	0.60	0.60	3.0	310	241	238	59	91	76	
11	1304	850.61	0.50	0.67	0.67	3.0	338	240	235	56	80	76	
10	1307	852.19	0.43	0.58	0.58	3.0	350	241	237	55	81	76	
9	1310	853.29	0.40	0.54	0.54	3.0	345	236	236	55	82	76	
8	1313	854.68	0.40	0.54	0.54	3.0	317	241	231	55	82	77	

Pitot Tube Calibration Factor C_p 0.807 ✓
Volume Collected V_m 37.765 ✓ ft³
Water Collected V_w 178.9 ✓ ml
Time of Test T_t 72 ✓ min.
Stack Pressure P_s -0.40 ✓ "H2O

Pitot Tube No. 18-102 ✓
Baro. Press. P_b 29.86 ✓ "Hg
Probe Tip Dia. D_n 0.236 ✓ in.
% CO_2 3.5 ✓ % CO 0.0 ✓
% O_2 16.8 ✓ % N_2 79.7 ✓
Area Stack A_s 6468 ✓ in²

Barometer No. 18-1
Probe Tip No. 96-011-#1
Total Volume of Leak Checks After Start: — ft³
V_m = Dry Gas Meter Calibration Factor 37.955 X 0.995 ✓

[Dry Gas Meter Reading — ft³ - (T_t — min. X Leak Rate — cfm)]

D-95

Impinger Box No. 21

			Water Weight Gain		
Impinger 1	Final Weight	843.8		Impinger 1	152.6
	Initial Weight	691.2			
	Increase	152.6		Impinger 2	17.1
Impinger 2	Final Weight	733.0		Impinger 3	1.1
	Initial Weight	715.9			
	Increase	17.1		Impinger 4	8.1
			V_w =		
Impinger 3	Final Weight	488.4	g SO_2 =	Impinger 5	
	Initial Weight	487.3	V_w =		
	Increase	1.1		Impinger 6	
Impinger 4	Final Weight	858.0		Impinger 7	
	Initial Weight	849.9			
	Increase	8.1		Total	178.9 = V_w

Impinger 5	Final Weight		P_b =	29.96	$\%CO_2$ =	3.5
	Initial Weight		V_m =	37.765	$\%O_2$ =	16.8
	Increase		V_w =	178.9	%CO =	0.0
			P_m =	0.880	$\%N_2$ =	79.7
Impinger 6	Final Weight		Avg ΔP =	0.655	A_s =	6468
	Initial Weight				D_n =	0.236
	Increase		Avg$\sqrt{\Delta P}$ =	0.801	T_t =	72
			C_p =	0.807		
Impinger 7	Final Weight		P_s =	-0.40 "H_2O	29.83	"Hg
	Initial Weight		T_m =	79 °F	539	°R
	Increase		T_s =	339 °F	798	°R

Moisture Content: %M = 18.58 M_d = 0.8142 MW_d = 29.232 MW = 27.145

$$Vm_{std} = 17.65\ Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 37.765\left[\frac{29.96 + \frac{0.880}{13.6}}{79 + 460}\right] = \frac{37.006\ \text{sft}^3}{0.514\ \text{scfm}}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 178.9 = 8.444 sft^3

$$\%\ \text{Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{8.444}{37.006 + 8.444} \times 100 = 18.58\ \%$$

$$V_s = 5123.8 \times \frac{0.807}{\sqrt{\frac{798}{29.83 \times 27.15}}} \times 0.801 = 3288\ \text{fpm}$$

ACFM: 147671

SCFM: 79,614

$$\%I = \frac{1{,}039 \times 37.006 \times 798}{0.8142 \times 3288 \times 72 \times 29.83 \times (0.236)^2} = 95.8\ \%$$

%EA: 398

Run Number 3

Unit RTO #2 Dryer Stk.

Date 1/18/96

Formaldehyde FIELD DATA

Point	Clock Time	Dry Gas Meter, CF	ΔP_s "Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	P_m Pump Vacuum "Hg Guage	T_s Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	T_m Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Remarks
7	1316	855.81	0.50	0.67	0.67	2.5	336	239	244	55	83	76	
6	1319	857.28	0.68	0.92	0.92	3.0	340	241	262	55	84	76	
5	1322	858.89	0.85	~~0.72~~ 1.15	1.15	3.5	343	240	270	54	85	76	
4	1325	860.68	0.88	1.20	1.20	4.0	309	240	270	54	87	76	
3	1328	862.45	0.83	1.10	1.10	4.0	349	240	249	57	88	77	
2	1331	864.40	0.92	1.25	1.25	4.0	355	241	256	54	89	76	
1	1334	866.21	0.81	1.10	1.10	4.0	350	241	250	55	90	77	
End All	1337	868.080	–	–	–	–	–	–	–	–	–	–	

PRELIMINARY VELOCITY TRAVERSE DATA
AND
SAMPLING LOCATION DATA

Job No. 96-11

Job Name Ellen Gantwot 2

Sampling Location Project # outlet

Stack Height 80 ft.

Sampling Port Height Above Ground 4/4 ft.

Date 1/15/96 Time 1330

	Port A	Port B	Port C	Port D	Average
Port & Inside Diameter (in.)	48 ✓	48 ✓			48 ✓
Port & Wall Thickness (in.)	6¼ ✓	6¼ ✓			6¼ ✓
Inside Stack Diameter (in.)	42¼ 41 3/4 ✓	41 3/4 ✓ 10.11 ✓			41 3/4 ✓

Sampling Ports are 35 ft. 2 in. (stack diameters) downstream of disturbance (inlet, constriction, bend, expansion)

Sampling Ports are 8 ft. 10 in. (2.54 ✓ stack diameters) upstream of disturbance (outlet, constriction, bend, expansion)

Point Number	Percent Diameter	Distance from Ref. Point (decimal in.)	Distance from Ref. Point (fractional in.)	Port A ΔP / T_s / α	Port B ΔP / T_s / α	Port C ΔP / T_s / α	Port D ΔP / T_s / α
1	2.1	0.987	1"	0.005 901	/ /	/ /	/ /
2	6.7	2.831	2 13/16	0.005 901	/ /	/ /	/ /
3	11.8	4.986	4 5	0.010 901	/ /	/ /	/ /
4	17.7	7.478	7 1/2	0.010 901	/ /	/ /	/ /
5	25.0	10.563	10 9/16	0.015 901	/ /	/ /	/ /
6	35.6	15.041	15 1/16	0.015 901	/ /	/ /	/ /
7	64.4	27.209	27 3/16	0.020 901	/ /	/ /	/ /
8	75.0	31.688	31 11/16	0.029 901	/ /	/ /	/ /
9	82.3	34.772	34 3/4	0.020 901	/ /	/ /	/ /
10	88.2	37.265	37 1/4	0.015 901	/ /	/ /	/ /
11	93.3	39.419	39 7/16	0.010 901	/ /	/ /	/ /
12	97.9	41.363	41 3/8	0.005 901	/ /	/ /	/ /
13		1.837 ✓		/ /	/ /	/ /	/ /
14	4.4 ✓	1.[illegible]	1 7/8 13/16	1.30 1.20 3 1 8	1.30 1.21 2 1 4	/ /	/ /
15	14.6 ✓	6.[illegible]096 ✓	6 [illegible] 1/8	1.35 1.20 3	1.30 1.21 3 1 5	/ /	/ /
16	29.6 ✓	12.[illegible] ✓	12 [illegible]	2.05 1.20 5 1 6	2.20 1.21 3 1 10	/ /	/ /
17	70.4 ✓	29.[illegible]392	29 [illegible] 3/8	2.40 1.20 6 1 10	1.90 1.21 2 1 8	/ /	/ /
18	85.4 ✓	36.[illegible]	[illegible] 35 5/8	2.30 2.06 1 5	2.10 1.21 1 5	/ /	/ /
19	95.6 ✓	40.[illegible] 39.913	40 3/8 39 15/16 ✓	1.70 1.20 5 1 4	1.35 1.20 8 1 4	/ /	/ /
20				/ /	/ /	/ /	/ /
21				/ /	/ /	/ /	/ /
22				/ /	/ /	/ /	/ /
23				/ /	/ /	/ /	/ /
24				/ /	/ /	/ /	/ /

Pitot Tube No. 3 ✓

C_p = 0.799 ✓

P_b = 30.00 ✓ "Hg

P_s = −13.0 ✓ "H_2O 29.04 ✓ "Hg

A = 1369 ✓ $in.^2$

D-98

Average ΔP 1.813 ✓

Average $\sqrt{\Delta P}$ 1.338 ✓

Average T_s 208 ✓ °F

Average α 5.2 ✓ degrees

PRELIMINARY VELOCITY TRAVERSE DATA
AND
SAMPLING LOCATION DATA

Job No. 96-011
Job Name ERM Southwest
Stack Height 90 ft.
Sampling Location Dryer #3 outlet
Sampling Port Height Above Ground 44 ft.
Date 15 Jan. 96 Time 1630

	Port A	Port B	Port C	Port D	Average
Port & Inside Diameter (in.)	48 ✓	48 ✓	—	—	48 ✓
Port & Wall Thickness (in.)	6 1/4 ✓	6 1/4 ✓	—	—	6 1/4 ✓
Inside Stack Diameter (in.)	41 3/4 ✓	41 3/4 ✓	—	—	41 3/4 ✓

Sampling Ports are 35 ft. 0 in. (10.11 ✓ stack diameters) downstream of disturbance (inlet, constriction, bend, expansion)
Sampling Ports are 7 ft. 7 1/2 in. (2.19 ✓ stack diameters) upstream of disturbance (outlet, constriction, bend, expansion)

Point Number	Percent Diameter	Distance from Ref. Point (decimal in.)	Distance from Ref. Point (fractional in.)	Port A ΔP / T_s / α	Port B ΔP / T_s / α	Port C ΔP / T_s / α	Port D ΔP / T_s / α
1	4.4 ✓	1.837 ✓	1 13/16 ✓	1.50 / 211 / 2	1.65 / 210 / 8	/ /	/ /
2	14.6 ✓	6.096 ✓	6 1/8 ✓	1.90 / 211 / 4	1.80 / 212 / 2	/ /	/ /
3	29.6 ✓	12.358 ✓	12 3/8 ✓	2.00 / 215 / 6	1.90 / 243 / 2	/ /	/ /
4	70.4 ✓	29.392 ✓	29 3/8 ✓	1.95 / 214 / 8	2.00 / 213 / 6	/ /	/ /
5	85.4 ✓	35.6595 ✓	35 5/8 ✓	1.90 / 243 / 6	1.95 / 243 / 10	/ /	/ /
6	95.6 ✓	39.913 ✓	39 15/16 ✓	1.50 / 211 / 5	1.50 / 212 / 6	/ /	/ /
7				/ /	/ /	/ /	/ /
8				/ /	/ /	/ /	/ /
9				/ /	/ /	/ /	/ /
10				/ /	/ /	/ /	/ /
11				/ /	/ /	/ /	/ /
12				/ /	/ /	/ /	/ /
13				/ /	/ /	/ /	/ /
14				/ /	/ /	/ /	/ /
15				/ /	/ /	/ /	/ /
16				/ /	/ /	/ /	/ /
17				/ /	/ /	/ /	/ /
18				/ /	/ /	/ /	/ /
19				/ /	/ /	/ /	/ /
20				/ /	/ /	/ /	/ /
21				/ /	/ /	/ /	/ /
22				/ /	/ /	/ /	/ /
23				/ /	/ /	/ /	/ /
24				/ /	/ /	/ /	/ /

Pitot Tube No. 12 -
C_p = 0.811
P_b = 30.20 "Hg
P_s = -11.8 "H_2O 29.33 "Hg ✓
A_s = 1369 ✓ $in.^2$ ✓

Average ΔP 1.796 ✓
Average $\sqrt{\Delta P}$ 1.338 ✓
Average T_s 212 °F ✓
Average α 5.4 ✓ degrees

PRELIMINARY VELOCITY TRAVERSE DATA
AND
SAMPLING LOCATION DATA

Job Number 96-11

Job Name ERM SW

Sampling Location Dryer #4 Outlet Duct

Date 1/15/96 Time _____

Stack Height — ft.

Sampling Port Height Above Ground 41 ✓ ft.

	Port A	Port B	Port C	Port D	Average
Port & Inside Diameter (in.)	48 ✓	48 1/4 ✓			48 1/8 ✓
Port & Wall Thickness (in.)	6 ✓	6 1/4 ✓			6 1/8 ✓
Inside Stack Diameter (in.)	42 ✓	42 ✓			42 ✓

Sampling Ports are 35 ft. 2 in. (10.05 ✓ stack diameters) downstream from disturbance (inlet, constriction, bend, expansion)

Sampling Ports are 7 ft. ~~8~~ 2 in. (2.05 ✓ stack diameters) upstream from disturbance (outlet, constriction, bend, expansion)

Point Number	Percent Diameter	Distance from Ref. Point (decimal in.)	Distance from Ref. Point (fractional in.)	Port A $\Delta P/T_s\alpha$	Port B $\Delta P/T_s\alpha$	Port C $\Delta P/T_s\alpha$	Port D $\Delta P/T_s\alpha$
1	4.4 ✓	1.848 ✓	1 7/8 ✓	1.30 1781-5	1.25 1781-5	/ /	/ /
2	14.6 ✓	6.132 ✓	6 1/8 ✓	1.90 1781-5	1.50 1791-5	/ /	/ /
3	29.6 ✓	12.432 ✓	12 7/16 ✓	1.70 1780-6	1.20 1801-3	/ /	/ /
4	70.4 ✓	29.568 ✓	29 9/16 ✓	1.55 1804	1.50 1791+3	/ /	/ /
5	85.4 ✓	35.868 ✓	35 ~~7/8~~ 7/8 ✓	1.50 1811+6	1.75 1790	/ /	/ /
6	95.6 ✓	40.152 ✓	40 ~~9~~ 1/8 ✓	1.60 1811+6	1.25 1160+5	/ /	/ /
7				/ /	/ /	/ /	/ /
8				/ /	/ /	/ /	/ /
9				/ /	/ /	/ /	/ /
10				/ /	/ /	/ /	/ /
11				/ /	/ /	/ /	/ /
12				/ /	/ /	/ /	/ /
13				/ /	/ /	/ /	/ /
14				/ /	/ /	/ /	/ /
15				/ /	/ /	/ /	/ /
16				/ /	/ /	/ /	/ /
17				/ /	/ /	/ /	/ /
18				/ /	/ /	/ /	/ /
19				/ /	/ /	/ /	/ /
20				/ /	/ /	/ /	/ /
21				/ /	/ /	/ /	/ /
22				/ /	/ /	/ /	/ /
23				/ /	/ /	/ /	/ /
24				/ /	/ /	/ /	/ /

Pitot Tube No. 19-32

C_p = 0.809 (low)

P_b = 30.00 "Hg

P_s = -1.8 "H_2O 29.13 "Hg

A_s = 1385 ✓ in.^{2} /

Average ΔP 1.50

Average $\Delta P^{1/2}$ 1.222

Average T_s 177 °F

Average α ~~10~~ 5.1 ✓ degrees

PRELIMINARY VELOCITY TRAVERSE DATA
AND
SAMPLING LOCATION DATA

Job Number 96-11

Job Name ERM Southwest

Stack Height 80 ft.

Sampling Location #5 Dryer Outlet Stack

Sampling Port Height Above Ground 44 ft.

Date 1/15/96 Time 1700

	Port A	Port B	Port C	Port D	Average
Port & Inside Diameter (in.)	4 7/8 ✓	4 7/8 ✓	—	—	47/8 ✓
Port & Wall Thickness (in.)	6/48 ✓	6 1/4 ✓	—	—	6 3/16 ✓
Inside Stack Diameter (in.)	41 5/8 ✓	41 3/4 ✓	—	—	41 1/16 ✓

Sampling Ports are 35 ft. 0 in. (10.07 ✓ ~~10.08~~ stack diameters) downstream from disturbance (inlet, constriction, bend, expansion)

Sampling Ports are 9 ft. 0 in. (2.59 ✓ stack diameters) upstream from disturbance (outlet, constriction, bend, expansion)

Point Number	Percent Diameter	Distance from Ref. Point (decimal in.)	Distance from Ref. Point (fractional in.)	Port A $\Delta P/T_s/\alpha$	Port B $\Delta P/T_s/\alpha$	Port C $\Delta P/T_s/\alpha$	Port D $\Delta P/T_s/\alpha$
1	4.4 ✓	1.834 ✓	1 13/16 ✓	1.30 / 167 / 10°-	1.40 / 168 / 15°-	/ /	/ /
2	14.6 ✓	6.086 ✓	6 1/16 ✓	1.60 / 171 / 15°+	1.40 / 169 / 15°-	/ /	/ /
3	29.6 ✓	12.340 ✓	12 5/16 ✓	1.60 / 175 / 10°+	1.50 / 170 / 15°-	/ /	/ /
4	70.4 ✓	29.348 ✓	29 3/8 ✓	1.80 / 174 / 10°-	1.70 / 173 / 15°+	/ /	/ /
5	85.4 ✓	35.601 ✓	35 5/8 ✓	1.80 / 173 / 15°+	2.10 / 173 / 15°+	/ /	/ /
6	95.6 ✓	39.853 ✓	39 7/8 ✓	1.30 / 169 / 10°-	1.40 / 168 / 15°+	/ /	/ /
7				/ /	/ /	/ /	/ /
8				/ /	/ /	/ /	/ /
9				/ /	/ /	/ /	/ /
10				/ /	/ /	/ /	/ /
11				/ /	/ /	/ /	/ /
12				/ /	/ /	/ /	/ /
13				/ /	/ /	/ /	/ /
14				/ /	/ /	/ /	/ /
15				/ /	/ /	/ /	/ /
16				/ /	/ /	/ /	/ /
17				/ /	/ /	/ /	/ /
18				/ /	/ /	/ /	/ /
19				/ /	/ /	/ /	/ /
20				/ /	/ /	/ /	/ /
21				/ /	/ /	/ /	/ /
22				/ /	/ /	/ /	/ /
23				/ /	/ /	/ /	/ /
24				/ /	/ /	/ /	/ /

Pitot Tube No. _____

C_p = _____

P_b = _____ "Hg

P_s = -9.50 "H_2O _____ "Hg

A_s = 13.65 ✓ in.²

Average ΔP 1.575

Average $\Delta P^{1/2}$ ~~1.255~~ 1.252

Average T_s 121 °F

Average α 7.5 ✓ degrees

PRELIMINARY VELOCITY TRAVERSE DATA
AND
SAMPLING LOCATION DATA

Job Number 96-011
Job Name ERM Southwest
Sampling Location RTO Dryer Stack ~~#2~~ 1
Date 15 Jan 96 Time 1900

Stack Height 50 ft.
Sampling Port Height Above Ground 40 ft.

	Port A	Port B	Port C	Port D	Average
Port & Inside Diameter (in.)	98" ✓	97 3/4" ✓			97 7/8 ✓
Port & Wall Thickness (in.)	7/8" ✓	7/8 ✓			7/8 ✓ 90 3/4" ✓
Inside Stack Diameter (in.)	90 7/8 ✓	90 5/8 ✓			~~90 11/16~~

Sampling Ports are 17 ft. 7 in. (2.33 ✓ stack diameters) downstream from disturbance (inlet) constriction, bend, expansion)

Sampling Ports are 10 ft. 0 in. (1.32 ✓ stack diameters) upstream from disturbance (outlet), constriction, bend, expansion)

Point Number	Percent Diameter	Distance from Ref. Point (decimal in.)	Distance from Ref. Point (fractional in.)	Port A $\Delta P/T_s/\alpha$	Port B $\Delta P/T_s/\alpha$	Port C $\Delta P/T_s/\alpha$	Port D $\Delta P/T_s/\alpha$
1	2.1 ✓	1.906 ✓	1 7/8 ✓	0.751342 7	0.741356 7	/ /	/ /
2	6.7 ✓	6.080 ✓	6 1/16 ✓	0.901343 8	0.961343 7	/ /	/ /
3	11.8 ✓	10.709 ✓	10 11/16 ✓	0.851360 8	0.82 1359 7	/ /	/ /
4	17.7 ✓	16.063 ✓	16 1/16 ✓	0.751381 7	0.751344 6	/ /	/ /
5	25.0 ✓	22.688 ✓	22 11/16 ✓	0.571351 3	0.551347 6	/ /	/ /
6	35.6 ✓	32.307 ✓	32 5/16 ✓	0.601343 1	0.621340 7	/ /	/ /
7	64.4 ✓	58.443 ✓	58 ~~3/16~~ 7/16 ✓	0.601334 6	0.601336 6	/ /	/ /
8	75.0 ✓	68.063 ✓	68 1/16 ✓	0.561359 4	0.501347 8	/ /	/ /
9	82.3 ✓	74.687 ✓	74 11/16 ✓	0.521356 2	0.541351 9	/ /	/ /
10	88.2 ✓	80.042 ✓	80 1/16 ✓	0.501354 6	0.481352 2	/ /	/ /
11	93.3 ✓	84.670 ✓	84 11/16 ✓	0.381350 9	0.461350 1	/ /	/ /
12	97.9 ✓	88.844 ✓	88 7/8 ✓	0.381340 8	0.381341 3	/ /	/ /
13				/ /	/ /	/ /	/ /
14				/ /	/ /	/ /	/ /
15				/ /	/ /	/ /	/ /
16				/ /	/ /	/ /	/ /
17				/ /	/ /	/ /	/ /
18				/ /	/ /	/ /	/ /
19				/ /	/ /	/ /	/ /
20				/ /	/ /	/ /	/ /
21				/ /	/ /	/ /	/ /
22				/ /	/ /	/ /	/ /
23				/ /	/ /	/ /	/ /
24				/ /	/ /	/ /	/ /

Pitot Tube No. 17-10-1
C_p = 0.808
P_b = 30.02 "Hg
P_s = -0.50 "H_2O 29.98 "Hg
A_s = ~~.459~~ .6468 ✓ in.²

Average ΔP 0.615
Average $\Delta P^{1/2}$ 0.778
Average T_s 347 °F
Average α 5.8 ✓ degrees

PRELIMINARY VELOCITY TRAVERSE DATA
AND
SAMPLING LOCATION DATA

Job Number 96-11
Job Name Edm SW
Sampling Location RTO Dryer Outlet #2
Date 1/15/96 Time 1500

Stack Height 50' 2" ft.
Sampling Port Height Above Ground 40' ft.

	Port A	Port B	Port C	Port D	Average
Port & Inside Diameter (in.)	97 1/2 ✓	97 1/2 ✓			97 1/2 ✓
Port & Wall Thickness (in.)	6 3/4 ✓	6 3/4 ✓			6 3/4 ✓
Inside Stack Diameter (in.)	90 3/4 ✓	90 3/4 ✓			90 3/4 ✓

Sampling Ports are 17 ft. 10 in. (2.36 ✓ stack diameters) downstream from disturbance (inlet, constriction, bend, expansion)

Sampling Ports are 10 ft. 2 in. (1.34 ✓ stack diameters) upstream from disturbance (outlet, constriction, bend, expansion)

Point Number	Percent Diameter	Distance from Ref. Point (decimal in.)	Distance from Ref. Point (fractional in.)	Port A ΔP/T$_s$α	Port B ΔP/T$_s$α	Port C ΔP/T$_s$α	Port D ΔP/T$_s$α
1	2.1 ✓	1.906 ✓	1 15/16 7/8 ✓	1.10 1336 3	0421307 2	/ /	/ /
2	6.7 ✓	6.080 ✓	6 1/16 ✓	1.20 1329 1	0.34 1312 1	/ /	/ /
3	11.8 ✓	10.709 ✓	10 11/16 ✓	1.10 1320 1	0531315 1-3	/ /	/ /
4	17.7 ✓	16.063 ✓	16 1/16 ✓	077 1322 0	0561320 5	/ /	/ /
5	25.0 ✓	22.688 ✓	22 11/16 ✓	1.00 1341 0	0641331 0	/ /	/ /
6	35.6 ✓	32.307 ✓	32 5/16 ✓	0.57 1309-1	0601337 0	/ /	/ /
7	64.4 ✓	58.443 ✓	58 7/16	055 1321-2	055 1344-1	/ /	/ /
8	75.0 ✓	69.063 ✓	68 1/16 ✓	035 1318 0	062 1328 0	/ /	/ /
9	82.3 ✓	74.687 ✓	74 11/16 ✓	0.31 1354 1	059 1328+2	/ /	/ /
10	88.2 ✓	80.042 ✓	80 1/16 ✓	0.33 1351 1	067 1334 0	/ /	/ /
11	93.3 ✓	84.670 ✓	84 11/16 ✓	0.33 1330 3	057 1341-1	/ /	/ /
12	97.9 ✓	88.844 ✓	88 7/8 ✓	0.42 1335 1	066 1335 0	/ /	/ /
13				/ /	/ /	/ /	/ /
14				/ /	/ /	/ /	/ /
15				/ /	/ /	/ /	/ /
16				/ /	/ /	/ /	/ /
17				/ /	/ /	/ /	/ /
18				/ /	/ /	/ /	/ /
19				/ /	/ /	/ /	/ /
20				/ /	/ /	/ /	/ /
21				/ /	/ /	/ /	/ /
22				/ /	/ /	/ /	/ /
23				/ /	/ /	/ /	/ /
24				/ /	/ /	/ /	/ /

Pitot Tube No. 18-10-1
C_p = 0.807
P_b = 30.04 "Hg
P_s = -0.35 "H_2O 30.01 "Hg
A_s = 6468 ✓ in.^{2}

Average ΔP 0.616
Average $\Delta P^{1/2}$ 0.770
Average T_s 329 °F
Average α ~~0.54~~ 1.2 ✓ degrees

APPENDIX E

Analytical Data

METCO Environmental

Particulate Analysis Summary

Job Number 96-11
Job Name ERM Southwest
Location Gilabee, AZ.

Date Analysis Completed 1-25-96
Unit Tested #2 Dryer Stack

Run No.	1	2	3		
Particulate on Filter (mg)	315.9	244.3	237.8		
Particulate in Front Wash (mg)*	133.6	72.8	52.2		
MF (mg)	449.5	317.1	290.0		
Particulate in Impinger #1 (mg)	185.4	128.6	165.9		
MT (mg)	634.9	445.7	455.9		

HT ✓

Mary Hunter
Analyst

* Less Acetone Residue

METCO Environmental

Particulate Analysis EPA Method 5

Stack Filters

Job Number 96-11 Location Silsbee, Tx

Job Name ERM Unit Tested Dryer #2

Desiccator Time In	800 1/19					
Desiccator Time Out	1435 1/22	955 1/23		1620 1/24		

Run No. 1 one of two Filter No. E35					
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)				✓	
Filter & Particulate (g)	0.8026	0.8045	0.8041		

Filter & Particulate Average (g) 0.8043

Initial Filter Weight (g) 0.6308

Total Particulate (mg) 173.5

Run No. 1 two of two Filter No. E31					
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)				✓	
Filter & Particulate (g)	0.7790	0.7803	0.7799		

Filter & Particulate Average (g) 0.7801

Initial Filter Weight (g) 0.6377

Total Particulate (mg) 142.4

Total 315.9 mg

Run No. 2 one of two Filter No. F131					
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)				✓	
Filter & Particulate (g)	0.6686	0.6710	0.6705		

Filter & Particulate Average (g) 0.6708

Initial Filter Weight (g) 0.6028

Total Particulate (mg) 68.0

Run No. 2 two of two Filter No. E36					
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)				✓	
Filter & Particulate (g)	0.8115	0.8174	0.8172		

Filter & Particulate Average (g) 0.8173

Initial Filter Weight (g) 0.6410

Total Particulate (mg) 176.3

Total 244.3 mg

Analyst

METCO Environmental

Particulate Analysis EPA Method 5

Stack Filters

Job Number 96-11 Location Gilbee, Fl

Job Name ERM Unit Tested Dryer #2

Desiccator Time In	800 1/19	1			
Desiccator Time Out	1500 1/22	1005 1/23	900 1/25		

Run No. 3 one of two Filter No. F132					
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)				✓	
Filter & Particulate (g)	0.7180	0.7206	0.7201		

Filter & Particulate Average (g) 0.7204

Initial Filter Weight (g) 0.6143

Total Particulate (mg) 106.1

Run No. 3 two of two Filter No. G1					
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)				✓	
Filter & Particulate (g)	0.7394	0.7444	0.7439		

Filter & Particulate Average (g) 0.7442

Initial Filter Weight (g) 0.6125

Total Particulate (mg) 131.7

Total 237.8

Run No. _____ Filter No. _____					
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)					
Filter & Particulate (g)					

Filter & Particulate Average (g) _____

Initial Filter Weight (g) _____

Total Particulate (mg) _____

Run No. _____ Filter No. _____					
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)					
Filter & Particulate (g)					

Filter & Particulate Average (g) _____

Initial Filter Weight (g) _____

Total Particulate (mg) _____

MG

Analyst

METCO Environmental

Particulate Analysis EPA Method 5

Front Wash

Job Number 96-11 Location Silsbee, Tx.

Job Name ERM Unit Tested #2 Dryer

Desiccator Time In	1130 1/19	1615 1/22			
Desiccator Time Out	1605 1/22	1130 1/23			

Run No. 1	Volume (ml) 635				
Final Weight (g)	141.7655	141.7655	✓		
Initial Weight (g)	141.6269	141.6269			
Particulate Weight (g)	0.1386	0.1386			

Particulate Average (mg) 138.6
Less Acetone Blank (mg) 5.0 ✓
Total Particulate (mg) 133.6 ✓

Run No. 2	Volume (ml) 614				
Final Weight (g)	145.3675	145.3673	✓		
Initial Weight (g)	145.2897	145.2897			
Particulate Weight (g)	0.0778	0.0776			

Particulate Average (mg) 77.7 ✓
Less Acetone Blank (mg) 4.9 ✓
Total Particulate (mg) 72.8 ✓

Run No. 3	Volume (ml) 466				
Final Weight (g)	143.8855	143.8858	✓		
Initial Weight (g)	143.8298	143.8298			
Particulate Weight (g)	0.0557	0.0560			

Particulate Average (mg) 55.9 ✓
Less Acetone Blank (mg) 3.7 ✓
Total Particulate (mg) 52.2 ✓

Acetone Blank	Volume (ml) 275				
Final Weight (g)	128.5488	128.5486	✓		
Initial Weight (g)	128.5460	128.5460			
Difference (g)	0.0028	0.0026			

Average (mg) 2.7 ✓
* mg/l 9.8 ✓

* Note: If greater than 7.9 mg/l, use 7.9 mg/l.

MG
Analyst

METCO Environmental

Particulate Analysis EPA Method 5

Back Half Analysis

Job Number 96-11 Location Gilbee, Ty.

Job Name ERM Unit Tested #2 Dryer

Desiccator Time In	1645	1/22	925	1/23		
Desiccator Time Out	915	1/23	1445	1/24		

Run No. 1	Volume (ml) 760				
Final Weight (g)	147.4867	147.4850	✓ <1%		
Initial Weight (g)	147.3000	147.3000			
Particulate Weight (g)	0.1857	0.1850			

Particulate Average (mg) 185.4

Less Ammonium Sulfate (mg) —

Total Particulate (mg) 185.4

Run No. 2	Volume (ml) 700				
Final Weight (g)	163.9163	163.9157	✓ <1%		
Initial Weight (g)	163.7874	163.7874			
Particulate Weight (g)	0.1289	0.1283			

Particulate Average (mg) 128.6

Less Ammonium Sulfate (mg) —

Total Particulate (mg) 128.6

Run No. 3	Volume (ml) 753				
Final Weight (g)	173.2645	173.2635	✓ <1%		
Initial Weight (g)	173.0981	173.0981			
Particulate Weight (g)	0.1664	0.1654			

Particulate Average (mg) 165.9

Less Ammonium Sulfate (mg) —

Total Particulate (mg) 165.9 ✓

Run No. DI Blank	Volume (ml) 400				
Final Weight (g)	159.9036	159.9031	✓		
Initial Weight (g)	159.8997	159.8997			
Particulate Weight (g)	0.0039	0.0034			

Particulate Average (mg) 3.7

~~Less Ammonium Sulfate~~ (mg) 9.25 mg/l

Total Particulate (mg) 9.25 mg/l

Analyst

METCO Environmental

Particulate Analysis Summary

Job Number 96-11
Job Name ERM Southwest
Location Silsbee, Tx.

Date Analysis Completed 1-25-96
Unit Tested #3 Dryer Outlet Stack

Run No.	1	2	3		
Particulate on Filter (mg)	262.1	273.3	221.0		
Particulate in Front Wash (mg)*	30.8	84.4	55.3		
MF (mg)	292.9	357.7	276.3		
Particulate in Impinger #1 (mg)	97.7	140.3	164.2		
MT (mg)	390.6	498.0	440.5		

#T ✓

Mary Gunter
Analyst

* Less Acetone Residue

METCO Environmental

Particulate Analysis EPA Method 5

Stack Filters

Job Number 96-11 Location Silsbee, La.

Job Name ERM Unit Tested #3 Dryer

Desiccator Time In	1/21/96	1410 1/22	955 1/23		
Desiccator Time Out	1400 1/22	945 1/23	1620 1/24	908 1/25	

Run No. 1	Filter No. H2				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)					
Filter & Particulate (g)	0.8658	0.8671	0.8658	0.8653	

Filter & Particulate Average (g) 0.8656

Initial Filter Weight (g) 0.6035

Total Particulate (mg) 262.1

Run No. 2	Filter No. E33				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)					
Filter & Particulate (g)	0.9082	0.9112	0.9098	0.9094	

Filter & Particulate Average (g) 0.9096

Initial Filter Weight (g) 0.6363

Total Particulate (mg) 273.3

Run No. 3 one of two	Filter No. G2				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)					
Filter & Particulate (g)	0.6801	0.6792	0.6787		

Filter & Particulate Average (g) 0.6790

Initial Filter Weight (g) 0.6128

Total Particulate (mg) 66.2

Run No. 3 two of two	Filter No. F130				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)					
Filter & Particulate (g)	.7573	0.7571			

filter torn at edge

Filter & Particulate Average (g) 0.7572

Initial Filter Weight (g) 0.6024

Total Particulate (mg) 154.8

MB

Analyst

METCO Environmental

Particulate Analysis EPA Method 5

Front Wash

Job Number 96-11 Location Silsbee, Tx.

Job Name ERM Southwest Unit Tested #3 Dryer

Desiccator Time In	1130 1/22/96	1604 1/22			
Desiccator Time Out	1558 1/22	1113 1/23			

Run No. 1	Volume (ml) 448				
Final Weight (g)	118.9137	118.9142	✓		
Initial Weight (g)	118.8797	118.8797			
Particulate Weight (g)	0.0340	0.0345			

Particulate Average (mg) 34.3 ✓

Less Acetone Blank (mg) 3.5 ✓

Total Particulate (mg) 30.8 ✓

Run No. 2	Volume (ml) 520				
Final Weight (g)	164.8442	164.8443	✓		
Initial Weight (g)	164.7558	164.7558			
Particulate Weight (g)	0.0884	0.0885			

Particulate Average (mg) 88.5 ✓

Less Acetone Blank (mg) 4.1 ✓

Total Particulate (mg) 84.4 ✓

Run No. 3	Volume (ml) 779				
Final Weight (g)	130.4089	130.4084	✓		
Initial Weight (g)	130.3472	130.3472			
Particulate Weight (g)	0.0617	0.0612			

Particulate Average (mg) 61.5 ✓

Less Acetone Blank (mg) 6.2 ✓

Total Particulate (mg) 55.3 ✓

Acetone Blank ✓	Volume (ml) 250				
Final Weight (g)	171.5524	171.5520	✓		
Initial Weight (g)	171.5473	171.5473			
Difference (g)	0.0051	0.0047			

Average (mg) 4.9 ✓

* mg/l 19.6 ✓

• Note: If greater than 7.9 mg/l, use 7.9 mg/l.

MK

Analyst

METCO Environmental

Particulate Analysis EPA Method 5

Back Half Analysis

Job Number 96-11 Location Silsbee, Tx.

Job Name ERM Unit Tested #3 Dryer

Desiccator Time In	830 1/23	1459 1/23			
Desiccator Time Out	1450 1/23	1455 1/24			

Run No. 1	Volume (ml) 881				
Final Weight (g)	122.3193	122.3188	✓		
Initial Weight (g)	122.2214	122.2214			
Particulate Weight (g)	0.0979	0.0974			

Particulate Average (mg) 97.7

Less Ammonium Sulfate (mg) —

Total Particulate (mg) 97.7

Run No. 2	Volume (ml) 695				
Final Weight (g)	148.3262	148.3261	✓		
Initial Weight (g)	148.1859	148.1859			
Particulate Weight (g)	0.1403	0.1402			

Particulate Average (mg) 140.3

Less Ammonium Sulfate (mg) —

Total Particulate (mg) 140.3

Run No. 3	Volume (ml) 655				
Final Weight (g)	148.7481	148.7478	✓		
Initial Weight (g)	148.5838	148.5838			
Particulate Weight (g)	0.1643	0.1640			

Particulate Average (mg) 164.2

Less Ammonium Sulfate (mg) —

Total Particulate (mg) 164.2

Run No. Blank	Volume (ml) 400				
Final Weight (g)	160.0762	160.0760	✓		
Initial Weight (g)	160.0726	160.0726			
Particulate Weight (g)	0.0036	0.0034			

Particulate Average (mg) 3.5

~~Less Ammonium Sulfate (mg)~~ 8.8 mg/l

Total Particulate (mg) 8.8 mg/l

Analyst

METCO Environmental

Particulate Analysis Summary

Job Number 96-11
Job Name ERM Southwest
Location Silsbee, TX.

Date Analysis Completed 1-25-96
Unit Tested Dryer #4 Outlet Duct

Run No.	1	2	3		
Particulate on Filter (mg)	241.6	264.2	311.8		
Particulate in Front Wash (mg)*	21.4	16.1	21.9		
MF (mg)	263.0	280.3	333.7		
Particulate in Impinger #1 (mg)	88.4	56.1	64.8		
MT (mg)	351.4	336.4	398.5		

HTJ

Analyst

* Less Acetone Residue

METCO Environmental

Particulate Analysis EPA Method 5

Stack Filters

Job Number 96-11 Location Lilabee, Fl.

Job Name ERM Unit Tested Dryer 4 Outlet Duct

Desiccator Time In	1600 1/19					
Desiccator Time Out	1325 1/22	930 1/23		1630 1/23		

Run No. 1	Filter No. G121				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)			✓		
Filter & Particulate (g)	0.8393	0.8393			

Filter & Particulate Average (g) 0.8393

Initial Filter Weight (g) 0.5977

Total Particulate (mg) 241.6

Run No. 2	Filter No. G79				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)				✓	
Filter & Particulate (g)	0.8663	0.8682	0.8681		

Filter & Particulate Average (g) 0.8682

Initial Filter Weight (g) 0.6040

Total Particulate (mg) 264.2

Run No. 3 one of two	Filter No. G124				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)				✓	
Filter & Particulate (g)	0.8442	0.8487	0.8483		

Filter & Particulate Average (g) 0.8485

Initial Filter Weight (g) 0.6051

Total Particulate (mg) 243.4

Run No. 3 two of two	Filter No. G125				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)				✓	
Filter & Particulate (g)	0.6740	0.6724	0.6722		

Filter & Particulate Average (g) 0.6723

Initial Filter Weight (g) 0.6039

Total Particulate (mg) 68.4

Total 311.8 mg

MB

Analyst

METCO Environmental

Particulate Analysis EPA Method 5

Front Wash

Job Number 96-11 Location Belcher, Ky.

Job Name ERM Unit Tested #4 Dryer

Desiccator Time In	1100 1/22	1623 1/22			
Desiccator Time Out	1613 1/22	1150 1/23			

Run No. 1	Volume (ml) 408				
Final Weight (g)	164.9207	164.9210	✓		
Initial Weight (g)	164.8963	164.8963			
Particulate Weight (g)	0.0244	0.0247			

Particulate Average (mg) 24.6

Less Acetone Blank (mg) 3.2

Total Particulate (mg) 21.4

Run No. 2	Volume (ml) 367				
Final Weight (g)	121.1038	121.1043	✓		
Initial Weight (g)	121.0851	121.0851			
Particulate Weight (g)	0.0187	0.0192			

Particulate Average (mg) 19.0

Less Acetone Blank (mg) 2.9

Total Particulate (mg) 16.1

Run No. 3	Volume (ml) 471				
Final Weight (g)	120.5333	120.5328	✓		
Initial Weight (g)	120.5075	120.5075			
Particulate Weight (g)	0.0258	0.0253			

Particulate Average (mg) 25.6

Less Acetone Blank (mg) 3.7

Total Particulate (mg) 21.9

Acetone Blank ✓	Volume (ml) 300				
Final Weight (g)	151.0152	151.0150	✓		
Initial Weight (g)	151.0114	151.0114			
Difference (g)	0.0038	0.0036			

Average (mg) 3.7

* mg/l 12.3

* Note: If greater than 7.9 mg/l, use 7.9 mg/l.

MH

Analyst

METCO Environmental

Particulate Analysis EPA Method 5

Back Half Analysis

Job Number 96-11 Location Silsbee, TX

Job Name ERM Unit Tested Dryer 4 Outlet Duct

Desiccator Time In	830 1/23	1525 1/23	1515 1/24		
Desiccator Time Out	1515 1/23	1607 1/24	1058 1/25		

Run No. 1	Volume (ml) 785				
Final Weight (g)	160.6232	160.6228	✓		
Initial Weight (g)	160.5346	160.5346			
Particulate Weight (g)	0.0886	0.0882			

Particulate Average (mg) 88.4

Less Ammonium Sulfate (mg) —

Total Particulate (mg) 88.4

Run No. 2	Volume (ml) 737				
Final Weight (g)	156.3231	156.3223	156.3227	✓	
Initial Weight (g)	156.2664	156.2664	156.2664		
Particulate Weight (g)	0.0567	0.0559	0.0563		

Particulate Average (mg) 56.1

Less Ammonium Sulfate (mg) —

Total Particulate (mg) 56.1

Run No. 3	Volume (ml) 840				
Final Weight (g)	163.6722	163.6719	✓		
Initial Weight (g)	163.6073	163.6073			
Particulate Weight (g)	0.0649	0.0646			

Particulate Average (mg) 64.8

Less Ammonium Sulfate (mg) —

Total Particulate (mg) 64.8

Run No Dl Blank	Volume (ml) 270				
Final Weight (g)	125.5564	125.5565	✓		
Initial Weight (g)	125.5543	125.5543			
Particulate Weight (g)	0.0021	0.0022			

Particulate Average (mg) 2.2

Less Ammonium Sulfate (mg)

Total Particulate (mg) 8.1 mg/l

MB

Analyst

METCO Environmental

Particulate Analysis Summary

Job Number 96-11
Job Name ERM Southwest
Location Silsbee, TX.

Date Analysis Completed 1-25-96
Unit Tested Dryer #5 Outlet Duct

Run No.	1	2	3		
Particulate on Filter (mg)	161.9	269.1	208.9		
Particulate in Front Wash (mg)*	23.9	12.4	26.1		
MF (mg)	185.8	281.5	235.0		
Particulate in Impinger #1 (mg)	45.4	59.6	75.6		
MT (mg)	231.2	341.1	310.6		

HT ✓

Mary Ganter
Analyst

* Less Acetone Residue

METCO Environmental

Particulate Analysis EPA Method 5

Stack Filters

Job Number 96-11 Location Belabee, FL

Job Name ERA Unit Tested Dryer #5 Outlet

Desiccator Time In	1/19	1530 1/22				
Desiccator Time Out	1520 1/22	1535 1/23	1610 1/24			

Run No. 1 torn along edge	Filter No. H99				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)				✓	
Filter & Particulate (g)	0.7647	0.7625	0.7625		

Filter & Particulate Average (g) 0.7625

Initial Filter Weight (g) 0.6006

Total Particulate (mg) 161.9

Run No. 2 one of two	Filter No. G122				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)			✓		
Filter & Particulate (g)	0.7770 torn edge	0.7771			

Filter & Particulate Average (g) 0.7771

Initial Filter Weight (g) 0.5986

Total Particulate (mg) 178.5

Run No. 2 two of two	Filter No. G123				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)		✓			
Filter & Particulate (g)	0.6898	0.6902			

Filter & Particulate Average (g) 0.6900

Initial Filter Weight (g) 0.5994

Total Particulate (mg) 90.6

Total 269.1 mg

Run No. _____	Filter No. _____				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)					
Filter & Particulate (g)					

Filter & Particulate Average (g) _____

Initial Filter Weight (g) _____

Total Particulate (mg) _____

MK

Analyst

METCO Environmental

Particulate Analysis EPA Method 5

Stack Filters

Job Number 96-11 Location Gilsbee, Tx.

Job Name ERM Unit Tested Dryer #5 Outlet (Continued)

Desiccator Time In	800 1/19	1549 1/22			
Desiccator Time Out	1540 1/22	1545 1/23	1615 1/24		

Run No. 3 a one of three Filter No. 88Q552					
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)			✓		
Filter & Particulate (g)	0.5544	0.5544			

Filter & Particulate Average (g) 0.5544

Initial Filter Weight (g) 0.5085

Total Particulate (mg) 45.9

Run No. 3 b two of three Filter No. 88Q553					
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)			✓		
Filter & Particulate (g)	0.6130	0.6130			

Filter & Particulate Average (g) 0.6130

Initial Filter Weight (g) 0.5034

Total Particulate (mg) 109.6

Run No. 3 c three of three Filter No. 88GE21					
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)				✓	
Filter & Particulate (g)	0.4362	0.4407	0.4402		

Filter & Particulate Average (g) 0.4405

Initial Filter Weight (g) 0.3871

Total Particulate (mg) 53.4

Run No. _____ Filter No. _____					Total mg
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)					
Filter & Particulate (g)					

Filter & Particulate Average (g) _____

Initial Filter Weight (g) _____

Total Particulate (mg) _____

MG

Analyst

METCO Environmental

Particulate Analysis EPA Method 5

Front Wash

Job Number 96-11 Location Sutobee, FL

Job Name ERM Unit Tested Dryer #5

Desiccator Time In	1100 1/22	1430 1/22			
Desiccator Time Out	1420 1/22	1305 1/23			

Run No. 1	Volume (ml) 492				
Final Weight (g)	151.9296	151.9295	✓		
Initial Weight (g)	151.9018	151.9018			
Particulate Weight (g)	0.0278	0.0277			

Particulate Average (mg) 27.8 ✓

Less Acetone Blank (mg) 3.9 ✓

Total Particulate (mg) 23.9 ✓

Run No. 2	Volume (ml) 438				
Final Weight (g)	123.1394	123.1398	✓		
Initial Weight (g)	123.1237	123.1237			
Particulate Weight (g)	0.0157	0.0161			

Particulate Average (mg) 15.9 ✓

Less Acetone Blank (mg) 3.5 ✓

Total Particulate (mg) 12.4 ✓

Run No. 3	Volume (ml) 650				
Final Weight (g)	171.1123	171.1120	✓		
Initial Weight (g)	171.0810	171.0810			
Particulate Weight (g)	0.0313	0.0310			

Particulate Average (mg) 31.2 ✓

Less Acetone Blank (mg) 5.1 ✓

Total Particulate (mg) 26.1 ✓

Acetone Blank ✓	Volume (ml) 225				
Final Weight (g)	163.9082	163.9077			
Initial Weight (g)	163.9041	163.9041			
Difference (g)	0.0041	0.0036			

Average (mg) 3.9 ✓

* mg/l 17.3 ✓

* Note: If greater than 7.9 mg/l, use 7.9 mg/l.

Analyst

METCO Environmental

Particulate Analysis EPA Method 5

Back Half Analysis

Job Number 96-11 Location Selkirk

Job Name ERM Unit Tested Dryer #5

Desiccator Time In	8:30 1/23	15:37 1/23	15:20 1/24			
Desiccator Time Out	15:27 1/23	15:10 1/24	11:00 1/25			

Run No. 1	Volume (ml) 577				
Final Weight (g)	174.0902	174.0904	✓		
Initial Weight (g)	174.0449	174.0449			
Particulate Weight (g)	0.0453	0.0455			

Particulate Average (mg) 45.4 ✓

Less Ammonium Sulfate (mg) —

Total Particulate (mg) 45.4 ✓

Run No. 2	Volume (ml) 707				
Final Weight (g)	127.9314	127.9310	✓		
Initial Weight (g)	127.8716	127.8716			
Particulate Weight (g)	0.0598	0.0594			

Particulate Average (mg) 59.6 ✓

Less Ammonium Sulfate (mg) —

Total Particulate (mg) 59.6 ✓

Run No. 3	Volume (ml) 703				
Final Weight (g)	168.1910	168.1900	168.1896	✓	
Initial Weight (g)	168.1142	168.1142	168.1142		
Particulate Weight (g)	0.0768	0.0758	0.0754		

Particulate Average (mg) 75.6 ✓

Less Ammonium Sulfate (mg) —

Total Particulate (mg) 75.6 ✓

Run No.	Volume (ml)				
Final Weight (g)					
Initial Weight (g)					
Particulate Weight (g)					

Particulate Average (mg)

Less Ammonium Sulfate (mg)

Total Particulate (mg)

MA

Analyst

METCO Environmental

Particulate Analysis Summary

Job Number 96-11
Job Name E RM
Location Gilsboro, Ky.

Date Analysis Completed 1-26-96
Unit Tested RTO #1 Stack

Run No.	1	2	3		
Particulate on Filter (mg)	13.5	12.9	12.9		
Particulate in Front Wash (mg)*	8.9	4.8	5.5		
MF (mg)	22.4	17.7	18.4		
Particulate in Impinger #1 (mg)**	8.7	6.5	7.9		
MT (mg)	31.1	24.2	26.3		

H_T

Mary Hunter
Analyst

* Less Acetone Residue

** Less Ammonium Sulfate

METCO Environmental

Particulate Analysis EPA Method 5

Stack Filters

Job Number 96-11 Location Selkirk, Pa.

Job Name ERM Unit Tested RTO #1

Desiccator Time In		1/23	1400 1/25			
Desiccator Time Out	1350 1/25		815 1/26			

Run No. 1	Filter No. 459				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)			✓		
Filter & Particulate (g)	0.6192	0.6191			

Filter & Particulate Average (g) 0.6192

Initial Filter Weight (g) 0.6057

Total Particulate (mg) 13.5

Run No. 2	Filter No. E54				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)			✓		
Filter & Particulate (g)	0.6473	0.6474			

Filter & Particulate Average (g) 0.6474

Initial Filter Weight (g) 0.6345

Total Particulate (mg) 12.9

Run No. 3	Filter No. E55				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)			✓		
Filter & Particulate (g)	0.6517	0.6514			

Filter & Particulate Average (g) 0.6516

Initial Filter Weight (g) 0.6387

Total Particulate (mg) 12.9

mk

Analyst

METCO Environmental

Particulate Analysis EPA Method 5

Front Wash

Job Number 96-11 Location Lisbee, SC

Job Name ERM Unit Tested #1 RTO Stack

Desiccator Time In	815 1/23	1354 1/23			
Desiccator Time Out	1345 1/23	1348 1/24			

Run No. 1	Volume (ml) 214				
Final Weight (g)	120.8020	120.8015	✓		
Initial Weight (g)	120.7918	120.7918			
Particulate Weight (g)	0.0102	0.0097			

Particulate Average (mg) 10.0 ✓

Less Acetone Blank (mg) 1.1 ✓

Total Particulate (mg) 8.9

Run No. 2	Volume (ml) 242				
Final Weight (g)	151.7133	151.7130	✓		
Initial Weight (g)	151.7071	151.7071			
Particulate Weight (g)	0.0062	0.0059			

Particulate Average (mg) 6.1 ✓

Less Acetone Blank (mg) 1.3 ✓

Total Particulate (mg) 4.8

Run No. 3	Volume (ml) 188				
Final Weight (g)	130.2706	130.2703	✓		
Initial Weight (g)	130.2640	130.2640			
Particulate Weight (g)	0.0066	0.0063			

Particulate Average (mg) 6.5 ✓

Less Acetone Blank (mg) 1.0 ✓

Total Particulate (mg) 5.5

Acetone Blank ✓	Volume (ml) 250				
Final Weight (g)	141.5102	141.5098	✓		
Initial Weight (g)	141.5087	141.5087			
Difference (g)	0.0015	0.0011			

Average (mg) 1.3 ✓

* mg/l 5.2 ✓

* Note: If greater than 7.9 mg/l, use 7.9 mg/l.

Analyst

METCO Environmental

Particulate Analysis EPA Method 5

Back Half Analysis

Job Number 96-11 Location Selkirk, NY.

Job Name ERM Unit Tested #1 RTO

Desiccator Time In	810 1/25	1343 1/25			
Desiccator Time Out	1335 1/25	900 1/26			

Run No. 1	Volume (ml) 388				
Final Weight (g)	165.1422	165.1418 ✓			
Initial Weight (g)	165.1333	165.1333			
Particulate Weight (g)	0.0089	0.0085			

Particulate Average (mg) 8.7 ✓

Less Ammonium Sulfate (mg) 0 –

Total Particulate (mg) 8.7 –

Run No. 2	Volume (ml) 333				
Final Weight (g)	122.6075	122.6078 ✓			
Initial Weight (g)	122.6012	122.6012			
Particulate Weight (g)	0.0063	0.0066			

Particulate Average (mg) 6.5 –

Less Ammonium Sulfate (mg) 0 –

Total Particulate (mg) 6.5 ✓

Run No. 3	Volume (ml) 349				
Final Weight (g)	154.3926	154.3928 ✓			
Initial Weight (g)	154.3848	154.3848			
Particulate Weight (g)	0.0078	0.0080			

Particulate Average (mg) 7.9 –

Less Ammonium Sulfate (mg) 0 ✓

Total Particulate (mg) 7.9 –

Run No.	Volume (ml)				
Final Weight (g)					
Initial Weight (g)					
Particulate Weight (g)					

Particulate Average (mg)

Less Ammonium Sulfate (mg)

Total Particulate (mg)

mk

Analyst

SO_2 EMISSION DATA

Job Number 96-11 Location Silsbee, Tx

Job Name ERM Unit Tested RTO #1 Stack

Run Number	1	2	3			
N - normality of $Ba(ClO_4)_2$	0.0100	→	→			
ML_I - ml in impinger #2	391	366	345			
ML_I - ml in impinger #3	325	352	320			
ML_A - ml in aliquot #2	10	10	10			
ML_A - ml in aliquot #3	10	10	10			
ML_B - ml of $Ba(ClO_4)_2$ to titrate #2	0.05	0.05	0.05			
	0.05	0.05	0.05			
	0.05	0.05	0.05			
Average ML_B - ml of $Ba(ClO_4)_2$	0.05	0.05	0.05			
ML_B - ml of $Ba(ClO_4)_2$ to titrate #3	0.05	0.05	0.05			
	0.05	0.05	0.05			
	0.05	0.05	0.05			
Average ML_B - ml of $Ba(ClO_4)_2$	0.05	0.05	0.05			
ML_{BB} - ml of $Ba(ClO_4)_2$ to titrate blank	0.05	→	→			
T_m - average gas meter temp., °F						
V_m - volume of dry gas sampled @ meter conditions, $ft.^3$						
P_b - barometric pressure, "Hg Abs.						
Q_s - stack gas volume dry @ standard conditions, *SCFM						
C_I - SO_2 in impinger #2, mgs	0	0	0			
C_I - SO_2 in impinger #3, mgs	0	0	0			
C_T - total SO_2 in impingers, mgs	0	0	0			
ppm SO_2						
C_{SO_2} - emission rate of SO_2, lbs/day						
C_{SO_2} - emission rate of SO_2, lbs/hr						
C_s - emission rate of S, lbs/day						

• 29.92 "Hg, 68°F (760 mm Hg, 20°C)

$$C_I = \frac{ML_I \times (ML_B - ML_{BB}) \times N \times 32}{ML_A}$$

$$C_T = C_I \#2 + C_I \#3$$

$$\text{ppm } SO_2 = \frac{0.7513 \times C_T \times (T_m + 460)}{V_m P_b}$$

$$C_{SO_2} = \text{ppm } SO_2 \times Q_s \times 239.2 \times 10^{-6}$$

$$C_s = \frac{C_{SO_2}}{2}$$

SULFUR TRIOXIDE EMISSION DATA

Job Number 96-11 Location Baltimore, MD

Job Name ERM Unit Tested RTO #1 Stack

Run Number	1	2	3			
Date						
Time						
$\underline{N}$ - normality of $Ba(ClO_4)_2$	0.0100	→	→			
ML_I - ml in impinger	388	333	349			
ML_A - ml in aliquot	10	10	10			
ML_B - ml of $Ba(ClO_4)_2$ to titrate	0.05	0.05	0.05			
	0.05	0.05	0.05			
	0.05	0.05	0.05			
Average ML_B - ml of $Ba(ClO_4)_2$ to titrate	0.05	0.05	0.05			
ML_{BB} - ml of $Ba(ClO_4)_2$ to titrate blank	0.05	→	→			
T_m - average gas meter temp., °F						
V_m - volume of dry gas sampled @ meter conditions, $ft.^3$						
P_b - barometric pressure, "Hg Abs.						
Q_s - stack gas volume dry @ standard conditions, *SCFM						
C_I - SO_3 in impinger, mgs	0	0	0			
ppm SO_3						
C_{SO_3} - emission rate of SO_3, lbs/day						
C_S - emission rate of S, lbs/day						

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

$$C_I = \frac{ML_I \times (ML_B - ML_{BB}) \times \underline{N} \times 40}{ML_A}$$

$$\text{ppm } SO_3 = \frac{0.6021 \times C_I \times (T_m + 460)}{V_m \, P_b}$$

$$C_{SO_3} = \text{ppm } SO_3 \times Q_s \times 299.1 \times 10^{-6}$$

$$C_S = \frac{C_{SO_3}}{2.5}$$

METCO Environmental

Particulate Analysis Summary

Job Number 96-11
Job Name ERM
Location Lilabee, Pa.

Date Analysis Completed 1-26-96
Unit Tested RTO #2

Run No.	1	2	3		
Particulate on Filter (mg)	10.1	11.7	13.2		
Particulate in Front Wash (mg)*	2.9	3.1	3.1		
MF (mg)	13.0	14.8	16.3		
Particulate in Impinger #1 (mg)**	8.2	10.5	10.0		
MT (mg)	21.2	25.3	26.3		

HTJ

Mary Hunter
Analyst

* Less Acetone Residue

** Less Ammonium Sulfate

METCO Environmental

Particulate Analysis EPA Method 5

Stack Filters

Job Number 96-11 Location Silsbee, TX

Job Name ERM Unit Tested RTO #2

Desiccator Time In	1/23				
Desiccator Time Out	1345 1/25	810 1/26			

Run No. 1	Filter No. ES2				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)			✓		
Filter & Particulate (g)	0.6494	0.6494			

Filter & Particulate Average (g) 0.6494

Initial Filter Weight (g) 0.6393

Total Particulate (mg) 10.1

Run No. 2	Filter No. ES3				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)			✓		
Filter & Particulate (g)	0.6466	0.6464			

Filter & Particulate Average (g) 0.6465

Initial Filter Weight (g) 0.6348

Total Particulate (mg) 11.7

Run No. 3	Filter No. ES1				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)			✓		
Filter & Particulate (g)	0.6427	0.6424			

Filter & Particulate Average (g) 0.6426

Initial Filter Weight (g) 0.6294

Total Particulate (mg) 13.2

MG

Analyst

METCO Environmental

Particulate Analysis EPA Method 5

Front Wash

Job Number 96-11 Location Silsbee, Tx

Job Name ERM Unit Tested #2 RTO

Desiccator Time In	815 1/23	1405 1/23			
Desiccator Time Out	1355 1/23	1030 1/24			

Run No. 1	Volume (ml) 196				
Final Weight (g)	137.6325	137.6324	✓		
Initial Weight (g)	137.6281	137.6281			
Particulate Weight (g)	0.0044	0.0043			

Particulate Average (mg) 4.4 –
Less Acetone Blank (mg) 1.5 ✓
Total Particulate (mg) 2.9 ✓

Run No. 2	Volume (ml) 205				
Final Weight (g)	165.0860	165.0855	✓		
Initial Weight (g)	165.0811	165.0811			
Particulate Weight (g)	0.0049	0.0044			

Particulate Average (mg) 4.7 –
Less Acetone Blank (mg) 1.6 ✓
Total Particulate (mg) 3.1 ✓

Run No. 3	Volume (ml) 188				
Final Weight (g)	140.2551	140.2552	✓		
Initial Weight (g)	140.2506	140.2506			
Particulate Weight (g)	0.0045	0.0046			

Particulate Average (mg) 4.6 –
Less Acetone Blank (mg) 1.5 –
Total Particulate (mg) 3.1 ✓

Acetone Blank ✓	Volume (ml) 290				
Final Weight (g)	176.6518	176.6517	✓		
Initial Weight (g)	176.6489	176.6489			
Difference (g)	0.0029	0.0028			

Average (mg) 2.9 –
* mg/l 10.0 ✓

* Note: If greater than 7.9 mg/1, use 7.9 mg/1.

MG
Analyst

METCO Environmental

Particulate Analysis EPA Method 5

Back Half Analysis

Job Number 96-11 Location Lebec, Ca.

Job Name ERM Unit Tested # 2 RTO

Desiccator Time In	810 1/25	1345 1/25			
Desiccator Time Out	1338 1/25	915 1/26			

Run No. 1	Volume (ml) 352				
Final Weight (g)	175.8517	175.8519	✓		
Initial Weight (g)	175.8436	175.8436			
Particulate Weight (g)	0.0081	0.0083			

Particulate Average (mg) 8.2 ✓

Less Ammonium Sulfate (mg) 0 ✓

Total Particulate (mg) 8.2 ✓

Run No. 2	Volume (ml) 358				
Final Weight (g)	154.1135	154.1138	✓		
Initial Weight (g)	154.1032	154.1032			
Particulate Weight (g)	0.0103	0.0106			

Particulate Average (mg) 10.5 ✓

Less Ammonium Sulfate (mg) 0 ✓

Total Particulate (mg) 10.5 ✓

Run No. 3	Volume (ml) 403				
Final Weight (g)	119.8716	119.8712	✓		
Initial Weight (g)	119.8614	119.8614			
Particulate Weight (g)	0.0102	0.0098			

Particulate Average (mg) 10.0 ✓

Less Ammonium Sulfate (mg) 0 ✓

Total Particulate (mg) 10.0 ✓

Run No.	Volume (ml)				
Final Weight (g)					
Initial Weight (g)					
Particulate Weight (g)					

Particulate Average (mg)

Less Ammonium Sulfate (mg)

Total Particulate (mg)

MB

Analyst

SO_2 EMISSION DATA

Job Number 96-11 Location Lilabee, FL

Job Name ERM Unit Tested RTO #2 Stack

Run Number	1	2	3			
N - normality of $Ba(ClO_4)_2$	0.0100	→	→			
ML_I - ml in impinger #2	385	385	410			
ML_I - ml in impinger #3	290	307	311			
ML_A - ml in aliquot #2	10	10	10			
ML_A - ml in aliquot #3	10	10	10			
ML_B - ml of $Ba(ClO_4)_2$ to titrate #2	0.05	0.05	0.05			
	0.05	0.05	0.05			
	0.05	0.05	0.05			
Average ML_B - ml of $Ba(ClO_4)_2$	0.05 ✓	0.05 ✓	0.05 ✓			
ML_B - ml of $Ba(ClO_4)_2$ to titrate #3	0.05	0.10	0.05			
	0.05	0.10	0.05			
	0.05	0.10	0.05			
Average ML_B - ml of $Ba(ClO_4)_2$	0.05 ✓	0.10 ✓	0.05 ✓			
ML_{BB} - ml of $Ba(ClO_4)_2$ to titrate blank	0.05	→	→			
T_m - average gas meter temp., °F						
V_m - volume of dry gas sampled @ meter conditions, $ft.^3$						
P_b - barometric pressure, "Hg Abs.						
Q_s - stack gas volume dry @ standard conditions, *SCFM						
C_I - SO_2 in impinger #2, mgs	0 ✓	0 ✓	0 ✓			
C_I - SO_2 in impinger #3, mgs	0 ✓	0.5 ✓	0 ✓			
C_T - total SO_2 in impingers, mgs	0 ✓	0.5 ✓	0 ✓			
ppm SO_2						
C_{SO_2} - emission rate of SO_2, lbs/day						
C_{SO_2} - emission rate of SO_2, lbs/hr						
C_s - emission rate of S, lbs/day						

• 29.92 "Hg, 68°F (760 mm Hg, 20°C)

$$C_I = \frac{ML_I \times (ML_B - ML_{BB}) \times N \times 32}{ML_A}$$

$$C_T = C_I \#2 + C_I \#3$$

$$\text{ppm } SO_2 = \frac{0.7513 \times C_T \times (T_m + 460)}{V_m P_b}$$

$$C_{SO_2} = \text{ppm } SO_2 \times Q_s \times 239.2 \times 10^{-6}$$

$$C_s = \frac{C_{SO_2}}{2}$$

METCO ENVIRONMENTAL

SULFUR TRIOXIDE EMISSION DATA

Job Number 96-11 Location Sibley, W.

Job Name ERM Unit Tested RTO #2

Run Number	1	2	3			
Date						
Time						
$\underline{N}$ - normality of $Ba(ClO_4)_2$	0.0100	0.0100	0.0100			
ML_I - ml in impinger	352	358	403			
ML_A - ml in aliquot	10	10	10			
ML_B - ml of $Ba(ClO_4)_2$ to titrate	0.05	0.05	0.05			
	0.05	0.05	0.05			
	0.05	0.05	0.05			
Average ML_B - ml of $Ba(ClO_4)_2$ to titrate	0.05	0.05	0.05			
ML_{BB} - ml of $Ba(ClO_4)_2$ to titrate blank	0.05 →	→	→			
T_m - average gas meter temp., °F						
V_m - volume of dry gas sampled @ meter conditions, $ft.^3$						
P_b - barometric pressure, "Hg Abs.						
Q_s - stack gas volume dry @ standard conditions, *SCFM						
C_I - SO_3 in impinger, mgs	0	0	0			
ppm SO_3						
C_{SO_3} - emission rate of SO_3, lbs/day						
C_S - emission rate of S, lbs/day						

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

$$C_I = \frac{ML_I \times (ML_B - ML_{BB}) \times \underline{N} \times 40}{ML_A}$$

$$ppm\ SO_3 = \frac{0.6021 \times C_I \times (T_m + 460)}{V_m\ P_b}$$

$$C_{SO_3} = ppm\ SO_3 \times Q_s \times 299.1 \times 10^{-6}$$

$$C_S = \frac{C_{SO_3}}{2.5}$$

Report prepared For
Metco Environmental
Method 0011 Formaldehyde Analytical Results
Project #0196015

Prepared by
DAT, Inc.
6385 Shier Rings Rd.
Dublin, OH 43016

February 6, 1996

Metco Environmental
Method 0011 Formaldehyde Analysis
Project #0196015

Narrative

The samples received on 23 January 1996 for formaldehyde analysis by method M0011, were pooled into ninteen samples,each composed of various bottles and fractions. These samples were pooled as follows:

Lab ID.:	Client ID.:
0196015-1	Dryer #2, Outlet, Run 1
0196015-2	Dryer #2, Outlet, Run 2
0196015-3	Dryer #3, Outlet, Run 1
0196015-4	Dryer #3, Outlet, Run 2
0196015-5	Dryer #4, Outlet, Run 1
0196015-6	Dryer #4, Outlet, Run 2
0196015-7	Dryer #5, Outlet, Run 1
0196015-8	Dryer #5, Outlet, Run 2
0196015-9	DNPH Blank
0196015-10	RTO Dryer Stack #1, Run 1
0196015-11	RTO Dryer Stack #2, Run 1
0196015-12	RTO Blank Train #1 Stack
0196015-13	RTO #1 Stack DNPH Reagent Blank
0196015-14	Methylene Chloride Reagent Blank
0196015-15	RTO #1 Stack DI Water Blank
0196015-16	Field Spike (0011) (high)
0196015-17	Field Spike (0011) (low)
0196015-18	RTO #1 Dryer Stack Run 2
0196015-19	RTO #1 Dryer Stack Run 3
0196015-20	RTO #2 Dryer Stack, Run 2
0196015-21	RTO #2 Dryer Stack, Run 3

All bottle contents associated with a given dryer and run number were pooled prior to extraction. The blank samples, RTO #1 Stack DNPH Reagent Blank, Methylene Chloride Reagent Blank and RTO #1 Stack DI Water Blank were pooled and analyzed as a single sample. There were a total of 19 analyses.

Sample Results

The analysis results are presented in a summary table following this narrative.

The residues in nine of the samples required 10-fold to 1000-fold dilution to obtain concentrations in the extracts which were within the lower and upper calibrator limits. The residues in the non-blank and non-spike samples ranged from approximately 1.5

total mg to 65 total mg. The blanks ranged from 3.4 to 14.6 total μg. The low spike had a total 674 μg or 84% recovery. The high spike level was 50 mg of formaldehyde. There is no method protocol for such a high spiking level. However, the actual recovery was 34.57 total mg of formaldehyde or 69%. Although this recovery is reasonable by most standards, the recovery might have been better if it had been done in a larger DNPH volume (*e.g.* 100 mL instead of 50 mL).

Quality Control

The calibration curves were linear with r^2 values at or exceeding 0.999. The formaldehyde in the calibration checks deviated from the initial calibration by no more than 5.6%.

The laboratory DNPH spikes (LSs) and laboratory spike duplicates (LSDs) were performed with the hydrazone derivative of formaldehyde. A 15-mL aliquot of DNPH solution was spiked with 15 μg equivalents of the formaldehyde hydrazone and extracted 3 times with 5 mL of methylene chloride. The extracts were then analyzed as typical samples.

The LS and LSD percent recoveries are reported on the Quality Test Results Summary Table. The formaldehyde recoveries ranged from 78% to 103%.

The laboratory method blanks (MB) were performed in the same way as the lab spikes excluding the formaldehyde hydrazone. The background formaldehyde ranged from 0.0012 to 0.005 μg/mL in the extract.

Details of Method

A 1.0 mL aliquot from each methylene chloride extract was transferred to individual 2.0 mL auto sampler vials and concentrated to dryness under a stream of high purity nitrogen. The residue was then dissolved in 1.0 mL of HPLC grade acetonitrile and capped for HPLC analysis.

The HPLC analysis was done by injection of 15 μL of sample on a 4.6 mm x 20 cm Hewlett Packard ODS Hypersil column. The HPLC program was as follows:

at time 0:	50% methanol and 50% water,
at time 20 minutes:	80% methanol and 20% water, hold for 2 minutes
at time 24 minutes:	50% methanol and 50% water, followed by a 4 minute equilibration time.

The DNP-hydrazones were detected by optical absorbance of a 360 nm incident beam, and all chromatographic data was acquired electronically by a local network of a personal computer configured with an HP 35900D A/D interface board and HP-G1250C ChemStation software.

Preparation of Hydrazone Standards

Saturated DNPH in 2N HCl was extracted five times with a 7:3 v/v solution of hexane and methylene chloride which was previously proven to have no significant levels of aldehydes or ketones. The DNPH solution was transferred to a rinsed Erlenmeyer flask and 99+% pure analyte was added to the flask with swirling. The hydrazone derivatives were then allowed to fully crystallize by either holding at room temperature or placing in a refrigerator. Methyl ethyl ketone required a second recrystallization by concentrating the hydrazone in boiling acetonitrile and then cooling in refrigerator overnight. The crystals of most standards were collected by filtration through glass fiber filter disks and rinsed thoroughly with HPLC grade water. Where filtration was impractical, the solution was extracted with methylene chloride. The extract was concentrated to dryness and the unreacted aldehyde or ketone was distilled off of the hydrazone. The filtration disk was transferred to a vacuum desiccator remaining in a vacuum with desiccant for at least 24 hours. A solution of approximately 1 mg/mL of hydrazone in HPLC grade acetonitrile was quality tested by HPLC. All serial dilutions were mathematically corrected for molecular weight. For example, 6.9980 mg/mL of formaldehyde hydrazone = 1 mg/mL of formaldehyde.

Data Analysis

The detector signal was acquired on an HP 35900D A/D interface board and using HP-G1250C ChemStation software. The peak areas were computed into molar corrected concentrations of the analytes as μg/mL using a linear regression formula from the initial calibration peak area and μg/mL data. These concentrations were entered into an Excel spreadsheet and mathematically computed into the total μg of analyte as follows:

$(A \times B \times C)/D$ = Total μg

Where:
- A = Reported μg/mL of analyte
- B = Dilution factor (if needed)
- C = Total volume of sample extract (mL)
- D = Aliquot to final volume ratio
  (*e.g.* 1 mL extract in 1 mL acetonitrile)

Report prepared by:

Randall L. Detra, Ph. D.
Senior Chemist, ***DAT***, Inc.

Data release by:

Ronald K. Mitchum, Ph. D.
President, ***DAT***, Inc.

DATA SUMMARY

DATA SUMMARY FOR FORMALDEHYDE ANALYSIS, METHOD 0011
Project: 0196015.

Lab ID	Client ID	Total ug	Total mg	Q
0196015-1	Dryer #2, Outlet, Run 1	51156.60	51.16	
0196015-2	Dryer #2, Outlet, Run 2,	58149.00	58.15	
0196015-3	Dryer #3, Outlet, Run 1	64822.52	64.82	
0196015-4	Dryer #3, Outlet, Run 2	52606.40	52.61	
0196015-5	Dryer #4, Outlet, Run 1	40152.00	40.15	
0196015-6	Dryer #4, Outlet, Run 2	41635.26	41.64	
0196015-7	Dryer #5, Outlet, Run 1	37389.00	37.39	
0196015-8	Dryer #5, Outlet, Run 2	50366.70	50.37	
0196015-9	DNPH Blank	3.44	0.00	J
0196015-10	RTO Dryer Stack #1, Run 1	2523.58	2.52	
0196015-11	RTO Dryer Stack #2, Run 1	2982.49	2.98	
0196015-12	RTO Blank Train #1 Stack	14.65	0.01	J
0196015-13,14,15	RTO #1 Stack DNPH/Solvents Blank	8.44	0.01	J
0196015-16	Field Spike (0011) (high)	34568.00	34.57	
0196015-17	Field Spike (0011) (low)	673.72	0.67	
0196015-18	RTO #1 Dryer Stack Run 2	1768.01	1.77	
0196015-19	RTO #1 Dryer Stack Run 3	1517.12	1.52	
0196015-20	RTO #2 Dryer Stack, Run 2	2866.22	2.87	
0196015-21	RTO #2 Dryer Stack, Run 3	3080.25	3.08	

J: Analyte was present in the extract at a concentration less than the lowest calibrator.

DATA REDUCTION FOR FORMALDEHYDE ANALYSIS, METHOD 0011
Project: 0196015.

Lab ID	Client ID	ug/mL	Vol	Dilut.	Aliq.	Total ug	Total mg	Q
0196015-1	**Dryer #2, Outlet, Run 1**	0.6740	759	100	1	**51156.60**	**51.16**	
0196015-2	**Dryer #2, Outlet, Run 2,**	0.6390	910	100	1	**58149.00**	**58.15**	
0196015-3	**Dryer #3, Outlet, Run 1**	6.2570	1036	10	1	**64822.52**	**64.82**	
0196015-4	**Dryer #3, Outlet, Run 2**	0.6160	854	100	1	**52606.40**	**52.61**	
0196015-5	**Dryer #4, Outlet, Run 1**	1.1950	336	100	1	**40152.00**	**40.15**	
0196015-6	**Dryer #4, Outlet, Run 2**	6.6510	626	10	1	**41635.26**	**41.64**	
0196015-7	**Dryer #5, Outlet, Run 1**	1.1330	330	100	1	**37389.00**	**37.39**	
0196015-8	**Dryer #5, Outlet, Run 2**	0.8790	573	100	1	**50366.70**	**50.37**	
0196015-9	**DNPH Blank**	0.0231	149	1	1	**3.44**	**0.00**	J
0196015-10	**RTO Dryer Stack #1, Run 1**	8.7020	290	1	1	**2523.58**	**2.52**	
0196015-11	**RTO Dryer Stack #2, Run 1**	9.5900	311	1	1	**2982.49**	**2.98**	
0196015-12	**RTO Blank Train #1 Stack**	0.0482	304	1	1	**14.65**	**0.01**	J
0196015-13,14,15	**RTO #1 Stack DNPH/Solvents Blank**	0.0364	232	1	1	**8.44**	**0.01**	J
0196015-16	**Field Spike (0011) (high)**	0.2320	149	1000	1	**34568.00**	**34.57**	
0196015-17	**Field Spike (0011) (low)**	6.5410	103	1	1	**673.72**	**0.67**	
0196015-18	**RTO #1 Dryer Stack Run 2**	6.7740	261	1	1	**1768.01**	**1.77**	
0196015-19	**RTO #1 Dryer Stack Run 3**	3.5200	431	1	1	**1517.12**	**1.52**	
0196015-20	**RTO #2 Dryer Stack, Run 2**	8.9850	319	1	1	**2866.22**	**2.87**	
0196015-21	**RTO #2 Dryer Stack, Run 3**	8.2140	375	1	1	**3080.25**	**3.08**	

J: Analyte was present in the extract at a concentration less than the lowest calibrator.

QC SUMMARY

DATA SUMMARY FOR FORMALDEHYDE ANALYSIS, METHOD 0011, QUALITY TESTS

Project: 0196015.

Lab ID	Client ID	Value	Q	Parameter
0196015-MB1	**Method Blank 1**	**0.0012**	J	ug/mL
0196015-MB2	**Method Blank 2**	**0.0050**	J	ug/mL
0196015-MB3	**Method Blank 3**	**0.0014**	J	ug/mL
0196015-LS1	**Lab Spike 1**	**88.2%**		Recovery
0196015-LSD1	**Lab Spike Dupl. 1**	**78.3%**		Recovery
0196015-LS2	**Lab Spike 2**	**98.0%**		Recovery
0196015-LSD2	**Lab Spike Dupl. 2**	**94.3%**		Recovery
0196015-LS3	**Lab Spike 3**	**103.4%**		Recovery
0196015-LSD3	**Lab Spike Dupl. 3**	**100.2%**		Recovery
CONCAL1	**Continuing Calib. 1**	**-1.2%**		Deviation
CONCAL2	**Continuing Calib. 2**	**1.9%**		Deviation
CONCAL3	**Continuing Calib. 3**	**5.5%**		Deviation
CONCAL4	**Continuing Calib. 4**	**-5.6%**		Deviation

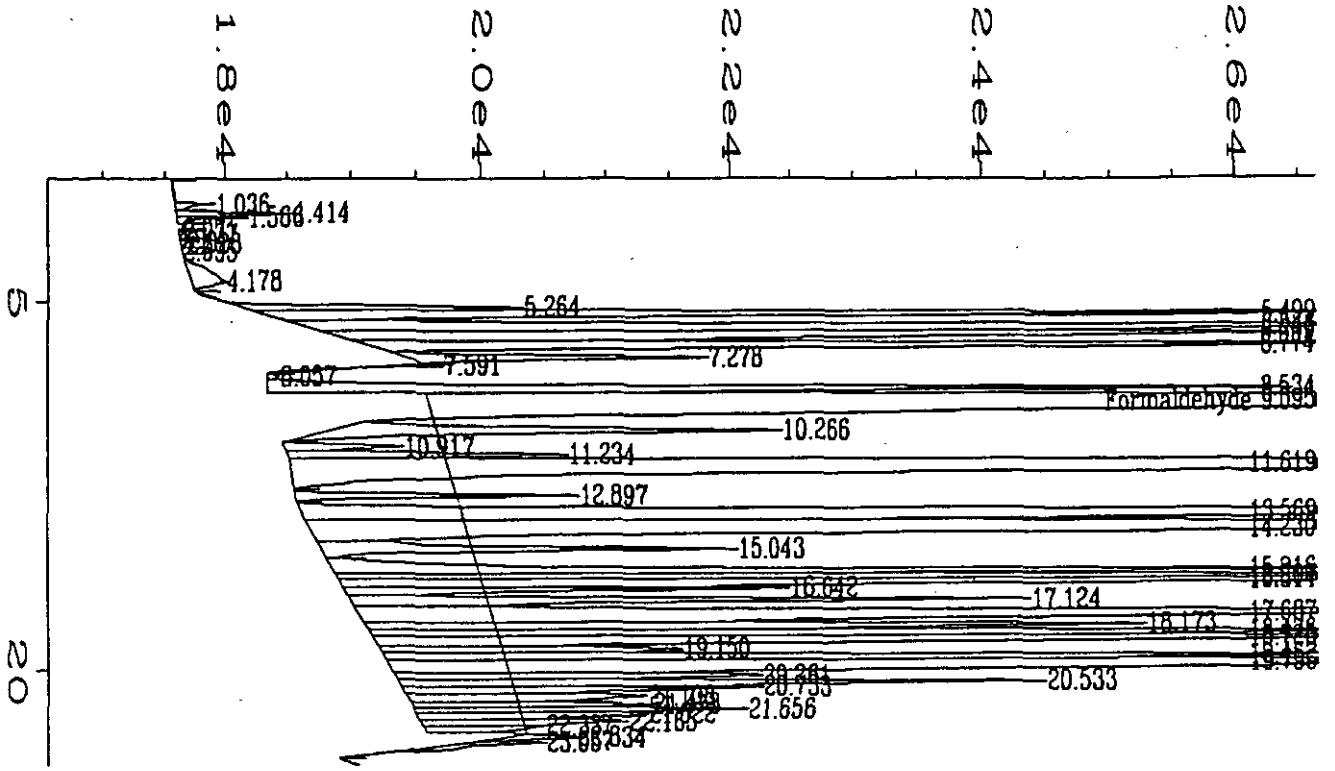
J: Analyte was present in the extract at a concentration less than the lowest calibrator.

DATA REDUCTION FOR FORMALDEHYDE ANALYSIS, METHOD 0011, QUALITY TESTS
Project: 0196015.

Lab ID	Client ID	ug/mL	Vol	Dilut.	Aliq.	Total ug	Q	Value	Parameter
0196015-MB1	**Method Blank 1**	0.0012	13.6	1	1	0.02	J	**0.0012**	ug/mL
0196015-MB2	**Method Blank 2**	0.0050	13.9	1	1	0.07	J	**0.0050**	ug/mL
0196015-MB3	**Method Blank 3**	0.0014	14.7	1	1	0.02	J	**0.0014**	ug/mL
0196015-LS1	**Lab Spike 1**	0.8940	14.8	1	1	13.23		**88.2%**	Recovery
0196015-LSD1	**Lab Spike Dupl. 1**	0.9030	13.0	1	1	11.74		**78.3%**	Recovery
0196015-LS2	**Lab Spike 2**	1.0140	14.5	1	1	14.70		**98.0%**	Recovery
0196015-LSD2	**Lab Spike Dupl. 2**	0.9960	14.2	1	1	14.14		**94.3%**	Recovery
0196015-LS3	**Lab Spike 3**	1.1320	13.7	1	1	15.51		**103.4%**	Recovery
0196015-LSD3	**Lab Spike Dupl. 3**	1.1130	13.5	1	1	15.03		**100.2%**	Recovery
CONCAL1	**Continuing Calib. 1**	0.9880	1.0	1	1	0.99		**-1.2%**	Deviation
CONCAL2	**Continuing Calib. 2**	1.0190	1.0	1	1	1.02		**1.9%**	Deviation
CONCAL3	**Continuing Calib. 3**	1.0550	1.0	1	1	1.06		**5.5%**	Deviation
CONCAL4	**Continuing Calib. 4**	0.9440	1.0	1	1	0.94		**-5.6%**	Deviation

J: Analyte was present in the extract at a concentration less than the lowest calibrator.

SAMPLE DATA



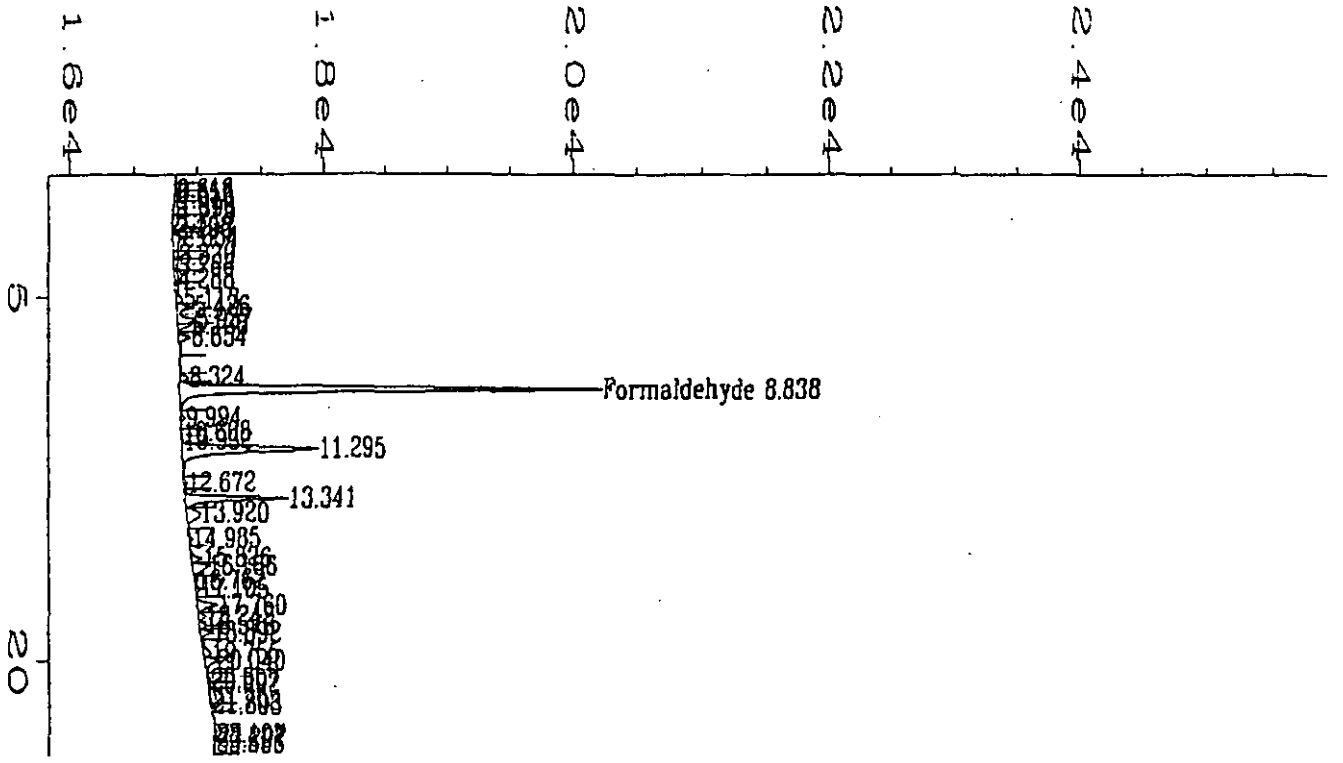
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00012.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 12
Sample Name	: 0196015-1	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 03 Feb 96 06:11 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 05 Feb 96 09:02 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00012.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.095	2.00675E+007	HBAS	0.137	1	356.891	Formaldehyde

3FE00012



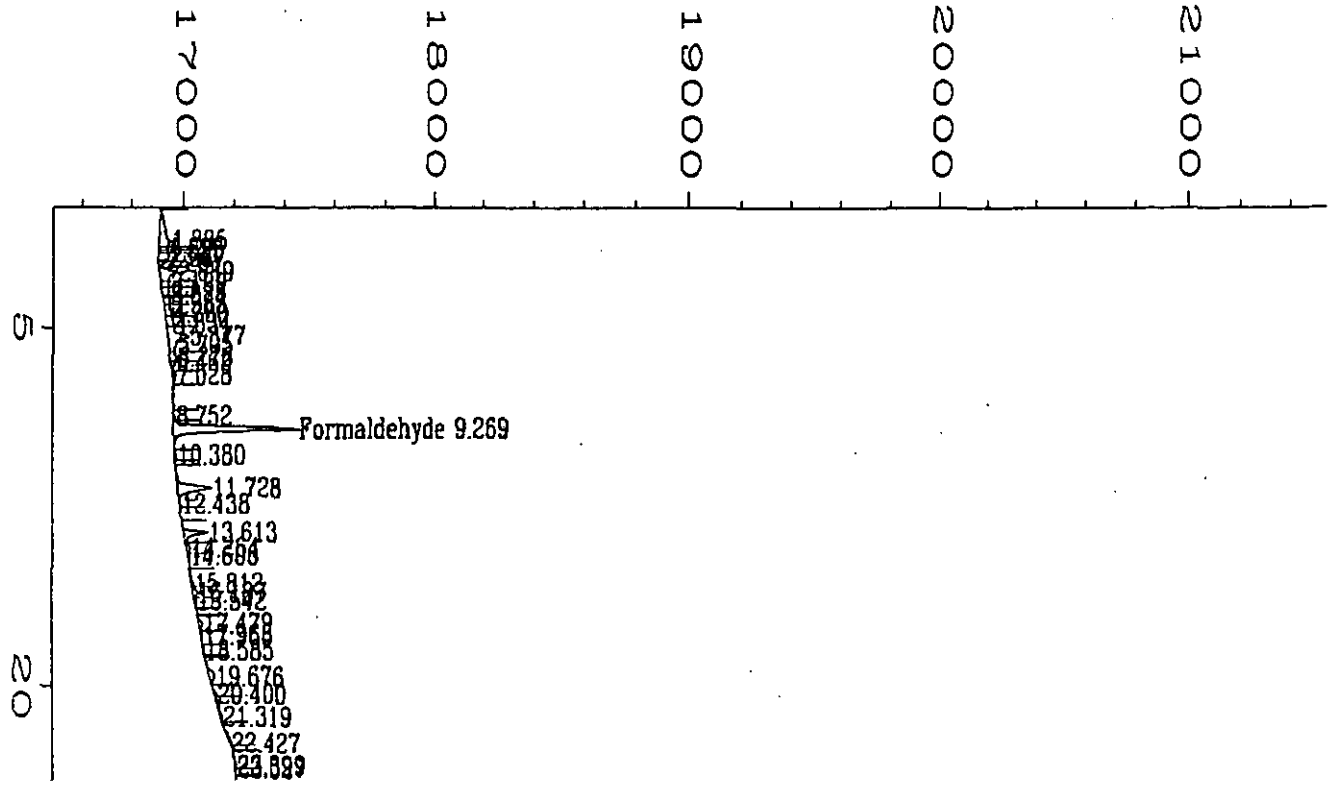
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\6FE96003.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 3
Sample Name	: 0196015-1 100X	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 06 Feb 96 11:22 AM	Instrument Method	: FORMALD3.MTH
Report Created on	: 06 Feb 96 01:22 PM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\6FE96003.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
8.838	45063	VV	0.205	1	0.674	Formaldehyde

00012



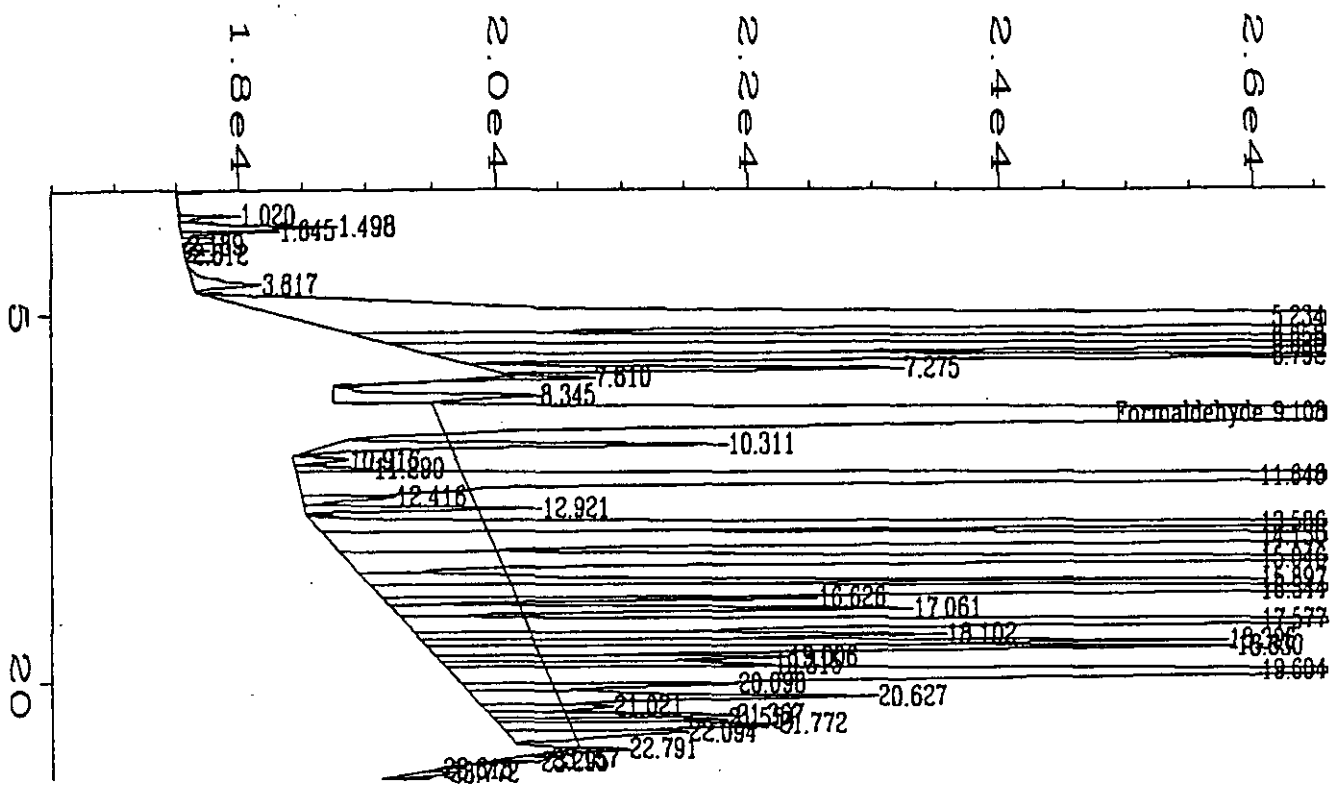
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\5FE96003.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 3
Sample Name	: 0196015-1 1000X	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 05 Feb 96 03:08 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 06 Feb 96 09:27 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:
Sample Info	:		

Sig. 1 in C:\HPCHEM\2\DATA\5FE96003.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.269	6703	VV	0.206	1	0.0336	Formaldehyde

000013



External Standard Report

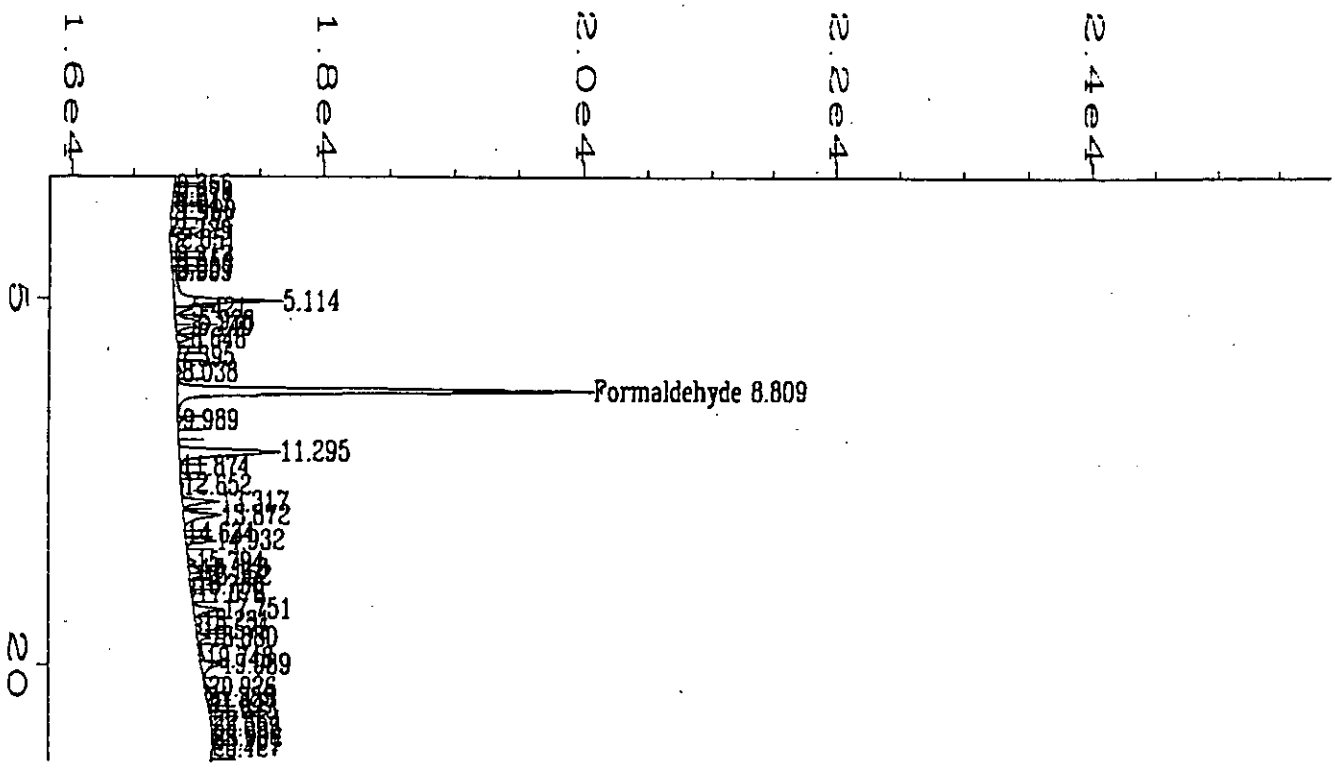
Data File Name : C:\HPCHEM\2\DATA\3FE00013.D
Operator : RLD
Instrument : LC 1 FLUO
Sample Name : 0196015-2
Run Time Bar Code:
Acquired on : 03 Feb 96 06:39 PM
Report Created on: 05 Feb 96 09:03 AM
Last Recalib on : 01 AUG 95 08:43 AM
Multiplier : 1

Page Number : 1
Vial Number : 13
Injection Number : 1
Sequence Line : 1
Instrument Method: FORMALD3.MTH
Analysis Method : FORMALD3.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in C:\HPCHEM\2\DATA\3FE00013.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.108	1.92086E+007	HBAS	0.131	1	341.612	Formaldehyde

000014

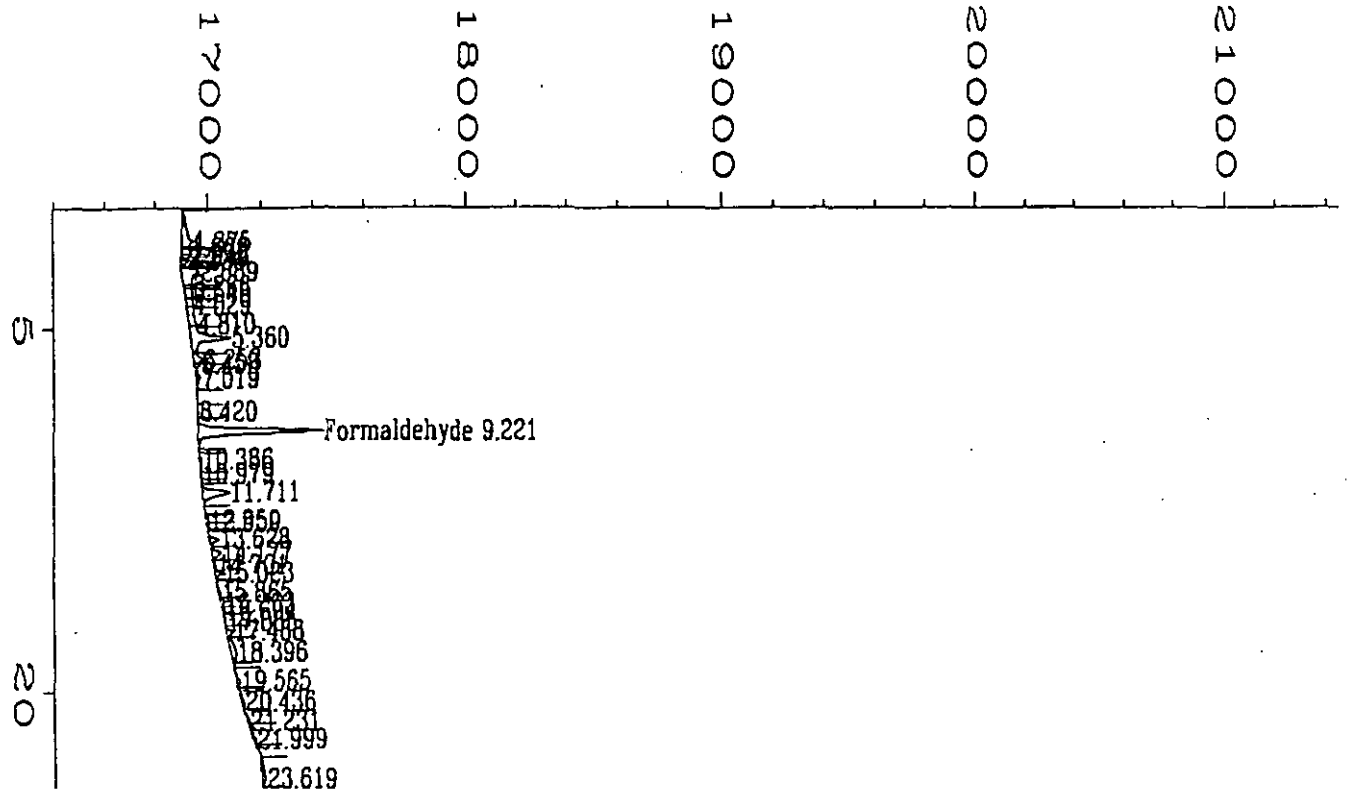


External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\6FE96004.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 4
Sample Name	: 0196015-2 100X	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 06 Feb 96 11:50 AM	Instrument Method:	FORMALD3.MTH
Report Created on:	06 Feb 96 01:22 PM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\6FE96004.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
8.809	43100	PV	0.203	1	0.639	Formaldehyde



