EMISSION PERFORMANCE TESTING OF FOUR BOILERS, THREE DRYRERS AND ONE COOLER

Book 1 of 2

SITE: HOLLY SUGAR CORPORATION
Santa Maria, California

DATE: JUNE 1991

Prepared For:

HOLLY SUGAR CORPORATION
2820 W. Betteravia Road
Santa Maria, California 93455

Contact: Ralph Medema
(805) 925-8633

Prepared By:

THOMAS ROONEY
(~~213~~) 540-4676
310

WESTERN ENVIRONMENTAL SERVICES
1010 South Pacific Coast Highway
Redondo Beach, California 90277

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1.0 INTRODUCTION

At the request of Holly Sugar Corporation, Santa Maria, California, Western Environmental Services (WES) conducted testing at the Santa Maria Facility. The testing consisted of collecting samples on the stack outlet of 8 units. The units are Boiler #1, Boiler #2, Boiler #3, Boiler #4, Cooler, Dryer #1, Dryer #2, and Dryer #3. The testing was performed from June 4 through June 14, 1991 to provide compliance test data for the Santa Barbara Air Pollution Control District. The permit to operate numbers are 7205 and 6856.

The sampling program consisted of collecting oxides of nitrogen, oxygen, hydrocarbons, particulates, carbon monoxide, carbon dioxide, and sulfur dioxide from each of the units except the Cooler Stack. The cooler stack was sampled for particulates only. Each dryer has two stacks. One stack was monitored for the pollutants while the other stack was checked for velocity only.

The facility processes sugar beets into various sugar products. The boilers, dryers, and cooler are used to process the sugar beets. The facility operates at a maximum capacity during harvest season April - October. The boilers are under Permit to Operate No. 7205 while the dryers and cooler are under Permit to Operate No. 6856. The permits are located in Apendix E. During the testing program, the units were fired with fuel oil.

The following sections will be presented in this report: Summary of Results, Site Description, Sampling and Analytical Procedures, Quality Assurance, and Appendices. The appendices contain t2he Field and Laboratory data sheets, Gas Calibration Information, Sample Calculations, Process Data and Permits to Operate.

State of California

Air Resources Board

Approved Independent Contractor

Western Environmental Services

This is to certify that the company listed above has been approved by the Air Resources Board to conduct compliance testing, pursuant to Section 91207, Title 17, California Code of Regulations, until June 30, 1991, for those test methods listed below:

ARB Source Test Methods:

1-1, 1-2, 1-3, 1-4, 1-5, 1-8, 1-10, 1-11, 1-100 (CO_2, NO_x, O_2, SO_2, THC), Visible Emissions Evaluation

James J. Morgester, Chief
Compliance Division

H. Roye Jackson, Manager
Field Evaluation Section

90 56165

2.0 SUMMARY OF RESULTS

2.1 Discussion of Results

Tables 2.1 through 2.23 present the results collected from the testing program.

The test results are listed below.

Location/Test	Test #1	Test #2	Test #3	Average
Boiler #1				
Steam Output, #/Hr	55,000	56,000	56,000	55,667
Volumetric Flow Rate, DSCFM	16,298	16,252	16,382	16,311
Oxides of Nitrogen, ppm	368	365	322	352
Oxides of Nitrogen at 3% Oxygen, ppm	459	450	395	435
Oxides of Nitrogen, #/Hr	43.68	43.20	38.41	41.76
Carbon Monoxide, ppm	0	0	0	0
Carbon Monoxide, #/Hr	0.00	0.00	0.00	0.00
Sulfur Dioxide, ppm	154	163	145	154
Sulfur Dioxide, #/Hr	25.43	26.84	24.07	25.45
Oxygen, %	6.59	6.40	6.30	6.43
Carbon Dioxide, %	11.43	12.12	12.00	11.85
Particulates				
#/Hr	9.257	10.778	9.967	10.001
Hydrocarbons				
Methane, ppm	4.59	2.15	4.61	3.78
Methane, #/Hr	0.19	0.09	0.19	0.16
Non-Methane Hydrocarbons				
ppm	<.1	<.1	<.1	<.1
#/Hr	<0.10	<0.10	<0.10	<0.10

Location/Test	Test #1	Test #2	Test #3	Average	
Boiler #2					
Steam Output, #/Hr	58,000	58,000	59,000	58,333	
Volumetric Flow Rate, DSCFM	19,041	18,904	18,761	18,902	
Oxides of Nitrogen, ppm	233	282	283	266	
Oxides of Nitrogen at 3% Oxygen, ppm	357	368	367	364	
Oxides of Nitrogen, #/Hr	32.31	38.82	38.66	36.60	
Carbon Monoxide, ppm	22	21	33	25	34
Carbon Monoxide, #/Hr	1.86	1.76	2.74	2.12	
Sulfur Dioxide, ppm	131	158	157	149	
Sulfur Dioxide, #/Hr	25.27	30.26	29.84	28.46	
Oxygen, %	9.25	7.20	7.10	7.85	
Carbon Dioxide, %	9.80	11.47	11.50	10.92	
Particulates					
#/Hr	6.558	13.185	8.938	9.560	
Hydrocarbons					
Methane, ppm	14.24	12.56	12.56	13.12	
Methane, #/Hr	0.69	0.60	0.60	0.63	
Non-Methane Hydrocarbons					
ppm	1.5	<.1	<.1	<.5	
#/Hr	0.20	<0.10	<0.10	<0.10	

Location/Test	Test #1	Test #2	Test #3	Average
Boiler #3				
Steam Output, #/Hr	53,250	52,750	54,400	53,467
Volumetric Flow Rate, DSCFM	21,181	19,694	21,946	20,940
Oxides of Nitrogen, ppm	210	217	213	213
Oxides of Nitrogen at 3% Oxygen, ppm	303	313	312	309
Oxides of Nitrogen, #/Hr	32.39	31.12	34.04	32.52
Carbon Monoxide, ppm	13	15	12	13
Carbon Monoxide, #/Hr	1.22	1.31	1.17	1.23
Sulfur Dioxide, ppm	125	123	140	129
Sulfur Dioxide, #/Hr	26.83	24.46	31.13	27.47
Oxygen, %	8.50	8.49	8.66	8.55
Carbon Dioxide, %	11.00	10.32	10.38	10.57
Particulates #/Hr	7.432	11.907	15.278	11.539
Hydrocarbons				
Methane, ppm	3.44	3.50	4.01	3.65
Methane, #/Hr	0.18	0.17	0.22	0.19
Non-Methane Hydrocarbons				
ppm	<.1	<.1	<.1	<.1
#/Hr	<0.10	<0.10	<0.10	<0.10

Location/Test	Test #1	Test #2	Test #3	Average
Boiler #4				
Steam Output, #/Hr	73,500	80,500	72,500	75,500
Volumetric Flow Rate, DSCFM	22,826	25,486	24,912	24,408
Oxides of Nitrogen, ppm	268	260	278	269
Oxides of Nitrogen at 3% Oxygen, ppm	355	342	368	355
Oxides of Nitrogen, #/Hr	44.55	48.26	50.43	47.75
Carbon Monoxide, ppm	45	18	20	28
Carbon Monoxide, #/Hr	4.55	2.03	2.21	2.93
Sulfur Dioxide, ppm	151	140	150	147
Sulfur Dioxide, #/Hr	34.92	36.15	37.86	36.31
Oxygen, %	7.40	7.30	7.40	7.37
Carbon Dioxide, %	11.50	10.80	10.70	11.00
Particulates				
#/Hr	15.693	13.942	15.058	14.898
Hydrocarbons				
Methane, ppm	4.12	1.88	3.10	3.03
Methane, #/Hr	0.24	0.12	0.20	0.19
Non-Methane Hydrocarbons				
ppm	<.1	<.1	<.1	<.1
#/Hr	<0.10	<0.10	<0.10	<0.10

Location/Test	Test #1	Test #2	Test #3	Average
Dryer #1				
Production Rate, Tons/Hr	10	10	10	10
Volumetric Flow Rate, DSCFM	34,038	35,148	34,262	34,483
Oxides of Nitrogen, ppm	88	70	75	78
Oxides of Nitrogen at 3% Oxygen, ppm	227	242	238	236
Oxides of Nitrogen, #/Hr	21.81	17.92	18.71	19.48
Carbon Monoxide, ppm	360	126	160	215
Carbon Monoxide, #/Hr	54.32	19.63	24.30	32.75
Sulfur Dioxide, ppm	0	0	0	0
Sulfur Dioxide, #/Hr	0.00	0.00	0.00	0.00
Oxygen, %	14.00	15.77	15.30	15.02
Carbon Dioxide, %	4.90	4.50	4.80	4.73
Particulates #/Hr	70.968	75.022	40.092	62.028
Hydrocarbons				
Methane, ppm	18.15	7.99	5.35	10.50
Methane, #/Hr	1.56	0.71	0.46	0.91
Non-Methane Hydrocarbons				
ppm	14.28	13.19	13.93	13.80
#/Hr	2.50	2.28	2.53	2.44

~63 mm Btu/hr
= 0.42 kgal/hr

Location/Test	Test #1	Test #2	Test #3	Average
Dryer #2				
Production Rate, Tons/Hr	10	10	10	10
Volumetric Flow Rate, DSCFM	32,220	33,448	33,760	33,143
Oxides of Nitrogen, ppm	50	46	51	49
Oxides of Nitrogen at 3% Oxygen, ppm	183	197	176	185
Oxides of Nitrogen, #/Hr	11.73	11.20	12.54	11.82
Carbon Monoxide, ppm	200	205	200	202
Carbon Monoxide, #/Hr	28.56	30.39	29.93	29.63
Sulfur Dioxide, ppm	0	0	0	0
Sulfur Dioxide, #/Hr	0.00	0.00	0.00	0.00
Oxygen, %	16.03	16.81	15.79	16.21
Carbon Dioxide, %	4.20	2.31	4.63	3.71
Particulates #/Hr	35.796	37.000	23.500	32.100
Hydrocarbons				
Methane, ppm	30.36	9.73	6.47	15.52
Methane, #/Hr	2.48	0.82	0.55	1.28
Non-Methane Hydrocarbons				
ppm	12.87	21.13	20.80	18.27
#/Hr	2.81	4.67	4.77	4.08

48.5 MMBtu/hr = 323 gph
/.15

Location/Test	Test #1	Test #2	Test #3	Average
Dryer #3				
Production Rate, Tons/Hr	10	10	10	10
Volumetric Flow Rate, DSCFM	29,050	27,322	26,192	27,521
Oxides of Nitrogen, ppm	61	61	69	64
Oxides of Nitrogen at 3% Oxygen, ppm	156	156	178	163
Oxides of Nitrogen, #/Hr	12.90	12.14	13.16	12.73
Carbon Monoxide, ppm	230	230	250	237
Carbon Monoxide, #/Hr	29.62	27.86	29.03	28.84
Sulfur Dioxide, ppm	0	0	0	0
Sulfur Dioxide, #/Hr	0.00	0.00	0.00	0.00
Oxygen, %	13.90	13.90	13.97	13.92
Carbon Dioxide, %	4.10	4.10	6.10	4.77
Particulates #/Hr	50.146	39.972	37.676	42.598
Hydrocarbons				
Methane, ppm	11.58	19.06	16.24	15.63
Methane, #/Hr	0.85	1.32	1.08	1.08
Non-Methane Hydrocarbons				
ppm	28.02	23.17	25.83	25.67
#/Hr	5.34	3.78	4.13	4.42

20.5

60.0 mmbtu

4008 ph

Location/Test	Test #1	Test #2	Test #3	Average
Cooler				
Production Rate, Tons/Hr	10	10	10	10
Volumetric Flow Rate, DSCFM	48,758	46,175	46,809	47,248
Particulates #/Hr	47.203	14.367	13.186	24.919

During the testing of the Cooler Stack, the particulate sampling train nozzle plugged during the first test. After trying various nozzle sizes, the 0.50 dimeter nozzle was used to collect the samples of all three tests. The isokinetics are far below the requirement of 90 -110%. The isokinetics problem was discussed with Jim MCCarthey, SBAPCD.

Each of the dryers has two stacks. The volumetric flow rate from the particulate tests were doubled to achieve the actual flow rate. The particulate emission rates, #/Hr, listed in the tables were doubled in the summary to reflect two stacks. Listed below are the comparisons between the stacks.

Unit/Stack	North Stack (DSCFM)	South Stack (DSCFM)	Total Flow DSCFM)
Dryer #1			
Test #1	17,019	17,674	34,693
Test #2	17,574	14,774	32,348
Test #3	17,131	15,279	32,410
Dryer #2			
Test #1	16,110	15,917	32,027
Test #2	16,724	16,297	33,021
Test #3	16,880	16,300	33,100
Dryer #3			
Test #1	14,525	12,268	26,792
Test #2	13,661	14,500	28,161
Test #3	13,096	13,327	26,423

* North Stack was tested

In the tables below, the testing results are compared with the permit limits.

Unit	Boiler #1	Boiler #2	Boiler #3	Boiler #4
NOx #/Hr Limit	64.19	78.72	78.72	65.32
Nox Results, #/Hr	41.76	36.60	32.52	47.75
CO,#/Hr Limits	4.67	3.28	3.28	4.75
CO Results, #/Hr	0	2.12	1.23	2.93
SO_2, #/Hr Limit	65.31	52.16	52.16	66.47
SO_2 Results, #/Hr	25.45	28.46	27.47	36.31
ROG, #/Hr Limit	0.62	0.26	0.26	0.63
ROG Results, #/Hr	0.01	0.10	0.10	0.10
PM, #/Hr Limit	6.54	5.25	5.25	6.65
PM, Results, #/Hr	10.001	9.560	11.539	14.898

Unit	Dryer #1	Dryer #2	Dryer #3	Cooler
NOx #/Hr Limit	80.0	80.0	65.48	
Nox Results, #/Hr	19.48	11.82	12.73	
CO,#/Hr Limits	3.33	3.33	4.76	
CO Results, #/Hr	32.75	29.63	28.84	
SO_2, #/Hr Limit	53.00	53.00	66.63	
SO_2 Results, #/Hr	0.00	0.00	0.00	
ROG, #/Hr Limit	0.27	0.27	0.63	
ROG Results, #/Hr	2.44	4.08	4.42	
PM, #/Hr Limit	40.0	40.0	40.0	40.0
PM, Results, #/Hr	62.028	32.100	42.598	24.919

2.2 Quality Assurance

During the testing program, the instruments were zeroed and spanned periodically to insure the accuracy of the test data. The sampling system was checked for leaks by plugging the probe and determining the vacuum of the system. The calibration data is located in Appendix A. Section 5 lists the quality assurance procedures.

The instruments were operated on the following ranges:

Analyzer	Boiler Testing Range	Dryer Testing Range
NOx	1,000 ppm	250 ppm
CO	1,000 ppm	1,000 ppm
O(2)	10 %	25 %
CO(2)	25 %	25 %
SO(2)	200 ppm	100 ppm

TABLE 2.1 CONTINUOUS MONITORING DATA

SITE: HOLLY SUGAR
UNIT: BOILER #1
DATE: JUNE 7, 1991

TIME	FUNCTION	NOx ppm	O(2) %	CO ppm	CO(2) %	SO(2) ppm	NOx (1) ppm	CO (1) ppm
1030	System Check	Vacuum Check						
742	Zero	0	0.06	-2	0.12	0.05		
	Mid	198.5	5.10	237	8.56	51.14		
	High	895	7	948	10	99.44		
1032	Test #1							
1134	Average 62 min	368	6.59	0	11.43	154	459.40	0
1137	Zero	0	0.04	-2	0.37	0.91		
	Mid	194.2	5.08	228	8.4	50.54		
	High	901	7.38	947	10.31	89.36		
1221	Test #2							
1301	Average 40 min	365	6.40	0	12.12	163	450.32	0
1331	Zero	0	0.04	0	0.35	0.74		
	Mid	199	5.17	225	8.62	97.83		
	High	890	7	947	10	52.63		
1432	Test #3							
1512	Average 40 min	322	6.30	0	12.00	145	394.55	0
1516	Zero	1	0.04	-1	0.35	0.96		
	Mid	199.9	5.19	225	8.4	51.06		
	High	888	7.50	947	9.99	98.26		
1542	System	Vacuum Check						

Span Gases	
NOx, ppm	197.8,896
CO, ppm	230.7,946
O(2), %	14.51,7.44
CO(2), %	10.34,5.40
SO(2), ppm	51.7,99

* NOx (1) and CO (1) - values corrected to 3% oxygen.

TABLE 2.2 PARTICULATE SAMPLING

SITE: Holly Suger Boiler #1
DATE: June 7, 1991

STACK PARAMETERS	TEST 1	TEST 2	TEST 3	AVERAGE
Barometric Pressure "Hg	29.85	29.85	29.85	29.85
Static Pressure "H20	-0.29	-0.29	-0.29	-0.29
CO2 %	6.59	6.4	6.3	6.43
O2 %	11.43	12.12	12.00	11.85
N2 %	81.98	81.48	81.7	81.72
CO ppm	154	163	145	154.00
Stack Diameter "	52.75	52.75	52.75	52.75
Stack Temperature F	345	346	354	348.33
Stack Pressure "Hg	29.83	29.83	29.83	29.83
TEST CONDITIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Sample Volume Ft3	44.201	43.593	43.057	43.62
Meter F	84	81	81	82.00
Nozzle Dia "	0.36	0.36	0.36	0.36
Time Min	60	60	60	60.00
Points	12	12	12	12.00
Pitot Tube Factor cp	0.84	0.84	0.84	0.84
Orfice Press "H2O	2.02	1.99	1.95	1.99
Condensate mls	92.5	88	62	80.83
Velocity Pressure "H2O	0.191	0.189	0.186	0.19
Meter Calibration	1.02	1.02	1.02	1.02
TEST CALCULATIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Water Vapor SDCF	4.292	4.083	2.877	3.75
Gas Sampled SDCF	43.185	42.824	42.293	42.77
Moisture %	9.04	8.70	6.37	8.04
Molecular Weight Dry	29.51	29.51	29.49	29.50
Molecular Weight Wet	28.47	28.51	28.76	28.58
Gas Velocity Ft/Sec	30.56	30.39	30.17	30.37
Flow Rate ACFM	27824	27677	27473	27658
Flow Rate DSCFM	16298	16252	16382	16311
Isokinetics %	93.4	92.9	91.0	92.46

TABLE 2.2a PARTICULATE ANALYSIS

SITE: Holly Suger Boiler #1
DATE: June 7, 1991

ANALYTICAL DATA	TEST 1	TEST 2	TEST 3	AVERAGE
FRONT HALF				
Probe mg	44.2	33.8	48.3	42.10
Filter mg	24.9	24.6	30.6	26.70
Blanks mg	0.5	0.5	0.5	0.50
Subtotal mg	68.6	57.9	78.4	68.30
BACK HALF				
Impingers Inorg mg	117.5	157.2	116.3	130.33
Impingers Org mg	0.0	0.3	0.5	0.27
Blank mg	0.5	0.5	0.5	0.50
Subtotal mg	117.0	157.0	116.3	130.10
Total Weight Gain mg	185.6	214.9	194.7	198.40
EMISSION DATA	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
FRONT HALF				
Grs/SDCF	0.0245	0.0209	0.0286	0.0247
Lbs/Hr	3.422	2.904	4.013	3.446
BACK HALF				
Grs/SDCF	0.0418	0.0566	0.0424	0.0469
Lbs/Hr	5.836	7.874	5.954	6.555
TOTAL EMISSIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Grs/SDCF	0.0663	0.0774	0.0710	0.0716
Lbs/Hrs	9.257	10.778	9.967	10.001

TABLE 2.3 O2 TRAVERSE

SITE: Holly Sugar
UNIT: Boiler #1
DATE: June 7, 1991

LOCATION POINT	TIME	NOx ppm	O(2) %	CO ppm	CO(2) %	SO(2) ppm
NORTH						
1	1034	300.0	6.10	0	10.90	138
2	1039	300.0	6.10	0	11.75	142
3	1044	300.0	6.20	0	11.75	140
4	1049	300.0	6.20	0	10.75	136
5	1054	300.0	6.25	0	10.75	135
6	1059	300.0	6.20	0	11.50	140
WEST						
1	1101	300.0	6.20	0	11.75	141
2	1106	300.0	6.15	0	11.75	141
3	1112	305.0	6.20	0	11.75	145
4	1119	315.0	6.15	0	11.75	142
5	1126	320.0	6.25	0	11.75	144
6	1132	320.0	6.20	0	11.75	144
AVERAGE		305.0	6.2	0.0	11.5	140.7

Span Gases	
NOx, ppm	197.6,896
CO, ppm	230.7,946
O(2), %	14.51,7.44
CO(2), %	10.34,8.40
SO(2), ppm	51.7,99

TABLE 2.4 CONTINUOUS MONITORING DATA

SITE: HOLLY SUGAR
UNIT: BOILER #2
DATE: JUNE 8, 1991

TIME	FUNCTION	NOx ppm	O(2) %	CO ppm	CO(2) %	SO(2) ppm	NOx (1) ppm	CO (1) ppm
845	System Check	Vacuum Check						
848	Zero	0	0.05	3	0.24	0.7		
	Mid	200.6	3.10	236	10.30	53.33		
	High	894	5	948	12	99.13		
1017	Test #1							
1120	Average 63 min	233	9.25	22	9.80	131	356.74	34
1122	Zero	0	0.04	−1	0.37	0		
	Mid	193.6	3.02	227	10.11	51.42		
	High	897	5.04	943	12.09	98.36		
1249	Test #2							
1329	Average 40 min	282	7.20	21	11.47	158	368.03	27
1331	Zero	1	0.04	−2	0.38	−0.04		
	Mid	206	3.06	227	10.55	52.99		
	High	886.8	5	947	12	98.88		
1431	Test #3							
1511	Average 40 min	283	7.10	33	11.50	157	366.80	43
1512	Zero	0	0.04	−1	0.38	0.46		
	Mid	194.4	3.05	225	10.67	50.41		
	High	896	5.05	947	11.83	98.69		
1530	System	Vacuum Check						

Span Gases	
NOx, ppm	197.6,896
CO, ppm	230.7,946
O(2), %	3.05,5.11
CO(2), %	10.34,11.67
SO(2), ppm	99,51.7

* NOx (1) and CO (1) – values corrected to 3% oxygen.

TABLE 2.5 PARTICULATE SAMPLING

SITE: Holly Suger Boiler #2
DATE: June 8, 1991

STACK PARAMETERS	TEST 1	TEST 2	TEST 3	AVERAGE
Barometric Pressure "Hg	29.85	29.85	29.85	29.85
Static Pressure "H20	-0.24	-0.24	-0.24	-0.24
CO2 %	9.8	11.47	11.5	10.92
O2 %	9.25	7.20	7.10	7.85
N2 %	80.95	81.33	81.4	81.23
CO ppm	22	21	33	25.33
Stack Diameter "	59.75	59.75	59.75	59.75
Stack Temperature F	322	320	322	321.33
Stack Pressure "Hg	29.83	29.83	29.83	29.83
TEST CONDITIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Sample Volume Ft3	40.178	40.302	40.199	40.23
Meter F	77	87	88	84.00
Nozzle Dia "	0.36	0.36	0.36	0.36
Time Min	60	60	60	60.00
Points	12	12	12	12.00
Pitot Tube Factor cp	0.84	0.84	0.84	0.84
Orfice Press "H2O	1.67	1.67	1.67	1.67
Condensate mls	78	72	75	75.00
Velocity Pressure "H2O	0.154	0.151	0.15	0.15
Meter Calibration	1.02	1.02	1.02	1.02
TEST CALCULATIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Water Vapor SDCF	3.619	3.341	3.480	3.48
Gas Sampled SDCF	39.753	39.146	38.975	39.29
Moisture %	8.34	7.86	8.20	8.13
Molecular Weight Dry	29.94	30.12	30.12	30.06
Molecular Weight Wet	28.94	29.17	29.13	29.08
Gas Velocity Ft/Sec	26.82	26.42	26.38	26.54
Flow Rate ACFM	31333	30866	30824	31008
Flow Rate DSCFM	19041	18904	18761	18902
Isokinetics %	94.5	93.7	94.0	94.04

TABLE 2.5a PARTICULATE ANALYSIS

SITE: Holly Suger Boiler #2
DATE: June 8, 1991

ANALYTICAL DATA	TEST 1	TEST 2	TEST 3	AVERAGE
FRONT HALF				
Probe mg	32.1	32.9	32.7	32.57
Filter mg	18.6	19.5	26.9	21.67
Blanks mg	0.5	0.5	0.5	0.50
Subtotal mg	50.2	51.9	59.1	53.73
BACK HALF				
Impingers Inorg mg	53.5	154.8	81.5	96.60
Impingers Org mg	0.4	0.4	0.4	0.40
Blank mg	0.5	0.5	0.5	0.50
Subtotal mg	53.4	154.7	81.4	96.50
Total Weight Gain mg	103.6	206.6	140.5	150.23
EMISSION DATA	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
FRONT HALF				
Grs/SDCF	0.0195	0.0205	0.0234	0.0211
Lbs/Hr	3.178	3.312	3.760	3.417
BACK HALF				
Grs/SDCF	0.0207	0.0610	0.0322	0.0380
Lbs/Hr	3.380	9.873	5.178	6.144
TOTAL EMISSIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Grs/SDCF	0.0402	0.0814	0.0556	0.0591
Lbs/Hrs	6.558	13.185	8.938	9.560

TABLE 2.6 O2 TRAVERSE

SITE: Holly Sugar
UNIT: Boiler #2
DATE: June 8, 1991

LOCATION POINT	TIME	NOx ppm	O(2) %	CO ppm	CO(2) %	SO(2) ppm
NORTH						
1	1019	260.0	8.10	5	8.75	142
2	1023	230.0	8.90	5	9.00	138
3	1027	234.0	9.10	5	8.90	134
4	1031	240.0	8.50	25	10.25	130
5	1036	240.0	8.50	25	10.25	144
6	1043	240.0	8.40	18	10.25	144
WEST						
1	1046	230.0	9.10	15	8.25	134
2	1051	230.0	9.00	20	9.00	134
3	1056	225.0	9.00	19	8.50	132
4	1102	230.0	8.75	10	8.40	132
5	1109	230.0	9.00	18	9.00	132
6	1118	230.0	8.90	20	9.00	134
AVERAGE		234.9	8.8	15.4	9.1	135.8
Span Gases						
NOx, ppm		197.6,896				
CO, ppm		200.7,946				
O(2), %		14.51,7.44				
CO(2), %		10.34,8.40				
SO(2), ppm		51.7,99				

TABLE 2.7 HYDROCARBON TEST DATA

SITE: Boiler #2
DATE: June 8, 1991 DATE ANALYZED: June 9, 1991

Standards	RT	Area	ppm
C1	0.7	22874	21.5
C2	1.16	58757	21.4
C3	2.04	186001	21.4
C4	4.45	122813	21.6
C5	10.47	141961	20.9
C6	15.5	6566	21.0

Test #1	Area	Concentration	Test #2	Area	Concentration
C1	15148	14.24	C1	13362	12.56
C2	0	0.00	C2	0	0.00
C3	13015	1.50	C3	0	0.00
C4	0	0.00	C4	0	0.00
C5	0	0.00	C5	0	0.00
C6	0	0.00	C6	0	0.00
Test #3	Area	Concentration	Average		Concentration
C1	13362	12.56	C1		13.12
C2	0	0.00	C2		0.00
C3	0	0.00	C3		0.50
C4	0	0.00	C4		0.00
C5	0	0.00	C5		0.00
C6	0	0.00	C6		0.00

TABLE 2.8 CONTINUOUS MONITORING DATA

SITE: HOLLY SUGAR
UNIT: BOILER #3
DATE: JUNE 5, 1991

TIME	FUNCTION	NOx ppm	O(2) %	CO ppm	CO(2) %	SO(2) ppm	NOx (1) ppm	CO (1) ppm
700	System Check	Vacuum Check						
708–	Zero	0	0.02	0	0.01	–0.06		
1018	Mid	199.8	5.15	233	8.30	51.03		
	High	896	7	948	10	99.88		
1023	Test #1							
1132	Average 69 min	210	8.50	13	11.00	125	302.80	19
1134	Zero	0	0.03	2	0.01	0.31		
	Mid	203.2	5.15	227	8.57	51.2		
	High	891	7.46	947	10.09	97.94		
1227	Test #2							
1328	Average 61 min	217	8.49	15	10.32	122.56	312.64	22
1334	Zero	0	0.03	1	0.00	0.33		
	Mid	196	5.07	236	8.53	51.05		
	High	869.1	7	947	10	93.95		
1430	Test #3							
1513	Average 43 min	213	8.66	12	10.38	140.08	311.56	18
1527	Zero	0	0.03	1	0.02	2.87		
	Mid	197.6	5.19	236	8.67	55.78		
	High	881	7.45	947	10.42	99.14		
1530	System	Vacuum Check						
Span Gases								
NOx, ppm		197.6,896						
CO, ppm		235.5,946						
O(2), %		7.44,5.11						
CO(2), %		10.34,8.40						
SO(2), ppm		99,51.7						

* NOx (1) and CO (1) – values corrected to 3% oxygen.

** NOTE: O(2) instrument was set on high, therefore, the actual reading is 8.50 and not 3.50, as it is documented on the strip chart.

TABLE 2.8a HYDROCARBON TEST DATA

SITE: Boiler #3
DATE: June 5, 1991 DATE ANALYZED: June 8, 1991

Standards	RT	Area	ppm
C1	0.7	21411	21.5
C2	1.12	46223	21.4
C3	2.04	78089	21.4
C4	4.47	104033	21.6
C5	10.49	477971	20.9
C6	15.3	6508	21.0

Test #1	Area	Concentration	Test #2	Area	Concentration
C1	3423	3.44	C1	3484	3.50
C2	0	0.00	C2	0	0.00
C3	0	0.00	C3	0	0.00
C4	0	0.00	C4	0	0.00
C5	0	0.00	C5	0	0.00
C6	0	0.00	C6	0	0.00
Test #3	Area	Concentration	Average		Concentration
C1	3992	4.01	C1		3.65
C2	0	0.00	C2		0.00
C3	0	0.00	C3		0.00
C4	0	0.00	C4		0.00
C5	0	0.00	C5		0.00
C6	0	0.00	C6		0.00

TABLE 2.9 PARTICULATE SAMPLING

SITE: Holly Suger Boiler #3
DATE: June 3,1991

STACK PARAMETERS	TEST 1	TEST 2	TEST 3	AVERAGE
Barometric Pressure "Hg	28.95	28.95	28.95	28.95
Static Pressure "H20	-0.14	-0.14	-0.14	-0.14
CO2 %	11.00	10.32	10.38	10.57
O2 %	8.50	8.49	8.66	8.55
N2 %	80.5	81.19	80.96	80.88
CO ppm	13	15	12	13.33
Stack Diameter "	61.25	61.25	61.25	61.25
Stack Temperature F	192	303	305	266.67
Stack Pressure "Hg	28.94	28.94	28.94	28.94
TEST CONDITIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Sample Volume Ft3	43.121	40.071	45.294	42.83
Meter F	70	78	82	76.67
Nozzle Dia "	0.36	0.36	0.36	0.36
Time Min	60	60	60	60.00
Points	12	12	12	12.00
Pitot Tube Factor cp	0.84	0.84	0.84	0.84
Orfice Press "H2O	1.91	1.65	2.04	1.87
Condensate mls	82	63	67	70.67
Velocity Pressure "H2O	0.149	0.147	0.182	0.16
Meter Calibration	1.02	1.02	1.02	1.02
TEST CALCULATIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Water Vapor SDCF	3.805	2.923	3.109	3.28
Gas Sampled SDCF	41.958	38.385	43.111	41.15
Moisture %	8.31	7.08	6.73	7.37
Molecular Weight Dry	30.10	29.99	30.01	30.03
Molecular Weight Wet	29.09	29.14	29.20	29.15
Gas Velocity Ft/Sec	24.39	26.19	29.15	26.58
Flow Rate ACFM	29947	32151	35786	32628
Flow Rate DSCFM	21181	19694	21946	20940
Isokinetics %	94.2	92.7	93.4	93.41

TABLE 2.9a PARTICULATE ANALYSIS

SITE: Holly Suger Boiler #3
DATE: June 3,1991

ANALYTICAL DATA	TEST 1	TEST 2	TEST 3	AVERAGE
FRONT HALF				
Probe mg	29.0	24.9	35.1	29.67
Filter mg	27.1	18.4	24.0	23.17
Blanks mg	0.5	0.5	0.5	0.50
Subtotal mg	55.6	42.8	58.6	52.33
BACK HALF				
Impingers Inorg mg	53.6	130.1	164.3	116.00
Impingers Org mg	2.7	3.2	4.7	3.53
Blank mg	0.5	0.5	0.5	0.50
Subtotal mg	55.8	132.8	168.5	119.03
Total Weight Gain mg	111.4	175.6	227.1	171.37
EMISSION DATA	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
FRONT HALF				
Grs/SDCF	0.0204	0.0172	0.0210	0.0195
Lbs/Hr	3.709	2.902	3.942	3.518
BACK HALF				
Grs/SDCF	0.0205	0.0534	0.0603	0.0447
Lbs/Hr	3.723	9.005	11.336	8.021
TOTAL EMISSIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Grs/SDCF	0.0410	0.0706	0.0813	0.0643
Lbs/Hrs	7.432	11.907	15.278	11.539

TABLE 2.10 O2 TRAVERSE

SITE: Holly Sugar
UNIT: Boiler #3
DATE: June 5, 1991

LOCATION POINT	TIME	NOx ppm	O(2) %	CO ppm	CO(2) %	SO(2) ppm
NORTH						
1	1025	229.0	8.00	41	11.78	160
2	1030	225.0	8.10	30	11.55	155
3	1037	219.0	8.48	10	11.00	150
4	1043	220.0	8.50	10	11.15	150
5	1049	212.0	8.50	10	11.20	150
6	1055	211.0	8.50	10	11.25	150
WEST						
1	1105	212.0	8.60	10	11.50	150
2	1110	211.0	8.70	5	10.00	142
3	1115	210.0	8.50	10	10.50	147
4	1120	210.0	8.60	10	9.80	144
5	1125	208.0	8.50	10	10.25	144
6	1130	205.0	8.50	10	10.30	144
AVERAGE		214.3	8.5	13.8	10.9	148.8
Span Gases						
NOx, ppm		197.5,896				
CO, ppm		230.7,948				
O(2), %		14.51,7.44				
CO(2), %		10.34,8.40				
SO(2), ppm		51.7,99				

TABLE 2.11 CONTINUOUS MONITORING DATA

SITE: HOLLY SUGAR
UNIT: BOILER #4
DATE: JUNE 6, 1991

TIME	FUNCTION	NOx ppm	O(2) %	CO ppm	CO(2) %	SO(2) ppm	NOx (1) ppm	CO (1) ppm
1117	System Check	Vacuum Check						
1120	Zero	0	0.03	0	0.37	0.87		
	Mid	195.1	5.12	226	8.72	50.33		
	High	895	7	947	11	100.41		
1322	Test #1							
1421	Average 59 min	268	7.40	45	11.50	151	354.92	60
1428	Zero	0	0.03	-2	0.37	0.32		
	Mid	195.1	5.1	224	8.75	51.94		
	High	865	7.41	947	10.37	98.13		
1517	Test #2							
1623	Average 66 min	260	7.30	18	10.80	140	341.93	24
1631	Zero	1	0.03	-2	0.35	0.45		
	Mid	197	5.16	214	9.04	50.63		
	High	894	7	947	10	98.42		
1817	Test #3							
1857	Average 40 min	278	7.40	20	10.70	150	368.30	26
2002	Zero	0	0.05	-3	0.35	0		
	Mid	205	5.17	229	8.46	51		
	High	900	7.48	948	10.08	91.05		
2004	System	Vacuum Check						
Span Gases								
NOx, ppm		[illegible],197.6						
CO, ppm		230.7,946						
O(2), %		7.44,5.11						
CO(2), %		10.54,8.40						
SO(2), ppm		99,51.7						

* NOx (1) and CO (1) – values corrected to 3% oxygen.

TABLE 2.11a HYDROCARBON TEST DATA

SITE: Boiler #4
DATE: June 6, 1991 DATE ANALYZED: June 8, 1991

Standards	RT	Area	ppm
C1	0.7	21411	21.5
C2	1.12	46223	21.4
C3	2.04	78089	21.4
C4	4.47	104033	21.6
C5	10.49	477971	20.9
C6	15.3	6508	21.0

Test #1	Area	Concentration	Test #2	Area	Concentration
C1	4104	4.12	C1	1874	1.88
C2	0	0.00	C2	0	0.00
C3	0	0.00	C3	0	0.00
C4	0	0.00	C4	0	0.00
C5	0	0.00	C5	0	0.00
C6	0	0.00	C6	0	0.00

Test #3	Area	Concentration	Average		Concentration
C1	3083	3.10	C1		3.03
C2	0	0.00	C2		0.00
C3	0	0.00	C3		0.00
C4	0	0.00	C4		0.00
C5	0	0.00	C5		0.00
C6	0	0.00	C6		0.00

TABLE 2.12 PARTICULATE SAMPLING

SITE: Holly Suger Boiler #4
DATE: June 6, 1991

STACK PARAMETERS	TEST 1	TEST 2	TEST 3	AVERAGE
Barometric Pressure "Hg	29.85	29.85	29.85	29.85
Static Pressure "H20	-0.18	-0.18	-0.18	-0.18
CO2 %	11.50	10.80	10.70	11.00
O2 %	7.40	7.30	7.40	7.37
N2 %	81.1	81.9	81.9	81.63
CO ppm	45	18	20	27.67
Stack Diameter "	53.75	53.75	53.75	53.75
Stack Temperature F	293	299	291	294.33
Stack Pressure "Hg	29.84	29.84	29.84	29.84
TEST CONDITIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Sample Volume Ft3	32.498	35.156	33.912	33.86
Meter F	77	79	72	76.00
Nozzle Dia "	0.26	0.26	0.26	0.26
Time Min	60	60	60	60.00
Points	12	12	12	12.00
Pitot Tube Factor cp	0.84	0.84	0.84	0.84
Orfice Press "H2O	1	1.22	1.11	1.11
Condensate mls	61	52	35	49.33
Velocity Pressure "H2O	0.326	0.397	0.363	0.36
Meter Calibration	1.02	1.02	1.02	1.02
TEST CALCULATIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Water Vapor SDCF	2.830	2.413	1.624	2.29
Gas Sampled SDCF	32.103	34.618	33.824	33.52
Moisture %	8.10	6.52	4.58	6.40
Molecular Weight Dry	30.14	30.02	30.01	30.05
Molecular Weight Wet	29.15	29.24	29.46	29.28
Gas Velocity Ft/Sec	38.15	42.21	39.99	40.12
Flow Rate ACFM	36068	39903	37812	37928
Flow Rate DSCFM	22826	25486	24912	24408
Isokinetics %	98.7	95.3	95.3	96.45

TABLE 2.12a PARTICULATE ANALYSIS

SITE: Holly Suger Boiler #4
DATE: June 6,1991

ANALYTICAL DATA	TEST 1	TEST 2	TEST 3	AVERAGE
FRONT HALF				
Probe mg	31.4	49.4	43.3	41.37
Filter mg	20.9	16.9	16.4	18.07
Blanks mg	0.5	0.5	0.5	0.50
Subtotal mg	51.8	65.8	59.2	58.93
BACK HALF				
Impingers Inorg mg	114.3	77.1	95.1	95.50
Impingers Org mg	1.4	0.9	0.9	1.07
Blank mg	0.5	0.5	0.5	0.50
Subtotal mg	115.2	77.5	95.5	96.07
Total Weight Gain mg	167.0	143.3	154.7	155.00

EMISSION DATA	TEST 1	TEST 2	TEST 3	AVERAGE
FRONT HALF				
Grs/SDCF	0.0249	0.0293	0.0270	0.0271
Lbs/Hr	4.867	6.402	5.762	5.677
BACK HALF				
Grs/SDCF	0.0554	0.0345	0.0436	0.0445
Lbs/Hr	10.825	7.540	9.296	9.220

TOTAL EMISSIONS	TEST 1	TEST 2	TEST 3	AVERAGE
Grs/SDCF	0.0803	0.0639	0.0706	0.0716
Lbs/Hrs	15.693	13.942	15.058	14.898

TABLE 2.13 O2 TRAVERSE

SITE: Holly Sugar
UNIT: Boiler #4
DATE: June 6, 1991

LOCATION POINT	TIME	NOx ppm	O(2) %	CO ppm	CO(2) %	SO(2) ppm
NORTH						
1	1324	270.0	7.50	27	11.20	150
2	1329	270.0	7.20	35	11.25	150
3	1334	270.0	7.60	20	10.90	150
4	1339	265.0	7.70	32	11.00	147
5	1344	260.0	7.60	40	10.00	140
6	1348	255.0	7.70	45	9.50	132
WEST						
1	1351	261.0	7.60	75	11.70	148
2	1356	260.0	7.70	65	11.25	150
3	1401	260.0	7.25	70	11.25	149
4	1407	260.0	7.45	30	11.20	152
5	1413	260.0	7.20	25	11.25	154
6	1420	260.0	7.35	18	11.25	155
AVERAGE		262.6	7.5	40.2	11.0	148.1

Span Gases	
NOx, ppm	197.6,896
CO, ppm	230.7,946
O(2), %	14.51,7.44
CO(2), %	10.34,8.40
SO(2), ppm	51.7,99

TABLE 2.14 CONTINUOUS MONITORING DATA

SITE: HOLLY SUGAR
UNIT: DRYER #1
DATE: JUNE 13, 1991

TIME	FUNCTION	NOx ppm	O(2) %	CO ppm	CO(2) %	SO(2) ppm	NOx (1) ppm	CO (1) ppm
825	System Check	Vacuum Check						
828	Zero	0	0.04	1	0.36	0		
	Mid	94.7	5.20	233	4.36	19		
	High	222	15	495	10	51.1		
1021	Test #1							
1119	Average 58 min	88	14.00	360	4.90	0	227.36	930
1124	Zero	1	0.03	1	0.39	0.6		
	Mid	93.4	5.21	226.8	4.59	19.3		
	High	220	14.62	496	10.32	50.9		
1348	Test #2							
1428	Average 40 min	70	15.77	126	4.50	0	241.66	436
1433	Zero	-1	0.06	-1	0.41	0.5		
	Mid	93	5.12	228	4.66	20.1		
	High	219.2	14	496.3	10	51.2		
1521	Test #3							
1627	Average 66 min	75	15.30	160	4.80	0	238.07	509
1642	Zero	-2	0.04	-2	0.40	0.1		
	Mid	93.6	5.09	231.4	5.14	18.9		
	High	219	14.32	501	10.10	50.2		
1718	System	Vacuum Check						

Span Gases	
NOx, ppm	220.7,94.3
CO, ppm	230.7,500
O(2), %	14.51,5.11
CO(2), %	10.34,4.40
SO(2), ppm	19.54,51.7

* NOx (1) and CO (1) – values corrected to 3% oxygen.

TABLE 2.14a HYDROCARBON TEST DATA

SITE: Dryer #3
DATE: June 11, 1991 DATE ANALYZED: June 13, 1991

Standards	RT	Area	ppm
C1	0.8	31963	21.5
C2	1.277	51659	21.4
C3	2.32	79668	21.4
C4	5.08	106031	21.6
C5	11.93	122802	20.9
C6	15.8	6789	21.0

Test #1	Area	Concentration	Test #2	Area	Concentration
C1	26978	18.15	C1	11877	7.99
C2	28395	11.76	C2	29504	12.22
C3	9399	2.52	C3	3613	0.97
C4	0	0.00	C4	0	0.00
C5	0	0.00	C5	0	0.00
C6	0	0.00	C6	0	0.00
Test #3	**Area**	**Concentration**	**Average**		**Concentration**
C1	7949	5.35	C1		10.49
C2	25294	10.48	C2		11.49
C3	12838	3.45	C3		2.31
C4	0	0.00	C4		0.00
C5	0	0.00	C5		0.00
C6	0	0.00	C6		0.00

TABLE 2.15 PARTICULATE SAMPLING

SITE: Holly Sugar Dryer #1
DATE: June 13, 1991

STACK PARAMETERS	TEST 1	TEST 2	TEST 3	AVERAGE
Barometric Pressure "Hg	29.95	29.95	29.95	29.95
Static Pressure "H20	-0.70	-0.70	-0.70	-0.70
CO2 %	4.90	4.50	4.80	4.73
O2 %	14.00	15.77	15.30	15.02
N2 %	81.1	79.73	79.9	80.24
CO ppm	360	126	160	215.33
Stack Diameter "	39.5	39.5	39.5	39.50
Stack Temperature F	242	219	218	226.33
Stack Pressure "Hg	29.90	29.90	29.90	29.90
TEST CONDITIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Sample Volume Ft3	40.899	40.595	38.904	40.13
Meter F	72	81	74	75.67
Nozzle Dia "	0.245	0.245	0.245	0.25
Time Min	60	60	60	60.00
Points	24	24	24	24.00
Pitot Tube Factor cp	0.84	0.84	0.84	0.84
Orfice Press "H2O	1.74	1.69	1.57	1.67
Condensate mls	483	388	368	413.00
Velocity Pressure "H2O	1.015	0.938	0.88	0.94
Meter Calibration	1.02	1.02	1.02	1.02
TEST CALCULATIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Water Vapor SDCF	22.411	18.003	17.075	19.16
Gas Sampled SDCF	40.992	40.006	38.830	39.94
Moisture %	35.35	31.04	30.54	32.31
Molecular Weight Dry	29.34	29.35	29.38	29.36
Molecular Weight Wet	25.33	25.83	25.90	25.69
Gas Velocity Ft/Sec	69.65	65.22	63.03	65.97
Flow Rate ACFM	35562	33299	32182	33681
Flow Rate DSCFM	17019	17574	17131	17242
Isokinetics %	102.8	97.2	96.8	98.92

TABLE 2.15a PARTICULATE ANALYSIS

SITE: Holly Sugar Dryer #1
DATE: June 13, 1991

ANALYTICAL DATA	TEST 1	TEST 2	TEST 3	AVERAGE
FRONT HALF				
Probe mg	343.3	541.8	258.0	381.03
Filter mg	72.4	47.2	54.7	58.10
Blanks mg	0.5	0.5	0.5	0.50
Subtotal mg	415.2	588.5	312.2	438.63
BACK HALF				
Impingers Inorg mg	137.9	56.8	32.1	75.60
Impingers Org mg	94.1	1.3	0.0	31.80
Blank mg	0.5	0.5	0.5	0.50
Subtotal mg	231.5	57.6	31.6	106.90
Total Weight Gain mg	646.7	646.1	343.8	545.53
EMISSION DATA	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
FRONT HALF				
Grs/SDCF	0.1563	0.2270	0.1241	0.1691
Lbs/Hr	22.782	34.167	18.203	25.051
BACK HALF				
Grs/SDCF	0.0871	0.0222	0.0126	0.0406
Lbs/Hr	12.702	3.344	1.842	5.963
TOTAL EMISSIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Grs/SDCF	0.2434	0.2492	0.1366	0.2097
Lbs/Hrs	35.484	37.511	20.046	31.014

TABLE 2.16 O2 TRAVERSE

SITE: Holly Sugar
UNIT: Dryer #1
DATE: June 13, 1991

LOCATION POINT	TIME	NOx ppm	O(2) %	CO ppm	CO(2) %	SO(2) ppm
SE PORT						
1	1522	70.0	15.25	160	4.50	0
2	1527	70.0	15.00	180	5.10	0
3	1532	70.0	15.75	150	4.65	0
4	1538	72.5	15.25	150	4.80	0
5	1545	73.0	15.75	120	4.50	0
6	1553	72.5	15.50	140	4.70	0
SW PORT						
1	1556	72.5	14.75	150	5.30	0
2	1601	75.0	15.25	150	4.50	0
3	1606	70.0	14.80	200	5.10	0
4	1611	72.5	15.00	180	5.00	0
5	1617	71.0	15.25	160	4.95	0
6	1625	69.5	15.50	150	4.65	0
AVERAGE		71.5	15.3	157.5	4.8	0.0

Span Gases	
NOx, ppm	197.6,896
CO, ppm	230.7,946
O(2), %	14.51,7.44
CO(2), %	10.34,8.40
SO(2), ppm	51.7,99

TABLE 2.17 CONTINUOUS MONITORING DATA

SITE: HOLLY SUGAR
UNIT: DRYER #2
DATE: JUNE 12, 1991

TIME	FUNCTION	NOx ppm	O(2) %	CO ppm	CO(2) %	SO(2) ppm	NOx (1) ppm	CO (1) ppm
820	System Check	Vacuum Check						
825	Zero	0	0.06	1	0.40	-0.1		
	Mid	94.4	5.14	229	5.21	19.2		
	High	198	14	948	10	50.9		
1019	Test #1							
1120	Average 61 min	50	16.03	200	4.20	0	182.53	730
1122	Zero	1	0.05	-1	0.38	0.1		
	Mid	93.8	5.06	223.7	4.68	20.3		
	High	194	14.16	947	10.32	51.4		
1214	Test #2							
1312	Average 58 min	46	16.81	205	2.31	0	197.42	889
1315	Zero	1	0.06	-2	0.39	0.1		
	Mid	96	5.07	225	4.54	19.5		
	High	219.9	14	510.3	11	52.7		
1604	Test #3							
1650	Average 46 min	51	15.79	200	4.63	0	175.77	696
1655	Zero	2	0.06	-1	0.40	0.1		
	Mid	94.4	5.14	223.7	4.41	19.2		
	High	219	14.36	500	9.65	51.2		
1716	System	Vacuum Check						

Span Gases	
NOx, ppm	220.7,94.3,197.6
CO, ppm	230.7,500,946
O(2), %	14.51,5.11
CO(2), %	10.34,4.40
SO(2), ppm	51.7,19.54

* NOx (1) and CO (1) – values corrected to 3% oxygen.

TABLE 2.17a HYDROCARBON TEST DATA

SITE: Dryer #2
DATE: June 12, 1991 DATE ANALYZED: June 13, 1991

Standards	RT	Area	ppm
C1	0.695	8573	21.5
C2	1.11	33018	21.4
C3	2.04	57788	21.4
C4	4.45	68045	21.6
C5	10.47	80451	20.9
C6	14.97	6578	21.0

Test #1	Area	Concentration	Test #2	Area	Concentration
C1	12107	30.36	C1	3878	9.73
C2	6096	3.95	C2	12913	8.37
C3	16566	6.13	C3	21096	7.81
C4	8802	2.79	C4	15591	4.95
C5	0	0.00	C5	0	0.00
C6	0	0.00	C6	0	0.00
Test #3	**Area**	**Concentration**	**Average**		**Concentration**
C1	2581	6.47	C1		15.52
C2	9476	6.14	C2		6.15
C3	27316	10.12	C3		8.02
C4	14288	4.54	C4		4.09
C5	0	0.00	C5		0.00
C6	0	0.00	C6		0.00

TABLE 2.18 PARTICULATE SAMPLING

SITE: Holly Sugar Dryer #2
DATE: June 12, 1991

STACK PARAMETERS	TEST 1	TEST 2	TEST 3	AVERAGE
Barometric Pressure "Hg	29.95	29.95	29.95	29.95
Static Pressure "H20	-0.65	-0.65	-0.65	-0.65
CO2 %	4.20	2.31	4.63	3.71
O2 %	16.03	16.81	15.79	16.21
N2 %	79.77	80.88	79.58	80.08
CO ppm	200	205	200	201.67
Stack Diameter "	39.5	39.5	39.5	39.50
Stack Temperature F	245	246	245	245.33
Stack Pressure "Hg	29.90	29.90	29.90	29.90
TEST CONDITIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Sample Volume Ft3	36.765	36.051	36.476	36.43
Meter F	71	73	74	72.67
Nozzle Dia "	0.245	0.245	0.245	0.25
Time Min	60	60	60	60.00
Points	24	24	24	24.00
Pitot Tube Factor cp	0.84	0.84	0.84	0.84
Orfice Press "H2O	1.42	1.36	1.44	1.41
Condensate mls	312	288	289	296.33
Velocity Pressure "H2O	0.773	0.806	0.825	0.80
Meter Calibration	1.02	1.02	1.02	1.02
TEST CALCULATIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Water Vapor SDCF	14.864	13.720	13.768	14.12
Gas Sampled SDCF	36.889	36.032	36.395	36.44
Moisture %	28.72	27.58	27.45	27.91
Molecular Weight Dry	29.31	29.04	29.37	29.24
Molecular Weight Wet	26.06	26.00	26.25	26.10
Gas Velocity Ft/Sec	60.05	61.44	61.81	61.10
Flow Rate ACFM	30661	31371	31562	31198
Flow Rate DSCFM	16110	16724	16880	16571
Isokinetics %	97.8	92.0	92.0	93.93

TABLE 2.18a PARTICULATE ANALYSIS

SITE: Holly Sugar Dryer #2
DATE: June 12, 1991

ANALYTICAL DATA	TEST 1	TEST 2	TEST 3	AVERAGE
FRONT HALF				
Probe mg	162.6	193.1	153.8	169.83
Filter mg	55.3	43.4	9.9	36.20
Blanks mg	0.5	0.5	0.5	0.50
Subtotal mg	217.4	236.0	163.2	205.53
BACK HALF				
Impingers Inorg mg	91.2	65.1	27.4	61.23
Impingers Org mg	2.0	1.0	1.6	1.53
Blank mg	0.5	0.5	0.5	0.50
Subtotal mg	92.7	65.6	28.5	62.27
Total Weight Gain mg	310.1	301.6	191.7	267.80
EMISSION DATA	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
FRONT HALF				
Grs/SDCF	0.0909	0.1011	0.0692	0.0871
Lbs/Hr	12.548	14.476	10.003	12.342
BACK HALF				
Grs/SDCF	0.0388	0.0281	0.0121	0.0263
Lbs/Hr	5.350	4.024	1.747	3.707
TOTAL EMISSIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Grs/SDCF	0.1297	0.1292	0.0813	0.1134
Lbs/Hrs	17.898	18.500	11.750	16.050

TABLE 2.19 O2 TRAVERSE

SITE: Holly Sugar
UNIT: Dryer #2
DATE: June 12, 1991

LOCATION POINT	TIME	NOx ppm	O(2) %	CO ppm	CO(2) %	SO(2) ppm
SW PORT						
1	1020	60.0	15.00	190	4.35	0
2	1023	50.5	14.00	290	4.50	0
3	1025	50.7	14.20	270	4.80	0
4	1027	50.7	14.20	270	4.65	0
5	1030	60.0	14.10	280	4.95	0
6	1033	50.5	14.50	260	4.80	0
SE PORT						
1	1036	45.0	15.00	250	4.00	0
2	1045	50.0	15.00	140	4.00	0
3	1054	34.0	15.25	200	3.80	0
4	1103	50.0	15.10	120	3.80	0
5	1110	47.0	15.50	200	3.00	0
6	1119	35.0	15.75	250	3.20	0
AVERAGE		48.6	14.8	226.7	4.2	0.0

Span Gases	
NOx, ppm	197.6,896
CO, ppm	230.7,946
O(2), %	14.51,7.44
CO(2), %	10.34,8.40
SO(2), ppm	51.7,99

TABLE 2.20 CONTINUOUS MONITORING DATA

SITE: HOLLY SUGAR
UNIT: DRYER #3
DATE: JUNE 11, 1991

TIME	FUNCTION	NOx ppm	O(2) %	CO ppm	CO(2) %	SO(2) ppm	NOx (1) ppm	CO (1) ppm
750	System Check	Vacuum Check						
755	Zero	0.00	0.06	0	0.52	0.4		
	Mid	96.20	5.11	227	4.68	20.6		
	High	197	14.37	940	11	51.4		
1052	Test #1							
1158	Average 66 min	61	13.90	230	4.10	0	155.62	586
1202	Zero	-3	0.09	-2	0.42	0		
	Mid	95.8	5.07	224.6	4.88	52.4		
	High	197	14.21	947	10.80	98.5		
1308	Test #2							
1404	Average 56 min	61	13.90	230	4.10	0	155.62	586
1406	Zero	-3	0.04	0	0.42	-0.4		
	Mid	96	5.11	229	4.92	51.2		
	High	199.9	14	947.1	11	93.7		
1544	Test #3							
1655	Average 71 min	69	13.97	250	6.10	0	177.50	643
1657	Zero	-2	0.09	-1	0.45	-0.2		
	Mid	92.3	5.05	227.6	5.5	51.4		
	High	197	14.17	947	10.15	96		
1725	System	Vacuum Check						

Span Gases	
NOx, ppm	94.3,197.6
CO, ppm	230.7,946
O(2), %	14.51,5.11
CO(2), %	10.34,4.40
SO(2), ppm	51.7,99

* NOx (1) and CO (1) – values corrected to 3% oxygen.

TABLE 2.20a HYDROCARBON TEST DATA

SITE: Dryer #3
DATE: June 11, 1991 DATE ANALYZED: June 13, 1991

Standards	RT	Area	ppm
C1	0.695	8573	21.5
C2	1.11	33018	21.4
C3	2.04	57788	21.4
C4	4.45	68045	21.6
C5	10.47	80451	20.9
C6	14.97	6578	21.0

Test #1	Area	Concentration	Test #2	Area	Concentration
C1	4618	11.58	C1	7599	19.06
C2	21866	14.17	C2	22772	14.76
C3	13135	4.86	C3	11236	4.16
C4	28332	8.99	C4	13400	4.25
C5	0	0.00	C5	0	0.00
C6	0	0.00	C6	0	0.00
Test #3	Area	Concentration	Average		Concentration
C1	6474	16.24	C1		15.62
C2	22739	14.74	C2		14.56
C3	16886	6.25	C3		5.09
C4	15257	4.84	C4		6.03
C5	0	0.00	C5		0.00
C6	0	0.00	C6		0.00

TABLE 2.21 PARTICULATE SAMPLING

SITE: Holly Sugar Dryer #3
DATE: June 11, 1991

STACK PARAMETERS	TEST 1	TEST 2	TEST 3	AVERAGE
Barometric Pressure "Hg	28.90	28.90	28.90	28.90
Static Pressure "H20	-0.07	-0.07	-0.07	-0.07
CO2 %	4.10	4.10	6.10	4.77
O2 %	13.90	13.90	13.97	13.92
N2 %	82	82	79.93	81.31
CO ppm	230	230	250	236.67
Stack Diameter "	39.5	39.5	39.5	39.50
Stack Temperature F	225	216	212	217.67
Stack Pressure "Hg	28.89	28.89	28.89	28.89
TEST CONDITIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Sample Volume Ft3	26.700	32.951	33.485	31.05
Meter F	85	91	83	86.33
Nozzle Dia "	0.2	0.245	0.245	0.23
Time Min	60	60	60	60.00
Points	24	24	24	24.00
Pitot Tube Factor cp	0.84	0.84	0.84	0.84
Orfice Press "H2O	0.66	1.08	1.17	0.97
Condensate mls	193	223	316	244.00
Velocity Pressure "H2O	0.595	0.507	0.544	0.55
Meter Calibration	1.02	1.02	1.02	1.02
TEST CALCULATIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Water Vapor SDCF	8.955	10.347	14.662	11.32
Gas Sampled SDCF	25.142	30.722	31.688	29.18
Moisture %	26.26	25.19	31.63	27.70
Molecular Weight Dry	29.21	29.21	29.53	29.32
Molecular Weight Wet	26.27	26.39	25.89	26.18
Gas Velocity Ft/Sec	52.62	48.15	50.20	50.32
Flow Rate ACFM	26869	24583	25634	25695
Flow Rate DSCFM	14525	13661	13096	13761
Isokinetics %	110.9	96.0	103.3	103.40

TABLE 2.21a PARTICULATE ANALYSIS

SITE: Holly Sugar Dryer #3
DATE: June 11, 1991

ANALYTICAL DATA	TEST 1	TEST 2	TEST 3	AVERAGE
FRONT HALF				
Probe mg	292.9	286.0	258.9	279.27
Filter mg	22.5	41.4	68.0	43.97
Blanks mg	0.5	0.5	0.5	0.50
Subtotal mg	314.9	326.9	326.4	322.73
BACK HALF				
Impingers Inorg mg	12.0	11.8	17.7	13.83
Impingers Org mg	2.0	1.9	1.3	1.73
Blank mg	0.5	0.5	0.5	0.50
Subtotal mg	13.5	13.2	18.5	15.07
Total Weight Gain mg	328.4	340.1	344.9	337.80
EMISSION DATA	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
FRONT HALF				
Grs/SDCF	0.1933	0.1642	0.1589	0.1721
Lbs/Hr	24.043	19.211	17.828	20.360
BACK HALF				
Grs/SDCF	0.0083	0.0066	0.0090	0.0080
Lbs/Hr	1.031	0.776	1.010	0.939
TOTAL EMISSIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Grs/SDCF	0.2015	0.1708	0.1679	0.1801
Lbs/Hrs	25.073	19.986	18.838	21.299

TABLE 2.22 O2 TRAVERSE

SITE: Holly Sugar
UNIT: Dryer #3
DATE: June 11, 1991

LOCATION POINT	TIME	NOx ppm	O(2) %	CO ppm	CO(2) %	SO(2) ppm
SW PORT						
1	1053	94.0	14.30	190	4.65	0
2	1059	89.0	14.30	180	4.45	0
3	1105	84.0	14.30	185	4.35	0
4	1111	70.0	14.30	170	3.70	0
5	1117	64.0	14.90	120	3.30	0
6	1123	64.0	14.95	120	3.20	0
NE PORT						
1	1127	62.5	15.20	120	3.00	0
2	1132	62.5	15.25	98	3.00	0
3	1137	62.5	15.50	95	2.90	0
4	1142	63.0	15.75	90	2.80	0
5	1149	63.0	15.90	70	2.80	0
6	1157	63.0	16.00	60	2.70	0
AVERAGE		70.1	15.1	124.8	3.4	0.0

Span Gases	
NOx, ppm	197.6,896
CO, ppm	230.7,946
O(2), %	14.51,7.44
CO(2), %	10.34,8.40
SO(2), ppm	51.7,99

TABLE 2.23 PARTICULATE SAMPLING

SITE: Holly Suger Cooler Stack
DATE: June 10, 1991

STACK PARAMETERS	TEST 1	TEST 2	TEST 3	AVERAGE
Barometric Pressure "Hg	29.80	29.80	29.80	29.80
Static Pressure "H20	-0.50	-0.50	-0.50	-0.50
CO2 %	0.00	0.00	0.00	0.00
O2 %	20.90	20.90	20.90	20.90
N2 %	79.1	79.1	79.1	79.10
CO ppm	0	0	0	0.00
Stack Diameter "	61.5	61.5	61.5	61.50
Stack Temperature F	70	70	70	70.00
Stack Pressure "Hg	29.76	29.76	29.76	29.76
TEST CONDITIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Sample Volume Ft3	36.88	35.279	35.149	35.77
Meter F	78	81	74	77.67
Nozzle Dia "	0.5	0.5	0.5	0.50
Time Min	60	60	60	60.00
Points	24	24	24	24.00
Pitot Tube Factor cp	0.84	0.84	0.84	0.84
Orfice Press "H2O	1.34	1.21	1.22	1.26
Condensate mls	20	19	18	19.00
Velocity Pressure "H2O	0.533	0.478	0.49	0.50
Meter Calibration	1.02	1.02	1.02	1.02
TEST CALCULATIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Water Vapor SDCF	0.928	0.882	0.835	0.88
Gas Sampled SDCF	36.313	34.533	34.857	35.23
Moisture %	2.49	2.49	2.34	2.44
Molecular Weight Dry	28.84	28.84	28.84	28.84
Molecular Weight Wet	28.57	28.57	28.58	28.57
Gas Velocity Ft/Sec	41.39	39.20	39.68	40.09
Flow Rate ACFM	51234	48519	49110	49621
Flow Rate DSCFM	48758	46175	46809	47248
Isokinetics %	18.5	18.6	18.5	18.53

TABLE 2.23a PARTICULATE ANALYSIS

SITE: Holly Suger Cooler Stack
DATE: June 10, 1991

ANALYTICAL DATA	TEST 1	TEST 2	TEST 3	AVERAGE
FRONT HALF				
Probe mg	261.3	72.6	65.9	133.27
Filter mg	3.1	8.2	7.7	6.33
Blanks mg	0.5	0.5	0.5	0.50
Subtotal mg	263.9	80.3	73.1	139.10
BACK HALF				
Impingers Inorg mg	2.6	1.5	1.2	1.77
Impingers Org mg	0.0	0.0	0.5	0.17
Blank mg	0.5	0.5	0.5	0.50
Subtotal mg	2.1	1.0	1.2	1.43
Total Weight Gain mg	266.0	81.3	74.3	140.53
EMISSION DATA	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
FRONT HALF				
Grs/SDCF	0.1121	0.0359	0.0324	0.0601
Lbs/Hr	46.830	14.190	12.973	24.665
BACK HALF				
Grs/SDCF	0.0009	0.0004	0.0005	0.0006
Lbs/Hr	0.373	0.177	0.213	0.254
TOTAL EMISSIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Grs/SDCF	0.1130	0.0363	0.0329	0.0607
Lbs/Hrs	47.203	14.367	13.186	24.919

3.0 SITE DESCRIPTION

3.1 Boilers #1 Stack Outlet

Samples were collected from a 52.75" diameter vertical stack. Two ports, 3" in diameter, were located at ninety degrees of each other on the same horizontal plane. Figure 3.1 shows the sampling site while Figure 3.2 depicts the traverse point location.

3.2 Boiler #2 Stack Outlet

Samples were collected from a 59.75" diameter vertical stack. Figure 3.3 shows the sampling site while Figure 3.4 depicts the traverse point location.

3.3 Boiler #3 Stack Outlet

Samples were collected from a 61.25" diameter vertical stack. Two ports, 3" in diameter, were located at ninety degrees of each other on the same horizontal plane. Figure 3.5 shows the sampling site while Figure 3.6 depicts the traverse point location.

3.4 Boiler #4 Stack Outlet

Samples were collected from a 53.75" diameter vertical stack. Two ports were located at ninety degrees of each other on the same horizontal plane. Figure 3.7 shows the sampling site while Figure 3.8 depicts the traverse point location.

3.5 Dryer #1 Stack Outlet

Samples were collected from a 39.5" diameter vertical stack. Two ports were located at ninety degrees of each other on the same horizontal plane. Dryer #1 has two stacks. One stack was used for the testing. Velocity measurements were collected on the second stack during the particulate sampling. Figure 3.9 shows the sampling site while Figure 3.10 depicts the traverse point location.

3.6 Dryer #2 Stack Outlet

Samples were collected from a 39.5" diameter vertical stack. Two ports were located at ninety degrees of each other on the same horizontal plane. Dryer #2 has two stacks. One stack was used for the testing. Velocity measurements were collected on the second stack during the particulate sampling. Figure 3.11 shows the sampling site while Figure 3.12 depicts the traverse point location.

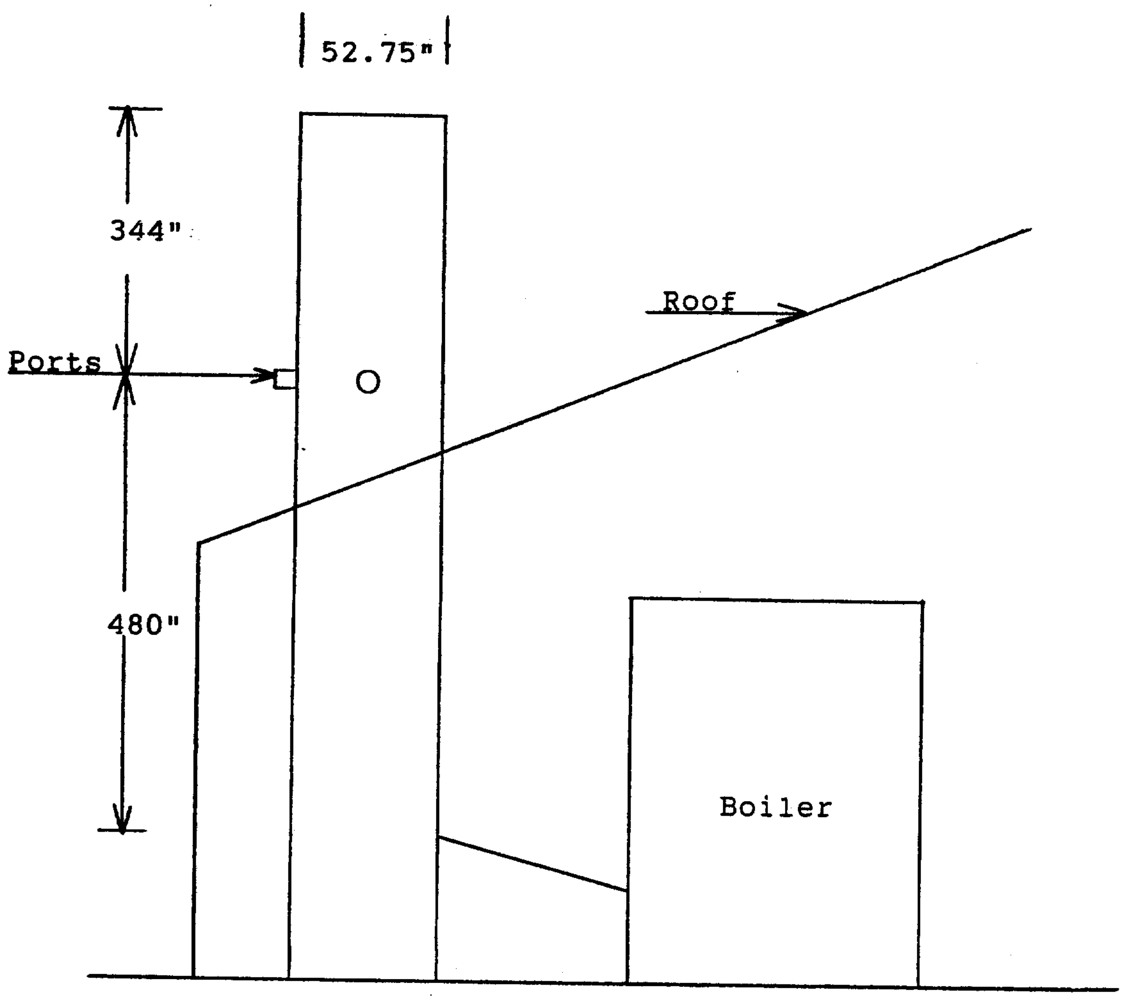
3.7 Dryer #3 Stack Outlet

Samples were collected from a 39.5" diameter vertical stack. Two ports were located at ninety degrees of each other on the same horizontal plane. Dryer #3 has two stacks. One stack was used for the testing. Velocity measurements were collected on the second stack during the particulate sampling. Figure 3.13 shows the sampling site while Figure 3.14 depicts the traverse point location.

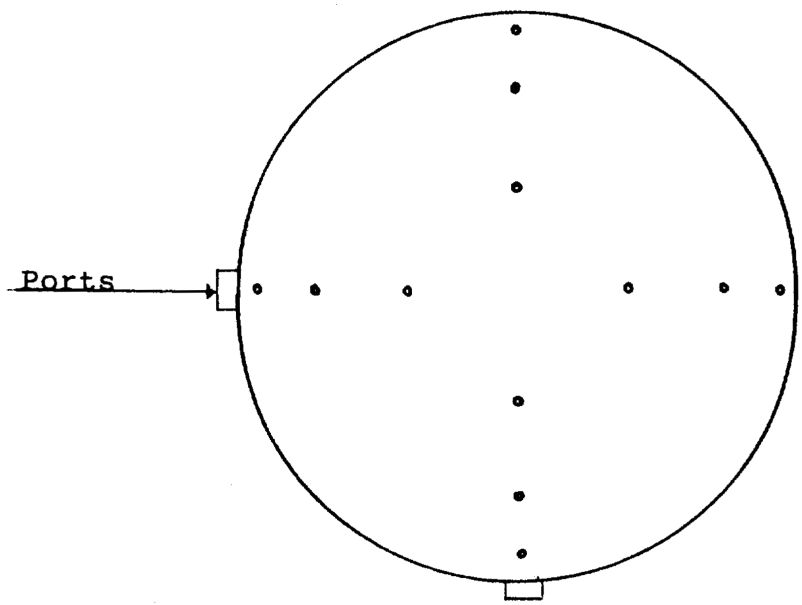
3.8 Cooler Stack Outlet

Samples were collected from a 61.5" diameter vertical stack above the ground. The samples were collected from two three inch diameter ports on the same horizontal plane. Figure 3.15 shows the sampling site while Figure 3.16 depicts the traverse point location..

WESTERN ENVIRONMENTAL SERVICES



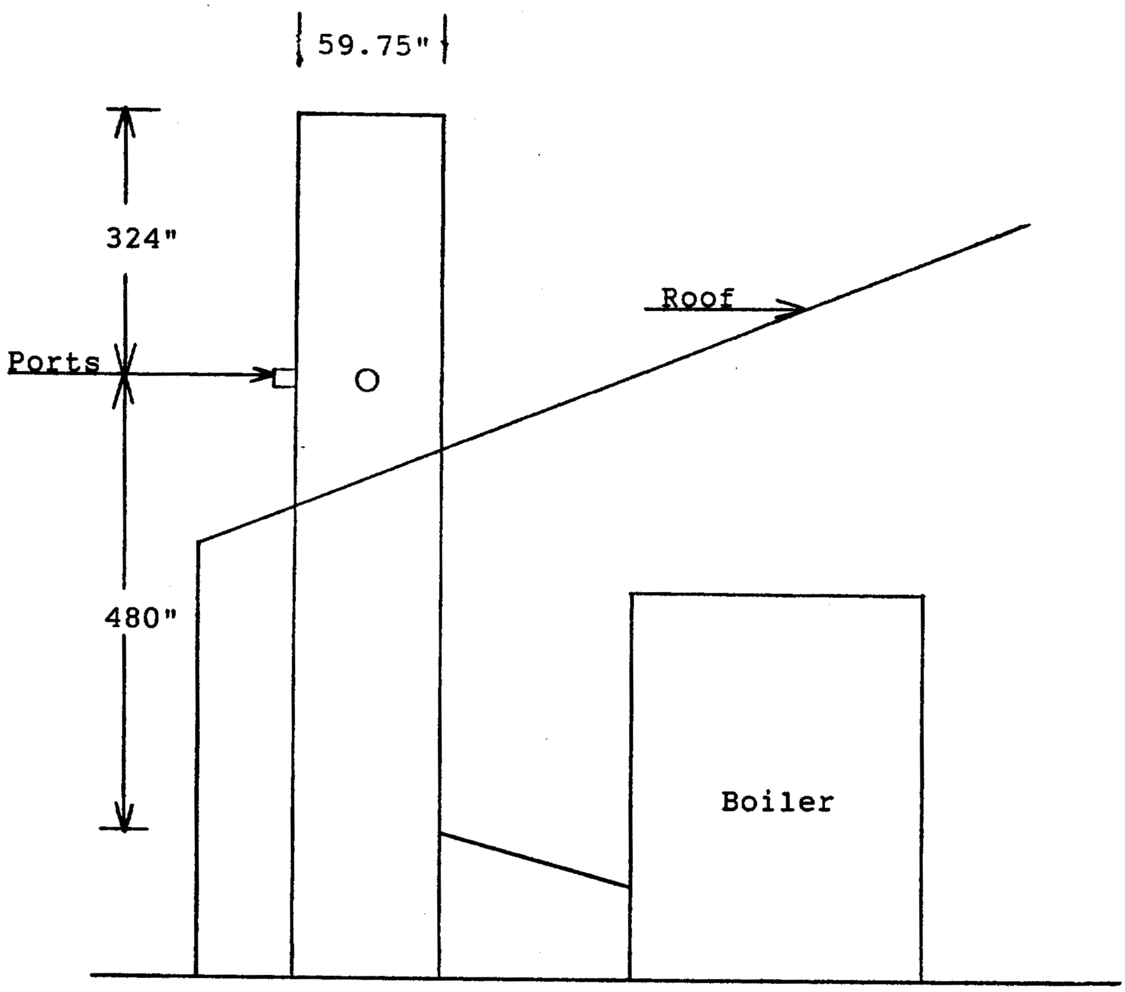
SITE DIAGRAM - BOILER #1
FIGURE 3.1



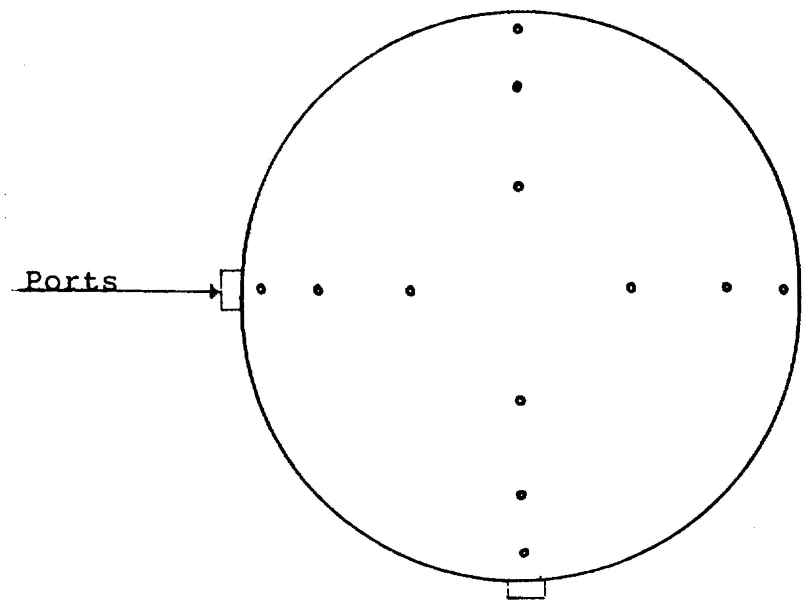
TRAVERSE POINT LOCATION STACK EXHAUST
FIGURE 3.2

TRAVERSE POINT	POINT LOCATION
1	5.6
2	11.0
3	18.9
4	40.4
5	48.3
6	53.7

WESTERN ENVIRONMENTAL SERVICES

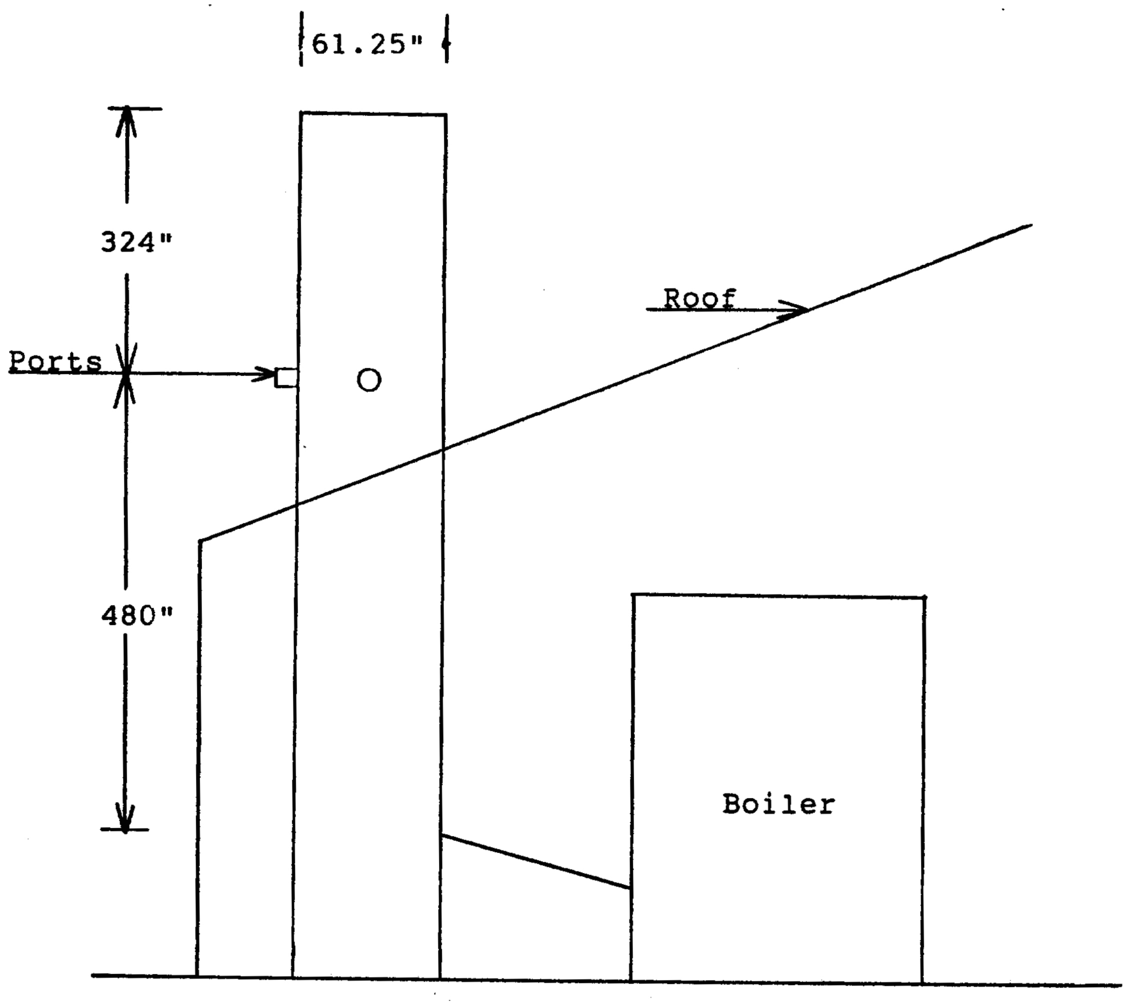


SITE DIAGRAM - BOILER #2
FIGURE 3.3

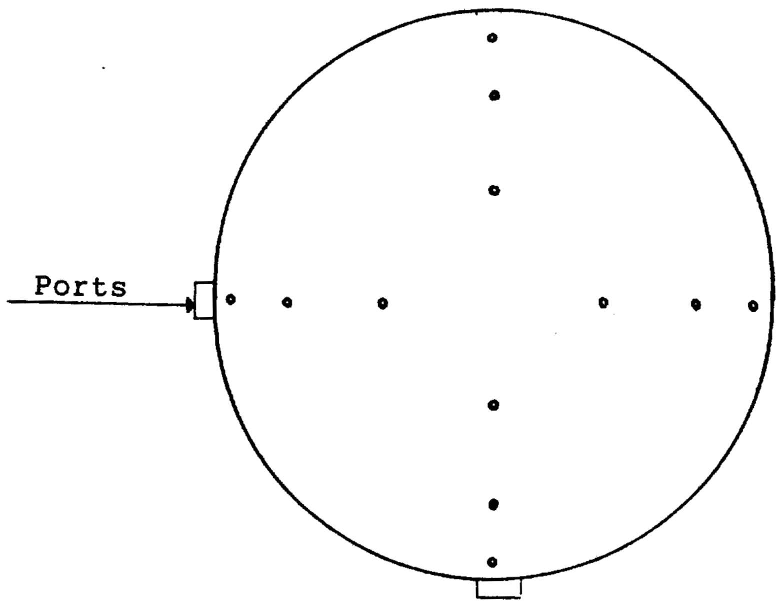


TRAVERSE POINT LOCATION STACK EXHAUST
FIGURE 3.4

TRAVERSE POINT	POINT LOCATION
1	5.9
2	12.0
3	20.9
4	45.3
5	54.3
6	60.4

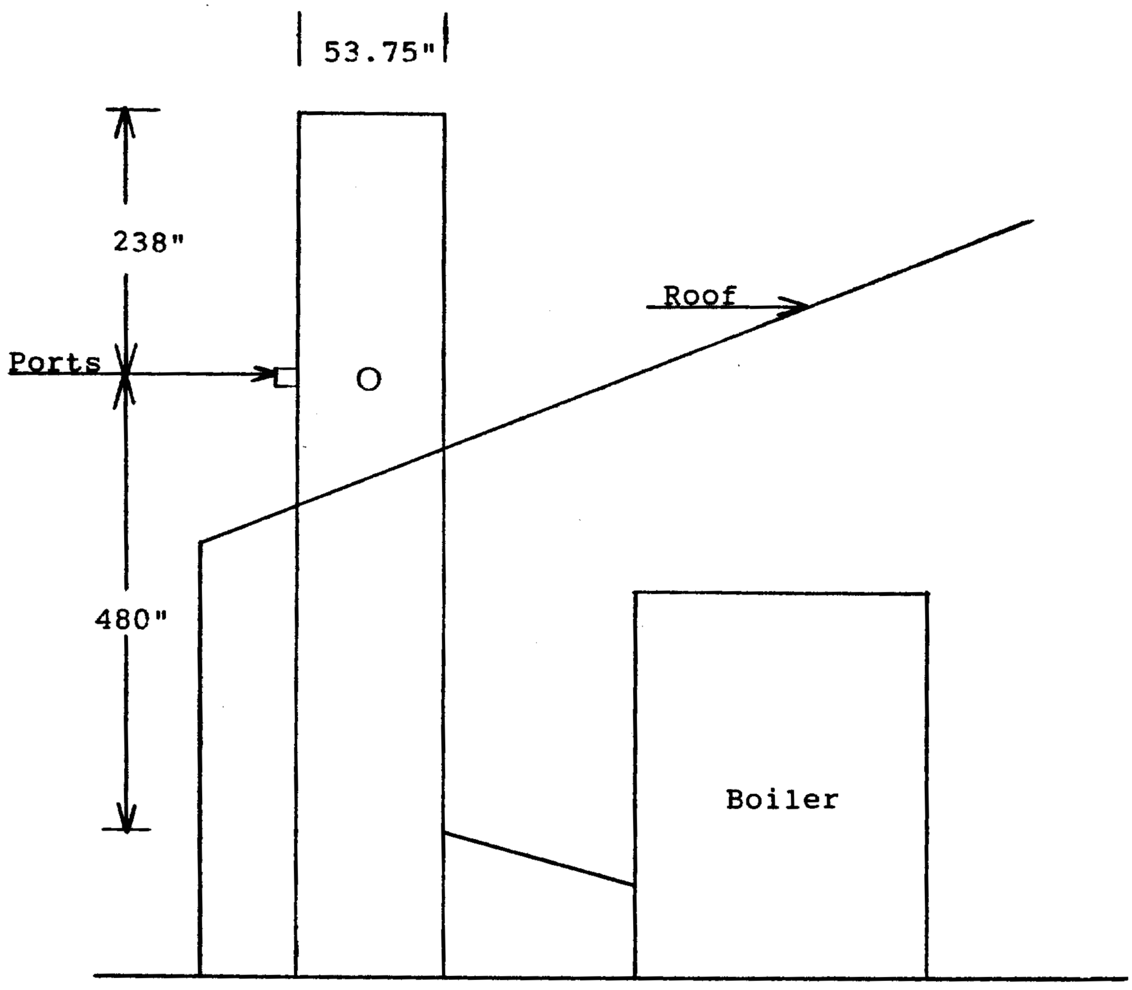


SITE DIAGRAM - BOILER #3
FIGURE 3.5

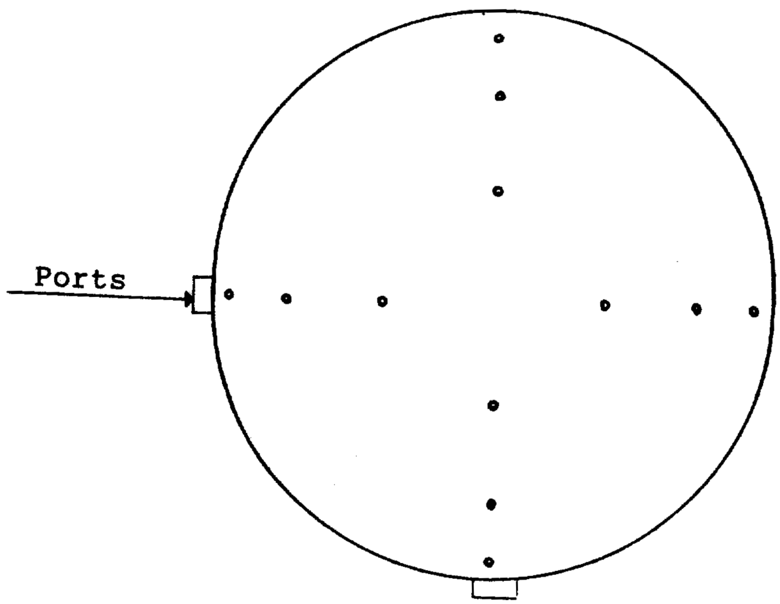


TRAVERSE POINT LOCATION STACK EXHAUST
FIGURE 3.6

TRAVERSE POINT	POINT LOCATION
1	6.0
2	12.2
3	21.4
4	46.4
5	55.6
6	61.8



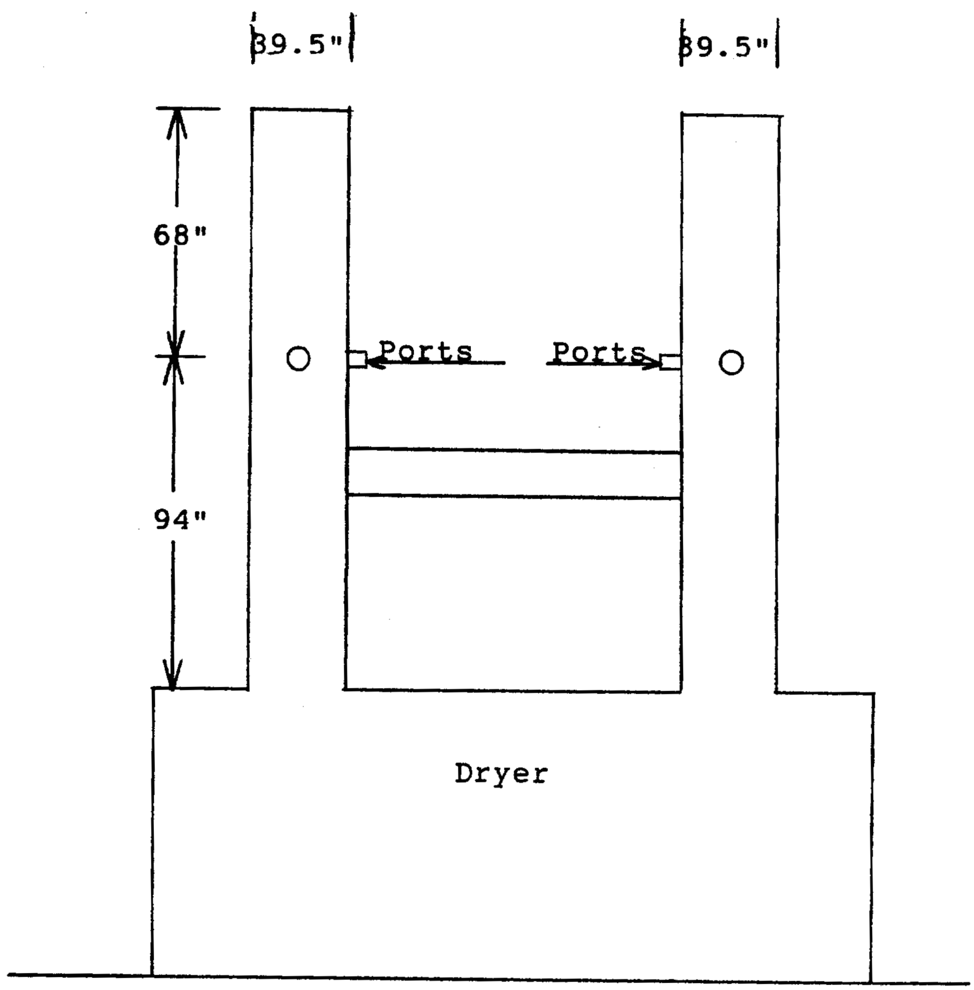
SITE DIAGRAM - BOILER #4
FIGURE 3.7



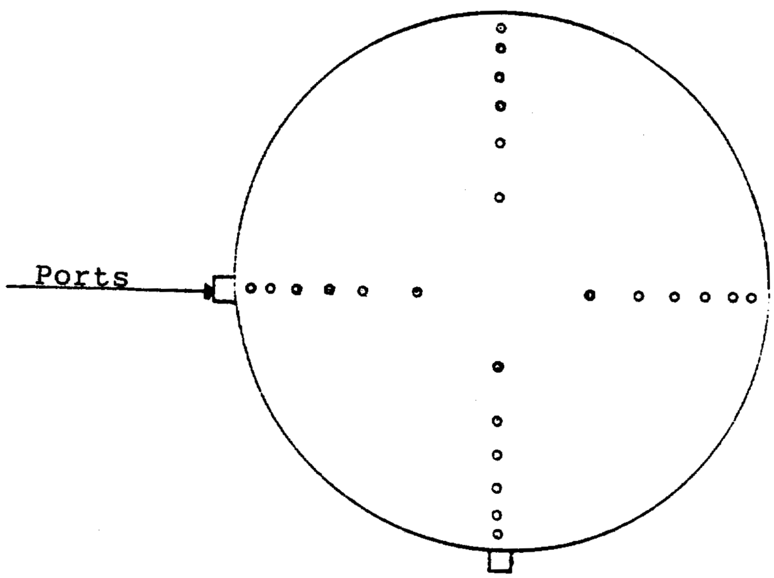
TRAVERSE POINT LOCATION STACK EXHAUST
FIGURE 3.8