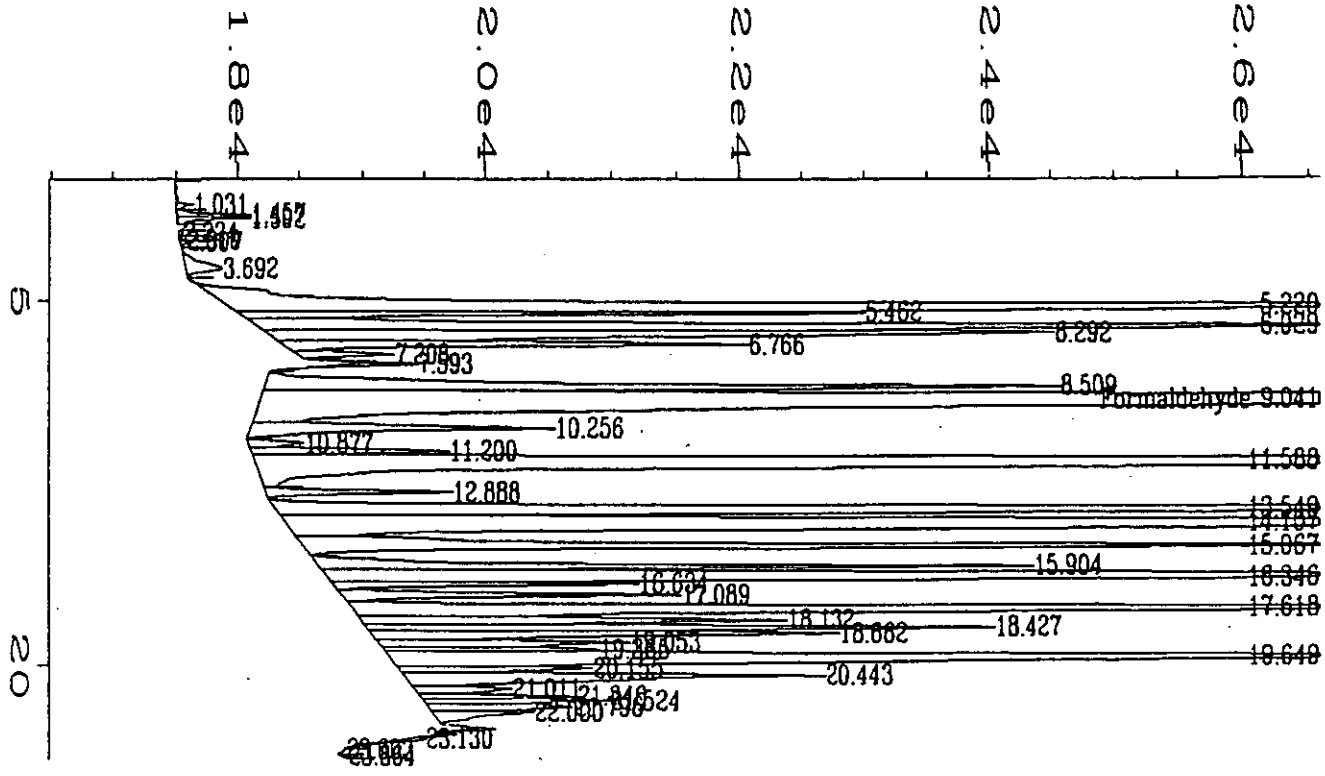
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\5FE96004.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 4
Sample Name	: 0196015-2 1000X	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 05 Feb 96 03:37 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 06 Feb 96 09:27 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\5FE96004.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.221	6851	PV	0.215	1	0.0343	Formaldehyde

000116

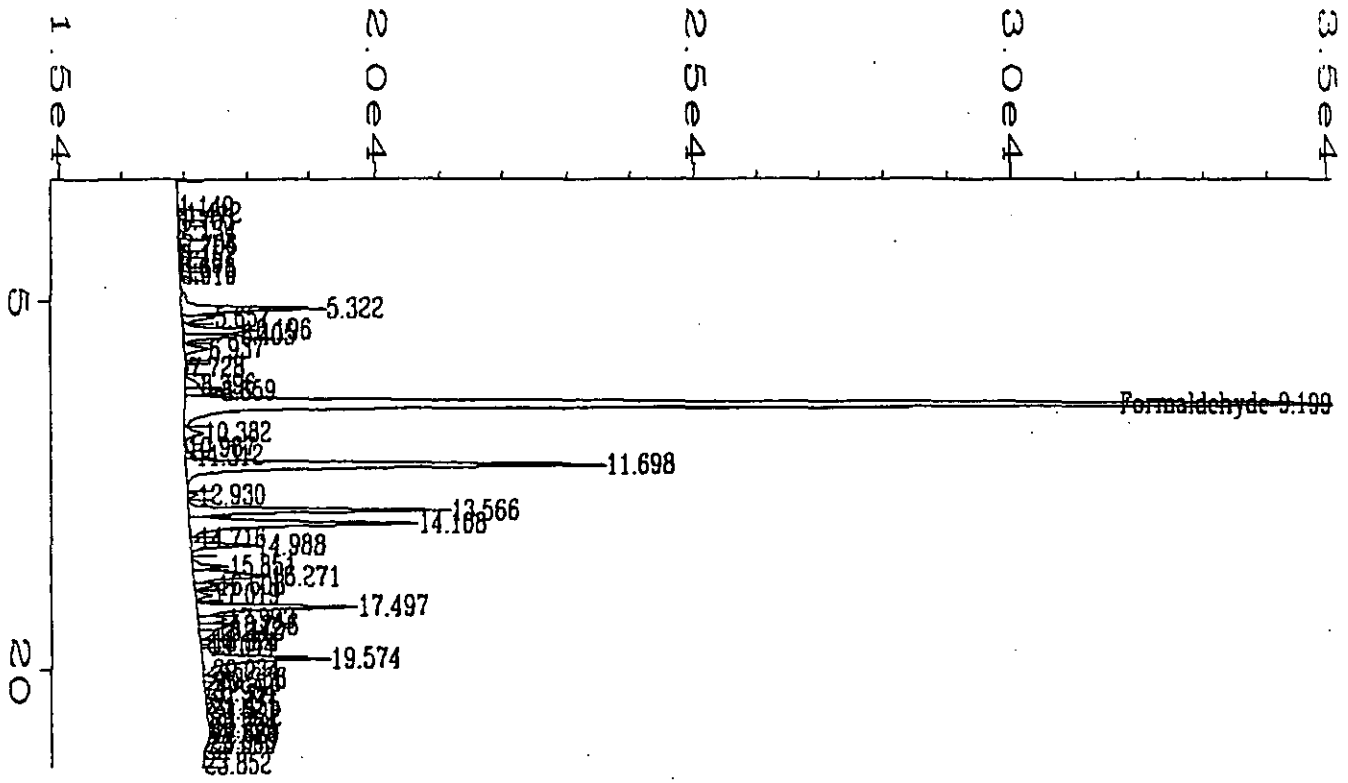


External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00014.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 14
Sample Name	: 0196015-3	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 03 Feb 96 07:08 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 05 Feb 96 09:03 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00014.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.041	3262623	VV	0.210	1	57.918	Formaldehyde



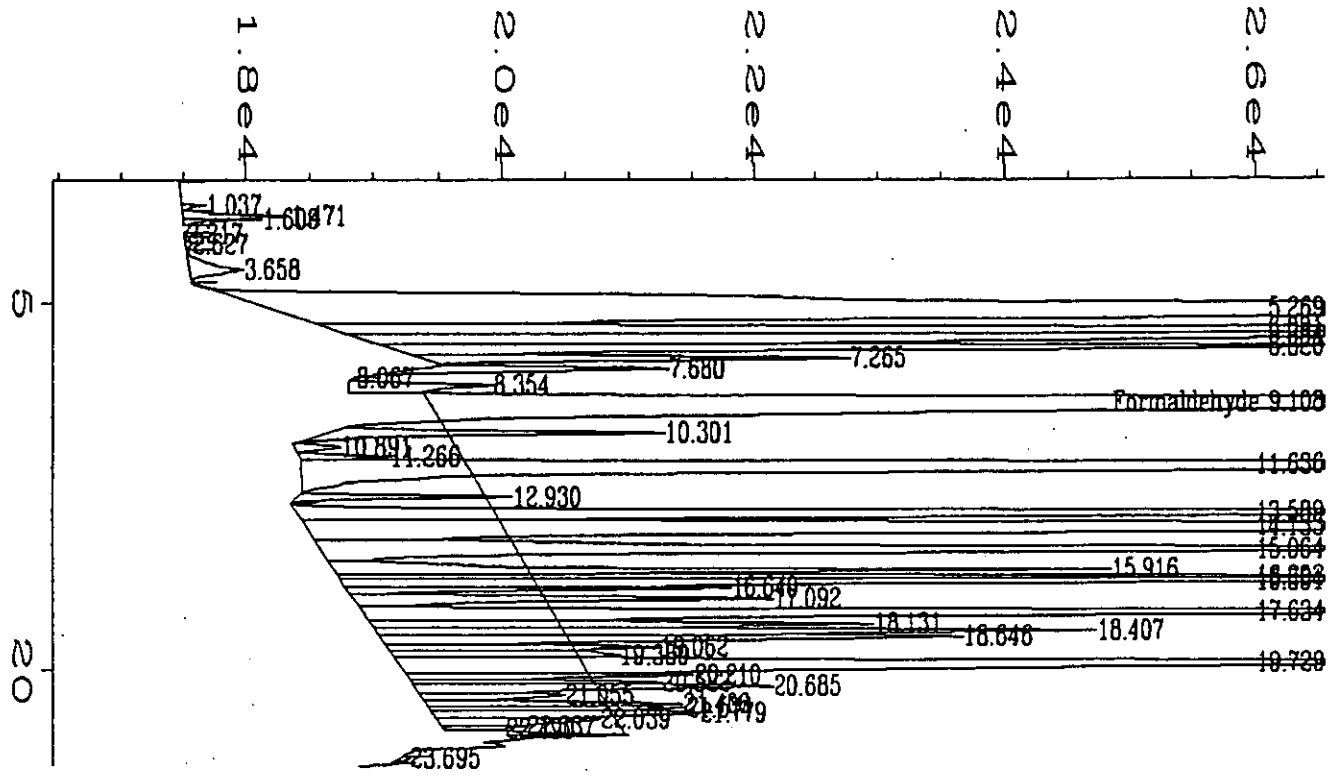
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\5FE96005.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 5
Sample Name	: 0196015-3 10X	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 05 Feb 96 04:05 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 06 Feb 96 09:27 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\5FE96005.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.199	358875	VV	0.208	1	6.257	Formaldehyde

000018



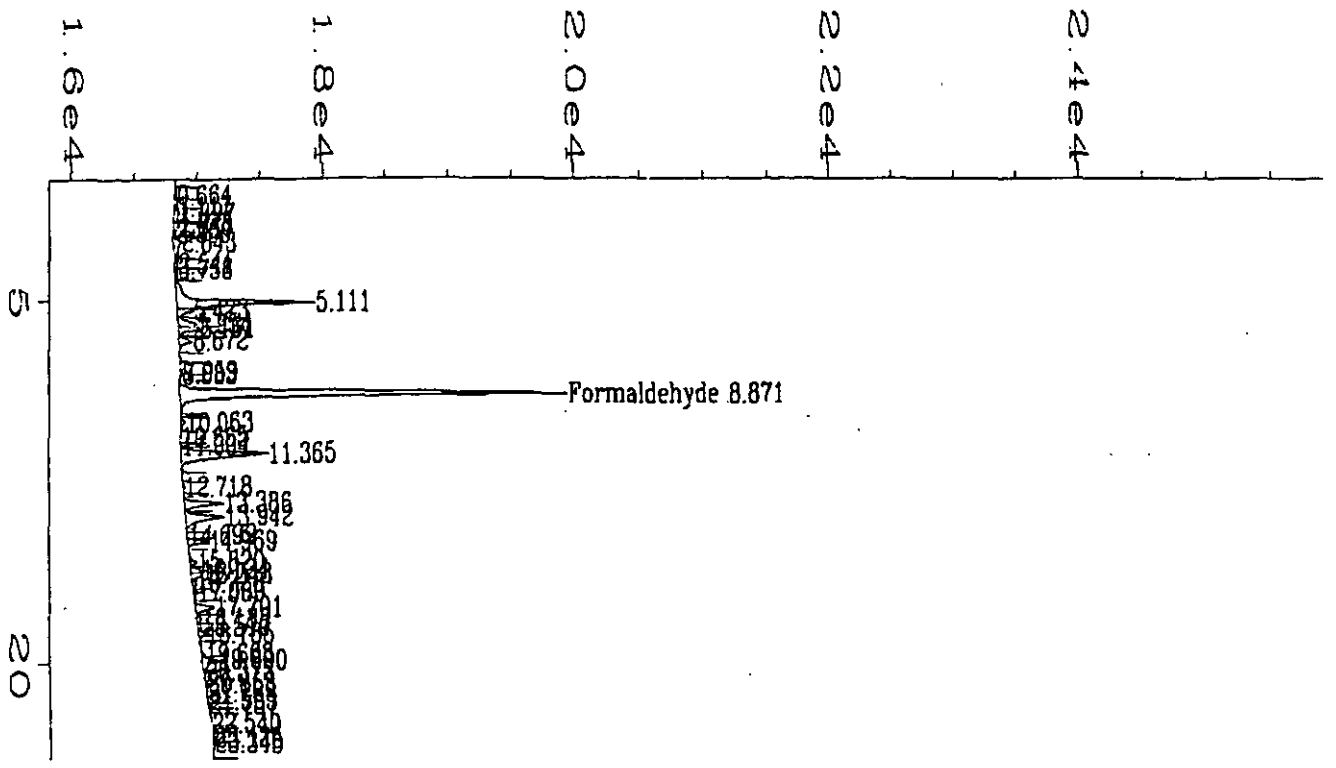
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00015.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 15
Sample Name	: 0196015-4	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 03 Feb 96 07:36 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 05 Feb 96 09:03 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00015.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.108	1.56717E+007	HBAS	0.107	1	278.687	Formaldehyde

000019

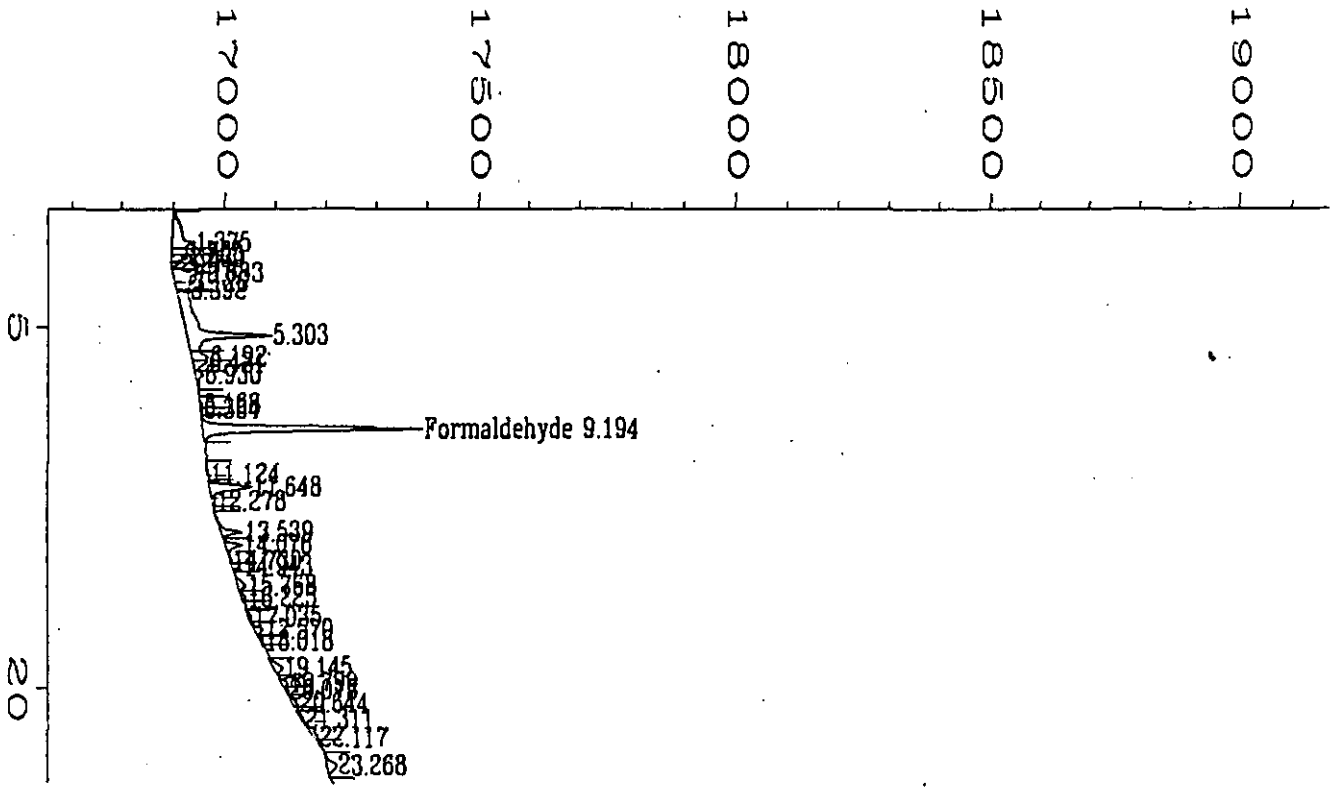


External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\6FE96005.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 5
Sample Name	: 0196015-4 100X	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 06 Feb 96 12:19 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 06 Feb 96 01:23 PM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\6FE96005.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
8.871	41806	PV	0.206	1	0.616	Formaldehyde



External Standard Report

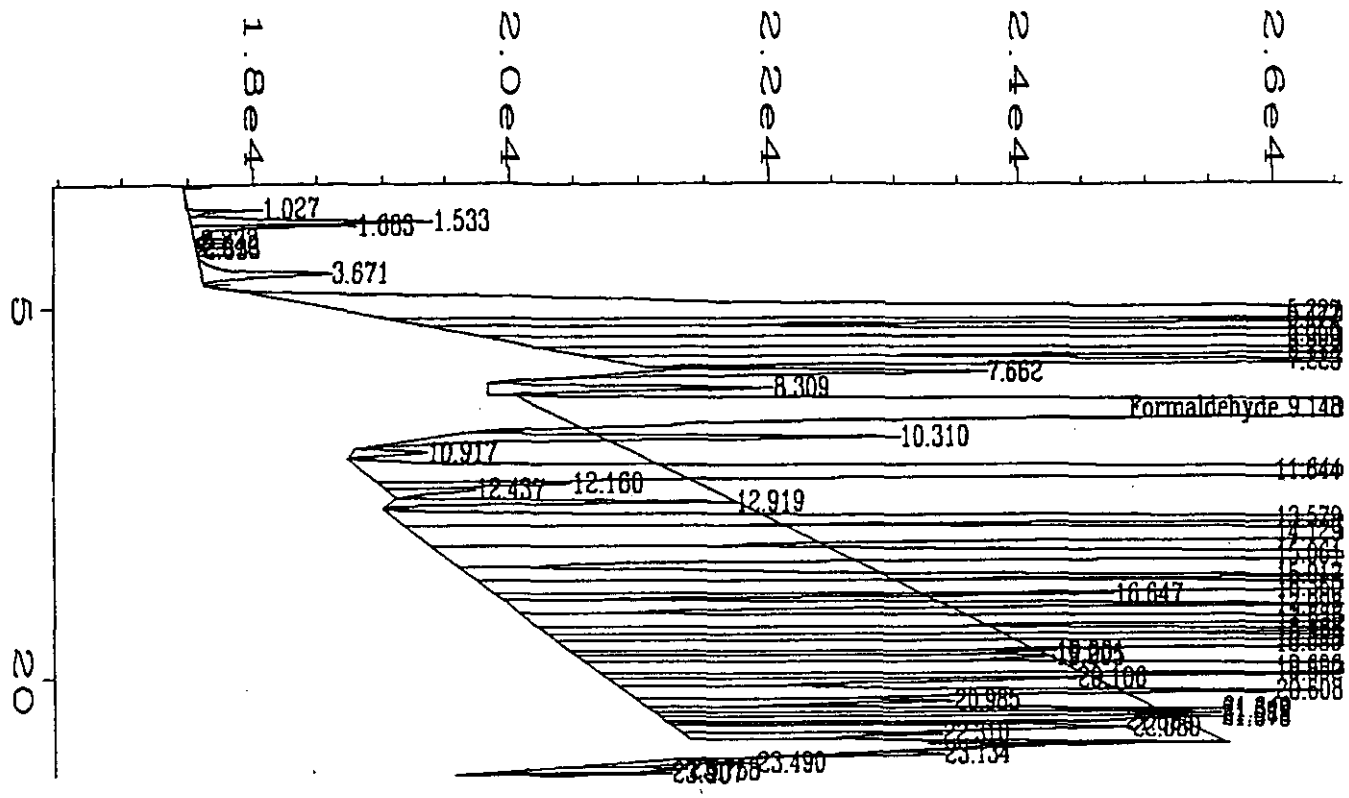
Data File Name : C:\HPCHEM\2\DATA\5FE96006.D
Operator : RLD
Instrument : LC 1 FLUO
Sample Name : 0196015-4 1000X
Run Time Bar Code:
Acquired on : 05 Feb 96 04:34 PM
Report Created on: 06 Feb 96 09:27 AM
Last Recalib on : 01 AUG 95 08:43 AM
Multiplier : 1
Sample Info :

Page Number : 1
Vial Number : 6
Injection Number : 1
Sequence Line : 1
Instrument Method: FORMALD3.MTH
Analysis Method : FORMALD3.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in C:\HPCHEM\2\DATA\5FE96006.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.194	5975	VV	0.209	1	0.0299	Formaldehyde

600021

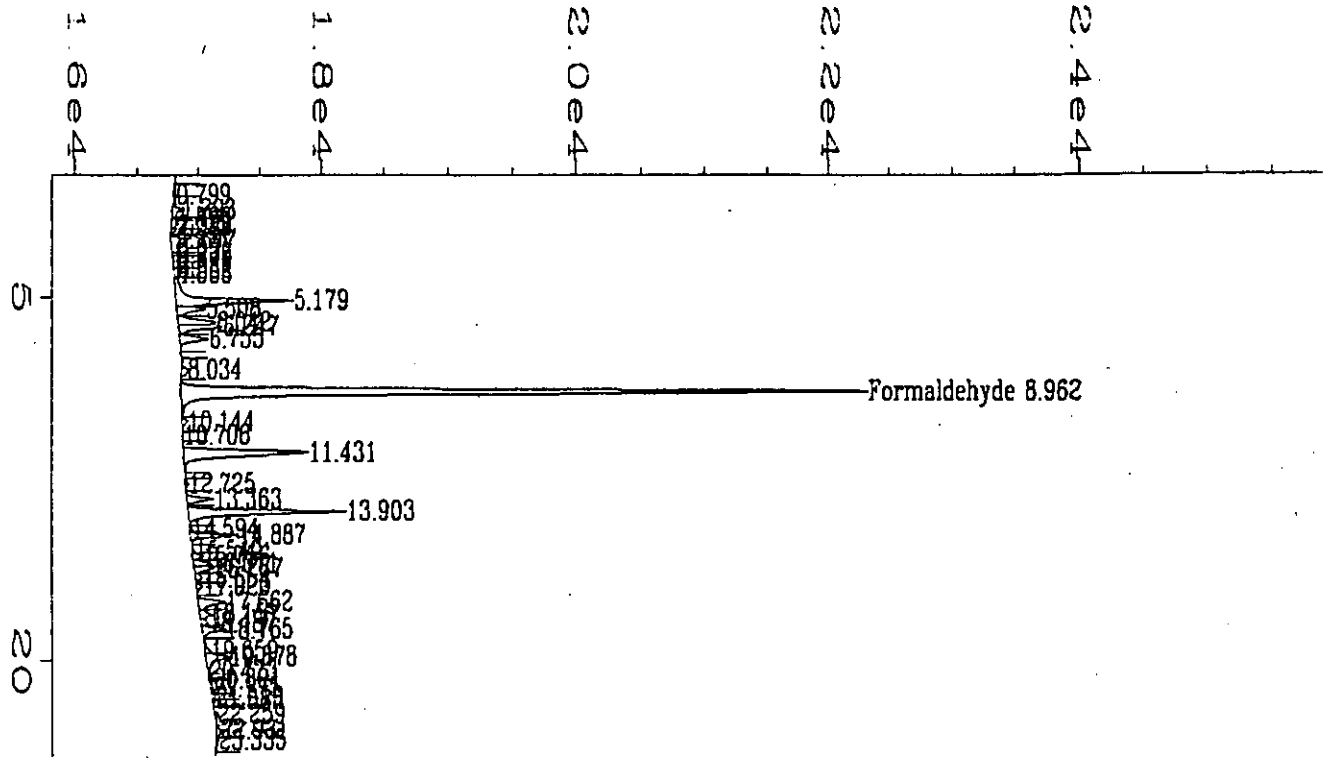


External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00016.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 16
Sample Name	: 0196015-5	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 03 Feb 96 08:05 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 05 Feb 96 09:03 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00016.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.148	2.92227E+007	HBAS	0.310	1	519.772	Formaldehyde

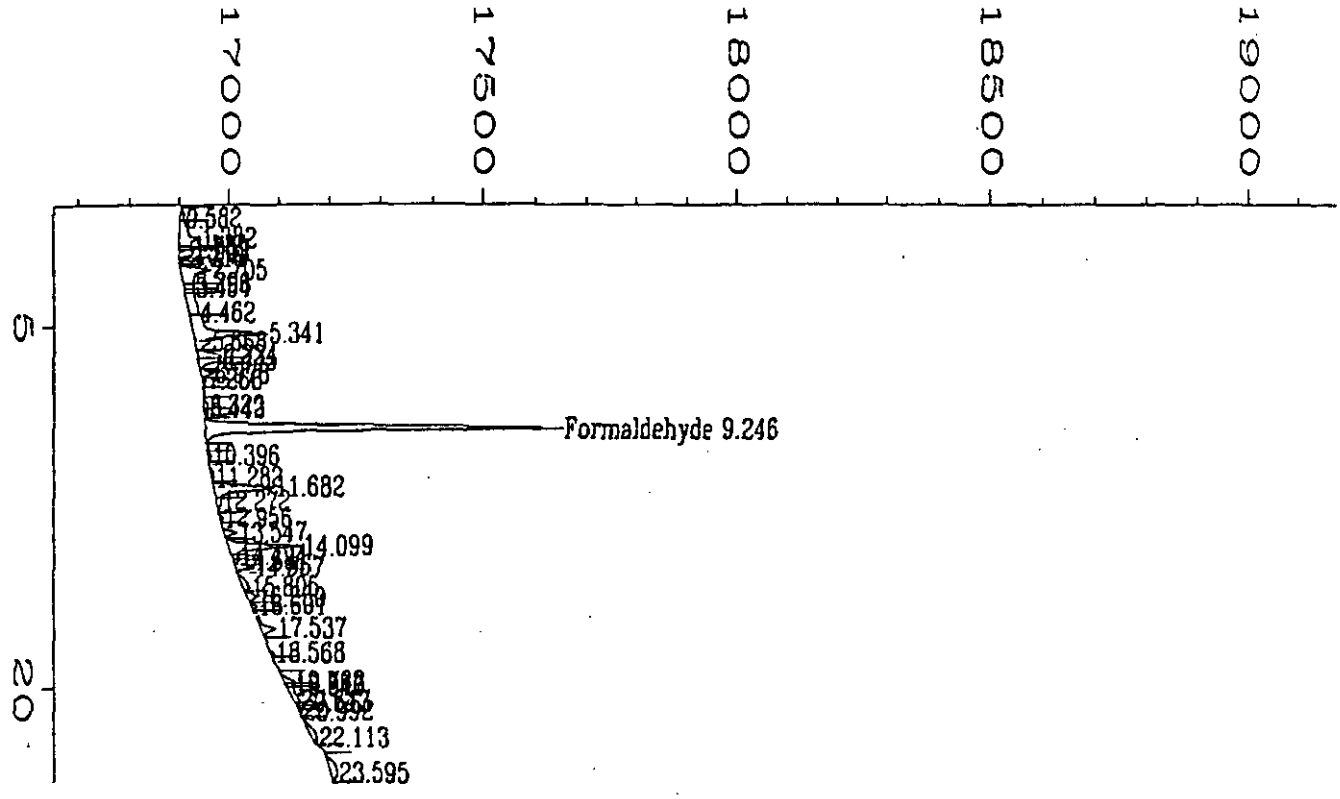


External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\6FE96006.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 6
Sample Name	: 0196015-5 100X	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 06 Feb 96 12:47 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 06 Feb 96 01:23 PM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\6FE96006.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
8.962	74334	PV	0.207	1	1.195	Formaldehyde



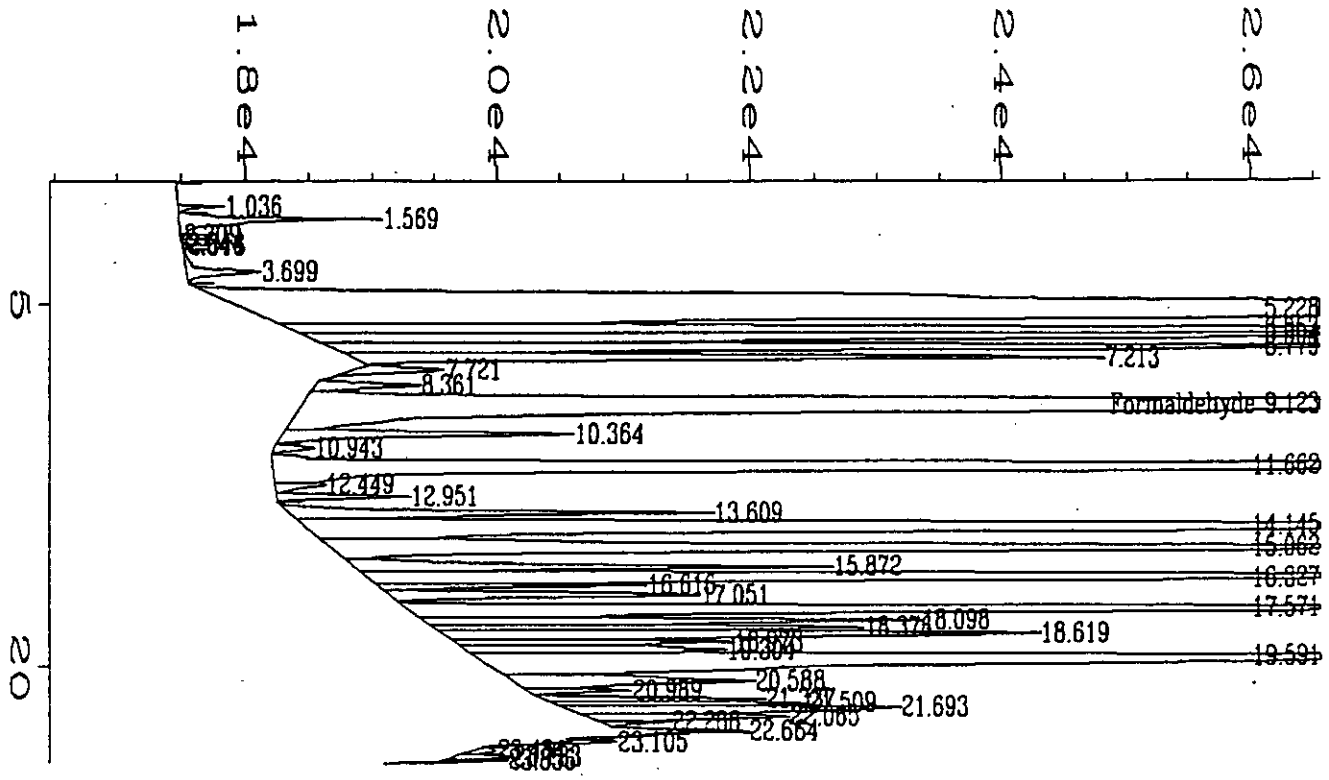
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\5FE96007.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 7
Sample Name	: 0196015-5 1000X	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 05 Feb 96 05:02 PM	Instrument Method:	FORMALD3.MTH
Report Created on:	06 Feb 96 09:28 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\5FE96007.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.246	9701	VV	0.210	1	0.0486	Formaldehyde

000024

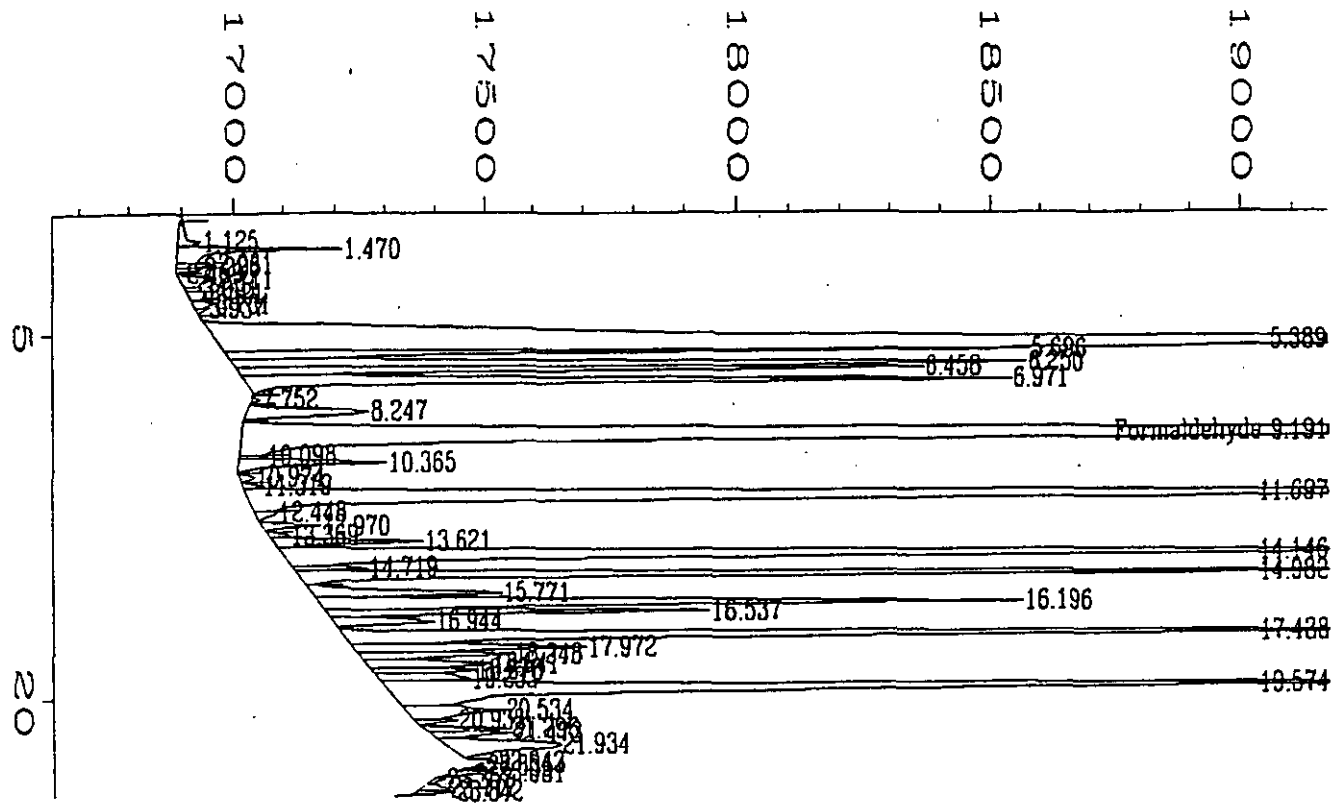


External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00017.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 17
Sample Name	: 0196015-6	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 03 Feb 96 08:34 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 05 Feb 96 09:04 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00017.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.123	3454300	VV	0.218	1	61.328	Formaldehyde



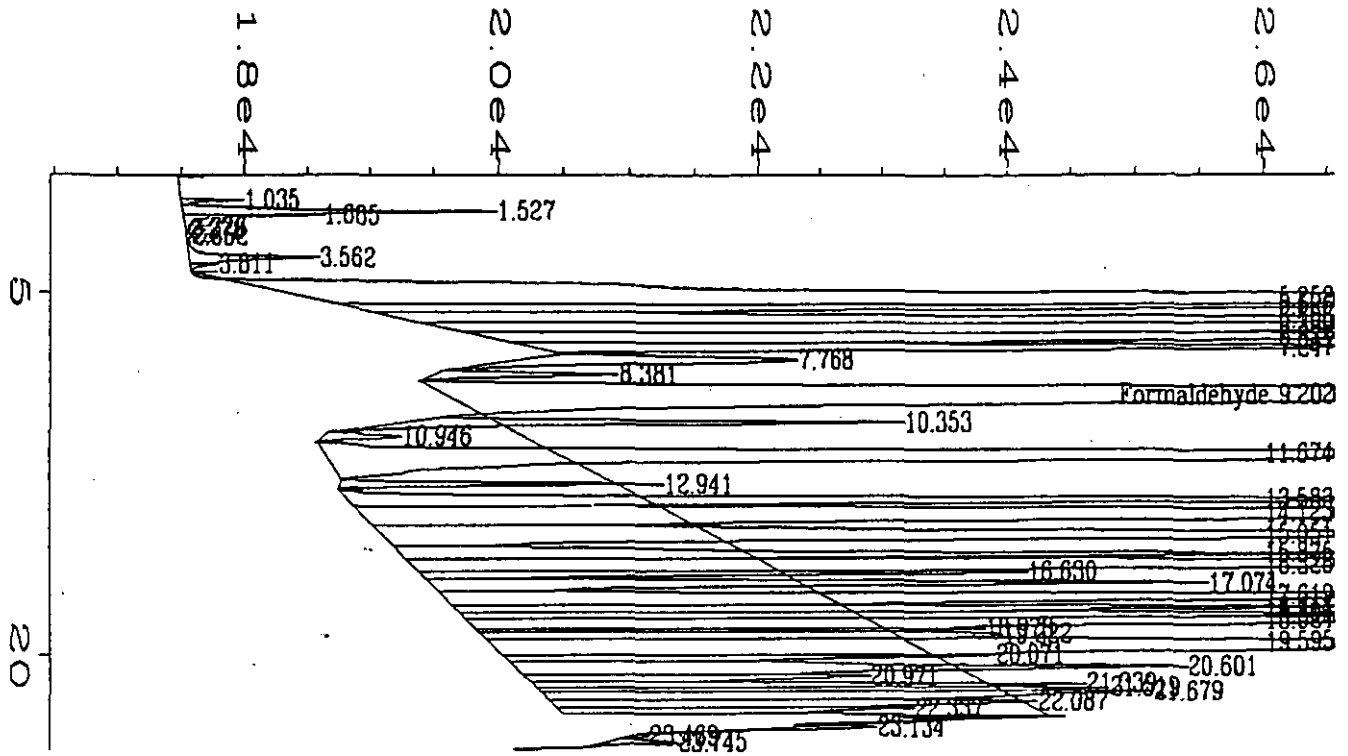
External Standard Report

Data File Name : C:\HPCHEM\2\DATA\5FE96008.D
Operator : RLD
Instrument : LC 1 FLUO
Sample Name : 0196015-6 10X
Run Time Bar Code:
Acquired on : 05 Feb 96 05:31 PM
Report Created on: 06 Feb 96 09:28 AM
Last Recalib on : 01 AUG 95 08:43 AM
Multiplier : 1

Page Number : 1
Vial Number : 8
Injection Number : 1
Sequence Line : 1
Instrument Method: FORMALD3.MTH
Analysis Method : FORMALD3.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in C:\HPCHEM\2\DATA\5FE96008.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.191	380986	PV	0.210	1	6.651	Formaldehyde



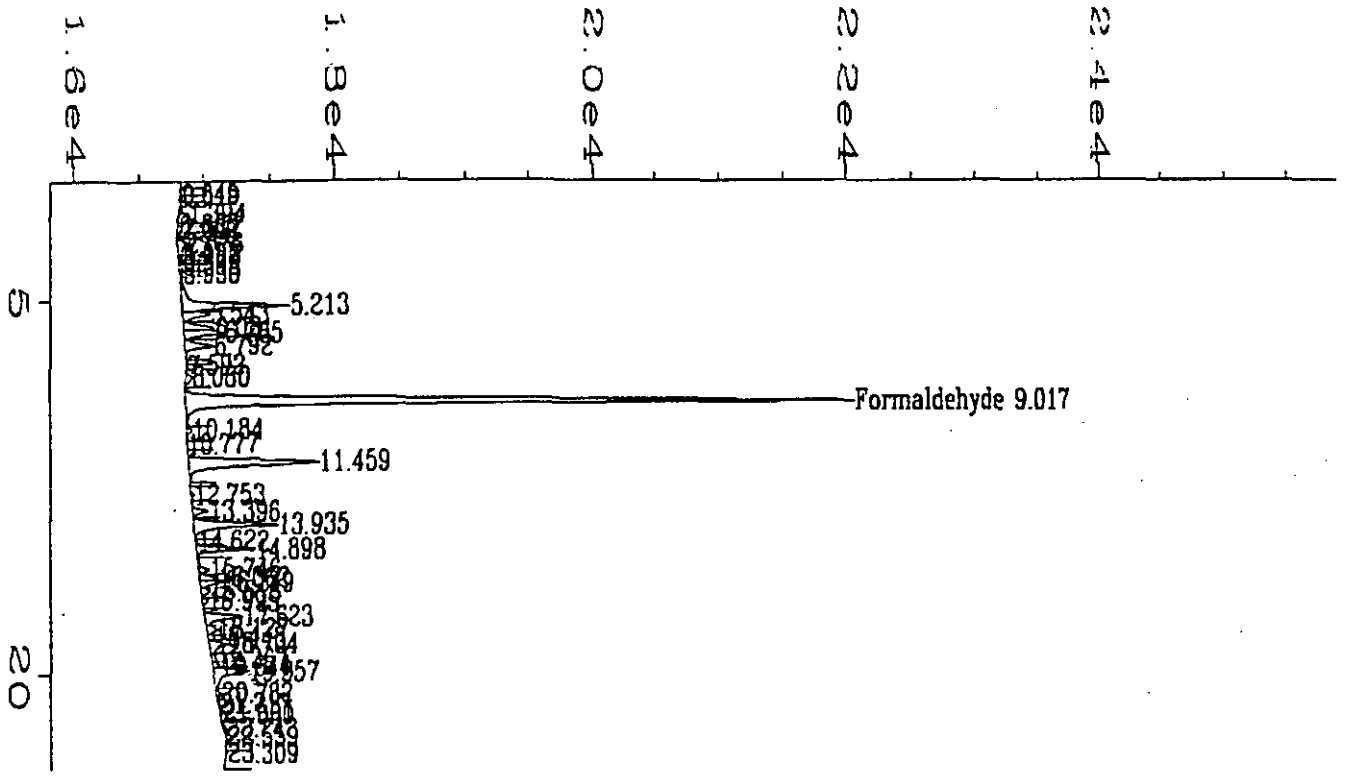
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00018.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 18
Sample Name	: 0196015-7	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 03 Feb 96 09:02 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 05 Feb 96 09:04 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00018.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.202	2.73006E+007	HBAS	0.372	1	485.575	Formaldehyde

000027



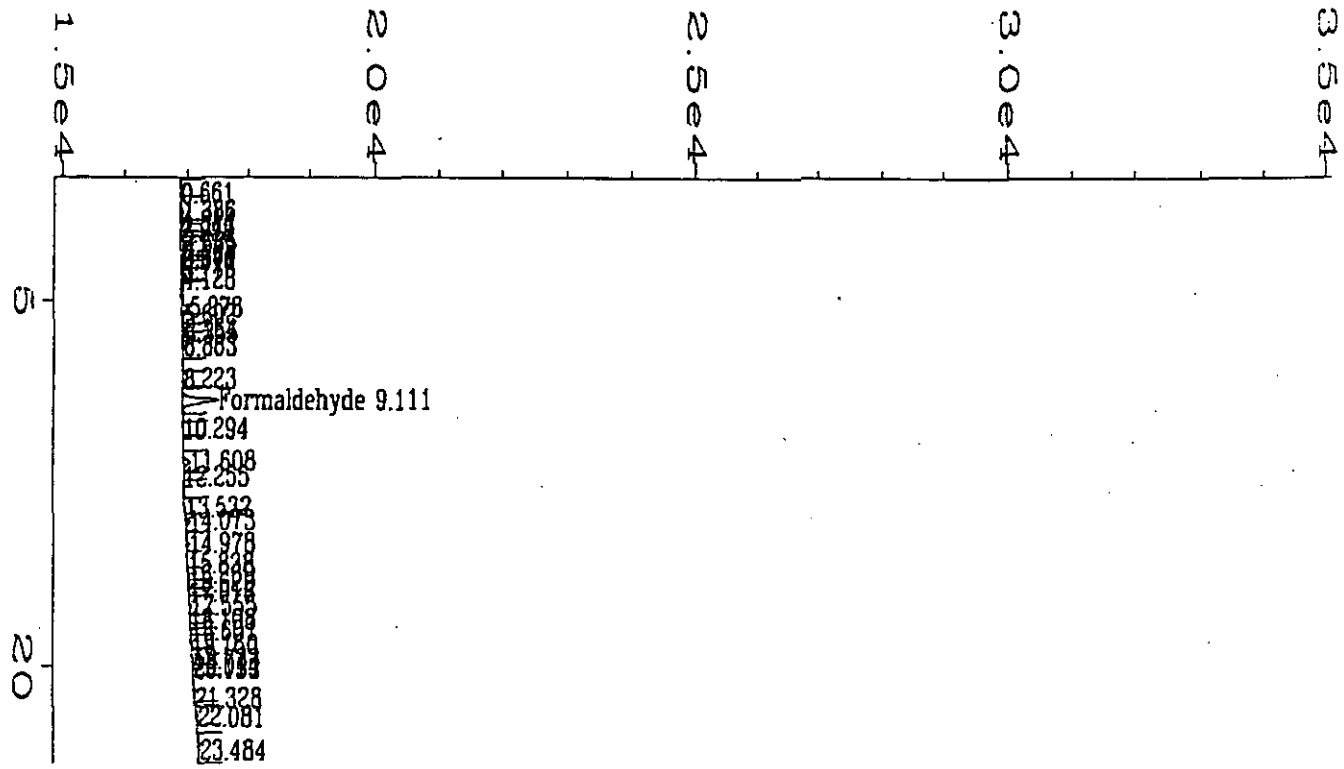
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\6FE96007.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 7
Sample Name	: 0196015-7 100X	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 06 Feb 96 01:16 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 06 Feb 96 02:09 PM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\6FE96007.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.017	70836	PV	0.207	1	1.133	Formaldehyde

000028



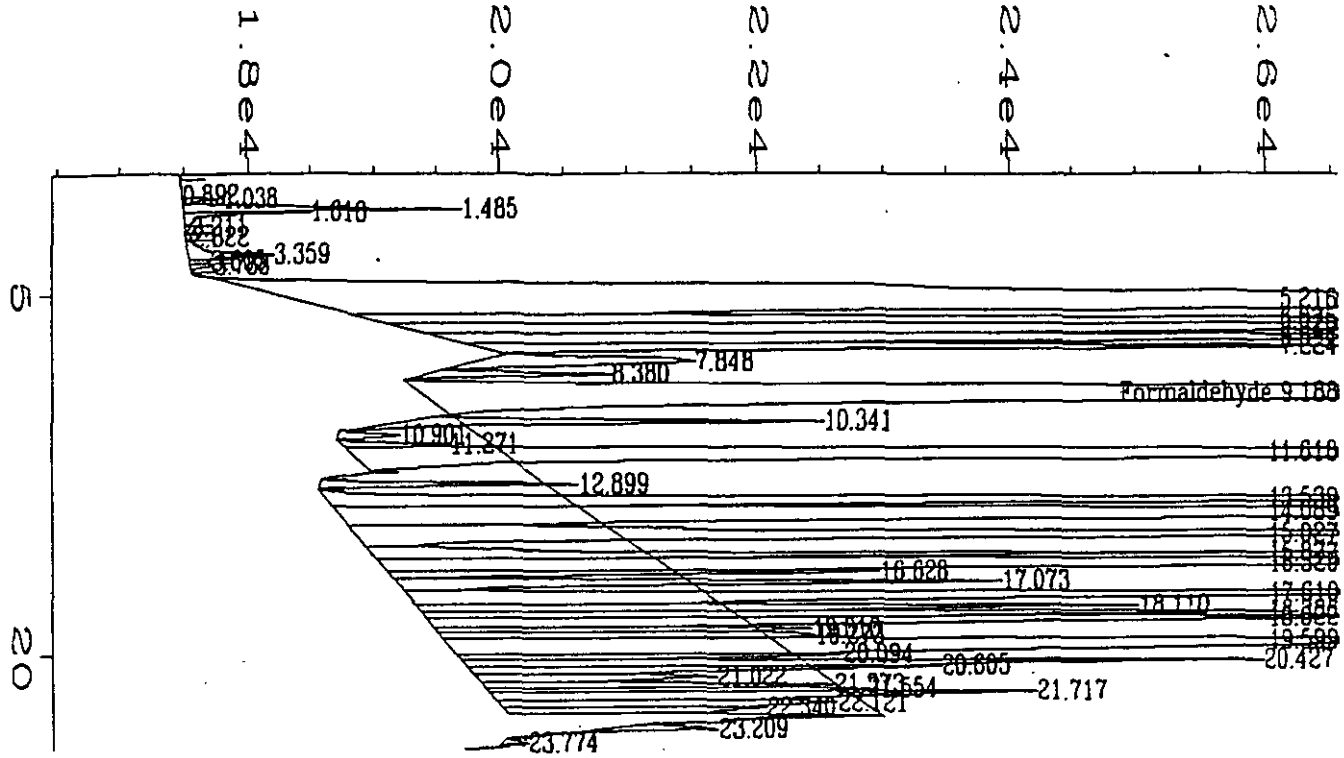
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\5FE96009.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 9
Sample Name	: 0196015-7 1000X	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 05 Feb 96 05:59 PM	Instrument Method:	FORMALD3.MTH
Report Created on:	06 Feb 96 09:28 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\5FE96009.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.111	8623	PV	0.219	1	0.0432	Formaldehyde

000029



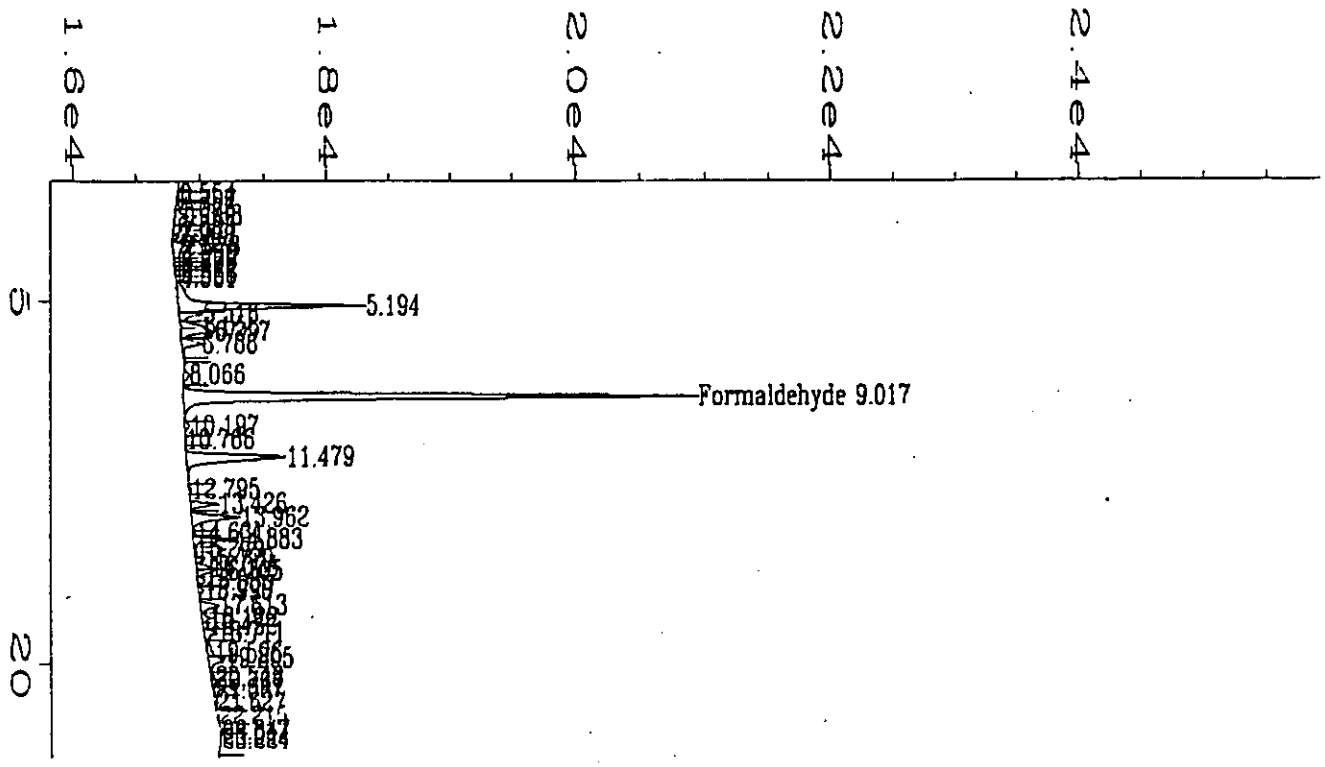
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00019.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 19
Sample Name	: 0196015-8	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 03 Feb 96 09:31 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 05 Feb 96 09:04 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00019.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.188	2.44732E+007	HBAS	0.359	1	435.274	Formaldehyde

000030



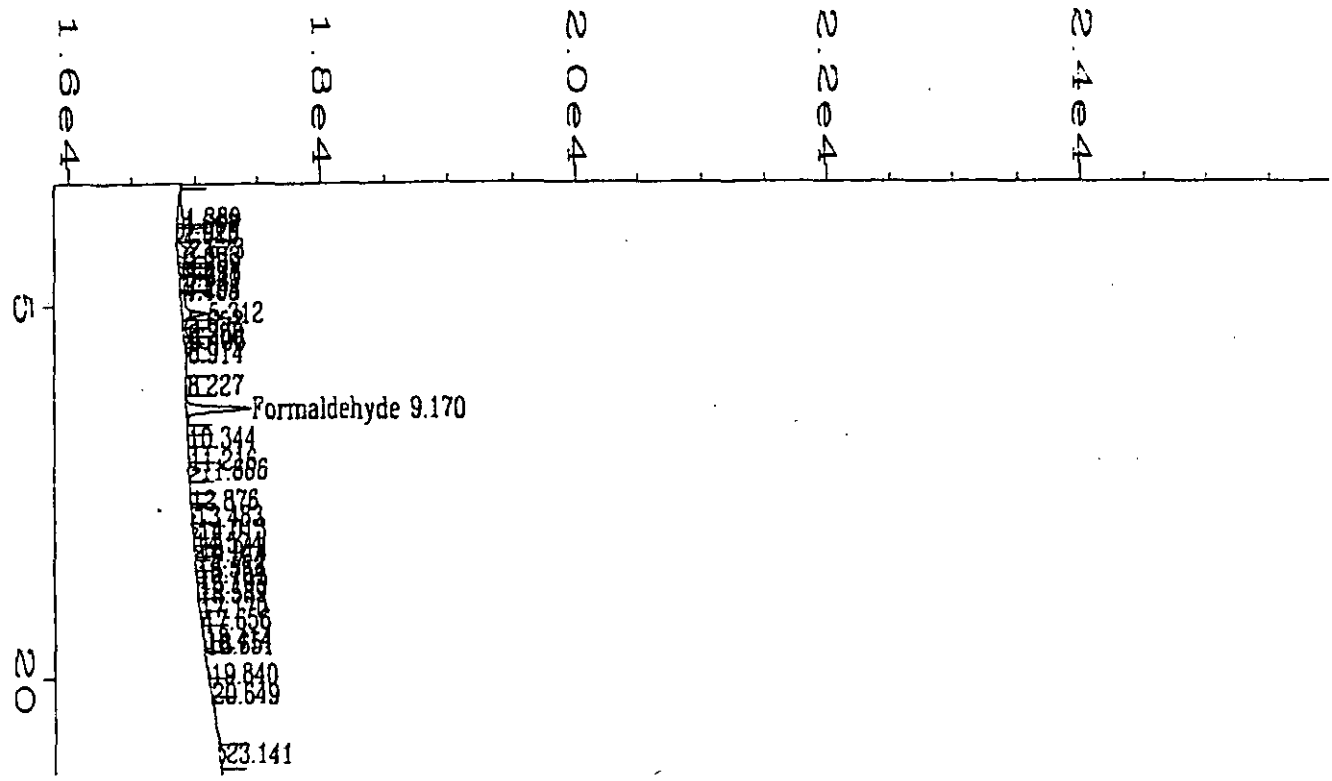
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\6FE96008.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 8
Sample Name	: 0196015-8 100X	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 06 Feb 96 01:44 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 06 Feb 96 02:09 PM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\6FE96008.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.017	56569	PV	0.211	1	0.879	Formaldehyde

000031



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External Standard Report

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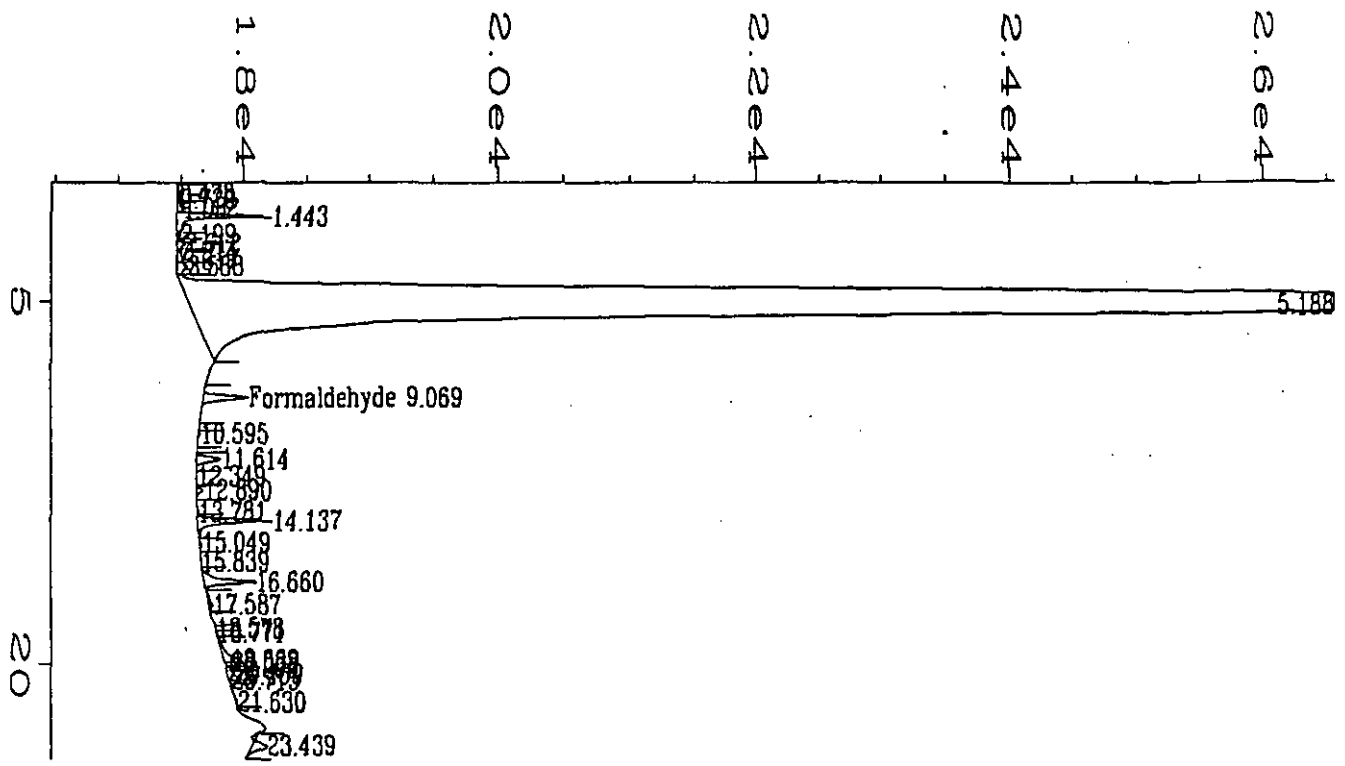
Data File Name	: C:\HPCHEM\2\DATA\5FE96010.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 10
Sample Name	: 0196015-8 1000X	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 05 Feb 96 06:28 PM	Instrument Method:	FORMALD3.MTH
Report Created on:	06 Feb 96 09:28 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\5FE96010.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.170	7308	PV	0.213	1	0.0366	Formaldehyde

==========

000032



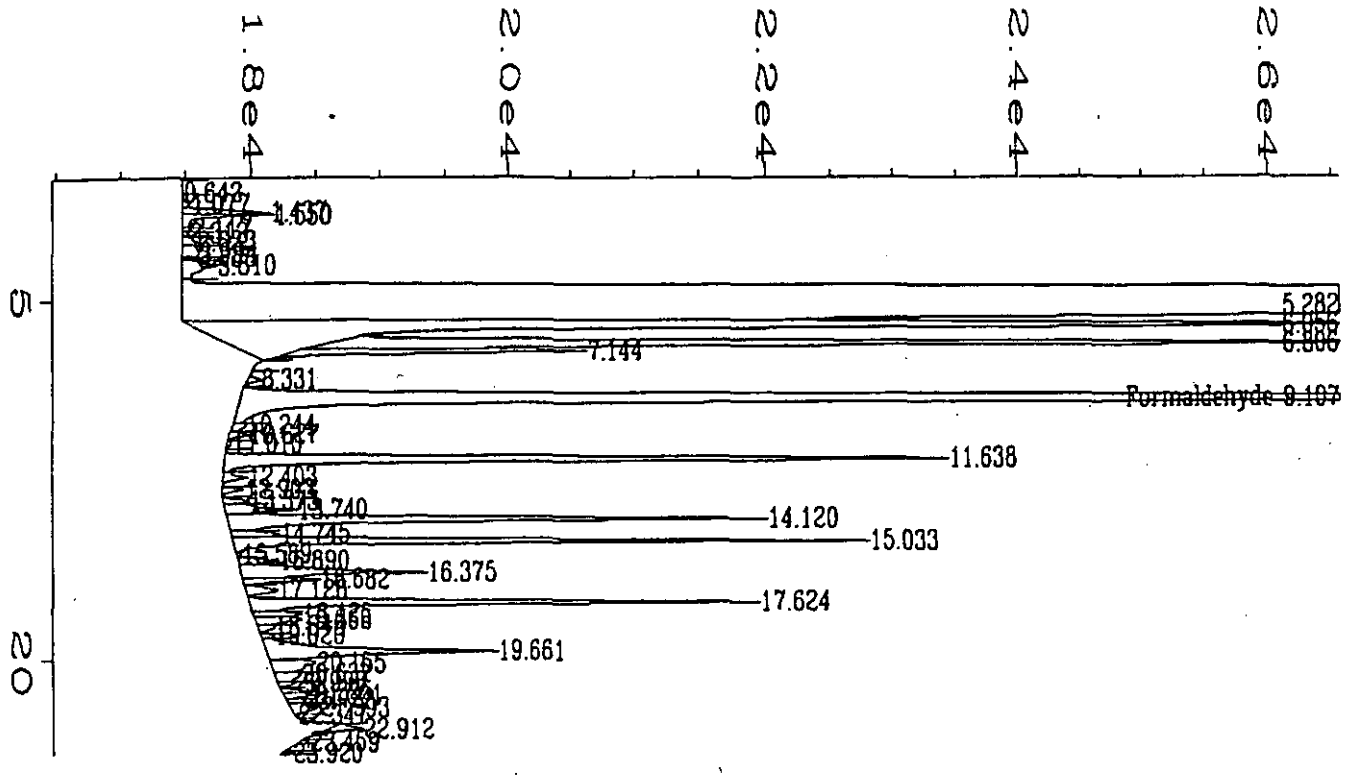
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00020.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 20
Sample Name	: 0196015-9	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 03 Feb 96 09:59 PM	Instrument Method:	FORMALD3.MTH
Report Created on:	05 Feb 96 09:05 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00020.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.069	4619	BV	0.199	1	0.0231	Formaldehyde

000033



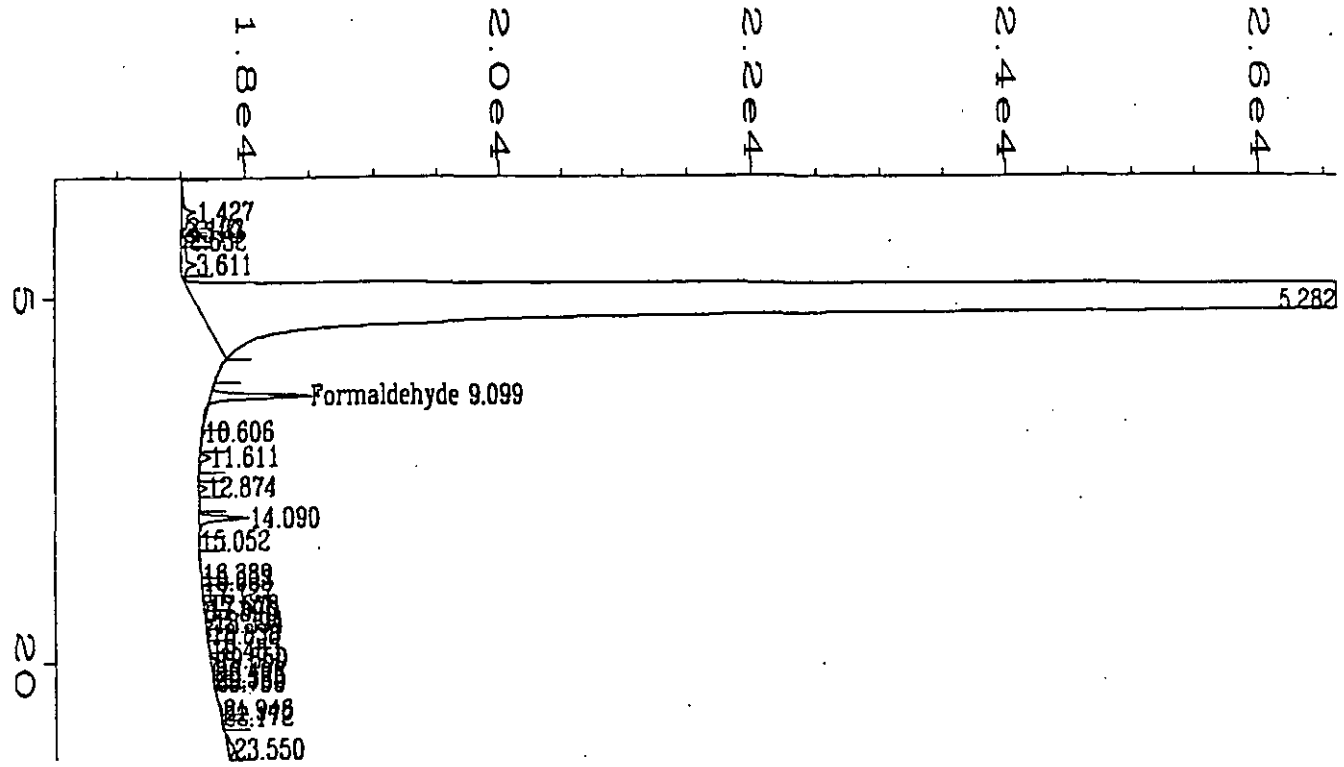
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00021.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 21
Sample Name	: 0196015-10	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 03 Feb 96 10:28 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 05 Feb 96 09:05 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00021.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.107	496309	PV	0.203	1	8.702	Formaldehyde

000034

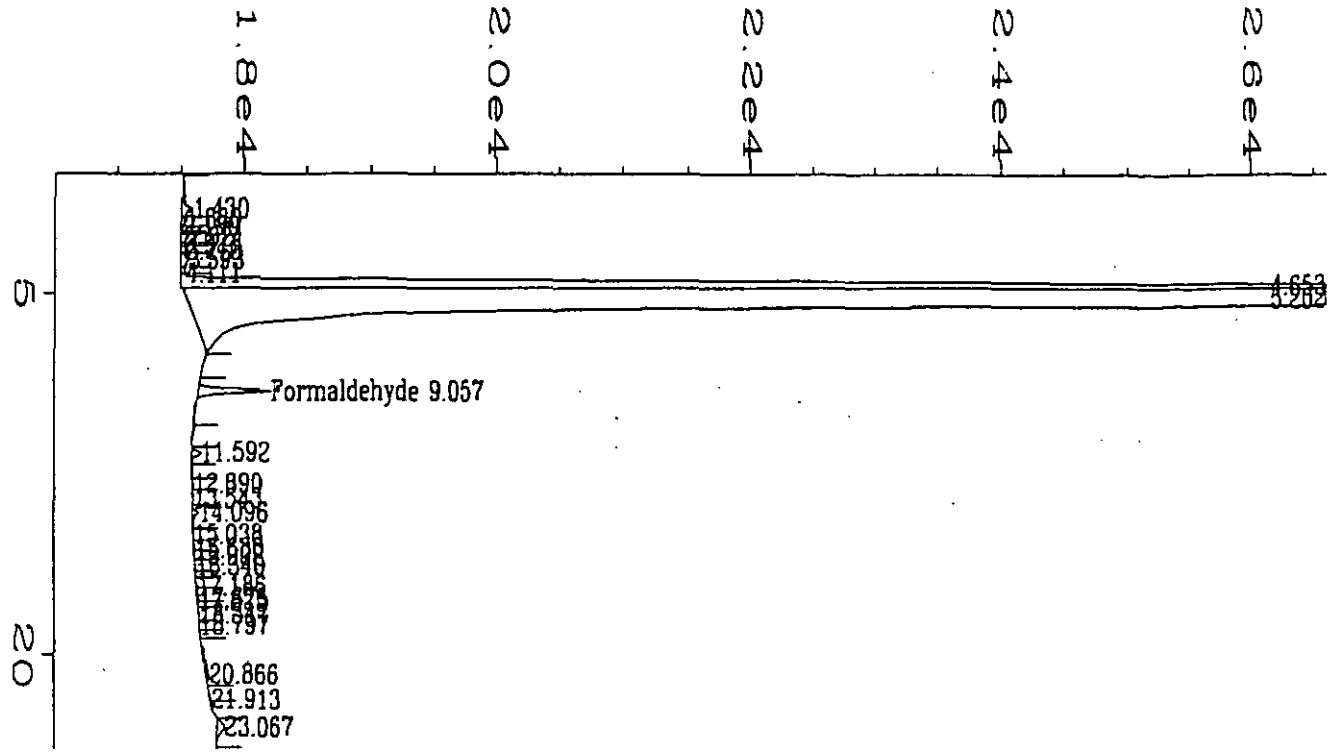


External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00023.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 23
Sample Name	: 0196015-12	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 03 Feb 96 11:25 PM	Instrument Method:	FORMALD3.MTH
Report Created on:	05 Feb 96 09:05 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00023.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.099	9614	BV	0.193	1	0.0482	Formaldehyde



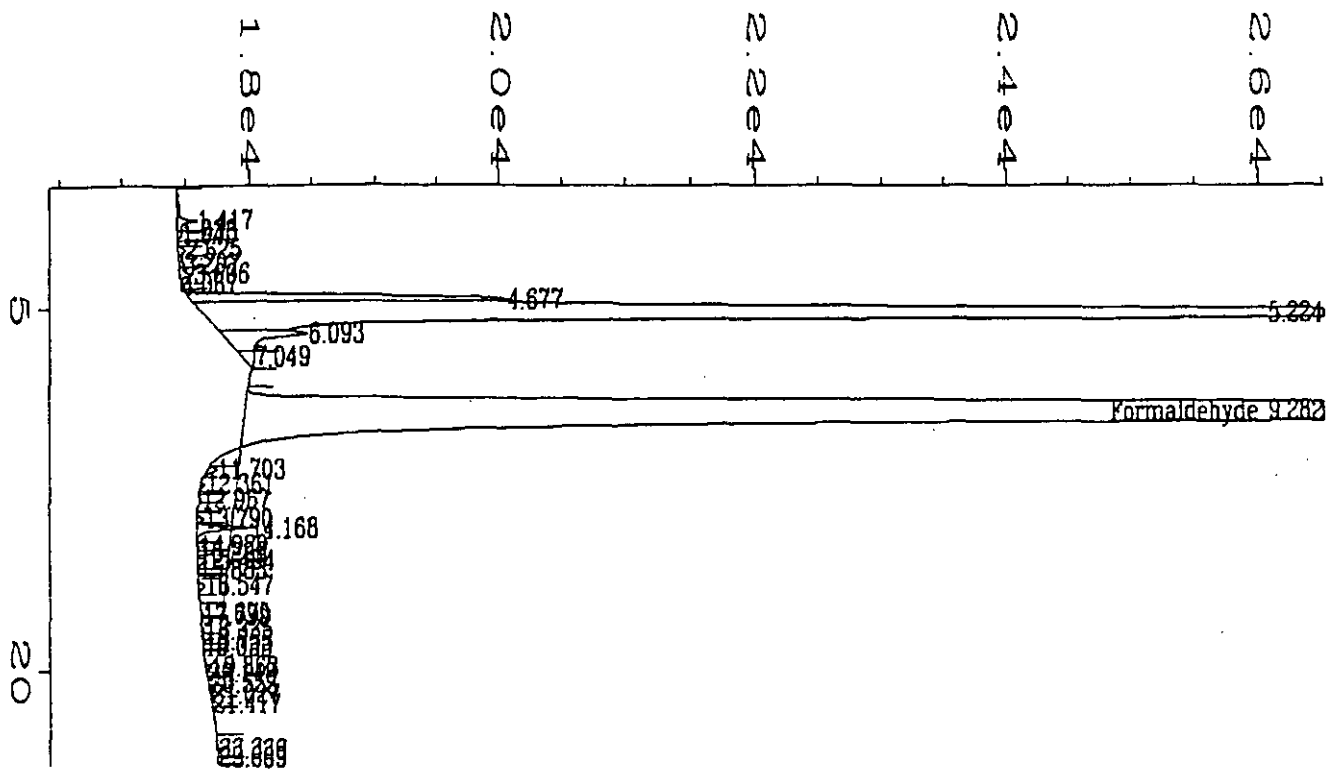
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00024.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 24
Sample Name	: 0196015-13,14,15	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 03 Feb 96 11:54 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 05 Feb 96 09:06 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00024.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.057	7269	BV	0.198	1	0.0364	Formaldehyde

000037



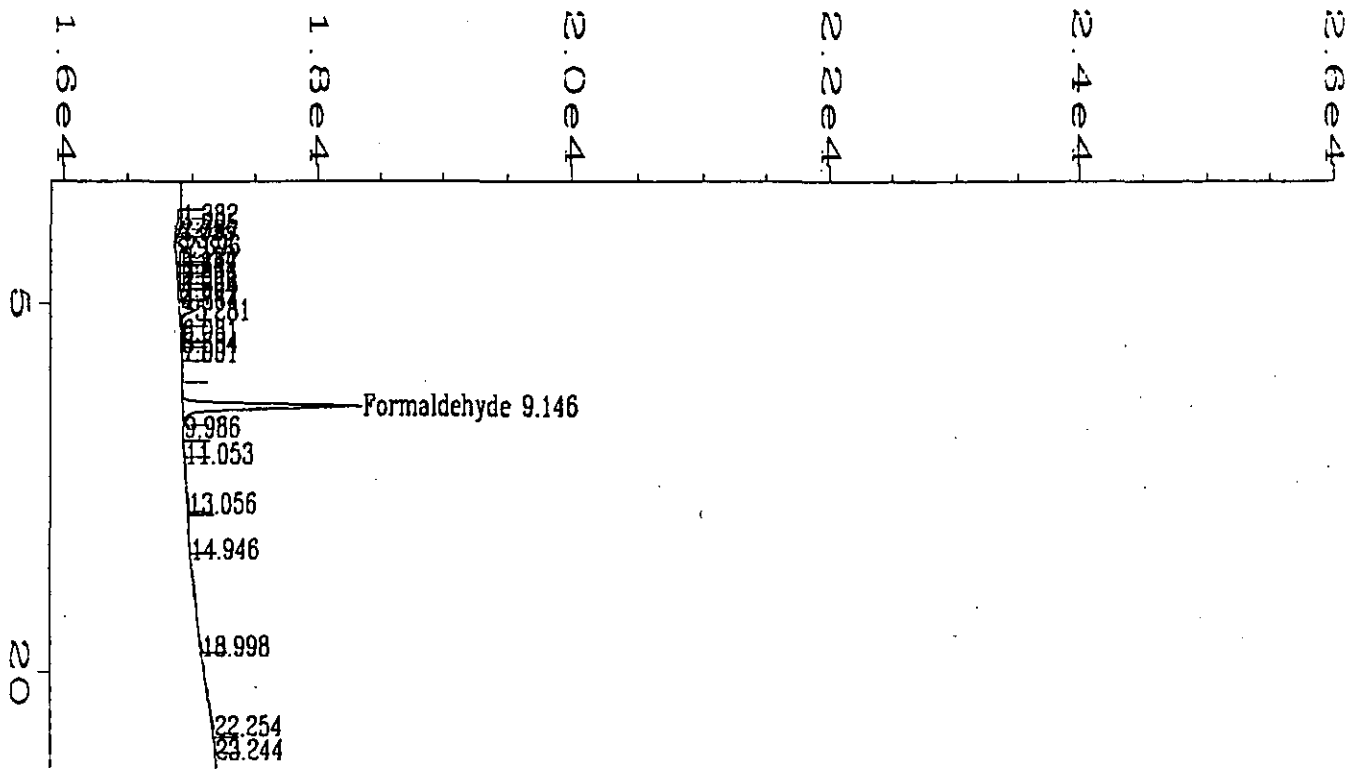
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00027.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 27
Sample Name	: 0196015-16	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 04 Feb 96 01:19 AM	Instrument Method	: FORMALD3.MTH
Report Created on	: 05 Feb 96 04:54 PM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00027.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.282	4.49473E+007	HB S	0.310	1	799.528	Formaldehyde

000039



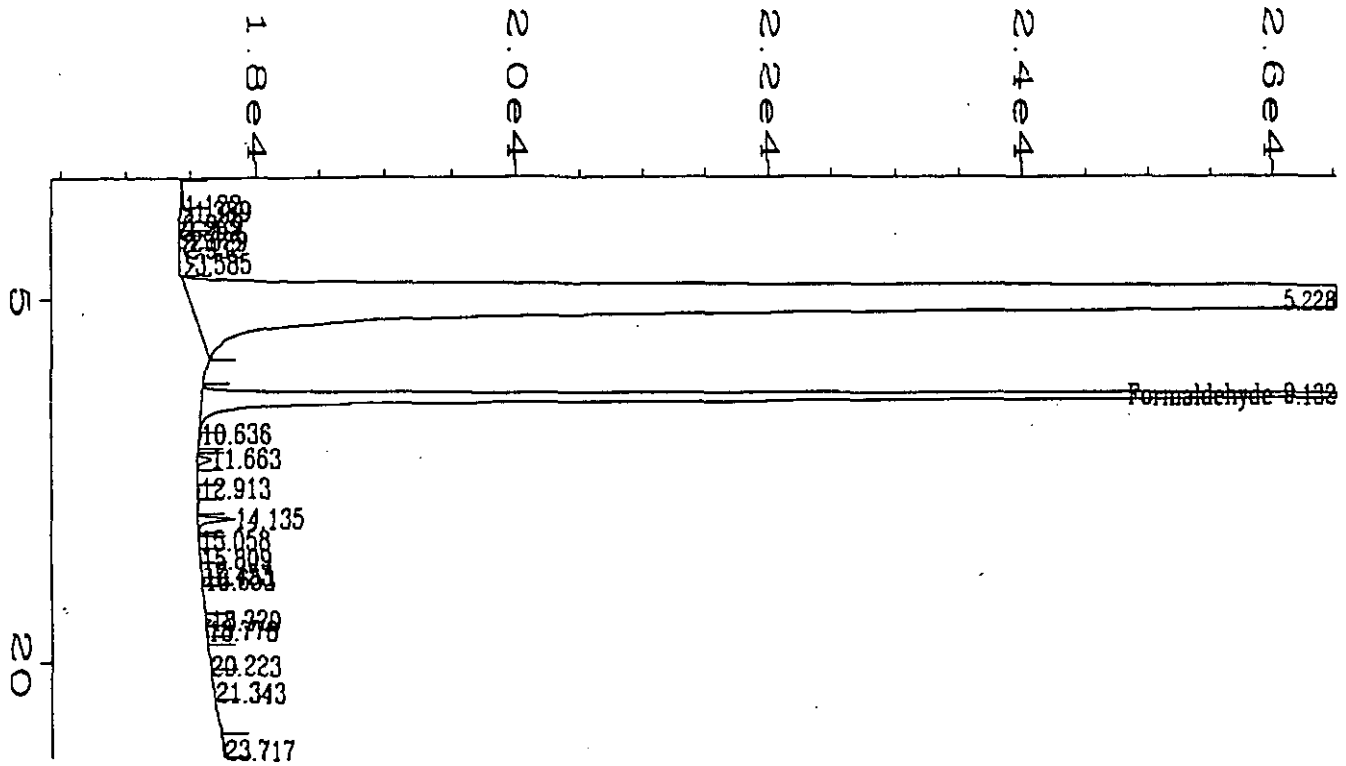
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\5FE96011.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 11
Sample Name	: 0196015-16 1000X	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 05 Feb 96 07:03 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 06 Feb 96 09:29 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\5FE96011.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.146	20223	PV	0.216	1	0.232	Formaldehyde

000039

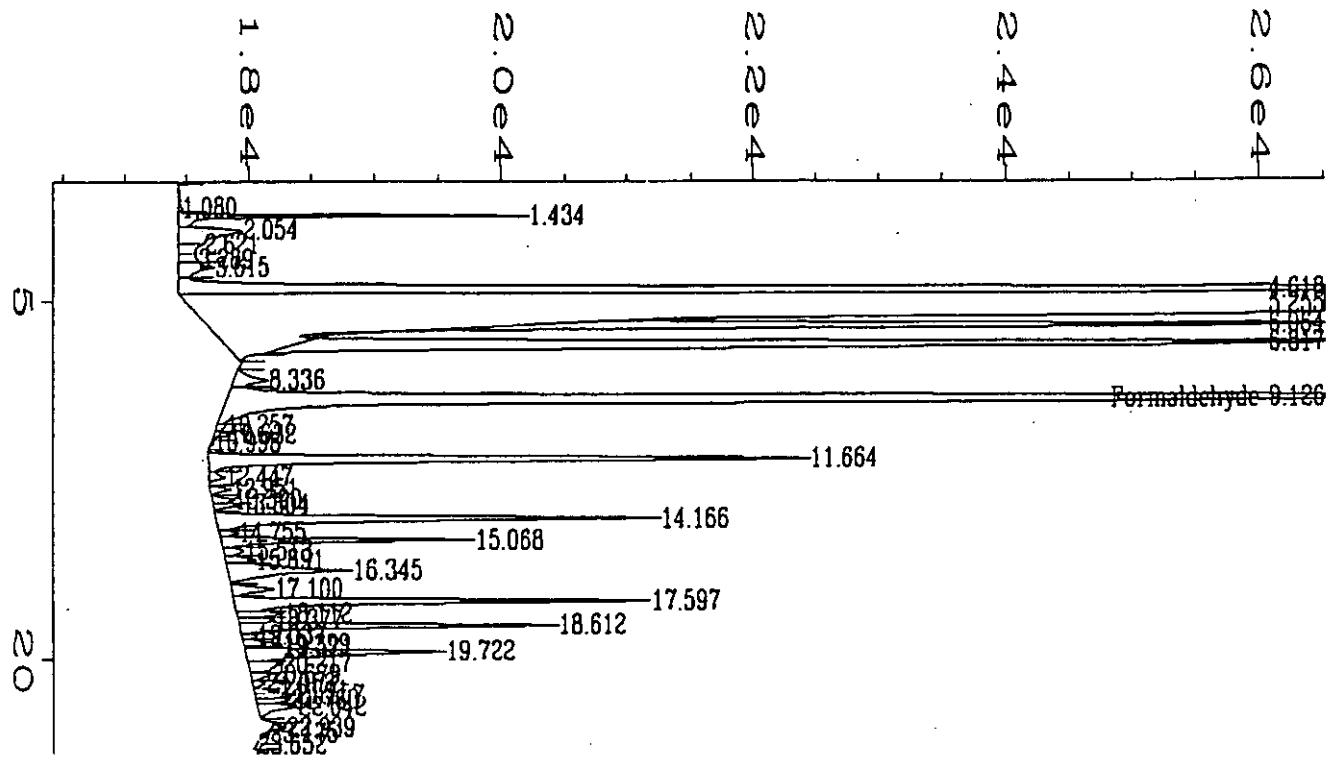


External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00028.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 28
Sample Name	: 0196015-17	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 04 Feb 96 01:48 AM	Instrument Method:	FORMALD3.MTH
Report Created on:	05 Feb 96 09:07 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00028.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.132	374847	PV	0.209	1	6.541	Formaldehyde



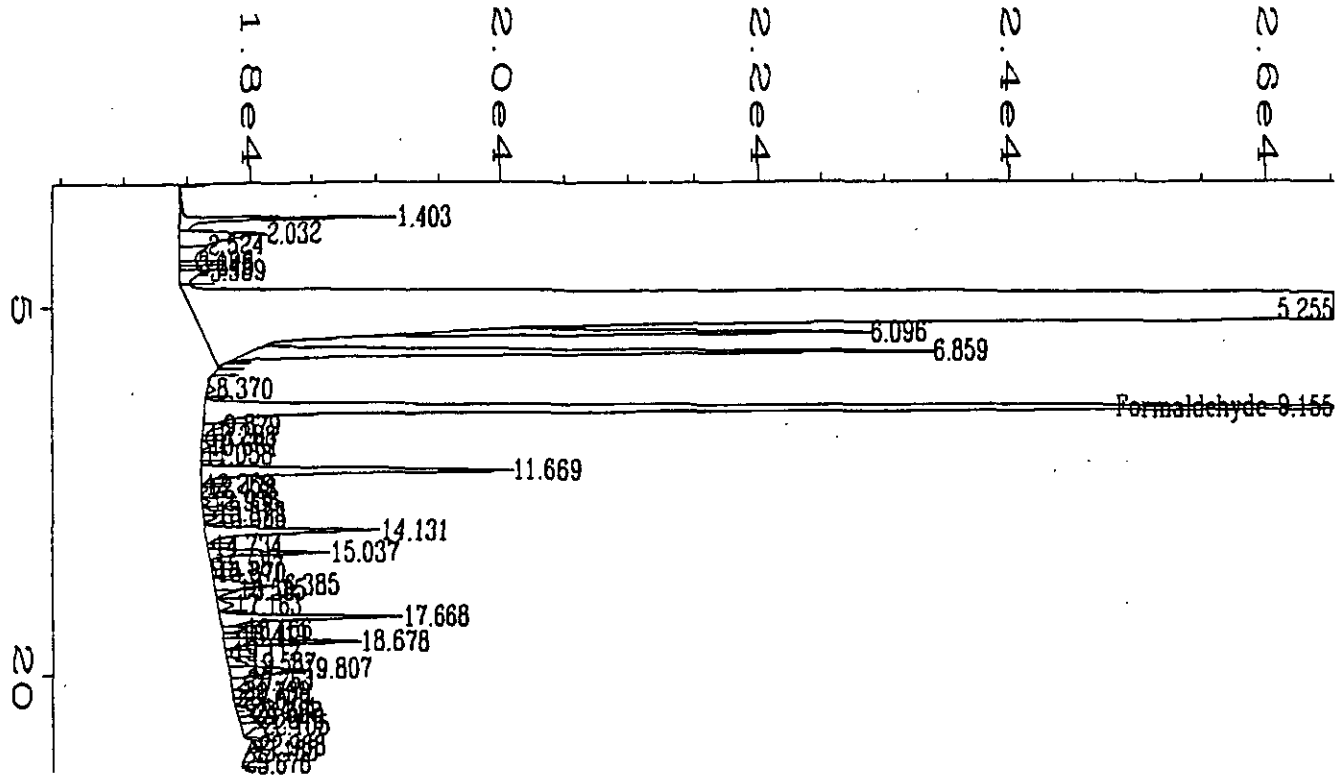
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00029.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 29
Sample Name	: 0196015-18	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 04 Feb 96 02:16 AM	Instrument Method:	FORMALD3.MTH
Report Created on:	05 Feb 96 09:07 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00029.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.126	387927	VV	0.210	1	6.774	Formaldehyde

000041



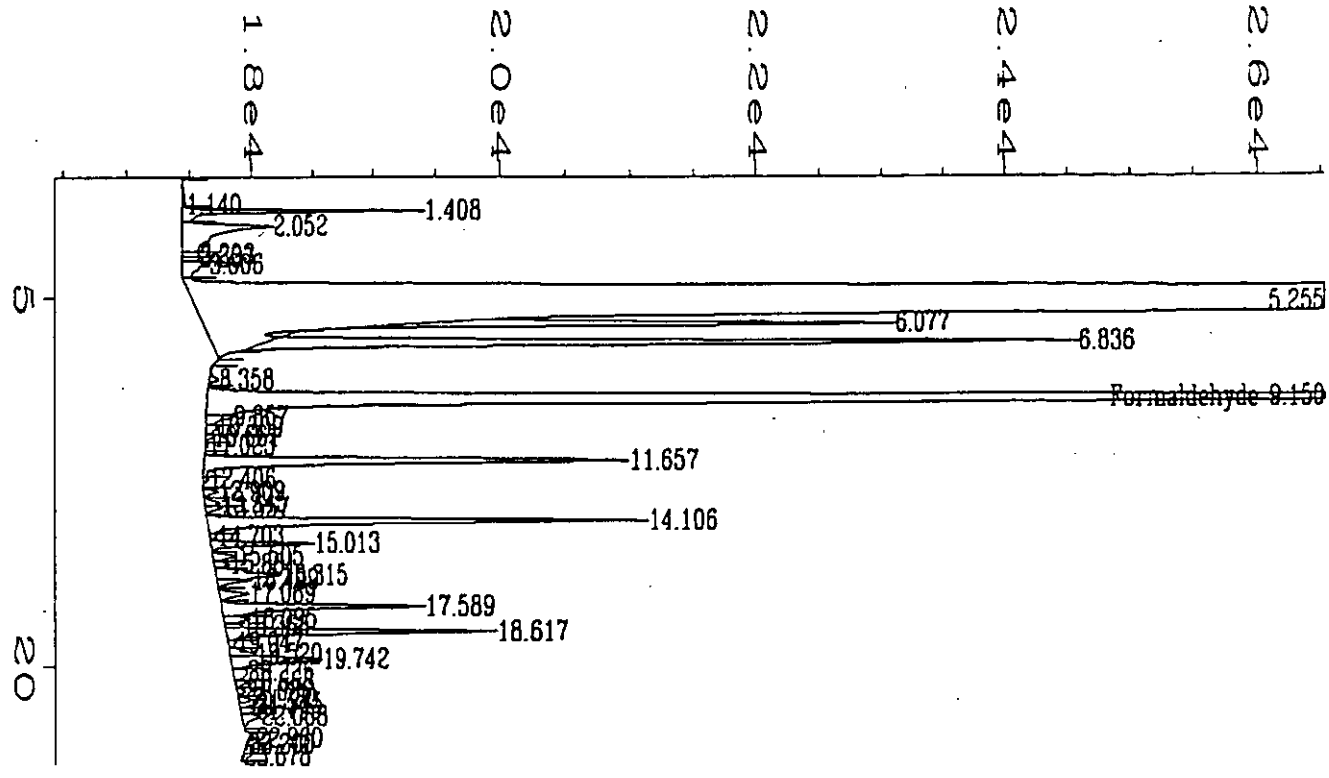
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00030.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 30
Sample Name	: 0196015-19	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 04 Feb 96 02:45 AM	Instrument Method	: FORMALD3.MTH
Report Created on	: 05 Feb 96 09:07 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00030.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.155	205044	PV	0.206	1	3.520	Formaldehyde

000042



External Standard Report

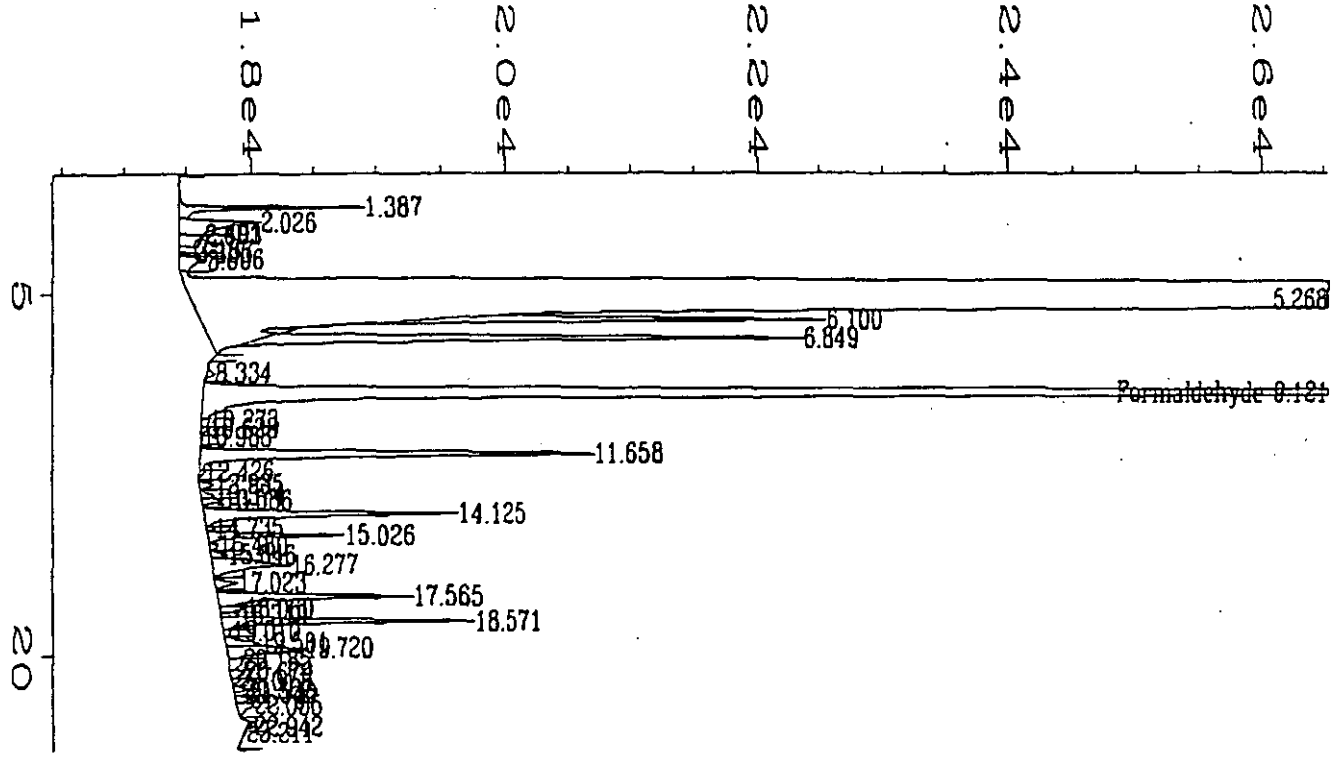
Data File Name : C:\HPCHEM\2\DATA\3FE00031.D
Operator : RLD
Instrument : LC 1 FLUO
Sample Name : 0196015-20
Run Time Bar Code:
Acquired on : 04 Feb 96 03:13 AM
Report Created on: 05 Feb 96 09:07 AM
Last Recalib on : 01 AUG 95 08:43 AM
Multiplier : 1

Page Number : 1
Vial Number : 31
Injection Number : 1
Sequence Line : 1
Instrument Method: FORMALD3.MTH
Analysis Method : FORMALD3.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in C:\HPCHEM\2\DATA\3FE00031.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.150	512189	PV	0.208	1	8.985	Formaldehyde

000043



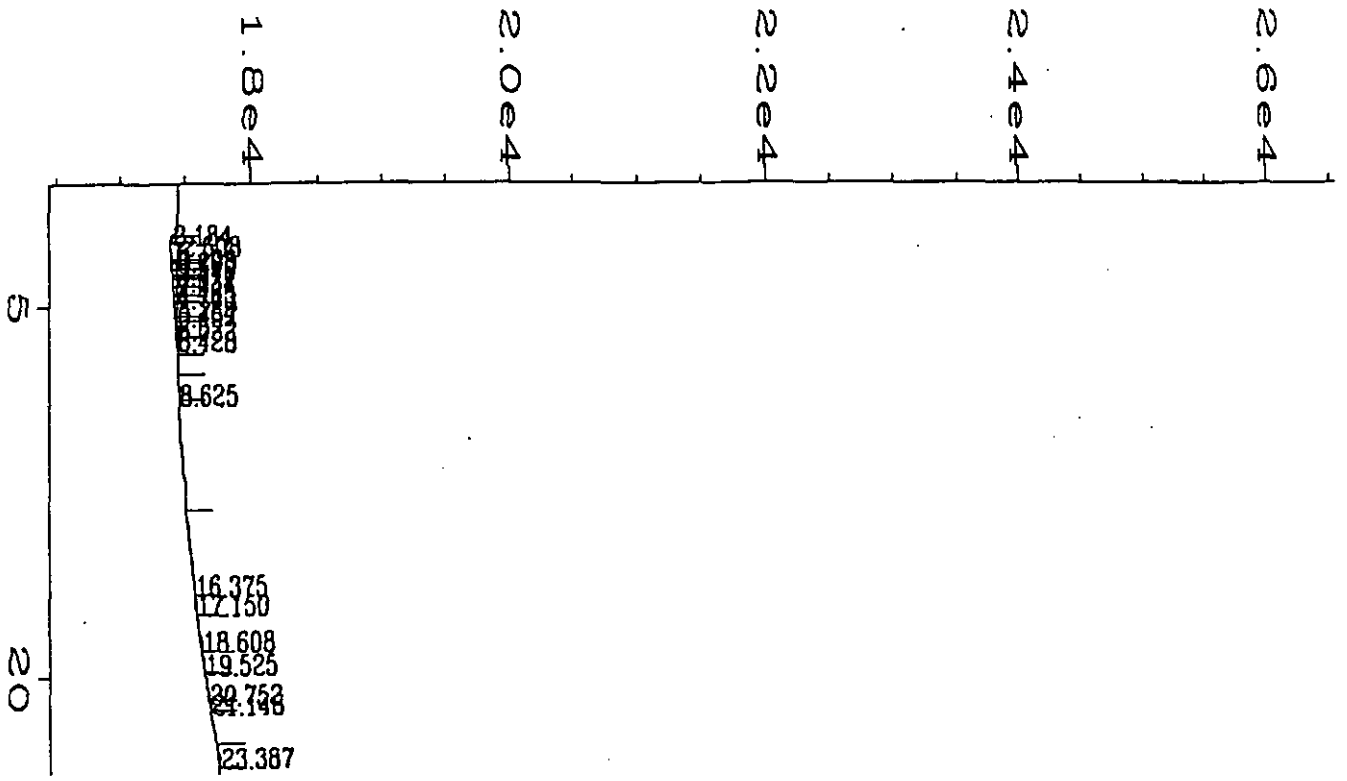
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00032.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 32
Sample Name	: 0196015-21	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 04 Feb 96 03:42 AM	Instrument Method	: FORMALD3.MTH
Report Created on	: 05 Feb 96 09:08 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00032.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.121	468869	PV	0.206	1	8.214	Formaldehyde

BLANK DATA



External Standard Report

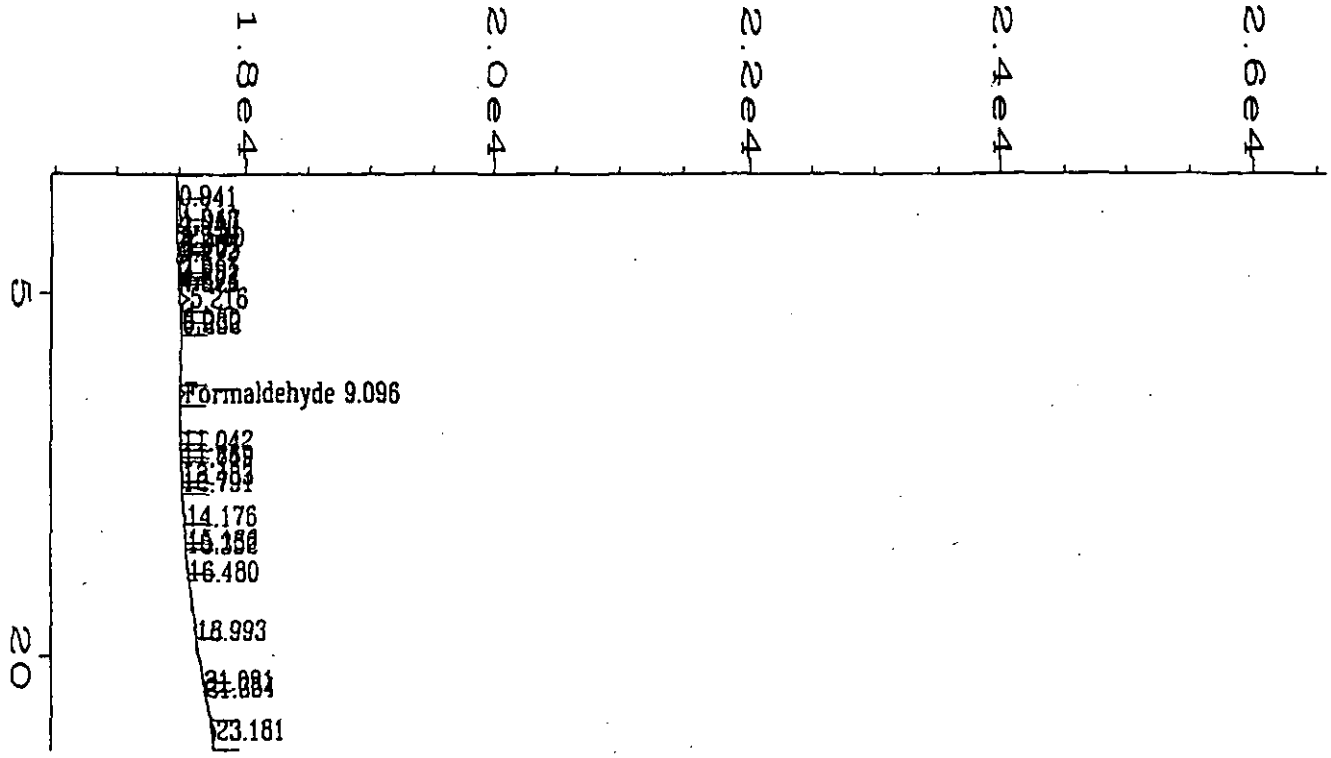
Data File Name : C:\HPCHEM\2\DATA\3FE00001.D
Operator : RLD
Instrument : LC 1 FLUO
Sample Name : INST BLANK
Run Time Bar Code:
Acquired on : 03 Feb 96 12:57 PM
Report Created on: 05 Feb 96 09:00 AM
Last Recalib on : 01 AUG 95 08:43 AM
Multiplier : 1

Page Number : 1
Vial Number : 1
Injection Number : 1
Sequence Line : 1
Instrument Method: FORMALD3.MTH
Analysis Method : FORMALD3.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in C:\HPCHEM\2\DATA\3FE00001.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.047	* not found *			1		Formaldehyde

Not all calibrated peaks were found



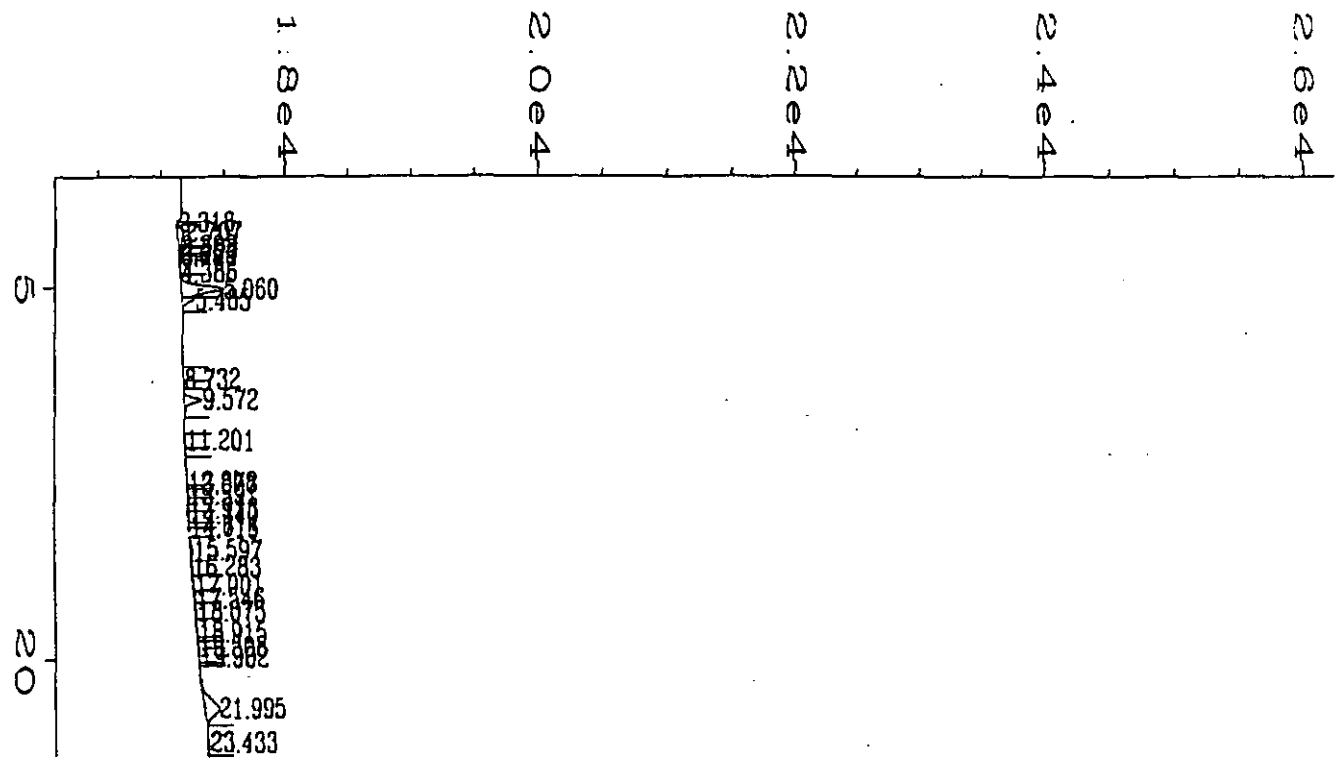
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00025.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 25
Sample Name	: INST BLNK 2	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 04 Feb 96 00:22 AM	Instrument Method	: FORMALD3.MTH
Report Created on	: 05 Feb 96 09:06 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00025.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.096	594	VV	0.222	1	0.00297	Formaldehyde

600047



External Standard Report

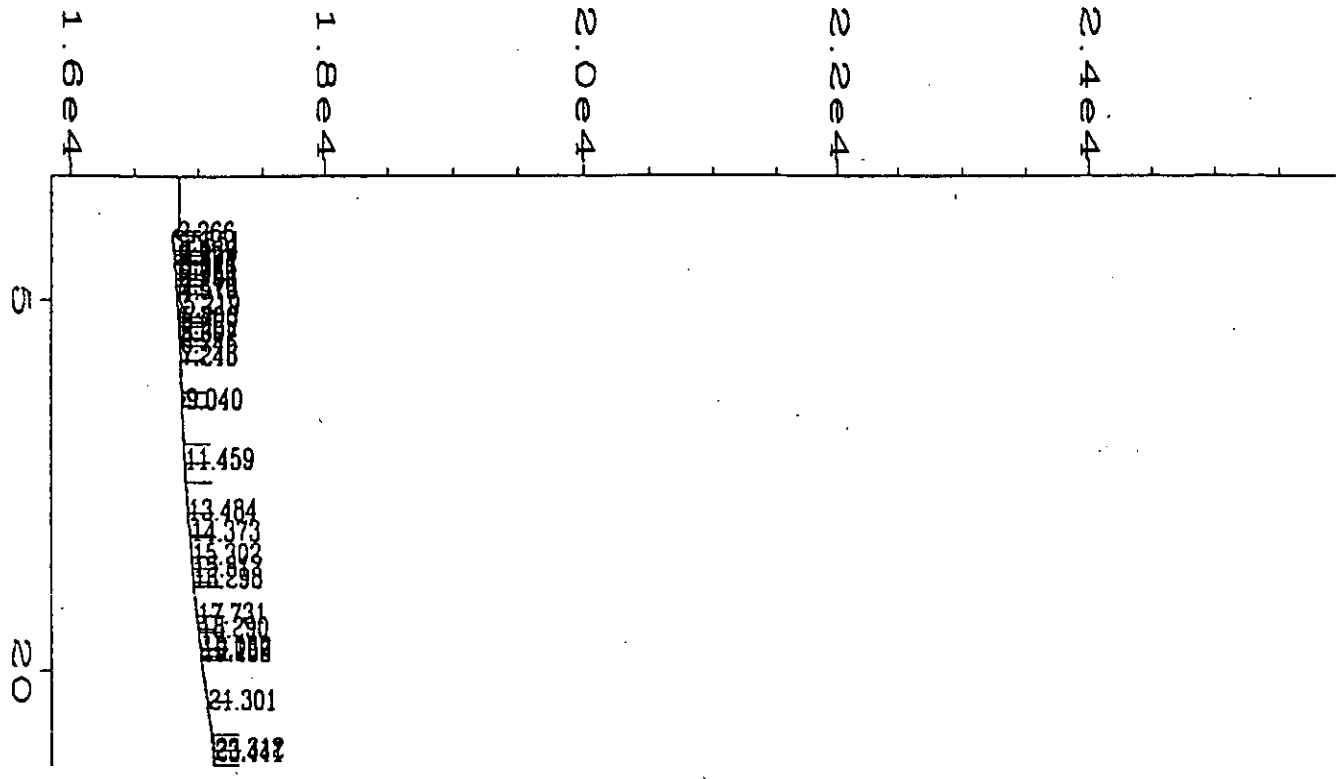
Data File Name	: C:\HPCHEM\2\DATA\5FE96001.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 1
Sample Name	: INST BLANK	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 05 Feb 96 02:11 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 06 Feb 96 09:26 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\5FE96001.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.300	* not found *			1		Formaldehyde

Not all calibrated peaks were found

000048



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External Standard Report

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Data File Name	: C:\HPCHEM\2\DATA\6FE96001.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 1
Sample Name	: INST BLANK	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 06 Feb 96 10:25 AM	Instrument Method	: FORMALD3.MTH
Report Created on	: 06 Feb 96 01:21 PM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\6FE96001.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
8.800	* not found *			1		Formaldehyde

Not all calibrated peaks were found

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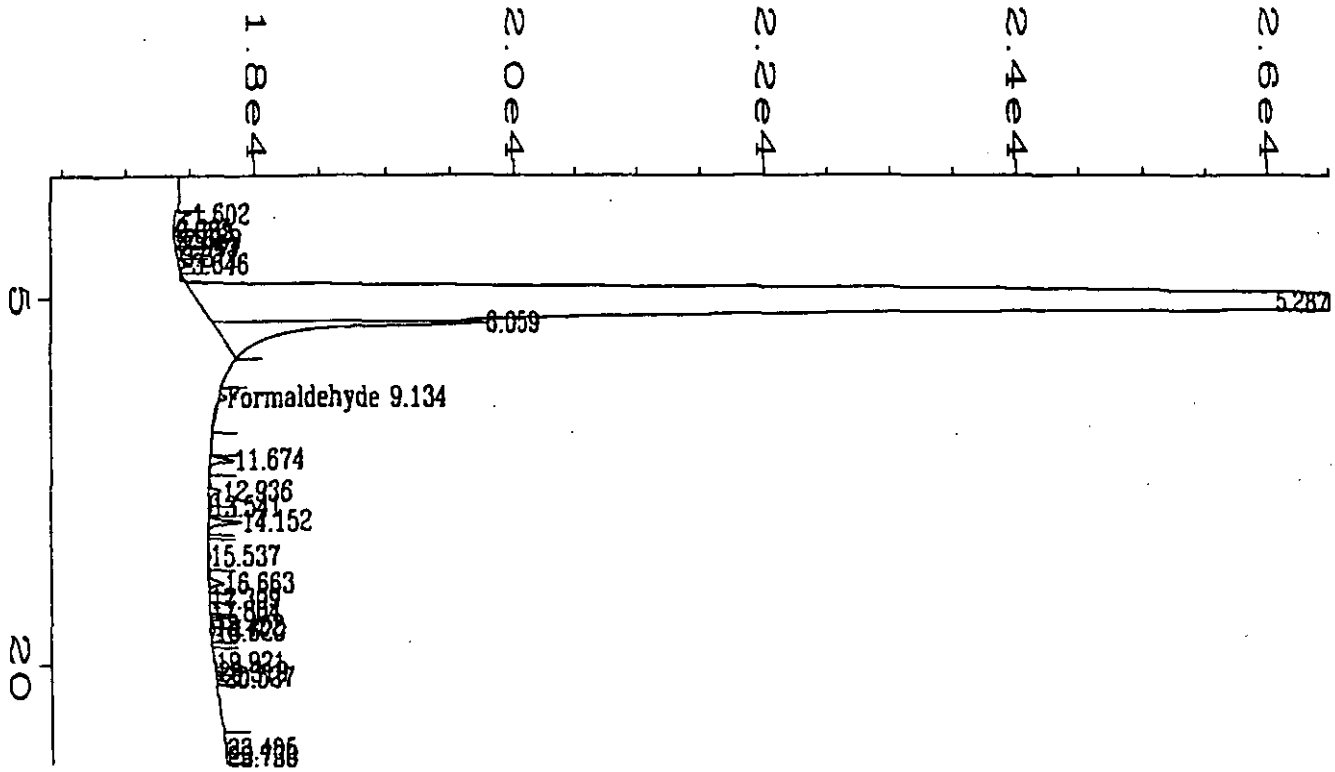
000049



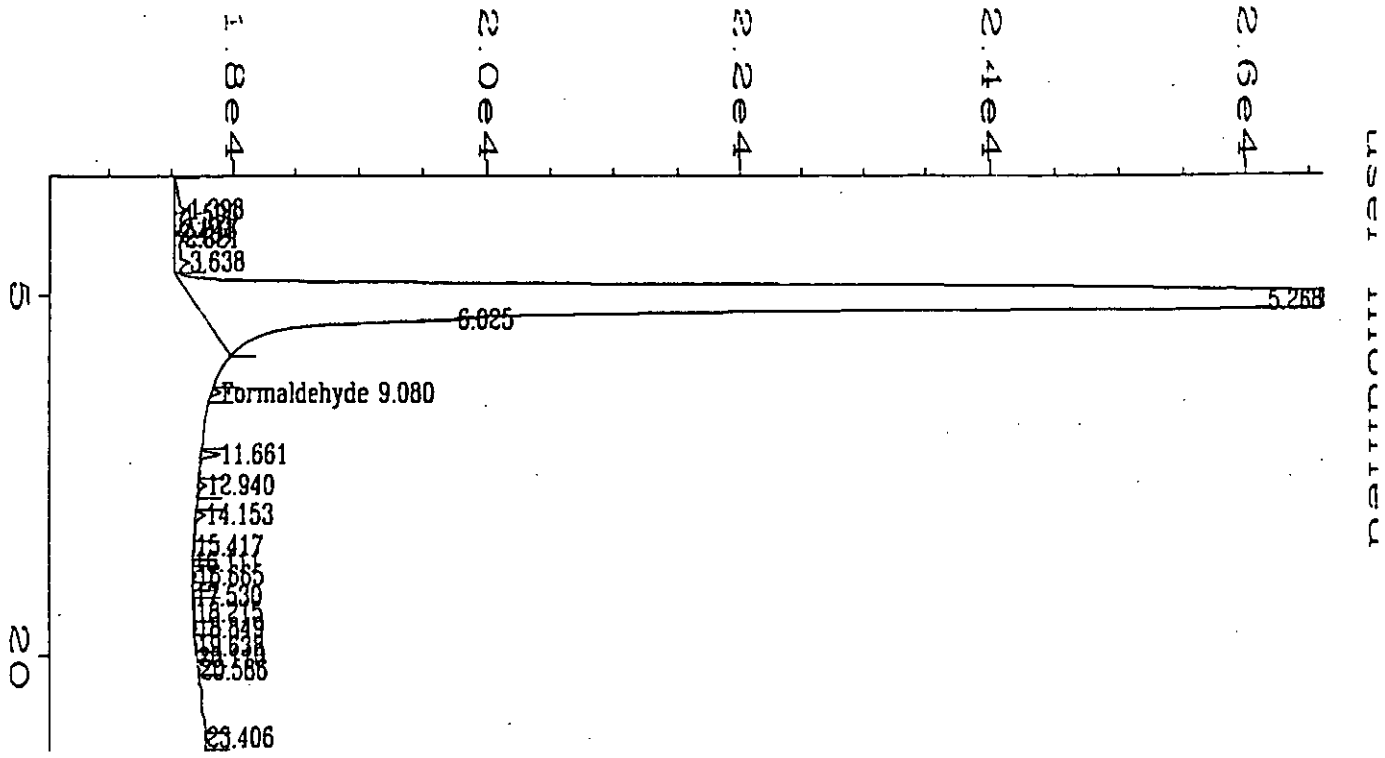
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00003.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 3
Sample Name	: 0196015-MB1	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 03 Feb 96 01:54 PM	Instrument Method:	FORMALD3.MTH
Report Created on:	05 Feb 96 09:00 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:
Sample Info	: MISC EXTR.		

Sig. 1 in C:\HPCHEM\2\DATA\3FE00003.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.134	237	BV	0.086	1	0.00119	Formaldehyde

000150



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External Standard Report

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Data File Name	: C:\HPCHEM\2\DATA\3FE00006.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 6
Sample Name	: 0196015-MB2	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 03 Feb 96 03:20 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 05 Feb 96 04:53 PM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00006.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.080	988	VM	0.217	1	0.00495	Formaldehyde

User Modified

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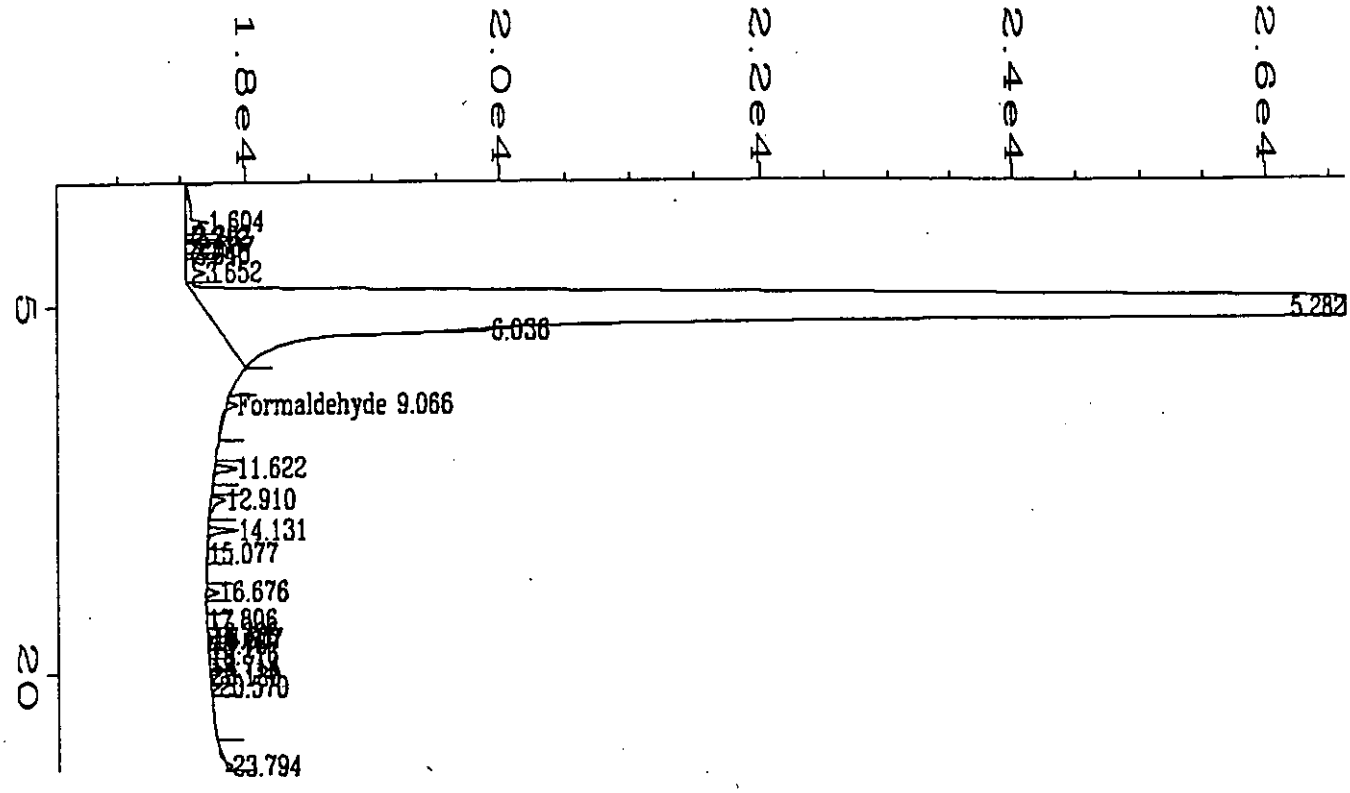
600051



External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00009.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 9
Sample Name	: 0196015-MB3	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 03 Feb 96 04:45 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 05 Feb 96 09:02 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00009.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.066	279	BV	0.085	1	0.00140	Formaldehyde

000052

STANDARDS DATA

Method: C:\HPCHEM\2\METHODS\FORMALD3.MTH

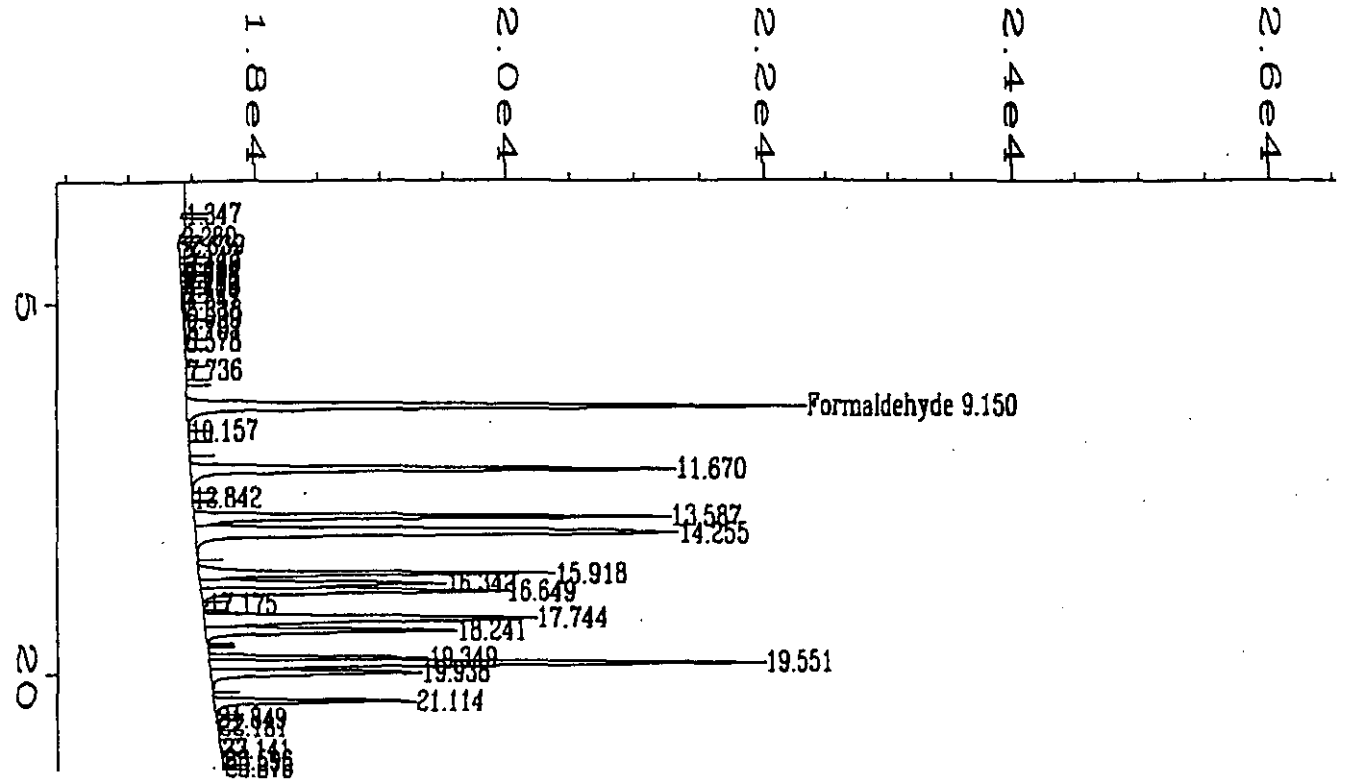
Calibration Table

Pk#	RT	Lvl	ug/mL	Amt/Area	Ref Istd I#	Name
1	8.800	1	20.0	1.7737e-005	1	Formaldehyde
		2	5.0	1.6482e-005		
		3	1.0	1.5558e-005		
		4	0.2	1.5651e-005		
		5	0.05	1.5039e-005		

000054

RAW QC DATA

600055

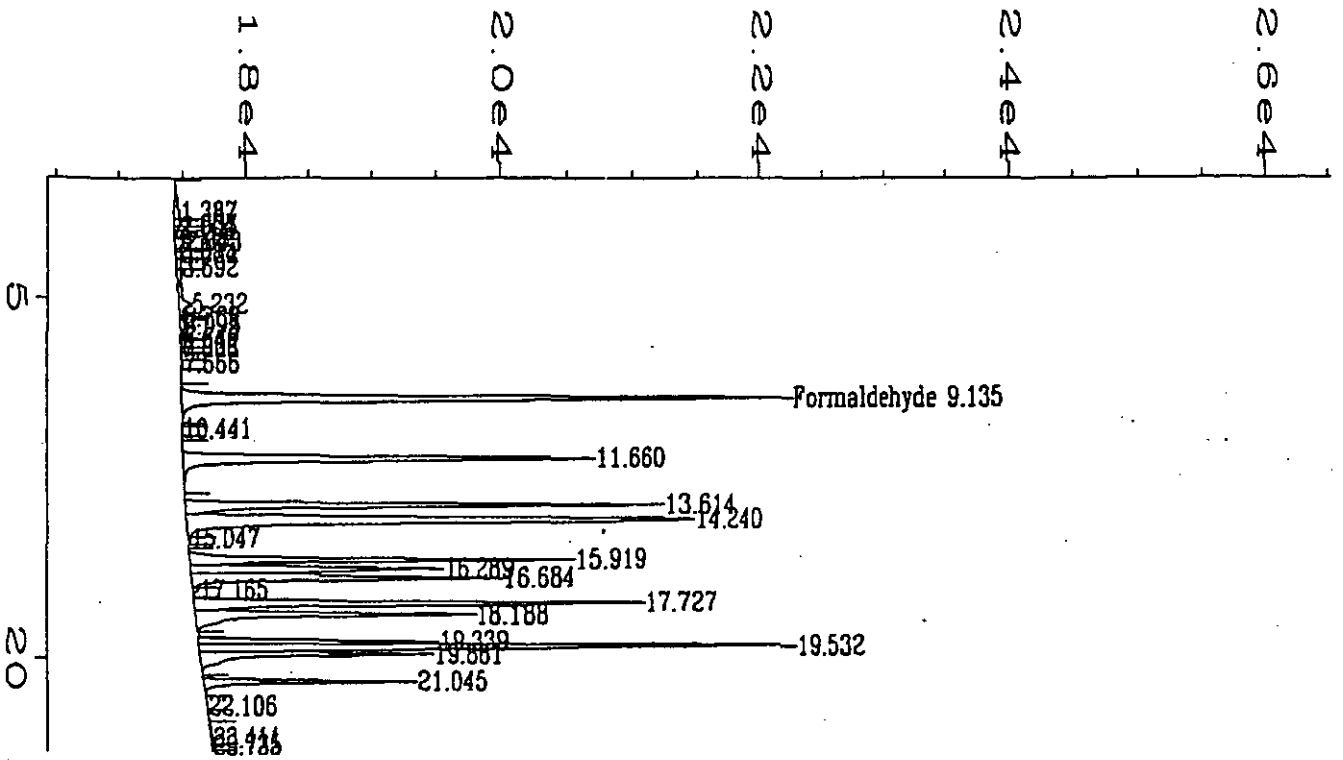


External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00002.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 2
Sample Name	: CAL 1.0 ug/mL	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 03 Feb 96 01:26 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 05 Feb 96 09:00 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00002.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.150	62728	PV	0.196	1	0.988	Formaldehyde



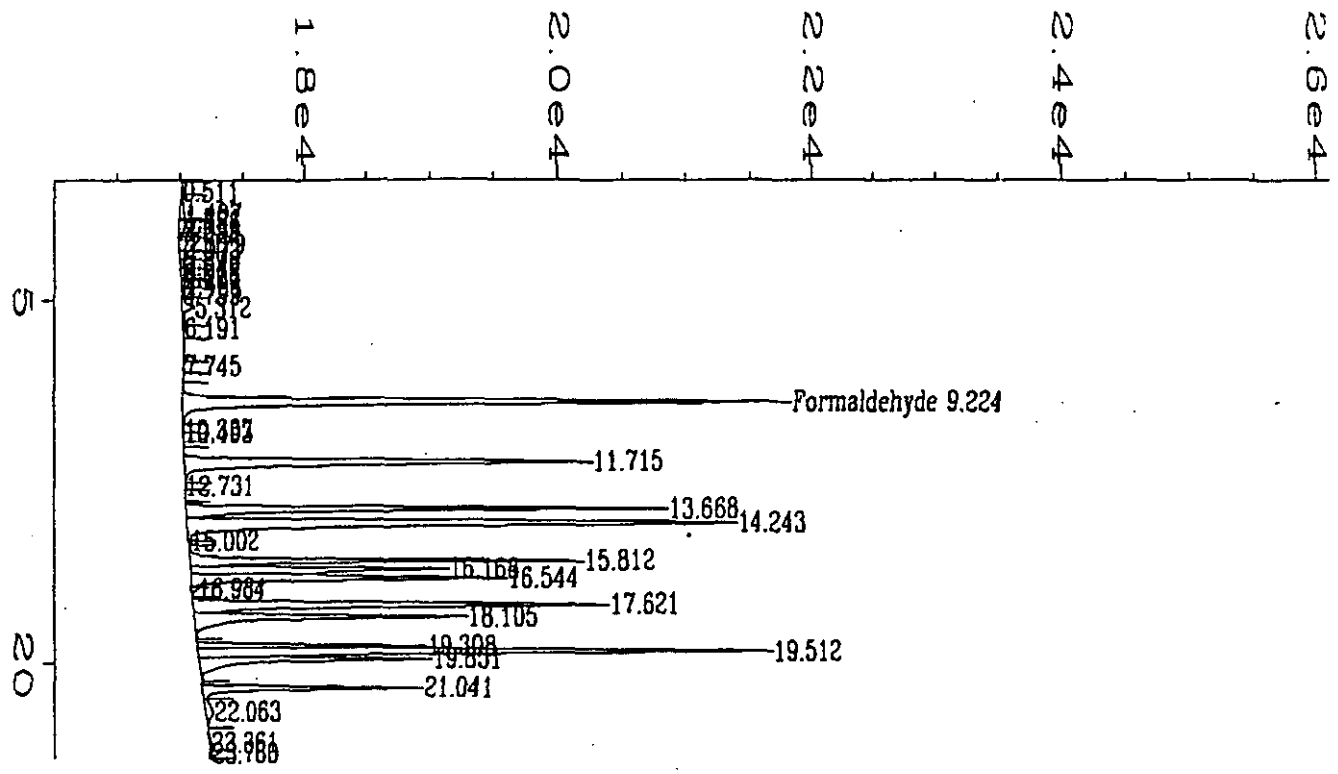
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00026.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 26
Sample Name	: CAL 1 ug/mL 2	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 04 Feb 96 00:51 AM	Instrument Method	: FORMALD3.MTH
Report Created on	: 05 Feb 96 09:06 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00026.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.135	64421	PV	0.206	1	1.019	Formaldehyde

000057



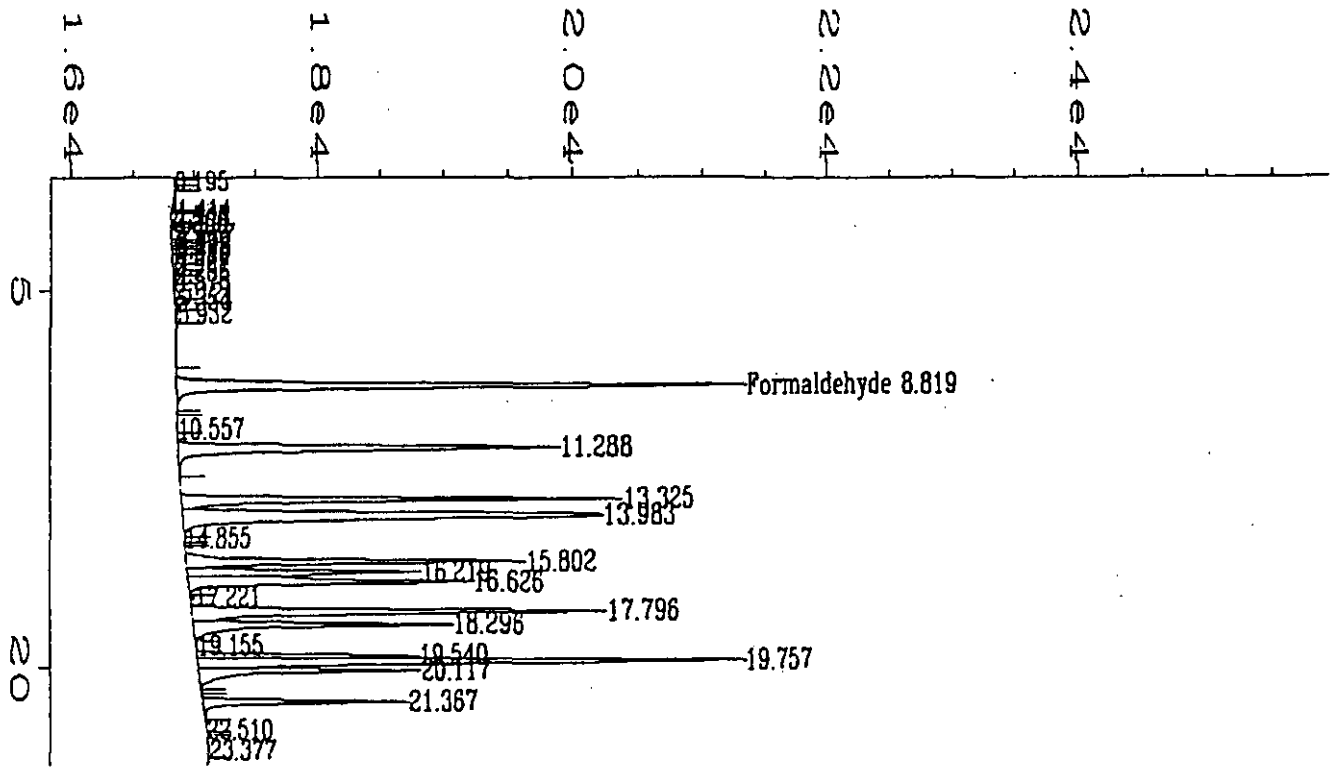
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\5FE96002.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 2
Sample Name	: CAL 1.0 ug/mL	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 05 Feb 96 02:40 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 06 Feb 96 09:26 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\5FE96002.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.224	66468	PV	0.210	1	1.055	Formaldehyde

000058



External Standard Report

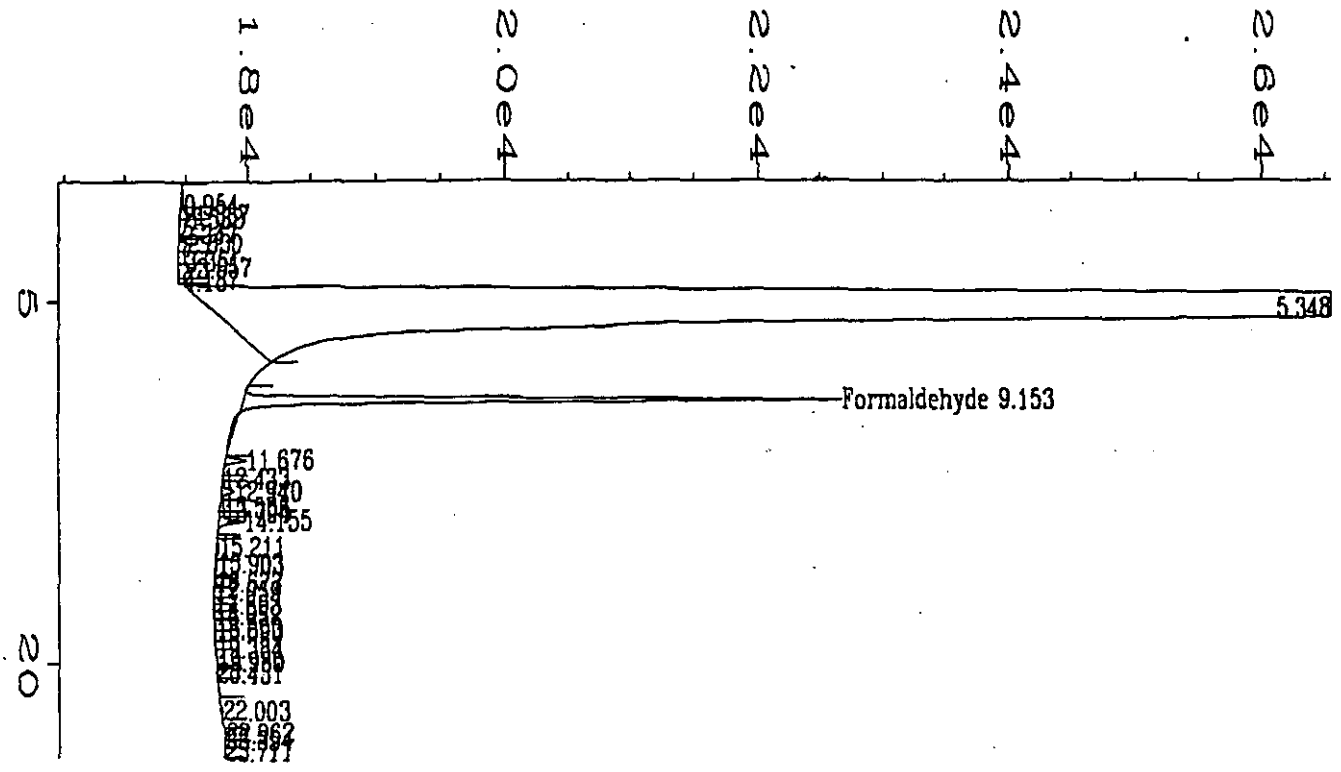
Data File Name	: C:\HPCHEM\2\DATA\6FE96002.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 2
Sample Name	: CAL 1.0 ug/mL	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 06 Feb 96 10:53 AM	Instrument Method	: FORMALD3.MTH
Report Created on	: 06 Feb 96 01:21 PM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\6FE96002.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
8.819	60233	BV	0.205	1	0.944	Formaldehyde

000059

LABORATORY SPIKE DATA



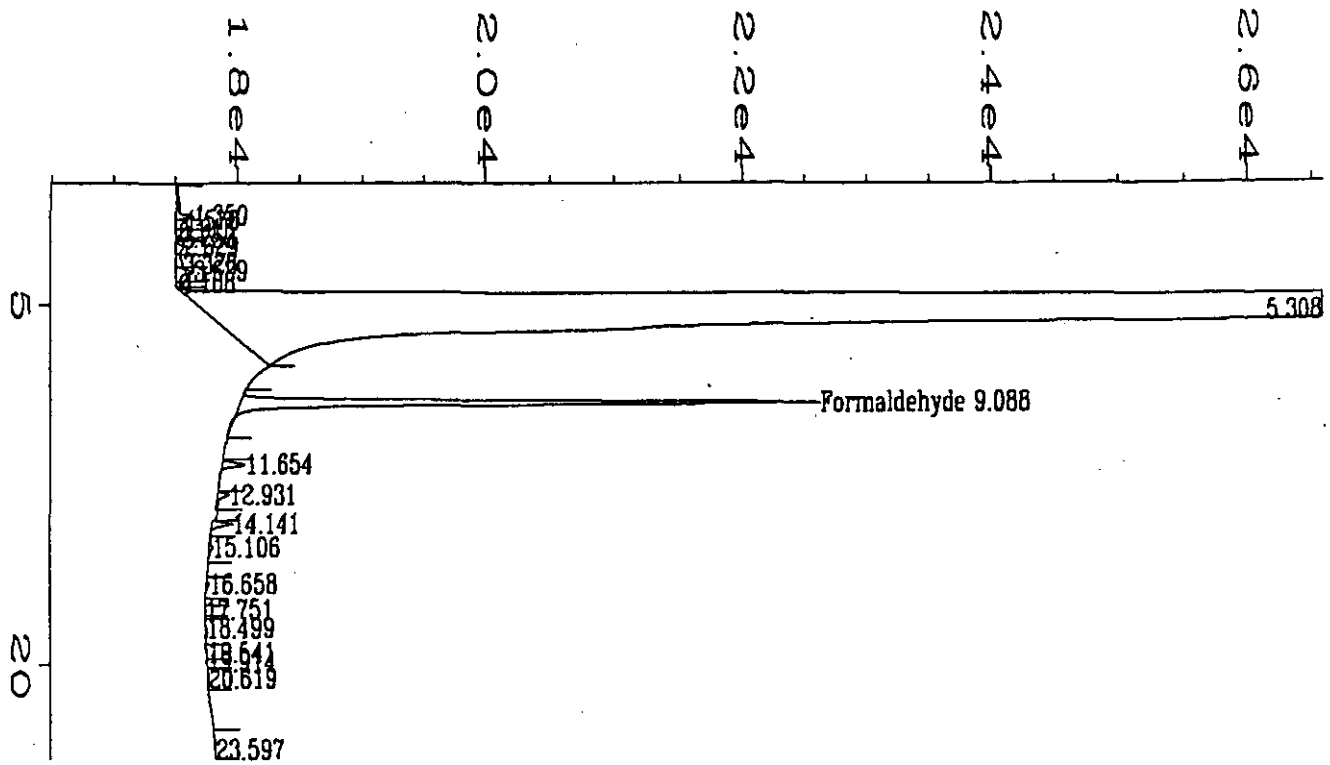
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00004.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 4
Sample Name	: 0196015-LS1	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 03 Feb 96 02:23 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 05 Feb 96 09:00 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00004.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.153	57428	BV	0.188	1	0.894	Formaldehyde

000061

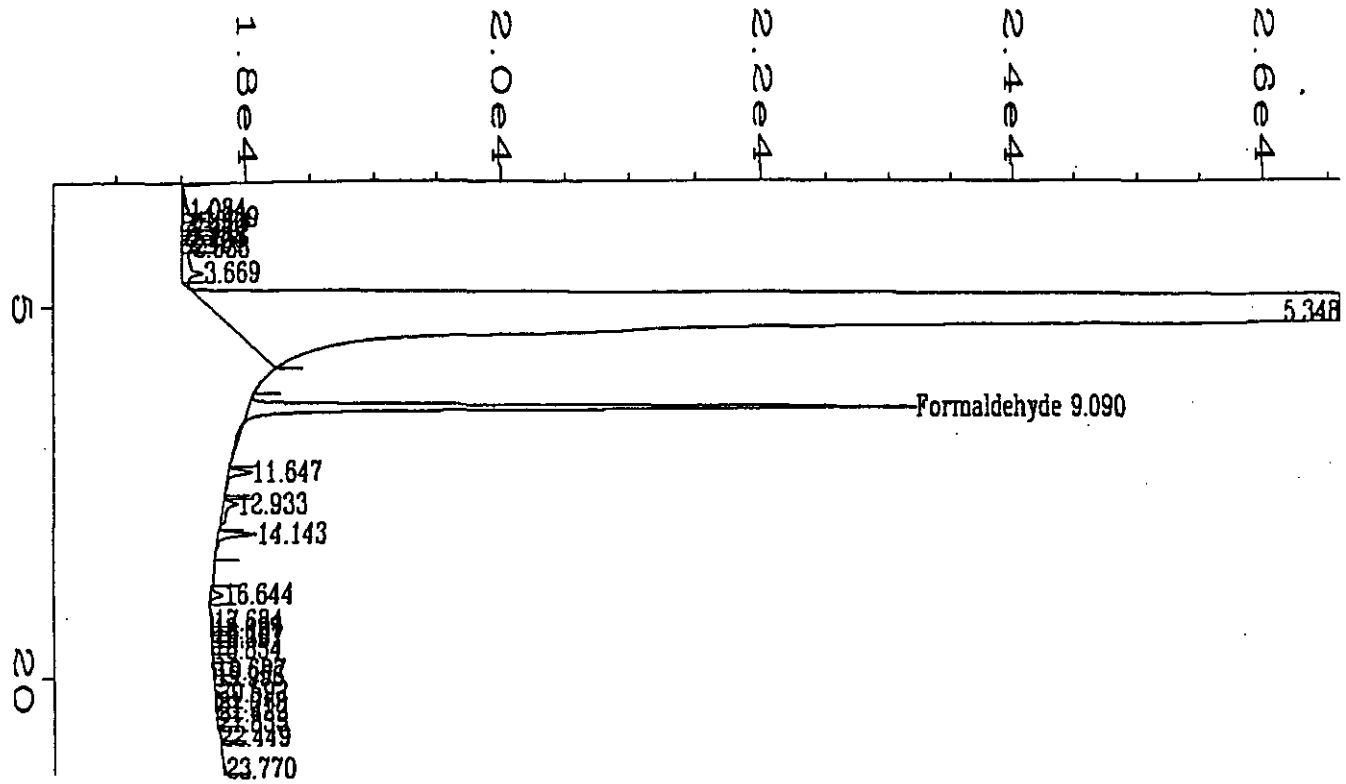


External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00005.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 5
Sample Name	: 0196015-LSD1	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 03 Feb 96 02:51 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 05 Feb 96 09:01 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00005.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.088	57931	BV	0.194	1	0.903	Formaldehyde



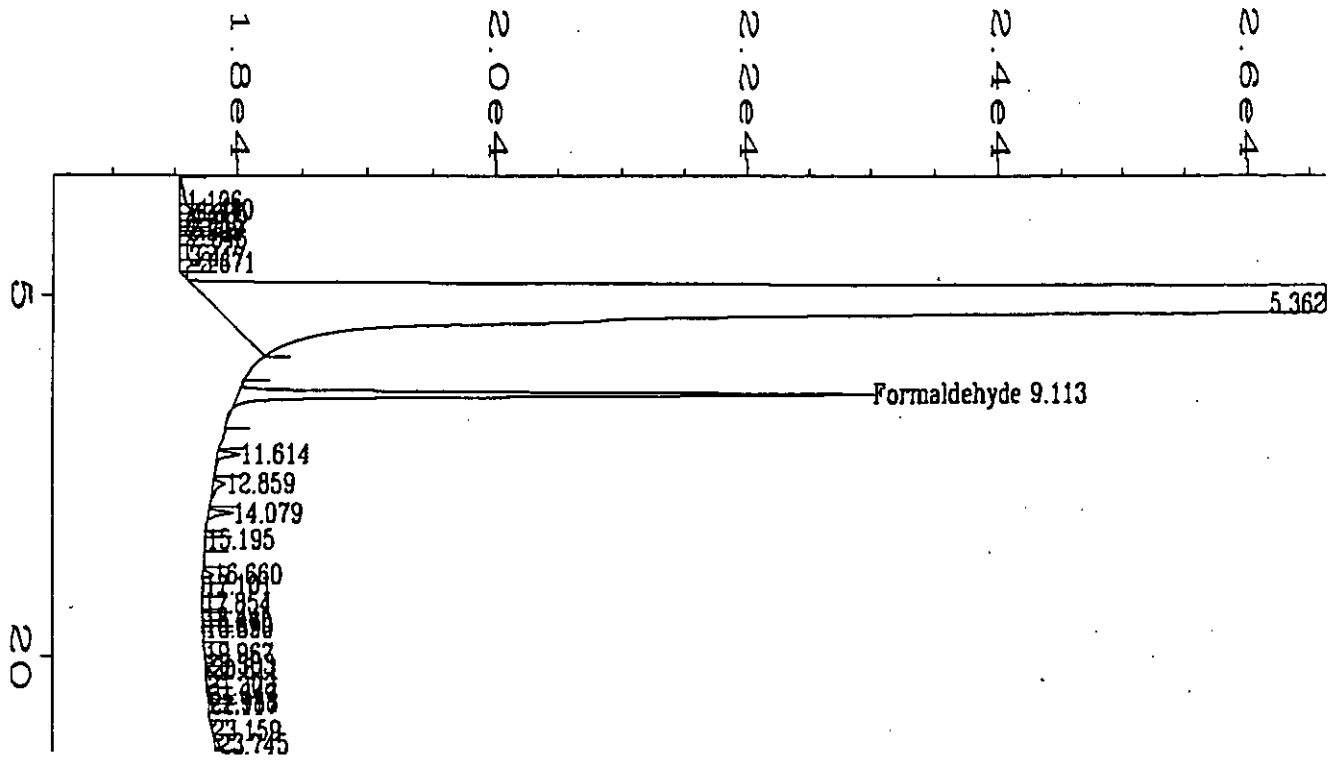
External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00007.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 7
Sample Name	: 0196015-LS2	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 03 Feb 96 03:48 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 05 Feb 96 09:01 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00007.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.090	64166	BV	0.190	1	1.014	Formaldehyde

000063



External Standard Report

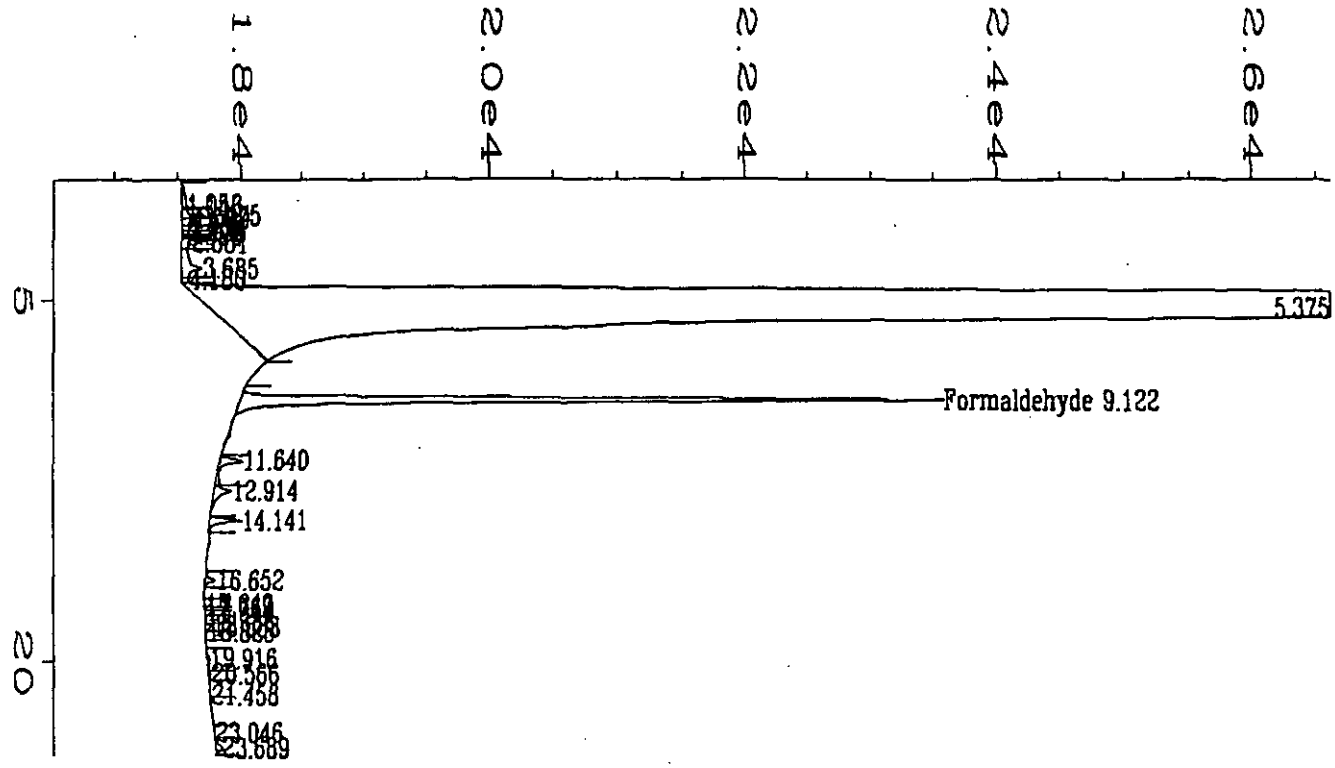
Data File Name : C:\HPCHEM\2\DATA\3FE00008.D
Operator : RLD
Instrument : LC 1 FLUO
Sample Name : 0196015-LSD2
Run Time Bar Code:
Acquired on : 03 Feb 96 04:17 PM
Report Created on: 05 Feb 96 09:01 AM
Last Recalib on : 01 AUG 95 08:43 AM
Multiplier : 1

Page Number : 1
Vial Number : 8
Injection Number : 1
Sequence Line : 1
Instrument Method: FORMALD3.MTH
Analysis Method : FORMALD3.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in C:\HPCHEM\2\DATA\3FE00008.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.113	63153	BV	0.194	1	0.996	Formaldehyde

000064

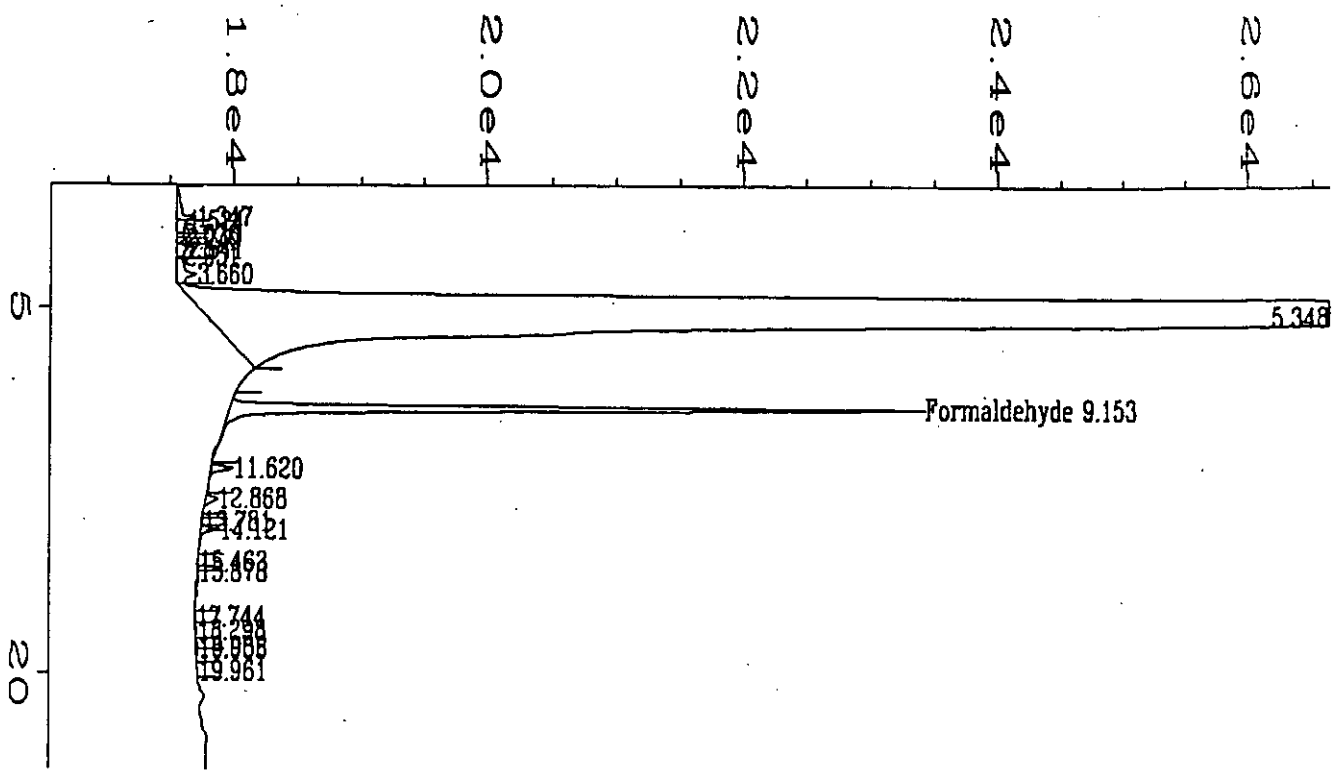


External Standard Report

Data File Name	: C:\HPCHEM\2\DATA\3FE00010.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 10
Sample Name	: 0196015-LS3	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 03 Feb 96 05:14 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 05 Feb 96 09:02 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00010.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.122	70797	BV	0.194	1	1.132	Formaldehyde



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External Standard Report

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Data File Name	: C:\HPCHEM\2\DATA\3FE00011.D		
Operator	: RLD	Page Number	: 1
Instrument	: LC 1 FLUO	Vial Number	: 11
Sample Name	: 0196015-LSD3	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 03 Feb 96 05:42 PM	Instrument Method	: FORMALD3.MTH
Report Created on	: 05 Feb 96 09:02 AM	Analysis Method	: FORMALD3.MTH
Last Recalib on	: 01 AUG 95 08:43 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in C:\HPCHEM\2\DATA\3FE00011.D

Ret Time	Area	Type	Width	Ref#	ug/mL	Name
9.153	69729	BV	0.196	1	1.113	Formaldehyde

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000166

DOCUMENTATION

000067

Job# 9611 Unit Tested Number 2 Dryer outlet CHAIN OF CUSTODY RECORD Page # _____

Facility Name/Location	# OF CONTAINERS	SAMPLE ANALYSIS REQUIRED												REMARKS (Specific Compounds/Methods)
Louisiana Pacific / Silsbee, TX		RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	FORMALDE#HYDE			Archive [illegible]
Collected By/Company R.A. McNutt / METCO														

SAMPLE I.D.		DATE	TIME	AIR	SOIL	COMP	GRAB	# OF CONTAINERS	RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	FORMALDE#HYDE			REMARKS (Specific Compounds/Methods)
imp. 1	Run 1	1-16-96	1900	✓				11	TS									✓			
	2	1-17-96	1630	✓				11	TS												
imp. 2 + 3	Run 1	1-16-96	1900	✓				11	TS									✓			one bottle labelled "imp 2" b for Run 1
	2	1-17-96	1630	✓				11	TS												
filter	Run 1	1-16-96	1900	✓				11	TS									✓			did not receive b
	2	1-17-96	1630	✓				111	TS												
	3																				
FRONTWASH	Run 1	1-16-96	1900	✓				1	TS									✓			
	2	1-17-96	1630	✓				1	TS												

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[signature]	1/16/96	0830	Tim Stark	1-16-96	0830	HT	1/17/96	0900
Relinquished by:	**Date:**	**Time:**	**Received by lab by:**	**Date:**	**Time:**	**Remarks:**		
			Deidra Brooks	1-23-96	1200			

Ship to: _____

METCO ENVIRONMENTAL

E-100

Job# 96-11 Unit Tested Number 3 Dryer outlet CHAIN OF CUSTODY RECORD Page # _____

Facility Name/Location	# OF CONTAINRS	SAMPLE ANALYSIS REQUIRED												REMARKS (Specific Compounds/Methods)
Louisiana Pacific / Silsbee, TX.		RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	FORMALDEHYDE			
Collected By/Company: David Dunn / Metco														Archive filter
SAMPLE I.D.	DATE / TIME / AIR / SOIL / COMP / GRAB													Blank #2 for #2+3 Dryer outlets
Imp 1 Run 1	1-16-96 1931 ✓	11	TS								✓			
Run 2	1-17-96 1730 ✓	11	TS								✓			
Imp 2+3 Run 1	1-16-96 1930 ✓	11	TS								✓			Run 1, 1 bottle labelled "Imp 2" ds
Run 2	1-17-96 1730 ✓	11	TS								✓			
Filter Run 1	1-16-96 1970 ✓	1	TS								✓			did not received ds
Run 2	1-17-96 1730 ✓	111	TS								✓			
Frontwash Run 1	1-16-96 1930 ✓	1	TS								✓			run 2, only received 1 bottle ds
Run 2	1-17-96 1730 ✓	11	TS								✓			
DNPH Blank	1-8-96 ✓	1	TS								✓			

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[signature]	1/18/96	0830	Tim Slartz	1-18-96	0830	HT	1/11/96	09:07
Relinquished by:	Date:	Time:	Received by lab by: Deirdra Brooks	Date: 1-23-96	Time: 1200	Remarks:		

Ship to: _____

METCO ENVIRONMENTAL

E-101

Job# 96-11 Unit Tested #4 Dryer Outlet Stack CHAIN OF CUSTODY RECORD Page # 1

Facility Name/Location: Louisiana Pacific/Silsbee, TX for ERM Southwest

Collected By/Company: Kevin McGinn Taylor Slatery Jesse Roden / METCO

E-102

SAMPLE I.D.	DATE	TIME	AIR	SOIL	COMP	GRAB	# OF CONTAINERS	RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	Formaldehyde			REMARKS (Specific Compounds/Methods)
#4 Dryer Formaldehyde F.W.	1/16/96	1830	✓			1	1	JR									✓			
#4 Dryer Formaldehyde Imp. 1	1/16/96	1830	✓			1	1	JR									✓			
#4 Dryer Formaldehyde Imp. 2,3	1/16/96	1850	✓	1			1	JR									✓			
#4 Dryer Formaldehyde Filter	1/16/96	1830	✓				1	JR												Archive filter did not received

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Rl MS Nutt	1-18-96	0532	Jesse Roden	1/18/96	0834	HT	11:9/96	900
Relinquished by:	Date:	Time:	Received by lab by: Deidra D. Brooks	Date: 1-23-96	Time: 1200	Remarks:		

Ship to: _____

METCO ENVIRONMENTAL

Job# 96-11 Unit Tested #4 Dryer Outlet Stack CHAIN OF CUSTODY RECORD Page # 1

Facility Name/Location	# OF CONTAINRS	SAMPLE ANALYSIS REQUIRED												REMARKS (Specific Compounds/Methods)
Louisiana Pacific / Silsbee, TX		RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	Formaldehyde			
Collected By/Company Kevin McGinn ~~Todd Staley~~ / METCO														
SAMPLE I.D. R2 / DATE / TIME / AIR / SOIL / COMP / GRAB														
#4 Dryer Formaldehyde F.W. 1/17 1800 ✓	1	JR									✓			
#4 Dryer Formaldehyde Imp. 1-A 1/17 1800 ✓	1	JR									✓			
#4 Dryer Formaldehyde Imp. 1-B 1/17 1800 ✓	1	JR									✓			
#4 Dryer Formaldehyde Imp. 2 1/17 1800 ✓	1	JR									✓			
#4 Dryer Formaldehyde Imp. 3&4 1/17 1800 ✓	1	JR									✓			
#4 Dryer Formaldehyde Filter 1/17 1800 ✓	1	JR									✓			Archive filters did not receive db

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[illegible]	1-18-96	0832	Jean Rochon	1/18/96	0834	HT	1/19/96	0941
Relinquished by:	**Date:**	**Time:**	**Received by lab by:**	**Date:**	**Time:**	**Remarks:**		
			Deidra D. Brooks	1-23-96	1200			

Ship to: _____

METCO ENVIRONMENTAL

E-103

Job# 96-11 Unit Tested #5 Dryer Outlet Stack CHAIN OF CUSTODY RECORD Page # 1

Facility Name/Location: Louisiana Pacific / Silsbee, TX								# OF CONTAINERS	SAMPLE ANALYSIS REQUIRED											REMARKS (Specific Compounds/Methods)
Collected By/Company: ~~Todd Staley~~ ~~Jesse Kaelin~~ / METCO									RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	Formaldehyde		
SAMPLE I.D. RL	DATE	TIME	AIR	SOIL	COMP	GRAB														
#5 Dryer Formaldehyde F.W.	1/16/96	1845	✓					1	JR									✓		
#5 Dryer Formaldehyde Imp. 1	1/16/96	1845	✓					1	JR									✓		
#5 Dryer Formaldehyde Imp. 2,3	1/16/96	1845	✓					1	JR									✓		
#5 Dryer Formaldehyde Filter	1/16/96	1845	✓					1	JR									~~✓~~		Archive; filters did not receive db

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
K.D. McNutt	1-18-96	0832	Jesse Kaelin	1/18/96	0834	HT	1/18/96	1996
Relinquished by:	**Date:**	**Time:**	**Received by lab by:**	**Date:**	**Time:**	**Remarks:**		
			Deidra D. Brooks	1-23-96	1200			

Ship to: _____

METCO ENVIRONMENTAL

E-104

Job# 96-11 Unit Tested #5 Dryer Outlet Stack CHAIN OF CUSTODY RECORD Page # 1

Facility Name/Location	# OF CONTAINERS	SAMPLE ANALYSIS REQUIRED												REMARKS (Specific Compounds/Methods)
Louisiana Pacific / Silsbee, TX		RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	Formaldehyde			
Collected By/Company: Todd Staley / METCO														
SAMPLE I.D. R2 / DATE / TIME / AIR / SOIL / COMP / GRAB														
#5 Dryer Formaldehyde F.W. 1/17/96 1800 ✓	1	JR									✓			
#5 Dryer Formaldehyde Imp. 1-A 1/17/96 1800 ✓	1	JR									✓			
#5 Dryer Formaldehyde Imp. 1-B 1/17/96 1800 ✓	1	JR									✓			
#5 Dryer Formaldehyde Imp. 2 1/17/96 1800 ✓	1	JR									✓			
#5 Dryer Formaldehyde Imp. 3 1/17/96 1800 ✓	1	JR									✓			
#5 Dryer Formaldehyde F. Hex 1/17/96 1800 ✓	1	JR									[illegible]			Archive filters did not receive

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
R.E. McNatt	1-18-96	0832	Jean Dorlon	1/18/96	0834	HT	1/19/96	0900
Relinquished by:	**Date:**	**Time:**	**Received by lab by:**	**Date:**	**Time:**	**Remarks:**		
			Deidra D. Brooks	1-23-96	1200			

Ship to: _____

METCO ENVIRONMENTAL

E-105

Job# 96-11 Unit Tested RTO #1 STK.

CHAIN OF CUSTODY RECORD

Page # _____

Facility Name/Location	# OF CONTAINERS	SAMPLE ANALYSIS REQUIRED												REMARKS (Specific Compounds/Methods)
ERM SOUTHWEST SILSBEE, TX.		RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	Formaldehyde			
Collected By/Company METCO / G. SMITH														
FIELD SPIKE (0011) SAMPLE I.D. / DATE / TIME / AIR / SOIL / COMP / GRAB														
HIGH LEVEL SPIKE 11/18/96 11:45 ✓	1	✓									✓			SPIKED INTO 50 ml. DNPH STANDARD RECOVERY PROCEDURE
LOW LEVEL SPIKE 11/18/96 11:45 ✓	1	✓									✓			" "
FORMALDEHYDE FIELD SPIKING SOL. BLANK 11/18/96 11:45 ✓	1	✓									✓			
DNPH REAG. BLK 11/18/96 11:45 ✓	1	✓									✓			
$MnCl_2$ REAG. BLK. 11/18/96 11:45 ✓	1	✓									✓			
D.I. BLANK 11/18/96 11:45 ✓	1	✓									✓			

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Paul W. Smith	11/19	2:00		11/19	7:00	HT	11/22/96	10:00
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:		
			Carol A. Henley	11/24/96	3:00 PM			

Ship to: _____

E-106

METCO ENVIRONMENTAL

Job# 96-11 Unit Tested ETO #1 STACK

CHAIN OF CUSTODY RECORD

Page # _____

Facility Name/Location: ERM SOUTHWEST SILSBEE, TX.

Collected By/Company: METCO / G. SMITH

SAMPLE I.D.	DATE	TIME	AIR	SOIL	COMP	GRAB	# OF CONTAINRS	RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	Formaldehyde			REMARKS (Specific Compounds/Methods)
BLANK TRAIN (0011)																				
MeCl2 F/W	1/18/96	12/5	✓				1										✓			
IMP. 1	1/18/96	12/5	✓				1										✓			
IMP. 2/3	1/18/96	12/5	✓				1										✓			
FILTER	1/18/96	12/5	✓				1													ARCHIVE

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Paul Smith	1/19	2100	Richard Smith	1/19	2100	HT	1/22/96	KAA
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:		
			Carol A. Hensley	1/24/96	3:00 P.M.			

Ship to: _____

METCO ENVIRONMENTAL

E-107

Job# 96-11 Unit Tested RTO #1 STACK CHAIN OF CUSTODY RECORD Page # _____

Facility Name/Location	# OF CONTAINERS	SAMPLE ANALYSIS REQUIRED												REMARKS (Specific Compounds/Methods)
ERM SYLSBEE, TX.		RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	FORMALDEHYDE			IMP. 1 200ml. DNPH IMP. 2 200ml. DNPH IMP. 3 DI4
Collected By/Company S. GRUBBS METCO ~~G. SMITH~~														
0011 RUN #1 FORMALDEHYDE SAMPLE I.D.	DATE / TIME / AIR / SOIL / COMP / GRAB													
MeCl2 F/W	11/16/96 1830 ✓	1									✓			
IMP. 1	11/16/96 1830 ✓	1									✓			
IMP. 2/3	11/16/96 1830 ✓	1									✓			
FILTER	11/16/96 1830 ✓	1												HOLD (ARCHIVE) did not received

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Paul Smith			[signature]	11/9	2100	HT	11/22/96	1600
Relinquished by:	**Date:**	**Time:**	**Received by lab by:**	**Date:**	**Time:**	**Remarks:**		
			Deidra Brooks	11/24/96	1210			

Ship to: _____

METCO ENVIRONMENTAL

E-108

Job# 96-11 Unit Tested RTO #1 STACK CHAIN OF CUSTODY RECORD Page # _____

Facility Name/Location	# OF CONTAINRS	SAMPLE ANALYSIS REQUIRED												REMARKS (Specific Compounds/Methods)
ERM SILSBEE, TX.		RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	2,3,7,8-TCDD			IMP. 1 200 ml. DUPH IMP. 2 200ml. DUPH IMP. 3 DRY
Collected By/Company: METRO / J. GRUBBS														
RUN #2 (0011) SAMPLE I.D.	DATE	TIME	AIR	SOIL	COMP	GRAB								
MeCl2 F/W	1/17/96	1815	✓				1						✓	
IMP. 1	1/17/96	1815	✓				1						✓	
IMP. 2/3	1/17/96	1815	✓				1						✓	
FILTER	1/17/96	1815	✓				1							ARCHIVE

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Paul Smith	1/19	2100	[signature]	1/19	2100	HT	1/22/96	1200
Relinquished by:	**Date:**	**Time:**	**Received by lab by:**	**Date:**	**Time:**	**Remarks:**		
			Carol A. Hensley	1/24/96	800 P.M.			

Ship to: _____

METCO ENVIRONMENTAL

E-109

Job# 9611 Unit Tested RTO #1 STACK

CHAIN OF CUSTODY RECORD

Page # _____

Facility Name/Location	# OF CONTAINERS	SAMPLE ANALYSIS REQUIRED												REMARKS (Specific Compounds/Methods)
ERM SOUTHWEST SILSBEE, TX.		RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	Particulate			
Collected By/Company: METCO / G. SMITH														
RUN 3 (0011) SAMPLE I.D.	DATE / TIME / AIR / SOIL / COMP / GRAB													
MeCl2 F/W	1/18/96 1400 ✓	1									✓			
IMP. 1	1/18/96 1400 ✓	1									✓			
IMP. 2/3	1/18/96 1400 ✓	1									✓			
FILTER	1/18/96 1400 ✓	1												ARCHIVE

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Paul Smith	1/19	2100	[illegible]	1/19	2100	HT	1/22/96	1500
Relinquished by:	**Date:**	**Time:**	**Received by lab by:**	**Date:**	**Time:**	**Remarks:**		
			Carol A Henley	1/24/96	3:00PM			

Ship to: _____

METCO ENVIRONMENTAL

E-110

Job# 96-11 Unit Tested RTO #2 STACK CHAIN OF CUSTODY RECORD Page # _____

Facility Name/Location: ERM SILSBEE, TX.

Collected By/Company: D. BAILEY METCO ~~G. SMITH~~

SAMPLE I.D.	DATE	TIME	AIR	SOIL	COMP	GRAB	# OF CONTAINRS	RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	FORMALDEHYDE			REMARKS (Specific Compounds/Methods)
0011 RUN #1 FORMALDEHYDE																				IMP. 1 200ml DNPH IMP. 2 200ml. DNPH IMP. 3 DRY
MeCl2 F/W	1/16/96	1830	✓				1										✓			
IMP. 1	1/16/96	1830	✓				1										✓			
IMP. 2/3	1/16/96	1830	✓				1										✓			
FILTER	1/16/96	1830	✓				1													ARCHIVE

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
Paul Smith	1/19	2100	[signature]	1/19	2100	HT	1/22/96	1000
Relinquished by:	**Date:**	**Time:**	**Received by lab by:**	**Date:**	**Time:**	**Remarks:**		
			Carol A. Hensley	1/24/96	3:00 PM			

Ship to: _____

METCO ENVIRONMENTAL

E-111

Job# 96-11 Unit Tested RTO #2 STACK CHAIN OF CUSTODY RECORD Page # _____

Facility Name/Location	# OF CONTAINRS	SAMPLE ANALYSIS REQUIRED												REMARKS (Specific Compounds/Methods)
ERM SILSBEE, TX.		RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	FORMALDEHYDE			IMP. 1 200 ml. DI/PH IMP. 2 200 ml. DI/PH IMP. 3 DRY
Collected By/Company: METCO / D. BAILEY														
RUN #2 (0011) SAMPLE I.D.	DATE	TIME	AIR	SOIL	COMP	GRAB								
MeCl2 F/W	1/17/96	1815	✓				1	✓					✓			
IMP. 1	1/17/96	1815	✓				1	✓					✓			
IMP. 2/3	1/17/96	1815	✓				1	✓					✓			
FILTER	1/17/96	1815	✓				1	✓								ARCHIVE

Received by: Paul Smith	Date: 1/19	Time: 2100	Relinquished by:	Date: 1/19	Time: 2100	Received by: HT	Date: 1/22/96	Time: 1000
Relinquished by:	Date:	Time:	Received by lab by: Carol A. Hensley	Date: 1/24/96	Time: 3:00 PM	Remarks:		

Ship to: _____

METCO ENVIRONMENTAL

E-112

Job# 96-11 Unit Tested RTO #2 STK CHAIN OF CUSTODY RECORD Page # _____

Facility Name/Location	# OF CONTAINRS	SAMPLE ANALYSIS REQUIRED													REMARKS (Specific Compounds/Methods)
EEM SILSBEE, TX.		RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	Ferrous Sulfate				
Collected By/Company METCO / D. BAILEY															
RW 3 (0011) SAMPLE I.D.	DATE	TIME	AIR	SOIL	COMP	GRAB									
Neck F/W	1/18/96	1400	✓				1							✓			
IMP. 1	1/18/96	1400	✓				1							✓			
IMP. 2/3	1/18/96	1400	✓				1							✓			
FILTER	1/18/96	1400	✓				1										ARCHIVE

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Paul Smith	1/19	2100	Gordon R. Smith	1/19	2100	HT	1/22/96	1000
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:		
			Carol A. Hensley	1/24/96	7:30 AM			

Ship to: _____

METCO ENVIRONMENTAL

E-113

313

Project #: 0196015 Client: Metco

Date Rec'd: 1-23-96

Carrier: Fed Ex Tracking #: 126 340 1404

Analysis: formaldehyde, Method 0011

Condition -- Type(s) of Matrix DNPH

Temperature ambient - ice packs completely melted

Type of Container 500 mL Other:

Custody seals? N

Chain of Custody? Y

Client ID:	Lab ID:	Date Sampled	Matrix	Comment
Dryer 2 Outlet Run 1, Imp 1	0196015 -1A, -1B	1-16-96	DNPH	2 bottles
" " " , Imp 2+3	" -1C, -1D	"	"	" " -1C labelled "Imp 2"
" " " , Frontwash	" -1E	"	"	
Dryer 2, Outlet, Run 2, Imp #1	0196015 -2A, -2B	1-17-96	"	2 bottles
" " " " " , Imp. 2+3	" -2C, -2D	"	"	" "
" " " " " , Frontwash	" -2E	"	"	
Dryer #3 Outlet, Run 1, Imp 1	0196015 -3A, -3B	1-16-96	"	2 bottles
" " " , Imp 2+3	" -3C, -3D	"	"	" -3C labelled "Imp 2"
~~D~~Dryer # 3 Outlet Run 1, Frontwash	" -3E	"	"	
Dryer # 3 Outlet Run 2, Imp 1	" -4A, -4B	1-17-96	"	2 bottles
" " " " " , Imp 2+3	" -4C, -4D	"	"	" "
" " " " " , Frontwash	" -4E	"	"	COC - indicates 2 bottles, only received 1
~~Dryer #4, Outlet, Run 1, Imp frontwash~~	" -5			
Dryer # 4 Outlet Run 1, Imp 1	" -5A	1-16-96	"	
" " " " " , Imp 2, 3	-5B	"	"	

Log in Form Rev 02/LOGINFRM XLS

Log in Initial

Project #: 0196015 Client: Metco

Date Rec'd: 1-23-96
Carrier: Fed-Ex Tracking #: 176340 1404

Analysis: formaldehyde, method #0011

Condition --
Type(s) of Matrix: DNPH
Temperature: ambient - melted ice packs
Type of Container: 500 mL Other:
Custody seals? N
Chain of Custody? Y

Client ID:	Lab ID:	Date Sampled	Matrix	Comment
Dryer # 4, Outlet, Run 1, frontwash	0196015 -5C	1-16-96	DNPH	
Dryer # 4 Outlet, Run 2, Imp 1-A	0196015 -6A	1-17-96	"	
" " " Imp 1-B	" -6B	"	"	
" " " Run 2, Imp 2	" -6C	"	"	
" " " " Imp 3 & 4	" -6D	"	"	
" " " " frontwash	" -6E	"	"	
Dryer # 5 Outlet, Run 1, Imp. 1	" -7A	1-16-96	"	
" " " " Imp 2, 3	" -7B	"	"	
" " " " frontwash	" -7C	"	"	
Dryer # 5, Outlet, Run 2, Imp 1-A, 1-B	0196015 -8A, -8B	1-17-96	"	2 samples
" " " " Imp. 2	" -8C	"	"	
" " " " Imp 3 & 4	" -8D	"	"	
" " " " frontwash	" -8E	"	"	
DNPH blank	" -9	1-18-96	"	

Log in Form Rev 02/LOGINFRM.XLS

Log in Initial db

1111183

2014 314

Project #: 0196015 Client: Metco

Date Rec'd: 1-23-96
Carrier: Fed-Ex Tracking #: 1763401404

Analysis: formaldehyde, method #6 0011

Condition --
Type(s) of Matrix: DNPH
Temperature: ambient - melted ice packs
Type of Container: 500 mL Other:
Custody seals? N
Chain of Custody? Y

Client ID:	Lab ID:	Date Sampled	Matrix	Comment
Dryer # 4, Outlet, Run 1, frontwash	0196015 -5C	1-16-96	DNPH	
Dryer # 4 Outlet, Run 2, Imp 1-A	0196015 -6A	1-17-96	"	
" " ", " " , Imp 1-B	" -6B	"	"	
" " ", Run 2, Imp 2	" -6C	"	"	
" " ", " " , Imp 3 & 4	" -6D	"	"	
" " ", " " , frontwash	" -6E	"	"	
Dryer # 5 outlet, Run 1, Imp. 1	" -7A	1-16-96	"	
" " ", " " , Imp 2, 3	" -7B	"	"	
" " ", " " , frontwash	" -7C	"	"	
Dryer # 5, Outlet, Run 2, Imp 1-A, 1-B	0196015 -8A, -8B	1-17-96	"	2 samples
" " ", " " , Imp. 2	" -8C	"	"	
" " ", " " Imp. 3 & 4	" -8D	"	"	
" " ", " " , front wash	-8E	"	"	
DNPH blank	" -9	1-18-96	"	

Log in Form Rev 02/LOGINFRM.XLS

Log in Initial db

000184

3.5

Project #: 0196015 Client: Metco

Date Rec'd: 1-24-96
Carrier: Fedex Tracking #: See project # 0196018

Analysis: formaldehyde, method 0011

Condition --
Type(s) of Matrix: DNPH
Temperature: ambient
Type of Container: 500 ml Other:
Custody seals? N
Chain of Custody? Y

Client ID:	Lab ID:	Date Sampled	Matrix	Comment
RTO Dryer Stack #1 Run 1, F/W	0196015-10A	1-16-96	DNPH	COC labelled "RTO #1 Stack"
" Imp 1	" 10B	"		"
" Imp 2/3	" 10C	"		"
RTO Dryer Stack #2 Run 1, F/W	" 11A	"		COC labelled "RTO #2 Stack"
" Imp 1	" 11B	"		"
" Imp 2/3	" 11C	"		"
RTO Blank Train #1 Stack F/W	" 12A	1/18/96		
" Imp 1	" 12B	"		
" Imp 2/3	" 12C	"		
RTO #1 STK DNPH Reag. Blk	" 13	1/18/96		combine blanks in 1/26/96
RTO #1 STK $MeCl_2$ Reag. Blk	" 14	"		
RTO #1 STK DI. Blank	" 15	"		
(0011) Field Spike High into 50 ml DNPH	" 16	1/18/96		
Field Spike Low into 50ml DNPH	" 17	"		
RTO #1 STK Run 2 Dryer F/W	" 18A	1/17/96		COC, labelled "RTO #1 Stack" Bottles

Log in Form Rev 02/LOGINFRM.XLS

Log in Initial GMM 1/25

316

Project #: 196015 Client: Metco

Date Rec'd: 1-24-96

Carrier: FedEx Tracking #: See project # 196018

Analysis: formaldehyde, method 0011

Condition --

Type(s) of Matrix: DNPH
Temperature: ambient
Type of Container: 200 ml Other:
Custody seals? N
Chain of Custody? Y

Client ID:	Lab ID:	Date Sampled	Matrix	Comment
RTO #1 Dryer Stack " Run 2 Impl	196015-18B	1/17/96	DNPH	COC Labelled "RTO #1 Stack"
" Imp 2/3	" 18C	"		"
" Run 3 F/W	" 19A	1/18/96		"
" " Impl	" 19B	"		"
" " Imp 2/3	" 19C	"		"
RTO # 2 Dryer Stack Run 2 F/W	" 20A	1/17/96		COC Labelled "RTO #2 Stack"
" " Impl	" 20B	"		"
" " Imp 2/3	" 20C	"		"
RTO # 2 Dryer Stack Run 3 F/W	" 21A	1/18/96		"
" " Impl	" 21B	"		"
" " Imp 2/3	" 21C	"		"

Log in Form Rev 02/LOGINFRM.XLS

Log in Initial CAH

DAT, Inc.
SAMPLE DISCREPANCY REPORT

Run 2

Phone: 800-733-8644
Client Chain of Custody [✓] Yes [ ] No
CLIENT CONTACT Hanoch Toren Phone (214) 931-7127
The following sample discrepancy exists:

	Sample #	Date	Discrepancy
1	Dryer 2 Outlet, Run 1, Imp 2+3		1 bottle labelled "Imp 2", 1 bottle labelled "Imp 2+3
2	Dryer 2 Outlet, Run 1, Filter # (2 samples)		COC labeled "Imp 2+3" only
3	" " " 2 " (3 samples)		no filters (none arrived)
4	" " " 3 "		" did not receive
5	Dryer 3 Outlet, Run 2, frontwash		" " " "
6	Dryer 3 Outlet, Run 1, Filter (1 sample)		COC indicates 2 bottles, only received 1
7	Dryer 3, Outlet, Run 2, Filters (3 samples)		did not receive
8	Dryer 4 Outlet, Run 1, Filter		" " "
9	" " " , Run 2, Filter		" " "
10	Dryer #5 Outlet, Run 1, Filter		" " "
11	Dryer #5 Outlet, Run 1, Imp 2+3		1 bottle labelled "Imp 2", other labeled "Imp 2+3"
12			
13			
14			
15			

Comments:

Please call the lab(1-800-733-8644) [ ] NO [ ] YES
Project Manager:

E-119

2800087

DAT, Inc.
SAMPLE DISCREPANCY REPORT

Rev 2

Phone: 800-733-8644
Client Chain of Custody project 0196015 ☐ Yes ☐ No
CLIENT CONTACT Metco Phone _____
The following sample discrepancy exists:

	Sample #	Date	Discrepancy
1	RTO Dryer Stack #1, Run 1, Melt FW	1-24-96	COC says "RTO #1 Stack"
2	" " " " Imp 1	"	" " " " "
3	" " " " " Imp 2/3	"	" " " " "
4	RTO #1 Stack, Run 1, Filter	"	did not receive
5	RTO Dryer Stack #1, Run 2, Melt FW	"	COC says "RTO #2 Stack"
6	" " " " " " Imp 1	"	" " " " "
7	" " " " " " Imp 2/3	"	" etc.
8	RTO #2 Stack, Run 2, Filter	"	did not receive
9	RTO #1 STK Blank Train F/W	"	Label, COC say "RTO #1 Stk", cover letter says RTO #1 Dryer St
10	" Imp 1	"	"
11	" Imp 2/3	"	"
12	RTO #1 Stk Run 2 F/W	"	"
13	" Imp 1	"	"
14	" Imp 2/3	"	"
15	RTO #1 Stk Run 3 F/W	"	"

Comments:

Please call the lab(1-800-733-8644) ☐ NO ☐ YES
Project Manager:

E-120

03/03/89

DAT, Inc.

Rev 2

SAMPLE DISCREPANCY REPORT

Project 019601S

Phone: 800-733-8644

Client Chain of Custody ☐ Yes ☐ No

CLIENT CONTACT Metco Phone

The following sample discrepancy exists:

	Sample #	Date	Discrepancy
1	RTO #1 Stk Run 3 Imp 1	1-24-94	Label, COC say "RTO STACK", cover letter says "RTO Dryer Stk
2	" Imp 2/3	"	"
3	RTO #2 Stk Run 2 P/W	"	" "RTO #2 Stack" " "RTO Dryer Stack
4	" Imp 1	"	"
5	" Imp 2/3	"	"
6	RTO #2 Stk Run 3 F/W	"	"
7	" Imp 1	"	"
8	" Imp 2/3	"	"
9	RTO #1 Stack Run #2 Filter	"	did not receive
10	RTO #1 Stack Run #3 Filter	"	"
11	RTO #2 Stack Run #1 Filter	"	"
12	RTO #2 Stack Run #3 Filter	"	"
13	RTO #1 Stack Blank Train Filter	"	"
14			
15			

Comments:

Please call the lab(1-800-733-8644) ☐ NO ☐ YES

Project Manager:

E-121

METCO ENVIRONMENTAL
P.O. Box 598
Addison, TX 75001
(214) 931-7127

Ron Mitchum
DAT Inc.
6385 Shier Rings Rd.
Dublin, OH 43016-7294
Ph. (614) 791 - 8008

January 19 1996

Dear Ron,

Please analyze these samples for Formaldehyde as in method 0011. Included are 8 samples and a blank. Please combine all fractions of each run for 1 Formaldehyde number. (This is only the first set of samples). I need all the "Dryers" data in 1 report.

P.O # 96- 11

Please call me if you have any questions.

Hanoch Toren

METCO Environmental

000090

EXTRACTION FORM Data / AnalysisTechnologies, Inc.

Project: C196015 **Analysis:** formaldehyde Method 0011

Date	Sam #	Totl. Sam. Size na	Totl. Sam. Extr. na	Extr. Vol. mL	Aliq. Vol. mL	Sur Init	Spike Init	InSt Init
1-26-96	-MB			13.6	1.0mL			
"	LSI			14.8	1.0		DH	
"	-LSD I			13.0	"		DH	
"	-1			739.0	"			
"	-2			910.0	"			
"	-3			1036.0	"			
"	-4			854.0	"			
1-27-96	-MB II			13.9	"			
"	-MB LS II			14.5	"			
"	-LSD II			14.2	"			
"	-5			336.0	"			
"	-6			626.0	"			
"	-7			330.0	"			
"	-8			573.0	"			
"	-9			149.0	"			
"	-10			290.0	"			
"	-11			311.0	"			
"	-12			304.0	"			
"	13,14 15			232.0	"			
1-29-96	-MB III			14.7	"			
"	-LS III			13.7	"		RH	
"	-LSD II			13.5	"		RH	
"	-16	↓	↓	149.0	"			

Method	Solvent	Vol.	xRep
___ Soxhlet	___ Hex		
✓ Sep fun.	___ MeOH		
___ Sonic.	✓ CHCl3	2	50
___ Cont. Extr.	___ CH2Cl2		
___ Vial	___ ACN		
___ SPE	___ EtAc.		
___ Distill.	___ IPA		
___ Other	___ Water		
___ No Extrct	___ Other		

Mix: _____

Ratio: _____

Spike Information

Surrogate	Vol	Amt/Conc
SL-		
SL-		
SL-		

Int. Std.

SL-		
SL-		
SL-		
SL-		

LS/MS

SL- 7-23	105µL	143.18 µg/mL
SL-		
SL-		
SL-		
SL-		

Comments:

250µL syringe

EXTRACTION FORM Data / AnalysisTechnologies, Inc. 2012

Project: 0196015 **Analysis:** formaldehyde Method 0011

Date	Sam #	Totl. Sam. Size n.a	Totl. Sam. Extr. n.a	Extr. Vol.	Aliq. Vol. mL	Sur Init	Spike Init	InSt Init
1-29-96	-17			103.0	1.0			
"	-18			261.0	"			
"	-19			431.0	"			
"	-20			319.0	"			
"	-21	↓	↓	375.0	"			

Method	Solvent	Vol.	xRep
___ Soxhlet	___ Hex		
✓ Sep fun.	___ MeOH		
___ Sonic.	___ CHCl3		
___ Cont. Extr.	✓ CH2Cl2	2	50
___ Vial	___ ACN		
___ SPE	___ EtAc.		
___ Distill.	___ IPA		
___ Other	___ Water		
___ No Extrct	___ Other		

Mix: _____

Ratio: _____

Spike Information

Surrogate	Vol	Amt/Conc
SL-		
SL-		
SL-		

Int. Std.

SL-		
SL-		
SL-		
SL-		

LS/MS

SL- 7-23	105 µL	143.18 µg/mL
SL-		
SL-		
SL-		
SL-		

Comments:

b

111192

0195015

SHIPPER'S DECLARATION FOR DANGEROUS GOODS

(Provide at least two copies to the airline)

Shipper
METCO ENVIRONMENTAL
16115 DOOLEY RD.
DALLAS, TX 75244

Air Waybill No. 126 3401 404
Page 1 of 1 Pages
Shipper's Reference Number (optional) 96-11

Consignee
DAT INC.
6385 SHIER RINGS RD.
DUBLIN, OH 43016

FedEx. Federal Express

Two completed and signed copies of this Declaration must be handed to the operator.

TRANSPORT DETAILS

This shipment is within the limitations prescribed for: (delete non-applicable)

~~PASSENGER AND CARGO AIRCRAFT~~ | CARGO AIRCRAFT ONLY

Airport of Departure: DALLAS

Airport of Destination: DUBLIN, OH

WARNING

Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties. This Declaration must not, in any circumstances, be completed and/or signed by a consolidator, a forwarder, or an IATA cargo agent.

Shipment type: (delete non-applicable)

NON-RADIOACTIVE | ~~RADIOACTIVE~~

NATURE AND QUANTITY OF DANGEROUS GOODS

Dangerous Goods Identification					Quantity and type of packaging	Packing Inst.	Authorization
Proper Shipping Name	Class or Division	UN or ID No.	Packing Group	Subsidiary Risk			
DINITROPHENOL SOLUTION	6.1	UN 1599	II		1 4D WOOD CRATE X 15 LITER	611	

Additional Handling Information

Emergency Telephone Number CHEM TEL 1-800-255-3924

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable International and National Governmental Regulations.

Name/Title of Signatory: SCOT JACKSON SHPG.
Place and Date: DALLAS, TX 1/19/96
Signature (see warning above): Scot Jackson

IF ACCEPTABLE FOR PASSENGER AIRCRAFT, THIS SHIPMENT CONTAINS RADIOACTIVE MATERIAL INTENDED FOR USE IN, OR INCIDENT TO, RESEARCH, MEDICAL DIAGNOSIS, OR TREATMENT.

Order Acknowledgement
Data/Analysis Technologies, Inc.

To: Hannoch Toren
Metco Environmental

1/23/96

Re: Your Project: Louisiana Pacific
DAT Project: 0196015

This is to acknowledge receipt of your sample(s), advise you of the status of your order and obtain authorization to proceed with sample analysis. Please review this information, **sign below and return**. If your have any questions, please phone Data / Analysis Technologies and refer to the DAT project number shown above.

Unless instructed otherwise, we will use the following addresses and telephone numbers:

Billing Address:

Metco Environmental
16115 Dooley Road
P.O. Box 598
Addison, TX 75001

Shipping Address:

Metco Environmental
16115 Dooley Road
Addison, TX 75001

Telephone Numbers:
Phone: 214-931-7127
Fax: 214-931-8398

Our receiving records show the following information about your sample(s).

Custody Seal: no
Chain-of-Custody: yes
Temperature: ambient
Other: good condition

Date Received: 1/23/96
Carrier/ID#: Fed Ex 1263401404
Container: glass

We have scheduled work on your sample(s) and associated QC samples as follows:

Turn Around Time: 14 days **Due Date: 2/5/96** **Report Level: III**

Combining:	**DAT ID**
Dryer 2 Outlet Run 1 - Imp. 1/Imp. 2 & 3/Frontwash as	**Sample 0196015-1 (a-e)**
Dryer 2 Outlet Run 2 - Imp. 1/Imp. 2 & 3/Frontwash as	**Sample 0196015-2 (a-e)**
Dryer 3 Outlet Run 1 - Imp. 1/Imp. 2 & 3/Frontwash as	**Sample 0196015-3 (a-e)**
Dryer 3 Outlet Run 2 - Imp. 1/Imp. 2 & 3/Frontwash as	**Sample 0196015-4 (a-e)**
Dryer 4 Outlet Run 1 - Imp. 1/Imp. 2 & 3/Frontwash as	**Sample 0196015-5 (a-c)**
Dryer 4 Outlet Run 2 - Imp. 1A/Imp. 1B/Imp. 2/Imp. 3 & 4/Frontwash as	**Sample 0196015-6 (a-e)**
Dryer 5 Outlet Run 1 - Imp. 1/Imp. 2 & 3/Frontwash as	**Sample 0196015-7 (a-c)**
Dryer 5 Outlet Run 2 - Imp. 1A/Imp. 1B/Imp. 2/Imp. 3 & 4/Frontwash as	**Sample 0196015-8 (a-e)**
DNPH Blank	**Sample 0196015-9**

Total: 9 Samples @ $150 each = $1,350.00

*Re-extractions or dilutions due to high analyte levels or sample matrix problems may increase the total amount of the final bill.

Data/Analysis Technologies, Inc.
6385 Shier Rings Road
Dublin, OH 43016-7294

Phone: 614-791-8008
Fax: 614-791-8007

1/11/95

Order Acknowledgement
Data/Analysis Technologies, Inc.

Other :

If dilutions are required, the additional charge will be $50/dilution.

For additional information, please contact:

Project Management: Sharon S. Liebrecht 800-733-8644

Terms and conditions are as provided to you with our quotation. DAT payment terms are Net 30 days. Late payment will incur a penalty if 1.5% on the past due balance. There is a 2% discount for payment remitted within 10 days of invoice receipt. A 10% discount will apply for pre-payment. All reports remain the property of Data / Analysis Technologies, Inc. until paid for in full. Any change or alteration of these terms must be agreed to in writing prior to receipt of samples.

Thank you for your business!

Accepted for (please sign and return).

P.O. Number: 96-11

Signature:_____Date:___/___/___.

Failure of the Client to notify DAT of any errors or corrections in the order acknowledgment within 48 hours from the date of this facsimile will constitute the Client's express consent to accept all of the provisions of this document.

Data/Analysis Technologies, Inc.
6385 Shier Rings Road
Dublin, OH 43016-7294

Phone: 614-791-8008
Fax: 614-791-8007

METCO ENVIRONMENTAL
P.O. Box 598
Addison, TX 75001
(214) 931-7127

SOURCE EMISSIONS SURVEY OF LOUISIANA-PACIFIC CORPORATION SILSBEE, TEXAS TNRCC PERMIT 19695 FOR ERM-SOUTHWEST, INC. VOLUME III

3 of 3

JANUARY 1996

FILE NUMBER 96-11

APPENDIX F

Reference Method Monitors Data

Dryer Number 2 Outlet Duct - Particulate
Oxides of Nitrogen
Concentration

Run Number	Measured (ppm)	Adjusted (ppm*)
1	26.8	26.1
2	29.0	28.8
3	30.5	30.2

*Calculated according to equation 6C-1.

Dryer Number 2 Outlet Duct - Formaldehyde
Oxides of Nitrogen
Concentration

Run Number	Measured (ppm)	Adjusted (ppm*)
2	28.8	28.4

*Calculated according to equation 6C-1.