TRAVERSE POINT	POINT LOCATION
1	5.6
2	11.1
3	19.2
4	41.1
5	49.2
6	54.6

WESTERN ENVIRONMENTAL SERVICES

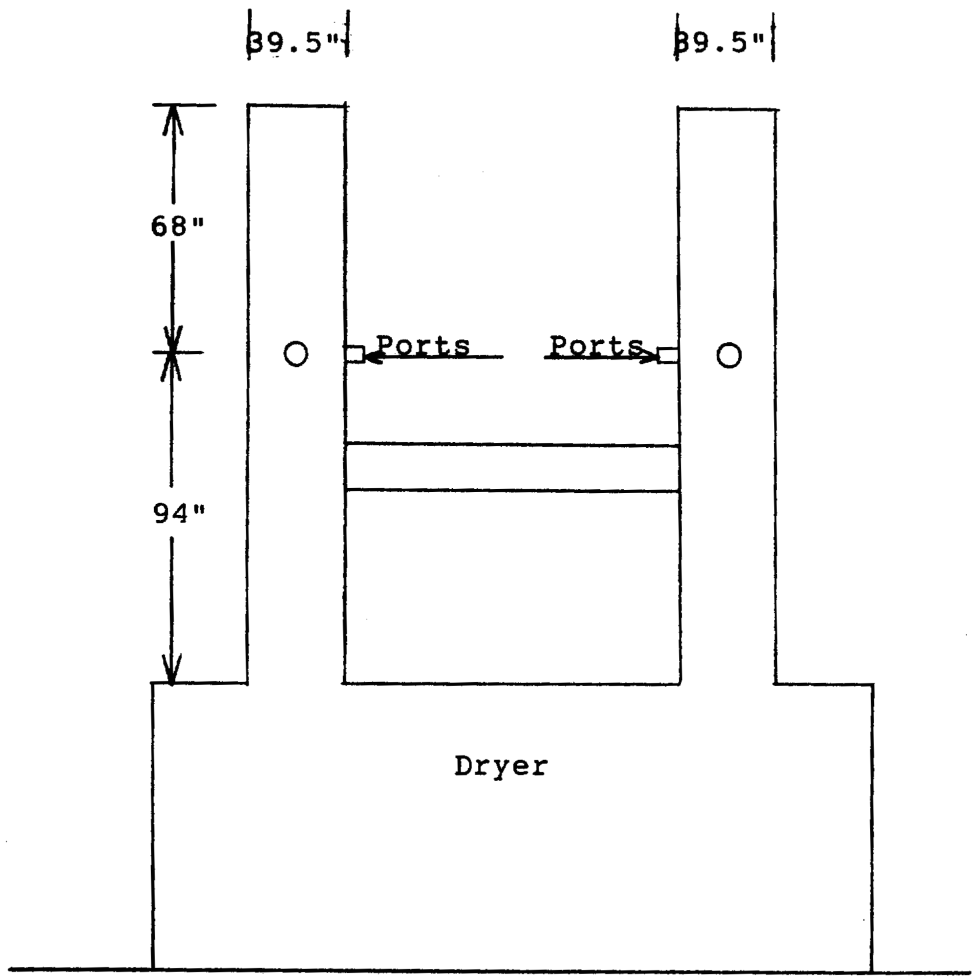


SITE DIAGRAM - DRYER #1
FIGURE 3.9

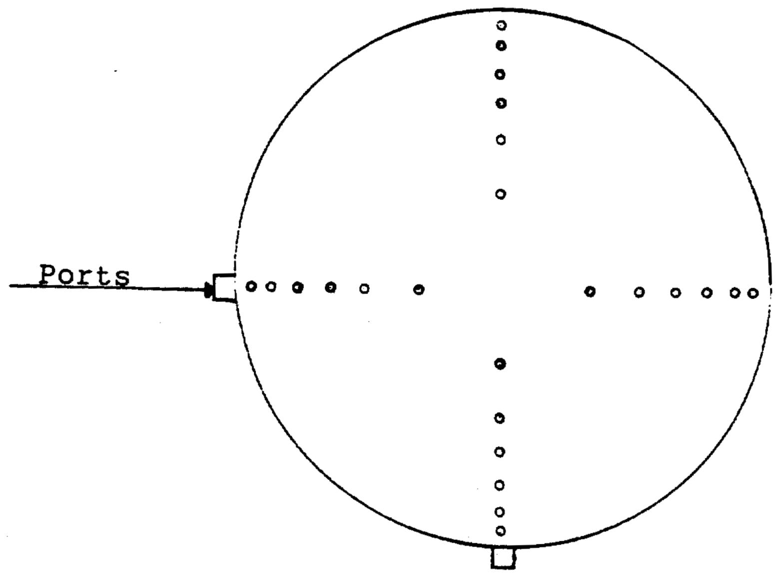


TRAVERSE POINT LOCATION STACK EXHAUST
FIGURE 3.10

TRAVERSE POINT	POINT LOCATION
1	4.33
2	6.15
3	8.16
4	10.49
5	13.38
6	17.64
7	28.94
8	33.13
9	36.01
10	38.34
11	40.35
12	42.17

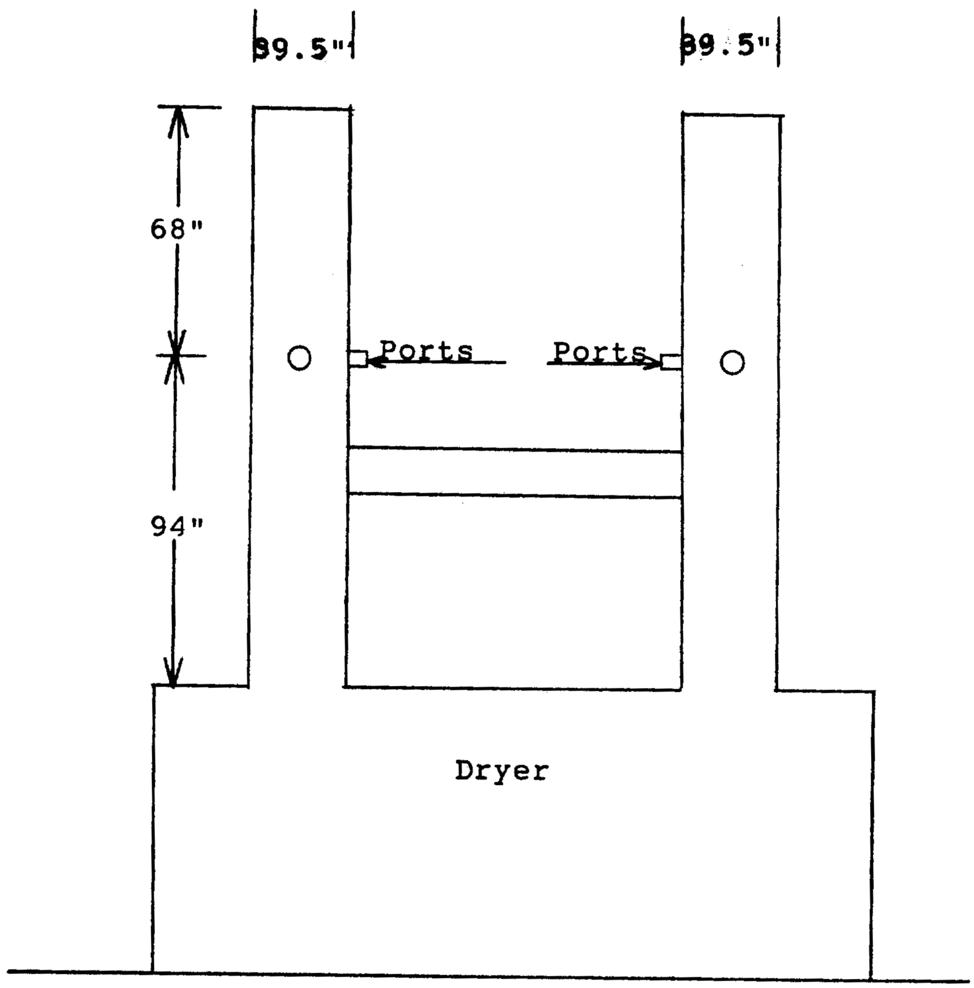


SITE DIAGRAM - DRYER #2
FIGURE 3.11

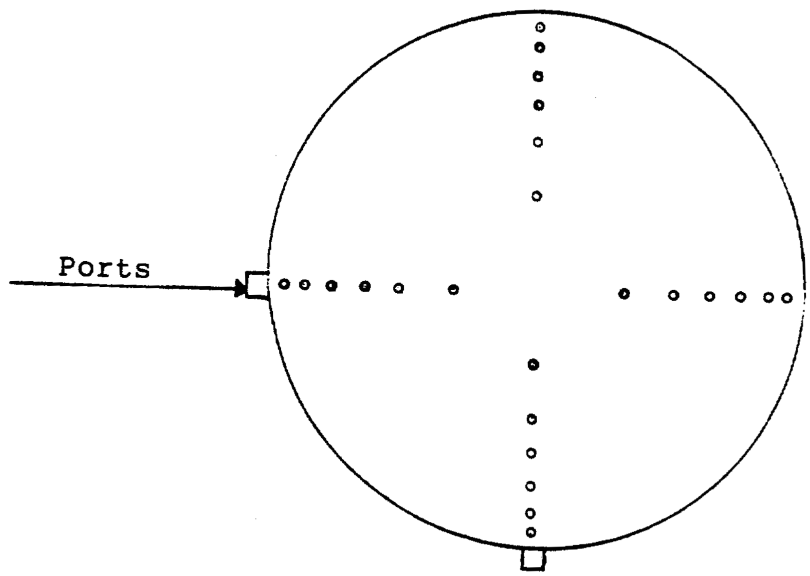


TRAVERSE POINT LOCATION STACK EXHAUST
FIGURE 3.12

TRAVERSE POINT	POINT LOCATION
1	4.33
2	6.15
3	8.16
4	10.49
5	13.38
6	17.64
7	28.94
8	33.13
9	36.01
10	38.34
11	40.35
12	42.17



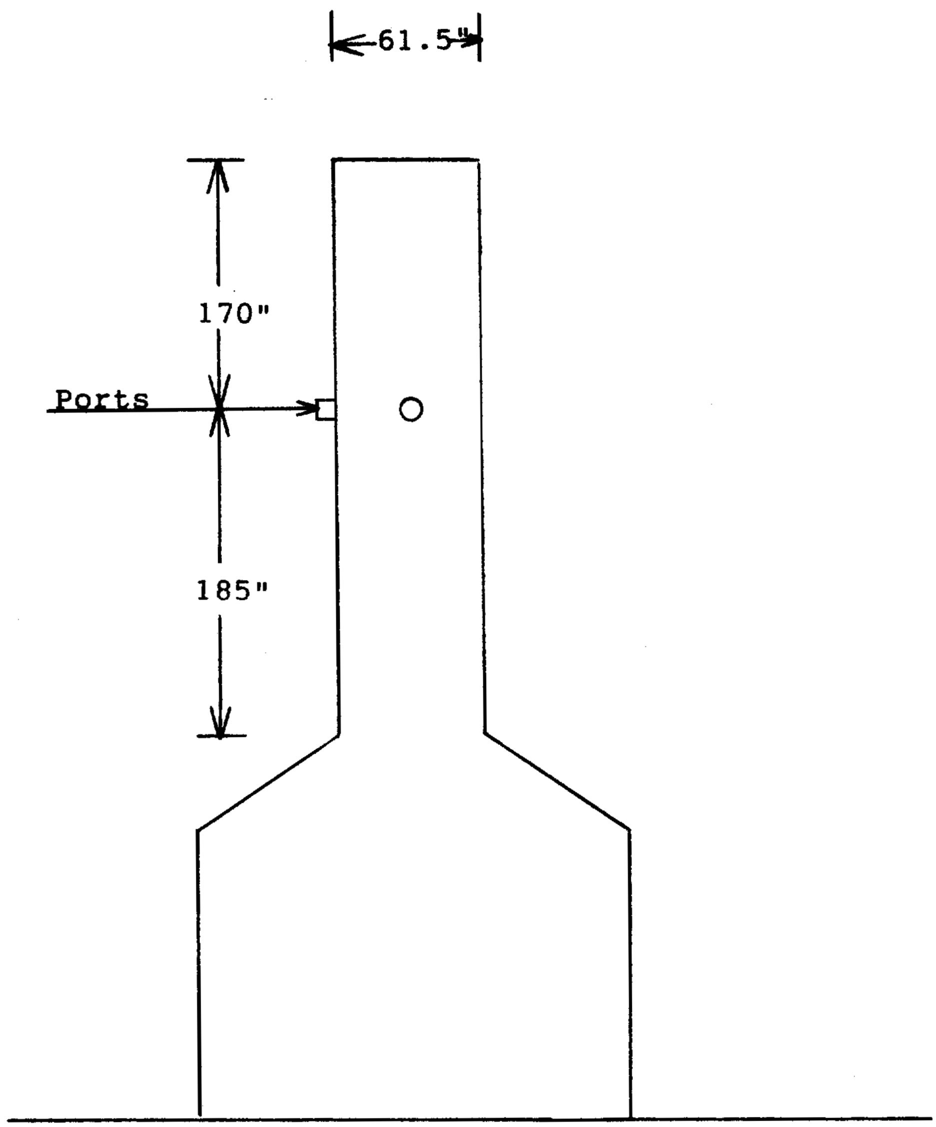
SITE DIAGRAM - DRYER #3
FIGURE 3.13



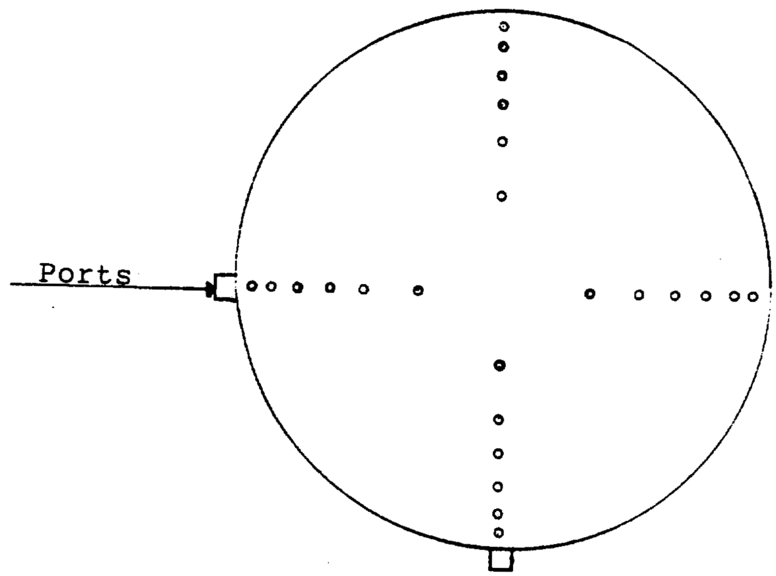
TRAVERSE POINT LOCATION STACK EXHAUST
FIGURE 3.14

TRAVERSE POINT	POINT LOCATION
1	4.33
2	6.15
3	8.16
4	10.49
5	13.38
6	17.64
7	28.94
8	33.13
9	36.01
10	38.34
11	40.35
12	42.17

WESTERN ENVIRONMENTAL SERVICES



SITE DIAGRAM - COOLER
FIGURE 3.15



TRAVERSE POINT LOCATION STACK EXHAUST
FIGURE 3.16

TRAVERSE POINT	POINT LOCATION
1	4.79
2	7.62
3	10.76
4	14.39
5	18.88
6	25.39
7	43.11
8	49.63
9	54.11
10	56.86
11	60.88
12	63.71

4.0 SAMPLING AND ANALYTICAL PROCEDURES

4.1 Traverse Point Location

Traverse point locations were determined by utilizing EPA Method 1, "Sample and Velocity Traverses for Stationary Sources."

4.2 Particulate Sampling and Analysis

EPA Method 5.1 samples were collected during the testing program. Triplicate one hour samples were collected from each unit.

The sampling train consisted of a glass nozzle, glass probe, heated flex line, heated four inch filter, three glass impingers, silica gel impinger, pump, and a calibrated dry gas meter. The first and second impingers each contained 100 milliliters of distilled water. The third impinger was empty. Figure 4.1 depicts the sampling train.

After assembling the sampling train, it was checked for leaks and the sampling was not started until a leak rate of less than 0.02 cfm at 15 inches of mercury was achieved.

During the testing, the sampling was performed isokinetically on each of two traverses. The velocity measurements were made at individual traverse points using a Type "S" pitot tube connected to an inclined manometer with divisions measuring 0.02 inches of water. The stack temperature was measured by using a Type K thermocouple wire attached to a calibrated digital readout.

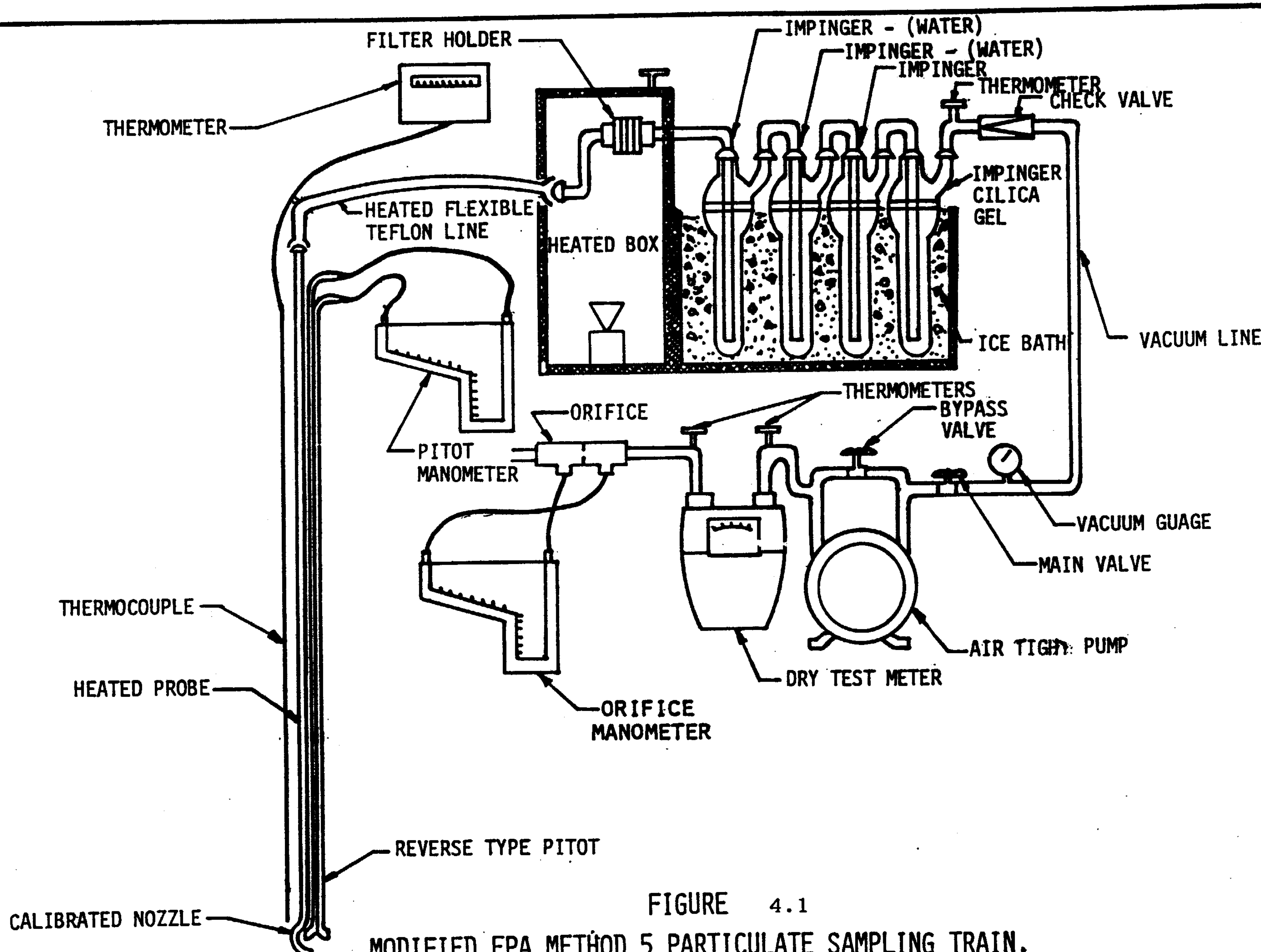


FIGURE 4.1

MODIFIED EPA METHOD 5 PARTICULATE SAMPLING TRAIN.

Upon completion of each test, the sampling train was checked for leaks before disassembling the sampling system. The nozzle and the probe were removed from the train. The probe was rinsed and brushed with a nylon brush on a stainless steel handle. The probe and nozzle were rinsed with acetone. The bottle was labeled and retained for analysis.

The impinger solutions were re-measured and recovered with distilled water. The solutions were placed into 950 milliliter amber glass bottles. The bottles were labeled and retained for analysis. In addition, the impingers were rinsed with acetone, and the solutions were placed into the probe rinse bottle labeled for acetone.

The glass fiber filter was removed from the filter holder and was placed into a petri dish. The front half of the filter holder was rinsed with acetone. The back-half of the filter holder was rinsed with distilled water. The distilled water rinses were placed with the impinger solutions and the acetone rinses were placed with acetone probe rinse.

The analysis was performed by evaporating the acetone probe rinses to dryness in tared beakers. The water solutions were combined and extracted with 50 milliliters of petroleum ether. The inorganic and organic fractions were evaporated in tared beakers. The beakers and filter were placed into a desiccator and were weighed to constant weights.

The data reduction was performed by using EPA Method Five calculations.

4.3 Continuous Monitoring

Gas samples from the stack were continuously collected and analyzed by a continuous monitoring system. The sampling procedure followed CARB Method 100. The samples were collected and analyzed for a minimum of forty minutes.

Samples were collected by drawing gaseous samples through a stainless steel probe, water-knockout system, teflon line, 7 micron filter, and pump before entering the instrumentation. The instruments consisted of a Thermo Electron Model 10 NOx analyzer, Thermo Electron Model 48H infrared carbon monoxide analyzer, Horiba PIR 2000 infrared carbon dioxide analyzer, Monitor Labs 8850 UV sulfur dioxide analyzer, and a Teledyne 326A electrochemical oxygen analyzer. The data was recorded with a Westronics Series 3000 Data Logger. Figure 4.2 illustrates the sampling schematic.

Before and after each test period, the instruments were zeroed and spanned with known EPA Protocol #1 span gases. A linearity check was performed prior to the testing by using a zero, mid, and high range gas. Before and after each sampling period, a system check was performed by plugging the probe and determine the vacuum.

4.4 Hydrocarbons

Samples were collected by drawing gaseous samples into tedlar bags. The bags were purged prior to use. The samples were analyzed by a FID gas chromatograph equipped with a poropak q column. The samples were injected by using a gas sampling valve. The samples were compared with a known standard made by Scott- Marin.

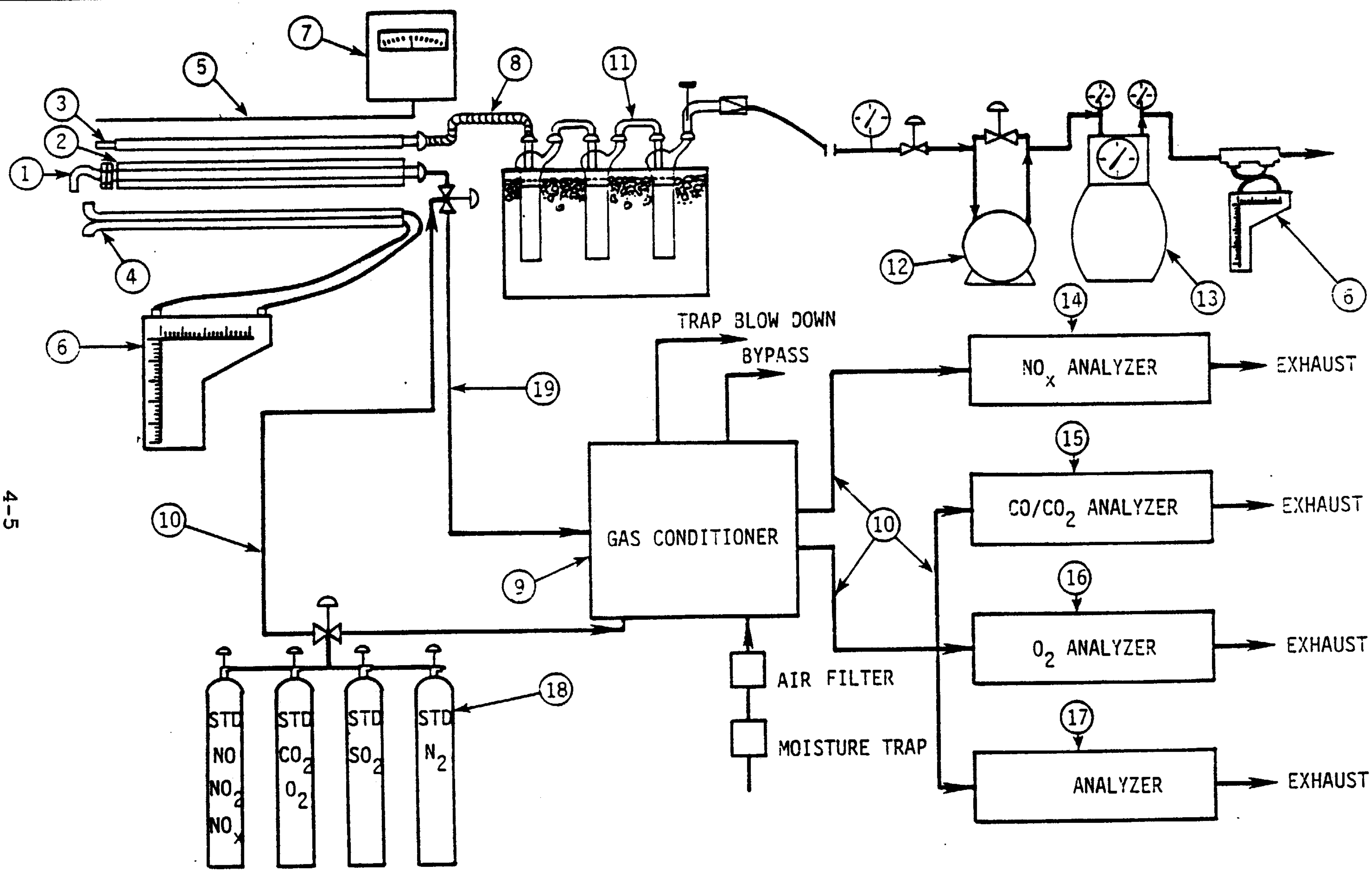


FIGURE 4.2
SAMPLING SYSTEM SCHEMATIC

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SAMPLING TRAIN

1. Calibrated Nozzle
2. Heated Probe
3. Quarter-inch Inconel Tubing
4. Reverse Type-S Pitot Tube
5. Thermocouple Wire
6. Manometer
7. Digital Temperature Readout
8. Heated Teflon Flex Line
9. Gas Conditioner
10. Quarter-inch Teflon Tubing
11. Ice Bath with Three Impingers
12. Air Tight Pump
13. Dry Test Meter
14. NOx Continuous Analyzer
15. CO/CO_2 Continuous Analyzer
16. O_2 Continuous Analyzer
17. Continuous Analyzer
18. Certified Span Gases for Calibration Purposes
19. One-half Inch Heated Teflon Line

5.0 QUALITY ASSURANCE

5.1 Instrument Calibration Gases

The instrument calibration gases were certified by an independent laboratory and copies of the certifications are included in the appendix of this report.

5.2 System Quality Assurance

The system calibration was performed before and after each test by injecting a calibration gas into the probe and determine the percent recovery at the instrument. Linearity checks were performed on the analyzers during the testing program.

5.3 Test Calibration

Before and after each test period, the continuous monitors were zeroed and spanned with EPA Protocol #1 span gases. The test calibration data is located in Appendix A.

5.4 Field Equipment Quality Assurance

The calibration of the pitot tube, dry gas meter, digital thermometers, and manometers were performed by utilizing standard EPA Methodology, "Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods (EPA-600/4-77-0278).

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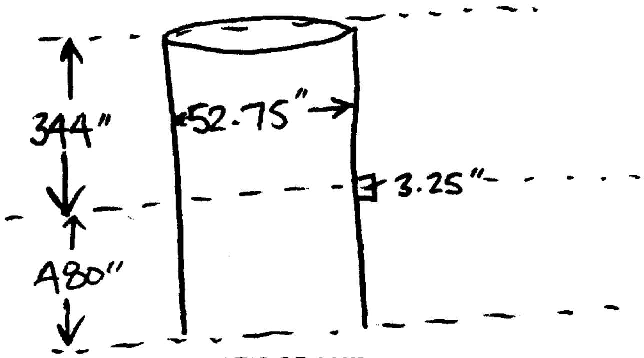
APPENDIX A

TRAVERSE POINT LOCATION FOR CIRCULAR DUCTS

PLANT Holly Sugar
DATE 6/7/91
SAMPLING LOCATION Boiler # 1
INSIDE OF FAR WALL TO
OUTSIDE OF NIPPLE, (DISTANCE A) 56"
INSIDE OF NEAR WALL TO
OUTSIDE OF NIPPLE, (DISTANCE B) 3.25
STACK I.D., (DISTANCE A - DISTANCE B) 52.75"
NEAREST UPSTREAM DISTURBANCE 344" or 6.52 dd
NEAREST DOWNSTREAM DISTURBANCE ~~480~~" or 9.10 dd
CALCULATOR



SCHEMATIC OF SAMPLING LOCATION

TRAVERSE POINT NUMBER	FRACTION OF STACK I.D.	STACK I.D.	PRODUCT OF COLUMNS 2 AND 3 (TO NEAREST 1/8 INCH)	DISTANCE B	TRAVERSE POINT LOCATION FROM OUTSIDE OF NIPPLE (SUM OF COLUMNS 4 & 5)
1	.044	52.75"	2.32	3.25"	5.57"
2	.146	↓	7.70	↓	10.95"
3	.296		15.61		18.86"
4	.704		37.14		40.39"
5	.854		45.05		48.30"
6	.956		50.43		53.68"

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CONTINUOUS MONITORING TEST DATA

SITE: Holly Sugar
DATE: 6-4-91
OPERATOR: JOHN Clarke

INSTRUMENT	SERIAL #	RANGE
Westronics	Series 3000	
Thermoelectron + Conv NO	Series 10	0-250
Teledyne O_2	—	0-10%
Thermoelectron CO	Model 48H	0-1000
Horiba CO_2	PIR 2000	0-25%
Fluorescent SO_2	Model 8850	0-100

CALIBRATION GASES

GASES	CONCENTRATION	CYLINDER #
NO	94.3, ~~94.0~~ 197.6	JJ22988, 896, ~~2507~~
O_2, CO_2	7.44, 8.4	
CO	230.5, 946, 500	JJ14679,
SO_2	51.7, 19.54, 99	CC12770, JJ19003,
O_2, CO_2	5.11, 10.34, ~~99~~	JJ23432
NO_2	93.4	
O_2, CO_2	3.05, 11.67	JJ23011
O_2, CO_2,	14.51, 4.40	JJ25219

A00002

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FIELD DATA

SITE: Holly Sugar (Blr. 1)

DATE: 7 June

SO_2

	TIME	NOx	O2	CO	CO2	NOx AVG
1	1034	300	6.1	0	10.9	138
2	1039	300	6.1	0	11.75	142
N 3	1044	300	6.20	0	11.75	140
4	1049	300	6.25	0	10.75	136
5	1054	300	6.25	0	10.75	135
6	1059	300	6.2	0	11.5	140
1	1101	300	6.2	0	11.75	141
2	1106	300	6.15	0	11.75	141
W 3	1112	305	6.2	0	11.75	145
4	1119	315	6.15	0	11.75	142
5	1126	320	6.25	0	11.75	144
6	1136	320	6.2	0	11.75	144

A00003

FIELD DATA

BOILER # 1

VELOCITY TRAVERSE

PLANT
DATE
SAMPLING LOCATION
SAMPLE TYPE
RUN NUMBER
OPERATOR
AMBIENT TEMPERATURE
BAROMETRIC PRESSURE
STATIC PRESSURE, (P_s)
FILTER NUMBER (s)

PROBE LENGTH AND TYPE # 28
NOZZLE I.D.
ASSUMED MOISTURE, %
SAMPLE BOX NUMBER
METER BOX NUMBER
METER $\Delta H_@$
C FACTOR
PROBE HEATER SETTING
HEATER BOX SETTING
REFERENCE Δp #14 (0-.50")

SCHEMATIC OF TRAVERSE POINT LAYOUT

READ AND RECORD ALL DATA EVERY ______ MINUTES

$P_s = -0.29$

TRAVERSE POINT NUMBER	SAMPLING TIME, min / CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\ in}$), °F	DRY GAS METER TEMPERATURE OUTLET ($T_{m\ out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
1			0.20			350					
2			0.21			354					
3			0.19			356					
4			0.20			356					
5			0.20			356					
6			0.17			354					
1			0.19			352					
2			0.18			354					
3			0.21			355					
4			0.20			356					
5			0.23			352					
6			0.20			353					

COMMENTS:

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FIELD DATA

BOILER # 1
PARTICULATE
RUN # 1

76 ml
\+ 9
= VLC

PLANT HOLLY SUGAR
DATE 6/7/91
SAMPLING LOCATION BOILER # 1
SAMPLE TYPE PARTICULATE
RUN NUMBER # 1
OPERATOR MARCOTTE
AMBIENT TEMPERATURE 76° F
BAROMETRIC PRESSURE 29.85
STATIC PRESSURE, (P_s) -0.29
FILTER NUMBER (s) 3.119 (3")

PROBE LENGTH AND TYPE S.S. #3 (5')
NOZZLE I.D. 0.3600 (S.S.)
ASSUMED MOISTURE, % 10%
SAMPLE BOX NUMBER WES # 11
METER BOX NUMBER WES # 11
METER $\Delta H_@$ WES # 11
C FACTOR
PROBE HEATER SETTING 250° F
HEATER BOX SETTING 250° F
REFERENCE Δp #14 (0 - .50")

SCHEMATIC OF TRAVERSE POINT LAYOUT

preleak √ < .010 cfm @ 15" READ AND RECORD ALL DATA EVERY 5 MINUTES postleak √ < .007 cfm @ 10"

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft³	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\ in}$), °F	OUTLET ($T_{m\ out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
	0	10:32	417.824									
1	5	10:37	421.310	0.18	1.88	1.88	352	76	76	4	254	67
2	10	10:42	424.895	0.19	1.97	1.97	354	77	77	4	252	58
3	15	10:47	428.460	0.18	1.89	1.89	355	81	79	4	251	64
4	20	10:52	432.215	0.20	2.11	2.11	356	85	81	4	251	65
5	25	10:57	436.140	0.21	2.22	2.22	355	88	82	4	250	64
6	30	11:02	440.972	0.20	2.13	2.13	353	90	84	4	245	65
*	STOP	11:06	SWITCH PORTS *									*
1	35	11:11	443.565	0.18	1.92	1.92	352	90	84	4	248	66
2	40	11:16	447.410	0.21	2.24	2.24	351	90	84	4	247	68
3	45	11:21	451.105	0.19	2.02	2.02	354	88	84	4	250	67
4	50	11:26	454.810	0.19	2.02	2.02	353	88	84	4	247	67
5	55	11:31	458.480	0.19	2.02	2.02	354	88	84	4	249	66
6	60	11:36	462.025	0.17	1.81	1.81	350	88	84	4	251	65
			44.201									

COMMENTS:

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DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1.______ 2.______
3.______ 4.______
Indicate by numbers in box under Sample column.

Holly Sugar
Boiler #1
Test #1

Requestor ______
JN ______
Assigned to ______
Date Assigned ______

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. ~~99.2390~~	9.	SAMPLE NUMBER	Probe	1. 103.7233	9.
2. ~~99.2388~~	10.	FILTER OR CONTAINER #	86.2	2. 103.7232	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	103.7232	3. 103.7232	11.
4. 103.6787	12.	FILTER OR CONTAINER TARE	103.6790 ~~99.2389~~	4.	12.
5. 103.6793	13.	SAMPLE	0.0442	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 0.3501	9.	SAMPLE NUMBER	Filter	1. 0.3752	9.
2. 0.3502	10.	FILTER OR CONTAINER #	3.119	2. 0.3751	10.
3. 0.3500	11.	FILTER OR CONTAINER PLUS SAMPLE	0.3750	3. 0.3747	11.
4.	12.	FILTER OR CONTAINER TARE	0.3501	4.	12.
5.	13.	SAMPLE	0.0249	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. ~~96.9801~~	9.	SAMPLE NUMBER	Imp I	1. 109.8460✓	9.
2. ~~96.9804~~	10.	FILTER OR CONTAINER #	87.2	2. 109.8482	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	109.8460	3. 109.8430	11.
4. 109.7283	12.	FILTER OR CONTAINER TARE	109.7285 ~~96.9804~~	4. 109.8436	12.
5. 109.7287	13.	SAMPLE	0.1175	5. 109.8399	13.
6.	14.			6. 109.8456✓	14.
7.	15.			7. 109.8507	15.
8.	16.			8. 109.8464✓	16.

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. ~~97.0187~~	9.	SAMPLE NUMBER	Imp O	1. 108.8431	9.
2. ~~97.0186~~	10.	FILTER OR CONTAINER #	88.2	2. 108.8430	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	108.8430	3. 108.8429	11.
4. 108.8430	12.	FILTER OR CONTAINER TARE	108.8430 ~~97.0187~~	4.	12.
5. 108.8430	13.	SAMPLE	Ø	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

A00003

FIELD DATA

PLANT Holly Sugar
DATE 6/7/91
SAMPLING LOCATION Boiler # 1
SAMPLE TYPE Particulate
RUN NUMBER # 2
OPERATOR Marcotte
AMBIENT TEMPERATURE 77° F
BAROMETRIC PRESSURE 29.85
STATIC PRESSURE, (P_s) -0.29
FILTER NUMBER (s) 3.120 (3")

BOILER # 1
PARTICULATE
RUN # 2

PROBE LENGTH AND TYPE # 3 (s.s. 5')
NOZZLE I.D. 0.3600 (s.s.)
ASSUMED MOISTURE, % 10%
SAMPLE BOX NUMBER WES #11
METER BOX NUMBER WES #11
METER $\Delta H_@$ WES #11
C FACTOR ~
PROBE HEATER SETTING 250° F
HEATER BOX SETTING 250° F
REFERENCE Δp # 14 (0-.50")

68 ml
+ 9
= VLC

SCHEMATIC OF TRAVERSE POINT LAYOUT

READ AND RECORD ALL DATA EVERY 5 MINUTES

preleak ✓ < .013 cfm @ 15"

postleak ✓ < .007 cfm @ 10"

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft³	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
	0	12:22	462.451									
1	5	12:27	465.900	0.17	1.77	1.77	354	77	77	5	249	57
2	10	12:32	469.515	0.19	1.98	1.98	355	77	78	6	248	58
3	15	12:37	473.085	0.19	1.98	1.98	357	79	78	6	251	60
4	20	12:42	476.920	0.21	2.20	2.20	356	82	78	7	249	62
5	25	12:47	480.800	0.21	2.21	2.21	354	84	78	7	247	65
6	30	12:52	484.592	0.20	2.10	2.10	355	84	78	7	250	66
*	STOP	12:56	SWITCH PORTS *									*
1	35	1:01	488.090	0.19	2.00	2.00	352	84	78	6	249	66
2	40	1:06	491.760	0.19	2.00	2.00	354	83	79	6	251	61
3	45	1:11	495.330	0.18	1.89	1.89	356	84	79	6	250	62
4	50	1:16	498.985	0.19	2.00	2.00	355	87	81	6	249	63
5	55	1:21	502.470	0.17	1.79	1.79	356	85	79	5	251	65
6	60	1:26	506.044	0.18	1.90	1.90	353	86	80	6	250	67
			43.593									

COMMENTS:

EPA (Dur) 235
4/72

A00007

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. ______ 2. ______
3. ______ 4. ______
Indicate by numbers in box under Sample column.

Holly Sugar
Boiler #1
Test #2

Requestor ______
JN ______
Assigned to ______
Date Assigned ______

ALL WEIGHTS IN GRAMS

Sample 1

Tare Weight	Tare + Sample Weight
1. 109.0152	1. 109.0492
2. 109.0154	2. 109.0492
	3. 109.0490

- Sample Number: Probe
- Filter or Container #: 89.2
- Filter or Container plus Sample: 109.0491
- Filter or Container Tare: 109.0153
- Sample: 0.0338

Sample 2

Tare Weight	Tare + Sample Weight
1. 0.3539	1. 0.3788
2. 0.3540	2. 0.3786
3. 0.3537	3. 0.3782

- Sample Number: Filter
- Filter or Container #: 3.120
- Filter or Container plus Sample: 0.3785
- Filter or Container Tare: 0.3539
- Sample: 0.0246

Sample 3

Tare Weight	Tare + Sample Weight
1. 104.0158	1. 104.1730
2. 104.0158	2. 104.1815
	3. 104.1734
	4. 104.1725
	5. 104.1683
	6. 104.1766
	7. 104.1861
	8. 104.1794
	9. 104.1793
	10. 104.1722

- Sample Number: Imp I
- Filter or Container #: 90.2
- Filter or Container plus Sample: 104.1730
- Filter or Container Tare: 104.0158
- Sample: 0.1572

Sample 4

Tare Weight	Tare + Sample Weight
1. 108.4337	1. 108.4340
2. 108.4337	2. 108.4341
	3. 108.4340

- Sample Number: Imp O
- Filter or Container #: 91.2
- Filter or Container plus Sample: 108.4340
- Filter or Container Tare: 108.4337
- Sample: 0.0003

FIELD DATA

PLANT HOLLY SUGAR
DATE 6/7/91
SAMPLING LOCATION BOILER # 1
SAMPLE TYPE PARTICULATE
RUN NUMBER # 3
OPERATOR MARCOTTE
AMBIENT TEMPERATURE
BAROMETRIC PRESSURE 29.85
STATIC PRESSURE, (P_s) -0.29
FILTER NUMBER (s) 3.121 (3")

BOILER # 1
PARTICULATE
RUN # 3

PROBE LENGTH AND TYPE # 3 (s.s. 5')
NOZZLE I.D. 0.3600 (s.s.)
ASSUMED MOISTURE, % 10%
SAMPLE BOX NUMBER WES #11
METER BOX NUMBER WES #11
METER $\Delta H_@$ WES #11
C FACTOR
PROBE HEATER SETTING 250°F
HEATER BOX SETTING 250°F
REFERENCE Δp # 14 (0-.50")

48 ml
+ 9
= ULC

SCHEMATIC OF TRAVERSE POINT LAYOUT

READ AND RECORD ALL DATA EVERY 5 MINUTES

preleak ✓ < .018 cfm @ 15"   postleak ✓ < .020 cfm @ 16"

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft³	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
	0	2:32	506.777									
1	5	2:37	510.335	0.18	1.88	1.88	353	76	76	5	250	63
2	10	2:42	513.895	0.18	1.88	1.88	355	78	76	5	249	65
3	15	2:47	517.490	0.18	1.88	1.88	356	81	77	5	251	65
4	20	2:52	521.220	0.20	2.10	2.10	354	84	78	5	248	66
5	25	2:57	525.095	0.21	2.20	2.20	355	85	78	6	251	64
6	30	3:02	528.887	0.20	2.11	2.11	353	87	78	5	247	58
*	STOP	3:05	SWITCH PORTS *									*
1	35	3:10	532.295	0.19	2.01	2.01	351	87	78	5	249	57
2	40	3:15	535.830	0.19	2.00	2.00	354	86	79	6	251	56
3	45	3:20	539.375	0.18	1.89	1.89	356	86	79	8	248	57
4	50	3:25	542.800	0.17	1.79	1.79	357	86	80	7	247	56
5	55	3:30	546.280	0.17	1.79	1.79	354	86	80	7	250	57
6	60	3:35	549.834	0.18	1.91	1.91	351	86	81	8	247	59

COMMENTS:

EPA (Dur) 235
4/72

A00009

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Boiler 1
RUN: Particulate 1
DATE: June 7, 1991

GAS METER READING	VELOCITY HEAD	SQUARE ROOT	AVERAGE SQUARED		ORIFICE PRESSURE DELTA H		STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
417.824	0.18	0.424264			1.88		352	76	76
462.025	0.19	0.435889			1.97		354	77	77
---------	0.18	0.424264			1.89		355	81	79
44.201	0.2	0.447213			2.11		356	85	81
=========	0.21	0.458257			2.22		355	88	82
(DIFFERENCE)	0.2	0.447213			2.13		353	90	84
	0.18	0.424264			1.92		352	90	84
	0.21	0.458257			2.24		351	90	84
	0.19	0.435889			2.02		254	88	84
	0.19	0.435889			2.02		353	88	84
	0.19	0.435889			2.02		354	88	84
	0.17	0.412310			1.81		350	88	84

	AVERAGE	0.436633	0.191	AVERAGE	2.02	AVERAGE	345	AVERAGE	83.83
		=========	=========		============		=========		=========

A00010

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Boiler 1
RUN: Particulate 2
DATE: June 7, 1991

GAS METER READING	VELOCITY HEAD	SQUARE ROOT	AVERAGE SQUARED	ORIFICE PRESSURE DELTA H	STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
462.451	0.17	0.412310		1.77	354	77	77
506.044	0.19	0.435889		1.98	355	77	78
---------	0.19	0.435889		1.98	357	79	78
43.593	0.21	0.458257		2.2	356	82	78
=========	0.21	0.458257		2.21	354	84	78
(DIFFERENCE)	0.2	0.447213		2.1	355	84	78
	0.19	0.435889		2	352	84	78
	0.19	0.435889		2	245	83	79
	0.18	0.424264		1.89	356	84	79
	0.19	0.435889		2	355	87	81
	0.17	0.412310		1.79	356	85	79
	0.18	0.424264		1.9	353	86	80

	AVERAGE	0.434693	0.189	AVERAGE 1.99	AVERAGE 346	AVERAGE	80.63
		=========	=========	============	=========		=========

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Boiler 1
RUN: Particulate 3
DATE: June 7, 1991

GAS METER READING	VELOCITY HEAD	SQUARE ROOT			ORIFICE PRESSURE DELTA H		STACK TEMPERATURE		DRY GAS METER TEMPERATURE	
506.777	0.18	0.424264			1.88		353		76	76
549.834	0.18	0.424264			1.88		355		78	76
---------	0.18	0.424264			1.88		356		81	77
43.057	0.2	0.447213			2.1		354		84	78
=========	0.21	0.458257			2.2		355		85	78
(DIFFERENCE)	0.2	0.447213			2.11		353		87	78
	0.19	0.435889			2.01		351		87	78
	0.19	0.435889			2		354		86	79
	0.18	0.424264			1.89		356		86	79
	0.17	0.412310			1.79		357		86	80
	0.17	0.412310			1.79		354		86	80
	0.18	0.424264			1.91		351		86	81
		---------	AVERAGE SQUARED							
	AVERAGE	0.430867	0.186	AVERAGE	1.95	AVERAGE	354	AVERAGE		81.17
		=========	=========		============		=========			=========

A00012

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1.________ 2.________
3.________ 4.________
Indicate by numbers in box under Sample column.

Holly Sugar
Boiler #1
Test #3

Requestor ________
JN ________
Assigned to ________
Date Assigned ________

ALL WEIGHTS IN GRAMS

Sample Number: Probe — Filter or Container #: 92.2

TARE WEIGHT		TARE + SAMPLE WEIGHT	
1. 105.8379	9.	1. 105.8862	9.
2. 105.8380	10.	2. 105.8878	10.
3.	11.	3. 105.8877	11.
4.	12.	4. 105.8862	12.
5.	13.	5. 105.8864	13.
6.	14.	6.	14.
7.	15.	7.	15.
8.	16.	8.	16.

FILTER OR CONTAINER PLUS SAMPLE: 105.8863
FILTER OR CONTAINER TARE: 105.8380
SAMPLE: 0.0483

Sample Number: Filter — Filter or Container #: 3121

TARE WEIGHT		TARE + SAMPLE WEIGHT	
1. 0.3549	9.	1. 0.3860	9.
2. 0.3551	10.	2. 0.3858	10.
3. 0.3550	11.	3. 0.3850	11.
4.	12.	4.	12.
5.	13.	5.	13.
6.	14.	6.	14.
7.	15.	7.	15.
8.	16.	8.	16.

FILTER OR CONTAINER PLUS SAMPLE: 0.3856
FILTER OR CONTAINER TARE: 0.3550
SAMPLE: 0.0306

Sample Number: Imp I — Filter or Container #: 93.2

TARE WEIGHT		TARE + SAMPLE WEIGHT	
1. 97.0549	9.	1. 97.1715	9.
2. 97.0551	10.	2. 97.1752	10.
3.	11.	3. 97.1760	11.
4.	12.	4. 97.1707	12.
5.	13.	5. 97.1666	13.
6.	14.	6. 97.1716	14.
7.	15.	7.	15.
8.	16.	8.	16.

FILTER OR CONTAINER PLUS SAMPLE: 97.1713
FILTER OR CONTAINER TARE: 97.0550
SAMPLE: 0.1163

Sample Number: Imp O — Filter or Container #: 94.2

TARE WEIGHT		TARE + SAMPLE WEIGHT	
1. 101.0348	9.	1. 101.0353	9.
2. 101.0348	10.	2. 101.0352	10.
3.	11.	3. 101.0353	11.
4.	12.	4.	12.
5.	13.	5.	13.
6.	14.	6.	14.
7.	15.	7.	15.
8.	16.	8.	16.

FILTER OR CONTAINER PLUS SAMPLE: 101.0353
FILTER OR CONTAINER TARE: 101.0348
SAMPLE: 0.0005

| |

05 3.00 SO2 PPM

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 07:42:47 *** ENDS AT 07:42:48 JUN 07,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	0	NOX		PPM	02	7.45	O2		*	03	27	CO		PPM	04	0.56	CO2		%
05	0.00	SO2		PPM															

CAC

CMS for Blr #1

*** PRINTER ON 07:42:45 JUN 07,91 ***
*** PRINTER OFF 20:35:39 JUN 06,91 ***

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 20:34:56 *** ENDS AT 20:34:57 JUN 06,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	1	NOX		PPM	02	0.83	O2		*	03	3	CO		PPM	04	0.75	SO2		%
05	91.05	SO2		PPM															

1E — 0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00

1D — 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2

*** LOG GRP 2 *** UNIT HOLLY *** STARTS AT 20:24:13 *** ENDS AT 20:24:13 JUN 06,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
03	8	NOX	C		10	3	CO	C											

SO2 Drift

A00014

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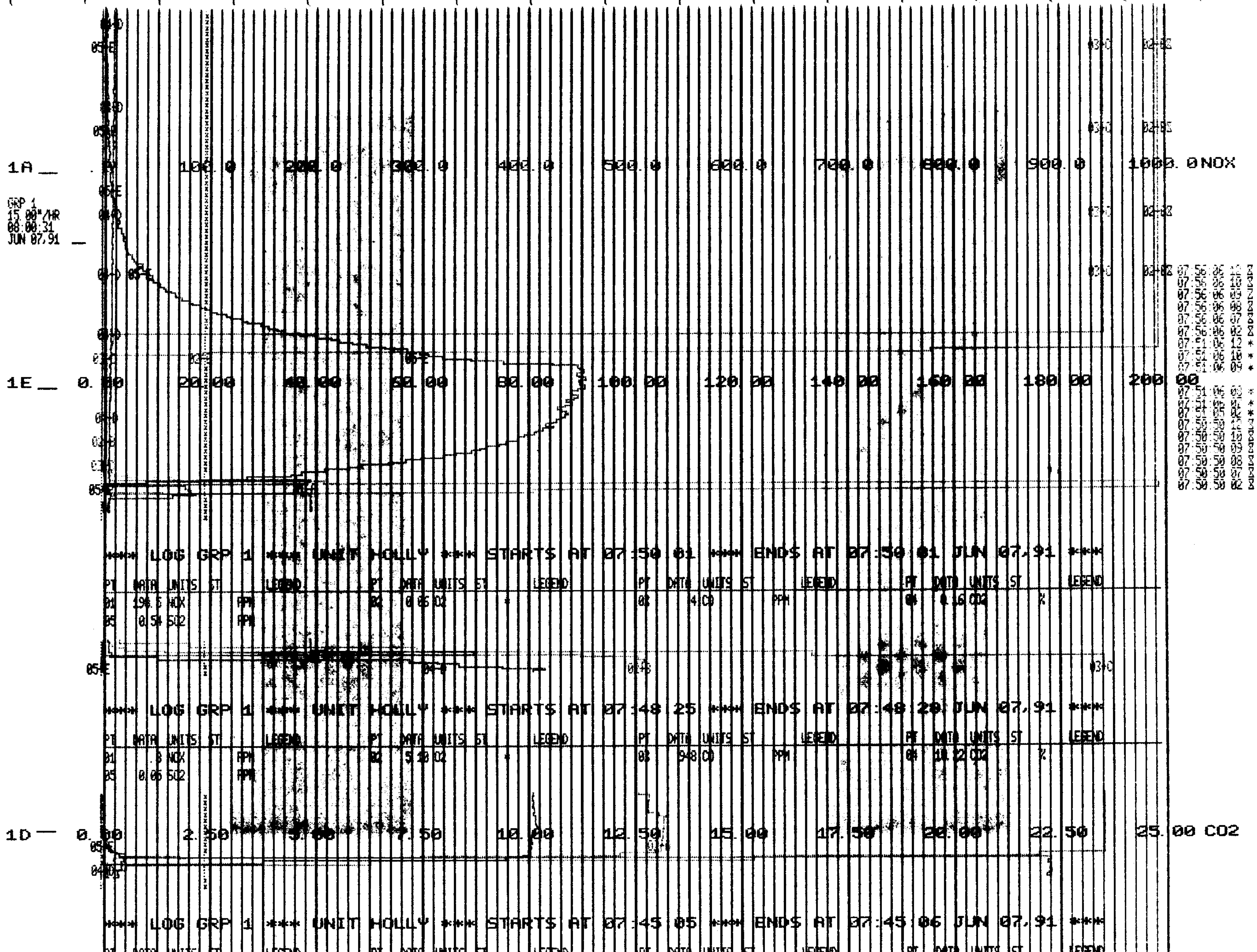
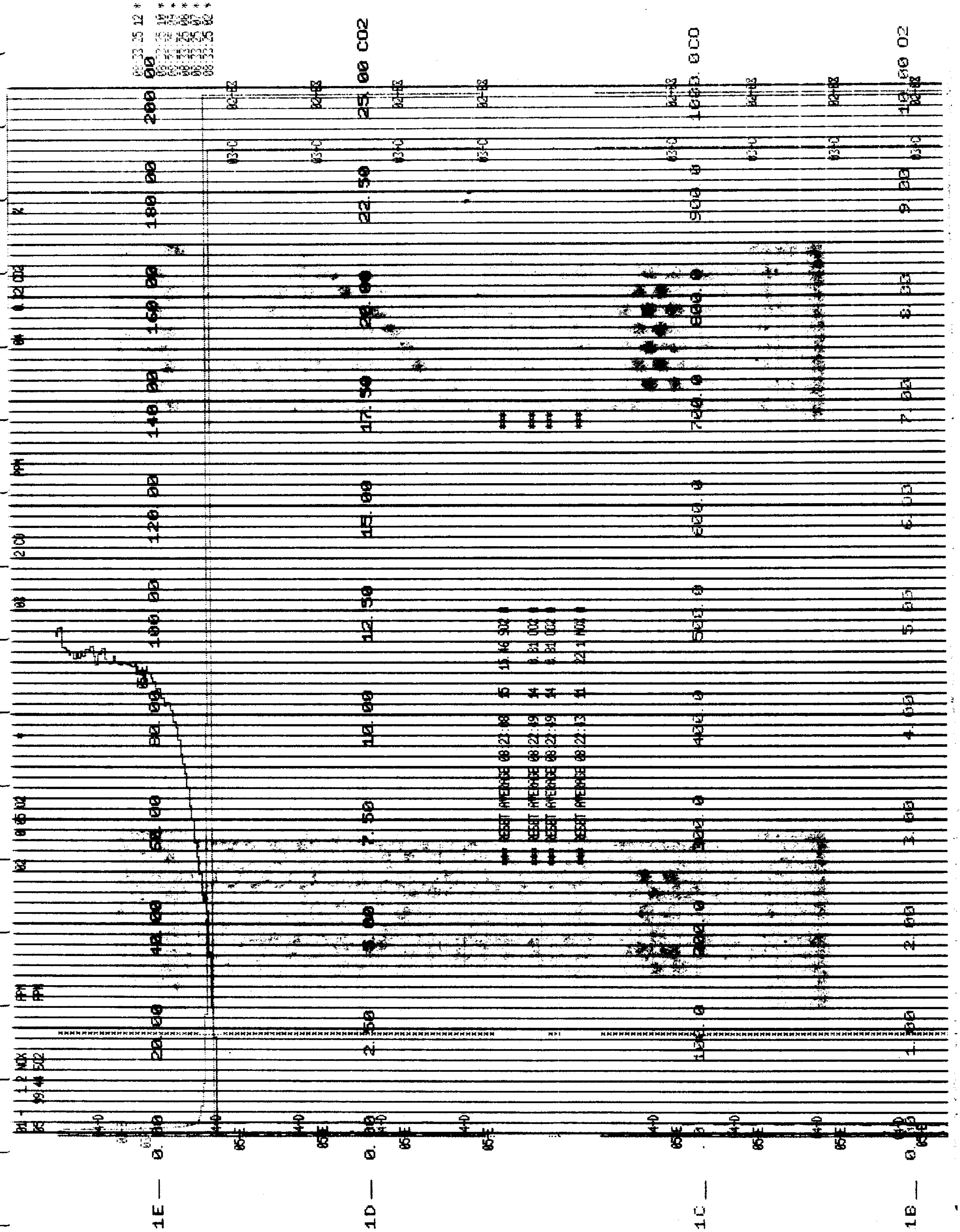
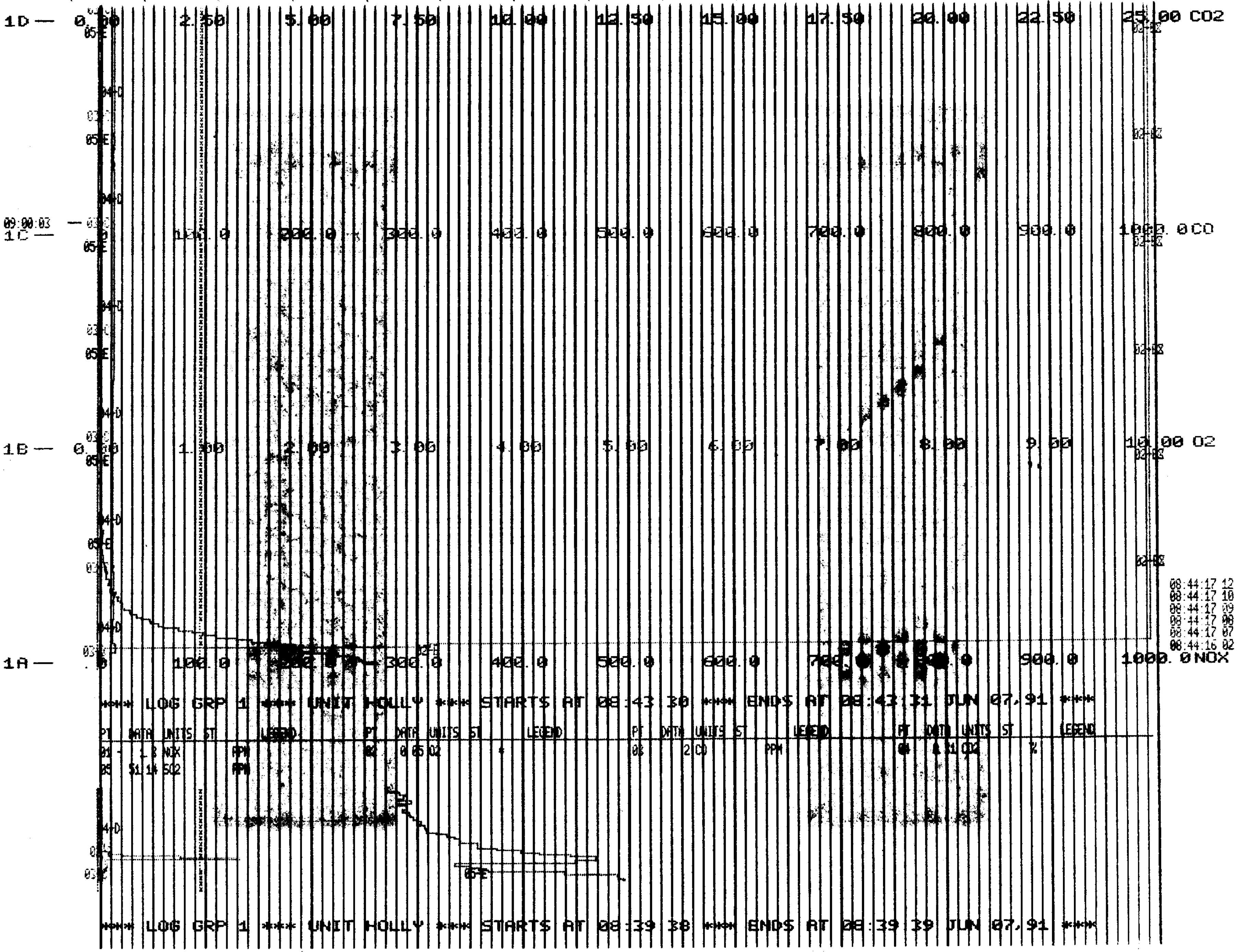
A00015

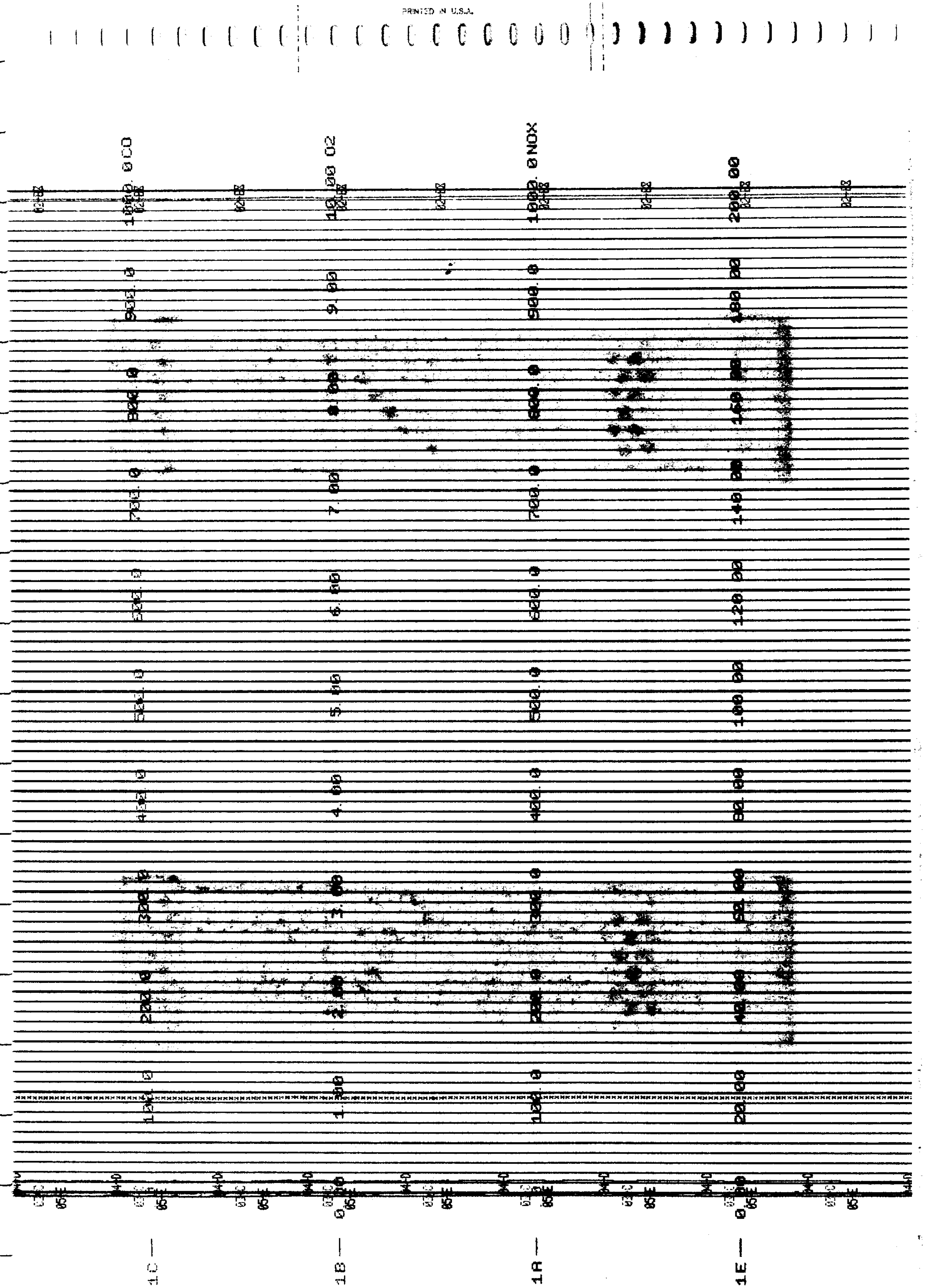

1A
GRP 1
15.00"/HR
08:00:31
JUN 07.91
0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 NOX
1E
0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00
1D
0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 07:50:01 *** ENDS AT 07:50:01 JUN 07,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 196.5 NOX PPM 02 0.06 O2 % 03 4 CO PPM 04 0.16 CO2 %
05 0.54 SO2 PPM
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 07:48:25 *** ENDS AT 07:48:20 JUN 07,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 .8 NOX PPM 02 5.10 O2 % 03 948 CO PPM 04 10.22 CO2 %
05 0.06 SO2 PPM
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 07:45:05 *** ENDS AT 07:45:06 JUN 07,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND



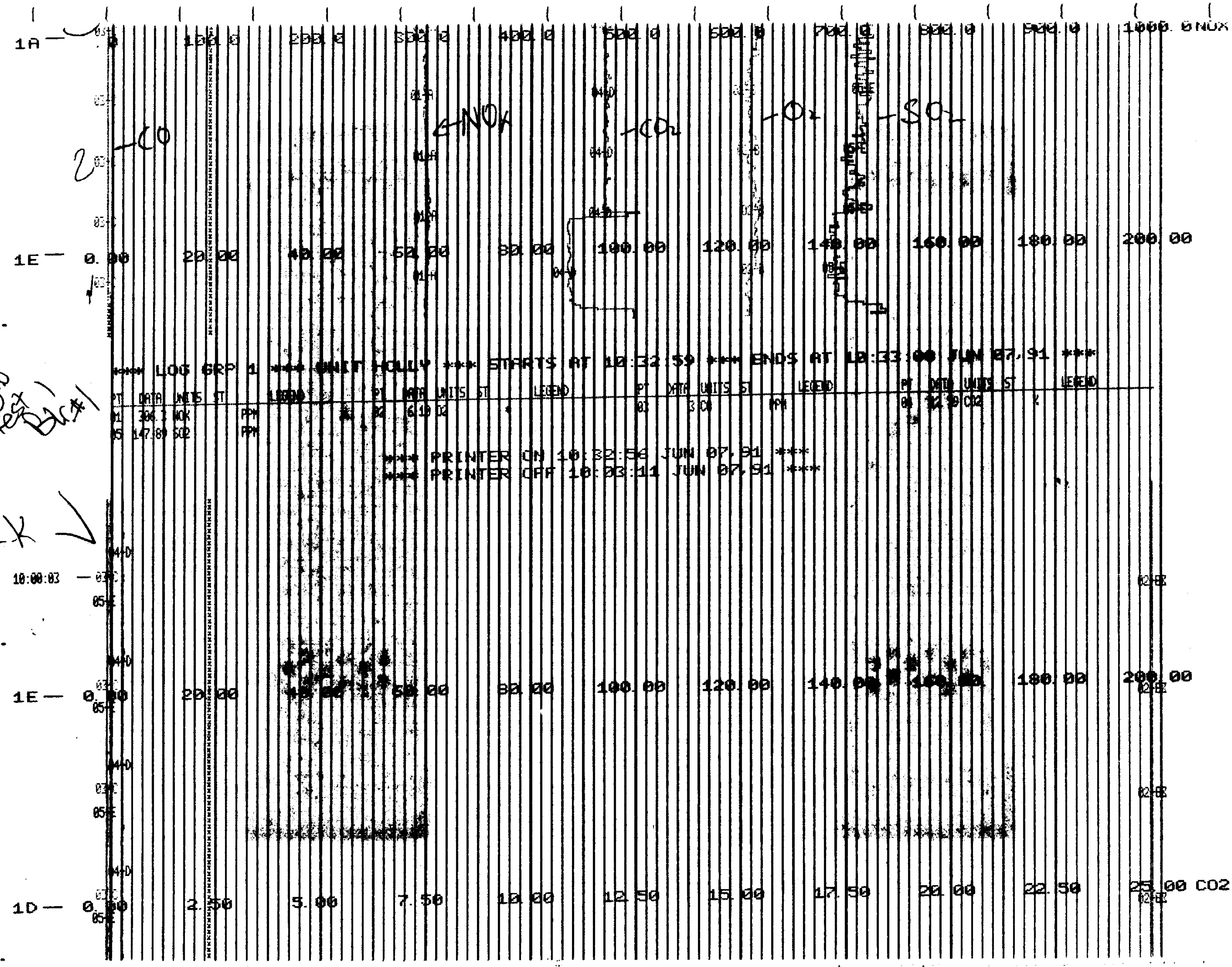
A00016


1D — 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2
09:00:03
1C — 0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
1B — 0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 O2
1A — 0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 NOX
08:44:17 12
08:44:17 10
08:44:17 09
08:44:17 08
08:44:17 07
08:44:16 02
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 08:43:30 *** ENDS AT 08:43:31 JUN 07,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 1.3 NOX PPM 02 0.05 O2 % 03 2 CO PPM 04 1.11 CO2 %
05 51.14 SO2 PPM
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 08:39:38 *** ENDS AT 08:39:39 JUN 07,91 ***

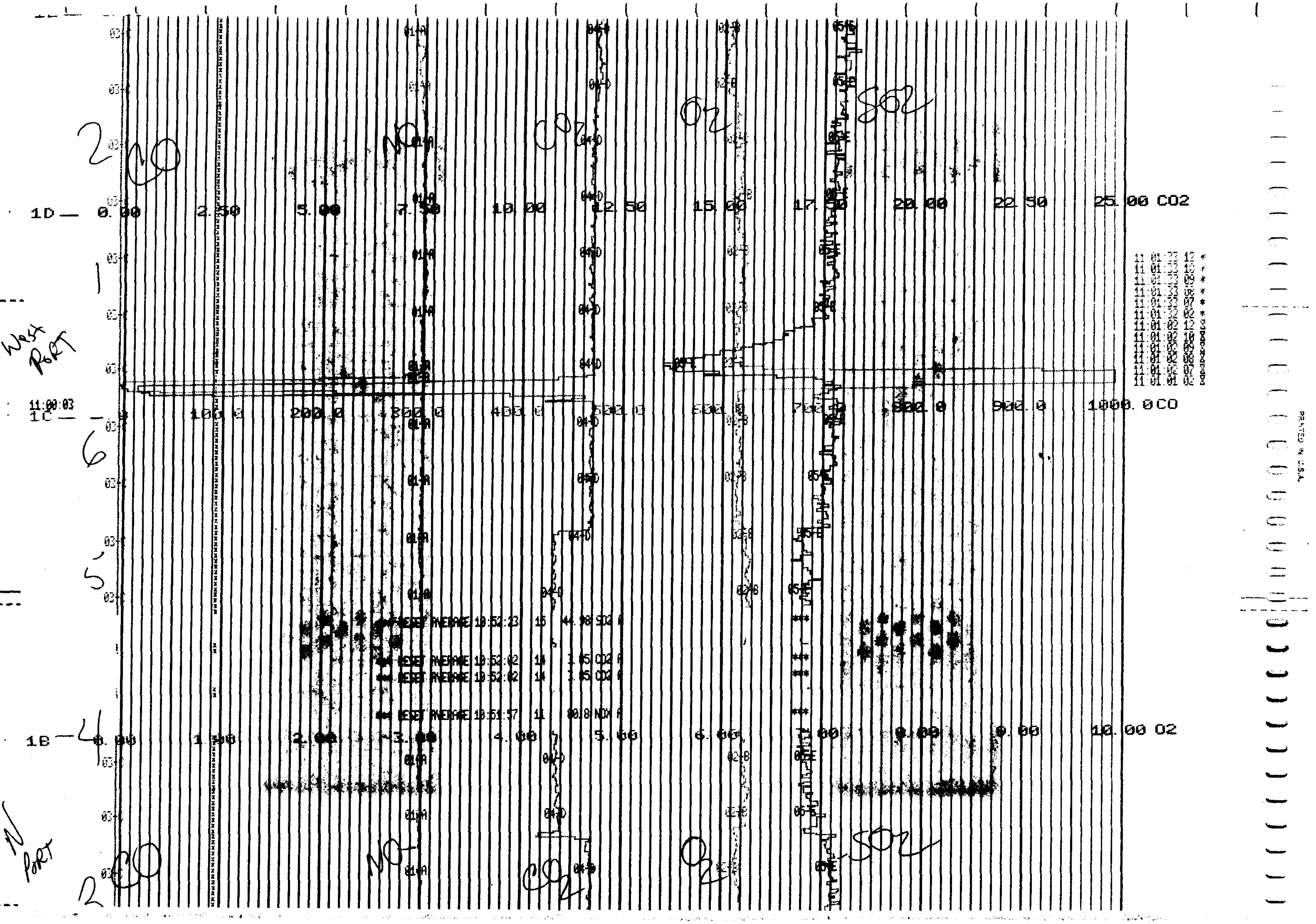
A00017



1000.0 CO
10.00 O2
1000.0 NOX
200.00
1C
1B
1A
1E

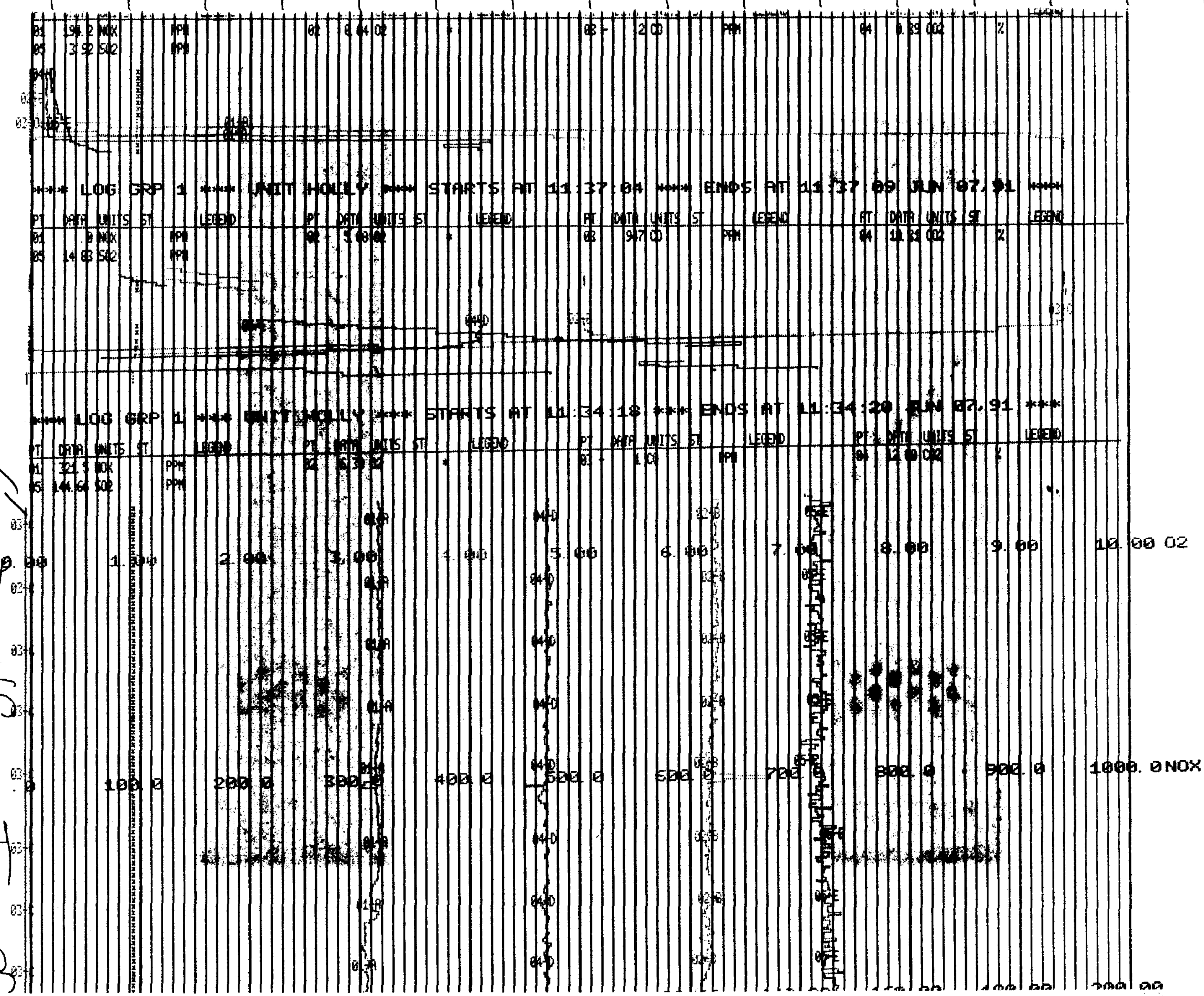

1000.0 NOX
200.00
25.00 CO2
1A
1E
1D
10:00:03
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 10:32:59 *** ENDS AT 10:33:00 JUN 07,91 ***
PT DATA UNITS ST LEGEND
01 306.1 NOX PPM
05 147.80 SO2 PPM
02 6.10 O2 %
03 3 CO PPM
04 12.59 CO2 %
*** PRINTER ON 10:32:56 JUN 07,91 ***
*** PRINTER OFF 10:03:11 JUN 07,91 ***
2 CO
4 NOx
CO2
O2
SO2
Begin test Bac#1
LK

A00019

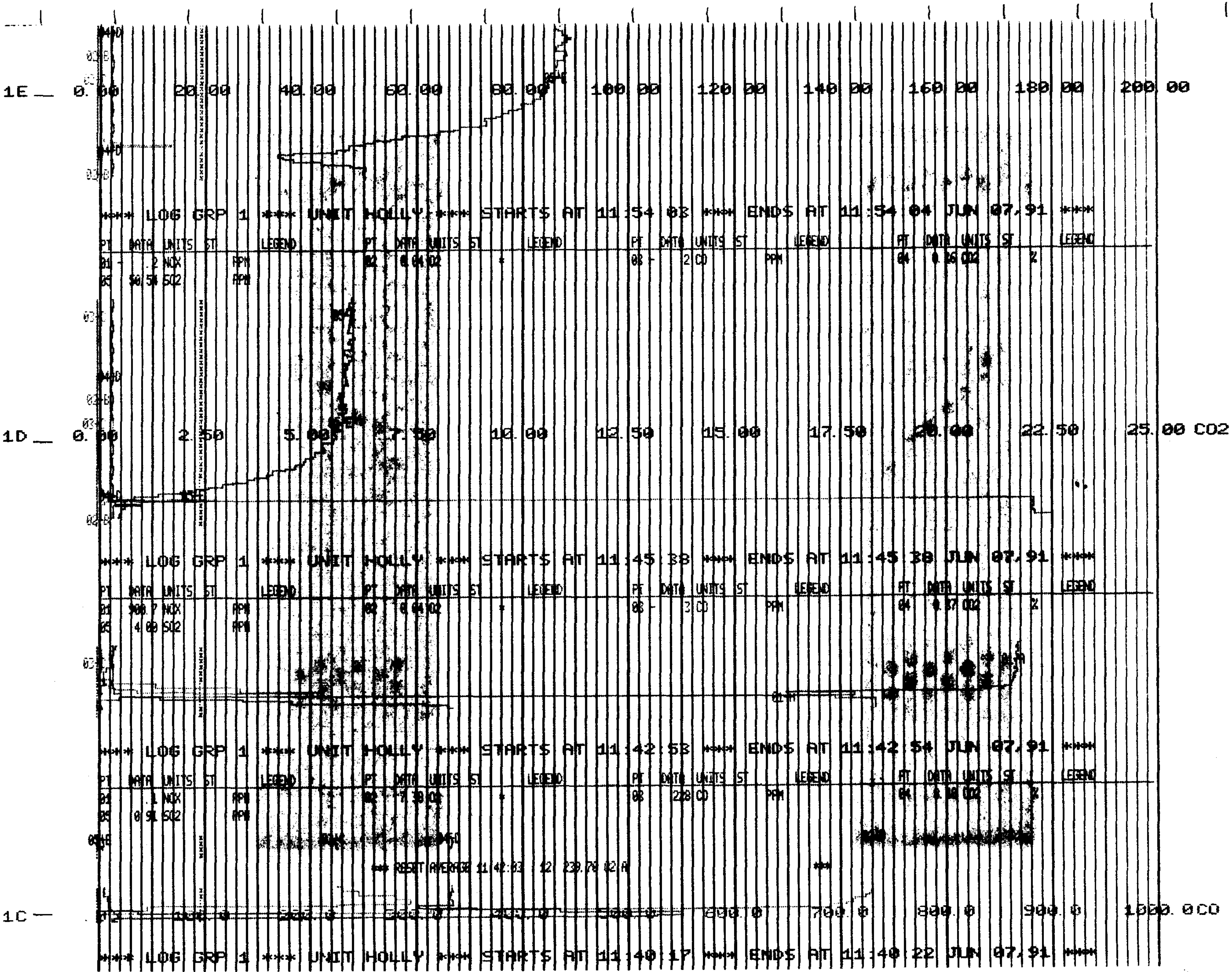


1D
0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2
1C
11:00:03
0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
1B
0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 O2
RESET AVERAGE 10:52:23 15 44.98 SO2
RESET AVERAGE 10:52:02 14 1.05 CO2
RESET AVERAGE 10:52:02 14 1.05 CO2
RESET AVERAGE 10:51:57 11 80.8 NOX
CO
NO
CO2
O2
SO2
West Port
N Port
PRINTED IN U.S.A.

A00020



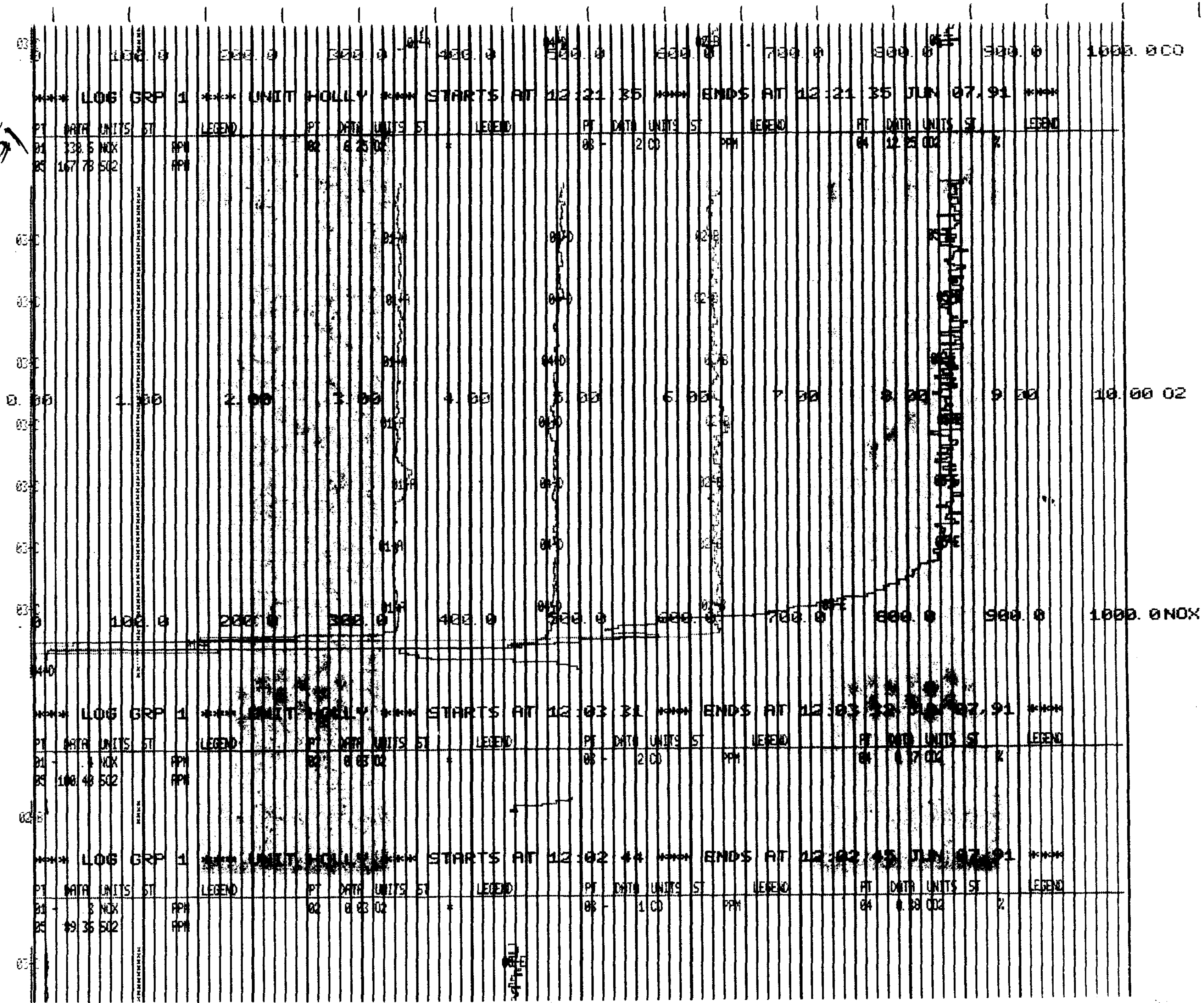
01 194.2 NOX PPM 02 6.04 O2 * 03 - 2 CO PPM 04 0.39 CO2 %
05 3.92 SO2 PPM
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:37:04 *** ENDS AT 11:37:09 JUN 07,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 .0 NOX PPM 02 5.00 O2 * 03 947 CO PPM 04 11.31 CO2 %
05 14.83 SO2 PPM
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:34:18 *** ENDS AT 11:34:20 JUN 07,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 321.5 NOX PPM 02 6.39 O2 * 03 - 1 CO PPM 04 12.00 CO2 %
05 144.64 SO2 PPM
1B — 0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 O2
1A — .0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 NOX
CHART NO. WES CTW63024



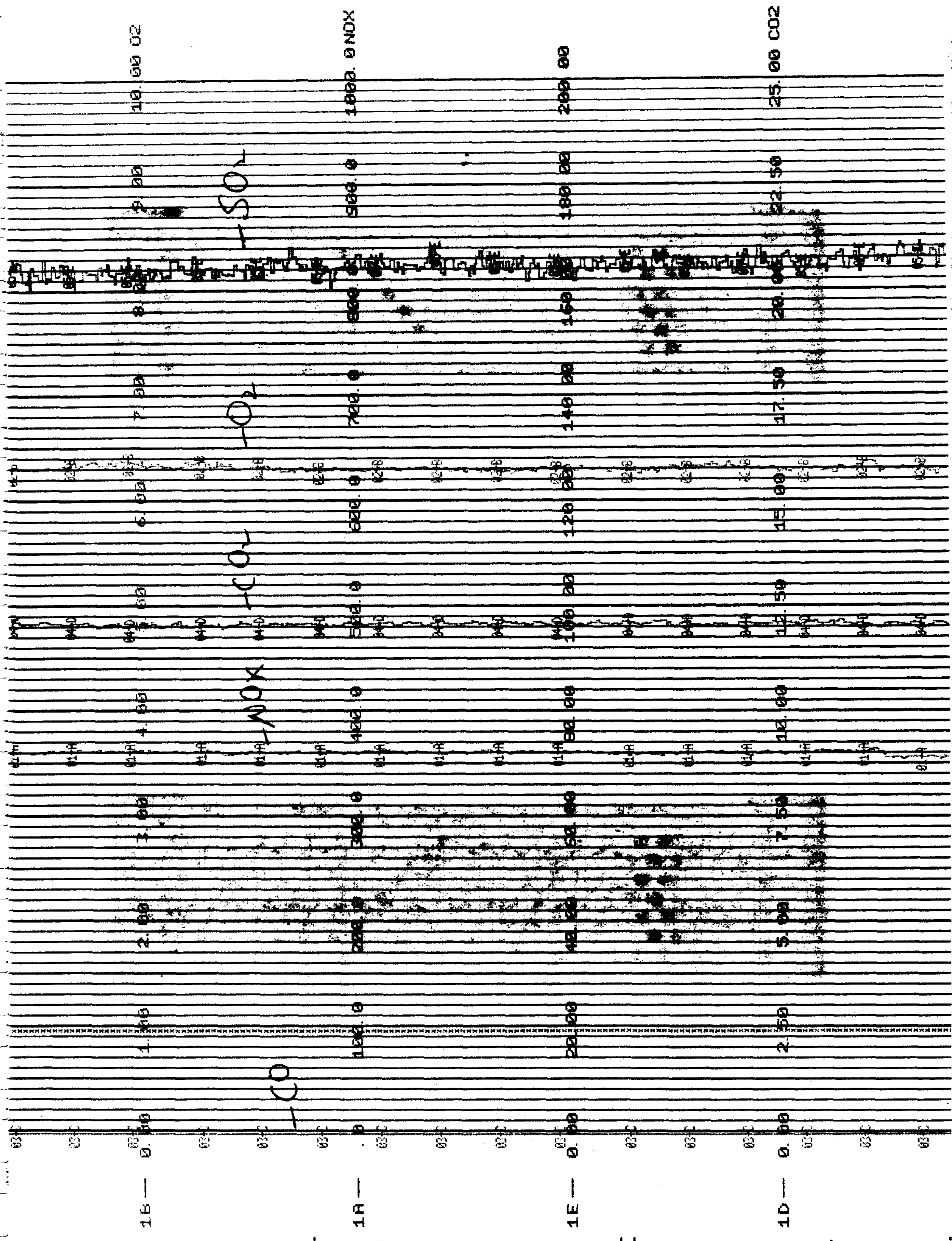
1E
0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:54:03 *** ENDS AT 11:54:04 JUN 07,91 ***
1D
0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:45:38 *** ENDS AT 11:45:38 JUN 07,91 ***
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:42:53 *** ENDS AT 11:42:54 JUN 07,91 ***
1C
700.0 800.0 900.0 1000.0CO
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:40:17 *** ENDS AT 11:40:22 JUN 07,91 ***
PRINTED IN U.S.A.

A00022

Begin 1 of 2 Blk



PRINTED IN U.S.A.



A00024

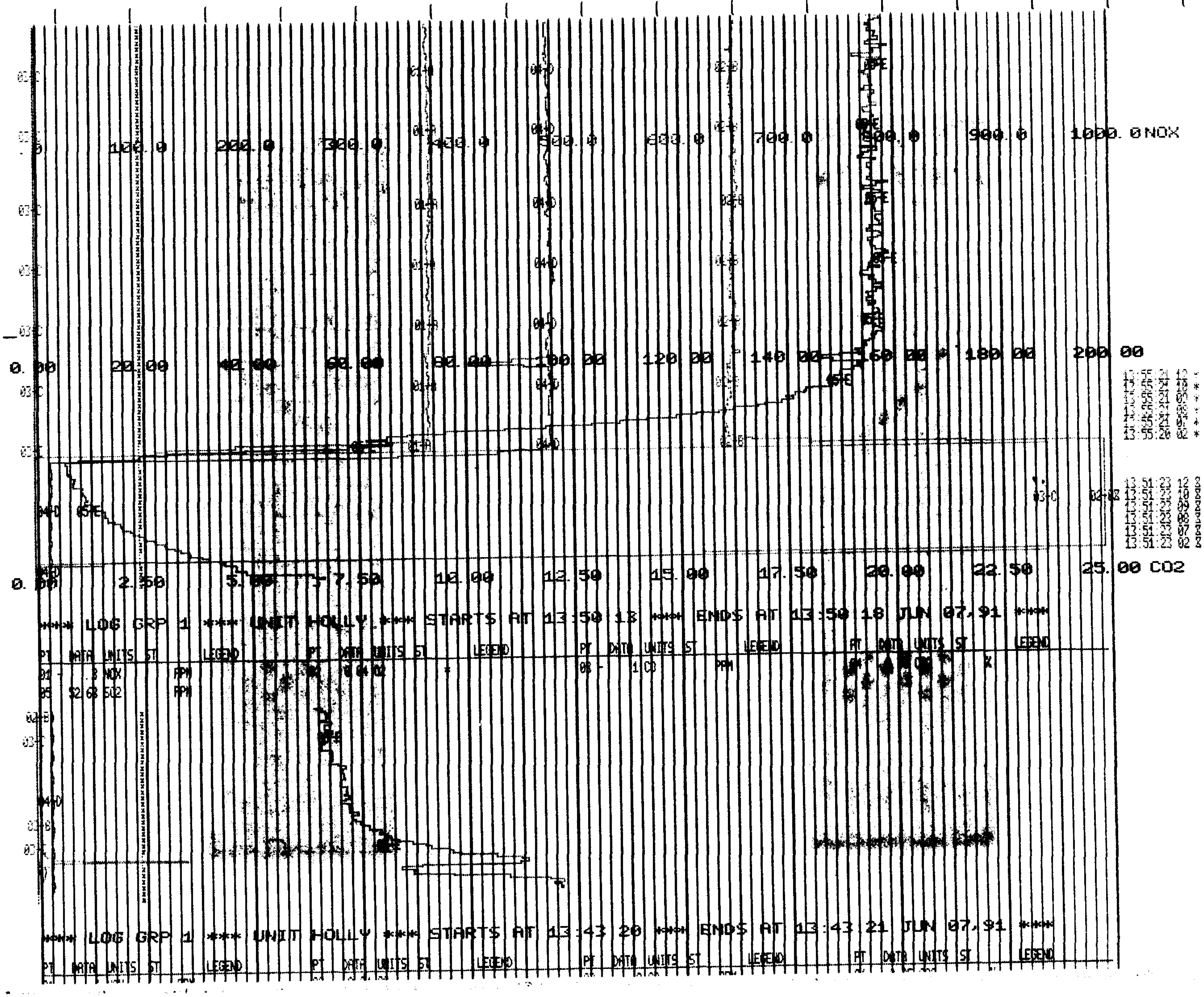
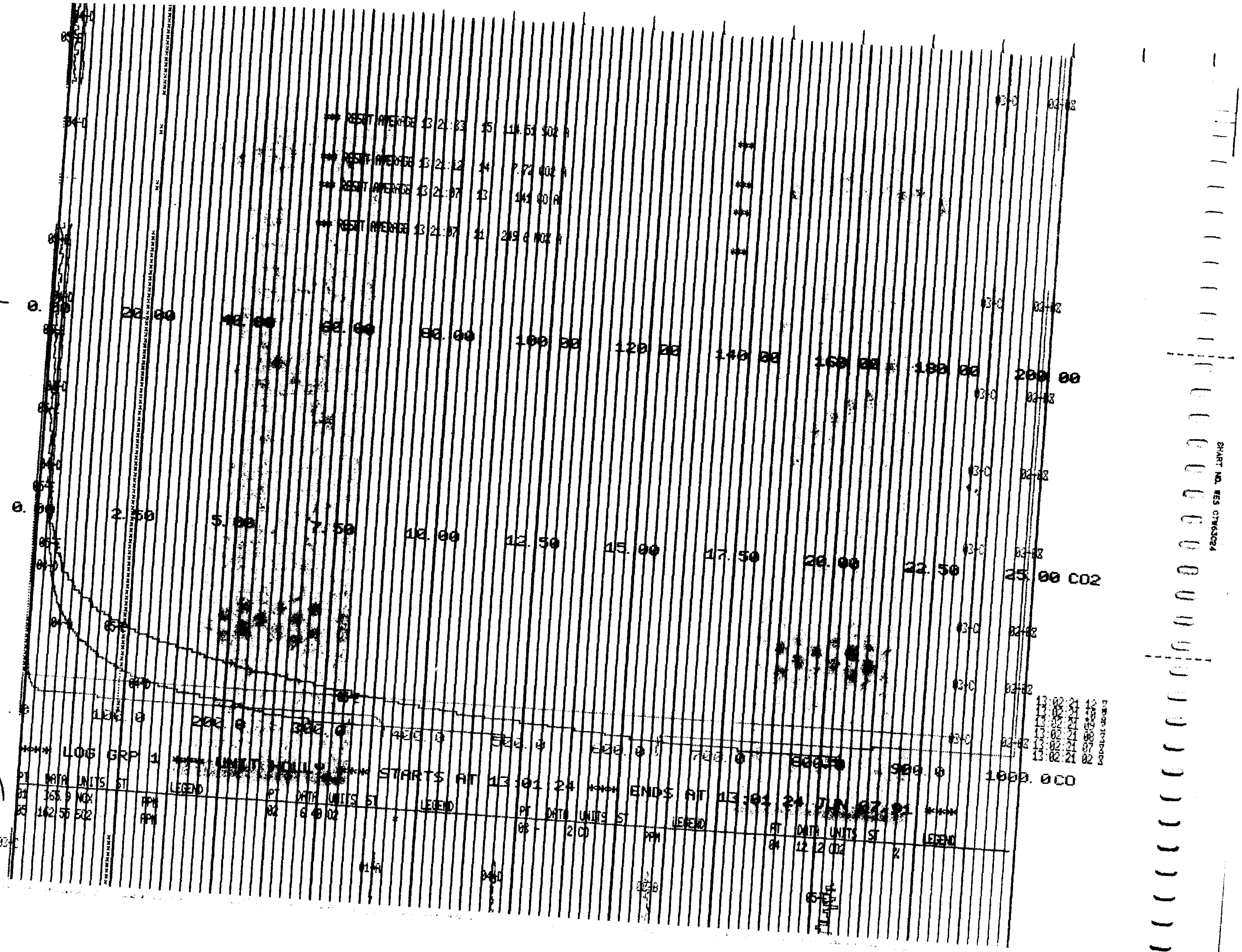


CHART NO. WE3 CTW63024
1A
0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 NOX
14:00:05
1E
0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00
1D
0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 13:50 13 *** ENDS AT 13:50 18 JUN 07,91 ***
PT DATA UNITS ST LEGEND
01 - .3 NOX PPM
05 52.68 SO2 PPM
08 - 1 CO PPM
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 13:43 20 *** ENDS AT 13:43 21 JUN 07,91 ***
PT DATA UNITS ST LEGEND

A00027



End Test 2 Bl. #1

A00025

100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0CO

**** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 13:37 32 **** ENDS AT 13:37 33 JUN 07,91 ****

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	190.8	NOX		PPM	02	10.05	O2		*	03	3	CO		PPM	04	0.19	CO2		%
05	1.41	SO2		PPM															

**** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 13:35 42 **** ENDS AT 13:35 43 JUN 07,91 ****

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	2.9	NOX		PPM	02	5.87	O2		*	03	947	CO		PPM	04	10.15	CO2		%
05	0.74	SO2		PPM															

0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 O2

**** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 13:33 47 **** ENDS AT 13:33 48 JUN 07,91 ****

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	890.0	NOX		PPM	02	0.05	O2		*	03	3	CO		PPM	04	0.39	CO2		%
05	3.17	SO2		PPM															

**** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 13:31 42 **** ENDS AT 13:31 43 JUN 07,91 ****

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	9	NOX		PPM	02	7.41	O2		*	03	215	CO		PPM	04	0.52	CO2		%
05	0.90	SO2		PPM															

13:29:15 12 *
13:29:15 10 *
13:29:15 05 *
13:29:15 08 *
13:29:15 07 *
13:29:14 02 *

100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0NOX

PRINTED IN U.S.A.

Begin test 3 Br #1

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 14:32:55 *** ENDS AT 14:32:56 JUN 07,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	166.6	NOX		PPM	02	6.55	O2		*	03	- 1	CO		PPM	04	12.00	CO2		%
05	155.84	SO2		PPM															

*** LOG ALL POINTS *** UNIT HOLLY *** STARTS AT 14:26:00 *** ENDS AT 14:26:03 JUN 07,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	166.6	NOX		PPM	02	6.54	O2		*	03	- 1	CO		PPM	04	12.04	CO2		%
05	157.19	SO2		PPM	07	11.409	CORR1			08	1.2434	CORR2			09	466	NOX C		
10	- 1	CO C			11	282.6	NOX A			12	254.65	O2 A			13	277	CO A		
14	6.72	CO2 A			15	88.12	SO2 A												

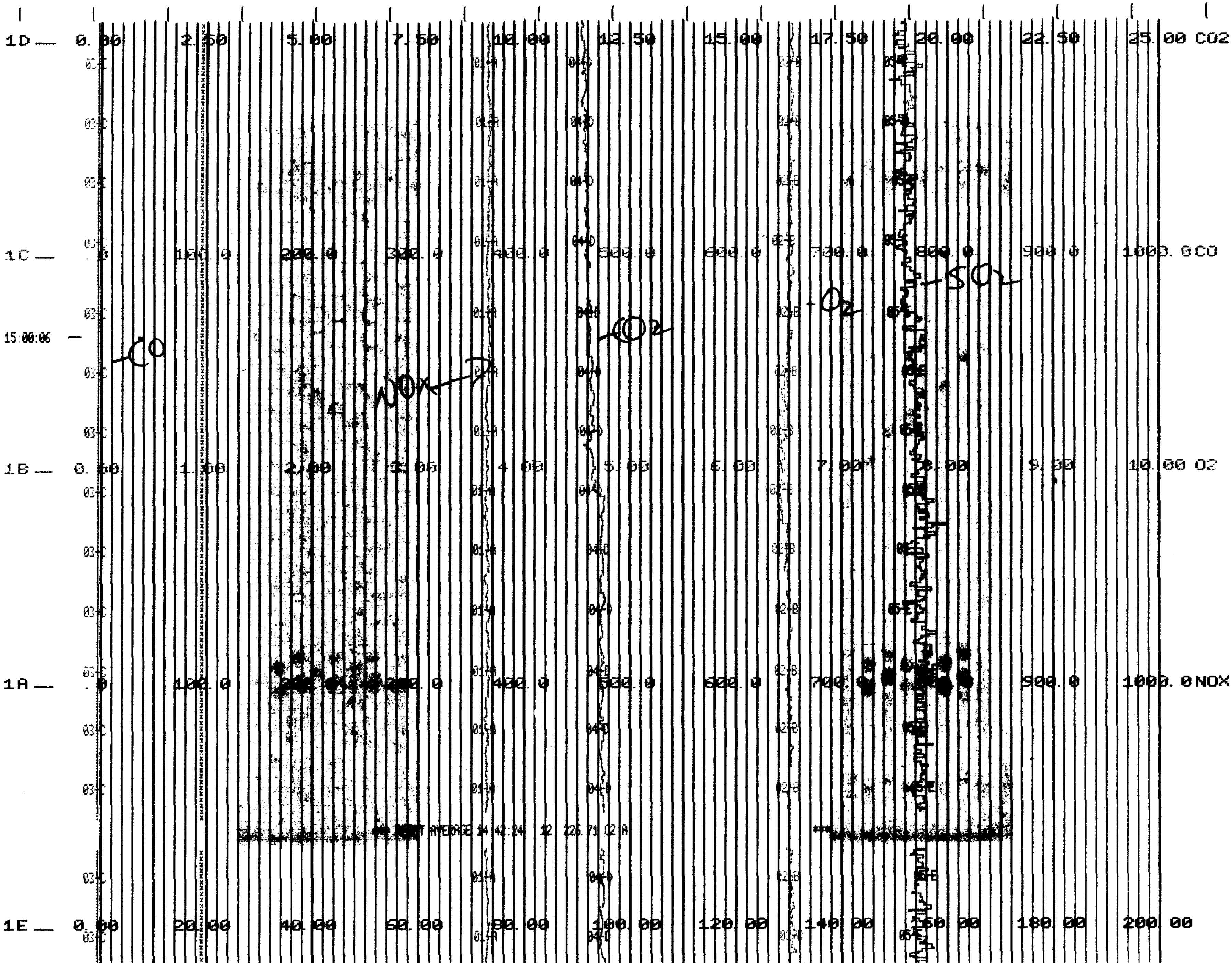
1D — 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2

1C — 0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO

1B — 0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 O2

A00028

PRINTED IN U.S.A.


1D 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2
1C 0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
15:00:06
1B 0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 O2
1A 0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 NOX
1E 0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00
SO2
O2
CO2
NOX
CO

A00029

PT	DATA	UNITS	ST	LEGEND
05	$1.05	SO2		PPM

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:21:20 *** ENDS AT 15:21:23 JUN 07,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	888.0	NOX		PPM	02	0.05	O2		*	03 -	1	CO		PPM	04	0.36	CO2		%
05	2.00	SO2		PPM															

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:20:00 *** ENDS AT 15:20:01 JUN 07,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	.5	NOX		PPM	02	7.59	O2		*	03	225	CO		PPM	04	0.10	CO2		%
05	0.96	SO2		PPM															

1E— 0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:17:37 *** ENDS AT 15:17:39 JUN 07,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	199.9	NOX		PPM	02	0.05	O2		*	03 -	1	CO		PPM	04	0.19	CO2		%
05	3.46	SO2		PPM															

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:16:05 *** ENDS AT 15:16:11 JUN 07,91 ***

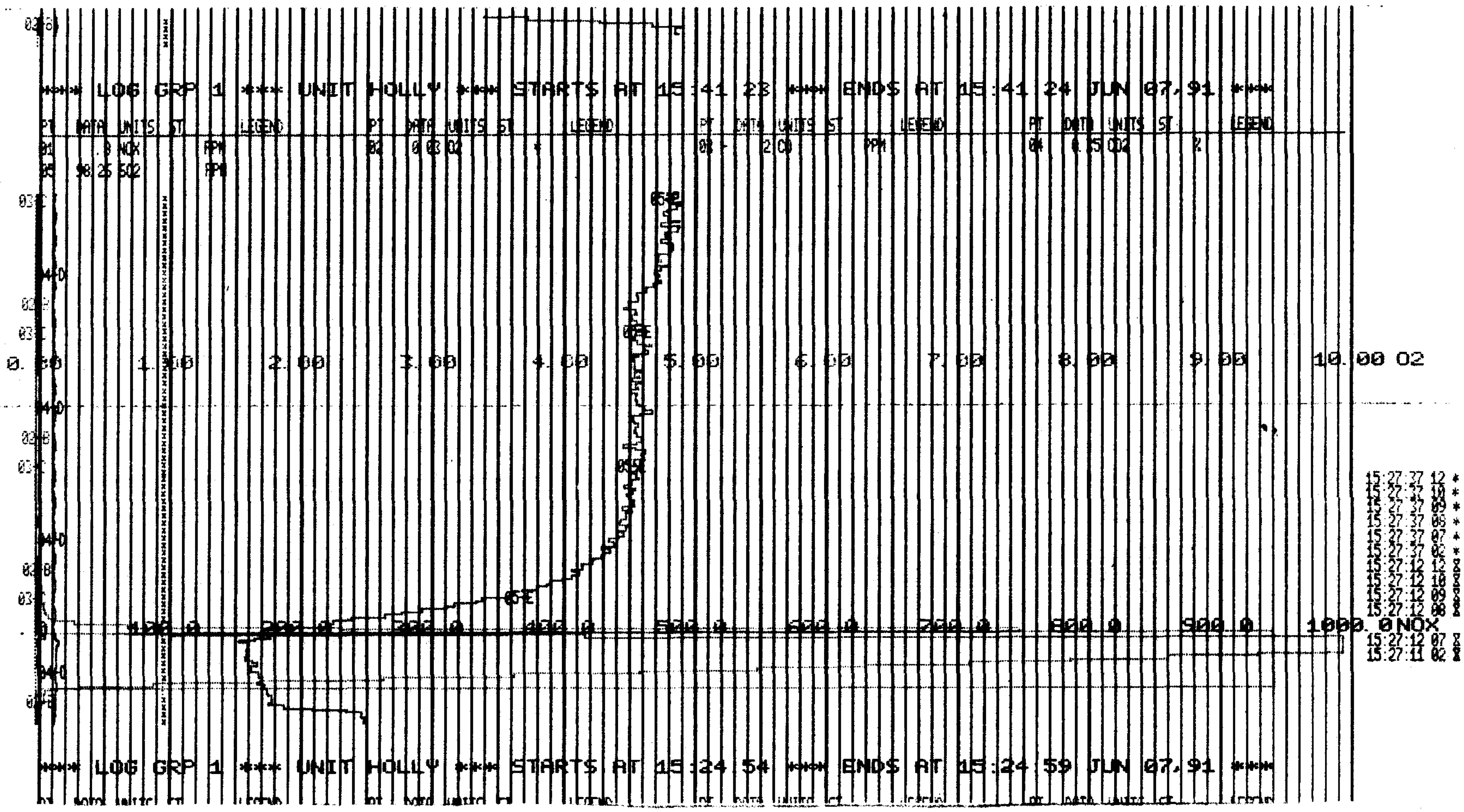
PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	.9	NOX		PPM	02	5.19	O2		*	03	947	CO		PPM	04	9.99	CO2		%
05	7.28	SO2		PPM															

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:12:48 *** ENDS AT 15:12:49 JUN 07,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	167.5	NOX		PPM	02	6.59	O2		*	03 -	2	CO		PPM	04	11.13	CO2		%
05	154.75	SO2		PPM															

End Test 3 bk #1

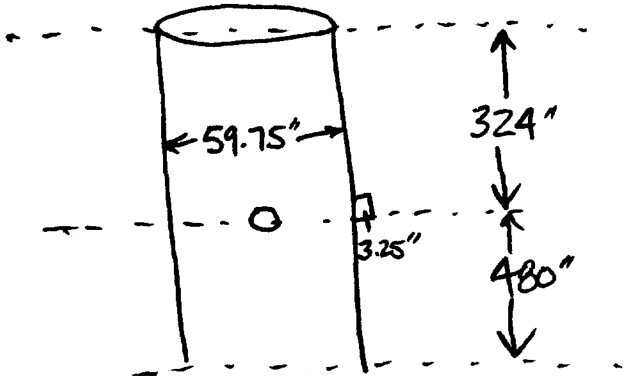
CHART NO. WES OTW63024



A00031

TRAVERSE POINT LOCATION FOR CIRCULAR DUCTS

PLANT Holly Sugar
DATE 6/8/91
SAMPLING LOCATION Boiler #2
INSIDE OF FAR WALL TO
OUTSIDE OF NIPPLE, (DISTANCE A) 63"
INSIDE OF NEAR WALL TO
OUTSIDE OF NIPPLE, (DISTANCE B) 3.25"
STACK I.D., (DISTANCE A - DISTANCE B) 59.75"
NEAREST UPSTREAM DISTURBANCE 324" or 5.42 dd
NEAREST DOWNSTREAM DISTURBANCE 480" or 8.03 dd
CALCULATOR HP 32 S



SCHEMATIC OF SAMPLING LOCATION

TRAVERSE POINT NUMBER	FRACTION OF STACK I.D.	STACK I.D.	PRODUCT OF COLUMNS 2 AND 3 (TO NEAREST 1/8 INCH)	DISTANCE B	TRAVERSE POINT LOCATION FROM OUTSIDE OF NIPPLE (SUM OF COLUMNS 4 & 5)
1	.044	59.75"	2.63	3.25"	5.88"
2	.146		8.72		11.97"
3	.296		17.69		20.94"
4	.704		42.06		45.31"
5	.854		51.03		54.28"
6	.956		57.12		60.37"

WESTERN ENVIRONMENTAL SERVICES

FIELD DATA

SITE: Holly Sugar (Blr 2)

DATE: 6-8, 91

SO_2

	TIME	NOx	O_2	CO	CO_2	[illegible] AVG
1	1019	260	8.1	5	8.75	142
2	1023	230	8.9	5	9	138
N PORT 3	1027	234	9.1	5	8.9	134
4	1031	240	8.5	25	10.25	130
5	1036	240	8.5	25	10.25	144
6	1043	240	8.4	18	10.25	144
1	1046	230	9.1	15	8.25	134
2	1051	230	9	20	9	134
N 3	1056	225	9	19	8.5	132
4	1102	230	8.75	10	8.4	132
5	1109	230	9	18	9	132
6	1118	230	8.9	20	9	134

FIELD DATA

PLANT HOLLY SUGAR
DATE 6/8/91
SAMPLING LOCATION BOILER # 2
SAMPLE TYPE PARTICULATE
RUN NUMBER # 1
OPERATOR MARCOTTE
AMBIENT TEMPERATURE 66° F
BAROMETRIC PRESSURE 29.85
STATIC PRESSURE, (P_s) -0.24
FILTER NUMBER (s) 3.122 (3")

BOILER # 2
PARTICULATE
RUN # 1

PROBE LENGTH AND TYPE # 3 (S.S.)
NOZZLE I.D. 0.3600 (S.S.)
ASSUMED MOISTURE, % 10%
SAMPLE BOX NUMBER WES # 11
METER BOX NUMBER WES # 11
METER $\Delta H_@$ WES # 11
C FACTOR
PROBE HEATER SETTING 250° F
HEATER BOX SETTING 250° F
REFERENCE Δp # 12 (0-.25")

60 ml
+ 9
= VLC

SCHEMATIC OF TRAVERSE POINT LAYOUT

preleak ✓ < .007 cfm @ 15" READ AND RECORD ALL DATA EVERY 5 MINUTES post leak ✓ < .005 cfm @ 10"

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft³	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\ in}$), °F	OUTLET ($T_{m\ out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
	0	10:17	551.317									
1	5	10:22	554.675	0.16	1.70	1.70	322	66	66	4	250	65
2	10	10:27	557.980	0.16	1.70	1.70	324	66	65	4	254	63
3	15	10:32	561.445	0.17	1.82	1.82	321	70	66	5	250	64
4	20	10:37	564.845	0.16	1.72	1.72	323	74	68	4	251	65
5	25	10:42	568.150	0.15	1.61	1.61	322	78	68	4	250	66
6	30	10:47	571.158	0.12	1.31	1.31	319	81	71	4	252	65
*	STOP	10:51	SWITCH PORTS *									*
1	35	10:56	574.430	0.15	1.63	1.63	320	80	74	4	248	64
2	40	11:01	577.845	0.16	1.75	1.75	323	85	77	5	250	66
3	45	11:06	581.385	0.17	1.86	1.86	324	86	77	5	249	65
4	50	11:11	584.850	0.16	1.76	1.76	322	90	80	5	251	66
5	55	11:16	588.205	0.15	1.66	1.66	322	92	82	5	249	67
6	60	11:21	591.495	0.14	1.56	1.56	318	93	83	5	251	68
			40.178									

COMMENTS:

EPA (Dur) 235
4/72

A00035

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Holly Sugar
Boiler # 2
Test # 1

Completion Dates
1. ________ 2. ________
3. ________ 4. ________
Indicate by numbers in box under Sample column.

Requestor ________
JN ________
Assigned to ________
Date Assigned ________

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 106.4176	9.	SAMPLE NUMBER	Probe	1. 106.4494	9.
2. 106.4176	10.	FILTER OR CONTAINER #	77.2	2. 106.4500	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	106.4497	3. 106.4498	11.
4.	12.	FILTER OR CONTAINER TARE	106.4176	4.	12.
5.	13.	SAMPLE	0.0321	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 0.3556	9.	SAMPLE NUMBER	Filter	1. 0.3748	9.
2. 0.3558	10.	FILTER OR CONTAINER #	3.122	2. 0.3741	10.
3. 0.3557	11.	FILTER OR CONTAINER PLUS SAMPLE	0.3743	3. 0.3740	11.
4.	12.	FILTER OR CONTAINER TARE	0.3557	4.	12.
5.	13.	SAMPLE	0.0186	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 102.6862	9.	SAMPLE NUMBER	Imp I	1. 102.7403	9.
2. 102.6868	10.	FILTER OR CONTAINER #	78.2	2. 102.7404	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	102.7400	3. 102.7394	11.
4.	12.	FILTER OR CONTAINER TARE	102.6865	4.	12.
5.	13.	SAMPLE	0.0535	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 110.7978	9.	SAMPLE NUMBER	Imp O	1. 110.7981	9.
2. 110.7982	10.	FILTER OR CONTAINER #	79.2	2. 110.7985	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	110.7984	3. 110.7986	11.
4.	12.	FILTER OR CONTAINER TARE	110.7980	4.	12.
5.	13.	SAMPLE	0.0004	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

FIELD DATA

BOILER # 2
PARTICULATE
RUN # 2

PLANT HOLLY SUGAR
DATE 6/18/91
SAMPLING LOCATION BOILER # 2
SAMPLE TYPE PARTICULATE
RUN NUMBER # 2
OPERATOR MARCOTTE
AMBIENT TEMPERATURE 83° F
BAROMETRIC PRESSURE 29.85
STATIC PRESSURE, (P_s) -0.24
FILTER NUMBER (s) 3.123 (3")

PROBE LENGTH AND TYPE # 3 (S.S.)
NOZZLE I.D. 0.3600 (S.S.)
ASSUMED MOISTURE, % 10%
SAMPLE BOX NUMBER WES # 11
METER BOX NUMBER WES # 11
METER $\Delta H_@$ WES # 11
C FACTOR —
PROBE HEATER SETTING 250° F
HEATER BOX SETTING 250° F
REFERENCE Δp # 12 (0 - .25")

58 ml
+ 9
= VLC

SCHEMATIC OF TRAVERSE POINT LAYOUT

preleak ✓ < .005 cfm @ 15"   READ AND RECORD ALL DATA EVERY 5 MINUTES   postleak ✓ < .005 cfm @ 10"

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
	0	12:51	591.860									
1	5	12:56	595.190	0.15	1.66	1.66	318	83	83	4	249	59
2	10	1:01	598.640	0.16	1.76	1.76	319	83	83	4	248	51
3	15	1:06	602.065	0.16	1.77	1.77	320	87	83	4	251	50
4	20	1:11	605.630	0.17	1.88	1.88	322	88	84	4	251	56
5	25	1:16	608.780	0.13	1.44	1.44	319	89	84	4	250	55
6	30	1:21	— MISSED —	0.12	1.34	1.34	317	90	84	4	247	58
*	STOP	1:24	SWITCH PORTS *									*
1	35	1:29	615.255	0.16	1.77	1.77	320	89	84	4	251	56
2	40	1:34	618.725	0.16	1.77	1.77	322	91	85	4	250	57
3	45	1:39	622.055	0.15	1.66	1.66	323	92	86	4	252	60
4	50	1:44	625.530	0.16	1.78	1.78	321	91	85	4	248	62
5	55	1:49	628.910	0.15	1.66	1.66	322	91	86	4	250	64
6	60	1:54	632.162	0.14	1.56	1.56	317	92	86	4	252	66
			40.302									

COMMENTS:

EPA (Dur) 235
4/72

A00037

FIELD DATA

PLANT HOLLY SUGAR
DATE 6/8/91
SAMPLING LOCATION BOILER #2
SAMPLE TYPE PARTICULATE
RUN NUMBER #3
OPERATOR MARCOTTE
AMBIENT TEMPERATURE 84° F
BAROMETRIC PRESSURE 29.85
STATIC PRESSURE, (P_s) -0.24
FILTER NUMBER (s) 3.124 (3")

BOILER #2
PARTICULATE
RUN #3

PROBE LENGTH AND TYPE # 3 (S.S.) 5'
NOZZLE I.D. 0.3600 (S.S.)
ASSUMED MOISTURE, % 10%
SAMPLE BOX NUMBER WES #11
METER BOX NUMBER WES #11
METER $\Delta H_@$ WES #11
C FACTOR
PROBE HEATER SETTING 250° F
HEATER BOX SETTING 250° F
REFERENCE Δp #12 (0-.25")

62 ml
+ 9
= VLC

SCHEMATIC OF TRAVERSE POINT LAYOUT

Preleak ✓ / .010 cfm @ 15"   READ AND RECORD ALL DATA EVERY 5 MINUTES   postleak ✓ / . cfm @ "

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft³	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET $(T_{m\,in})$, °F	OUTLET $(T_{m\,out})$, °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
	0	2:34	632.705									
1	5	2:39	636.140	0.15	1.77	1.77	318	84	84	5	246	66
2	10	2:44	639.645	0.16	1.77	1.77	320	86	84	6	250	61
3	15	2:49	643.210	0.17	1.88	1.88	322	90	86	5	248	60
4	20	2:54	646.645	0.16	1.77	1.77	324	91	86	5	249	62
5	25	2:59	649.890	0.14	1.56	1.56	321	92	86	5	251	64
6	30	3:04	652.924	0.12	1.34	1.34	319	92	86	5	249	65
*	STOP	3:07	SWITCH PORTS *									*
1	35	3:12	656.220	0.15	1.67	1.67	320	93	86	5	250	64
2	40	3:17	659.655	0.16	1.77	1.77	324	92	86	5	251	61
3	45	3:22	663.065	0.16	1.77	1.77	325	92	86	5	248	58
4	50	3:27	666.520	0.16	1.77	1.77	323	92	86	5	249	59
5	55	3:32	669.760	0.14	1.55	1.55	324	93	87	5	247	60
6	60	3:37	672.904	0.13	1.45	1.45	319	94	88	5	250	61
			40.199									

COMMENTS:

EPA (Dur) 235
4/72

A00038

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. ______ 2. ______
3. ______ 4. ______
Indicate by numbers in box under Sample column.

Holly Sugar
Boiler #2
Test #2

Requestor ______
JN ______
Assigned to ______
Date Assigned ______

ALL WEIGHTS IN GRAMS

TARE WEIGHT		SAMPLE NUMBER	FILTER OR CONTAINER #	TARE + SAMPLE WEIGHT	
1. 107.2707	9.	Probe	80.2	1. 107.3034	9.
2. 107.2711	10.			2. 107.3039	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	107.3038	3. 107.3042	11.
4.	12.	FILTER OR CONTAINER TARE	107.2709	4.	12.
5.	13.	SAMPLE	0.0329	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

TARE WEIGHT		SAMPLE NUMBER	FILTER OR CONTAINER #	TARE + SAMPLE WEIGHT	
1. 0.3565	9.	Filter	3.123	1. 0.3765	9.
2. 0.3566	10.			2. 0.3761	10.
3. 0.3566	11.	FILTER OR CONTAINER PLUS SAMPLE	0.3761	3. 0.3758	11.
4.	12.	FILTER OR CONTAINER TARE	0.3566	4.	12.
5.	13.	SAMPLE	0.0195	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

TARE WEIGHT		SAMPLE NUMBER	FILTER OR CONTAINER #	TARE + SAMPLE WEIGHT	
1. 109.8925	9.	Imp I	81.2	1. 110.0393	9. 110.0474
2. 109.8933	10.			2. 110.0494	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	110.0477	3. 110.0458	11.
4.	12.	FILTER OR CONTAINER TARE	109.8929	4. 110.0415	12.
5.	13.	SAMPLE	0.1548	5. 110.0395	13.
6.	14.			6. 110.0480	14.
7.	15.			7. 110.0526	15.
8.	16.			8. 110.0477	16.

TARE WEIGHT		SAMPLE NUMBER	FILTER OR CONTAINER #	TARE + SAMPLE WEIGHT	
1. 110.9551	9.	Imp O	82.2	1. 110.9557	9.
2. 110.9557	10.			2. 110.9559	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	110.9558	3. 110.9558	11.
4.	12.	FILTER OR CONTAINER TARE	110.9554	4.	12.
5.	13.	SAMPLE	0.0004	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Boiler 2
RUN: Particulate 1
DATE: June 8, 1991

GAS METER READING	VELOCITY HEAD	SQUARE ROOT		ORIFICE PRESSURE DELTA H		STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
551.317	0.16	0.4		1.7		322	66	66
591.495	0.16	0.4		1.7		324	66	65
---------	0.17	0.412310		1.82		321	70	66
40.178	0.16	0.4		1.72		323	74	68
=========	0.15	0.387298		1.61		322	78	68
(DIFFERENCE)	0.12	0.346410		1.31		319	81	71
	0.15	0.387298		1.63		320	80	74
	0.16	0.4		1.75		323	85	77
	0.17	0.412310		1.86		324	86	77
	0.16	0.4		1.76		322	90	80
	0.15	0.387298		1.66		322	92	82
	0.14	0.374165		1.56		318	93	83
		---------	AVERAGE SQUARED					
	AVERAGE	0.392257	0.154	AVERAGE 1.67		AVERAGE 322	AVERAGE	76.58

A00041

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Boiler 2
RUN: Particulate 2
DATE: June 8, 1991

GAS METER READING	VELOCITY HEAD	SQUARE ROOT	AVERAGE SQUARED	ORIFICE PRESSURE DELTA H	STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
591.860	0.15	0.387298		1.66	318	83	83
632.162	0.16	0.4		1.76	319	83	83
---------	0.16	0.4		1.77	320	87	83
40.302	0.17	0.412310		1.88	322	88	84
=========	0.13	0.360555		1.44	319	89	84
(DIFFERENCE)	0.12	0.346410		1.34	317	90	84
	0.16	0.4		1.77	320	89	84
	0.16	0.4		1.77	322	91	85
	0.15	0.387298		1.66	323	92	86
	0.16	0.4		1.78	321	91	85
	0.15	0.387298		1.66	322	91	86
	0.14	0.374165		1.56	317	92	86
	AVERAGE	0.387944	0.151	AVERAGE 1.67	AVERAGE 320	AVERAGE	86.63

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Boiler 2
RUN: Particulate 3
DATE: June 8, 1991

GAS METER READING	VELOCITY HEAD	SQUARE ROOT	AVERAGE SQUARED	ORIFICE PRESSURE DELTA H	STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
632.705	0.16	0.4		1.77	318	84	84
672.904	0.16	0.4		1.77	320	86	84
---------	0.17	0.412310		1.88	322	90	86
40.199	0.16	0.4		1.77	324	91	86
=========	0.14	0.374165		1.56	321	92	86
(DIFFERENCE)	0.12	0.346410		1.34	319	92	86
	0.15	0.387298		1.67	320	93	86
	0.16	0.4		1.77	324	92	86
	0.16	0.4		1.77	325	92	86
	0.16	0.4		1.77	323	92	86
	0.14	0.374165		1.55	324	93	87
	0.13	0.360555		1.45	319	94	88
	AVERAGE	0.387908	0.150	AVERAGE 1.67	AVERAGE 322	AVERAGE	88.42

1.8 — 0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 02

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 08:56:19 *** ENDS AT 08:56:20 JUN 08,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	1	NOX		PPM	02	3.10	O2		+	03	276	CO		PPM	04	11.78	CO2		%
05	0.75	SO2		PPM															

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 08:51:05 *** ENDS AT 08:51:06 JUN 08,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	894.2	NOX		PPM	02	0.05	O2		+	03	948	CO		PPM	04	0.14	CO2		%
05	3.11	SO2		PPM															

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 08:48:44 *** ENDS AT 08:48:45 JUN 08,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	.9	NOX		PPM	02	5.90	O2		+	03	948	CO		PPM	04	10.98	CO2		%
05	0.78	SO2		PPM															

*** PRINTER ON 08:48:42 JUN 08,91 ***

A00044

1D — 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2

2 CALS

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 09:00 02 *** ENDS AT 09:00 02 JUN 08,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	1.7	NOX		PPM	02	0.04	O2		*	03	3	CO		PPM	04	0.29	CO2		%
05	53.38	SO2		PPM															

1C — 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 09:01 50 *** ENDS AT 09:01 55 JUN 08,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	.8	NOX		PPM	02	0.04	O2		*	03	4	CO		PPM	04	0.25	CO2		%
05	99.18	SO2		PPM															

*** RESET AVERAGE 09:01:08 15 0.32 SO2 0 ***

*** RESET AVERAGE 09:01:08 14 294.45 CO2 0 ***

*** RESET AVERAGE 09:00:13 13 132 CO A ***

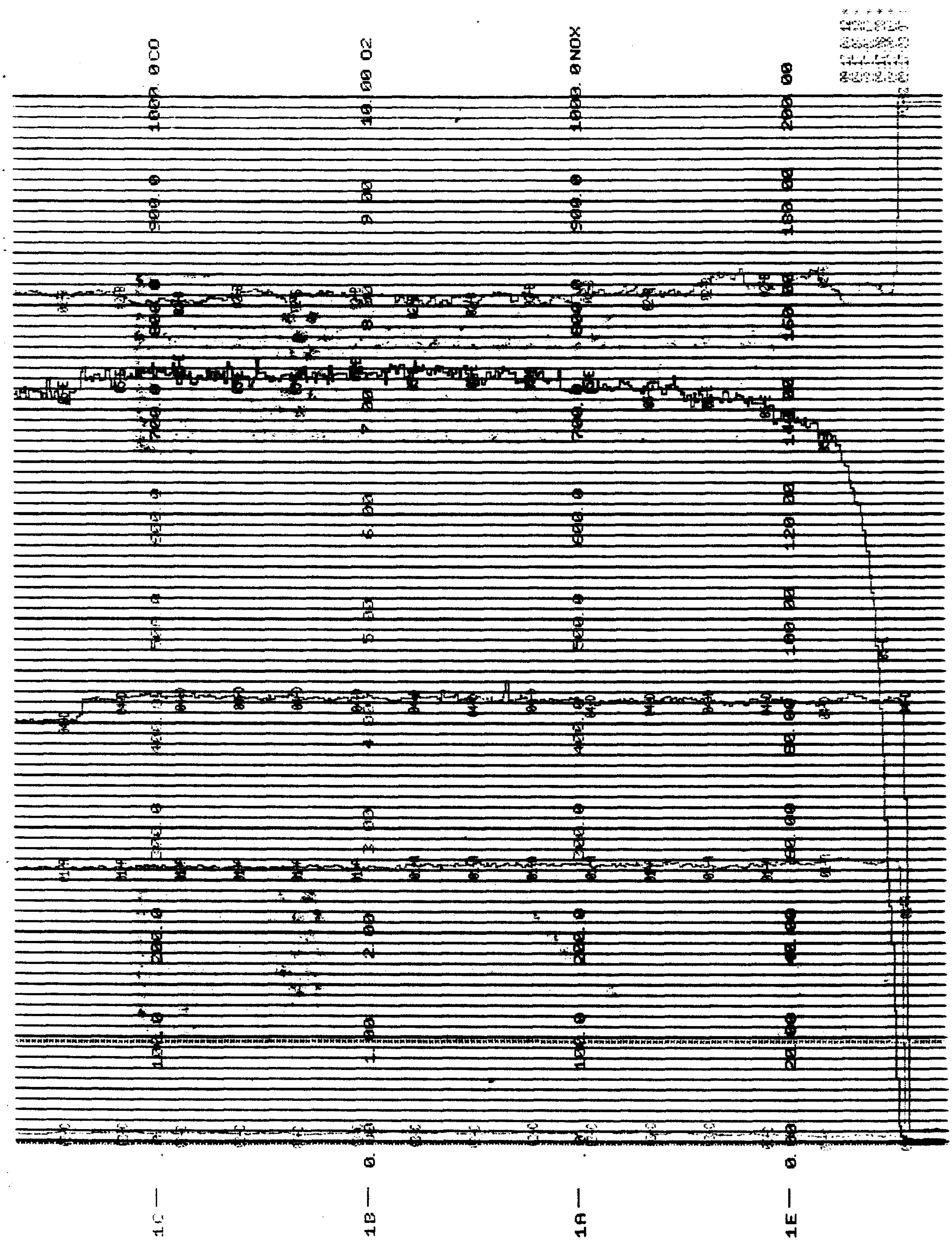
*** RESET AVERAGE 09:00:13 11 17.8 NOX 0 ***

09:00:03

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 08:58 59 *** ENDS AT 08:58 59 JUN 08,91 ***

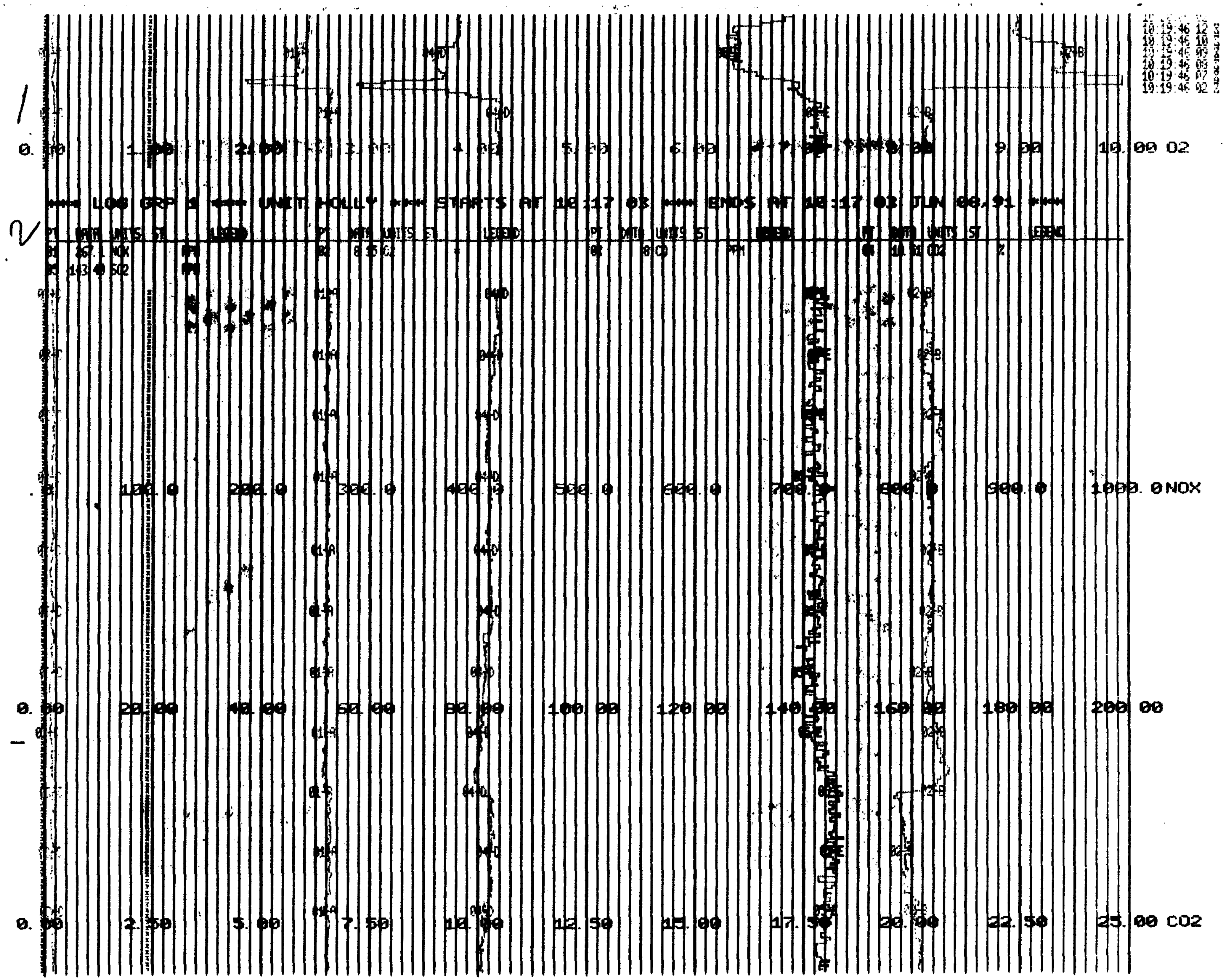
PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	200.5	NOX		PPM	02	0.05	O2		*	03	3	CO		PPM	04	0.25	CO2		%
05	1.32	SO2		PPM															

A00045

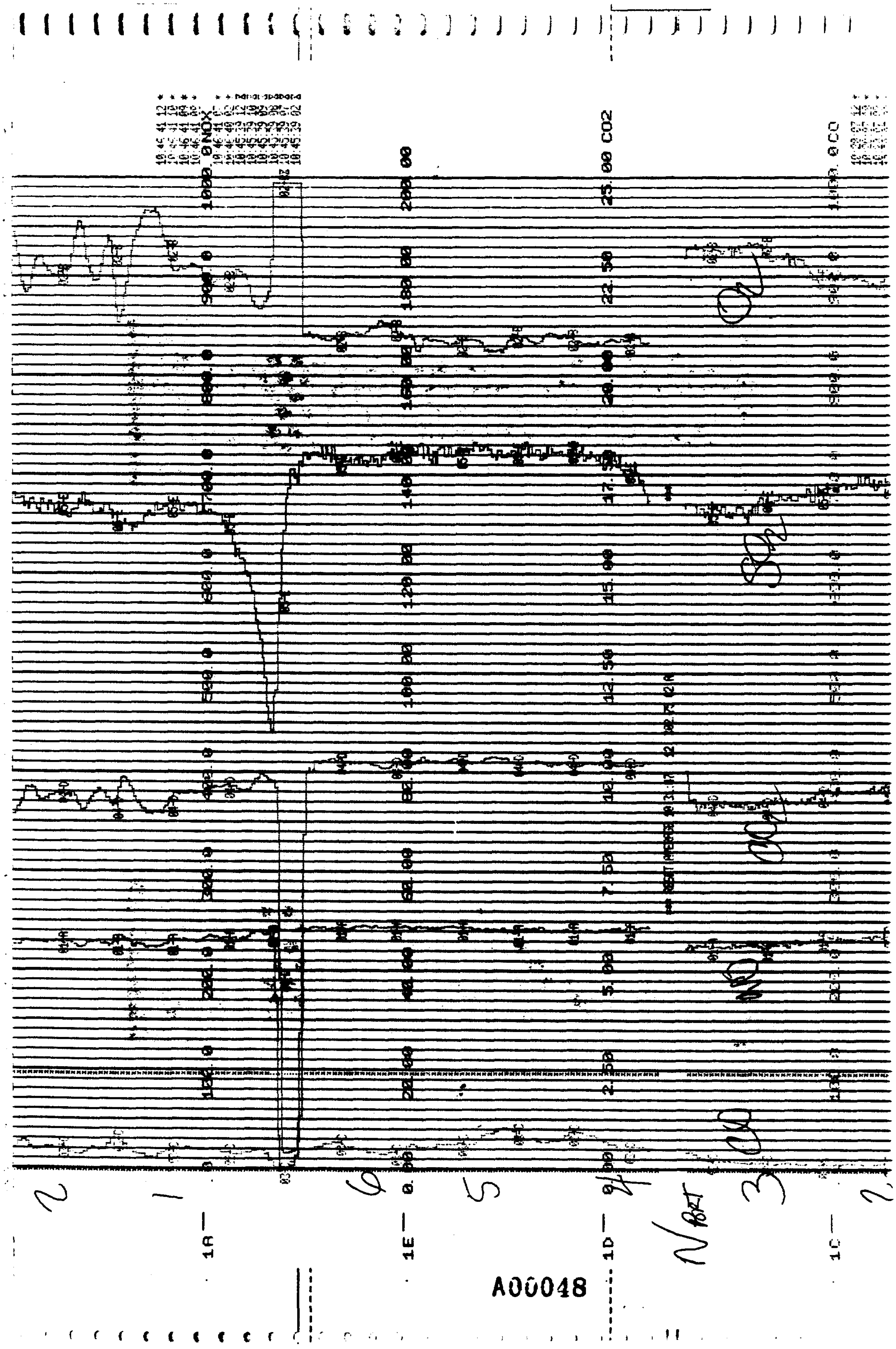


A00046

Begin Test 1 Bl. 2



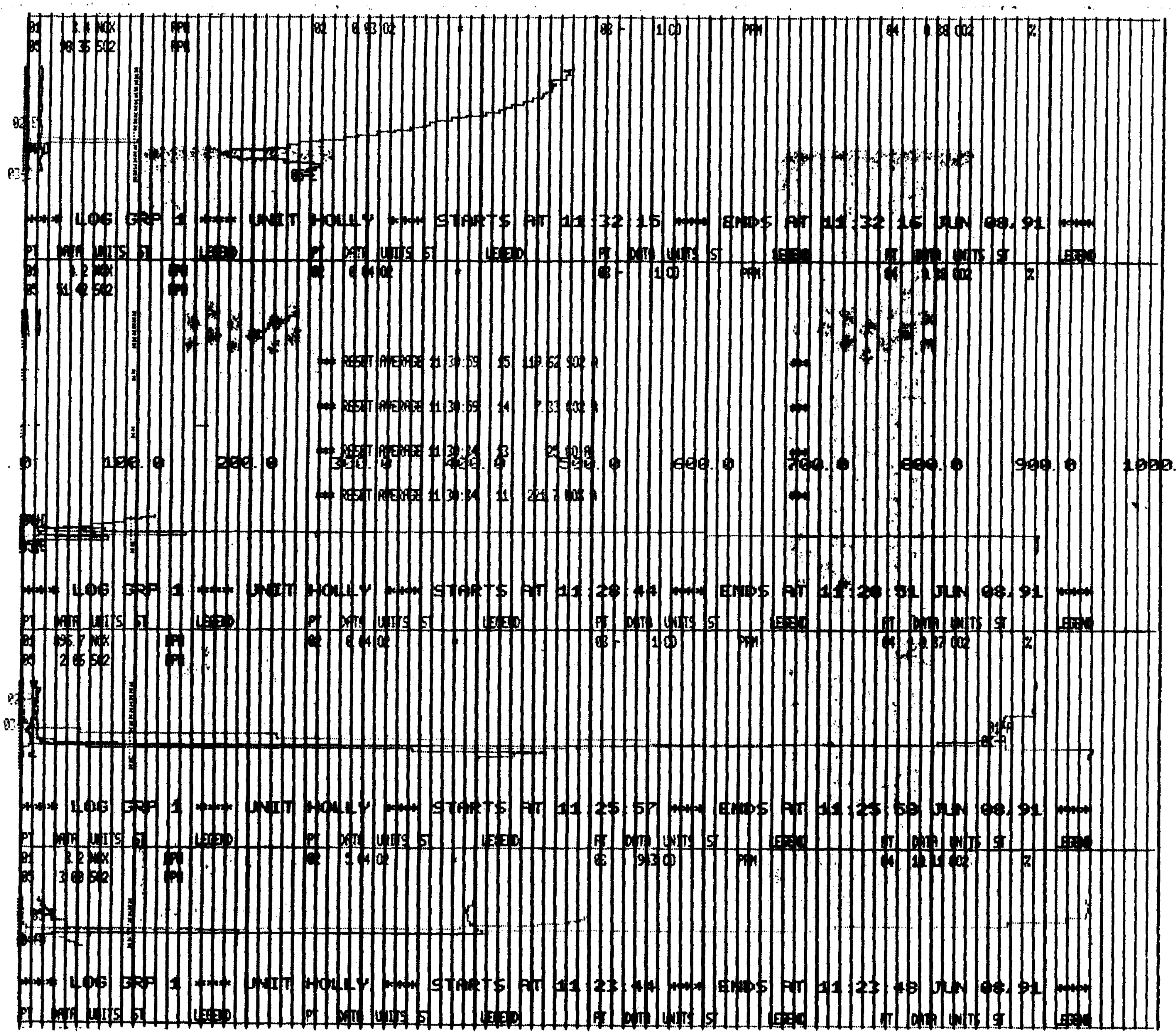
A00047



A00048

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:22:17 *** ENDS AT 11:22:20 JUN 08,91 ***
PT DATA UNITS ST LEGEND
01 5 NOX PPM
02 3.02 O2 %
03 27 CO PPM
04 12.09 CO2 %
05 29.40 SO2 PPM
1E 0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:20:17 *** ENDS AT 11:20:18 JUN 08,91 ***
PT DATA UNITS ST LEGEND
01 232.5 NOX PPM
02 9.63 O2 %
03 22 CO PPM
04 9.73 CO2 %
05 131.30 SO2 PPM
End Test No. 1
6
5
1D 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2
4
1C 0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
W PORT
3
11:00:04
CO
NO
CO2
SO2
O2

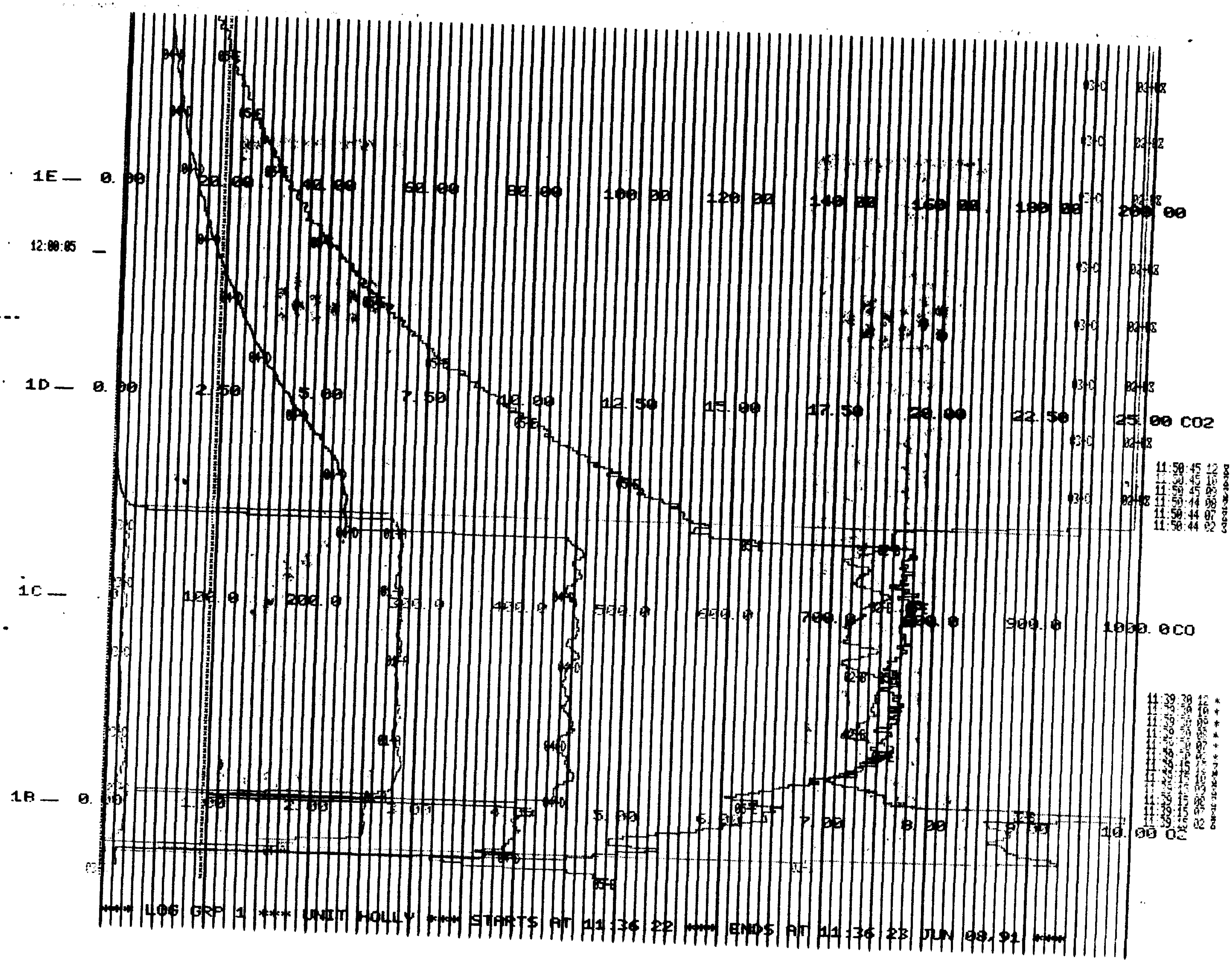
A00049



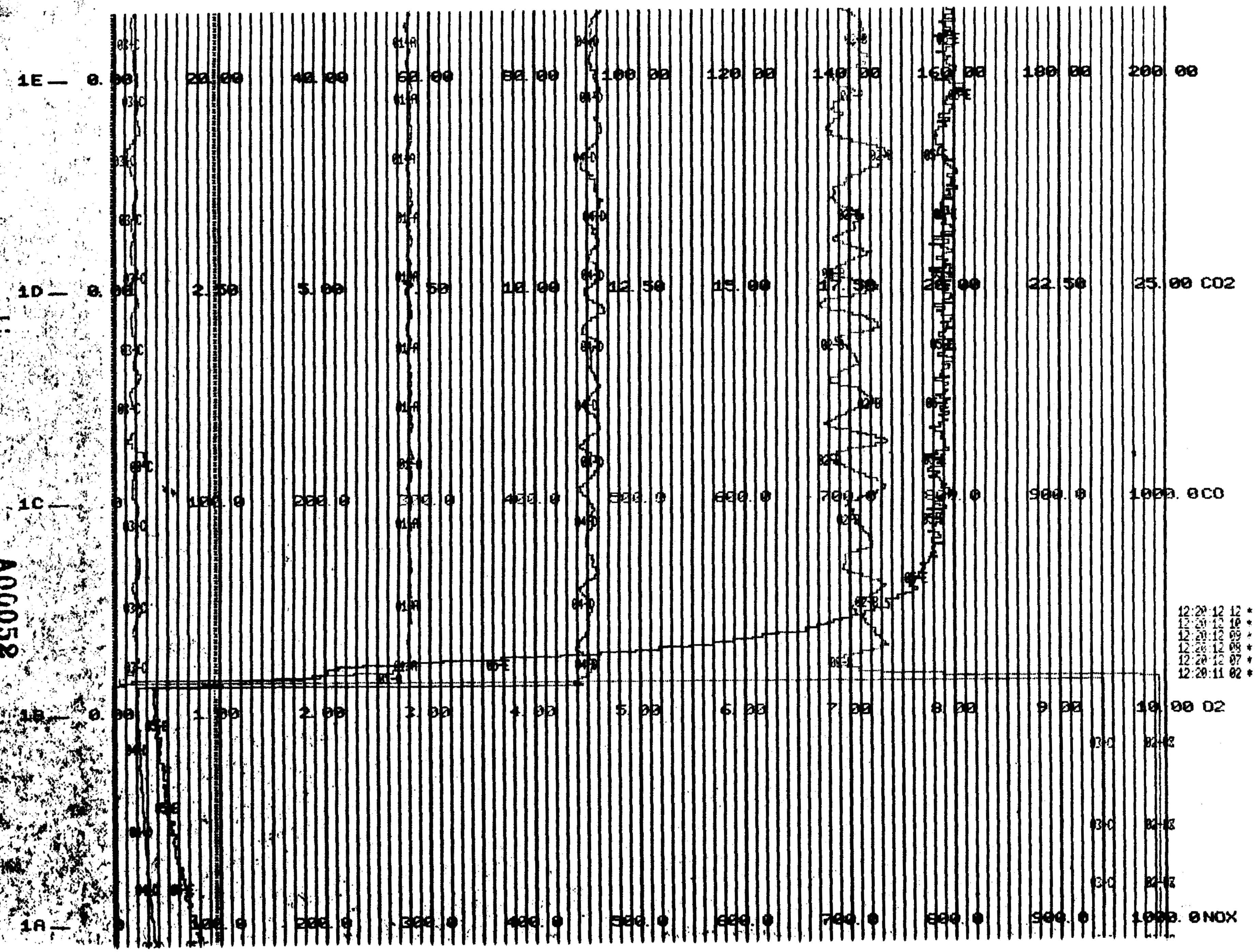
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:32:15 *** ENDS AT 11:32:16 JUN 08,91 ***
PT DATA UNITS ST LEGEND
** RESET AVERAGE 11:30:59
** RESET AVERAGE 11:30:34
0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 NOX
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:28:44 *** ENDS AT 11:28:51 JUN 08,91 ***
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:25:57 *** ENDS AT 11:25:58 JUN 08,91 ***
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:23:44 *** ENDS AT 11:23:48 JUN 08,91 ***

1A

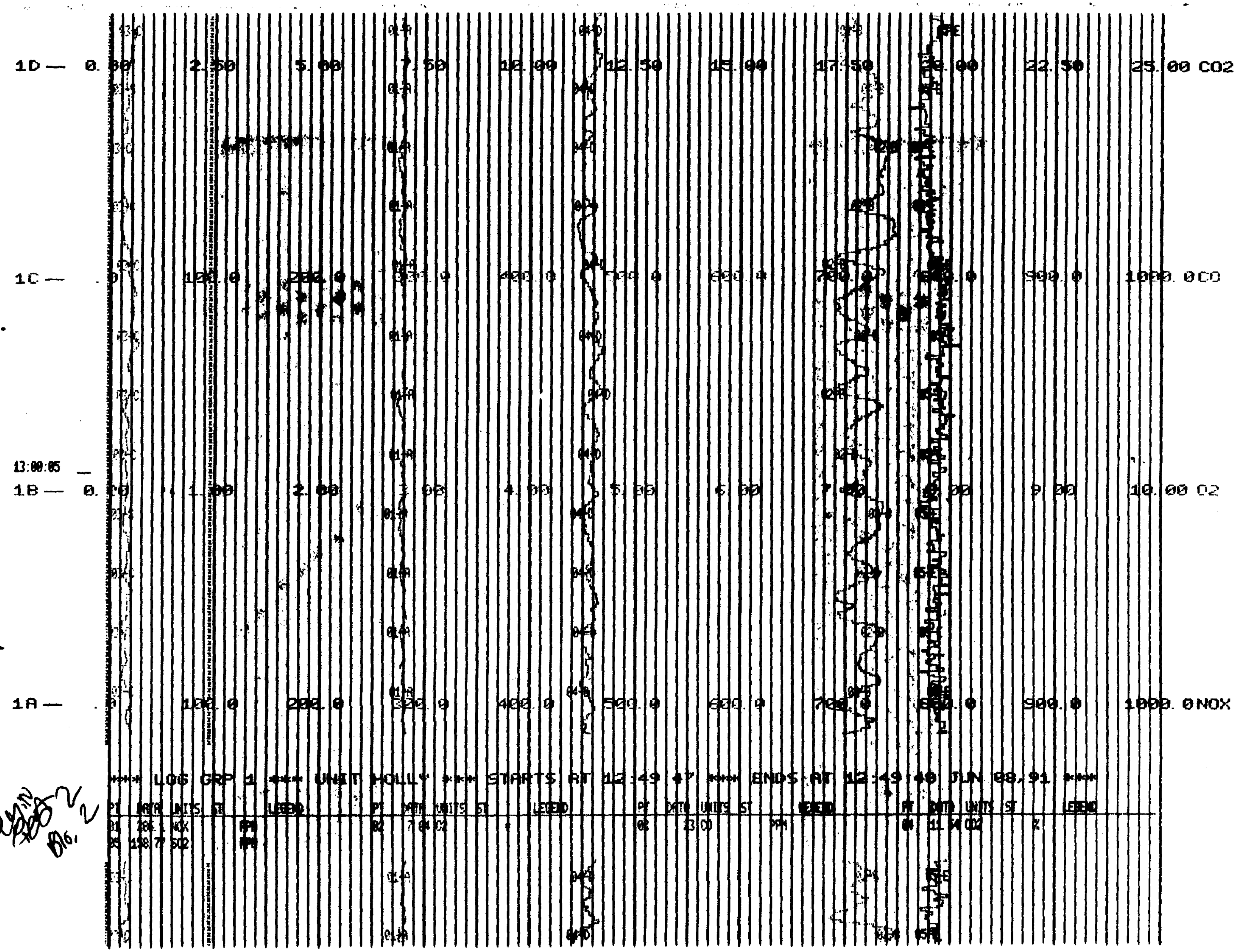
A00050


1E — 0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00
12:00:05
1D — 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2
1C — 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
1B — 0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 O2
**** LOG GRP 1 *** UNIT HOLLY **** STARTS AT 11:36:22 **** ENDS AT 11:36:23 JUN 08,91 ****

A00051

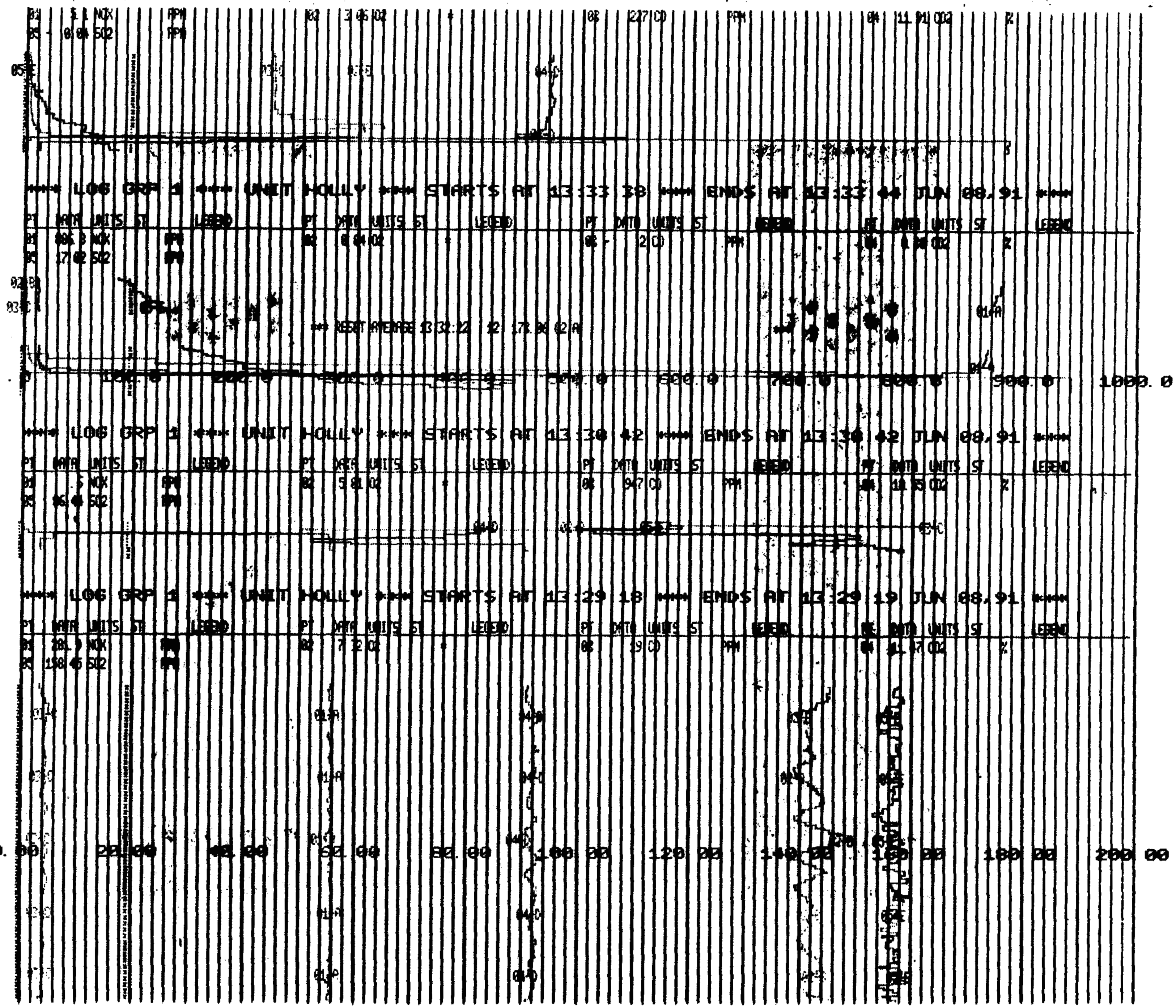

1E — 0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00
1D — 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2
1C — 0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
1B — 0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 O2
1A — 0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 NOX
12:20:12 12 *
12:20:12 10 *
12:20:12 09 *
12:20:12 08 *
12:20:12 07 *
12:20:11 02 *

A00052



Begin 2
Blo. 2

A00038

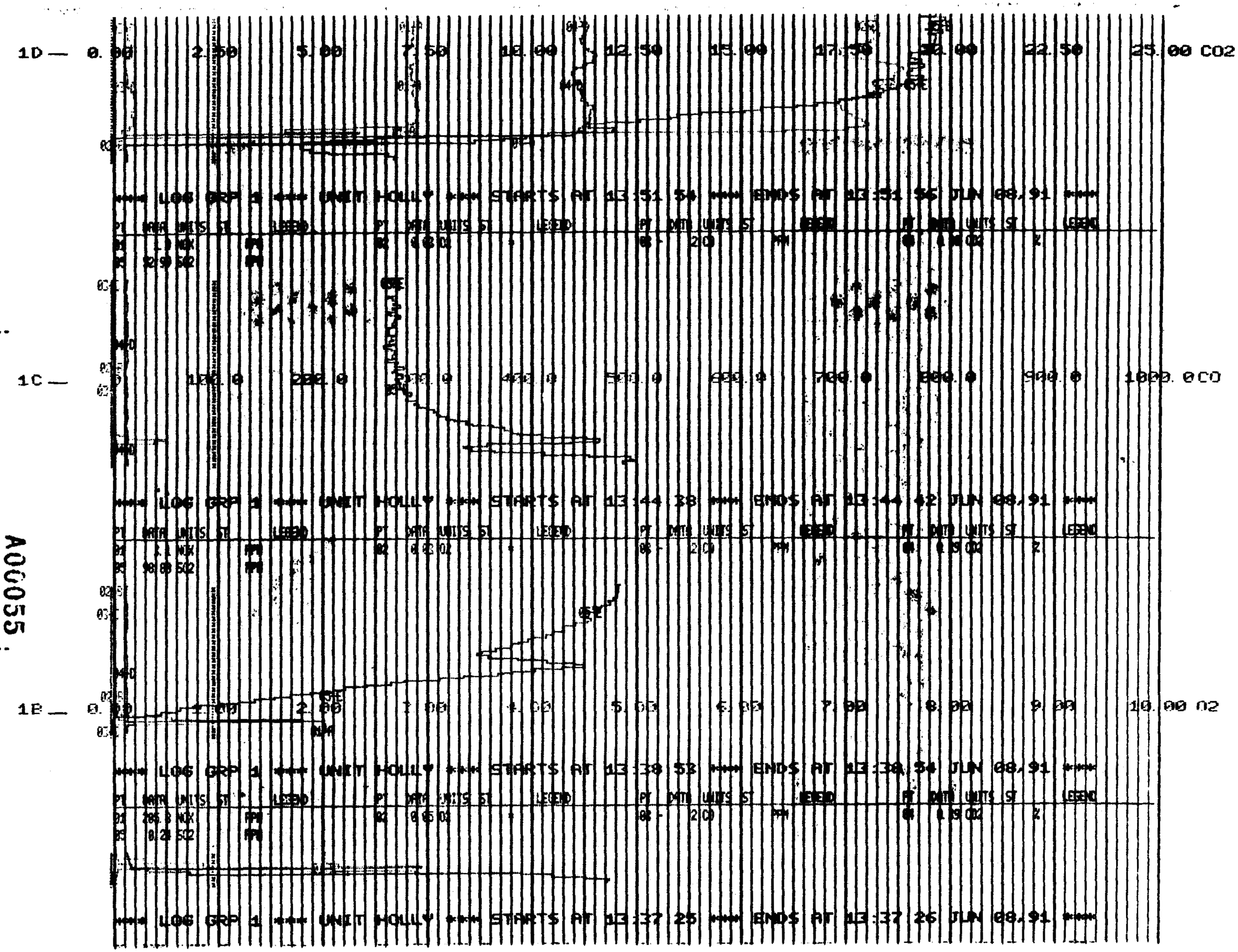


1A —

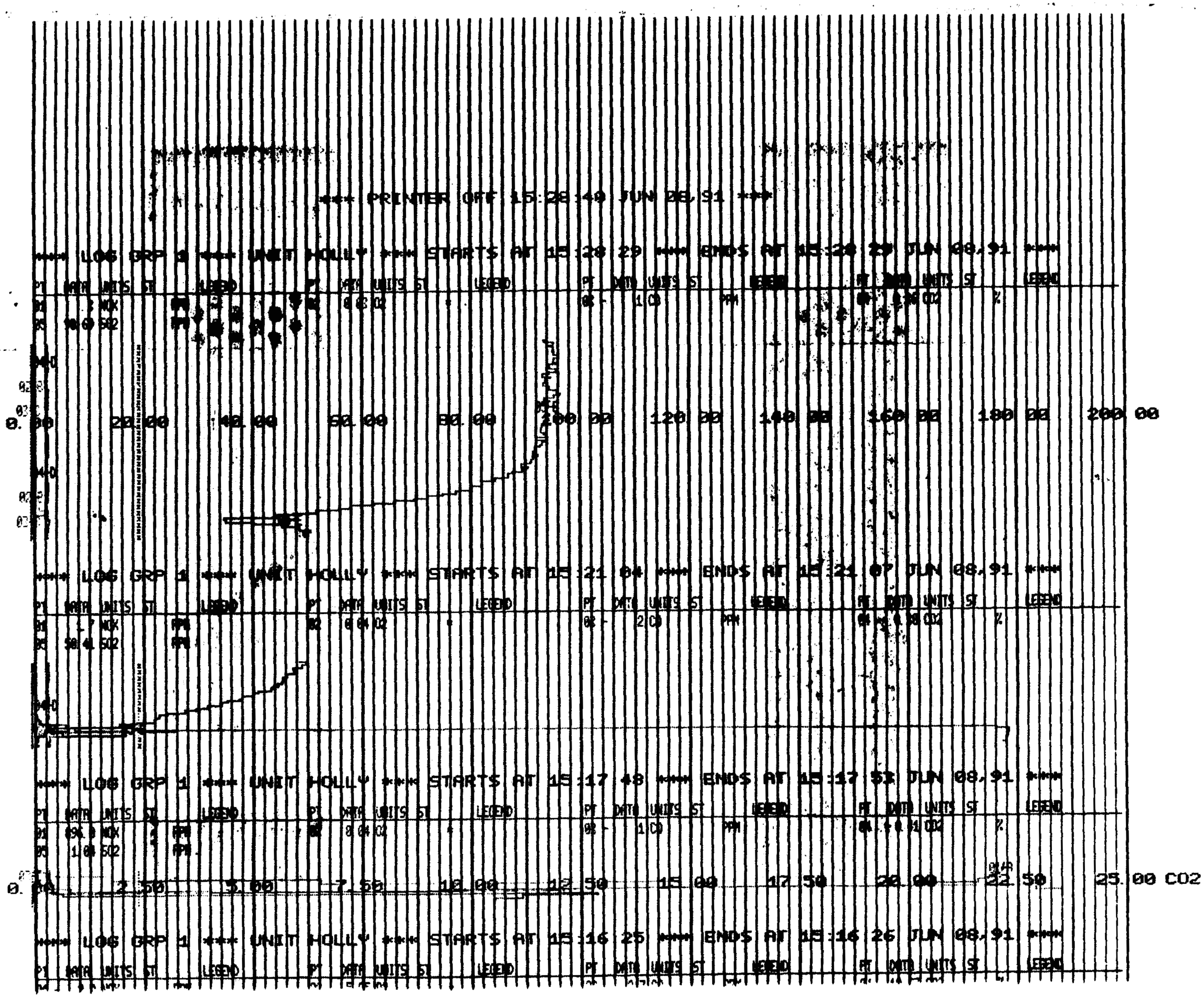
1E —

End Test 2 Bk. 2

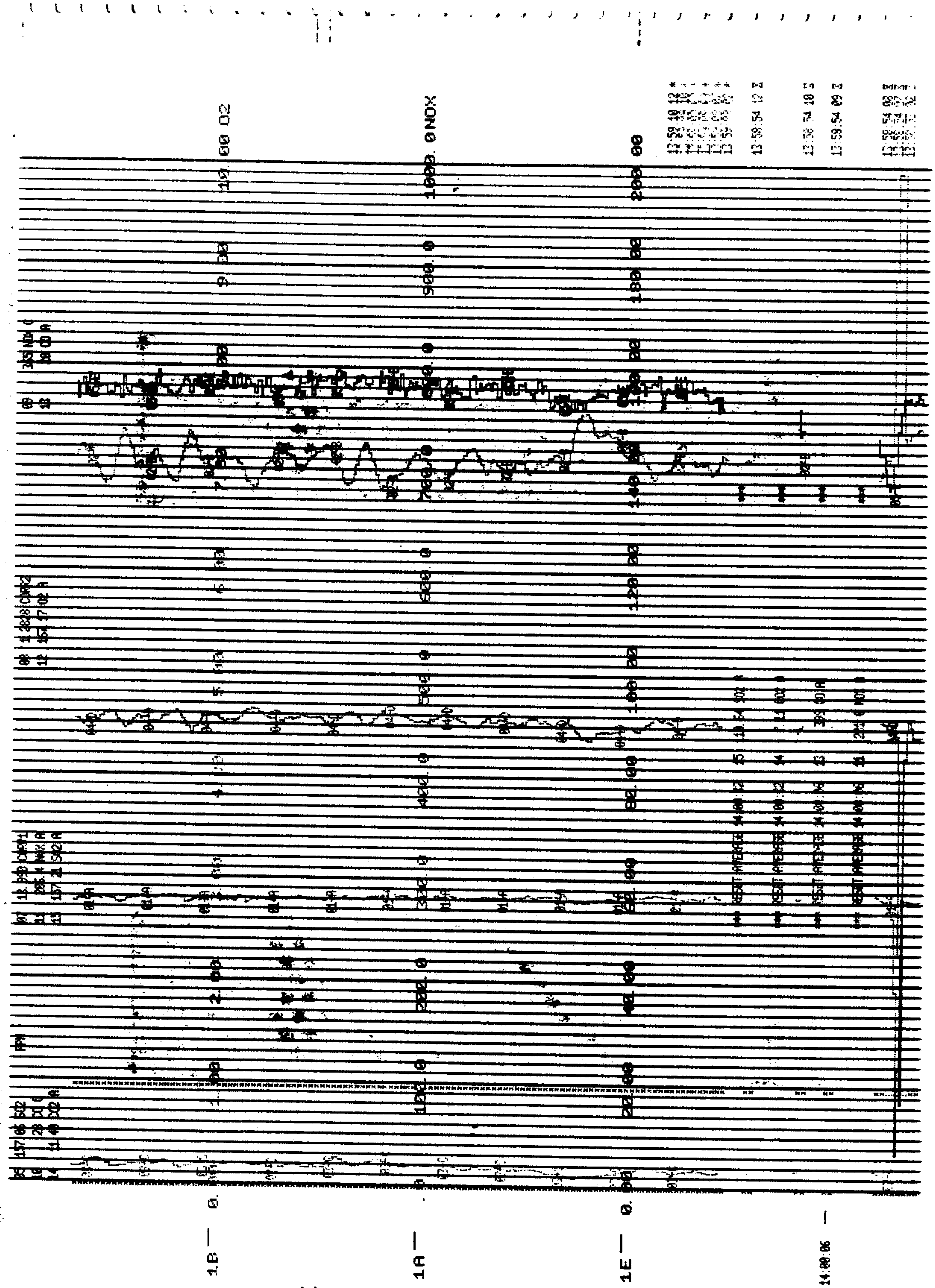
A00054


1D — 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 13:51:54 *** ENDS AT 13:51:56 JUN 08,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
1C — 0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 13:44:38 *** ENDS AT 13:44:42 JUN 08,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
1B — 0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 O2
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 13:38:53 *** ENDS AT 13:38:54 JUN 08,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 286.3 NOX PPM
05 0.24 SO2 PPM
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 13:37:25 *** ENDS AT 13:37:26 JUN 08,91 ***

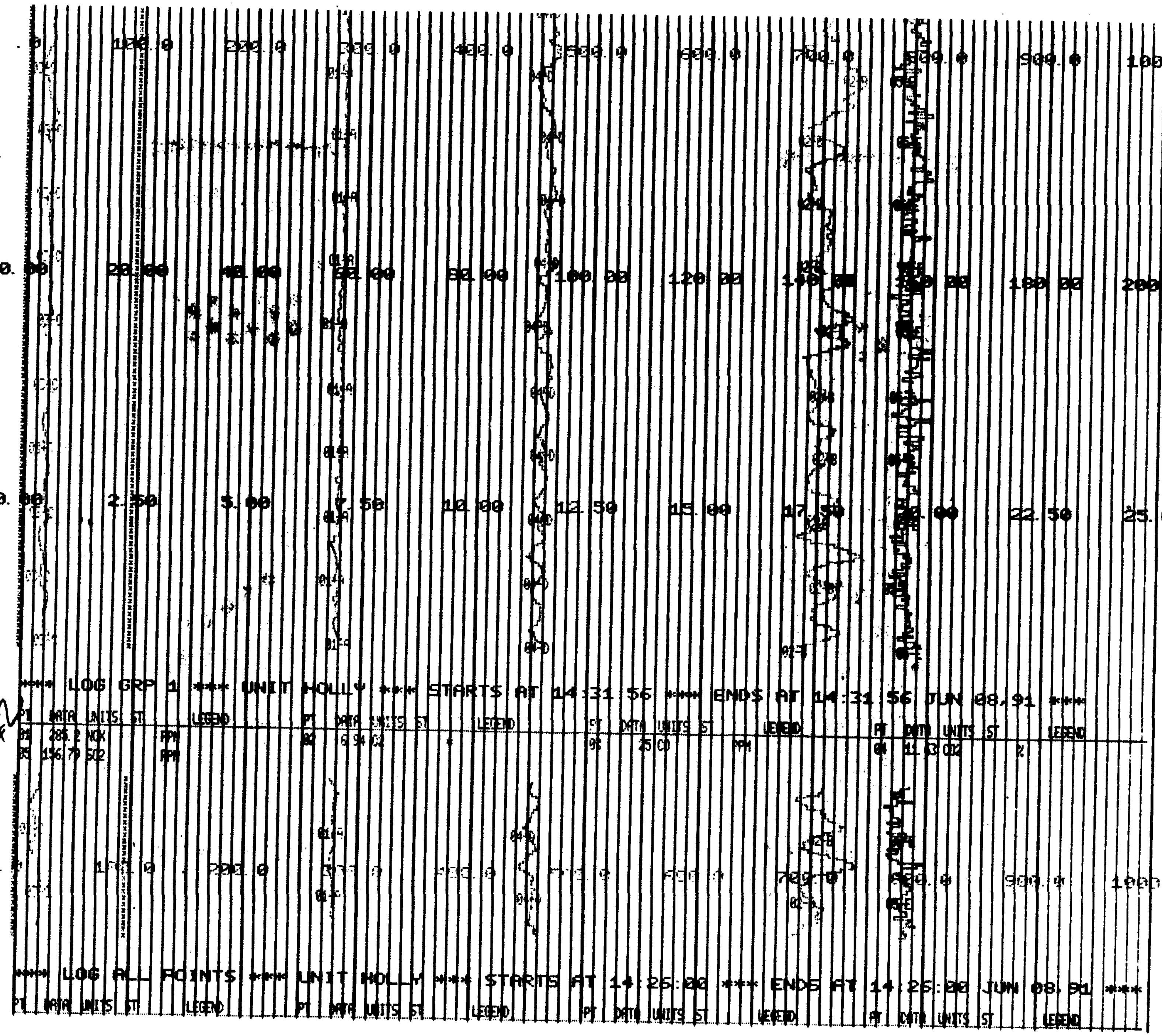
A00055


*** PRINTER OFF 15:28:40 JUN 08,91 ***
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:28:29 *** ENDS AT 15:28:29 JUN 08,91 ***
PT DATA UNITS ST LEGEND
1E
0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:21:04 *** ENDS AT 15:21:07 JUN 08,91 ***
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:17:48 *** ENDS AT 15:17:51 JUN 08,91 ***
1D
0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:16:25 *** ENDS AT 15:16:26 JUN 08,91 ***

A00059



A00056



Begin Test 3 Blk #2

A00057

A000038

End Test 3

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:14 17 *** ENDS AT 15:14 18 JUN 08,91 ***

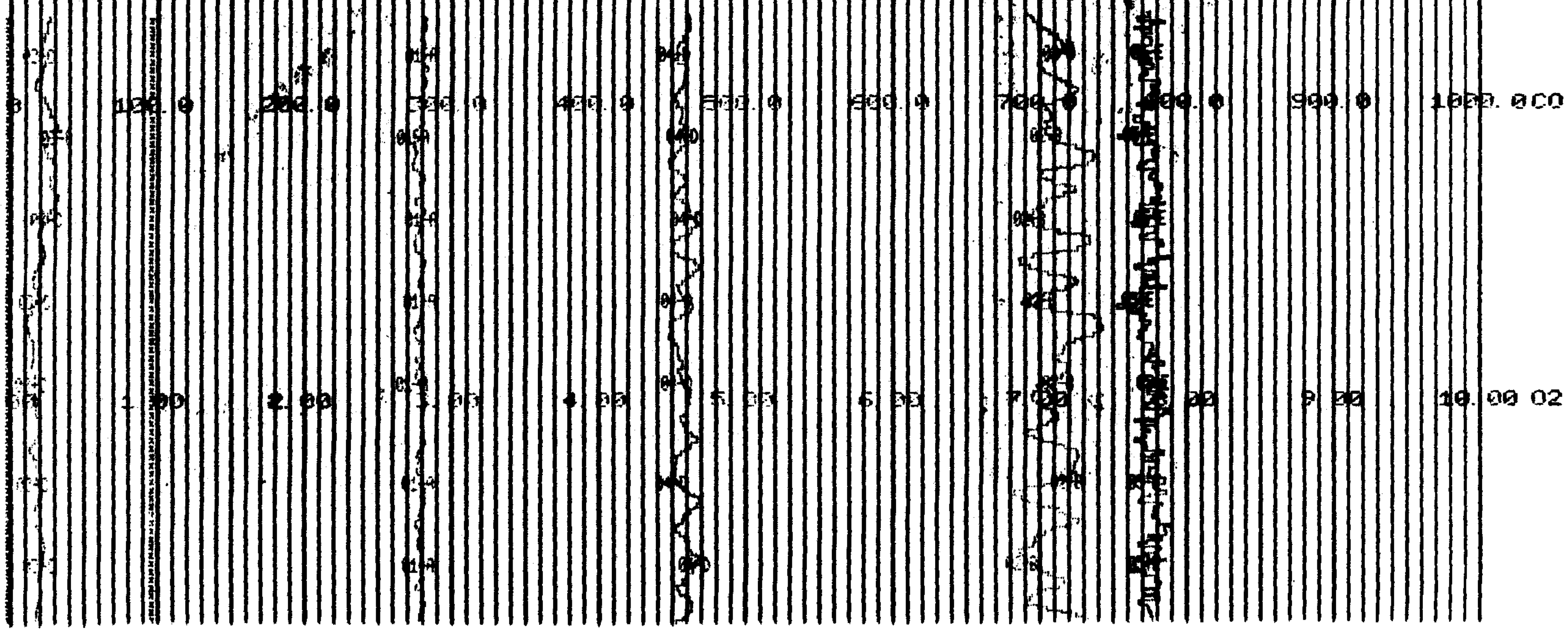
PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	194.[illegible]	NOX		PPM	02	0.05	O2		*	03	2	CO		PPM	04	[illegible]	CO2		%
05	13.87	SO2		PPM															

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:12 59 *** ENDS AT 15:13 00 JUN 08,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	3.2	NOX		PPM	02	3.05	O2		*	03	2.5	CO		PPM	04	11.03	CO2		%
05	48.23	SO2		PPM															

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:11 27 *** ENDS AT 15:11 28 JUN 08,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	282.7	NOX		PPM	02	6.90	O2		*	03	13	CO		PPM	04	11.94	CO2		%
05	156.95	SO2		PPM															



*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:14:17 *** ENDS AT 15:14:18 JUN 08,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	194.[illegible]	NOX		PPM	02	0.65	O2		+	03	- 2	CO		PPM	04	[illegible].98	O2		%
05	13.87	SO2		PPM															