Dryer Number 2 Outlet Duct - Particulate
Calibration Summary
Oxides of Nitrogen

Run Number	NOx Calibration Initial Drift Check (ppm)	NOx Calibration Final Drift Check (ppm)	NOx Calibration Average (ppm)	NOx Zero Initial Drift Check (ppm)	NOx Zero Final Drift Check (ppm)	NOx Zero Average (ppm)	Actual NOx Calibration Value (ppm)	Actual NOx Zero Value (ppm)
1	49.4	52.1	50.8	0.7	0.5	0.6	50.0	0.0
2	49.7	50.3	50.0	0.2	0.6	0.4	50.0	0.0
3	49.8	50.2	50.0	1.2	0.4	0.8	50.0	0.0

METCO ENVIRONMENTAL

Dryer Number 2 Outlet Duct - Formaldehyde
Calibration Summary
Oxides of Nitrogen

Run Number	NOx Calibration Initial Drift Check (ppm)	NOx Calibration Final Drift Check (ppm)	NOx Calibration Average (ppm)	NOx Zero Initial Drift Check (ppm)	NOx Zero Final Drift Check (ppm)	NOx Zero Average (ppm)	Actual NOx Calibration Value (ppm)	Actual NOx Zero Value (ppm)
2	50.3	49.8	50.1	0.6	1.2	0.9	50.0	0.0

BURHOUMTAL

ERM SOUTHWEST
96 11
SILSBEE, TEXAS
DRYER OUTLET
Page : 1

Initial 3pt Cal + Bias check

		THC PPM	CO PPM	NOX PPM	
01/16/96	06:26	8.2	0.0	-0.2	
01/16/96	06:27	8.5	0.0	-0.2	
01/16/96	06:28	7.2	0.0	-0.2	
01/16/96	06:29	6.7	0.0	-0.2	
01/16/96	06:30	1.5C	0.0C	-0.1C	
01/16/96	06:31	-0.5C	-0.1C	0.0C	
01/16/96	06:32	0.1C	-0.1C	0.0C	zero
01/16/96	06:33	-0.3C	-0.1C	0.0C	
01/16/96	06:34	-3.5C	-0.1C	8.3C	
01/16/96	06:35	-11.9C	0.1C	50.7C	
01/16/96	06:36	-12.2C	0.1C	50.3C	
01/16/96	06:37	-12.3C	0.1C	50.1C	
01/16/96	06:38	-11.5C	0.1C	50.0C	50.0 ppm Nox BLM003007
01/16/96	06:39	-12.4C	41.3C	1.4C	
01/16/96	06:40	-12.7C	84.7C	0.1C	
01/16/96	06:41	-12.8C	84.7C	0.0C	
01/16/96	06:42	-12.8C	84.6C	0.0C	
01/16/96	06:43	-11.7C	84.0C	9.6C	
01/16/96	06:44	-12.9C	25.2C	81.8C	
01/16/96	06:45	-13.0C	0.2C	82.9C	84.61 ppm Nox BLM002626
01/16/96	06:46	-13.1C	0.2C	82.8C	
01/16/96	06:47	-13.2C	0.9C	65.0C	
01/16/96	06:48	-11.6C	31.2C	0.3C	
01/16/96	06:49	-8.4C	40.6C	0.1C	
01/16/96	06:50	-8.1C	40.5C	3.8C	
01/16/96	06:51	-8.4C	13.9C	50.0C	50.0 ppm Nox
01/16/96	06:52	-5.5C	0.1C	49.6C	
01/16/96	06:53	-4.1C	3.2C	1.2C	
01/16/96	06:54	-8.4C	16.1C	0.1C	
01/16/96	06:55	-8.5C	16.8C	0.0C	
01/16/96	06:56	-8.6C	16.8C	0.0C	
01/16/96	06:57	-6.7C	12.5C	0.0C	
01/16/96	06:58	-0.2C	0.2C	0.0C	
01/16/96	06:59	-0.1C	-0.1C	0.0C	
01/16/96	07:00	0.0C	-0.1C	0.0C	
01/16/96	07:01	-0.2C	-0.1C	0.0C	
01/16/96	07:02	-0.4C	-0.1C	0.0C	
01/16/96	07:03	-0.6C	-0.1C	0.0C	
01/16/96	07:04	-0.4C	-0.1C	0.0C	
01/16/96	07:05	-0.5C	-0.1C	0.0C	
01/16/96	07:06	-0.5C	-0.1C	0.0C	
01/16/96	07:07	-0.5C	-0.1C	0.0C	
01/16/96	07:08	-0.7C	-0.1C	32.8C	
01/16/96	07:09	-0.1C	-0.1C	34.9C	
01/16/96	07:10	-0.6C	-0.1C	34.8C	

96-11
ERM Southwest
Silsbee, TX

SN 10194/092T
Model UE7
0-1000

SN 48-335726.245
Model 48
0-500

SN 105 #270245
Model 105
0-100

ERM SOUTHWEST
96 11
SILSBEE, TEXAS
DRYER OUTLET

		THC PPM	CO PPM	NOX PPM	
01/16/96	07:11	2.5C	-0.1C	34.8C	
01/16/96	07:12	15.4C	7.7C	34.7C	
01/16/96	07:13	15.5C	37.9C	34.8C	
01/16/96	07:14	15.7C	40.5C	34.8C	
01/16/96	07:15	15.8C	40.5C	34.7C	
01/16/96	07:16	10.5C	40.5C	34.7C	
01/16/96	07:17	-0.5C	28.0C	34.7C	
01/16/96	07:18	-0.2C	0.7C	34.7C	
01/16/96	07:19	-0.1C	-0.1C	34.7C	
01/16/96	07:20	0.0C	-0.1C	34.7C	
01/16/96	07:21	3.6C	-0.1C	34.7C	
01/16/96	07:22	43.3C	0.1C	34.7C	
01/16/96	07:23	44.6C	0.4C	34.7C	
01/16/96	07:24	45.9C	0.5C	34.7C	
01/16/96	07:25	47.1C	0.5C	34.7C	
01/16/96	07:26	46.4C	0.4C	34.6C	
01/16/96	07:27	46.3C	0.5C	34.6C	
01/16/96	07:28	46.2C	0.5C	34.7C	
01/16/96	07:29	31.0C	0.5C	34.7C	
01/16/96	07:30	17.5C	0.6C	34.6C	
01/16/96	07:31	17.7C	0.6C	34.6C	
01/16/96	07:32	17.8C	0.6C	34.6C	
01/16/96	07:33	8.6C	0.6C	34.6C	
01/16/96	07:34	-999N	-999N	-999N	
01/16/96	07:35	-999N	-999N	-999N	
01/16/96	07:36	-999N	-999N	-999N	
01/16/96	07:37	-999N	-999N	-999N	
01/16/96	07:38	-999N	-999N	-999N	
01/16/96	07:39	-999N	-999N	-999N	
01/16/96	07:40	-999N	-999N	-999N	
01/16/96	07:41	-999N	-999N	-999N	
01/16/96	07:42	-2.5C	0.0C	0.2C	
01/16/96	07:43	9.4C	0.3C	0.2C	
01/16/96	07:44	10.5C	0.6C	0.1C	
01/16/96	07:45	17.4C	0.6C	0.1C	
01/16/96	07:46	17.6C	0.6C	7.0C	
01/16/96	07:47	17.5C	0.6C	47.7C	
01/16/96	07:48	17.4C	0.6C	47.9C	
01/16/96	07:49	17.0C	0.6C	48.1C	
01/16/96	07:50	17.6C	0.6C	48.2C	50.0 ppm NOx Bias
01/16/96	07:51	18.0C	0.6C	6.7C	
01/16/96	07:52	18.3C	0.6C	0.2C	Zero Bias
01/16/96	07:53	17.9C	0.6C	11.7C	
01/16/96	07:54	4.3C	0.4C	31.1C	
01/16/96	07:55	0.0C	0.0C	31.2C	start converter chk

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		THC PPM	CO PPM	NOX PPM	
01/16/96	07:56	-0.1C	-0.1C	31.2C	
01/16/96	07:57	-0.1C	-0.1C	31.2C	
01/16/96	07:58	-0.1C	-0.1C	31.2C	
01/16/96	07:59	-0.3C	-0.1C	31.2C	
01/16/96	08:00	0.1C	-0.1C	31.2C	
01/16/96	08:01	51.7C	0.0C	31.2C	
01/16/96	08:02	85.3C	0.3C	31.2C	
01/16/96	08:03	85.4C	0.3C	31.1C	
01/16/96	08:04	85.3C	0.3C	31.2C	
01/16/96	08:05	85.5C	0.3C	31.1C	
01/16/96	08:06	77.2C	0.3C	31.1C	
01/16/96	08:07	12.5C	0.3C	31.1C	
01/16/96	08:08	9.7C	0.3C	31.2C	
01/16/96	08:09	-0.1C	0.1C	31.2C	
01/16/96	08:10	0.0C	-0.1C	31.2C	
01/16/96	08:11	19.1C	0.0C	31.2C	
01/16/96	08:12	22.5C	0.3C	31.2C	
01/16/96	08:13	22.3C	0.3C	31.3C	
01/16/96	08:14	22.2C	0.3C	31.3C	
01/16/96	08:15	20.1C	0.3C	31.3C	
01/16/96	08:16	3.0C	0.2C	31.3C	
01/16/96	08:17	-0.1C	-0.1C	31.3C	
01/16/96	08:18	-0.2C	-0.1C	31.3C	
01/16/96	08:19	-0.3C	-0.1C	31.3C	
01/16/96	08:20	-0.4C	-0.1C	31.3C	
01/16/96	08:21	-0.3C	-0.1C	31.3C	
01/16/96	08:22	-0.2C	-0.1C	31.2C	
01/16/96	08:23	-0.3C	-0.1C	31.2C	
01/16/96	08:24	-0.4C	-0.1C	31.2C	
01/16/96	08:25	-0.4C	-0.1C	31.2C	End converter ck
01/16/96	08:26	-0.2C	-0.1C	31.2C	
01/16/96	08:27	-0.2C	-0.1C	31.2C	
01/16/96	08:28	1.1C	-0.1C	31.1C	
01/16/96	08:29	-0.4C	-0.1C	31.1C	
01/16/96	08:30	-0.5C	-0.1C	31.1C	
01/16/96	08:31	-0.2C	-0.1C	31.1C	
01/16/96	08:32	-0.4C	-0.1C	30.9C	
01/16/96	08:33	-0.4C	-0.1C	30.7C	
01/16/96	08:34	-0.5C	-0.1C	30.5C	
01/16/96	08:35	-0.5C	-0.1C	30.5C	
01/16/96	08:36	-0.4C	-0.1C	8.9C	
01/16/96	08:37	-0.4C	-0.1C	0.1C	
01/16/96	08:38	-0.4C	-0.1C	0.1C	
01/16/96	08:39	-0.4C	-0.1C	0.1C	
01/16/96	08:40	-0.6C	-0.1C	0.1C	

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		THC PPM	CO PPM	NOX PPM	
01/16/96	09:27	0.0D	0.0D	0.0D	
01/16/96	09:28	295.6	462.0	0.1	
01/16/96	09:29	241.7	460.4	0.1	460.7 ppm CO CAL202
01/16/96	09:30	279.8	450.3	0.1	
01/16/96	09:31	287.2C	112.4C	0.1C	
01/16/96	09:32	299.4C	2.0C	0.1C	
01/16/96	09:33	273.1C	4.7C	0.1C	
01/16/96	09:34	287.1C	2.8C	0.1C	
01/16/96	09:35	282.9C	1.5C	0.1C	
01/16/96	09:36	293.4C	138.1C	0.1C	
01/16/96	09:37	307.9C	241.6C	0.1C	
01/16/96	09:38	297.2C	242.2C	0.1C	
01/16/96	09:39	294.2C	242.3C	0.1C	242.1 ppm CO BLM003980
01/16/96	09:40	321.4C	90.1C	0.1C	
01/16/96	09:41	317.9C	1.5C	0.1C	
01/16/96	09:42	307.6C	5.9C	0.1C	
01/16/96	09:43	334.4C	70.5C	0.1C	
01/16/96	09:44	309.7C	81.9C	0.1C	
01/16/96	09:45	310.2C	82.2C	0.1C	84.7 ppm CO BLM003062
01/16/96	09:46	319.6C	72.1C	0.1C	
01/16/96	09:47	320.6C	9.1C	0.1C	
01/16/96	09:48	343.0C	3.8C	0.0C	
01/16/96	09:49	355.8C	175.7C	0.0C	
01/16/96	09:50	142.0C	242.4C	0.0C	
01/16/96	09:51	14.8C	242.2C	0.0C	242.1 ppm CO Bias
01/16/96	09:52	8.0C	232.0C	0.0C	
01/16/96	09:53	4.8C	46.7C	0.0C	
01/16/96	09:54	3.0C	1.0C	0.0C	
01/16/96	09:55	1.4C	0.9C	0.0C	
01/16/96	09:56	0.0C	0.8C	0.0C	
01/16/96	09:57	-0.8C	0.8C	0.0C	zero bias
01/16/96	09:58	-1.2C	0.9C	0.0C	
01/16/96	09:59	-1.2C	0.9C	0.0C	
01/16/96	10:00	-0.2C	0.9C	0.0C	
01/16/96	10:01	0.3C	0.8C	0.0C	
01/16/96	10:02	379.1C	1.4C	0.0C	
01/16/96	10:03	472.5C	82.3C	0.0C	
01/16/96	10:04	490.3C	133.0C	0.1C	
01/16/96	10:05	491.3C	132.5C	0.1C	
01/16/96	10:06	491.3C	127.7C	0.1C	
01/16/96	10:07	133.7C	160.7C	6.3C	
01/16/96	10:08	30.8C	174.8C	26.6C	
01/16/96	10:09	11.3C	168.4C	27.4C	
01/16/96	10:10	876.9C	175.7C	27.8C	
01/16/96	10:11	968.0C	207.3C	27.7C	

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		THC PPM	CO PPM	NOX PPM	
01/16/96	10:12	964.0C	264.0C	28.3C	
01/16/96	10:13	954.2C	289.3C	28.9C	
01/16/96	10:14	954.8C	263.7C	29.6C	977.5 ppm propane Adjusted to 95% of Scale BLM004005
01/16/96	10:15	59.9C	241.4C	30.1C	
01/16/96	10:16	1.0C	260.5C	30.2C	
01/16/96	10:17	34.1C	264.4C	30.5C	
01/16/96	10:18	481.6C	252.1C	30.2C	
01/16/96	10:19	483.2C	260.2C	29.8C	489.0 ppm propane BA2625
01/16/96	10:20	206.4C	229.8C	30.1C	
01/16/96	10:21	-0.5C	221.7C	30.0C	
01/16/96	10:22	-0.8C	218.1C	29.8C	
01/16/96	10:23	193.6C	191.9C	29.7C	
01/16/96	10:24	231.1C	156.7C	29.3C	2330 ppm propane BAL1761
01/16/96	10:25	230.8C	132.6C	29.3C	
01/16/96	10:26	85.7C	114.1C	28.4C	
01/16/96	10:27	-0.8C	119.0C	28.5C	zero bias
01/16/96	10:28	134.8C	100.0C	29.2C	
01/16/96	10:29	476.7C	73.0C	28.6C	
01/16/96	10:30	511.6C	69.9C	28.2C	
01/16/96	10:31	505.0C	81.2C	27.7C	
01/16/96	10:32	480.9C	106.0C	27.2C	
01/16/96	10:33	475.0C	122.3C	27.5C	
01/16/96	10:34	382.0C	135.1C	27.0C	
01/16/96	10:35	428.8C	168.0C	27.1C	
01/16/96	10:36	507.1C	195.3C	28.0C	
01/16/96	10:37	497.7C	247.0C	27.9C	
01/16/96	10:38	456.7C	274.5C	28.9C	
01/16/96	10:39	422.1C	285.1C	29.3C	
01/16/96	10:40	485.5C	323.0C	29.7C	
01/16/96	10:41	499.3C	343.2C	30.7C	
01/16/96	10:42	498.1C	347.5C	30.8C	
01/16/96	10:43	498.2C	327.3C	30.7C	499.0 ppm propane Bias.
01/16/96	10:44	477.6C	295.4C	30.8C	
01/16/96	10:45	22.3C	325.8C	30.4C	
01/16/96	10:46	-2.7C	356.3C	31.1C	
01/16/96	10:47	-3.4C	343.0C	31.6C	
01/16/96	10:48	-3.7C	316.7C	31.4C	
01/16/96	10:49	86.5C	250.6C	31.0C	
01/16/96	10:50	274.6C	224.2C	27.3C	
01/16/96	10:51	267.9C	65.5C	11.2C	
01/16/96	10:52	257.5C	2.0C	7.0C	
AVERAGES :		287.3	162.1	14.9	

01/16/96	11:43	6.4	2.7	1.9
01/16/96	11:44	24.1	3.2	1.7
01/16/96	11:45	26.4	2.8	1.6
01/16/96	11:46	13.0	2.3	1.5
01/16/96	11:47	12.4	2.1	1.3
01/16/96	11:48	7.6	1.8	1.2
01/16/96	11:49	16.6	1.8	1.2
01/16/96	11:50	-999N	-999N	-999N
01/16/96	11:51	-999N	-999N	-999N
01/16/96	11:52	-999N	-999N	-999N
01/16/96	11:53	-999N	-999N	-999N
01/16/96	11:54	-999N	-999N	-999N
01/16/96	11:55	0.0P	0.0P	0.0P
01/16/96	11:56	-999N	-999N	-999N
01/16/96	11:57	-999N	-999N	-999N
01/16/96	11:58	18.2	-0.1	1.2
01/16/96	11:59	12.8	1.8	1.0
01/16/96	12:00	16.3	2.1	1.0
01/16/96	12:01	18.5	2.1	0.9
01/16/96	12:02	19.0	2.3	0.9
01/16/96	12:03	11.4	2.4	0.9
01/16/96	12:04	12.2	2.4	0.9
01/16/96	12:05	15.7	2.4	0.8
01/16/96	12:06	19.7	2.5	0.8
01/16/96	12:07	15.0	2.4	0.9
01/16/96	12:08	19.4	2.4	0.9
01/16/96	12:09	13.3	2.4	0.9
01/16/96	12:10	19.8	1.8	1.0
01/16/96	12:11	60.6	1.3	0.9
01/16/96	12:12	15.8	0.9	32.0
01/16/96	12:16	-6.5	-0.3	49.3
01/16/96	12:17	-10.5	-0.3	49.4
01/16/96	12:18	-10.5	-0.3	49.4 50.0 ppm NOx Bias
01/16/96	12:19	-0.8	-0.2	44.6 zero bias
01/16/96	12:20	7.5	1.4	11.1
01/16/96	12:21	7.7	1.4	34.3
01/16/96	12:22	13.0	69.6	6.6
01/16/96	12:23	19.9	234.4	0.9
01/16/96	12:24	7.9	241.0	0.8
01/16/96	12:25	5.7	241.4	0.8 242.1 ppm CO Bias
01/16/96	12:26	9.4	240.9	0.7 zero bias
01/16/96	12:27	10.3	119.6	1.0
01/16/96	12:28	11.4	43.9	1.1
01/16/96	12:29	20.9	48.4	0.9
01/16/96	12:30	36.8	3.1	0.7

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		THC PPM	CO PPM	NOX PPM
01/16/96	12:31	37.5	2.4	0.7
01/16/96	12:32	30.0	2.3	0.7
01/16/96	12:33	29.6	1.9	0.7
01/16/96	12:34	319.8	1.8	0.6
01/16/96	12:35	499.9	1.8	0.6
01/16/96	12:36	501.2	1.9	0.6
01/16/96	12:37	496.1	2.4	0.6
01/16/96	12:38	218.2	2.3	0.6
01/16/96	12:39	26.7	1.9	0.6
01/16/96	12:40	25.1	2.4	0.6
01/16/96	12:41	24.7	2.4	0.6
01/16/96	12:42	24.6	2.2	0.6
01/16/96	12:43	24.7	1.8	0.5
01/16/96	12:44	24.6	2.0	0.5
01/16/96	12:45	24.8	2.3	0.5
01/16/96	12:46	309.3	2.0	0.5
01/16/96	12:47	464.1	1.8	0.6
01/16/96	12:48	452.9	1.8	0.6
01/16/96	12:49	457.5	123.8	12.8
01/16/96	12:50	449.7	494.8	26.8
01/16/96	12:51	435.6	499.3	24.7
01/16/96	12:52	360.4	181.9	5.2
01/16/96	12:53	28.5	4.7	2.1
[illegible]		[illegible]	[illegible]	[illegible]

489. ppm propane Bias

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Auxiliary Average Report

DCNID : 01 Site Name : DRYER Aux Interval : 1 Date : 1/16/96

Time	THC PPM	CO PPM	NOX PPM
13:08	354.5000	499.9000	23.9000
13:09	353.3000	585.9000	25.2000
13:10	356.5000	883.6000	26.0000
13:11	360.5000	816.1000	26.6000
13:12	351.1000	776.9000	26.5000
13:13	360.1000	659.4000	26.6000
13:14	357.1000	743.9000	27.0000
13:15	353.2000	730.4000	28.1000
13:16	359.3000	747.1000	27.6000
13:17	363.0000	753.6000	27.4000
13:18	380.7000	801.4000	28.0000
13:19	362.8000	890.8000	28.3000
13:20	366.5000	904.5000	28.1000
13:21	378.3000	964.5000	28.0000
13:22	379.8000	693.9000	28.5000
13:23	384.9000	610.3000	28.9000
13:24	300.6000	655.0000	29.1000
13:25	252.1000	637.8000	28.2000
13:26	338.0000	700.4000	28.1000
13:27	372.8000	648.8000	28.3000
13:28	398.2000	643.4000	27.8000
13:29	399.5000	755.8000	28.8000
13:30	411.4000	661.4000	28.6000
13:31	403.7000	651.7000	27.9000
13:32	283.4000	565.6000	27.1000
13:33	323.3000	635.9000	27.0000
13:34	427.7000	669.8000	26.6000
13:35	298.3000	688.0000	26.6000
13:36	273.7000	663.0000	26.7000
13:37	409.1000	677.2000	26.3000
13:38	422.1000	689.5000	26.4000
13:39	424.2000	771.1000	27.6000
13:40	348.8000	792.9000	27.5000
13:41	347.0000	781.3000	27.3000
13:42	402.2000	788.5000	27.2000
13:43	417.2000	811.6000	28.1000
MAX :	427.7000	964.5000	29.1000
MIN :	252.1000	499.9000	23.9000
AVG :	363.1917	720.8583	27.3861
SCANS:	36	36	36

Run 1 (particulate)
#2 Dryer

* 8 minutes behind actual time

part A

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Auxiliary Average Report

DCNID : 01 Site Name : DRYER Aux Interval : 1 Date : 1/16/96

Time	THC PPM	CO PPM	NOX PPM
13:59	424.9000	738.1000	25.6000
14:00	440.8000	749.3000	26.5000
14:01	446.6000	813.6000	26.4000
14:02	468.6000	794.1000	27.0000
14:03	296.6000	860.2000	27.5000
14:04	399.0000	962.6000	28.1000
14:05	422.7000	493.8000	27.9000
14:06	443.1000	457.1000	27.6000
14:07	382.3000	442.8000	27.6000
14:08	281.7000	479.4000	27.7000
14:09	408.9000	463.3000	27.7000
14:10	384.8000	404.6000	27.4000
14:11	415.9000	472.5000	26.4000
14:12	419.8000	604.2000	26.2000
14:13	402.4000	566.9000	26.0000
14:14	359.4000	504.8000	26.5000
14:15	368.7000	416.9000	26.0000
14:16	386.1000	358.5000	25.7000
14:17	391.8000	301.1000	25.0000
14:18	389.5000	290.6000	24.4000
14:19	386.4000	264.8000	24.3000
14:20	288.0000	279.7000	23.9000
14:21	142.3000	256.1000	23.7000
14:22	337.1000	251.3000	23.8000
14:23	357.9000	290.8000	24.3000
14:24	414.1000	319.3000	24.4000
14:25	427.7000	388.1000	24.7000
14:26	457.4000	421.0000	25.2000
14:27	476.4000	491.1000	25.5000
14:28	407.6000	554.5000	25.8000
14:29	385.6000	580.3000	26.3000
14:30	437.6000	629.7000	26.6000
14:31	475.8000	664.4000	27.0000
14:32	487.5000	726.4000	26.8000
14:33	483.9000	749.1000	27.7000
14:34	366.1000	715.2000	28.3000
MAX :	487.5000	962.6000	28.3000
MIN :	142.3000	251.3000	23.7000
AVG :	396.2500	521.0055	26.1528
SCANS:	36	36	36

Run 1 (particulate)
II 2 Dryer
* 8 minutes behind actual time
Port B

27339.9012
379.7

44707.0968
620.9

1927.4004
26.8

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Final Cal Run 1 (particulate)
Initial Cal Run 1 (formaldehyde

		THC PPM	CO PPM	NOX PPM	
01/16/96	14:51	-999N	-999N	-999N	
01/16/96	14:52	64.3	7.7	0.5	zero bias
01/16/96	14:53	61.4	6.7	0.5	
01/16/96	14:54	58.7	6.6	21.5	
01/16/96	14:55	57.1	0.8	51.8	
01/16/96	14:56	54.5	-0.4	52.2	
01/16/96	14:57	51.9	-0.4	52.3	
01/16/96	14:58	51.0	-0.4	52.2	
01/16/96	14:59	49.7	-0.4	52.1	50.0 ppm Nox
01/16/96	15:00	48.6	-0.3	52.1	zero bias
01/16/96	15:01	46.5	3.9	45.8	
01/16/96	15:02	45.6	5.8	42.5	
01/16/96	15:03	44.3	5.0	10.7	
01/16/96	15:04	42.9	4.8	4.0	
01/16/96	15:05	42.5	4.8	3.8	
01/16/96	15:06	41.9	4.8	3.7	
01/16/96	15:07	41.5	4.8	3.6	
01/16/96	15:08	41.1	4.5	3.5	
01/16/96	15:09	40.6	3.7	3.4	
01/16/96	15:10	40.1	3.7	3.3	
01/16/96	15:11	39.5	11.0	3.2	
01/16/96	15:12	39.0	186.9	3.1	
01/16/96	15:13	51.3	241.7	3.1	
01/16/96	15:14	74.9	242.0	3.0	
01/16/96	15:15	74.1	241.9	3.0	
01/16/96	15:16	106.4	242.3	2.9	242.1 ppm CO Bias
01/16/96	15:17	118.3	203.5	1.8	
01/16/96	15:18	111.1	15.1	0.4	
01/16/96	15:19	129.6	2.6	0.3	
01/16/96	15:20	205.2	2.6	0.3	
01/16/96	15:21	457.9	2.6	0.3	
01/16/96	15:22	462.0	2.6	0.2	
01/16/96	15:23	464.8	2.6	0.2	
01/16/96	15:24	474.7	2.6	0.2	
01/16/96	15:25	482.2	2.6	0.2	
01/16/96	15:26	483.2	2.6	0.2	
01/16/96	15:27	488.0	2.6	0.2	
01/16/96	15:28	490.9	2.6	0.2	489.0 ppm propane bias
01/16/96	15:29	492.1	1.8	0.2	
01/16/96	15:30	475.4	1.8	0.2	
01/16/96	15:31	183.0	1.8	0.2	
01/16/96	15:32	86.9	1.7	0.2	
01/16/96	15:33	-2.3	1.7	0.2	
01/16/96	15:34	-3.4	2.2	0.2	
01/16/96	15:35	-3.8	3.6	0.2	zero bias

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ERM SOUTHWEST
96 11
SILSBEE, TEXAS
DRYER OUTLET
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		THC PPM	CO PPM	NOX PPM
01/16/96	15:39	535.8	1.8	0.1
01/16/96	15:40	540.8	1.8	0.1
01/16/96	15:41	526.7	1.8	0.1
01/16/96	15:42	512.6	1.8	0.1
01/16/96	15:43	506.8	1.8	0.1
01/16/96	15:44	462.0	1.2	0.1
01/16/96	15:45	447.7	0.8	0.1
01/16/96	15:46	454.6	0.8	0.1
01/16/96	15:47	473.8	0.8	0.1
01/16/96	15:48	406.2	0.8	0.1
01/16/96	15:49	413.8	0.8	0.1
01/16/96	15:50	467.3	0.8	0.1
01/16/96	15:51	486.8	0.8	0.1
01/16/96	15:52	475.2	0.8	0.1
01/16/96	15:53	284.8	0.8	0.1
01/16/96	15:54	421.8	0.8	0.1
01/16/96	15:55	448.9	0.8	0.1
01/16/96	15:56	444.0	1.8	0.1
01/16/96	15:57	420.9	1.8	0.1
01/16/96	15:58	446.3	1.9	0.1
01/16/96	15:59	447.6	2.6	0.1
01/16/96	16:00	390.3	2.8	0.1
01/16/96	16:01	409.3	3.3	0.1
01/16/96	16:02	514.8	3.7	0.1
01/16/96	16:03	537.6	3.7	0.1
01/16/96	16:04	395.1	4.0	0.2
01/16/96	16:05	396.7	4.8	0.2
01/16/96	16:06	432.4	4.8	0.2
01/16/96	16:07	427.8	4.8	0.2
01/16/96	16:08	395.1	4.8	0.2
01/16/96	16:09	360.5	4.8	0.2
01/16/96	16:10	430.4	4.8	0.2
01/16/96	16:11	450.2	5.8	0.2
01/16/96	16:12	421.3	5.8	0.2
01/16/96	16:13	259.4	5.8	0.2
01/16/96	16:14	321.6	5.8	0.2
01/16/96	16:15	420.6	5.8	0.2
01/16/96	16:16	473.7	6.5	0.2
01/16/96	16:17	490.0	6.7	0.2
01/16/96	16:18	486.1	6.8	0.2
01/16/96	16:19	415.4	7.7	0.2
01/16/96	16:20	422.5	7.7	0.2
01/16/96	16:21	421.9	8.3	0.2
01/16/96	16:22	422.1	8.4	0.2
01/16/96	16:23	229.4	8.4	0.2

THC only Monitor in Stack on this run

Start ↓ Run 1 Formaldehyde

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KRM SOUTHWEST
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SILSBEE, TEXAS
DRYER OUTLET

		THC PPM	CO PPM	NOX PPM
01/16/96	16:24	416.1	8.4	0.2
01/16/96	16:25	396.5	8.4	0.2
01/16/96	16:26	402.0	8.4	0.2
01/16/96	16:27	427.1	8.4	0.2
01/16/96	16:28	332.4	8.4	0.2
01/16/96	16:29	359.4	8.4	0.2
01/16/96	16:30	379.0	8.4	0.2
01/16/96	16:31	397.2	7.7	0.2
01/16/96	16:32	413.3	7.7	0.2
01/16/96	16:33	409.4	7.7	0.2
01/16/96	16:34	352.0	7.2	0.2
01/16/96	16:35	228.7	6.6	0.2
01/16/96	16:36	321.9	6.5	0.2
01/16/96	16:37	370.3	5.8	0.2
01/16/96	16:38	394.1	5.8	0.2
01/16/96	16:39	410.1	4.8	0.2
01/16/96	16:40	427.5	4.8	0.1
01/16/96	16:41	355.5	4.8	0.1
01/16/96	16:42	396.7	4.8	0.1
01/16/96	16:43	408.3	4.8	0.1
01/16/96	16:44	372.9	4.8	0.1
01/16/96	16:45	385.0	4.5	0.1
01/16/96	16:46	398.5	0.9	0.0
01/16/96	16:47	339.7	-0.4	0.0
01/16/96	16:48	211.2	89.9	0.0
01/16/96	16:49	349.1	878.2	0.0
01/16/96	16:50	386.6	932.7	0.0
01/16/96	16:51	392.8	890.0	0.0
01/16/96	16:52	403.5	894.3	0.0
01/16/96	16:53	384.8	928.5	0.0
01/16/96	16:54	378.9	937.3	0.0
01/16/96	16:55	380.8	941.3	0.0
01/16/96	16:56	332.2	946.3	0.0
01/16/96	16:57	345.0	943.9	0.0
01/16/96	16:58	362.7	443.3	0.1
01/16/96	16:59	384.4	5.3	0.1
01/16/96	17:00	347.4	3.7	0.1
01/16/96	17:01	276.2	3.7	0.1
01/16/96	17:02	216.6	37.7	0.1
01/16/96	17:03	318.7	231.8	0.0
01/16/96	17:04	343.3	247.4	0.0
01/16/96	17:05	364.8	247.5	0.0
01/16/96	17:06	383.6	247.5	0.0
01/16/96	17:07	385.9	247.5	0.0
01/16/96	17:08	394.1	138.0	0.1

(37)

Port Change

951.9 ppm CO ALM033650

Second Port

242.1 ppm CO BLM003980

ERM SOUTHWEST
96 11
SILSBEE, TEXAS
DRYER OUTLET
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		THC PPM	CO PPM	NOX PPM
01/16/96	17:09	307.1	7.5	0.2
01/16/96	17:10	228.9	7.9	0.2
01/16/96	17:11	382.9	299.0	0.0
01/16/96	17:12	399.3	470.4	0.0
01/16/96	17:13	408.7	470.8	0.0
01/16/96	17:14	417.5	459.0	0.0
01/16/96	17:15	432.7	109.8	0.2
01/16/96	17:16	407.4	7.7	0.2
01/16/96	17:17	203.9	8.4	0.2
01/16/96	17:18	325.1	8.4	0.2
01/16/96	17:19	406.2	8.4	0.2
01/16/96	17:20	439.0	9.1	0.2
01/16/96	17:21	452.1	9.5	0.2
01/16/96	17:22	444.9	9.8	0.2
01/16/96	17:23	461.2	10.3	0.2
01/16/96	17:24	418.8	10.9	0.3
01/16/96	17:25	303.7	11.3	0.3
01/16/96	17:26	401.4	12.2	0.3
01/16/96	17:27	402.2	12.4	0.3
01/16/96	17:28	412.1	12.4	0.3
01/16/96	17:29	423.2	12.4	0.3
01/16/96	17:30	430.8	12.4	0.3
01/16/96	17:31	368.3	12.4	0.3
01/16/96	17:32	226.3	12.4	0.3
01/16/96	17:33	209.4	11.6	0.3
01/16/96	17:34	326.0	11.3	0.3
01/16/96	17:35	354.9	10.9	0.2
AVERAGES :		393.0	107.6	0.1

460.7 ppm CO CAL202

37 37

74 Total

THC

28696.8

387.8

↑ End Run 1 Formaldehyde

Final Cal Run 1 (formaldehyde)

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ERM SOUTHWEST
96 11
SILSBEE, TEXAS
DRYER OUTLET
Page : 1

	THC PPM	CO PPM	NOX PPM	
01/16/96 17:42	279.0	9.4	0.2	
01/16/96 17:43	117.3	8.8	0.2	
01/16/96 17:44	46.8	8.4	0.2	
01/16/96 17:45	20.5	8.4	0.2	
01/16/96 17:46	15.1	8.4	0.2	
01/16/96 17:47	11.9	8.3	0.2	
01/16/96 17:48	10.3	229.1	3.8	
01/16/96 17:49	7.4	528.6	4.2	
01/16/96 17:50	5.9	232.9	3.6	
01/16/96 17:51	5.2	627.9	7.8	Run 1 (part.) Offset
01/16/96 17:52	4.8	220.4	1.9	
01/16/96 17:53	4.4	6.7	0.8	zero bias
01/16/96 17:54	95.5	6.6	0.5	
01/16/96 17:55	488.1	6.6	0.4	
01/16/96 17:56	488.3	6.2	0.3	
01/16/96 17:57	488.0	5.8	0.3	
01/16/96 17:58	488.3	5.8	0.3	
01/16/96 17:59	488.9	5.8	0.3	489.0 ppm propane Bias
01/16/96 18:00	399.5	5.8	0.2	
01/16/96 18:01	56.6	5.7	0.2	
01/16/96 18:02	55.9	5.7	0.2	
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AVERAGES :	170.4	92.9	1.2	

ERM SOUTHWEST
96 11
SILSBEE, TEXAS
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Page : 1

Initial Cal + Bias Check

		THC PPM	CO PPM	NOX PPM	
01/17/96	06:23	-3.9C	0.4C	0.2C	
01/17/96	06:24	-7.7C	-0.4C	0.0C	
01/17/96	06:25	-5.7C	-0.4C	0.0C	
01/17/96	06:26	-0.4C	-0.4C	0.0C	
01/17/96	06:27	-0.4C	-0.4C	0.0C	zero
01/17/96	06:28	-0.1C	-0.4C	0.0C	zero
01/17/96	06:29	1.0C	-0.4C	0.0C	
01/17/96	06:30	0.8C	-0.4C	0.0C	
01/17/96	06:31	-0.3C	-0.4C	0.0C	
01/17/96	06:32	-0.2C	-0.4C	0.0C	
01/17/96	06:33	0.4C	-0.4C	0.0C	
01/17/96	06:34	1.4C	-0.4C	46.5C	
01/17/96	06:35	0.2C	-0.4C	51.1C	
01/17/96	06:36	0.1C	-0.4C	50.2C	50.0 ppm Nox BLM003007
01/17/96	06:37	0.1C	-0.4C	50.2C	
01/17/96	06:38	1.5C	191.0C	16.9C	
01/17/96	06:39	0.2C	981.8C	0.1C	
01/17/96	06:40	0.1C	946.9C	0.1C	
01/17/96	06:41	0.1C	951.7C	0.0C	
01/17/96	06:42	0.1C	950.4C	0.0C	
01/17/96	06:43	0.0C	951.4C	0.0C	951.9 ppm CO ALM033650
01/17/96	06:44	0.8C	714.8C	47.9C	
01/17/96	06:45	0.0C	19.7C	83.7C	
01/17/96	06:46	0.0C	0.8C	83.6C	84.61 ppm NOx BLM002626
01/17/96	06:47	0.0C	9.4C	59.5C	
01/17/96	06:48	0.0C	198.3C	0.2C	
01/17/96	06:49	0.0C	241.5C	0.1C	
01/17/96	06:50	0.0C	241.4C	0.0C	242.1 ppm CO BLM003980
01/17/96	06:51	1.3C	209.4C	22.0C	
01/17/96	06:52	0.0C	14.9C	50.2C	
01/17/96	06:53	0.4C	-0.4C	50.1C	50.0 ppm NOx
01/17/96	06:54	0.0C	-0.4C	50.1C	
01/17/96	06:55	0.1C	150.3C	12.0C	
01/17/96	06:56	0.0C	447.9C	0.1C	zero
01/17/96	06:57	0.0C	451.6C	0.1C	
01/17/96	06:58	0.0C	452.6C	0.0C	
01/17/96	06:59	0.0C	453.0C	0.0C	460.7 ppm CO CAL202
01/17/96	07:00	0.0C	451.9C	0.0C	
01/17/96	07:01	5.4C	436.9C	0.1C	
01/17/96	07:02	11.8C	85.7C	7.7C	start Converter chk.
01/17/96	07:03	416.4C	5.1C	26.8C	
01/17/96	07:04	501.8C	1.1C	26.8C	
01/17/96	07:05	496.4C	0.5C	26.8C	
01/17/96	07:06	490.9C	-0.1C	26.8C	
01/17/96	07:07	487.8C	-0.2C	26.8C	

96-11
ERM Southwest
Silsbee, TX
1/17/96
#2 Dryer Outlet
SN 10184/0927T
0-1000
Model VE7
SN 48-33526-245
0-1000
Model 48
SN 10533702245
0-100
Model 10S

ERM SOUTHWEST
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DRYER OUTLET

		THC PPM	CO PPM	NOX PPM	
01/17/96	07:08	488.2C	-0.3C	26.8C	489.0 ppm propane BAL26052
01/17/96	07:09	488.2C	-0.3C	26.8C	
01/17/96	07:10	257.5C	0.0C	26.8C	
01/17/96	07:11	12.2C	0.8C	26.8C	
01/17/96	07:12	11.9C	0.8C	26.7C	
01/17/96	07:13	11.9C	25.6C	26.7C	
01/17/96	07:14	123.5C	368.5C	26.7C	
01/17/96	07:15	232.9C	451.5C	26.7C	
01/17/96	07:16	232.9C	451.7C	26.7C	233.0 ppm propane BAL1761
01/17/96	07:17	113.9C	452.2C	26.7C	460.7 ppm CO Bias
01/17/96	07:18	12.4C	444.5C	26.7C	
01/17/96	07:19	11.8C	139.6C	26.7C	
01/17/96	07:20	11.7C	2.3C	26.7C	
01/17/96	07:21	209.5C	0.6C	26.7C	
01/17/96	07:22	965.2C	-0.2C	26.7C	
01/17/96	07:23	966.9C	-0.3C	26.7C	zero Bias
01/17/96	07:24	967.2C	-0.3C	26.7C	
01/17/96	07:25	967.9C	-0.3C	26.7C	977.5 ppm propane BLM004065
01/17/96	07:26	914.5C	0.2C	26.6C	
01/17/96	07:27	215.2C	1.3C	26.7C	
01/17/96	07:28	9.7C	0.8C	26.6C	
01/17/96	07:29	0.6C	0.8C	26.6C	
01/17/96	07:30	0.4C	0.8C	26.6C	
01/17/96	07:31	0.3C	0.8C	26.6C	
01/17/96	07:32	0.2C	0.8C	26.6C	
01/17/96	07:33	0.2C	0.8C	26.5C	
01/17/96	07:34	0.1C	0.8C	26.5C	
01/17/96	07:35	0.0C	0.8C	2.0C	
01/17/96	07:36	0.0C	0.8C	0.2C	
01/17/96	07:37	0.0C	0.8C	0.1C	
01/17/96	07:38	9.8C	0.8C	0.1C	
01/17/96	07:39	11.6C	0.8C	0.1C	
01/17/96	07:40	11.6C	0.1C	0.1C	
01/17/96	07:41	11.6C	0.3C	0.9C	
01/17/96	07:42	11.6C	-0.3C	49.2C	
01/17/96	07:43	11.5C	-0.3C	49.6C	
01/17/96	07:44	11.2C	-0.3C	49.7C	50.0 ppm Nox Bias
01/17/96	07:45	10.9C	-0.3C	49.7C	
01/17/96	07:46	11.1C	0.0C	41.2C	
01/17/96	07:47	11.1C	0.8C	2.2C	
01/17/96	07:48	11.2C	0.8C	0.5C	
01/17/96	07:49	160.1C	1.3C	0.3C	
01/17/96	07:50	474.3C	1.8C	0.3C	
01/17/96	07:51	488.4C	1.7C	0.3C	489.0 ppm propane Bias
01/17/96	07:52	487.2C	0.9C	0.2C	zero bias

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ERM SOUTHWEST
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SILSBEE, TEXAS
DRYER OUTLET
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	THC PPM	CO PPM	NOX PPM
01/17/96 07:55	7.1C	0.8C	0.2C
01/17/96 07:56	6.7C	0.8C	0.2C
01/17/96 07:57	0.4C	0.8C	0.2C
01/17/96 07:58	0.2C	0.8C	0.2C Zero Bias
AVERAGES :	3.6	0.8	0.2

!

Auxiliary Average Report

DCNID : 01 Site Name : DRYER Aux Interval : 1 Date : 1/17/96

Time	THC PPM	CO PPM	NOX PPM
08:21	959.5000	194.7000	25.1000
08:22	955.4000	209.1000	25.0000
08:23	905.8000	226.9000	25.5000
08:24	904.5000	244.8000	25.6000
08:25	908.6000	274.5000	25.3000
08:26	937.6000	285.0000	24.9000
08:27	196.5000	336.8000	25.0000
08:28	95.3000	374.8000	25.8000
08:29	80.7000	406.2000	26.0000
08:30	76.7000	421.9000	26.4000
08:31	80.4000	404.7000	26.3000
08:32	86.0000	420.3000	26.5000
08:33	91.9000	454.9000	27.4000
08:34	71.3000	451.8000	27.4000
08:35	77.6000	433.1000	27.1000
08:36	78.3000	385.5000	26.7000
08:37	80.4000	359.6000	26.0000
08:38	419.5000	371.2000	26.0000
08:39	765.1000	352.2000	25.6000
08:40	745.3000	344.3000	25.4000
08:41	629.7000	317.9000	25.2000
08:42	279.8000	295.6000	27.0000
08:43	533.7000	272.7000	27.3000
08:44	898.4000	69.8000	28.9000
08:45	961.7000	55.6000	25.8000
08:46	571.7000	64.7000	26.4000
08:47	97.5000	81.6000	26.3000
08:48	74.1000	122.7000	26.0000
08:49	78.2000	152.1000	26.5000
08:50	90.5000	172.4000	26.5000
08:51	101.8000	233.6000	28.0000
08:52	90.7000	308.5000	29.0000
08:53	83.0000	357.7000	29.5000
08:54	84.6000	351.6000	30.5000
08:55	90.5000	350.4000	30.4000
08:56	95.3000	371.4000	30.8000
MAX :	961.7000	454.9000	30.8000
MIN :	71.3000	55.6000	24.9000
AVG :	368.8222	292.5167	26.7528
SCANS:	36	36	36

Run 2 (particulate) port A

!

Auxiliary Average Report

DCNID : 01 Site Name : DRYER Aux Interval : 1 Date : 1/17/96

Time	THC PPM	CO PPM	NOX PPM
09:11	80.0000	171.7000	44.1000
09:12	73.4000	161.5000	43.1000
09:13	77.3000	145.8000	42.4000
09:14	79.4000	125.3000	41.7000
09:15	79.5000	125.1000	40.1000
09:16	80.4000	123.4000	38.9000
09:17	81.3000	127.4000	37.3000
09:18	79.3000	136.4000	34.1000
09:19	92.4000	144.7000	30.3000
09:20	76.4000	159.9000	28.6000
09:21	77.6000	155.7000	27.6000
09:22	76.9000	170.1000	26.6000
09:23	70.6000	166.1000	26.3000
09:24	76.9000	167.3000	26.2000
09:25	77.9000	181.6000	26.2000
09:26	79.3000	182.5000	27.5000
09:27	80.4000	327.2000	28.0000
09:28	74.7000	950.8000	28.2000
09:29	75.1000	998.5000	28.4000
09:30	84.7000	998.5000	28.1000
09:31	72.6000	998.5000	27.9000
09:32	74.5000	998.5000	27.8000
MAX :	92.4000	998.5000	44.1000
MIN :	70.6000	123.4000	26.2000
AVG :	78.2091	350.7500	32.2455
SCANS:	22	22	22

Run 2 particulate port B

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Auxiliary Average Report

DCNID : 01 Site Name : DRYER Aux Interval : 1 Date : 1/17/96

Time	THC PPM	CO PPM	NOX PPM
09:42	56.7000	285.0000	27.2000
09:43	72.4000	261.8000	28.1000
09:44	80.9000	243.3000	28.3000
09:45	73.1000	249.6000	28.2000
09:46	75.4000	289.5000	28.5000
09:47	76.8000	358.1000	29.4000
09:48	81.5000	397.3000	29.8000
09:49	76.2000	423.6000	30.6000
09:50	81.5000	417.7000	30.5000
09:51	80.5000	492.6000	30.8000
09:52	77.1000	510.6000	32.0000
09:53	76.1000	506.3000	31.7000
09:54	75.8000	497.7000	31.8000
09:55	80.3000	460.4000	31.8000
MAX :	81.5000	510.6000	32.0000
MIN :	56.7000	243.3000	27.2000
AVG :	76.0214	385.2500	29.9071
SCANS:	14	14	14

Run 2 particulate part B

72 AVG 16062.499 223.1

72 AVG 23640.6012 328.3

72 AVG 2091.2012 29.0

Final Cal Run 2 (particulate)
Initial Cal Run 2 (formaldehyde)

!
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		THC PPM	CO PPM	NOX PPM	
01/17/96	09:59	6.2	4.8	0.6	zero bias
01/17/96	10:00	5.5	4.4	33.2	
01/17/96	10:01	32.8	0.8	51.4	
01/17/96	10:02	64.1	0.8	50.7	
01/17/96	10:03	86.9	0.8	50.3	50.0 ppm NOx Bias
01/17/96	10:04	95.6	0.8	50.1	zero bias
01/17/96	10:05	90.4	0.8	50.0	
01/17/96	10:06	74.1	38.8	26.6	
01/17/96	10:07	60.8	359.9	2.3	
01/17/96	10:08	59.2	414.7	2.0	
01/17/96	10:09	69.0	409.9	1.9	
01/17/96	10:10	79.9	450.7	1.8	460.7 ppm CO Bias
01/17/96	10:11	85.8	449.8	1.7	
01/17/96	10:12	84.4	434.4	5.1	
01/17/96	10:13	44.6	329.5	4.9	
01/17/96	10:14	4.2	136.8	1.7	
01/17/96	10:15	3.4	3.7	1.6	
01/17/96	10:16	72.4	2.3	1.4	
01/17/96	10:17	439.6	3.7	1.4	
01/17/96	10:18	484.0	4.8	1.3	
01/17/96	10:19	494.1	3.5	1.3	
01/17/96	10:20	487.9	3.6	1.2	489.0 ppm propane Bias
01/17/96	10:21	451.2	3.7	1.2	
01/17/96	10:22	116.2	5.0	1.2	
01/17/96	10:23	19.6	5.0	1.2	
01/17/96	10:24	228.2	3.7	1.1	
01/17/96	10:25	448.6	2.7	1.1	
01/17/96	10:26	461.8	2.7	1.1	(x 10) 4530 ppm propane bias
01/17/96	10:27	460.2	2.7	1.1	
01/17/96	10:28	137.1	2.6	1.0	
01/17/96	10:29	-2.5	2.6	1.0	
01/17/96	10:30	7.9	2.4	1.0	
01/17/96	10:31	22.0	1.8	1.0	
01/17/96	10:32	4.0	1.8	1.0	
01/17/96	10:33	1.8	1.8	1.0	
01/17/96	10:34	5.5	2.0	0.9	
AVERAGES :		146.8	86.1	9.9	

!
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SILSBEE, TEXAS
DRYER OUTLET
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		THC PPM	CO PPM	NOX PPM	
01/17/96	10:56	0.0D	0.0D	0.0D	
01/17/96	10:57	455.4	1.8	0.7	(x10) 4530 ppm propane FF27715
01/17/96	10:58	455.5	1.8	0.7	
01/17/96	10:59	288.3	2.4	0.7	
01/17/96	11:00	8.9	3.7	0.7	
01/17/96	11:01	3.4	3.7	0.7	
01/17/96	11:02	5.5	3.7	0.7	
01/17/96	11:03	2.3	2.9	0.7	
01/17/96	11:04	3.2	2.6	0.7	
01/17/96	11:05	3.0	2.6	0.7	
01/17/96	11:06	2.9	2.6	0.7	
01/17/96	11:07	2.9	2.6	0.6	
01/17/96	11:08	2.9	2.6	0.6	
01/17/96	11:09	2.8	2.6	0.6	
01/17/96	11:10	2.8	2.6	0.6	zero
01/17/96	11:11	408.6	1.8	0.6	
01/17/96	11:12	938.7	1.9	0.6	
01/17/96	11:13	940.9	2.8	0.6	(x10) 9454 ppm propane CAL10203
01/17/96	11:14	366.4	2.7	0.6	
01/17/96	11:15	3.8	2.6	0.6	
01/17/96	11:16	154.5	2.6	0.6	
01/17/96	11:17	226.0	2.6	0.6	(x10) 2268 ppm propane BLM00272
01/17/96	11:18	140.4	2.6	0.6	
01/17/96	11:19	3.2	2.3	0.6	
01/17/96	11:20	243.0	1.8	0.6	
01/17/96	11:21	435.9	1.8	0.6	
01/17/96	11:22	474.7	1.8	0.6	
01/17/96	11:23	463.1	1.8	0.6	4530 ppm propane bias (x10)
01/17/96	11:24	254.4	1.8	0.6	
01/17/96	11:25	18.8	1.8	0.6	
01/17/96	11:26	6.3	1.7	0.6	
01/17/96	11:27	3.8	1.7	0.6	
01/17/96	11:28	3.6	1.7	0.6	
01/17/96	11:29	3.6	2.1	0.6	
01/17/96	11:30	3.3	2.6	0.6	zero bias
AVERAGES :		180.9	2.3	0.6	

Auxiliary Average Report

DCNID : 01 Site Name : DRYER Aux Interval : 1 Date : 1/17/96

Time	THC (x10) PPM	CO PPM	NOX PPM
12:11	66.0000	217.0000	30.8000
12:12	70.8000	263.2000	30.5000
12:13	70.8000	351.2000	30.7000
12:14	73.4000	488.0000	32.6000
12:15	74.1000	558.1000	33.2000
12:16	75.6000	610.5000	34.2000
12:17	62.0000	639.4000	35.2000
12:18	72.8000	679.2000	35.8000
12:19	71.5000	704.1000	37.1000
12:20	72.6000	721.7000	38.9000
12:21	66.7000	579.5000	39.2000
12:22	66.9000	479.4000	39.5000
12:23	71.6000	426.2000	38.9000
12:24	71.2000	395.0000	38.1000
12:25	67.1000	337.4000	38.2000
12:26	68.0000	287.3000	37.0000
12:27	62.8000	254.6000	36.0000
12:28	52.2000	226.3000	35.5000
12:29	72.1000	221.1000	34.5000
12:30	74.0000	252.2000	33.6000
MAX :	75.6000	721.7000	39.5000
MIN :	52.2000	217.0000	30.5000
AVG :	69.1100	434.5700	35.4750
SCANS:	20	20	20

Run 2 (formaldehyde)
#2 Dryer

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Auxiliary Average Report

DCNID : 01 Site Name : DRYER Aux Interval : 1 Date : 1/17/96

Time	THC PPM x10	CO PPM	NOX PPM
13:18	54.6000	637.9000	22.0000
13:19	68.7000	640.1000	24.2000
13:20	72.3000	619.7000	26.2000
MAX :	72.3000	640.1000	26.2000
MIN :	54.6000	619.7000	22.0000
AVG :	65.2000	632.5667	24.1333
SCANS:	3	3	3

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Auxiliary Average Report

DCNID : 01 Site Name : DRYER Aux Interval : 1 Date : 1/17/96

X10

Time	THC PPM	CO PPM	NOX PPM
13:48	57.9000	500.1000	16.2000
13:49	58.2000	710.1000	19.5000
13:50	65.3000	674.6000	23.4000
13:51	65.7000	671.0000	25.7000
13:52	65.3000	662.4000	27.0000
13:53	67.0000	715.1000	28.0000
13:54	58.3000	720.0000	29.3000
MAX :	67.0000	720.0000	29.3000
MIN :	57.9000	500.1000	16.2000
AVG :	62.5286	664.7571	24.1571
SCANS:	7	7	7

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Auxiliary Average Report

DCNID : 01 Site Name : DRYER Aux Interval : 1 Date : 1/17/96

Time	THC PPM X10	CO PPM	NOX PPM
14:07	52.4000	397.2000	20.6000
14:08	57.7000	404.1000	22.3000
14:09	61.9000	346.8000	23.4000
14:10	65.1000	347.8000	24.7000
14:11	57.1000	387.8000	26.0000
14:12	57.4000	397.3000	27.1000
MAX :	65.1000	404.1000	27.1000
MIN :	52.4000	346.8000	20.6000
AVG :	58.6000	380.1667	24.0167
SCANS:	6	6	6

Auxiliary Average Report

DCNID : 01 Site Name : DRYER Aux Interval : 1 Date : 1/17/96

Time	THC PPM X10	CO PPM	NOX PPM
14:46	66.0000	304.5000	24.3000
14:47	65.5000	290.5000	26.2000
14:48	67.0000	284.8000	27.1000
14:49	69.0000	268.7000	28.2000
14:50	67.7000	295.1000	28.9000
14:51	67.2000	328.8000	29.6000
14:52	66.4000	312.3000	30.7000
14:53	58.1000	303.9000	31.9000
14:54	64.4000	288.8000	32.2000
MAX :	69.0000	328.8000	32.2000
MIN :	58.1000	268.7000	24.3000
AVG :	65.7000	297.4889	28.7889
SCANS:	9	9	9

!

Auxiliary Average Report

DCNID : 01 Site Name : DRYER Aux Interval : 1 Date : 1/17/96

Time	THC PPM X10	CO PPM	NOX PPM
15:17	66.0000	384.5000	24.0000
15:18	65.2000	384.5000	24.6000
15:19	68.2000	384.5000	24.8000
15:20	64.9000	384.5000	24.7000
15:21	66.1000	384.5000	24.3000
15:22	63.5000	400.8000	23.9000
15:23	66.1000	438.5000	25.5000
15:24	65.4000	368.6000	29.2000
15:25	58.7000	327.8000	28.7000
15:26	61.7000	296.7000	28.7000
15:27	62.8000	271.6000	28.1000
15:28	64.1000	258.2000	28.0000
15:29	61.9000	254.8000	27.8000
MAX :	68.2000	438.5000	29.2000
MIN :	58.7000	254.8000	23.9000
AVG :	64.2000	349.1923	26.3308
SCANS:	13	13	13

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Auxiliary Average Report

DCNID : 01 Site Name : DRYER Aux Interval : 1 Date : 1/17/96

Time	THC PPM X10	CO PPM	NOX PPM
15:34	66.6000	130.5000	21.2000
15:35	71.2000	186.8000	19.1000
15:36	68.6000	216.5000	21.0000
15:37	56.4000	191.5000	25.7000
15:38	65.8000	157.3000	27.3000
15:39	56.2000	151.9000	28.1000
15:40	53.9000	127.2000	29.2000
15:41	59.9000	121.7000	29.5000
15:42	64.9000	114.0000	28.8000
15:43	65.6000	117.4000	28.9000
15:44	58.2000	146.3000	29.2000
15:45	56.0000	164.5000	29.3000
15:46	55.0000	190.5000	29.2000
15:47	62.5000	202.5000	29.2000
MAX :	71.2000	216.5000	29.5000
MIN :	53.9000	114.0000	19.1000
AVG :	61.4857	158.4714	26.8357
SCANS:	14	14	14

Total (72)

AVG 4653.6 (64.6)

AVG 26958.8996 (374.4)

AVG 2072.2001 (28.8)

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Final Cal Run 2 (formaldehyde)
Initial Cal Run 3 (particulate)

		THC PPM	CO PPM	NOX PPM	
01/17/96	15:50	61.4	22.4	3.5	
01/17/96	15:51	66.1	12.6	2.8	
01/17/96	15:52	66.3	0.4	2.3	
01/17/96	15:53	61.3	0.3	41.3	
01/17/96	15:54	49.7	-0.3	49.8	zero bias
01/17/96	15:55	52.9	-0.5	49.7	
01/17/96	15:56	55.9	-0.2	49.8	50.0 ppm NOx
01/17/96	15:57	55.9	53.4	21.8	
01/17/96	15:58	53.2	386.5	1.4	
01/17/96	15:59	53.0	449.0	1.3	460.7 ppm CO bias
01/17/96	16:00	53.8	450.2	1.2	
01/17/96	16:01	54.4	449.0	1.2	zero bias
01/17/96	16:02	57.2	448.8	1.1	
01/17/96	16:03	35.8	384.7	1.2	
01/17/96	16:04	7.0	51.5	1.1	
01/17/96	16:05	5.9	0.9	1.1	
01/17/96	16:06	5.0	0.8	1.1	
01/17/96	16:07	76.9	0.8	1.0	
01/17/96	16:08	437.0	0.8	1.0	
01/17/96	16:09	451.2	0.8	1.0	
01/17/96	16:10	456.4	0.8	1.0	(x10) 4530 ppm propane bias
01/17/96	16:11	452.1	0.8	1.0	
01/17/96	16:12	359.7	0.8	0.9	
01/17/96	16:13	5.9	0.8	0.9	
01/17/96	16:14	4.4	0.8	0.9	
01/17/96	16:15	4.3	0.8	1.0	
01/17/96	16:16	4.2	0.8	1.0	
01/17/96	16:17	4.2	0.8	0.9	
01/17/96	16:18	4.0	0.8	0.9	
01/17/96	16:19	3.9	0.8	0.9	zero bias
01/17/96	16:20	3.9	0.8	0.9	
01/17/96	16:21	3.8	0.8	0.9	
01/17/96	16:22	5.5	0.8	0.9	
01/17/96	16:23	6.3	0.8	0.9	
01/17/96	16:24	5.0	0.8	0.8	
01/17/96	16:25	6.6	0.8	0.8	
01/17/96	16:26	5.7	0.8	0.8	
01/17/96	16:27	5.7	0.8	0.8	
01/17/96	16:28	4.3	0.8	0.8	
01/17/96	16:29	3.8	0.8	0.8	
01/17/96	16:30	4.0	0.8	0.8	
01/17/96	16:31	3.6	0.8	0.8	
01/17/96	16:32	3.7	0.8	0.8	
01/17/96	16:33	4.0	0.8	0.8	
01/17/96	16:34	3.9	0.8	0.6	

Auxiliary Average Report

DCNID : 01 Site Name : DRYER Aux Interval : 1 Date : 1/17/96

Time	THC (x10) PPM	CO PPM	NOX PPM
17:51	46.5000	402.5000	21.0000
17:52	48.2000	427.8000	23.3000
17:53	53.1000	460.2000	24.9000
17:54	55.8000	489.5000	26.5000
17:55	53.3000	480.2000	27.3000
17:56	47.5000	463.0000	26.7000
17:57	52.7000	494.2000	27.1000
17:58	46.9000	471.4000	27.3000
17:59	46.1000	469.7000	27.4000
18:00	49.4000	433.4000	27.5000
18:01	54.4000	387.7000	27.2000
18:02	54.7000	344.8000	27.2000
18:03	53.6000	328.6000	26.3000
18:04	40.9000	335.3000	26.2000
18:05	43.8000	308.9000	26.5000
MAX :	55.8000	494.2000	27.5000
MIN :	40.9000	308.9000	21.0000
AVG :	49.7933	419.8133	26.1600
SCANS:	15	15	15

Run 3 (particulate)
#2 Dryer

Auxiliary Average Report

DCNID : 01 Site Name : DRYER Aux Interval : 1 Date : 1/17/96

Time	THC PPM X10	CO PPM	NOX PPM
18:26	46.4000	331.7000	27.9000
18:27	46.4000	289.3000	28.0000
18:28	43.1000	273.0000	28.4000
18:29	45.6000	308.7000	28.7000
18:30	49.0000	313.5000	28.7000
18:31	52.2000	327.4000	28.4000
18:32	53.5000	345.5000	28.8000
18:33	49.2000	371.4000	30.1000
18:34	49.1000	442.5000	31.0000
18:35	50.1000	475.1000	32.2000
18:36	49.9000	477.6000	33.0000
18:37	41.2000	496.5000	33.8000
18:38	28.3000	433.0000	34.1000
18:39	42.5000	411.2000	33.5000
MAX :	53.5000	496.5000	34.1000
MIN :	28.3000	273.0000	27.9000
AVG :	46.1786	378.3143	30.4714
SCANS:	14	14	14

!

Auxiliary Average Report

DCNID : 01 Site Name : DRYER Aux Interval : 1 Date : 1/17/96

Time	THC PPM X 10	CO PPM	NOX PPM
19:11	48.0000	451.1000	29.3000
19:12	45.5000	417.2000	28.6000
19:13	41.7000	401.7000	28.0000
19:14	43.8000	391.7000	28.0000
19:15	45.6000	341.0000	28.5000
19:16	45.0000	344.4000	28.9000
19:17	40.5000	337.6000	29.4000
MAX :	48.0000	451.1000	29.4000
MIN :	40.5000	337.6000	28.0000
AVG :	44.3000	383.5286	28.6714
SCANS:	7	7	7

!

Auxiliary Average Report

DCNID : 01 Site Name : DRYER Aux Interval : 1 Date : 1/17/96

Time	THC PPM X 10	CO PPM	NOX PPM
19:27	45.9000	329.6000	35.3000
19:28	44.8000	352.2000	35.6000
19:29	49.1000	378.6000	36.4000
19:30	49.5000	429.1000	37.5000
19:31	43.2000	490.9000	37.7000
19:32	41.4000	514.9000	38.1000
19:33	41.9000	543.9000	38.7000
19:34	46.2000	512.9000	39.0000
19:35	44.8000	502.5000	39.3000
19:36	43.8000	516.4000	39.4000
19:37	46.6000	469.1000	39.2000
19:38	44.6000	435.0000	38.8000
19:39	46.5000	392.8000	38.6000
19:40	45.8000	373.8000	38.7000
19:41	46.3000	382.6000	36.6000
19:42	48.6000	374.9000	34.6000
19:43	43.1000	318.7000	33.2000
MAX :	49.5000	543.9000	39.4000
MIN :	41.4000	318.7000	33.2000
AVG :	45.4176	430.4647	37.4529
SCANS:	17	17	17

!

Auxiliary Average Report

DCNID : 01 Site Name : DRYER Aux Interval : 1 Date : 1/17/96

Time	THC (X10) PPM	CO PPM	NOX PPM
20:11	50.8000	317.6000	27.5000
20:12	49.0000	290.1000	28.6000
20:13	40.4000	293.4000	28.1000
20:14	47.5000	301.9000	29.0000
20:15	51.5000	323.6000	29.4000
20:16	45.9000	315.3000	29.5000
20:17	42.9000	299.5000	29.2000
20:18	46.2000	295.6000	28.9000
20:19	47.1000	291.5000	29.3000
20:20	50.6000	307.7000	29.5000
20:21	52.8000	302.3000	29.5000
20:22	60.1000	280.9000	29.4000
20:23	52.7000	298.4000	28.9000
20:24	40.4000	335.5000	29.4000
MAX :	60.1000	335.5000	29.5000
MIN :	40.4000	280.9000	27.5000
AVG :	48.4214	303.8071	29.0143
SCANS:	14	14	14

Run (3 particulate) #2 Dryer

!

Auxiliary Average Report

DCNID : 01 Site Name : DRYER Aux Interval : 1 Date : 1/17/96

Time	THC PPM X10	CO PPM	NOX PPM
21:36	48.8000	172.9000	25.9000
21:37	40.4000	154.4000	26.1000
21:38	38.9000	137.2000	25.6000
21:39	39.5000	117.5000	27.8000
21:40	42.5000	66.8000	29.9000
21:41	43.7000	47.7000	31.4000
MAX :	48.8000	172.9000	31.4000
MIN :	38.9000	47.7000	25.6000
AVG :	42.3000	116.0833	27.7833
SCANS:	6	6	6

Tot 73

AVG 3407.2.987 466.8

AVG 26645.999 363.6

AVG 2229.2987 30.5

Final cal Run 3 (Particulate)

ERM SOUTHWEST
96 11
SILSBEE, TEXAS
DRYER OUTLET
Page : 1

	THC PPM	CO PPM	NOX PPM	
01/17/96 21:42	54.2	42.0	30.4	
01/17/96 21:43	56.4	23.3	7.5	
01/17/96 21:44	55.5	1.9	5.2	
01/17/96 21:45	59.2	0.8	4.5	
01/17/96 21:46	39.0	60.1	3.9	
01/17/96 21:47	9.0	384.4	3.5	
01/17/96 21:48	7.2	448.0	3.2	460.7 ppm CO Bias
01/17/96 21:49	7.3	448.6	3.0	
01/17/96 21:50	6.3	446.3	3.0	
01/17/96 21:51	5.6	356.6	3.3	
01/17/96 21:52	5.0	55.2	2.9	
01/17/96 21:53	4.6	0.8	39.1	
01/17/96 21:54	4.2	0.4	50.2	
01/17/96 21:55	4.0	-0.4	50.2	50.0 ppm NOx Bias
01/17/96 21:56	3.8	-0.5	50.2	
01/17/96 21:57	3.7	-0.3	28.2	zero Bias
01/17/96 21:58	244.6	0.8	1.9	
01/17/96 21:59	403.7	0.8	1.7	
01/17/96 22:00	451.1	0.8	1.7	
01/17/96 22:01	455.0	0.8	1.6	4530 ppm propane Bias (x10)
01/17/96 22:02	384.9	0.8	1.6	
01/17/96 22:03	106.2	0.8	1.5	
01/17/96 22:04	-0.1	0.8	1.5	
01/17/96 22:05	-0.1	0.8	1.4	
01/17/96 22:06	-0.1	0.8	1.5	
01/17/96 22:07	-0.1	0.8	1.4	
01/17/96 22:08	-0.1	0.8	0.8	
01/17/96 22:09	-0.1	0.8	0.5	
01/17/96 22:10	-0.1	0.8	0.4	
01/17/96 22:11	-0.1	0.8	0.4	zero bias
01/17/96 22:12	-0.1	0.8	0.4	
01/17/96 22:13	-0.1	0.8	0.4	
01/17/96 22:14	-0.1	0.8	0.4	
01/17/96 22:15	-0.1	0.8	0.4	
01/17/96 22:16	-0.1	0.8	0.4	
01/17/96 22:17	-0.1	0.8	0.4	
01/17/96 22:18	-0.1	0.8	0.4	
01/17/96 22:19	-0.1	0.8	0.4	
01/17/96 22:20	-0.1	0.8	0.4	
01/17/96 22:21	-0.1	0.8	0.4	
01/17/96 22:22	-0.1	0.8	0.4	
01/17/96 22:23	-0.1	0.8	0.4	
01/17/96 22:24	-0.1	0.8	0.4	
01/17/96 22:25	-0.1	0.8	0.3	
01/17/96 22:26	-0.1	0.8	0.3	

Dryer Number 3 Outlet Duct - Particulate
Oxides of Nitrogen
Concentration

Run Number	Measured (ppm)	Adjusted (ppm*)
1	24.4	24.2
2	23.7	23.9
3	19.1	18.6

*Calculated according to equation 6C-1.

Dryer Number 3 Outlet Duct - Formaldehyde
Oxides of Nitrogen
Concentration

Run Number	Measured (ppm)	Adjusted (ppm*)
1	25.5	25.6
2	22.5	21.9

*Calculated according to equation 6C-1.

Dryer Number 3 Outlet Duct - Particulate
Calibration Summary
Oxides of Nitrogen

Run Number	NOx Calibration Initial Drift Check (ppm)	NOx Calibration Final Drift Check (ppm)	NOx Calibration Average (ppm)	NOx Zero Initial Drift Check (ppm)	NOx Zero Final Drift Check (ppm)	NOx Zero Average (ppm)	Actual NOx Calibration Value (ppm)	Actual NOx Zero Value (ppm)
1	48.2	48.1	48.2	0.1	0.4	0.3	48.1	0.0
2	46.7	46.9	46.8	0.2	1.5	0.9	48.1	0.0
3	47.4	47.4	47.4	2.3	0.3	1.3	48.1	0.0

ENVIRONMENTAL

Dryer Number 3 Outlet Duct - Formaldehyde
Calibration Summary
Oxides of Nitrogen

Run Number	NOx Calibration Initial Drift Check (ppm)	NOx Calibration Final Drift Check (ppm)	NOx Calibration Average (ppm)	NOx Zero Initial Drift Check (ppm)	NOx Zero Final Drift Check (ppm)	NOx Zero Average (ppm)	Actual NOx Calibration Value (ppm)	Actual NOx Zero Value (ppm)
1	48.1	47.3	47.7	0.4	-0.1	0.2	48.1	0.0
2	46.9	47.4	47.2	1.5	2.3	1.9	48.1	0.0

METCO ENVIRONMENTAL

Initial cals

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ERM SOUTHWEST
SILSBEE, TX
NUMBER 3 DRYER OUTLET
Page : 1

		THC PPM	CO PPM	NOX PPM	
01/16/96	06:43	-95	1.5	-0.1	
01/16/96	06:44	-95	-1.2	-0.1	
01/16/96	06:45	-95	-1.1	-0.1	
01/16/96	06:46	-95	-0.8	-0.1	
01/16/96	06:47	-44	-1.1	-0.1	N2 zero SG 9101706 ALC
01/16/96	06:48	18	-1.1	3.9	
01/16/96	06:49	15	-0.8	54.4	
01/16/96	06:50	16	-2.3	55.3	
01/16/96	06:51	19	-2.2	55.4	
01/16/96	06:52	21	-2.2	51.5	
01/16/96	06:53	22	-2.3	48.2	48.07 ppm NO ALM049329
01/16/96	06:54	23	15.8	29.4	
01/16/96	06:55	22	99.9	0.1	
01/16/96	06:56	23	99.9	0.0	
01/16/96	06:57	24	75.7	0.0	
01/16/96	06:58	26	80.8	0.0	
01/16/96	06:59	26	99.9	0.0	
01/16/96	07:00	25	83.6	0.0	
01/16/96	07:01	26	99.9	0.0	
01/16/96	07:02	26	71.1	0.0	
01/16/96	07:03	25	6.0	0.0	
01/16/96	07:04	25	99.9	0.0	
01/16/96	07:05	23	65.8	0.0	
01/16/96	07:06	19	21.1	0.0	
01/16/96	07:07	16	5.6	0.0	
01/16/96	07:08	15	65.5	0.0	
01/16/96	07:09	15	42.4	0.0	
01/16/96	07:10	14	28.7	0.0	
01/16/96	07:11	12	0.1	0.0	
01/16/96	07:12	10	-0.1	0.0	
01/16/96	07:13	3	2.2	0.0	
01/16/96	07:14	1	39.2	0.0	
01/16/96	07:15	1	43.4	0.0	
01/16/96	07:16	1	34.7	45.9	
01/16/96	07:17	1	0.8	84.7	84.65 ppm NO BLM003395
01/16/96	07:18	1	0.0	41.7	
01/16/96	07:19	1	0.5	0.3	
01/16/96	07:20	1	0.6	2.5	
01/16/96	07:21	1	0.3	19.9	20.11 ppm NO BLM002008
01/16/96	07:22	1	0.2	13.8	
01/16/96	07:23	1	0.4	0.2	
01/16/96	07:24	1	0.5	0.1	
01/16/96	07:25	1	0.5	0.1	
01/16/96	07:26	1	0.5	0.1	
01/16/96	07:27	1	0.5	0.1	N2 zero

LKV good @ 160 "Hg

NOx Teco 105 105 494302 82
CO Teco 48 4833527245
Jum VE-7 Metco #17

Heated lines @ 250 °F
Response Time = 22 sec.

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ERM SOUTHWEST
SILSBEE, TX
NUMBER 3 DRYER OUTLET
Page : 2

		THC PPM	CO PPM	NOX PPM	
01/16/96	07:28	1	6.7	26.8	
01/16/96	07:29	1	41.7	27.5	
01/16/96	07:30	1	43.4	27.5	43.3 ppm CO BLM002308
01/16/96	07:31	1	36.3	27.5	
01/16/96	07:32	1	2.9	27.5	
01/16/96	07:33	1	76.9	27.5	
01/16/96	07:34	1	91.0	27.5	
01/16/96	07:35	1	88.6	27.4	89.3 ppm CO BAL 1208
01/16/96	07:36	1	13.4	27.4	
01/16/96	07:37	1	12.8	27.4	
01/16/96	07:38	1	17.0	27.4	
01/16/96	07:39	1	17.0	27.4	17.9 ppm CO BAL 5288
01/16/96	07:40	1	7.5	27.4	
01/16/96	07:58	-999N	-999N	-999N	
01/16/96	07:59	-999N	-999N	-999N	
01/16/96	08:00	-10	0.3	25.8	
01/16/96	08:01	-10	0.5	26.7	
01/16/96	08:02	-10	0.5	27.0	
01/16/96	08:03	-10	0.5	27.4	
01/16/96	08:04	-10	0.4	27.5	
01/16/96	08:05	-10	0.4	27.7	
01/16/96	08:06	-10	0.4	27.8	
01/16/96	08:07	-10	0.4	27.9	
01/16/96	08:08	-10	0.3	28.0	
01/16/96	08:09	-10	0.4	28.0	
01/16/96	08:10	-10	0.3	27.9	
01/16/96	08:11	-17	0.3	28.0	
01/16/96	08:12	-10	0.3	27.9	
01/16/96	08:13	-8	0.3	27.8	
01/16/96	08:14	-10	0.3	27.8	
01/16/96	08:15	-10	0.3	27.7	
01/16/96	08:16	-10	0.3	27.7	
01/16/96	08:17	-10	0.3	27.6	
01/16/96	08:18	-18	0.3	27.6	
01/16/96	08:19	-9	0.3	27.6	
01/16/96	08:20	-10	0.4	27.6	
01/16/96	08:21	-10	0.5	27.4	
01/16/96	08:22	-9	0.4	27.4	
01/16/96	08:23	-10	0.3	27.3	
01/16/96	08:24	-10	0.4	27.4	
01/16/96	08:25	-10	0.3	27.3	
01/16/96	08:26	-10	0.3	27.3	
01/16/96	08:27	-10	0.4	27.3	
01/16/96	08:28	-10	0.4	27.2	
01/16/96	08:29	-10	0.4	27.1	

↳ 105% Power

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ERM SOUTHWEST
SILSBEE, TX
NUMBER 3 DRYER OUTLET
NUMBER 3 DRYER OUTLET
Page : 3

		THC PPM	CO PPM	NOX PPM
01/16/96	08:30	-10	0.3	27.1
01/16/96	08:31	-10	0.3	27.2
01/16/96	08:32	-10	0.2	27.1
01/16/96	08:33	-10	0.2	4.5
01/16/96	08:34	-10	-0.1	0.3
01/16/96	08:35	-10	0.1	0.2
01/16/96	08:40	-999N	-999N	-999N
01/16/96	08:41	-999N	-999N	-999N
01/16/96	08:42	-10	0.0	0.2
01/16/96	08:43	-10	0.4	0.1
01/16/96	08:44	-10	0.5	0.1
01/16/96	08:45	-10	0.4	0.1
01/16/96	08:46	-10	0.4	0.1
01/16/96	08:47	-10	0.4	0.1
01/16/96	08:48	-10	0.4	0.1
01/16/96	08:49	-10	0.5	0.1
01/16/96	08:50	-10	0.4	0.1
01/16/96	08:51	-10	0.5	0.1
01/16/96	08:52	-10	0.4	22.6
01/16/96	08:53	-10	0.5	26.7
01/16/96	08:54	-9	0.5	26.8
01/16/96	08:55	-10	0.4	26.8
01/16/96	08:56	-10	0.5	26.8
01/16/96	08:57	-10	0.4	26.8
01/16/96	08:58	-10	0.4	26.8
01/16/96	08:59	-10	0.5	26.8
01/16/96	09:00	-9	0.5	26.8
01/16/96	09:01	-10	0.5	26.7

gas on

Not conv. ck
48.07 ppm NO
ALM049329

01/16/96	09:04	-10	0.5	26.7
01/16/96	09:05	-6	0.5	26.6
01/16/96	09:06	-1	0.5	26.6
01/16/96	09:07	-1	0.5	26.6
01/16/96	09:08	-1	0.5	26.6
01/16/96	09:09	197	0.5	26.6
01/16/96	09:10	103	0.4	26.6
01/16/96	09:11	23	0.4	26.6
01/16/96	09:12	-8	0.5	26.6
01/16/96	09:13	-16	0.4	26.6
01/16/96	09:14	-18	0.4	26.6
01/16/96	09:15	-18	0.5	26.5
01/16/96	09:16	-16	0.5	26.5
01/16/96	09:17	-21	0.4	26.5
01/16/96	09:18	-18	0.4	26.5

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ERM SOUTHWEST
SILSBEE, TX
NUMBER 3 DRYER OUTLET
Page : 4

		THC PPM	CO PPM	NOX PPM	
01/16/96	09:19	-23	0.4	26.5	
01/16/96	09:20	-18	0.4	26.5	
01/16/96	09:21	-14	0.4	26.5	
01/16/96	09:22	-21	0.4	26.5	
01/16/96	09:23	-17	0.4	26.5	
01/16/96	09:24	-15	0.4	26.5	
01/16/96	09:25	-25	0.4	26.5	Bag off
01/16/96	09:26	-13	0.4	6.8	
01/16/96	09:27	-6	0.4	0.2	
01/16/96	09:28	9	0.4	0.1	
01/16/96	09:29	16	0.4	0.1	

01/16/96	09:31	-2	0.4	0.1	
01/16/96	09:32	0	0.4	0.1	N_2 zero SG 910170G 1CC
01/16/96	09:33	-1	0.4	0.1	
01/16/96	09:34	23	0.4	0.1	
01/16/96	09:35	475	0.4	0.1	
01/16/96	09:36	476	0.4	0.1	
01/16/96	09:37	475	0.4	0.1	475.1 ppm propane BCM004137
01/16/96	09:38	474	0.4	0.1	
01/16/96	09:39	378	0.4	0.1	
01/16/96	09:40	968	0.4	0.1	
01/16/96	09:41	971	0.4	0.1	969.1 ppm propane CALB302
01/16/96	09:42	969	0.4	0.1	
01/16/96	09:43	264	0.4	0.1	
01/16/96	09:44	230	0.4	0.1	224 ppm propane CCM005995
01/16/96	09:45	229	0.4	0.1	
		---	---	---	
AVERAGES :		35	10.5	17.0	

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ERM SOUTHWEST
SILSBEE, TX
NUMBER 3 DRYER OUTLET
Page : 1

		THC PPM	CO PPM	NOX PPM	
01/16/96	09:48	00	0.00	0.00	
01/16/96	09:49	-1	0.6	0.1	
01/16/96	09:50	-1	25.5	0.1	
01/16/96	09:51	5	19.9	0.1	
01/16/96	09:52	248	0.1	0.1	N2 zero
01/16/96	09:53	248	8.0	0.1	
01/16/96	09:54	262	415.0	0.1	
01/16/96	09:55	282	492.8	0.1	
01/16/96	09:56	272	468.8	0.1	
01/16/96	09:57	257	460.3	0.1	
01/16/96	09:58	244	460.3	0.1	460.7 ppm CO CAL 202
01/16/96	09:59	246	392.2	0.1	
01/16/96	10:00	250	19.6	0.1	
01/16/96	10:01	239	62.4	0.1	
01/16/96	10:02	237	242.5	0.1	242.1 ppm CO BLM 003980
01/16/96	10:03	224	246.2	0.1	
01/16/96	10:04	227	228.2	0.1	
01/16/96	10:05	224	82.4	0.1	
01/16/96	10:06	220	87.8	0.1	89.3 ppm CO BAL 1208
01/16/96	10:07	223	81.7	0.1	
01/16/96	10:08	216	9.6	0.1	
AVERAGES :		196	181.1	0.1	

Initial BIAS CK

NOx + CO

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ERM SOUTHWEST
SILSBEE, TX
NUMBER 3 DRYER OUTLET
Page : 1

		THC PPM	CO PPM	NOX PPM
01/16/96	10:09	219	1.0	0.1
01/16/96	10:10	209	0.3	0.1
01/16/96	10:11	197	-0.1	0.1
01/16/96	10:12	194	0.1	0.6
01/16/96	10:13	196	-0.2	1.1
01/16/96	10:14	208	-0.2	0.7
01/16/96	10:15	202	179.5	0.3
01/16/96	10:16	191	454.3	0.1
01/16/96	10:17	176	456.5	-0.1
01/16/96	10:18	161	455.4	5.1
01/16/96	10:19	81	145.2	47.1
01/16/96	10:20	82	2.2	48.2
AVERAGES :		176	141.2	8.6

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ERM SOUTHWEST
SILSBEE, TX
NUMBER 3 DRYER OUTLET
Page : 1

Initial Bias CK THC

		THC PPM	CO PPM	NOX PPM	
01/16/96	12:34	356	2.2	7.0	
01/16/96	12:35	341	0.2	6.4	
01/16/96	12:36	345	32.0	5.9	
01/16/96	12:37	338	402.6	5.5	
01/16/96	12:38	303	461.6	5.1	
01/16/96	12:39	295	460.8	4.7	
01/16/96	12:40	278	328.3	32.6	
01/16/96	12:41	291	9.4	48.0	
01/16/96	12:42	321	2.4	38.1	
01/16/96	12:43	343	2.5	4.6	
01/16/96	12:44	242	2.2	4.1	
01/16/96	12:45	35	2.8	4.1	
01/16/96	12:46	14	2.6	4.3	
01/16/96	12:47	5	3.0	4.5	
01/16/96	12:48	[illegible]	3.0	4.5	N_2 zero
01/16/96	12:49	4	2.9	4.4	
01/16/96	12:50	8	2.6	4.1	
01/16/96	12:51	270	2.2	3.8	
01/16/96	12:52	[476]	2.1	3.5	~~460~~ 475.1 ppm propane
01/16/96	12:53	479	2.2	3.2	
AVERAGES :		237	86.4	9.9	

!

Auxiliary Average Report

DCNID : 06 Site Name : Aux Interval : 1 Date : 1/16/96

Run 1 Part.

Time	THC PPM	CO PPM	NOX PPM
13:15	164.0000	184.8000	21.5000
13:16	167.0000	205.1000	22.3000
13:17	168.0000	217.2000	22.6000
13:18	173.0000	276.8000	24.9000
13:19	176.0000	344.4000	25.2000
13:20	178.0000	421.2000	25.5000
13:21	179.0000	481.3000	26.7000
13:22	178.0000	498.8000	25.5000
13:23	178.0000	499.6000	25.8000
13:24	175.0000	499.6000	25.9000
13:25	179.0000	499.6000	26.6000
13:26	175.0000	499.6000	26.7000
13:27	164.0000	410.7000	24.8000
13:28	154.0000	348.9000	24.5000
13:29	148.0000	298.1000	23.6000
13:30	144.0000	245.5000	23.6000
13:31	139.0000	208.3000	23.2000
13:32	136.0000	190.2000	23.7000
13:33	131.0000	150.5000	23.5000
13:34	135.0000	192.2000	23.4000
13:35	129.0000	119.4000	23.1000
13:36	135.0000	171.9000	23.6000
13:37	135.0000	173.7000	25.0000
13:38	133.0000	193.0000	24.6000
13:39	131.0000	198.0000	24.1000
13:40	131.0000	231.0000	25.4000
13:41	134.0000	305.7000	26.0000
13:42	137.0000	324.3000	26.1000
13:43	136.0000	330.3000	26.2000
13:44	134.0000	363.5000	26.0000
13:45	145.0000	392.2000	25.7000
13:46	148.0000	391.2000	25.7000
13:47	150.0000	408.0000	26.3000
13:48	152.0000	390.5000	25.7000
13:49	147.0000	353.7000	25.4000
13:50	145.0000	293.3000	24.9000
MAX :	179.0000	499.6000	26.7000
MIN :	129.0000	119.4000	21.5000
AVG :	151.7500	314.2250	24.8139
SCANS:	36	36	36

	151.7500	314.2250	24.8159
	127.9722	218.7944	23.9917
Avg	139.8611	266.5097	24.4038

!

Auxiliary Average Report

DCNID : 06 Site Name : Aux Interval : 1 Date : 1/16/96

Run 1

Time	THC PPM	CO PPM	NOX PPM
14:06	173.0000	499.7000	29.5000
14:07	137.0000	352.7000	25.5000
14:08	67.0000	93.2000	21.7000
14:09	109.0000	307.1000	19.1000
14:10	137.0000	439.5000	21.0000
14:11	142.0000	404.3000	21.2000
14:12	135.0000	146.6000	26.9000
14:13	90.0000	172.3000	22.0000
14:14	55.0000	67.6000	32.5000
14:15	76.0000	27.7000	34.2000
14:16	91.0000	28.5000	30.3000
14:17	95.0000	25.4000	30.4000
14:18	91.0000	20.0000	31.8000
14:19	91.0000	18.5000	31.4000
14:20	87.0000	17.2000	32.5000
14:21	90.0000	21.7000	31.3000
14:22	94.0000	32.5000	25.9000
14:23	100.0000	42.7000	21.7000
14:24	101.0000	56.7000	19.5000
14:25	123.0000	100.7000	18.0000
14:26	172.0000	146.7000	19.3000
14:27	162.0000	152.7000	18.4000
14:28	154.0000	171.5000	20.6000
14:29	158.0000	380.2000	22.4000
14:30	167.0000	496.0000	22.2000
14:31	170.0000	483.7000	22.5000
14:32	168.0000	429.7000	21.8000
14:33	165.0000	394.0000	21.9000
14:34	161.0000	346.3000	20.9000
14:35	156.0000	311.0000	20.8000
14:36	156.0000	318.6000	20.9000
14:37	152.0000	324.8000	21.1000
14:38	150.0000	310.3000	21.3000
14:39	148.0000	292.6000	20.7000
14:40	144.0000	236.9000	21.1000
14:41	140.0000	207.0000	21.4000
MAX :	173.0000	499.7000	34.2000
MIN :	55.0000	17.2000	18.0000
AVG :	127.9722	218.7944	23.9917
SCANS:	36	36	36

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ERM SOUTHWEST
SILSBEE, TX
NUMBER 3 DRYER OUTLET
Page : 1

Bias ck after Run 1

		THC PPM	CO PPM	NOX PPM	
01/16/96	14:45	11	1.9	9.8	
01/16/96	14:46	10	1.6	9.1	
01/16/96	14:47	9	1.6	8.3	
01/16/96	14:48	8	1.6	7.5	
01/16/96	14:49	7	1.1	6.9	
01/16/96	14:50	11	1.1	6.3	
01/16/96	14:51	93	1.3	5.8	
01/16/96	14:52	476	1.2	5.4	
01/16/96	14:53	475	1.4	5.0	
01/16/96	14:54	475	1.6	4.7	
01/16/96	14:55	476	1.4	4.5	475.1 ppm Propane
01/16/96	14:56	207	1.3	4.2	
01/16/96	14:57	20	1.1	4.0	
01/16/96	14:58	1	0.6	3.7	
01/16/96	14:59	1	0.6	3.6	~ zero
01/16/96	15:00	-4	0.6	3.4	
01/16/96	15:01	-6	0.6	3.3	
01/16/96	15:02	-6	0.6	3.1	
01/16/96	15:03	-7	96.5	3.7	
01/16/96	15:04	-8	452.6	3.6	
01/16/96	15:05	-11	463.8	3.5	
01/16/96	15:06	-9	465.6	3.4	
01/16/96	15:07	-12	464.5	3.4	
01/16/96	15:08	-6	466.4	0.4	460.7 ppm CO
01/16/96	15:09	-5	380.6	25.8	
01/16/96	15:10	-5	15.4	48.0	
01/16/96	15:11	-12	2.0	48.1	48.1 ppm NO
01/16/96	15:12	-9	1.7	44.4	
AVERAGES :		78	101.1	10.1	

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Auxiliary Average Report

DCNID : 06 Site Name : Aux Interval : 1 Date : 1/16/96

Time	THC PPM	CO PPM	NOX PPM
16:08	123.0000	137.4000	25.4000
16:09	119.0000	183.7000	26.0000
16:10	122.0000	303.1000	26.6000
16:11	124.0000	377.0000	27.7000
16:12	125.0000	413.8000	28.0000
16:13	121.0000	423.9000	27.4000
16:14	119.0000	384.1000	28.0000
16:15	113.0000	379.9000	28.5000
16:16	111.0000	363.3000	28.0000
16:17	110.0000	331.7000	27.9000
16:18	106.0000	337.9000	27.8000
16:19	103.0000	317.0000	28.0000
16:20	103.0000	306.8000	27.6000
16:21	99.0000	244.8000	26.6000
16:22	96.0000	231.0000	26.5000
16:23	94.0000	255.8000	27.1000
16:24	94.0000	288.3000	28.1000
16:25	108.0000	319.7000	27.8000
16:26	94.0000	313.6000	27.7000
16:27	92.0000	327.0000	27.9000
16:28	90.0000	389.9000	28.5000
16:29	90.0000	397.9000	29.1000
16:30	92.0000	384.2000	27.7000
16:31	89.0000	375.4000	27.9000
16:32	90.0000	364.9000	28.4000
16:33	89.0000	392.8000	28.1000
16:34	88.0000	387.8000	27.9000
16:35	89.0000	377.6000	27.5000
16:36	86.0000	333.3000	26.9000
16:37	86.0000	296.0000	26.7000
16:38	86.0000	278.1000	26.9000
16:39	86.0000	275.1000	27.2000
16:40	85.0000	273.3000	27.0000
16:41	86.0000	242.2000	21.8000
16:42	85.0000	39.2000	9.5000
16:43	84.0000	2.7000	9.4000
MAX :	125.0000	423.9000	29.1000
MIN :	84.0000	2.7000	9.4000
AVG :	99.3611	306.9500	26.3639
SCANS:	36	36	36

Run 1 Formaldehyde

99.3611
89.2500
94.3056

306.9500
340.3500
323.6500

26.3639
24.5806
25.4723

Auxiliary Average Report

DCNID : 06 Site Name : Aux Interval : 1 Date : 1/16/96

Run #1 (form.)

Time	THC PPM	CO PPM	NOX PPM
16:50	92.0000	409.1000	22.2000
16:51	92.0000	423.8000	24.2000
16:52	90.0000	467.1000	24.0000
16:53	98.0000	414.3000	23.6000
16:54	105.0000	456.5000	23.9000
16:55	105.0000	397.4000	23.1000
16:56	103.0000	372.0000	24.0000
16:57	102.0000	380.2000	24.0000
16:58	100.0000	370.5000	23.7000
16:59	97.0000	359.3000	24.1000
17:00	96.0000	353.8000	24.1000
17:01	95.0000	307.4000	23.6000
17:02	93.0000	342.0000	24.5000
17:03	91.0000	378.4000	24.7000
17:04	91.0000	360.1000	24.8000
17:05	89.0000	409.1000	25.1000
17:06	88.0000	441.7000	25.3000
17:07	90.0000	468.6000	25.6000
17:08	91.0000	489.4000	26.7000
17:09	91.0000	439.8000	25.9000
17:10	89.0000	411.4000	25.4000
17:11	86.0000	349.6000	24.6000
17:12	85.0000	311.6000	24.4000
17:13	82.0000	293.2000	24.4000
17:14	83.0000	264.1000	24.5000
17:15	82.0000	234.6000	24.1000
17:16	80.0000	196.8000	23.6000
17:17	80.0000	196.3000	23.7000
17:18	78.0000	206.4000	24.2000
17:19	79.0000	221.1000	24.3000
17:20	79.0000	222.3000	24.4000
17:21	79.0000	202.6000	24.9000
17:22	80.0000	223.8000	25.4000
17:23	82.0000	252.7000	26.3000
17:24	84.0000	297.7000	26.7000
17:25	86.0000	327.9000	26.9000
MAX :	105.0000	489.4000	26.9000
MIN :	78.0000	196.3000	22.2000
AVG :	89.2500	340.3500	24.5806
SCANS:	36	36	36

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ERM SOUTHWEST
SILSBEE, TX
NUMBER 3 DRYER OUTLET
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Bias check after Run #2 | Form.

		THC PPM	CO PPM	NOX PPM	
01/16/96	17:30	91	313.1	18.9	
01/16/96	17:31	92	9.0	14.1	
01/16/96	17:32	94	1.3	10.6	
01/16/96	17:33	91	2.2	14.7	
01/16/96	17:34	89	19.0	13.3	
01/16/96	17:35	87	392.2	11.0	
01/16/96	17:36	81	462.2	2.1	
01/16/96	17:37	81	463.3	0.1	460.7 ppm propane
01/16/96	17:38	78	307.8	33.0	
01/16/96	17:39	76	5.2	47.3	48.7 ppm NOX
01/16/96	17:40	77	1.8	37.1	
01/16/96	17:41	74	1.2	-5.7	
01/16/96	17:42	72	1.1	-1.7	
01/16/96	17:43	74	0.8	-0.1	
01/16/96	17:44	83	0.6	-0.1	
01/16/96	17:45	63	0.6	-0.2	
01/16/96	17:46	11	0.6	-0.1	
01/16/96	17:47	9	0.6	-0.2	
01/16/96	17:48	8	0.6	-0.1	
01/16/96	17:49	7	0.5	-0.1	N2
01/16/96	17:50	253	0.6	0.0	
01/16/96	17:51	483	0.5	-0.1	
01/16/96	17:52	486	0.5	0.0	475.1 ppm propane
01/16/96	17:53	427	0.5	0.0	
01/16/96	17:54	11	0.1	0.0	
01/16/96	17:55	8	0.3	-0.1	
01/16/96	17:56	8	0.3	-0.2	
AVERAGES :		112	73.6	7.2	

INFICO

NOx
Teco 10S
10S 49430282
metco 12
0-100

THC
Jum VE-7
metco 17
0-1000

CO
Teco 48
48335275
metco 12
0-500

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ERM SOUTHWEST
SILSBEE, TX
NUMBER 3 DRYER OUTLET
Page : 1

LK r dead@ 15.0"Hg
Heated Systems @ 250°F
Response Time = 20 sec

		THC PPM	CO PPM	NOX PPM	
01/17/96	06:24	-5	0.6	-2.8	
01/17/96	06:25	-5	0.6	-2.8	
01/17/96	06:26	-5	0.6	-2.8	
01/17/96	06:27	-5	0.7	8.9	
01/17/96	06:28	-5	0.6	51.6	
01/17/96	06:29	-5	0.6	52.3	
01/17/96	06:30	-8	0.7	52.3	
01/17/96	06:31	-2	0.7	52.3	
01/17/96	06:32	7	0.7	52.3	
01/17/96	06:33	9	0.7	52.2	
01/17/96	06:34	14	0.7	52.1	
01/17/96	06:35	10	0.7	52.1	
01/17/96	06:36	13	0.7	52.0	
01/17/96	06:37	6	0.7	51.9	
01/17/96	06:38	2	0.7	51.9	
01/17/96	06:39	14	0.7	47.8	
01/17/96	06:40	3	0.7	-1.2	
01/17/96	06:41	11	0.3	40.0	N_2 zero SG9101706ALC
01/17/96	06:42	1	0.1	-0.1	
01/17/96	06:43	2	0.1	27.2	
01/17/96	06:44	2	0.1	48.1	48.07 ppm NO ALM049329
01/17/96	06:45	3	0.1	48.2	
01/17/96	06:46	2	19.7	9.1	
01/17/96	06:47	7	144.4	0.1	
01/17/96	06:48	6	471.1	0.0	
01/17/96	06:49	2	467.0	0.0	
01/17/96	06:50	5	461.0	0.0	460.7 ppmCO CAL202
01/17/96	06:51	5	458.7	0.0	
01/17/96	06:52	4	268.9	23.7	
01/17/96	06:53	149	1.8	84.4	
01/17/96	06:54	457	0.1	84.6	84.65ppm NO BLM003395
01/17/96	06:55	366	0.1	84.5	
01/17/96	06:56	390	118.3	9.8	
01/17/96	06:57	476	246.3	0.1	242.1 ppmCO BLM003980
01/17/96	06:58	474	246.3	0.0	475.1 ppm Propane BLM004187
01/17/96	06:59	457	225.4	7.6	
01/17/96	07:00	463	19.7	20.0	20.11 ppm BLM002008
01/17/96	07:01	977	3.8	13.8	
01/17/96	07:02	981	77.9	0.0	969.1 ppm Propane cal8302
01/17/96	07:03	981	88.2	0.0	89.3 ppm CO BAL1208
01/17/96	07:04	975	88.2	0.0	
01/17/96	07:05	697	88.1	0.0	
01/17/96	07:06	126	88.2	0.0	
01/17/96	07:07	126	88.1	0.0	
01/17/96	07:08	124	88.1	0.0	

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ERM SOUTHWEST
SILSBEE, TX
NUMBER 3 DRYER OUTLET
Page : 2

		THC PPM	CO PPM	NOX PPM	
01/17/96	07:09	122	88.1	0.0	
01/17/96	07:10	122	58.0	0.0	
01/17/96	07:11	190	0.6	0.1	
01/17/96	07:12	222	0.1	0.1	224 ppm propane c/m005995
01/17/96	07:13	222	0.1	20.8	Nox conv. Bag on
01/17/96	07:14	222	0.1	25.0	
01/17/96	07:15	195	0.6	25.1	
01/17/96	07:16	-9	0.7	25.1	
01/17/96	07:17	-5	0.7	25.0	
01/17/96	07:18	-4	0.7	25.0	
01/17/96	07:19	-4	0.7	25.0	
01/17/96	07:20	-4	0.7	25.0	
01/17/96	07:21	-5	0.7	25.0	
01/17/96	07:22	-4	0.7	25.0	
01/17/96	07:23	-4	0.7	25.0	
01/17/96	07:24	-5	0.7	25.0	
01/17/96	07:25	-5	0.7	25.0	
01/17/96	07:26	-5	0.7	25.0	
01/17/96	07:27	-5	0.7	25.0	
01/17/96	07:28	-5	0.7	25.0	4807 ppm no ALm049329
01/17/96	07:29	-5	0.7	24.9	
01/17/96	07:30	-5	0.7	24.9	
01/17/96	07:31	-5	0.7	24.9	
01/17/96	07:32	-5	0.7	25.0	
01/17/96	07:33	-5	0.7	25.0	
01/17/96	07:34	-5	0.7	25.0	
01/17/96	07:35	3	0.7	25.0	
01/17/96	07:36	4	0.7	25.0	
01/17/96	07:37	4	0.7	24.9	
01/17/96	07:38	4	0.7	24.9	
01/17/96	07:39	4	0.7	24.9	
01/17/96	07:40	4	0.7	24.9	
01/17/96	07:41	5	0.7	24.9	
01/17/96	07:42	6	0.7	24.9	
01/17/96	07:43	6	0.7	25.0	
01/17/96	07:44	9	0.7	25.0	
01/17/96	07:45	6	0.7	24.9	Nox conv Bag off
01/17/96	07:46	49	0.7	21.7	
01/17/96	07:47	182	0.7	0.3	
AVERAGES :		116	46.9	22.9	

Initial Bias CKs

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ERM SOUTHWEST
SILSBEE, TX
NUMBER 3 DRYER OUTLET
Page : 1

		THC PPM	CO PPM	NOX PPM	
01/17/96	07:48	201	0.7	0.3	
01/17/96	07:49	264	0.7	0.2	N2 zero
01/17/96	07:50	312	0.5	35.5	
01/17/96	07:51	301	0.1	46.4	
01/17/96	07:52	243	0.1	46.7	48.07 ppm NO
01/17/96	07:53	265	0.1	46.6	
01/17/96	07:54	249	48.3	19.8	
01/17/96	07:55	261	225.8	2.3	
01/17/96	07:56	262	238.8	1.5	
01/17/96	07:57	253	241.2	1.3	242.1 ppm CO
01/17/96	07:58	235	169.4	1.3	
01/17/96	07:59	133	7.0	0.8	
01/17/96	08:00	25	2.0	0.7	
01/17/96	08:01	13	1.6	0.6	
01/17/96	08:02	4	1.6	0.6	
01/17/96	08:03	2	1.5	0.6	N2 zero
01/17/96	08:04	375	1.6	0.6	
01/17/96	08:05	476	1.6	0.6	475.1 ppm Propane
01/17/96	08:06	477	1.6	0.6	
AVERAGES :		229	49.7	10.9	

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Auxiliary Average Report

DCNID : 06 Site Name : Aux Interval : 1 Date : 1/17/96

Run 2 Particulate

Time	THC PPM	CO PPM	NOX PPM
08:20	249.0000	232.5000	19.3000
08:21	253.0000	188.1000	18.1000
08:22	279.0000	167.5000	18.4000
08:23	273.0000	178.9000	18.9000
08:24	272.0000	179.0000	19.6000
08:25	261.0000	167.9000	20.1000
08:26	264.0000	146.5000	19.8000
08:27	176.0000	146.9000	20.5000
08:28	225.0000	152.6000	20.8000
08:29	192.0000	132.3000	20.1000
08:30	196.0000	152.7000	20.7000
08:31	189.0000	180.8000	19.9000
08:32	193.0000	215.3000	21.0000
08:33	195.0000	253.2000	21.9000
08:34	191.0000	268.6000	21.7000
08:35	187.0000	291.7000	23.1000
08:36	180.0000	315.8000	22.7000
08:37	177.0000	363.6000	22.4000
08:38	167.0000	356.0000	22.3000
08:39	160.0000	358.8000	22.2000
08:40	153.0000	301.0000	21.9000
08:41	144.0000	274.0000	21.4000
08:42	138.0000	227.3000	21.4000
08:43	131.0000	198.0000	21.0000
08:44	126.0000	167.4000	21.3000
08:45	121.0000	151.1000	21.3000
08:46	116.0000	135.8000	20.8000
08:47	117.0000	131.4000	21.4000
08:48	118.0000	136.2000	21.6000
08:49	116.0000	157.9000	22.2000
08:50	119.0000	170.5000	22.5000
08:51	125.0000	179.5000	22.6000
08:52	125.0000	198.2000	24.2000
08:53	127.0000	223.7000	24.1000
08:54	125.0000	215.1000	24.4000
08:55	126.0000	237.1000	20.1000
MAX :	279.0000	363.6000	24.4000
MIN :	116.0000	131.4000	18.1000
AVG :	175.1667	209.8028	21.2694
SCANS:	36	36	36

Auxiliary Average Report

DCNID : 06 Site Name : Aux Interval : 1 Date : 1/17/96

Run 2 particulate

Time	THC PPM	CO PPM	NOX PPM
09:10	97.0000	248.7000	26.2000
09:11	98.0000	261.6000	26.5000
09:12	111.0000	324.4000	27.5000
09:13	107.0000	316.2000	27.1000
09:14	109.0000	364.8000	27.9000
09:15	110.0000	335.4000	27.0000
09:16	108.0000	318.6000	26.9000
09:17	107.0000	358.7000	28.2000
09:18	106.0000	362.3000	27.5000
09:19	106.0000	330.4000	27.0000
09:20	105.0000	327.2000	26.8000
09:21	104.0000	304.3000	26.0000
09:22	103.0000	278.5000	26.2000
09:23	98.0000	256.2000	25.7000
09:24	95.0000	255.9000	25.7000
09:25	93.0000	220.7000	25.3000
09:26	92.0000	216.3000	25.0000
09:27	92.0000	226.3000	25.5000
09:28	92.0000	219.9000	25.2000
09:29	91.0000	226.8000	25.8000
09:30	90.0000	228.8000	25.2000
09:31	90.0000	248.1000	25.8000
MAX :	111.0000	364.8000	28.2000
MIN :	90.0000	216.3000	25.0000
AVG :	100.1818	283.1863	26.3636
SCANS:	22	22	22

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Auxiliary Average Report

DCNID : 06 Site Name : Aux Interval : 1 Date : 1/17/96

Run 2 Particulate

Time	THC PPM	CO PPM	NOX PPM
09:41	83.0000	182.7000	25.1000
09:42	84.0000	173.8000	25.4000
09:43	79.0000	168.1000	25.8000
09:44	79.0000	146.8000	25.4000
09:45	82.0000	135.5000	25.0000
09:46	78.0000	160.4000	25.7000
09:47	81.0000	265.1000	26.8000
09:48	84.0000	326.7000	27.0000
09:49	103.0000	320.9000	27.0000
09:50	82.0000	309.7000	26.9000
09:51	100.0000	264.4000	25.9000
09:52	92.0000	252.7000	25.3000
09:53	92.0000	255.4000	25.6000
09:54	101.0000	252.3000	25.8000
MAX :	103.0000	326.7000	27.0000
MIN :	78.0000	135.5000	25.0000
AVG :	87.1429	229.6071	25.9071
SCANS:	14	14	14

72

175.1667
100.1818
87.1429
135.1389

209.8028
283.1863
229.6071
236.07637

21.2694
26.3636
25.9071
23.7277

9730.0014
135.1

16997.4988
236.1

1708.397
23.7

!