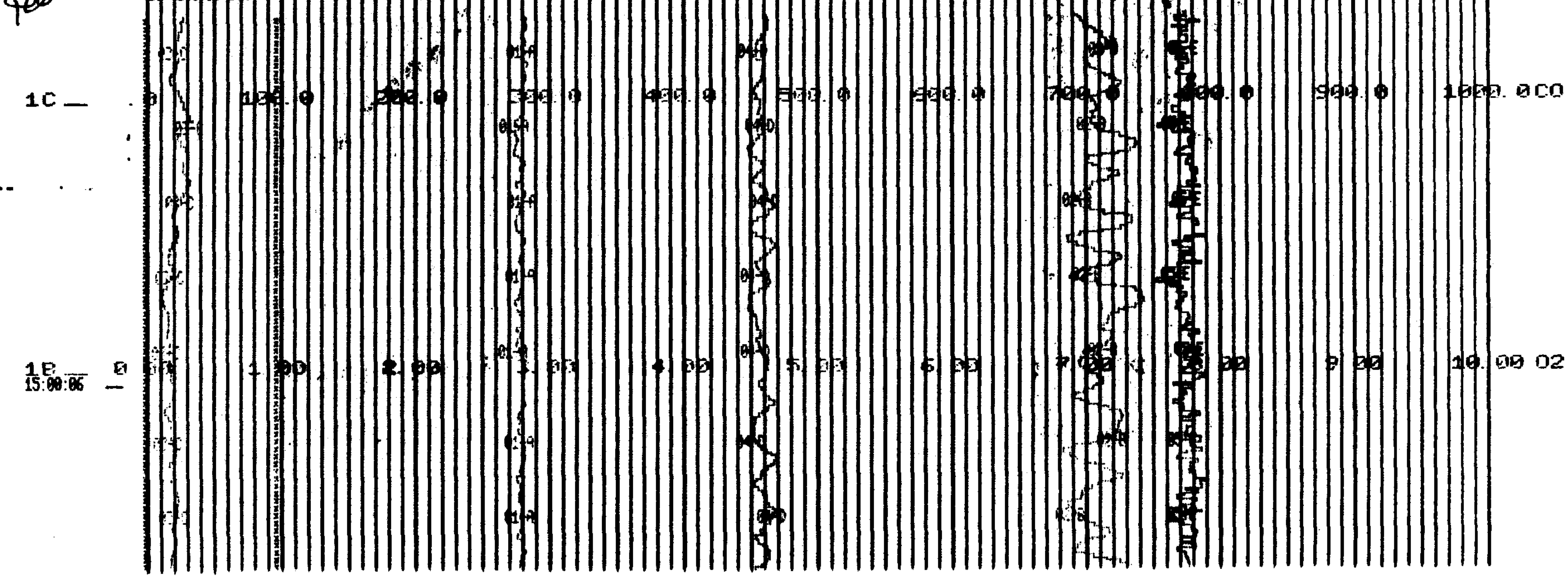
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:12:59 *** ENDS AT 15:13:00 JUN 08,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	- 3.2	NOX		PPM	02	3.65	O2		+	03	25	CO		PPM	04	11.13	O2		%
05	48.23	SO2		PPM															

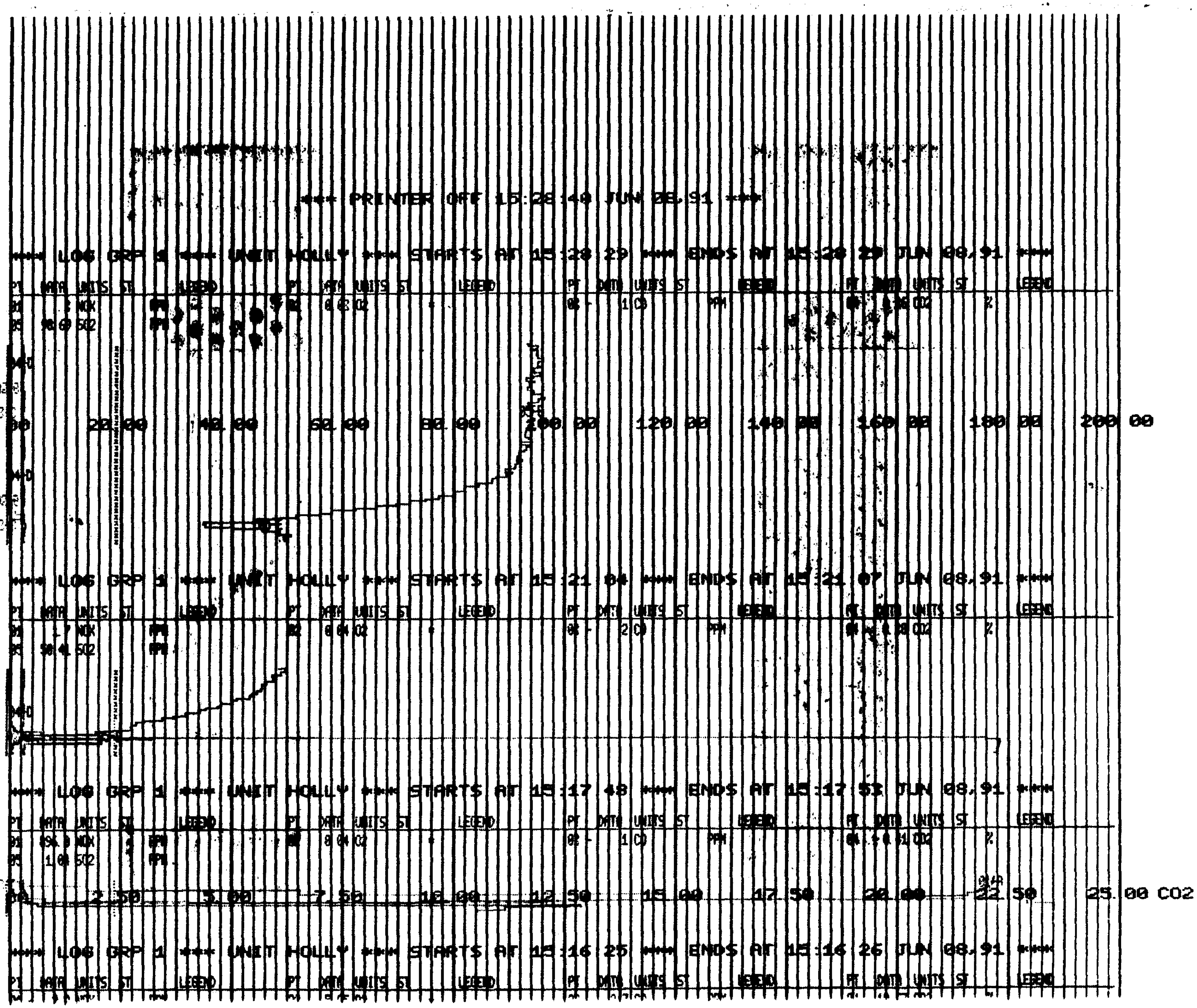
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:11:27 *** ENDS AT 15:11:28 JUN 08,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	281.7	NOX		PPM	02	6.59	O2		+	03	33	CO		PPM	04	11.94	O2		%
05	156.55	SO2		PPM															

End test 3



A00038


*** PRINTER OFF 15:28:40 JUN 08,91 ***
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:28 29 *** ENDS AT 15:28 29 JUN 08,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
NOX PPM 02 CO PPM CO2 %
SO2 PPM
0. 00 20 00 40 00 60 00 80 00 100 00 120 00 140 00 160 00 180 00 200 00
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:21 04 *** ENDS AT 15:21 07 JUN 08,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
NOX PPM 02 CO PPM CO2 %
SO2 PPM
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:17 48 *** ENDS AT 15:17 53 JUN 08,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
NOX PPM 02 CO PPM CO2 %
SO2 PPM
0. 00 2 50 5 00 7 50 10 00 12 50 15 00 17 50 20 00 22 50 25 00 CO2
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:16 25 *** ENDS AT 15:16 26 JUN 08,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND

1E —

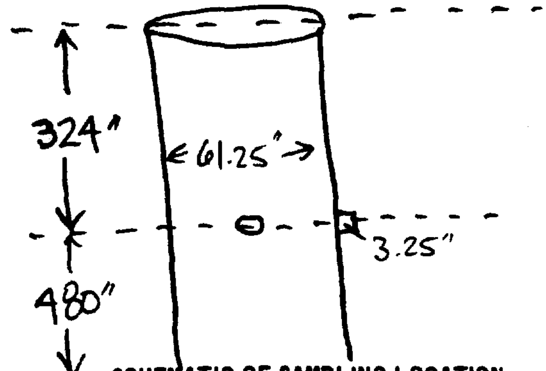
1D —

A00059

BOILER #3

TRAVERSE POINT LOCATION FOR CIRCULAR DUCTS

PLANT HOLLY SUGAR
DATE 6/3/91
SAMPLING LOCATION BOILER #3
INSIDE OF FAR WALL TO
OUTSIDE OF NIPPLE, (DISTANCE A) 64.50"
INSIDE OF NEAR WALL TO
OUTSIDE OF NIPPLE, (DISTANCE B) 3.25"
STACK I.D., (DISTANCE A - DISTANCE B) 61.25"
NEAREST UPSTREAM DISTURBANCE 324" or 5.29 dd
NEAREST DOWNSTREAM DISTURBANCE 480" or 7.84 dd
CALCULATOR H.P. 32 S



SCHEMATIC OF SAMPLING LOCATION

TRAVERSE POINT NUMBER	FRACTION OF STACK I.D.	STACK I.D.	PRODUCT OF COLUMNS 2 AND 3 (TO NEAREST 1/8 INCH)	DISTANCE B	TRAVERSE POINT LOCATION FROM OUTSIDE OF NIPPLE (SUM OF COLUMNS 4 & 5)
1	.044	61.25"	2.70	3.25"	5.95"
2	.146		8.94		12.19"
3	.296		18.13		21.38"
4	.704		43.12		46.37"
5	.854		52.31		55.56"
6	.956		58.56		61.81"

A00060

WESTERN ENVIRONMENTAL SERVICES

FIELD DATA

SITE: Holly Sugar (Blr #3)

DATE: 5 June

SO2

	TIME	NOx	O2	CO	CO2	# OF AVG
1	1025	229	8	41	11.78	160
2	1030	225	8.1	30	11.55	155
3	1037	219	8.48	10	11	150
4	1043	220	8.5	10	11.15	150
5	1049	212	8.5	10	11.20	150
6	1055	211	8.5	10	11.25	150
1	1105	212	8.6	10	11.5	150
2	1110	211	8.7	5	10	142
3	1115	210	8.5	10	10.5	147
4	1120	210	8.6	10	9.8	144
5	1125	208	8.5	10	10.25	144
6	1130	205	8.5	10	10.3	144

FIELD DATA

VELOCITY TRAVERSE BOILER # 3

PLANT ____
DATE ____
SAMPLING LOCATION ____
SAMPLE TYPE ____
RUN NUMBER ____
OPERATOR ____
AMBIENT TEMPERATURE ____
BAROMETRIC PRESSURE ____
STATIC PRESSURE, (P_s) ____
FILTER NUMBER (s) ____

PROBE LENGTH AND TYPE ____
NOZZLE I.D. ____
ASSUMED MOISTURE, % ____
SAMPLE BOX NUMBER ____
METER BOX NUMBER ____
METER $\Delta H_@$ ____ # 14
C FACTOR ____
PROBE HEATER SETTING ____
HEATER BOX SETTING ____
REFERENCE Δp ~~# 13 (0–2")~~ (0–.50")

SCHEMATIC OF TRAVERSE POINT LAYOUT

READ AND RECORD ALL DATA EVERY ____ MINUTES

A00052

$P_s = -0.14$

TRAVERSE POINT NUMBER	SAMPLING TIME, min / CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\ in}$), °F	DRY GAS METER TEMPERATURE OUTLET ($T_{m\ out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
1			0.04			244					
2			0.04			250					
3			0.05			249					
4			0.04			254					
5			0.05			254					
6			0.04			253					
7			0.05			255					
8			0.04			253					
9			0.04			254					
10			0.05			254					
11			0.05			254					
12			0.04			255					
1			0.05			235					
2			0.04			245					
3			0.04			252					
4			0.05			254					
5			0.04			254					
6			0.05			255					
7			0.05			254					
8			0.05			253					
9			0.04			253					
10			0.05			252					
11			0.05			252					

COMMENTS: 0.04 253

12

EPA (Dur) 235
4/72

FIELD DATA

PLANT Holly Sugar
DATE 6/5/91
SAMPLING LOCATION Boiler # 3
SAMPLE TYPE Particulate
RUN NUMBER # 1
OPERATOR Marcotte
AMBIENT TEMPERATURE 61° F
BAROMETRIC PRESSURE 28.95
STATIC PRESSURE, (P_s) -0.14
FILTER NUMBER (s)

BOILER # 3
PARTICULATE
RUN # 1

PROBE LENGTH AND TYPE S.S.
NOZZLE I.D. 0.3600 (S.S.)
ASSUMED MOISTURE, % 10%
SAMPLE BOX NUMBER WES # 11
METER BOX NUMBER WES # 11
METER $\Delta H_@$ WES # 11
C FACTOR —
PROBE HEATER SETTING 250° F
HEATER BOX SETTING 250° F
REFERENCE Δp # 12 (0 - .25")

ml
+ g
= VLC

SCHEMATIC OF TRAVERSE POINT LAYOUT

preleak ✓ < .015 cfm @ 15"   READ AND RECORD ALL DATA EVERY 5 MINUTES   postleak ✓ < .007 cfm @ "

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft³	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
	0	10:27	180.149									
1	5	10:32	183.520	0.13	1.68	1.68	179	61	61	4	253	66
2	10	10:37	187.115	0.15	1.92	1.92	185	63	62	4	250	52
3	15	10:42	190.970	0.17	2.18	2.18	186	67	62	5	251	54
4	20	10:47	194.830	0.17	2.19	2.19	188	70	64	5	250	56
5	25	10:52	198.405	0.15	1.93	1.93	190	72	64	4	251	58
6 *	30 *	10:57 *	202.050	0.15	1.95	1.95	186	75	65	4	250	58
1	35	11:08	205.595	0.14	1.85	1.85	176	74	67	4	250	60
2	40	11:13	209.140	0.15	1.94	1.94	188	75	68	5	251	60
3	45	11:18	212.845	0.16	2.08	2.08	190	79	69	5	250	59
4	50	11:23	216.665	0.17	2.09	2.09	210	80	69	5	251	60
5	55	11:28	219.695	0.11	1.39	1.39	212	80	70	4	250	60
6	60	11:33	223.270	0.14	1.75	1.75	218	83	71	4	251	61

* Stopped to switch ports started @ 11:03 AM

* Actual stack temp. 304° F

COMMENTS:

A00033

EPA (Dur) 235
4/72

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1.______ 2.______
3.______ 4.______
Indicate by numbers in box under Sample column.

Holly Sugar
Boiler 3
#1

Requestor ______
JN ______
Assigned to ______
Date Assigned ______

ALL WEIGHTS IN GRAMS

Sample Number: Probe — **Filter or Container #:** 59.2

TARE WEIGHT		TARE + SAMPLE WEIGHT	
1. 100.6829	9.	1. 100.7115	9.
2. 100.6825	10.	2. 100.7115	10.
3.	11.	3. 100.7120	11.
4.	12.	4.	12.
5.	13.	5.	13.
6.	14.	6.	14.
7.	15.	7.	15.
8.	16.	8.	16.

FILTER OR CONTAINER PLUS SAMPLE: 100.7117
FILTER OR CONTAINER TARE: 100.6827
SAMPLE: 0.0290

Sample Number: Filter — **Filter or Container #:** 3.043

TARE WEIGHT		TARE + SAMPLE WEIGHT	
1. 0.3506	9.	1. 0.3775	9.
2. 0.3506	10.	2. 0.3777	10.
3. 0.3505	11.	3. 0.3778	11.
4.	12.	4.	12.
5.	13.	5.	13.
6.	14.	6.	14.
7.	15.	7.	15.
8.	16.	8.	16.

FILTER OR CONTAINER PLUS SAMPLE: 0.3777
FILTER OR CONTAINER TARE: 0.3506
SAMPLE: 0.0271

Sample Number: Imp I — **Filter or Container #:** 60.2

TARE WEIGHT		TARE + SAMPLE WEIGHT	
1. 98.3581	9.	1. 98.4126	9.
2. 98.3588	10.	2. 98.4138	10.
3.	11.	3. 98.4095	11.
4.	12.	4. 98.4121	12.
5.	13.	5. 98.4124	13.
6.	14.	6. 98.4127	14.
7.	15.	7.	15.
8.	16.	8.	16.

FILTER OR CONTAINER PLUS SAMPLE: 98.4124
FILTER OR CONTAINER TARE: 98.3588
SAMPLE: 0.0536

Sample Number: Imp O — **Filter or Container #:** 61.2

TARE WEIGHT		TARE + SAMPLE WEIGHT	
1. 97.0674	9.	1. 97.0698	9.
2. 97.0672	10.	2. 97.0699	10.
3.	11.	3. 97.0703	11.
4.	12.	4.	12.
5.	13.	5.	13.
6.	14.	6.	14.
7.	15.	7.	15.
8.	16.	8.	16.

FILTER OR CONTAINER PLUS SAMPLE: 97.0700
FILTER OR CONTAINER TARE: 97.0673
SAMPLE: 0.0027

FIELD DATA

PLANT HOLLY SUGAR
DATE 6/5/91
SAMPLING LOCATION BOILER # 3
SAMPLE TYPE PARTICULATE
RUN NUMBER # 2
OPERATOR MARCOTTE
AMBIENT TEMPERATURE 71° F
BAROMETRIC PRESSURE 29.85
STATIC PRESSURE, (P_s) -0.14
FILTER NUMBER (s)

BOILER # 3
PARTICULATE
RUN # 2

PROBE LENGTH AND TYPE S.S.
NOZZLE I.D. 0.3600 S.S.
ASSUMED MOISTURE, % 10%
SAMPLE BOX NUMBER WES # 11
METER BOX NUMBER WES # 11
METER $\Delta H_@$ WES # 11
C FACTOR -
PROBE HEATER SETTING 250° F
HEATER BOX SETTING 250° F
REFERENCE Δp # 12 (0-.25")

SCHEMATIC OF TRAVERSE POINT LAYOUT

preleak ✓ < .020 cfm @ 15" READ AND RECORD ALL DATA EVERY 5 MINUTES postleak ✓ < .015 cfm @ 10"

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft³	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
	0	12:28	223.966									
1	5	12:33	227.400	0.15	1.68	1.68	292	71	71	5	225	62
2	10	12:38	230.845	0.16	1.76	1.76	307	75	72	5	250	51
3	15	12:43	234.435	0.17	1.87	1.87	310	78	72	6	251	52
4	20	12:48	237.650	0.14	1.56	1.56	304	81	73	5	250	53
5	25	12:53	240.935	0.15	1.67	1.67	306	83	73	5	252	57
6	30	12:58	244.045	0.13	1.45	1.45	302	84	74	5	250	60
STOP *	0	1:01	SWITCH PORTS *									*SWITCH PORTS
1	35	1:06	247.220	0.14	1.57	1.57	298	83	73	5	251	62
2	40	1:11	250.665	0.15	1.68	1.68	303	83	75	5	249	58
3	45	1:16	254.220	0.16	1.80	1.80	301	85	75	6	250	59
4	50	1:21	257.615	0.15	1.68	1.68	304	86	76	5	253	60
5	55	1:26	260.845	0.14	1.57	1.57	305	86	76	5	250	61
6	60	1:31	264.037	0.13	1.46	1.46	300	87	76	5	251	62

COMMENTS:

A00055

EPA (Dur) 235
4/72

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1.______ 2.______
3.______ 4.______
Indicate by numbers in box under Sample column.

Holly Sugar
Boiler #3
Test #2

Requestor ______
JN ______
Assigned to ______
Date Assigned ______

ALL WEIGHTS IN GRAMS

Sample Number: Probe — Filter or Container #: 62.2

TARE WEIGHT		TARE + SAMPLE WEIGHT	
1. 101.6587	9.	1. 101.6835	9.
2. 101.6586	10.	2. 101.6837	10.
3.	11.	3. 101.6836	11.
4.	12.	4.	12.
5.	13.	5.	13.
6.	14.	6.	14.
7.	15.	7.	15.
8.	16.	8.	16.

FILTER OR CONTAINER PLUS SAMPLE 101.6836
FILTER OR CONTAINER TARE 101.6587
SAMPLE 0.0249

Sample Number: Filter — Filter or Container #: 3.042

TARE WEIGHT		TARE + SAMPLE WEIGHT	
1. 0.3525	9.	1. 0.3704	9.
2. 0.3524	10.	2. 0.3710	10.
3. 0.3524	11.	3. 0.3710	11.
4.	12.	4.	12.
5.	13.	5.	13.
6.	14.	6.	14.
7.	15.	7.	15.
8.	16.	8.	16.

FILTER OR CONTAINER PLUS SAMPLE 0.3708
FILTER OR CONTAINER TARE 0.3524
SAMPLE 0.0184

Sample Number: Imp I — Filter or Container #: 63.2

TARE WEIGHT		TARE + SAMPLE WEIGHT	
1. 97.5424	9.	1. 97.6729	9. 97.6701
2. 97.5424	10.	2. 97.6756	10. 97.6681
3.	11.	3. 97.6636	11. 97.6749
4.	12.	4. 97.6711	12.
5.	13.	5. 97.6726	13.
6.	14.	6. 97.6773	14.
7.	15.	7. 97.6780	15.
8.	16.	8. 97.6721	16.

FILTER OR CONTAINER PLUS SAMPLE 97.6725
FILTER OR CONTAINER TARE 97.5424
SAMPLE 0.1301

Sample Number: Imp O — Filter or Container #: 64.2

TARE WEIGHT		TARE + SAMPLE WEIGHT	
1. 100.7465	9.	1. 100.7496	9.
2. 100.7466	10.	2. 100.7497	10.
3.	11.	3. 100.7500	11.
4.	12.	4.	12.
5.	13.	5.	13.
6.	14.	6.	14.
7.	15.	7.	15.
8.	16.	8.	16.

FILTER OR CONTAINER PLUS SAMPLE 100.7498
FILTER OR CONTAINER TARE 100.7466
SAMPLE 0.0032

FIELD DATA

PLANT HOLLY SUGAR
DATE 6/5/91
SAMPLING LOCATION BOILER #3
SAMPLE TYPE PARTICULATE
RUN NUMBER #3
OPERATOR MARCOTTE
AMBIENT TEMPERATURE 75°F
BAROMETRIC PRESSURE 29.86
STATIC PRESSURE, (P_s) -0.14
FILTER NUMBER (s)

BOILER #3
PARTICULATE
RUN # 3

PROBE LENGTH AND TYPE S.S.
NOZZLE I.D. 0.3600 S.S.
ASSUMED MOISTURE, % 10%
SAMPLE BOX NUMBER WES #11
METER BOX NUMBER WES #11
METER $\Delta H_@$ WES #11
C FACTOR —
PROBE HEATER SETTING 250° F
HEATER BOX SETTING 250° F
REFERENCE Δp #12 (0 - .25")

ml.
+ g.
= VLC

SCHEMATIC OF TRAVERSE POINT LAYOUT

preleak VL .020 cfm @ 15"
READ AND RECORD ALL DATA EVERY 5 MINUTES
postleak VL .018 cfm @ 10"

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\ in}$), °F	OUTLET ($T_{m\ out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
	0	2:37	264.288									
1	5	2:42	267.965	0.17	1.90	1.90	298	75	74	5	246	65
2	10	2:47	271.835	0.19	2.11	2.11	304	78	76	5	250	62
3	15	2:52	275.820	0.20	2.22	2.22	306	81	75	6	249	63
4	20	2:57	279.895	0.21	2.33	2.33	310	85	77	6	251	65
5	25	3:02	283.850	0.20	2.23	2.23	308	87	77	6	249	67
6	30	3:07	287.677	0.19	2.13	2.13	307	88	78	5	251	65
* STOP	0	3:10	SWITCH PORTS									
1	35	3:15	291.535	0.19	2.13	2.13	306	88	79	5	252	63
2	40	3:20	295.295	0.18	2.02	2.02	304	88	79	5	251	62
3	45	3:25	299.080	0.18	2.02	2.02	307	88	80	5	250	59
4	50	3:30	302.990	0.19	2.13	2.13	308	90	80	5	249	60
5	55	3:35	306.310	0.15	1.70	1.70	303	91	81	5	252	59
6	60	3:40	309.582	0.14	1.59	1.59	301	91	81	5	250	60

* STOP TO SWITCH PORTS

COMMENTS:

A00067

EPA (Dur) 235
4/72

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. ________ 2. ________
3. ________ 4. ________
Indicate by numbers in box under Sample column.

Holly Sugar
Boiler #3
Test #3

Requestor ________
JN ________
Assigned to ________
Date Assigned ________

ALL WEIGHTS IN GRAMS

SAMPLE NUMBER: Probe — FILTER OR CONTAINER #: 65.2

No.	TARE WEIGHT	No.	TARE WEIGHT	No.	TARE + SAMPLE WEIGHT	No.	TARE + SAMPLE WEIGHT
1.	101.0382	9.		1.	101.0732	9.	
2.	101.0379	10.		2.	101.0731	10.	
3.		11.		3.	101.0734	11.	
4.		12.		4.		12.	
5.		13.		5.		13.	
6.		14.		6.		14.	
7.		15.		7.		15.	
8.		16.		8.		16.	

FILTER OR CONTAINER PLUS SAMPLE 101.0732
FILTER OR CONTAINER TARE 101.0381
SAMPLE 0.0351

SAMPLE NUMBER: Filter — FILTER OR CONTAINER #: 3.038

No.	TARE WEIGHT	No.	TARE WEIGHT	No.	TARE + SAMPLE WEIGHT	No.	TARE + SAMPLE WEIGHT
1.	0.3505	9.		1.	0.3739	9.	
2.	0.3500	10.		2.	0.3743	10.	
3.	0.3501	11.		3.	0.3743	11.	
4.		12.		4.		12.	
5.		13.		5.		13.	
6.		14.		6.		14.	
7.		15.		7.		15.	
8.		16.		8.		16.	

FILTER OR CONTAINER PLUS SAMPLE 0.3742
FILTER OR CONTAINER TARE 0.3502
SAMPLE 0.0240

SAMPLE NUMBER: Imp I — FILTER OR CONTAINER #: 66.2

No.	TARE WEIGHT	No.	TARE WEIGHT	No.	TARE + SAMPLE WEIGHT	No.	TARE + SAMPLE WEIGHT
1.	101.9844	9.		1.	102.1453	9.	102.1415
2.	101.9843	10.		2.	102.1487	10.	102.1399
3.		11.		3.	102.1347	11.	102.1486
4.		12.		4.	102.1436	12.	
5.		13.		5.	102.1488	13.	
6.		14.		6.	102.1514	14.	
7.		15.		7.	102.1531	15.	
8.		16.		8.	102.1455	16.	

FILTER OR CONTAINER PLUS SAMPLE 102.1487
FILTER OR CONTAINER TARE 101.9844
SAMPLE 0.1643

SAMPLE NUMBER: Imp O — FILTER OR CONTAINER #: 67.2

No.	TARE WEIGHT	No.	TARE WEIGHT	No.	TARE + SAMPLE WEIGHT	No.	TARE + SAMPLE WEIGHT
1.	97.2819	9.		1.	97.2865	9.	
2.	97.2817	10.		2.	97.2864	10.	
3.		11.		3.	97.2866	11.	
4.		12.		4.		12.	
5.		13.		5.		13.	
6.		14.		6.		14.	
7.		15.		7.		15.	
8.		16.		8.		16.	

FILTER OR CONTAINER PLUS SAMPLE 97.2865
FILTER OR CONTAINER TARE 97.2818
SAMPLE 0.0047

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Boiler 3
RUN: Particulate 1
DATE: June 5, 1991

GAS METER READING	VELOCITY HEAD	SQUARE ROOT		ORIFICE PRESSURE DELTA H		STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
180.149	0.13	0.360555		1.68		179	61	61
223.270	0.15	0.387298		1.92		185	63	62
---------	0.17	0.412310		2.18		186	67	62
43.121	0.17	0.412310		2.19		188	70	64
=========	0.15	0.387298		1.93		190	72	64
(DIFFERENCE)	0.15	0.387298		1.95		186	75	65
	0.14	0.374165		1.85		176	74	67
	0.15	0.387298		1.94		188	75	68
	0.16	0.4		2.08		190	79	69
	0.17	0.412310		2.09		210	80	69
	0.11	0.331662		1.39		212	80	70
	0.14	0.374165		1.75		218	83	71
		---------	AVERAGE SQUARED					
	AVERAGE	0.385556	0.149	AVERAGE 1.91	AVERAGE	192	AVERAGE	69.63
		=========	=========	============		=========		=========

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Boiler 3
RUN: Particulate 1
DATE: June 5, 1991

GAS METER READING	VELOCITY HEAD	SQUARE ROOT		ORIFICE PRESSURE DELTA H		STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
180.149	0.13	0.360555		1.68		179	61	61
223.270	0.15	0.387298		1.92		185	63	62
---------	0.17	0.412310		2.18		186	67	62
43.121	0.17	0.412310		2.19		188	70	64
=========	0.15	0.387298		1.93		190	72	64
(DIFFERENCE)	0.15	0.387298		1.95		186	75	65
	0.14	0.374165		1.85		176	74	67
	0.15	0.387298		1.94		188	75	68
	0.16	0.4		2.08		190	79	69
	0.17	0.412310		2.09		210	80	69
	0.11	0.331662		1.39		212	80	70
	0.14	0.374165		1.75		218	83	71
		---------	AVERAGE SQUARED					
	AVERAGE	0.385556	0.149	AVERAGE 1.91	AVERAGE	192	AVERAGE	69.63
		=========	=========	============		=========		=========

A00069

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Boiler 3
RUN: Particulate 2
DATE: June 5, 1991

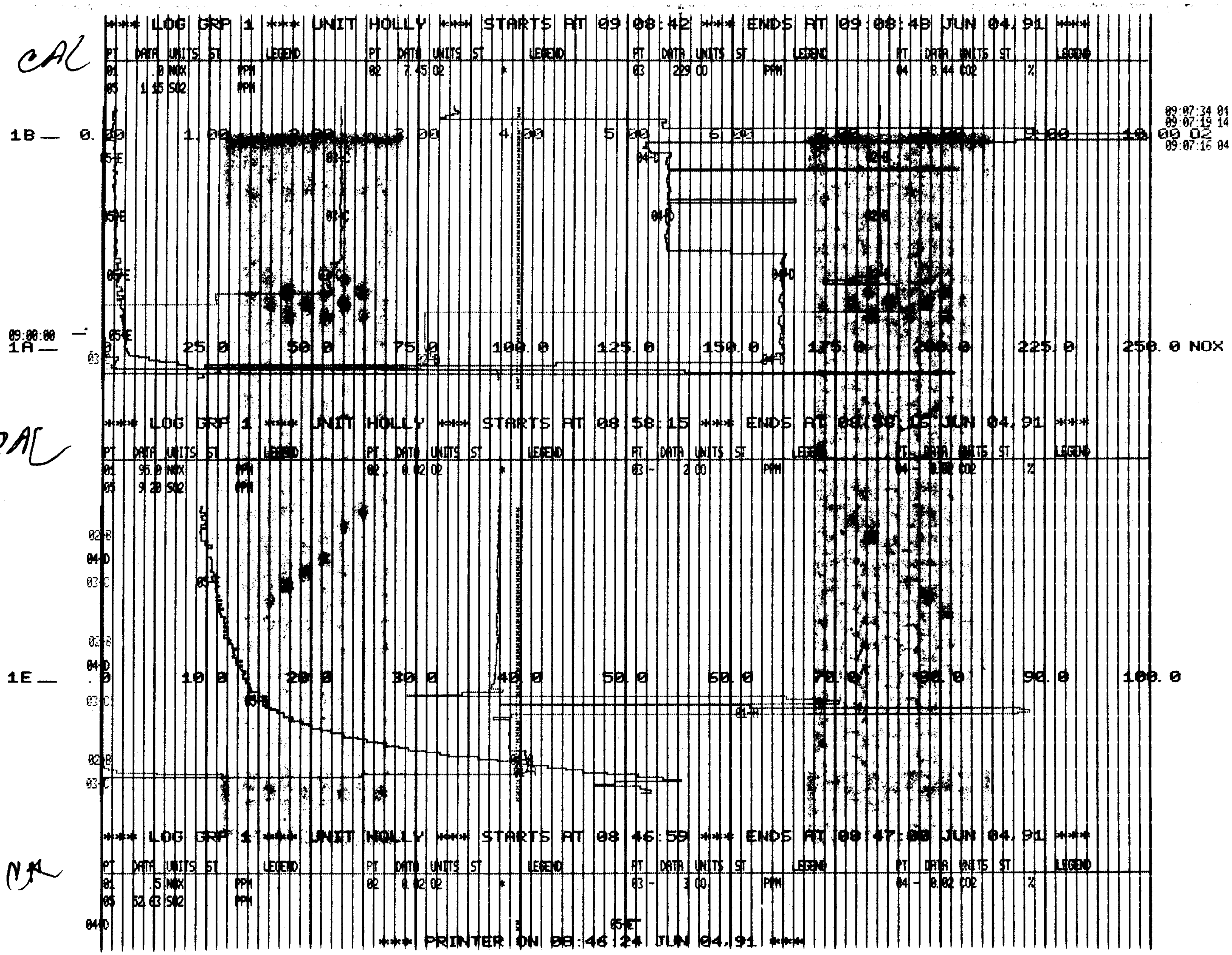
GAS METER READING	VELOCITY HEAD	SQUARE ROOT	AVERAGE SQUARED	ORIFICE PRESSURE DELTA H	STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
223.966	0.15	0.387298		1.68	292	71	71
264.037	0.16	0.4		1.76	307	75	72
---------	0.17	0.412310		1.87	310	78	72
40.071	0.14	0.374165		1.56	304	81	73
=========	0.15	0.387298		1.67	306	83	73
(DIFFERENCE)	0.13	0.360555		1.45	302	84	74
	0.14	0.374165		1.57	298	83	73
	0.15	0.387298		1.68	303	83	75
	0.16	0.4		1.8	301	85	75
	0.15	0.387298		1.68	304	86	76
	0.14	0.374165		1.57	305	86	76
	0.13	0.360555		1.46	300	87	76
	AVERAGE	0.383759	0.147	AVERAGE 1.65	AVERAGE 303	AVERAGE	77.83

A00070

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Boiler 3
RUN: Particulate 3
DATE: June 5, 1991

GAS METER READING	VELOCITY HEAD	SQUARE ROOT	AVERAGE SQUARED		ORIFICE PRESSURE DELTA H		STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
264.288	0.17	0.412310			1.9		298	75	74
309.582	0.19	0.435889			2.11		304	78	76
---------	0.2	0.447213			2.22		306	81	75
45.294	0.21	0.458257			2.33		310	85	77
=========	0.2	0.447213			2.23		308	87	77
(DIFFERENCE)	0.19	0.435889			2.13		307	88	78
	0.19	0.435889			2.13		306	88	79
	0.18	0.424264			2.02		304	88	79
	0.18	0.424264			2.02		307	88	80
	0.19	0.435889			2.13		308	90	80
	0.15	0.387298			1.7		303	91	81
	0.14	0.374165			1.59		301	91	81
	AVERAGE	0.426545	0.182	AVERAGE	2.04	AVERAGE	305	AVERAGE	81.96


*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 09:08:42 *** ENDS AT 09:08:48 JUN 04, 91 ***
PT DATA UNITS ST LEGEND
01 .0 NOX PPM
05 1.15 SO2 PPM
02 7.45 O2 *
03 229 CO PPM
04 8.44 CO2 %
09:07:34 01 *
09:07:19 14 %
09:07:16 04 %
1B — 0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 O2
09:00:00
1A — 0 25.0 50.0 75.0 100.0 125.0 150.0 175.0 200.0 225.0 250.0 NOX
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 08:58:15 *** ENDS AT
PT DATA UNITS ST LEGEND
01 95.0 NOX PPM
05 9.20 SO2 PPM
02 0.02 O2 *
03 - 2 CO PPM
04 - CO2 %
1E — 0 10.0 20.0 30.0 40.0 50.0 60.0 70.0 80.0 90.0 100.0
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 08:46:59 *** ENDS AT 08:47:00 JUN 04, 91 ***
PT DATA UNITS ST LEGEND
01 .5 NOX PPM
05 52.63 SO2 PPM
02 0.02 O2 *
03 - 3 CO PPM
04 - 0.02 CO2 %
*** PRINTER ON 08:46:24 JUN 04, 91 ***
CAL
CAL
NA

A00072

Lin

1D — 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 09:25:38 *** ENDS AT 09:25:42 JUN 04,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	.2	NOX		PPM	02	0.04	O2		*	03 -	2	CO		PPM	04	0.00	CO2		%
05	20.02	SO2		PPM															

09:20:17 14 *
09:20:16 04 *
09:20:11 14 %
09:20:11 04 %

Min

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 09:19:56 *** ENDS AT 09:19:57 JUN 04,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	.3	NOX		PPM	02	5.17	O2		*	03	947	CO		PPM	04	10.32	CO2		%
05	0.37	SO2		PPM															

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 09:16:25 *** ENDS AT 09:16:25 JUN 04,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	200.2	NOX		PPM	02	0.05	O2		*	03	127	CO		PPM	04	0.04	CO2		%
05	5.01	SO2		PPM															

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 09:15:56 *** ENDS AT 09:16:02 JUN 04,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	200.1	NOX		PPM	02	0.04	O2		*	03 -	5	CO		PPM	04 -	0.02	CO2		%
05	6.20	SO2		PPM															

Lin

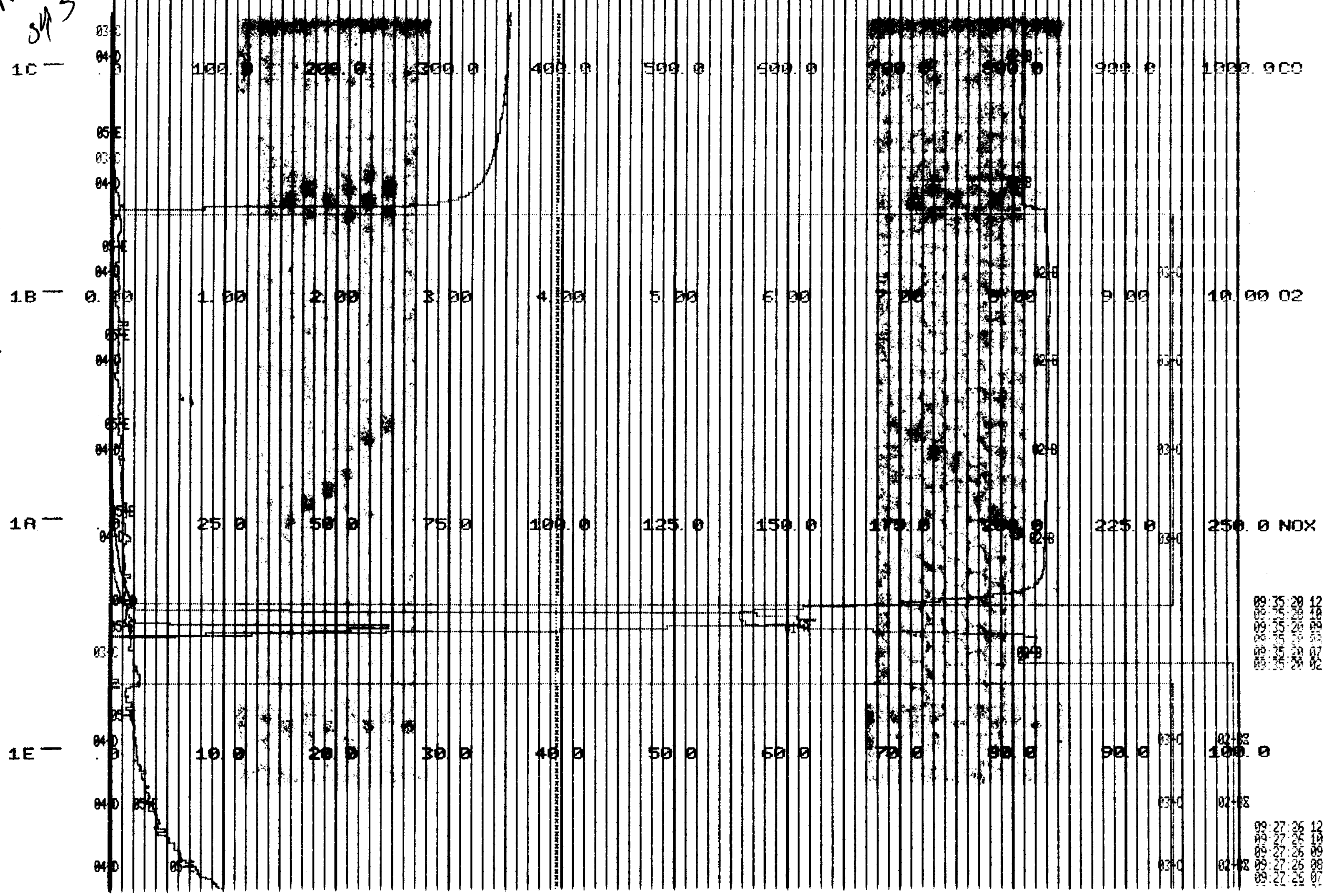
1C — 0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO

09:07:34 14 *

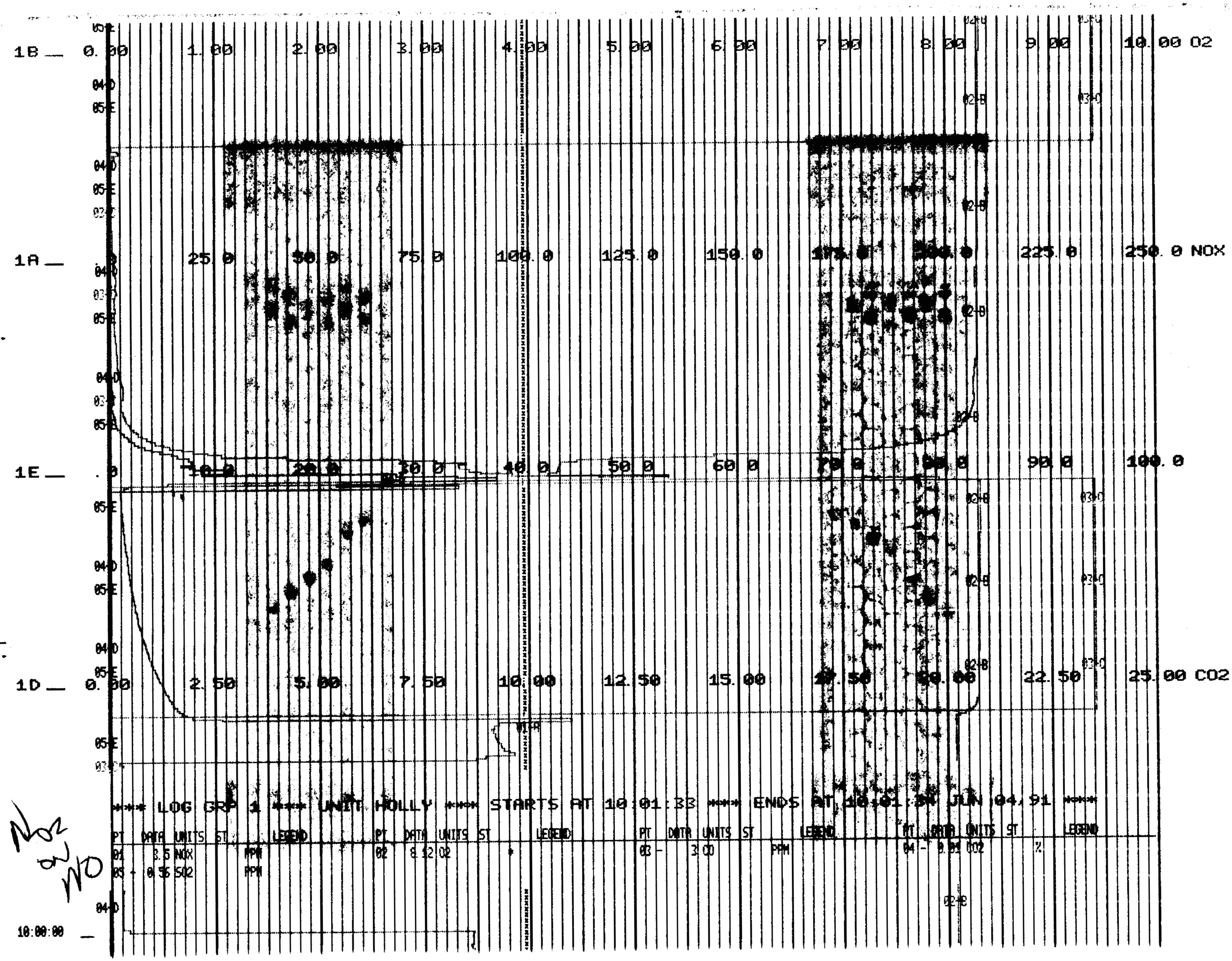
A00073

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 09:58:11 *** ENDS AT 09:58:17 JUN 04,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	88.9	NOX		PPM	02	8.12	O2	*		03 -	3	CO		PPM	04 -	8.82	CO2		%
05 -	0.21	SO2		PPM															



A00074



1B — 0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 O2
1A — 0 25.0 50.0 75.0 100.0 125.0 150.0 175.0 200.0 225.0 250.0 NOX
1E — 0 10.0 20.0 30.0 40.0 50.0 60.0 70.0 80.0 90.0 100.0
1D — 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 10:01:33 *** ENDS AT 10:01:34 JUN 04,91 ***
PT DATA UNITS ST LEGEND
01 3.5 NOX PPM
05 - 0.56 SO2 PPM
PT DATA UNITS ST LEGEND
02 8.12 O2 *
PT DATA UNITS ST LEGEND
03 - 3 CO PPM
PT DATA UNITS ST LEGEND
04 - 0.01 CO2 %
10:00:00
NO2 or NO

A00075

05 0.10 SO2 PPM

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 07:03:17 *** ENDS AT 07:03:18 JUN 05,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	.1	NOX			02	5.16	O2	*		03	948	CO		PPM			O2		%
05	0.27	SO2		PPM															

07:00:01

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 06:59:05 *** ENDS AT 06:59:05 JUN 05,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	198.9	NOX		PPM	02	0.03	O2	*		03	1	CO		PPM	04	0.00	CO2		%
05	4.51	SO2		PPM															

*** SYSTEM RESTART 06:57:01 JUN 05,91 ***

*** PRINTER ON 06:54:19 JUN 05,91 ***
*** PRINTER OFF 10:39:47 JUN 04,91 ***

*** RESET AVERAGE 10:39:30 14 152.11 CO2 A ***

*** RESET AVERAGE 10:39:10 15 5.94 SO2 A ***
*** RESET AVERAGE 10:39:10 15 5.94 SO2 A ***

*** RESET AVERAGE 10:39:10 11 40.4 NOX A ***

10 — 0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.000

A00076

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 07:18:55 *** ENDS AT 07:18:56 JUN 05/91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	.1	NOX		PPM	02	8.65	02	*		03	0	CO		PPM	04	- 0.01	CO2		%
05	19.48	SO2		PPM															

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 07:18:25 *** ENDS AT [illegible] JUN 05/91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	.1	NOX		PPM	02	8.65	02	*		03	0	CO		PPM	04	[illegible]	CO2		%
05	20.12	SO2		PPM															

1B — 0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 O2

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 07:12:02 *** ENDS AT 07:12:03 JUN 05/91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	.0	NOX		PPM	02	7.43	02	*		03	233	CO		PPM	04	[illegible]	CO2		%
05	- 0.19	SO2		PPM															

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 07:07:46 *** ENDS AT 07:07:47 JUN 05/91 ***

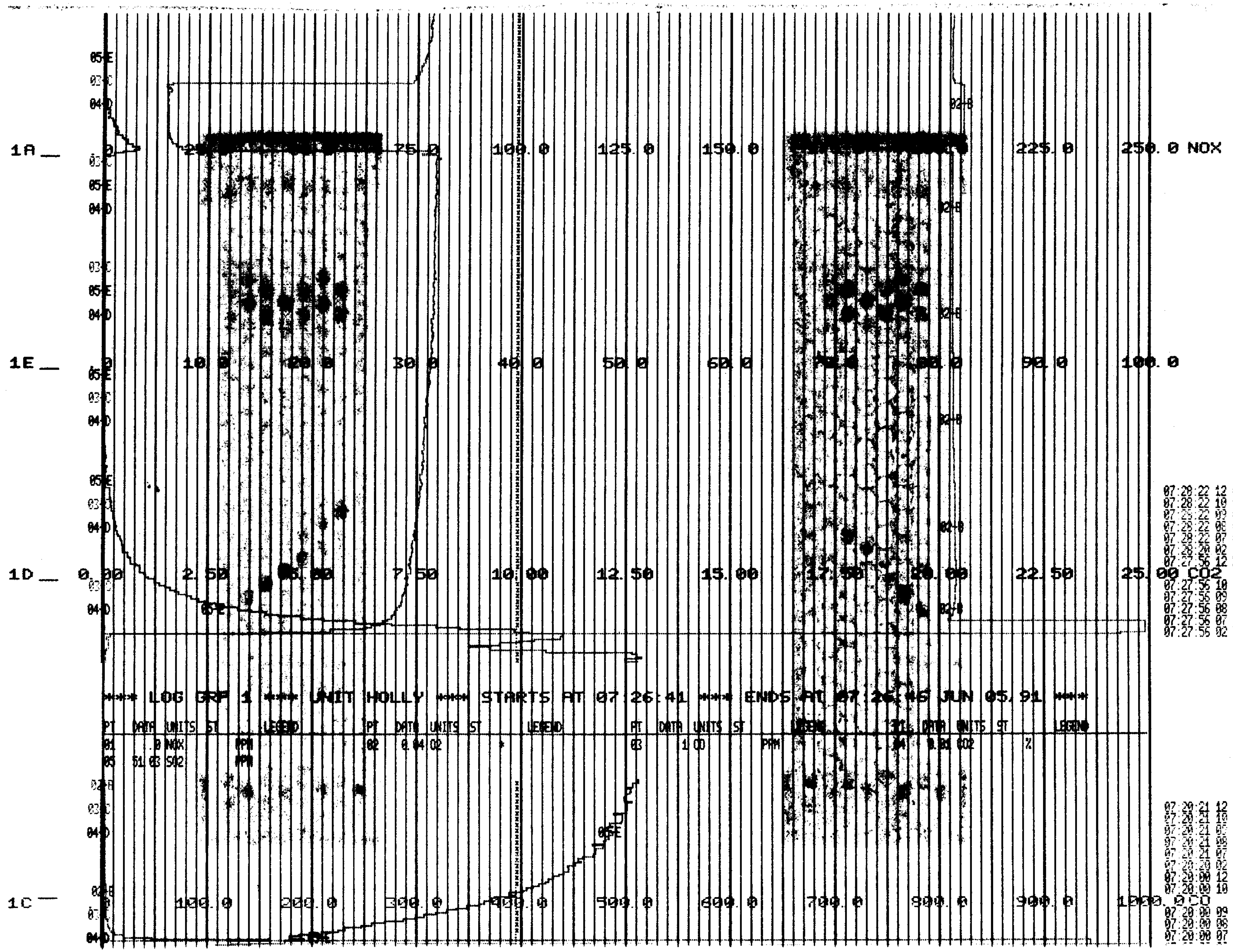
PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	93.3	NOX		PPM	02	8.65	02	*		03	- 3	CO		PPM	04	- 0.04	CO2		%
05	0.88	SO2		PPM															

1A — 0 25.0 50.0 75.0 100.0 125.0 150.0 175.0 200.0 225.0 250.0 NOX

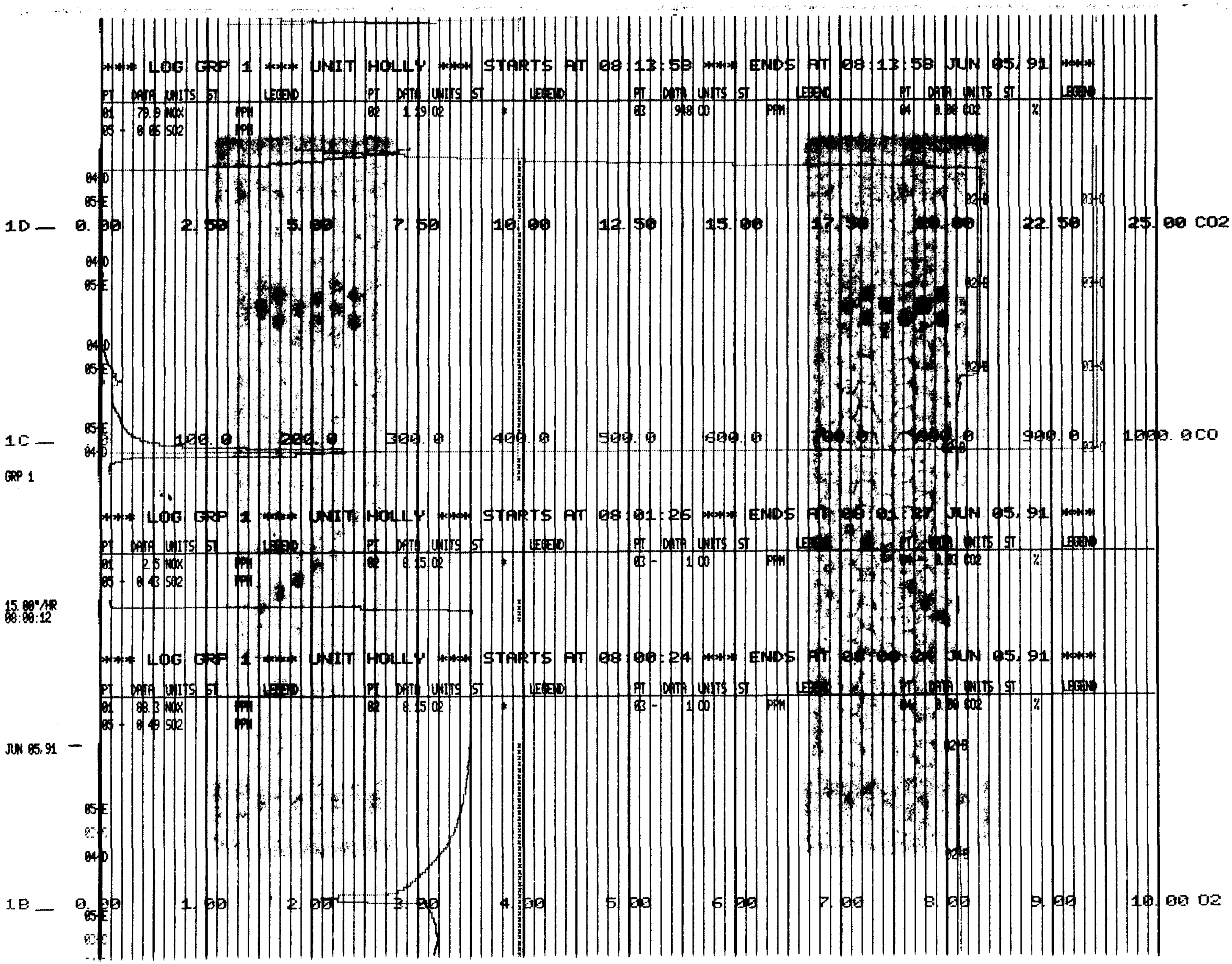
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 07:04:39 *** ENDS AT 07:04:40 JUN 05/91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND

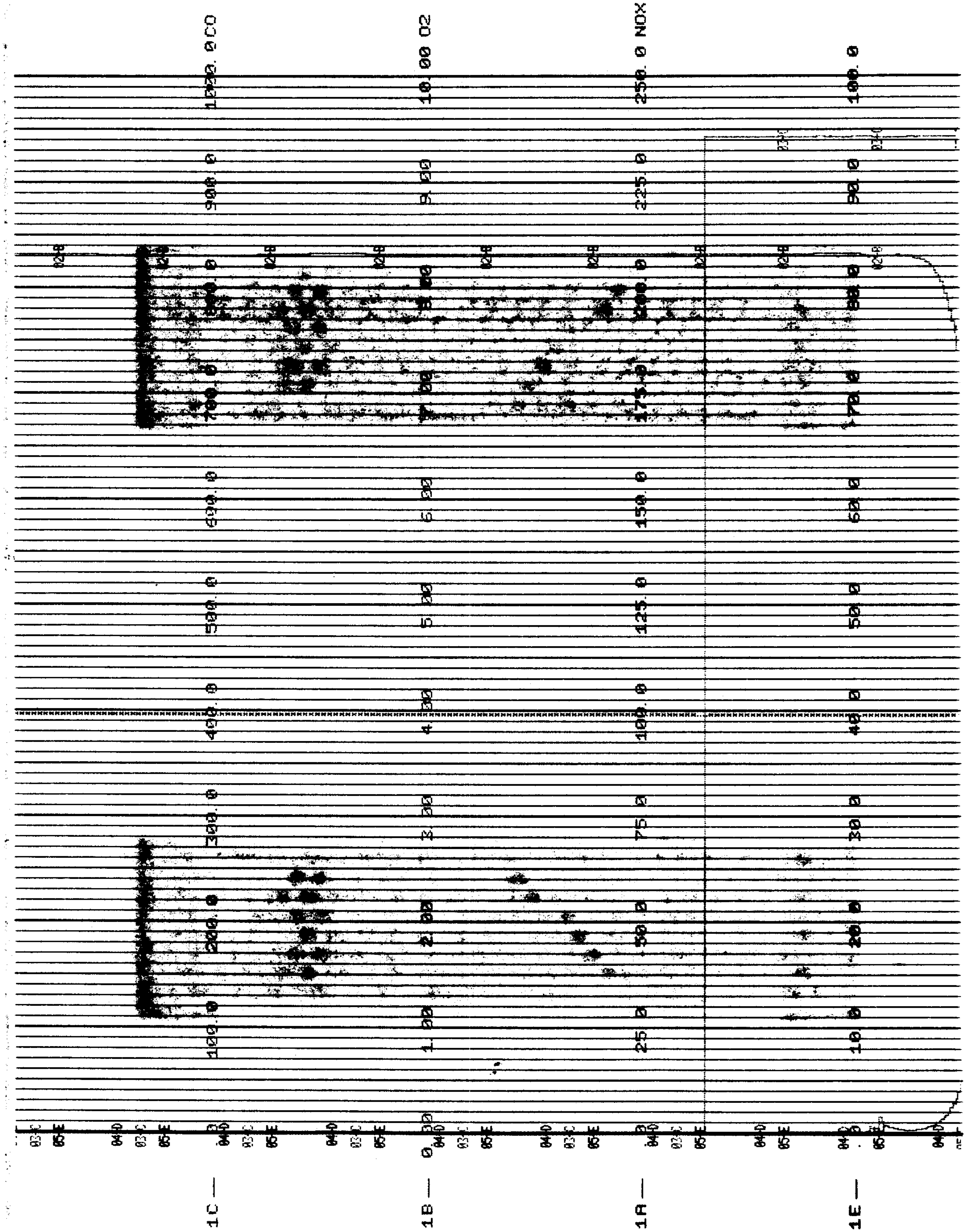
A00077


*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 07:26:41 *** ENDS AT 07:26:45 JUN 05, 91 ***
PT DATA UNITS ST LEGEND
01 0 NOX PPM
05 51.03 SO2 PPM
02 0.04 O2 *
03 1 CO PPM
04 0.01 CO2 %
1A
250.0 NOX
225.0
100.0
125.0
150.0
1E
10.0
20.0
30.0
40.0
50.0
60.0
90.0
100.0
1D
0.00
2.50
7.50
10.00
12.50
15.00
17.50
20.00
22.50
25.00 CO2
1C
100.0
200.0
300.0
400.0
500.0
600.0
700.0
800.0
900.0
1000.0 CO

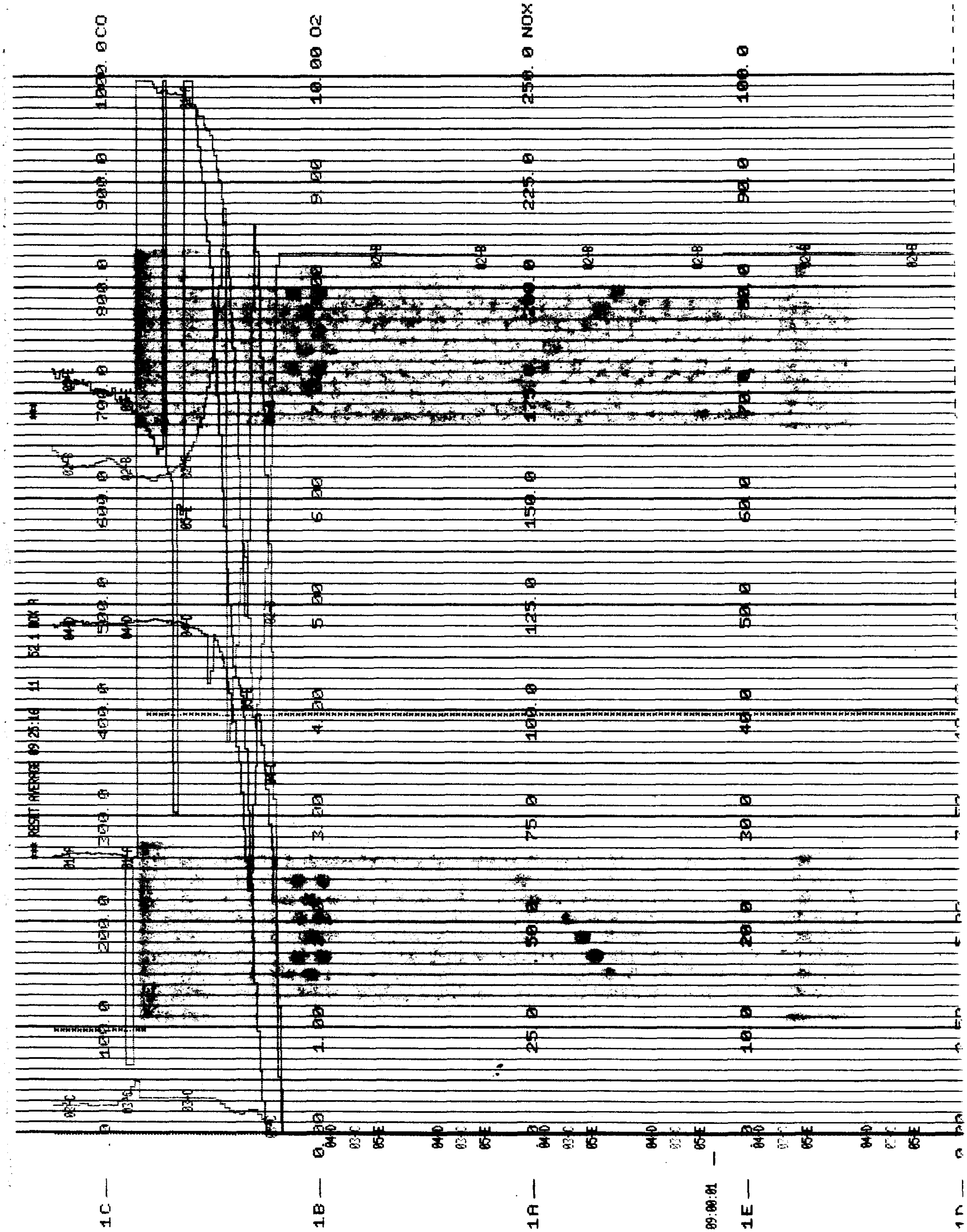
A00078


*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 08:13:58 *** ENDS AT 08:13:58 JUN 05,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 79.9 NOX PPM 02 1.19 O2 * 03 948 CO PPM 04 0.00 CO2 %
05 - 0.05 SO2 PPM
1D
0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2
1C
100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
GRP 1
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 08:01:26 *** ENDS AT 08:01:27 JUN 05,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 2.5 NOX PPM 02 8.15 O2 * 03 - 1 CO PPM 04 - 0.03 CO2 %
05 - 0.43 SO2 PPM
15.00"/HR
08:00:12
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 08:00:24 *** ENDS AT 08:00:24 JUN 05,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 88.3 NOX PPM 02 8.15 O2 * 03 - 1 CO PPM 04 0.00 CO2 %
05 - 0.49 SO2 PPM
JUN 05,91
1B
0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 O2

A00079



A00080


1000.0 CO
10.00 O2
250.0 NOX
100.0
RESET AVERAGE 09:25:10 11 52.1 NOX R
1C
1B
1A
09:00:01
1E
1D

A00081

1E — 0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00

01	.3	NOX	PPM	02	0.04	O2	*	03 -	3	CO	PPM
05	98.59	SO2	PPM	04	9.08	CO2	%				

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 09:35:39 *** ENDS AT 09:35:40 JUN 05, 91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	199.8	NOX		PPM	02	0.05	O2		*	03 -	3	CO		PPM	04	9.04	CO2		%
05	9.52	SO2		PPM															

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 09:32:25 *** ENDS AT 09:32:26 JUN 05, 91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	.8	NOX		PPM	02	0.05	O2		*	03 -	3	CO		PPM	04 -	9.02	CO2		%
05	51.63	SO2		PPM															

1D — 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 09:28:12 *** ENDS AT 09:28:13 JUN 05, 91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	895.6	NOX		PPM	02	0.06	O2		*	03 -	2	CO		PPM	04	9.08	CO2		%
05	34.59	SO2		PPM															

*** RESET AVERAGE 09:26:02 12 78.96 O2 A

*** RESET AVERAGE 09:26:16 15 10.74 SO2 A

*** RESET AVERAGE 09:26:16 15 10.74 SO2 A

A00082

1A —

0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 NOX

NORTH PORT

pk 1

• Begin Test #3 BK

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 10:23:02 *** ENDS AT [illegible] JUN 05, 91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	228.4	NOX		PPM	02	2.98	O2	*		03	44	CO		PPM	[illegible]	[illegible]	CO2		%
05	116.74	SO2		PPM															

*** PRINTER ON 10:22:51 JUN 05, 91 ***
*** PRINTER OFF 10:19:09 JUN 05, 91 ***

10:17:49 05 *

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 10:18:19 *** ENDS AT [illegible] JUN 05, 91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	.2	NOX		PPM	02	0.02	O2	*		03 -	3	CO		PPM	04	[illegible]	CO2		%
05	99.62	SO2		PPM															

10:17:48 05 %

A00083

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 10:15:18 *** ENDS AT [illegible] JUN 05, 91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	.2	NOX		PPM	02	0.02	O2	*		03 -	4	CO		PPM	04	0.01	CO2		%
05	99.88	SO2		PPM															

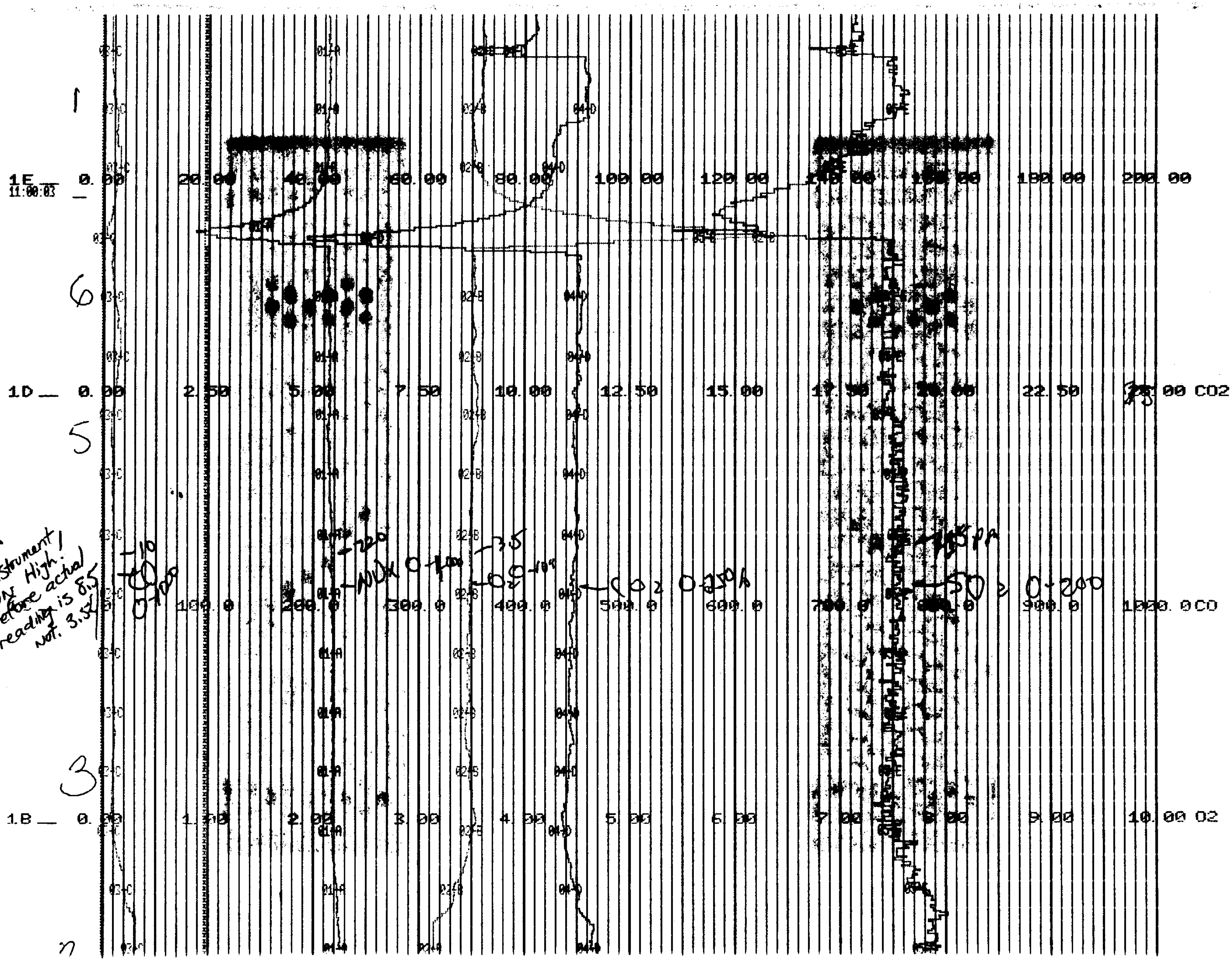
*** PRINTER ON 10:15:16 JUN 05, 91 ***
*** PRINTER OFF 09:48:07 JUN 05, 91 ***

1A —

0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 NOX

09:45:26 02 *
09:44:36 12 %
09:44:36 10 %
09:44:36 09 %
09:44:36 08 %
09:44:36 07 %
09:44:36 02 %

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 09:43:33 *** ENDS AT 09:43:34 JUN 05, 91 ***



A00084

NOTE: O2 instrument was on High! Therefore actual reading is 8.5 not 3.5

Drift

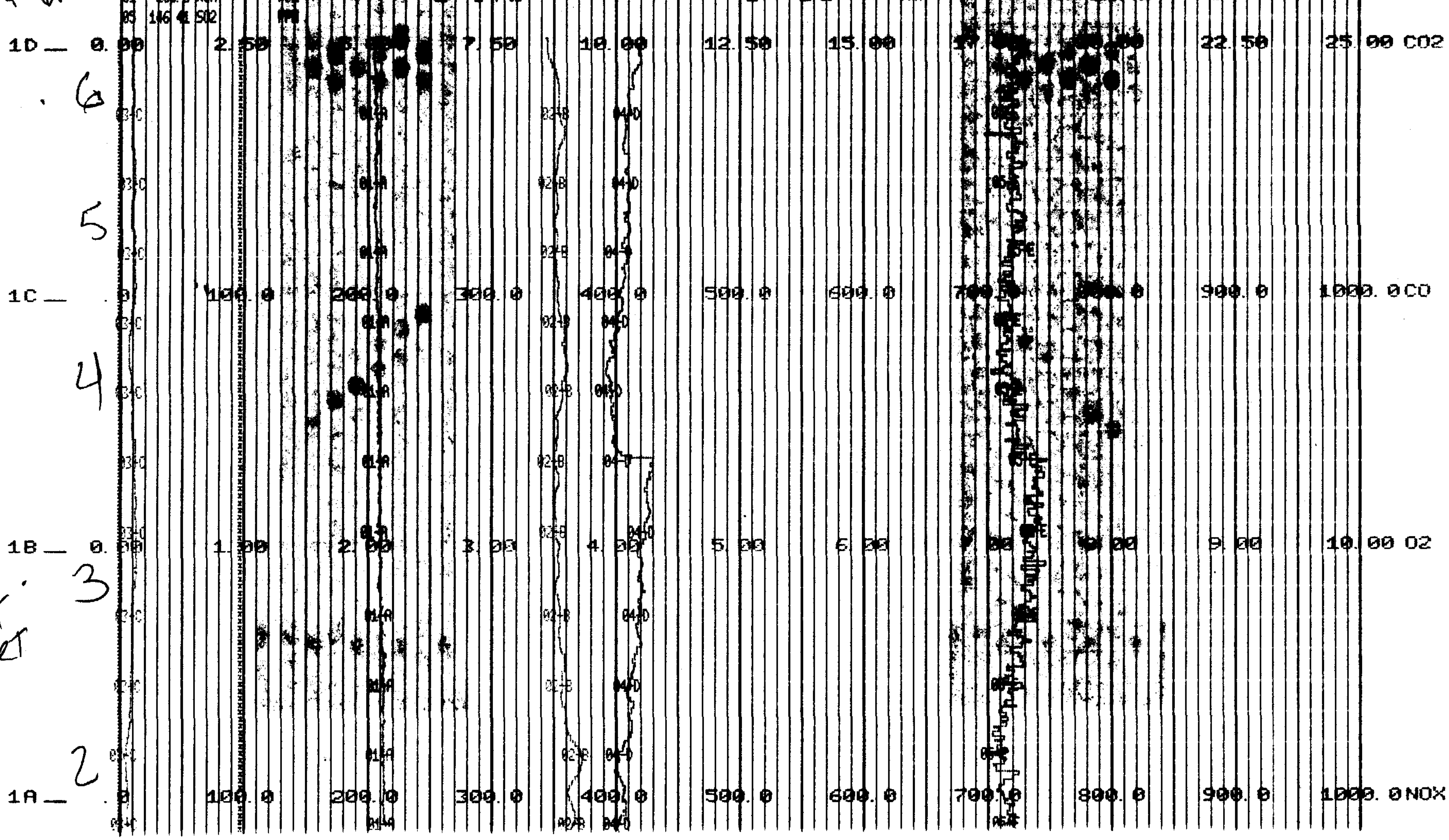
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:34:22 *** ENDS AT 11:34:28 JUN 05,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	208.2	NOX		PPM	02	0.03	O2		%	03	11	CO		PPM	04	0.01	CO2		%
05	102.67	SO2		PPM															

End test? Bir.3

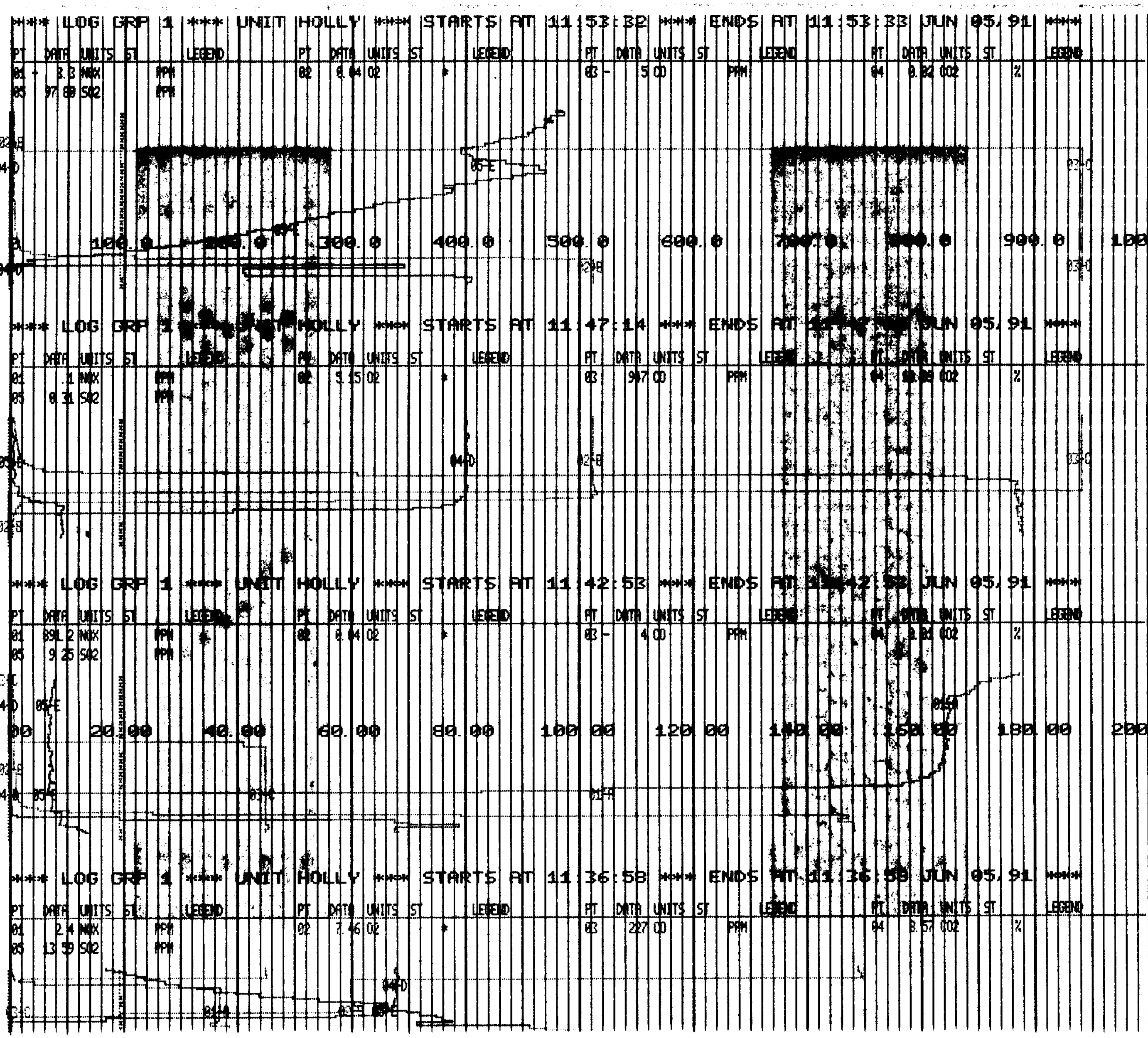
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:32:38 *** ENDS AT 11:32:38 JUN 05,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	208.3	NOX		PPM	02	3.47	O2		%	03	13	CO		PPM	04	[illegible]	CO2		%
05	146.41	SO2		PPM															



West port

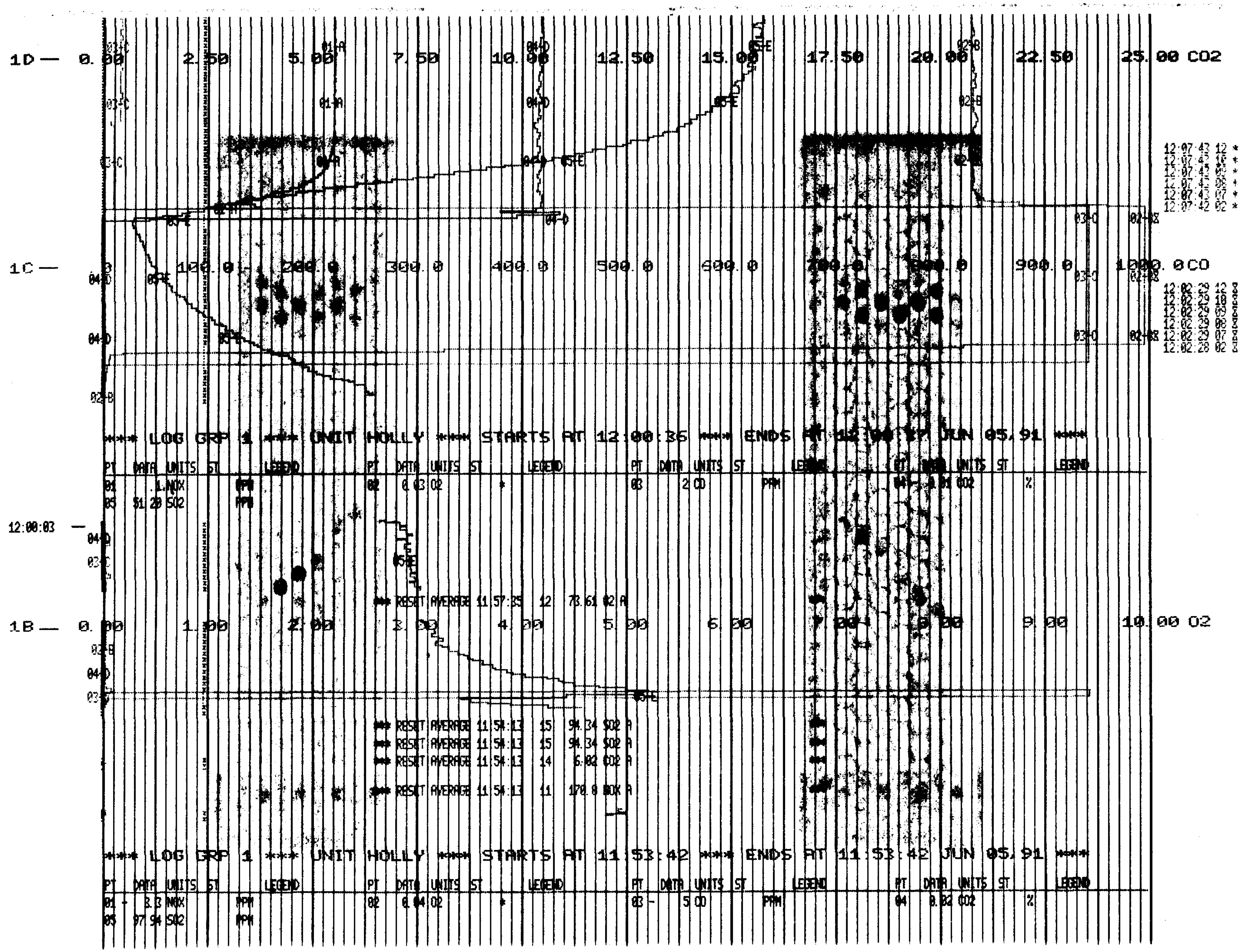
A00085



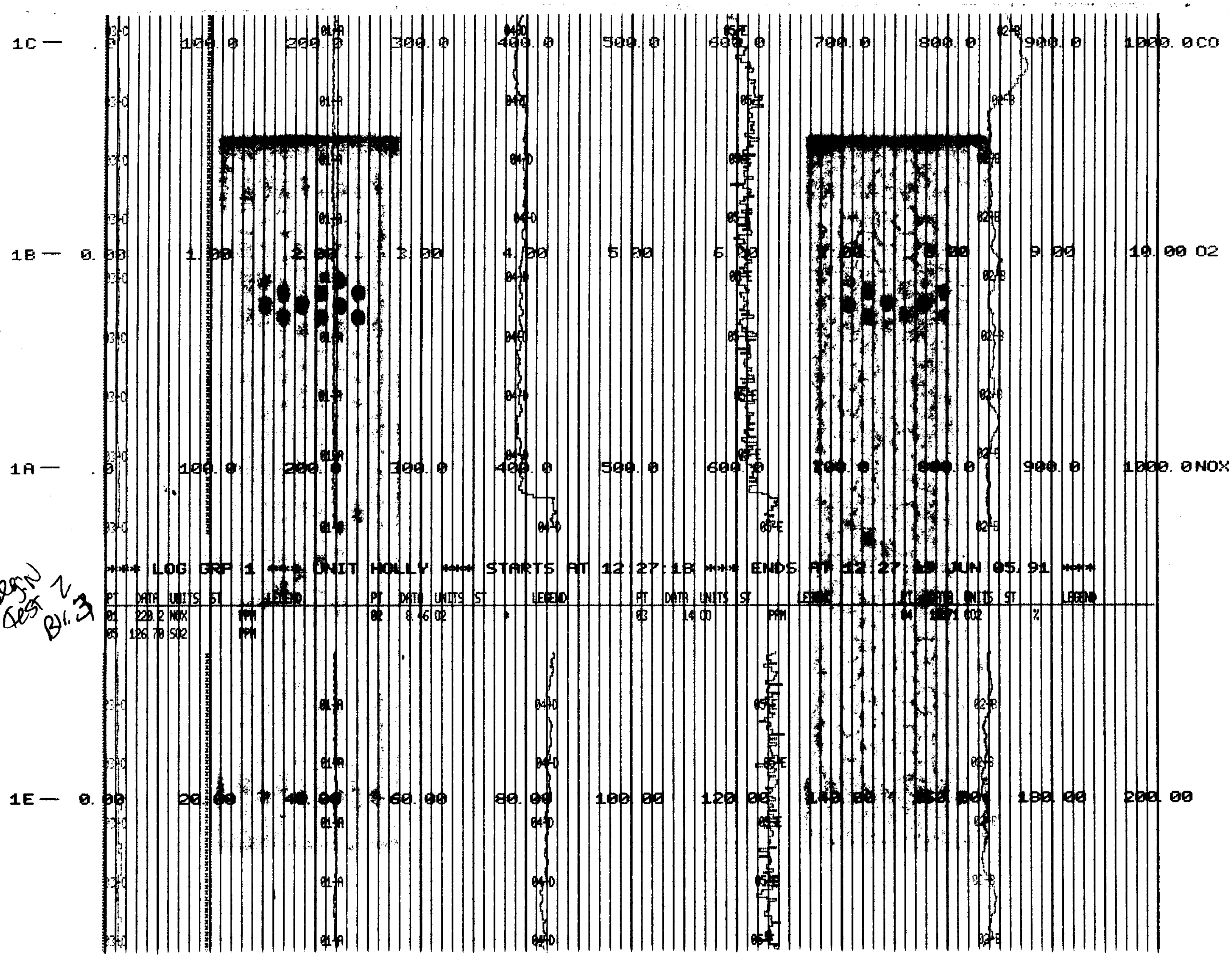
DJF

D.F.

A00086

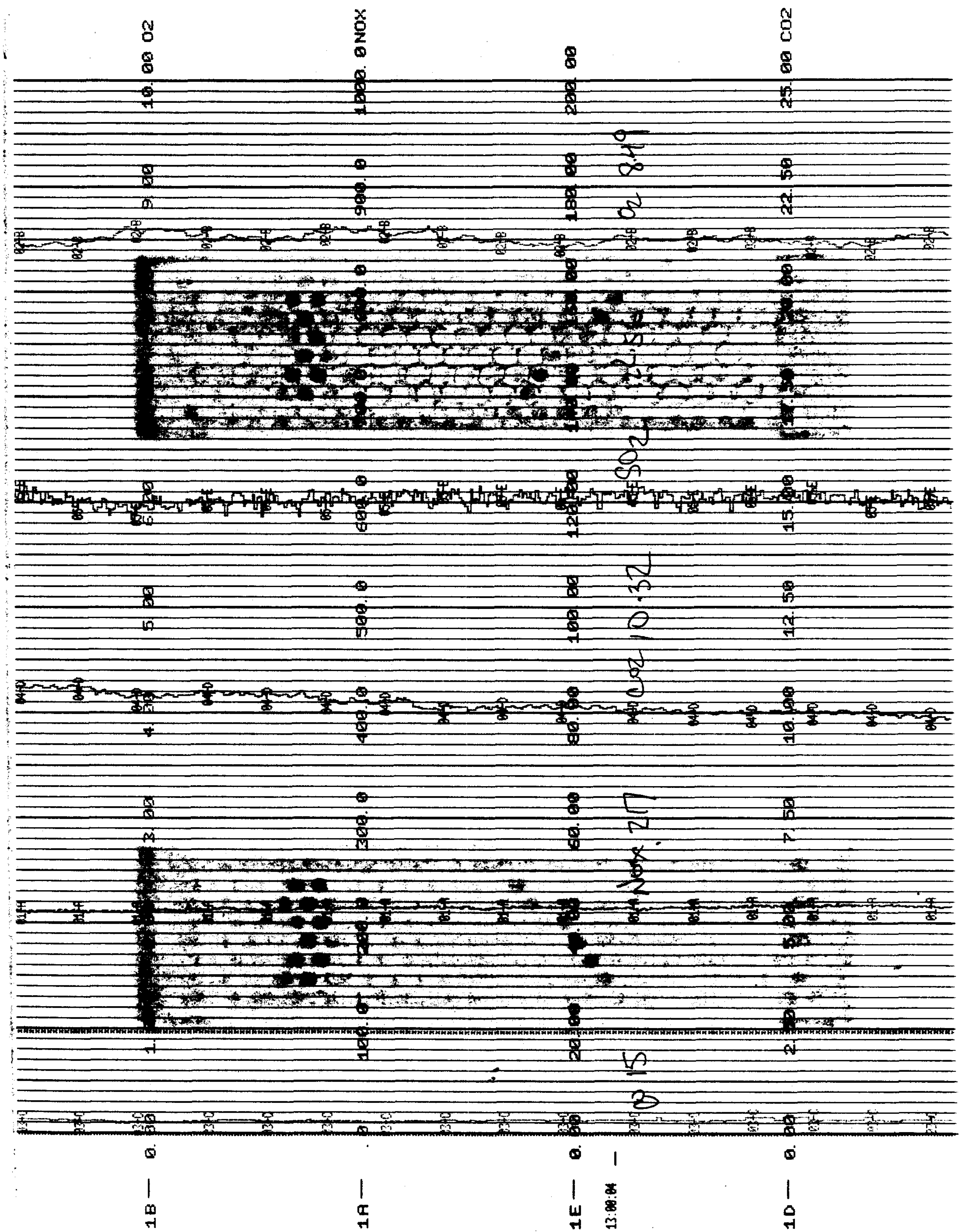

1D — 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2
1C — 0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
1B — 0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 O2
12:00:03
12:07:43 12 *
12:07:43 10 *
12:07:43 09 *
12:07:43 08 *
12:07:43 07 *
12:07:42 02 *
12:02:29 12
12:02:29 10
12:02:29 09
12:02:29 08
12:02:29 07
12:02:28 02
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 12:00:36 *** ENDS AT 12:00:37 JUN 05,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 1 NOX PPM 02 0.03 O2 * 03 2 CO PPM 04 0.01 CO2 %
05 51.20 SO2 PPM
*** RESET AVERAGE 11:57:35 12 73.61 O2 A
*** RESET AVERAGE 11:54:13 15 94.34 SO2 A
*** RESET AVERAGE 11:54:13 15 94.34 SO2 A
*** RESET AVERAGE 11:54:13 14 6.02 CO2 A
*** RESET AVERAGE 11:54:13 11 170.0 NOX A
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:53:42 *** ENDS AT 11:53:42 JUN 05,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 - 3.3 NOX PPM 02 0.04 O2 * 03 - 5 CO PPM 04 0.02 CO2 %
05 97.94 SO2 PPM

A00087



A00088

Begin Test 2 Bl. 3


10.00 O2
1000.0 NOX
200.00
25.00 CO2
1B
1A
1E
1D
13:08:04
O2 8.49
CO2 10.32
NOx 217

A00089

CAL

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 13:40:15 *** ENDS AT 13:40:16 JUN 05, 91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	195.7	NOX		PPM	02	0.04	O2		*	03	2	CO		PPM	04	0.03	CO2		%
05	2.20	SO2		PPM															

Drift

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 13:37:49 *** ENDS AT 13:37:50 JUN 05, 91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	2.6	NOX		PPM	02	5.07	O2		*	03	947	CO		PPM	04	[illegible]	CO2		%
05	1.69	SO2		PPM															

Drift

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 13:34:30 *** ENDS AT 13:34:31 JUN 05, 91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	869.1	NOX		PPM	02	0.05	O2		*	03	2	CO		PPM	04	[illegible]	CO2		%
05	19.94	SO2		PPM															

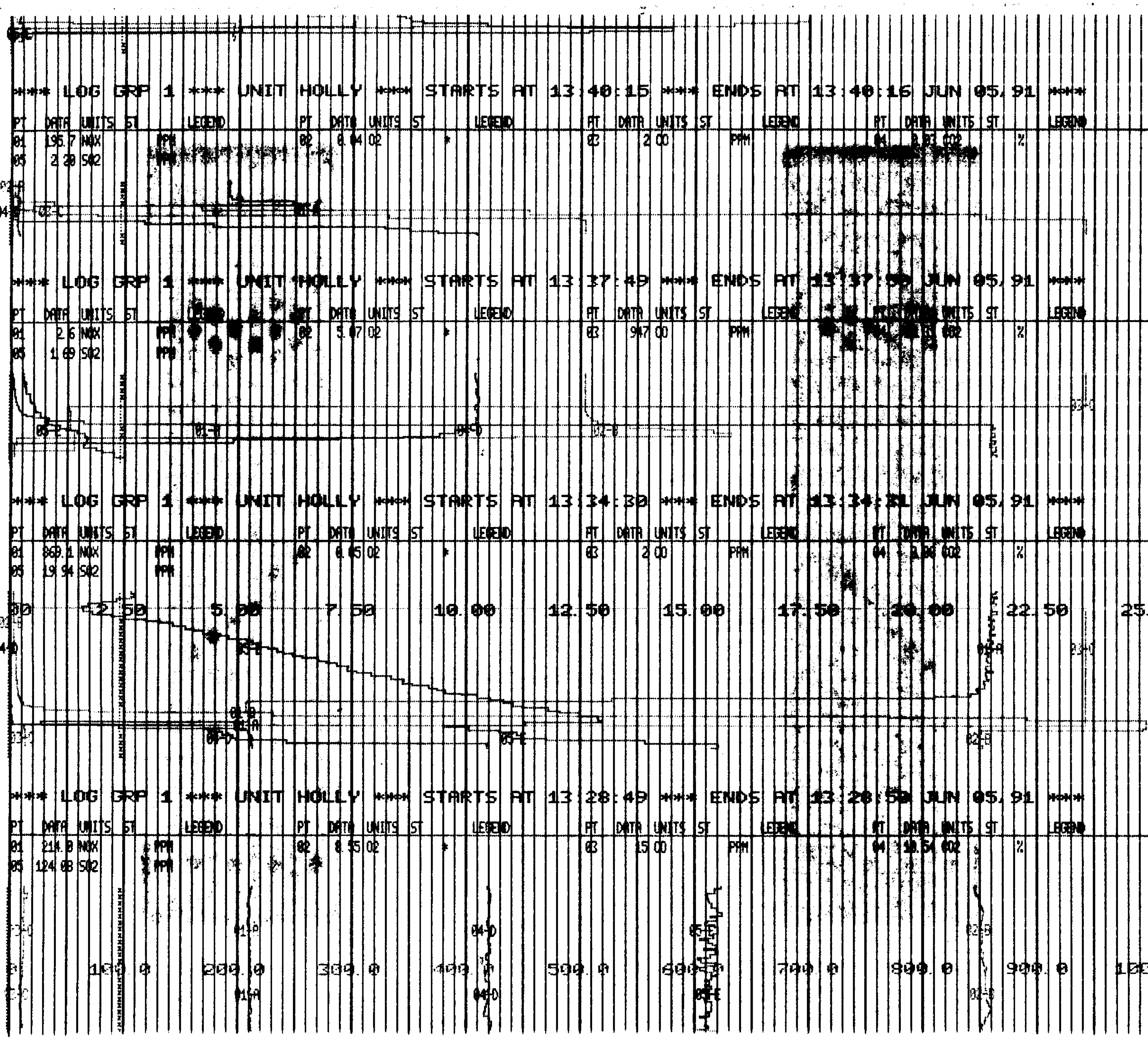
1D — 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2

Test 2 Blr. 3

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 13:28:49 *** ENDS AT 13:28:50 JUN 05, 91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	214.0	NOX		PPM	02	8.55	O2		*	03	15	CO		PPM	04	10.54	CO2		%
05	124.08	SO2		PPM															

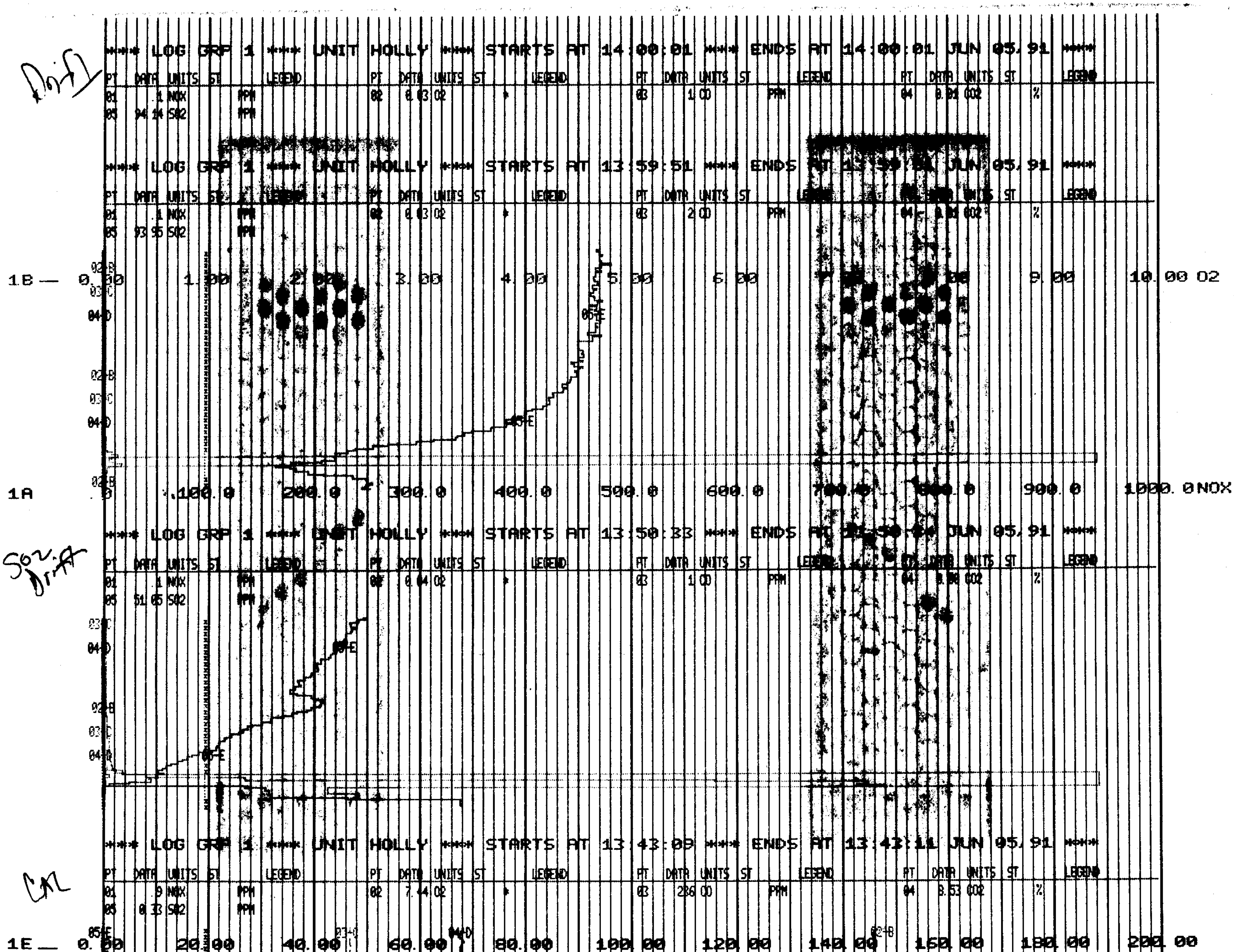
1C — 0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO



13:29:45 12 *
13:29:45 10 *
13:29:45 00 *

A00090

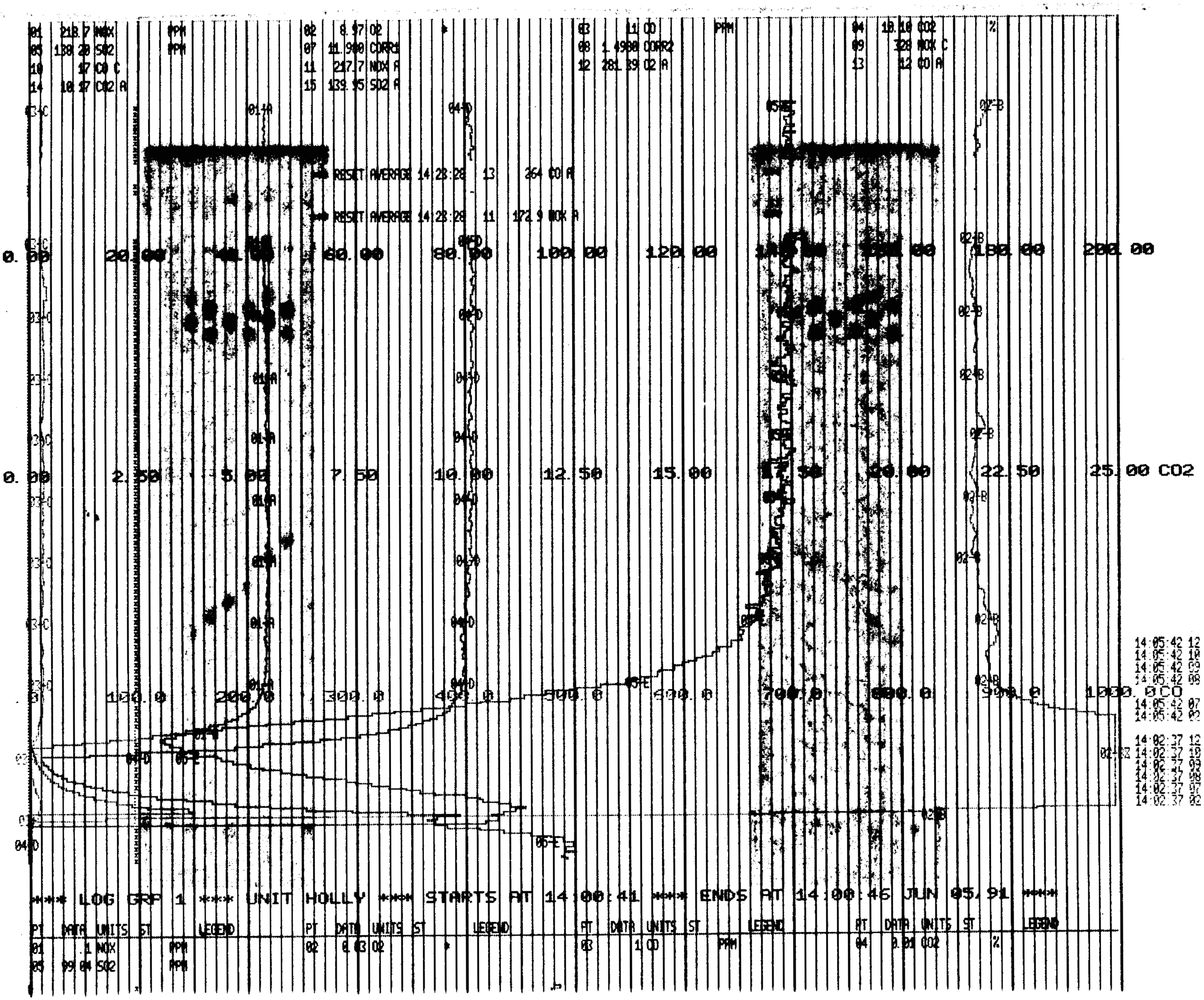
Drift



SO2 Drift

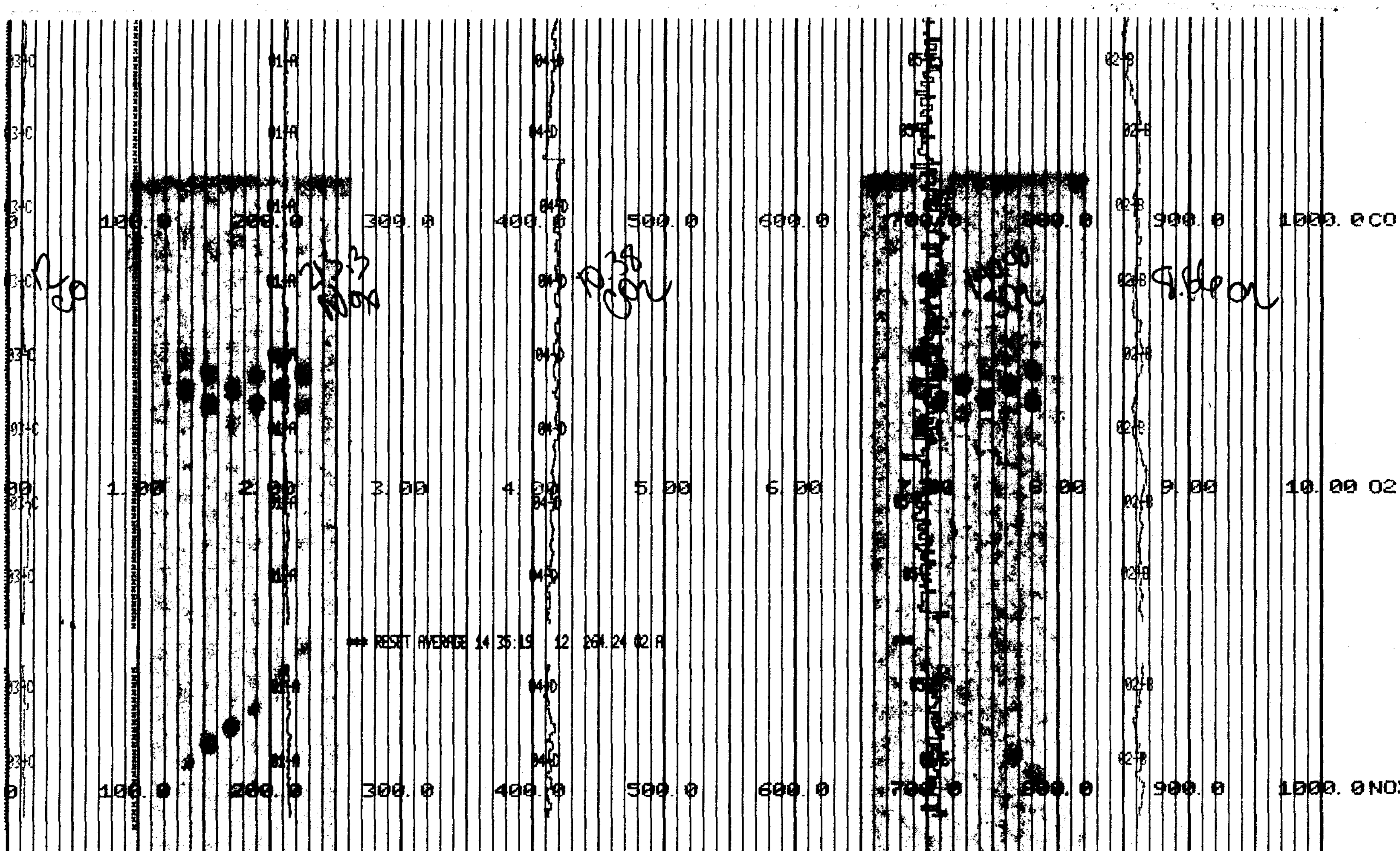
CAL

A00091



01 218.7 NOX PPM
05 138.20 SO2 PPM
10 17 CO C
14 10.17 CO2 A
02 8.97 O2 %
07 11.900 CORR1
11 217.7 NOX A
15 139.95 SO2 A
03 11 CO PPM
08 1.4900 CORR2
12 281.39 O2 A
04 10.10 CO2 %
09 328 NOX C
13 12 CO A
RESET AVERAGE 14:28:28 13 264 CO A
RESET AVERAGE 14:28:28 11 172.9 NOX A
1E 0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00
1D 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2
1C 0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
14:05:42 12 *
14:05:42 10 *
14:05:42 09 *
14:05:42 08 *
14:05:42 07 *
14:05:42 02 *
14:02:37 12
14:02:37 10
14:02:37 09
14:02:37 08
14:02:37 07
14:02:37 02
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 14:00:41 *** ENDS AT 14:00:46 JUN 05,91 ***
PT DATA UNITS ST LEGEND
01 1 NOX PPM
05 99.04 SO2 PPM
02 8.03 O2 %
03 1 CO PPM
04 9.01 CO2 %

A00092



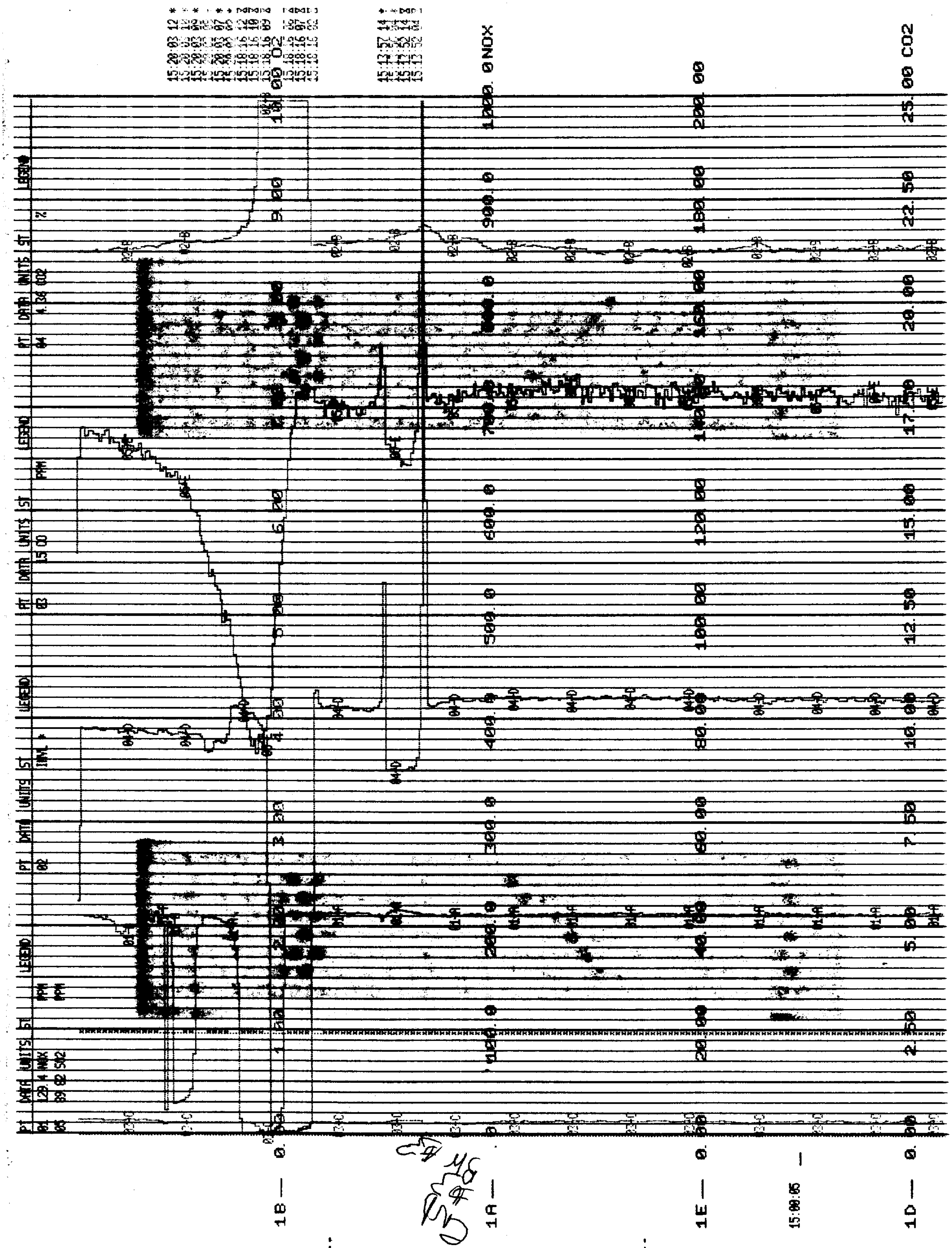
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 14:30:36 *** ENDS AT 14:30:36 JUN 05,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	217.3	NOX		PPM	02	8.65	O2		*	03	15	CO		PPM	04	10.38	CO2		%
05	142.48	SO2		PPM															

*** LOG ALL POINTS *** UNIT HOLLY *** STARTS AT 14:26:00 *** ENDS AT 14:26:01 JUN 05,91 ***

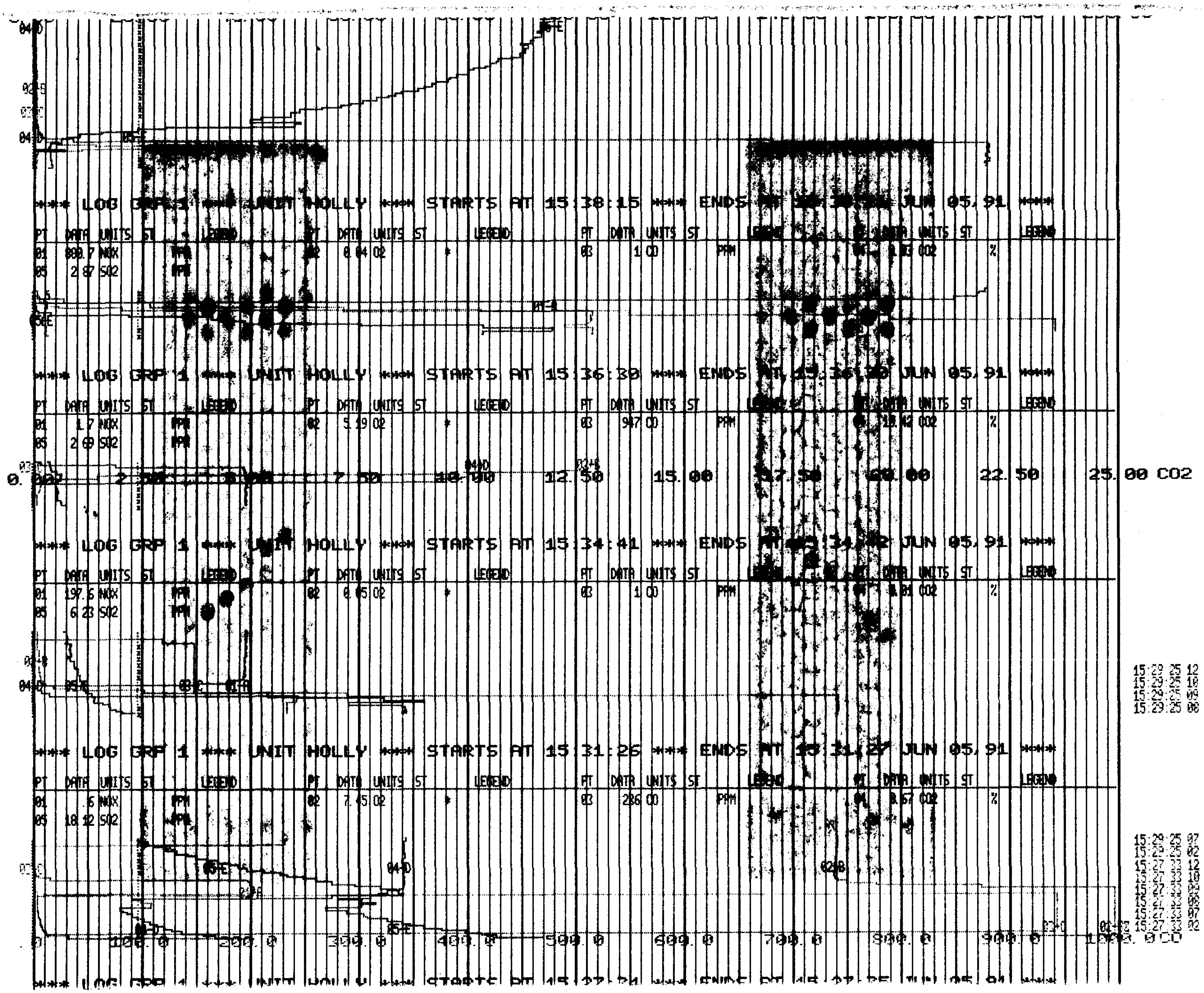
Begin Test 3 Blr 3

A00093



1000.0 NOX
200.00
25.00 CO2
100.00 O2
900.0
180.00
22.50
600.0
120.00
15.00
500.0
100.00
12.50
400.0
80.00
10.00
300.0
60.00
7.50
200.0
40.00
5.00
100.0
20.00
2.50
0.
1B
1A
1E
15:00:05
1D

A00094



*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:38:15 *** ENDS AT [illegible] JUN 05, 91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	800.7	NOX		PPM	02	0.04	O2	*		03	1	CO		PPM	04	.03	CO2		%
05	2.87	SO2		PPM															

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:36:30 *** ENDS AT 15:36:30 JUN 05, 91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	1.7	NOX		PPM	02	5.19	O2	*		03	947	CO		PPM	04	10.42	CO2		%
05	2.69	SO2		PPM															

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:34:41 *** ENDS AT 15:34:42 JUN 05, 91 ***

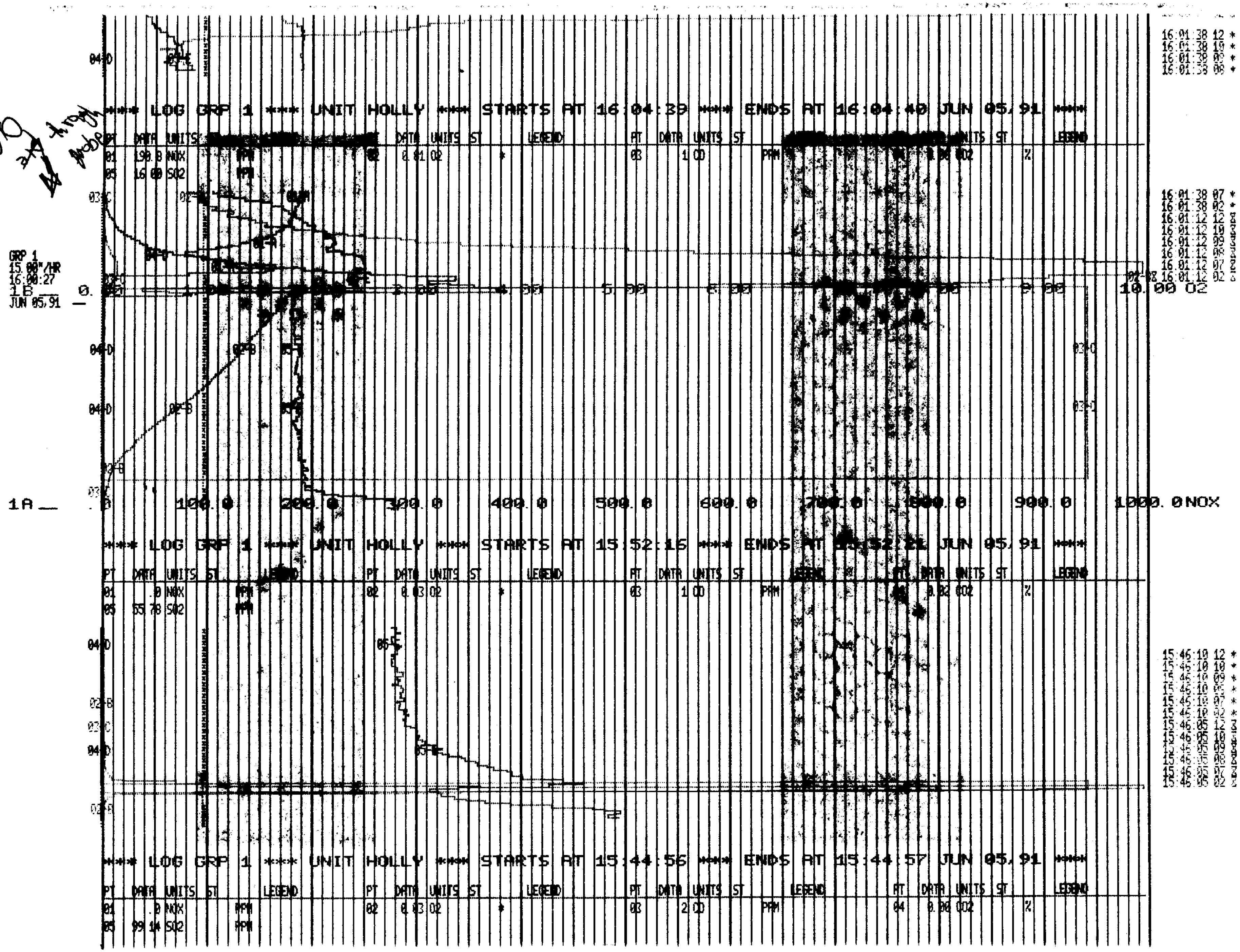
PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	197.6	NOX		PPM	02	0.65	O2	*		03	1	CO		PPM	04	.01	CO2		%
05	6.23	SO2		PPM															

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:31:26 *** ENDS AT 15:31:27 JUN 05, 91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	.6	NOX		PPM	02	7.45	O2	*		03	286	CO		PPM	04	8.67	CO2		%
05	18.12	SO2		PPM															

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:27:24 *** ENDS AT 15:27:25 JUN 05, 91 ***

A00095



GRP 1
15.00"/HR
16:00:27
1B
JUN 05,91
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 16:04:39 *** ENDS AT 16:04:40 JUN 05,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 190.8 NOX PPM 02 0.01 O2 * 03 1 CO PPM 04 0.00 CO2 %
05 16.00 SO2 PPM
0. 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 O2
1A
0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 NOX
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:52:16 *** ENDS AT 15:52:21 JUN 05,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 .0 NOX PPM 02 0.03 O2 * 03 1 CO PPM 04 0.02 CO2 %
05 55.78 SO2 PPM
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:44:56 *** ENDS AT 15:44:57 JUN 05,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 .0 NOX PPM 02 0.03 O2 * 03 2 CO PPM 04 0.00 CO2 %
05 99.14 SO2 PPM

A00096

1A — 0.0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 NOX

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 07:12:44 *** ENDS AT 07:12:45 JUN 06,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	196.7	NOX		PPM	02	0.96	O2		*	03	- 1	CO		PPM	04	0.87	CO2		%
05	2.87	SO2		PPM															

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 07:07:04 *** ENDS AT 07:07:05 JUN 06,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	.2	NOX		PPM	02	5.11	O2		*	03	947	CO		PPM	04	10.14	CO2		%
05	0.00	SO2		PPM															

*** PRINTER ON 07:06:37 JUN 06,91 ***
*** PRINTER OFF 16:21:55 JUN 05,91 ***

Begin CAL's For BR

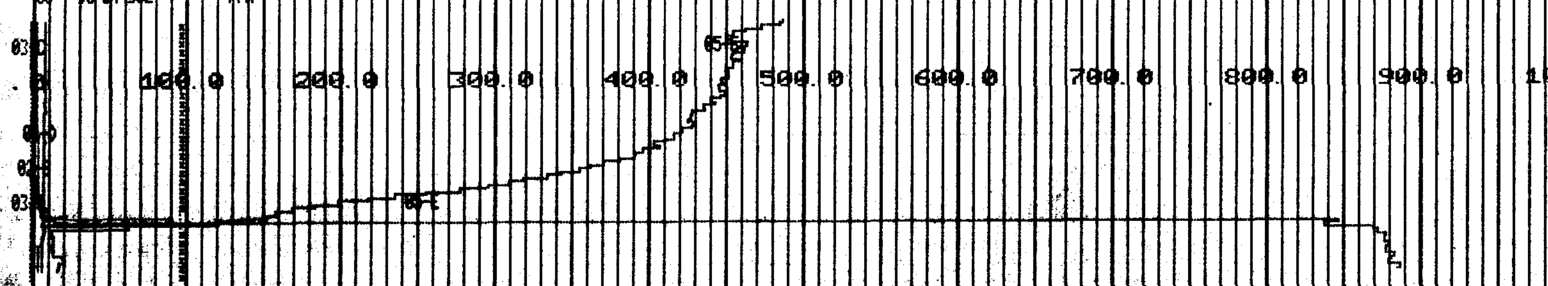
1D — 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2

1C — 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO

A00097

**** LOG GRF 1 **** UNIT HOLLY **** STARTS AT 07:31:23 **** ENDS AT 07:31:25 JUN 06,91 ****

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	.2	NOX		PPM	02	6.04	O2		*	03	1	CO		PPM	04	9.23	CO2		%
05	98.24	SO2		PPM															



**** LOG GRF 1 **** UNIT HOLLY **** STARTS AT 07:24:45 **** ENDS AT 07:24:47 JUN 06,91 ****

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	869.5	NOX		PPM	02	6.05	O2		*	03	0	CO		PPM	04	9.19	CO2		%
05	3.54	SO2		PPM															

**** LOG GRF 1 **** UNIT HOLLY **** STARTS AT 07:21:38 **** ENDS AT 07:21:39 JUN 06,91 ****

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	0	NOX		PPM	02	7.46	O2		*	03	229	CO		PPM	04	8.44	CO2		%
05	[illegible]	SO2		PPM															

0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 O2

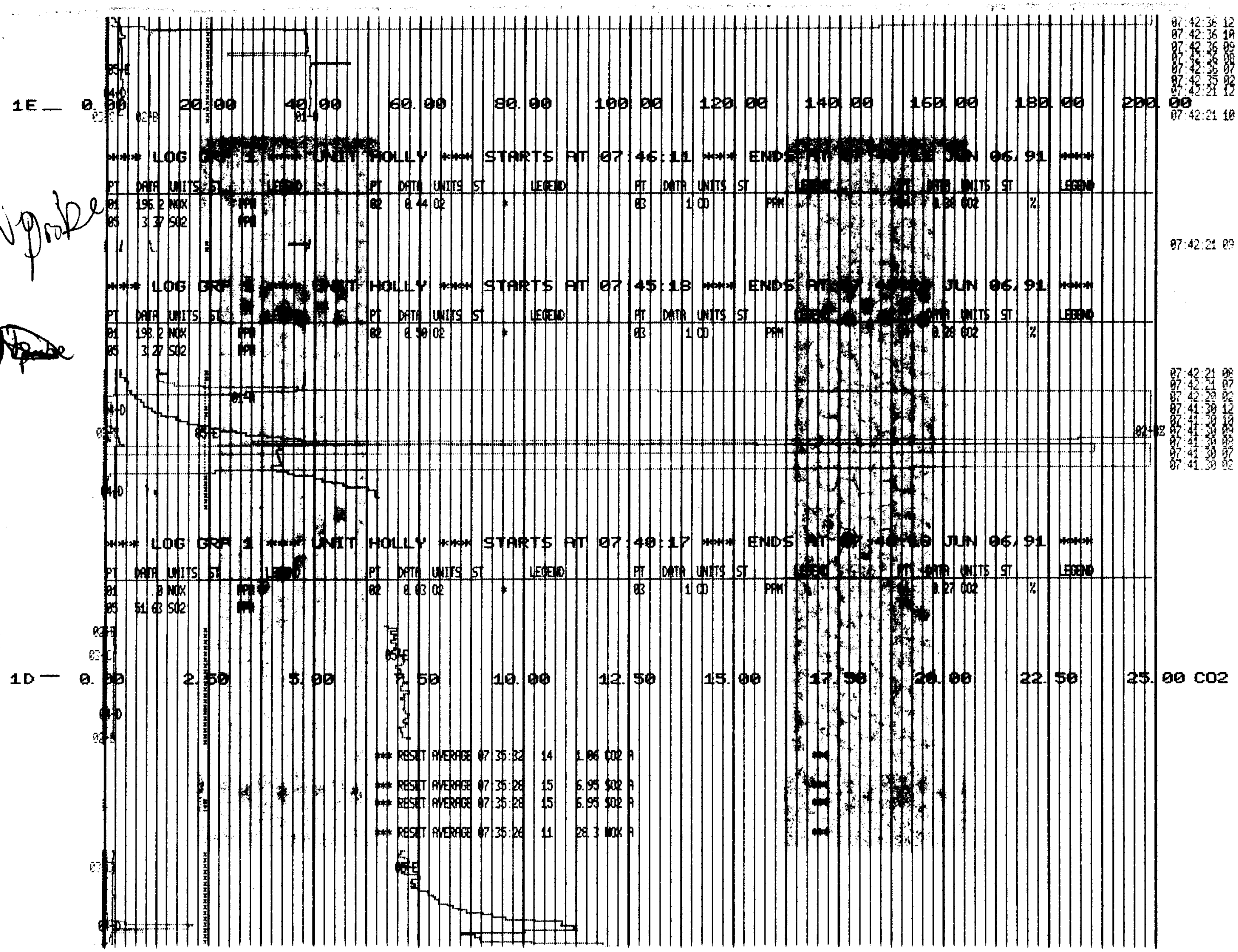
**** LOG GRF 1 **** UNIT HOLLY **** STARTS AT 07:20:55 **** ENDS AT 07:20:56 JUN 06,91 ****

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	0	NOX		PPM	02	7.46	O2		*	03	229	CO		PPM	04	8.41	CO2		%
05	4.12	SO2		PPM															

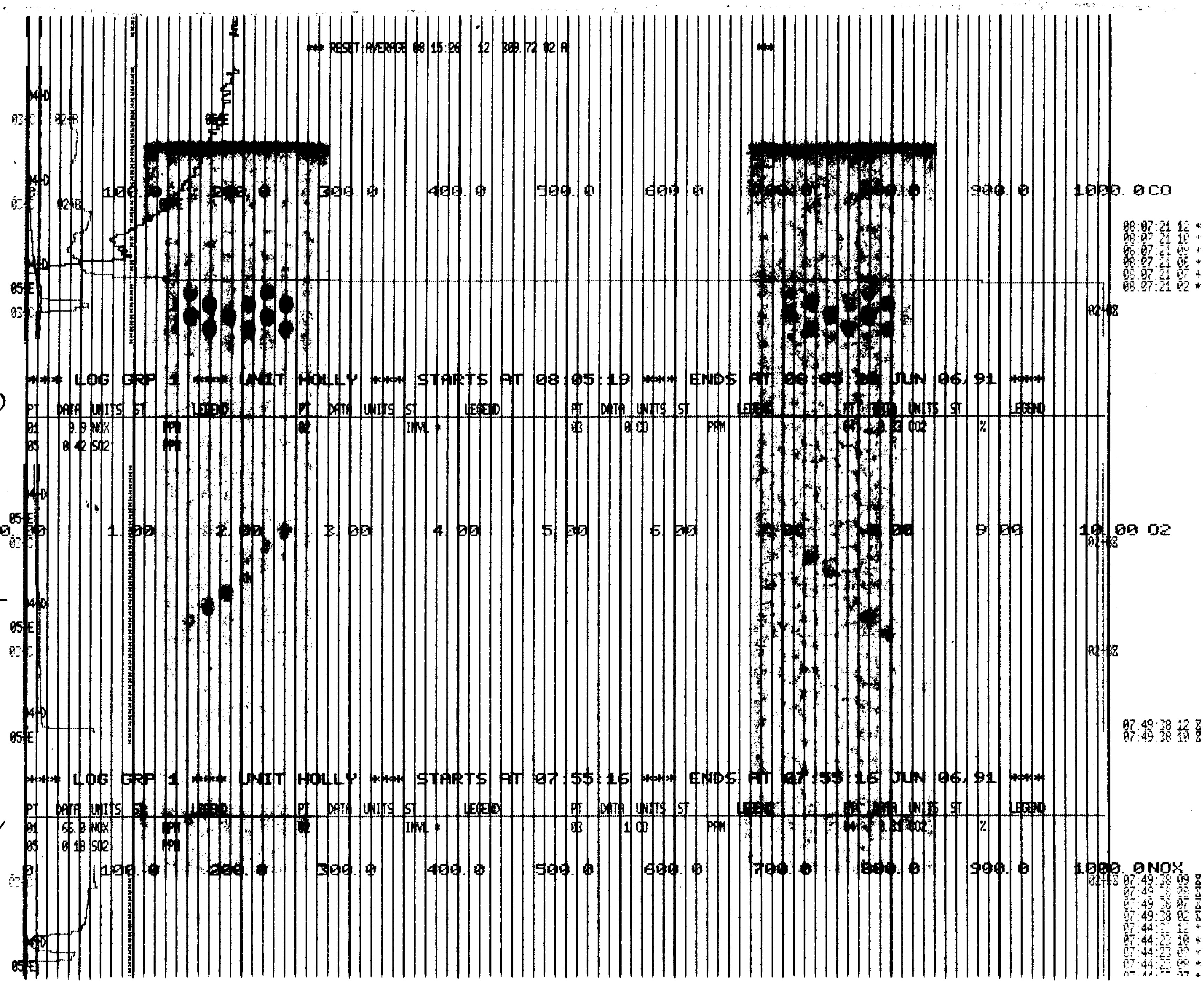
**** LOG GRF 1 **** UNIT HOLLY **** STARTS AT 07:20:40 **** ENDS AT 07:20:45 JUN 06,91 ****

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	0	NOX		PPM	02	7.45	O2		*	03	229	CO		PPM	04	8.41	CO2		%
05	[illegible]	SO2		PPM															

A00098


1E 0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 07:46:11 *** ENDS AT ... JUN 06,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 196.2 NOX PPM 02 6.44 O2 * 03 1 CO PPM 0.30 CO2 %
05 3.37 SO2 PPM
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 07:45:18 *** ENDS AT ... JUN 06,91 ***
01 198.2 NOX PPM 02 6.30 O2 * 03 1 CO PPM 0.28 CO2 %
05 3.27 SO2 PPM
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 07:40:17 *** ENDS AT ... JUN 06,91 ***
01 .0 NOX PPM 02 6.03 O2 * 03 1 CO PPM 0.27 CO2 %
05 51.63 SO2 PPM
1D 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2
*** RESET AVERAGE 07:35:32 14 1.06 CO2 A
*** RESET AVERAGE 07:35:28 15 6.95 SO2 A
*** RESET AVERAGE 07:35:28 15 6.95 SO2 A
*** RESET AVERAGE 07:35:26 11 28.3 NOX A
07:42:36 12
07:42:36 10
07:42:21 12 *
07:42:21 10 *
07:42:21 09 *
07:42:21 08 *
07:42:21 07 *
07:41:30 12

A00099



NO2 or NO

NOx probe

A00100

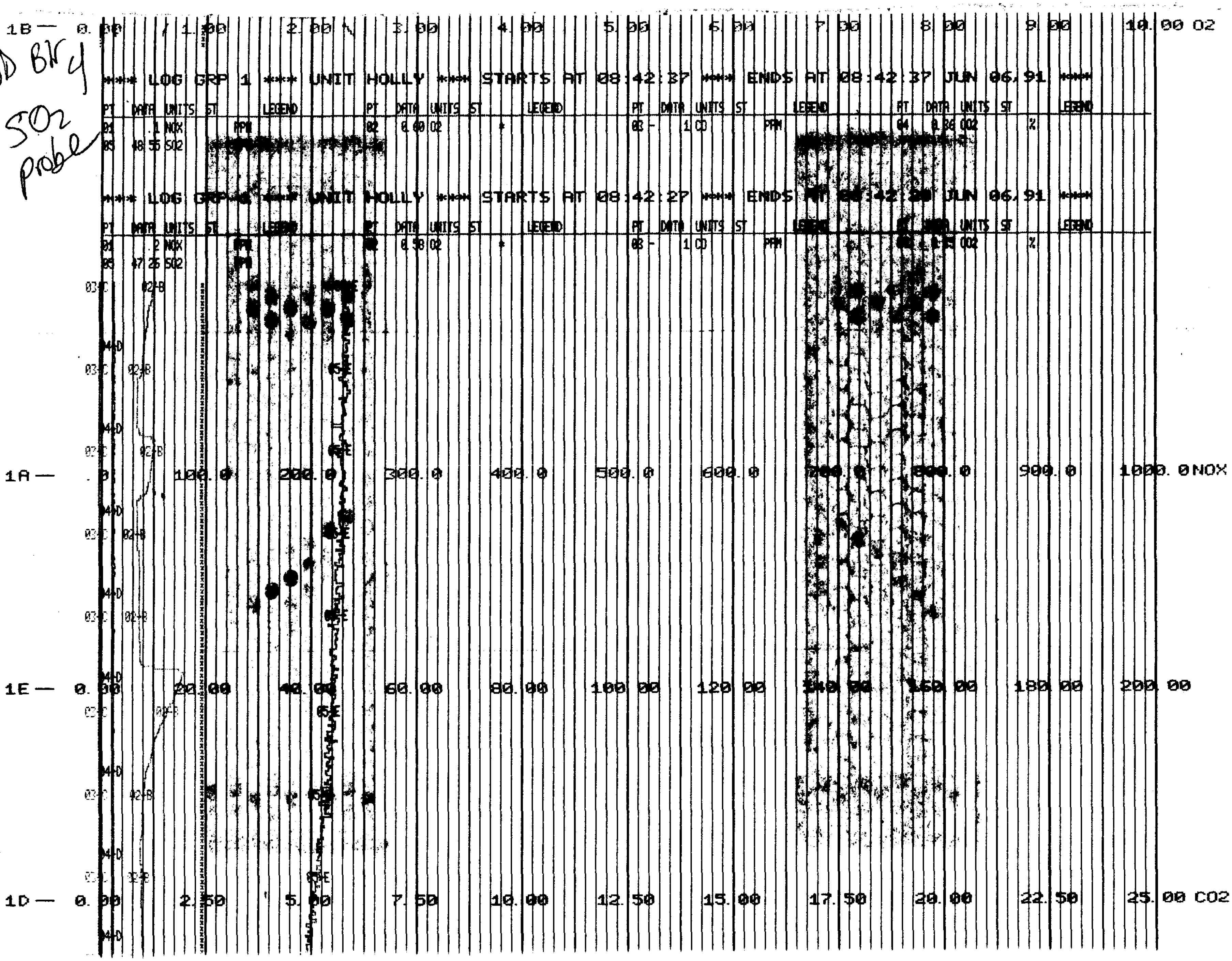
End BR 4
SO_2 probe

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 08:42:37 *** ENDS AT 08:42:37 JUN 06,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	1	NOX		PPM	02	0.60	O2		*	03	- 1	CO		PPM	04	0.36	CO2		%
05	48.55	SO2																	

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 08:42:27 *** ENDS AT [illegible] JUN 06,91 ***

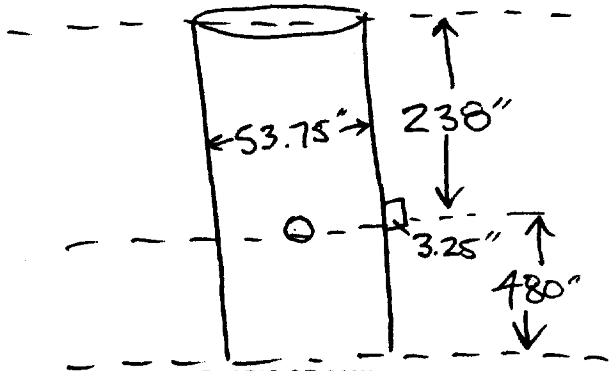
PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	2	NOX		PPM	02	0.58	O2		*	03	- 1	CO		PPM	04	[illegible]	CO2		%
05	47.26	SO2		PPM															



A0C101

TRAVERSE POINT LOCATION FOR CIRCULAR DUCTS

PLANT HOLLY SUGAR
DATE 6/5/91
SAMPLING LOCATION BOILER #4
INSIDE OF FAR WALL TO OUTSIDE OF NIPPLE, (DISTANCE A) 57"
INSIDE OF NEAR WALL TO OUTSIDE OF NIPPLE, (DISTANCE B) 3.25"
STACK I.D., (DISTANCE A - DISTANCE B) 53.75"
NEAREST UPSTREAM DISTURBANCE 238" or 4.43 dd
NEAREST DOWNSTREAM DISTURBANCE 480" or 8.93 dd
CALCULATOR HP 32 S



SCHEMATIC OF SAMPLING LOCATION

TRAVERSE POINT NUMBER	FRACTION OF STACK I.D.	STACK I.D.	PRODUCT OF COLUMNS 2 AND 3 (TO NEAREST 1/8 INCH)	DISTANCE B	TRAVERSE POINT LOCATION FROM OUTSIDE OF NIPPLE (SUM OF COLUMNS 4 & 5)
1	.044	53.75"	2.37"	3.25"	5.62"
2	.146		7.85"		11.10"
3	.296		15.91"		19.16"
4	.704		37.84"		41.09"
5	.854		45.90"		49.15"
6	.956		51.39"		54.64"

WESTERN ENVIRONMENTAL SERVICES

FIELD DATA

SITE: Boiler 4 Holly Sugar

DATE: 6 June 91

O_2 Traverse

SO

		TIME	NOx	O_2	CO	CO_2	% OF AVG
	1	1324	270	7.5	27	11.20	150
	2	1329	270	7.2	35	11.25	150
	3	1334	270	7.6	20	10.9	150
	4	1339	265	7.7	32	11	147
N	5	1344	260	7.6	40	10	140
	6	1348	255	7.7	45	9.5	132
	1	1351	261	7.6	75	11.7	148
	2	1356	260	7.7	65	11.25	150
	3	1401	260	7.25	70	11.25	149
	4	1407	260	7.45	30	11.20	152
W	5	1413	260	7.20	25	11.25	154
	6	1420	260	7.35	18	11.25	155

A00103

FIELD DATA

PLANT Holly Sugar
DATE 6/6/91
SAMPLING LOCATION Boiler # 4
SAMPLE TYPE Particulate
RUN NUMBER # 1
OPERATOR Marcotte
AMBIENT TEMPERATURE 71°F
BAROMETRIC PRESSURE 29.85
STATIC PRESSURE, (P_s) -0.18
FILTER NUMBER (s) 3" (# 3-116)

BOILER # 4
PARTICULATE
RUN # 1

PROBE LENGTH AND TYPE SS. #
NOZZLE I.D. 0.2600
ASSUMED MOISTURE, % 10%
SAMPLE BOX NUMBER WES # 11
METER BOX NUMBER WES # 11
METER $\Delta H_@$ WES # 11
C FACTOR –
PROBE HEATER SETTING 250° F
HEATER BOX SETTING 250° F
REFERENCE Δp # 14 (0-.58")

SCHEMATIC OF TRAVERSE POINT LAYOUT

preleak ✓ < .017 cfm @ 15" READ AND RECORD ALL DATA EVERY 5 MINUTES postleak ✓ < .010 cfm @ 10"

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft³	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O		STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE		PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
					DESIRED	ACTUAL		INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F			
	0	1:20	313.668									
1	5	1:25	316.280	0.30	0.91	0.91	292	71	71	4	251	66
2	10	1:30	319.015	0.33	1.00	1.00	291	73	71	4	250	64
3	15	1:35	321.735	0.34	1.03	1.03	293	74	71	4	252	62
4	20	1:40	324.455	0.34	1.03	1.03	296	77	71	4	248	63
5	25	1:45	327.170	0.34	1.04	1.04	294	78	72	4	251	64
6	30	1:50	329.720	0.31	0.95	0.95	291	81	73	4	252	65
*	STOP	1:54	SWITCH PORTS *									*
1	35	1:59	332.455	0.29	0.90	0.90	287	83	75	4	253	65
2	40	2:04	335.200	0.33	1.02	1.02	293	83	75	4	251	66
3	45	2:09	337.920	0.32	0.99	0.99	292	83	75	4	250	66
4	50	2:14	340.740	0.35	1.08	1.08	293	85	75	4	251	65
5	55	2:19	343.435	0.34	1.05	1.05	296	85	76	4	249	66
6	60	2:24	346.166	0.33	1.02	1.02	295	87	77	4	251	67

COMMENTS:

EPA (Dur) 235
4/72

A00107

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. ______ 2. ______
3. ______ 4. ______
Indicate by numbers in box under Sample column.

Holly Sugar
Boiler #4
Test #1

Requestor ______
JN ______
Assigned to ______
Date Assigned ______

ALL WEIGHTS IN GRAMS

Sample Number: Probe — Filter or Container #: 68.2

Tare Weight		Tare + Sample Weight	
1. 97.9028	9.	1. 97.9337	9.
2. 97.9026	10.	2. 97.9342	10.
3.	11.	3. 97.9344	11.
4.	12.	4.	12.
5.	13.	5.	13.
6.	14.	6.	14.
7.	15.	7.	15.
8.	16.	8.	16.

Filter or Container Plus Sample: 97.9341
Filter or Container Tare: 97.9027
Sample: 0.0314

Sample Number: Filter — Filter or Container #: 3.116

Tare Weight		Tare + Sample Weight	
1. 0.3503	9.	1. 0.3712	9.
2. 0.3506	10.	2. 0.3712	10.
3. 0.3504	11.	3. 0.3715	11.
4.	12.	4.	12.
5.	13.	5.	13.
6.	14.	6.	14.
7.	15.	7.	15.
8.	16.	8.	16.

Filter or Container Plus Sample: 0.3713
Filter or Container Tare: 0.3504
Sample: 0.0209

Sample Number: Imp I — Filter or Container #: 69.2

Tare Weight		Tare + Sample Weight	
1. 100.6315	9.	1. 100.7483	9. 100.7450
2. 100.6317	10.	2. 100.7509	10. 100.7438
3.	11.	3. 100.7412	11. 100.7501 *
4.	12.	4. 100.7458	12.
5.	13.	5. 100.7496	13.
6.	14.	6. 100.7522	14.
7.	15.	7. 100.7532	15.
8.	16.	8. 100.7470	16.

Filter or Container Plus Sample: 100.7459
Filter or Container Tare: 100.6316
Sample: 0.1143

Sample Number: Imp O — Filter or Container #: 70.2

Tare Weight		Tare + Sample Weight	
1. 98.7013	9.	1. 98.7023	9.
2. 98.7008	10.	2. 98.7027	10.
3.	11.	3. 98.7025	11.
4.	12.	4.	12.
5.	13.	5.	13.
6.	14.	6.	14.
7.	15.	7.	15.
8.	16.	8.	16.

Filter or Container Plus Sample: 98.7025
Filter or Container Tare: 98.7011
Sample: 0.0014

A00105

FIELD DATA

PLANT HOLLY SUGAR
DATE 6/6/91
SAMPLING LOCATION BOILER #4
SAMPLE TYPE PARTICULATE
RUN NUMBER #2
OPERATOR MARCOTTE
AMBIENT TEMPERATURE 76° F
BAROMETRIC PRESSURE 29.85
STATIC PRESSURE, (P_s) -0.18
FILTER NUMBER (s) 3.118 (3")

BOILER # 4
PARTICULATE
RUN # 2

PROBE LENGTH AND TYPE S.S. #
NOZZLE I.D. 0.2600 (S.S.)
ASSUMED MOISTURE, % 10%
SAMPLE BOX NUMBER WES #11
METER BOX NUMBER WES #11
METER $\Delta H_@$ WES #11
C FACTOR —
PROBE HEATER SETTING 250° F
HEATER BOX SETTING 250 °F
REFERENCE Δp #14 (0-.50")

ml
+ g
= VLC

SCHEMATIC OF TRAVERSE POINT LAYOUT

Preleak VL .005 cfm @ 15" READ AND RECORD ALL DATA EVERY 5 MINUTES postleak VL .010 cfm @ 10"

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET $(T_{m\ in})$, °F	OUTLET $(T_{m\ out})$, °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
	0	3:22	346.522									
1	5	3:27	349.570	0.43	1.32	1.32	294	77	75	4	246	65
2	10	3:32	352.635	0.44	1.33	1.33	307	78	76	4	253	60
3	15	3:37	355.815	0.47	1.41	1.41	312	82	76	4	247	62
4	20	3:42	358.960	0.46	1.39	1.39	307	84	76	4	249	65
5	25	3:47	361.920	0.42	1.28	1.28	305	85	77	4	250	66
6	30	3:52	364.774	0.39	1.20	1.20	298	85	77	4	249	63
*	STOP	3:55	SWITCH PORTS *									*
1	35	4:00	367.560	0.35	1.08	1.08	292	85	77	4	251	61
2	40	4:05	370.395	0.35	1.08	1.08	294	84	76	4	249	59
3	45	4:10	373.310	0.37	1.14	1.14	296	83	76	4	248	54
4	50	4:15	376.360	0.41	1.26	1.26	298	83	76	4	250	53
5	55	4:20	379.100	0.37	1.14	1.14	297	83	76	4	249	54
6	60	4:25	381.678	0.32	0.99	0.99	292	83	76	4	246	52

A00106

COMMENTS:

EPA (Dur) 235
4/72

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. ______ 2. ______
3. ______ 4. ______
Indicate by numbers in box under Sample column.

Holly Sugar
Boiler #4
Test # 2

Requestor ______
JN ______
Assigned to ______
Date Assigned ______

ALL WEIGHTS IN GRAMS

Probe — Filter or Container # 71.2

TARE WEIGHT			TARE + SAMPLE WEIGHT	
1. 97.9242	9.	SAMPLE NUMBER: Probe	1. 97.9722	9.
2. 97.9240	10.	FILTER OR CONTAINER #: 71.2	2. 97.9736	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE: 97.9735	3. 97.9736	11.
4.	12.	FILTER OR CONTAINER TARE: 97.9241	4. 97.9732	12.
5.	13.	SAMPLE: 0.0494	5.	13.
6.	14.		6.	14.
7.	15.		7.	15.
8.	16.		8.	16.

Filter — Filter or Container # 3118

TARE WEIGHT			TARE + SAMPLE WEIGHT	
1. 0.3552	9.	SAMPLE NUMBER: Filter	1. 0.3721	9.
2. 0.3553	10.	FILTER OR CONTAINER #: 3118	2. 0.3722	10.
3. 0.3553	11.	FILTER OR CONTAINER PLUS SAMPLE: 0.3722	3. 0.3722	11.
4.	12.	FILTER OR CONTAINER TARE: 0.3553	4.	12.
5.	13.	SAMPLE: 0.0169	5.	13.
6.	14.		6.	14.
7.	15.		7.	15.
8.	16.		8.	16.

Imp I — Filter or Container # 72.2

TARE WEIGHT			TARE + SAMPLE WEIGHT	
1. 104.0994	9.	SAMPLE NUMBER: Imp I	1. 104.1692	9.
2. 104.0992	10.	FILTER OR CONTAINER #: 72.2	2. 104.1765	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE: 104.1764	3. 104.1768	11.
4.	12.	FILTER OR CONTAINER TARE: 104.0993	4. 104.1742	12.
5.	13.	SAMPLE: 0.0771	5. 104.1732	13.
6.	14.		6. 104.1730	14.
7.	15.		7. 104.1760	15.
8.	16.		8.	16.

Imp O — Filter or Container # 73.2

TARE WEIGHT			TARE + SAMPLE WEIGHT	
1. 107.1877	9.	SAMPLE NUMBER: Imp O	1. 107.1890	9.
2. 107.1885	10.	FILTER OR CONTAINER #: 73.2	2. 107.1893	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE: 107.1890	3. 107.1888	11.
4.	12.	FILTER OR CONTAINER TARE: 107.1881	4.	12.
5.	13.	SAMPLE: 0.0009	5.	13.
6.	14.		6.	14.
7.	15.		7.	15.
8.	16.		8.	16.

FIELD DATA

PLANT: HOLLY SUGAR
DATE: 6/6/91
SAMPLING LOCATION: BOILER # 4
SAMPLE TYPE: PARTICULATE
RUN NUMBER: # 3
OPERATOR: MARCOTTE
AMBIENT TEMPERATURE: 73° F
BAROMETRIC PRESSURE: 29.85
STATIC PRESSURE, (P_s): -0.18
FILTER NUMBER (s): 3.117 (3")

BOILER # 4
PARTICULATE
RUN # 3

PROBE LENGTH AND TYPE: S.S.
NOZZLE I.D.: 0.2600 (S.S.)
ASSUMED MOISTURE, %: 10%
SAMPLE BOX NUMBER: WES # 11
METER BOX NUMBER: WES # 11
METER $\Delta H_@$: WES # 11
C FACTOR: —
PROBE HEATER SETTING: 250° F
HEATER BOX SETTING: 250° F
REFERENCE Δp: # 14 (0 - .50")

ml
+ g
= VLC

SCHEMATIC OF TRAVERSE POINT LAYOUT

Preleak √<.015 [redacted] cfm @ 15"   READ AND RECORD ALL DATA EVERY 5 MINUTES   postleak √<.010 cfm @ 10"

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\ in}$), °F	OUTLET ($T_{m\ out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
	0	6:24	382.498 [redacted]									
1	5	6:29	385.355	0.39	1.19	1.19	289	73	73	4	246	61
2	10	6:34	388.180	0.38	1.16	1.16	290	70	71	4	245	52
3	15	6:39	391.120	0.41	1.24	1.24	297	73	71	4	248	51
4	20	6:44	394.105	0.42	1.28	1.28	295	75	71	4	246	54
5	25	6:49	396.970	0.38	1.16	1.16	294	76	70	4	249	56
6	30	6:54	399.550	0.32	0.98	0.98	289	76	70	4	248	54
*	STOP	6:57	*SWITCH PORTS									*
1	35	7:02	402.225	0.30	0.93	0.93	282	76	70	4	249	52
2	40	7:07	404.940	0.31	0.95	0.95	284	71	69	4	250	53
3	45	7:12	407.885	0.39	1.19	1.19	287	73	69	4	249	48
4	50	7:17	410.590	0.34	1.03	1.03	296	73	69	4	250	49
5	55	7:22	413.515	0.39	1.19	1.19	289	72	67	4	247	48
6	60	7:27	416.410	0.34	1.02	1.02	296	72	67	4	249	49

COMMENTS:

A0C108

EPA (Dur) 235
4/72

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. ______ 2. ______
3. ______ 4. ______
Indicate by numbers in box under Sample column.

Holly Sugar
Boiler #4
Test #3

Requestor ______
JN ______
Assigned to ______
Date Assigned ______

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 105.4716	9.	SAMPLE NUMBER: Probe	FILTER OR CONTAINER #: 74.2	1. 105.5151	9.
2. 105.4723	10.	FILTER OR CONTAINER PLUS SAMPLE: 105.5153		2. 105.5152	10.
3.	11.	FILTER OR CONTAINER TARE: 105.4720		3. 105.5155	11.
4.	12.	SAMPLE: 0.0433		4.	12.
5.	13.			5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 0.3525	9.	SAMPLE NUMBER: Filter	FILTER OR CONTAINER #: 3117	1. 0.3689	9.
2. 0.3525	10.	FILTER OR CONTAINER PLUS SAMPLE: 0.3690		2. 0.3690	10.
3. 0.3528	11.	FILTER OR CONTAINER TARE: 0.3526		3. 0.3690	11.
4.	12.	SAMPLE: 0.0164		4.	12.
5.	13.			5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 105.2415	9.	SAMPLE NUMBER: Imp I	FILTER OR CONTAINER #: 75.2	1. 105.3300	9.
2. 105.2419	10.	FILTER OR CONTAINER PLUS SAMPLE: 105.3368		2. 105.3378	10.
3.	11.	FILTER OR CONTAINER TARE: 105.2417		3. 105.3384	11.
4.	12.	SAMPLE: 0.0951		4. 105.3360	12.
5.	13.			5. 105.3324	13.
6.	14.			6. 105.3323	14.
7.	15.			7. 105.3365	15.
8.	16.			8.	16.

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 109.3524	9.	SAMPLE NUMBER: Imp O	FILTER OR CONTAINER #: 76.2	1. 109.3531	9.
2. 109.3524	10.	FILTER OR CONTAINER PLUS SAMPLE: 109.3533		2. 109.3535	10.
3.	11.	FILTER OR CONTAINER TARE: 109.3524		3. 109.3533	11.
4.	12.	SAMPLE: 0.0009		4.	12.
5.	13.			5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Boiler 4
RUN: Particulate 1
DATE: June 6, 1991

GAS METER READING	VELOCITY HEAD	SQUARE ROOT		ORIFICE PRESSURE DELTA H		STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
313.668	0.3	0.547722		0.91		292	71	71
346.166	0.33	0.574456		1		291	73	71
---------	0.34	0.583095		1.03		293	74	71
32.498	0.34	0.583095		1.03		296	77	71
=========	0.34	0.583095		1.04		294	78	72
(DIFFERENCE)	0.31	0.556776		0.95		291	81	73
	0.29	0.538516		0.9		287	83	75
	0.33	0.574456		1.02		293	83	75
	0.32	0.565685		0.99		292	83	75
	0.35	0.591607		1.08		293	85	75
	0.34	0.583095		1.05		296	85	76
	0.33	0.574456		1.02		295	87	77
		---------	AVERAGE SQUARED					
	AVERAGE	0.571338	0.326	AVERAGE 1.00	AVERAGE	293	AVERAGE	76.75
		=========	=========	============		=========		=========

A00110

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Boiler 4
RUN: Particulate 2
DATE: June 6, 1991

GAS METER READING	VELOCITY HEAD	SQUARE ROOT			ORIFICE PRESSURE DELTA H		STACK TEMPERATURE		DRY GAS METER TEMPERATURE	
346.522	0.43	0.655743			1.32		294		77	75
381.678	0.44	0.663324			1.33		307		78	76
---------	0.47	0.685565			1.41		312		82	76
35.156	0.46	0.678232			1.39		307		84	76
=========	0.42	0.648074			1.28		305		85	77
(DIFFERENCE)	0.39	0.624499			1.2		298		85	77
	0.35	0.591607			1.08		292		85	77
	0.35	0.591607			1.08		294		84	76
	0.37	0.608276			1.14		296		83	76
	0.41	0.640312			1.26		298		83	76
	0.37	0.608276			1.14		297		83	76
	0.32	0.565685			0.99		292		83	76
		---------	AVERAGE SQUARED							
	AVERAGE	0.630100	0.397	AVERAGE	1.22	AVERAGE	299	AVERAGE		79.42
		=========	=========		============		=========			=========

A00111

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Boiler 4
RUN: Particulate 3
DATE: June 6, 1991

GAS METER READING	VELOCITY HEAD	SQUARE ROOT			ORIFICE PRESSURE DELTA H		STACK TEMPERATURE		DRY GAS METER TEMPERATURE	
---------	---------	---------			----------------------		-----------		------------------	
382.498	0.39	0.624499			1.19		289		73	73
416.410	0.38	0.616441			1.16		290		70	71
---------	0.41	0.640312			1.24		297		73	71
33.912	0.42	0.648074			1.28		295		75	71
=========	0.38	0.616441			1.16		294		76	70
(DIFFERENCE)	0.32	0.565685			0.98		289		76	70
	0.3	0.547722			0.93		282		76	70
	0.31	0.556776			0.95		284		71	69
	0.39	0.624499			1.19		287		73	69
	0.34	0.583095			1.03		296		73	69
	0.39	0.624499			1.19		289		72	67
	0.34	0.583095			1.02		296		72	67
		---------	AVERAGE SQUARED							
	AVERAGE	0.602595	0.363	AVERAGE	1.11	AVERAGE	291	AVERAGE		71.54
		=========	=========		============		=========			=========

A00112

FIELD DATA

PLANT HOLLY SUGAR
DATE 6/6/91
SAMPLING LOCATION BOILER #4
SAMPLE TYPE
RUN NUMBER
OPERATOR
AMBIENT TEMPERATURE
BAROMETRIC PRESSURE
STATIC PRESSURE, (P_s)
FILTER NUMBER (s)

VELOCITY TRAVERSE

PROBE LENGTH AND TYPE
NOZZLE I.D.
ASSUMED MOISTURE, %
SAMPLE BOX NUMBER
METER BOX NUMBER
METER $\Delta H_@$
C FACTOR
PROBE HEATER SETTING
HEATER BOX SETTING
REFERENCE Δp

BOILER #4

SCHEMATIC OF TRAVERSE POINT LAYOUT

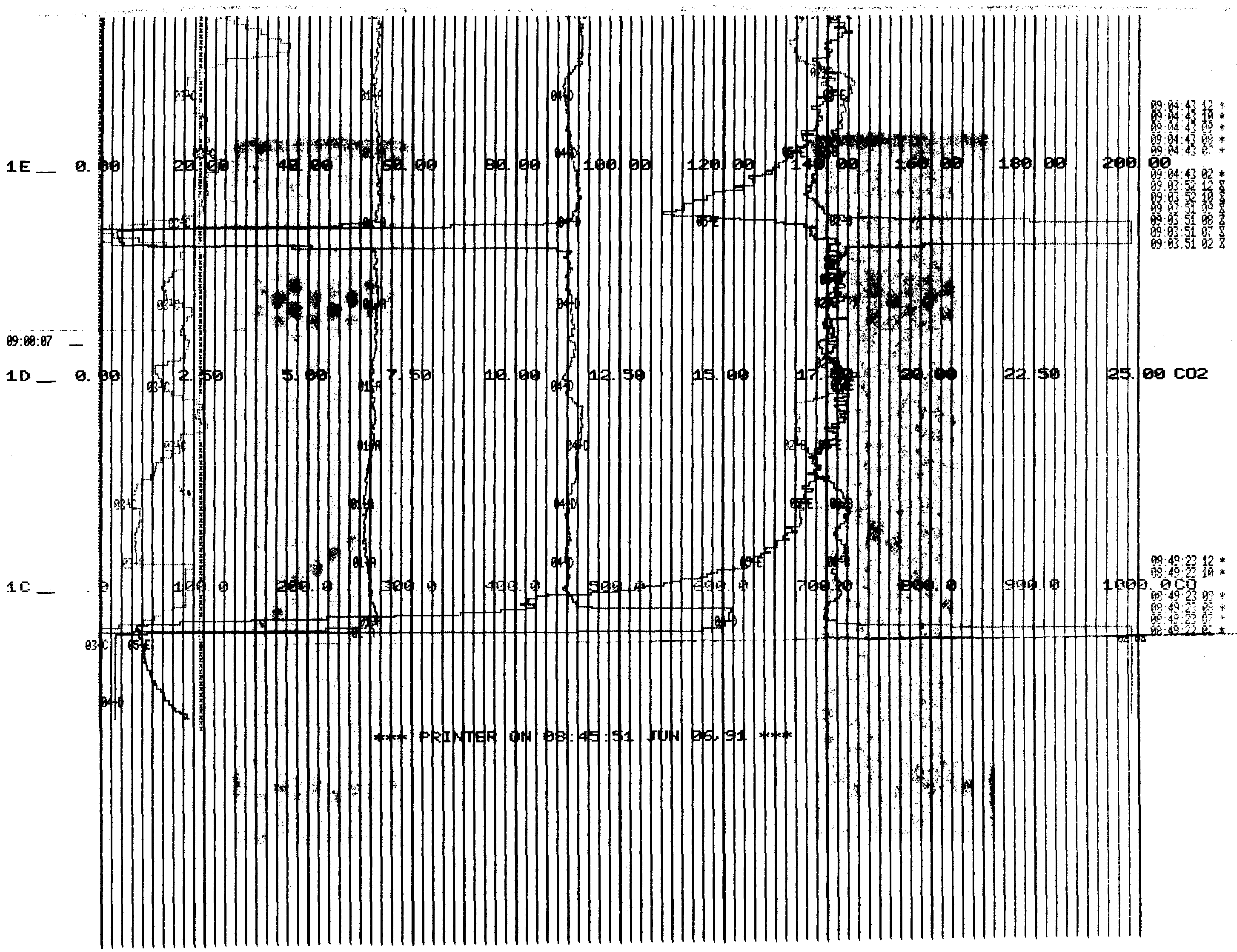
READ AND RECORD ALL DATA EVERY ____ MINUTES

TRAVERSE POINT NUMBER	SAMPLING TIME, min / CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\,in}$), °F	DRY GAS METER TEMPERATURE OUTLET ($T_{m\,out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
1			0.13			238					
2			0.12			241					
3		Ps = -0.18	0.14			242					
4			0.15			244					
5			0.13			243					
6			0.15			244					
1			0.12			242					
2			0.11			245					
3			0.13			243					
4			0.15			243					
5			0.13			241					
6			0.12			238					

COMMENTS:

EPA (Dur) 235
4/72

A0C113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20.00
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60.00
80.00
100.00
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140.00
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180.00
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09:00:07
1D
0.00
2.50
5.00
7.50
10.00
12.50
15.00
17.50
20.00
22.50
25.00 CO2
1C
0
100.0
200.0
300.0
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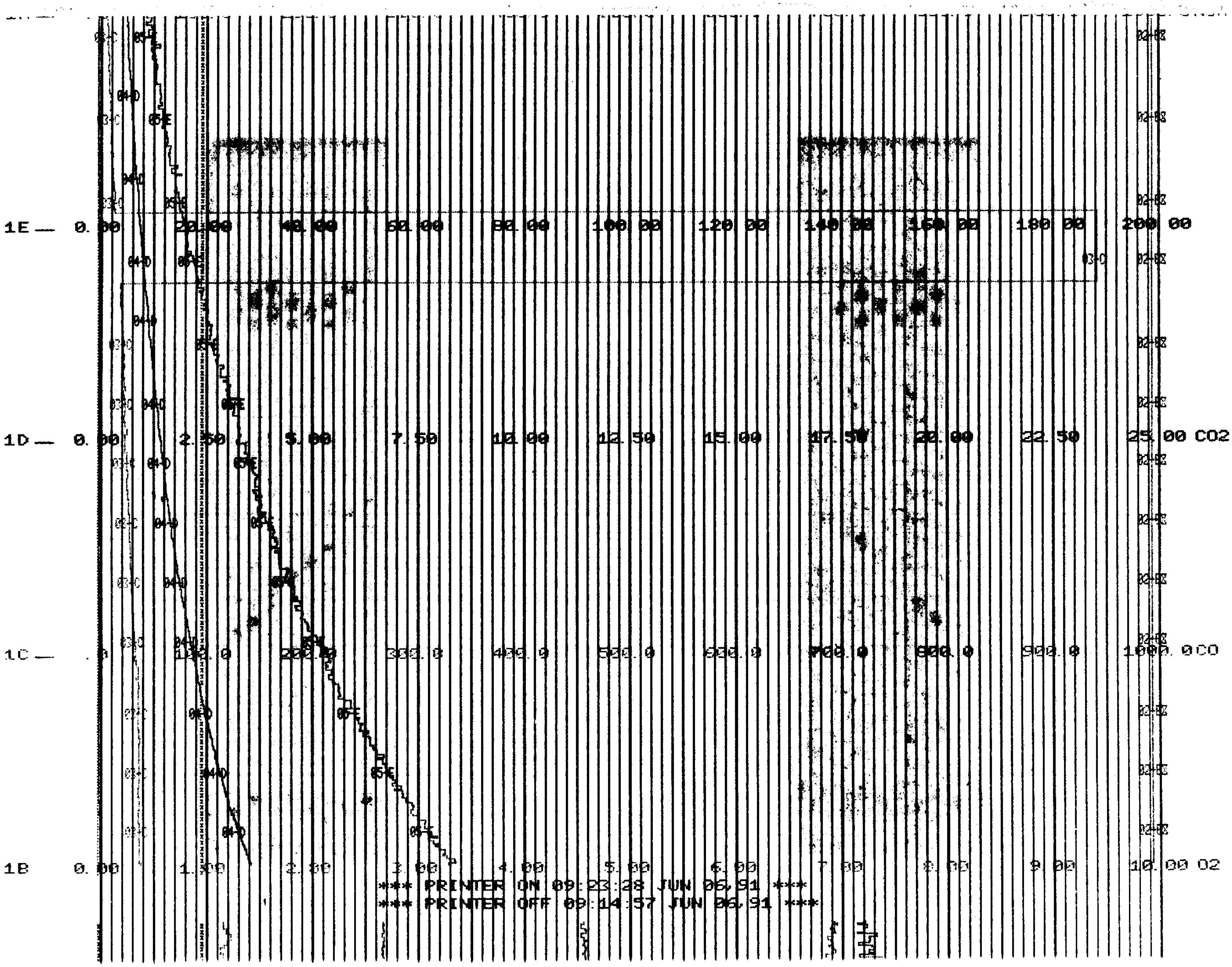
A0G114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1D 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2
1C 0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
1B 0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 O2
*** PRINTER ON 09:23:28 JUN 06,91 ***
*** PRINTER OFF 09:14:57 JUN 06,91 ***

A00115


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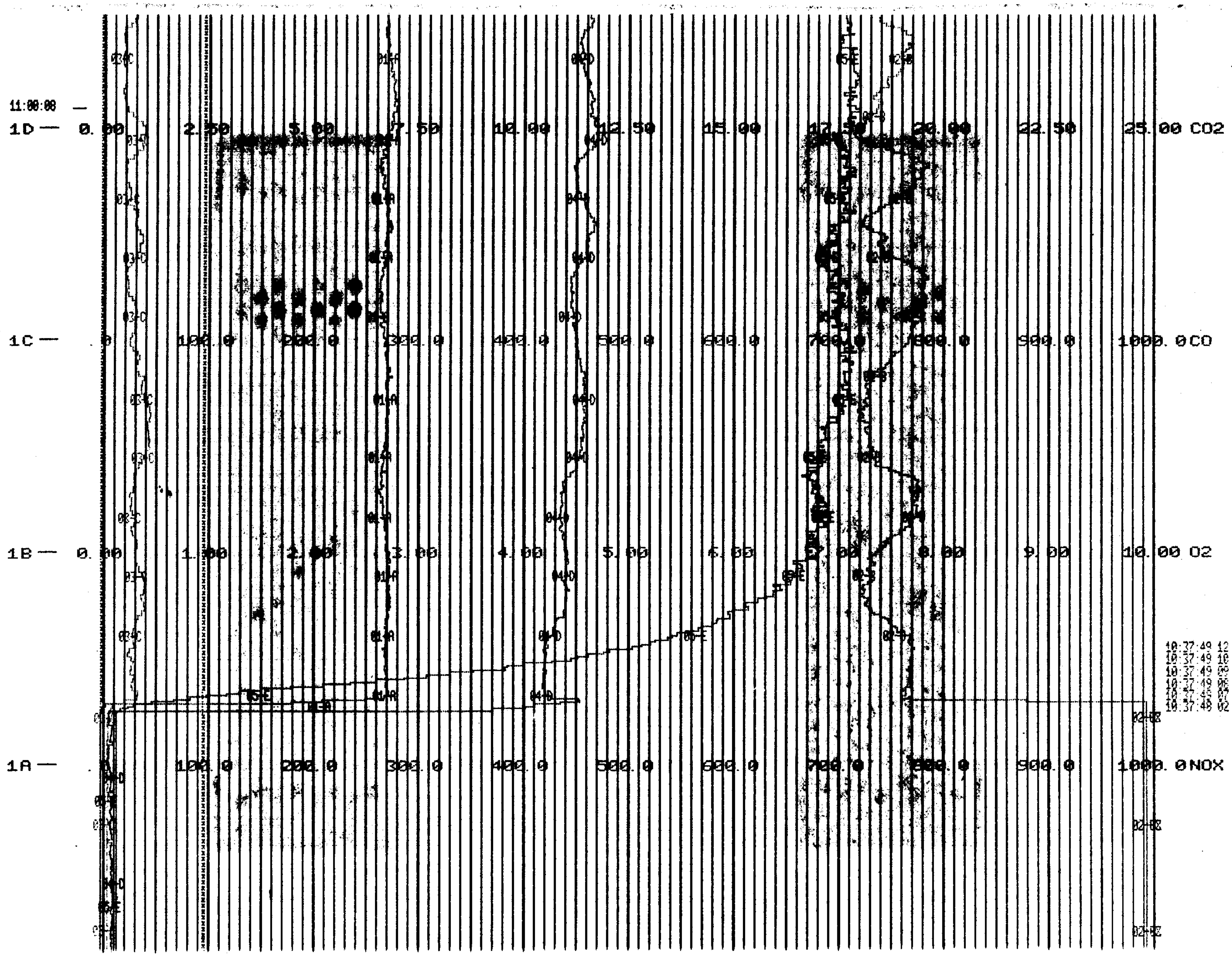
20.00
40.00
60.00
80.00
100.00
120.00
140.00
160.00
180.00
200.00
1D
0.00
2.50
5.00
7.50
10.00
12.50
15.00
17.50
20.00
22.50
25.00 CO2
1C
100.0
200.0
300.0
400.0
500.0
600.0
700.0
800.0
900.0
1000.0 CO
*** RESET AVERAGE 10:04:30 14 3.27 CO2 0
*** RESET AVERAGE 10:04:26 15 48.25 SO2 0
*** RESET AVERAGE 10:04:26 15 48.25 SO2 0
*** RESET AVERAGE 10:04:25 11 69.4 NOX 0
1B
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00 O2
10:00:00

A00116



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1D — 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2
1C — 0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
1B — 0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 O2
1A — 0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 NOX
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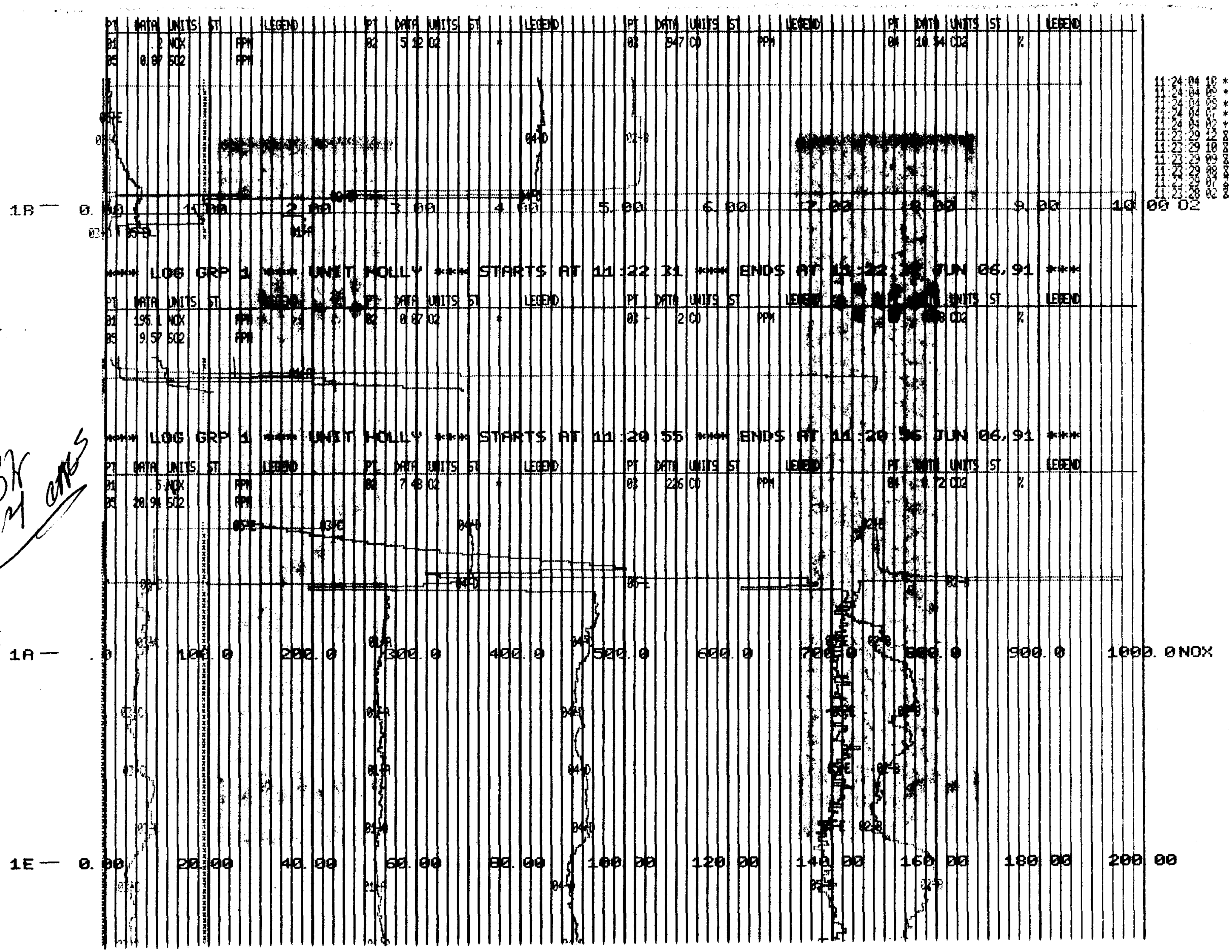
10:37:49 10 *
10:37:49 09 *
10:37:49 06 *
10:37:48 02 *

A00117


PT DATA UNITS ST LEGEND
01 2 NOX PPM
05 0.07 SO2 PPM
02 5.12 O2 *
03 947 CO PPM
04 10.34 CO2 %
1B — 0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 O2
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:22 31 *** ENDS AT
JUN 06,91 ***
01 195.1 NOX PPM
05 9.57 SO2 PPM
02 0.07 O2 *
03 2 CO PPM
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:20 55 *** ENDS AT 11:20 56 JUN 06,91 ***
01 5 NOX PPM
05 20.94 SO2 PPM
02 7.48 O2 *
03 226 CO PPM
1A — 0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 NOX
1E — 0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00

A00118

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:40:38 *** ENDS AT 11:40:39 JUN 06,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	.1	NOX		PPM	02	0.03	O2		*	03	0	CO		PPM	04	0.15	CO2		%
05	98.73	SO2		PPM															

1D — 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:37:20 *** ENDS AT 11:37:21 JUN 06,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	.3	NOX		PPM	02	0.04	O2		*	03	0	CO		PPM	04	0.16	CO2		%
05	50.38	SO2		PPM															

1C — 0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:31:30 *** ENDS AT 11:31:31 JUN 06,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	896.4	NOX		PPM	02	0.05	O2		*	03	0	CO		PPM	04	0.18	CO2		%
05	1.31	SO2		PPM															

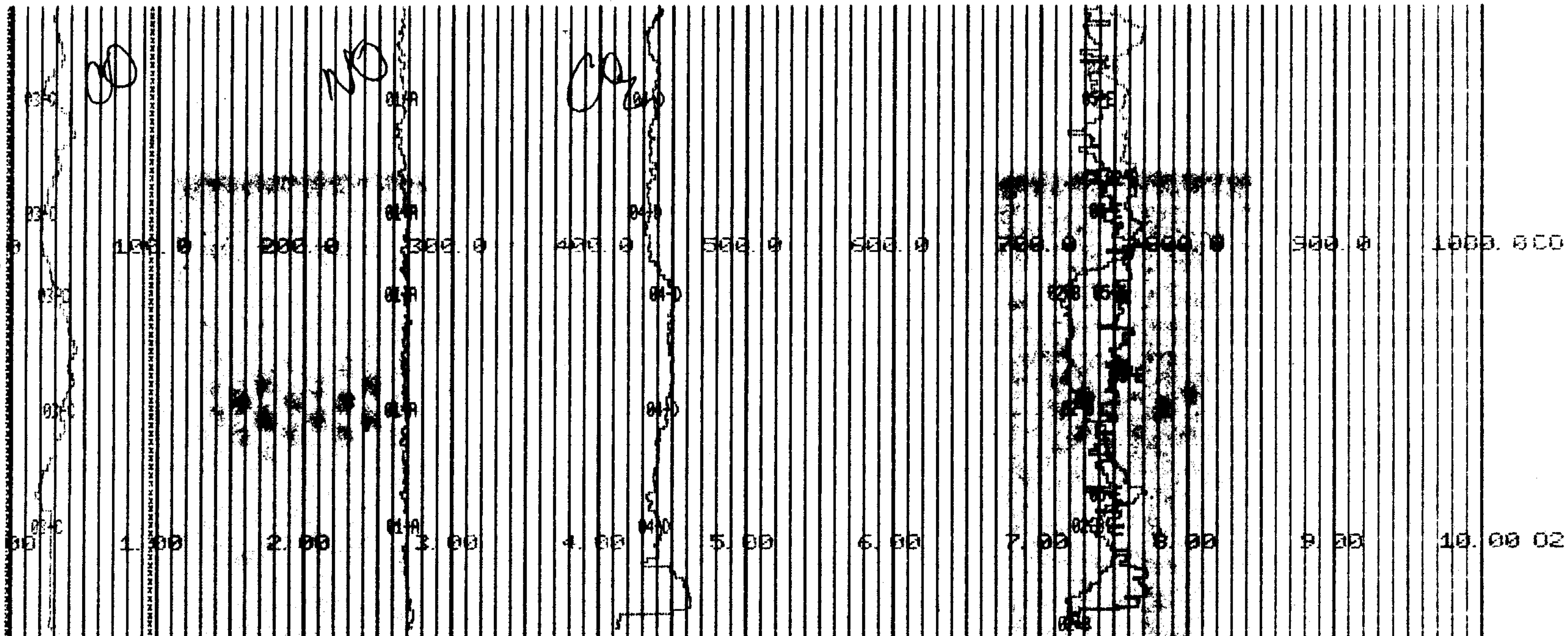
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:30:51 *** ENDS AT 11:30:52 JUN 06,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	871.6	NOX		PPM	02	0.05	O2		*	03	1	CO		PPM	04	0.17	CO2		%
05	1.18	SO2		PPM															

11:24:04 13 *

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:29:46 *** ENDS AT 11:29:51 JUN 06,91 ***

A00119



*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 13:22:23 *** ENDS AT 13:22:23 JUN 06,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	276.1	NOX		PPM	02	7.36	O2		%	03	11	CO		PPM	04	10.04	CO2		%
05	145.65	SO2		PPM															

Begin Test #1 Blr #4

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 13:21:40 *** ENDS AT 13:21:41 JUN 06,91 ***