96 11
ERM SOUTHWEST
SILSBEE, TX
NUMBER 3 DRYER OUTLET
Page : 1

Bias ck after Run 2 particulate

		THC PPM	CO PPM	NOX PPM	
01/17/96	10:02	17	47.4	9.8	
01/17/96	10:03	12	2.3	9.5	
01/17/96	10:04	9	2.1	10.5	
01/17/96	10:05	8	1.6	11.4	
01/17/96	10:06	8	1.6	11.5	
01/17/96	10:07	7	1.5	11.6	
01/17/96	10:08	396	1.1	11.6	
01/17/96	10:09	480	1.1	11.4	
01/17/96	10:10	480	0.9	11.1	
01/17/96	10:11	480	1.1	10.7	
01/17/96	10:12	481	1.0	10.4	
01/17/96	10:13	481	0.9	10.0	
01/17/96	10:14	481	0.7	9.6	N_2
01/17/96	10:15	481	1.2	9.3	
01/17/96	10:16	482	1.7	9.0	475.1 ppm propane
01/17/96	10:17	481	3.6	8.7	
01/17/96	10:18	410	4.1	8.4	
01/17/96	10:19	18	3.0	9.9	
01/17/96	10:20	15	0.7	9.8	
01/17/96	10:21	20	91.7	11.8	
01/17/96	10:22	20	241.1	11.5	
01/17/96	10:23	16	242.7	11.2	
01/17/96	10:24	20	243.3	10.9	
01/17/96	10:25	17	243.7	10.6	
01/17/96	10:26	13	243.9	10.5	
01/17/96	10:27	17	245.0	4.0	242.1 ppm CO
01/17/96	10:28	19	244.4	1.5	
01/17/96	10:29	20	188.6	26.5	
01/17/96	10:30	16	5.9	46.9	
01/17/96	10:31	13	1.4	46.9	48.07 ppm NO
01/17/96	10:32	15	1.3	3.5	
01/17/96	10:33	14	1.1	-1.2	
01/17/96	10:34	13	0.7	-1.4	
AVERAGES :		165	62.8	11.7	

Auxiliary Average Report

DCNID : 06 Site Name : Aux Interval : 1 Date : 1/17/96

Time	THC PPM	CO PPM	NOX PPM
12:10	293.0000	464.6000	21.4000
12:11	237.0000	400.2000	18.8000
12:12	240.0000	317.1000	18.5000
12:13	258.0000	297.9000	17.9000
12:14	234.0000	188.6000	16.8000
12:15	108.0000	87.4000	16.1000
12:16	163.0000	77.6000	14.0000
12:17	217.0000	88.9000	14.2000
12:18	251.0000	107.6000	13.8000
12:19	278.0000	144.1000	14.9000
12:20	278.0000	165.5000	15.5000
12:21	222.0000	181.9000	15.4000
12:22	240.0000	228.8000	16.9000
12:23	273.0000	274.3000	17.7000
12:24	271.0000	331.5000	19.2000
12:25	230.0000	369.1000	20.1000
12:26	279.0000	385.5000	19.7000
12:27	295.0000	404.3000	19.7000
12:28	264.0000	426.4000	20.0000
MAX :	295.0000	464.6000	21.4000
MIN :	108.0000	77.6000	13.8000
AVG :	243.7368	260.0684	17.4000
SCANS:	19	19	19

Runz formaldehyde

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Auxiliary Average Report

DCNID : 06 Site Name : Aux Interval : 1 Date : 1/17/96

Runs 2 formaldehyde

Time	THC PPM	CO PPM	NOX PPM
13:17	133.0000	209.7000	20.3000
13:18	132.0000	234.2000	20.3000
13:19	135.0000	253.6000	20.8000
MAX :	135.0000	253.6000	20.8000
MIN :	132.0000	209.7000	20.3000
AVG :	133.3333	232.5000	20.4667
SCANS:	3	3	3

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Auxiliary Average Report

DCNID : 06 Site Name : ---- Aux Interval : 1 Date : 1/17/96

Time	THC PPM	CO PPM	NOX PPM
13:47	85.0000	455.1000	23.3000
13:48	94.0000	499.8000	22.3000
13:49	106.0000	437.8000	21.7000
13:50	106.0000	472.6000	21.6000
13:51	110.0000	444.9000	21.3000
13:52	117.0000	393.7000	20.3000
13:53	120.0000	363.4000	20.0000
MAX :	120.0000	499.8000	23.3000
MIN :	85.0000	363.4000	20.0000
AVG :	105.4286	438.1857	21.5000
SCANS:	7	7	7

Run 2 formaldehyde

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Auxiliary Average Report

DCNID : 06 Site Name : Aux Interval : 1 Date : 1/17/96

Time	THC PPM	CO PPM	NOX PPM
14:06	131.0000	330.2000	22.9000
14:07	135.0000	353.8000	23.6000
14:08	145.0000	397.7000	24.1000
14:09	156.0000	399.9000	25.2000
14:10	152.0000	480.9000	25.9000
14:11	155.0000	443.8000	24.8000
14:12	147.0000	456.0000	25.8000
MAX :	156.0000	480.9000	25.9000
MIN :	131.0000	330.2000	22.9000
AVG :	145.8571	408.9000	24.6143
SCANS:	7	7	7

Runs Formaldehyde

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Auxiliary Average Report

DCNID : 06 Site Name : Aux Interval : 1 Date : 1/17/96

Run 2 formaldehyde

Time	THC PPM	CO PPM	NOX PPM
14:45	332.0000	411.4000	26.8000
14:46	408.0000	383.6000	25.9000
14:47	432.0000	382.7000	25.8000
14:48	254.0000	375.0000	26.2000
14:49	274.0000	421.7000	26.6000
14:50	343.0000	457.3000	27.3000
14:51	383.0000	451.8000	27.5000
14:52	375.0000	464.3000	27.3000
14:53	235.0000	468.5000	27.5000
14:54	397.0000	497.9000	27.5000
14:55	441.0000	479.9000	27.6000
14:56	463.0000	498.0000	27.7000
14:57	353.0000	465.7000	27.4000
14:58	404.0000	495.3000	28.4000
14:59	407.0000	491.7000	27.1000
MAX :	463.0000	498.0000	28.4000
MIN :	235.0000	375.0000	25.8000
AVG :	366.7333	449.6534	27.1067
SCANS:	15	15	15

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Auxiliary Average Report

DCNID : 06 Site Name . . Aux Interval : 1 Date : 1/17/96

Run 2 formaldehyde

Time	THC PPM	CO PPM	NOX PPM
15:33	112.0000	298.1000	22.9000
15:34	120.0000	329.3000	23.1000
15:35	137.0000	330.7000	23.4000
15:36	142.0000	368.0000	23.5000
15:37	147.0000	406.8000	24.0000
15:38	152.0000	446.2000	24.9000
15:39	156.0000	490.4000	25.1000
15:40	155.0000	499.4000	25.6000
15:41	152.0000	499.8000	24.9000
15:42	153.0000	499.8000	24.7000
15:43	146.0000	471.5000	24.2000
15:44	145.0000	446.6000	24.3000
15:45	144.0000	397.3000	24.9000
15:46	141.0000	424.6000	23.8000
15:47	141.0000	383.9000	24.0000
15:48	138.0000	353.8000	23.4000
15:49	153.0000	331.9000	22.4000
MAX :	156.0000	499.8000	25.6000
MIN :	112.0000	298.1000	22.4000
AVG :	143.1765	410.4764	24.0647
SCANS:	17	17	17

!

Auxiliary Average Report

DCNID : 06 Site Name : - Aux Interval : 1 Date : 1/17/96

Run 2 formaldehyde

Time	THC PPM	CO PPM	NOX PPM
15:59	160.0000	427.6000	24.3000
16:00	156.0000	392.0000	23.6000
16:01	155.0000	381.7000	22.5000
MAX :	160.0000	427.6000	24.3000
MIN :	155.0000	381.7000	22.5000
AVG :	157.0000	400.4333	23.4667
SCANS:	3	3	3

214.028 373.135 22.548

15195.999 (71) 1600.907

214.0 26492.5992 22.5

373.1

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ERM SOUTHWEST
SILSBEE, TX
NUMBER 3 DRYER OUTLET
Page : 1

Bias ck after 2nd formalde

		THC PPM	CO PPM	NOX PPM	
01/17/96	16:07	158	1.3	2.3	
01/17/96	16:08	166	1.6	2.8	
01/17/96	16:09	170	168.5	4.3	
01/17/96	16:10	168	243.1	5.1	
01/17/96	16:11	167	244.2	5.5	242.1 ppm co
01/17/96	16:12	168	132.3	42.0	
01/17/96	16:13	172	2.0	47.4	48.07 ppm NO
01/17/96	16:14	178	1.2	44.8	
01/17/96	16:15	177	1.2	5.1	
01/17/96	16:16	172	0.9	4.7	
01/17/96	16:17	39	1.0	3.7	
01/17/96	16:18	1	1.1	3.8	
01/17/96	16:19	4	1.1	3.5	
01/17/96	16:20	1	0.9	3.3	zero
01/17/96	16:21	417	0.8	3.2	
01/17/96	16:22	484	1.0	3.1	
01/17/96	16:23	486	0.9	3.0	475.1 ppm propane
AVERAGES :		184	47.2	11.0	

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Auxiliary Average Report

DCNID : 06 Site Name : Aux Interval : 1 Date : 1/17/96

Run 3 particulate

Time	THC PPM	CO PPM	NOX PPM
17:50	302.0000	499.8000	18.5000
17:51	289.0000	499.8000	19.4000
17:52	292.0000	499.8000	19.5000
17:53	294.0000	473.5000	19.5000
17:54	443.0000	473.8000	19.8000
17:55	437.0000	489.6000	20.2000
17:56	411.0000	443.4000	20.1000
17:57	426.0000	447.6000	20.1000
17:58	376.0000	411.2000	20.7000
17:59	373.0000	427.0000	21.0000
18:00	360.0000	469.0000	21.1000
18:01	330.0000	462.5000	21.0000
18:02	324.0000	483.6000	21.0000
18:03	297.0000	473.7000	21.4000
18:04	274.0000	440.9000	20.8000
MAX :	443.0000	499.8000	21.4000
MIN :	274.0000	411.2000	18.5000
AVG :	348.5333	466.3467	20.2733
SCANS:	15	15	15

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Auxiliary Average Report

DCNID : 06 Site Name : [illegible] Aux Interval : 1 Date : 1/17/96

Run 3 (part)

Time	THC PPM	CO PPM	NOX PPM
18:25	397.0000	444.1000	15.2000
18:26	386.0000	480.3000	16.1000
18:27	399.0000	499.9000	16.3000
18:28	402.0000	499.8000	17.9000
18:29	452.0000	499.9000	17.9000
18:30	442.0000	499.8000	18.8000
18:31	286.0000	499.8000	19.0000
18:32	383.0000	499.8000	18.5000
18:33	364.0000	499.8000	18.5000
18:34	374.0000	499.8000	18.0000
18:35	286.0000	498.4000	18.1000
18:36	261.0000	499.8000	17.9000
18:37	246.0000	499.0000	17.7000
18:38	226.0000	477.1000	17.3000
MAX :	452.0000	499.9000	19.0000
MIN :	226.0000	444.1000	15.2000
AVG :	350.2857	492.6643	17.6571
SCANS:	14	14	14

!

Auxiliary Average Report

DCNID : 06 Site Name : Aux Interval : 1 Date : 1/17/96

Run 3 (part)

Time	THC PPM	CO PPM	NOX PPM
19:10	111.0000	376.1000	20.2000
19:11	151.0000	379.7000	20.1000
19:12	302.0000	355.9000	21.1000
19:13	97.0000	389.3000	18.9000
19:14	122.0000	400.5000	17.6000
19:15	134.0000	462.5000	18.6000
19:16	150.0000	498.0000	18.1000
MAX :	302.0000	498.0000	21.1000
MIN :	97.0000	355.9000	17.6000
AVG :	152.4286	408.8571	19.2286
SCANS:	7	7	7

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Auxiliary Average Report

DCNID : 06 Site Name : Aux Interval : 1 Date : 1/17/96

Run 3 (part.)

Time	THC PPM	CO PPM	NOX PPM
19:27	99.0000	143.3000	15.0000
19:28	92.0000	132.0000	15.1000
19:29	93.0000	144.8000	15.4000
19:30	100.0000	183.0000	16.7000
19:31	104.0000	198.6000	17.8000
19:32	101.0000	223.9000	17.6000
19:33	103.0000	262.2000	17.3000
19:34	103.0000	290.1000	17.8000
19:35	105.0000	344.3000	18.6000
19:36	110.0000	351.8000	19.4000
19:37	109.0000	419.5000	20.3000
19:38	114.0000	497.1000	21.8000
19:39	113.0000	485.6000	21.7000
19:40	109.0000	499.7000	22.2000
19:41	112.0000	492.3000	23.2000
19:42	107.0000	483.4000	23.3000
MAX :	114.0000	499.7000	23.3000
MIN :	92.0000	132.0000	15.0000
AVG :	104.6250	321.9750	18.9500
SCANS:	16	16	16

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Auxiliary Average Report

DCNID : 06 Site Name : . Aux Interval : 1 Date : 1/17/96

Run 3 (part.)

Time	THC PPM	CO PPM	NOX PPM
20:10	93.0000	248.6000	18.3000
20:11	74.0000	242.3000	17.3000
20:12	90.0000	241.9000	17.5000
20:13	89.0000	250.3000	18.3000
20:14	93.0000	279.7000	18.3000
20:15	95.0000	279.2000	19.0000
20:16	95.0000	257.7000	17.5000
20:17	102.0000	274.9000	18.7000
20:18	99.0000	275.9000	17.6000
20:19	89.0000	287.8000	18.2000
20:20	94.0000	291.6000	18.8000
20:21	93.0000	278.9000	18.2000
20:22	94.0000	253.4000	19.8000
20:23	98.0000	219.3000	18.3000
20:24	104.0000	349.9000	19.9000
20:25	95.0000	362.6000	20.3000
20:26	109.0000	397.1000	20.8000
20:27	113.0000	364.9000	21.5000
20:28	110.0000	328.4000	20.9000
20:29	137.0000	292.9000	21.7000
MAX :	137.0000	397.1000	21.7000
MIN :	74.0000	219.3000	17.3000
AVG :	98.3000	288.8650	19.0450
SCANS:	20	20	20

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Auxiliary Average Report

DCNID : 06 Site Name : Aux Interval : 1 Date : 1/17/96

Time	THC PPM	CO PPM	NOX PPM
21:35	155.0000	56.2000	19.3000
21:36	243.0000	42.4000	21.6000
21:37	253.0000	37.0000	21.1000
21:38	258.0000	36.9000	21.9000
21:39	255.0000	41.8000	20.3000
21:40	245.0000	54.0000	17.1000
MAX :	258.0000	56.2000	21.9000
MIN :	155.0000	36.9000	17.1000
AVG :	234.8333	44.7167	20.2167
SCANS:	6	6	6

Run 3 (Art.)

208.31 358.36 19.12

78

16247.9993

208.3

27951.7006

358.4

1491.2993

19.1

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ERM SOUTHWEST
SILSBEE, TX
NUMBER 3 DRYER OUTLET
Page : 1

Bias ck after Run 3 particulate

		THC PPM	CO PPM	NOX PPM	
01/17/96	21:43	129	119.8	15.2	
01/17/96	21:44	26	134.9	14.9	
01/17/96	21:45	3	164.3	16.0	
01/17/96	21:46	1	112.0	3.7	
01/17/96	21:47	1	2.9	-1.1	
01/17/96	21:48	440	1.2	0.3	
01/17/96	21:49	374	1.1	0.3	w zero
01/17/96	21:50	493	1.0	0.4	475.1 ppm Propane
01/17/96	21:51	475	0.9	0.4	
01/17/96	21:52	24	0.6	17.8	
01/17/96	21:53	20	0.1	47.2	
01/17/96	21:54	15	0.1	47.4	48.07 ppm NO
01/17/96	21:55	15	9.1	33.2	
01/17/96	21:56	19	208.9	2.5	
01/17/96	21:57	7	244.9	2.5	242
01/17/96	21:58	-7	245.0	2.3	~~245~~. 1 ppm CO
01/17/96	21:59	-7	142.5	1.2	
AVERAGES :		119	81.7	12.0	

Dryer Number 4 Outlet Duct - Particulate
Oxides of Nitrogen
Concentration

Run Number	Measured (ppm)	Adjusted (ppm*)
1	28.3	29.2
2	30.8	31.5
3	34.2	34.3

*Calculated according to equation 6C-1.

Dryer Number 4 Outlet Duct - Formaldehyde
Oxides of Nitrogen
Concentration

Run Number	Measured (ppm)	Adjusted (ppm*)
1	24.8	25.3
2	26.2	26.6

*Calculated according to equation 6C-1.

Dryer Number 4 Outlet Duct - Particulate
Calibration Summary
Oxides of Nitrogen

Run Number	NOx Calibration Initial Drift Check (ppm)	NOx Calibration Final Drift Check (ppm)	NOx Calibration Average (ppm)	NOx Zero Initial Drift Check (ppm)	NOx Zero Final Drift Check (ppm)	NOx Zero Average (ppm)	Actual NOx Calibration Value (ppm)	Actual NOx Zero Value (ppm)
1	46.5	45.9	46.2	0.2	0.6	0.4	47.9	0.0
2	47.3	46.0	46.7	0.4	0.3	0.4	47.9	0.0
3	47.9	47.4	47.7	0.2	0.2	0.2	47.9	0.0

ORIG ENVIRONMENTAL

Dryer Number 4 Outlet Duct - Formaldehyde
Calibration Summary
Oxides of Nitrogen

Run Number	NOx Calibration Initial Drift Check (ppm)	NOx Calibration Final Drift Check (ppm)	NOx Calibration Average (ppm)	NOx Zero Initial Drift Check (ppm)	NOx Zero Final Drift Check (ppm)	NOx Zero Average (ppm)	Actual NOx Calibration Value (ppm)	Actual NOx Zero Value (ppm)
1	45.9	47.2	46.6	0.6	0.0	0.3	47.9	0.0
2	46.0	47.9	47.0	0.3	0.2	0.3	47.9	0.0

ENVIRONMENTAL

MONITOR AND CALIBRATION GAS INFORMATION SHEET

JOB NUMBER: 96-11
JOB NAME: ERM
JOB LOCATION: Silsbee TX

DATE: 1/17/96
SOURCE NAME: Dryer #4 Outlet Duct

MONITOR('S) OPERATED

___O2 ✓NOX ✓CO ✓THC ___SO2 ___CO2 ___( ) ___( )

NO2 to NO Converter Check Performed: ✓YES ___NO ___N/A

MONITOR: NO_x RANGE('S): 0-100 S/N: 5-99427 MONITOR #: 28
MANUFACTURER & MODEL: TECO Model 10S

CALIBRATION GASES:

(%)or(ppm)	cylinder number	(%)or(ppm)	cylinder number
18.72	ALM040839		
47.9	SG9115542ALC		
84.62	BAL5243		

MONITOR: CO RANGE('S): 0-1000 S/N: ACM-15457155 MONITOR #: 28
MANUFACTURER & MODEL: TECO Model 48

CALIBRATION GASES:

(%)or(ppm)	cylinder number	(%)or(ppm)	cylinder number
242.8	BLM001723		
466.5	BLM003965		
925.3	CAL3528		

MONITOR: THC RANGE('S): 0-1000 S/N: 101891092 MONITOR #: 28
MANUFACTURER & MODEL: J.U.M. VE-7

CALIBRATION GASES: Propane

(%)or(ppm)	cylinder number	(%)or(ppm)	cylinder number
227.5	CAL7719		
471.1	BAL5231		
980.3	CAL12407		

MONITOR: ___ RANGE('S): ___ S/N: ___ MONITOR #: ___
MANUFACTURER & MODEL:

CALIBRATION GASES:

(%)or(ppm)	cylinder number	(%)or(ppm)	cylinder number

MONITOR: ___ RANGE('S): ___ S/N: ___ MONITOR #: ___
MANUFACTURER & MODEL:

CALIBRATION GASES:

(%)or(ppm)	cylinder number	(%)or(ppm)	cylinder number

MONITOR AND CALIBRATION GAS INFORMATION SHEET

JOB NUMBER: 96-11 DATE: 1/16/96
JOB NAME: ERM SOURCE NAME: Dryer Number 4 Outlet Duct
JOB LOCATION: ~~Bryan~~ Silsbee, Tx

MONITOR('S) OPERATED

___O2 ✓NOX ✓CO ✓THC ___SO2 ___CO2 ___( ) ___( )

NO2 to NO Converter Check Performed: ✓YES ___NO ___N/A

MONITOR: THC RANGE('S): 0-1000 ppm S/N: 101891092 MONITOR #: 28
MANUFACTURER & MODEL: JUM VE-7
CALIBRATION GASES: Propane

(%)or(ppm)	cylinder number	(%)or(ppm)	cylinder number
227.5	CAL 7719		
471.1	BAL 5231		
980.3	CAL 12407		

MONITOR: CO RANGE('S): 0-100-1000 S/N: ACM-1547-155 MONITOR #: 28
MANUFACTURER & MODEL: TECO Model 48
CALIBRATION GASES: CO

(%)or(ppm)	cylinder number	(%)or(ppm)	cylinder number
17.37	ALM 020953	242.8	BLM 001723
44.1	CAL 6261	466.5	BLM 003965
85.59	ALM 004892	925.3	CAL 3528

MONITOR: NO_x RANGE('S): 0-100 S/N: S-49427282 MONITOR #: 28
MANUFACTURER & MODEL: TECO Model 10S
CALIBRATION GASES: NO

(%)or(ppm)	cylinder number	(%)or(ppm)	cylinder number
~~18.72~~	~~ALM 040639~~		
47.9	SG 9115542 ALC		
84.62	BAL 5243		

MONITOR: ___ RANGE('S): ___ S/N: ___ MONITOR #: ___
MANUFACTURER & MODEL:
CALIBRATION GASES:

(%)or(ppm)	cylinder number	(%)or(ppm)	cylinder number

MONITOR: ___ RANGE('S): ___ S/N: ___ MONITOR #: ___
MANUFACTURER & MODEL:
CALIBRATION GASES:

(%)or(ppm)	cylinder number	(%)or(ppm)	cylinder number

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ERM SOUTHWEST
NUMBER FOUR DRYER OUTLET DUCT
, SILSBEE, TEXAS
96 11
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		THC PPM	CO PPM	NOX PPM	
01/16/96	06:53	0.0C	0.0C	0.0C	
01/16/96	06:54	0.0C	0.0C	0.0C	
01/16/96	06:55	0.0C	1.0C	0.0C	
01/16/96	06:56	0.0C	0.0C	0.0C	
01/16/96	06:57	0.0C	0.0C	59.1C	
01/16/96	06:58	0.0C	0.0C	72.9C	
01/16/96	06:59	0.0C	0.0C	82.9C	
01/16/96	07:00	0.0C	0.0C	83.6C	
01/16/96	07:01	0.0C	0.0C	83.7C	84.62 ppm NO
01/16/96	07:02	0.0C	0.0C	83.6C	
01/16/96	07:03	0.0C	0.0C	83.6C	
01/16/96	07:04	0.0C	13.8C	54.9C	
01/16/96	07:05	0.0C	43.9C	0.7C	
01/16/96	07:06	0.0C	44.2C	[illegible]	zero
01/16/96	07:07	0.0C	44.2C	17.6C	
01/16/96	07:08	5.6C	44.2C	50.1C	44.1 ppm CO
01/16/96	07:09	810.8C	15.7C	50.2C	
01/16/96	07:10	966.3C	[illegible]	30.3C	zero
01/16/96	07:11	971.7C	0.1C	50.2C	
01/16/96	07:12	973.7C	0.1C	50.2C	980.3 ppm propane
01/16/96	07:13	972.3C	0.1C	50.2C	
01/16/96	07:14	17.5C	9.1C	50.1C	
01/16/96	07:15	0.0C	16.3C	50.1C	
01/16/96	07:16	0.0C	16.3C	50.1C	17.37 ppm CO
01/16/96	07:17	270.4C	13.3C	50.1C	
01/16/96	07:18	466.1C	0.6C	50.1C	
01/16/96	07:19	466.9C	0.4C	50.0C	
01/16/96	07:20	472.4C	0.4C	50.1C	471.1 ppm propane
01/16/96	07:21	202.7C	13.6C	50.1C	
01/16/96	07:22	0.0C	88.9C	50.0C	
01/16/96	07:23	0.0C	87.9C	50.0C	
01/16/96	07:24	0.0C	87.4C	50.0C	
01/16/96	07:25	0.0C	87.0C	50.0C	85.59 ppm CO
01/16/96	07:26	164.8C	59.9C	50.0C	
01/16/96	07:27	229.1C	0.5C	50.0C	
01/16/96	07:28	228.0C	0.0C	50.0C	227.5 ppm propane
01/16/96	07:29	45.5C	0.0C	50.0C	
01/16/96	07:30	0.0C	0.0C	49.9C	
01/16/96	07:31	0.0C	0.0C	50.0C	
01/16/96	07:32	0.0C	0.0C	50.0C	
01/16/96	07:33	0.0C	0.0C	50.0C	
01/16/96	07:34	8.6C	0.8C	49.9C	
01/16/96	07:35	-0.5C	0.0C	49.9C	
01/16/96	07:36	1.1C	5.3C	49.9C	
01/16/96	07:37	0.4C	13.4C	49.9C	

— NO_2 to NO converter Check
0710 to 0740

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ERM SOUTHWEST
NUMBER FOUR DRYER OUTLET DUCT
SILSBEE, TEXAS
96 11

		THC PPM	CO PPM	NOX PPM	
01/16/96	07:38	-0.5C	13.3C	49.9C	
01/16/96	07:39	0.0C	13.2C	49.9C	
01/16/96	07:40	0.0C	14.4C	49.9C	—
01/16/96	07:41	0.0C	16.3C	49.9C	
01/16/96	07:42	0.0C	16.4C	49.9C	17.37 ppm CO Bias
01/16/96	07:43	0.0C	16.4C	49.9C	
01/16/96	07:44	0.0C	12.2C	26.4C	
01/16/96	07:45	0.0C	0.0C	0.2C	zero Bias
01/16/96	07:46	0.0C	0.0C	0.3C	
01/16/96	07:47	0.0C	0.0C	30.9C	
01/16/96	07:48	0.0C	0.0C	45.7C	
01/16/96	07:49	0.0C	0.0C	46.2C	
01/16/96	07:50	0.0C	0.0C	46.5C	
01/16/96	07:51	0.0C	0.0C	46.6C	47.9 ppm NO
01/16/96	07:52	0.0C	3.3C	10.6C	
01/16/96	07:53	0.0C	0.1C	0.4C	
01/16/96	07:54	-1.0C	0.0C	0.3C	
01/16/96	07:55	0.0C	0.0C	29.9C	
01/16/96	07:56	0.0C	0.0C	46.1C	
01/16/96	07:57	0.0C	0.0C	46.4C	
01/16/96	07:58	0.0C	0.0C	46.5C	
01/16/96	07:59	0.0C	0.0C	46.5C	47.9 ppm NO Bias
01/16/96	08:00	0.4C	0.0C	14.0C	
01/16/96	08:01	14.6C	1.6C	0.8C	
01/16/96	08:02	0.0C	0.3C	0.3C	
01/16/96	08:03	5.2C	0.4C	0.2C	zero bias
01/16/96	08:04	12.9C	3.5C	0.5C	
01/16/96	08:05	14.7C	2.9C	0.4C	
01/16/96	08:06	17.2C	3.2C	0.4C	
AVERAGES :		99.2	11.2	39.3	

Change Range on CO monitor to 0-1000 ppm

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ERM SOUTHWEST
NUMBER FOUR DRYER OUTLET DUCT
SILSBEE, TEXAS
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		THC PPM	CO PPM	NOX PPM	
01/16/96	09:26	0.0C	0.0C	0.0C	
01/16/96	09:27	252.6C	0.0C	0.1C	
01/16/96	09:28	256.3C	0.0C	0.1C	
01/16/96	09:29	268.0C	41.8C	0.0C	
01/16/96	09:30	279.0C	330.9C	0.0C	
01/16/96	09:31	274.3C	650.4C	0.0C	
01/16/96	09:32	272.0C	504.0C	0.0C	
01/16/96	09:33	250.2C	466.5C	0.1C	466.5 ppm CO
01/16/96	09:34	261.6C	463.9C	0.0C	
01/16/96	09:35	271.7C	119.1C	0.1C	
01/16/96	09:36	273.3C	0.0C	0.1C	zero
01/16/96	09:37	252.5C	73.7C	0.1C	
01/16/96	09:38	258.5C	238.9C	0.1C	
01/16/96	09:39	249.1C	241.1C	0.1C	242.8 ppm CO
01/16/96	09:40	266.5C	206.8C	0.1C	
01/16/96	09:41	264.3C	8.2C	0.1C	
01/16/96	09:42	258.3C	0.0C	0.1C	
01/16/96	09:43	257.7C	399.5C	0.1C	
01/16/96	09:44	242.9C	927.6C	0.1C	925.3 ppm CO
01/16/96	09:45	258.3C	727.5C	0.1C	
01/16/96	09:46	265.5C	14.1C	0.1C	
01/16/96	09:47	267.8C	25.1C	8.2C	
01/16/96	09:48	259.7C	3.7C	4.2C	
01/16/96	09:49	268.3C	94.3C	3.3C	
01/16/96	09:50	260.3C	218.9C	2.9C	
01/16/96	09:51	257.4C	228.0C	2.8C	
01/16/96	09:52	256.1C	239.0C	2.5C	
01/16/96	09:53	250.5C	240.9C	2.2C	242.8 ppm CO Bias
01/16/96	09:54	253.2C	219.6C	2.0C	
01/16/96	09:55	265.0C	24.9C	1.8C	
01/16/96	09:56	261.9C	1.4C	1.7C	
01/16/96	09:57	224.3C	0.4C	1.5C	
01/16/96	09:58	246.0C	0.0C	1.4C	zero
01/16/96	09:59	259.9C	2.6C	1.3C	
01/16/96	10:00	256.3C	18.0C	6.6C	
01/16/96	10:01	246.8C	58.4C	16.8C	
01/16/96	10:02	236.9C	61.5C	17.0C	
01/16/96	10:03	233.0C	55.7C	16.8C	
01/16/96	10:04	227.2C	51.5C	17.0C	
01/16/96	10:05	225.1C	42.1C	17.3C	
01/16/96	10:06	211.1C	32.7C	17.6C	
01/16/96	10:07	207.8C	26.8C	18.1C	
01/16/96	10:08	190.8C	19.7C	18.2C	
01/16/96	10:09	188.0C	15.9C	17.7C	
01/16/96	10:10	200.0C	17.9C	16.8C	

Run 1 (Part 4)

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Auxiliary Average Report

DCNID : 15 Site Name : ERM SW Aux Interval : 1 Date : 1/16/96

Time	THC PPM	CO PPM	NOX PPM
13:15	208.1000	82.6000	32.7000
13:16	219.5000	94.5000	32.4000
13:17	231.6000	99.1000	32.4000
13:18	220.9000	104.2000	32.2000
13:19	234.9000	101.1000	30.2000
13:20	241.0000	117.5000	30.2000
13:21	247.0000	128.1000	30.2000
13:22	243.8000	161.0000	29.0000
13:23	238.9000	154.1000	28.5000
13:24	239.5000	57.3000	11.4000
13:25	238.7000	5.0000	5.2000
13:26	243.5000	3.7000	4.4000
13:27	244.0000	26.8000	6.9000
13:28	247.1000	197.7000	21.4000
13:29	246.5000	211.6000	22.4000
13:30	236.1000	224.6000	23.6000
13:31	221.8000	247.0000	25.2000
13:32	235.6000	247.1000	26.1000
13:33	232.7000	242.0000	25.0000
13:34	226.3000	203.7000	29.2000
13:35	222.8000	178.5000	29.1000
13:36	205.0000	191.7000	29.6000
13:37	211.1000	195.4000	30.2000
13:38	219.2000	196.3000	29.6000
13:39	218.2000	174.3000	29.7000
13:40	221.7000	160.3000	29.4000
13:41	220.6000	195.0000	29.1000
13:42	214.9000	219.6000	28.2000
13:43	206.6000	192.3000	29.3000
13:44	218.0000	195.3000	28.9000
13:45	219.2000	178.7000	29.0000
13:46	229.4000	203.2000	28.7000
13:47	228.4000	220.5000	28.1000
13:48	218.6000	206.1000	28.8000
13:49	199.7000	181.4000	29.1000
13:50	205.7000	168.2000	28.8000
MAX :	247.1000	247.1000	32.7000
MIN :	199.7000	3.9000	4.4000
AVG :	226.5723	159.6028	26.2833
SCANS:	36	~~36~~ 32	~~36~~ 32

Change Filter on monitor probe

Run 1 (Rpt.)

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Auxiliary Average Report

DCNID : 15 Site Name : ERM SW Aux Interval : 1 Date : 1/16/96

Time	THC PPM	CO PPM	NOX PPM
14:06	211.9000	128.2000	29.7000
14:07	210.2000	127.7000	30.0000
14:08	211.8000	128.9000	29.8000
14:09	213.2000	126.9000	29.6000
14:10	224.3000	127.1000	28.9000
14:11	219.5000	148.1000	28.6000
14:12	222.0000	154.1000	28.1000
14:13	228.3000	141.4000	28.7000
14:14	243.2000	136.7000	28.2000
14:15	243.8000	136.7000	27.8000
14:16	250.7000	167.2000	27.8000
14:17	246.5000	171.4000	27.7000
14:18	240.1000	159.8000	28.4000
14:19	238.9000	144.5000	27.5000
14:20	226.6000	144.4000	27.7000
14:21	240.7000	174.1000	27.1000
14:22	218.0000	179.5000	26.7000
14:23	242.8000	157.6000	27.3000
14:24	237.3000	151.4000	27.2000
14:25	241.9000	126.0000	27.6000
14:26	238.4000	144.3000	26.6000
14:27	224.2000	159.2000	27.3000
14:28	218.2000	149.8000	27.7000
14:29	210.0000	127.8000	27.9000
14:30	216.0000	107.3000	28.8000
14:31	213.1000	118.4000	28.2000
14:32	209.2000	111.5000	27.1000
14:33	199.1000	86.2000	26.8000
14:34	168.7000	69.1000	27.9000
14:35	200.2000	71.7000	27.7000
14:36	203.8000	81.2000	28.0000
14:37	209.8000	83.8000	27.8000
14:38	202.2000	82.7000	27.8000
14:39	201.9000	72.1000	28.5000
14:40	205.8000	88.0000	27.8000
14:41	206.7000	98.2000	27.4000
MAX :	250.7000	179.5000	30.0000
MIN :	168.7000	69.1000	26.6000
AVG :	220.5278	127.3056	27.9917
SCANS:	36	36	36

THC AVG (72) 223.6

(68) AVG 150.8

(68) AVG 28.3

NO_x (67) Avg = 28.3

CO (67) Avg = 150.8

ERM SOUTHWEST
NUMBER FOUR DRYER OUTLET DUCT
SILSBEE, TEXAS
96 11
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		THC PPM	CO PPM	NOX PPM	
01/16/96	15:30	22.2C	0.0C	0.9C	
01/16/96	15:31	0.3C	0.0C	0.7C	zero
01/16/96	15:32	23.8C	0.0C	0.7C	
01/16/96	15:33	144.3C	32.3C	9.3C	
01/16/96	15:34	167.0C	3.9C	2.7C	
01/16/96	15:35	227.1C	0.0C	0.8C	227.5 ppm propane Bias
01/16/96	15:36	132.7C	0.0C	0.7C	
01/16/96	15:37	50.8C	0.0C	0.7C	
01/16/96	15:38	152.7C	0.0C	0.6C	zero
01/16/96	15:39	243.2C	19.4C	1.9C	
01/16/96	15:40	250.7C	210.5C	1.7C	
01/16/96	15:41	261.0C	237.8C	2.0C	242.8 ppm CO Bias
01/16/96	15:42	266.7C	238.6C	2.1C	
01/16/96	15:43	271.1C	202.5C	3.5C	
01/16/96	15:44	272.8C	7.0C	43.8C	
01/16/96	15:45	253.4C	0.0C	45.9C	
01/16/96	15:46	234.6C	0.0C	45.9C	47.9 ppm NO Bias
AVERAGES :		175.0	56.0	9.6	

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ERM SOUTHWEST
NUMBER FOUR DRYER OUTLET DUCT
SILSBEE, TEXAS
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		THC PPM	CO PPM	NOX PPM
01/16/96	15:49	244.3C	2.2C	1.9C
01/16/96	15:50	243.3C	0.0C	1.7C
01/16/96	15:51	232.7C	0.0C	1.7C
01/16/96	15:52	236.0	0.0-	1.6
01/16/96	15:53	218.4	.0-	.5
01/16/96	15:54	215.3	0.0-	1.5
01/16/96	15:55	237.7	0.0-	1.4
01/16/96	15:56	237.3	0.0-	1.5
01/16/96	15:57	234.3	0.0-	1.3
01/16/96	15:58	238.7	0.0-	1.3
01/16/96	15:59	237.8	0.0-	1.7
01/16/96	16:00	221.3	0.0-	1.2
01/16/96	16:01	228.6	.0-	1.1
01/16/96	16:02	255.3	0.0-	1.1
01/16/96	16:03	284.6	0.0-	1.1
01/16/96	16:04	259.5	0.0-	1.1
01/16/96	16:05	237.0	82.3	2.3
01/16/96	16:06	205.8	143.9	21.0
01/16/96	16:07	225.2	137.4	21.5
01/16/96	16:08	228.2	125.5	22.6
01/16/96	16:09	228.6	137.7	23.0
01/16/96	16:10	229.9	140.5	23.1
01/16/96	16:11	223.1	151.9	23.2
01/16/96	16:12	224.7	150.6	24.4
01/16/96	16:13	151.2	158.3	24.2
01/16/96	16:14	227.4	169.4	24.7
01/16/96	16:15	253.8	174.8	25.6
01/16/96	16:16	271.5	192.2	25.0
01/16/96	16:17	281.1	199.2	25.7
01/16/96	16:18	293.5	217.1	26.0
01/16/96	16:19	298.1	240.1	25.8
01/16/96	16:20	288.8	230.4	26.1
01/16/96	16:21	269.7	218.7	26.4
01/16/96	16:22	263.6	213.7	26.3
01/16/96	16:23	263.2	226.3	26.5
01/16/96	16:24	253.7	257.7	26.2
01/16/96	16:25	250.5	210.8	25.8
01/16/96	16:26	249.3	190.4	26.2
01/16/96	16:27	239.8	170.9	26.3
01/16/96	16:28	243.0	48.0	13.0
01/16/96	16:29	252.0	2.5	7.2
01/16/96	16:30	237.6	1.7	6.2
01/16/96	16:31	236.2	~~X.5~~	~~X.1~~
01/16/96	16:32	233.3	97.7	18.3
01/16/96	16:33	226.1	66.5	14.0

Begin Run Formaldehyde

(22)

End 1/2

Start Second 1/2

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ERM SOUTHWEST
NUMBER FOUR DRYER OUTLET DUCT
SILSBEE, TEXAS
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		THC PPM	CO PPM	NOX PPM
01/16/96	16:34	206.3	66.1	12.9
01/16/96	16:35	246.7	62.7	12.8
01/16/96	16:36	254.1	66.0	12.8
01/16/96	16:37	249.6	63.1	13.0
01/16/96	16:38	251.9	79.4	14.6
01/16/96	16:39	241.8	142.0	21.1
01/16/96	16:40	245.1	145.3	21.7
01/16/96	16:41	242.8	151.6	21.1
01/16/96	16:42	218.5	132.0	22.3
01/16/96	16:43	234.8	158.1	22.1
01/16/96	16:44	237.7	161.4	23.9
01/16/96	16:45	239.1	151.3	25.1
01/16/96	16:46	238.0	155.5	26.0
01/16/96	16:47	216.5	155.8	26.9
01/16/96	16:48	234.2	160.9	27.2
01/16/96	16:49	234.2	164.3	27.7
01/16/96	16:50	232.8	154.9	27.4
01/16/96	16:51	212.4	142.3	28.3
01/16/96	16:52	224.2	157.8	27.7
01/16/96	16:53	221.2	154.8	28.7
01/16/96	16:54	232.1	154.4	29.2
01/16/96	16:55	233.9	145.6	29.3
01/16/96	16:56	234.8	138.0	29.7
01/16/96	16:57	243.1	139.4	29.5
01/16/96	16:58	242.8	156.6	30.1
01/16/96	16:59	218.6	159.9	29.6
01/16/96	17:00	206.5	133.1	30.6
01/16/96	17:01	223.0	119.8	31.0
01/16/96	17:02	229.8	110.7	31.1
01/16/96	17:03	237.8	119.9	31.3
01/16/96	17:04	232.5	143.4	30.6
01/16/96	17:05	233.0	127.8	30.9
01/16/96	17:06	227.8	122.0	30.4 End Run
01/16/96	17:07	224.1	110.7	31.0
01/16/96	17:08	217.3	115.2	30.6
01/16/96	17:09	221.7	113.7	30.5
01/16/96	17:10	194.5	106.4	30.6
01/16/96	17:11	223.3	105.4	30.5
01/16/96	17:12	234.6	96.6	30.3
01/16/96	17:13	250.5	105.8	30.4
AVERAGES :		237.1	111.4	19.9

(36)

Total (57)

CO + NOx AUG 151.2 24.8

(72) THC AUG 238.0

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ERM SOUTHWEST
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		THC PPM	CO PPM	NOX PPM	
01/16/96	17:15	251.7C	59.3C	18.9C	
01/16/96	17:16	240.1C	0.2C	7.0C	
01/16/96	17:17	242.6C	0.0C	6.0C	
01/16/96	17:18	240.8C	0.0C	5.2C	
01/16/96	17:19	250.0C	84.0C	4.6C	
01/16/96	17:20	246.2C	235.2C	4.1C	
01/16/96	17:21	237.9C	240.4C	3.7C	
01/16/96	17:22	225.2C	240.7C	3.4C	
01/16/96	17:23	245.8C	240.1C	3.1C	
01/16/96	17:24	254.4C	241.1C	2.9C	
01/16/96	17:25	256.9C	240.8C	2.8C	
01/16/96	17:26	260.9C	208.9C	2.5C	
01/16/96	17:27	233.6C	16.8C	2.3C	
01/16/96	17:28	234.8C	1.2C	30.8C	
01/16/96	17:29	239.7C	0.0C	44.8C	
01/16/96	17:30	250.6C	0.0C	47.2C	47.9 NOx Bias
01/16/96	17:31	176.3C	0.0C	47.1C	
01/16/96	17:32	11.9C	0.0C	9.5C	
01/16/96	17:33	5.6C	0.0C	1.8C	
01/16/96	17:34	3.6C	0.5C	1.9C	
01/16/96	17:35	119.4C	0.2C	1.8C	
01/16/96	17:36	62.2C	0.4C	2.1C	
01/16/96	17:37	0.0C	0.5C	1.8C	
01/16/96	17:38	0.0C	1.4C	1.6C	
01/16/96	17:39	0.0C	0.3C	1.3C	
01/16/96	17:40	10.4C	0.0C	1.2C	
01/16/96	17:41	36.3C	0.0C	0.2C	
01/16/96	17:42	44.1C	0.0C	0.0C	
01/16/96	17:43	33.4C	0.0C	0.0C	Zero
01/16/96	17:44	17.4C	0.0C	0.0C	
01/16/96	17:45	0.0C	0.0C	0.0C	
01/16/96	17:46	81.7C	0.0C	0.0C	
01/16/96	17:47	67.5C	0.0C	0.0C	
01/16/96	17:48	87.3C	0.0C	0.0C	
01/16/96	17:49	216.3C	0.0C	0.0C	
01/16/96	17:50	225.5C	0.0C	0.0C	
01/16/96	17:51	224.1C	0.0C	0.0C	
01/16/96	17:52	114.0C	0.0C	0.0C	
AVERAGES :		143.1	47.7	6.9	

ERM SOUTHWEST
NUMBER FOUR DRYER OUTLET DUCT
SILSBEE, TEXAS
96 11
Page : 1

		THC PPM	CO PPM	NOX PPM	
01/17/96	06:31	0.0C	0.0C	-0.1C	
01/17/96	06:32	0.0C	0.0C	-0.1C	
01/17/96	06:33	0.0C	0.0C	-0.1C	
01/17/96	06:34	0.0C	0.0C	78.2C	
01/17/96	06:35	0.0C	0.0C	85.2C	84.62 ppm NO
01/17/96	06:36	0.0C	0.0C	73.3C	
01/17/96	06:37	0.0C	0.0C	1.1C	
01/17/96	06:38	0.0C	46.8C	0.3C	
01/17/96	06:39	0.0C	442.7C	0.2C	
01/17/96	06:40	0.0C	467.3C	0.1C	zero
01/17/96	06:41	0.0C	467.4C	12.2C	
01/17/96	06:42	0.0C	466.1C	41.4C	466.5 ppm CO
01/17/96	06:43	0.0C	467.7C	41.6C	
01/17/96	06:44	456.8C	417.3C	41.7C	
01/17/96	06:45	984.0C	23.0C	41.8C	
01/17/96	06:46	978.9C	0.0C	41.8C	zero
01/17/96	06:47	979.3C	0.0C	41.8C	
01/17/96	06:48	979.8C	0.0C	41.8C	980.3 ppm propane
01/17/96	06:49	298.1C	25.5C	41.8C	
01/17/96	06:50	0.0C	81.2C	41.8C	zero
01/17/96	06:51	0.0C	79.4C	41.8C	
01/17/96	06:52	0.0C	559.2C	41.9C	
01/17/96	06:53	0.0C	935.1C	41.8C	925.3 ppm CO
01/17/96	06:54	120.0C	905.5C	41.9C	
01/17/96	06:55	466.7C	144.9C	41.9C	- NO_2 to NO converter checks
01/17/96	06:56	467.2C	1.1C	41.9C	0655 - 0725
01/17/96	06:57	467.1C	1.1C	41.9C	
01/17/96	06:58	439.5C	1.1C	41.9C	
01/17/96	06:59	0.0C	137.4C	41.8C	
01/17/96	07:00	0.0C	242.0C	41.9C	
01/17/96	07:01	0.0C	241.6C	41.8C	242.8 ppm CO
01/17/96	07:02	0.0C	241.3C	41.9C	
01/17/96	07:03	443.4C	132.1C	41.8C	
01/17/96	07:04	471.6C	1.1C	41.9C	471.1 ppm propane
01/17/96	07:05	190.8C	0.5C	41.9C	
01/17/96	07:06	0.0C	0.0C	41.9C	
01/17/96	07:07	0.0C	0.0C	41.9C	
01/17/96	07:08	143.2C	0.0C	41.9C	
01/17/96	07:09	227.9C	0.0C	41.9C	
01/17/96	07:10	227.9C	0.0C	41.9C	
01/17/96	07:11	227.9C	0.0C	41.9C	227.5 ppm propane
01/17/96	07:12	61.8C	0.0C	42.0C	
01/17/96	07:13	0.0C	0.0C	41.9C	
01/17/96	07:14	0.0C	0.0C	41.9C	
01/17/96	07:15	0.0C	0.0C	41.8C	

ERM SOUTHWEST
NUMBER FOUR DRYER OUTLET DUCT
SILSBEE, TEXAS
96 11

		THC PPM	CO PPM	NOX PPM	
01/17/96	07:16	0.0C	0.0C	41.8C	
01/17/96	07:17	0.0C	0.0C	41.7C	
01/17/96	07:18	15.2C	0.6C	41.9C	
01/17/96	07:19	44.7C	8.6C	42.0C	
01/17/96	07:20	-0.8C	4.3C	42.0C	
01/17/96	07:21	151.0C	1.8C	41.9C	
01/17/96	07:22	133.3C	1.1C	41.9C	
01/17/96	07:23	10.2C	0.6C	41.9C	
01/17/96	07:24	3.2C	0.0C	42.0C	
01/17/96	07:25	0.0C	0.9C	41.9C	
01/17/96	07:26	0.0C	0.0C	42.0C	
01/17/96	07:27	0.5C	0.0C	41.8C	
01/17/96	07:28	5.8C	0.0C	41.7C	
01/17/96	07:29	9.7C	0.0C	41.7C	
01/17/96	07:30	13.2C	0.0C	41.7C	
01/17/96	07:31	20.1C	0.0C	24.0C	
01/17/96	07:32	20.7C	0.0C	0.5C	
01/17/96	07:33	17.3C	0.0C	7.6C	
01/17/96	07:34	15.5C	0.0C	45.7C	
01/17/96	07:35	14.6C	0.0C	46.9C	47.9 ppm NO
01/17/96	07:36	16.2C	0.0C	43.4C	
01/17/96	07:37	16.0C	0.0C	3.1C	
01/17/96	07:38	17.1C	0.0C	1.1C	
01/17/96	07:39	17.8C	0.0C	0.7C	
01/17/96	07:40	21.7C	0.0C	0.5C	
01/17/96	07:41	26.0C	0.0C	0.4C	
01/17/96	07:42	19.6C	0.0C	0.4C	
01/17/96	07:43	16.6C	0.0C	0.4C	zero bias
01/17/96	07:44	27.7C	56.0C	13.6C	
01/17/96	07:45	16.7C	102.4C	29.5C	
01/17/96	07:46	16.9C	3.0C	46.5C	
01/17/96	07:47	23.6C	0.0C	47.1C	
01/17/96	07:48	19.2C	0.1C	47.3C	47.9 ppm NO Bias
01/17/96	07:49	19.2C	122.3C	18.6C	
01/17/96	07:50	19.0C	237.5C	1.1C	
01/17/96	07:51	17.9C	241.7C	0.5C	
01/17/96	07:52	22.6C	241.7C	0.4C	242.8 ppm CO Bias
01/17/96	07:53	23.9C	240.1C	0.3C	
01/17/96	07:54	21.7C	73.2C	0.3C	
01/17/96	07:55	15.9C	1.6C	0.3C	
01/17/96	07:56	23.4C	0.0C	0.3C	zero bias
01/17/96	07:57	14.8C	0.0C	0.2C	
01/17/96	07:58	11.2C	0.0C	0.2C	
01/17/96	07:59	12.5C	0.0C	0.2C	
01/17/96	08:00	12.2C	0.0C	0.2C	

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Auxiliary Average Report

DCNID : 15 Site Name : ERM SW Aux Interval : 1 Date : 1/17/96

Run 2 (Pairs)

Time	THC PPM	CO PPM	NOX PPM
08:20	175.2000	57.4000	29.3000
08:21	173.0000	51.8000	30.3000
08:22	185.3000	45.9000	31.1000
08:23	188.4000	49.5000	30.8000
08:24	180.8000	56.6000	30.5000
08:25	185.2000	53.8000	31.3000
08:26	183.2000	50.8000	31.6000
08:27	180.5000	48.3000	31.9000
08:28	184.5000	48.4000	31.8000
08:29	187.6000	55.7000	31.4000
08:30	190.2000	53.7000	31.7000
08:31	186.3000	57.2000	31.6000
08:32	185.1000	54.1000	32.1000
08:33	191.4000	55.1000	31.1000
08:34	193.3000	61.4000	31.4000
08:35	195.7000	59.7000	30.7000
08:36	189.3000	56.4000	31.0000
08:37	195.1000	58.7000	30.5000
08:38	207.7000	63.4000	29.7000
08:39	206.8000	62.9000	29.5000
08:40	207.6000	68.7000	29.9000
08:41	206.4000	64.8000	30.5000
08:42	202.5000	66.1000	30.0000
08:43	209.3000	74.2000	29.8000
08:44	211.0000	71.7000	29.7000
08:45	210.0000	74.2000	29.7000
08:46	208.9000	65.3000	30.4000
08:47	218.0000	67.3000	30.4000
08:48	217.2000	76.5000	29.2000
08:49	211.2000	74.1000	29.8000
08:50	214.5000	70.5000	30.1000
08:51	211.2000	70.9000	29.9000
08:52	221.1000	61.9000	30.8000
08:53	221.6000	71.8000	30.2000
08:54	214.8000	69.3000	30.4000
08:55	218.9000	62.2000	30.5000
08:56	209.3000	57.7000	29.0000
08:57	218.0000	26.4000	16.2000
08:58	214.7000	5.8000	8.3000
08:59	223.0000	44.5000	20.8000
09:00	224.5000	64.9000	27.4000
09:01	227.7000	61.5000	28.1000
09:02	235.8000	56.8000	28.6000
09:03	234.8000	69.5000	27.8000
09:04	244.0000	77.2000	28.0000
09:05	232.8000	91.2000	29.3000
09:06	230.9000	89.8000	30.2000
09:07	243.2000	89.4000	29.7000
09:08	245.1000	96.9000	30.0000
09:09	245.8000	103.5000	30.6000
09:10	232.6000	104.9000	30.4000

Port Change

09:13	216.9000	74.0000	32.5000
09:14	210.8000	70.6000	32.3000
09:15	228.2000	68.1000	33.0000
09:16	231.5000	74.1000	32.6000
09:17	228.1000	69.5000	33.0000
09:18	225.9000	68.8000	32.6000
09:19	222.7000	72.8000	30.9000
09:20	219.0000	67.7000	31.0000
09:21	213.7000	62.6000	31.2000
09:22	211.8000	64.2000	31.5000
09:23	201.7000	73.1000	31.2000
09:24	193.8000	71.6000	32.0000
09:25	203.4000	76.4000	32.0000
09:26	203.0000	77.9000	32.5000
09:27	198.8000	87.6000	32.1000
09:28	188.0000	96.5000	31.5000
09:29	183.8000	90.5000	32.4000
09:30	183.6000	95.4000	32.2000
09:31	187.0000	92.2000	32.6000
09:32	181.0000	94.9000	33.0000
09:33	171.9000	105.3000	33.1000
09:34	184.4000	95.9000	33.8000
09:35	193.2000	170.2000	32.8000
09:36	179.4000	141.0000	33.6000
09:37	180.1000	51.5000	15.2000
09:38	172.7000	1.1000	5.0000
09:39	166.6000	1.1000	3.8000
09:40	158.8000	7.6000	4.5000
09:41	159.3000	14.2000	26.8000
09:42	160.2000	56.2000	29.4000
09:43	165.5000	71.2000	28.6000
09:44	164.9000	95.5000	29.0000
09:45	163.5000	88.5000	29.6000
09:46	154.2000	89.1000	30.5000
09:47	164.8000	104.8000	29.8000
09:48	167.1000	99.8000	30.5000
09:49	166.8000	103.2000	30.7000
09:50	165.0000	91.1000	30.3000
09:51	169.4000	92.5000	30.9000
09:52	168.1000	107.3000	30.2000
09:53	169.2000	103.5000	29.9000
09:54	177.7000	118.1000	29.0000
09:55	177.8000	113.5000	30.3000
MAX :	245.8000	170.2000	33.8000
MIN :	154.2000	1.1000	3.8000
AVG :	198.7104	71.9719	29.2531
SCANS:	~~95~~ 92	96	96

change Out in stack Filter

THC 197.9

Avg. 76.9 (87) ✓ 76.9

Avg 30.79 (87) ✓ 30.8

ERM SOUTHWEST
NUMBER FOUR DRYER OUTLET DUCT
SILSBEE, TEXAS
96 11
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		THC PPM	CO PPM	NOX PPM	
01/17/96	09:49	166.8	103.2	30.7	
01/17/96	09:50	165.0	91.1	30.3	
01/17/96	09:51	169.4	92.5	30.9	
01/17/96	09:52	168.1	107.3	30.2	
01/17/96	09:53	169.2	105.5	29.9	
01/17/96	09:54	177.7	118.1	29.0	
01/17/96	09:55	177.8	113.5	30.3	
01/17/96	09:56	172.6	86.0	31.5	
01/17/96	09:57	171.8	83.2	31.3	
01/17/96	09:58	161.7	68.6	32.7	
01/17/96	09:59	170.5	62.7	31.8	
01/17/96	10:00	172.0	60.0	31.8	
01/17/96	10:01	173.0	62.1	31.5	
01/17/96	10:02	176.6	72.8	31.1	
01/17/96	10:03	179.7	61.2	32.0	
01/17/96	10:04	178.9	56.2	32.0	
01/17/96	10:05	182.0	57.6	31.3	
01/17/96	10:06	188.3	56.2	31.0	
01/17/96	10:07	194.4	56.1	31.7	
01/17/96	10:08	197.2	68.9	30.8	
01/17/96	10:09	47.5	62.0	27.7	
01/17/96	10:10	3.2	5.4	1.1	
01/17/96	10:11	-0.2	0.0-	0.3	
01/17/96	10:12	0.0-	0.0-	0.2	
01/17/96	10:13	205.8	0.5	1.4	
01/17/96	10:14	272.8	0.2	0.3	zero bias
01/17/96	10:15	257.2	0.0	0.1	Zero bias 227.5 ppm propane Bias
01/17/96	10:16	131.8	13.8	7.2	
01/17/96	10:17	36.5C	180.5C	9.3C	
01/17/96	10:18	25.5C	240.6C	6.5C	
01/17/96	10:19	21.1C	241.5C	5.5C	
01/17/96	10:20	18.5C	241.1C	4.8C	242.8 ppm CO bias
01/17/96	10:21	56.9C	230.1C	5.5C	
01/17/96	10:22	201.2C	36.2C	46.0C	47.9 ppm NO bias.
01/17/96	10:23	218.7C	0.1C	49.6C	
01/17/96	10:24	221.7C	0.0C	49.4C	
01/17/96	10:25	217.7C	0.6C	40.8C	
01/17/96	10:26	213.5C	0.3C	3.9C	
01/17/96	10:27	220.7C	0.0C	2.5C	
01/17/96	10:28	231.5C	0.0C	2.3C	
01/17/96	10:29	233.8C	0.0C	2.1C	
01/17/96	10:30	234.7C	0.0C	1.9C	
01/17/96	10:31	222.2C	0.0C	1.8C	
01/17/96	10:32	215.6C	0.5C	1.6C	
01/17/96	10:33	217.8C	2.3C	1.7C	

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Auxiliary Average Report

DCNID : 15 Site Name : ERM SW Aux Interval : 1 Date : 1/17/96

Run 2 (Form.)

Time	THC PPM	CO PPM	NOX PPM	
12:10	212.4000	38.0000	14.6000	↓ Begin Run 2 Form. (A)
12:11	207.9000	6.8000	4.3000	
12:12	205.5000	5.3000	3.5000	
12:13	205.2000	9.7000	3.1000	
12:14	201.8000	8.5000	2.7000	
12:15	203.2000	4.5000	2.4000	
12:16	209.6000	37.6000	12.5000	
12:17	213.7000	99.2000	24.7000	
12:18	211.0000	104.1000	26.8000	
12:19	221.5000	120.6000	26.6000	
12:20	227.3000	131.3000	28.7000	
12:21	224.3000	136.1000	30.2000	
12:22	224.0000	132.1000	31.0000	
12:23	210.5000	141.8000	30.7000	
12:24	221.3000	155.2000	31.2000	
12:25	250.1000	170.9000	31.7000	
12:26	255.5000	166.1000	31.8000	
12:27	253.3000	153.2000	32.0000	
12:28	261.4000	146.7000	31.9000	↑
12:29	260.1000	159.5000	31.3000	
12:30	244.3000	134.8000	32.1000	
12:31	244.2000	124.0000	31.9000	
12:32	249.7000	119.7000	32.0000	
12:33	251.6000	105.1000	32.8000	
12:34	251.0000	118.0000	34.0000	
12:35	241.2000	111.6000	34.7000	
12:36	225.4000	109.4000	35.4000	
12:37	227.1000	116.0000	36.4000	
12:38	232.1000	116.3000	37.4000	
12:39	241.4000	108.0000	37.8000	
12:40	241.9000	132.0000	30.0000	
12:41	248.7000	126.4000	17.8000	
12:42	254.1000	116.6000	14.4000	
12:43	252.5000	114.4000	13.2000	
12:44	244.9000	111.8000	12.6000	
12:45	239.2000	111.2000	12.3000	
12:46	241.5000	99.6000	11.8000	
12:47	235.7000	94.3000	11.7000	
12:48	221.9000	89.6000	11.6000	
12:49	195.5000	82.8000	11.0000	
12:50	194.1000	76.1000	10.5000	
12:51	196.2000	70.7000	10.2000	
12:52	204.4000	65.0000	10.3000	
12:53	242.9000	63.4000	10.3000	
12:54	239.4000	66.8000	10.8000	
12:55	232.0000	66.2000	10.4000	
12:56	222.9000	63.8000	10.5000	
12:57	204.6000	57.0000	11.2000	
12:58	205.3000	45.4000	11.6000	
12:59	188.2000	39.8000	11.4000	
13:00	193.4000	37.5000	11.0000	

14:09	182.6000	103.6000	26.3000
14:10	182.1000	91.5000	28.1000
14:11	181.7000	87.7000	27.4000
14:12	184.6000	92.3000	27.1000
14:13	190.9000	97.3000	27.1000
14:14	189.7000	99.3000	26.6000
14:15	193.4000	91.8000	27.0000
14:16	195.9000	91.7000	26.6000
14:17	188.5000	89.9000	27.6000
14:18	184.9000	93.0000	27.5000
14:19	190.0000	87.0000	28.0000
14:20	181.3000	85.2000	28.5000
14:21	179.8000	81.2000	28.5000
14:22	184.5000	77.3000	28.6000
14:23	183.5000	83.9000	29.3000
14:24	187.2000	75.1000	27.4000
14:25	203.8000	14.9000	8.6000
14:26	196.3000	5.5000	6.1000
14:27	178.1000	4.8000	5.9000
14:28	184.3000	49.1000	22.8000
14:29	176.2000	77.3000	28.4000
14:30	197.9000	69.9000	29.2000
14:31	223.1000	68.0000	30.5000
14:32	226.8000	63.9000	30.9000
14:33	224.7000	66.1000	30.9000
14:34	196.9000	68.0000	27.1000
14:35	168.8000	41.4000	20.0000
14:36	173.1000	8.8000	5.7000
14:37	153.6000	8.5000	3.8000
14:38	124.8000	5.7000	3.4000
14:39	68.8000	3.7000	3.2000
14:40	63.8000	5.9000	3.2000
14:41	64.8000	4.0000	3.0000
14:42	76.6000	4.9000	2.9000
14:43	43.4000	6.4000	2.7000
14:44	32.7000	7.2000	2.7000
14:45	34.0000	3.5000	2.5000
14:46	~~35.1000~~	43.7000	16.9000
14:47	145.2000	73.5000	24.7000
14:48	164.3000	71.3000	25.6000
14:49	166.6000	69.1000	26.5000
14:50	175.6000	74.4000	26.3000
14:51	172.9000	81.4000	26.2000
14:52	165.7000	83.4000	26.2000
14:53	163.6000	80.0000	27.2000
14:54	172.1000	72.8000	27.7000
14:55	184.1000	68.3000	27.4000
14:56	193.3000	75.4000	27.2000
14:57	195.9000	83.7000	27.1000
14:58	187.1000	76.4000	27.5000
14:59	188.0000	68.0000	28.2000
15:00	188.6000	71.4000	27.9000
15:01	197.7000	75.1000	27.9000
15:02	190.9000	80.0000	29.1000
15:03	173.5000	65.9000	29.2000
15:04	74.5000	61.7000	29.5000
15:05	77.0000	63.6000	29.1000
15:06	78.9000	63.4000	28.1000
15:07	80.2000	64.7000	28.5000
15:08	56.6000	63.1000	28.7000
15:09	68.1000	59.0000	29.3000
15:10	71.9000	67.7000	28.2000
15:11	77.5000	63.6000	28.7000

Pump ON 1410

(10)

Pump Off 1419

Bad Point left out of AVG.

Pump ON 1446

(15) LO+MO+

(14) THC

Pump Off 1500

ERM SOUTHWEST
NUMBER FOUR DRYER OUTLET DUCT
SILSBEE, TEXAS
96 11
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		THC PPM	CO PPM	NOX PPM	
01/17/96	16:06	299.6C	0.0C	3.1C	
01/17/96	16:07	294.5C	0.0C	2.9C	
01/17/96	16:08	297.2C	49.6C	2.7C	
01/17/96	16:09	296.0C	233.0C	2.6C	
01/17/96	16:10	282.1C	241.2C	2.5C	
01/17/96	16:11	291.5C	241.5C	2.3C	
01/17/96	16:12	295.8C	242.0C	2.3C	
01/17/96	16:13	304.3C	242.1C	2.2C	242.8 ppm CO Bias
01/17/96	16:14	305.5C	171.5C	16.4C	
01/17/96	16:15	297.3C	3.3C	46.9C	
01/17/96	16:16	302.1C	0.0C	47.8C	zero
01/17/96	16:17	303.0C	0.0C	47.9C	47.9 ppm NO Bias
01/17/96	16:18	308.5C	0.5C	16.0C	
01/17/96	16:19	205.3C	4.6C	7.0C	
01/17/96	16:20	16.3C	75.1C	21.9C	
01/17/96	16:21	10.5C	4.7C	0.5C	
01/17/96	16:22	120.2C	0.0C	0.3C	
01/17/96	16:23	230.5C	0.0C	0.2C	227.5 ppm propane bias
01/17/96	16:24	103.9C	0.0C	0.2C	zero
01/17/96	16:25	3.5C	0.0C	0.1C	
01/17/96	16:26	83.4C	0.8C	0.1C	
01/17/96	16:27	405.8C	69.1C	21.2C	
01/17/96	16:28	417.1C	89.7C	25.0C	
01/17/96	16:29	418.6C	95.9C	25.0C	
01/17/96	16:30	356.2C	88.0C	25.4C	
01/17/96	16:31	398.7C	94.8C	26.1C	
AVERAGES :		255.7	74.9	13.4	

Auxiliary Average Report

DCNID : 15 Site Name : ERM SW Aux Interval : 1 Date : 1/17/96

Run #3 (Part)

Time	THC PPM	CO PPM	NOX PPM	
17:50	316.2000	358.7000	27.5000	Start Run 3
17:51	314.3000	385.4000	28.9000	
17:52	324.5000	417.0000	30.4000	
17:53	331.5000	482.9000	32.3000	
17:54	337.2000	537.3000	33.8000	(16)
17:55	334.2000	634.3000	36.0000	
17:56	335.0000	637.8000	37.0000	
17:57	321.9000	657.8000	36.3000	
17:58	318.9000	666.5000	36.9000	
17:59	325.6000	773.5000	36.7000	
18:00	314.0000	901.0000	37.6000	
18:01	305.8000	866.2000	36.8000	
18:02	202.4000	731.7000	34.7000	
18:03	157.3000	554.5000	33.1000	
18:04	349.3000	398.2000	32.1000	
18:05	348.2000	302.3000	31.7000	Pump Off 1805
18:06	341.1000	197.1000	32.0000	
18:07	327.2000	112.2000	32.9000	
18:08	308.5000	70.6000	34.5000	
18:09	313.9000	82.0000	34.3000	
18:10	166.9000	199.9000	33.5000	
18:11	94.9000	75.3000	34.4000	
18:12	396.3000	89.8000	33.4000	
18:13	413.5000	117.3000	33.2000	
18:14	431.8000	155.5000	31.6000	
18:15	445.4000	187.1000	30.7000	
18:16	457.6000	224.4000	32.4000	
18:17	484.6000	313.1000	33.8000	
18:18	441.1000	426.2000	34.0000	
18:19	385.3000	465.8000	35.9000	
18:20	407.1000	472.4000	36.9000	
18:21	422.4000	560.8000	38.6000	
18:22	466.7000	606.5000	39.1000	
18:23	451.6000	768.7000	38.7000	
18:24	448.0000	831.7000	39.8000	Pump On 1825
18:25	419.7000	824.8000	40.1000	
18:26	406.0000	734.3000	40.6000	
18:27	396.3000	759.5000	41.7000	
18:28	393.3000	774.1000	41.6000	
18:29	411.9000	805.1000	41.6000	
18:30	385.1000	808.0000	40.8000	
18:31	384.0000	653.0000	39.0000	
18:32	367.6000	581.0000	38.3000	(17)
18:33	386.8000	489.9000	38.1000	
18:34	374.9000	481.2000	37.4000	
18:35	370.3000	478.3000	37.4000	
18:36	367.8000	372.1000	37.0000	
18:37	333.1000	325.0000	37.0000	
18:38	322.8000	309.0000	36.4000	Pump Off 1838

18:41	178.3000	906.9000	35.8000	
18:42	166.4000	911.0000	35.7000	
18:43	87.4000	991.9000	27.6000	Run 3 Part
18:44	64.8000	466.9000	21.2000	
18:45	58.7000	194.5000	18.8000	
18:46	89.6000	128.8000	18.3000	
18:47	146.4000	108.9000	28.0000	
18:48	207.7000	58.9000	37.9000	
18:49	217.6000	120.2000	28.9000	
18:50	207.5000	144.2000	27.2000	
18:51	227.4000	48.8000	32.1000	
18:52	243.4000	42.7000	31.1000	
18:53	253.4000	51.4000	29.9000	
18:54	241.1000	62.3000	29.7000	
18:55	247.3000	70.1000	29.5000	
18:56	251.9000	67.4000	29.4000	
18:57	257.2000	74.4000	29.3000	
18:58	274.4000	82.4000	29.5000	
18:59	271.8000	108.4000	29.3000	
19:00	272.1000	115.5000	30.5000	
19:01	278.4000	104.1000	31.0000	
19:02	270.1000	120.3000	30.8000	
19:03	260.5000	112.0000	31.3000	
19:04	353.4000	91.5000	31.9000	
19:05	272.0000	125.4000	30.0000	
19:06	281.7000	128.9000	30.9000	
19:07	287.3000	155.5000	30.6000	
19:08	288.9000	187.8000	30.6000	
19:09	297.8000	211.1000	31.4000	
19:10	298.6000 ↓	241.4000	31.4000	↓ Pump On 1910
19:11	303.9000	243.3000	32.2000	
19:12	288.7000	265.8000	32.0000	
19:13	282.0000	288.7000	32.5000	(9)
19:14	273.8000	297.6000	32.9000	
19:15	276.3000	230.5000	33.4000	
19:16	260.6000	205.3000	32.8000	
19:17	248.1000	165.6000	34.3000	
19:18	246.2000	111.3000	35.5000	↑ Pump Off 1918
19:19	239.4000	104.7000	35.1000	
19:20	229.8000	69.2000	24.3000	
19:21	222.4000	8.0000	8.1000	
19:22	224.0000	1.5000	5.8000	
19:23	228.6000	0.5000	5.0000	
19:24	223.0000	15.0000	12.8000	
19:25	221.0000	52.8000	28.8000	
19:26	220.2000	55.3000	31.6000	
19:27	218.8000 ↓	56.2000	32.8000	↓ Pump On 1927
19:28	213.6000	57.6000	33.1000	
19:29	212.1000	60.4000	32.6000	
19:30	213.7000	59.2000	32.7000	
19:31	209.4000	64.4000	32.4000	
19:32	207.1000	65.3000	33.3000	
19:33	209.6000	58.2000	33.1000	(16)
19:34	208.2000	65.9000	33.2000	
19:35	217.6000	63.6000	33.4000	
19:36	222.4000	72.7000	32.2000	
19:37	225.6000	81.7000	32.5000	
19:38	225.9000	90.1000	31.7000	
19:39	220.2000	95.0000	31.6000	
19:40	222.5000	85.3000	32.2000	
19:41	212.7000	85.7000	32.1000	
19:42	212.7000	91.2000	32.7000	↑ Pump Off 1942
19:43	209.4000	92.1000	32.7000	
19:44	205.3000	86.8000	32.9000	

19:47	206.7000	92.9000	32.3000
19:48	196.9000	101.7000	31.7000
19:49	181.5000	97.1000	32.2000
19:50	185.8000	92.1000	32.3000
19:51	191.2000	95.9000	32.4000
19:52	198.6000	91.1000	33.1000
19:53	187.1000	83.5000	33.1000
19:54	184.8000	69.9000	33.6000
19:55	183.6000	66.7000	33.1000
19:56	181.8000	66.4000	33.1000
19:57	185.0000	63.6000	33.4000
19:58	188.4000	73.1000	32.6000
19:59	195.0000	77.2000	32.7000
20:00	202.0000	67.1000	32.5000
20:01	199.5000	77.9000	32.6000
20:02	191.5000	79.5000	32.0000
20:03	192.3000	80.7000	31.7000
20:04	191.6000	89.6000	32.1000
20:05	195.5000	82.1000	32.0000
20:06	239.1000	81.1000	32.4000
20:07	201.9000	87.1000	32.1000
20:08	203.4000	94.1000	30.7000
20:09	209.4000	102.1000	30.0000
20:10	211.2000	111.6000	30.8000
20:11	215.1000	111.5000	31.2000
20:12	208.9000	116.3000	31.1000
20:13	204.6000	103.4000	31.8000
20:14	209.7000	98.7000	32.0000
20:15	203.5000	98.1000	32.0000
20:16	205.3000	92.2000	32.1000
20:17	201.9000	88.8000	31.5000
20:18	196.1000	79.8000	32.3000
20:19	192.8000	72.3000	32.5000
20:20	194.0000	63.0000	32.9000
20:21	196.3000	69.8000	32.6000
20:22	187.7000	70.1000	32.6000
20:23	188.4000	65.6000	32.9000
20:24	195.0000	61.7000	32.9000
20:25	193.2000	71.9000	31.5000
20:26	189.9000	72.9000	31.5000
20:27	188.2000	70.4000	32.2000
20:28	187.1000	64.7000	31.8000
20:29	126.9000	66.1000	32.0000
20:30	156.8000	251.6000	31.1000
20:31	186.5000	159.0000	30.7000
20:32	190.7000	114.4000	27.5000
20:33	191.8000	129.9000	28.6000
20:34	192.3000	124.3000	28.2000
20:35	192.3000	115.7000	29.1000
20:36	194.6000	103.8000	29.5000
20:37	190.8000	102.9000	29.4000
20:38	190.4000	96.4000	30.5000
20:39	191.1000	91.4000	30.6000
20:40	193.4000	88.1000	30.8000
20:41	194.5000	86.6000	30.5000
20:42	196.8000	81.2000	30.7000
20:43	198.4000	87.7000	30.5000
20:44	196.9000	91.2000	30.1000
20:45	192.8000	86.6000	31.0000
20:46	193.8000	75.3000	31.2000
20:47	196.1000	74.2000	31.1000
20:48	198.1000	71.4000	31.1000
20:49	196.5000	71.3000	31.0000
20:50	201.7000	69.9000	31.0000

Run 3 Part

Pump ON 2010

(15)

Pump Off 2024

Run 3 Part.

20:54	218.2000	125.1000	30.0000
20:55	215.7000	146.0000	30.2000
20:56	219.7000	142.9000	31.0000
20:57	219.6000	142.3000	30.7000
20:58	221.9000	147.9000	30.8000
20:59	211.0000	154.7000	30.5000
21:00	206.9000	150.2000	31.3000
21:01	203.9000	123.3000	32.4000
21:02	205.9000	102.5000	32.9000
21:03	208.0000	98.4000	33.0000
21:04	213.9000	94.5000	33.0000
21:05	213.7000	108.4000	32.5000
21:06	213.9000	108.3000	32.4000
21:07	211.1000	110.3000	32.4000
21:08	209.5000	103.3000	32.7000
21:09	268.9000	96.5000	33.3000
21:10	266.5000	81.1000	32.0000
21:11	272.0000	79.7000	31.4000
21:12	276.0000	87.6000	31.3000
21:13	278.6000	88.8000	31.3000
21:14	278.8000	87.5000	31.2000
21:15	280.1000	83.8000	31.4000
21:16	281.0000	77.6000	31.9000
21:17	287.3000	81.3000	31.8000
21:18	289.6000	88.4000	31.9000
21:19	280.7000	79.1000	32.2000
21:20	244.6000	26.9000	38.5000
21:21	253.3000	32.7000	32.4000
21:22	271.2000	72.9000	29.3000
21:23	278.2000	89.5000	29.4000
21:24	282.4000	104.3000	29.3000
21:25	285.2000	108.3000	29.8000
21:26	291.3000	113.9000	28.9000
21:27	296.4000	123.1000	29.7000
21:28	296.0000	135.8000	29.9000
21:29	291.3000	108.9000	30.4000
21:30	286.8000	98.4000	30.5000
21:31	278.6000	84.3000	29.9000
21:32	267.2000	66.9000	31.4000
21:33	268.5000	49.9000	32.3000
21:34	276.6000	34.9000	33.5000
21:35	273.6000 ↓	28.7000	34.1000
21:36	274.4000	25.9000	33.8000
21:37	271.9000	24.1000	34.4000
21:38	273.7000	24.1000	34.3000
21:39	276.1000	23.0000	34.7000
21:40	278.4000	22.7000	34.9000
21:41	282.2000	23.5000	34.6000
21:42	285.7000	26.0000	34.3000 ↑
MAX :	484.6000	991.9000	41.7000
MIN :	58.7000	0.5000	5.0000
AVG :	253.0927	191.3442	31.9888
SCANS:	233	233	233

Pump on 2135

(8)

Pump off 2142

Total
(98)

THC
274.5

CO
297.2

NOx
34.2

AVG: 275.03

49.76 #/hr

ERM SOUTHWEST
NUMBER FOUR DRYER OUTLET DUCT
SILSBEE, TEXAS
96 11
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		THC PPM	CO PPM	NOX PPM	
01/17/96	21:47	3.6C	0.0C	0.4C	
01/17/96	21:48	2.8C	0.0C	0.4C	
01/17/96	21:49	203.7C	0.0C	0.4C	
01/17/96	21:50	229.7C	0.0C	0.4C	227.5 ppm propane
01/17/96	21:51	218.7C	0.0C	0.3C	
01/17/96	21:52	2.8C	0.0C	0.2C	
01/17/96	21:53	1.6C	0.0C	0.2C	200
01/17/96	21:54	1.4C	0.0C	0.2C	
01/17/96	21:55	1.2C	0.0C	0.2C	250
01/17/96	21:56	1.1C	0.0C	0.2C	
01/17/96	21:57	31.1C	0.0C	0.5C	
01/17/96	21:58	41.4C	0.0C	2.8C	
01/17/96	21:59	35.3C	5.4C	2.3C	
01/17/96	22:00	32.4C	181.0C	2.2C	
01/17/96	22:01	30.4C	242.2C	2.1C	
01/17/96	22:02	28.6C	241.9C	2.0C	
01/17/96	22:03	25.3C	151.6C	24.3C	
01/17/96	22:04	16.5C	2.2C	46.7C	
01/17/96	22:05	0.0C	0.0C	47.4C	47.9 NOx Bzs
01/17/96	22:06	0.0C	0.0C	47.4C	
01/17/96	22:07	0.0C	0.0C	34.3C	
01/17/96	22:08	0.0C	0.0C	3.2C	
01/17/96	22:09	0.0C	0.0C	2.2C	
01/17/96	22:10	0.0C	0.0C	2.0C	
AVERAGES :		37.9	34.3	9.3	

Dryer Number 5 Outlet Duct - Particulate
Oxides of Nitrogen
Concentration

Run Number	Measured (ppm)	Adjusted (ppm*)
1	31.2	30.1
2	29.4	29.2
3	24.2	23.8

*Calculated according to equation 6C-1.

Dryer Number 5 Outlet Duct - Formaldehyde
Oxides of Nitrogen
Concentration

Run Number	Measured (ppm)	Adjusted (ppm*)
1	27.0	24.9
2	29.7	28.2

*Calculated according to equation 6C-1.

Dryer Number 5 Outlet Duct - Particulate
Calibration Summary
Oxides of Nitrogen

Run Number	NOx Calibration Initial Drift Check (ppm)	NOx Calibration Final Drift Check (ppm)	NOx Calibration Average (ppm)	NOx Zero Initial Drift Check (ppm)	NOx Zero Final Drift Check (ppm)	NOx Zero Average (ppm)	Actual NOx Calibration Value (ppm)	Actual NOx Zero Value (ppm)
1	45.8	47.7	46.8	0.5	2.4	1.5	45.9	0.0
2	45.0	46.5	45.8	0.1	1.2	0.7	45.9	0.0
3	45.7	45.6	45.7	0.6	1.3	1.0	45.9	0.0

ENVIRONMENTAL

Dryer Number 5 Outlet Duct - Formaldehyde
Calibration Summary
Oxides of Nitrogen

Run Number	NOx Calibration Initial Drift Check (ppm)	NOx Calibration Final Drift Check (ppm)	NOx Calibration Average (ppm)	NOx Zero Initial Drift Check (ppm)	NOx Zero Final Drift Check (ppm)	NOx Zero Average (ppm)	Actual NOx Calibration Value (ppm)	Actual NOx Zero Value (ppm)
1	47.7	48.3	48.0	2.4	1.8	2.1	45.9	0.0
2	46.5	47.6	47.1	1.2	2.6	1.9	45.9	0.0

ENVIRONMENTAL

MONITOR AND CALIBRATION GAS INFORMATION SHEET

JOB NUMBER: 96-11 DATE: 1/16/96
JOB NAME: ERM Southwest SOURCE NAME: #5 Dryer ~~St~~ Outlet Stack
JOB LOCATION: Silsbee, TX

MONITOR('S) OPERATED

___O2 ✓NOX ✓CO ✓THC ___SO2 ___CO2 ___( ) ___( )

NO2 to NO Converter Check Performed: ✓YES ___NO ___N/A

MONITOR: NOx RANGE('S): 0-100 ppm S/N: 10AR-21199-196 MONITOR #: 8
MANUFACTURER & MODEL: TECO Model 10

CALIBRATION GASES:

(%) or (ppm)	cylinder number	(%) or (ppm)	cylinder number
~~469.0~~	~~BLM000407~~	84.63	BAL5200
~~84.61~~	~~BLM001502~~	20.09	BAL4088
~~245~~	~~56911630OALD1~~	45.85	BAL1763

MONITOR: CO RANGE('S): 0-500 ppm S/N: 48-23618-211 MONITOR #: 8
MANUFACTURER & MODEL: TECO Model 48

CALIBRATION GASES:

(%) or (ppm)	cylinder number	(%) or (ppm)	cylinder number
469.0	BLM000407		
84.61	BLM001502		
245	56911630OALD1		

MONITOR: THC RANGE('S): 0-1000 ppm S/N: 968 & 591 MONITOR #: 8
MANUFACTURER & MODEL: J.U.M. VE-7

CALIBRATION GASES:

(%) or (ppm)	cylinder number	(%) or (ppm)	cylinder number
979.5	CAL12660		
249.8	CAL8004		
475.1	BLM004121		

MONITOR:_____ RANGE('S):_____ S/N:_____ MONITOR #:___
MANUFACTURER & MODEL:

CALIBRATION GASES:

(%) or (ppm)	cylinder number	(%) or (ppm)	cylinder number

MONITOR:_____ RANGE('S):_____ S/N:_____ MONITOR #:___
MANUFACTURER & MODEL:

CALIBRATION GASES:

(%) or (ppm)	cylinder number	(%) or (ppm)	cylinder number

96 11
ERM SOUTHWEST AT LOUISIANA PACIFIC
SILSBEE, TEXAS
NUMBER 5 DRYER OUTLET STACK
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Heated Line: 245° F
Leak Check Good @ 15" Hg: 0.0

Jim Rabun

		THC PPM	CO PPM	NOX PPM	
01/16/96	06:44	22.0C	0.0C	-2.5C	
01/16/96	06:45	38.6C	0.0C	-2.6C	
01/16/96	06:46	87.4C	0.0C	-2.6C	
01/16/96	06:47	86.0C	0.3C	0.1C	
01/16/96	06:48	83.2C	70.0C	0.0C	
01/16/96	06:49	79.9C	85.2C	0.0C	
01/16/96	06:50	77.6C	73.0C	18.8C	
01/16/96	06:51	74.9C	2.0C	63.4C	
01/16/96	06:52	72.1C	0.2C	83.1C	
01/16/96	06:53	67.5C	14.5C	43.9C	
01/16/96	06:54	59.9C	83.8C	0.3C	
01/16/96	06:55	38.8C	85.2C	0.3C	
01/16/96	06:56	36.1C	60.1C	51.7C	
01/16/96	06:57	33.8C	0.4C	84.3C*	84.63 ppm NOx
01/16/96	06:58	31.3C	1.4C	60.1C	
01/16/96	06:59	28.1C	16.5C	0.4C	
01/16/96	07:00	25.8C	16.9C	0.3C	
01/16/96	07:01	24.2C	15.0C	9.8C	
01/16/96	07:02	22.1C	0.7C	20.2C	
01/16/96	07:03	19.7C	0.4C	20.2C*	20.09 ppm NOx
01/16/96	07:04	16.7C	16.6C	5.8C	
01/16/96	07:05	12.8C	41.8C	0.3C	
01/16/96	07:06	10.0C	41.8C	0.3C	
01/16/96	07:07	9.2C	41.8C	0.3C	
01/16/96	07:08	7.5C	41.8C	0.3C	
01/16/96	07:09	5.7C	8.0C	0.3C	
01/16/96	07:10	4.8C	0.6C	0.6C	
01/16/96	07:11	1.9C	1.5C	0.6C	
01/16/96	07:12	0.0C	1.5C	0.5C	
01/16/96	07:13	0.0C	1.5C	0.5C	
01/16/96	07:14	0.0C	1.5C	0.5C	
01/16/96	07:15	0.0C	1.5C	0.5C	
01/16/96	07:16	-0.1C	1.6C	0.5C	
01/16/96	07:17	1.7C	1.6C	0.5C	
01/16/96	07:18	-0.3C	1.4C	8.8C	
01/16/96	07:19	-0.3C	0.4C	19.2C	
01/16/96	07:20	-0.3C	23.1C	11.2C	
01/16/96	07:21	0.1C	5.3C	45.2C*	45.85 ppm NOx
01/16/96	07:22	776.4C	0.0C	25.6C	
01/16/96	07:23	983.2C	0.1C	0.3C	
01/16/96	07:24	978.5C*	0.3C	0.4C	979.5 ppm propane Bias
01/16/96	07:25	978.1C	21.4C	0.2C	
01/16/96	07:26	341.4C	40.9C	0.2C	
01/16/96	07:27	2.8C	40.9C	0.2C	
01/16/96	07:28	229.5C	40.9C	0.2C	

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ERM SOUTHWEST AT LOUISIANA PACIFIC
SILSBEE, TEXAS
NUMBER 5 DRYER OUTLET STACK

		THC PPM	CO PPM	NOX PPM	
01/16/96	07:29	245.7C*	32.6C	21.6C	245 249.8 ppm propane Bias
01/16/96	07:30	238.4C	0.6C	43.8C	
01/16/96	07:31	169.0C	0.0C	44.0C	
01/16/96	07:32	1.8C	0.0C	44.1C*	45.85 ppm NOx Bias
01/16/96	07:33	78.5C	0.0C	8.9C	
01/16/96	07:34	469.0C	0.1C	0.3C	
01/16/96	07:35	490.1C	0.1C	0.3C	
01/16/96	07:36	473.8C*	0.2C	0.3C	475.1 ppm propane Bias
01/16/96	07:37	466.7C	0.1C	0.2C	Zero
01/16/96	07:38	237.7C	0.2C	0.3C	
01/16/96	07:39	1.9C	0.7C	0.4C	
01/16/96	07:40	1.0C	0.7C	6.4C	
01/16/96	07:41	0.8C Zero	0.7C	20.4C	
01/16/96	07:42	106.0C	0.7C	20.0C	Begin NOx Convertor check
01/16/96	07:43	225.3C	0.7C	20.0C	45.85 ppm NOx + Zero Air
01/16/96	07:44	221.6C	0.7C	20.0C	
01/16/96	07:45	218.1C	0.7C	20.0C	
01/16/96	07:46	219.5C	0.7C	20.0C	
01/16/96	07:47	209.2C	0.6C	19.9C	
01/16/96	07:48	202.5C	0.7C	20.1C	
01/16/96	07:49	123.9C	0.7C	20.2C	
01/16/96	07:50	19.2C	0.6C	20.2C	
01/16/96	07:51	24.0C	0.6C	20.2C	
01/16/96	07:52	27.6C	0.6C	20.2C	
01/16/96	07:53	29.6C	0.6C	20.2C	
01/16/96	07:54	30.8C	0.6C	20.2C	
01/16/96	07:55	29.6C	0.6C	20.1C	
01/16/96	07:56	28.3C	0.6C	20.1C	
01/16/96	07:57	27.0C	0.6C	20.1C	
01/16/96	07:58	26.1C	0.6C	20.1C	
01/16/96	07:59	25.4C	0.6C	20.1C	
01/16/96	08:00	24.4C	0.6C	20.1C	
01/16/96	08:01	22.6C	0.6C	20.1C	
01/16/96	08:02	21.0C	0.6C	20.1C	
01/16/96	08:03	20.2C	0.6C	20.1C	
01/16/96	08:04	19.8C	0.6C	20.1C	
01/16/96	08:05	19.3C	0.6C	20.1C	
01/16/96	08:06	18.8C	0.6C	20.1C	
01/16/96	08:07	18.0C	0.6C	20.1C	
01/16/96	08:08	17.5C	0.6C	20.1C	
01/16/96	08:09	17.1C	0.6C	20.1C	
01/16/96	08:10	16.5C	0.6C	20.1C	
01/16/96	08:11	15.9C	0.6C	20.1C	
01/16/96	08:12	15.5C	0.6C	20.1C	End NOx Convertor check
01/16/96	08:13	14.9C	0.6C	20.1C	

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ERM SOUTHWEST AT LOUISIANA PACIFIC
SILSBEE, TEXAS
NUMBER 5 DRYER OUTLET STACK
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		THC PPM	CO PPM	NOX PPM
01/16/96	08:14	14.1C	0.6C	20.1C
01/16/96	08:15	13.6C	0.6C	20.1C
01/16/96	08:16	13.4C	0.6C	20.1C
01/16/96	08:17	13.0C	0.6C	15.8C
01/16/96	08:18	12.8C	0.6C	0.4C
01/16/96	08:19	12.5C	0.6C	0.4C
01/16/96	08:20	12.3C	0.5C	0.4C
01/16/96	08:21	12.2C	0.1C	0.3C
01/16/96	08:22	12.0C	3.9C	0.3C
01/16/96	08:23	8.4C	37.8C	0.3C -zero
01/16/96	08:24	0.9C	40.6C	0.3C
01/16/96	08:25	0.6C	40.8C	0.7C
01/16/96	08:26	0.4C -zero	18.9C	37.3C
01/16/96	08:27	62.3C	0.2C	44.1C
01/16/96	08:28	473.5C	0.0C	44.2C
01/16/96	08:29	475.5C *	0.0C	44.2C * 45.8 ppm NOx Bias ; 475.1 ppm propane Bias
01/16/96	08:30	444.8C	0.1C	20.1C
AVERAGES :		111.0	10.3	15.7

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ERM SOUTHWEST AT LOUISIANA PACIFIC
SILSBEE, TEXAS
NUMBER 5 DRYER OUTLET STACK
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Charge Range CO: 0-500 ppm

		THC PPM	CO PPM	NOX PPM	
01/16/96	09:26	22.1C	29.0C	1.8C	
01/16/96	09:27	16.1C	0.0C	0.6C	
01/16/96	09:28	11.7C	27.0C	0.6C	
01/16/96	09:29	10.3C	429.5C	0.5C	
01/16/96	09:30	9.9C	452.9C	0.5C	
01/16/96	09:31	9.5C	460.9C*	0.5C	469.0 ppm CO
01/16/96	09:32	9.3C	238.0C	0.5C	
01/16/96	09:33	9.1C	0.0C	0.5C	
01/16/96	09:34	8.9C	90.9C	0.5C	
01/16/96	09:35	8.8C	466.2C	0.5C	
01/16/96	09:36	8.7C	469.7C*	0.5C	469.0 ppm CO
01/16/96	09:37	8.7C	273.5C	0.5C	
01/16/96	09:38	8.7C	0.2C	0.5C	
01/16/96	09:39	8.7C	54.5C	0.5C	
01/16/96	09:40	8.7C	65.8C*	0.5C	84.61 ppm CO
01/16/96	09:41	8.6C	77.6C	0.5C	
01/16/96	09:42	8.6C	2.6C	0.5C	
01/16/96	09:43	8.9C	80.5C	0.5C	
01/16/96	09:44	7.9C	250.6C	0.5C	
01/16/96	09:45	6.9C	251.2C*	0.5C	Zero ; 245 ppm CO
01/16/96	09:46	6.8C	51.8C	2.1C	
01/16/96	09:47	6.8C	0.6C	2.2C	
01/16/96	09:48	6.8C	136.5C	2.0C	
01/16/96	09:49	6.7C	241.7C	1.8C	
01/16/96	09:50	6.7C	244.2C	1.7C	
01/16/96	09:51	6.5C	246.0C	1.6C	
01/16/96	09:52	6.5C	246.7C*	1.6C	245ppm CO Bias
01/16/96	09:53	6.5C	122.2C	22.4C	
01/16/96	09:54	6.5C	3.7C	44.2C	
01/16/96	09:55	6.5C	1.2C	45.0C*	45.85ppm NOx Bias
01/16/96	09:56	6.4C	0.3C	38.9C	
01/16/96	09:57	6.3C	0.1C-Zero	2.9C	
01/16/96	09:58	6.3C	1.7C	7.1C	
01/16/96	09:59	6.6C	206.2C	21.3C	
01/16/96	10:00	3.0C	274.6C	21.7C	
01/16/96	10:01	0.5C-Zero	257.0C	23.3C	
01/16/96	10:02	181.8C	234.8C	22.2C	
01/16/96	10:03	472.1C*	226.3C	23.2C	475.1 ppm propane Bias
01/16/96	10:04	462.0C*	237.1C	23.3C	
01/16/96	10:05	258.8C	210.5C	24.1C	
AVERAGES :		41.8	167.1	8.6	

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ERM SOUTHWEST AT LOUISIANA PACIFIC
SILSBEE, TEXAS
NUMBER 5 DRYER OUTLET STACK
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		THC PPM	CO PPM	NOX PPM	
01/16/96	12:36	7.9C	1.4C	0.7C	
01/16/96	12:37	1.0C	1.4C	0.9C	
01/16/96	12:38	0.3C-Zero	1.4C	1.1C	
01/16/96	12:39	366.6C	1.4C	1.2C	
01/16/96	12:40	469.3C	1.1C	1.5C	
01/16/96	12:41	469.9C	0.7C	1.0C	
01/16/96	12:42	470.3C*	1.0C	0.0C	475.1ppm propane Bias
01/16/96	12:43	276.2C	0.1C-Zero	-0.3C	
01/16/96	12:44	9.1C	29.6C	0.7C	
01/16/96	12:45	8.4C	232.9C	3.1C	
01/16/96	12:46	8.3C	241.9C	5.6C	
01/16/96	12:47	8.2C	242.4C*	1.3C	245 ppm CO Bias
01/16/96	12:48	8.1C	241.6C	0.4C	
01/16/96	12:49	8.1C	242.3C	6.5C	
01/16/96	12:50	8.0C	136.5C	4.3C	
01/16/96	12:51	7.9C	1.3C	1.2C	
01/16/96	12:52	7.9C	1.4C	-0.3C	
01/16/96	12:53	7.7C	1.4C	-0.6C	
01/16/96	12:54	7.6C	1.4C	0.5C-Zero	
01/16/96	12:55	7.4C	1.3C	0.6C	
01/16/96	12:56	7.1C	1.2C	23.6C	
01/16/96	12:57	6.9C	0.5C	40.1C	
01/16/96	12:58	6.9C	0.4C	45.8C	
01/16/96	12:59	6.9C	0.1C	46.4C	
01/16/96	13:00	6.9C	0.0C	45.8C	
01/16/96	13:01	6.9C	0.0C	45.8C*	45.85 ppm NOx Bias
01/16/96	13:02	72.4C	0.0C	19.6C	
AVERAGES :		84.2	51.3	11.0	

Auxiliary Average Report

DCNID : 08 Site Name : #5 DRYER Aux Interval : 1 Date : 1/16/96

Run 1 Part.

Time	THC PPM	CO PPM	NOX PPM
13:15	311.9000	167.9000	29.7000
13:16	313.9000	215.6000	29.3000
13:17	296.2000	218.7000	30.3000
13:18	310.4000	233.9000	31.0000
13:19	327.4000	236.0000	33.8000
13:20	293.7000	240.8000	31.4000
13:21	320.5000	280.1000	30.5000
13:22	306.9000	294.6000	31.2000
13:23	312.5000	308.6000	30.4000
13:24	306.6000	314.0000	31.6000
13:25	327.6000	315.4000	31.7000
13:26	354.1000	341.5000	32.1000
13:27	363.3000	335.4000	32.3000
13:28	352.8000	326.3000	32.7000
13:29	336.1000	303.6000	33.4000
13:30	346.9000	294.8000	32.3000
13:31	264.1000	306.3000	29.7000
13:32	233.9000	287.8000	29.0000
13:33	323.3000	265.2000	29.4000
13:34	345.0000	236.9000	28.6000
13:35	349.5000	255.0000	28.4000
13:36	340.5000	273.9000	29.3000
13:37	330.5000	264.7000	28.9000
13:38	321.0000	271.1000	30.0000
13:39	283.1000	261.2000	30.0000
13:40	205.8000	274.8000	31.3000
13:41	291.0000	315.5000	31.1000
13:42	304.7000	302.3000	31.9000
13:43	315.0000	294.0000	31.9000
13:44	340.3000	289.3000	32.3000
13:45	380.2000	341.8000	33.3000
13:46	372.5000	405.2000	33.4000
13:47	339.6000	410.2000	34.5000
13:48	335.7000	386.9000	34.5000
13:49	330.8000	363.1000	36.1000
13:50	203.2000	369.2000	35.3000
13:51	144.9000	362.2000	35.7000
MAX :	380.2000	410.2000	36.1000
MIN :	144.9000	167.9000	28.4000
AVG :	311.7676	296.3189	31.5757
SCANS:	37	37	37

Auxiliary Average Report

DCNID : 08 Site Name : #5 DRYER Aux Interval : 1 Date : 1/16/96

Run 1 Part.

Time	THC PPM	CO PPM	NOX PPM
14:06	335.9000	210.4000	32.6000
14:07	329.9000	187.3000	30.7000
14:08	336.1000	193.5000	28.2000
14:09	342.7000	211.4000	27.6000
14:10	319.2000	252.3000	27.1000
14:11	204.8000	235.0000	26.9000
14:12	255.2000	212.5000	27.7000
14:13	280.0000	221.4000	27.0000
14:14	296.3000	225.2000	27.8000
14:15	316.2000	255.7000	29.0000
14:16	314.8000	263.3000	29.8000
14:17	312.6000	252.1000	30.0000
14:18	309.4000	222.3000	32.3000
14:19	310.5000	188.2000	34.0000
14:20	312.2000	217.1000	33.7000
14:21	307.7000	228.1000	33.9000
14:22	305.1000	220.4000	32.8000
14:23	299.6000	201.9000	33.9000
14:24	305.2000	189.4000	32.5000
14:25	312.2000	210.9000	32.5000
14:26	282.3000	219.6000	31.9000
14:27	270.3000	200.9000	31.7000
14:28	88.5000	183.7000	31.8000
14:29	75.8000	153.3000	32.0000
14:30	106.6000	175.0000	32.1000
14:31	290.1000	183.7000	31.9000
14:32	354.2000	188.0000	32.7000
14:33	346.3000	173.9000	32.0000
14:34	340.8000	162.5000	31.9000
14:35	338.5000	182.3000	31.0000
14:36	340.6000	200.3000	30.8000
14:37	331.8000	222.8000	31.3000
14:38	236.3000	211.1000	30.7000
14:39	103.3000	212.9000	30.7000
14:40	246.8000	228.0000	30.0000
14:41	275.5000	236.2000	30.8000
14:42	292.4000	234.4000	30.6000
MAX :	354.2000	263.3000	34.0000
MIN :	75.8000	153.3000	26.9000
AVG :	281.7757	209.9189	30.9162
SCANS:	37	37	37

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ERM SOUTHWEST AT LOUISIANA PACIFIC
SILSBEE, TEXAS
NUMBER 5 DRYER OUTLET STACK
Page : 1

		THC PPM	CO PPM	NOX PPM	
01/16/96	14:54	3.6C	21.6C	11.1C	
01/16/96	14:55	2.6C	0.9C	10.0C	
01/16/96	14:56	2.2C	0.7C	9.6C	
01/16/96	14:57	26.1C	0.3C	9.2C	
01/16/96	14:58	458.1C	0.0C-zero	8.4C	
01/16/96	14:59	465.1C	0.5C	5.1C	
01/16/96	15:00	465.3C*	0.5C	2.8C	475.1ppm propane Bias
01/16/96	15:01	370.9C	0.5C	1.8C	
01/16/96	15:02	2.3C	0.5C	1.3C	
01/16/96	15:03	0.8C	1.0C	2.8C	
01/16/96	15:04	0.4C	186.8C	5.2C	
01/16/96	15:05	0.2C	247.4C	6.8C	
01/16/96	15:06	0.1C	247.4C*	8.6C	245 ppm CO Bias
01/16/96	15:07	0.0C	247.2C	10.5C	
01/16/96	15:08	0.0C	213.3C	12.1C	
01/16/96	15:09	0.0C	9.0C	12.6C	
01/16/96	15:10	0.0C-zero	0.0C	12.3C	
01/16/96	15:11	0.0C	0.0C	10.6C	
01/16/96	15:12	0.0C	0.0C	8.4C	
01/16/96	15:13	3.1C	0.0C	6.3C	
01/16/96	15:14	6.1C	0.0C	4.8C	
01/16/96	15:15	6.3C	0.0C	3.9C	
01/16/96	15:16	6.3C	0.0C	3.4C	
01/16/96	15:17	6.4C	0.0C	3.4C	
01/16/96	15:18	6.4C	0.8C	40.8C	
01/16/96	15:19	6.4C	0.0C	47.7C*	45.85 ppm NOx Bias
01/16/96	15:20	6.4C	0.0C	47.6C	
01/16/96	15:21	6.4C	0.0C	35.8C	
01/16/96	15:22	6.4C	0.0C	2.8C	
01/16/96	15:23	6.4C	0.0C	2.4C	-zero
AVERAGES :		62.1	39.3	11.6	

Auxiliary Average Report

DCNID : 09 Site Name : #5 DRYER Aux Interval : 1 Date : 1/16/96

Run 1 Formaldehyde

Time	THC PPM	CO PPM	NOX PPM
15:51	358.0000	198.3000	23.0000
15:52	352.8000	179.5000	23.6000
15:53	352.5000	178.7000	23.5000
15:54	350.0000	176.8000	25.0000
15:55	346.1000	156.0000	25.1000
15:56	340.3000	142.0000	25.9000
15:57	338.2000	137.1000	25.6000
15:58	241.0000	143.2000	26.2000
15:59	246.3000	147.5000	26.2000
16:00	154.1000	138.7000	27.3000
16:01	254.7000	143.5000	27.5000
16:02	323.9000	188.7000	27.1000
16:03	360.0000	306.7000	28.2000
16:04	325.6000	327.7000	29.0000
16:05	301.5000	194.6000	30.5000
16:06	304.8000	172.6000	28.8000
16:07	293.1000	166.1000	28.8000
16:08	242.0000	161.9000	28.0000
16:09	116.0000	184.8000	27.7000
16:10	141.6000	188.7000	27.4000
16:11	83.9000	208.1000	27.0000
16:12	105.7000	217.8000	27.6000
16:13	178.3000	234.4000	27.5000
16:14	220.7000	237.9000	28.0000
16:15	258.4000	250.7000	27.5000
16:16	264.7000	243.2000	27.9000
16:17	279.9000	245.3000	28.2000
16:18	289.8000	283.7000	28.0000
16:19	282.3000	285.7000	28.1000
16:20	275.8000	259.5000	27.8000
16:21	268.6000	219.1000	27.9000
16:22	284.6000	192.9000	27.7000
16:23	162.3000	200.9000	27.9000
16:24	201.8000	200.0000	27.3000
16:25	258.1000	189.1000	27.8000
16:26	256.7000	187.5000	27.4000
16:27	266.2000	179.4000	27.6000
MAX :	360.0000	327.7000	30.5000
MIN :	83.9000	137.1000	23.0000
AVG :	261.6297	201.8460	27.1784
SCANS:	37	37	37

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Auxiliary Average Report

DCNID : 08 Site Name : #5 DRYER Aux Interval : 1 Date : 1/16/96

Run 1 Formaldehyde

Time	THC PPM	CO PPM	NOX PPM
16:37	323.8000	217.7000	24.6000
16:38	325.1000	208.4000	24.9000
16:39	252.6000	202.6000	25.8000
16:40	200.9000	233.6000	25.5000
16:41	313.1000	221.6000	25.9000
16:42	334.0000	213.2000	26.2000
16:43	317.6000	211.6000	26.3000
16:44	281.1000	181.8000	27.3000
16:45	301.1000	182.6000	27.2000
16:46	304.9000	169.1000	27.0000
16:47	327.3000	173.0000	25.7000
16:48	333.7000	185.7000	26.2000
16:49	287.1000	188.5000	25.6000
MAX :	334.0000	233.6000	27.3000
MIN :	200.9000	169.1000	24.6000
AVG :	300.1769	199.1846	26.0154
SCANS:	13	13	13

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Auxiliary Average Report

DCNID : 08 Site Name : #5 DRYER Aux Interval : 1 Date : 1/16/96

Run 1 Formaldehyde

Time	THC PPM	CO PPM	NOX PPM
17:18	392.5000	170.7000	26.9000
17:19	372.5000	177.6000	27.1000
17:20	401.4000	175.3000	27.2000
17:21	414.7000	163.3000	27.2000
17:22	395.0000	178.2000	27.1000
17:23	351.3000	175.2000	26.7000
17:24	332.4000	173.0000	26.7000
17:25	322.9000	185.1000	26.8000
17:26	323.6000	166.3000	27.1000
17:27	327.4000	191.6000	26.5000
17:28	318.2000	173.5000	26.6000
17:29	336.5000	167.2000	27.1000
17:30	329.3000	156.9000	26.3000
17:31	327.3000	141.4000	27.7000
17:32	326.6000	148.3000	27.7000
17:33	325.1000	160.0000	28.0000
17:34	301.7000	167.9000	27.4000
17:35	303.1000	155.6000	27.6000
17:36	301.8000	154.7000	27.2000
17:37	274.8000	152.9000	27.1000
17:38	270.6000	102.4000	28.0000
17:39	269.4000	91.1000	28.4000
17:40	219.1000	84.8000	28.7000
MAX :	414.7000	191.6000	28.7000
MIN :	219.1000	84.8000	26.3000
AVG :	327.7043	157.0869	27.2652
SCANS:	23	23	23

AVG (73) 289.3

AVG (73) 187.3

AVG (73) 27.0

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ERM SOUTHWEST AT LOUISIANA PACIFIC
SILSBEE, TEXAS
NUMBER 5 DRYER OUTLET STACK
Page : 1

		THC PPM	CO PPM	NOX PPM	
01/16/96	17:43	106.3C	103.7C	28.2C	
01/16/96	17:44	27.5C	118.8C	28.0C	
01/16/96	17:45	9.9C	110.6C	27.5C	
01/16/96	17:46	5.2C	128.5C	26.9C	Zero
01/16/96	17:47	6.9C	144.9C	27.4C	
01/16/96	17:48	438.4C	146.5C	28.0C	
01/16/96	17:49	453.3C	130.8C	29.3C	
01/16/96	17:50	454.3C*	144.5C	28.6C	475.1 ppm propane Bias
01/16/96	17:51	176.5C	93.8C	26.6C	
01/16/96	17:52	58.6C	34.1C	12.7C	
01/16/96	17:53	58.0C	4.2C	8.2C	
01/16/96	17:54	58.6C	0.5C	6.6C	
01/16/96	17:55	60.1C	0.0C	6.1C	
01/16/96	17:56	61.4C	0.0C	5.8C	
01/16/96	17:57	50.0C	94.7C	5.3C	
01/16/96	17:58	46.5C	208.1C	5.2C	
01/16/96	17:59	44.1C	115.9C	2.1C	
01/16/96	18:00	41.6C	18.5C	1.8C	Zero
01/16/96	18:01	38.3C	228.3C	3.5C	
01/16/96	18:02	35.5C	225.4C*	3.5C	245 ppm CO Bias
01/16/96	18:03	31.3C	225.0C	3.3C	
01/16/96	18:04	38.8C	172.3C	14.4C	
01/16/96	18:05	35.5C	14.6C	36.2C	
01/16/96	18:06	30.0C	0.1C	47.8C	
01/16/96	18:07	29.7C	0.0C	48.3C*	Zero 45.85 ppm NO_x Bias
01/16/96	18:08	32.1C	0.0C	35.3C	
01/16/96	18:09	33.7C	0.0C	3.3C	
01/16/96	18:10	36.4C	0.0C	2.7C	
01/16/96	18:11	42.7C	0.0C	2.6C	
01/16/96	18:12	46.8C	0.0C	2.5C	
AVERAGES :		86.3	82.1	16.9	

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ERM SOUTHWEST AT LOUISIANA PACIFIC
SILSBEE, TEXAS
NUMBER 5 DRYER OUTLET STACK
Page : 1

Heated Line : 246° F
Leak Check @ 12" Hg : 0.0
Jesse Barker

		THC PPM	CO PPM	NOX PPM	
01/17/96	06:54	15.7C	1.7C	0.2C	
01/17/96	06:55	17.9C	0.1C	0.0C	
01/17/96	06:56	15.6C	0.0C	0.0C	
01/17/96	06:57	13.8C	0.0C	0.0C	
01/17/96	06:58	14.5C	365.8C	0.0C	
01/17/96	06:59	11.5C	471.0C*	0.0C	469.0 ppm CO
01/17/96	07:00	11.8C	470.7C	0.0C	
01/17/96	07:01	11.3C	195.8C	19.0C	
01/17/96	07:02	11.5C	0.6C	85.6C*	84.63 ppm NOx ~~BA65200~~
01/17/96	07:03	20.5C	0.0C	77.7C	
01/17/96	07:04	28.0C	0.0C	0.1C	
01/17/96	07:05	29.5C	0.0C	44.9C	
01/17/96	07:06	26.9C	0.0C	84.6C*	84.63 ppm NOx
01/17/96	07:07	29.5C	24.1C	42.5C	
01/17/96	07:08	26.0C	86.5C	0.1C	
01/17/96	07:09	24.0C	85.9C*	0.0C	84.61 ppm CO
01/17/96	07:10	20.0C	86.1C	0.0C	
01/17/96	07:11	26.8C	27.9C	0.0C	
01/17/96	07:12	21.5C	0.0C	0.9C	
01/17/96	07:13	27.1C	0.0C	8.0C	
01/17/96	07:14	29.1C	0.5C	20.4C	
01/17/96	07:15	27.6C	0.4C	20.2C*	20.09 ppm NOx
01/17/96	07:16	28.8C	53.7C	9.5C	
01/17/96	07:17	24.3C	251.0C	0.0C	
01/17/96	07:18	23.3C	251.1C*	6.4C	245 ppm CO
01/17/96	07:19	16.7C	35.5C	45.5C	
01/17/96	07:20	3.3C	0.0C	45.6C*	45.85 ppm NOx
01/17/96	07:21	16.3C	0.0C	20.4C	
01/17/96	07:22	25.6C	0.0C	0.0C	
01/17/96	07:23	33.5C	0.0C	0.0C	
01/17/96	07:24	25.6C	0.1C	0.3C	
01/17/96	07:25	32.2C	1.1C	0.9C	
01/17/96	07:26	20.2C	1.0C	0.8C	
01/17/96	07:27	28.2C	1.0C	0.8C	
01/17/96	07:28	38.6C	1.2C	0.8C	
01/17/96	07:29	23.5C	1.2C	7.6C	
01/17/96	07:30	24.7C	1.3C	18.7C	– Begin NOx Convertor Check
01/17/96	07:31	29.5C	1.5C	18.7C	45.85 ppm NOx + Zero Air
01/17/96	07:32	28.1C	1.5C	18.7C	

01/17/96	07:35	24.9C	2.0C	18.7C
01/17/96	07:36	17.0C	2.1C	18.7C
01/17/96	07:37	1.2C	2.3C	18.7C
01/17/96	07:38	-0.1C	2.7C	18.7C

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ERM SOUTHWEST AT LOUISIANA PACIFIC
SILSBEE, TEXAS
NUMBER 5 DRYER OUTLET STACK
Page : 2

		THC PPM	CO PPM	NOX PPM	
01/17/96	07:39	-0.2C	2.4C	18.7C	
01/17/96	07:40	272.7C	1.9C	18.7C	
01/17/96	07:41	956.9C	2.3C	18.7C	
01/17/96	07:42	968.1C	0.9C	18.7C	
01/17/96	07:43	600.4C	0.5C	18.7C	
01/17/96	07:44	3.0C	0.5C	18.7C	
01/17/96	07:45	1.0C	0.5C	18.7C	
01/17/96	07:46	670.8C	0.5C	18.7C	
01/17/96	07:47	973.7C*	0.5C	18.7C	979.5 ppm propane Bias
01/17/96	07:48	973.3C	0.5C	18.7C	
01/17/96	07:49	63.8C	0.5C	18.7C	
01/17/96	07:50	1.7C	0.5C	18.6C	
01/17/96	07:51	115.2C	0.5C	18.6C	
01/17/96	07:52	251.0C	0.5C	18.6C	
01/17/96	07:53	251.1C*	0.5C	18.6C	249.8 ppm propane Bias
01/17/96	07:54	82.2C	0.5C	18.6C	
01/17/96	07:55	0.6C	0.5C	18.5C	
01/17/96	07:56	422.2C	0.5C	18.4C	
01/17/96	07:57	475.5C*	0.5C	18.4C	475.1 ppm propane Bias
01/17/96	07:58	391.6C	0.5C	18.4C	
01/17/96	07:59	2.2C	0.5C	18.4C	
01/17/96	08:00	0.7C zero	0.5C	18.4C	-End NOx convertor Check
01/17/96	08:01	2.7C	0.5C	15.3C	
01/17/96	08:02	4.3C	113.1C	0.0C	
01/17/96	08:03	4.2C	252.7C*	0.0C	245 ppm CO
01/17/96	08:04	4.2C	215.5C	19.9C	
01/17/96	08:05	4.2C	3.5C	45.7C	* 45.85 ppm NOx
01/17/96	08:06	4.1C	0.1C zero	21.3C	
01/17/96	08:07	4.0C	17.6C	0.2C	
01/17/96	08:08	4.0C	91.7C	0.4C	
01/17/96	08:09	3.9C	23.0C	10.2C	
01/17/96	08:10	259.7C	151.2C	4.3C	
01/17/96	08:11	310.1C	248.5C	0.2C	
01/17/96	08:12	317.3C	251.5C*	0.1C zero	245 ppm CO Bias
01/17/96	08:13	311.4C	138.5C	33.2C	
01/17/96	08:14	302.5C	0.8C	45.0C	* 45.85 ppm NOx Bias
01/17/96	08:15	301.2C	0.0C zero	44.7C	
AVERAGES :		125.5	48.2	16.6	

Auxiliary Average Report

DCNID : 08 Site Name : #5 DRYER Aux Interval : 1 Date : 1/17/96

Run 2 (Part.)

Time	THC PPM	CO PPM	NOX PPM
08:20	282.0000	168.5000	25.6000
08:21	275.6000	142.2000	24.9000
08:22	284.0000	143.6000	23.6000
08:23	280.3000	160.0000	24.8000
08:24	270.5000	141.1000	24.7000
08:25	257.5000	117.6000	26.1000
08:26	252.2000	101.7000	25.5000
08:27	255.1000	108.9000	25.5000
08:28	253.0000	108.1000	25.1000
08:29	252.2000	99.1000	26.9000
08:30	248.9000	91.7000	27.7000
08:31	245.8000	79.4000	27.9000
08:32	247.0000	79.6000	27.5000
08:33	247.8000	85.0000	27.8000
08:34	249.8000	83.8000	27.3000
08:35	255.8000	86.8000	27.7000
08:36	257.5000	89.6000	28.5000
08:37	269.1000	108.6000	26.9000
08:38	266.3000	120.5000	27.2000
08:39	270.4000	119.9000	28.2000
08:40	271.7000	124.4000	28.7000
08:41	276.4000	145.9000	27.9000
08:42	280.9000	157.1000	27.9000
08:43	271.8000	159.3000	28.0000
08:44	34.4000	155.5000	26.9000
08:45	31.7000	148.0000	27.2000
08:46	35.2000	167.3000	26.9000
08:47	278.0000	204.0000	27.5000
08:48	300.8000	208.3000	26.8000
08:49	309.9000	211.8000	28.2000
08:50	309.6000	225.0000	30.9000
08:51	302.3000	231.1000	32.1000
08:52	287.7000	234.2000	33.0000
08:53	289.4000	216.5000	33.0000
08:54	283.7000	204.2000	34.4000
08:55	285.7000	189.7000	34.5000
08:56	290.7000	197.5000	35.5000
MAX :	309.9000	234.2000	35.5000
MIN :	31.7000	79.4000	23.6000
AVG :	252.9919	146.3703	28.0757
SCANS:	37	37	37

Auxiliary Average Report

DCNID : 08 Site Name : #5 DRYER Aux Interval : 1 Date : 1/17/96

Run 2 (Part)

Time	THC PPM	CO PPM	NOX PPM
09:10	343.9000	169.5000	29.1000
09:11	365.4000	197.1000	28.8000
09:12	379.1000	237.2000	29.0000
09:13	378.5000	245.1000	30.2000
09:14	368.5000	254.2000	31.7000
09:15	371.1000	262.9000	31.5000
09:16	373.5000	288.5000	31.3000
09:17	369.6000	313.4000	32.1000
09:18	362.2000	326.0000	31.5000
09:19	354.2000	315.5000	30.9000
09:20	357.9000	302.4000	29.7000
09:21	345.4000	296.0000	31.2000
09:22	332.2000	284.2000	31.2000
09:23	319.4000	260.7000	30.9000
09:24	305.7000	252.0000	30.8000
09:25	294.5000	254.0000	29.7000
09:26	283.4000	256.0000	30.5000
MAX :	379.1000	326.0000	32.1000
MIN :	283.4000	169.5000	28.8000
AVG :	347.3235	265.5706	30.5941
SCANS:	17	17	17

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Auxiliary Average Report

DCNID : 08 Site Name : #5 DRYER Aux Interval : 1 Date : 1/17/96

Run 2 (Part)

Time	THC PPM	CO PPM	NOX PPM
09:42	257.7000	31.2000	39.7000
09:43	291.7000	103.2000	32.6000
09:44	304.3000	124.3000	32.6000
09:45	323.9000	210.1000	29.9000
09:46	326.8000	241.6000	31.2000
09:47	319.1000	205.6000	31.0000
09:48	322.8000	172.9000	32.3000
09:49	322.6000	194.8000	31.7000
09:50	329.2000	180.2000	32.1000
09:51	329.4000	174.5000	32.3000
09:52	329.0000	172.0000	32.1000
09:53	337.2000	185.3000	30.7000
09:54	328.1000	209.6000	29.3000
09:55	329.8000	226.0000	29.0000
09:56	338.4000	238.2000	28.6000
09:57	342.1000	231.8000	29.0000
09:58	337.6000	220.5000	28.8000
09:59	342.0000	207.2000	28.2000
10:00	343.3000	199.0000	28.0000
10:01	352.5000	204.4000	27.5000
10:02	363.6000	221.5000	28.1000
MAX :	363.6000	241.6000	39.7000
MIN :	257.7000	31.2000	27.5000
AVG :	327.1952	188.2809	30.6952
SCANS:	21	21	21

Avg (75) 295.2

Avg (75) 185.1

Avg (75) 29.4

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ERM SOUTHWEST AT LOUISIANA PACIFIC
SILSBEE, TEXAS
NUMBER 5 DRYER OUTLET STACK

		THC PPM	CO PPM	NOX PPM	
01/17/96	10:11	7.2C	0.4C	8.1C	
01/17/96	10:12	2.4C	0.5C	8.4C	
01/17/96	10:13	1.5C-Zero	0.5C	8.6C	
01/17/96	10:14	10.2C	0.7C	8.3C	
01/17/96	10:15	462.5C	0.5C	8.0C	
01/17/96	10:16	465.8C	0.5C	7.5C	
01/17/96	10:17	466.1C*	0.2C	6.8C	469.0 ppm propane Bias
01/17/96	10:18	465.7C	0.0C-Zero	5.9C	
01/17/96	10:19	141.7C	23.6C	5.3C	
01/17/96	10:20	16.7C	237.9C	4.4C	
01/17/96	10:21	15.6C	250.3C	3.7C	
01/17/96	10:22	14.9C	251.0C*	3.0C	245 ppm CO Bias
01/17/96	10:23	14.4C	167.8C	30.2C	
01/17/96	10:24	13.9C	1.3C	46.5C*	45.85 ppm NOx Bias
01/17/96	10:25	13.4C	0.0C	46.3C	
01/17/96	10:26	12.7C	0.0C-Zero	22.5C	
01/17/96	10:27	12.0C	0.0C	2.0C	
01/17/96	10:28	11.3C	0.0C	1.8C	
01/17/96	10:29	11.0C	0.0C	1.7C	
01/17/96	10:30	10.3C	0.0C	1.6C	
01/17/96	10:31	9.5C	0.0C	1.5C	
01/17/96	10:32	9.7C	0.0C	1.4C	
01/17/96	10:33	10.0C	0.0C	1.4C	
01/17/96	10:34	9.9C	0.0C	1.3C	
01/17/96	10:35	9.5C	0.0C	1.3C	
01/17/96	10:36	9.2C	0.0C	1.2C-Zero	
01/17/96	10:37	8.9C	0.0C	1.2C	
01/17/96	10:38	8.6C	0.0C	1.2C	
AVERAGES :		80.2	33.4	8.6	

Auxiliary Average Report

DCNID : 08 Site Name : #5 DRYER Aux Interval : 1 Date : 1/17/96

Run 2 (Form)

Time	THC PPM	CO PPM	NOX PPM
12:10	316.1000	72.1000	33.5000
12:11	316.0000	78.7000	31.6000
12:12	327.8000	92.9000	30.8000
12:13	348.5000	85.2000	22.6000
12:14	354.9000	147.7000	28.9000
12:15	360.1000	170.9000	29.4000
12:16	378.6000	205.8000	32.0000
12:17	384.4000	264.7000	34.6000
12:18	399.2000	316.6000	35.5000
12:19	399.3000	389.6000	36.6000
12:20	400.1000	418.1000	36.8000
12:21	390.3000	409.7000	38.1000
12:22	394.3000	422.1000	36.7000
12:23	391.7000	411.5000	36.1000
12:24	391.4000	435.5000	36.5000
12:25	384.5000	229.0000	35.2000
12:26	373.4000	215.1000	34.6000
12:27	355.6000	193.5000	33.6000
12:28	337.5000	245.0000	33.4000
12:29	323.2000	248.3000	32.9000
MAX :	400.1000	435.5000	38.1000
MIN :	316.0000	72.1000	22.6000
AVG :	366.3450	252.6000	33.4700
SCANS:	20	20	20

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Auxiliary Average Report

DCNID : 08 Site Name : #5 DRYER Aux Interval : 1 Date : 1/17/96

Run 2 (Form)

Time	THC PPM	CO PPM	NOX PPM
13:17	284.7000	203.6000	27.7000
13:18	284.3000	210.0000	28.3000
13:19	283.6000	189.7000	28.1000
13:20	285.0000	169.5000	28.2000
MAX :	285.0000	210.0000	28.3000
MIN :	283.6000	169.5000	27.7000
AVG :	284.4000	193.2000	28.0750
SCANS:	4	4	4

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Auxiliary Average Report

DCNID : 08 Site Name : #5 DRYER Aux Interval : 1 Date : 1/17/96

Run 2 (Form)

Time	THC PPM	CO PPM	NOX PPM
13:47	272.6000	339.5000	32.8000
13:48	272.3000	321.5000	32.5000
13:49	265.6000	300.7000	31.6000
13:50	264.8000	288.4000	31.6000
13:51	282.6000	284.6000	30.9000
13:52	247.2000	245.1000	30.6000
13:53	230.7000	225.7000	30.9000
13:54	234.7000	206.3000	31.1000
13:55	240.3000	195.6000	30.9000
MAX :	282.6000	339.5000	32.8000
MIN :	230.7000	195.6000	30.6000
AVG :	256.7556	267.4889	31.4333
SCANS:	9	9	9

Auxiliary Average Report

DCNID : 08 Site Name : #5 DRYER Aux Interval : 1 Date : 1/17/96

Run 2 (Form)

Time	THC PPM	CO PPM	NOX PPM
14:06	293.9000	215.0000	30.3000
14:07	294.0000	226.5000	30.1000
14:08	286.3000	226.3000	30.8000
14:09	280.3000	222.8000	30.6000
14:10	286.3000	229.3000	31.5000
14:11	282.7000	247.5000	31.3000
14:12	281.1000	256.6000	32.7000
MAX :	294.0000	256.6000	32.7000
MIN :	280.3000	215.0000	30.1000
AVG :	286.3714	231.8571	31.0714
SCANS:	7	7	7

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Auxiliary Average Report

DCNID : 08 Site Name : #5 DRYER Aux Interval : 1 Date : 1/17/96

Run 2 (form

Time	THC PPM	CO PPM	NOX PPM
14:45	161.8000	246.6000	29.2000
14:46	263.8000	253.6000	29.4000
14:47	330.8000	262.5000	29.1000
14:48	384.6000	258.0000	29.0000
14:49	337.0000	245.7000	28.1000
14:50	454.1000	278.9000	28.1000
14:51	384.2000	269.6000	28.3000
14:52	360.8000	268.7000	26.8000
14:53	454.9000	246.0000	27.2000
14:54	430.3000	226.7000	26.2000
14:55	360.6000	240.3000	25.3000
14:56	334.0000	237.3000	25.4000
14:57	320.6000	219.7000	25.5000
14:58	363.6000	185.8000	26.5000
MAX :	454.9000	278.9000	29.4000
MIN :	161.8000	185.8000	25.3000
AVG :	352.9500	245.6857	27.4357
SCANS:	14	14	14

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Auxiliary Average Report

DCNID : 08 Site Name : #5 DRYER Aux Interval : 1 Date : 1/17/96

Run 2 (Form)

Time	THC PPM	CO PPM	NOX PPM
15:33	375.4000	144.7000	26.3000
15:34	386.4000	170.6000	26.6000
15:35	390.5000	171.2000	26.8000
15:36	384.7000	166.1000	27.6000
15:37	387.7000	158.1000	27.0000
15:38	388.3000	144.9000	27.3000
15:39	387.8000	151.9000	27.5000
15:40	381.8000	162.3000	27.3000
15:41	382.7000	167.5000	27.7000
15:42	393.8000	171.5000	27.6000
15:43	397.8000	184.0000	27.3000
15:44	409.5000	196.6000	27.7000
15:45	414.1000	206.9000	28.0000
15:46	424.4000	211.5000	27.8000
15:47	411.6000	207.5000	28.1000
15:48	401.4000	211.6000	28.0000
15:49	400.5000	225.0000	27.4000
15:50	396.7000	232.9000	27.3000
15:51	361.6000	233.9000	26.9000
15:52	191.7000	340.5000	25.8000
15:53	264.0000	181.0000	32.8000
15:54	343.3000	109.5000	24.7000
15:55	366.3000	222.5000	23.9000
15:56	236.7000	276.4000	24.3000
MAX :	424.4000	340.5000	32.8000
MIN :	191.7000	109.5000	23.9000
AVG :	369.9458	193.6917	27.1542
SCANS:	24	24	24

Avg (19) 341.0

Avg (19) 230.0

Avg (19) 29.7

!

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ERM SOUTHWEST AT LOUISIANA PACIFIC
SILSBEE, TEXAS
NUMBER 5 DRYER OUTLET STACK
Page : 1

		THC PPM	CO PPM	NOX PPM	
01/17/96	16:02	4.2C	0.0C	7.4C	
01/17/96	16:03	3.9C	0.0C	7.0C	
01/17/96	16:04	4.3C-Zero	0.0C	6.7C	
01/17/96	16:05	339.7C	0.0C	6.4C	
01/17/96	16:06	447.3C	0.0C	6.0C	
01/17/96	16:07	448.0C*	0.7C	5.6C	475.1 ppm propane Bias
01/17/96	16:08	265.6C	0.8C	5.3C	
01/17/96	16:09	4.5C	0.6C	5.1C	
01/17/96	16:10	3.3C	0.7C	4.8C	
01/17/96	16:11	1.3C Adj	146.5C	4.6C	
01/17/96	16:12	0.9C-Zero	250.1C*	4.2C	245 ppm CO Bias
01/17/96	16:13	365.0C	249.8C	3.8C	
01/17/96	16:14	471.9C	159.0C	31.2C	
01/17/96	16:15	474.6C*	1.5C	47.6C	475.1 ppm propane Bias
01/17/96	16:16	200.1C	0.0C-Zero	47.6C*	45.85 ppm NOx Bias
01/17/96	16:17	9.9C	0.0C	26.9C	
01/17/96	16:18	9.6C	0.0C	2.6C-Zero	
01/17/96	16:19	9.5C	0.0C	0.6C-Zero Adj	
01/17/96	16:20	9.5C	0.3C	9.2C	
01/17/96	16:21	9.5C	0.4C	44.1C	
01/17/96	16:22	9.9C	0.0C	45.1C	
01/17/96	16:23	10.0C	0.0C	45.7C*	45.85 ppm NOx Bias Adjusted
01/17/96	16:24	10.1C	1.0C	15.5C	
AVERAGES :		136.2	35.3	16.7	

Adjust Cal

Auxiliary Average Report

DCNID : 08 Site Name : #5 DRYER Aux Interval : 1 Date : 1/17/96

Run 3 (Part)

Time	THC PPM	CO PPM	NOX PPM
17:50	342.7000	261.2000	20.4000
17:51	328.9000	255.1000	21.4000
17:52	307.0000	275.2000	21.2000
17:53	307.8000	279.3000	21.1000
17:54	305.2000	286.4000	22.0000
17:55	297.3000	268.3000	21.2000
17:56	308.6000	228.4000	21.9000
17:57	299.2000	219.4000	21.2000
17:58	304.4000	221.3000	21.6000
17:59	308.9000	228.6000	21.3000
18:00	299.1000	208.5000	21.3000
18:01	269.1000	174.2000	21.2000
18:02	302.8000	168.0000	20.8000
18:03	295.2000	159.4000	20.5000
18:04	304.4000	153.3000	20.2000
MAX :	342.7000	286.4000	22.0000
MIN :	269.1000	153.3000	20.2000
AVG :	305.3734	225.7733	21.1533
SCANS:	15	15	15

Auxiliary Average Report

DCNID : 08 Site Name : #5 DRYER Aux Interval : 1 Date : 1/17/96

Run 3 (Part)

Time	THC PPM	CO PPM	NOX PPM
18:25	280.7000	157.4000	20.5000
18:26	278.9000	150.3000	19.9000
18:27	275.1000	135.2000	20.1000
18:28	266.3000	122.2000	21.4000
18:29	258.5000	99.7000	22.3000
18:30	256.2000	82.9000	23.5000
18:31	262.0000	83.2000	22.5000
18:32	239.9000	83.4000	23.3000
18:33	237.2000	91.8000	22.0000
18:34	260.3000	98.9000	22.2000
18:35	268.7000	104.1000	22.3000
18:36	274.4000	129.3000	22.0000
18:37	286.0000	151.8000	21.8000
18:38	294.8000	176.3000	20.5000
MAX :	294.8000	176.3000	23.5000
MIN :	237.2000	82.9000	19.9000
AVG :	267.0714	119.0357	21.7357
SCANS:	14	14	14

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Auxiliary Average Report

DCNID : 08 Site Name : #5 DRYER Aux Interval : 1 Date : 1/17/96

Run 3 (Part.)

Time	THC PPM	CO PPM	NOX PPM
19:10	294.2000	191.5000	23.9000
17:11	287.1000	176.8000	24.0000
19:12	285.3000	173.3000	23.8000
19:13	295.7000	183.9000	24.5000
19:14	257.7000	178.6000	23.5000
19:15	278.6000	166.7000	24.5000
19:16	289.6000	151.7000	23.9000
19:17	280.2000	148.6000	23.9000
19:18	282.6000	180.9000	24.3000
19:19	280.2000	170.4000	23.2000
MAX :	295.7000	191.5000	24.5000
MIN :	257.7000	148.6000	23.2000
AVG :	283.1200	172.2400	23.9500
SCANS:	10	10	10

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Auxiliary Average Report

DCNID : 08 Site Name : #5 DRYER Aux Interval : 1 Date : 1/17/96

Run 3 (Part.)

Time	THC PPM	CO PPM	NOX PPM
19:27	293.6000	120.3000	23.5000
19:28	277.5000	132.3000	23.4000
19:29	278.7000	132.5000	24.0000
19:30	300.5000	142.5000	23.9000
19:31	278.2000	143.6000	24.1000
19:32	288.4000	151.8000	23.1000
19:33	288.7000	173.9000	23.4000
19:34	224.9000	188.6000	22.8000
19:35	317.5000	221.5000	23.7000
19:36	320.2000	228.1000	24.7000
19:37	317.0000	195.1000	25.2000
19:38	300.3000	174.9000	26.2000
19:39	301.2000	156.3000	25.4000
19:40	309.2000	164.7000	25.8000
19:41	325.7000	155.6000	25.8000
19:42	297.1000	153.1000	26.2000
19:43	298.5000	170.3000	25.6000
MAX :	325.7000	228.1000	26.2000
MIN :	224.9000	120.3000	22.8000
AVG :	295.1294	165.0177	24.3176
SCANS:	17	17	17

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Auxiliary Average Report

DCNID : 08 Site Name : #5 DRYER Aux Interval : 1 Date : 1/17/96

Run 3 (Part.)

Time	THC PPM	CO PPM	NOX PPM
20:10	278.2000	122.5000	25.5000
20:11	258.7000	132.2000	25.7000
20:12	272.5000	143.4000	25.4000
20:13	257.7000	125.2000	25.7000
20:14	277.1000	126.0000	26.7000
20:15	282.2000	132.7000	27.5000
20:16	273.0000	119.3000	28.2000
20:17	271.6000	143.2000	26.2000
20:18	254.0000	157.2000	26.5000
20:19	281.3000	175.5000	25.1000
20:20	269.4000	197.8000	26.6000
MAX :	282.2000	197.8000	28.2000
MIN :	254.0000	119.3000	25.1000
AVG :	270.5182	143.1818	26.2818
SCANS:	11	11	11

Auxiliary Average Report

DCNID : 08 Site Name : #5 DRYER Aux Interval : 1 Date : 1/17/96

Run 3 (Part.)

Time	THC PPM	CO PPM	NOX PPM
21:35	229.9000	38.1000	32.3000
21:36	231.8000	41.3000	32.4000
21:37	228.2000	41.9000	33.2000
21:38	230.7000	49.2000	32.5000
21:39	246.1000	56.2000	33.0000
21:40	253.6000	63.3000	32.2000
21:41	253.0000	82.2000	28.9000
MAX :	253.6000	82.2000	33.2000
MIN :	228.2000	38.1000	28.9000
AVG :	239.0429	53.1714	32.0714
SCANS:	7	7	7

AVG (74) 281.3

AVG (74) 155.8

AVG (74) 24.2

ERM-SOUTHWEST AT LOUISIANA PACIFIC
SILSBEE, TEXAS
NUMBER 5 DRYER OUTLET STACK
Page : 1

		THC PPM	CO PPM	NOX PPM	
01/17/96	21:48	7.3C	76.0C	7.2C	
01/17/96	21:49	3.3C	3.8C	1.4C	
01/17/96	21:50	3.2C	0.5C	1.3C	-Zero
01/17/96	21:51	428.1C	0.6C	5.8C	
01/17/96	21:52	443.7C	0.4C	43.1C	
01/17/96	21:53	446.8C	0.0C	45.6C*	45.85 ppm NOx Bias
01/17/96	21:54	454.9C	0.0C	45.5C	
01/17/96	21:55	455.8C*	127.2C	10.5C	475.1 ppm propane Bias
01/17/96	21:56	399.8C	244.0C	6.9C	
01/17/96	21:57	5.4C	244.3C*	7.9C	~~249.8 ppm propane Bias~~ 245 ppm CO Bias
01/17/96	21:58	2.3C	244.1C	6.7C	
01/17/96	21:59	144.5C	238.3C	4.2C	
01/17/96	22:00	244.8C*	27.9C	-0.3C	249.8 ppm propane Bias
01/17/96	22:01	139.8C	0.5C	-0.4C	
01/17/96	22:02	52.7C	0.5C	-0.5C	
01/17/96	22:03	51.4C	0.5C	-0.4C	
01/17/96	22:04	4.1C	0.5C	-0.3C	
01/17/96	22:05	126.4C	0.4C	0.0C	
01/17/96	22:06	971.1C	0.5C	0.3C	
01/17/96	22:07	973.6C*	0.5C	0.7C	979.5 ppm propane Bias
01/17/96	22:08	400.8C	0.5C	1.2C	
01/17/96	22:09	5.1C	0.4C	1.9C	
01/17/96	22:10	11.6C	0.3C	2.3C	
AVERAGES :		251.2	52.7	8.3	

Dryer RTO Number 1 Stack - Particulate
Oxides of Nitrogen
Concentration

Run Number	Measured (ppm)	Adjusted (ppm*)
1	31.3	29.2
2	31.0	28.8
3	30.1	27.3

*Calculated according to equation 6C-1.

Dryer RTO Number 1 Stack - Formaldehyde
Oxides of Nitrogen
Concentration

Run Number	Measured (ppm)	Adjusted (ppm*)
1	29.1	26.6
2	32.7	29.6
3	27.3	25.2

*Calculated according to equation 6C-1.

Dryer RTO Number 1 Stack - Particulate
Calibration Summary
Oxides of Nitrogen

Run Number	NOx Calibration Initial Drift Check (ppm)	NOx Calibration Final Drift Check (ppm)	NOx Calibration Average (ppm)	NOx Zero Initial Drift Check (ppm)	NOx Zero Final Drift Check (ppm)	NOx Zero Average (ppm)	Actual NOx Calibration Value (ppm)	Actual NOx Zero Value (ppm)
1	48.7	48.7	48.7	0.5	2.3	1.4	46.2	0.0
2	47.9	49.7	48.8	1.2	2.0	1.6	46.2	0.0
3	49.9	48.6	49.3	2.5	2.2	2.4	46.2	0.0

METCO ENVIRONMENTAL

Dryer RTO Number 1 Stack - Formaldehyde
Calibration Summary
Oxides of Nitrogen

Run Number	NOx Calibration Initial Drift Check (ppm)	NOx Calibration Final Drift Check (ppm)	NOx Calibration Average (ppm)	NOx Zero Initial Drift Check (ppm)	NOx Zero Final Drift Check (ppm)	NOx Zero Average (ppm)	Actual NOx Calibration Value (ppm)	Actual NOx Zero Value (ppm)
1	48.7	48.8	48.8	2.3	2.4	2.4	46.2	0.0
2	49.7	49.9	49.8	2.0	2.5	2.3	46.2	0.0
3	47.8	49.7	48.8	1.0	2.0	1.5	46.2	0.0

METCO ENVIRONMENTAL

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ERM SOUTHWEST
SILSBEE TEXAS
RTO DRYER OUTLET 2/
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INITIAL CAL.

RTO DRYER-STACK #2

THC: 0-100 ppm RANGE
J.U.m MODEL VE-7 #14
S/N

CO: 0-1000 ppm RANGE
TECO model 48 #17
S/N 48-39614-261

NOX: 0-100 ppm RANGE
TECO model 10S #17
S/N 10S-49429-282

HEATED LINE @ 250 °F
ALL CAL'S THRU SYSTEM
LEAK CK. 20 "Hg GOOD

HEATED SYSTEM
LEAK CK 20 "Hg GOOD

		THC PPM	CO PPM	NOX PPM
01/16/96	06:50	4.4	-0.2	-0.1
01/16/96	06:51	4.4C	-0.2C	-0.1C
01/16/96	06:52	4.4C	-0.2C	-0.1C
01/16/96	06:53	4.3C	-0.3C	-0.1C
01/16/96	06:54	4.4C	-0.2C	-0.1C
01/16/96	06:55	4.4C	1.0C	-0.1C
01/16/96	06:56	4.3C	57.1C	-0.1C
01/16/96	06:57	4.3C	807.3C	-0.1C
01/16/96	06:58	4.3C	919.5C	-0.1C
01/16/96	06:59	4.4C	918.1C	-0.1C
01/16/96	07:00	4.4C	896.0C	4.5C
01/16/96	07:01	4.3C	185.3C	55.2C
01/16/96	07:02	4.3C	-0.2C	72.1C
01/16/96	07:03	4.3C	-0.3C	82.4C
AVERAGES :		4.3	270.2	15.2

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ERM SOUTHWEST
SILSBEE TEXAS
RTO DRYER OUTLET #1
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CAL. ERROR

		THC PPM	CO PPM	NOX PPM	
01/16/96	07:05	4.3C	-0.3C	1.1C	
01/16/96	07:06	4.3C	-0.3C	0.4C	
01/16/96	07:07	4.3C	-0.3C	0.3C	ZERO N_2 SG 9101692 ALC
01/16/96	07:08	4.3C	94.2C	0.2C	
01/16/96	07:09	4.3C	894.0C	0.2C	
01/16/96	07:10	4.3C	933.6C	0.1C	
01/16/96	07:11	4.3C	933.2C	0.1C	
01/16/96	07:12	4.3C	919.6C	0.1C	
01/16/96	07:13	4.3C	919.6C	0.1C	921.9ppm CO CLM003883
01/16/96	07:14	4.3C	836.5C	28.4C	
01/16/96	07:15	4.3C	65.5C	84.9C	
01/16/96	07:16	4.4C	-0.3C	86.6C	85.4ppm NO ALM038783
01/16/96	07:17	4.5C	26.3C	64.1C	
01/16/96	07:18	4.3C	412.2C	1.5C	
01/16/96	07:19	4.4C	463.1C	0.6C	469ppm CO BLM003332
01/16/96	07:20	4.5C	462.6C	0.4C	
01/16/96	07:21	4.4C	317.7C	30.0C	
01/16/96	07:22	4.4C	3.4C	46.9C	46.2ppm NO BAL 3110
01/16/96	07:23	4.5C	13.6C	35.6C	
01/16/96	07:24	4.4C	217.6C	1.2C	
01/16/96	07:25	4.6C	246.7C	0.5C	247.1ppm CO ALM030956
01/16/96	07:26	4.4C	234.2C	0.3C	
01/16/96	07:27	4.4C	30.0C	0.2C	
01/16/96	07:28	4.5C	-0.3C	22.9C	
01/16/96	07:29	4.5C	-0.3C	28.8C	
01/16/96	07:30	4.6C	-0.3C	28.8C	
01/16/96	07:31	4.6C	-0.3C	28.7C	
01/16/96	07:32	4.7C	-0.3C	28.8C	
01/16/96	07:33	4.4C	-0.3C	28.8C	
01/16/96	07:34	4.4C	-0.3C	29.0C	
01/16/96	07:35	4.4C	-0.3C	29.2C	
01/16/96	07:36	4.5C	-0.3C	29.5C	
01/16/96	07:37	4.6C	-0.3C	29.8C	
01/16/96	07:38	26.9C	-0.3C	30.0C	
01/16/96	07:39	14.3C	-0.3C	30.3C	
01/16/96	07:40	2.2C	-0.3C	30.5C	
01/16/96	07:41	2.1C	-0.3C	30.8C	
01/16/96	07:42	2.6C	-0.3C	31.0C	
01/16/96	07:43	2.6C	-0.3C	31.1C	
01/16/96	07:44	2.6C	-0.3C	31.3C	
01/16/96	07:45	5.8C	-0.3C	31.2C	
01/16/96	07:46	25.2C	-0.3C	30.9C	
01/16/96	07:47	1.5C	-0.3C	30.5C	
01/16/96	07:48	-0.1C	-0.3C	30.2C	
01/16/96	07:49	-0.1C	-0.3C	30.2C	

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ERM SOUTHWEST
SILSBEE TEXAS
RTO DRYER OUTLET 2 /
Page : 2

		THC PPM	CO PPM	NOX PPM	
01/16/96	07:50	-0.2C	-0.3C	30.3C	
01/16/96	07:51	-0.1C	-0.3C	30.6C	
01/16/96	07:52	-0.1C	-0.3C	30.8C	
01/16/96	07:53	-0.1C	-0.3C	30.9C	
01/16/96	07:54	-0.1C	-0.3C	30.2C	
01/16/96	07:55	-0.1C	-0.3C	1.9C	
01/16/96	07:56	-0.1C	-0.3C	1.3C	
01/16/96	07:57	-0.1C	-0.3C	33.7C	ZERO N_2 SG 910692 ALC
01/16/96	07:58	-0.1C	-0.3C	35.2C	— START NOX CONV. CK.
01/16/96	07:59	43.7C	4.3C	35.0C	
01/16/96	08:00	88.6C	2.2C	34.5C	
01/16/96	08:01	88.6C	1.0C	34.2C	88.51 ppm Propane BLM001578
01/16/96	08:02	49.6C	0.8C	34.4C	
01/16/96	08:03	24.4C	-0.2C	34.6C	
01/16/96	08:04	46.9C	0.8C	34.9C	47.09 ppm Propane ALM048174
01/16/96	08:05	46.7C	0.8C	35.3C	
01/16/96	08:06	14.9C	0.2C	35.6C	
01/16/96	08:07	15.5C	-0.1C	35.5C	
01/16/96	08:08	23.0C	0.8C	35.2C	
01/16/96	08:09	23.0C	0.8C	35.0C	23.23 ppm Propane BLM003402
01/16/96	08:10	6.2C	0.2C	34.8C	
01/16/96	08:11	0.1C	-0.3C	34.9C	
01/16/96	08:12	-1.9C	-0.3C	35.1C	
01/16/96	08:13	0.6C	-0.3C	35.6C	
01/16/96	08:14	1.2C	-0.3C	35.9C	
01/16/96	08:15	1.1C	-0.3C	36.1C	
01/16/96	08:16	4.3C	-0.3C	36.2C	
01/16/96	08:17	8.0C	-0.3C	35.8C	
01/16/96	08:18	8.3C	-0.3C	35.5C	
01/16/96	08:19	7.8C	-0.3C	34.9C	
01/16/96	08:20	8.1C	-0.3C	35.0C	
01/16/96	08:21	9.1C	-0.3C	35.2C	
01/16/96	08:22	1.6C	-0.3C	35.5C	
01/16/96	08:23	0.9C	-0.3C	35.9C	
01/16/96	08:24	5.4C	-0.3C	36.2C	
01/16/96	08:25	2.8C	-0.3C	36.5C	
01/16/96	08:26	8.5C	-0.3C	36.5C	
01/16/96	08:27	9.3C	-0.3C	36.0C	
01/16/96	08:28	8.8C	-0.3C	35.7C	— END NOX CONV. CK.
01/16/96	08:29	8.2C	-0.3C	35.5C	
01/16/96	08:30	8.0C	-0.3C	9.6C	
01/16/96	08:31	9.1C	-0.3C	1.4C	
01/16/96	08:32	9.4C	-0.3C	1.1C	
01/16/96	08:33	9.7C	-0.3C	0.9C	
01/16/96	08:34	6.2C	-0.3C	0.8C	

THC RESPONSE CK = 7 MINUTES

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ERM SOUTHWEST
SILSBEE TEXAS
RTO DRYER OUTLET #1
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		THC PPM	CO PPM	NOX PPM	
01/16/96	08:35	6.4C	-0.3C	0.7C	
01/16/96	08:36	7.3C	-0.3C	0.7C	
01/16/96	08:37	8.8C	-0.3C	0.7C	
01/16/96	08:38	8.8C	-0.3C	0.7C	
01/16/96	08:39	9.0C	-0.3C	0.7C	
01/16/96	08:40	8.1C	-0.3C	0.6C	
01/16/96	08:41	7.7C	-0.3C	0.6C	
01/16/96	08:42	8.4C	-0.3C	0.5C	ZERO BIAS CK.
01/16/96	08:43	8.9C	-0.3C	2.4C	
01/16/96	08:44	6.4C	-0.3C	48.9C	
01/16/96	08:45	7.7C	-0.3C	48.7C	46.2ppm NO BIAS CK.
01/16/96	08:46	7.8C	-0.3C	48.4C	
01/16/96	08:47	7.3C	0.5C	47.2C	
01/16/96	08:48	8.0C	261.6C	4.3C	
01/16/96	08:49	8.2C	450.5C	0.7C	
01/16/96	08:50	8.5C	453.7C	0.5C	
01/16/96	08:51	7.5C	455.7C	0.4C	469ppm CO BIAS CK.
01/16/96	08:52	7.6C	453.9C	0.3C	
01/16/96	08:53	6.9C	179.3C	0.3C	
01/16/96	08:54	6.6C	4.3C	0.3C	
01/16/96	08:55	8.2C	2.1C	0.2C	RESPONSE CK.
01/16/96	08:56	7.6C	7.8C	10.0C	
01/16/96	08:57	7.7C	81.6C	33.3C	
01/16/96	08:58	7.3C	78.7C	32.8C	
AVERAGES :		9.0	91.6	23.3	

OUTLET #1

Auxiliary Average Report

DCNID : 07 Site Name : ERM SWST Aux Interval : 1 Date : 1/16/96

RUN #1 SO2/PART PORT A

Time	THC PPM	CO PPM	NOX PPM
13:16	1.0000	184.8000	31.3000
13:17	-2.3000	140.7000	31.4000
13:18	-2.2000	190.4000	29.8000
13:19	-2.2000	223.3000	29.4000
13:20	-2.2000	167.4000	30.4000
13:21	-2.2000	183.0000	30.3000
13:22	-2.2000	191.7000	30.6000
13:23	-2.2000	157.1000	30.2000
13:24	-2.1000	212.2000	28.2000
13:25	-2.1000	218.6000	29.4000
13:26	7.6000	176.6000	30.6000
13:27	7.4000	219.4000	30.5000
13:28	10.3000	168.1000	31.0000
13:29	6.8000	205.3000	29.5000
13:30	7.2000	247.7000	29.4000
13:31	8.3000	225.3000	31.5000
13:32	8.3000	219.3000	31.7000
13:33	11.0000	233.8000	31.8000
13:34	10.1000	169.1000	32.0000
13:35	8.5000	229.4000	30.0000
13:36	9.7000	272.5000	31.0000
13:37	10.3000	207.5000	32.7000
13:38	8.0000	236.1000	31.5000
13:39	7.1000	194.6000	32.6000
13:40	7.8000	193.3000	31.1000
13:41	7.1000	276.2000	30.3000
13:42	7.7000	263.0000	31.3000
13:43	10.0000	218.5000	32.0000
13:44	8.6000	249.8000	32.0000
13:45	9.2000	171.0000	32.2000
13:46	8.4000	261.9000	30.2000
13:47	6.6000	322.2000	31.0000
13:48	6.6000	240.4000	32.8000
13:49	6.8000	253.3000	31.9000
13:50	7.1000	235.2000	32.9000
13:51	7.7000	202.3000	32.2000
MAX :	11.0000	322.2000	32.9000
MIN :	-2.3000	140.7000	28.2000
AVG :	~~5.4306~~ 8.2	215.5833	31.0194
SCANS:	~~36~~ 26	36	36

Flame out

OUTLET # 1 & 2

Auxiliary Average Report

DCNID : 07 Site Name : ERM SWST Aux Interval : 1 Date : 1/16/96

RUN #1 PART B
SO_2/PART

Time	THC PPM	CO PPM	NOX PPM
14:07	7.4000	214.5000	32.5000
14:08	8.1000	216.6000	31.2000
14:09	7.0000	277.3000	29.7000
14:10	8.3000	239.7000	32.1000
14:11	8.3000	245.7000	31.9000
14:12	6.3000	288.7000	32.8000
14:13	9.7000	184.5000	33.2000
14:14	9.0000	260.2000	30.9000
14:15	7.1000	279.4000	31.9000
14:16	7.5000	222.4000	33.5000
14:17	6.7000	265.9000	32.7000
14:18	6.9000	232.7000	33.3000
14:19	6.6000	180.0000	32.1000
14:20	6.1000	253.6000	29.9000
14:21	6.1000	240.9000	31.8000
14:22	6.8000	192.7000	31.8000
14:23	6.4000	235.5000	31.6000
14:24	6.8000	150.7000	32.2000
14:25	7.8000	194.7000	30.0000
14:26	4.5000	246.9000	30.0000
14:27	7.6000	183.6000	31.6000
14:28	6.6000	199.0000	30.7000
14:29	5.7000	198.7000	31.4000
14:30	6.8000	141.9000	31.3000
14:31	6.5000	231.2000	29.6000
14:32	6.1000	241.5000	30.9000
14:33	7.1000	181.3000	32.5000
14:34	6.6000	227.6000	31.6000
14:35	6.7000	190.5000	32.7000
14:36	7.8000	206.7000	30.6000
14:37	9.1000	280.7000	30.0000
14:38	12.7000	231.3000	32.5000
14:39	12.4000	215.6000	31.9000
14:40	9.7000	268.0000	32.2000
14:41	10.1000	168.9000	32.8000
14:42	9.3000	251.8000	30.6000
MAX :	12.7000	288.7000	33.5000
MIN :	4.5000	141.9000	29.6000
AVG :	7.6167	223.3583	31.6111
SCANS:	36	36	36
	(62)	(72)	(72)
	7.9	219.5	31.3

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SILSBEE TEXAS
RTO DRYER OUTLET 2 of 4
Page : 1

		THC PPM	CO PPM	NOX PPM	
01/16/96	15:27	0.8C	272.2C	29.1C	
01/16/96	15:28	0.5C	240.2C	30.1C	ZERO THC
01/16/96	15:29	16.4C	202.4C	29.7C	
01/16/96	15:30	46.3C	260.3C	30.0C	
01/16/96	15:31	47.4C	183.0C	30.8C	47.09ppm Propane
01/16/96	15:32	27.4C	222.5C	28.9C	
01/16/96	15:33	11.6C	246.3C	20.8C	
01/16/96	15:34	15.2C	29.5C	46.8C	
01/16/96	15:35	13.1C	-0.1C	48.7C	ZERO CO/SPAN NOX
01/16/96	15:36	10.6C	-0.3C	48.7C	
01/16/96	15:37	10.4C	112.1C	22.6C	
01/16/96	15:38	9.4C	447.7C	3.1C	
01/16/96	15:39	15.7C	461.2C	2.8C	
01/16/96	15:40	17.1C	460.4C	2.5C	
01/16/96	15:41	16.5C	461.0C	2.4C	
01/16/96	15:42	13.1C	460.6C	2.3C	SPAN CO/ZERO NOX
01/16/96	15:43	14.2C	459.8C	2.3C	
01/16/96	15:44	14.0C	425.3C	15.1C	
01/16/96	15:45	14.6C	265.4C	29.1C	
AVERAGES :		16.5	274.2	22.4	

Auxiliary Average Report

DCNID : 07 Site Name : ERM SWST Aux Interval : 1 Date : 1/16/96

RUN #1 FORMALDEHYDE

Time	THC PPM	CO PPM	NOX PPM
15:51	10.9000	224.9000	29.7000
15:52	8.8000	256.7000	28.7000
15:53	13.5000	224.8000	29.3000
15:54	12.5000	209.4000	28.9000
15:55	10.6000	277.7000	27.8000
15:56	10.0000	234.8000	29.5000
15:57	12.0000	200.5000	29.1000
15:58	10.4000	248.0000	29.6000
15:59	10.5000	184.5000	30.5000
16:00	8.9000	241.7000	27.8000
16:01	5.5000	262.4000	28.5000
16:02	9.1000	178.2000	31.0000
16:03	9.3000	147.9000	33.7000
16:04	9.7000	153.8000	33.5000
16:05	8.2000	217.5000	30.2000
16:06	7.2000	266.1000	28.2000
16:07	6.4000	228.9000	29.1000
16:08	7.1000	162.4000	28.9000
16:09	6.1000	205.7000	28.2000
16:10	6.6000	157.8000	29.1000
16:11	6.2000	211.6000	26.9000
16:12	6.8000	276.4000	27.1000
16:13	8.7000	226.1000	29.4000
16:14	9.7000	216.2000	29.2000
16:15	7.4000	235.8000	29.8000
16:16	8.5000	183.2000	29.5000
16:17	7.7000	273.7000	28.0000
16:18	6.6000	283.1000	29.7000
16:19	flame out 4.7000	213.8000	30.7000
16:20	~~-2.3000~~	251.8000	29.9000
16:21	1.7000	206.5000	30.6000
16:22	7.3000	209.9000	29.3000
16:23	6.6000	284.6000	28.2000
16:24	~~=550~~	~~=999~~	~~=395~~
16:25	~~0.00000~~	~~0.00000~~	~~0.00000~~
16:26	6.4000	228.7000	30.0000
MAX :	13.5000	284.6000	33.7000
MIN :	-2.3000	0.0000	0.0000
AVG :	7.6943	216.7171	28.5600
SCANS:	~~35~~ (32)	~~33~~ (33)	~~35~~ (33)

Auxiliary Average Report

DCNID : 07 Site Name : ERM SWST Aux Interval : 1 Date : 1/16/96

Time	THC PPM	CO PPM	NOX PPM
16:39	6.1000	225.9000	27.2000
16:40	6.6000	276.0000	27.6000
16:41	7.8000	203.9000	29.5000
16:42	7.1000	219.8000	28.9000
16:43	6.3000	228.7000	29.8000
16:44	7.2000	169.0000	29.4000
16:45	6.6000	258.4000	27.7000
16:46	13.5000	245.6000	29.2000
16:47	15.4000	184.2000	29.7000
16:48	15.3000	248.8000	29.3000
16:49	13.6000	194.8000	30.3000
16:50	14.2000	219.5000	28.4000
16:51	12.8000	264.7000	27.9000
16:52	12.6000	198.3000	29.9000
16:53	13.6000	213.7000	29.5000
16:54	12.4000	246.1000	29.7000
16:55	12.7000	170.5000	29.7000
16:56	10.5000	244.0000	27.4000
16:57	9.3000	256.1000	28.7000
16:58	8.4000	201.6000	29.8000
16:59	8.6000	238.6000	29.0000
17:00	8.7000	196.0000	29.6000
17:01	7.9000	171.6000	27.9000
17:02	~~999~~	~~999~~	~~999~~
17:03	~~999~~	~~999~~	~~999~~
17:04	0.6000C	176.9000C	29.6000C
17:05	17.4000C	219.9000C	29.4000C
17:06	46.4000C	151.1000C	29.9000C
17:07	47.6000C	213.1000C	28.1000C
17:08	34.7000C	251.9000C	28.2000C
17:09	0.0000C	188.4000C	29.9000C
17:10	4.6000C	221.0000C	29.3000C
17:11	8.6000C	199.0000C	10.9000C
17:12	9.2000C	~~9.4000C~~	~~3.2000C~~
17:13	8.2000C	~~1.5000C~~	~~3.0000C~~
17:14	8.5000C	~~1.1000C~~	~~2.1000C~~
MAX :	47.6000	276.0000	30.3000
MIN :	0.0000	1.1000	2.1000
AVG :	12.4412	197.3265	26.1676
SCANS:	~~34~~ 32 (64)	~~34~~ 32 (65)	~~34~~ 32 (65)
	10.9	219.9	29.1

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RTO DRYER OUTLET 1 STACK
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		THC PPM	CO PPM	NOX PPM	
01/16/96	17:04	0.6C	176.9C	29.6C	ZERO Air
01/16/96	17:05	17.4C	219.9C	29.4C	
01/16/96	17:06	46.4C	151.1C	29.9C	
01/16/96	17:07	47.6C	213.1C	28.1C	47.09 ppm Propane
01/16/96	17:08	34.7C	251.9C	28.2C	
01/16/96	17:09	0.0C	188.4C	29.9C	
01/16/96	17:10	4.6C	221.0C	29.3C	
01/16/96	17:11	8.6C	199.0C	10.9C	
01/16/96	17:12	9.2C	9.4C	3.2C	
01/16/96	17:13	8.2C	1.5C	3.0C	
01/16/96	17:14	8.5C	1.1C	2.1C	
01/16/96	17:15	16.6C	1.4C	26.3C	
01/16/96	17:16	15.2C	0.0C	48.1C	
01/16/96	17:17	13.4C	0.0C	48.6C	
01/16/96	17:18	13.0C	0.0C	48.7C	
01/16/96	17:19	11.7C	0.0C	48.8C	ZERO CO / SPAN NOX
01/16/96	17:20	12.0C	7.1C	43.3C	
01/16/96	17:21	13.2C	339.2C	3.1C	
01/16/96	17:22	11.7C	461.5C	2.5C	
01/16/96	17:23	11.7C	462.3C	2.4C	SPAN CO / ZERO NOX
01/16/96	17:24	9.7C	461.3C	2.3C	
01/16/96	17:25	7.0C	400.2C	2.2C	
AVERAGES :		14.6	171.2	22.7	

THC: 0-100 ppm RANGE
S.U.M MODEL VE-7 #14
S/N

HEATED SYSTEM C50
ALL CAL'S THRU SYSTEM
LEAK ✓ 20" Hg GOOD

CO: 0-1000 ppm RANGE
TECO MODEL 48 #17
S/N 48-39614-261

NOX: 0-100 ppm RANGE
TECO MODEL 10S #17
10S-49429-282

HEATED SYSTEM
LEAK ✓ 20" Hg GOOD

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INITIAL CAL.

		THC PPM	CO PPM	NOX PPM	
01/17/96	06:38	9.4C	0.0C	-0.3C	
01/17/96	06:39	9.1C	0.0C	-0.3C	
01/17/96	06:40	8.7C	0.0C	-0.2C	
01/17/96	06:41	8.6C	0.0C	0.0C	ZERO
01/17/96	06:42	8.6C	0.0C	0.2C	
01/17/96	06:43	8.4C	0.0C	38.6C	
01/17/96	06:44	8.2C	0.0C	61.9C	
01/17/96	06:45	8.2C	0.0C	69.4C	
01/17/96	06:46	8.2C	0.0C	83.8C	
01/17/96	06:47	8.2C	0.0C	87.3C	
01/17/96	06:48	8.2C	0.0C	88.2C	
01/17/96	06:49	8.2C	0.2C	87.9C	SPAN
01/17/96	06:50	8.2C	508.3C	10.0C	
01/17/96	06:51	8.1C	940.5C	1.0C	
01/17/96	06:52	8.0C	935.8C	0.7C	
01/17/96	06:53	8.1C	935.7C	0.5C	SPAN
01/17/96	06:54	8.2C	847.8C	0.4C	
01/17/96	06:55	8.2C	86.3C	0.4C	
AVERAGES :		8.4	236.4	29.4	

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ERM SOUTHWEST
SILSBEE TEXAS
RTO DRYER OUTLET 1 STACK
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CAL. ERROR

		THC PPM	CO PPM	NOX PPM	
01/17/96	06:56	8.3C	0.0C	0.3C	ZERO N_2 SG9101692 ALC
01/17/96	06:57	8.3C	0.0C	20.0C	
01/17/96	06:58	8.3C	0.0C	83.0C	
01/17/96	06:59	8.2C	0.0C	86.3C	85.4ppm NO ALM038783
01/17/96	07:00	8.2C	0.0C	86.6C	
01/17/96	07:01	8.1C	434.0C	18.2C	
01/17/96	07:02	8.1C	928.6C	1.2C	
01/17/96	07:03	8.0C	923.2C	0.8C	921.9ppm CO CLM003883
01/17/96	07:04	8.0C	919.0C	0.7C	
01/17/96	07:05	7.9C	433.9C	36.7C	
01/17/96	07:06	7.9C	1.0C	45.1C	
01/17/96	07:07	7.9C	0.0C	45.8C	
01/17/96	07:08	8.0C	0.0C	46.2C	46.2ppm NO BAL 3110
01/17/96	07:09	8.1C	63.0C	28.4C	
01/17/96	07:10	8.2C	440.0C	1.4C	
01/17/96	07:11	8.3C	463.6C	0.9C	469ppm CO BLM003332
01/17/96	07:12	8.4C	463.3C	0.7C	
01/17/96	07:13	8.3C	462.6C	5.3C	
01/17/96	07:14	8.2C	164.3C	31.0C	— START NOX CONV. CK.
01/17/96	07:15	14.1C	7.5C	31.5C	
01/17/96	07:16	-0.1C	202.3C	31.6C	
01/17/96	07:17	6.2C	248.2C	31.9C	247.1ppm CO ALM030956
01/17/96	07:18	8.1C	248.2C	32.0C	
01/17/96	07:19	7.1C	195.6C	32.0C	
01/17/96	07:20	6.8C	6.8C	32.0C	
01/17/96	07:21	0.9C	0.0C	32.0C	
01/17/96	07:22	-0.5C	0.0C	32.0C	
01/17/96	07:23	-0.6C	0.0C	32.0C	
01/17/96	07:24	-0.4C	0.0C	32.1C	
01/17/96	07:25	-0.2C	0.0C	32.0C	
01/17/96	07:26	0.1C	0.0C	32.0C	ZERO N_2 SG9101692 ALC
01/17/96	07:27	35.5C	2.2C	32.1C	
01/17/96	07:28	89.1C	2.6C	32.1C	
01/17/96	07:29	88.9C	1.1C	32.1C	88.51 ppm Propane BLM001578
01/17/96	07:30	22.9C	1.0C	32.2C	
01/17/96	07:31	22.2C	0.4C	32.2C	
01/17/96	07:32	47.5C	1.1C	32.2C	47.09ppm Propane ALM048174
01/17/96	07:33	47.5C	1.1C	32.2C	
01/17/96	07:34	40.8C	1.1C	32.2C	
01/17/96	07:35	0.3C	0.3C	32.2C	
01/17/96	07:36	22.2C	0.7C	32.3C	
01/17/96	07:37	23.4C	1.1C	32.3C	23.23ppm Propane BLM003402
01/17/96	07:38	23.4C	1.1C	32.3C	
01/17/96	07:39	23.4C	1.1C	32.3C	
01/17/96	07:40	10.2C	1.0C	32.3C	

THC RESPONSE TIME 2 MINUTES

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ERM SOUTHWEST
SILSBEE TEXAS
RTO DRYER OUTLET 1 STACK
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		THC PPM	CO PPM	NOX PPM	
01/17/96	07:41	14.5C	0.0C	32.3C	
01/17/96	07:42	14.6C	0.0C	32.3C	
01/17/96	07:43	24.9C	0.0C	32.4C	
01/17/96	07:44	16.3C	0.0C	32.4C	— END NOX CONV. CK.
01/17/96	07:45	13.5C	0.0C	32.4C	
01/17/96	07:46	14.7C	4.4C	25.8C	
01/17/96	07:47	14.4C	159.0C	1.7C	
01/17/96	07:48	17.2C	433.1C	1.6C	
01/17/96	07:49	21.0C	458.9C	1.4C	
01/17/96	07:50	13.0C	459.1C	1.3C	
01/17/96	07:51	12.9C	460.7C	1.2C	469ppm CO BIAS CK./ZERO NOX BIAS CK.
01/17/96	07:52	12.5C	295.7C	29.2C	
01/17/96	07:53	13.5C	10.3C	47.4C	
01/17/96	07:54	17.1C	2.7C	47.8C	
01/17/96	07:55	13.1C	1.2C	47.8C	
01/17/96	07:56	10.3C	0.1C	47.9C	ZERO CO/46.2ppm NO BIAS CK.
01/17/96	07:57	10.1C	0.0C	23.4C	
01/17/96	07:58	10.8C	0.0C	1.8C	
01/17/96	07:59	10.4C	0.0C	1.1C	
01/17/96	08:00	15.1C	0.0C	1.0C	—
01/17/96	08:01	6.6C	21.0C	18.7C	RESPONSE TIME = 2 MINUTES
01/17/96	08:02	8.3C	78.6C	30.2C	—
01/17/96	08:03	9.3C	72.5C	31.3C	
01/17/96	08:04	8.8C	68.3C	32.5C	
01/17/96	08:05	10.7C	68.1C	32.0C	
01/17/96	08:06	9.7	92.7	31.0	
AVERAGES :		14.6	131.1	28.0	

Auxiliary Average Report

DCNID : 07 Site Name : ERM SWST Aux Interval : 1 Date : 1/17/96

RUN 2 PORT A
SO/PART

Time	THC PPM	CO PPM	NOX PPM
08:21	8.5000	68.6000	30.3000
08:22	12.3000	69.1000	29.1000
08:23	10.0000	109.1000	28.9000
08:24	9.5000	96.1000	29.1000
08:25	9.7000	99.6000	29.6000
08:26	9.3000	69.2000	31.1000
08:27	9.1000	67.7000	31.0000
08:28	4.4000	84.1000	30.6000
08:29	~~-1.4000~~	116.8000	30.6000
08:30	5.2000	102.9000	30.4000
08:31	11.7000	81.8000	31.7000
08:32	11.5000	69.9000	32.2000
08:33	12.4000	74.1000	31.8000
08:34	10.7000	104.0000	31.5000
08:35	9.9000	96.8000	31.2000
08:36	9.6000	99.3000	30.7000
08:37	9.0000	71.6000	31.6000
08:38	9.2000	76.0000	31.3000
08:39	10.5000	79.6000	30.5000
08:40	8.3000	117.5000	30.2000
08:41	7.1000	95.1000	29.3000
08:42	4.0000	87.7000	30.0000
08:43	8.0000	58.4000	27.6000
08:44	9.0000	47.5000	29.5000
08:45	9.1000	70.9000	28.8000
08:46	7.9000	84.9000	29.1000
08:47	8.8000	91.6000	29.2000
08:48	8.4000	69.0000	30.8000
08:49	7.0000	69.1000	30.9000
08:50	8.8000	75.8000	30.1000
08:51	8.4000	116.2000	30.2000
08:52	8.3000	113.6000	30.3000
08:53	10.4000	111.1000	32.1000
08:54	6.1000	82.3000	33.2000
08:55	~~-1.4000~~	81.1000	33.3000
08:56	~~-1.3000~~	89.8000	31.7000
MAX :	12.4000	117.5000	33.3000
MIN :	-1.4000	47.5000	27.6000
AVG :	8.0000	86.0528	30.5417
SCANS:	~~36~~	36	36

8.9 33

Auxiliary Average Report

DCNID : 07 Site Name : ERM SWST Aux Interval : 1 Date : 1/17/96

RUN 2 PORT B SCR/PART

Time	THC PPM	CO PPM	NOX PPM
09:11	12.5000	78.2000	32.5000
09:12	13.3000	80.2000	32.2000
09:13	12.2000	103.1000	31.3000
09:14	9.3000	116.2000	30.7000
09:15	7.7000	119.2000	30.7000
09:16	8.0000	83.3000	31.5000
09:17	5.8000	85.9000	31.9000
09:18	8.3000	88.8000	31.2000
09:19	6.7000	129.6000	30.8000
09:20	2.3000	121.1000	29.9000
09:21	6.0000	112.9000	30.9000
09:22	5.9000	89.0000	32.9000
09:23	7.5000	87.4000	32.1000
09:24	7.5000	94.7000	31.4000
09:25	7.1000	120.0000	31.6000
09:26	6.5000	125.4000	30.7000
09:27	6.2000	95.1000	32.8000
09:28	5.9000	88.3000	32.7000
09:29	8.0000	86.8000	32.1000
09:30	7.2000	112.4000	31.3000
09:31	5.9000	103.6000	31.5000
09:32	~~-1.4000~~	109.8000	31.9000
09:33	~~-1.3000~~	83.6000	32.9000
09:34	~~10.6000~~	~~66.2000~~	~~31.8000~~
09:35	~~14.9000~~	~~86.5000~~	~~31.3000~~
09:36	~~7.6000~~	~~129.6000~~	~~31.7000~~
09:37	~~8.5000~~	~~135.1000~~	~~31.2000~~
09:38	~~8.3000~~	~~102.5000~~	~~32.5000~~
09:39	~~7.1000~~	~~80.2000~~	~~32.7000~~
09:40	~~6.6000~~	~~71.6000~~	~~34.3000~~
09:41	~~7.3000~~	~~69.6000~~	~~35.3000~~
09:42	6.6000	84.3000	33.9000
09:43	8.8000	91.9000	32.3000
09:44	8.5000	74.2000	31.7000
09:45	6.5000	77.6000	31.3000
09:46	5.6000	86.1000	29.9000
09:47	5.1000	130.1000	30.3000
09:48	8.8000	136.0000	29.3000
09:49	8.2000	121.0000	31.3000
09:50	7.0000	94.9000	31.8000
09:51	7.2000	98.6000	31.9000
09:52	9.5000	114.7000	31.5000
09:53	6.8000	137.5000	31.3000
09:54	5.8000	133.2000	31.1000
MAX :	14.9000	137.5000	35.3000
MIN :	-1.4000	69.6000	29.3000
AVG :	~~2.3318~~	101.2682	31.7250
SCANS:	34 ~~44~~	36 ~~44~~	36 ~~44~~

PLANT DOWN 0933-0941

(77) 7.1 (72) 94.3 (72) 31.0

96 011
ERM SOUTHWEST
SILSBEE TEXAS
RTO DRYER OUTLET 1 STACK
Page : 1

		THC PPM	CO PPM	NOX PPM	
01/17/96	09:59	-999N	-999N	-999N	
01/17/96	10:00	-999N	-999N	-999N	
01/17/96	10:01	0.8C	96.1C	31.3C	ZERO N_2
01/17/96	10:02	3.7C	101.7C	31.5C	
01/17/96	10:03	45.8C	102.5C	30.6C	
01/17/96	10:04	46.0C	144.6C	29.7C	47.09ppm Propane
01/17/96	10:05	32.5C	152.0C	29.1C	
01/17/96	10:06	4.4C	111.0C	28.6C	
01/17/96	10:07	5.9C	29.1C	31.9C	
01/17/96	10:08	2.5C	-0.1C	49.6C	
01/17/96	10:09	-1.4C	-0.3C	49.8C	
01/17/96	10:10	4.3C	-0.3C	49.7C	ZERO CO & / SPAN NOX
01/17/96	10:11	0.2C	6.9C	44.0C	
01/17/96	10:12	3.7C	331.6C	3.8C	
01/17/96	10:13	3.9C	456.3C	2.2C	
01/17/96	10:14	3.3C	457.8C	2.0C	SPAN CO / ZERO NOX
AVERAGES :		11.1	142.1	29.6	

RUN #2 FORMALDEHYDE

Auxiliary Average Report

DCNID : 07 Site Name : ERM SWST Aux Interval : 1 Date : 1/17/96

PORT B

Time	THC PPM	CO PPM	NOX PPM
12:11	5.0000	71.3000	34.4000
12:12	5.5000	107.9000	33.1000
12:13	5.4000	103.8000	32.4000
12:14	4.4000	124.5000	33.4000
12:15	5.9000	97.3000	35.2000
12:16	5.6000	95.4000	34.8000
12:17	6.3000	111.8000	34.7000
12:18	5.0000	162.7000	34.3000
12:19	5.1000	167.3000	33.4000
12:20	6.1000	138.7000	36.8000
12:21	5.7000	109.5000	37.3000
12:22	6.1000	105.0000	36.9000
12:23	6.3000	135.6000	35.4000
12:24	6.0000	155.9000	34.8000
12:25	5.2000	161.3000	35.2000
12:26	5.2000	108.7000	36.5000
12:27	3.8000	99.0000	35.7000
12:28	6.2000	103.4000	34.4000
12:29	5.3000	152.3000	34.0000
12:30	5.1000	131.7000	33.0000
12:31	5.7000	122.4000	34.6000
12:32	5.0000	87.4000	35.4000
12:33	5.0000	79.8000	35.2000
12:34	6.1000	101.4000	34.4000
12:35	5.0000	119.0000	34.5000
12:36	4.3000	105.5000	33.8000
12:37	4.0000	88.9000	35.1000
12:38	4.5000	74.6000	35.2000
12:39	5.4000	76.4000	34.6000
12:40	5.2000	117.8000	34.0000
12:41	5.1000	109.5000	32.8000
12:42	4.9000	115.0000	33.7000
12:43	5.3000	88.2000	34.9000
12:44	5.1000	93.5000	34.3000
12:45	6.2000	105.0000	33.6000
12:46	4.1000	150.1000	33.2000
12:47	4.8000	127.4000	33.3000
12:48	4.9000	116.4000	34.6000
12:49	5.4000	107.2000	36.0000
12:50	6.0000	99.9000	34.3000
12:51	5.8000	131.7000	33.5000
12:52	5.6000	146.9000	32.4000
12:53	5.2000	156.6000	33.3000
12:54	0.6000	110.5000	35.6000
12:55	2.9000	101.0000	35.1000
12:56	5.6000	95.1000	34.2000
12:57	1.9000	139.6000	33.4000
12:58	-1.4000	138.2000	32.5000
12:59	4.3000	128.9000	34.1000
13:00	-0.8000	94.1000	35.2000
13:01	-1.3000	82.0000	34.1000
13:02	-1.3000	98.3000	33.1000
13:03	-1.3000	121.9000	32.2000

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PLANT DOWN

13:06	-1.3000	83.4000	33.0000
13:07	-1.3000	78.8000	32.6000
13:08	-1.3000	119.2000	31.7000
13:09	-1.3000	117.6000	31.5000
13:10	0.7000	118.7000	32.5000
13:11	6.6000	94.0800	33.3000
13:12	6.5000	90.6000	33.3000
13:13	7.2000	101.9000	32.1000
13:14	5.2000	150.0000	31.8000
13:15	5.0000	159.8000	30.7000
13:16	6.0000	124.3000	33.3000
13:17	8.1000	112.5000	33.6000
13:18	5.8000	105.9000	32.8000
13:19	6.3000	144.3000	32.7000
13:20	6.1000	151.8000	31.0000
13:21	2.4000	164.7000	32.3000
13:22	6.0000	114.8000	33.6000
13:23	5.3000	118.5000	33.7000
13:24	5.0000	113.8000	32.9000
13:25	5.7000	160.3000	32.7000
13:26	5.7000	166.4000	31.2000
13:27	5.8000	137.4000	33.4000
13:28	5.3000	112.3000	34.0000
13:29	5.5000	103.3000	33.2000
13:30	6.2000	114.9000	32.3000
13:31	2.8000	145.9000	30.9000
13:32	5.2000	159.1000	32.5000
13:33	5.2000	113.7000	34.2000
13:34	4.1000	113.6000	33.7000
13:35	6.1000	97.6000	32.9000
13:36	-1.1000	137.2000	31.9000
13:37	-1.3000	142.8000	31.4000
13:38	-1.3000	141.6000	33.2000
13:39	-1.3000	110.7000	34.1000
13:40	-1.3000	110.5000	32.6000
13:41	-1.3000	115.2000	32.2000
13:42	-1.3000	157.3000	31.2000
13:43	-1.3000	180.4000	31.4000
13:44	-1.3000	126.5000	33.8000
13:45	2.7000	118.8000	33.4000
13:46	5.2000	108.2000	33.0000
13:47	12.3000	137.8000	32.1000
13:48	9.5000	164.9000	31.4000
13:49	8.1000	175.6000	32.6000
13:50	7.5000	117.8000	34.2000
MAX :	12.3000	180.4000	37.3000
MIN :	-1.4000	71.3000	30.7000
AVG :	4.0060	120.2490	33.5610
SCANS:	~~100~~ 36	~~100~~ 36	~~100~~ 36

(6)

(3)

(36)

DOWN

AVG. 5.6 122.4 34.3

RUN #2 FORMALDEHYDE

Auxiliary Average Report

DCNID : 07 Site Name : ERM SWST Aux Interval : 1 Date : 1/17/96

PORT A

Time	THC PPM	CO PPM	NOX PPM
14:07	5.3000	108.0000	32.4000
14:08	4.3000	107.5000	32.6000
14:09	5.9000	93.8000	31.6000
14:10	6.0000	133.4000	30.0000
14:11	-0.6000	160.5000	30.6000
14:12	-1.3000	111.4000	32.7000
14:13	6.4000	117.7000	32.8000
14:14	2.4000	96.9000	31.7000
14:15	10.0000	122.6000	31.1000
14:16	9.0000	134.7000	30.5000
14:17	8.7000	149.2000	31.9000
14:18	7.8000	111.5000	32.3000
14:19	7.1000	112.9000	32.1000
14:20	8.0000	91.4000	31.4000
14:21	3.4000	134.3000	30.8000
14:22	6.2000	144.8000	30.8000
14:23	6.8000	126.7000	32.2000
14:24	6.2000	114.3000	32.3000
14:25	6.4000	119.3000	31.3000
14:26	2.3000	117.1000	31.1000
14:27	-1.4000	172.7000	29.7000
14:28	11.9000	216.2000	30.2000
14:29	12.5000	138.5000	32.5000
14:30	11.4000	150.6000	31.6000
14:31	9.9000	137.9000	32.2000
14:32	11.2000	173.8000	31.6000
14:33	10.1000	249.2000	29.6000
14:34	9.3000	222.0000	32.2000
14:35	8.0000	131.4000	33.7000
14:36	8.2000	173.8000	33.5000
14:37	8.9000	137.2000	32.9000
14:38	8.4000	193.7000	31.3000
14:39	7.1000	297.7000	30.7000
14:40	6.2000	169.2000	34.1000
14:41	6.4000	156.6000	32.9000
14:42	7.5000	143.9000	32.5000
14:43	7.3000	146.1000	31.4000
14:44	7.1000	222.7000	29.0000
14:45	6.8000	243.2000	31.1000
14:46	7.0000	147.3000	32.5000
14:47	6.4000	164.9000	32.2000
14:48	6.8000	138.8000	31.5000
14:49	6.3000	176.6000	30.4000
14:50	4.3000	239.1000	29.3000
14:51	6.7000	195.1000	32.1000
14:52	5.2000	167.3000	32.2000
14:53	9.6000	162.4000	31.8000
14:54	13.4000	145.3000	31.4000
14:55	12.2000	209.8000	30.0000
14:56	11.3000	264.0000	30.5000
14:57	10.6000	166.5000	33.6000
14:58	8.9000	168.3000	32.8000

Flame out

(9)

DOWN

15:01	9.1000	228.8000	30.1000
15:02	8.3000	214.6000	32.2000
15:03	8.4000	152.8000	32.5000
15:04	7.9000	158.9000	31.9000
15:05	8.4000	125.0000	31.7000
15:06	8.4000	181.3000	29.9000
15:07	7.5000	246.7000	29.8000
15:08	7.5000	156.7000	32.4000
15:09	5.8000	164.0000	31.8000
15:10	8.1000	155.1000	31.8000
15:11	7.7000	160.2000	31.3000
15:12	6.9000	230.3000	30.1000
15:13	6.9000	242.6000	31.7000
15:14	7.2000	155.7000	33.1000
15:15	6.7000	188.2000	32.7000
15:16	7.4000	154.8000	33.2000
15:17	7.7000	216.2000	31.9000
15:18	4.6000	283.3000	31.4000
15:19	6.7000	206.2000	34.3000
15:20	6.8000	195.1000	33.7000
15:21	6.8000	186.2000	34.0000
15:22	6.8000	165.2000	33.5000
15:23	7.0000	252.7000	30.2000
15:24	6.3000	292.4000	32.4000
15:25	6.8000	177.6000	34.7000
15:26	6.6000	184.7000	33.6000
15:27	6.6000	152.2000	33.0000
15:28	5.8000	179.8000	31.7000
15:29	5.8000	237.4000	31.1000
15:30	6.5000	206.4000	33.4000
15:31	6.7000	166.1000	32.9000
15:32	5.6000	169.9000	32.7000
15:33	5.1000	129.7000	31.5000
15:34	6.5000	131.1000	27.5000
15:35	5.8000	221.5000	28.3000
15:36	6.5000	163.8000	32.7000
15:37	4.9000	169.0000	32.2000
15:38	6.3000	148.9000	31.7000
15:39	7.0000	158.4000	30.8000
15:40	6.7000	217.9000	29.5000
15:41	6.0000	221.4000	31.0000
15:42	6.7000	147.5000	31.1000
15:43	5.5000	154.3000	30.4000
15:44	7.1000	138.7000	30.5000
15:45	7.4000	195.9000	29.5000
15:46	1.0000	270.9000	29.3000
15:47	4.4000	204.4000	32.1000
15:48	7.1000	184.4000	31.9000
15:49	6.8000	190.0000	31.6000
15:50	7.4000	166.1000	30.7000
15:51	7.4000	252.3000	29.1000
MAX :	13.4000	292.4000	34.7000
MIN :	-1.4000	91.4000	27.5000
AVG :	7.0057	172.9981	31.6314
SCANS:	105	105	105

(1)

DOWN

(36)

(70) (72) (72)

avg 6.3 144.3 32.7

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ERM SOUTHWEST
SILSBEE TEXAS
RTO DRYER OUTLET 1 STACK
Page : 1

		THC PPM	CO PPM	NOX PPM	
01/17/96	16:01	0.5C	121.3C	28.7C	ZERO N_2
01/17/96	16:02	0.6C	165.2C	28.1C	
01/17/96	16:03	22.2C	179.2C	29.8C	
01/17/96	16:04	47.3C	117.6C	31.4C	
01/17/96	16:05	47.3C	115.0C	30.7C	47.09 ppm Propane
01/17/96	16:06	42.1C	97.5C	30.9C	
01/17/96	16:07	0.0C	137.2C	29.3C	
01/17/96	16:08	-1.3C	171.3C	22.2C	
01/17/96	16:09	-1.3C	30.2C	46.6C	
01/17/96	16:10	-1.3C	-0.1C	49.8C	
01/17/96	16:11	-1.3C	-0.1C	49.9C	ZERO CO / SPAN NOX
01/17/96	16:12	-1.3C	29.6C	36.2C	
01/17/96	16:13	-1.3C	394.5C	3.3C	
01/17/96	16:14	-1.3C	459.5C	2.9C	
01/17/96	16:15	-1.3C	457.1C	2.7C	
01/17/96	16:16	-1.3C	459.1C	2.6C	
01/17/96	16:17	-1.3C	459.2C	2.5C	SPAN CO / ZERO NOX
01/17/96	16:18	4.8C	457.8C	2.4C	
AVERAGES :		8.4	214.0	23.9	

Auxiliary Average Report

DCNID : 07 Site Name : ERM SWST Aux Interval : 1 Date : 1/17/96

RUN #3 SO_2/PART
PORT A

Time	THC PPM	CO PPM	NOX PPM
17:51	6.0000	185.0000	30.3000
17:52	6.7000	171.4000	30.6000
17:53	7.9000	170.8000	29.3000
17:54	6.8000	258.1000	28.4000
17:55	6.9000	257.4000	30.2000
17:56	7.1000	163.4000	30.7000
17:57	6.7000	189.5000	30.2000
17:58	7.1000	149.8000	30.4000
17:59	6.7000	202.8000	29.0000
18:00	3.6000	255.3000	28.3000
18:01	6.5000	178.7000	30.6000
18:02	5.5000	167.4000	29.7000
18:03	5.4000	153.1000	29.7000
18:04	5.9000	139.7000	28.7000
18:05	5.8000	199.8000	27.6000
18:06	5.0000	222.9000	28.4000
18:07	5.8000	156.5000	30.0000
18:08	5.2000	171.7000	29.0000
18:09	4.6000	148.5000	29.2000
18:10	5.5000	172.5000	28.3000
18:11	5.1000	225.9000	27.7000
18:12	6.3000	207.6000	29.7000
18:13	6.1000	177.9000	30.1000
18:14	4.9000	186.1000	30.2000
18:15	5.3000	145.2000	30.0000
18:16	5.6000	206.7000	27.8000
18:17	4.4000	251.4000	28.6000
18:18	5.3000	169.5000	30.8000
18:19	4.1000	177.6000	30.4000
18:20	5.4000	141.9000	29.5000
18:21	5.2000	154.3000	28.1000
18:22	5.0000	214.1000	27.5000
18:23	5.5000	207.6000	29.6000
18:24	4.7000	159.7000	29.9000
18:25	4.1000	132.6000	30.4000
18:26	4.7000	98.0000	30.0000
18:27	4.4000	156.8000	28.1000
18:28	2.9000	174.6000	29.4000
18:29	3.9000	122.6000	31.2000
18:30	3.3000	106.4000	31.5000
18:31	4.0000	81.7000	31.4000
18:32	3.7000	103.9000	30.4000
18:33	3.9000	124.9000	30.3000
18:34	3.5000	140.3000	30.7000
18:35	3.2000	89.7000	31.4000
18:36	3.8000	101.4000	31.0000
18:37	5.7000	101.2000	31.5000
18:38	4.9000	149.0000	30.0000
18:39	5.5000	200.4000	29.1000
18:40	6.6000	165.4000	30.8000
18:41	6.2000	147.0000	30.8000
18:42	5.7000	164.7000	31.1000
18:43	6.7000	131.1000	30.8000
18:44	6.6000	206.2000	29.6000

(15)

(15)

DOWN

18:46	6.3000	188.6000	33.1000
18:47	5.7000	192.6000	31.6000
18:48	6.3000	164.3000	32.4000
18:49	6.8000	170.5000	31.2000
18:50	6.6000	218.1000	30.1000
18:51	6.8000	206.6000	31.8000
18:52	7.1000	160.5000	32.3000
18:53	6.2000	190.0000	32.3000
18:54	6.4000	156.5000	31.9000
18:55	6.4000	179.9000	30.6000
18:56	5.4000	226.2000	30.4000
18:57	5.8000	172.9000	32.3000
18:58	6.5000	187.2000	31.7000
18:59	6.4000	180.4000	31.5000
19:00	7.2000	156.7000	30.6000
19:01	6.9000	247.6000	29.6000
19:02	7.0000	255.8000	31.4000
19:03	7.7000	196.4000	33.0000
19:04	6.5000	240.1000	32.4000
19:05	7.4000	177.9000	32.6000
19:06	6.4000	242.2000	30.3000
19:07	6.2000	297.8000	31.1000
19:08	7.7000	235.8000	32.5000
19:09	7.4000	216.0000	31.8000
19:10	6.3000	218.2000	31.2000
19:11	7.3000	160.9000	31.2000
19:12	7.0000	240.5000	29.4000,
19:13	6.5000	258.5000	30.7000
19:14	7.3000	178.0000	32.3000,
19:15	6.3000	202.4000	30.9000
19:16	5.7000	164.1000	31.7000,
MAX :	7.9000	297.8000	33.1000
MIN :	2.9000	81.7000	27.5000
AVG :	5.8012	180.4151	30.4000
SCANS:	~~86~~ 36	~~86~~ 36	86

DOWN

(6)

5.5 165.6 30.2

Auxiliary Average Report

DCNID : 07 Site Name : ERM SWST Aux Interval : 1 Date : 1/17/96

RUN 3 SO2/PART PORT B

Time	THC PPM	CO PPM	NOX PPM
19:28	7.3000	173.1000	28.6000
19:29	7.3000	252.8000	27.9000
19:30	7.4000	241.8000	30.1000
19:31	8.1000	191.5000	30.9000
19:32	7.1000	231.6000	30.2000
19:33	8.0000	171.2000	30.6000
19:34	8.2000	234.6000	28.5000
19:35	5.0000	295.8000	29.1000
19:36	8.4000	229.2000	31.3000
19:37	7.6000	225.9000	31.0000
19:38	6.7000	227.4000	31.2000
19:39	7.7000	160.0000	30.1000
19:40	7.2000	249.9000	28.3000
19:41	7.0000	262.2000	29.8000
19:42	8.1000	189.8000	30.8000
19:43	6.6000	223.7000	29.7000
19:44	6.2000	167.7000	29.8000
19:45	7.5000	200.1000	28.0000
19:46	6.3000	277.2000	27.7000
19:47	7.8000	230.0000	29.6000
19:48	7.8000	198.6000	30.1000
19:49	6.3000	209.6000	29.2000
19:50	7.9000	153.9000	29.2000
19:51	8.2000	252.6000	27.1000
19:52	6.9000	293.5000	29.1000
19:53	7.8000	195.8000	30.8000
19:54	5.7000	213.1000	30.1000
19:55	7.2000	181.7000	30.3000
19:56	7.6000	183.8000	29.0000
19:57	6.8000	266.6000	28.4000
19:58	7.0000	242.8000	30.5000
19:59	8.0000	176.6000	31.1000
20:00	6.2000	221.0000	30.8000
20:01	7.0000	145.6000	31.3000
20:02	7.7000	211.7000	28.8000
20:03	5.3000	272.7000	29.1000
20:04	6.7000	186.3000	31.3000
20:05	6.6000	195.0000	31.4000
20:06	6.0000	169.0000	31.3000
20:07	6.9000	149.1000	29.9000
20:08	6.5000	224.4000	28.7000
20:09	6.3000	227.2000	29.5000
20:10	7.4000	166.8000	31.1000
20:11	6.3000	189.6000	30.6000
20:12	6.8000	154.0000	31.1000
20:13	5.6000	189.7000	29.1000
20:14	5.6000	232.4000	29.6000
20:15	7.2000	186.5000	31.6000
20:16	7.1000	180.5000	31.9000
20:17	6.1000	198.8000	31.2000
20:18	7.2000	145.0000	30.2000
20:19	7.8000	233.5000	28.2000
20:20	6.3000	277.5000	29.5000

(18)

DOWN

(10)

20:23	-999	-999	-999
20:24	-999	-999	-999
20:25	-999	-999	-999
20:26	-999	-999	-999
20:27	-2.7000	13.8000	15.6000
20:28	-2.8000	17.8000	6.3000
20:29	-2.8000	3.7000	5.2000
20:30	-2.8000	3.4000	4.3000
20:31	-2.8000	5.7000	5.7000
20:32	0.7000	3.9000	4.8000
20:33	1.9000	2.9000	6.0000
20:34	1.6000	2.7000	13.9000
20:35	1.5000	2.1000	14.2000
20:36	1.5000	2.1000	15.0000
20:37	1.2000	2.1000	14.7000
20:38	1.2000	2.1000	14.1000
20:39	1.1000	2.1000	15.4000
20:40	1.3000	1.4000	14.6000
20:41	1.2000	2.1000	15.5000
20:42	1.2000	1.6000	14.9000
20:43	1.1000	1.1000	14.1000
20:44	1.0000	1.1000	18.4000
20:45	1.1000	1.1000	18.8000
20:46	1.1000	1.1000	19.2000
20:47	1.1000	1.1000	18.8000
20:48	1.0000	1.1000	18.3000
20:49	1.0000	1.1000	18.6000
20:50	1.2000	1.1000	19.0000
20:51	1.0000	1.7000	16.6000
20:52	1.4000	3.0000	11.6000
20:53	0.9000	2.1000	12.3000
20:54	1.2000	1.2000	17.1000
20:55	1.1000	1.4000	17.2000
20:56	0.9000	1.2000	16.3000
20:57	0.8000	1.1000	16.6000
20:58	1.1000	1.1000	16.3000
20:59	0.8000	1.1000	16.6000
21:00	1.2000	1.1000	17.2000
21:01	1.3000	2.0000	13.4000
21:02	0.9000	2.3000	10.6000
21:03	1.0000	1.4000	10.2000
21:04	0.8000	1.1000	15.0000
21:05	2.6000	1.1000	16.5000
21:06	2.3000	3.0000	16.7000
21:07	1.1000	3.0000	15.1000
21:08	1.4000	2.7000	10.9000
21:09	0.9000	2.1000	9.6000
21:10	1.4000	1.4000	14.9000
21:11	1.3000	1.6000	15.2000
21:12	1.0000	1.4000	16.1000
21:13	2.8000	2.3000	12.6000
21:14	4.8000	3.3000	14.1000
21:15	5.6000	11.0000	22.8000
21:16	5.2000	18.6000	25.5000
21:17	6.3000	9.9000	26.3000
21:18	4.6000	23.6000	24.0000
21:19	3.9000	36.0000	27.6000
21:20	4.4000	42.9000	25.2000
21:21	5.8000	95.2000	24.8000
21:22	6.0000	123.6000	26.1000
21:23	6.5000	136.5000	26.6000
21:24	6.1000	130.9000	28.1000
21:25	6.4000	151.6000	27.5000
21:26	5.9000	126.9000	28.7000

PLANT DOWN

21:29	5.6000	119.7000	30.3000
21:30	5.0000	138.7000	30.0000
21:31	4.9000	115.1000	31.1000
21:32	4.0000	97.2000	30.6000
21:33	4.4000	91.2000	31.0000
21:34	5.4000	99.5000	31.4000
21:35	4.7000	110.1000	31.1000
21:36	5.3000	110.6000	30.4000
21:37	4.4000	82.8000	30.3000
21:38	5.2000	87.2000	30.8000
21:39	5.2000	99.3000	29.9000
21:40	5.0000	97.3000	31.2000
21:41	4.9000	103.5000	29.9000
MAX :	8.4000	295.8000	31.9000
MIN :	-2.8000	1.1000	4.8000
AVG :	4.3438	107.7148	23.6617
SCANS:	~~128~~ 34	~~128~~ 34	~~128~~ 34

(6)

6.1

70

178.0

30.1

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ERM SOUTHWEST
SILSBEE TEXAS
RTO DRYER OUTLET 1 STACK
Page : 1

		THC PPM	CO PPM	NOX PPM	
01/17/96	21:59	0.5C	21.8C	3.0C	ZERO N_2
01/17/96	22:00	2.7C	1.1C	2.6C	
01/17/96	22:01	8.2C	0.1C	2.4C	
01/17/96	22:02	48.2C	-0.1C	2.3C	
01/17/96	22:03	48.2C	-0.1C	2.3C	47.09ppm Propane
01/17/96	22:04	48.2C	-0.1C	2.2C	
01/17/96	22:05	8.7C	-0.2C	2.1C	
01/17/96	22:06	4.9C	7.9C	2.1C	
01/17/96	22:07	5.6C	1.2C	2.4C	
01/17/96	22:08	5.7C	0.0C	42.7C	
01/17/96	22:09	5.7C	-0.2C	48.1C	
01/17/96	22:10	5.6C	-0.2C	48.6C	46.2ppm NO BIAS CK/ZERO CO
01/17/96	22:11	5.7C	10.4C	41.1C	
01/17/96	22:12	5.7C	358.1C	2.8C	
01/17/96	22:13	5.7C	457.4C	2.3C	
01/17/96	22:14	5.4C	457.9C	2.2C	Span CO/ZERO NOX
AVERAGES :		13.4	82.2	13.1	

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ERM SOUTHWEST
SILSBEE TEXAS
RTO DRYER OUTLET 1 STACK
Page : 1

THC: 0-100ppm RANGE
S.U.M. MODEL VE-7 #14
S/N

CO: 0-1000ppm RANGE
TECO MODEL 48 #17
S/N 48-39614-261

NOX: 0-100 ppm RANGE
TECO MODEL 10S #17
S/N 105-49429-282

HEATED SYSTEM - 350
ALL CAL'S thru sys.
leak check 20" Hg

		THC PPM	CO PPM	NOX PPM	
01/18/96	07:40	5.4C	1.1C	0.1C	
01/18/96	07:41	5.5C	1.1C	0.1C	
01/18/96	07:42	5.5C	1.0C	0.1C	
01/18/96	07:43	5.8C	0.6C	0.1C	ZERO N_2 SG 9101682ALC
01/18/96	07:44	6.1C	0.5C	3.2C	
01/18/96	07:45	6.4C	0.0C	60.3C	
01/18/96	07:46	6.8C	0.0C	73.5C	
01/18/96	07:47	7.3C	0.0C	77.6C	
01/18/96	07:48	8.2C	0.0C	85.7C	SPAN
01/18/96	07:49	8.8C	20.4C	65.5C	
01/18/96	07:50	8.8C	720.9C	1.3C	
01/18/96	07:51	8.7C	911.3C	0.7C	
01/18/96	07:52	8.7C	916.5C	0.5C	ZERO NOX
01/18/96	07:53	8.6C	820.4C	29.1C	
01/18/96	07:54	8.6C	67.5C	86.2C	
01/18/96	07:55	8.2C	-0.1C	86.9C	85.4ppm NO ALM038783/ZERO CO
01/18/96	07:56	7.9C	85.5C	56.4C	
01/18/96	07:57	7.6C	834.6C	1.3C	
01/18/96	07:58	7.2C	914.7C	0.8C	
01/18/96	07:59	7.5C	915.1C	0.6C	921 ppm CO CLM003883
01/18/96	08:00	8.0C	863.3C	10.8C	
01/18/96	08:01	7.6C	125.2C	45.0C	
01/18/96	08:02	7.7C	-0.1C	46.5C	
01/18/96	08:03	7.6C	-0.1C	46.6C	46.2ppm NO BAL 3110
01/18/96	08:04	7.3C	169.4C	15.8C	
01/18/96	08:05	7.1C	460.0C	1.0C	
01/18/96	08:06	6.8C	461.9C	9.9C	469 ppm CO BLM00 3332
01/18/96	08:07	6.7C	461.6C	20.7C	— START NOX CONV. CK.
01/18/96	08:08	6.2C	355.4C	20.5C	
01/18/96	08:09	5.7C	12.6C	20.6C	
01/18/96	08:10	5.6C	166.5C	20.6C	
01/18/96	08:11	5.5C	246.6C	20.6C	
01/18/96	08:12	5.4C	246.1C	20.6C	
01/18/96	08:13	5.8C	246.5C	20.6C	247.1ppm COALM030956
01/18/96	08:14	5.5C	244.8C	20.6C	
01/18/96	08:15	0.7C	80.9C	20.6C	
01/18/96	08:16	0.5C	0.4C	20.7C	
01/18/96	08:17	0.4C	0.4C	20.6C	ZERO N_2
01/18/96	08:18	68.3C	4.1C	20.7C	
01/18/96	08:19	89.3C	1.2C	20.7C	
01/18/96	08:20	89.2C	1.1C	20.7C	88.51 ppm Propane BLM005578
01/18/96	08:21	53.5C	1.1C	20.7C	
01/18/96	08:22	35.0C	1.1C	20.7C	
01/18/96	08:23	47.8C	1.1C	20.7C	
01/18/96	08:24	47.7C	1.1C	20.8C	47.09ppm Propane ALM048174

INITIAL CAL

CAL ERROR ✓

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ERM SOUTHWEST
SILSBEE TEXAS
RTO DRYER OUTLET 1 STACK
Page : 2

		THC PPM	CO PPM	NOX PPM	
01/18/96	08:25	12.9C	1.0C	20.7C	
01/18/96	08:26	12.7C	0.2C	20.7C	
01/18/96	08:27	23.7C	1.1C	20.8C	
01/18/96	08:28	23.6C	1.0C	20.8C	23.23 ppm propane BLM00340 2
01/18/96	08:29	18.4C	1.0C	20.8C	
01/18/96	08:30	5.3C	0.4C	20.8C	
01/18/96	08:31	4.6C	1.0C	20.8C	
01/18/96	08:32	4.6C	1.0C	20.8C	
01/18/96	08:33	4.5C	1.0C	20.8C	
01/18/96	08:34	3.6C	1.0C	20.8C	
01/18/96	08:35	4.8C	1.0C	20.9C	
01/18/96	08:36	4.7C	1.0C	20.9C	
01/18/96	08:37	4.9C	1.0C	20.9C	— END NOX CONV. CK.
01/18/96	08:38	5.2C	1.0C	20.9C	
01/18/96	08:39	4.7C	1.0C	8.8C	
01/18/96	08:40	4.4C	115.8C	1.6C	
01/18/96	08:41	3.6C	331.6C	1.2C	
01/18/96	08:42	3.6C	455.8C	1.1C	
01/18/96	08:43	4.4C	457.6C	1.0C	
01/18/96	08:44	4.2C	457.1C	1.0C	469 ppm CO BIAS CK / ZERO NOX BIAS CK.
01/18/96	08:45	3.7C	372.6C	1.0C	
01/18/96	08:46	4.1C	28.7C	0.9C	
01/18/96	08:47	4.3C	1.3C	13.1C	
01/18/96	08:48	4.1C	0.6C	43.3C	
01/18/96	08:49	4.6C	-0.3C	47.2C	
01/18/96	08:50	3.5C	-0.3C	47.8C	ZERO CO BIAS CK. / 46.2 ppm NO BIAS CK.
01/18/96	08:51	3.1C	-0.2C	40.2C	
01/18/96	08:52	3.4C	1.0C	2.0C	
01/18/96	08:53	2.4C	1.0C	1.2C	
01/18/96	08:54	2.0C	1.0C	0.8C	
01/18/96	08:55	1.7C	3.7C	10.5C	
01/18/96	08:56	1.4C	8.7C	16.1C	
AVERAGES :		11.4	163.8	22.2	

Auxiliary Average Report

DCNID : 07 Site Name : ERM SWST Aux Interval : 1 Date : 1/18/96

RUN #3 (0011)
PORT B

Time	THC PPM	CO PPM	NOX PPM
12:16	4.6000	93.0000	27.7000
12:17	4.6000	110.9000	27.5000
12:18	4.5000	98.7000	28.1000
12:19	5.1000	92.0000	27.1000
12:20	4.8000	142.0000	27.1000
12:21	4.8000	112.3000	27.4000
12:22	4.0000	116.3000	27.1000
12:23	4.4000	107.2000	27.9000
12:24	5.9000	97.0000	27.4000
12:25	4.1000	153.7000	26.9000
12:26	5.0000	133.1000	28.0000
12:27	4.5000	108.1000	27.2000
12:28	5.4000	111.3000	27.2000
12:29	5.2000	111.4000	27.0000
12:30	5.1000	129.4000	27.6000
12:31	4.8000	135.8000	27.6000
12:32	4.2000	92.9000	27.4000
12:33	5.1000	102.8000	28.8000
12:34	4.7000	97.1000	28.8000
12:35	4.4000	97.3000	29.4000
12:36	4.2000	117.5000	29.5000
12:37	4.5000	83.6000	29.2000
12:38	4.3000	94.9000	28.0000
12:39	4.2000	96.0000	28.7000
12:40	4.6000	80.8000	28.6000
12:41	4.6000	117.6000	27.6000
12:42	4.9000	101.0000	27.7000
12:43	3.3000	103.3000	27.4000
12:44	4.6000	115.1000	27.6000
12:45	4.9000	95.2000	27.9000
12:46	4.6000	117.1000	27.6000
12:47	5.0000	122.0000	27.3000
12:48	4.7000	101.6000	26.8000
12:49	5.1000	122.0000	27.0000
12:50	5.3000	102.9000	26.5000
12:51	5.3000	105.2000	25.9000
MAX :	5.9000	153.7000	29.5000
MIN :	3.3000	80.8000	25.9000
AVG :	4.7028	108.8361	27.6806
SCANS:	36	36	36

Auxiliary Average Report

DCNID : 07 Site Name : ERM SWST Aux Interval : 1 Date : 1/18/96

RUN #3 (6011)
PORT A

Time	THC PPM	CO PPM	NOX PPM
13:02	4.8000	128.2000	26.4000
13:03	4.8000	121.4000	26.7000
13:04	3.9000	94.1000	27.0000
13:05	5.4000	95.4000	27.8000
13:06	4.9000	92.3000	27.6000
13:07	4.2000	101.5000	27.2000
13:08	4.1000	115.5000	27.6000
13:09	3.9000	83.4000	27.3000
13:10	4.2000	96.2000	27.0000
13:11	4.7000	89.2000	27.5000
13:12	5.1000	84.5000	27.4000
13:13	4.3000	125.0000	26.5000
13:14	4.3000	92.4000	26.4000
13:15	3.8000	104.5000	26.1000
13:16	3.9000	101.7000	26.9000
13:17	4.9000	86.3000	26.6000
13:18	3.5000	124.0000	26.1000
13:19	4.8000	105.4000	26.2000
13:20	3.8000	99.8000	25.7000
13:21	4.3000	119.8000	26.2000
13:22	4.9000	94.3000	26.3000
13:23	4.5000	114.2000	26.0000
13:24	4.7000	125.6000	25.9000
13:25	5.1000	96.9000	25.7000
13:26	4.2000	120.2000	26.8000
13:27	4.2000	92.2000	28.2000
13:28	4.7000	87.2000	27.4000
13:29	4.3000	128.4000	26.9000
13:30	4.4000	99.3000	27.3000
13:31	4.4000	110.9000	26.9000
13:32	4.1000	97.2000	27.7000
13:33	4.5000	81.5000	28.0000
13:34	4.6000	124.8000	27.0000
13:35	4.4000	113.6000	27.0000
13:36	3.0000	100.1000	26.4000
13:37	4.4000	97.6000	26.7000
MAX :	5.4000	128.4000	28.2000
MIN :	3.0000	81.5000	25.7000
AVG :	4.3889	104.0167	26.8444
SCANS:	36	36	36
	(72)	(72)	(72)
	(4.5)	(106.4)	(27.3)

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ERM SOUTHWEST
SILSBEE TEXAS
RTO DRYER OUTLET 1 STACK
Page : 1

		THC PPM	CO PPM	NOX PPM	
01/18/96	13:42	0.8C	105.9C	24.6C	
01/18/96	13:43	0.7C	96.0C	24.4C	ZERO N2
01/18/96	13:44	39.9C	109.3C	24.1C	
01/18/96	13:45	48.5C	133.9C	24.1C	47.09ppm Propane
01/18/96	13:46	33.1C	90.1C	24.3C	
01/18/96	13:47	1.8C	104.9C	23.7C	
01/18/96	13:48	2.9C	88.6C	20.5C	
01/18/96	13:49	2.9C	10.0C	48.5C	
01/18/96	13:50	2.8C	-0.3C	49.7C	ZERO CO/NOX SPAN
01/18/96	13:51	2.5C	-0.3C	50.0C	
01/18/96	13:52	2.8C	-0.3C	50.0C	
01/18/96	13:53	2.5C	12.3C	41.1C	
01/18/96	13:54	2.7C	358.7C	2.7C	
01/18/96	13:55	2.4C	455.0C	2.2C	
01/18/96	13:56	1.9C	457.3C	2.0C	SPAN CO/ZERO NOX
01/18/96	13:57	2.2C	455.1C	1.9C	
AVERAGES :		9.4	154.8	25.9	

Dryer RTO Number 2 Stack - Particulate
Oxides of Nitrogen
Concentration

Run Number	Measured (ppm)	Adjusted (ppm*)
1	28.1	27.4
2	30.2	30.1
3	31.1	32.5

*Calculated according to equation 6C-1.