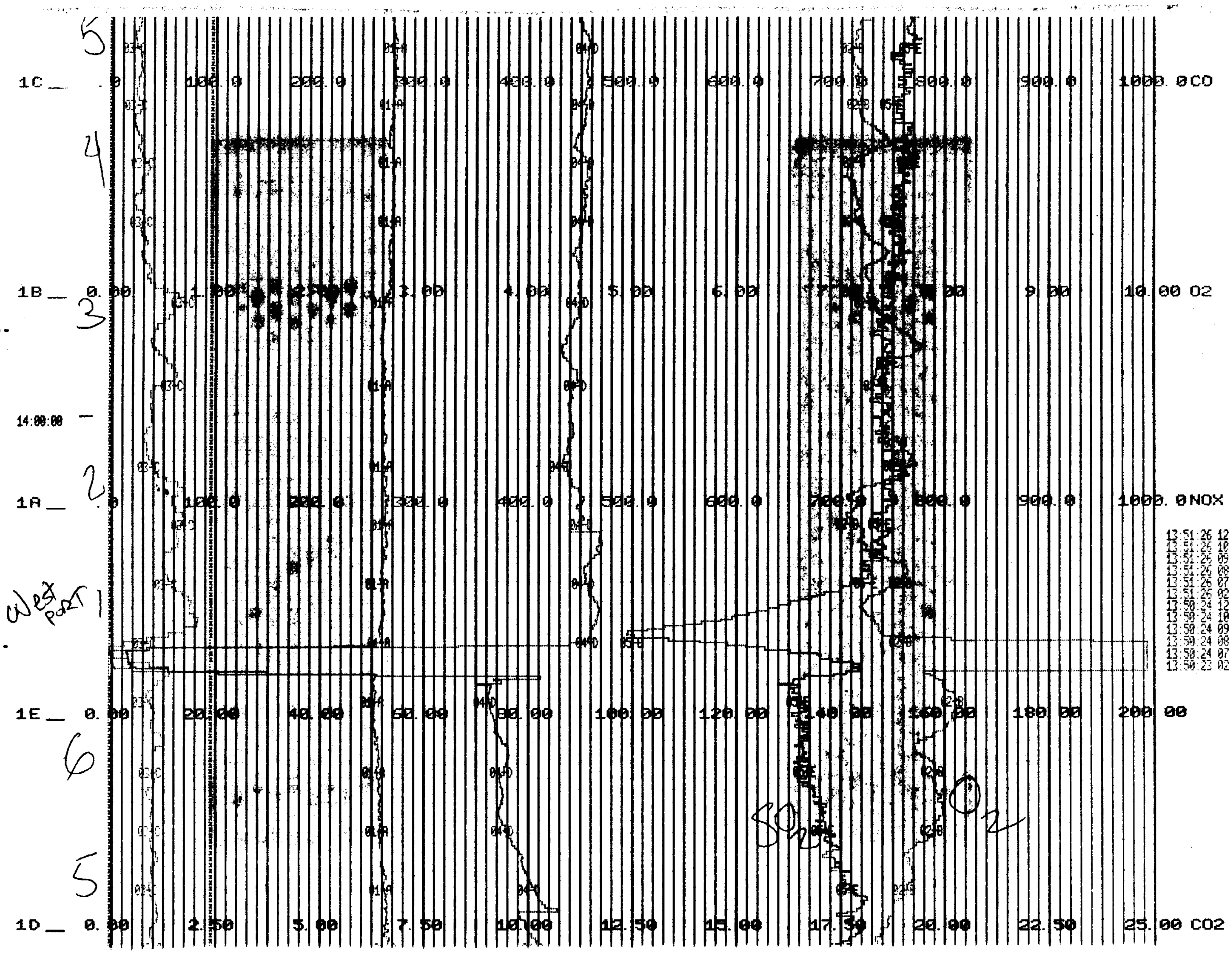
PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	275.0	NOX		PPM	02	3.04	O2		%	03	22	CO		PPM	04	10.33	CO2		%
05	143.99	SO2		PPM															

*** PRINTER ON 13:21:34 JUN 06,91 ***
*** PRINTER OFF 11:48:37 JUN 06,91 ***

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:46:51 *** ENDS AT 11:46:52 JUN 06,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	.2	NOX		PPM	02	0.03	O2		%	03 -	1	CO		PPM	04	0.37	CO2		%
05	100.41	SO2		PPM															

A0C120


1C
1B
14:00:00
1A
1E
1D
1000.0 CO
10.00 O2
1000.0 NOX
200.00
25.00 CO2
West port
SO2
O2

A0G121

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	[illegible]	NOX		PPM	02	[illegible]	O2		*	03	[illegible]	CO		PPM	04	[illegible]	CO2		%
05	10.08	SO2		PPM															

1E — 0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 14:28:16 *** ENDS AT 14:28:16 JUN 06,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	.9	NOX		PPM	02	5.10	O2		*	03	9.47	CO		PPM	04	14.17	CO2		%
05	39.17	SO2		PPM															

Drift

*** LOG ALL POINTS *** UNIT HOLLY *** STARTS AT 14:26:00 *** ENDS AT 14:26:00 JUN 06,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	268.9	NOX		PPM	02	7.65	O2		*	03	21	CO		PPM	04	7.35	CO2		%
05	141.80	SO2		PPM	07	13.300	CORR1			08	1.3493	CORR2			09	.353	NOX C		
10	28	CO C			11	208.5	NOX A			12	241.27	O2 A			13	191	CO A		
14	7.06	CO2 A			15	111.32	SO2 A												

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 14:25:45 *** ENDS AT 14:25:45 JUN 06,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	266.8	NOX		PPM	02	7.71	O2		*	03	21	CO		PPM	04	11.09	CO2		%
05	151.41	SO2		PPM															

A00122

End of NO

Begin on NO

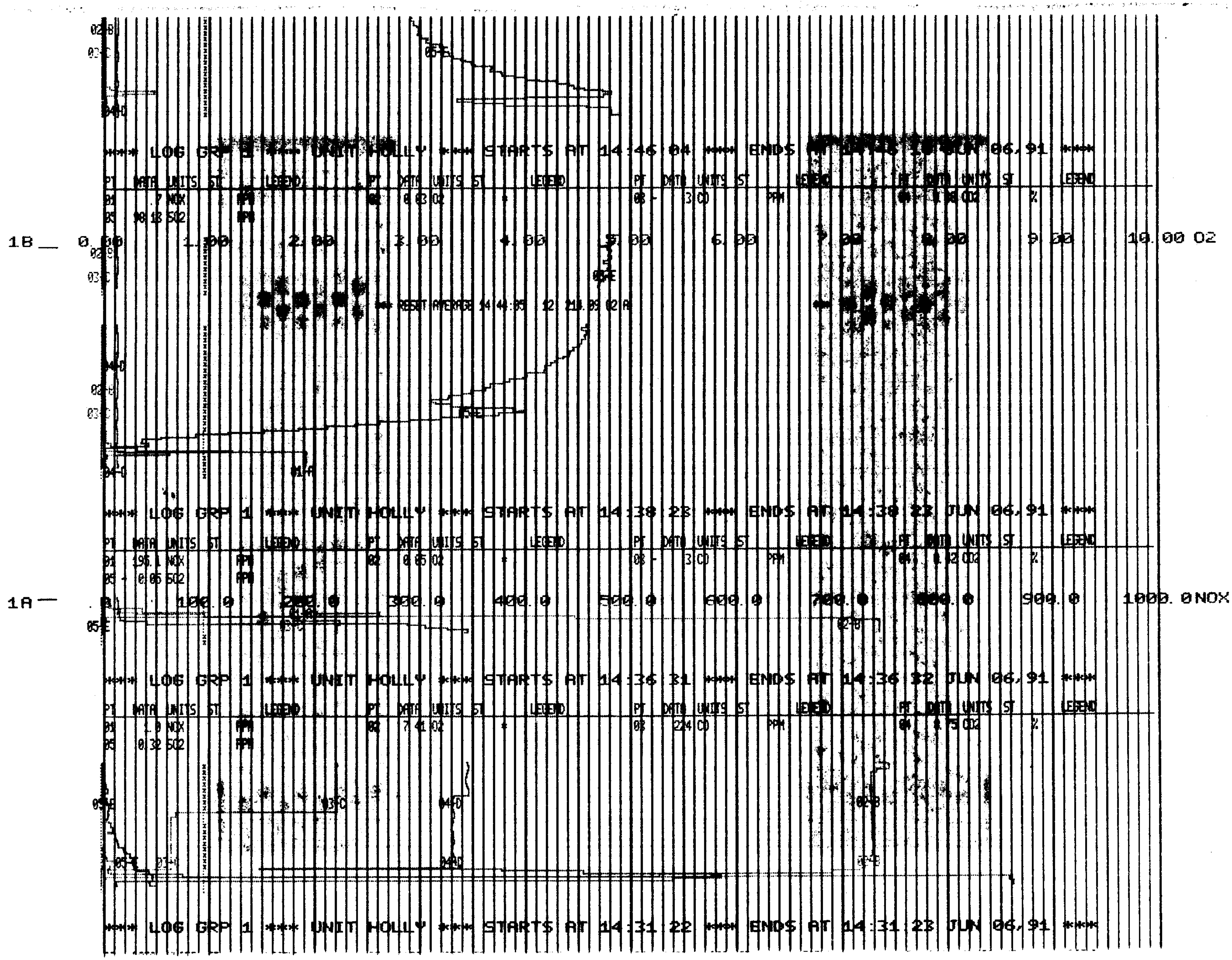
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 14:21:26 *** ENDS AT 14:21:26 JUN 06,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	267.9	NOX		PPM	02	7.44	O2		*	03	21	CO		PPM	04	11.34	CO2		%
05	150.31	SO2		PPM															

End Test #1 Br. 4

1D — 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2

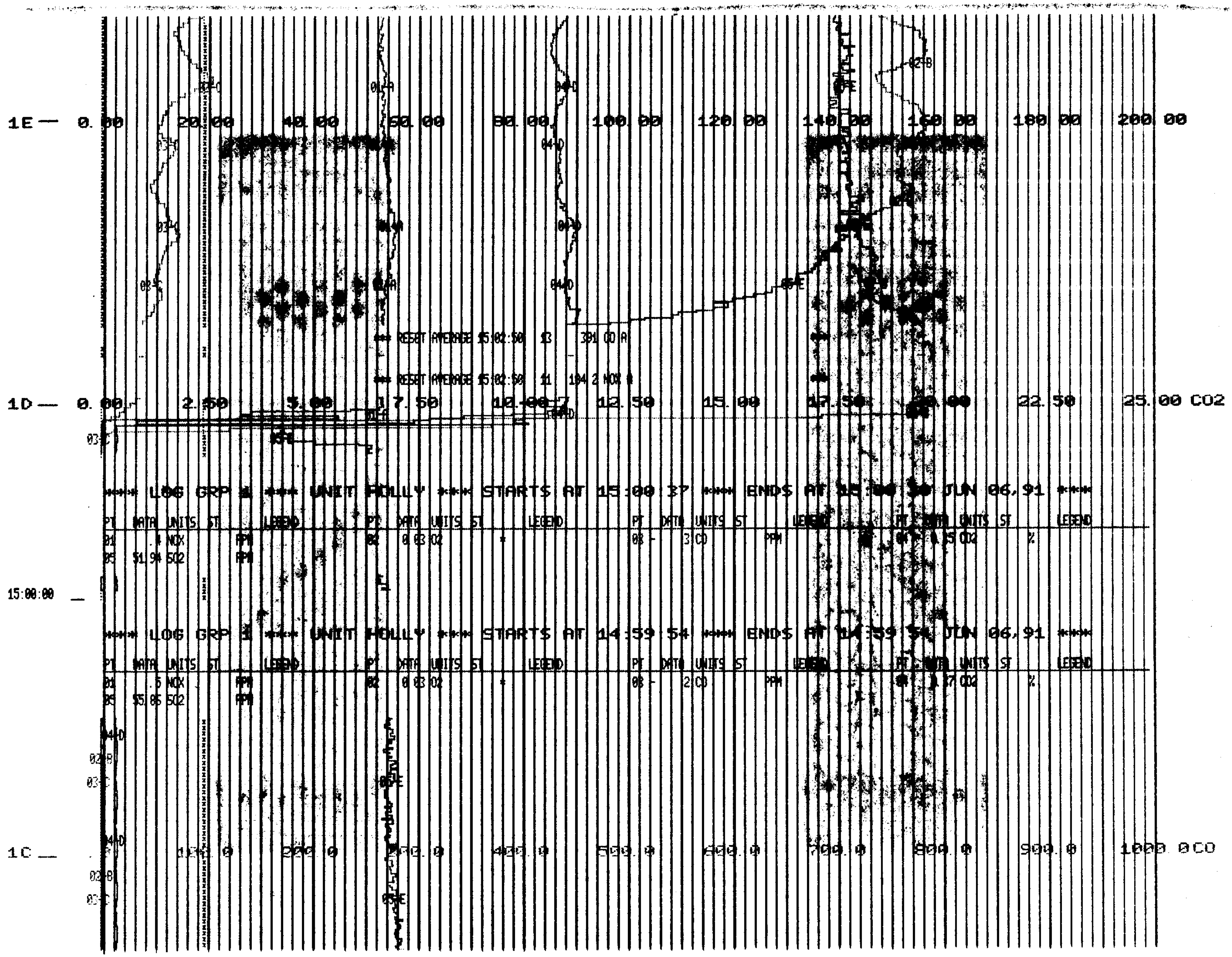
6



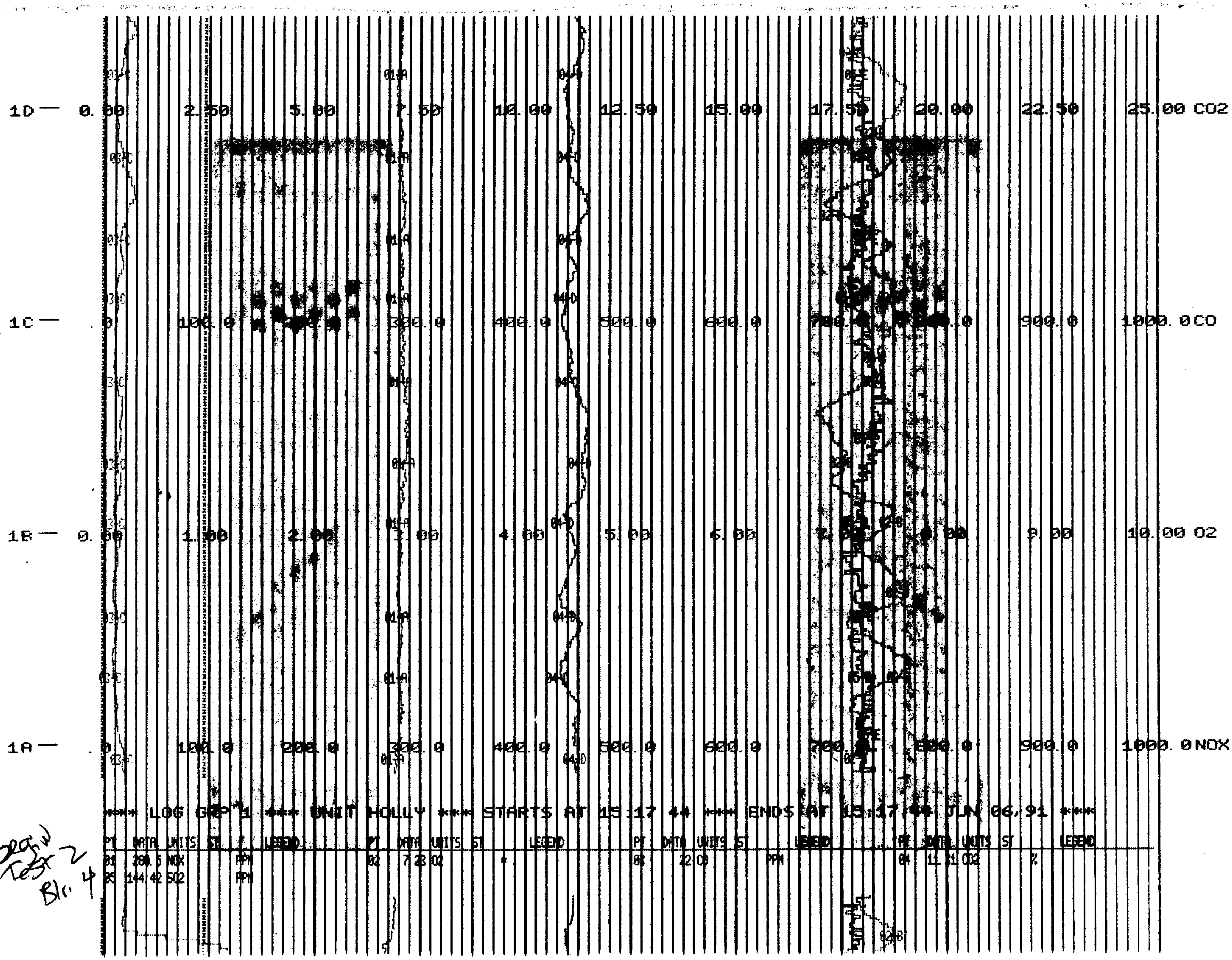
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 14:46:04 *** ENDS AT [illegible] JUN 06,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 7 NOX PPM 02 0.03 O2 % 03 - 3 CO PPM 04 [illegible] O2 %
05 98.13 SO2 PPM
1B
0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 O2
*** RESET AVERAGE 14:44:05 12 214.09 O2 A
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 14:38:23 *** ENDS AT 14:38:23 JUN 06,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 196.1 NOX PPM 02 0.05 O2 % 03 - 3 CO PPM 04 0.02 O2 %
05 - 0.06 SO2 PPM
1A
0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 NOX
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 14:36:31 *** ENDS AT 14:36:32 JUN 06,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 1.0 NOX PPM 02 7.41 O2 % 03 224 CO PPM 04 [illegible] O2 %
05 0.32 SO2 PPM
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 14:31:22 *** ENDS AT 14:31:23 JUN 06,91 ***

A00123

A00124

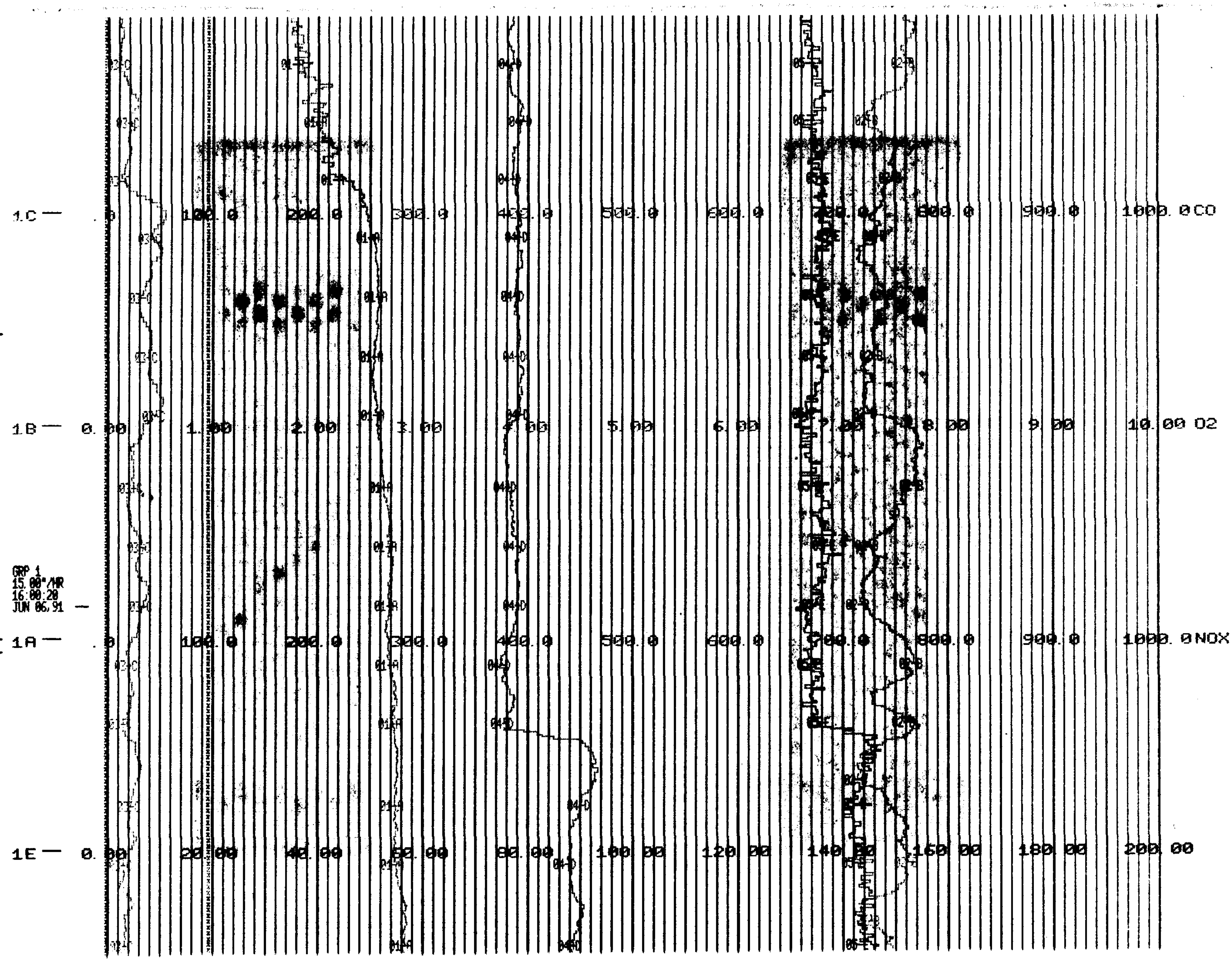


1E — 0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00
1D — 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2
1C — 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
15:00:00
** RESET AVERAGE 15:02:50 13 391 CO A
** RESET AVERAGE 15:02:50 11 104 2 NOX 0
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:00:37 *** ENDS AT JUN 06,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 4 NOX PPM 02 0 03 02 % 03 - 3 CO PPM 04 15 CO2 %
05 51.94 SO2 PPM
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 14:59:54 *** ENDS AT JUN 06,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 5 NOX PPM 02 0 03 02 % 03 - 2 CO PPM 04 17 CO2 %
05 55.86 SO2 PPM

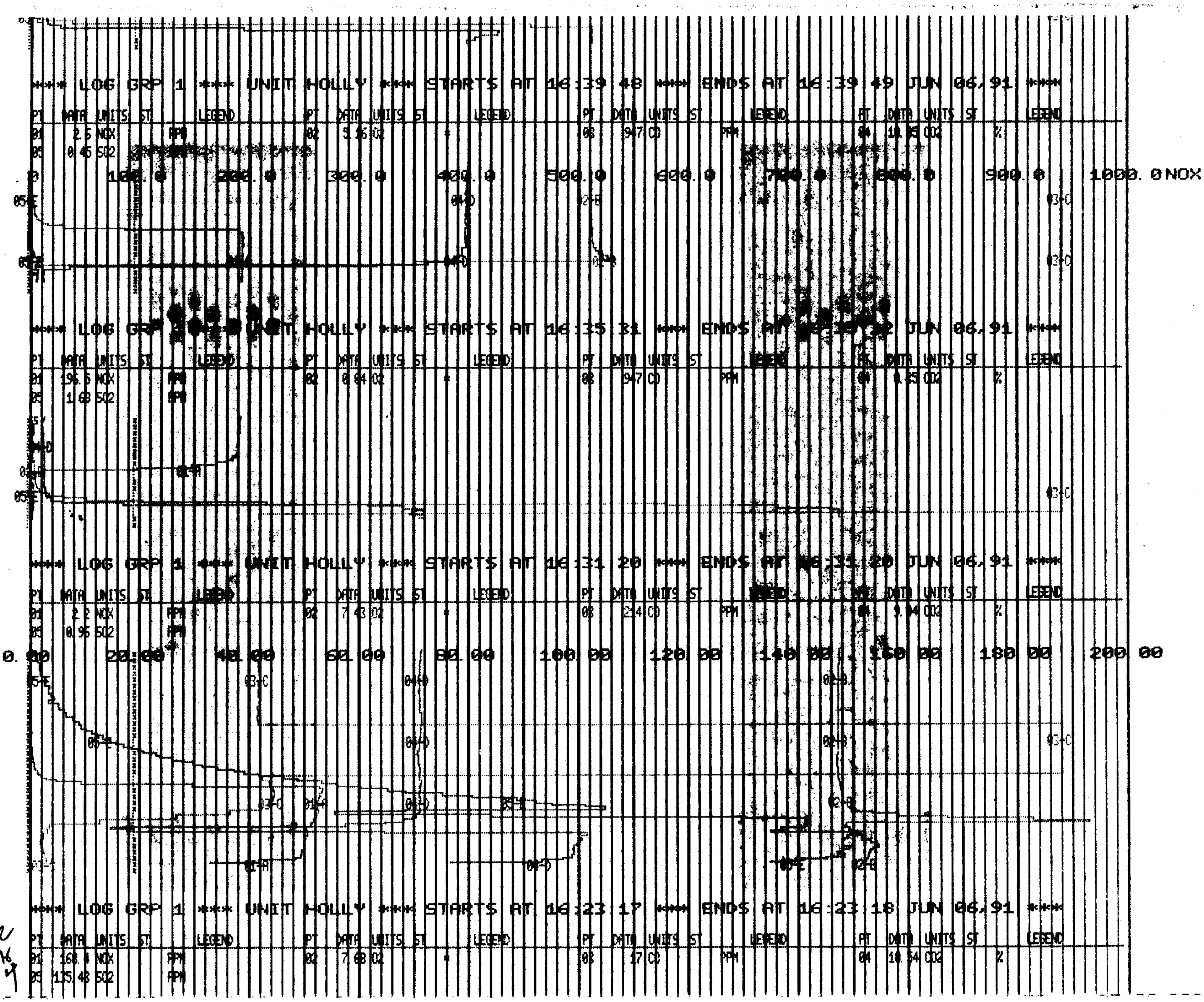


Begin Test 2 Bl. 4

A00125

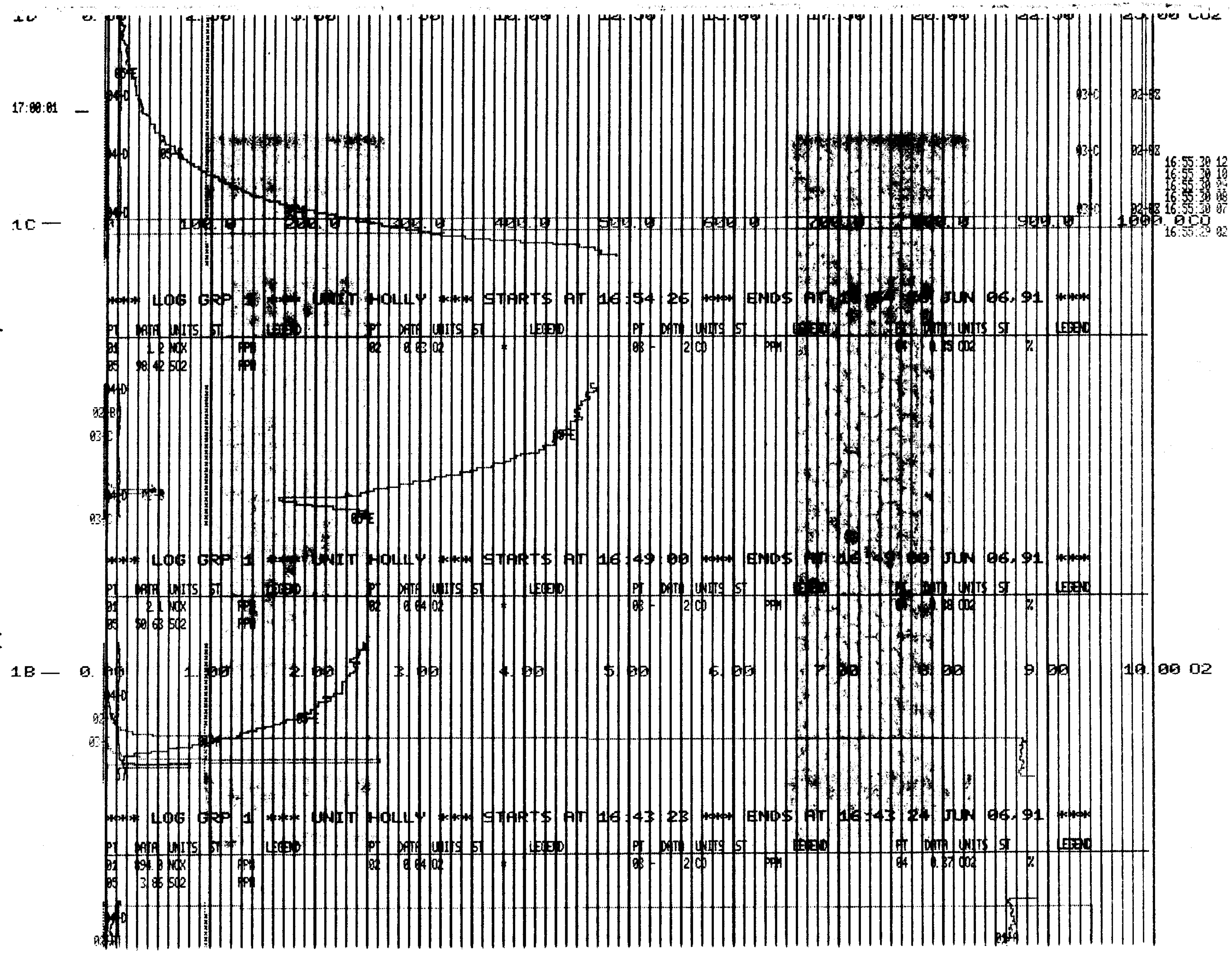

1000.0 CO
10.00 O2
1000.0 NOX
200.00
1C
1B
1A
1E
GRP 1
15.00"/HR
16:00:20
JUN 06,91

A00126



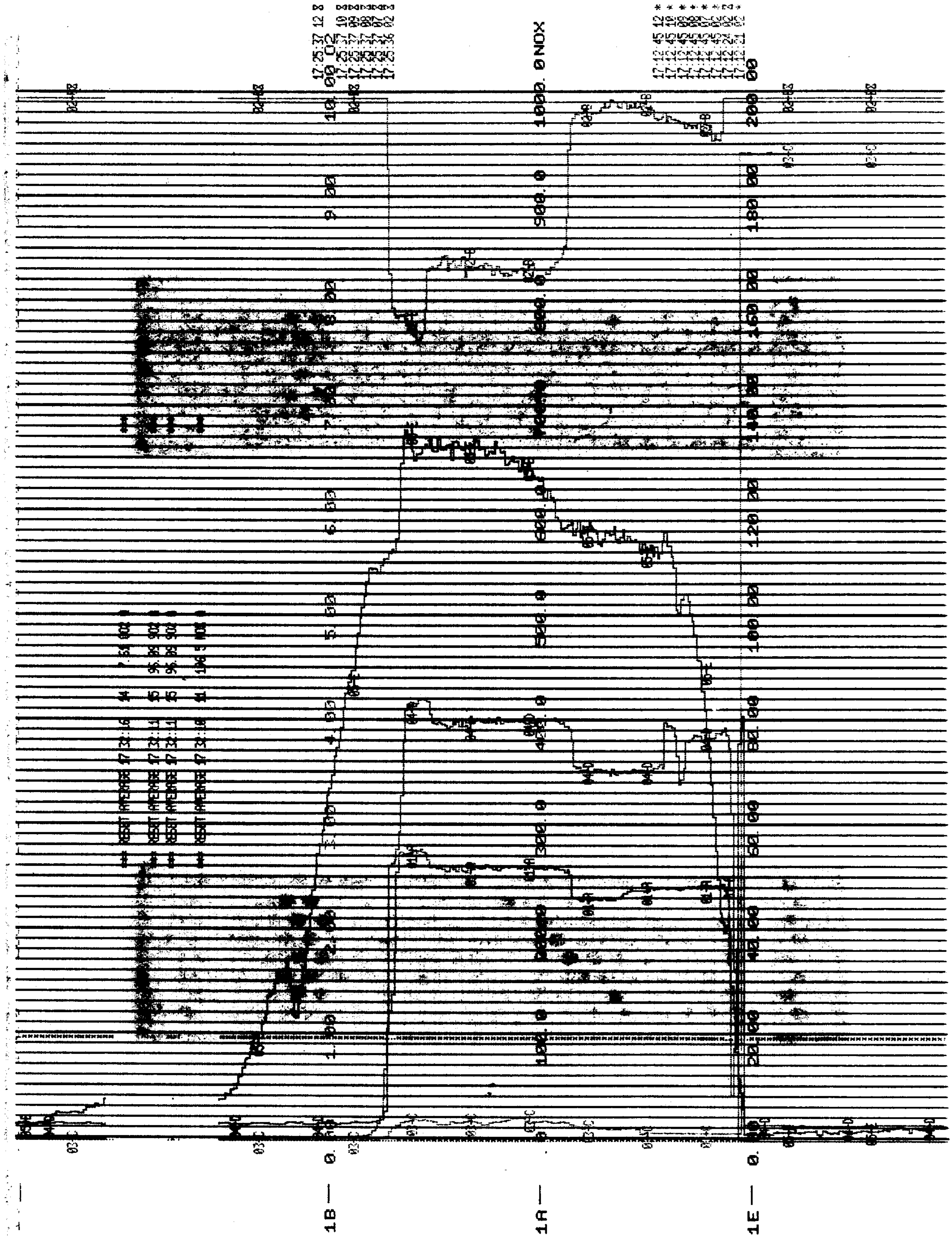
End Test BX 2 4

A00127

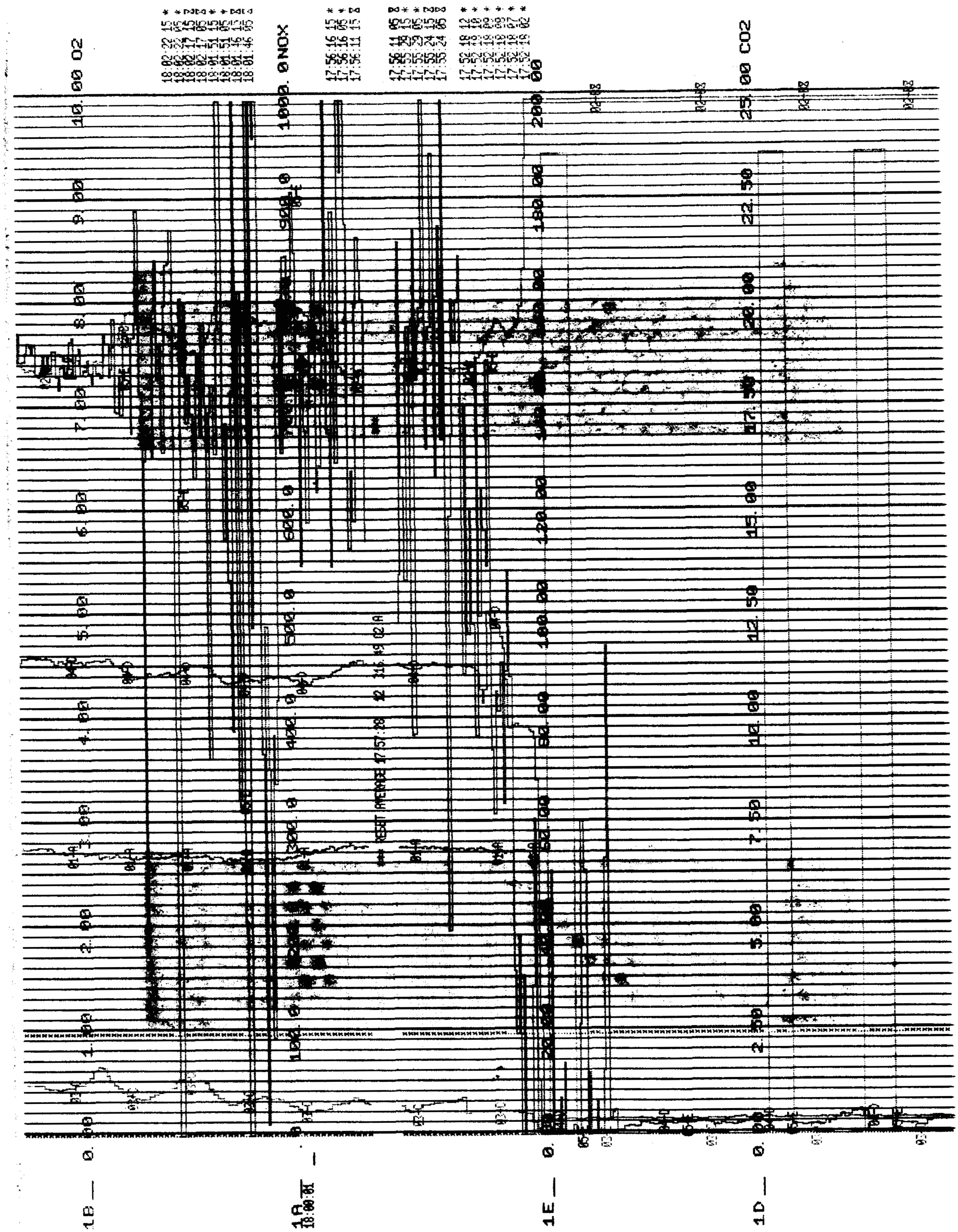


*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 16:54 26 *** ENDS AT
JUN 06, 91 ***
PT DATA UNITS ST LEGEND
01 1.2 NOX PPM
05 98.42 SO2 PPM
02 0.03 O2 %
08 - 2 CO PPM
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 16:49 00 *** ENDS AT
JUN 06, 91 ***
01 2.1 NOX PPM
05 50.63 SO2 PPM
02 0.04 O2 %
08 - 2 CO PPM
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 16:43 23 *** ENDS AT 16:43 24 JUN 06, 91 ***
01 694.0 NOX PPM
05 3.86 SO2 PPM
02 0.04 O2 %
08 - 2 CO PPM
04 0.37 CO2 %
17:00:01
1C
1B
0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 O2
100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
16:55:30

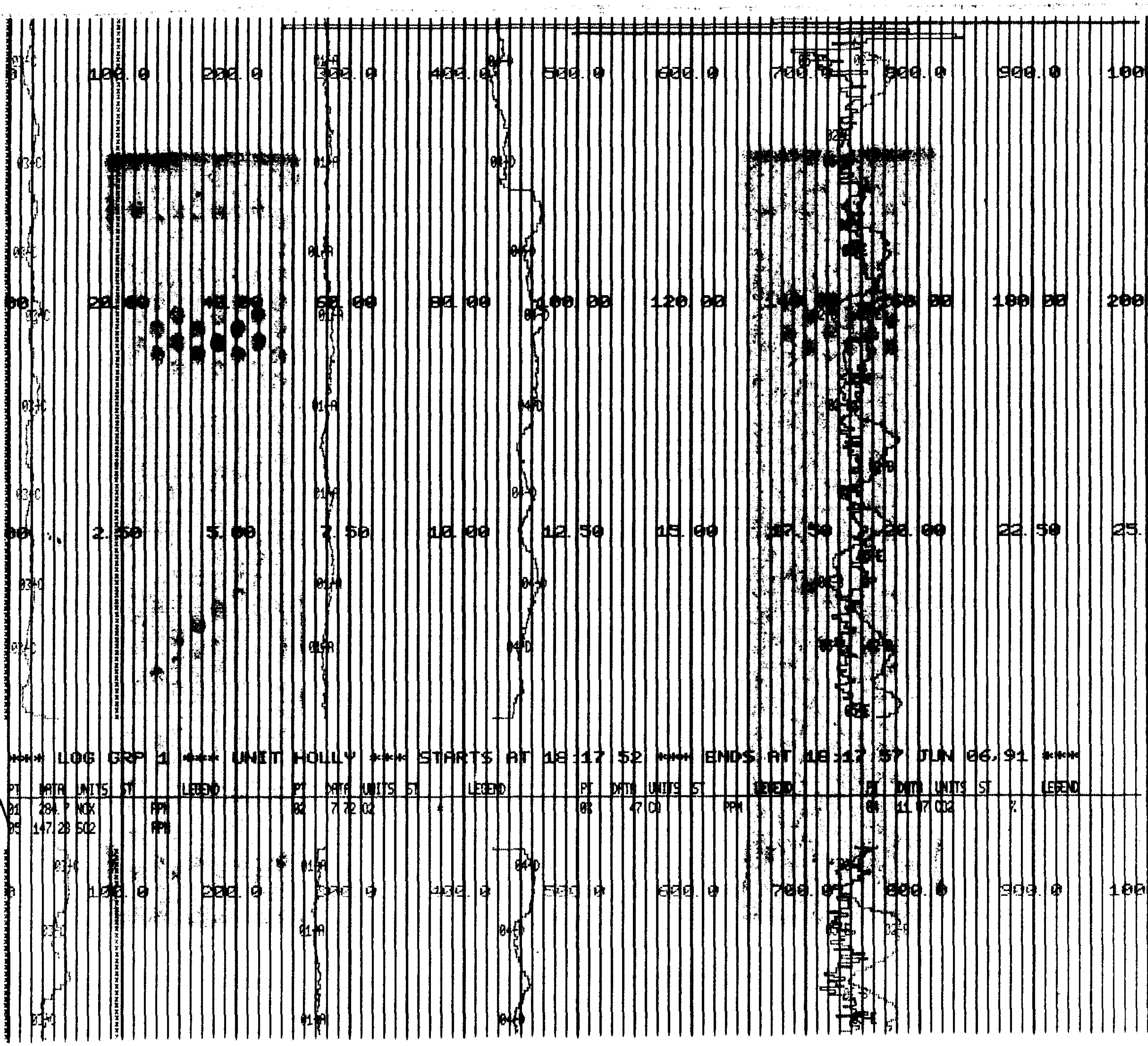
A00128



A00129


10.00 O2
1000.0NOX
200.00
25.00 CO2
1B
1A
1E
1D
RESET AVERAGE 17:57:20

A00130



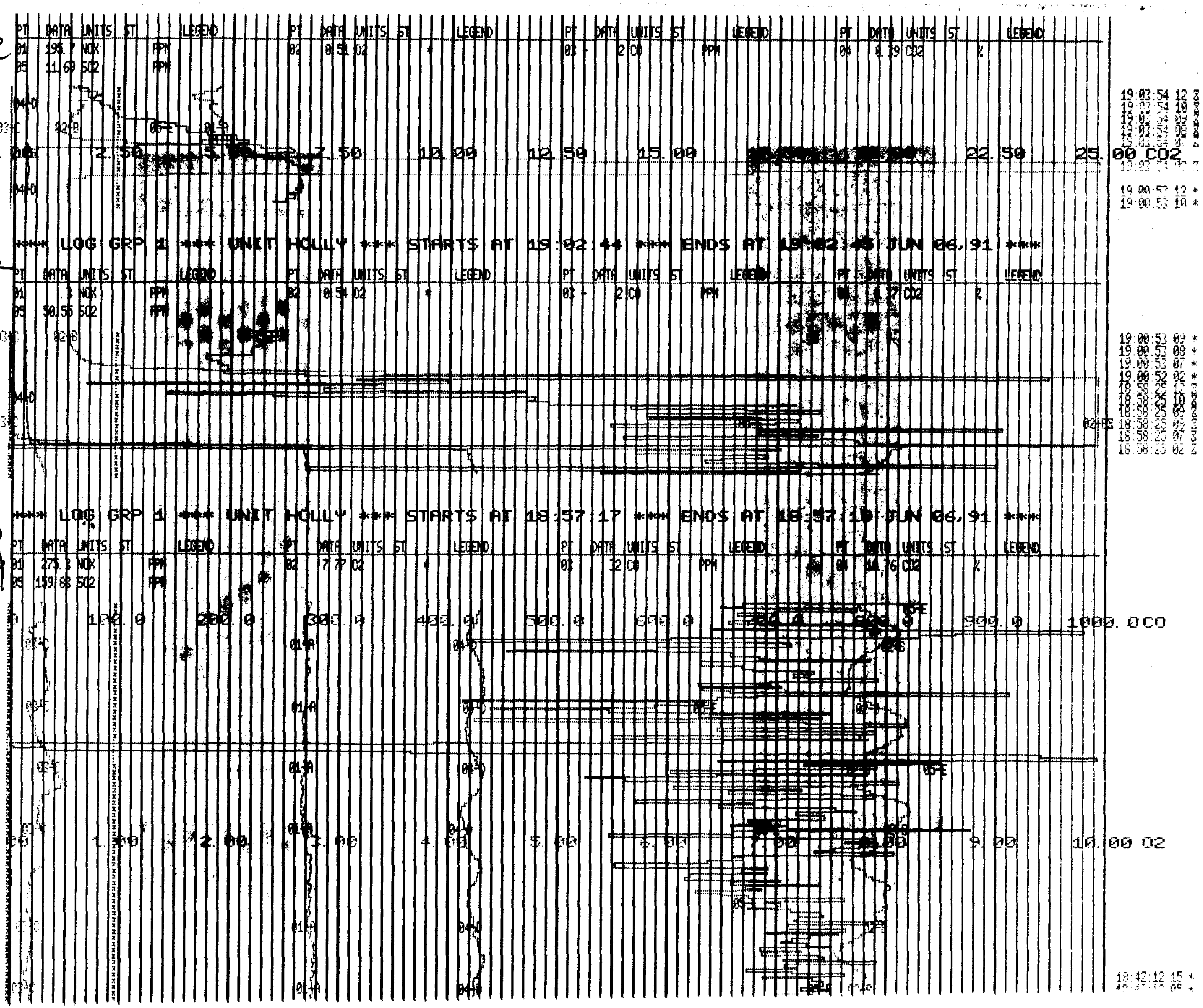
Begin Test #3 Blk #4

A0G131

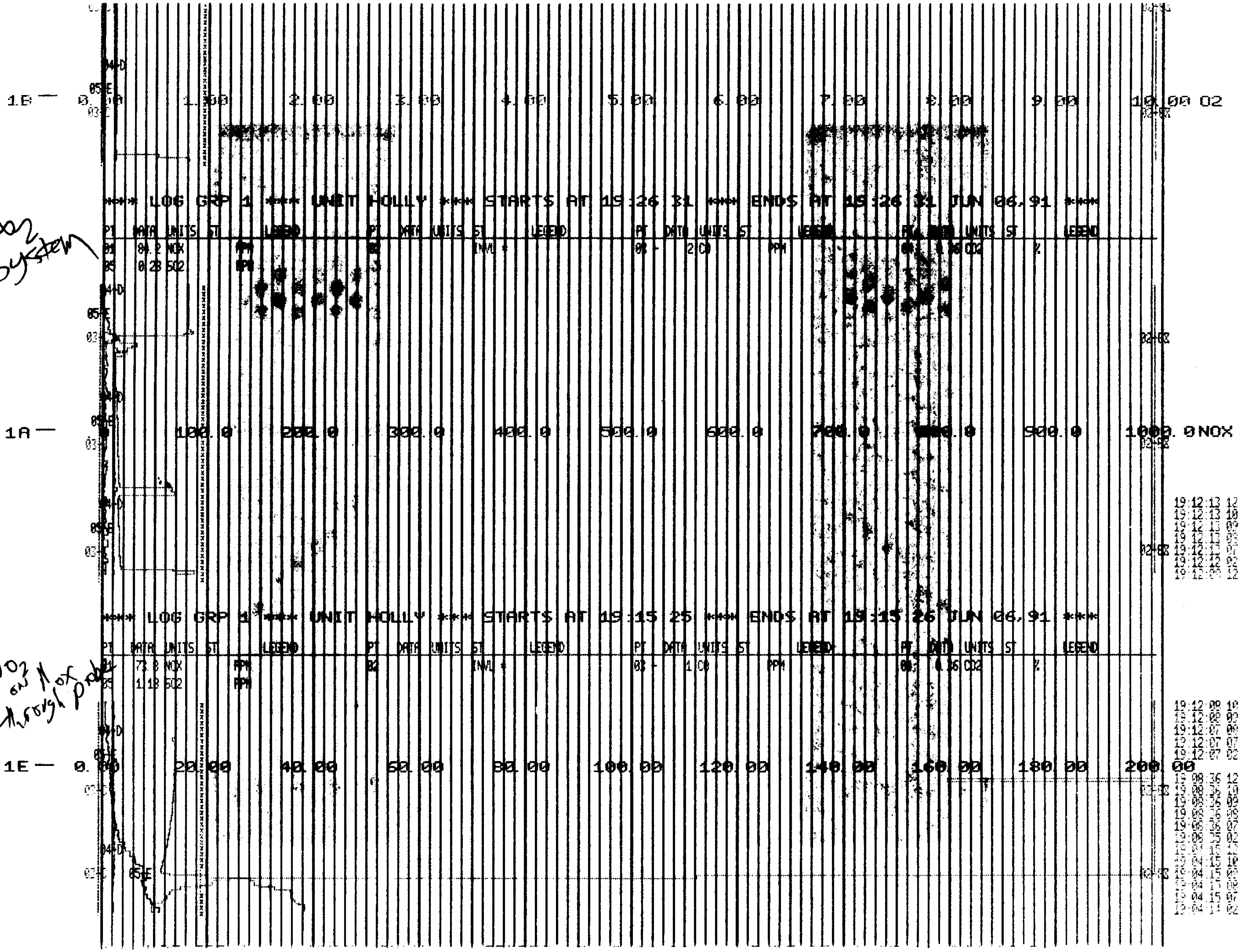
No through probe

SO2 through probe

End Test 3 Bk 4



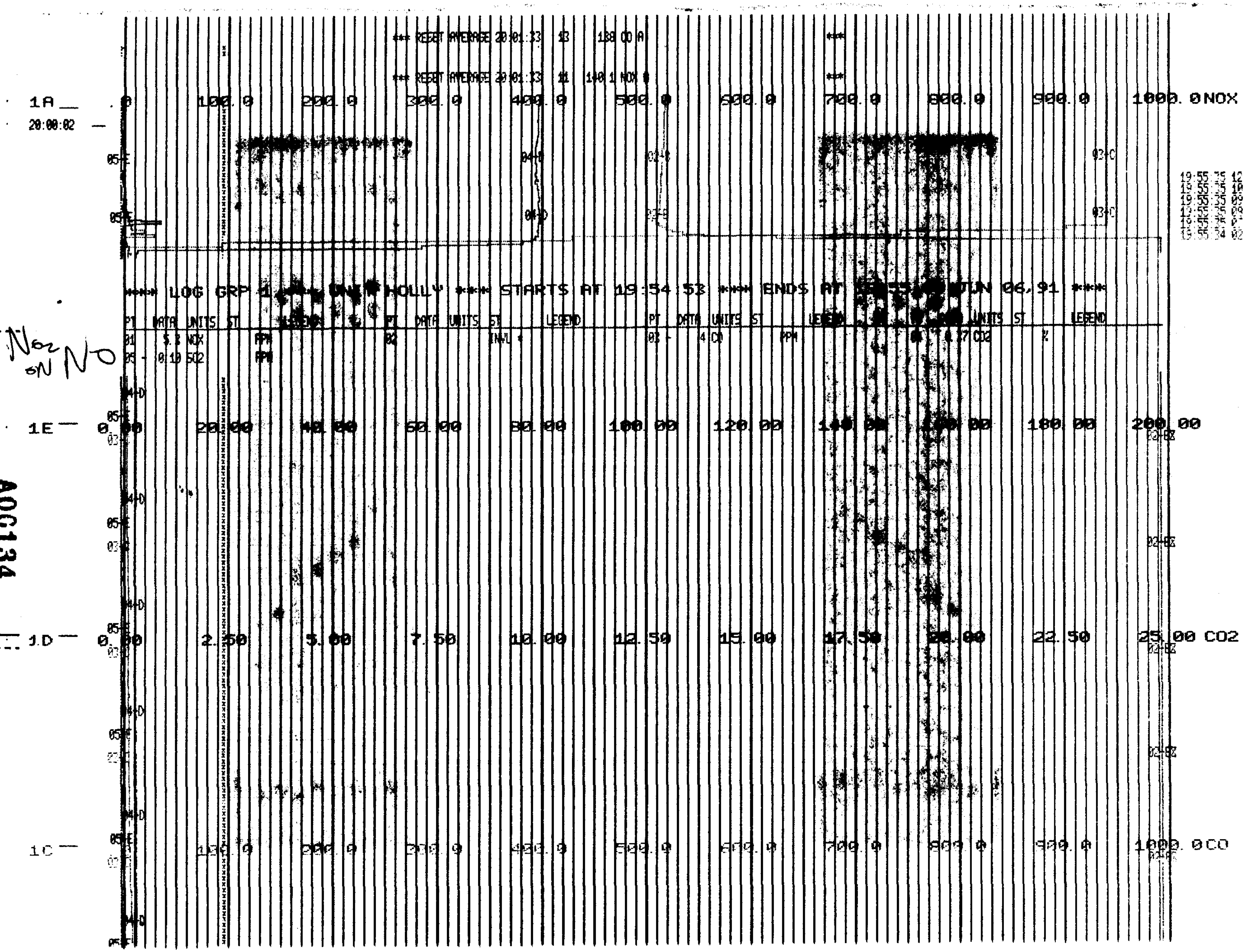
A00132



NO_2 system

NO_2 on NO_x through probe

A00133


*** RESET AVERAGE 20:01:33 13 138 CO A
*** RESET AVERAGE 20:01:33 11 140 1 NOX
1A 20:00:02
0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 NOX
19:55:35 12 *
19:55:35 10 *
19:55:35 09 *
19:55:34 02 *
**** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 19:54:53 *** ENDS AT [illegible] JUN 06,91 ***
PT DATA UNITS ST LEGEND
01 5.3 NOX PPM
05 0.19 SO2 PPM
02 INVL
03 4 CO PPM
17 CO2 %
Nox on NO
1E 0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00
1D 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 CO2
1C 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO

A0C134

0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 02

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 20:09:36 *** ENDS AT [illegible] JUN 06, 91 ***

PT	DATA	UNITS	ST		LEGEND	PT	DATA	UNITS	ST		LEGEND	PT	DATA	UNITS	ST		LEGEND	PT	DATA	UNITS	ST		LEGEND
01	900.2	NOX		PPM		02	0.05	O2		+		03	3	CO		PPM		04	[illegible]	CO2		%	
05	3.61	SO2		PPM																			

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 20:06:08 *** ENDS AT 20:06:10 JUN 06, 91 ***

PT	DATA	UNITS	ST		LEGEND	PT	DATA	UNITS	ST		LEGEND	PT	DATA	UNITS	ST		LEGEND	PT	DATA	UNITS	ST		LEGEND
01	1.9	NOX		PPM		02	7.48	O2		+		03	229	CO		PPM		04	[illegible]	CO2		%	
05	0.00	SO2		PPM																			

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 20:04:51 *** ENDS AT 20:04:51 JUN 06, 91 ***

PT	DATA	UNITS	ST		LEGEND	PT	DATA	UNITS	ST		LEGEND	PT	DATA	UNITS	ST		LEGEND	PT	DATA	UNITS	ST		LEGEND
01	205.0	NOX		PPM		02	0.05	O2		+		03	5	CO		PPM		04	[illegible]	CO2		%	
05	0.88	SO2		PPM																			

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 20:02:12 *** ENDS AT 20:02:18 JUN 06, 91 ***

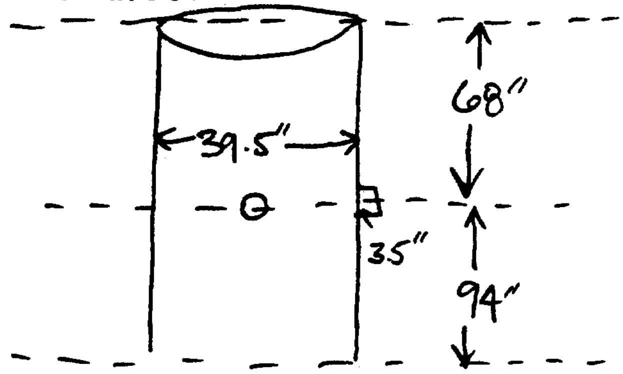
PT	DATA	UNITS	ST		LEGEND	PT	DATA	UNITS	ST		LEGEND	PT	DATA	UNITS	ST		LEGEND	PT	DATA	UNITS	ST		LEGEND
01	1.2	NOX		PPM		02	5.17	O2		+		03	948	CO		PPM		04	10.08	CO2		%	
05	0.36	SO2		PPM																			

*** RESET AVERAGE 20:01:59 15 169.58 902 0 ***

A0C135

TRAVERSE POINT LOCATION FOR CIRCULAR DUCTS

PLANT HOLLY SUGAR
DATE 6/13/91
SAMPLING LOCATION DRYER #1
INSIDE OF FAR WALL TO OUTSIDE OF NIPPLE, (DISTANCE A) 43.00"
INSIDE OF NEAR WALL TO OUTSIDE OF NIPPLE, (DISTANCE B) 3.50"
STACK I.D., (DISTANCE A - DISTANCE B) 39.50"
NEAREST UPSTREAM DISTURBANCE 68" or 1.72"
NEAREST DOWNSTREAM DISTURBANCE 94" or 2.38"
CALCULATOR HP 32 S



SCHEMATIC OF SAMPLING LOCATION

TRAVERSE POINT NUMBER	FRACTION OF STACK I.D.	STACK I.D.	PRODUCT OF COLUMNS 2 AND 3 (TO NEAREST 1/8 INCH)	DISTANCE B	TRAVERSE POINT LOCATION FROM OUTSIDE OF NIPPLE (SUM OF COLUMNS 4 & 5)
1	.021	39.50	0.83	3.50	4.33"
2	.067		2.65		6.15"
3	.118		4.66		8.16"
4	.177		6.99		10.49"
5	.250		9.88		13.38"
6	.358		14.14		17.64"
7	.644		25.44		28.94"
8	.750		29.63		33.13"
9	.823		32.51		36.01"
10	.882		34.84		38.34"
11	.933		36.85		40.35"
12	.979		38.67		42.17"

EPA (Dur) 232
4/72

A00136

WESTERN ENVIRONMENTAL SERVICES

CONTINUOUS MONITORING TEST DATA

SITE: Holly Sugar (Dryers 1, 2, & 3)

DATE:

OPERATOR: John Clarke

INSTRUMENT	SERIAL #	RANGE
Westronics	Series 3000	0
Thermoelectron & Conv. NO	Series 10	0-250
Teledyne O_2	—	0-25%
Thermoelectron & Conv. CO	Model 48H	0-1000
Horiba CO_2	PIR 2000	0-25%
Fl~~o~~orescent SO_2	Model 8850	0-100

CALIBRATION GASES

GASES	CONCENTRATION	CYLINDER #
NO	220.7, 94.3	JJ24602,
O_2, CO_2	14.51, 10.34	JJ25219
CO	230.7, 500	
O_2, CO_2	4.40, 4.40	
SO_2	19.54, 51.7	JJ19003, CC12770

WESTERN ENVIRONMENTAL SERVICES

FIELD DATA

SITE: Holly Sugar (Dryer 1)

DATE: 6-13-91

O_2 Traverse

	TIME	NOx	O_2	CO	CO_2	# OF AVG (SO2)
1	1522	70	15.25	160	4.5	0
2	1527	70	15	180	5.1	0
SE PORT 3	1532	70	15.75	150	4.65	0
4	1538	72.5	15.25	150	4.8	0
5	1545	73	15.75	120	4.5	0
6	1553	72.5	15.50	140	4.7	0
1	1556	72.5	14.75	150	5.3	0
2	~~1561~~ 1601	75	15.25	150	4.5	0
3	1606	70	14.80	200	5.1	0
SW PORT 4	1611	72.5	15	180	5	0
5	1617	71	15.25	160	4.95	0
6	1625	69.5	15.50	150	4.65	0

A00138

FIELD DATA

PLANT Holly Sugar
DATE 6-13-91
SAMPLING LOCATION South Stack Dryer #1
SAMPLE TYPE Velocity/Temp. Traverse
RUN NUMBER #1
OPERATOR
AMBIENT TEMPERATURE
BAROMETRIC PRESSURE
STATIC PRESSURE, (P_s)
FILTER NUMBER (s)

PROBE LENGTH AND TYPE
NOZZLE I.D.
ASSUMED MOISTURE, %
SAMPLE BOX NUMBER
METER BOX NUMBER
METER $\Delta H_@$
C FACTOR
PROBE HEATER SETTING
HEATER BOX SETTING
REFERENCE Δp

SCHEMATIC OF TRAVERSE POINT LAYOUT

READ AND RECORD ALL DATA EVERY ______ MINUTES

A0C139

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\,in}$), °F	DRY GAS METER TEMPERATURE OUTLET ($T_{m\,out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
1				.90			240					
2				.75			240					
3				.80			239					
NE 4				1.00			241					
5				1.00			241					
6				1.15			240					
7				1.50			240					
8				.80			241					
9				.60			241					
10				.50			240					
11				.55			240					
12				.65			228					
1				.60			236					
NW 2				.75			238					
3				.90			238					
4				1.10			238					
5				1.35			241					
6				1.50			241					
7				1.00			240					
8				.55			240					
9				.50			241					
10				.45			239					
11				.55			237					
12				.50			235					

COMMENTS:

1.086

239

EPA (Dur) 235
4/72

FIELD DATA

PLANT Holly Sugar
DATE 6/13/91
SAMPLING LOCATION Dryer # 1
SAMPLE TYPE Particulate
RUN NUMBER # 1
OPERATOR Marcotte
AMBIENT TEMPERATURE 62° F
BAROMETRIC PRESSURE 29.95
STATIC PRESSURE, (P_s) −0.70
FILTER NUMBER (s) 3.044 (3")

DRYER #1
PARTICULATE
RUN # 1

PROBE LENGTH AND TYPE #3 (5' s.s.)
NOZZLE I.D. 0.2450
ASSUMED MOISTURE, % 30%
SAMPLE BOX NUMBER WES #11
METER BOX NUMBER WES #11
METER $\Delta H_@$ WES #11
C FACTOR —
PROBE HEATER SETTING 250° F
HEATER BOX SETTING 250° F
REFERENCE Δp #5 (0–2")

446 ml
+ 9
= VLC

SCHEMATIC OF TRAVERSE POINT LAYOUT

prelealk ✓ < .005 cfm @ 15" READ AND RECORD ALL DATA EVERY 2½ MINUTES postleak ✓ < .005 cfm @ 15"

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft³	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
	0	10:23	000.251									
1		10:25½	001.630	0.70	1.15	1.15	242	62	62	3	254	61
2	5	10:28	002.935	0.60	0.98	0.98	246	64	62	3	258	52
3		10:30½	004.380	0.75	1.23	1.23	245	64	62	4	256	51
4	10	10:33	005.790	0.70	1.15	1.15	246	66	64	4	257	57
5		10:35½	007.160	0.65	1.07	1.07	243	66	64	4	258	61
6	15	10:38	008.700	0.85	1.41	1.41	242	69	64	5	259	62
7		10:40½	010.310	0.95	1.57	1.57	243	70	64	6	258	64
8	20	10:43	011.690	0.65	1.08	1.08	244	74	64	5	261	66
9		10:45½	013.205	0.80	1.34	1.34	243	76	66	5	261	67
10	25	10:48	014.845	0.95	1.59	1.59	243	78	68	6	259	66
11		10:50½	016.565	1.05	1.76	1.76	244	78	68	7	255	67
12	30	10:53	018.312	1.05	1.76	1.76	242	78	68	7	256	66
*	STOP	10:55	SWITCH PORTS *									*
1		10:57½	020.045	1.10	1.84	1.84	243	78	68	7	257	65
2	35	11:00	021.795	1.10	1.85	1.85	241	78	68	7	256	63
3		11:02½	023.440	0.95	1.60	1.60	240	80	70	6	258	64
4	40	11:05	025.060	0.90	1.52	1.52	241	81	71	6	257	65
5		11:07½	026.680	0.90	1.53	1.53	239	81	71	6	258	64
6	45	11:10	028.535	1.20	2.03	2.03	240	82	72	8	259	63
7		11:12½	030.545	1.40	2.37	2.37	241	82	72	10	257	65
8	50	11:15	032.675	1.55	2.63	2.63	239	82	72	11	258	64
9		11:17½	034.815	1.60	2.72	2.72	241	84	74	11	257	65
10	55	11:20	036.920	1.50	2.55	2.55	242	86	74	10	258	64
COMMENTS:		11:22½	039.010	1.50	2.55	2.55	241	86	74	10	256	66
12	60	11:25	041.150	1.50	2.57	2.57	239	86	76	10	258	67

(40.899)

EPA (Dur) 235
4/72

A00140

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Dryer 1
RUN: 1
DATE: June 13, 1991

GAS METER READING	VELOCITY HEAD	SQUARE ROOT		ORIFICE PRESSURE DELTA H		STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
0.251	0.7	0.836660		1.15		242	62	62
41.150	0.6	0.774596		0.98		246	64	62
---------	0.75	0.866025		1.23		245	64	62
40.899	0.7	0.836660		1.15		246	66	64
=========	0.65	0.806225		1.07		243	66	64
(DIFFERENCE)	0.85	0.921954		1.41		242	69	64
	0.95	0.974679		1.57		243	70	64
	0.65	0.806225		1.08		244	74	64
	0.8	0.894427		1.34		243	76	66
	0.95	0.974679		1.59		243	78	68
	1.05	1.024695		1.76		244	78	68
	1.05	1.024695		1.76		242	78	68
	1.1	1.048808		1.84		243	78	68
	1.1	1.048808		1.85		241	78	68
	0.95	0.974679		1.6		240	80	70
	0.9	0.948683		1.52		241	81	71
	0.9	0.948683		1.53		239	81	71
	1.2	1.095445		2.03		240	82	72
	1.4	1.183215		2.37		241	82	72
	1.55	1.244989		2.63		239	82	72
	1.6	1.264911		2.72		241	84	74
	1.5	1.224744		2.55		242	86	74
	1.5	1.224744		2.55		241	86	74
	1.5	1.224744		2.57		239	86	76
		---------	AVERAGE SQUARED					
	AVERAGE	1.007249	1.015	AVERAGE 1.74	AVERAGE	242.0833	AVERAGE	72.27
		=========	=========	============		=========		=========

A00121

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Dryer 1
RUN: 2
DATE: June 13, 1991

GAS METER READING	VELOCITY HEAD	SQUARE ROOT		ORIFICE PRESSURE DELTA H	STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
41.528	0.7	0.836660		1.23	216	76	76
82.123	0.75	0.866025		1.31	219	77	76
---------	0.7	0.836660		1.22	221	78	76
40.595	0.6	0.774596		1.05	220	78	76
=========	0.65	0.806225		1.13	219	78	76
(DIFFERENCE)	0.85	0.921954		1.48	220	78	77
	0.65	0.806225		1.14	219	80	76
	0.75	0.866025		1.31	220	82	76
	0.75	0.866025		1.31	219	82	76
	0.85	0.921954		1.49	218	83	76
	0.9	0.948683		1.59	219	84	78
	1	1		1.76	218	84	78
	1.05	1.024695		1.86	216	87	79
	1	1		1.77	219	87	79
	0.75	0.866025		1.33	220	88	80
	0.65	0.806225		1.15	219	88	80
	0.85	0.921954		1.51	218	88	80
	1.3	1.140175		2.31	217	88	80
	1.5	1.224744		2.66	219	88	80
	1.45	1.204159		2.58	218	89	81
	1.35	1.161895		2.4	217	89	81
	1.35	1.161895		2.4	218	89	81
	1.3	1.140175		2.31	219	91	81
	1.3	1.140175		2.31	217	91	81
		---------	AVERAGE SQUARED				
	AVERAGE	0.968464	0.938	AVERAGE 1.69	AVERAGE 218.5416	AVERAGE	81.31
		=========	=========	============	=========		=========

A0G142

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Dryer 1
RUN: 3
DATE: June 13, 1991

GAS METER READING	VELOCITY HEAD	SQUARE ROOT		ORIFICE PRESSURE DELTA H	STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
82.651	0.5	0.707106		0.88	215	75	75
121.555	0.55	0.741619		0.96	219	75	75
---------	0.65	0.806225		1.13	218	75	75
38.904	0.6	0.774596		1.04	220	75	75
=========	0.6	0.774596		1.05	219	77	75
(DIFFERENCE)	0.75	0.866025		1.31	220	77	75
	0.8	0.894427		1.39	220	77	73
	0.6	0.774596		1.05	218	77	73
	0.65	0.806225		1.13	219	77	73
	0.85	0.921954		1.48	218	77	73
	0.85	0.921954		1.48	217	77	73
	0.85	0.921954		1.48	217	77	73
	1	1		1.75	216	76	72
	1.05	1.024695		1.83	217	76	72
	0.95	0.974679		1.65	218	76	73
	0.6	0.774596		1.04	218	75	71
	0.8	0.894427		1.39	217	75	71
	1.3	1.140175		2.26	217	75	71
	1.25	1.118033		2.18	216	75	70
	1.25	1.118033		2.18	218	75	71
	1.3	1.140175		2.26	217	75	70
	1.3	1.140175		2.26	217	75	70
	1.3	1.140175		2.26	216	75	71
	1.3	1.140175		2.26	215	75	71
			AVERAGE SQUARED				
	AVERAGE	0.938192	0.880	AVERAGE 1.57	AVERAGE 217.5833	AVERAGE	74.17

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. ________ 2. ________
3. ________ 4. ________
Indicate by numbers in box under Sample column.

Holly Sugar
Dryer #1
Test #1

Requestor ________
JN ________
Assigned to ________
Date Assigned ________

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 108.3209	9.	SAMPLE NUMBER	Probe	1. 108.6583	9.
2. 108.3211	10.	FILTER OR CONTAINER #	4.3	2. 108.6556	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	108.6643	3. 108.6624	11.
4.	12.	FILTER OR CONTAINER TARE	108.3210	4. 108.6640	12.
5.	13.	SAMPLE	0.3433	5. 108.6646	13.
6.	14.			6. 108.6643	14.
7.	15.			7.	15.
8.	16.			8.	16.

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 0.3495	9.	SAMPLE NUMBER	Filter	1. 0.4222	9.
2. 0.3496	10.	FILTER OR CONTAINER #	3044	2. 0.4221	10.
3. 0.3497	11.	FILTER OR CONTAINER PLUS SAMPLE	.4220	3. 0.4216	11.
4.	12.	FILTER OR CONTAINER TARE	0.3496	4.	12.
5.	13.	SAMPLE	0.0724	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 107.1121	9.	SAMPLE NUMBER	Imp I	1. 107.2503	9.
2. 107.1118	10.	FILTER OR CONTAINER #	5.3	2. 107.2501	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	107.2499	3. 107.2494	11.
4.	12.	FILTER OR CONTAINER TARE	107.1120	4.	12.
5.	13.	SAMPLE	0.1379	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 107.2048	9.	SAMPLE NUMBER	Imp O	1. 107.2060	9.
2. 107.2046	10.	FILTER OR CONTAINER #	6.3	2. 107.2057	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	107.2061	3. 107.2067	11.
4.	12.	FILTER OR CONTAINER TARE	107.2047	4.	12.
5.	13.	SAMPLE	0.0941	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

FIELD DATA

PLANT HOLLY SUGAR
DATE 6/13/91
SAMPLING LOCATION DRYER # 1
SAMPLE TYPE PARTICULATE
RUN NUMBER # 2
OPERATOR MARCOTTE
AMBIENT TEMPERATURE 76° F
BAROMETRIC PRESSURE 29.95
STATIC PRESSURE, (P_s) -0.70
FILTER NUMBER (s) (3") 3,133

DRYER # 1
PARTICULATE
RUN # 2

PROBE LENGTH AND TYPE #3 (5' S.S.)
NOZZLE I.D. 0.2450 (S.S.)
ASSUMED MOISTURE, % 30%
SAMPLE BOX NUMBER WES #11
METER BOX NUMBER WES #11
METER $\Delta H_@$ WES #11
C FACTOR –
PROBE HEATER SETTING 250° F
HEATER BOX SETTING 250° F
REFERENCE Δp # 5 (0-2")

368 ml
\+ 9
= VLC

SCHEMATIC OF TRAVERSE POINT LAYOUT

preleak ✓ < .020 cfm @ 15" READ AND RECORD ALL DATA EVERY 2½ MINUTES postleak ✓ < .020 cfm @ 15"

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
	0	1:27	041.528									
1		1:29½	042.935	0.70	1.23	1.23	216	76	76	3	265	64
2	5	1:32	044.440	0.75	1.31	1.31	219	77	~~76~~ 76	4	262	62
3		1:34½	045.895	0.70	1.22	1.22	221	78	76	3	261	50
4	10	1:37	047.255	0.60	1.05	1.05	220	78	76	3	260	51
5		1:39½	048.660	0.65	1.13	1.13	219	78	76	4	262	52
6	15	1:42	050.205	0.85	1.48	1.48	220	78	77	4	261	52
7		1:44½	051.660	0.65	1.14	1.14	219	80	76	4	258	55
8	20	1:47	053.170	0.75	1.31	1.31	220	82	76	4	257	56
9		1:49½	054.670	0.75	1.31	1.31	219	82	76	4	258	56
10	25	1:52	056.250	0.85	1.49	1.49	218	83	76	5	258	58
11		1:54½	057.920	0.90	1.59	1.59	219	84	78	5	257	58
12	30	1:57	059.664	1.00	1.76	1.76	218	84	78	5	258	57
*	STOP	1:59	SWITCH PORTS *									*
1		2:01½	061.425	1.05	1.86	1.86	216	87	79	5	256	56
2	35	2:04	063.165	1.00	1.77	1.77	219	87	79	5	257	60
3		2:06½	064.670	0.75	1.33	1.33	220	88	80	4	258	59
4	40	2:09	066.080	0.65	1.15	1.15	219	88	80	4	256	60
5		2:11½	067.685	0.85	1.51	1.51	218	88	80	5	257	61
6	45	2:14	069.680	1.30	2.31	2.31	217	88	80	7	256	61
7		2:16½	071.815	1.50	2.66	2.66	219	88	80	8	257	60
8	50	2:19	073.930	1.45	2.58	2.58	218	89	81	8	258	61
9		2:21½	075.980	1.35	2.40	2.40	217	89	81	8	254	61
10	55	2:24	078.045	1.35	2.40	2.40	218	89	81	8	255	61
11		2:26½	080.080	1.30	2.31	2.31	219	91	81	8	254	65
12	60	2:29	082.123	1.30	2.31	2.31	217	91	81	8	256	64

40.595

COMMENTS:

EPA (Dur) 235
4/72

A06145

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. ______ 2. ______
3. ______ 4. ______
Indicate by numbers in box under Sample column.

Holly Sugar
Dryer #1
Test #2

Requestor ______
JN ______
Assigned to ______
Date Assigned ______

ALL WEIGHTS IN GRAMS

TARE WEIGHT		SAMPLE NUMBER	FILTER OR CONTAINER #	TARE + SAMPLE WEIGHT	
1. 105.9381	9.	Probe	7.3	1. 106.4753	9.
2. 105.9381	10.			2. 106.4803	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	106.4799	3. 106.4793	11.
4.	12.			4. 106.4823	12.
5.	13.	FILTER OR CONTAINER TARE	105.9381	5. 106.4837	13.
6.	14.			6. 106.4801	14.
7.	15.	SAMPLE	0.5418	7.	15.
8.	16.			8.	16.

TARE WEIGHT		SAMPLE NUMBER	FILTER OR CONTAINER #	TARE + SAMPLE WEIGHT	
1. 0.3556	9.	Filter	3.133	1. 0.4033	9.
2. 0.3558	10.			2. 0.4029	10.
3. 0.3557	11.	FILTER OR CONTAINER PLUS SAMPLE	.4029	3. 0.4026	11.
4.	12.			4.	12.
5.	13.	FILTER OR CONTAINER TARE	0.3557	5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE	0.0472	7.	15.
8.	16.			8.	16.

TARE WEIGHT		SAMPLE NUMBER	FILTER OR CONTAINER #	TARE + SAMPLE WEIGHT	
1. 104.4433	9.	Imp I	8.3	1. 104.4981	9.
2. 104.4436	10.			2. 104.5000	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	104.5003	3. 104.5002	11.
4.	12.			4. 104.5007	12.
5.	13.	FILTER OR CONTAINER TARE	104.4435	5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE	0.0568	7.	15.
8.	16.			8.	16.

TARE WEIGHT		SAMPLE NUMBER	FILTER OR CONTAINER #	TARE + SAMPLE WEIGHT	
1. 107.8909	9.	Imp O	9.3	1. 107.8921	9.
2. 107.8908	10.			2. 107.8917	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	107.8922	3. 107.8927	11.
4.	12.			4.	12.
5.	13.	FILTER OR CONTAINER TARE	107.8909	5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE	0.0013	7.	15.
8.	16.			8.	16.

FIELD DATA

PLANT HOLLY SUGAR
DATE 6/13/91
SAMPLING LOCATION DRYER #1
SAMPLE TYPE PARTICULATE
RUN NUMBER #3
OPERATOR MARCOTTE
AMBIENT TEMPERATURE
BAROMETRIC PRESSURE 29.95
STATIC PRESSURE, (P_s) -0.70
FILTER NUMBER (s) 3.132 (3")

DRYER #1
PARTICULATE
RUN #3

PROBE LENGTH AND TYPE #3 (5' s.s)
NOZZLE I.D. 0.2450
ASSUMED MOISTURE, % 30%
SAMPLE BOX NUMBER WES #11
METER BOX NUMBER WES #11
METER $\Delta H_@$ WES #11
C FACTOR
PROBE HEATER SETTING 250°F
HEATER BOX SETTING 250°F
REFERENCE Δp #5 (0-2")

348 ml
+ 9
= VLC

SCHEMATIC OF TRAVERSE POINT LAYOUT

preleak ✓ < .015 cfm @ 15" READ AND RECORD ALL DATA EVERY 2½ MINUTES postleak ✓ < .010 cfm @ 15"

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft³	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
	0	3:32	082.651									
1		3:34½	083.905	0.50	0.88	0.88	215	75	75	3	248	62
2	5	3:37	085.225	0.55	0.96	0.96	219	75	75	3	256	62
3		3:39½	086.630	0.65	1.13	1.13	218	75	75	3	252	55
4	10	3:42	087.975	0.60	1.04	1.04	220	75	75	3	255	55
5		3:44½	089.365	0.60	1.05	1.05	219	77	75	3	257	58
6	15	3:47	090.850	0.75	1.31	1.31	220	77	75	3	256	61
7		3:49½	092.400	0.80	1.39	1.39	220	77	73	4	258	62
8	20	3:52	093.780	0.60	1.05	1.05	218	77	73	3	256	62
9		3:54½	095.180	0.65	1.13	1.13	219	77	73	3	262	66
10	25	3:57	096.760	0.85	1.48	1.48	218	77	73	4	261	65
11		3:59½	098.335	0.85	1.48	1.48	217	77	73	4	258	66
12	30	4:02	099.941	0.85	1.48	1.48	217	77	73	4	256	64
*	STOP	4:04	SWITCH PORTS									*
1		4:06½	101.635	1.00	1.75	1.75	216	76	72	7	263	65
2	35	4:09	103.380	1.05	1.83	1.83	217	76	72	10	257	63
3		4:11½	105.055	0.95	1.65	1.65	218	76	73	9	256	62
4	40	4:14	106.425	0.60	1.04	1.04	218	75	71	6	256	64
5		4:16½	107.940	0.80	1.39	1.39	217	75	71	8	258	66
6	45	4:19	109.885	1.30	2.26	2.26	217	75	71	13	256	65
7		4:21½	111.840	1.25	2.18	2.18	216	75	70	13	257	66
8	50	4:24	113.755	1.25	2.18	2.18	218	75	71	13	259	67
9		4:26½	115.720	1.30	2.26	2.26	217	75	70	14	255	68
10	55	4:29	117.680	1.30	2.26	2.26	217	75	70	14	258	66
11		4:31½	119.670	1.30	2.26	2.26	216	75	71	14	256	65
12	60	4:34	121.555	1.30	2.26	2.26	215	75	71	14	254	64

38.904

COMMENTS:

EPA (Dur) 235
4/72

A00147

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1.______ 2.______
3.______ 4.______
Indicate by numbers in box under Sample column.

Holly. Sugar
Dryer # 1
Test # 3

Requestor ______
JN ______
Assigned to ______
Date Assigned ______

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 107.5616	9.	Probe	10.3	1. 107.8172	9.
2. 107.5611	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 107.8212	10.
3.	11.			3. 107.8196	11.
4.	12.	FILTER OR CONTAINER PLUS SAMPLE	107.8194	4. 107.8195	12.
5.	13.	FILTER OR CONTAINER TARE	107.5614	5. 107.8191	13.
6.	14.			6.	14.
7.	15.	SAMPLE	0.2580	7.	15.
8.	16.			8.	16.

1. 0.3555	9.	Filter	3132	1. 0.4100	9.
2. 0.3553	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 0.4106	10.
3. 0.3556	11.			3. 0.4100	11.
4.	12.	FILTER OR CONTAINER PLUS SAMPLE	.4102	4.	12.
5.	13.	FILTER OR CONTAINER TARE	0.3555	5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE	0.0547	7.	15.
8.	16.			8.	16.

1. 110.1236	9.	Imp I	11.3	1. 110.1552	9.
2. 110.1234	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 110.1558	10.
3.	11.			3. 110.1558	11.
4.	12.	FILTER OR CONTAINER PLUS SAMPLE	110.1556	4.	12.
5.	13.	FILTER OR CONTAINER TARE	110.1235	5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE	0.0321	7.	15.
8.	16.			8.	16.

1. 103.5753	9.	Imp O	12.3	1. 103.5753	9.
2. 103.5752	10.	SAMPLE NUMBER	FILTER OR CONTAINER #	2. 103.5750	10.
3.	11.			3. 103.5755	11.
4.	12.	FILTER OR CONTAINER PLUS SAMPLE	103.5753	4.	12.
5.	13.	FILTER OR CONTAINER TARE	103.5753	5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE	Ø	7.	15.
8.	16.			8.	16.