Dryer RTO Number 2 Stack - Formaldehyde
Oxides of Nitrogen
Concentration

Run Number	Measured (ppm)	Adjusted (ppm*)
1	29.3	27.9
2	30.2	30.3
3	25.7	25.5

*Calculated according to equation 6C-1.

Dryer RTO Number 2 Stack - Particulate
Calibration Summary
Oxides of Nitrogen

Run Number	NOx Calibration Initial Drift Check (ppm)	NOx Calibration Final Drift Check (ppm)	NOx Calibration Average (ppm)	NOx Zero Initial Drift Check (ppm)	NOx Zero Final Drift Check (ppm)	NOx Zero Average (ppm)	Actual NOx Calibration Value (ppm)	Actual NOx Zero Value (ppm)
1	46.3	47.1	46.7	0.1	1.6	0.9	46.2	0.0
2	44.3	47.1	45.7	0.2	2.3	1.3	46.2	0.0
3	43.2	44.1	43.7	1.0	1.2	1.1	46.2	0.0

METCO ENVIRONMENTAL

Dryer RTO Number 2 Stack - Formaldehyde
Calibration Summary
Oxides of Nitrogen

Run Number	NOx Calibration Initial Drift Check (ppm)	NOx Calibration Final Drift Check (ppm)	NOx Calibration Average (ppm)	NOx Zero Initial Drift Check (ppm)	NOx Zero Final Drift Check (ppm)	NOx Zero Average (ppm)	Actual NOx Calibration Value (ppm)	Actual NOx Zero Value (ppm)
1	47.1	47.1	47.1	1.6	2.7	2.2	46.2	0.0
2	47.1	43.2	45.2	2.3	1.0	1.7	46.2	0.0
3	45.5	45.7	45.6	0.7	1.6	1.2	46.2	0.0

METCO ENVIRONMENTAL

ERM SOUTHWEST
RTO NUMBER ~~DWE~~ DRYER STACK
SILSBEE, TEXAS
96 011
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Init. Cals, Bias, Conv. Chk.

		THC PPM	CO PPM	NOX PPM	
01/16/96	06:49	28.6C	-0.2C	0.0C	Zero CO Init.
01/16/96	06:50	27.4C	0.1C	~~0.0C~~	~~Zero NOx Init.~~
01/16/96	06:51	25.8C	6.0C	0.1C	
01/16/96	06:52	24.7C	187.1C	0.0C	
01/16/96	06:53	23.5C	241.8C	0.0C	
01/16/96	06:54	22.8C	239.7C	0.0C	
01/16/96	06:55	22.1C	242.1C	-0.1C	
01/16/96	06:56	20.2C	236.8C	-0.1C	
01/16/96	06:57	19.5C	235.3C	-0.1C	
01/16/96	06:58	16.1C	236.5C	-0.1C	
01/16/96	06:59	14.4C	237.8C	-0.1C	237.9 CO BAL Dil
01/16/96	07:00	14.3C	237.6C	-0.1C	Init. Cal
01/16/96	07:01	14.3C	133.4C	0.0C	
01/16/96	07:02	8.9C	59.8C	12.8C	
01/16/96	07:03	7.4C	59.3C	0.0C	
01/16/96	07:04	8.4C	14.9C	0.0C	
01/16/96	07:05	7.9C	0.3C	0.0C	
01/16/96	07:06	1.2C	0.1C	0.0C	
01/16/96	07:07	-1.5C	-0.2C	0.0C	
01/16/96	07:08	-2.6C	0.1C	0.0C	
AVERAGES :		15.2	118.4	0.6	

95-011
RTO Southwest
Silsbee, TX.

RTO Heater / Stack
1-16-96
DAS # 11
SW 886

THC Analyzer
TVA Engineering
Model 128
SW 9610591

CO Analyzer
TECO
Model 48
SW 48-27941-230

NOx Analyzer
TECO
Model 10S
SW 10S-39471-260

Leak Check 0.000

Randall S. Bartley

ERM SOUTHWEST
RTO NUMBER ONE DRYER STACK
SILSBEE, TEXAS
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		THC PPM	CO PPM	NOX PPM	
01/16/96	07:10	-2.7C	-0.3C	0.0C	Zero CO
01/16/96	07:11	-0.8C	-0.3C	0.2C	
01/16/96	07:12	-1.1C	5.1C	0.1C	
01/16/96	07:13	-1.2C	180.1C	0.1C	Zero NOx Init
01/16/96	07:14	-1.2C	237.4C	0.1C	
01/16/96	07:15	-8.5C	237.1C	0.1C	237.9 CO
01/16/96	07:16	-4.2C	229.4C	18.1C	
01/16/96	07:17	0.4C	50.2C	86.5C	
01/16/96	07:18	2.5C	0.5C	86.5C	
01/16/96	07:19	0.2C	-0.3C	85.9C	86.13 NO Init, Cal
01/16/96	07:20	-0.3C	0.1C	80.6C	BAL4137
01/16/96	07:21	-1.7C	56.6C	0.9C	
01/16/96	07:22	-6.0C	252.4C	1.5C	
01/16/96	07:23	-8.9C	444.8C	0.1C	
01/16/96	07:24	-22.0C	445.9C	0.1C	445.6 CO AAL17923
01/16/96	07:25	-5.8C	442.7C	6.9C	
01/16/96	07:26	-4.3C	146.0C	85.4C	
01/16/96	07:27	-20.3C	0.3C	85.5C	
01/16/96	07:28	-31.5C	-0.2C	85.5C	86.13 NO
01/16/96	07:29	-36.7C	0.4C	85.5C	
01/16/96	07:30	-19.0C	79.7C	49.5C	
01/16/96	07:31	-0.5C	184.8C	1.2C	
01/16/96	07:32	-2.8C	227.9C	1.1C	
01/16/96	07:33	-2.3C	226.7C	27.4C	
01/16/96	07:34	-1.2C	228.3C	46.5C	
01/16/96	07:35	-1.8C	229.1C	46.1C	
01/16/96	07:36	-1.6C	231.1C	45.9C	
01/16/96	07:37	-14.2C	232.8C	45.9C	46.22 NO Bsm 003059
01/16/96	07:38	-17.4C	233.8C	33.8C	237.9 CO Bias ✓
01/16/96	07:39	-13.3C	223.1C	1.0C	
01/16/96	07:40	-11.5C	42.0C	0.8C	
01/16/96	07:41	-7.0C	1.1C	9.3C	
01/16/96	07:42	-1.9C	0.4C	44.1C	
01/16/96	07:43	0.0C	0.3C	45.0C	
01/16/96	07:44	0.0C	0.3C	45.1C	Zero CO Bias / 46.22 NO Bias ✓
01/16/96	07:45	0.0C	0.3C	40.2C	
01/16/96	07:46	0.0C	0.3C	36.4C	← T Begin NOx Conv. Chk.
01/16/96	07:47	0.0C	0.3C	36.4C	
01/16/96	07:48	0.0C	0.3C	36.4C	
01/16/96	07:49	0.0C	0.3C	36.4C	
01/16/96	07:50	0.0C	0.3C	36.4C	
01/16/96	07:51	-36.1C	0.3C	36.4C	
01/16/96	07:52	0.0C	0.3C	36.3C	
01/16/96	07:53	0.0C	0.3C	36.3C	
01/16/96	07:54	-2.3C	0.3C	36.2C	

ERM SOUTHWEST
RTO NUMBER ~~ONE~~ TWO DRYER STACK
SILSBEE, TEXAS
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		THC PPM	CO PPM	NOX PPM	
01/16/96	07:55	-1.3C	0.6C	36.2C	
01/16/96	07:56	-1.9C	0.3C	36.3C	
01/16/96	07:57	-1.1C	0.3C	36.3C	
01/16/96	07:58	-0.9C	0.3C	36.3C	
01/16/96	07:59	-0.2C	0.3C	36.3C	
01/16/96	08:00	0.0C	0.3C	36.3C	Zero Propane Init.
01/16/96	08:01	86.4C	0.4C	36.2C	
01/16/96	08:02	83.1C	0.4C	36.2C	
01/16/96	08:03	83.8C	0.4C	36.2C	83.77 Propane BLM001378
01/16/96	08:04	83.7C	0.4C	36.2C	Init. Cal.
01/16/96	08:05	41.9C	0.3C	36.2C	
01/16/96	08:06	0.3C	0.3C	36.2C	
01/16/96	08:07	0.0C	0.3C	36.2C	Zero Propane
01/16/96	08:08	26.4C	0.3C	36.2C	
01/16/96	08:09	47.1C	0.4C	36.2C	
01/16/96	08:10	47.1C	0.4C	36.2C	47.59 Propane BLM001708
01/16/96	08:11	46.8C	0.4C	36.2C	
01/16/96	08:12	4.3C	0.3C	36.2C	
01/16/96	08:13	-0.1C	0.3C	36.2C	
01/16/96	08:14	-0.2C	0.3C	36.2C	
01/16/96	08:15	-0.2C	0.3C	36.2C	End NOx Conv. ✓
01/16/96	08:16	29.1C	0.3C	36.2C	
01/16/96	08:17	83.6C	0.7C	36.2C	
01/16/96	08:18	83.7C	1.2C	27.5C	83.77 Propane
01/16/96	08:19	83.6C	12.8C	0.2C	
01/16/96	08:20	6.7C	23.4C	0.2C	
01/16/96	08:21	8.3C	43.1C	0.8C	
01/16/96	08:22	22.5C	136.8C	26.4C	
01/16/96	08:23	22.4C	69.2C	28.4C	22.68 Propane CAL8238
01/16/96	08:24	22.4C	75.9C	35.2C	
01/16/96	08:25	0.0C	50.1C	27.2C	
01/16/96	08:26	8.2C	260.8C	26.9C	
AVERAGES :		8.2	72.1	32.8	

ERM SOUTHWEST 2
RTO NUMBER ~~ONE~~ DRYER STACK
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Re-Cal. THC 0-1000

		THC PPM	CO PPM	NOX PPM	
01/16/96	09:50	0.0C	0.0C	0.0C	
01/16/96	09:51	0.0C	93.7C	31.6C	Zero THC Init
01/16/96	09:52	0.3C	95.5C	31.7C	
01/16/96	09:53	804.3C	57.6C	31.6C	
01/16/96	09:54	964.2C	107.0C	28.4C	
01/16/96	09:55	978.6C	301.9C	29.6C	
01/16/96	09:56	979.3C	82.8C	31.5C	979.5 THC CAL12366
01/16/96	09:57	978.8C	102.4C	31.4C	Init. Cal
01/16/96	09:58	222.9C	57.0C	32.2C	
01/16/96	09:59	2.0C	128.1C	28.2C	
01/16/96	10:00	529.4C	290.6C	30.0C	
01/16/96	10:01	977.0C	70.0C	32.5C	
01/16/96	10:02	978.2C	85.2C	32.7C	979.5 THC
01/16/96	10:03	668.0C	45.5C	32.2C	
01/16/96	10:04	8.5C	130.8C	28.5C	
01/16/96	10:05	6.9C	274.0C	31.1C	
01/16/96	10:06	6.3C	55.5C	33.2C	
01/16/96	10:07	4.7C	70.6C	33.3C	
01/16/96	10:08	0.7C	35.7C	32.5C	Zero THC
01/16/96	10:09	116.2C	129.6C	28.7C	
01/16/96	10:10	491.3C	264.2C	30.7C	
01/16/96	10:11	492.4C	49.3C	32.6C	486.1 THC Blm00220
01/16/96	10:12	304.8C	59.7C	32.7C	
01/16/96	10:13	56.0C	29.9C	32.1C	
01/16/96	10:14	223.6C	179.1C	28.0C	
01/16/96	10:15	224.1C	263.9C	31.1C	
01/16/96	10:16	224.1C	50.6C	32.0C	219.0 THC CAL11070
AVERAGES :		379.4	115.2	30.0	

ERM SOUTHWEST
RTO NUMBER ~~DHE~~ DRYER STACK
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Re-Cal CO 0-1000

		THC PPM	CO PPM	NOX PPM	
01/16/96	10:43	0.0C	0.0C	0.0C	
01/16/96	10:44	3.7C	-0.1C	28.3C	Zero CO Init
01/16/96	10:45	3.1C	43.3C	31.8C	
01/16/96	10:46	2.5C	733.7C	32.0C	
01/16/96	10:47	21.4C	878.5C	31.4C	
01/16/96	10:48	44.3C	826.3C	26.5C	
01/16/96	10:49	3.9C	443.9C	28.3C	445.6 CO Init. Cal
01/16/96	10:50	3.3C	439.4C	31.4C	AAL17923
01/16/96	10:51	2.5C	127.0C	31.4C	
01/16/96	10:52	22.3C	0.8C	31.6C	
01/16/96	10:53	38.8C	222.2C	26.4C	
01/16/96	10:54	4.1C	914.5C	28.6C	
01/16/96	10:55	3.4C	960.2C	31.0C	
01/16/96	10:56	2.7C	891.7C	31.7C	
01/16/96	10:57	21.7C	904.6C	29.8C	
01/16/96	10:58	0.0C	899.6C	2.2C	
01/16/96	10:59	0.1C	899.6C	0.2C	
01/16/96	11:00	0.1C	901.2C	0.1C	
01/16/96	11:01	0.1C	908.3C	0.1C	911.7 CO BAL 5213
01/16/96	11:02	0.1C	902.0C	0.1C	Init. Cal.
01/16/96	11:03	-3.0C	902.1C	15.6C	
01/16/96	11:04	-4.8C	834.8C	28.1C	
01/16/96	11:05	-4.8C	133.7C	30.3C	
01/16/96	11:06	-4.8C	1.5C	30.0C	
01/16/96	11:07	-4.1C	481.3C	29.3C	
01/16/96	11:08	-4.8C	895.4C	25.2C	
01/16/96	11:09	-4.8C	891.3C	28.8C	
01/16/96	11:10	-4.8C	909.4C	30.4C	911.7 CO
01/16/96	11:11	-4.8C	894.0C	31.4C	
01/16/96	11:12	-4.8C	894.6C	29.4C	
01/16/96	11:13	-3.3C	455.5C	25.9C	
01/16/96	11:14	-4.7C	8.0C	29.9C	
01/16/96	11:15	-4.8C	-0.5C	31.8C	
01/16/96	11:16	-4.8C	-0.5C	32.2C	Zero Co
01/16/96	11:17	-4.8C	-0.5C	29.2C	
01/16/96	11:18	-4.3C	-0.5C	25.4C	
01/16/96	11:19	-4.8C	-0.5C	27.7C	
01/16/96	11:20	-4.8C	27.0C	14.4C	
01/16/96	11:21	-4.8C	363.8C	14.4C	
01/16/96	11:22	-4.8C	427.1C	14.5C	
01/16/96	11:23	-4.8C	427.1C	14.7C	
01/16/96	11:24	-4.8C	427.1C	15.0C	445.6 CO
01/16/96	11:25	-4.8C	426.5C	15.1C	
01/16/96	11:26	-4.8C	225.4C	15.5C	
01/16/96	11:27	-4.8C	3.8C	23.7C	

ERM SOUTHWEST 2
RTO NUMBER ~~ONE~~ DRYER STACK
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		THC PPM	CO PPM	NOX PPM	
01/16/96	11:28	-4.8C	-0.5C	27.2C	
01/16/96	11:29	-4.8C	-0.5C	4.0C	zero CO Bias
01/16/96	11:30	-4.8C	100.0C	1.8C	
01/16/96	11:31	-4.8C	407.0C	0.2C	
01/16/96	11:32	-4.8C	420.5C	2.4C	
01/16/96	11:33	-4.8C	423.3C	2.2C	445.6 CO Bias
01/16/96	11:34	-4.8C	417.9C	6.0C	
01/16/96	11:35	-4.9C	188.7C	31.8C	
01/16/96	11:36	-4.8C	63.5C	33.3C	
01/16/96	11:37	-4.8C	95.7C	19.2C	
01/16/96	11:38	-4.8C	62.4C	2.2C	
01/16/96	11:39	-4.8C	0.3C	2.0C	
01/16/96	11:40	-4.8C	-0.5C	1.9C	
01/16/96	11:41	-4.8C	-0.5C	1.8C	
01/16/96	11:42	-1.0C	-0.5C	1.7C	
01/16/96	11:43	0.8C	-0.5C	7.5C	
01/16/96	11:44	0.7C	-0.5C	49.2C	
01/16/96	11:45	0.1C	-0.5C	49.5C	46.22 NOx Bias
01/16/96	11:46	0.0C	-0.5C	34.8C	
01/16/96	11:47	0.1C	-0.5C	0.1C	
01/16/96	11:48	0.1C	-0.5C	0.1C	Zero NOx
01/16/96	11:49	0.1C	-0.5C	0.0C	
01/16/96	11:50	0.1C	-0.5C	36.3C	
01/16/96	11:51	0.0C	-0.5C	49.0C	46.22 NOx
01/16/96	11:52	0.1C	-0.5C	48.9C	
01/16/96	11:53	0.0C	-0.5C	47.1C	
01/16/96	11:54	-0.1C	-0.5C	46.3C	
01/16/96	11:55	-11.0C	-0.5C	46.4C	46.22 NOx Adjusted
01/16/96	11:56	-11.9C	-0.5C	46.4C	
01/16/96	11:57	-11.9C	-0.5C	46.4C	
01/16/96	11:58	-11.9C	-0.5C	1.7C	
01/16/96	11:59	-11.9C	-0.5C	0.1C	Zero NOx Bias
01/16/96	12:00	-11.9C	-0.5C	0.2C	
01/16/96	12:01	-11.9C	-0.5C	1.0C	
01/16/96	12:02	-11.9C	-0.5C	0.8C	
01/16/96	12:03	-11.9C	-0.5C	0.8C	
01/16/96	12:04	-11.9C	-0.5C	17.6C	
01/16/96	12:05	-11.9C	-0.5C	46.3C	
01/16/96	12:06	-11.9C	-0.5C	46.3C	46.22 NOx Bias
01/16/96	12:07	-11.9C	-0.5C	46.3C	
01/16/96	12:08	-11.9C	-0.5C	37.9C	
01/16/96	12:09	-11.9C	0.4C	1.2C	
01/16/96	12:10	-11.9C	0.9C	0.8C	
01/16/96	12:11	-11.3C	1.6C	0.7C	
01/16/96	12:12	7.8C	1.6C	0.7C	

ERM SOUTHWEST 2
RTO NUMBER ONE DRYER STACK
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New THC Analyzer 0-1000

THC Analyzer
JUM Engineering
Model VE 7
SN

		THC PPM	CO PPM	NOX PPM	
01/16/96	12:13	18.1C	1.6C	0.7C	
01/16/96	12:14	2.0C	1.6C	0.7C	
01/16/96	12:15	-1.0C	1.6C	0.7C	
01/16/96	12:16	-1.6C	1.6C	0.7C	
01/16/96	12:17	-1.2C	267.7C	19.0C	
01/16/96	12:18	1.4C	335.9C	28.0C	
01/16/96	12:19	-8.2C	106.9C	27.6C	
01/16/96	12:20	-8.8C	105.6C	28.4C	
01/16/96	12:21	0.0C	91.5C	25.4C	
01/16/96	12:22	-0.4C	398.2C	23.3C	zero THC Init.
01/16/96	12:23	-0.6C	293.6C	28.0C	
01/16/96	12:24	0.9C	107.7C	28.8C	
01/16/96	12:25	532.8C	102.7C	29.3C	
01/16/96	12:26	941.7C	104.1C	25.7C	
01/16/96	12:27	979.0C	406.4C	24.3C	979.5 propane Init. Cal
01/16/96	12:28	850.6C	244.9C	29.8C	CAL 12366
01/16/96	12:29	2.6C	119.0C	29.9C	
01/16/96	12:30	575.5C	115.5C	30.9C	
01/16/96	12:31	975.2C	134.6C	26.8C	
01/16/96	12:32	976.4C	475.5C	26.8C	979.5 propane
01/16/96	12:33	335.0C	234.7C	31.4C	
01/16/96	12:34	180.9C	148.5C	30.2C	
01/16/96	12:35	492.3C	140.5C	32.3C	
01/16/96	12:36	491.8C	163.3C	27.2C	486.1 propane Bun002201
01/16/96	12:37	425.2C	507.3C	28.0C	
01/16/96	12:38	0.3C	225.0C	32.7C	zero THC
01/16/96	12:39	81.1C	160.1C	32.7C	
01/16/96	12:40	227.3C	136.5C	34.3C	
01/16/96	12:41	223.4C	181.7C	28.5C	219.0 propane CAL11070
01/16/96	12:42	224.6C	524.0C	29.8C	
AVERAGES :		69.3	246.1	21.8	

Auxiliary Average Report

DCNID : 11 Site Name : RTO NO 2 Aux Interval : 1 Date : 1/16/96

Run 1 Port B

Time	THC PPM	CO PPM	NOX PPM
13:15	39.6000	97.1000	28.4000
13:16	5.9000	345.6000	25.4000
13:17	2.5000	367.2000	30.4000
13:18	2.1000	149.4000	29.6000
13:19	1.6000	158.7000	31.5000
13:20	56.5000	123.1000	28.2000
13:21	6.7000	460.7000	26.0000
13:22	3.0000	386.2000	32.0000
13:23	2.3000	184.5000	30.5000
13:24	2.0000	187.4000	31.7000
13:25	50.8000	150.8000	28.1000
13:26	5.0000	515.9000	26.7000
13:27	3.4000	352.8000	32.8000
13:28	2.2000	186.7000	30.0000
13:29	2.4000	170.7000	31.4000
13:30	55.6000	141.6000	27.2000
13:31	4.5000	528.6000	25.9000
13:32	2.8000	278.2000	30.6000
13:33	1.5000	172.3000	29.4000
13:34	2.4000	135.5000	31.5000
13:35	57.3000	139.6000	26.4000
13:36	4.0000	503.0000	25.3000
13:37	3.3000	242.7000	31.2000
13:38	1.4000	165.7000	30.2000
13:39	2.0000	134.2000	31.6000
13:40	51.7000	142.0000	25.9000
13:41	4.9000	516.5000	26.7000
13:42	3.1000	255.2000	31.7000
13:43	1.1000	196.4000	30.0000
13:44	2.6000	133.7000	31.9000
13:45	35.0000	168.0000	26.7000
13:46	4.5000	471.4000	28.2000
13:47	3.9000	223.8000	31.3000
13:48	1.2000	207.6000	30.7000
13:49	2.8000	127.0000	32.3000
13:50	46.2000	183.6000	26.2000
MAX :	57.3000	528.6000	32.8000
MIN :	1.1000	97.1000	25.3000
AVG :	13.2722	247.3167	29.2667
SCANS:	36	36	36

!

Auxiliary Average Report

DCNID : 11 Site Name : RTO NO #2 Aux Interval : 1 Date : 1/16/96

Run 1 Port A

Time	THC PPM	CO PPM	NOX PPM
14:06	4.0000	559.7000	32.7000
14:07	1.7000	217.7000	32.1000
14:08	0.3000	126.8000	27.6000
14:09	32.7000	69.6000	25.9000
14:10	18.1000	310.3000	22.2000
14:11	3.6000	462.6000	28.5000
14:12	2.3000	190.2000	28.4000
14:13	0.1000	162.6000	29.4000
14:14	31.9000	58.0000	24.5000
14:15	10.5000	215.8000	24.1000
14:16	1.9000	320.2000	29.4000
14:17	1.3000	128.2000	28.3000
14:18	0.5000	126.3000	29.6000
14:19	46.8000	72.0000	28.0000
14:20	6.4000	312.6000	23.9000
14:21	1.8000	321.7000	29.0000
14:22	1.4000	136.3000	28.9000
14:23	1.0000	126.8000	28.7000
14:24	49.7000	90.4000	24.6000
14:25	8.8000	343.2000	21.8000
14:26	2.9000	344.5000	25.8000
14:27	1.9000	190.3000	25.9000
14:28	1.7000	164.0000	26.7000
14:29	60.7000	122.4000	24.5000
14:30	7.2000	470.4000	23.3000
14:31	3.6000	362.3000	28.3000
14:32	1.8000	221.0000	27.1000
14:33	2.1000	173.1000	28.9000
14:34	59.9000	136.6000	25.4000
14:35	5.3000	454.5000	23.5000
14:36	3.4000	310.8000	28.9000
14:37	1.5000	194.7000	27.4000
14:38	1.7000	163.9000	30.1000
14:39	54.5000	136.2000	25.5000
14:40	5.4000	492.5000	24.5000
14:41	2.9000	257.2000	29.1000
MAX :	60.7000	559.7000	32.7000
MIN :	0.1000	58.0000	21.8000
AVG :	12.2583	237.3722	27.0139
SCANS:	36	36	36

12.8 242.3 28.1

AVG: 12.677 242.34 28.14

6.62 #/hr 49.79 #/hr 27.49 → CC-1 → 14.87 #/hr

ERM SOUTHWEST 2
RTO NUMBER ~~ONE~~ DRYER STACK
SILSBEE, TEXAS
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Final Cal RUN 1 PM SO2
Init. Cal RUN 1 Form.

		THC PPM	CO PPM	NOX PPM	
01/16/96	14:47	-3.1C	-0.5C	1.6C	Zero THC
01/16/96	14:48	-3.1C	-0.5C	1.6C	Zero CO
01/16/96	14:49	-3.1C	-0.5C	1.6C	Zero NOX
01/16/96	14:50	151.1C	8.4C	2.6C	
01/16/96	14:51	469.6C	56.5C	4.5C	
01/16/96	14:52	469.7C	248.7C	2.2C	
01/16/96	14:53	469.9C	409.7C	1.9C	486.1 propane
01/16/96	14:54	345.3C	420.1C	1.9C	445.6 CO Bias
01/16/96	14:55	1.5C	419.3C	2.0C	
01/16/96	14:56	0.7C	368.7C	21.1C	
01/16/96	14:57	-0.1C	41.7C	46.9C	
01/16/96	14:58	-0.3C	0.5C	47.1C	46.22 NO Bias
01/16/96	14:59	-0.2C	0.5C	47.5C	
01/16/96	15:00	-0.1C	0.5C	35.9C	
01/16/96	15:01	0.0C	-0.3C	2.8C	
01/16/96	15:02	0.1C	-0.5C	2.3C	
01/16/96	15:03	-0.1C	-0.5C	2.1C	
01/16/96	15:04	-0.2C	-0.5C	1.9C	
01/16/96	15:05	-0.1C	-0.5C	1.8C	
01/16/96	15:06	-0.1C	-0.5C	1.8C	
AVERAGES :		94.9	98.5	11.6	

Auxiliary Average Report

DCNID : 11 Site Name : RTO NO #2 Aux Interval : 1 Date : 1/16/96

Rule 1 Part A Form.

Time	THC PPM	CO PPM	NOX PPM
15:50	3.4000	218.8000	30.9000
15:51	1.6000	225.6000	29.5000
15:52	3.1000	167.5000	31.1000
15:53	32.5000	189.5000	25.3000
15:54	2.9000	438.7000	27.2000
15:55	4.0000	193.5000	30.3000
15:56	1.8000	234.2000	29.5000
15:57	3.1000	156.1000	31.2000
15:58	29.9000	208.0000	25.3000
15:59	3.7000	455.3000	28.6000
16:00	3.8000	197.5000	31.0000
16:01	1.3000	234.5000	30.7000
16:02	2.6000	153.0000	31.9000
16:03	5.2000	149.1000	28.3000
16:04	4.2000	160.3000	31.3000
16:05	3.4000	119.3000	32.3000
16:06	1.9000	229.7000	31.4000
16:07	27.5000	147.6000	30.4000
16:08	18.2000	255.3000	25.0000
16:09	3.2000	429.4000	27.9000
16:10	3.2000	169.7000	29.5000
16:11	1.7000	212.5000	30.2000
16:12	30.7000	134.9000	30.4000
16:13	13.2000	303.4000	25.4000
16:14	3.1000	412.0000	30.3000
16:15	3.5000	176.6000	31.0000
16:16	2.2000	217.8000	31.3000
16:17	33.6000	133.4000	29.7000
16:18	9.3000	324.5000	25.5000
16:19	3.0000	393.1000	30.6000
16:20	2.9000	183.7000	30.5000
16:21	1.4000	209.8000	31.4000
16:22	24.1000	117.4000	29.2000
16:23	5.9000	300.1000	25.7000
16:24	2.4000	341.3000	30.6000
16:25	2.7000	188.0000	29.9000
MAX :	33.6000	455.3000	32.3000
MIN :	1.3000	117.4000	25.0000
AVG :	8.3389	232.8083	29.4528
SCANS:	36	36	36

Auxiliary Average Report

DCNID : 11 Site Name : RTO NO x2 Aux Interval : 1 Date : 1/16/96

Run 1 Part B Form

Time	THC PPM	CO PPM	NOX PPM
16:38	4.1000	313.8000	25.4000
16:39	2.9000	221.1000	30.2000
16:40	2.1000	185.4000	28.9000
16:41	1.6000	174.4000	31.2000
16:42	15.0000	131.7000	26.8000
16:43	4.4000	332.5000	25.6000
16:44	2.7000	219.9000	30.8000
16:45	1.9000	186.0000	29.4000
16:46	2.1000	165.4000	31.6000
16:47	22.5000	162.8000	26.6000
16:48	3.7000	404.1000	26.7000
16:49	3.2000	219.7000	32.4000
16:50	1.8000	205.1000	30.0000
16:51	2.4000	164.5000	31.8000
16:52	26.4000	178.5000	26.3000
16:53	4.1000	423.7000	28.1000
16:54	3.6000	200.5000	31.5000
16:55	1.8000	208.0000	30.2000
16:56	2.4000	149.8000	31.7000
16:57	32.1000	180.4000	26.1000
16:58	4.1000	439.6000	28.3000
16:59	3.3000	196.1000	31.0000
17:00	1.8000	203.4000	30.6000
17:01	3.7000	131.8000	31.1000
17:02	29.8000	186.0000	25.2000
17:03	3.8000	419.0000	28.7000
17:04	3.4000	184.8000	30.9000
17:05	1.5000	206.2000	30.1000
17:06	4.9000	132.1000	30.4000
17:07	20.9000	208.4000	25.4000
17:08	3.5000	394.5000	29.7000
17:09	3.0000	187.8000	31.2000
17:10	1.5000	208.0000	30.8000
17:11	9.9000	121.2000	30.4000
17:12	13.7000	210.5000	25.2000
17:13	2.9000	350.2000	29.3000
MAX :	32.1000	439.6000	32.4000
MIN :	1.5000	121.2000	25.2000
AVG :	7.0139	227.9694	29.1556
SCANS:	36	36	36

(7.7) (230.4) (29.3)

Avg: 7.68 230.39 29.30

3.97 #/hr 75.64 #/hr 27.90 → 6e-1 → 15.05 #/hr

ERM SOUTHWEST
RTO NUMBER ~~ONE~~ 2 DRYER STACK
SILSBEE, TEXAS
96 011
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Final Cals

		THC PPM	CO PPM	NOX PPM	
01/16/96	17:22	-3.2C	-0.2C	3.1C	
01/16/96	17:23	-3.2C	-0.3C	2.8C	Zero THC
01/16/96	17:24	-3.2C	-0.5C	2.7C	Zero CO
01/16/96	17:25	133.1C	17.0C	2.8C	
01/16/96	17:26	466.7C	336.4C	3.2C	
01/16/96	17:27	467.6C	351.9C	4.3C	
01/16/96	17:28	468.0C	377.5C	2.9C	486 THC
01/16/96	17:29	468.7C	414.6C	2.7C	[redacted] / Zero NOx BAS
01/16/96	17:30	468.5C	417.8C	2.8C	445.6 CO BAS
01/16/96	17:31	465.0C	413.2C	2.9C	
01/16/96	17:32	17.6C	356.9C	22.3C	
01/16/96	17:33	5.5C	34.7C	47.2C	
01/16/96	17:34	5.7C	0.6C	47.1C	4622 NO BAS
01/16/96	17:35	5.0C	0.6C	47.1C	
01/16/96	17:36	4.6C	0.3C	47.1C	
AVERAGES :		197.8	181.4	16.1	

ERM SOUTHWEST
RTO NUMBER 2 STACK
SILSBEE, TEXAS
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Init. Cals + Bias + NOx Conv. ✓

		THC PPM	CO PPM	NOX PPM	
01/17/96	06:29	-1.7C	-0.5C	0.0C	
01/17/96	06:30	-0.8C	-0.5C	0.0C	
01/17/96	06:31	-3.5C	-0.5C	0.0C	Zero CO Init.
01/17/96	06:32	-3.5C	-0.5C	0.0C	
01/17/96	06:33	-1.0C	-0.5C	0.0C	Zero NOx Init.
01/17/96	06:34	0.0C	-0.5C	0.0C	Zero THC Init
01/17/96	06:35	0.0C	-0.5C	0.0C	
01/17/96	06:36	0.0C	-0.1C	60.3C	
01/17/96	06:37	0.0C	-0.5C	93.7C	
01/17/96	06:38	-0.1C	-0.5C	89.9C	
01/17/96	06:39	-0.1C	-0.5C	86.0C	
01/17/96	06:40	388.2C	-0.4C	86.0C	86.13 NO BAL4137
01/17/96	06:41	933.1C	24.1C	63.9C	Init. Cal
01/17/96	06:42	964.7C	757.6C	0.2C	
01/17/96	06:43	979.1C	936.3C	0.1C	979.5 Propane CAL12366 Init. Cal
01/17/96	06:44	977.4C	911.7C	0.0C	Zero NOx
01/17/96	06:45	136.6C	899.4C	0.0C	
01/17/96	06:46	1.3C	909.4C	0.0C	911.7 CO BAL5213 Init. Cal
01/17/96	06:47	0.7C	903.5C	9.7C	
01/17/96	06:48	159.0C	545.8C	41.6C	
01/17/96	06:49	210.4C	60.8C	85.7C	
01/17/96	06:50	978.4C	0.2C	85.8C	86.13 NO
01/17/96	06:51	981.0C	61.6C	42.8C	
01/17/96	06:52	981.4C	678.8C	0.1C	979.5 propane
01/17/96	06:53	981.1C	912.6C	0.1C	
01/17/96	06:54	736.5C	912.4C	0.0C	911.7 CO
01/17/96	06:55	3.3C	914.5C	0.0C	
01/17/96	06:56	1.0C	732.4C	35.5C	
01/17/96	06:57	0.6C	86.7C	46.5C	
01/17/96	06:58	0.3C	-0.3C	46.4C	Zero CO / 46.22 NO BLM003059
01/17/96	06:59	0.2C	-0.2C	46.3C	Zero THC
01/17/96	07:00	0.7C	149.5C	1.5C	
01/17/96	07:01	411.9C	422.2C	28.4C	→ Begin NOx Conv. ✓
01/17/96	07:02	496.5C	437.6C	73.7C	
01/17/96	07:03	497.6C	436.9C	73.6C	445.6 CO AAL17923
01/17/96	07:04	497.4C	434.9C	73.5C	
01/17/96	07:05	497.5C	435.4C	73.4C	486.1 propane BLM002201
01/17/96	07:06	289.9C	323.4C	73.4C	
01/17/96	07:07	1.5C	28.1C	73.4C	
01/17/96	07:08	0.4C	-0.3C	73.3C	
01/17/96	07:09	0.2C	0.4C	73.3C	
01/17/96	07:10	0.0C	0.3C	73.3C	
01/17/96	07:11	26.5C	-0.4C	73.3C	Zero CO Bias
01/17/96	07:12	225.2C	-0.4C	73.4C	
01/17/96	07:13	225.9C	-0.4C	73.3C	219.0 Propane CAL11070

96-011
ERM Southwest
Silsbee, TX.

RTO #2 Stack
1-17-96
PAS #11
SW 886

THC Analyzer
J.U.M. Engineering
Model VE-7
SN S3

CO Analyzer
Teco
Model 48
SN 48-27961-230

NOx Analyzer
Teco
Model 10S
SN 10S-39471-260

Leak Check OK
Mark Bailey

ERM SOUTHWEST
RTO NUMBER 2 STACK
SILSBEE, TEXAS
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		THC PPM	CO PPM	NOX PPM	
01/17/96	07:14	195.1C	-0.1C	73.2C	
01/17/96	07:15	1.4C	87.0C	73.3C	
01/17/96	07:16	0.1C	384.4C	73.2C	
01/17/96	07:17	0.0C	430.7C	73.2C	
01/17/96	07:18	0.7C	432.3C	73.2C	445.6 CO Bias
01/17/96	07:19	8.5C	432.0C	73.2C	
01/17/96	07:20	5.3C	431.3C	73.1C	
01/17/96	07:21	4.3C	388.3C	73.1C	
01/17/96	07:22	4.2C	90.3C	73.1C	
01/17/96	07:23	33.4C	1.4C	73.0C	
01/17/96	07:24	6.9C	0.8C	73.0C	
01/17/96	07:25	4.2C	0.8C	73.0C	
01/17/96	07:26	3.7C	0.8C	73.0C	
01/17/96	07:27	3.8C	0.8C	72.9C	
01/17/96	07:28	34.8C	0.8C	72.9C	
01/17/96	07:29	7.6C	0.8C	72.9C	
01/17/96	07:30	4.2C	0.8C	72.9C	
01/17/96	07:31	3.4C	0.8C	72.9C	↑ END NOx Conv ✓
01/17/96	07:32	3.8C	0.8C	60.6C	
01/17/96	07:33	33.0C	0.8C	0.3C	
01/17/96	07:34	7.0C	0.8C	0.2C	
01/17/96	07:35	4.3C	0.4C	0.2C	
01/17/96	07:36	3.4C	0.3C	0.3C	
01/17/96	07:37	8.5C	-0.3C	0.2C	Zero NOx Bias
01/17/96	07:38	36.6C	0.3C	0.2C	
01/17/96	07:39	7.2C	-0.1C	0.1C	
01/17/96	07:40	4.5C	0.2C	34.5C	
01/17/96	07:41	3.4C	0.8C	44.0C	
01/17/96	07:42	15.5C	0.1C	44.3C	46.22 NO Bias
AVERAGES :		176.0	210.8	45.0	

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Auxiliary Average Report

DCNID : 11 Site Name : RTO NO 1 Aux Interval : 1 Date : 1/17/96

Run 2 PM SO_2 Port B

Time	THC PPM	CO PPM	NOX PPM
08:20	4.0000	160.9000	32.4000
08:21	4.0000	130.5000	32.9000
08:22	40.2000	117.7000	29.5000
08:23	8.4000	314.9000	27.1000
08:24	4.9000	331.5000	32.4000
08:25	3.9000	150.5000	32.2000
08:26	4.2000	127.2000	32.1000
08:27	41.8000	128.0000	29.1000
08:28	8.6000	347.5000	27.9000
08:29	5.1000	305.8000	32.3000
08:30	4.0000	155.0000	31.1000
08:31	4.2000	134.9000	31.4000
08:32	35.0000	135.3000	28.6000
08:33	8.6000	348.3000	28.0000
08:34	5.4000	285.0000	32.6000
08:35	4.1000	158.3000	31.4000
08:36	4.8000	141.8000	31.9000
08:37	32.6000	157.7000	28.2000
08:38	6.8000	398.6000	28.7000
08:39	5.3000	275.5000	32.0000
08:40	4.1000	166.8000	31.5000
08:41	6.3000	139.5000	31.1000
08:42	27.2000	165.1000	27.8000
08:43	7.0000	359.3000	29.0000
08:44	5.2000	229.2000	31.1000
08:45	4.3000	143.2000	30.7000
08:46	20.2000	126.9000	30.1000
08:47	31.9000	179.1000	27.1000
08:48	7.2000	437.7000	28.7000
08:49	5.1000	236.4000	31.5000
08:50	4.4000	143.0000	31.1000
08:51	23.1000	129.4000	30.4000
08:52	19.0000	181.8000	27.8000
08:53	6.5000	399.8000	30.8000
08:54	5.5000	221.7000	32.4000
08:55	4.8000	151.0000	31.9000
MAX :	41.8000	437.7000	32.9000
MIN :	3.9000	117.7000	27.1000
AVG :	11.6028	214.3000	30.4111
SCANS:	36	36	36

Auxiliary Average Report

DCNID : 11 Site Name : RTO NO 1 Aux Interval : 1 Date : 1/17/96

Run 2 PM SO_2 Part A

Time	THC PPM	CO PPM	NOX PPM
09:10	4.6000	158.4000	31.5000
09:11	34.6000	144.2000	29.6000
09:12	9.1000	273.2000	27.3000
09:13	5.3000	390.9000	31.9000
09:14	5.1000	186.9000	31.6000
09:15	5.0000	164.0000	32.6000
09:16	32.9000	149.8000	30.0000
09:17	9.3000	289.6000	27.5000
09:18	5.4000	384.6000	32.6000
09:19	4.9000	181.6000	32.1000
09:20	4.9000	160.0000	32.2000
09:21	41.9000	151.0000	29.6000
09:22	9.8000	338.0000	27.1000
09:23	5.5000	382.4000	32.0000
09:24	4.7000	176.1000	31.1000
09:25	4.7000	151.3000	31.5000
09:26	48.4000	144.8000	29.3000
09:27	8.4000	366.9000	26.7000
09:28	5.4000	358.8000	31.3000
09:29	4.6000	165.7000	30.7000
09:30	4.8000	146.4000	31.1000
09:31	42.4000	146.6000	28.7000
09:32	9.8000	368.1000	27.3000
MAX :	48.4000	390.9000	32.6000
MIN :	4.6000	144.2000	26.7000
AVG :	13.5435	233.8826	30.2304
SCANS:	23	23	23

Auxiliary Average Report

DCNID : 11 Site Name : RTO NO 1 Aux Interval : 1 Date : 1/17/96

Time	THC PPM	CO PPM	NOX PPM
09:41	43.1000	155.2000	27.8000
09:42	10.7000	436.8000	28.1000
09:43	5.5000	285.6000	31.0000
09:44	4.1000	162.2000	30.0000
09:45	24.3000	131.2000	30.0000
09:46	37.3000	168.6000	26.9000
09:47	9.2000	469.2000	28.1000
09:48	5.4000	285.8000	31.9000
09:49	4.4000	173.5000	31.8000
09:50	31.6000	148.4000	30.8000
09:51	30.2000	197.1000	27.7000
09:52	8.5000	483.5000	29.6000
09:53	5.5000	266.1000	31.6000
MAX :	43.1000	483.5000	31.9000
MIN :	4.1000	131.2000	26.9000
AVG :	16.9077	258.7077	29.6385
SCANS:	13	13	13

Run 2 PM SO2 Port A

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AVG: ~~14.02~~ ~~235.63~~ ~~30.09~~ 30.2

~~7.44#/hr~~ ~~19.41#/hr~~ ~~29.97~~ → GC-1 ~~16.59#/hr~~

13.2 228.6

ERM SOUTHWEST
RTO NUMBER 2 STACK
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Final Cal RUN 2 PM SO2
Init. Cal RUN 2 Form

		THC PPM	CO PPM	NOX PPM	
01/17/96	09:58	0.3C	0.4C	2.5C	zero THC
01/17/96	09:59	0.3C	0.8C	2.4C	
01/17/96	10:00	36.1C	0.8C	2.3C	
01/17/96	10:01	490.3C	0.5C	2.3C	zero CO Bias / zero NOx Bias
01/17/96	10:02	493.1C	18.8C	2.4C	486.1 THC
01/17/96	10:03	401.3C	288.2C	2.4C	
01/17/96	10:04	4.3C	429.5C	2.3C	
01/17/96	10:05	3.3C	435.7C	2.3C	445.6 CO Bias
01/17/96	10:06	3.2C	442.0C	2.2C	
01/17/96	10:07	3.0C	385.8C	29.9C	
01/17/96	10:08	2.9C	81.7C	47.2C	
01/17/96	10:09	2.9C	1.0C	47.1C	46.22 NO Bias
AVERAGES :		120.1	173.8	12.1	

Auxiliary Average Report

DCNID : 11 Site Name : RTO NO 1 Aux Interval : 1 Date : 1/17/96

RULE Port A Form

Time	THC PPM	CO PPM	NOX PPM
13:17	68.5000	171.5000	29.4000
13:18	8.4000	339.3000	27.0000
13:19	5.1000	451.7000	30.9000
13:20	5.9000	164.6000	31.9000
13:21	5.0000	169.4000	31.2000
13:22	67.2000	183.4000	29.0000
MAX :	68.5000	451.7000	31.9000
MIN :	5.0000	164.6000	27.0000
AVG :	26.6833	246.6500	29.9000
SCANS:	6	6	6

Auxiliary Average Report

DCNID : 11 Site Name : RTO NO 1 Aux Interval : 1 Date : 1/17/96

RUN 2 Part A Form.

Time	THC PPM	CO PPM	NOX PPM
13:47	32.0000	199.6000	27.8000
13:48	4.9000	342.1000	30.2000
13:49	6.4000	212.5000	32.8000
MAX :	32.0000	342.1000	32.8000
MIN :	4.9000	199.6000	27.8000
AVG :	14.4333	251.4000	30.2667
SCANS:	3	3	3

Auxiliary Average Report

DCNID : 11 Site Name : RTO NO 1 Aux Interval : 1 Date : 1/17/96

Row 2 Part A Form.

Time	THC PPM	CO PPM	NOX PPM
12:10	5.2000	624.1000	33.7000
12:11	5.5000	220.3000	34.4000
12:12	4.8000	154.8000	33.0000
12:13	70.5000	150.8000	29.9000
12:14	11.9000	353.3000	27.2000
12:15	4.7000	530.6000	31.7000
12:16	5.3000	181.2000	32.2000
12:17	4.4000	137.7000	30.3000
12:18	56.9000	144.5000	28.3000
12:19	12.1000	338.4000	26.1000
12:20	5.3000	462.8000	30.9000
12:21	5.4000	194.6000	31.4000
12:22	5.1000	169.6000	31.5000
12:23	54.2000	172.1000	28.6000
12:24	11.8000	398.6000	27.2000
12:25	5.7000	469.9000	32.6000
12:26	5.5000	202.2000	33.3000
12:27	5.2000	186.6000	32.8000
12:28	62.5000	186.5000	28.7000
12:29	9.3000	459.2000	27.9000
12:30	5.7000	442.6000	32.9000
12:31	5.3000	184.7000	32.6000
12:32	5.4000	181.7000	31.9000
12:33	62.0000	182.7000	28.3000
12:34	9.4000	467.4000	28.5000
12:35	5.6000	391.0000	32.5000
12:36	5.2000	173.5000	32.2000
MAX :	70.5000	624.1000	34.4000
MIN :	4.4000	137.7000	26.1000
AVG :	16.6630	287.4593	30.7630
SCANS:	27	27	27

Auxiliary Average Report

DCNID : 11 Site Name : RTO NO 1 Aux Interval : 1 Date : 1/17/96

RUN 2 Part B Form

Time	THC PPM	CO PPM	NOX PPM
14:51	27.1000	174.4000	26.6000
14:52	5.0000	306.6000	28.6000
14:53	6.9000	197.6000	31.0000
14:54	5.6000	133.8000	30.6000
14:55	6.3000	183.7000	29.9000
14:56	21.0000	169.6000	27.6000
14:57	5.1000	320.1000	29.0000
14:58	7.4000	201.2000	30.9000
14:59	5.4000	143.4000	30.7000
MAX :	27.1000	320.1000	31.0000
MIN :	5.0000	133.8000	26.6000
AVG :	9.9778	203.3778	29.4333
SCANS:	9	9	9

!

Auxiliary Average Report

DCNID : 11 Site Name : RTO NO 1 Aux Interval : 1 Date : 1/17/96

Time	THC PPM	CO PPM	NOX PPM
15:33	6.8000	111.5000	30.0000
15:34	5.8000	160.7000	29.6000
15:35	28.7000	154.9000	28.2000
15:36	5.7000	239.2000	27.7000
15:37	6.5000	231.0000	31.2000
15:38	7.0000	114.9000	30.8000
15:39	5.7000	175.6000	31.3000
15:40	10.8000	151.9000	28.8000
15:41	5.6000	210.1000	28.6000
15:42	6.6000	188.2000	31.4000
15:43	6.9000	122.7000	31.1000
15:44	6.0000	182.2000	30.7000
15:45	18.9000	153.1000	27.6000
15:46	5.5000	225.2000	28.0000
15:47	6.8000	184.7000	30.3000
15:48	6.6000	123.7000	29.9000
15:49	6.1000	178.4000	29.1000
15:50	20.8000	148.4000	26.3000
MAX :	28.7000	239.2000	31.4000
MIN :	5.5000	111.5000	26.3000
AVG :	9.2667	169.8000	29.4778
SCANS:	18	18	18

Run 2 B&B Form.

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AVG:

~~14.45~~ → ~~7.55~~ #/hr → 14.2

~~239.08~~ → ~~73/80~~ #/hr → 234.4

~~30.08~~ → 30.2

~~30.15~~ → LC-1

~~15.92~~ #/hr

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Final Cal Run 2 Form.
Init. Cal Run 3 PM SO2

		THC PPM	CO PPM	NOX PPM	
01/17/96	16:01	1.1C	-0.5C	1.2C	Zero THC
01/17/96	16:02	1.1C	-0.5C	1.1C	Zero CO
01/17/96	16:03	117.4C	5.4C	1.2C	
01/17/96	16:04	468.5C	221.9C	1.1C	
01/17/96	16:05	469.1C	431.7C	1.1C	486.1 Propane
01/17/96	16:06	407.6C	442.5C	1.0C	445.6 CO Bias / Zero NOx Bias
01/17/96	16:07	5.7C	435.7C	1.0C	
01/17/96	16:08	4.2C	339.0C	33.8C	
01/17/96	16:09	3.9C	42.6C	43.2C	
01/17/96	16:10	3.9C	0.6C	43.2C	
01/17/96	16:11	3.6C	0.6C	43.2C	462.2 NO Bias
01/17/96	16:12	3.4C	-0.4C	43.2C	
AVERAGES :		124.1	159.9	17.9	

Auxiliary Average Report

DCNID : 11 Site Name : RTO NO 1 Aux Interval : 1 Date : 1/17/96

RUN 3 Port B PM SO2

Time	THC PPM	CO PPM	NOX PPM
17:50	8.4000	209.0000	30.6000
17:51	7.7000	130.3000	29.5000
17:52	7.4000	208.9000	30.7000
17:53	12.2000	151.2000	29.5000
17:54	5.7000	243.5000	28.5000
17:55	8.8000	208.3000	32.7000
17:56	7.2000	137.4000	32.5000
17:57	7.8000	218.7000	32.0000
17:58	12.1000	155.9000	29.8000
17:59	4.7000	264.7000	29.8000
18:00	9.5000	201.3000	33.8000
18:01	7.1000	148.0000	32.3000
18:02	8.1000	233.2000	31.0000
18:03	10.4000	158.6000	28.5000
18:04	5.7000	241.1000	30.6000
MAX :	12.2000	264.7000	33.8000
MIN :	4.7000	130.3000	28.5000
AVG :	8.1867	194.0067	30.7867
SCANS:	15	15	15

Auxiliary Average Report

DCNID : 11 Site Name : RTO NO 1 Aux Interval : 1 Date : 1/17/96

RULE 3 Part B PM SOx

Time	THC PPM	CO PPM	NOX PPM
18:25	9.0000	129.9000	33.0000
18:26	5.9000	183.8000	32.9000
18:27	10.3000	195.3000	33.2000
18:28	8.9000	182.0000	30.0000
18:29	6.9000	273.7000	33.9000
18:30	9.5000	124.5000	34.9000
18:31	6.5000	203.8000	33.0000
18:32	10.1000	197.3000	32.2000
18:33	8.2000	183.3000	29.1000
18:34	7.3000	242.5000	32.9000
18:35	8.4000	120.6000	32.4000
18:36	6.4000	189.8000	32.0000
18:37	9.5000	157.1000	31.1000
18:38	6.8000	163.1000	28.4000
18:39	7.2000	206.8000	32.2000
MAX :	10.3000	273.7000	34.9000
MIN :	5.9000	120.6000	28.4000
AVG :	8.0600	183.5667	32.0800
SCANS:	15	15	15

!

Auxiliary Average Report

DCNID : 11 Site Name : RTO NO 1 Aux Interval : 1 Date : 1/17/96

RVU 3 Part B PM SO2

Time	THC PPM	CO PPM	NOX PPM
19:10	5.6000	131.9000	31.3000
19:11	7.6000	188.7000	31.2000
19:12	8.7000	139.4000	28.5000
19:13	5.3000	205.4000	31.5000
19:14	8.1000	123.9000	33.6000
19:15	5.0000	135.9000	31.8000
MAX :	8.7000	205.4000	33.6000
MIN :	5.0000	123.9000	28.5000
AVG :	6.7167	154.2000	31.3167
SCANS:	6	6	6

Auxiliary Average Report

DCNID : 11 Site Name : RTO NO 1 Aux Interval : 1 Date : 1/17/96

Run 3 Port A PM SO2

Time	THC PPM	CO PPM	NOX PPM
19:27	5.8000	102.3000	28.3000
19:28	5.1000	130.7000	30.0000
19:29	6.9000	72.6000	30.0000
19:30	7.4000	118.7000	29.6000
19:31	8.2000	140.5000	29.8000
19:32	5.9000	149.4000	28.5000
19:33	4.9000	147.7000	31.0000
19:34	7.0000	76.7000	31.1000
19:35	6.3000	135.1000	30.8000
19:36	8.6000	147.7000	30.7000
19:37	6.0000	158.4000	29.3000
19:38	5.7000	160.6000	33.0000
19:39	6.9000	91.4000	34.0000
19:40	5.5000	155.0000	33.3000
19:41	8.4000	144.1000	32.6000
19:42	4.9000	159.1000	30.6000
19:43	5.5000	153.1000	33.5000
19:44	6.2000	84.5000	32.3000
MAX :	8.6000	160.6000	34.0000
MIN :	4.9000	72.6000	28.3000
AVG :	6.4000	129.3111	31.0222
SCANS:	18	18	18

!

Auxiliary Average Report

DCNID : 11 Site Name : RTO NO 1 Aux Interval : 1 Date : 1/17/96

RUN 3 Port A PM SO2

Time	THC PPM	CO PPM	NOX PPM
20:10	9.1000	162.0000	30.5000
20:11	7.9000	162.9000	28.3000
20:12	4.6000	183.4000	30.0000
20:13	6.7000	101.2000	31.4000
20:14	5.6000	86.4000	31.5000
20:15	7.3000	134.2000	31.3000
20:16	7.2000	130.5000	28.9000
20:17	4.6000	166.2000	30.6000
20:18	7.1000	91.4000	32.5000
20:19	6.4000	106.2000	31.7000
20:20	7.8000	148.9000	32.4000
20:21	-999	-999	-999
MAX :	9.1000	183.4000	32.5000
MIN :	4.6000	86.4000	28.3000
AVG :	6.7545	133.9364	30.8273
SCANS:	11	11	11

Auxiliary Average Report

DCNID : 11 Site Name : RTO NO 1 Aux Interval : 1 Date : 1/17/96

Time	THC PPM	CO PPM	NOX PPM
21:35	7.5000	100.2000	28.7000
21:36	5.4000	118.1000	28.8000
21:37	4.8000	112.9000	31.1000
21:38	4.0000	75.0000	31.7000
21:39	5.4000	65.0000	30.1000
21:40	15.6000	83.1000	28.6000
MAX :	15.6000	118.1000	31.7000
MIN :	4.0000	65.0000	28.6000
AVG :	7.1167	92.3833	29.8333
SCANS:	6	6	6

Rwd 3 Post A PMSO2

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AVG: 31.1

~~7.1~~ → 7.3

~~92.38~~ → 154.1

~~29.83~~ → 32 → 6C-1

~~1867~~ #/hr

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SILSBEE, TEXAS
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Final Cals

		THC PPM	CO PPM	NOX PPM	
01/17/96	21:49	0.5C	-0.3C	1.3C	zero CO Bks
01/17/96	21:50	0.5C	-0.3C	1.3C	zero THC
01/17/96	21:51	0.5C	-0.3C	1.2C	zero NOx Bks
01/17/96	21:52	394.1C	4.8C	1.3C	
01/17/96	21:53	471.9C	134.9C	1.3C	
01/17/96	21:54	472.3C	356.0C	1.3C	486 Propane
01/17/96	21:55	472.2C	432.5C	1.3C	
01/17/96	21:56	402.9C	436.2C	1.3C	445.6 CO Bks
01/17/96	21:57	10.6C	435.7C	1.2C	
01/17/96	21:58	3.1C	334.4C	34.8C	
01/17/96	21:59	2.9C	38.0C	44.1C	
01/17/96	22:00	4.6C	0.8C	44.1C	4622 NO Bks
AVERAGES :		186.3	181.0	11.2	

ERM SOUTHWEST
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SILSBEE, TEXAS
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Init. Cals + Bias + NO_x Conv. ✓

		THC PPM	CO PPM	NOX PPM	
01/18/96	07:56	-4.3C	-0.4C	0.0C	Zero NOx Init.
01/18/96	07:57	2.2C	-0.3C	0.0C	
01/18/96	07:58	1.4C	-0.1C	33.3C	
01/18/96	07:59	0.5C	-0.5C	82.4C	Zero CO Init
01/18/96	08:00	0.0C	-0.5C	83.7C	Zero THC Init.
01/18/96	08:01	-0.1C	-0.5C	86.2C	86.13 NOx BAL4137 Init.
01/18/96	08:02	312.4C	-0.1C	85.1C	
01/18/96	08:03	932.3C	553.8C	0.8C	
01/18/96	08:04	978.7C	876.8C	0.1C	979.5 Propane CAL2366 Init.
01/18/96	08:05	785.2C	915.7C	0.0C	Zero NOx
01/18/96	08:06	3.1C	911.7C	0.0C	911.7 CO BAL 5213 Init
01/18/96	08:07	0.5C	867.8C	23.4C	
01/18/96	08:08	0.0C	114.1C	86.3C	Zero THC / 86.13 NOx
01/18/96	08:09	0.0C	-0.5C	86.0C	Zero CO
01/18/96	08:10	815.2C	7.9C	73.0C	
01/18/96	08:11	978.6C	646.5C	0.2C	979.5 propane
01/18/96	08:12	973.2C	912.9C	0.1C	911.7 CO
01/18/96	08:13	17.7C	907,1C	6.4C	
01/18/96	08:14	0.5C	259.2C	46.8C	
01/18/96	08:15	20.0C	-0.4C	46.2C	46.22 NOx BLM003059
01/18/96	08:16	490.4C	-0.3C	46.1C	
01/18/96	08:17	493.4C	115.0C	16.2C	
01/18/96	08:18	493.5C	428.2C	0.1C	486.1 Propane BLM002201
01/18/96	08:19	492.2C	435.6C	0.1C	445.6 CO AAL17923
01/18/96	08:20	99.7C	435.3C	0.0C	
01/18/96	08:21	-0.1C	195.4C	0.0C	
01/18/96	08:22	-0.5C	0.2C	27.7C	
01/18/96	08:23	84.5C	-0.4C	35.4C	← Begin NOx Conv. ✓
01/18/96	08:24	223.4C	-0.4C	35.3C	
01/18/96	08:25	223.5C	-0.4C	35.3C	219.0 Propane CAL11070
01/18/96	08:26	223.5C	-0.4C	35.3C	
01/18/96	08:27	61.6C	-0.5C	35.3C	Zero CO Bias
01/18/96	08:28	-0.6C	0.1C	35.2C	
01/18/96	08:29	-0.8C	210.6C	35.2C	
01/18/96	08:30	1.8C	418.3C	35.2C	
01/18/96	08:31	3.3C	422.2C	35.2C	445.6 CO Bias
01/18/96	08:32	7.7C	422.4C	35.2C	
01/18/96	08:33	20.9C	402.9C	35.2C	
01/18/96	08:34	4.0C	82.6C	35.2C	
01/18/96	08:35	3.3C	1.1C	35.2C	
01/18/96	08:36	5.0C	0.7C	35.2C	
01/18/96	08:37	12.6C	-0.5C	35.2C	
01/18/96	08:38	7.1C	-0.5C	35.2C	
01/18/96	08:39	3.6C	-0.5C	35.1C	
01/18/96	08:40	2.5C	-0.5C	35.1C	

96-011
ERM Southwest
Silsbee, TX.
1-18-96
DAS # 11
SD886
THC Analyzer
TECO Model VE-7
SN 53
CO Analyzer
TECO Model 48
SN 51
NOx Analyzer
TECO Model 10S
SN 105-34471-260
Leak Check 0.000

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		THC PPM	CO PPM	NOX PPM	
01/18/96	08:41	6.7C	-0.5C	35.1C	
01/18/96	08:42	19.2C	-0.4C	35.1C	
01/18/96	08:43	4.0C	-0.5C	35.1C	
01/18/96	08:44	3.0C	-0.5C	35.0C	
01/18/96	08:45	2.8C	-0.5C	35.0C	
01/18/96	08:46	40.3C	-0.5C	35.0C	
01/18/96	08:47	3.2C	-0.5C	35.0C	
01/18/96	08:48	2.0C	-0.5C	35.0C	
01/18/96	08:49	1.3C	-0.5C	35.0C	
01/18/96	08:50	2.2C	-0.5C	35.0C	
01/18/96	08:51	8.3C	-0.5C	35.0C	
01/18/96	08:52	4.4C	-0.5C	35.0C	← END NOx CONV.
01/18/96	08:53	1.1C	-0.5C	22.2C	
01/18/96	08:54	0.5C	-0.5C	0.7C	
01/18/96	08:55	1.1C	-0.5C	0.7C	
01/18/96	08:56	1.4C	-0.5C	0.7C	ZERO NOx BIAS
01/18/96	08:57	1.0C	-0.5C	0.7C	
01/18/96	08:58	0.9C	-0.5C	10.9C	
01/18/96	08:59	0.4C	-0.5C	44.4C	
01/18/96	09:00	1.7C	-0.5C	45.5C	
01/18/96	09:01	2.3C	-0.5C	45.5C	46.22 NOx BIAS
AVERAGES :		134.6	159.5	31.1	

Auxiliary Average Report

DCNID : 11 Site Name : RTO NO 1 Aux Interval : 1 Date : 1/18/96

Rule 3 Part A Form.

Time	THC PPM	CO PPM	NOX PPM
12:15	36.0000	178.7000	23.2000
12:16	4.1000	273.4000	25.3000
12:17	5.5000	91.9000	26.9000
12:18	4.2000	105.2000	26.0000
12:19	48.9000	89.6000	23.9000
12:20	5.5000	256.1000	22.7000
12:21	4.9000	160.5000	26.6000
12:22	4.1000	73.9000	27.2000
12:23	5.7000	96.1000	26.3000
12:24	69.2000	116.2000	23.9000
12:25	4.9000	312.1000	23.7000
12:26	6.4000	108.2000	28.5000
12:27	3.3000	84.3000	28.7000
12:28	45.1000	72.9000	26.9000
12:29	12.5000	213.7000	23.3000
12:30	4.1000	219.1000	26.0000
12:31	4.5000	65.8000	27.9000
12:32	4.5000	89.5000	26.5000
12:33	55.1000	83.2000	24.3000
12:34	4.6000	278.2000	23.1000
12:35	5.3000	143.8000	26.8000
12:36	3.7000	82.8000	27.7000
12:37	7.2000	86.3000	26.5000
12:38	48.5000	139.0000	23.6000
12:39	6.6000	283.6000	24.9000
12:40	6.5000	92.4000	27.7000
12:41	4.2000	103.2000	27.0000
12:42	55.0000	82.8000	25.7000
12:43	10.1000	250.9000	23.9000
12:44	5.7000	225.0000	26.4000
12:45	5.5000	83.5000	28.4000
12:46	6.1000	108.6000	27.9000
12:47	56.4000	108.4000	25.0000
12:48	5.0000	299.2000	25.3000
12:49	6.3000	130.1000	27.7000
12:50	3.8000	84.5000	27.7000
MAX :	69.2000	312.1000	28.7000
MIN :	3.3000	65.8000	22.7000
AVG :	15.8056	146.4639	25.9194
SCANS:	36	36	36

Auxiliary Average Report

DCNID : 11 Site Name : RTO NO 1 Aux Interval : 1 Date : 1/18/96

RUN 3 Post B Form

Time	THC PPM	CO PPM	NOX PPM
13:01	49.4000	114.1000	23.5000
13:02	4.7000	284.8000	24.8000
13:03	6.1000	102.9000	27.2000
13:04	4.0000	87.5000	27.4000
13:05	26.2000	77.2000	26.1000
13:06	35.0000	180.2000	22.8000
13:07	4.1000	241.8000	25.4000
13:08	4.8000	71.6000	27.2000
13:09	4.1000	91.4000	26.5000
13:10	61.4000	76.3000	23.8000
13:11	4.9000	263.4000	22.7000
13:12	4.9000	158.0000	26.5000
13:13	3.4000	73.8000	27.4000
13:14	7.3000	84.3000	26.4000
13:15	63.0000	144.8000	22.8000
13:16	4.9000	320.8000	24.6000
13:17	6.0000	92.1000	27.9000
13:18	3.4000	90.5000	27.7000
13:19	49.3000	81.4000	25.5000
13:20	9.9000	252.8000	22.6000
13:21	4.0000	218.2000	26.2000
13:22	4.2000	76.2000	27.8000
13:23	5.1000	93.5000	26.3000
13:24	62.3000	114.9000	22.8000
13:25	4.3000	365.1000	22.9000
13:26	5.6000	125.5000	25.8000
13:27	3.3000	83.0000	26.1000
13:28	13.1000	84.6000	25.5000
13:29	44.1000	151.6000	23.2000
13:30	4.1000	269.4000	25.4000
13:31	5.6000	83.8000	28.0000
13:32	4.5000	97.8000	26.7000
13:33	66.5000	100.0000	24.6000
13:34	6.4000	337.6000	22.6000
13:35	4.9000	191.0000	25.4000
13:36	5.0000	79.8000	27.1000
MAX :	66.5000	365.1000	28.0000
MIN :	3.3000	71.6000	22.6000
AVG :	16.6611	148.9361	25.4222
SCANS:	36	36	36

AVG : 16.2 → 16.23 → 8.88 #/hr

147.7 → 147.70 → 51.32 #/hr

25.7 → 25.67 → 25.47 → GC-1 → 14.54 #/hr

ERM SOUTHWEST
RTO NUMBER 2 STACK
SILSBEE, TEXAS
96 011
Page : 1

Final Cals

		THC PPM	CO PPM	NOX PPM	
01/18/96	13:40	0.5C	77.4C	10.4C	
01/18/96	13:41	-0.2C	3.1C	1.9C	
01/18/96	13:42	-0.4C	-0.4C	1.8C	zero THC
01/18/96	13:43	-0.4C	-0.5C	1.8C	zero CO Bias
01/18/96	13:44	273.2C	-0.5C	1.8C	
01/18/96	13:45	514.2C	115.4C	1.7C	
01/18/96	13:46	514.7C	407.2C	1.7C	486.1 Propane
01/18/96	13:47	498.1C	422.7C	1.6C	zero NOx Bias
01/18/96	13:48	6.1C	422.9C	1.6C	445.6 CO Bias
01/18/96	13:49	1.4C	338.0C	24.8C	
01/18/96	13:50	8.7C	23.0C	45.4C	
01/18/96	13:51	9.7C	0.7C	45.5C	
01/18/96	13:52	9.7C	0.4C	45.7C	46.22 NOx Bias
AVERAGES :		141.2	139.2	14.3	

APPENDIX G

Plant Operational Data

Dryer Production Calculations, Pounds Dried Wafers
Dryer RTO Compliance Test
Silsbee OSB Plant, Silsbee Texas

Date	Time	Thayer			Fines (12% Of Total)	Period Total	Shift Total	Daily Total
		Face	Core	Usage				
16-Jan	8:00	136,900	77,200	-	-	-		
	9:00	183,900	103,700	73,500	8,820	82,320		
	10:00	232,000	132,000	76,400	9,168	85,568		
	11:00	268,250	153,400	57,650	6,918	64,568		
	12:00	307,600	177,000	62,950	7,554	70,504		
	13:00	350,600	200,300	66,300	7,956	74,256		
	14:00	390,000	221,300	60,400	7,248	67,648		
	15:00	435,600	245,600	69,900	8,388	78,288		
	16:00	476,400	267,000	62,200	7,464	69,664	592,816	592,816
	Dryer Production Test Average (lb/hr)						74,102	
17-Jan	9:00	183,300	101,400	-	-	-		
	10:00	229,700	125,100	70,100	8,412	78,512		
	11:00	277,500	152,500	75,200	9,024	84,224		
	12:00	312,300	173,000	55,300	6,636	61,936		
	13:00	354,800	197,600	67,100	8,052	75,152		
	14:00	403,300	226,700	77,600	9,312	86,912		
	15:00	446,800	249,600	66,400	7,968	74,368		
	16:00	487,000	271,200	61,800	7,416	69,216		
	17:00	531,500	294,900	68,200	8,184	76,384	606,704	606,704
	Dryer Production Test Average (lb/hr)						75,838	
18-Jan	8:00	134,000	72,300	-	-	-		
	9:00	162,500	89,000	45,200	5,424	50,624		
	10:00	199,400	68,700	16,600	1,992	18,592		
	11:00	244,500	133,550	109,950	13,194	123,144		
	12:00	289,000	157,000	67,950	8,154	76,104		
	13:00	332,500	185,800	72,300	8,676	80,976		
	14:00	369,400	207,300	58,400	7,008	65,408		
	15:00	412,600	230,700	66,600	7,992	74,592		
	16:00	456,000	255,000	67,700	8,124	75,824		
	17:00	500,000	279,550	68,550	8,226	76,776	642,040	642,040
	Dryer Production Test Average (lb/hr)						71,338	
19-Jan	7:00	84,700	50,000	-	-	-		
	8:00	121,500	72,600	59,400	7,128	66,528		
	9:00	165,600	98,300	69,800	8,376	78,176		
	10:00	200,500	118,650	55,250	6,630	61,880		
	11:00	234,360	142,980	58,190	6,983	65,173		
	12:00	283,350	166,100	72,110	8,653	80,763		
	13:00	330,270	192,780	73,600	8,832	82,432		
	14:00	365,540	212,800	55,290	6,635	61,925		
	15:00	411,523	237,886	71,069	8,528	79,597		
	16:00	411,523	237,886	0	0	0		
	17:00	451,800	260,840	63,231	7,588	70,819	647,293	647,293
	Dryer Production Test Average (lb/hr)						64,729	

Notes:
1. Fines are calculated as 12% of total Thayer readings, based on historical plant data.

Wafer Dryer Operating Parameters
RTO Compliance Test
Silsbee OSB Plant, Silsbee, Texas

Dryer: 2 Test # 1 Date: January 16, 1996 Time: 13:15 to 17:40

Time	Bin Bottom (Hz.)	Bin Level	Dryer Temperatures (deg. F)				Fuel Counter Units	Calculated Fuel Rate (lb/hr)
			Inlet	Outlet	Setpoint	Differential		
1315	36	mid	1363	251	247	1105	3989	
1330	36	mid	1392	241	247	1150	4127	
1345	36	mid	1404	246	247	1160	4277	
1400	36	mid	1355	248	247	1109	4437	
1415	36	low	1446	247	244	1195	4591	
1430	36	mid	1320	240	240	1081	4735	
1442	36	mid	1425	236	240	1180	4842	
1500	36	mid	1291	250	238	1039	4996	
1515	36	mid	1359	251	238	1124	5159	
1530	36	mid	1350	241	242	1110	5279	
1600	36	high	1372	248	242	1130	5585	
1615	36	mid	1390	235	242	1157	5711	
1630	36	mid	1365	244	242	1120	5867	
1645	36	mid	1425	237	242	1188	6014	
1700	36	mid	1391	249	242	1140	6146	
1715	36	mid	1437	238	240	1202	6300	
1730	36	mid	1452	249	240	1200	6452	
1740	36	mid	1085	234	240	834	6562	
Test Average:	**36**	**mid**	**1368**	**244**	**242**	**1124**	**Total:**	**3495**

Dryer: 3 Test # 1 Date: January 16, 1996 Time: 13:15 to 17:40

Time	Bin Bottom (Hz.)	Bin Level	Dryer Temperatures (deg. F)				Fuel Counter Units	Calculated Fuel Rate (lb/hr)
			Inlet	Outlet	Setpoint	Differential		
1315	34	mid	1459	228	247	1181	3134	
1330	34	mid	1430	235	247	1192	3249	
1345	34	mid	1484	222	242	1262	3361	
1400	34	mid	1060	217	242	834	3462	
1415	34	mid	903	234	238	673	3543	
1430	34	mid	1476	199	238	1257	3656	
1442	34	low	1392	262	238	1138	3734	
1500	34	low	1507	242	238	1265	3862	
1515	34	mid	1514	241	245	1274	3999	
1530	34	mid	1392	260	245	1134	4090	
1600	34	high	1508	239	245	1239	4330	
1615	34	high	1482	241	249	1241	4430	
1630	34	mid	1472	242	249	1227	4552	
1645	34	mid	1474	240	249	1233	4664	
1700	34	mid	1481	246	252	1235	4768	
1715	34	mid	1428	257	252	1169	4885	
1730	34	mid	1501	240	252	1262	4995	
1740	34	low	1347	255	252	1093	5098	
Test Average:	**34**	**mid**	**1406**	**239**	**246**	**1162**	**Total:**	**2668**

Wafer Dryer Operating Parameters
RTO Compliance Test
Silsbee OSB Plant, Silsbee, Texas

Dryer: 4 Test # 1 Date: January 16, 1996 Time: 13:15 to 17:40

Time	Bin Bottom (Hz.)	Bin Level	Dryer Temperatures (deg. F)				Fuel Counter Units	Calculated Fuel Rate (lb/hr)
			Inlet	Outlet	Setpoint	Differential		
1315	37	mid	1216	203	200	1014	3068	
1330	37	mid	1303	196	200	1107	3185	
1345	37	low	1277	200	200	1077	3302	
1400	37	low	1247	201	200	1046	3425	
1415	37	mid	1254	190	197	1056	3536	
1430	37	mid	1215	201	197	1012	3656	
1442	37	mid	1206	197	194	1008	3733	
1500	37	mid	1202	200	194	1001	3854	
1515	37	mid	1238	198	196	1039	3986	
1530	37	high	1220	200	196	1020	4078	
1600	37	mid	1255	196	196	1059	4315	
1615	37	mid	1266	193	196	1073	4420	
1630	37	low	1253	199	196	1053	4547	
1645	37	mid	1247	199	196	1048	4657	
1700	37	mid	1230	198	194	1030	4759	
1715	37	mid	1215	197	194	1018	4874	
1730	37	mid	1190	200	194	989	4979	
1740	37	mid	1183	196	194	987	5080	
Test Average:	**37**	**mid**	**1234**	**198**	**196**	**1035**	**Total:**	**2733**

Dryer: 5 Test # 1 Date: January 16, 1996 Time: 13:15 to 17:40

Time	Bin Bottom (Hz.)	Bin Level	Dryer Temperatures (deg. F)				Fuel Counter Units	Calculated Fuel Rate (lb/hr)
			Inlet	Outlet	Setpoint	Differential		
1315	37	mid	1298	200	201	1099	3552	
1330	37	mid	1362	197	201	1165	3677	
1345	37	mid	1377	194	198	1185	3806	
1400	37	mid	1393	201	198	1192	3947	
1415	37	mid	1353	200	196	1154	4069	
1430	37	mid	1326	202	196	1124	4201	
1442	37	mid	1345	190	193	1146	4288	
1500	37	low	1300	200	193	1099	4425	
1515	37	mid	1369	190	189	1179	4572	
1530	37	mid	1340	196	189	1145	4677	
1600	37	mid	1309	199	191	1110	4928	
1615	37	low	1366	192	189	1174	5039	
1630	37	mid	1313	197	189	1116	5168	
1645	37	mid	1312	200	191	1111	5287	
1700	37	low	1276	204	188	1070	5392	
1715	37	mid	1284	197	188	1088	5510	
1730	37	low	1289	199	188	1090	5626	
1740	37	low	1243	196	188	1047	5736	
Test Average:	**37**	**mid?**	**1325**	**197**	**193**	**1127**	**Total:**	**2967**

Wafer Dryer Operating Parameters
RTO Compliance Test
Silsbee OSB Plant, Silsbee, Texas

Dryer: 2 Test # 2 Date: January 17, 1996 Time: 08:25 to 16:16

Time	Bin Bottom (Hz.)	Bin Level	Dryer Temperatures (deg. F)				Fuel Counter Units	Calculated Fuel Rate (lb/hr)
			Inlet	Outlet	Setpoint	Differential		
0825	34	mid	1234	232	235	1002	1363	
0830	34	low	1297	231	235	1065	1399	
0845	34	mid	1033	227	235	810	1493	
0900	34	mid	1325	235	235	1089	1635	
0915	34	mid	1247	239	235	1000	1770	
0930	34	mid	1312	237	235	1074	1904	
0945	34	mid	1292	237	235	1066	2048	
1000	34	mid	1355	240	235	1111	2180	
1030	34	mid	1278	232	235	1046	2463	
1045	34	high	1297	242	235	1055	2593	
1115	34	mid	1242	240	235	1003	2851	
1149	34	mid	1305	225	235	1006	3033	
1215	34	mid	1335	223	235	1116	3243	
1230	34	high	1305	242	235	1063	3387	
1245	34	mid	1314	233	235	1081	3524	
1305	34	mid	1301	237	235	1505	3709	
1330	34	mid	1367	240	235	1125	3940	
1345	34	mid	1365	235	235	1132	4089	
1422	34	mid	1291	241	235	1051	4447	
1445	34	mid	1280	248	237	1025	4667	
1500	34	mid	1310	246	240	10651	4813	
1515	34	mid	1388	231	240	1157	4953	
1530	34	high	1315	249	240	1069	5081	
1552	34	mid	1294	246	240	1047	5276	
1616	34	mid	1301	245	240	1054	5489	
Test Average:	34	mid	1295	237	236	1456	Total:	3154

Dryer: 3 Test # 2 Date: January 17, 1996 Time: 08:25 to 16:16

Time	Bin Bottom (Hz.)	Bin Level	Dryer Temperatures (deg. F)				Fuel Counter Units	Calculated Fuel Rate (lb/hr)
			Inlet	Outlet	Setpoint	Differential		
0825	34	mid	1373	252	240	1120	1393	
0830	34	mid	1365	244	240	1122	1431	
0845	34	mid	1377	248	235	1126	1539	
0900	34	mid	1432	244	235	1188	1652	
0915	34	low	1465	235	235	1230	1772	
0930	34	mid	1438	32	235	1265	1880	
0945	34	mid	1352	240	235	1144	1994	
1000	34	mid	1378	258	238	1100	2091	
1030	34	mid	1418	248	238	1169	2331	
1045	34	mid	1386	251	238	1135	2434	
1115	34	mid	1451	227	235	1226	2649	
1149	34	mid	1363	217	235	1158	2795	
1215	34	mid	1327	256	235	1066	2967	
1230	34	mid	1477	234	235	1240	3085	
1245	34	mid	1499	231	235	1269	3209	
1305	34	mid	1505	233	235	1272	3372	
1330	34	mid	1448	241	235	1206	3548	
1345	34	mid	1504	227	235	1278	3672	
1422	34	mid	1494	238	235	1253	3978	
1445	34	mid	1480	238	238	1241	4157	
1500	34	high	1513	233	238	1278	4288	
1515	34	mid	1387	252	238	1134	4398	
1530	34	high	1414	246	238	1171	4493	
1552	34	mid	1464	238	238	1226	4682	
1616	34	mid	1511	228	238	1288	4872	
Test Average:	34	mid	1433	232	236	1196	Total:	2659

Wafer Dryer Operating Parameters
RTO Compliance Test
Silsbee OSB Plant, Silsbee, Texas

Dryer: 4 Test # 2 Date: January 17, 1996 Time: 08:25 to 16:16

Time	Bin Bottom (Hz.)	Bin Level	Dryer Temperatures (deg. F)				Fuel Counter Units	Calculated Fuel Rate (lb/hr)
			Inlet	Outlet	Setpoint	Differential		
0825	37	mid	1087	199	240	887	1318	
0830	37	mid	1096	198	240	898	1352	
0845	37	mid	1124	198	235	926	1451	
0900	37	mid	1126	197	235	929	1562	
0915	37	low	1153	195	235	960	1675	
0930	37	mid	1066	242	235	1054	1779	
0945	37	mid	1186	196	235	990	1887	
1000	37	mid	1148	197	238	950	1983	
1030	37	mid	1198	192	238	1006	2212	
1045	37	mid	1198	195	238	1003	2317	
1115	37	mid	1210	191	235	1018	2534	
1149	37	mid	1028	193	235	838	2725	
1215	37	mid	1165	201	235	964	2923	
1230	37	mid	1229	201	235	1027	3040	
1245	37	low	1226	200	235	1025	3157	
1305	37	mid	1145	191	235	954	3300	
1330	37	mid	1183	191	235	991	3470	
1345	37	mid	1236	191	235	1044	3587	
1422	37	mid	1189	194	235	996	3868	
1445	37	mid	1160	193	238	967	4035	
1500	37	low	1167	195	238	970	4153	
1515	37	mid	1172	192	238	979	4261	
1530	37	mid	1166	194	238	973	4358	
1552	37	mid	1199	192	238	1006	4534	
1616	37	mid	1185	192	238	993	4713	
Test Average:	37	mid	1162	196.8	236	974	Total:	2595

Dryer: 5 Test # 2 Date: January 17, 1996 Time: 08:25 to 16:16

Time	Bin Bottom (Hz.)	Bin Level	Dryer Temperatures (deg. F)				Fuel Counter Units	Calculated Fuel Rate (lb/hr)
			Inlet	Outlet	Setpoint	Differential		
0825	37	mid	1260	197	190	1062	1422	
0830	37	mid	1240	199	190	1039	1458	
0845	37	mid	1289	191	190	1098	1568	
0900	37	low	1318	194	190	1125	1698	
0915	37	mid	1370	189	190	1180	1829	
0930	37	mid	1066	192	194	873	1951	
0945	37	mid	1305	190	194	1116	2065	
1000	37	mid	1338	188	192	1149	2175	
1030	37	mid	288	247	192	37	2271	
1045	37	mid	207	221	192	-13	2271	
1115	37	mid	1357	192	192	1166	2439	
1149	37	mid	1179	202	192	782	2659	
1215	37	mid	1297	214	192	1085	2883	
1230	37	mid	1348	223	192	1120	3019	
1245	37	mid	1363	207	192	1157	3142	
1305	37	low	1270	207	187	1062	3305	
1330	37	mid	1353	200	187	1152	3500	
1345	37	mid	1426	196	187	1230	3635	
1422	37	mid	1381	198	190	1182	3962	
1445	37	mid	1377	196	188	1182	4166	
1500	37	mid	1348	204	188	1142	4303	
1515	37	mid	1311	202	188	1110	4424	
1530	37	mid	1309	284	188	1105	4538	
1552	37	mid	1167	189	188	980	4732	
1616	37	mid	1318	193	188	1122	4927	
Test Average:	37	mid	1219	205	190	1010	Total:	2679

Wafer Dryer Operating Parameters
RTO Compliance Test
Silsbee OSB Plant, Silsbee, Texas

Dryer: 2 Test # 3 Date: January 17, 1996 Time: 18:00 to 21:45

Time	Bin Bottom (Hz.)	Bin Level	Dryer Temperatures (deg. F)				Fuel Counter Units	Calculated Fuel Rate (lb/hr)
			Inlet	Outlet	Setpoint	Differential		
1800	34	mid	1277	247	240	1029	166	
1815	34	mid	1302	241	240	1060	300	
1837	34	mid	1311	243	240	1066	463	
1910	34	mid	1326	248	240	1075	775	
1932	34	mid	1338	238	240	1101	963	
1945	34	mid	1258	245	240	1014	1099	
2000	34	low	1306	240	240	1067	1203	
2015	34	low	1286	243	240	1042	1331	
2030	34	low	1226	255	240	968	1460	
2130	34	low	1285	246	240	1036	1989	
2145	34	low	1333	243	240	1102	2121	
Test Average:	**34**	**mid/low**	**1295**	**244**	**240**	**1051**	**Total:**	**3128**

Dryer: 3 Test # 3 Date: January 17, 1996 Time: 18:00 to 21:45

Time	Bin Bottom (Hz.)	Bin Level	Dryer Temperatures (deg. F)				Fuel Counter Units	Calculated Fuel Rate (lb/hr)
			Inlet	Outlet	Setpoint	Differential		
1800	34	mid	1477	250	238	1228	148	
1815	34	mid	1430	255	238	1174	260	
1837	34	mid	1494	250	238	1242	411	
1910	34	mid	1463	255	239	1207	673	
1932	34	mid	1402	257	239	1146	823	
1945	34	mid	1384	267	239	1114	938	
2000	34	low	1446	256	239	1192	1026	
2015	34	low	1438	255	239	1181	1134	
2030	34	low	1438	262	239	1175	1257	
2130	34	low	1444	267	239	1172	1740	
2145	34	low	1341	260	239	1085	1839	
Test Average:	**34**	**mid/low**	**1432**	**258**	**239**	**1174**	**Total:**	**2706**

Wafer Dryer Operating Parameters
RTO Compliance Test
Silsbee OSB Plant, Silsbee, Texas

Dryer: 4 **Test # 3** **Date:** January 17, 1996 **Time:** 18:00 to 21:45

Time	Bin Bottom (Hz.)	Bin Level	Dryer Temperatures (deg. F)				Fuel Counter Units	Calculated Fuel Rate (lb/hr)
			Inlet	Outlet	Setpoint	Differential		
1800	37	mid	1343	203	187	1130	153	
1815	37	mid	1331	188	187	1147	259	
1837	37	mid	1308	200	187	1105	406	
1910	35.5	mid	1272	198	184	1076	610	
1932	35.5	mid	1129	188	184	940	755	
1945	35.5	mid	1176	187	184	988	868	
2000	35.5	mid	1151	185	184	967	949	
2015	35.5	low	1182	186	184	993	1054	
2030	33.5	mid	1089	185	184	908	1156	
2130	35.5	mid	1138	193	184	943	1566	
2145	35.5	low	1061	190	184	871	1659	
Test Average:	**35.7**	**mid**	**1198**	**191**	**185**	**1006**	**Total:**	**2410**

Dryer: 5 **Test # 3** **Date:** January 17, 1996 **Time:** 18:00 to 21:45

Time	Bin Bottom (Hz.)	Bin Level	Dryer Temperatures (deg. F)				Fuel Counter Units	Calculated Fuel Rate (lb/hr)
			Inlet	Outlet	Setpoint	Differential		
1800	37	low	1307	202	188	1107	155	
1815	37	low	1321	201	188	1119	278	
1837	37	mid	1289	199	183	1090	423	
1910	37	mid	1326	201	183	1124	703	
1932	37	low	1300	194	183	1106	872	
1945	37	mid	1324	191	183	1132	1002	
2000	37	low	1314	195	183	1117	1100	
2015	37	low	1294	193	183	1100	1217	
2030	37	low	1360	192	183	1167	1352	
2130	37	low	1216	205	183	1009	1856	
2145	37	mid	1273	192	183	1084	1982	
Test Average:	**37**	**low**	**1302**	**197**	**184**	**1105**	**Total:**	**2923**

Wafer Dryer Operating Parameters
RTO Compliance Test
Silsbee OSB Plant, Silsbee, Texas

Dryer: 2 Test # 4 Date: January 18, 1996 Time: 12:10 to 13:37

Time	Bin Bottom (Hz.)	Bin Level	Dryer Temperatures (deg. F)				Fuel Counter Units	Calculated Fuel Rate (lb/hr)
			Inlet	Outlet	Setpoint	Differential		
1210	33	mid	1099	239	232	860	3102	
1215	33	mid	1098	237	232	860	3143	
1230	33	mid	1149	232	232	917	3261	
1245	33	mid	1082	243	232	838	3386	
1300	33	low	1118	238	232	879	3512	
1323	33	low	1149	230	232	924	3707	
1337	33	low	1117	243	232	873	3818	
1345	33	low	1043	246	232	795	3878	
Test Average:	33	mid/low	1107	239	232	868	Total:	3211

Dryer: 3 Test # 4 Date: January 18, 1996 Time: 12:10 to 13:37

Time	Bin Bottom (Hz.)	Bin Level	Dryer Temperatures (deg. F)				Fuel Counter Units	Calculated Fuel Rate (lb/hr)
			Inlet	Outlet	Setpoint	Differential		
1210	35	mid	1393	249	241	1144	2206	
1215	35	mid	1382	246	241	1136	2244	
1230	35	low	1351	252	241	1098	2348	
1245	35	low	1435	243	241	1190	2463	
1300	35	low	1359	247	241	1113	2572	
1323	35	low	1342	251	241	1081	2737	
1337	35	low	1385	241	241	1145	2831	
1345	35	mid	1409	238	241	1169	2894	
Test Average:	35	low/mid	1382	246	241	1135	Total:	2847

Dryer: 4 Test # 4 Date: January 18, 1996 Time: 12:10 to 13:37

Time	Bin Bottom (Hz.)	Bin Level	Dryer Temperatures (deg. F)				Fuel Counter Units	Calculated Fuel Rate (lb/hr)
			Inlet	Outlet	Setpoint	Differential		
1210	35	mid	1111	198	187	913	2561	
1215	35	mid	1136	196	187	941	2598	
1230	35	mid	1055	190	182	864	2693	
1245	35	low	1091	188	182	900	2800	
1300	35	low	1060	189	182	820	2906	
1323	35	low	1034	190	182	846	3065	
1337	35	low	1030	194	182	856	3151	
1345	35	low	997	193	182	802	3202	
Test Average:	35	low/mid	1064	192	183	868	Total:	2652

Dryer: 5 Test # 4 Date: January 18, 1996 Time: 12:10 to 13:37

Time	Bin Bottom (Hz.)	Bin Level	Dryer Temperatures (deg. F)				Fuel Counter Units	Calculated Fuel Rate (lb/hr)
			Inlet	Outlet	Setpoint	Differential		
1210	32	mid	1220	234	183	986	1440	
1215	32	mid	1280	223	183	1006	1484	
1230	32	low	1171	220	183	949	1599	
1245	32	low	1146	200	183	948	1716	
1300	32	mid	1153	210	183	942	1845	
1323	32	low	1114	207	183	907	2015	
1337	32	low	1054	194	188	860	2103	
1345	32	low	1122	191	188	930	2163	
Test Average:	32	low/mid	1158	210	184	941	Total:	2992

Dryer Operating Data
RTO Emissions Compliance Testing Data
L-P Silsbee CSB Plant Compliance Testing

Date 1/16/96
Testing Scenario /
Test Run 1
Test time start/end 1315 /
Pollutants Measured VOC, TSP, CO, NOx

page 1 of 4

Takes 3 min for cycle of mechanism

1359 Change Dryer #3 & #4 ~~from face to core~~ to go to higher moisture

1405 Dryer #3 flame out (automatic) due to high inlet temp & down feed, momentarily & dump chips.

1350 RTO alarm

Waferizer #1 down from 1320 to 1350

Dryer Operating Parameters

Dryer Number	Reading Time	Bin Level (Low, Mid, High)	Bin Bottom Feed, Hz	Dryer Inlet Temp, T	Dryer Outlet Temp, F	Temp Diff Temp, F	Dryer Bin Level Face (High, Low)	Dryer Bin Level Core (High, Low)	Wafer Moisture, wt. % Green Inlet	Wafer Moisture, wt. % Dry Outlet	Fuel Counter Reading, units	Comments
2	1315	Mid	36	1363	251	1105	Low	Low		2.6	3989	
3			34	~~1459~~	228	1181				6.4	3134	
4			37	1216	203	1014			40% 60%	8.9	3068	
5			37	1298	200	1099				7.4	3552	
TO Hr				1504	685	471	432	741	475		2908	
2	1330	Mid	36	1392	241	1150	Low	Low			4127	1335 bin low 1339 mid
3			34	1430	235	1192					3249	
4			37	1303	196	1107			40% 60%		3185	1342 bin low
5			37	1362	197	1165					3677	1341 bin low 1342 mid
TO Hr				1494	688	471	433	742	475		2991	
2	1345	Mid	36	1404	246	1160	Low	Low		1.7	4277	1347 low 1351 mid
3		Mid	34	1484	222	1262				6.6	3361	
4		Low	37	1277	200	1077				8.5	3302	1349 mid 1356 low
5		Mid	37	1377	194	1185				11.6	3806	
TO Hr				1475	678	472	433	731	475		3080	
2	1400	Mid	36	1355	248	1109	Mid	Low			4437	1405 high inlet temp
3		Mid	34	1060	217	834					3462	
4		Low	37	1247	201	1046					3425	
5		Mid	37	1393	201	1192					3947	
TO Hr				1490	683	473	433	739	476		3178	1411 flame out
2	1415	Low	36	1446	247	1195	Mid	Low		2.2	4591	
3		Mid	34	903	234	673				8.3 FO	3543	
4		Mid	37	1254	190	1056				8.4	3536	
5		Mid	37	1353	200	1154				7.8	4069	
TO Hr				~~1501~~	~~685~~	~~471~~	434	726	474	11.0 after FO	3265	