FIELD DATA

PLANT Holly Sugar
DATE June 6, 91
SAMPLING LOCATION South Stack Dryer #1
SAMPLE TYPE Velocity /temp. Traverse
RUN NUMBER #3
OPERATOR
AMBIENT TEMPERATURE
BAROMETRIC PRESSURE
STATIC PRESSURE, (P_s)
FILTER NUMBER (s)

PROBE LENGTH AND TYPE
NOZZLE I.D.
ASSUMED MOISTURE, %
SAMPLE BOX NUMBER
METER BOX NUMBER
METER $\Delta H_@$
C FACTOR
PROBE HEATER SETTING
HEATER BOX SETTING
REFERENCE Δp

SCHEMATIC OF TRAVERSE POINT LAYOUT

READ AND RECORD ALL DATA EVERY ______ MINUTES

NE

A0C149

NW

TRAVERSE POINT NUMBER	SAMPLING TIME, min / CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\ in}$), °F	OUTLET ($T_{m\ out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
1			.55			218					
2			.70			218					
3			.75			218					
4			.85			218					
5			.70			219					
6			1.00			219					
7			1.20			220					
8			.90			220					
9			.45			220					
10			40			220					
11			.35			220					
12			.50			220					
1			.35			200					
2			.45			216					
3			.35			219					
4			.35			219					
5			.60			220					
6			.75			219					
7			1.30			220					
8			1.15			221					
9			1.15			220					
10			1.00			219					
11			.75			219					
COMMENTS: 12			.70			220					

.704

218

EPA (Dur) 235
4/72

**** LOG GRP 1 **** UNIT HOLLY **** STARTS AT 08:35:55 **** ENDS AT 08:36:01 JUN 13,91 ****

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	221.5	NOX		PPM	02	6.07	O2		*	03	1.0	CO		PPM	04	8.36	CO2		%
05	.0	SO2		PPM															

05-E 03-C

**** LOG GRP 1 **** UNIT HOLLY **** STARTS AT 08:33:36 **** ENDS AT 08:33:42 JUN 13,91 ****

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	.1	NOX		PPM	02	5.20	O2		*	03	494.7	CO		PPM	04	[illegible]	CO2		%
05	.0	SO2		PPM															

0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0CO

02-B 04-D

**** LOG GRP 1 **** UNIT HOLLY **** STARTS AT 08:31:16 **** ENDS AT 08:31:[illegible] JUN 13,91 ****

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	94.7	NOX		PPM	02	6.69	O2		*	03	.1	CO		PPM	04	[illegible]	CO2		%
05	.1	SO2		PPM															

03-C 05-E 04-A

**** LOG GRP 1 **** UNIT HOLLY **** STARTS AT 08:28:07 **** ENDS AT 08:28:[illegible] JUN 13,91 ****

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	.1	NOX		PPM	02	14.58	O2		*	03	222.6	CO		PPM	04	[illegible]	CO2		%
05	.2	SO2		PPM															

*** PRINTER ON 08:28:06 JUN 13,91 ***
*** PRINTER OFF 07:27:36 JUN 13,91 ***

*** SYSTEM RESTART 07:27:30 JUN 13,91 ***

*** PRINTER OFF 17:14:40 JUN 12,91 ***

02-B 05-E 03-C

**** LOG GRP 1 **** UNIT HOLLY **** STARTS AT 17:13:55 **** ENDS AT 17:13:55 JUN 12,91 ****

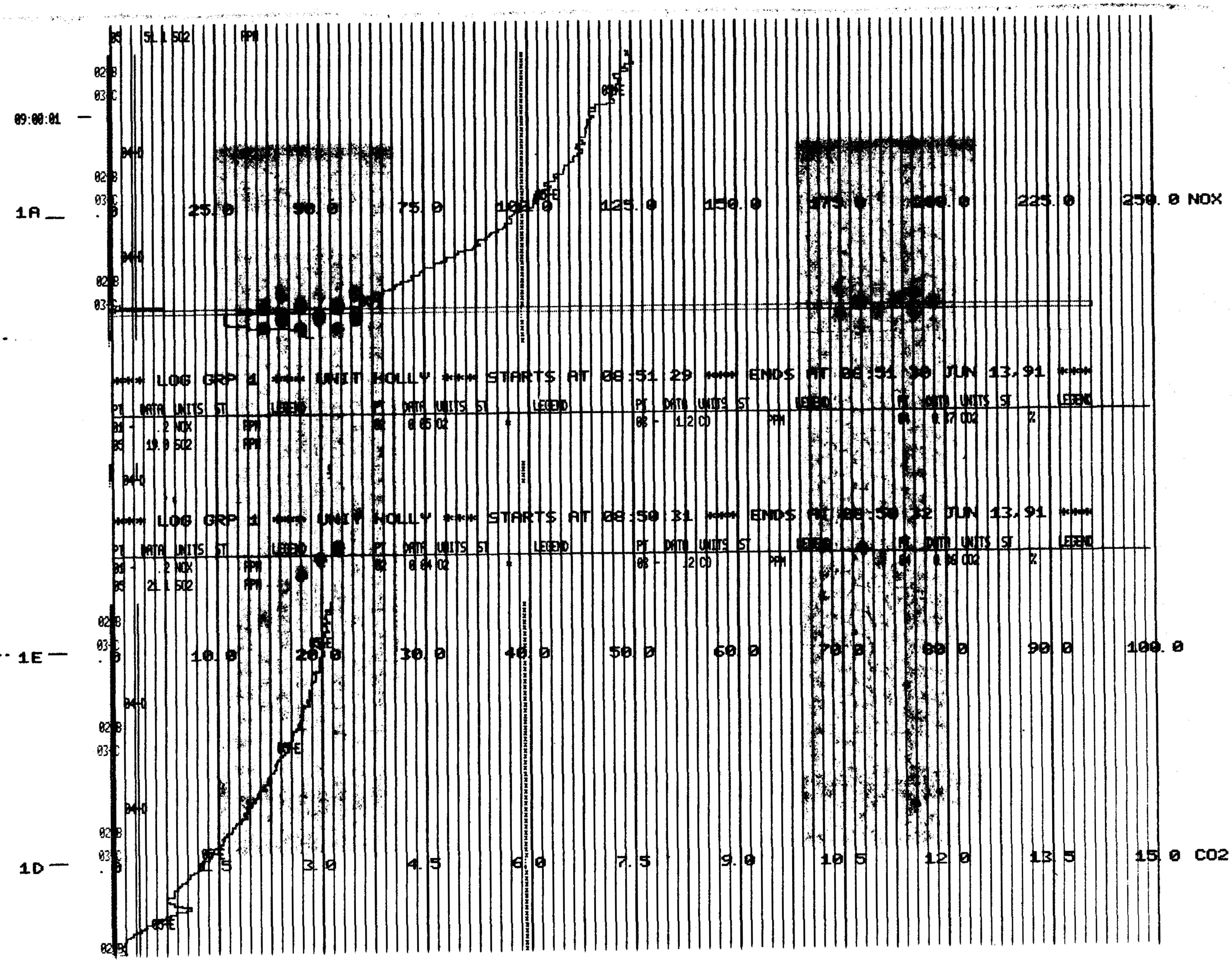
PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	.0	NOX		PPM	02	6.63	O2		*	03	947.1	CO		PPM	04	8.39	CO2		%
05	51.2	SO2		PPM															

1C —

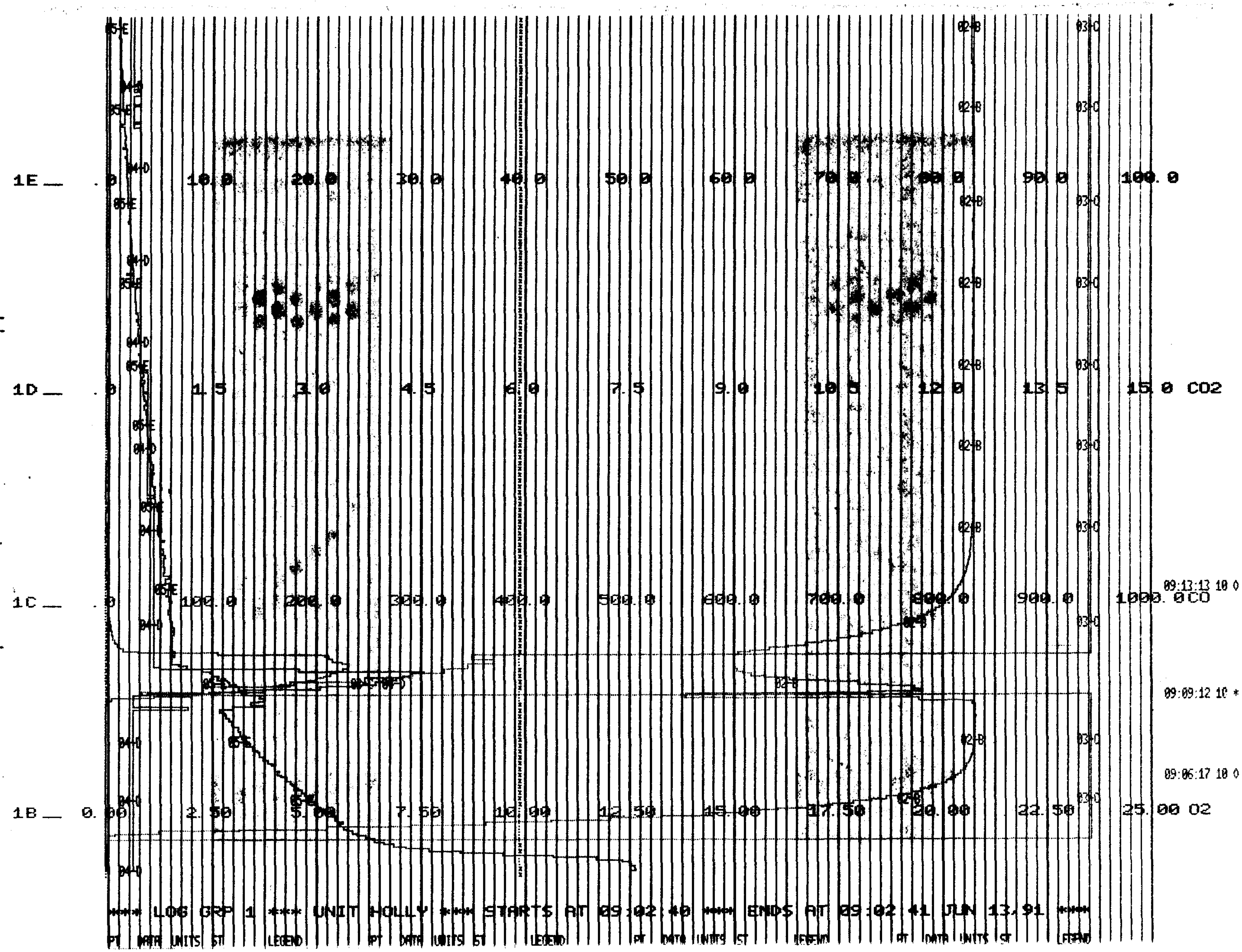
A0G150

Begin Dryer ecs

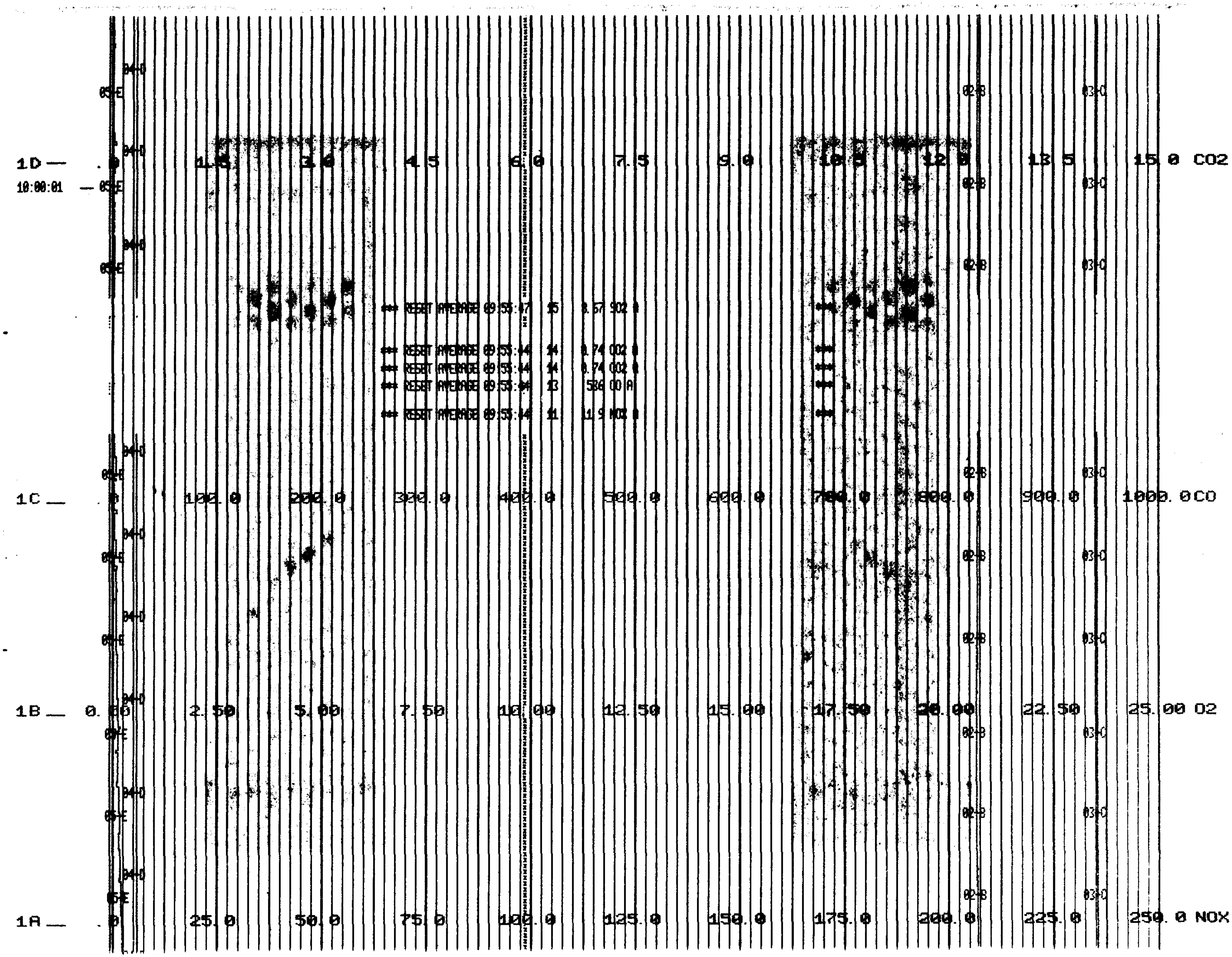
End of Dryer 2


09:00:01
1A
1E
1D
05 5L.1 SO2 PPM
25.0 50.0 75.0 100.0 125.0 150.0 175.0 200.0 225.0 250.0 NOX
**** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 08:51:29 **** ENDS AT JUN 13,91 ****
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 - .2 NOX PPM 02 0.05 O2 * 03 - 1.2 CO PPM 04 CO2 %
05 19.0 SO2 PPM
**** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 08:50:31 **** ENDS AT JUN 13,91 ****
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 - .2 NOX PPM 02 0.04 O2 * 03 - .2 CO PPM 04 CO2 %
05 21.1 SO2 PPM
10.0 20.0 30.0 40.0 50.0 60.0 70.0 80.0 90.0 100.0
1.5 3.0 4.5 6.0 7.5 9.0 10.5 12.0 13.5 15.0 CO2

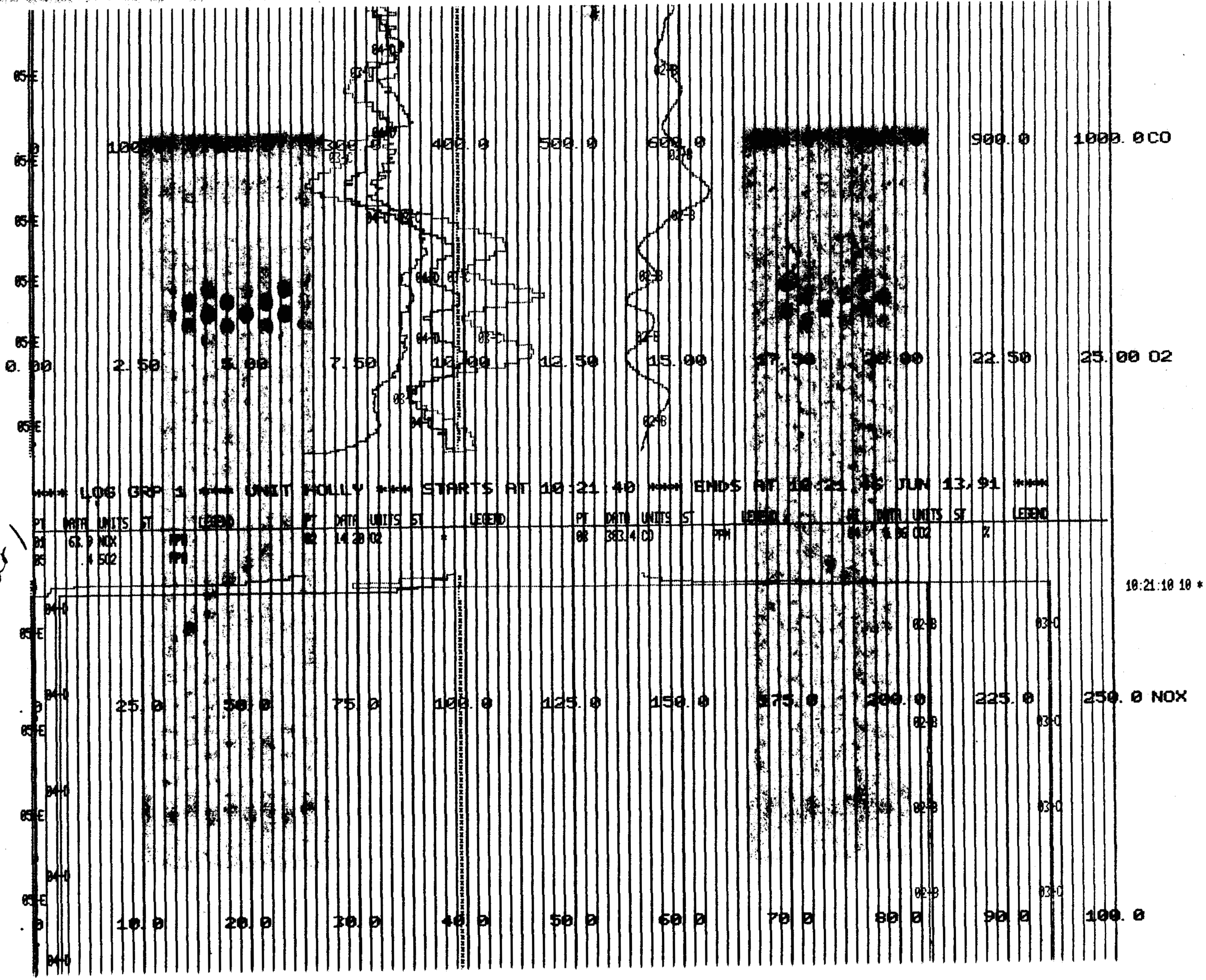
A0C151


1E
0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
1D
0
1.5
3.0
4.5
6.0
7.5
9.0
10.5
12.0
13.5
15.0 CO2
1C
0
100.0
200.0
300.0
400.0
500.0
600.0
700.0
800.0
900.0
1000.0 CO
09:13:13 10 0
09:09:12 10 *
09:06:17 10 0
1B
0.00
2.50
5.00
7.50
10.00
12.50
15.00
17.50
20.00
22.50
25.00 O2
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 09:02:40 *** ENDS AT 09:02:41 JUN 13,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND

A0C152

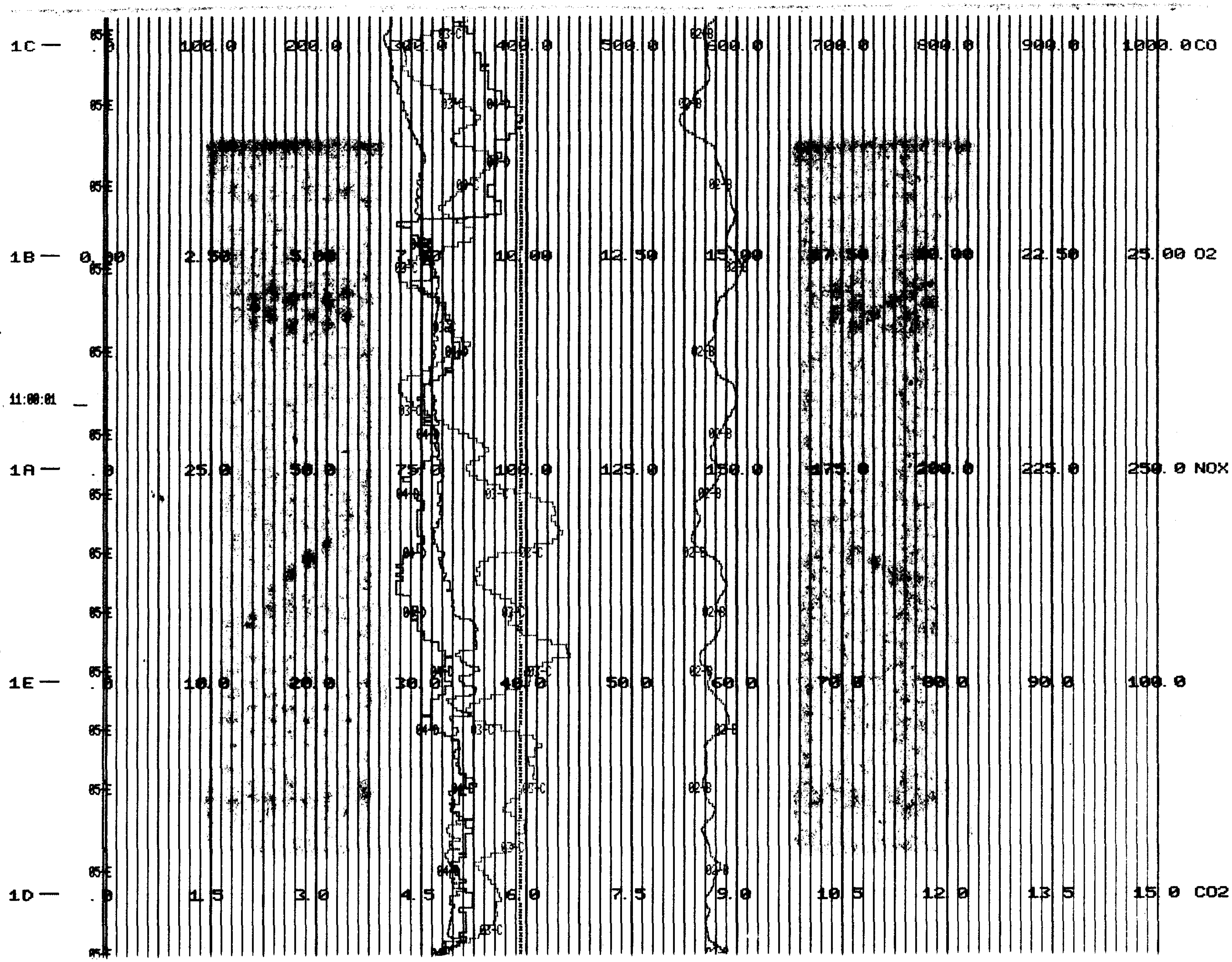

1D
10:00:01
1C
1B
1A
.0 1.5 3.0 4.5 6.0 7.5 9.0 10.5 12.0 13.5 15.0 CO2
.0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 O2
.0 25.0 50.0 75.0 100.0 125.0 150.0 175.0 200.0 225.0 250.0 NOX
*** RESET AVERAGE 09:55:47 15 8.57 S02 0
*** RESET AVERAGE 09:55:44 14 0.74 C02 0
*** RESET AVERAGE 09:55:44 14 0.74 C02 0
*** RESET AVERAGE 09:55:44 13 586 CO A
*** RESET AVERAGE 09:55:44 11 11.9 NOX 0

A0G153

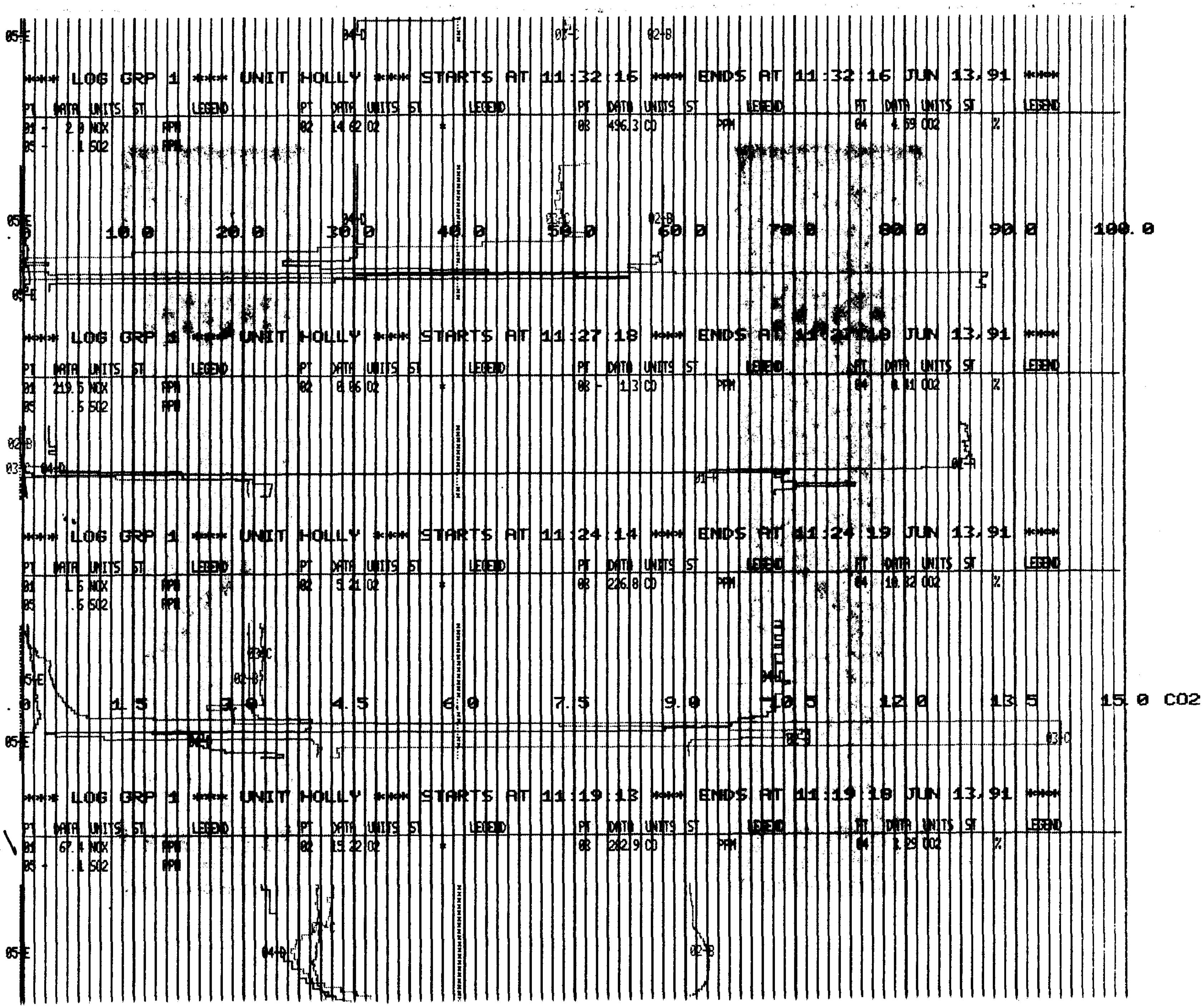


A0G154

Begin Test 7 Boyer 1

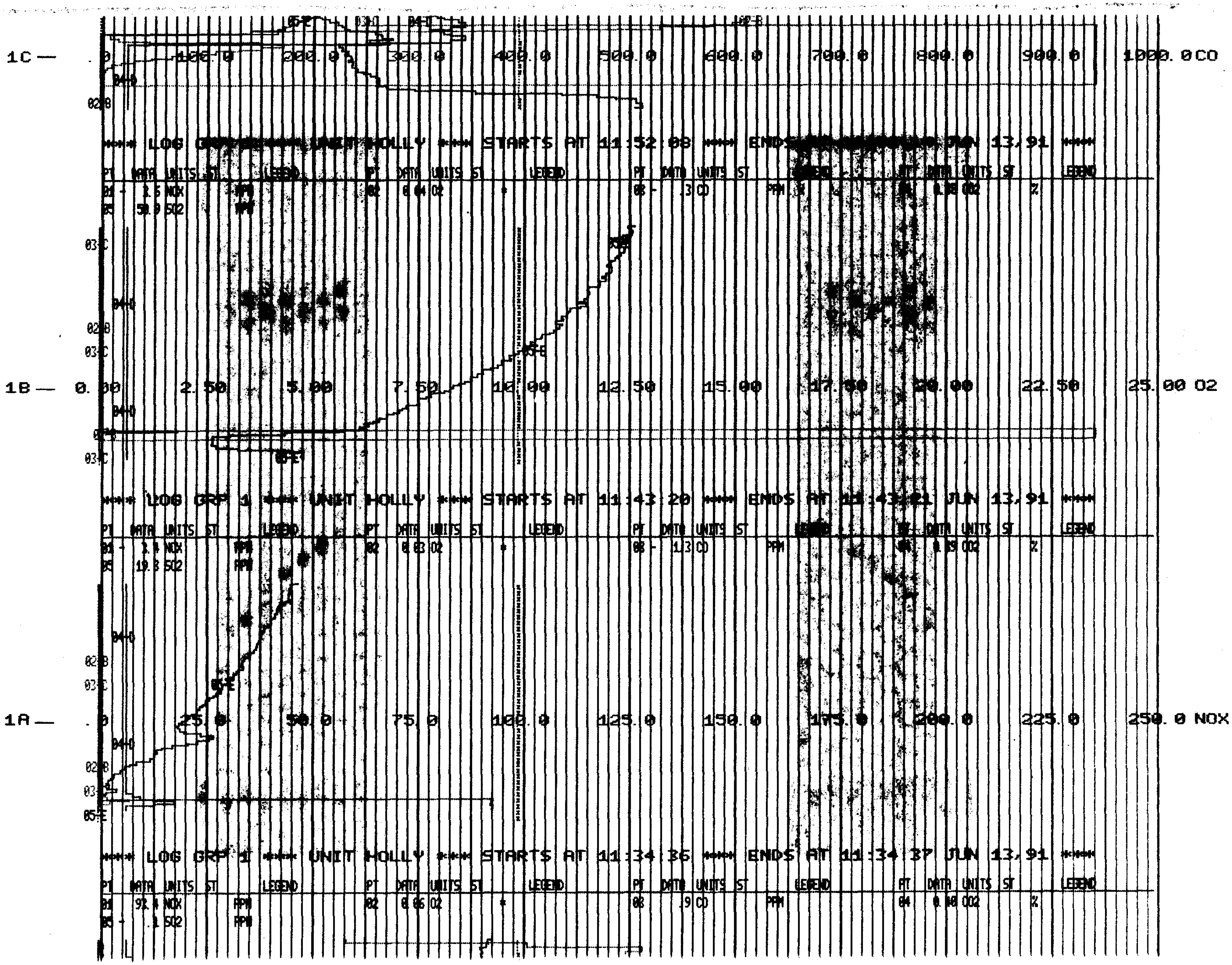


A00155

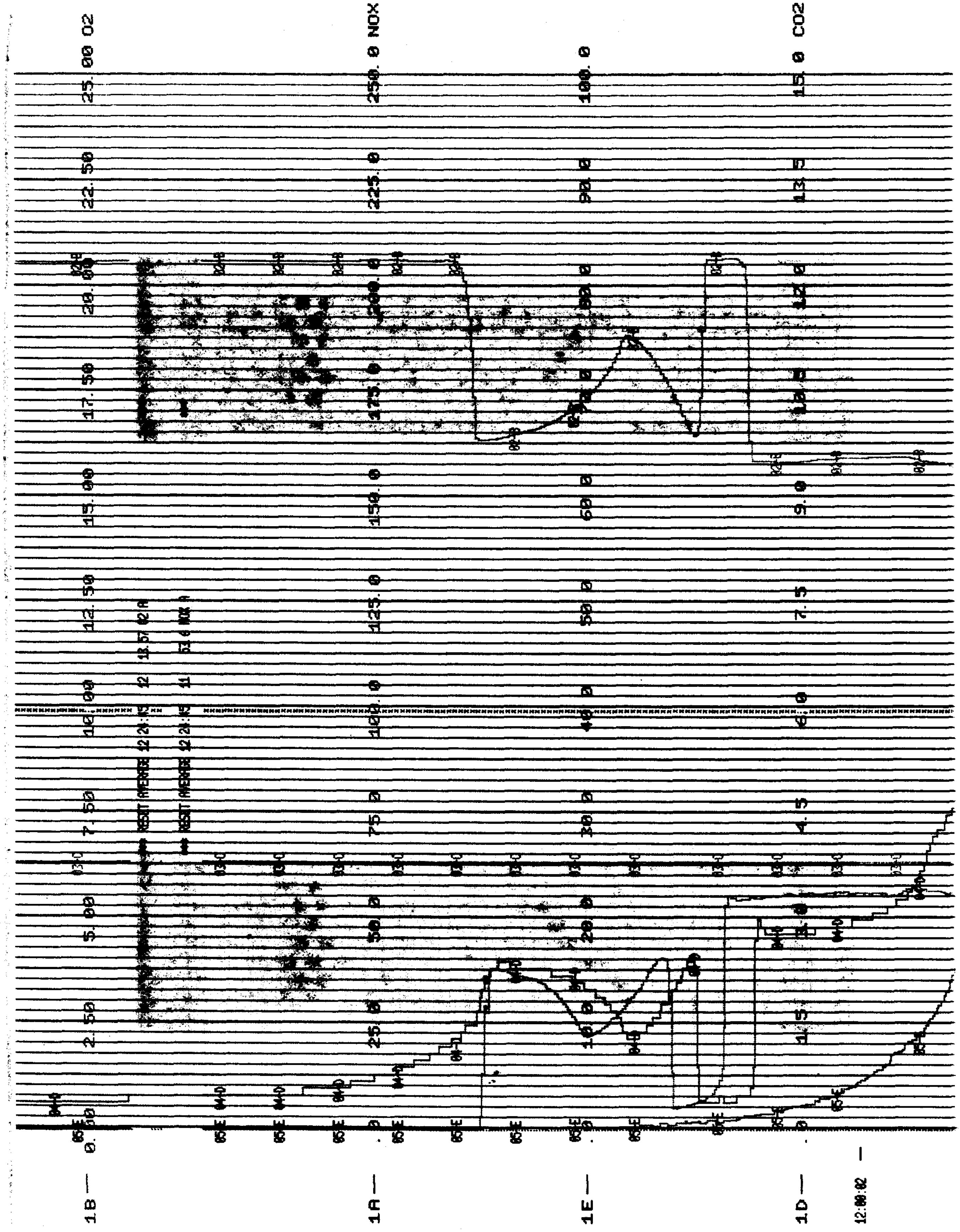


End Test 1 Boiler 1

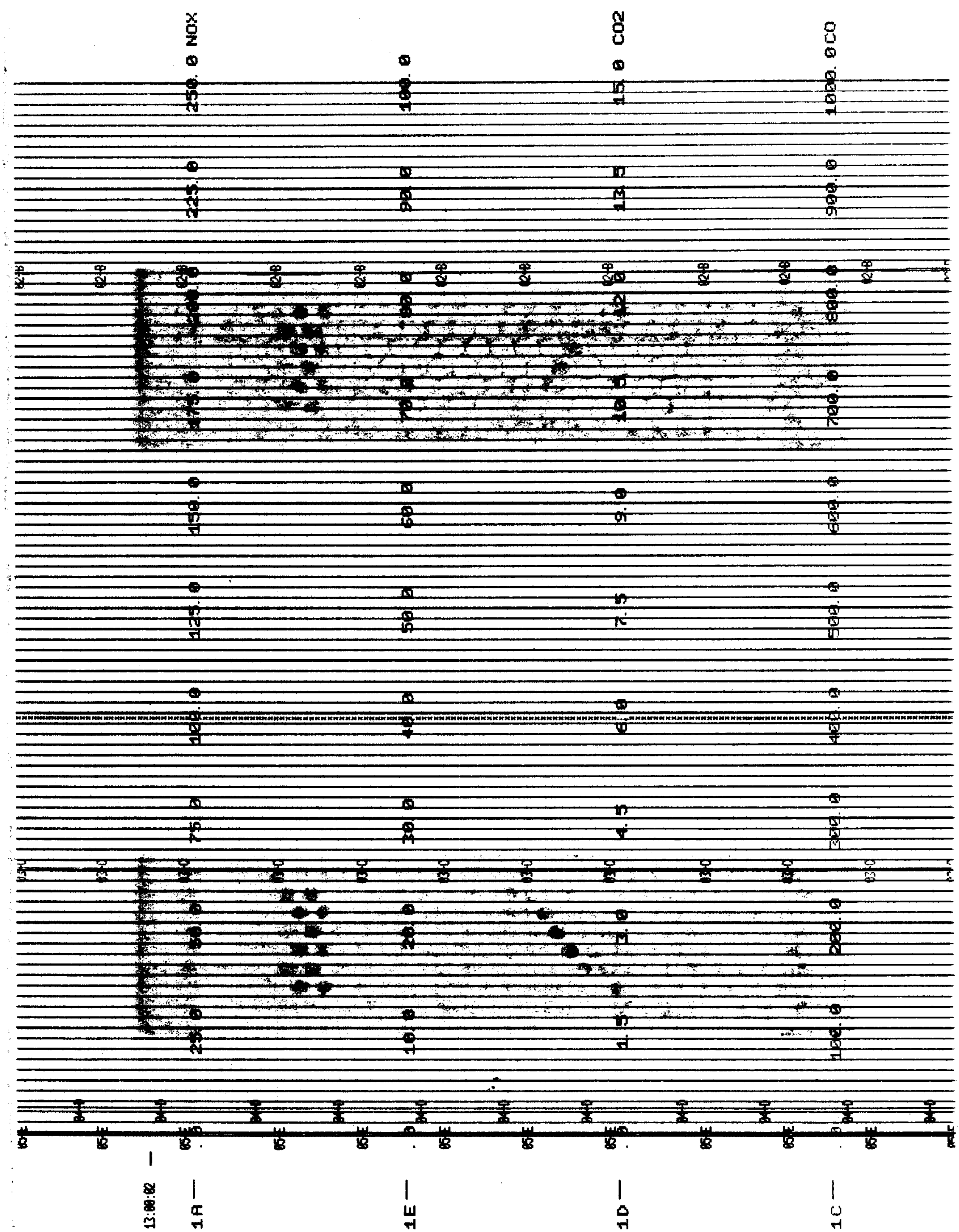
AOG156


1C — 0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:52:08 *** ENDS AT JUN 13, 91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 - 2.5 NOX PPM 02 0.04 O2 * 03 - .3 CO PPM 04 CO2 %
05 50.9 SO2 PPM
1B — 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 O2
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:43:20 *** ENDS AT 11:43:21 JUN 13, 91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 - 3.4 NOX PPM 02 0.03 O2 * 03 - 1.3 CO PPM 04 CO2 %
05 19.3 SO2 PPM
1A — 0 25.0 50.0 75.0 100.0 125.0 150.0 175.0 200.0 225.0 250.0 NOX
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:34:36 *** ENDS AT 11:34:37 JUN 13, 91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 93.4 NOX PPM 02 0.06 O2 * 03 .9 CO PPM 04 0.10 CO2 %
05 - .1 SO2 PPM

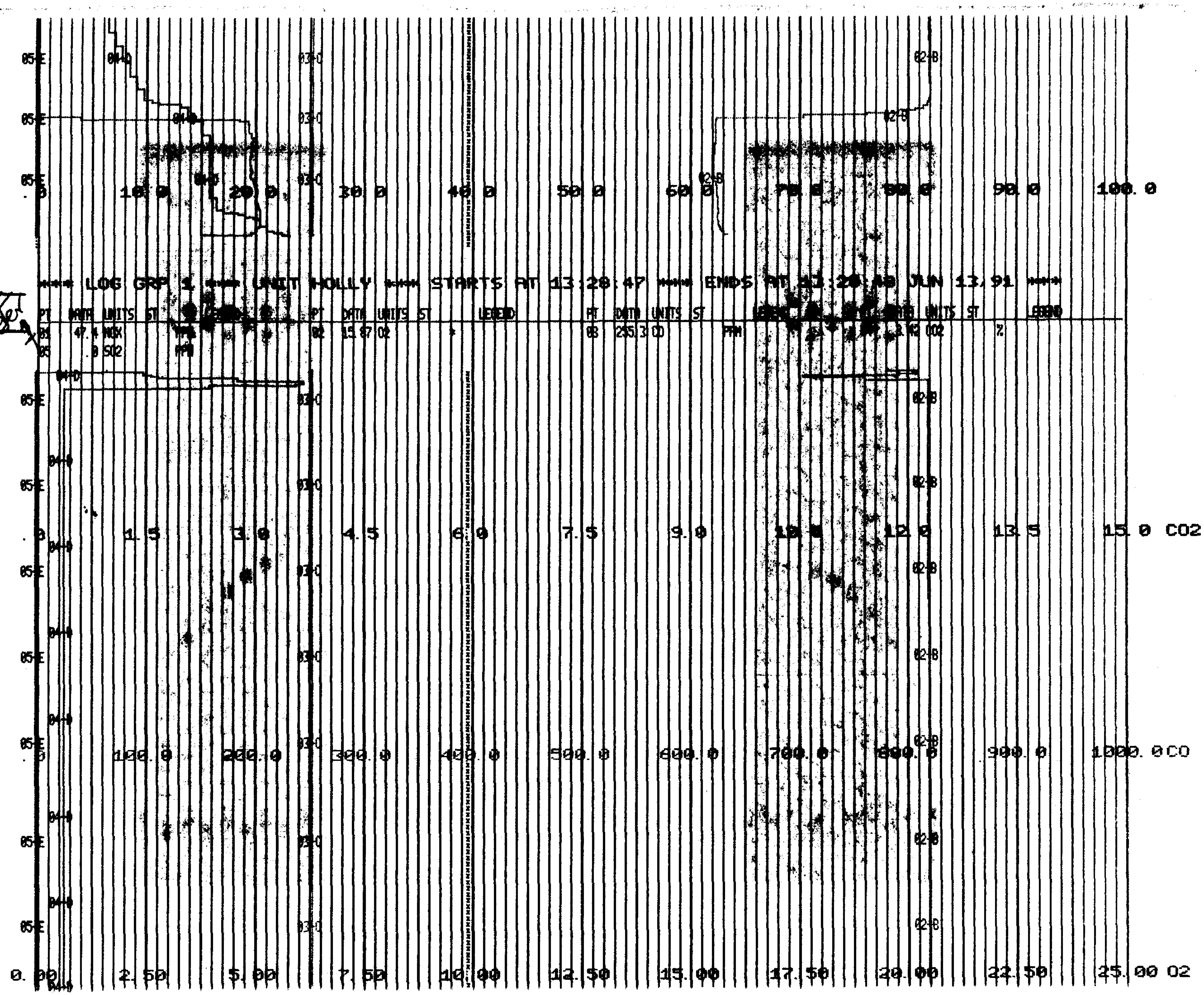
A00157


25.00 O2
22.50
20.00
17.50
15.00
12.50
10.00
7.50
5.00
2.50
0.00
250.0 NOX
225.0
200.0
175.0
150.0
125.0
100.0
75.0
50.0
25.0
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
15.0 CO2
13.5
12.0
10.5
9.0
7.5
6.0
4.5
3.0
1.5
TEST AVERAGE 12 24.93 12 13.57 O2 A
TEST AVERAGE 12 24.93 11 53.6 NOX A
1B
1A
1E
1D
12:00:02

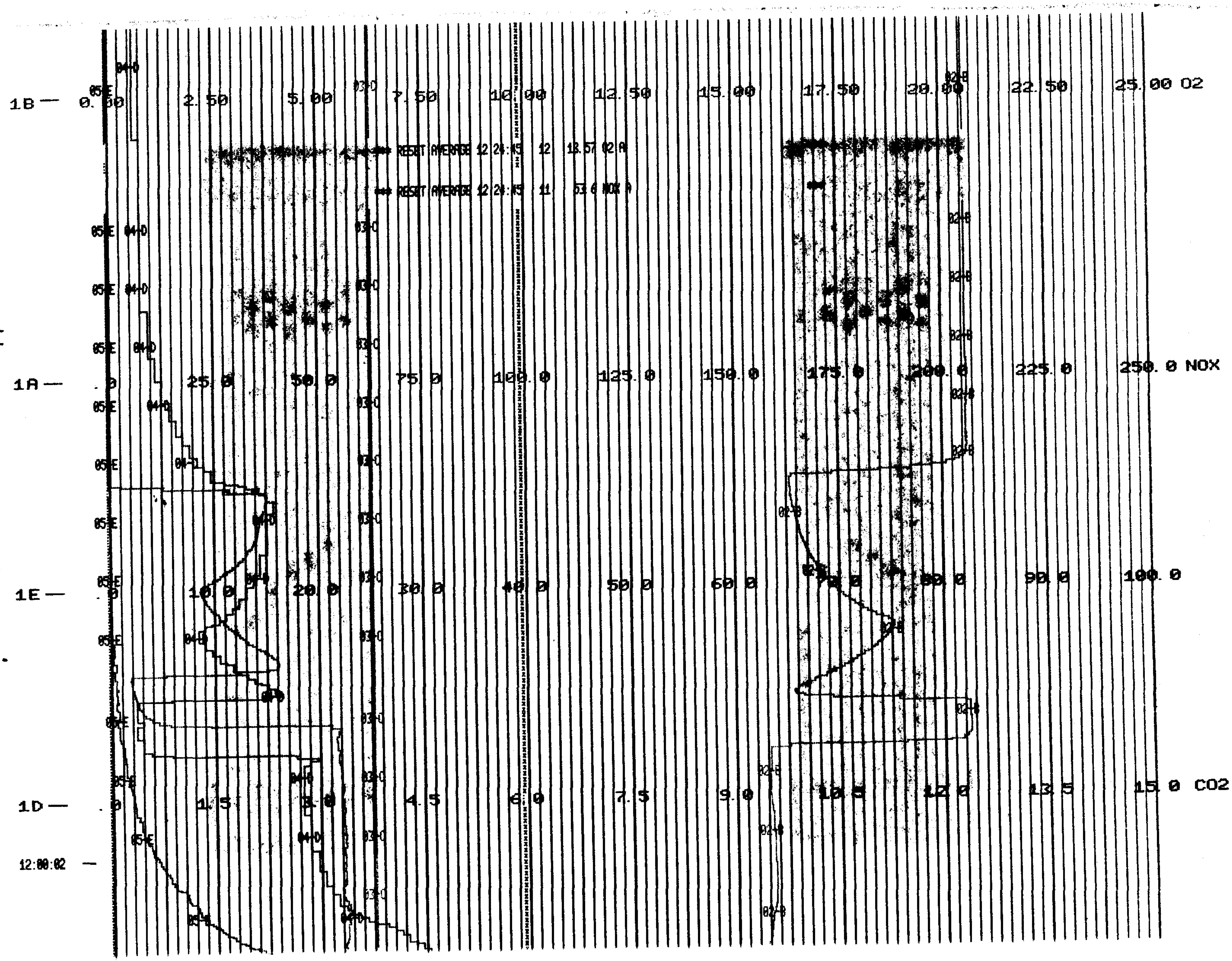
A00158



A0G159


**** LOG GRP 1 **** UNIT HOLLY **** STARTS AT 13:28:47 **** ENDS AT 13:28:48 JUN 13, 91 ****
PT DATA UNITS ST LEGEND
01 47.4 NOX PPM
05 .0 SO2 PPM
02 15.87 O2 %
03 235.3 CO PPM
3.42 CO2 %
0 10.0 20.0 30.0 40.0 50.0 60.0 70.0 80.0 90.0 100.0
0 1.5 3.0 4.5 6.0 7.5 9.0 10.5 12.0 13.5 15.0 CO2
0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 O2
1E
1D
1C
1B

A0G160


1B
0.00
2.50
5.00
7.50
10.00
12.50
15.00
17.50
20.00
22.50
25.00 O2
RESET AVERAGE 12 24:45 12 13.57 O2 A
RESET AVERAGE 12 24:45 11 51.6 NOX A
1A
0
25.0
50.0
75.0
100.0
125.0
150.0
175.0
200.0
225.0
250.0 NOX
1E
0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
1D
0
1.5
3.0
4.5
6.0
7.5
9.0
10.5
12.0
13.5
15.0 CO2
12:00:02

A00158

EMISSION PERFORMANCE TESTING OF FOUR BOILERS, THREE DRYRERS AND ONE COOLER

Book 2 of 2

SITE: HOLLY SUGAR CORPORATION

Santa Maria, California

DATE: JUNE 1991

Prepared For:

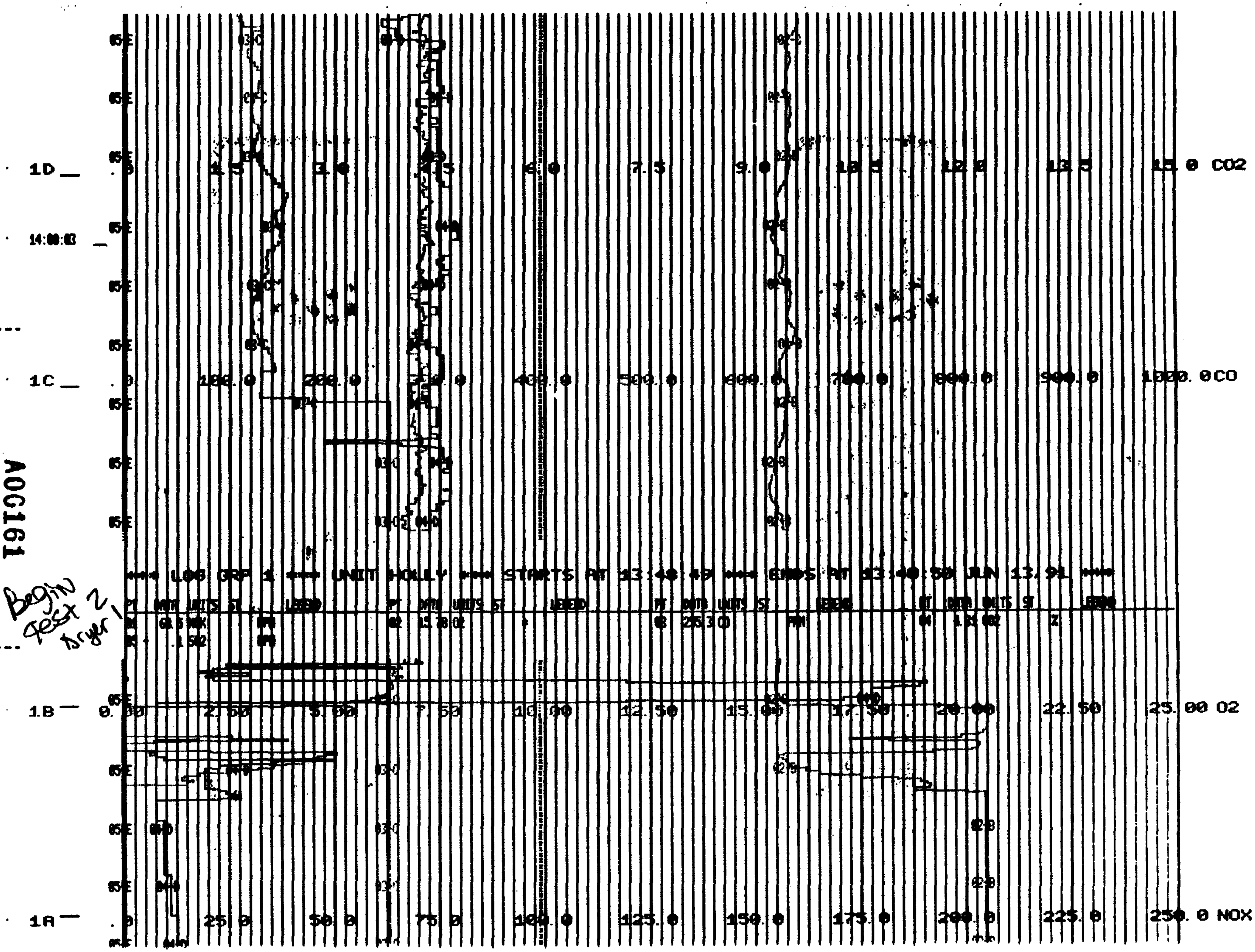
HOLLY SUGAR CORPORATION
2820 W. Betteravia Road
Santa Maria, California 93455

Contact: Ralph Medema
(805) 925-8633

Prepared By:

THOMAS ROONEY
(213) 540-4676

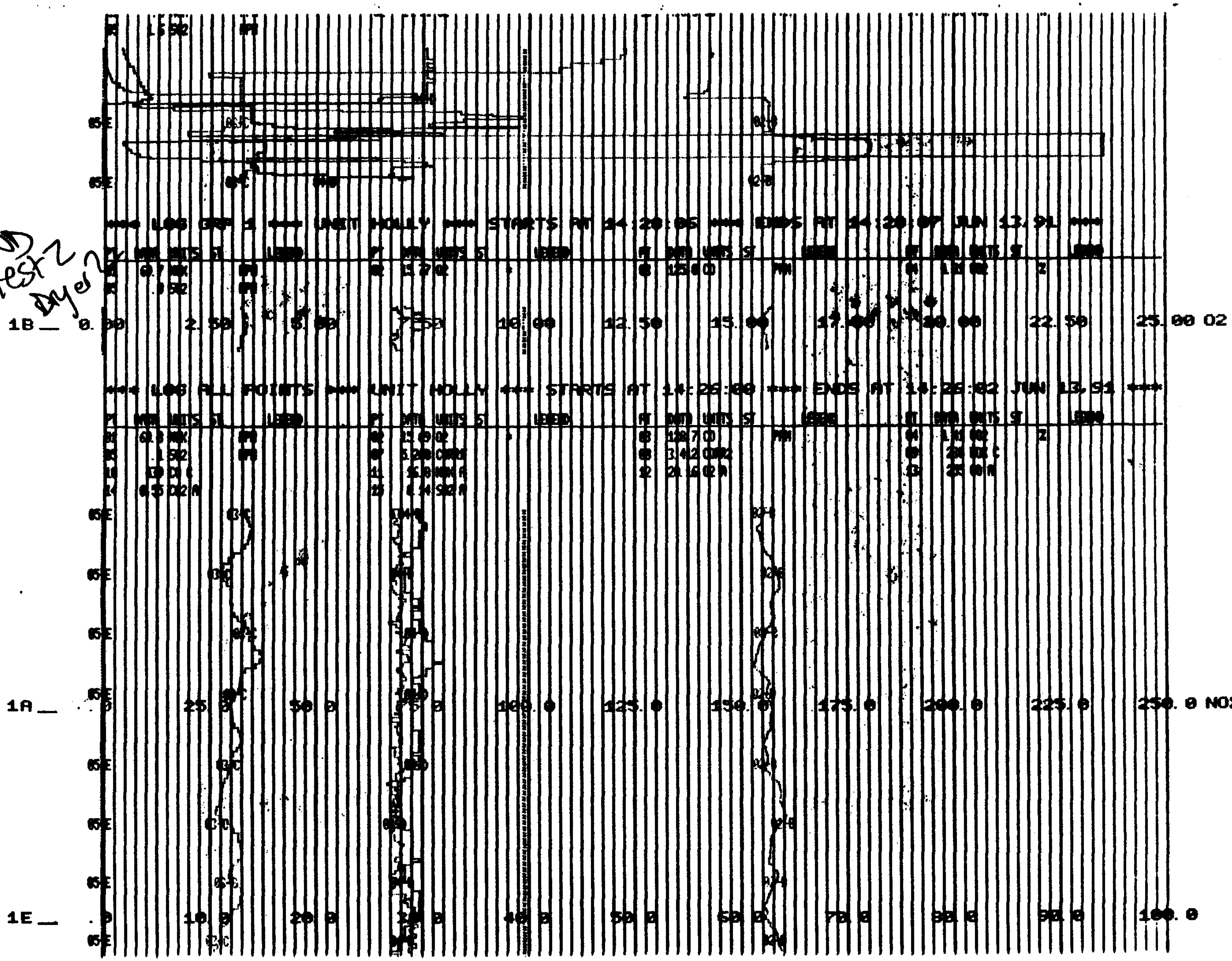
WESTERN ENVIRONMENTAL SERVICES
1010 South Pacific Coast Highway
Redondo Beach, California 90277



Begin test 2 dryer 1

A0G161

GND Test 2 Dryer 2



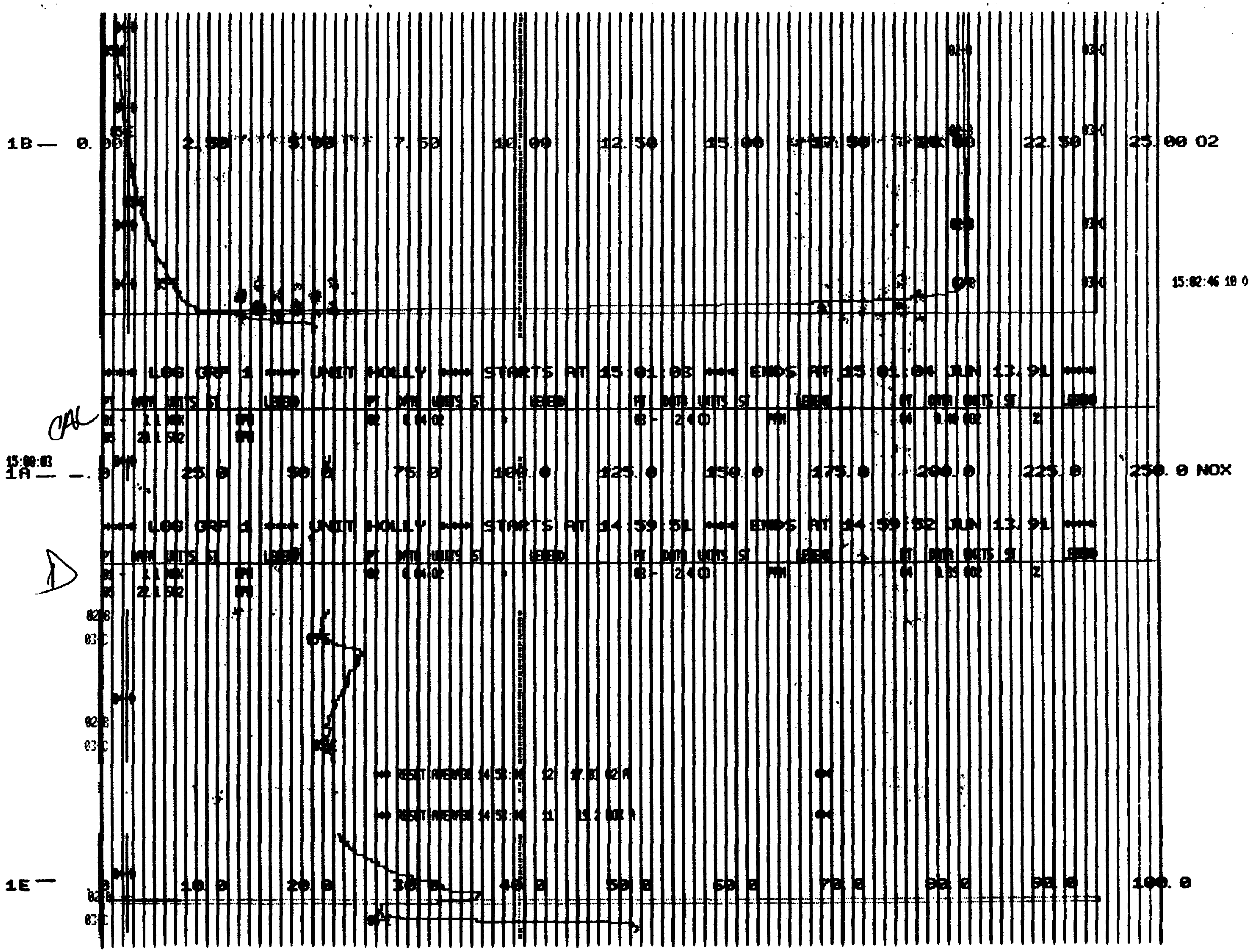
A0C162

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 14:49:48 *** ENDS AT 14:49:49 JUN 13,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 1.3 HOX 02 6.63 O2 03 - 24 CO PAM 04 1.14 O2 Z
02 51.2 SO2
1.5 3.0 4.5 6.0 7.5 9.0 10.5 12.0 13.5 15.0 CO2
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 14:40:57 *** ENDS AT 14:40:58 JUN 13,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 210.2 HOX 02 6.67 O2 03 - 14 CO PAM 04 1.12 O2 Z
02 .3 SO2
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 14:39:22 *** ENDS AT 14:39:23 JUN 13,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 2.9 HOX 02 5.12 O2 03 276 CO PAM 04 1.14 O2 Z
02 .1 SO2
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 14:36:47 *** ENDS AT 14:36:47 JUN 13,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND
01 92.9 HOX 02 6.66 O2 03 - 24 CO PAM 04 1.12 O2 Z
02 .5 SO2
100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 14:33:25 *** ENDS AT 14:33:25 JUN 13,91 ***
PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND PT DATA UNITS ST LEGEND

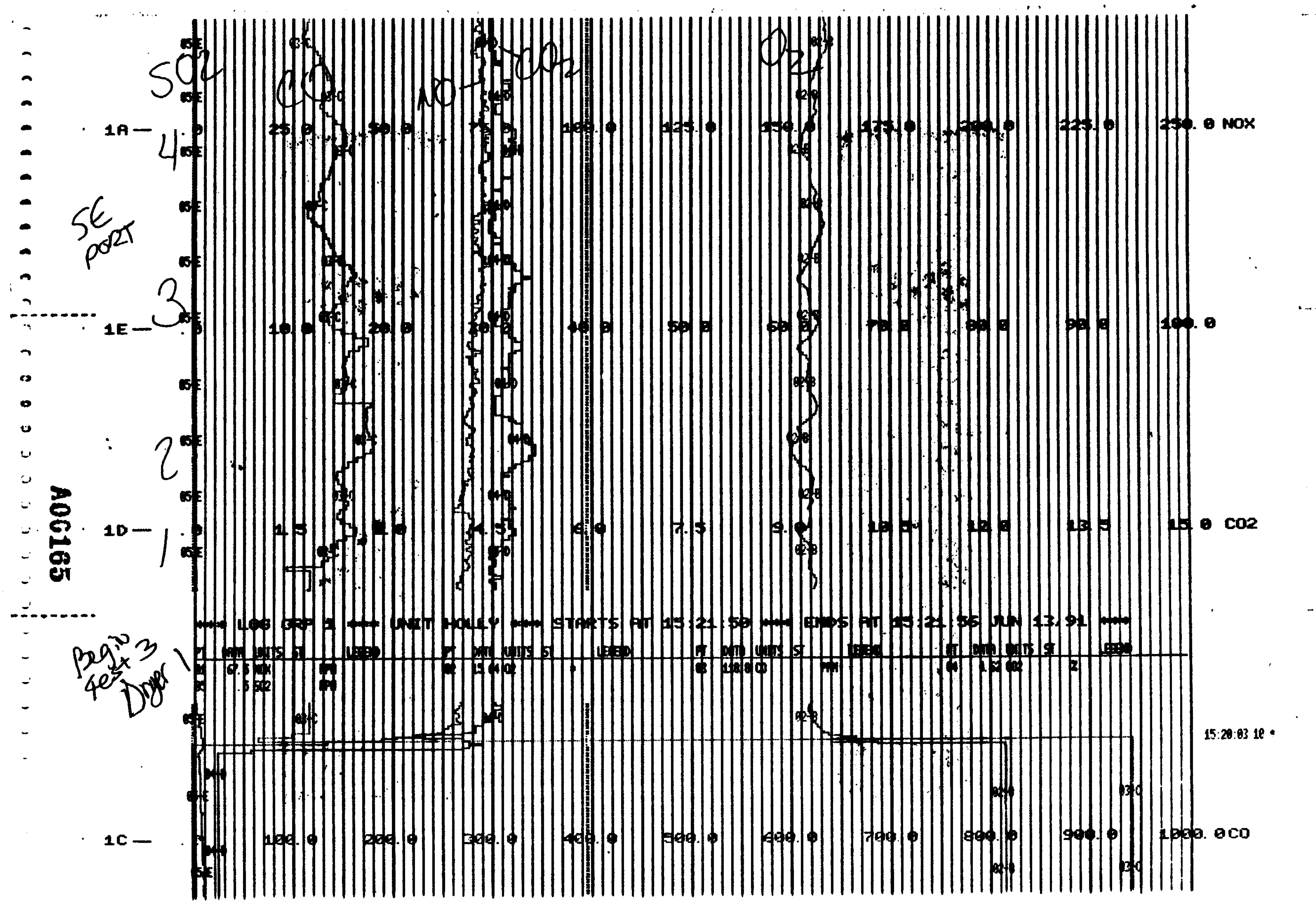
1D

1C

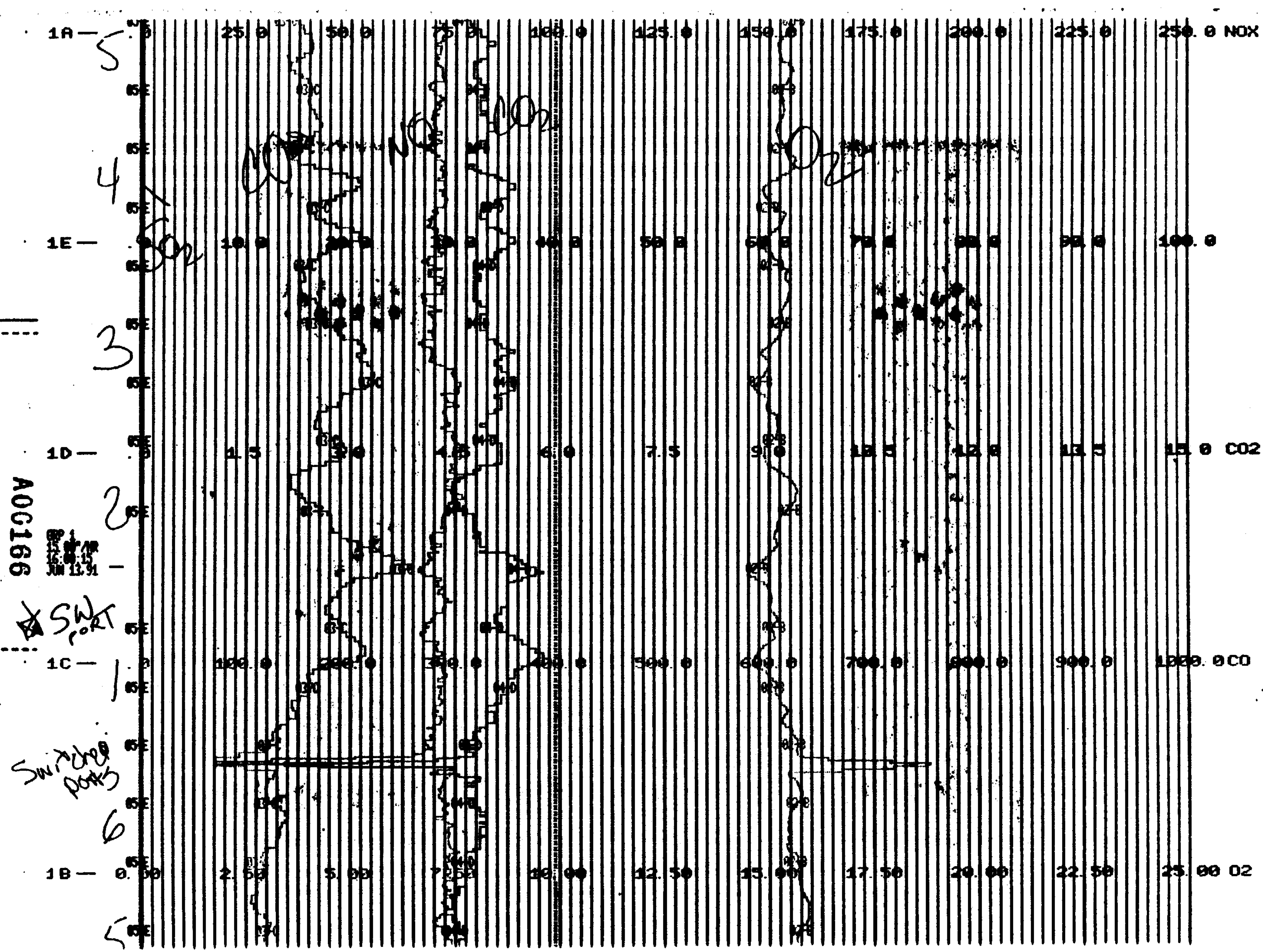
A0G163

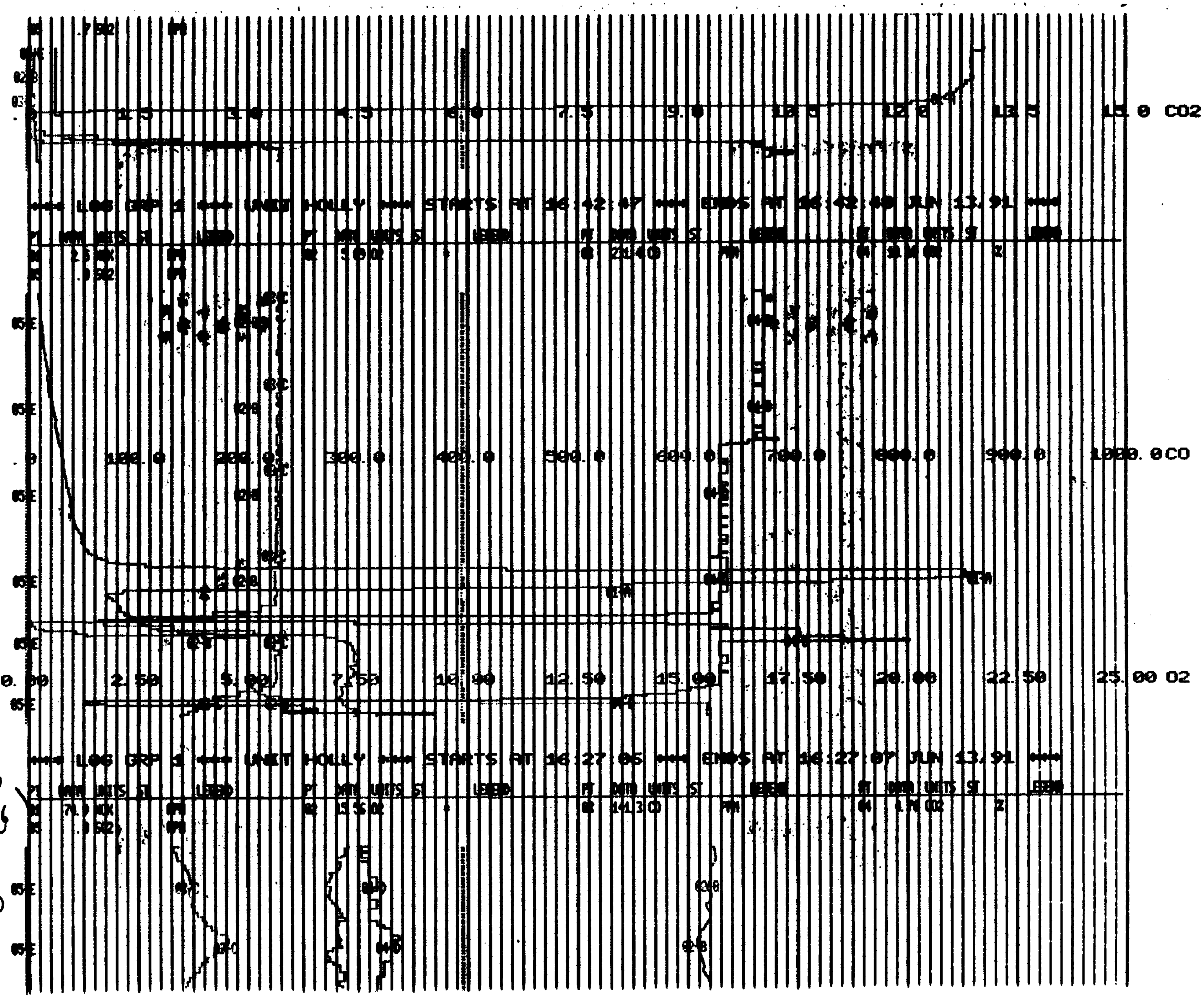

1B — 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 O2
15:02:46 10 0
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:01:03 *** ENDS AT 15:01:04 JUN 13,91 ***
CAL
15:00:03
1A — 0 25.0 50.0 75.0 100.0 125.0 150.0 175.0 200.0 225.0 250.0 NOX
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 14:59:51 *** ENDS AT 14:59:52 JUN 13,91 ***
1E — 0 10.0 20.0 30.0 40.0 50.0 60.0 70.0 80.0 90.0 100.0

A0G164


SO2
CO
NO
CO2
O2
4
SE PORT
3
2
1
1A
1E
1D
1C
25.0 50.0 75.0 100.0 125.0 150.0 175.0 200.0 225.0 250.0 NOX
10.0 20.0 30.0 40.0 50.0 60.0 70.0 80.0 90.0 100.0
1.5 3.0 4.5 6.0 7.5 9.0 10.5 12.0 13.5 15.0 CO2
100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:21:50 *** ENDS AT 15:21:55 JUN 13,91 ***
Begin test 3 Dryer 1
15:20:03 10

A0G165

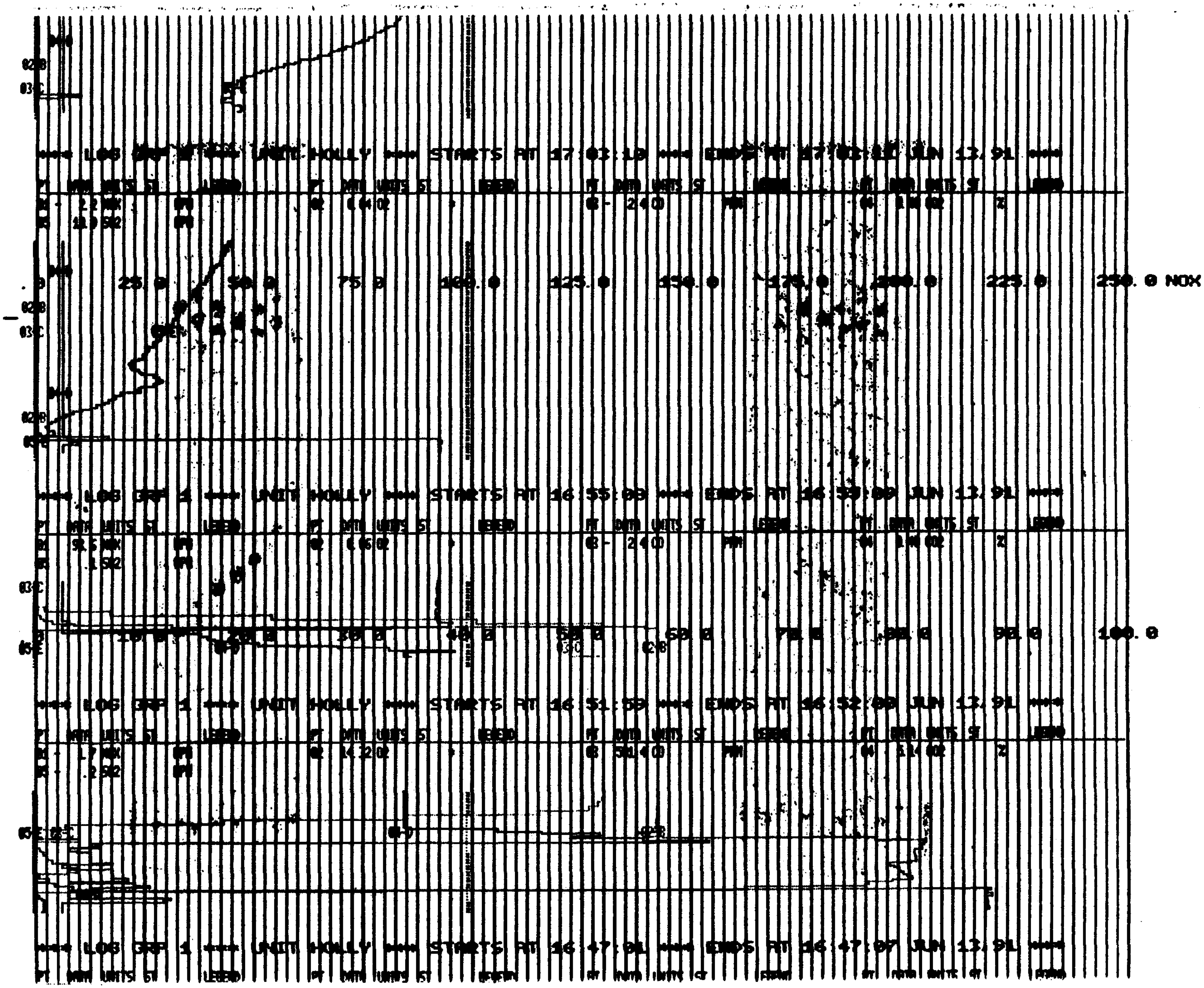

250.0 NOX
100.0
15.0 CO2
1000.0 CO
25.00 O2
1A
1E
1D
1C
1B
JUN 13.91
SW PORT
Switched ports
A00166



A0C167

GVD Test 3 Dryer 1

6



1A

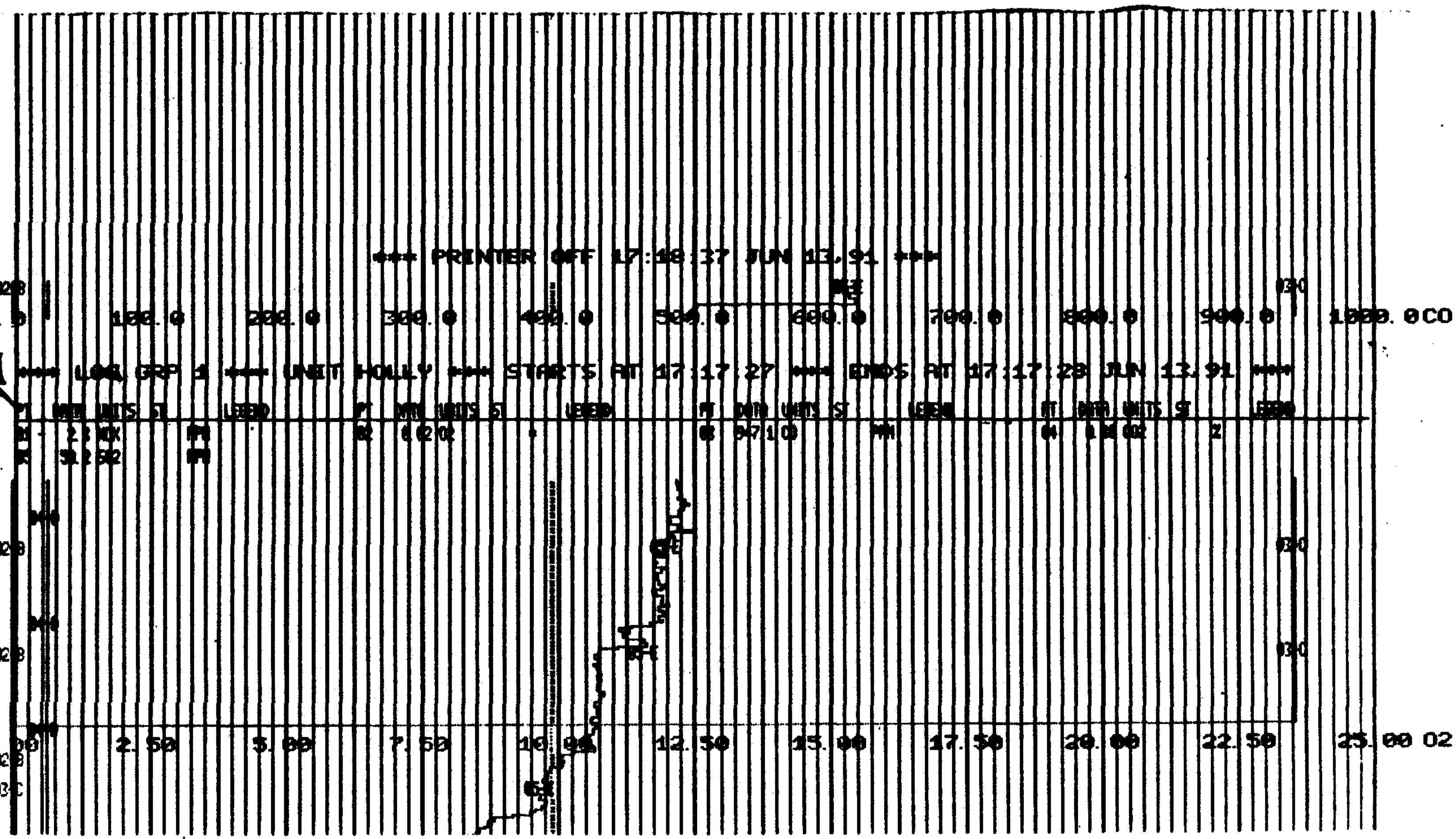
17:00:04

1E

A0G168

1C

End of Drifts

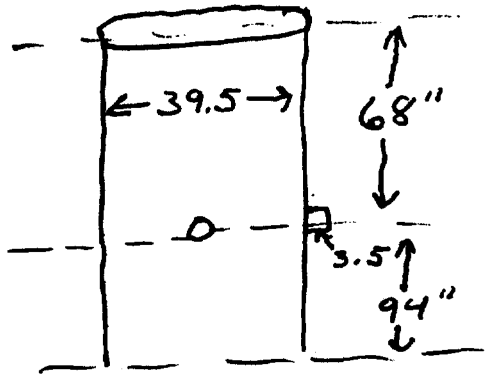


1B —

A00169

TRAVERSE POINT LOCATION FOR CIRCULAR DUCTS

PLANT Holly Sugar
DATE 6/12/91
SAMPLING LOCATION Stack #2 Dryer
INSIDE OF FAR WALL TO
OUTSIDE OF NIPPLE, (DISTANCE A) 43.00"
INSIDE OF NEAR WALL TO
OUTSIDE OF NIPPLE, (DISTANCE B) 3.50"
STACK I.D., (DISTANCE A - DISTANCE B) 39.50"
NEAREST UPSTREAM DISTURBANCE 68" or 1.72" dd
NEAREST DOWNSTREAM DISTURBANCE 94" or 2.38" dd
CALCULATOR



SCHEMATIC OF SAMPLING LOCATION

TRAVERSE POINT NUMBER	FRACTION OF STACK I.D.	STACK I.D.	PRODUCT OF COLUMNS 2 AND 3 (TO NEAREST 1/8 INCH)	DISTANCE B	TRAVERSE POINT LOCATION FROM OUTSIDE OF NIPPLE (SUM OF COLUMNS 4 & 5)
1	.021	39.50	0.83	3.50	4.33"
2	.067		2.65		6.15"
3	.118		4.66		8.16"
4	.177		6.99		10.49"
5	.250		9.88		13.38"
6	.358		14.14		17.64"
7	.644		25.44		28.94"
8	.750		29.63		33.13"
9	.823		32.51		36.01"
10	.882		34.84		38.34"
11	.933		36.85		40.35"
12	.979		38.67		42.17"

EPA (Dur) 232
4/72

A00170

WESTERN ENVIRONMENTAL SERVICES

FIELD DATA

SITE: Holly Sugar (Dryer #1)

DATE: 6-13-91

SO_2

	LKV 825					
CALS	Begin 828 z	-0.1	.04	1	.36	0
	m	94.7	5.2	232.6	4.36	19
	H	221.5	14.58	494.7	10.35	51.1
Begin Test 1	58min. 1021					
	END 1119	88	14	360	4.9	0
CALS	Begin 1124 z	1.2	.03	.9	.39	.6
	m	93.4	5.21	226.8	4.59	19.3
	H	219.5	14.62	496.3	10.32	50.9
Begin Test 2	1348 40min					
	End 1428	69.7	15.77	125.8	4.5	0
CALS	Begin 1433 z	-.6	.06	-1.4	.41	.5
	m	92.9	5.12	227.6	4.66	20.1
	H	219.2	14.36	496.3	9.6	51.2
Begin Test 3	1521 66min.					
	1627	74.9	15.3	160	4.8	0
CALS	Begin 1642 z	-2.2	.04	-2	.40	.1
	m	93.6	5.09	231.4	5.14	18.9
	H	218.8	14.32	501.4	10.1	50.2

Post 2K ✓ 1718

A00171

WESTERN ENVIRONMENTAL SERVICES

FIELD DATA

SITE: Holly Sugar (Dryer #2)

DATE: 6-12-91

SO_2

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Pre CK 820					
CALS	Begin 825 Z	-.1	.06	1	.4	-.1
	M	94.4	5.14	228.9	5.21	19.2
	H	197.5	14.44	947.5	10.21	50.9
Begin	1019					
Test 1	1120 61 min	50	16.03	200	4.2	0
CALS	Begin 1122 Z	.5	.05	-1.3	.38	.1
	M	93.8	5.06	223.7	4.68	20.3
	H	194.2	14.16	947.1	10.32	51.4
Begin	1214					
Test 2	1312 58 min	45.5	16.81	205	2.31	0
CALS	Begin 1315 Z	.5	.06	-2.3	.39	.1
	M	96.3	5.07	224.6	4.54	19.5
	H	219.9	14.11	510.3	10.65	52.7
Begin	1604					
Test 3	1650 46 min	50.5	15.79	200	4.63	0
CALS	Begin 1655 Z	2.1	.06	-1.3	.4	.1
	M	94.4	5.14	223.7	4.41	19.2
	H	218.9	14.36	500.3	9.65	51.2

Post ZK 1716

A00172

WESTERN ENVIRONMENTAL SERVICES

FIELD DATA

SITE: Holly Sugar (Dryer 2)

DATE: 12 June 91

							SO2
SW PORT	1	1020	60	15	190	4.35	0
	2	1023	50.5	14	290	4.5	0
	3	1025	50.7	14.2	270	4.8	0
	4	1027	50.7	14.2	270	4.65	0
	5	1030	60	14.1	280	4.95	0
	6	1033	50.5	14.5	260	4.8	0
SE PORT	1	1036	45	15	250	~~5~~ 4	0
	2	1045	50	15	140	~~5~~ 4	0
	3	1054	34	15.25	200	~~15.20~~ 3.8	0
	4	1103	50	15.1	120	~~5~~ 3.8	0
	5	1110	47	15.5	200	~~15.5~~ 3	0
	6	1119	35	15.75	250	~~15.75~~ 3.2	0

FIELD DATA

PLANT: HOLLY SUGAR
DATE: 6/12/91
SAMPLING LOCATION: DRYER # 2
SAMPLE TYPE: PARTICULATE
RUN NUMBER: # 1
OPERATOR: MARCOTTE
AMBIENT TEMPERATURE: 68°F
BAROMETRIC PRESSURE: 29.95
STATIC PRESSURE, (P_s): -0.65
FILTER NUMBER (s): 3-~~??~~ (3")

DRYER # 2
PARTICULATE
RUN # 1

PROBE LENGTH AND TYPE: #3 (SS. 5')
NOZZLE I.D.: 0.2450 (9.5)
ASSUMED MOISTURE, %: ~~??~~ 27%
SAMPLE BOX NUMBER: WES #11
METER BOX NUMBER: WES #11
METER $\Delta H_@$: WES #11
C FACTOR:
PROBE HEATER SETTING: 250°F
HEATER BOX SETTING: 250°F
REFERENCE Δp: #5 (0-2")

ml
+ g
= VLC

SCHEMATIC OF TRAVERSE POINT LAYOUT

preleak ✓ .018 cfm @ 15" READ AND RECORD ALL DATA EVERY 2½ MINUTES postleak ✓ .010 cfm @ 10"

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft³	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
	0	10:18	889.125									
1		10:20½	890.475	0.60	1.08	1.08	243	68	68	3	255	59
2	5	10:23	892.015	0.80	1.44	1.44	245	68	68	4	256	49
3		10:25½	893.610	0.90	1.60	1.61	251	68	68	5	256	45
4	10	10:28	895.155	0.80	1.43	1.43	252	69	67	5	257	55
5		10:30½	896.675	0.80	1.43	1.43	248	69	67	5	257	56
6	15	10:33	898.285	0.90	1.61	1.61	251	69	67	5	257	56
7		10:35½	899.915	0.85	1.52	1.52	249	70	68	5	260	57
8	20	10:38	901.455	0.80	1.50	1.50	221	72	68	5	259	56
9		10:40½	902.805	0.55	0.99	0.99	248	72	68	4	260	58
10	25	10:43	903.935	0.40	0.72	0.72	245	74	68	3	258	58
11		10:45½	905.165	0.45	0.82	0.82	241	74	68	3	260	58
12	30	10:48	906.344	0.50	0.91	0.91	245	74	69	4	261	59
*	STOP	10:50	SWITCH PORTS *									
1		10:52½	907.990	0.75	1.35	1.35	249	75	69	5	261	59
2	35	10:55	909.495	0.80	1.44	1.44	248	73	69	5	259	58
3		10:57½	910.930	0.65	1.17	1.17	250	75	69	4	260	56
4	40	11:00	912.485	0.80	1.46	1.46	243	76	70	5	258	56
5		11:02½	914.170	0.95	1.73	1.73	245	76	70	6	260	56
6	45	11:05	915.980	1.10	2.00	2.00	246	76	70	7	259	57
7		11:07½	917.840	1.15	2.08	2.08	247	76	70	7	260	57
8	50	11:10	919.695	1.15	2.09	2.09	245	77	71	7	258	58
9		11:12½	921.345	0.85	1.55	1.55	244	77	71	6	258	59
10	55	11:15	922.840	0.75	1.37	1.37	245	78	70	5	256	60
11		11:17½	924.400	0.80	1.45	1.45	247	78	70	5	257	60
12	60	11:20	925.890	0.75	1.37	1.37	241	78	70	5	256	61

(36.765)

COMMENTS:

EPA (Dur) 235
4/72

A001?4

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1.____ 2.____
3.____ 4.____
Indicate by numbers in box under Sample column.

Holly sugar
Dryer #2
Test #1

Requestor ____
JN ____
Assigned to ____
Date Assigned ____

ALL WEIGHTS IN GRAMS

TARE WEIGHT	SAMPLE NUMBER	FILTER OR CONTAINER #	FILTER OR CONTAINER PLUS SAMPLE	FILTER OR CONTAINER TARE	SAMPLE	TARE + SAMPLE WEIGHT
1. 109.3643 2. 109.3642	Probe	13.3	109.5269	109.3643	0.1626	1. 109.5273 2. 109.5269 3. 109.5265
1. 0.3548 2. 0.3549 3. 0.3549	Filter	3.045	0.4102	0.3549	0.0553	1. 0.4102 2. 0.4101 3. 0.4102
1. 109.5421 2. 109.5421	Imp I	14.3	109.6333	109.5421	0.0912	1. 109.6437 2. 109.6361 3. 109.6360 4. 109.6337 5. 109.6333 6. 109.6328
1. 105.0645 2. 105.0644	Imp O	15.3	105.0665	105.0645	0.0020	1. 105.0662 2. 105.0664 3. 105.0668

A00175

WES

FIELD DATA

PLANT Holly Sugar
DATE 12 June '91
SAMPLING LOCATION Dryer #2 South Stack
SAMPLE TYPE Velocity / Temp. Traverse
RUN NUMBER #1
OPERATOR John Clarke
AMBIENT TEMPERATURE
BAROMETRIC PRESSURE
STATIC PRESSURE, (P_s)
FILTER NUMBER (s)

PROBE LENGTH AND TYPE
NOZZLE I.D.
ASSUMED MOISTURE, %
SAMPLE BOX NUMBER
METER BOX NUMBER
METER $\Delta H_@$
C FACTOR
PROBE HEATER SETTING
HEATER BOX SETTING
REFERENCE Δp

SCHEMATIC OF TRAVERSE POINT LAYOUT

READ AND RECORD ALL DATA EVERY ______ MINUTES

A0C176

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
NE port 1				.65			238					
2				.65			247					
3				.55			250					
4				.65			254					
5				.85			247					
6				1.00			242					
7				1.40			248					
8				1.15			246					
9				.70			245					
10				.60			248					
11				.60			238					
12				.70			235					
NW port 1				.85			237					
2				.75			248					
3				.70			245					
4				.75			243					
5				.85			248					
6				1.00			243					
7				.80			239					
8				.55			244					
9				.60			246					
10				.60			248					
11				.55			237					
12				.65			233					

COMMENTS:

.744

244

EPA (Dur) 235
4/72

FIELD DATA

PLANT: HOLLY SUGAR
DATE: 6/12/91
SAMPLING LOCATION: DRYER #2
SAMPLE TYPE: PARTICULATE
RUN NUMBER: #2
OPERATOR: MARCOTTE
AMBIENT TEMPERATURE: 70° F
BAROMETRIC PRESSURE: 29.95
STATIC PRESSURE, (P_s): -0.65
FILTER NUMBER (s): 3.135 (3")

DRYER #2
PARTICULATE
RUN #2

PROBE LENGTH AND TYPE: #3 (S.S. 5')
NOZZLE I.D.: 0.2450 (S.S.)
ASSUMED MOISTURE, %: 30%
SAMPLE BOX NUMBER: WES #11
METER BOX NUMBER: WES #11
METER $\Delta H_@$: WES #11
C FACTOR: –
PROBE HEATER SETTING: 250°F
HEATER BOX SETTING: 250°F
REFERENCE Δp: +5 (0-2")

272 ml
+ 9
= VLC

SCHEMATIC OF TRAVERSE POINT LAYOUT

Preleak √ L .010 cfm @ 15" READ AND RECORD ALL DATA EVERY 2½ MINUTES postleak √ L .005 cfm @ 10"

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\,in}$), °F	DRY GAS METER TEMPERATURE OUTLET ($T_{m\,out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
	0	12:13	926.317									
1		12:15½	927.895	0.95	1.58	1.58	246	70	70	4	245	62
2	5	12:18	929.420	0.86	1.42	1.42	243	70	70	4	261	58
3		12:20½	930.965	0.90	1.49	1.49	247	70	70	4	262	56
4	10	12:23	932.525	0.90	1.50	1.50	243	70	70	4	261	62
5		12:25½	934.130	0.95	1.58	1.58	245	71	70	5	261	63
6	15	12:28	935.680	0.85	1.43	1.43	241	73	71	5	264	64
7		12:30½	937.275	0.90	1.50	1.50	244	73	71	5	262	65
8	20	12:33	938.625	0.60	1.00	1.00	243	75	71	4	263	66
9		12:35½	939.840	0.50	0.83	0.83	247	76	70	3	263	67
10	25	12:38	941.060	0.50	0.83	0.83	244	76	70	3	264	66
11		12:40½	942.430	0.65	1.08	1.08	247	76	70	4	263	67
12	30	12:43	943.801	0.65	1.08	1.08	242	76	70	4	263	67
*	STOP	12:44	SWITCH PORTS *									*
1		12:46½	945.205	0.70	1.17	1.17	247	77	71	4	264	66
2	35	12:49	946.665	0.75	1.26	1.26	243	77	71	4	263	66
3		12:51½	948.110	0.75	1.26	1.26	247	77	71	4	262	64
4	40	12:54	949.590	0.80	1.33	1.33	251	77	71	4	264	63
5		12:56½	951.325	1.10	1.82	1.82	253	78	72	5	264	63
6	45	12:59	953.105	1.15	1.92	1.92	247	78	72	5	265	62
7		1:01½	954.995	1.30	2.16	2.16	253	78	72	6	265	63
8	50	1:04	956.560	0.85	1.42	1.42	248	80	72	5	266	62
9		1:06½	957.965	0.70	1.17	1.17	246	80	72	4	265	64
10	55	1:09	959.425	0.75	1.26	1.26	245	80	72	4	264	64
11		1:11½	960.885	0.75	1.27	1.27	242	81	72	4	265	64
12	60	1:14	962.368	0.80	1.35	1.35	241	80	72	4	265	64

COMMENTS:

(36.051)

EPA (Dur) 235
4/72

A00177

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1.______ 2.______
3.______ 4.______
Indicate by numbers in box under Sample column.

Holly Sugar
Dryer #2
Test # 2

Requestor ______
JN ______
Assigned to ______
Date Assigned ______

ALL WEIGHTS IN GRAMS

Sample number: Probe — **Filter or container #:** 16.3

TARE WEIGHT		TARE + SAMPLE WEIGHT	
1. 109.4596	9.	1. 109.6531	9.
2. 109.4593	10.	2. 109.6526	10.
3.	11.	3. 109.6521	11.
4.	12.	4.	12.
5.	13.	5.	13.
6.	14.	6.	14.
7.	15.	7.	15.
8.	16.	8.	16.

FILTER OR CONTAINER PLUS SAMPLE 109.6526
FILTER OR CONTAINER TARE 109.4595
SAMPLE 0.1931

Sample number: Filter — **Filter or container #:** 3.135

TARE WEIGHT		TARE + SAMPLE WEIGHT	
1. 0.3516	9.	1. 0.3950	9.
2. 0.3517	10.	2. 0.3950	10.
3. 0.3518	11.	3. 0.3952	11.
4.	12.	4.	12.
5.	13.	5.	13.
6.	14.	6.	14.
7.	15.	7.	15.
8.	16.	8.	16.

FILTER OR CONTAINER PLUS SAMPLE 0.3951
FILTER OR CONTAINER TARE 0.3517
SAMPLE 0.0434

Sample number: Imp I — **Filter or container #:** 17.3

TARE WEIGHT		TARE + SAMPLE WEIGHT	
1. 100.5571	9.	1. 100.6336	9.
2. 100.5581	10.	2. 100.6244	10.
3.	11.	3. 100.6247	11.
4.	12.	4. 100.6230	12.
5.	13.	5. 100.6227	13.
6.	14.	6. 100.6225	14.
7.	15.	7.	15.
8.	16.	8.	16.

FILTER OR CONTAINER PLUS SAMPLE 100.6227
FILTER OR CONTAINER TARE 100.5576
SAMPLE 0.0651

Sample number: Imp O — **Filter or container #:** 18.3

TARE WEIGHT		TARE + SAMPLE WEIGHT	
1. 99.9200	9.	1. 99.9210	9.
2. 99.9207	10.	2. 99.9214	10.
3.	11.	3. 99.9217	11.
4.	12.	4.	12.
5.	13.	5.	13.
6.	14.	6.	14.
7.	15.	7.	15.
8.	16.	8.	16.