Stack In | Stack out | Hot oil ~~Out~~ | Hot oil Return | wood Burner In | wood Burner out

10% wood feed

1418 flame out

Dryer Operating Data
RTO Emissions Compliance Testing Data
L-P Silsbee CSB Plant Compliance Testing

@1456 shifted Dryer #3 to Core (lower moisture)

Date 1/16/96
Testing Scenario
Test Run

Test time start-end 1315 / ~~1442~~
Pollutants Measured VOC, TSP, CO, NOx

Dryer Operating Parameters

Dryer Number	Reading Time	Bin Level (Low, Mid, High)	Bin Bottom Feed, Hz	Dryer Inlet Temp, T	Dryer Outlet Temp, F	Temp Diff Temp, F	Dryer Bin Level Face (High, Low)	Dryer Bin Level Core (High, Low)	Wafer Moisture, wt. % Green Inlet	Wafer Moisture, wt. % Dry Outlet	Fuel Counter Reading, units	Comments
2	1430	Mid	36	1320	240	1081	mid	low		6	4735	
3		Mid	34	1476	199	1257					3656	1443 low
4		Mid	37	1215	201	1012					3656	
5		Mid	37	1326	202	1124					4201	
T O Hr				1502	684	471	432	738	475		3365	
2	1442	mid	36	1425	236	1180	mid	low		2.5	4842	
3		~~mid~~ low	34	1392	262	1138				7.3	3734	1454 mid
4		mid	37	1206	197	1008				11.8	3733	1458 low
5		mid	37	1345	190	1146				8.9	4288	1459 - low ~~1459 mid~~
T O Hr				1520	686	470	431	739	474		3432	
2	1500	~~mid~~	36	1291	250	1039	mid	low			4996	
3		low	34	1507	242	1265					~~3862~~	
4		mid	37	1202	200	1001					3854	
5		low	37	1300	200	1099					4425	1503 mid
T O Hr				1440	681	472	~~434~~	736	476		3532	
2	1515	mid	36	1359	235	1124	mid	low		5.0	5159	
3		mid	34	1514	241	~~1981~~ 1274				3.0	3999	
4		mid	37	1238	198	1039				11.1	3986	
5		mid	37	1369	190	1179				12.1	4572	
T O Hr				1546	684	471	431	~~740~~	475		3641	
2	1530	mid	36	1350	241	1110	mid	low		~~5~~	5279	
3		mid	34	1392	260	1134				~~3.0~~	~~4090~~	
4		high	37	1220	200	~~1020~~					4078	
5		mid	37	1340	196	1145				+	4677	
T O Hr				1551	704	472	430	760	475		3722	
				Stack In	Stack Out	Hot Oil Out	Hot Oil Return	Wood Burner In	Wood Burner Out			

Dryer Operating Data
RTO Emissions Compliance Testing Data
L-P Silsbee CSB Plant Compliance Testing

Page 3 of 4

Date: 1/16/96
Testing Scenario: 1
Test Run: 1
Test time start/end: 1315 /
Pollutants Measured: VOC, TSP, CO, NOx

Start 2nd test at ~~1550~~ end of 1550

#2 Waferizer down from 1605 to 1615

1602 fan going down on RTO
- losing draft pres.
- can cause plugging and fire

Dryer Operating Parameters

Dryer Number	Reading Time	Bin Level (Low, Mid, High)	Bin Bottom Feed, Hz	Dryer Inlet Temp, T	Dryer Outlet Temp, F	Temp Diff Temp, F	Dryer Bin Level Face (High, Low)	Dryer Bin Level Core (High, Low)	Wafer Moisture, wt.% Green Inlet	Wafer Moisture, wt.% Dry Outlet	Fuel Counter Reading, units	Comments
2	1545									2.0		
3										3.4		
4										4.3		
5										9.8		
TO Htr					1508							
2	1600	high	36	1372	248	1130	~~154~~	mid			5585	
3		high	34	~~248~~	239	1239	mid	mid			4330	
4		mid	37	1255	196	1059					4315	
5		mid	37	1309	199	1110					4928	
TO Htr				1540	702	472	430	754	475		3919	
2	1615	mid	36	1390	235	1157	mid	mid		2.3	5711	
3		high	34	1482	241	1241				2.8	4430	Retest
4		mid	37	1266	193	1073				15.2	934420	
5		low	37	1366	192	1174				12.1	5039	
TO Htr				1567	705	471	430	754	475		4007	
2	1630	mid	36	1365	244	1120	mid	mid			5867	
3		mid	34	1472	242	1227					4552	
4		low	37	1253	199	1053					4547	
5		mid	37	1313	197	1116					5168	
TO Htr				1542	696	472	431	752	476		4107	
2	1645	mid	36	1425	237	1188	mid	mid	~~154~~	2.3	6014	
3		mid	34	1474	240	1233				4.2	4664	
4		mid	37	1247	199	1048				9.8	4657	
5		mid	37	1312	200	1111				9.4	5287	
TO Htr				1547	700	471	430	755	475		4199	

Dryer Operating Data
RTO Emissions Compliance Testing Data
L-P Silsbee OSB Plant Compliance Testing

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1740 - #1 wafer is 25% down for blade change
1740 - end test

Date: 7/16/96
Testing Scenario: 1
Test Run: 1
Test time start/end: 1315 / 1740
Pollutants Measured: VOC, TSP, NOx, CO

Dryer Operating Parameters

Dryer Number	Reading Time	Bin Level (Low, Mid, High)	Bin Bottom Feed, Hz	Dryer Inlet Temp, T	Dryer Outlet Temp, F	Temp Diff Temp, F	Dryer Bin Level Face (High, Low)	Dryer Bin Level Core (High, Low)	Wafer Moisture, wt. % Green Inlet	Wafer Moisture, wt. % Dry Outlet	Fuel Counter Reading, units	Comments
2	1700	mid	36	1391	249	1140	mid	mid			6146	
3		mid	34	1481	246	1235					4768	
4		mid	37	1230	198	1030					4759	
5		low	37	1276	204	1070					5392	
T O Hr				1568	706	472	431	761	475		4285	
2	1715	mid	36	1437	238	1202	low	high		2.1	6300	
3		mid	34	1428	257	1169				2.0	4885	
4		mid	37	1215	197	1018				9.4	4874	
5		mid	37	~~16~~1284	197	1088				9.2	5510	
T O Hr				1553	702	471	430	757	474		4383	
2	1730	mid	36	1452	249	1200	mid	high			6452	
3		mid	34	1501	240	1262					4995	
4		mid	37	1190	200	989					4979	
5		low	37	1289	199	1090					5626	
T O Hr				1580	703	472	430	757	476		4478	
2	1743	mid	36	1085	234	834	low	high			6562	
3		low	34	1347	255	1093					5098	Take 2 down @ 1741
4		mid	37	1183	196	987					5080	
5		low	37	1243	196	1047					5736	
T O Hr				1572	708	472	430	764	475		4571	
2												
3												
4												
5												
T O Hr												

Dryer Operating Data
RTO Emissions Compliance Testing Data
L-P Silsbee OSB Plant Compliance Testing

Date: 1/17/96
Testing Scenario: 1
Test Run: 2

Test time start/end: 0820 / 1602
Pollutants Measured: VOC, NOx, TSP, CO

Dryer Operating Parameters

Dryer Number	Reading Time	Bin Level (Low, Mid, High)	Bin Bottom Feed, Hz	Dryer Inlet Temp, T	Dryer Outlet Temp, F	Temp Diff Temp, F	Dryer Bin Level Face (High, Low)	Dryer Bin Level Core (High, Low)	Wafer Moisture, wt % Green Inlet	Wafer Moisture, wt % Dry Outlet	Fuel Counter Reading, units	Comments
2	0825	mid	34	1234	232	1002	mid	mid		1.6	1363	
3		mid	34	1373	252	1120				2.6	1393	
4		mid	37	~~1087~~	199	887				10.5	1318	
5		mid	37	1260	197	1062				13.6	9.5 1422	
T O Hr				1580	697	473	431	752	476	@ 8:15	1163	retest
				Stack In	Stack Out	Hot Oil Out	Hot Oil Return	Wood Burn In	Wood Burn Out			
2	0830	low	34	1297	231	1065	mid	low			~~1550~~ 1399	
3		mid	34	1365	244	1122					~~69~~ 1431	
4		mid	37	1096	198	898					1352	842
5		mid	37	1240	199	1039					1458	#2 FO
T O Hr				1554	698	472	434	753	475		1194	
2	0845	mid	34	1033	227	810	mid	low		4.4 FO	1493	
3		mid	34	1377	248	1126				2-8	1539	
4		mid	37	1124	198	926				9.2	1451	
5		mid	37	1289	191	1098				13-1	1568	
T O Hr				1530	686	471	431	740	474		1279	
2	0900	mid	34	1325	235	1089	mid	low			1635	
3		mid	34	1432	244	1188					1652	
4		mid	37	1126	197	929					1562	
5		low	37	1318	194	1125					1698	
T O Hr				1606	~~708~~	472	429	~~763~~	475		1380	
2	0915	mid	34	1247	239	1000	mid	low			1770	
3		low	34	1465	235	1230					1772	
4		low	37	1153	195	960					1675	
5		mid	37	1370	189	1180					1829	
T O Hr				1577	695	472	432	750	475		1481	

Dryer Operating Data
RTO Emissions Compliance Testing Data
L-P Silsbee OSB Plant Compliance Testing

Date: 1/17/96
Testing Scenario: 1
Test Run: 2

Page 2 of 5
First part of test ended at 1004

Test time start/end: 0820 / 1602
Pollutants Measured: VOC, TSP, NOx, CO

Dryer Operating Parameters

Dryer Number	Reading Time	Bin Level (Low, Mid, High)	Bin Bottom Feed, Hz	Dryer Inlet Temp. T	Dryer Outlet Temp. F	Temp Diff Temp. F	Dryer Bin Level Face (High, Low)	Dryer Bin Level Core (High, Low)	Wafer Moisture, wt. % Green Inlet	Wafer Moisture, wt. % Dry Outlet	Fuel Counter Reading, units	Comments
2	0930	mid	34	1312	237	1074	high	low		2.0	1904	
3		mid	34	1438	32	1265	/	/		3.4	1880	
4		mid	37	1066	242	1054	/	/		9.8	1779	
5		mid	37	1066	192	873	/	/		10.2	1951	
TO Hr				1512	681	473	439	736	476		1566	
				Stack In	Stack Out	Hot Oil Out	Hot Oil Return	Wood Burn In	Wood Burn Out			
2	0945	mid	34	1292	237	1066	high	low			2048	
3		mid	34	1332	240	1144					1994	
4		mid	37	1186	196	990	/	/			1887	
5		mid	37	1305	190	1116					2065	
TO Hr				1532	682	472	430	735	475		1655	
2	1000	mid	34	1355	240	1117	high	low		2.7	2180	
3		mid	34	1378	258	1100				2.9	2091	
4		mid	37	1148	197	950	/	/		10.5	1983	
5		mid	37	1338	188	1149				12.2	2175	
TO Hr				1560	695	472	431	749	475		1742	
2	1030	mid	34	1278	232	1046	high	low			2463	
3		mid	34	1418	248	1169					2331	
4		mid	37	1198	192	1006	/	/			2212	
5		mid	37	1286	247	37					2271	#5 dryer shutdown @1012
TO Hr				1565	703	472	430	756	475		1949	
2	1045	high	34	1297	242	1055	mid	low			2593	
3		mid	34	1386	251	1135					2434	
4		mid	37	1198	195	1003					2317	1055 shutdown #2 waferizer due to full wet bins
5		mid	37	207	221	(-13)					2271	
TO Hr				1562	707	472	430	760	475		2040	

@1057 starting #5

G-15

Dryer Operating Data
RTO Emissions Compliance Testing Data
L-P Silsbee OSB Plant Compliance Testing

Date: 1/17/96
Testing Scenario: 1
Test Run: 2
Test time start/end: 0820 / 1602
Pollutants Measured: TSP, CO, NOx, VOC

start second part of test at 1210

Dryer Operating Parameters

Dryer Number	Reading Time	Bin Level (Low, Mid, High)	Bin Bottom Feed, Hz	Dryer Inlet Temp, T	Dryer Outlet Temp, F	Temp Diff Temp, F	Dryer Bin Level: Face (High, Low)	Dryer Bin Level: Core (High, Low)	Wafer Moisture, wt %: Green Inlet	Wafer Moisture, wt %: Dry Outlet	Fuel Counter Reading, units	Comments
2	1115	mid	34 1242	240	1003		mid	low		1.8	2851	1059 #3 FO
3		mid	34 ~~2495~~ 1	227	1226					1.7	2649	@ 1120
4		mid	37 ~~1663~~	210 191	1018					10.1	25 #34	feed sens.
5		mid	37 1357	192	1166					7.9	2439	tripped,
T O Htr				1564	718	472	430	775	475	@ 11[00]	2233	Dump #2 & #3
				Stack In	Stack Out	Hot Oil Out	Hot Oil Return	Wood Burn In	Wood Burn Out			all units down
2	1149	mid	34	1305	225	1006	mid	low			3033	Start firing back up @ 1145
3		mid	34	1363	217	1158					2795	
4		mid	37	1028	193	838					2725	
5		mid	37	1179	202	982					2659	
T O Htr				1120	573	472	445	620	475		2410	
2	1215	mid	34	1335	223	1116	mid	low			3243	restart test @ 1210
3		mid	34	1327	256	1066					2967	
4		mid	37	1165	201	964					2923	
5		mid	37	1297	214	1085					2883	
T O Htr				1650	718	472	426	773	475		2555	
2	1230	high	34	1305	242	1063	low	low		1.5	3387	
3		mid	34	1477	234	1240				2.8	3085	
4		mid	37	1229	201	1027				7.9	3040	
5		mid	37	1346	223	1120				3.9	3019	
T O Htr				1612	713	473	429	770	476		2661	
2	1245	mid	34	1314	233	1081	low	low			3524	
3		mid	34	1499	231	1269					3209	
4		low	37	1226	200	1025					3157	
5		mid	37	1363	207	1157					3142	
T O Htr				1607	717	472	428	771	475		2760	

Dryer Operating Data
RTO Emissions Compliance Testing Data
L-P Silsbee OSB Plant Compliance Testing

Date: 1/17/96
Testing Scenario: 1
Test Run: 2

Test time start/end: 0820 / 1602
Pollutants Measured: TSP, VOC, NOx, CO

Dryer Operating Parameters

Dryer Number	Reading Time	Bin Level (Low, Mid, High)	Bin Bottom Feed, Hz	Dryer Inlet Temp, T	Dryer Outlet Temp, F	Temp Diff Temp, F	Dryer Bin Level Face (High, Low)	Dryer Bin Level Core (High, Low)	Wafer Moisture, wt. % Green Inlet	Wafer Moisture, wt. % Dry Outlet	Fuel Counter Reading, units	Comments
2	1305	mid	34	1301	237	1505	low	mid		2.9	3709	
3		mid	34	~~237~~ 1605	233	1272				3.2	3372	
4		mid	37	1145	191	954				13.1	3300	
5		low	37	1270	207	1062				13.5	3305	
T O Htr				1611	710	472	428	767	475	@1315	2895	
				Stack In	Stack Out	Hot Oil Out	Hot Oil Return	Wood Burn In	Wood Burn Out			
2	1330	mid	34	1367	240	1125	low	mid			3940	
3		mid	34	1448	241	1206					3548	
4		mid	37	1183	191	991					3470	
5		mid	37	1353	200	1152					3500	
T O Htr				1580	708	471	430	762	475		3047	
2	1345	mid	34	1365	235	1132	low	mid			4089	
3		mid	34	1504	227	1278					3672	
4		mid	37	1236	191	1044					3587	
5		mid	37	1426	196	1230					3635	
T O Htr				1575	708	472	431	763	475		3145	
2	1422	mid	34	1291	241	1051	low	~~high~~		3.7	4447	
3		mid	34	1494	238	1253				3.5	3978	
4	~~1400~~	mid	37	1189	194	996				10.5	3868	
5		~~mid~~ low	37	1381	198	1182				9.5	3962	
T O Htr				1575	706	472	429	760	475	@1430	3387	
2	1445	mid	34	1280	248	1025	low	high			4667	
3		mid	34	1480	238	1241					4157	
4		mid	37	1160	193	967					4035	
5		mid	37	1377	196	1182					4166	
T O Htr				1612	727	471	429	783	474		3542	

Dryer Operating Data
RTC Emissions Compliance Testing Data
L-P Silsbee CSB Plant Compliance Testing

Date: 1/17/95
Testing Scenario: 1
Test Run: 2

Test time start/end: 0820 / 1602
Pollutants Measured: VOC, TSP, CO, NOx

Dryer Operating Parameters

Dryer Number	Reading Time	Bin Level (Low, Mid, High)	Bin Bottom Feed, Hz	Dryer Inlet Temp, T	Dryer Outlet Temp, F	Temp Diff Temp, F	Dryer Bin Level: Face (High, Low)	Dryer Bin Level: Core (High, Low)	Wafer Moisture, wt. %: Green Inlet	Wafer Moisture, wt. %: Dry Outlet	Fuel Counter Reading, units	Comments
2	1500	mid	34	1310	246	1061	low	high		1.7	4813	
3		high	34	1513	233	1278	/	/		3.4	4288	
4		low	37	1167	195	970	/	/		9.4	4153	
5		mid	37	1348	204	1142	/	/		8.9	4303	
T O Hr				1632	736	471	429	790	475		3652	
				Stack In	Stack Out	Hot Oil Out	Hot Oil Return	Wood Burn In	Wood Burn Out			
2	1515	mid	34	1388	231	1157	mid	mid			4953	
3		mid	34	1387	252	1134	/	/			4398	
4		mid	37	1172	192	979	/	/			4261	
5		mid	37	1311	202	1110	/	/			4424	
T O Hr				1602	721	472	430	778	476		3751	
2	1530	high	34	1315	249	1069	mid	mid			5081	1532 #2 FO
3		high	34	~~2491~~1314	246	1171	/	/			4493	
4		mid	37	1166	194	973	/	/			4358	
5		mid	37	1309	284	1105	/	/			4538	1551 #5 FO
T O Hr				1577	723	471	432	778	475		3836	
2	1552	mid	34	1294	296	1047	mid	mid			5276	
3		mid	34	1464	238	1226	/	/			4682	
4		mid	37	1199	192	1006	/	/			4534	1555 #5 FO
5		mid	37	1167	184	980	/	/			4732	
T O Hr				1564	718	472	431	772	475		3987	
2	1616	mid	34	1301	245	1054	mid	mid			5489	
3		mid	34	1511	228	1288		/			4872	
4		mid	37	1185	192	993	/	/			4713	
5		mid	37	1316	193	1122	/	/			4927	
T O Hr				1555	703	471	432	758	475		4140	1620 shutdown #3 after end of test

Dryer Operating Data
RTO Emissions Compliance Testing Data
L-P Silsbee OSB Plant Compliance Testing

Date: 1/17/96
Testing Scenario:
Test Run: 3

Page 1 of 3

Test time start/end: 1751
Pollutants Measured: TSP, VOC, CO, NOx

Dryer Operating Parameters

Dryer Number	Reading Time	Bin Level (Low, Mid, High)	Bin Bottom Feed, Hz	Dryer Inlet Temp, T	Dryer Outlet Temp, F	Temp Diff Temp, F	Dryer Bin Level Face (High, Low)	Dryer Bin Level Core (High, Low)	Wafer Moisture, wt. % Green Inlet	Wafer Moisture, wt. % Dry Outlet	Fuel Counter Reading, units	Comments
2	1800	mid	34	1277	247	1029	mid	low		1.6	166	1800 #2 fire dump to outside
3		mid	34	1477	250	1228				3.0	148	
4		mid	37	1343	203	1130				8.2	153	
5		low	37	1307	202	1107				8.3	155	
T O Htr				1580	695	471	430	750	474		115	
				Stack In	Stack Out	Hot Oil Out	Hot Oil Return	Wood Burn In	Wood Burn Out			
2	1815	mid	34	1302	241	1060	mid	low			300	@ 1800 filter blow - Metco stopped feeding
3		mid	34	1430	255	1174					260	
4		mid	37	1334	188	1147					259	
5		low	37	1321	201	1119					278	
T O Htr				1592	710	471	430	764	474	actually about 1930	208	
2	1837	mid	34	1311	243	1066	mid	low		2.6	463	1837 Fire in #4 #4 = 1840
3		mid	34	1494	250	1242				4.1	411	
4		mid	37	1308	200	1105				7.8	406	
5		mid	37	1289	199	1090				9.7	423	
T O Htr				1616	724	473	429	782	476	@1830	330	
2	Restart Test 19 at 1840 after fire in #4 chamber											Flame Out 1847 Flame on #4
3												
4												
5												
T O Htr												
2	1910	mid	34	1326	248	1075	mid	empty			775	#4 on manual burner feed rate
3		mid	34	1463	255	1207					673	
4		mid	35.5	1272	198	1076					610	
5		mid	37	1326	201	1124					703	
T O Htr				1630	730	472	429	785	476		561	

Damper on #4 open to ≈ 7/8 ths

Dryer Operating Data
RTO Emissions Compliance Testing Data
L-P Silsbee OSB Plant Compliance Testing

Date 1/17/96
Testing Scenario 1
Test Run 3

Test time start-end 1751
Pollutants Measured TSP, VOC, NOx, CO

Dryer Operating Parameters

Dryer Number	Reading Time	Bin Level (Low, Mid, High)	Bin Bottom Feed, Hz	Dryer Inlet Temp, T	Dryer Outlet Temp, F	Temp Diff Temp, F	Dryer Bin Level Face (High, Low)	Dryer Bin Level Core (High, Low)	Wafer Moisture, wt. % Green Inlet	Wafer Moisture, wt. % Dry Outlet	Fuel Counter Reading, units	Comments
2	1932	mid	34	1338	238	1101	mid	low			963	1917 FO on #3 - back up immediately
3		mid	34	1402	257	1145					823	
4		mid	35.5	1129	188	940					755	
5		low	37	1300	194	1106					872	
T O Hr				1582	706	471	431	762	475		696	
				Stack In	Stack Out	Hot Oil Out	Hot Oil Return	Wood Burn In	Wood Burn Out			
2	1945	mid	34	1258	245	1014	mid	empty		3.7	1099	
3		mid	34	1384	267	1114				2.5	938	# waferizer down
4		mid	35.5	1176	187	988				14.4	868	
5		mid	37	1324	191	1132				10.7	1002	
T O Hr				1581	711	472	430	766	475	Labeled 1900	796	
2	2000	low	34	1306	240	1067	mid	low			1203	
3		low	34	1446	256	1192					1026	
4		mid	35.5	1151	185	967					949	
5		low	37	1314	195	1117					1100	
T O Hr				1578	710	472	430	763	475		870	
2	2015	low	34	1286	243	1042	mid	low			1331	
3		low	34	1438	255	1181					1134	2025 all four dryers going to atmosphere
4		low	35.5	1182	186	993					1054	
5		low	37	1294	193	1100					1217	
T O Hr				1599	724	471	430	781	475		965	
2	2030	low	34	1226	255	968	mid	low			1460	
3		low	34	1438	262	1175					1257	2027 #4 FO
4		mid	33.5	1089	185	908					1156	
5		low	37	1366	192	1167					1352	
T O Hr				1592	715	472	430	770	476		1067	

Dryer Operating Data
RTO Emissions Compliance Testing Data
L-P Silsbee CSB Plant Compliance Testing

Date 1/17/96
Testing Scenario 1
Test Run 3 Page 3 of 3
Test time start end 1751 / 2141
Pollutants Measured VOC, TSP, CO, NOx

Dryer Operating Parameters

Dryer Number	Feeding Time	Bin Level (Low, Mid, High)	Bin Bottom Feed, Hz	Dryer Inlet Temp, T	Dryer Outlet Temp, F	Temp Diff Temp, F	Dryer Bin Level Face (High, Low)	Dryer Bin Level Core (High, Low)	Wafer Moisture, wt. % Green Inlet	Wafer Moisture, wt. % Dry Outlet	Fuel Counter Reading, units	Comments
2	2130	low	34	1285	246	1036	low	low			1989	Restart Test @2135
3		low	34	1444	267	1172	/	/			1740	
4		mid	35.5	1138	193	943					1566	
5		low	~~34~~ 37	1216	205	1009					1856	
T O Hr				1648	749	471	426	806	425		1476	
				Stack In	Stack Out	Hot Oil Out	Hot Oil Return	Wood Burn In	Wood Burn Out			
2	2145	low	34	1333	243	1102	mid	mid			2121	
3		low	34	1341	260	1085	~~mid~~ /	/			1839	
4		low	35.5	1061	190	871					1659	
5		mid	37	1273	192	1084					1982	
T O Hr				1673	758	471	424	818	474		1586	
2												
3												
4												
5												
T O Hr												
2												
3												
4												
5												
T O Hr												
2												
3												
4												
5												
T O Hr												

Dryer Operating Data
RTO Emissions Compliance Testing Data
L-P Silsbee CSB Plant Compliance Testing

Date: 1/18/97
Testing Scenario: 1 (RTO only)
Test Run: 4

Page 1 of 2

Test time start/end: 1210 / 1337
Pollutants Measured: VOC, TSP, CO, NOx

Dryer Operating Parameters

Dryer Number	Reading Time	Bin Level (Low, Mid, High)	Bin Bottom Feed, Hz	Dryer Inlet Temp, T	Dryer Outlet Temp, F	Temp Diff Temp, F	Dryer Bin Level Face (High, Low)	Dryer Bin Level Core (High, Low)	Wafer Moisture, wt. % Green Inlet	Wafer Moisture, wt. % Dry Outlet	Fuel Counter Reading, units	Comments
2	1210	mid	33	1099	239	860	low	low		2.7	3102	Wafer #1 down 1157 up 1225
3		mid	35	1393	249	1144				2.7	2206	
4		mid	35	1111	198	913				8.5	2561	
5		mid	32	1220	234	986				160/6.9	1440	Wafer #2 down 1235 up 1320
T O Htr				1479	642	469	433	691	472	@1200	1777	
				Stack In	Stack Out	Hot Oil Out	Hot Oil Return	Wood Burn In	Wood Burn Out			
2	1215	mid	33	1098	237	860	low	low			3143	
3		mid	35	1382	246	1136					2244	
4		mid	35	1136	196	941					2598	
5		mid	32	1230	223	1006					1484	
T O Htr				1533	664	469	428	717	472		1807	
2	1230	mid	33	1149	232	917	Mid	low		1.0	3261	
3		low	35	1351	252	1098				1.8	2348	
4		mid	35	1055	190	864				16.8/12.6	2693	
5		low	32	1171	220	949				~~16.8~~	1599	#4 Fines out @ 1230
T O Htr				1635	706	471	424	762	474		1898	
2	1245	mid	33	1082	243	838	mid	low			3386	
3		low	35	1435	243	1190					2463	#2 Fines out @ 1240
4		low	35	1091	188	900					2800	
5		low	32	1146	200	948					1716	
T O Htr				1670	735	472	425	790	475		2004	
2	1300	low	33	1118	238	879	mid	low		2.2	3512	
3		low	35	1359	247	1113				3.2	2572	
4		low	35	1060	189	870				12.4	2906	
5		mid	32	1153	210	942				6.7	1845	
T O Htr				1667	747	471	424	805	474		2109	

Dryer Operating Data
RTO Emissions Compliance Testing Data
L-P Silsbee OSB Plant Compliance Testing

Date: 1/18/96
Testing Scenario: 1
Test Run: 4
Test Time start/end: 1215 / 1337
Pollutants Measured: TSP, NOx, CO, VOC

Dryer Operating Parameters

Dryer Number	Reading Time	Bin Level (Low, Mid, High)	Bin Bottom Feed, Hz	Dryer Inlet Temp, T	Dryer Outlet Temp, F	Temp Diff Temp, F	Dryer Bin Level Face (High, Low)	Dryer Bin Level Core (High, Low)	Wafer Moisture, wt. % Green Inlet	Wafer Moisture, wt. % Dry Outlet	Fuel Counter Reading, units	Comments
2	1323	low	33	1149	230	924	low	low			3707	
3		low	35	1342	251	1081					2737	
4		low	35	1034	196	846					3065	
5		low	32	1114	207	907					2015	
TO Htr				1634	719	474	430	775	477		2269	
				Stack In	Stack Out	Hot Oil Out	Hot Oil Return	Wood Burn In	Wood Burn Out			
2	1337	low	33	1117	243	873	low	low		2.8	3818	
3		low	35	1355	241	1145				3.8	2831	
4		low	35	1030	194	856				16.0	3151	
5		low	32	1054	194	860				10.2	2103	
TO Htr				1584	689	471	429	744	475	@1330	2347	
2	1345	low	33	1043	246	795	low	low			3878	
3		mid	35	1409	238	1169					2894	
4		low	35	997	193	802					3202	
5		low	32	1122	191	930					2163	
TO Htr				1602	709	471	429	761	475		2396	
2	1400	End Test 1337										
3												
4												
5												
TO Htr												
2												
3												
4												
5												
TO Htr												

APPENDIX H

TNRCC Permit

COPY

John Hall, *Chairman*
Pam Reed, *Commissioner*
Peggy Carner, *Commissioner*
Anthony Grigsby, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

September 20, 1994

James T. Boswell, Ph.D.
Director Environmental Control
KIRBY FOREST INDUSTRIES, INC.
P.O. Box 3107
Conroe, Texas 77305

Re: Permit Amendment
Permit No. 19695
Oriented Strand Board Mill
Silsbee, Hardin County
Account ID No. HF-0010-B

Dear Dr. Boswell:

This is in response to your letter dated January 7, 1993 and permit application, Form PI-1, concerning the proposed amendment to Permit No. 19695. We understand that you propose to increase your throughput, install two dryer regenerative thermal oxidizers (RTOs) and one press RTO.

Pursuant to Texas Natural Resource Conservation Commission (TNRCC) Rule 116.116(a) of Regulation VI, Permit No. 19695 is hereby amended. This information will be incorporated into the existing permit file. Enclosed are revised special conditions pages and a revised maximum allowable emission rates table. Please attach these to your permit.

This amendment will be automatically void upon the occurrence of any of the following conditions, as per 30 T.A.C. 116.115 (b)(1):

1. Failure to begin construction of the changes authorized by this amendment within 18 months from the date of this authorization.

2. Discontinuance of construction of the changes authorized by this amendment for a period of 18 consecutive months or more.

3. Not completing the changes authorized by this amendment within a reasonable time.

We have enclosed two operations certification forms (Form PI-3A and Form PI-3B). TNRCC Rule 116.110(b) of Regulation VI requires you to certify that operations addressed in this permit are in conformance with representations in the permit application. Please file these certifications with both the TNRCC Austin New Source Review Program and the appropriate TNRCC regional office in a timely manner as prescribed by rule.

Your cooperation in this matter is appreciated. If you have further questions, please contact Mr. Patrick N. Agumadu of our Office of Air Quality New Source Review Program.

Sincerely,

William R. Campbell
Acting Executive Director
Texas Natural Resource Conservation Commission

Enclosures

cc: Mr. Marion Everhart, Manager, Air Program, Beaumont

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Office of Air Quality
New Source Review Program
Post Office Box 13087
Austin, Texas 78711-3087

TNRCC

FORM PI-3A

Operations Certification (Part 1 of 2)
TNRCC Rule 116.110(b)(1)(A)

A

For facilities permitted by authority of Title 30 Texas Administrative Code, Chapter 116.

This certification must be signed by an individual with process knowledge in a managerial capacity and must be submitted upon completion of construction and prior to start of operation of the authorized facilities.

Permit Number 19695
Date of Permit Issuance or Last Amendment: September 20 , 1994

I. Permittee

Permit Issued To: Kirby Forest Industries, INc.
Mailing Address: P.O. Box 3107
Conroe, Tx. 77305
Technical Contact: (Person, Title, Mailing Address) James T. Boswell, Dir.Env. Cntl.Sc
as above Telephone: (409) 760 5921 Divisio

II. Permit Unit Information

Permit Unit Name: Two (2) OSB Dryer RTO's
Location: Nearest City Silsbee County: Hardin
TNRCC Air Quality Account Number: HE-0010-B

III. Construction and Operating Schedule Dates

Start of Construction: 04/01/94 Proposed Start of Operation: 10/13/94
Completion of Construction: 09/15/94

IV. A copy of this certification must be sent to the TNRCC Regional Office.

Regional Office (city) sent to: Beaumont, Texas

V. Certification

I, James T. Boswell (Name - please print or type) Director, Environmental Control So.Di (Title - Owner, Plant Manager, President, Vice President, Environmental Director)

state that I have knowledge of the facts herein set forth and that the same are true and correct to the best of my knowledge. I certify that the facilities or changes authorized by the referenced permit have been accomplished as represented, if those representations affect emissions, method of control, or character of emissions.

DATE 10/10/94 SIGNATURE James T. Boswell
Note: Original signature in ink required.

A second certification, FORM PI-3B, must be submitted simultaneously with any report of testing or monitoring results required by the permit or, if no testing or monitoring is required, within 60 days of the commencement of operation.

Version 11/01/1993

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Office of Air Quality
New Source Review Program
Post Office Box 13087
Austin, Texas 78711-3087

TNRCC

FORM PI-3B

Operations Certification (Part 2 of 2)
TNRCC Rule 116.110(b)(1)(B)

B

For facilities permitted by authority of Title 30 Texas Administrative Code, Chapter 116.

This certification must be signed by an individual with process knowledge in a managerial capacity, and must be submitted simultaneously with any report of testing or monitoring results required by the permit or, if no testing or monitoring is required, within 60 days of the commencement of operation.

Permit Number: 19695
Date of Permit Issuance or Last Amendment: _____

Submittal Date of Form PI-3A (Part 1 of Operations Certification): _____

I. Permittee

Permit Issued To: _____
Mailing Address: _____
_____
Technical Contact: (Person, Title, Mailing Address) _____
_____ Telephone:( )___-____

II. Permit Unit Information

Permit Unit Name: _____
Location: Nearest City: _____ County: _____
TNRCC Air Quality Account Number: ____-_____-__

III. Construction and Operating Schedule Dates

Start of Construction: _____ Start of Operation: _____
Completion of Construction: _____

IV. A copy of this certification must be sent to the TNRCC Regional Office.

Regional Office (city) sent to: _____

V. Certification

I, _____ _____
Name - please print or type Title - Owner, Plant Manager, President, Vice President, Environmental Director

state that I have knowledge of the facts herein set forth and that the same are true and correct to the best of my knowledge. I certify that the facility complies with all terms of the preconstruction permit and that operations of the facility are in compliance with the Texas Clean Air Act (Chapter 382, Texas Health & Safety Code) and the air quality rules of the TNRCC.

DATE_____ SIGNATURE_____

Note: Original signature in ink required.

Version 11/01/1993

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

AIR QUALITY PERMIT GENERAL CONDITIONS

AND PERTINENT RULES EFFECTIVE FOR PERMITS ISSUED OR AMENDED ON OR AFTER AUGUST 16, 1994

1. The facilities covered by this permit shall be constructed and operated as specified in the application for the permit. All representations regarding construction plans and operation procedures contained in the permit application shall be conditions upon which the permit is issued. Variations from these representations shall be unlawful unless the permit holder first makes application to the Executive Director of the Texas Natural Resource Conservation Commission (TNRCC) to amend this permit in that regard and such amendment is approved. (30 TAC 116.116)

2. Voiding of permit. A permit or permit amendment is automatically void if the holder fails to begin construction within 18 months of date of issuance, discontinues construction for more than 18 consecutive months prior to completion, or fails to complete construction within a reasonable time. Upon request, the Executive Director may grant a onetime 18-month extension of the date to begin construction. (30 TAC 116.115(b)(1)).

3. Construction progress. Start of construction, construction interruptions exceeding 45 days, and completion of construction shall be reported to the appropriate regional office of the Texas Natural Resource Conservation Commission (TNRCC or Commission) not later than 15 working days after occurrence of the event. (30 TAC 116.115(b)(2)).

4. Start-up notification. The appropriate Air Program regional office of the Commission shall be notified prior to the commencement of operations of the facilities authorized by the permit in such a manner that a representative of the TNRCC may be present. Phased construction, which may involve a series of units commencing operations at different times, shall provide separate notification for the commencement of operations for each unit. (30 TAC 116.115(b)(3)).

5. Sampling requirements. If sampling of stacks or process vents is required, the permit holder shall contact the TNRCC Office of Air Quality prior to sampling to obtain the proper data forms and procedures. All sampling and testing procedures must be approved by the Executive Director and coordinated with the regional representatives of the Commission. The permit holder is also responsible for providing sampling facilities and conducting the sampling operations or contracting with an independent sampling consultant. (30 TAC 116.115(b)(4)).

6. Equivalency of methods. It shall be the responsibility of the permit holder to demonstrate or otherwise justify the equivalency of emission control methods, sampling or other emission testing methods, and monitoring methods proposed as alternatives to methods indicated in the conditions of the permit. Alternative methods shall be applied for in writing and must be reviewed and approved by the Executive Director prior to their use in fulfilling any requirements of the permit. (30 TAC 116.115(b)(5)).

7. Recordkeeping. A copy of the permit along with information and data sufficient to demonstrate compliance with the permit shall be maintained in a file at the plant site and made available at the request of personnel from the TNRCC or any air pollution control program having jurisdiction. For facilities that normally operate unattended, this information shall be maintained at the nearest staffed location within Texas specified by the permit holder in the permit application. This information shall include, but is not limited to, production records and operating hours. Additional recordkeeping requirements may be specified in special conditions attached to the permit. Information in the file shall be retained for at least two years following the date that the information or data is obtained. (30 TAC 116.115(b)(6)).

8. Maximum allowable emission rates. The total emissions of air contaminants from any of the sources of emissions listed in the table entitled "Emission Sources - Maximum Allowable Emission Rates" shall not exceed the values stated on the table attached to the permit. (30 TAC 116.115(b)(7)).

9. Maintenance of emission control. The facilities covered by the permit shall not be operated unless all air pollution emission capture and abatement equipment is maintained in good working order and operating properly during normal facility operations. Notification for upsets and maintenance shall be made in accordance with §101.6 and §101.7 of this title (relating to Notification Requirements for Major Upset and Notification Requirements for Maintenance). (30 TAC 116.115(b)(8)).

10. Compliance with rules. Acceptance of a permit by a permit applicant constitutes an acknowledgement and agreement that the holder will comply with all rules, regulations, and orders of the Commission issued in conformity with the Texas Clean Air Act and the conditions precedent to the granting of the permit. If more than one state or federal rule or regulation or permit condition are applicable, then the most stringent limit or condition shall govern and be the standard by which compliance shall be demonstrated. Acceptance includes consent to the entrance of Commission employees and agents into the permitted premises at reasonable times to investigate conditions relating to the emission or concentration of air contaminants, including compliance with the permit. (30 TAC 116.115(b)(9)).

11. This permit may be appealed pursuant to Section 263.36 of the General Rules of the TNRCC and Section 382.032 of the TCAA. Failure to take such appeal constitutes acceptance by the applicant of all terms of the permit. (Tex. Gov't. Code Ann. § 2001, et seq.)

12. This permit may not be transferred, assigned or conveyed by the holder except as provided by rule. (30 TAC 116.110(c)).

13. There may be additional special conditions attached to a permit upon issuance or modification of the permit. Such conditions in a permit may be more restrictive than the requirements of Title 30 of the Texas Administrative Code. (30 TAC 116.115(c))

14. Emissions from this facility must not cause or contribute to a condition of 'air pollution' as defined in Section 382.003(3) of the Texas Clean Air Act (TCAA) or violate Section 382.085 of the TCAA. If the Executive Director determines that such a condition or violation occurs, the holder shall implement additional abatement measures as necessary to control or prevent the condition or violation.

SPECIAL CONDITIONS

Permit No. 19695

EMISSION STANDARDS AND FUEL SPECIFICATION

1. This permit covers only those sources of emissions listed in the attached table entitled "Emission Sources - Maximum Allowable Emission Rates," and other conditions specified in that attached table. Compliance with these permitted emission limits is based on a total maximum dryer throughput of 75 tons per hour and 326,811 tons per year of dried wafers for all five dryers; a total maximum press throughput of 54,860 ft^2 (3/8-inch) per hour of waferboard; and a total maximum annual plant throughput of 350,000,000 ft_2 of 3/8-inch board processed, on a finished product basis.

2. Fuel for the dryers and thermal oil heaters shall be wood, wood bark, and sweet natural gas as defined in the General Rules adopted by the Texas Natural Resource Conservation Commission (TNRCC). Use of any other fuel will require prior written approval of the Executive Director of the TNRCC.

OPACITY/VISIBLE EMISSION LIMITATIONS

3. Opacity of emissions from the Regenerative Thermal Oxidizer Stacks (RTO1, RTO2, and RTO3) shall not exceed 10 percent averaged over a six-minute period, except for those periods described in TNRCC Rule 111.111(a)(1)(E) of Regulation I.

4. Opacity of emissions from the Baghouse Stacks (11, 12, 13, 14, 15, and 16) and the Sanderdust Cyclone Stack (26) shall not exceed 5 percent averaged over a six-minute period, except for those periods described in TNRCC Rule 111.111(a)(1)(E) of Regulation I.

5. There shall be no visible emissions from all the storage tanks for methylene-diphenyl-diisocyanate (MDI), phenol, formaldehyde (HCHO), diesel, and gasoline.

6. There shall be no visible emissions from the debark, log, sawing, and sawmill fuel handling and processing areas.

OPERATIONAL LIMITATIONS, WORK PRACTICES, AND PLANT DESIGN

7. Disposal of ash must be accomplished in a manner which will prevent the ash from becoming airborne.

8. All air pollution abatement equipment shall be properly maintained and operated during the operation of these facilities. Cleaning and maintenance of the abatement equipment shall be performed as recommended by the manufacturer and as necessary so that the equipment efficiency can be adequately maintained. Records of all maintenance performed must be kept on-site and made available to the TNRCC personnel upon request.

9. Hooding, duct, and collection systems shall be constructed so that these systems effectively capture emissions from the process equipment. These hooding and duct systems shall be maintained free of holes, cracks, and other conditions that would reduce the collection efficiency of the emission capture system.

10. All baghouse dust drop points shall be maintained in such a manner as to prevent dust emissions from becoming airborne. Disposal of baghouse dust must be accomplished in a manner that will minimize the dust from becoming airborne. There shall be no outside storage of the baghouse dust unless in enclosed and/or covered containers.

11. Replaced or used bags shall be disposed of in a manner that will minimize any dust from becoming airborne.

12. The holder of this permit shall maintain a sufficient supply of spare bags for all baghouses at all times on the plant site.

13. All permanent in-plant roads and parking areas will be watered and/or paved and cleaned.

14. Sampling ports and platform(s) shall be incorporated into the design of the RTO stacks according to the specifications set forth in the attachment entitled "Chapter 2, Stack Sampling Facilities." Alternate sampling facility designs may be submitted for approval by the Executive Director of the TNRCC.

15. If the production rate of the wood wafers by these dryers exceeds by more than 10 percent the pounds per hour maintained during sampling, the company must notify in writing the TNRCC Beaumont Regional Office, and the source may be subject to additional sampling to demonstrate continued compliance with all applicable state and federal regulations.

16. If this facility or any portion of this facility exceeds any of the applicable allowable emission rates or other standards, the holder of this permit shall take immediate corrective action to comply with the applicable standards. These actions may include, but are not limited to, reducing operating temperature, reducing throughput, and/or the installation of additional control equipment. These corrective actions shall not be considered complete until compliance with the allowable emission rates and other standards has been demonstrated. Additional testing may be required.

17. All five dryer cyclones must be vented to RTO1 and RTO2, while the press vents and the unloader vent must be vented to RTO3.

18. This facility shall not produce a nuisance that may cause or contribute to a condition of "air pollution" as defined in Paragraph 101.4 of the General Rules as adopted by the TNRCC. If such a condition does occur, additional controls may be required and the plant shall not operate until given approval by the TNRCC Regional Office in Beaumont.

19. Each RTO must operate at a minimum temperature of 1400°F. If the permitted allowable rates are exceeded, the minimum RTO temperature must be raised to demonstrate compliance with the permitted emissions.

20. The five dryers can all operate at the same time only when the two Dryers RTO1 and RTO2 are in operation. Only three dryers are allowed to operate when only one dryer RTO is operating.

21. The press area must be enclosed in such a manner as to direct all press emissions, including fugitives to the RTO3.

INITIAL DETERMINATION OF COMPLIANCE

22. The holder of this permit shall perform stack sampling and other testing as required to establish the actual pattern and quantities of air contaminants being emitted into the atmosphere from the RTO1, RTO2 and RTO3. The holder of this permit is responsible for providing sampling and testing facilities and conducting the sampling and testing operations at his expense.

A. The appropriate TNRCC regional office in the region where the source is located shall be contacted as soon as testing is scheduled but not less than 45 days prior to sampling to schedule a pretest meeting.

The notice shall include:

(1) Date for pretest meeting.
(2) Date sampling will occur.
(3) Name of firm conducting sampling.
(4) Type of sampling equipment to be used.
(5) Method or procedure to be used in sampling.

The purpose of the pretest meeting is to review the necessary sampling and testing procedures, to provide the proper data forms for recording pertinent data, and to review the format procedures for submitting the test reports.

A written proposed description of any deviation from sampling procedures specified in permit conditions or TNRCC or Environmental Protection Agency (EPA) sampling procedures shall be made available to the TNRCC prior to the pretest meeting. The Regional Manager or the Manager of the Source and Mobile Monitoring Section shall approve or disapprove of any deviation from specified sampling procedures.

Requests to waive testing for any pollutant specified in B of this condition shall be submitted to the TNRCC Office of Air Quality New Source Review Program. Test waivers and alternate/equivalent procedure proposals for New Source Performance Standard testing which must have EPA approval shall be submitted to the TNRCC Source and Mobile Monitoring Section in Austin.

B. Air contaminants emitted from the Dryer RTO1 and RTO2 to be tested for include (but are not limited to) particulate matter (PM), volatile organic compound (VOC), nitrogen oxide (NO_x), carbon monoxide (CO), and HCHO.

Air contaminants emitted from the press RTO3 to be tested for include (but are not limited to) particulate matter (PM), VOC, NO_x, CO, and HCHO, MDI, and phenol.

C. Sampling shall occur within 180 days after the initial start-up of these RTOs and at such other times as may be required by the Executive Director of the TNRCC. Requests for additional time to perform sampling shall be submitted to the regional office. Additional time to comply with the applicable requirements of Title 40 Code of Federal Regulations Part 60 (40 CFR 60) and 40 CFR 61 requires EPA approval, and requests shall be submitted to the TNRCC Source and Mobile Monitoring Section in Austin.

D. The plant shall operate at a maximum dryer production rate of 15 tons per hour of dried material during stack emission testing for each dryer. Primary operating parameters that enable determination of production rate shall be monitored and recorded during the stack test. These parameters are to be determined at the pretest meeting. If the plant is unable to operate at maximum rates during testing, then future production rates may be limited to the rates established during testing. Additional stack testing may be required when higher production rates are achieved.

E. Two copies of the final sampling report shall be forwarded to the TNRCC within 30 days after sampling is completed. Sampling reports shall comply with the attached conditions of Chapter 14 of the TNRCC Sampling Procedures Manual. The reports shall be distributed as follows:

One copy to the TNRCC Beaumont Regional Office.
One copy to the TNRCC Austin Source and Mobile Monitoring Section.

F. Stack sampling shall be repeated every three years and at any other time required by the Executive Director of the TNRCC after the initial sampling in conformity with Conditions A, B, and D of this condition.

G. Upon written request from the holder of this permit, the Executive Director of the TNRCC may waive the retesting requirements of Special Condition No. 22F after two successful samples, provided that the company demonstrates continuous compliance through sampling, monitoring, and recordkeeping with the emission rates and conditions of this permit.

CONTINUOUS DETERMINATION OF COMPLIANCE

23. The holder of this permit shall install, calibrate, and maintain continuous emission monitors (CEMs) to continuously monitor and record opacity from the dryer and press RTO stacks. These CEMs shall meet all of the requirements, including the allowable limits for instrument drift, established in both Performance Specification No. 1, 40 CFR 60, Appendix B, and the TNRCC Sampling Procedures Manual. The CEMs shall be zeroed and spanned daily in order to determine and decrease the amount of instrument drift. Corrective actions shall be taken when the drift exceeds the amount specified in Performance Specification No. 1.

24. The data obtained from the CEMs shall be continuously collected, analyzed, and reduced to percent opacity based on six-minute averages. The percent opacity shall be recorded and maintained and shall be made available to any TNRCC representative upon request. The maximum opacity for any of these six-minute periods shall not exceed 10 percent.

25. Upon written request to, and at the discretion of, the Executive Director of the TNRCC, the holder of this permit may discontinue the operation, recordkeeping, and requirements detailed in Special Conditions No. 23 and No. 24 for the CEMs, provided the holder demonstrates that the dryer can operate in continuous compliance with the opacity limits and conditions of this permit.

26. The CO emission monitoring shall be conducted using commercially available continuous CO emission monitors. Such monitors shall meet the requirements of 40 CFR 60, Appendix B, Performance Standards 2 and 4, and the Quality Assurance and Quality Procedures established in 40 CFR 60, Appendix F.

27. If any emission monitor fails to meet specified performance, it shall be repaired or replaced immediately, but no later than seven days after it was first detected by any employee at the facility, unless written permission is obtained from the TNRCC which allows for a longer repair/replacement time. The holder of this permit shall develop an operation and maintenance program (including stocking necessary spare parts) to ensure that the continuous monitors are available as required.

COMPLIANCE CONDITION

28. Within 90 days after the initial start-up of these RTOs, but no later than 180 days, the holder of this permit shall submit documentation to the TNRCC Beaumont Regional Office which demonstrates that the facility is in compliance with the conditions of this permit. This documentation shall contain at a minimum, copies of sampling records and monitoring logs, results of required testing (where completed), and a review of the facility's compliance with general and special conditions of the construction permit. Requests for any extensions in time for submitting the required information shall be made in writing to the TNRCC Beaumont Regional Office.

29. Within 90 days after the issue date of this permit, all equipment and/or process unit that has the potential to emit air contaminants shall be identified and marked in a conspicuous location with the facility identification numbers as submitted to the TNRCC Emissions Inventory Section and the emission point numbers as listed on the maximum allowable emission rates table.

RECORDKEEPING REQUIREMENTS

30. The holder of this permit shall keep records of the amount of waferboard produced including rejected board, board density, and other information such that the daily average emission rates can be determined as represented in the permit application. These records must be made available at the request of personnel from the TNRCC or any local air pollution agency having jurisdiction.

31. In order to determine continual compliance with emission limitations specified in Special Condition No. 1 and the representations made in the permit application, the holder of this permit shall keep and maintain monthly and annual records of resin and wax usage on a 12-month rolling retention basis. These records must be made available at the request of personnel from the TNRCC or any local air pollution agency having jurisdiction.

32. A copy of this permit shall be kept at the plant site and made available at the request of personnel from the TNRCC or any local air pollution agency having jurisdiction.

Dated 9/20/94

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

Permit No. 19695

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates * lb/hr	TPY
RTO1*•	Dryer Regenerative Thermal Oxidizer 1	TSP	15.43	64.80
		PM10 (a)	15.43	64.80
		VOC	2.00	8.40
		NOX	23.96	100.64
		SO2	0.87	3.56
		CO	18.23	76.58
		HCHO (b)	0.23	0.26
RTO2**	Dryer Regenerative Thermal Oxidizer 2	TSP	15.43	64.80
		PM10 (a)	15.43	64.80
		VOC	2.00	8.40
		NOX	23.96	100.64
		SO2	0.87	3.56
		CO	18.23	76.58
		HCHO (b)	0.23	0.26
RTO3	Press Regenerative Thermal Oxidizer	TSP	3.86	16.20
		PM10 (a)	3.86	16.20
		VOC	1.00	4.20
		NOX	8.56	35.94
		SO2	0.01	0.04
		CO	18.23	76.58
		HCHO (b)	0.41	1.25
		MDI (b)	0.01	0.03
		C6H5OH (b)	0.14	0.43
11	Saw Line Baghouse	TSP	1.25	3.98
		PM10 (a)	1.25	3.98
12	Fuel Meter Baghosue	TSP	1.50	6.57
		PM10 (a)	1.50	6.57
13	Aspiration System Baghouse	TSP	0.73	3.20
		PM10 (a)	0.73	3.20
14	Raw Fuel Grinder Baghouse	TSP	0.70	3.07
		PM10 (a)	0.70	3.07

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

15	Sanderdust Baghouse	TSP	0.61	1.95
		PM10 (a)	0.61	1.95
16	Mat Reject Baghouse	TSP	0.09	0.06
		PM10 (a)	0.09	0.06
17	Debark Area (4)	TSP	0.02	0.08
		PM10 (a)	0.01	0.04
18	MDI Main Tanks (4)	MDI	<0.01	<0.01
20	MDI Work Tank (4)	MDI	<0.01	<0.01
22	Road Fugitives (4)	TSP	1.17	5.09
		PM10 (a)	0.60	2.54
23	PF Main Tanks (4)	HCHO	0.05	0.01
24	LPF Work Tank (4)	HCHO	0.01	0.01
26	Sanderdust Cyclone	TSP	0.61	1.95
		PM10 (a)	0.61	1.95
28	Logo Fugitives (4)	VOC (b)(5)	5.95	3.75
29***	Gasoline Tank (4)	VOC	<.01	<.01
		C6H6	<.01	<.01
30	Diesel Tank (4)	VOC	0.51	0.02

(1) Emission point identification - either specific equipment designation o emission point number from plot plan.

(2) Specific point source name. For fugitive sources use area name o fugitive source name.

(3) TSP - total suspended particulate including PM10
PM10 - particulate matter less than 10 microns
VOC - volatile organic compounds as defined in General Rule 101.
NOx - total oxides of nitrogen
SO2 - sulfur dioxide
CO - carbon monoxide
HCHO - formaldehyde
MDI - methylene-diphenyl-diisocyanate
C6H5OH - phenol
C6H6 - benzene

(4) Fugitive emissions are an estimate only and should not be considered a maximum allowable emission rate.

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

(5) VOC consists of VOC (0.96 lb/hr and 0.60 t/yr); Mineral Oil (4.61 lb/hr and 2.89 t/yr); and Isoparaffinic HC (0.38 lb/hr and 0.24 t/yr).

• Emission rates are based on and the facilities are limited by the following maximum operating schedule:

Hrs/day 24 Days/week 7 Weeks/year 52 or Hrs/year 8,760

A total maximum dryer throughput of 75 tons per hour and 326,811 tons per year of dried wafers for all five dryers; a total maximum press throughput of 54,860 ft^2 (3/8") per hour of waferboard; and a total maximum annual plant throughput of 350,000,000 square feet of 3/8 inches board processed, on a finished product basis.

** Emission rates from the RTO1 and RTO2 are based on the RTOs' operation of 8400 hours per year.

*** Gasoline storage as per TNRCC Reg. V and very negligible emission is expected from this source.

(a) The PM10 is also counted as wood dust and both are already included in the total TSP estimate.

(b) The emissions of individual organic compounds (i.e. formaldehyde, phenol, MDI, etc.) are included in the total VOC estimate.

Dated 9/20/94

APPENDIX I

Chain of Custody

MEICO ENVIRONMENTAL

Chain of Custody

JOB# 96-11 Date 1/16/96

Client ERM Southwest Method 5

Location Silsbee, TX Project Mgr. Glicer

Unit #2 Dryer Stack

	No. of Containers	Absorb. Solution	Init. Vol.	Part.	SO2	SO3	Other Analyses
Filter Cont	11111			✓			
Front Wash	111	ACE.		✓			
Back Wash							
Impinger 1	111	D.I.		✓			
Impinger 2							
Impinger 3							
Impinger 4							
Impinger 5							
Blank 1 01	1			✓			
Blank 2							
NOx							
Other ACE BLANK	1			✓			

Special Instruction

Sample# 1 Recov. by [signature] Date 1/16/96 Time 1645 Location VAN

Sample# 2 Recov. by [signature] Date 1/17/96 Time 1300 Location VAN

Sample# 3 Recov. by [signature] Date 1/17/96 Time 2230 Location VAN

Sample# Recov. by Date Time Location

Samples Rcvd. by [signature] For transport. Date 1/19/96 Time 0827

Sample Rcvd. at lab by M. Hunter Date 1/18/96 Time 1600

Sample Analyzed by M. Hunter Date 1/25/96 Time 1115

Data Checked by HT Date 1/30/96 Time 0900

Job# 9611 Unit Tested Number 2 Dryer outlet CHAIN OF CUSTODY RECORD Page # _____

Facility Name/Location: Louisiana Pacific / Silsbee, TX

Collected By/Company: ~~Donald Carter~~ R.A. McNutt / METCO

SAMPLE I.D.		DATE	TIME	AIR	SOIL	COMP	GRAB	# OF CONTAINRS	RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	FORMALDEHYDE			REMARKS (Specific Compounds/Methods)
imp. 1	Run 1	1-16-96	1900	✓				11	TS									✓			Archive Filter
	2	1-17-96	1630	✓				11	TS									✓			
	3																				
imp. 2 + 3	Run 1	1-16-96	1900	✓				11	TS									✓			one bottle labelled "imp 2" for Run 1
	2	1-17-96	1630	✓				11	TS									✓			
	3																				
filter	Run 1	1-16-96	1900	✓				11	TS									✓			did not receive
	2	1-17-96	1630	✓				111	TS									✓			
	3																				
FRONTWASH	Run 1	1-16-96	1900	✓				1	TS									✓			
	2	1-17-96	1630	✓				1	TS									✓			
	3																				

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[illegible]	1/18/96	0830	Tim Stark	1-18-96	0830	HT	1/19/96	0900
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:		
			Deidra Brooks	1-23-96	1200			

Ship to: _____

METCO ENVIRONMENTAL

I-3

MEICO ENVIRONMENTAL

Chain of Custody

JOB# 96-11 Date 1/16/96

Client ERM Southwest Method 5

Location Silsbee, TX Project Mgr. Glicer

Unit #3 Dryer outlet Stack

	No. of Containers	Absorb. Solution	Init. Vol.	Part.	SO2	SO3	Other Analyses
Filter Cont	1	1		✓			
Front Wash	1	1	ACE.	✓			
Back Wash							
Impinger 1	1	1	D.I	✓			
Impinger 2							
Impinger 3							
Impinger 4							
Impinger 5							
Blank 1 DI	1			✓			
Blank 2							
NOx							
Other Ace BLANK	1			✓			

Special Instruction

Sample# 1 Recov. by [signature] Date 1/16/96 Time 1700 Location VAN

Sample# 2 Recov. by [signature] Date 1/17/96 Time 1325 Location VAN

Sample# 3 Recov. by [signature] Date 1/17/96 Time 2230 Location VAN

Sample# Recov. by Date Time Location

Samples Rcvd. by [signature] For transport. Date 1/18/96 Time 0827

Sample Rcvd. at lab by M. Hunter Date 1/18/96 Time 1600

Sample Analyzed by M. Hunter Date 1/25/96 Time 1115

Data Checked by HT Date 1/29/96 Time 1600

Job# 96-11 Unit Tested Number 3 Dryer outlet CHAIN OF CUSTODY RECORD Page # _____

Facility Name/Location: Louisiana Pacific / Silsbee, TX

Collected By/Company: David Dunn / Metco

SAMPLE I.D.	DATE	TIME	AIR	SOIL	COMP	GRAB	# OF CONTAINRS	SAMPLE ANALYSIS REQUIRED: RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	FORMALDEHYDE			REMARKS (Specific Compounds/Methods)
																				Archive Filter
																				Blank is for #2+3 Dryer outlets
Imp 1 Run 1	1-16-96	1931	✓				11	TS									✓			
Run 2	1-17-96	1730	✓				11	TS									✓			
Imp 2 +3 Run 1	1-16-96	1930	✓				11	TS									✓			Run 1, 1 bottle labelled "Imp 2" & did not received
Run 2	1-17-96	1730	✓				11	TS									✓			
Filter Run 1	1-16-96	1970	✓				1	TS									✓			
Run 2	1-17-96	1730	✓				111	TS									✓			
Frontwash Run 1	1-16-96	1930	✓				1	TS									✓			
Run 2	1-17-96	1730	✓				11	TS									✓			run 2, only received 1 bottle &
DNPH Blank	1-15-96	0745	✓				1	TS									✓			

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[signature]	1/17/96	0830	Tim Slarte	1-18-96	0830	HT	1/19/96	0900
Relinquished by:	**Date:**	**Time:**	**Received by lab by:**	**Date:**	**Time:**	**Remarks:**		
			Deidra Brooks	1-23-96	1200			

Ship to: _____

METCO ENVIRONMENTAL

Job# 96-11 Unit Tested #4 Dryer Outlet Stack CHAIN OF CUSTODY RECORD Page # 1

Facility Name/Location: Louisiana Pacific/Silsbee, TX for ERM Southwest

Collected By/Company: Kevin McGinnis ~~Taylor Slater~~ Jesse ~~Rodan~~ / METCO

SAMPLE I.D.	DATE	TIME	AIR	SOIL	COMP	GRAB	# OF CONTAINERS	RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	Formaldehyde			REMARKS (Specific Compounds/Methods)
R1																				
#4 Dryer Formaldehyde F.W.	1/16/96	1830	✓			1	1	JR									✓			
#4 Dryer Formaldehyde Imp. 1	1/16/96	1830	✓			1	1	JR									✓			
#4 Dryer Formaldehyde Imp. 2,3	1/16/96	1830	✓				1	JR									✓			
#4 Dryer Formaldehyde Filter	1/16/96	1830	✓				1	JR												Archive filter did not receive ab

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
R.M. Nutt	1-19-96	0532	Jesse Rodan	1/18/96	0834	HT	1/19/96	1900
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:		
			Deirdra D. Brooks	1-23-96	1200			

Ship to: _____

METCO ENVIRONMENTAL

I-7

Job# 96-11 Unit Tested #4 Dryer Outlet Stacks CHAIN OF CUSTODY RECORD Page # 1

Facility Name/Location	# OF CONTAINRS	SAMPLE ANALYSIS REQUIRED												REMARKS (Specific Compounds/Methods)
Louisiana Pacific / Silsbee, TX		RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	Formaldehyde			
Collected By/Company Kevin McGinn ~~Todd Staley~~ / METCO														
SAMPLE I.D. R2	DATE / TIME / AIR / SOIL / COMP / GRAB													
#4 Dryer Formaldehyde F.W.	1/17 1800 ✓	1 JR									✓			
#4 Dryer Formaldehyde Imp. 1-A	1/17 1800 ✓	1 JR									✓			
#4 Dryer Formaldehyde Imp 1-B	1/17 1800 ✓	1 JR									✓			
#4 Dryer Formaldehyde Imp. 2	1/17 1800 ✓	1 JR									✓			
#4 Dryer Formaldehyde Imp. 3&4	1/17 1800 ✓	1 JR									✓			
#4 Dryer Formaldehyde Filter	1/17 1800 ✓	1 JR									✓			Archive filters did not receive db

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[illegible]	1-18-96	0832	Jean Rochon	1/18/96	0834	HT	1/19/96	0917
Relinquished by:	**Date:**	**Time:**	**Received by lab by:**	**Date:**	**Time:**	**Remarks:**		
			Deidra D. Brooks	1-23-96	1200			

Ship to: _____

METCO ENVIRONMENTAL

Chain of Custody

JOB# 96-11 Date 1/16/96

Client ERM Method 5

Location Sils Lee, Tx Project Mgr. Glicer

Unit Dryer Number 5 Outlet Duct

	No. of Containers	Absorb. Solution	Init. Vol.	Part.	SO2	SO3	Other Analyses
Filter Cont	HT 1			✓			
Front Wash	111			✓			
Back Wash	111			✓			
Impinger 1							
Impinger 2							
Impinger 3							
Impinger 4							
Impinger 5							
Acetone Blank 1	1		~200ml	✓			
Blank 2							
NOx							
Other							

Special Instruction

Sample# 1 Recov. by Lisa N Adams Date 1/16/96 Time 1550 Location VAW

Sample# 2 Recov. by Lisa N Adams Date 1/17/96 Time 1430 Location "

Sample# 3 Recov. by Lisa N Adams Date 1/17/96 Time 1615 Location "

Sample# ____ Recov. by ____ Date ____ Time ____ Location ____

Samples Rcvd. by R.A. McNutt For transport Date 1-18-96 Time 0829

Sample Rcvd. at lab by M. Baxter Date 1/19/96 Time 0800

Sample Analyzed by Mary Baxter Date 1/25/96 Time 1137

Data Checked by HT Date 1/29/96 Time 16:00

Job# 96-11 Unit Tested #5 Dryer Outlet Stack CHAIN OF CUSTODY RECORD Page # 1

Facility Name/Location	# OF CONTAINRS	SAMPLE ANALYSIS REQUIRED												REMARKS (Specific Compounds/Methods)
Louisiana Pacific / Silsbee, TX		RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	Formaldehyde			
Collected By/Company Todd Staley / METCO														

SAMPLE I.D. RL	DATE	TIME	AIR	SOIL	COMP	GRAB
#5 Dryer Formaldehyde F.W.	1/16/96	1845	✓			
#5 Dryer Formaldehyde Imp. 1	1/16/96	1845	✓			
#5 Dryer Formaldehyde Imp. 2,3	1/16/96	1845	✓			
#5 Dryer Formaldehyde Filter	1/16/96	1845	✓			

# OF CONTAINRS	RCVRD BY	Formaldehyde			REMARKS
1	JR	✓		1-17-96	
1	JR	✓			
1	JR	✓			
1	JR	~~✓~~			Archive; filters did not receive db

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
R.J. McNutt	1-18-96	0832	Jesse Rocha	1/18/96	0834	HT	1/19/96	0900
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:		
			Deidra D. Brooks	1-23-96	1200			

Ship to: _____

METCO ENVIRONMENTAL

I-10

Job# 96-11 Unit Tested #5 Dryer Outlet Stack CHAIN OF CUSTODY RECORD Page # 1

Facility Name/Location	# OF CONTAINERS	SAMPLE ANALYSIS REQUIRED												REMARKS (Specific Compounds/Methods)
Louisiana Pacific / Silsbee, TX		RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	Formaldehyde			
Collected By/Company: Todd Staley / METCO														
SAMPLE I.D. R2 / DATE / TIME / AIR / SOIL / COMP / GRAB														
#5 Dryer Formaldehyde F.W. 1/17/96 1800 ✓	1	JR									✓			
#5 Dryer Formaldehyde Imp. 1-A 1/17/96 1800 ✓	1	JR									✓			
#5 Dryer Formaldehyde Imp. 1-B 1/17/96 1800 ✓	1	JR									✓			
#5 Dryer Formaldehyde Imp. 2 1/17/96 1800 ✓	1	JR									✓			
#5 Dryer Formaldehyde Imp. 3 1/17/96 1800 ✓	1	JR	T								✓			
#5 Dryer Formaldehyde F. Hex 1/17/96 1800 ✓	1	JR									~~✓~~			Archive filters did not receive

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
K.C. McNutt	1-18-96	0832	Jess Parker	1/18/96	0834	HT	1/19/96	0900
Relinquished by:	**Date:**	**Time:**	**Received by lab by:**	**Date:**	**Time:**	**Remarks:**		
			Deidra D. Brooks	1-23-96	1200			

Ship to: _____

METCO ENVIRONMENTAL

I-11

METCO ENVIRONMENTAL

Chain of Custody

JOB# 96-011 Date 1-16-96

Client ERM Southwest Method 5 & 6

Location Silsbee, TX Project Mgr. M. Glicer

Unit RTO Number 1 Stack

	No. of Containers	Absorb. Solution	Init. Vol.	Part.	SO2	SO3	Other Analyses
Filter Cont	111			✓			
Front Wash	111			✓			
Back Wash							
Impinger 1	111	80% IPA	200ml	✓		✓	
Impinger 2	111	6% H_2O_2	200ml		✓		
Impinger 3	111	6% H_2O_2	200ml		✓		
Impinger 4							
Impinger 5							
Blank 1	1	IPA		✓		✓	
Blank 2	1	DI		✓			
NOx H_2O_2 BLANK	1	6% H_2O_2			✓		
Other ACE BLANK	1	ACE		✓			

Special Instruction

Sample# 1 Recov. by David S Bailey Date 1-16-96 Time 1600 Location VAN 11

Sample# 2 Recov. by David S Bailey Date 1-17-96 Time 1130 Location VAN 11

Sample# 3 Recov. by David S Bailey Date 1-17-96 Time 2231 Location VAN 11

Sample# ____ Recov. by ____ Date ____ Time ____ Location ____

Samples Rcvd. by Paul Smith For transport Date 1/19 Time 2100

Sample Rcvd. at lab by M. Baxter Date 1/22/96 Time 1100

Sample Analyzed by Mary Baxter Date 1/26/96 Time 1000

Data Checked by HT Date 1/29/96 Time 1500

Job# 96-11 Unit Tested RTO #1 STK.

CHAIN OF CUSTODY RECORD

Page # _____

Facility Name/Location	# OF CONTAINRS	SAMPLE ANALYSIS REQUIRED												REMARKS (Specific Compounds/Methods)
ERM SOUTHWEST SILSBEE, TX.		RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	Formaldehyde			
Collected By/Company METCO / G. SMITH														
SAMPLE I.D. FIELD SPIKE (0011)	DATE TIME AIR SOIL COMP GRAB													
HIGH LEVEL SPIKE	11/18/96 1145 ✓	1									✓			SPIKED INTO 50ml. DNPH STANDARD RECOVERY PROCEDURE
LOW LEVEL SPIKE	11/18/96 1145 ✓	1									✓			" "
FORMALDEHYDE FIELD SPIKING SOL. BLANK	11/18/96 1145 ✓	1									✓			
DNPH REAG. BLK	11/18/96 1145 ✓	1									✓			
MeCl2 REAG. BLK.	11/18/96 1145 ✓	1									✓			
D.I. BLANK	11/18/96 1145 ✓	1									✓			

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Paul W. Smith	11/19	2:00		11/19	7:00	HT	11/22/96	10:00
Relinquished by:	Date:	Time:	Received by lab by: Carol A. Henley	Date: 11/24/96	Time: 3:00 PM	Remarks:		

Ship to: _____

METCO ENVIRONMENTAL

I-13

Job# 96-11 Unit Tested ETO #1 STACK

CHAIN OF CUSTODY RECORD

Page # _____

Facility Name/Location	# OF CONTAINERS	SAMPLE ANALYSIS REQUIRED												REMARKS (Specific Compounds/Methods)
ERM SOUTHWEST SILSBEE, TX.		RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	Formaldehyde			
Collected By/Company METCO / G. SMITH														
SAMPLE I.D. / DATE / TIME / AIR / SOIL / COMP / GRAB														
BLANK TRAIN (0011) 11/18/96 12:15 AIR ✓	1	✓								✓	✓			
IMP. 1 11/18/96 12:15 AIR ✓	1	✓								✓	✓			
IMP. 2/3 11/18/96 12:15 AIR ✓	1	✓								✓	✓			
FILTER 11/18/96 12:15 AIR ✓	1	✓												ARCHIVE

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Paul Smith	1/19	2100	Richard Smith	1/19	2100	HT	1/22/96	KOC
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:		
			Carol A. Ansley	1/24/96	3:00 P.M.			

Ship to: _____

METCO ENVIRONMENTAL

Job# 96-11 Unit Tested RTO #1 STACK CHAIN OF CUSTODY RECORD Page # _____

Facility Name/Location: ERM SISBEE, TX.

Collected By/Company: S. GRUBBS METCO ~~G. SMITH~~

SAMPLE I.D.	DATE	TIME	AIR	SOIL	COMP	GRAB	# OF CONTAINRS	RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	RUN INSTRUCTIONS			REMARKS (Specific Compounds/Methods)
0011 RUN #1 FORMALDEHYDE																				IMP. 1 200ml. DNPH IMP. 2 200ml. DNPH IMP. 3 DRY
MeCl2 F/W	11/16/96	1830	✓				1										✓			
IMP. 1	11/16/96	1830	✓				1										✓			
IMP. 2/3	11/16/96	1830	✓				1										✓			
FILTER	11/16/96	1830	✓				1													HOLD (ARCHIVE) did not receive

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Paul Smith				11/9	2100	HT	11/22/96	1600
Relinquished by:	**Date:**	**Time:**	**Received by lab by:**	**Date:**	**Time:**	**Remarks:**		
			Deidra Brooks	11/24/96	1210			

Ship to: _____

METCO ENVIRONMENTAL

I-15

Job# 96-11 Unit Tested RTO #1 STACK CHAIN OF CUSTODY RECORD Page # _____

Facility Name/Location	# OF CONTAINRS	SAMPLE ANALYSIS REQUIRED												REMARKS (Specific Compounds/Methods)
ERM SALSBEE, TX.		RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	FORMALDEHYDE			IMP. 1 200 ml. DWPH IMP. 2 200 ml. DWPH IMP. 3 DRY
Collected By/Company: METRO / J. GRUBBS														
RUN #2 (0011) SAMPLE I.D.	DATE	TIME	AIR	SOIL	COMP	GRAB								
MeCl2 F/W	1/17/96	1815	✓				1	✓					✓			
IMP. 1	1/17/96	1815	✓				1	✓					✓			
IMP. 2/3	1/17/96	1815	✓				1	✓					✓			
FILTER	1/17/96	1815	✓				1	✓								ARCHIVE

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Paul Smith	1/19	2100		1/19	2100	HT	1/22/96	1000
Relinquished by:	**Date:**	**Time:**	**Received by lab by:**	**Date:**	**Time:**	**Remarks:**		
			Carol A. Hensley	1/24/96	300 P.M.			

Ship to: _____

METCO ENVIRONMENTAL

I-16

Job# 9611 Unit Tested RTO #1 STACK

CHAIN OF CUSTODY RECORD

Page # _____

Facility Name/Location	Collected By/Company	SAMPLE I.D.	DATE	TIME	AIR	SOIL	COMP	GRAB	# OF CONTAINRS	SAMPLE ANALYSIS REQUIRED: RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	Total Metals			REMARKS (Specific Compounds/Methods)
ERM SOUTHWEST SUISBEE, TX.	METCO / G. SMITH	RUN 3 (0011)																				
		MeCl2 F/W	1/18/96	1400	✓				1										✓			
		IMP. 1	1/18/96	1400	✓				1										✓			
		IMP. 2/3	1/18/96	1400	✓				1										✓			
		FILTER	1/19/96	1400	✓				1													ARCHIVE

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Paul Smith	1/19	2100		1/19	2100	HT	1/22/96	1500
Relinquished by:	**Date:**	**Time:**	**Received by lab by:**	**Date:**	**Time:**	**Remarks:**		
			Carol A. Hensley	1/24/96	3:00PM			

Ship to: _____

METCO ENVIRONMENTAL

I-17

METCO ENVIRONMENTAL

Chain of Custody

JOB# 95-011 Date 1-16-96

Client ERM Southwest Method 5; 6

Location Silsbee, TX. Project Mgr. D. Glover

Unit RTO Number 2 Stack

	No. of Containers	Absorb. Solution	Init. Vol.	Part.	SO2	SO3	Other Analyses
Filter Cont	111			✓			
Front Wash	111			✓			
Back Wash							
Impinger 1	111	80% IPA		✓		✓	
Impinger 2	111	6% H_2O_2			✓		
Impinger 3	111	6% H_2O_2			✓		
Impinger 4							
Impinger 5							
Blank 1	1	IPA		✓		✓	
Blank 2	1	DI		✓			
NOx H_2O_2 BLANK	1	6% H_2O_2			✓		
Other ACE BLANK	1	ACE		✓			

Special Instruction

Sample# 1 Recov. by David S Burley Date 1-16-96 Time 1650 Location VAN II

Sample# 2 Recov. by David S Burley Date 1-17-96 Time 1115 Location VAN II

Sample# 3 Recov. by David S Burley Date 1-17-96 Time 2231 Location VAN II

Sample# ____ Recov. by ____ Date ____ Time ____ Location ____

Samples Rcvd. by Paul Smith For transport. Date 1/19 Time 2100

Sample Rcvd. at lab by M. Gantt Date 1/22/96 Time 1100

Sample Analyzed by Mary Gantt Date 1/26/96 Time 1000

Data Checked by HT Date 1/29/96 Time 1500

Job# 96-11 Unit Tested RTO #2 STACK CHAIN OF CUSTODY RECORD Page # _____

Facility Name/Location: ERM SILSBEE, TX.

Collected By/Company: D. BAILEY METCO ~~G. SMITH~~

SAMPLE I.D.	DATE	TIME	AIR	SOIL	COMP	GRAB	# OF CONTAINRS	RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	FORMALDEHYDE			REMARKS (Specific Compounds/Methods)
0011 RUN #1 FORMALDEHYDE																				IMP. 1 200ml DNPH IMP. 2 200ml. DNPH IMP. 3 DRY
MeCl2 F/W	1/16/96	1830	✓				1										✓			
IMP. 1	1/16/96	1830	✓				1										✓			
IMP. 2/3	1/16/96	1830	✓				1										✓			
FILTER	1/16/96	1830	✓				1													ARCHIVE

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Paul Smith	1/19	2100		1/19	2100	HT	1/22/96	0900
Relinquished by:	**Date:**	**Time:**	**Received by lab by:**	**Date:**	**Time:**	**Remarks:**		
			Carol A. Hensley	1/24/96	3:00 PM			

Ship to: _____

METCO ENVIRONMENTAL

I-19

Job# 96-11 Unit Tested RTO #2 STACK CHAIN OF CUSTODY RECORD Page # _____

Facility Name/Location	# OF CONTAINRS	SAMPLE ANALYSIS REQUIRED												REMARKS (Specific Compounds/Methods)
ERM SUSBEE, TX.		RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	FORMALDEHYDE			IMP. 1 200 ml. DI/PH IMP. 2 200 ml. DI/PH IMP. 3 DRY
Collected By/Company: METCO / D. BAILEY														
RUN #2 (0011) SAMPLE I.D.	DATE	TIME	AIR	SOIL	COMP	GRAB								
MeCl2 F/W	1/17/96	1815	✓				1	✓						✓			
IMP. 1	1/17/96	1815	✓				1	✓						✓			
IMP. 2/3	1/17/96	1815	✓				1	✓						✓			
FILTER	1/17/96	1815	✓				1	✓									ARCHIVE

Received by: Paul Smith	Date: 1/19	Time: 2100	Relinquished by:	Date: 1/19	Time: 2100	Received by: HT	Date: 1/22/96	Time: 1000
Relinquished by:	Date:	Time:	Received by lab by: David A. Hensley	Date: 1/24/96	Time: 3:00 PM	Remarks:		

Ship to: _____

METCO ENVIRONMENTAL

Job# 96-11 Unit Tested RTO #2 STK CHAIN OF CUSTODY RECORD Page # _____

Facility Name/Location: ECM SUSBEE, TX.

Collected By/Company: METCO / D. BAILEY

SAMPLE I.D.	DATE	TIME	AIR	SOIL	COMP	GRAB	# OF CONTAINRS	RCVRD BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	Particulates			REMARKS (Specific Compounds/Methods)
RUN 3 (0011)																				
neck F/W	1/18/96	1400	✓				1										✓			
IMP. 1	1/18/96	1400	✓				1										✓			
IMP. 2/3	1/18/96	1400	✓				1										✓			
FILTER	1/18/96	1400	✓				1													ARCHIVE

Received by:	Date:	Time:	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Paul Smith	1/19	2100	Robert T. Smith	1/19	2100	HT	1/22/96	1000
Relinquished by:	**Date:**	**Time:**	**Received by lab by:**	**Date:**	**Time:**	**Remarks:**		
			Prof O. Hendley	1/24/96	2:00 PM			

Ship to: _____

METCO ENVIRONMENTAL

APPENDIX J

Resumes of Test Personnel

BILLY J. MULLINS, JR., President

Education	Post Graduate Study Environmental Engineering at Southern Methodist University, Dallas, Texas 1970. M.S. 1969, New York University, New York, New York, in Civil Engineering (Air Resources). B.S. 1968, Texas Tech University, Lubbock, Texas, in Civil Engineering (Water Resources). Studies in Engineering at U.S. Naval Academy, Annapolis, Maryland, 1963-1964.
Professional Training Courses	Attended Short Course on Air Pollution Engineering at the University of Texas at Austin, February 1970. Attended four-week management course presented by the American Management Association, 1976.
Certification	Registered Professional Engineer Certified Visible Emissions Evaluator Certified Fallout Shelter Analyst Licensed Private Pilot (Multi-Engine-Land, Instrument) Diplomat in the American Academy of Environmental Engineers Inductee into the Stack Sampling Hall of Fame
Professional Memberships	Air & Waste Management Association - Past Chairman, Past Vice Chairman and Past Board of Directors Southwest Section: Past Chairman, Consultants Committee; Past Chairman, Source Measurement Committee Source Evaluation Society - Past President, Past Board of Directors American Management Association

MULLINS

Publications

Co-authored "Sulfur Compound Emissions of the Petroleum Production Industry," December 1974.

Co-authored "Field Procedure for Stabilizing Hydrogen Sulfide Samples to be Analyzed Using Modified Methylene Blue Technique," presented at the Conference on Ambient Air Quality Measurements, Austin, Texas, March 1975.

Co-authored "Atmospheric Emissions Survey of the Sour Gas Industry," October 1975.

Co-authored "Technique for Insuring the Validity of Samples for High Concentrations of Sulfur Dioxide Using the EPA Method 5 Sampling Train," presented at the Third National Conference on Energy and the Environment, College Corner, Ohio, September 1975.

Teaching Experience

Served as a lecturer in the Environmental Protection Agency's training course number 450, "Source Sampling for Particulate Pollutants," for two years from January 1974 to October 1975 and in March, 1992.

Conducted a two-day training course entitled "Technical Assistance in Source Sampling" at Iowa State University, Ames, Iowa, for the Environmental Protection Agency, October 1974.

Conducted EPA's training course number 450, "Source Sampling for Particulate Pollutants," for the EPA at Research Triangle Park, North Carolina, September 1975.

MULLINS

Teaching Experience

Conducted a two-day short course entitled "Performing and Observing Source Sampling" at Dallas, Texas, July 1976, May 1977, October 1977, November 1987 and November 1988; at Lake Charles, Louisiana, May 1977; at Casper, Wyoming, May 1977; and at Point Comfort, Texas, November 1992.

Served as a lecturer in the Environmental Protection Agency's two-day seminar entitled "Asphalt Industry Environmental Solutions," presented in Dallas, Texas, on March 21 and 22, 1979.

Conducted a two-day short course entitled "Performing and Observing Source Sampling" in Phoenix, Arizona in August, 1990 for the State of Arizona, Department of Environmental Quality; in Lincoln, Nebraska, in March 1980 for the State of Nebraska, Air Quality Control Division.

Technical Experience

Directed and performed stack sampling on over 2000 sources of which over 500 were sampled simultaneously using more than one sampling train at several points in the flue gas stream. 1972-present.

Directed and performed over 200 short-term ambient air studies using mobile sampling vans and various ambient air sampling equipment. 1972-present.

Designed, directed and operated over 20 permanent ambient air networks of various size and duration for a variety of parameters. 1972-present.

Designed surface and underground drainage systems for residential subdivisions, public works projects, and shopping centers. 1969-1972.

Designed several residential subdivisions including lot layout, street design, drainage design, and utility design. 1969-1972.

MULLINS

Research Projects	Supervised and conducted a study made by the Hawaiian Sugar Planters' Association to characterize the emissions for several bagasse-fired boilers. April-May 1976.
	Supervised and conducted a study made by the Rio Grande Valley Sugar Growers, Inc. to determine the area affected by the burning of sugarcane fields prior to harvesting. November 1974-April 1975.
	Supervised and conducted a study by a lightweight aggregate manufacturer to develop a material balance around the process through sampling and analysis of several parameters. November 1973.
	Conducted a study in New York City to attempt to develop a correlation in the ambient air between carbon dioxide and sulfur dioxide to provide a tool for predicting air pollution episodes. January-May 1969.
Related Projects	Served as Chairman of the Engineering Foundation Conference on Stack Sampling and Source Evaluation in Santa Barbara, California, 1985.
	Served as Session Chairman at the Engineering Foundation Conference on Stack Sampling and Source Evaluation in Hershey, Pennsylvania, 1984; in San Diego, California, 1993; and in Palm Coast, Florida, 1994.

MARK S. GLICER, Project Supervisor II

Education	B.S. 1989, Texas A & M University, College Station, Texas, in Engineering Geology.
Research Projects	Landslides, Frost Heave, Dam Site Selection, and Waste Disposal Site Selection research projects.
Professional Training Courses	Two-day short course, "Performing and Observing Source Sampling," Dallas, Texas, November 1990. Attended 40-hour Occupational and Environmental Training Program on Hazardous Materials (CFR 1910.120) Dallas, Texas, May 1990. Also attended an 8-hour refresher course, February 1994.
Certification	Certified Visible Emissions Evaluator
Technical Experience	Participated in the sampling of over 500 sources, including several of which were sampled simultaneously using more than one sampling train; and has supervised the sampling of over 300 sources, including five trial burns. 1990-present. Experienced in the analysis of commercial calibration gas cylinders for CO_2, O_2, NO_x, SO_2, CO, and H_2S. Experienced with Modified Method 5 Sampling Train (Method 0010). Experienced with VOST sampling procedure (Method 0030). Experienced with calibration techniques for all field testing equipment. Experienced with various multiple metal and acid gas sampling trains. Has performed on-site SO_2 analysis and H_2S fuel gas analysis.

GLICER

Thoroughly trained in the operation and routine maintenance of the following:

Thermo Environmental Model 10AR NO_x Analyzer
Teledyne Model 326 Oxygen Analyzer
Ratfisch Model RS 100 Total Hydrocarbon Analyzer
Ratfisch Model RS 55 Total Hydrocarbon Analyzer
Western Research Model 721 AT Sulfur Dioxide Analyzer
Horiba Model PIR 2000 Carbon Dioxide Analyzer
J.U.M. Model VE-7 Total Hydrocarbon Analyzer
Thermo Environmental Model 48 Carbon Monoxide Analyzer

GORDON G. SMITH, Project Supervisor II

Education	B.S. 1988, University of Massachusetts, Amherst, Massachusetts, in Environmental Design. A.S. 1986, Stockbridge School of Agriculture, Amherst, Massachusetts, in Landscape Operations.
Professional Training Courses	Attended 40-hour Occupational and Environmental Training Program on Hazardous Materials (CFR 1910.120) Dallas, Texas, April 1992. Also attended an 8-hour refresher course, February 1995.
Certification	Certified Visible Emissions Evaluator
Technical Experience	Participated in the sampling of over 500 sources, including several of which were sampled simultaneously using more than one sampling train; and has supervised the sampling of over 250 sources, including three trial burns. 1992-present. Experienced in the analysis of commercial calibration gas cylinders for CO_2, O_2, NO_x, SO_2, CO, and H_2S. Experienced with Modified Method 5 Sampling Train (Method 0010). Experienced with VOST sampling procedure (Method 0030). Experienced with calibration techniques for all field testing equipment. Experienced with various multiple metal and acid gas sampling trains. Has performed on-site SO_2 analysis and H_2S fuel gas analysis.

SMITH

Thoroughly trained in the operation and routine maintenance of the following:

Thermo Environmental Model 10AR NO_x Analyzer
Teledyne Model 326 Oxygen Analyzer
Ratfisch Model RS 100 Total Hydrocarbon Analyzer
Ratfisch Model RS 55 Total Hydrocarbon Analyzer
Western Research Model 721 AT Sulfur Dioxide Analyzer
Horiba Model PIR 2000 Carbon Dioxide Analyzer
J.U.M. Model VE-7 Total Hydrocarbon Analyzer
Thermo Environmental Model 48 Carbon Monoxide Analyzer

DAVID BAILEY, Project Supervisor I

Education	B.S. 1992, Texas Tech University, Lubbock, Texas, in Mechanical Engineering.
Professional Training Courses	Attended 40-hour Occupational and Environmental Training Program on Hazardous Materials (CFR 1910.120) Dallas, Texas, October 1992. Also attended an 8-hour refresher course, January 1994.
Certification	Certified Visible Emissions Evaluator Southeast Texas Safety Association (STSA) Certification Contractor Safety Council/Texas City (CSC/TC) Certification
Technical Experience	Participated in the sampling of over 100 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures. 1992-present. Experienced in the analysis of commercial calibration gas cylinders for CO_2, O_2, NO_x, SO_2, and CO. Experienced with Modified Method 5 Sampling Train (Method 0010). Experienced with VOST sampling procedure (Method 0030). Experienced with calibration techniques for all field testing equipment. Experienced with various multiple metal and acid gas sampling trains.

BAILEY

Thoroughly trained in the operation and routine maintenance of the following:

Thermo Environmental Model 10AR NO_x Analyzer
Teledyne Model 326 Oxygen Analyzer
Ratfisch Model RS 100 Total Hydrocarbon Analyzer
Ratfisch Model RS 55 Total Hydrocarbon Analyzer
Western Research Model 721 AT Sulfur Dioxide Analyzer
Horiba Model PIR 2000 Carbon Dioxide Analyzer
J.U.M. Model VE-7 Total Hydrocarbon Analyzer
Thermo Environmental Model 48 Carbon Monoxide Analyzer

JESSE ROCHA, Project Supervisor

Education	B.S. 1992, West Texas State University, Canyon, Texas, in Chemistry and Biology.
Professional Training Courses	Attended 40-hour Occupational and Environmental Training Program on Hazardous Materials (CFR 1910.120) Dallas, Texas, October 1992. Also attended an 8-hour refresher course, February, 1995.
Technical Experience	Participated in the sampling of over 150 Sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures. 1992-present.
	Experienced in the analysis of commercial calibration gas cylinders for CO_2, O_2, NO_x, SO_2, and CO.
	Experienced with VOST sampling procedure (Method 0030).
	Experienced with calibration techniques for all field testing equipment.
	Experienced with various multiple metals and acid gas sampling trains.
	Has performed on-site SO_2 analysis and Total Reduced Sulfur Analysis.
	Has performed on-site Particulate Analysis
	Experienced with 3-Dimensional velocity probe procedure.
	Experienced with Ambient Air monitoring.

ROCHA

Monitors — Thoroughly trained in the operation and routine maintenance of the following:

Thermo Environmental Model 10AR and 10S Oxides of Nitrogen Analyzers
Teledyne Model 326 Oxygen Analyzer
Thermo Environmental Model 48 Carbon Monoxide Analyzer
J.U.M. Model VE-7 Total Hydrocarbon Analyzer
Ratfisch Model RS-55 Total Hydrocarbon Analyzer
Western Research Model 721M Sulfur Dioxide Analyzer

LEWIS H. ADAMS, Project Supervisor II

Education	B.S. 1989, Texas A & M University, College Station, Texas, in Geology.
Professional Training Courses	Two-day short course "Performing and Observing Source Sampling", Dallas, Texas, November 1994 Attended 40-hour Occupational and Environmental Training Program on Hazardous Materials (CFR 1910.120) Dallas, Texas, April 1992. Also attended an 8-hour refresher course, February, 1995.
Certification	Certified Visible Emissions Evaluator
Technical Experience	Participated in the sampling of over 100 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures. 1992-present. Experienced in the analysis of commercial calibration gas cylinders for CO_2, O_2, NO_x, SO_2, and CO. Experienced with Modified Method 5 Sampling Train (Method 0010). Experienced with VOST sampling procedure (Method 0030). Experienced with calibration techniques for all field testing equipment. Experienced with various multiple metal and acid gas sampling trains. Has performed on-site SO_2 analysis and H_2S fuel gas analysis.

ADAMS

Thoroughly trained in the operation and routine maintenance of the following:

Thermo Environmental Model 10AR Oxides of Nitrogen Analyzer
Teledyne Model 326 Oxygen Analyzer
Ratfisch Model RS 100 Total Hydrocarbon Analyzer
Ratfisch Model RS 50 Total Hydrocarbon Analyzer
Western Research Model 721 AT Sulfur Dioxide Analyzer
Horiba Model PIR 2000 Carbon Dioxide Analyzer
J.U.M. Model VE-7 Total Hydrocarbon Analyzer
Thermo Environmental Model 48 Carbon Monoxide Analyzer

TIM STARTZ, Project Supervisor

Education	B.B.A. 1991, University of Texas at Arlington, Arlington, Texas, in Management with a minor in Accounting.
Professional Training Courses	Attended 40-hour Occupational and Environmental Training Program on Hazardous Materials (CFR 1910.120) Dallas, Texas, April 1992. Also attended an 8-hour refresher course, February 1995.
Technical Experience	Participated in the sampling of over 300 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures. 1992-present.
	Experienced in the analysis of commercial calibration gas cylinders for CO_2, O_2, NO_x, SO_2, and CO.
	Experienced with the Modified Method 5 Sampling Train (Method 0010).
	Experienced with the Chrome 6 Sampling Train.
	Experienced with the PM_{10} Sampling Train.
	Experienced with various multiple metals and acid gas sampling trains.
	Experienced with the VOST sampling procedure (Method 0030).
	Experienced with calibration techniques for all field testing equipment.
	Has performed on-site SO_2 analysis.
	Has performed on-site H_2S analysis.

STARTZ

Thoroughly trained in the operation and routine maintenance of the following:

Thermo Environmental Model 10AR and 10S Oxides of Nitrogen Analyzers
Teledyne Model 326 Oxygen Analyzer
Ratfisch Model RS-55 Total Hydrocarbon Analyzer
Horiba Model PIR 2000 Carbon Dioxide Analyzer
J.U.M. Model VE-7 Total Hydrocarbon Analyzer
Western Research 721M Sulfur Dioxide Analyzer
Thermo Environmental Model 48 Carbon Monoxide Analyzer
Anarad 880 Oxides of Nitrogen Analyzer
Anarad 23 Oxygen Analyzer
Anarad 30 Sulfur Dioxide Analyzer
Anarad 50C Carbon Dioxide Analyzer

DAVID DUNN, Project Supervisor I

Education	B.S. 1990, University of North Texas, Denton, Texas, in Emergency Administration and Planning. 1991-Present - United States Army Reserves. Trained as a Helicopter Powertrain mechanic.
Professional Training Courses	Attended 40-hour Occupational and Environmental Training Program on Hazardous Materials (CFR 1910.120) Dallas, Texas, October 1992. Attended 8-hour Safe Hazardous Materials Transportation Training Program (HM-126F & HM-181) Dallas, Texas, October 1994. Attended Bill Mullins' Performing and Observing Source Sampling Short Course; Dallas, Texas, January, 1995.
Technical Experience	Participated in the sampling of over 125 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures. 1992-present. Experienced in the analysis of commercial calibration gas cylinders for CO_2, O_2, NO_x, and SO_2. Experienced with calibration techniques for all field testing equipment. Thoroughly trained in the operation and routine maintenance of the following: Thermo Environmental Model 48 Carbon Monoxide Analyzer Anarad Model AR880 Oxides of Nitrogen Analyzer Anarad Model AR23 Oxygen Analyzer Anarad Model AR30C2 Sulfur Dioxide Analyzer Anarad Model AR50-C Carbon Dioxide Analyzer

GARY B. GOLDMAN, Environmental Technician III

Education	B.S. 1993, University of Texas at Arlington, Arlington, Texas, in Geology.
Technical Experience	Participated in the sampling of over 125 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures. 1994-present.
Professional Training Courses	Attended 40-hour Occupational and Environmental Training Program on Hazardous Materials (CFR 1910.120) Dallas, Texas, February 1995. Thoroughly trained in the operation and routine maintenance of the following: Thermo Environmental Model 10AR and 10S Oxides of Nitrogen Analyzers Teledyne Model 326 Oxygen Analyzer Horiba Model PIR 2000 Carbon Dioxide Analyzer Thermo Environmental Model 48 Carbon Monoxide Analyzer Anarad 880 Oxides of Nitrogen Analyzer Anarad 23 Oxygen Analyzer Anarad 30 Sulfur Dioxide Analyzer Anarad 50C Carbon Dioxide Analyzer

R. A. McNUTT, Environmental Technician III

Education	B.S. 1993, Texas Tech University, Lubbock, Texas, in Mechanical Engineering.
Technical Experience	Participated in the sampling of over 125 Sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures. 1993 - present.
Professional Training Courses	Attended 40-hour Occupational and Environmental Training Program on Hazardous Materials (CFR 1910.120) Dallas, Texas, January 1993.

J. TODD STALEY, Environmental Technician III

Education	Community College of the Air Force in Management & Construction Technology.
Professional Training	Attended 40-hour Occupational and Environmental Training Program on Hazardous Materials (CFR 1910.120), 1990. Also attended 40-hour Hazardous Waste Management, Accumulating, Handling, Disposal, and Contingency Response, 1989. RCRA Compliance, 40 CFR 265.16, 1991
Certification	Certified Visible Emissions Evaluator
Technical Experience	Participated in the sampling of over 300 sources (15 of which were trial burns), serving in the supervisory capacity on over 150 sources, including several of which were sampled simultaneously using more than one sampling train at several points in the flue gas stream. Thoroughly trained in several EPA testing procedures. Over three years experience with EPA methods of sampling stationary sources. Thoroughly trained in the following EPA testing procedures: 40 CFR, Title 40, Chapter I, Part 60, Methods 1 through 17, 20, 21, 23 through 25, and 101 through 110. Has performed on-site gravimetric particulate analysis, sulfur dioxide, and sulfur trioxide analysis. Thoroughly trained in the operation and routine maintenance of the following: Thermo Environmental Model 40 Sulfur Dioxide Analyzer Thermo Environmental Model 48 Carbon Dioxide Analyzer Thermo Environmental Model 10 AR NO_x Analyzer J.U.M. Model VE-7 Total Hydrocarbon Analyzer Servomex Model 1800B Oxygen Analyzer Teledyne Model 326 Oxygen Analyzer Thoroughly trained in the calibration techniques for all field testing equipment.

KEVIN McGINN, Environmental Technician II

Education	B.S. 1993, McGill University, Montreal, Quebec, Canada, in Chemistry.
Technical Experience	Participated in the sampling of over 100 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures. 1993-present.
Professional Training Courses	Attended 40-hour Occupational and Environmental Training Program on Hazardous Materials (CFR 1910,120) Dallas, Texas, April 1994. Also attended an 8-hour refresher course, February 1995. Attended 3 day short course on performing and observing source sampling.

ROBERT J. THEUERKAUF, Environmental Technician II

Education	B.S. 1993, University of Kentucky, Lexington, Kentucky, in Biotechnology.
Professional Training Courses	Attended 40-hour Occupational and Environmental Training Program on Hazardous Materials (CFR 1910.120) Dallas, Texas, April 1994. Also attended an 8-hour refresher course, February, 1995. Attended 3 day course on performing and observing source sampling.
Technical Experience	Participated in the sampling of over 75 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures. 1994-present. Experienced in the analysis of commercial calibration gas cylinders for CO_2, O_2, NO_x, SO_2, and CO. Experienced with calibration techniques for all field testing equipment. Experienced with various multiple metals and acid gas sampling trains.

JAMES M. GRUBBS, Environmental Technician II

Education	Preventive Medical Specialist 1993, U.S. Army, Womack Army Medical Center, Ft. Bragg, NC.
Professional Training Courses	Attended 8-hour Safe Hazardous Materials Transportation Training Program (HM-126F and HM-181) Dallas, Texas, October 1994. Attended Bill Mullins' Performing and Observing Source Sampling Short Course; Dallas, Texas, January 1995.
Technical Experience	Participated in the sampling of over 50 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures. 1993-present. Experienced with calibration techniques for all field testing equipment. Thoroughly trained in the operation and routine maintenance of the following: Anarad AR880 Oxides of Nitrogen Analyzer Anarad AR23 Oxygen Analyzer Anarad AR30C2 Sulfur Dioxide Analyzer Anarad AR50-C Carbon Dioxide Analyzer

JEFFERY R. BRUNSON, Environmental Technician I

Education	B.S. 1995, Angelo State Unitversity, San Angelo, Texas, in Biology.
Technical Experience	Participated in the sampling of over 25 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures. 1995-present.

LANCE LYNDON HUDSON, Environmental Technician I

Education	B.A. 1994, University of Texas at Arlington, Arlington, Texas, in Geology.
Technical Experience	Participated in the sampling of over 25 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures. 1994-Present.

JOHN D. PEMBERTON, Environmental Field Technician I

Education	B.A. 1994, McMurry University, Abilene, Texas in Chemistry.
Technical Experience	Participated in the sampling of over 25 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures. 1995-Present

MICHAEL D. WOOD, Environmental Field Technician I

Education	B.A., 1991, The University of Texas at Austin, Austin, Texas in Biology; M.A. l993, The University of Texas at Austin, Austin, Texas in Botany.
Technical Experience	Participated in the sampling of over 25 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures. 1995-Present.

MATTHEW J. LINDQUIST, Environmental Technician I

Education	B.S. 1994, Texas A & M University at Galveston, Galveston, Texas, in Marine Biology.
Technical Experience	Participated in the sampling of over 25 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures. 1995-Present.

PAUL W. SMITH, Environmental Technician I

Education	B.A. 1995, Baylor University, Waco, Texas in Biology and Environmental Studies.
Technical Experience	Participated in the sampling of over 25 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures. 1995-Present