FILTER OR CONTAINER PLUS SAMPLE 99.9214
FILTER OR CONTAINER TARE 99.9204
SAMPLE 0.0010

A00178

WES

FIELD DATA

PLANT ____________
DATE ____________
SAMPLING LOCATION ____________
SAMPLE TYPE ____________
RUN NUMBER ____________
OPERATOR ____________
AMBIENT TEMPERATURE ____________
BAROMETRIC PRESSURE ____________
STATIC PRESSURE, (P_s) ____________
FILTER NUMBER (s) ____________

DRYER #2
VELOCITY TRAVERSE

PROBE LENGTH AND TYPE ____________
NOZZLE I.D. ____________
ASSUMED MOISTURE, % ____________
SAMPLE BOX NUMBER ____________
METER BOX NUMBER ____________
METER $\Delta H_@$ ____________
C FACTOR ____________
PROBE HEATER SETTING ____________
HEATER BOX SETTING ____________
REFERENCE Δp ____________

SCHEMATIC OF TRAVERSE POINT LAYOUT

READ AND RECORD ALL DATA EVERY ______ MINUTES

A00173

TRAVERSE POINT NUMBER	SAMPLING TIME, min / CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\,in}$), °F	DRY GAS METER TEMPERATURE OUTLET ($T_{m\,out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
1			1.10			241					
2			0.75			243					
3			0.70			249					
4			1.35			250					
5			1.15			248					
6			0.80			246					
7			0.45			244					
8		$P_s = -0.65$	0.40			245					
9			0.35			243					
10			0.30			245					
11			0.25			244					
12			0.40			243					
1			0.75			241					
2			0.60			245					
3			0.65			243					
4			0.90			245					
5			1.05			243					
6			1.00			246					
7			0.85			249					
8			0.95			248					
9			0.90			246					
10			0.70			245					
11			0.75			245					
12			0.60			243					

COMMENTS:

EPA (Dur) 235
4/72

FIELD DATA

PLANT: HOLLY SUGAR
DATE: 6/12/91
SAMPLING LOCATION: DRYER #2
SAMPLE TYPE: PARTICULATE
RUN NUMBER: #3
OPERATOR: MARCOTTE
AMBIENT TEMPERATURE: 72° F
BAROMETRIC PRESSURE: 29.95
STATIC PRESSURE, (P_s): -0.65
FILTER NUMBER (s): 3.131 (3")

DRYER #2
PARTICULATE
RUN #3

PROBE LENGTH AND TYPE: #3 (5' SS.)
NOZZLE I.D.: 0.2450 (S.S.)
ASSUMED MOISTURE, %: 30%
SAMPLE BOX NUMBER: WES #11
METER BOX NUMBER: WES #11
METER $\Delta H_@$: WES #11
C FACTOR: —
PROBE HEATER SETTING: 250° F
HEATER BOX SETTING: 250° F
REFERENCE Δp: #5 (0-2")

268 ml
+ 9
= VLC

SCHEMATIC OF TRAVERSE POINT LAYOUT

preleak ✓ < .015 cfm @ 15"
READ AND RECORD ALL DATA EVERY 2½ MINUTES
postleak ✓ < .010 cfm @ 10"

* POWER OUT

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
	0	4:08	962.766									
1		4:10½	964.635	1.25	2.08	2.08	247	72	72	5	258	60
2	5	4:13	966.470	1.25	2.08	2.08	247	72	72	5	261	52
3		4:15½	968.145	1.00	1.66	1.66	251	74	72	5	259	52
4	10	4:18	969.735	0.90	1.51	1.51	244	75	72	4	261	58
5		* 4:20 ~~4:20½~~	970.840	0.80	1.35	1.35	242	76	72	4	260	61
6	15	4:30 ~~4:23~~	972.480	0.75	1.25	1.25	251	77	73	4	259	64
7		4:32½ ~~4:25½~~	974.075	0.95	1.59	1.59	245	75	73	5	239	60
8	20	4:35 ~~4:28~~	975.455	0.65	1.09	1.09	243	76	72	4	245	56
9		4:37½ ~~4:30½~~	976.660	0.45	0.76	0.76	242	76	72	3	256	57
10	25	4:40 ~~4:33~~	977.885	0.50	0.83	0.83	247	76	72	3	263	59
11		4:42½ ~~4:35½~~	979.225	0.60	1.01	1.01	243	76	72	3	262	60
12	30	4:45 ~~4:38~~	980.585	0.60	1.01	1.01	242	77	73	3	258	61
*	STOP	4:46	SWITCH PORTS *									
1		4:48½	982.050	0.80	1.34	1.34	243	75	71	4	260	61
2	35	4:51	983.530	0.80	1.33	1.33	248	75	71	4	258	60
3		4:53½	984.940	0.70	1.17	1.17	247	76	72	4	259	61
4	40	4:56	986.375	0.70	1.18	1.18	242	76	72	4	257	61
5		4:58½	988.045	1.00	1.68	1.68	243	76	72	5	258	62
6	45	5:01	989.830	1.20	2.01	2.9	245	76	72	6	259	63
7		5:03½	991.720	1.25	2.10	2.10	243	77	72	6	263	64
8	50	5:06	993.290	0.85	1.42	1.42	247	76	72	5	259	64
9		5:08½	994.785	0.80	1.34	1.34	246	78	72	5	258	66
10	55	5:11	996.235	0.75	1.25	1.25	248	78	72	5	262	66
11		5:13½	997.730	0.80	1.34	1.34	245	78	73	5	261	66
12	60	5:16	999.242	0.80	1.34	1.34	242	78	72	5	259	67

COMMENTS:

(36.476)

EPA (Dur) 235
4/72

A00180

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. ______ 2. ______
3. ______ 4. ______
Indicate by numbers in box under Sample column.

Holly Sugar
Dryer #2
Test #3

Requestor ______
JN ______
Assigned to ______
Date Assigned ______

ALL WEIGHTS IN GRAMS

Tare Weight	Sample Number	Filter or Container #	Filter or Container plus Sample	Filter or Container Tare	Sample	Tare + Sample Weight
1. 105.4497 2. 105.4492	Probe	19.3	105.6033	105.4495	0.1538	1. 105.6034 2. 105.6032 3. 105.6033
1. 0.3562 2. 0.3563 3. 0.3561	Filter	3.131	0.3661	0.3562	0.0099	1. 0.3661 2. 0.3661 3. 0.3662
1. 104.5840 2. 104.5846	Imp I	20.3	104.6117	104.5843	0.0274	1. 104.6112 2. 104.6116 3. 104.6122
1. 100.1776 2. 100.1781	Imp O	21.3	100.1795	100.1779	0.0016	1. 100.1793 2. 100.1795 3. 100.1798

A00181

WES

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Dryer 2
RUN: 1
DATE: June 12, 1991

GAS METER READING	VELOCITY HEAD	SQUARE ROOT			ORIFICE PRESSURE DELTA H		STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
889.125	0.6	0.774596			1.08		242	68	68
925.890	0.8	0.894427			1.44		245	68	68
---------	0.9	0.948683			1.61		251	68	68
36.765	0.8	0.894427			1.43		252	69	67
=========	0.8	0.894427			1.43		248	69	67
(DIFFERENCE)	0.9	0.948683			1.61		251	69	67
	0.85	0.921954			1.52		249	70	68
	0.8	0.894427			1.5		221	72	68
	0.55	0.741619			0.99		248	72	68
	0.4	0.632455			0.72		245	74	68
	0.45	0.670820			0.82		241	74	68
	0.5	0.707106			0.91		245	74	69
	0.75	0.866025			1.35		249	75	69
	0.8	0.894427			1.44		248	73	69
	0.65	0.806225			1.17		250	75	69
	0.8	0.894427			1.46		243	76	70
	0.95	0.974679			1.73		245	76	70
	1.1	1.048808			2		246	76	70
	1.15	1.072380			2.08		247	76	70
	1.15	1.072380			2.09		245	77	71
	0.85	0.921954			1.55		244	77	71
	0.75	0.866025			1.37		245	78	70
	0.8	0.894427			1.45		247	78	70
	0.75	0.866025			1.37		241	78	70
		---------	AVERAGE SQUARED						
	AVERAGE	0.879225	0.773	AVERAGE	1.42	AVERAGE	245.3333	AVERAGE	71.15
		=========	=========		============		=========		=========

A00182

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Dryer 2
RUN: 2
DATE: June 12, 1991

GAS METER READING	VELOCITY HEAD	SQUARE ROOT		ORIFICE PRESSURE DELTA H		STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
926.317	0.95	0.974679		1.58		246	70	70
962.368	0.85	0.921954		1.42		243	70	70
---------	0.9	0.948683		1.49		247	70	70
36.051	0.9	0.948683		1.5		243	70	70
=========	0.95	0.974679		1.58		245	71	70
(DIFFERENCE)	0.85	0.921954		1.43		241	73	71
	0.9	0.948683		1.5		244	73	71
	0.6	0.774596		1		243	75	71
	0.5	0.707106		0.83		247	76	70
	0.5	0.707106		0.83		244	76	70
	0.65	0.806225		1.08		247	76	70
	0.65	0.806225		1.08		242	76	70
	0.7	0.836660		1.17		247	77	71
	0.75	0.866025		1.26		243	77	71
	0.75	0.866025		1.26		247	77	71
	0.8	0.894427		1.33		251	77	71
	1.1	1.048808		1.82		253	78	72
	1.15	1.072380		1.92		247	78	72
	1.3	1.140175		2.16		253	78	72
	0.85	0.921954		1.42		248	80	72
	0.7	0.836660		1.17		246	80	72
	0.75	0.866025		1.26		245	80	72
	0.75	0.866025		1.27		242	81	72
	0.8	0.894427		1.35		241	80	72
		---------	AVERAGE SQUARED					
	AVERAGE	0.897923	0.806	AVERAGE 1.36	AVERAGE	245.625	AVERAGE	73.38
		=========	=========	============		=========		=========

A00183

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Dryer 2
RUN: 3
DATE: June 12, 1991

GAS METER READING	VELOCITY HEAD	SQUARE ROOT	AVERAGE SQUARED	ORIFICE PRESSURE DELTA H	STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
962.766	1.25	1.118033		2.08	247	72	72
999.242	1.25	1.118033		2.08	247	72	72
---------	1	1		1.66	251	74	72
36.476	0.9	0.948683		1.51	244	75	72
=========	0.8	0.894427		1.35	242	76	72
(DIFFERENCE)	0.75	0.866025		1.25	251	77	73
	0.95	0.974679		1.59	245	75	73
	0.65	0.806225		1.09	243	76	72
	0.45	0.670820		0.76	242	76	72
	0.5	0.707106		0.83	247	76	72
	0.6	0.774596		1.01	243	76	72
	0.6	0.774596		1.01	242	77	73
	0.8	0.894427		1.34	243	75	71
	0.8	0.894427		1.33	248	75	71
	0.7	0.836660		1.17	247	76	72
	0.7	0.836660		1.18	242	76	72
	1	1		1.68	243	76	72
	1.2	1.095445		2.9	245	76	72
	1.25	1.118033		2.1	243	77	72
	0.85	0.921954		1.42	247	76	72
	0.8	0.894427		1.34	246	78	72
	0.75	0.866025		1.25	248	78	72
	0.8	0.894427		1.34	245	78	73
	0.8	0.894427		1.34	242	78	72

	AVERAGE	0.908339	0.825	AVERAGE 1.44	AVERAGE 245.125	AVERAGE	73.98
		=========	=========	============	=========		=========

A00184

FIELD DATA

PLANT Holly Sugar
DATE 12 June 91
SAMPLING LOCATION South Stack Dryer #2
SAMPLE TYPE Velocity / Temp. Traverse
RUN NUMBER #3
OPERATOR
AMBIENT TEMPERATURE
BAROMETRIC PRESSURE
STATIC PRESSURE, (P_s)
FILTER NUMBER (s)

PROBE LENGTH AND TYPE
NOZZLE I.D.
ASSUMED MOISTURE, %
SAMPLE BOX NUMBER
METER BOX NUMBER
METER $\Delta H_@$
C FACTOR
PROBE HEATER SETTING
HEATER BOX SETTING
REFERENCE Δp

SCHEMATIC OF TRAVERSE POINT LAYOUT

READ AND RECORD ALL DATA EVERY ____ MINUTES

TRAVERSE POINT NUMBER	SAMPLING TIME, min / CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
1			.70			241					
2			.60			240					
3			.55			244					
4			.85			252					
5			.90			248					
6			1.10			243					
7			1.15			243					
8			.75			251					
9			.65			246					
10			.65			240					
11			.70			238					
12			.70			243					
1			.85			246					
2			.65			251					
3			.55			245					
4			.80			240					
5			.95			242					
6			1.10			245					
7			1.20			249					
8			.75			245					
9			.70			241					
10			.60			237					
11			.5			248					

NE port

NW port

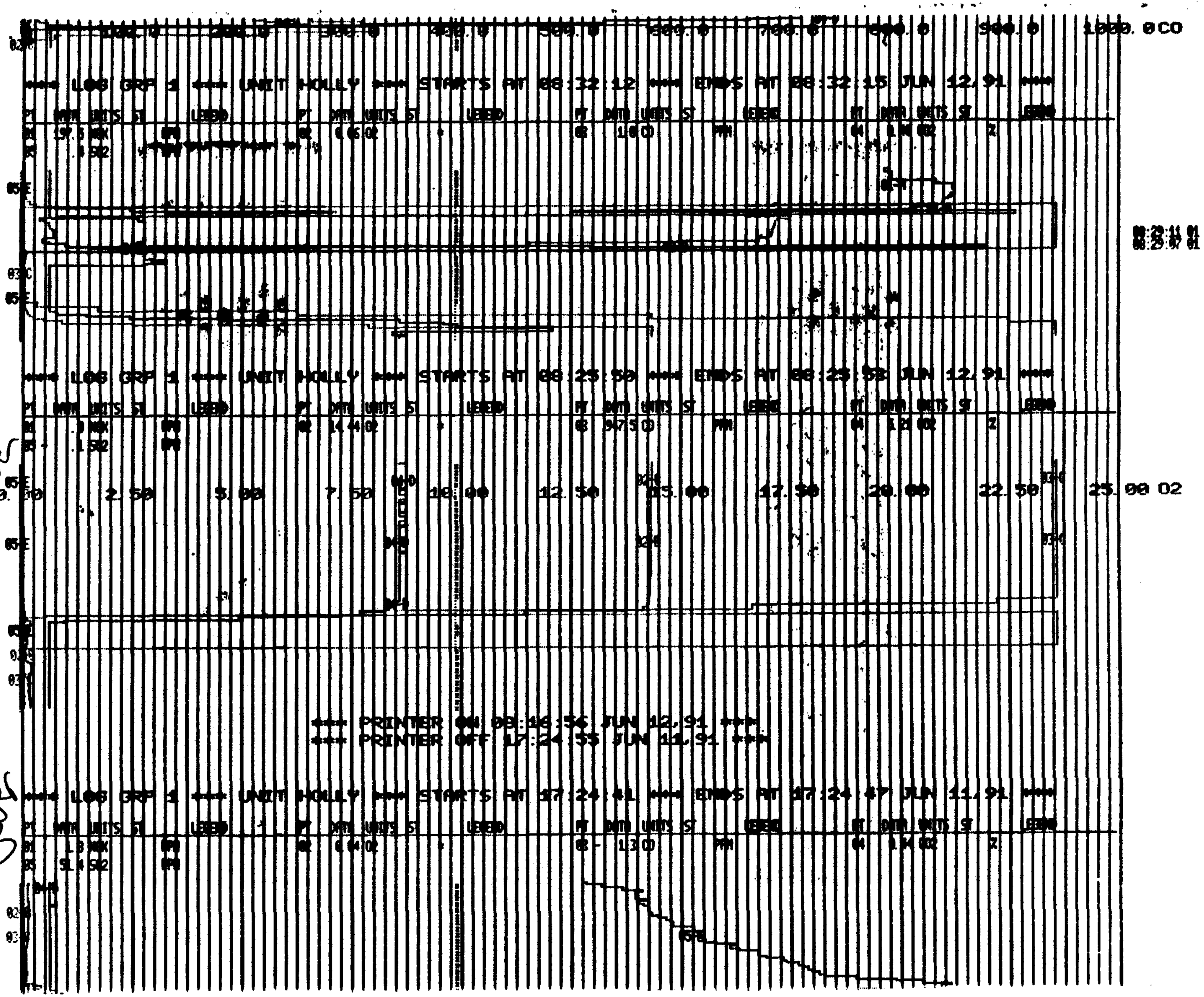
A0C185

COMMENTS:
12 .55 240

.759 244

EPA (Dur) 235
4/72

1C —

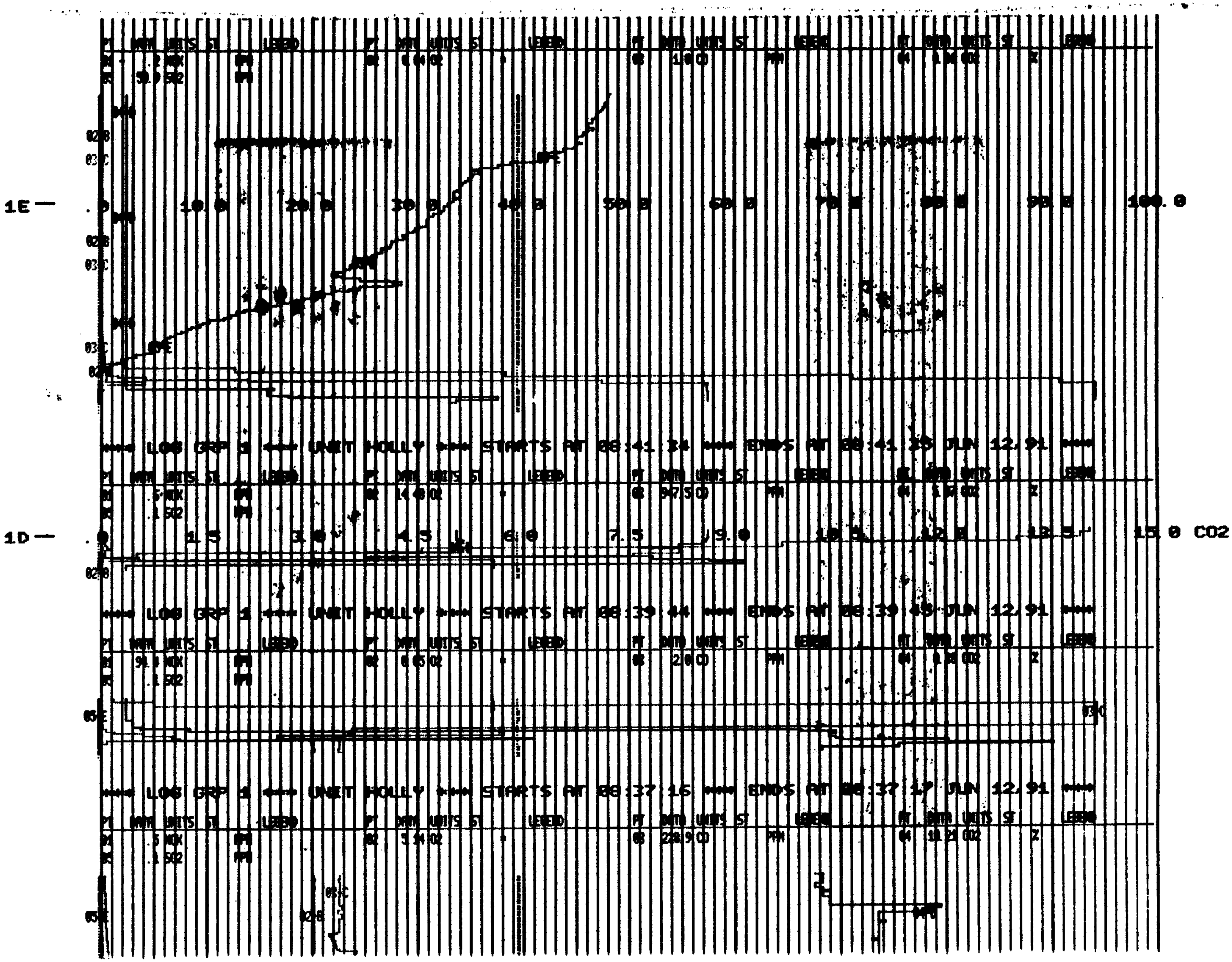


Begin ON FOR Dryer #2

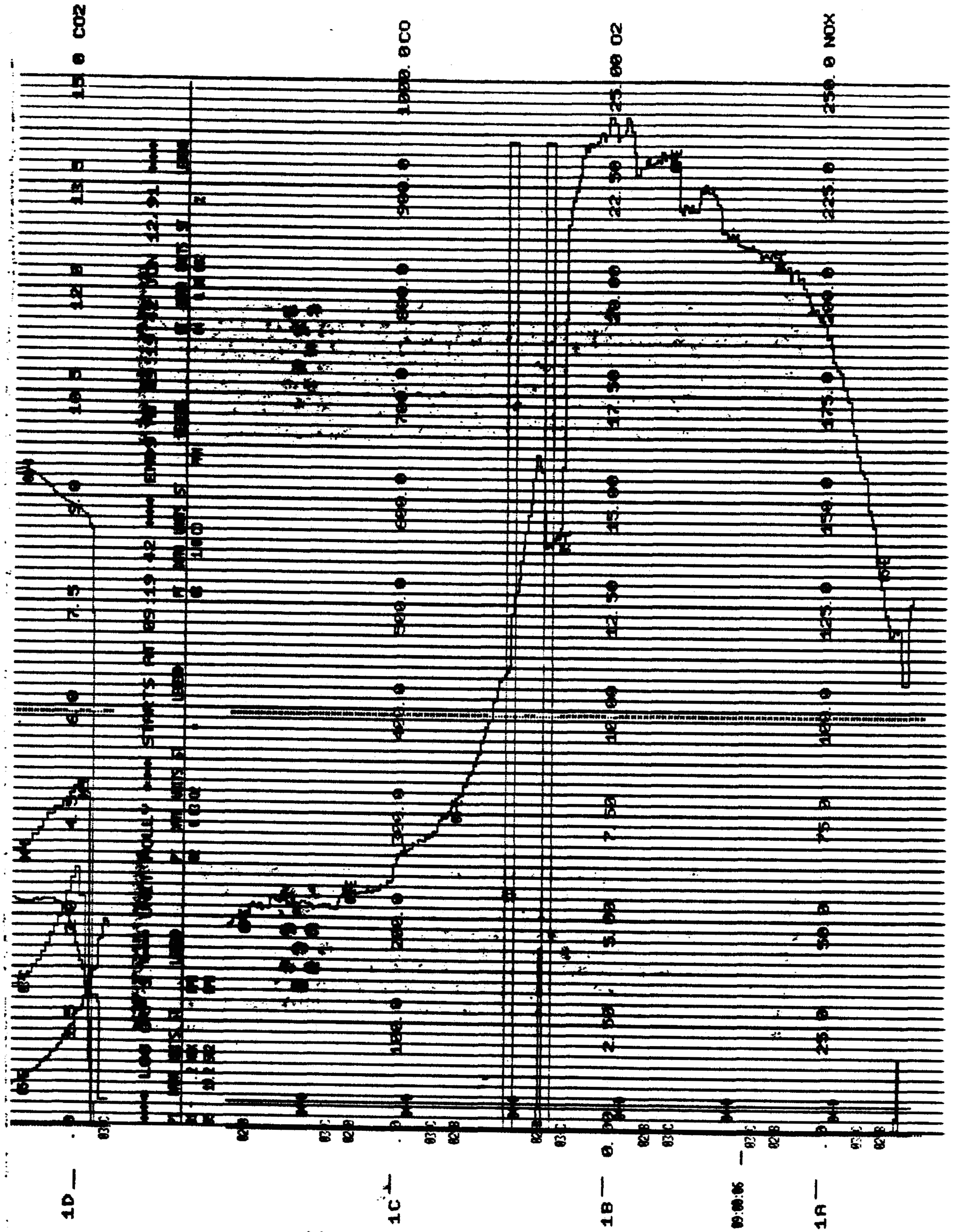
1B —

A00186

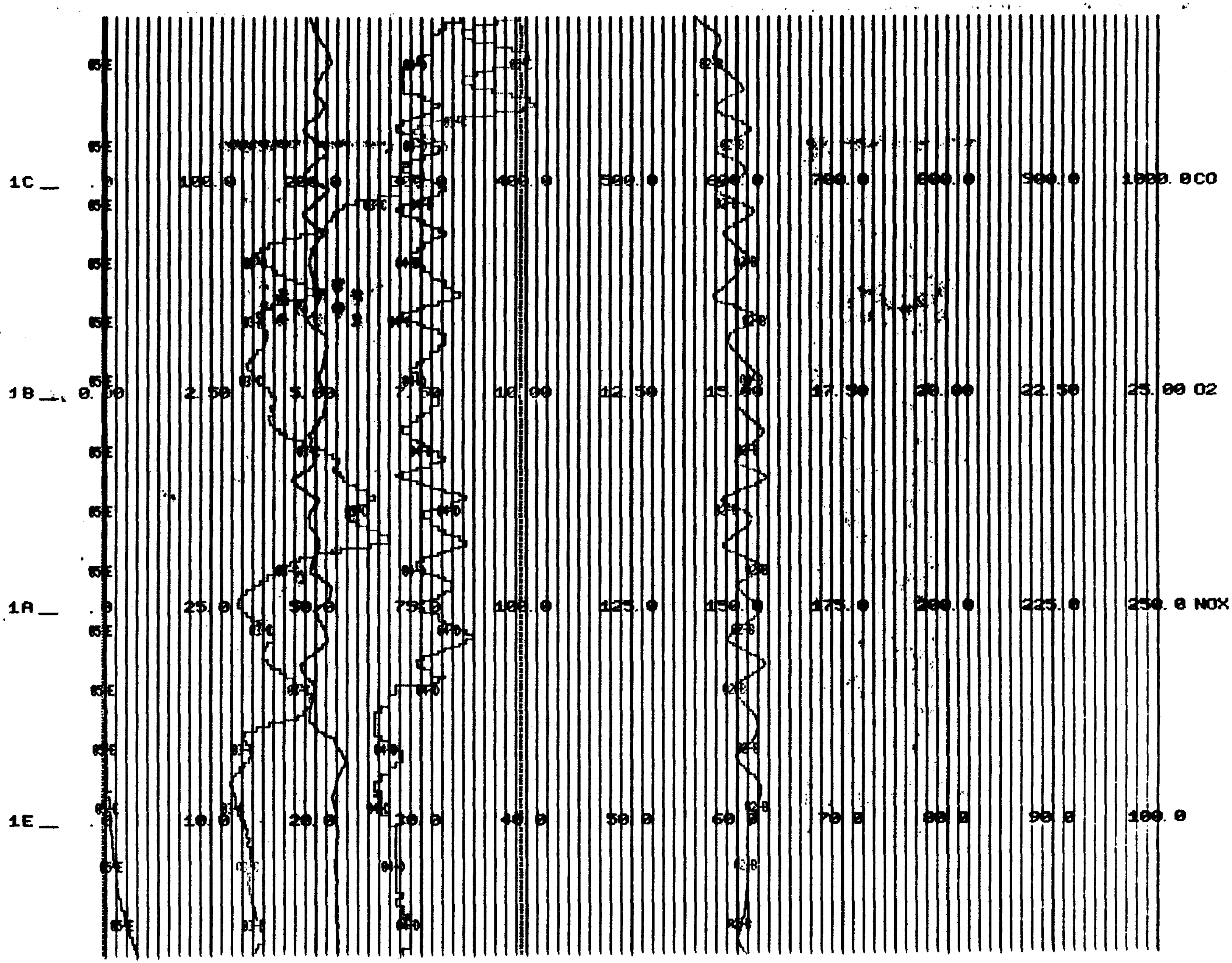
END Dryer 3


1E
0 10.0 20.0 30.0 40.0 50.0 60.0 70.0 80.0 90.0 100.0
1D
0 1.5 3.0 4.5 6.0 7.5 9.0 10.5 12.0 13.5 15.0 CO2
LOG GRP 1 UNIT HOLLY STARTS AT 08:41:34 ENDS AT 08:41:35 JUN 12, 91
LOG GRP 1 UNIT HOLLY STARTS AT 08:39:44 ENDS AT 08:39:45 JUN 12, 91
LOG GRP 1 UNIT HOLLY STARTS AT 08:37:16 ENDS AT 08:37:17 JUN 12, 91

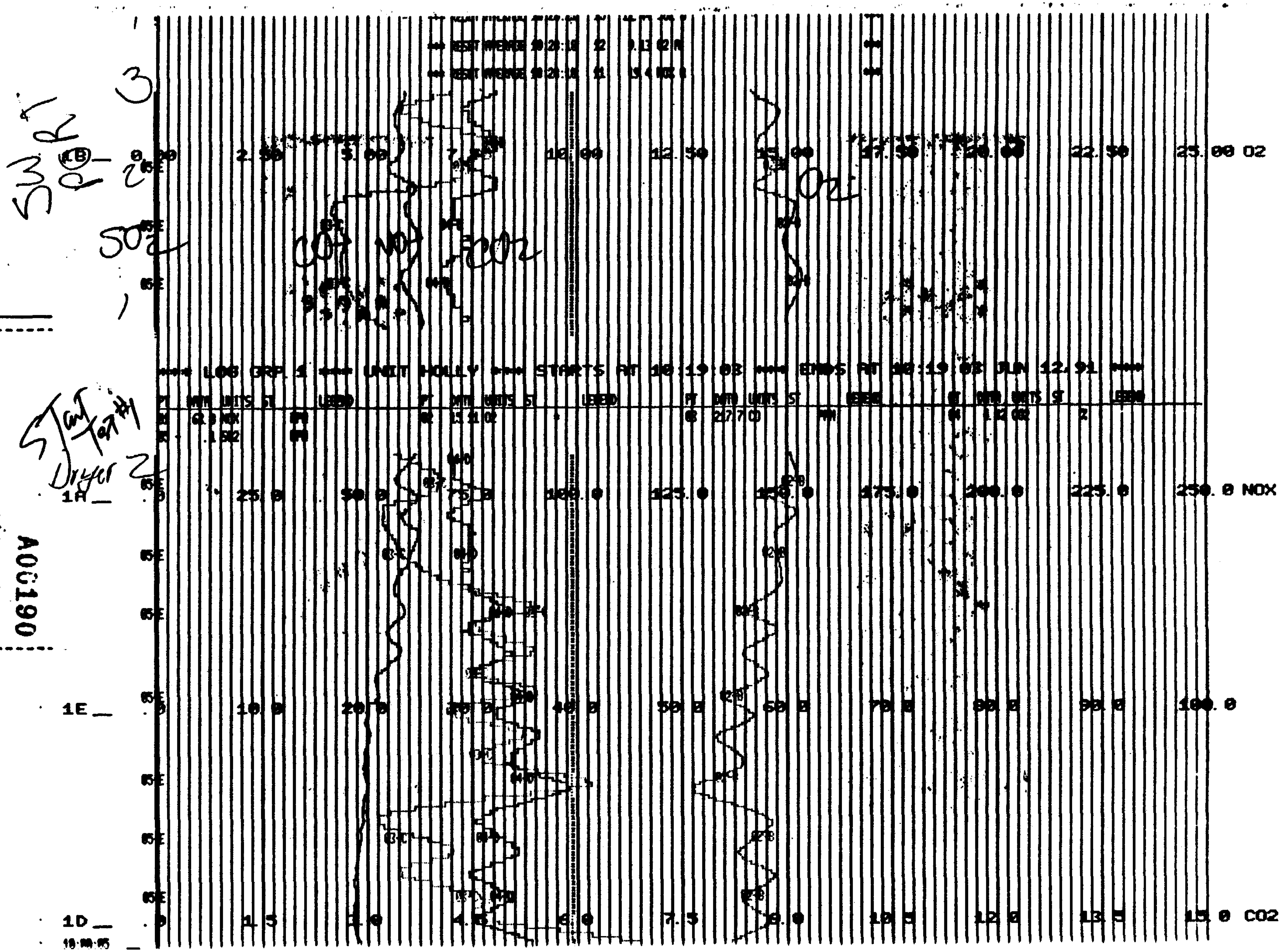
A0G187



A00188

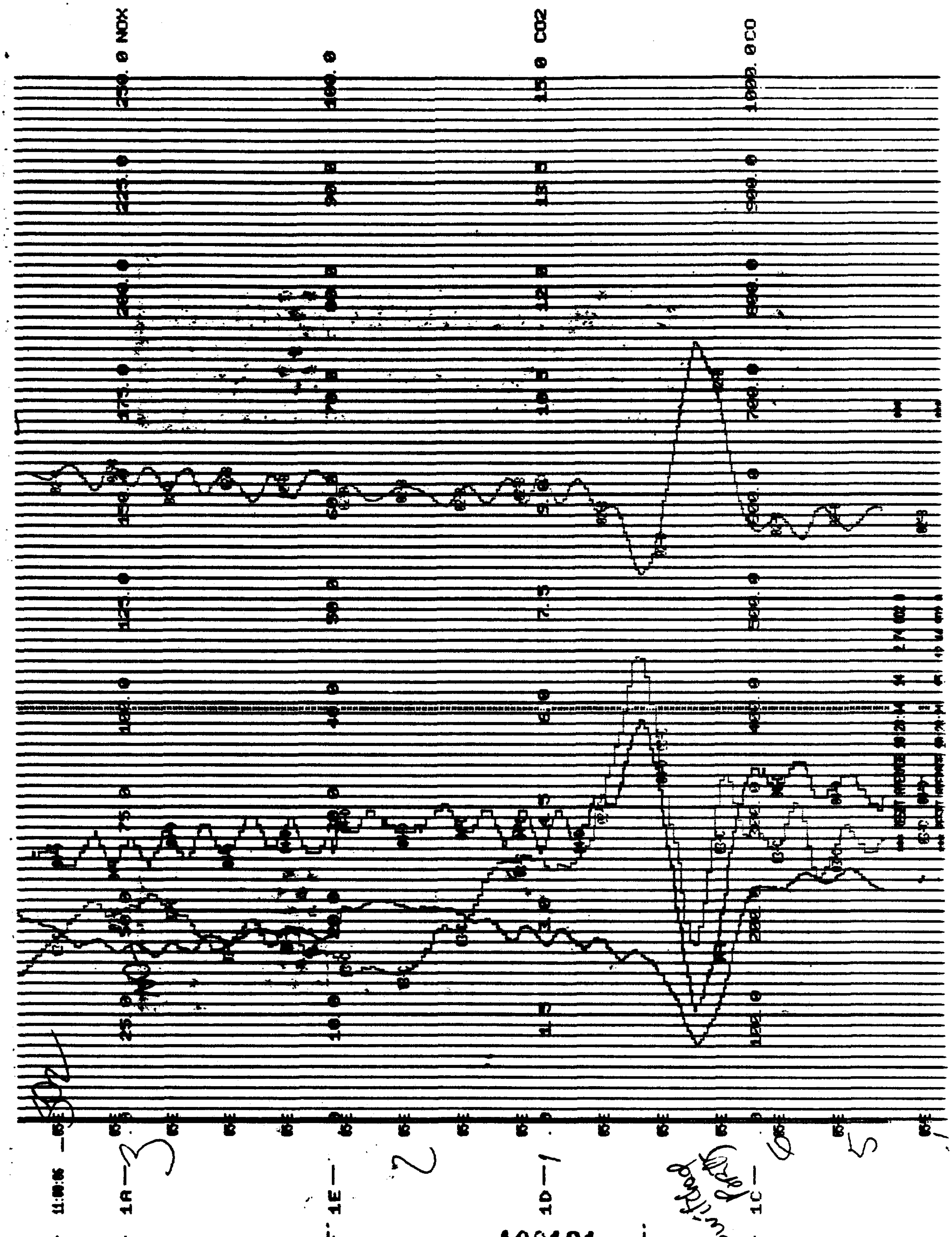

1C
1B
1A
1E
0
100.0
200.0
300.0
400.0
500.0
600.0
700.0
800.0
900.0
1000.0CO
0.00
2.50
5.00
7.50
10.00
12.50
15.00
17.50
20.00
22.50
25.00 O2
0
25.0
50.0
75.0
100.0
125.0
150.0
175.0
200.0
225.0
250.0 NOX
0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0

A00189

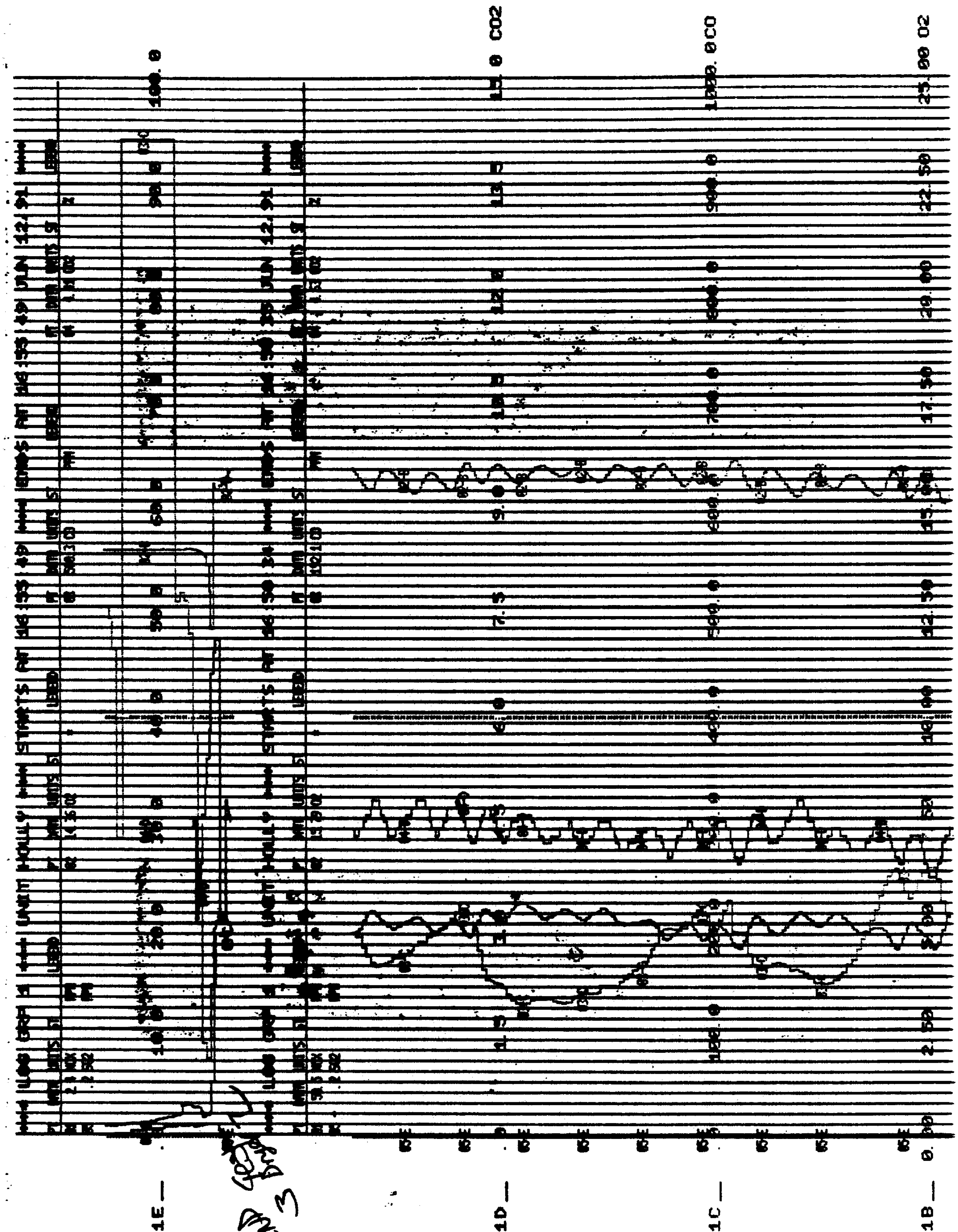


TEST AVERAGE 10:21:18 12 9.11 O2 R
TEST AVERAGE 10:21:18 11 13.4 NOX 1
0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 O2
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 10:19:03 *** ENDS AT 10:19:03 JUN 12.91 ***
PT DATA UNITS ST LEGEND
0 25.0 50.0 75.0 100.0 125.0 150.0 175.0 200.0 225.0 250.0 NOX
0 10.0 20.0 30.0 40.0 50.0 60.0 70.0 80.0 90.0 100.0
0 1.5 3.0 4.5 6.0 7.5 9.0 10.5 12.0 13.5 15.0 CO2
1B
1A
1E
1D
3
SW Dryer #2
SO2
CO NOx CO2
O2
Start Test #1
Dryer 2

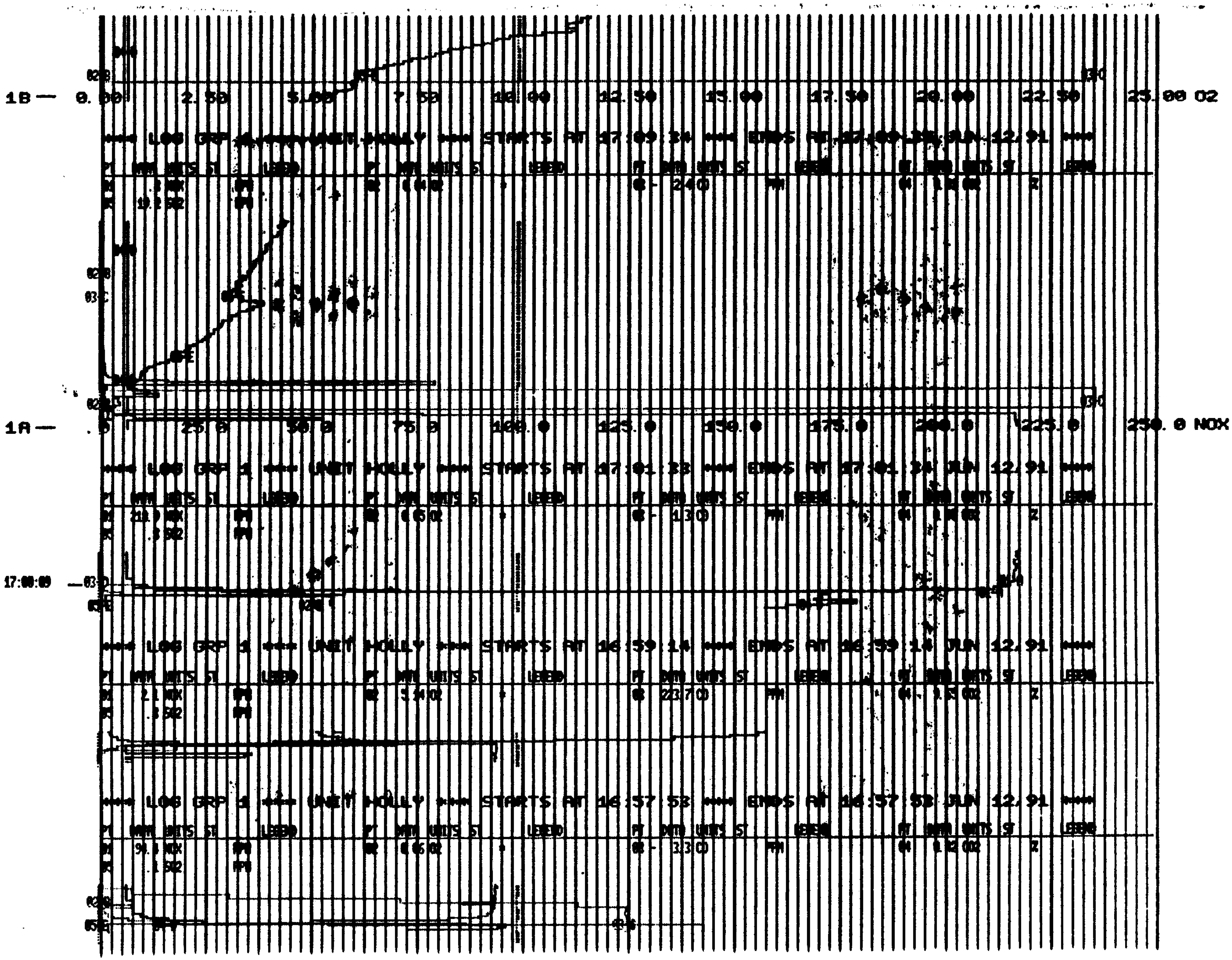
A00190



A00191



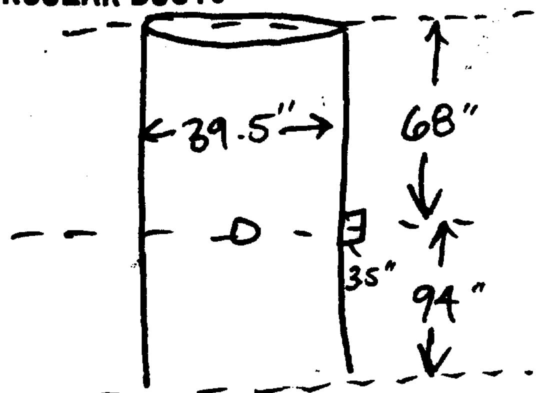
A00204


1B — 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 O2
1A — .0 25.0 50.0 75.0 100.0 125.0 150.0 175.0 200.0 225.0 250.0 NOX
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 17:01:33 *** ENDS AT 17:01:34 JUN 12,91 ***
17:00:00
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 16:59:14 *** ENDS AT 16:59:14 JUN 12,91 ***
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 16:57:53 *** ENDS AT 16:57:53 JUN 12,91 ***

A00205

TRAVERSE POINT LOCATION FOR CIRCULAR DUCTS

PLANT: HOLLY SUGAR
DATE: 6/11/91
SAMPLING LOCATION: STACK #3 DRYER
INSIDE OF FAR WALL TO OUTSIDE OF NIPPLE, (DISTANCE A): 43.00"
INSIDE OF NEAR WALL TO OUTSIDE OF NIPPLE, (DISTANCE B): 3.50"
STACK I.D., (DISTANCE A - DISTANCE B): 39.50"
NEAREST UPSTREAM DISTURBANCE: 68" or 1.72" dd
NEAREST DOWNSTREAM DISTURBANCE: 94" or 2.38" dd
CALCULATOR: HP 32 S



SCHEMATIC OF SAMPLING LOCATION

TRAVERSE POINT NUMBER	FRACTION OF STACK I.D.	STACK I.D.	PRODUCT OF COLUMNS 2 AND 3 (TO NEAREST 1/8 INCH)	DISTANCE B	TRAVERSE POINT LOCATION FROM OUTSIDE OF NIPPLE (SUM OF COLUMNS 4 & 5)
1	.021	39.80	0.83	3.50	4.33"
2	.067		2.65		6.15"
3	.118		4.66		8.16"
4	.177		6.99		10.49"
5	.250		9.88		13.38"
6	.358		14.14		17.64"
7	.644		25.44		28.94"
8	.750		29.63		33.13"
9	.823		32.51		36.01"
10	.882		34.84		38.34"
11	.933		36.85		40.35"
12	.979		38.67		42.17"

WESTERN ENVIRONMENTAL SERVICES

FIELD DATA

SITE: Holly Sugar (Dryer #3)

DATE: 6-11-94

SO2

W PORT	1	1053	94	14.30	190	4.65	0
	2	1059	89	14.30	180	4.45	0
	3	1105	84	14.30	185	4.35	0
	4	1111	70	14.30	170	3.7	0
	5	1117	64	14.90	120	3.3	0
	6	1123	64	14.95	120	3.2	0
E PORT	1	1127	62.5	15.2	120	3	0
	2	1132	62.5	15.25	98	3	0
	3	1137	62.5	15.50	95	2.9	0
	4	1142	63	15.75	90	2.8	0
	5	1149	63	15.9	70	2.8	0
	6	1157	63	16	60	2.7	0

WESTERN ENVIRONMENTAL SERVICES

FIELD DATA

SITE: Holly Sugar (Dryer #3)

DATE: 6-11-91

SO2

	Pre LK √ 750					
CALS	Begin 755 Z	0	.06	0	.52	.4
	M	96.2	5.11	227	4.68	20.6
	H	197.2	14.37	940.2	10.72	51.4
	Begin 1052					
Begin Test 1	1158 66 min	61.1	13.90	230	4.1	0
CALS	Begin 1202 Z	-3.4	.09	-2.2	.42	0
	M	95.8	5.07	224.6	4.88	52.4
	H	197.4	14.21	947.1	10.8	98.5
	1308					
Begin Test 2	1404 56 min	61.1	13.90	230	4.10	0
CALS	Begin 1406 Z	-3.4	.04	-.4	.42	-.4
	M	95.8	5.11	228.5	4.92	51.2
	H	199.9	14.38	947.1	10.57	93.7
	1544					
Begin Test 3	1655 71 min	69	13.97	250	6.1	0
CALS	Begin 1657 Z	-2	.07	-1.3	.45	-.2
	M	92.3	5.05	227.6	5.5	51.4
	H	197.4	14.17	947.1	10.15	96

Post LK √ 1725

A00208

FIELD DATA

PLANT Holly Sugar
DATE 6/11/91
SAMPLING LOCATION
SAMPLE TYPE Moisture
RUN NUMBER
OPERATOR Dzygeitz
AMBIENT TEMPERATURE
BAROMETRIC PRESSURE
STATIC PRESSURE, (P_s)
FILTER NUMBER (s)

MOISTURE TEST

PROBE LENGTH AND TYPE S.S.
NOZZLE I.D.
ASSUMED MOISTURE, %
SAMPLE BOX NUMBER ~~WES~~
METER BOX NUMBER WES #11
METER $\Delta H_@$ WES #11
C FACTOR
PROBE HEATER SETTING
HEATER BOX SETTING
REFERENCE Δp

112ml

SCHEMATIC OF TRAVERSE POINT LAYOUT

Preleak ✓ < .013 cfm @ 15" READ AND RECORD ALL DATA EVERY 5 MINUTES Postleak ✓ < .008 cfm @ 10"

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft³	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
	0	8:56	783.427									
	5				0.79	0.79		60	60	5		
	10											
	15											
	20	9:16	992.592		0.79	0.79		64	63	5		

9.165

12.37

112 × 1.2942 Vwstd

$$\frac{1.2942}{1.2942 + 9.165}$$

.4104 ?

COMMENTS:

EPA (Dur) 235
4/72

A0C209

FIELD DATA

PLANT: HOLLY SUGAR
DATE: 6/11/91
SAMPLING LOCATION: DRYER #3
SAMPLE TYPE: PARTICULATE
RUN NUMBER: # 1
OPERATOR: MARCOTTE
AMBIENT TEMPERATURE: 77° F
BAROMETRIC PRESSURE: 28.90
STATIC PRESSURE, (P_s):
FILTER NUMBER (s): 3.128 (3")

DRYER #3
PARTICULATE
RUN # 1

PROBE LENGTH AND TYPE: #3 (5' s.s.)
NOZZLE I.D.: 0.2000 (s.s)
ASSUMED MOISTURE, %: 15%
SAMPLE BOX NUMBER: WES #11
METER BOX NUMBER: WES #11
METER $\Delta H_@$: WES #11
C FACTOR: –
PROBE HEATER SETTING: 250° F
HEATER BOX SETTING: 260° F
REFERENCE Δp: #3 (0-2")

ml
g
+
=VLC

SCHEMATIC OF TRAVERSE POINT LAYOUT

preleak ✓ < .015 cfm @ 15" READ AND RECORD ALL DATA EVERY 2½ MINUTES postleak ✓ < .010 cfm @ 10"

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft³	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
	0	10:57	793.062									
1	2½	10:59½	794.245	0.70	0.74	0.74	223	77	77	3	250	65
2	5	11:02	795.500	0.80	0.85	0.85	224	78	78	3	248	54
3	7½	11:04½	796.740	0.80	0.85	0.85	225	79	78	3	249	53
4	10	11:07	798.015	0.83	0.88	0.88	224	79	78	3	250	59
5	12½	11:09½	799.385	0.89	0.94	0.94	226	79	79	3	249	61
6	15	11:12	800.590	0.83	0.88	0.88	228	82	79	3	246	59
7	17½	11:14½	801.860	0.83	0.88	0.88	223	83	80	3	248	58
8	20	11:17	803.125	0.~~85~~	~~0.88~~	~~0.88~~	224	84	80	3	249	58
9	22½	11:19½	804.410	0.83	0.88	0.88	223	84	80	3	250	60
10	25	11:22	805.265	0.25	0.27	0.27	224	84	81	3	248	57
11	27½	11:24½	806.015	0.25	0.27	0.27	224	87	82	3	250	59
12	30	11:27	806.752	0.25	0.27	0.27	224	88	83	3	248	59
X	STOP	11:30	SWITCH PORTS *	~~0.85~~								
1	32½	11:32½	808.250	~~[illegible]~~	0.91	0.91	222	87	83	4	249	60
2	35	11:35	809.370	0.60	0.64	0.64	227	88	84	3	247	59
3	37½	11:37½	810.605	0.75	0.80	0.80	223	88	84	3	247	58
4	40	11:40	811.415	0.30	0.32	0.32	226	89	85	3	246	58
5	42½	11:42½	812.430	0.50	0.54	0.54	226	90	85	3	246	59
6	45	11:45	813.675	0.80	0.86	0.86	225	90	86	4	247	58
7	47½	11:47½	815.110	0.96	1.03	1.03	226	90	86	4	250	59
8	50	11:50	816.135	0.55	0.59	0.59	227	92	87	3	247	58
9	52½	11:52½	817.065	0.40	0.43	0.43	228	92	88	3	250	59
10	55	11:55	817.940	0.35	0.38	0.38	227	93	88	3	246	59
COMMENTS: 11	57½	11:57½	818.820	0.35	0.38	0.38	228	94	90	3	247	60
12	60	12:00	819.762	0.40	0.43	0.43	228	94	90	3	248	60

EPA (Dur) 235 1/72

A00210

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Dryer 3
RUN: 1
DATE: June 11, 1991

GAS METER READING	VELOCITY HEAD	SQUARE ROOT		ORIFICE PRESSURE DELTA H		STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
793.062	0.7	0.836660		0.74		223	77	77
819.762	0.8	0.894427		0.85		224	78	78
---------	0.8	0.894427		0.85		225	79	78
26.700	0.83	0.911043		0.88		224	79	78
=========	0.89	0.943398		0.94		226	79	79
(DIFFERENCE)	0.83	0.911043		0.88		228	82	79
	0.83	0.911043		0.88		223	83	80
	0.83	0.911043		0.89		224	84	80
	0.83	0.911043		0.88		223	84	80
	0.25	0.5		0.27		224	84	81
	0.25	0.5		0.27		224	87	82
	0.25	0.5		0.27		224	88	83
	0.85	0.921954		0.91		222	87	83
	0.6	0.774596		0.64		227	88	84
	0.75	0.866025		0.8		223	88	84
	0.3	0.547722		0.32		226	89	85
	0.5	0.707106		0.54		226	90	85
	0.8	0.894427		0.86		225	90	86
	0.96	0.979795		1.03		226	90	86
	0.55	0.741619		0.59		227	92	87
	0.4	0.632455		0.43		228	92	88
	0.35	0.591607		0.38		227	93	88
	0.35	0.591607		0.38		228	94	90
	0.4	0.632455		0.43		228	94	90
		---------	AVERAGE SQUARED					
	AVERAGE	0.771062	0.595	AVERAGE 0.66	AVERAGE	225.2083	AVERAGE	84.63
		=========	=========	============		=========		=========

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Dryer 3
RUN: 2
DATE: June 11, 1991

GAS METER READING	VELOCITY HEAD	SQUARE ROOT		ORIFICE PRESSURE DELTA H	STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
820.314	0.6	0.774596		1.23	221	92	92
853.265	0.55	0.741619		1.13	223	91	91
---------	0.52	0.721110		1.07	220	90	90
32.951	0.57	0.754983		1.17	221	89	90
=========	0.61	0.781024		1.38	218	90	90
(DIFFERENCE)	0.55	0.741619		1.14	212	90	90
	0.6	0.774596		1.25	210	91	90
	0.35	0.591607		0.73	211	92	90
	0.35	0.591607		0.73	212	92	90
	0.3	0.547722		0.62	212	92	90
	0.35	0.591607		0.73	212	92	90
	0.4	0.632455		0.83	210	92	90
	0.9	0.948683		1.87	215	93	91
	0.69	0.830662		1.43	214	93	91
	0.4	0.632455		0.83	214	92	90
	0.35	0.591607		0.72	215	92	90
	0.65	0.806225		1.34	216	93	89
	0.8	0.894427		1.65	217	93	89
	0.9	0.948683		1.86	218	93	89
	0.55	0.741619		1.13	220	93	89
	0.4	0.632455		0.82	221	93	90
	0.35	0.591607		0.72	221	92	89
	0.4	0.632455		0.82	222	92	89
	0.35	0.591607		0.72	223	91	88
		---------	AVERAGE SQUARED				
	AVERAGE	0.711960	0.507	AVERAGE 1.08	AVERAGE 216.5833	AVERAGE	90.83
		=========	=========	============	=========		=========

A00212

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Dryer 3
RUN: 3
DATE: June 11, 1991

GAS METER READING	VELOCITY HEAD	SQUARE ROOT	AVERAGE SQUARED	ORIFICE PRESSURE DELTA H	STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
853.693	0.75	0.866025		1.53	209	78	78
887.178	0.85	0.921954		1.74	209	79	79
---------	0.95	0.974679		1.94	210	80	79
33.485	0.95	0.974679		1.94	211	83	79
=========	0.9	0.948683		1.84	212	83	79
(DIFFERENCE)	0.85	0.921954		1.74	213	86	80
	0.45	0.670820		0.92	215	86	80
	0.33	0.574456		0.68	214	88	80
	0.3	0.547722		0.62	213	88	80
	0.3	0.547722		0.62	213	88	81
	0.35	0.591607		0.72	214	88	81
	0.35	0.591607		0.72	213	87	81
	0.75	0.866025		1.53	215	87	81
	0.65	0.806225		1.33	214	87	81
	0.6	0.774596		1.23	214	87	81
	0.5	0.707106		1.03	213	87	81
	0.6	0.774596		1.23	214	86	82
	0.8	0.894427		1.64	212	87	82
	0.75	0.866025		1.54	213	87	81
	0.55	0.741619		1.13	212	88	82
	0.35	0.591607		0.72	211	88	82
	0.25	0.5		0.52	210	88	81
	0.25	0.5		0.52	211	88	82
	0.3	0.547722		0.62	210	88	82

	AVERAGE	0.737577	0.544	AVERAGE 1.17	AVERAGE 212.2916	AVERAGE	83.27
		=========	=========	=============	=========		=========

A00213

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. ______ 2. ______
3. ______ 4. ______
Indicate by numbers in box under Sample column.

Holly Sugar
Dryer # 3
Test #1

Requestor ______
JN ______
Assigned to ______
Date Assigned ______

ALL WEIGHTS IN GRAMS

TARE WEIGHT		SAMPLE NUMBER	FILTER OR CONTAINER#	TARE + SAMPLE WEIGHT	
1. 109.1613	9.	Probe	22.3	1. 109.4542	9.
2. 109.1618	10.			2. 109.4547	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	109.4545	3. 109.4525	11.
4.	12.			4. 109.4521	12.
5.	13.	FILTER OR CONTAINER TARE	109.1616	5. 109.4501	13.
6.	14.			6. 109.4547	14.
7.	15.	SAMPLE	0.2929	7.	15.
8.	16.			8.	16.

TARE WEIGHT		SAMPLE NUMBER	FILTER OR CONTAINER#	TARE + SAMPLE WEIGHT	
1. 0.3564	9.	Filter	3.128	1. 0.3789	9.
2. 0.3565	10.			2. 0.3789	10.
3. 0.3564	11.	FILTER OR CONTAINER PLUS SAMPLE	0.3789	3. 0.3790	11.
4.	12.			4.	12.
5.	13.	FILTER OR CONTAINER TARE	0.3564	5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE	0.0225	7.	15.
8.	16.			8.	16.

TARE WEIGHT		SAMPLE NUMBER	FILTER OR CONTAINER#	TARE + SAMPLE WEIGHT	
1. 104.7189	9.	Imp I	23.3	1. 104.7311	9.
2. 104.7195	10.			2. 104.7314	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	104.7312	3. 104.7311	11.
4.	12.			4.	12.
5.	13.	FILTER OR CONTAINER TARE	104.7192	5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE	0.0120	7.	15.
8.	16.			8.	16.

TARE WEIGHT		SAMPLE NUMBER	FILTER OR CONTAINER#	TARE + SAMPLE WEIGHT	
1. 108.6984	9.	Imp O	24.3	1. 108.7002	9.
2. 108.6978	10.			2. 108.7000	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	108.7001	3. 108.7001	11.
4.	12.			4.	12.
5.	13.	FILTER OR CONTAINER TARE	108.6981	5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE	0.0020	7.	15.
8.	16.			8.	16.

A00214

WES

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates

1. ________ 2. ________

3. ________ 4. ________

Indicate by numbers in box under Sample column.

Holly Sugar
Dryer #3
Test #2

Requestor ________

JN ________

Assigned to ________

Date Assigned ________

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 104.6866	9.	SAMPLE NUMBER	Probe	1. 104.9729	9.
2. 104.6867	10.	FILTER OR CONTAINER#	25.3	2. 104.9731	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	104.9727	3. 104.9700	11.
4.	12.	FILTER OR CONTAINER TARE	104.6867	4. 104.9691	12.
5.	13.	SAMPLE	0.2860	5. 104.9667	13.
6.	14.			6. 104.9721	14.
7.	15.			7.	15.
8.	16.			8.	16.

1. 0.3514	9.	SAMPLE NUMBER	Filter	1. 0.3926	9.
2. 0.3513	10.	FILTER OR CONTAINER#	3.129	2. 0.3925	10.
3. 0.3513	11.	FILTER OR CONTAINER PLUS SAMPLE	0.3927	3. 0.3929	11.
4.	12.	FILTER OR CONTAINER TARE	0.3513	4.	12.
5.	13.	SAMPLE	0.0414	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

1. 106.4221	9.	SAMPLE NUMBER	Imp I	1. 106.4346	9.
2. 106.4229	10.	FILTER OR CONTAINER#	26.3	2. 106.4342	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	106.4343	3. 106.4342	11.
4.	12.	FILTER OR CONTAINER TARE	106.4225	4.	12.
5.	13.	SAMPLE	0.0118	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

1. 107.8717	9.	SAMPLE NUMBER	Imp O	1. 107.8740	9.
2. 107.8725	10.	FILTER OR CONTAINER#	27.3	2. 107.8740	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	107.8740	3. 107.8740	11.
4.	12.	FILTER OR CONTAINER TARE	107.8721	4.	12.
5.	13.	SAMPLE	0.0019	5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

WES

FIELD DATA

PLANT Holly Sugar
DATE
SAMPLING LOCATION Dryer #3
SAMPLE TYPE
RUN NUMBER #2
OPERATOR
AMBIENT TEMPERATURE
BAROMETRIC PRESSURE
STATIC PRESSURE, (P_s)
FILTER NUMBER (s)

PROBE LENGTH AND TYPE
NOZZLE I.D.
ASSUMED MOISTURE, %
SAMPLE BOX NUMBER
METER BOX NUMBER
METER $\Delta H_@$
C FACTOR
PROBE HEATER SETTING
HEATER BOX SETTING
REFERENCE Δp

SCHEMATIC OF TRAVERSE POINT LAYOUT

READ AND RECORD ALL DATA EVERY ______ MINUTES

AUG 21 '72

NE PORT

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
1				.30			205					
2				.30			206					
3				.25			208					
4				.30			208					
5				.45			209					
6				.70			209					
7				.75			209					
8				.85			211					
9				.75			205					
10				.75			205					
11				.80			207					
12				.85			207					
1				.70			202					
2				.65			208					
3				.50			212					
4				.35			213					
5				.65			215					
6				.75			215					
7				.60			216					
8				.65			219					
9				.60			219					
10				.55			220					
11				.45			220					

NW

COMMENTS:
12 .50 218

.567 211

EPA (Dur) 235
4/72

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1.______ 2.______
3.______ 4.______
Indicate by numbers in box under Sample column.

Holly Sugar
Dryer #3
Test #3

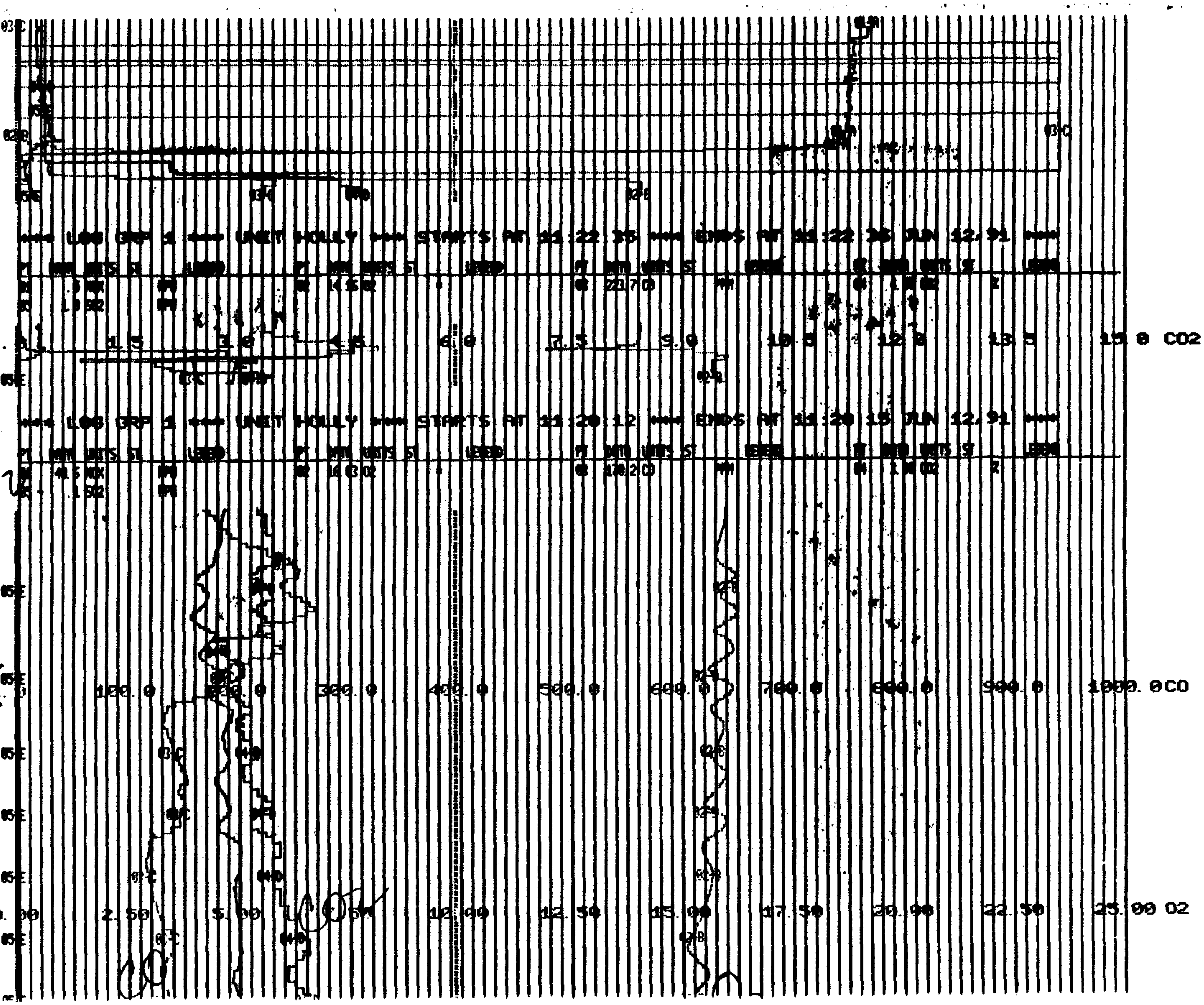
Requestor ______
JN ______
Assigned to ______
Date Assigned ______

ALL WEIGHTS IN GRAMS

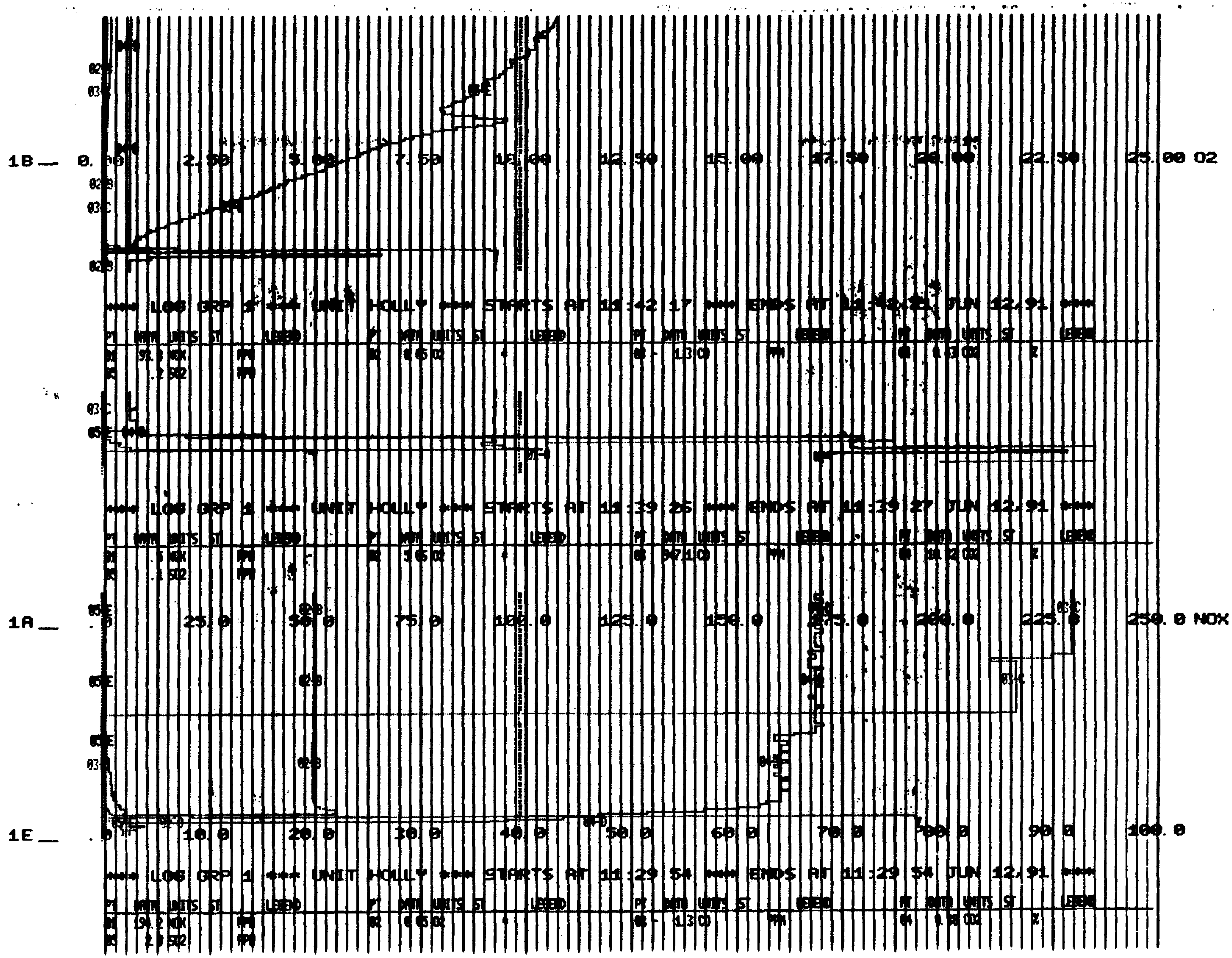
TARE WEIGHT		SAMPLE NUMBER	FILTER OR CONTAINER #	FILTER OR CONTAINER PLUS SAMPLE	FILTER OR CONTAINER TARE	SAMPLE	TARE + SAMPLE WEIGHT	
1. 104.9093 2. 104.9098		Probe	28.3	105.1685	104.9096	0.2589	1. 105.1685 2. 105.1687 3. 105.1666 4. 105.1658 5. 105.1639 6. 105.1684	
1. 0.3529 2. 0.3529 3. 0.3531		Filter	3.130	0.4210	0.3530	0.0680	1. 0.4211 2. 0.4209 3. 0.4211	
1. 108.7649 2. 108.7658		Imp I	29.3	108.2831	108.2654	0.0177	1. 108.2828 2. 108.2833 3. 108.2832	
1. 107.0413 2. 107.0422		Imp O	30.3	107.0431	107.0418	0.0013	1. 107.0432 2. 107.0431 3. 107.0430	

A00216

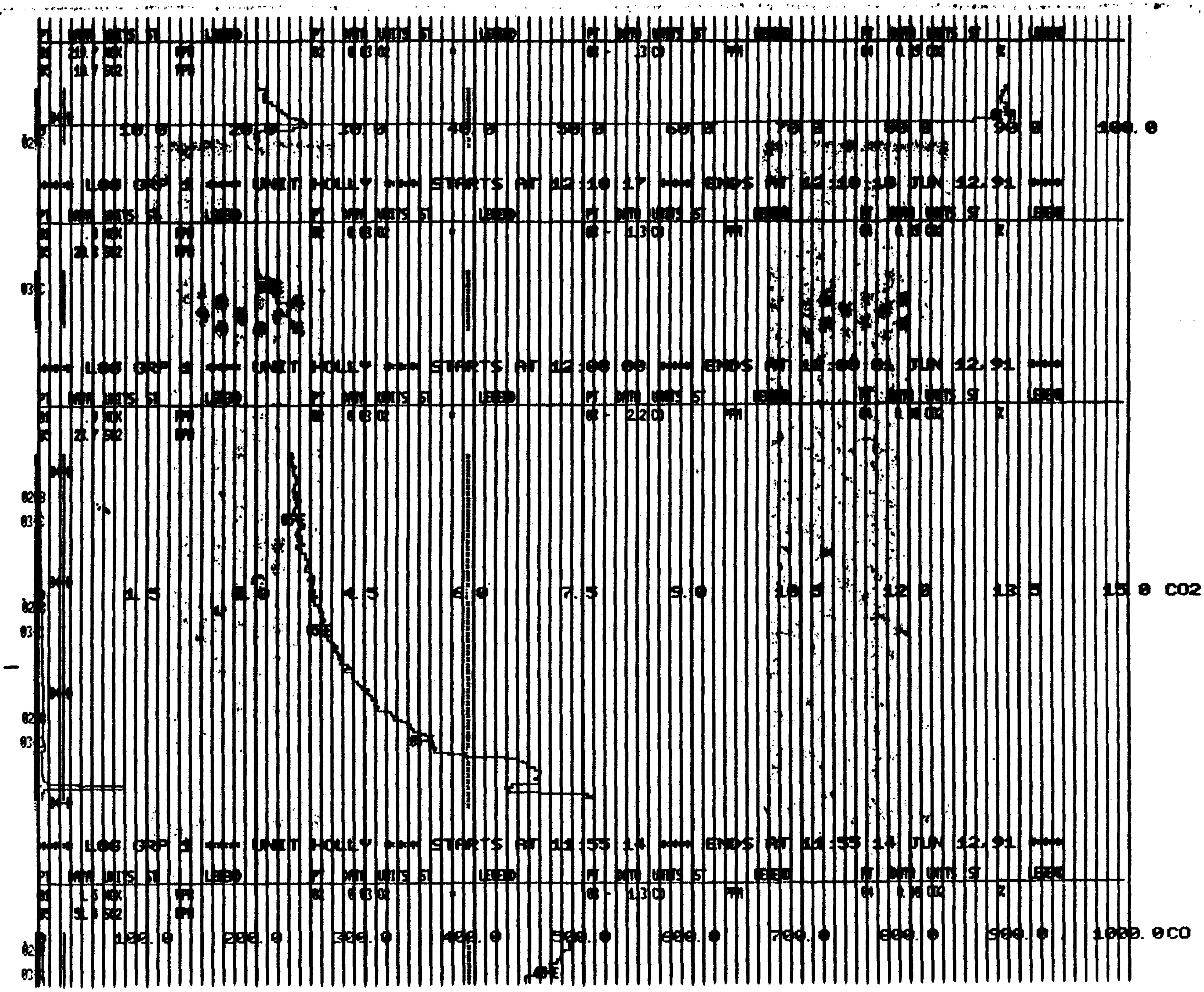
WES



1D —
End Test 1 Dryer 2
6
1C — 5
5G PORT
1B — 4
A0C192

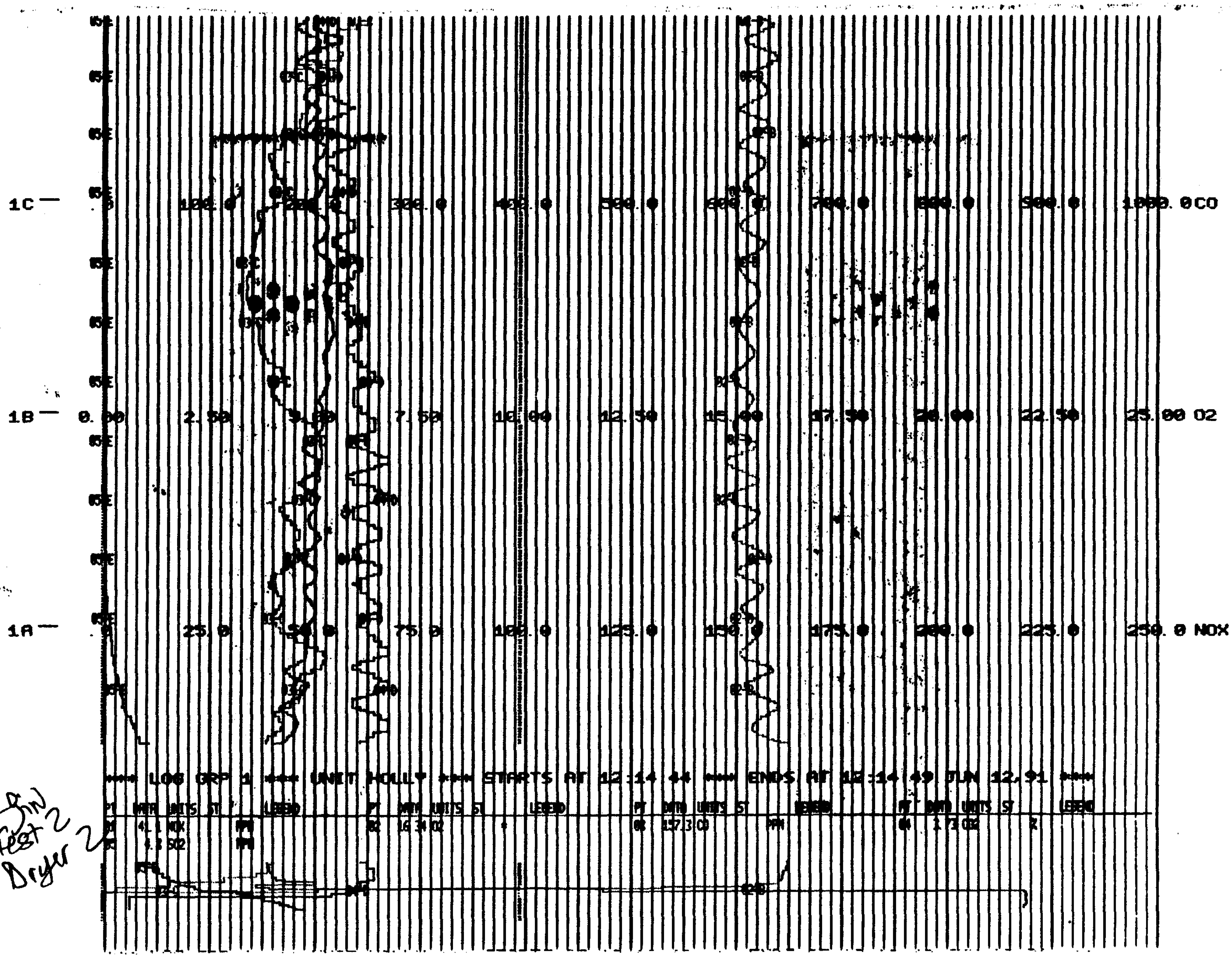

1B
0.00
2.50
5.00
7.50
10.00
12.50
15.00
17.50
20.00
22.50
25.00 O2
*** LOG GRP 5 *** UNIT HOLLY *** STARTS AT 11:42:17
JUN 12,91 ***
1A
25.0
50.0
75.0
100.0
125.0
150.0
175.0
200.0
225.0
250.0 NOX
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:39:26 *** ENDS AT 11:39:27 JUN 12,91 ***
1E
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:29:54 *** ENDS AT 11:29:54 JUN 12,91 ***

A00193



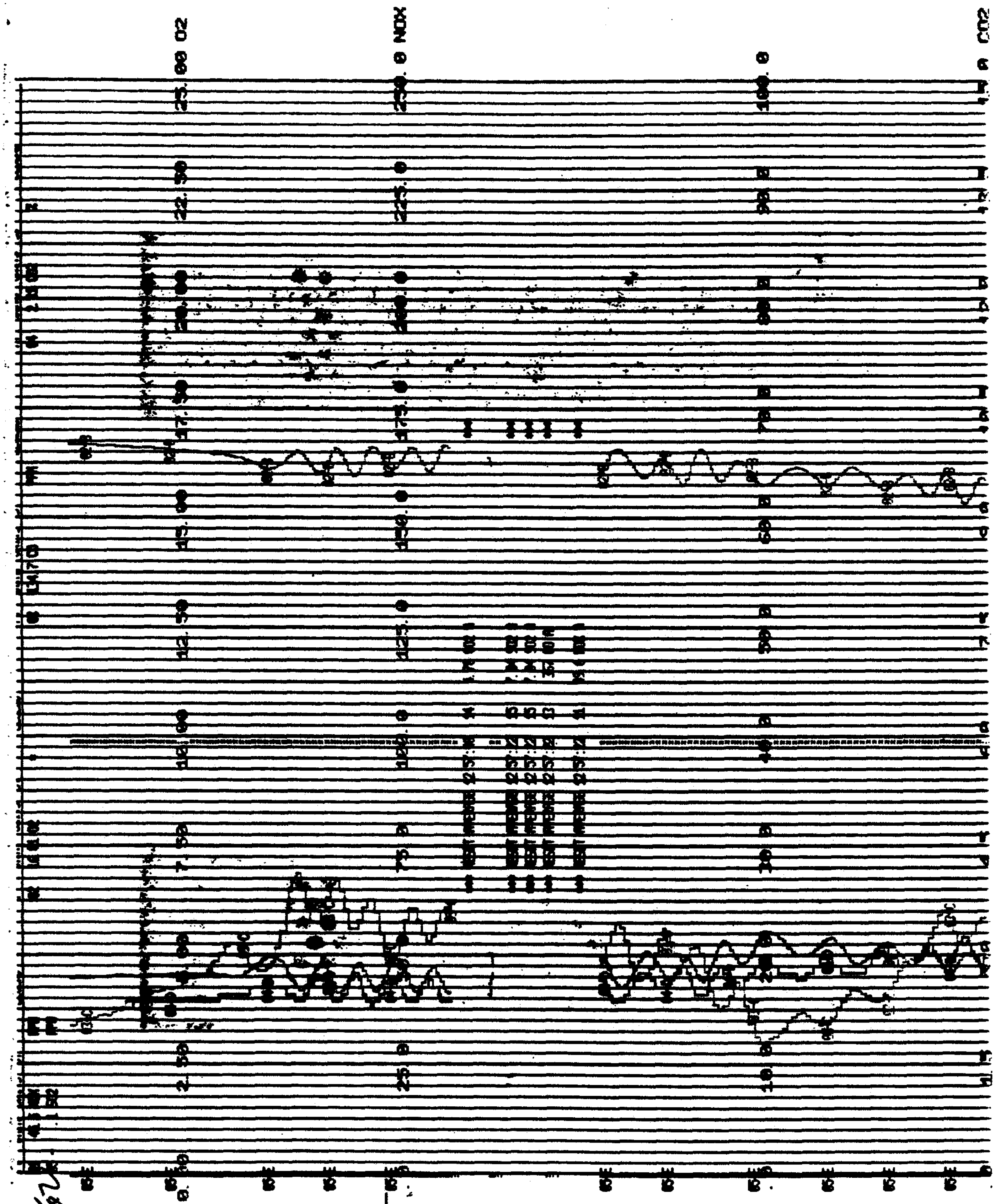
1E
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 12:10:17 *** ENDS AT 12:10:18 JUN 12,91 ***
1D
12:00:06
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 11:55:14 *** ENDS AT 11:55:14 JUN 12,91 ***
1C
100.0
15.0 CO2
1000.0 CO

A0C194

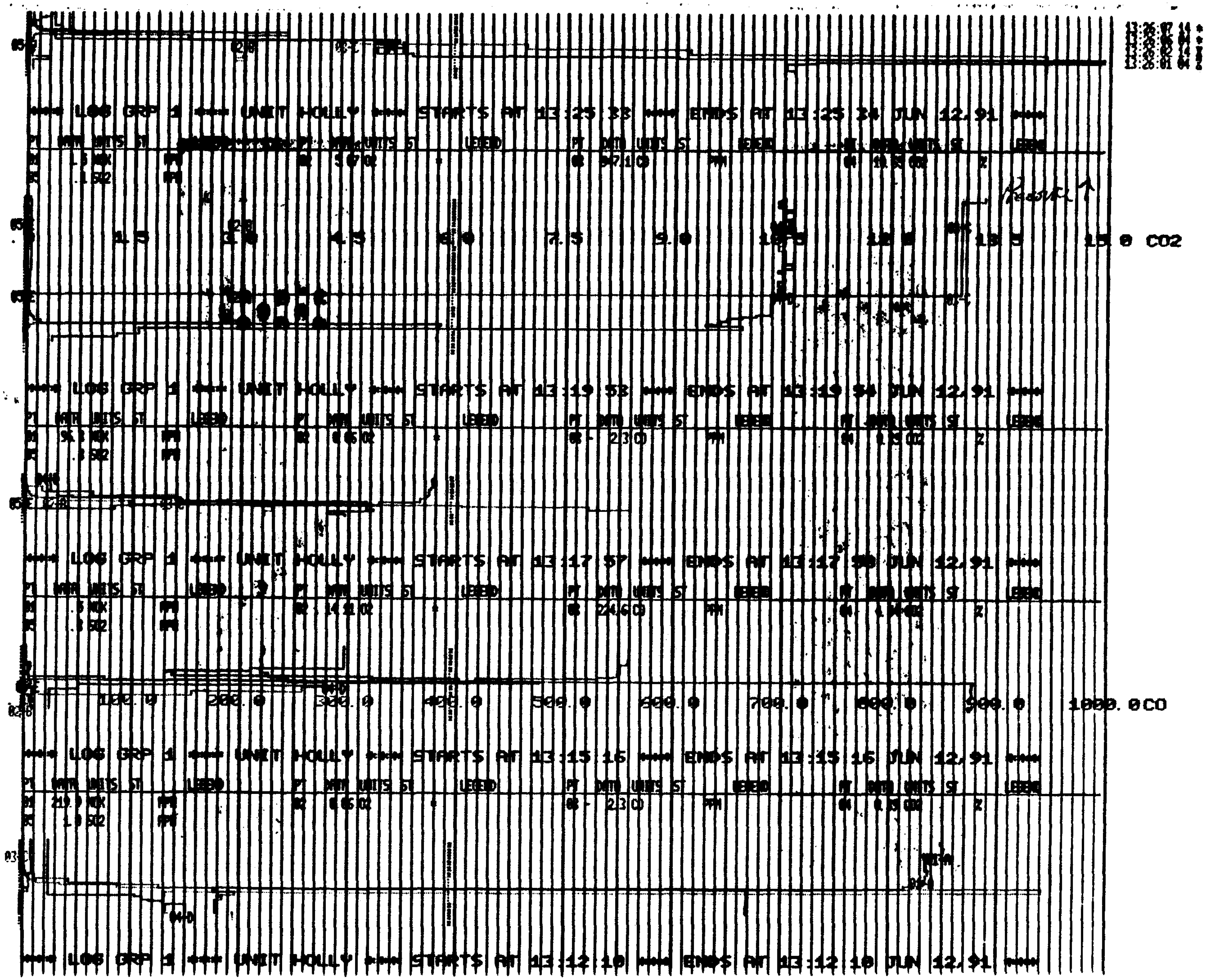


Begin Test 2 Dryer 2

A0G195



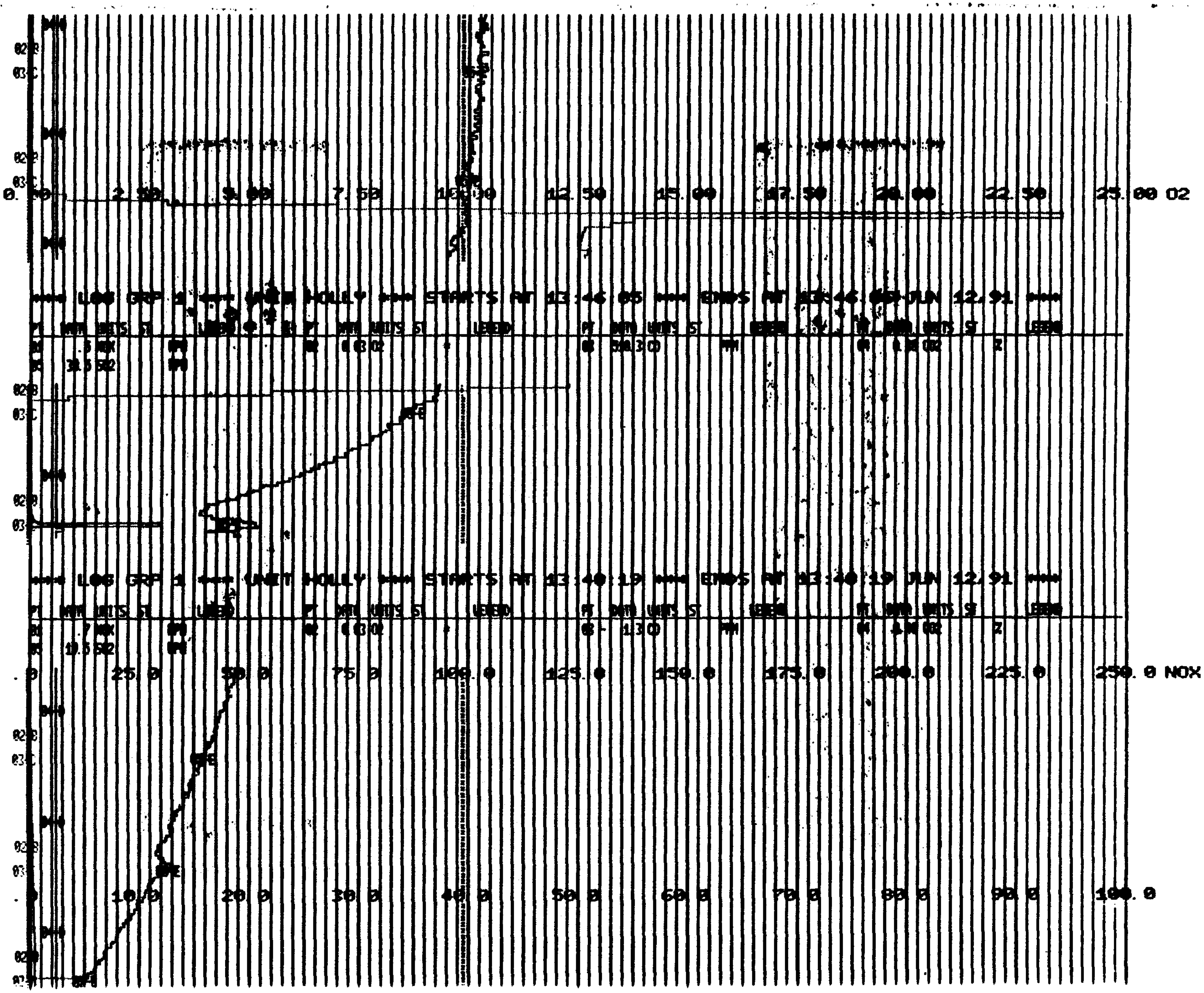
A00196



*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 13:25:33 *** ENDS AT 13:25:34 JUN 12,91 ***
1.5 3.0 4.5 6.0 7.5 9.0 10.5 12.0 13.5 15.0 CO2
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 13:19:53 *** ENDS AT 13:19:54 JUN 12,91 ***
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 13:17:57 *** ENDS AT 13:17:58 JUN 12,91 ***
100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 13:15:16 *** ENDS AT 13:15:16 JUN 12,91 ***
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 13:12:10 *** ENDS AT 13:12:10 JUN 12,91 ***

1D
1C

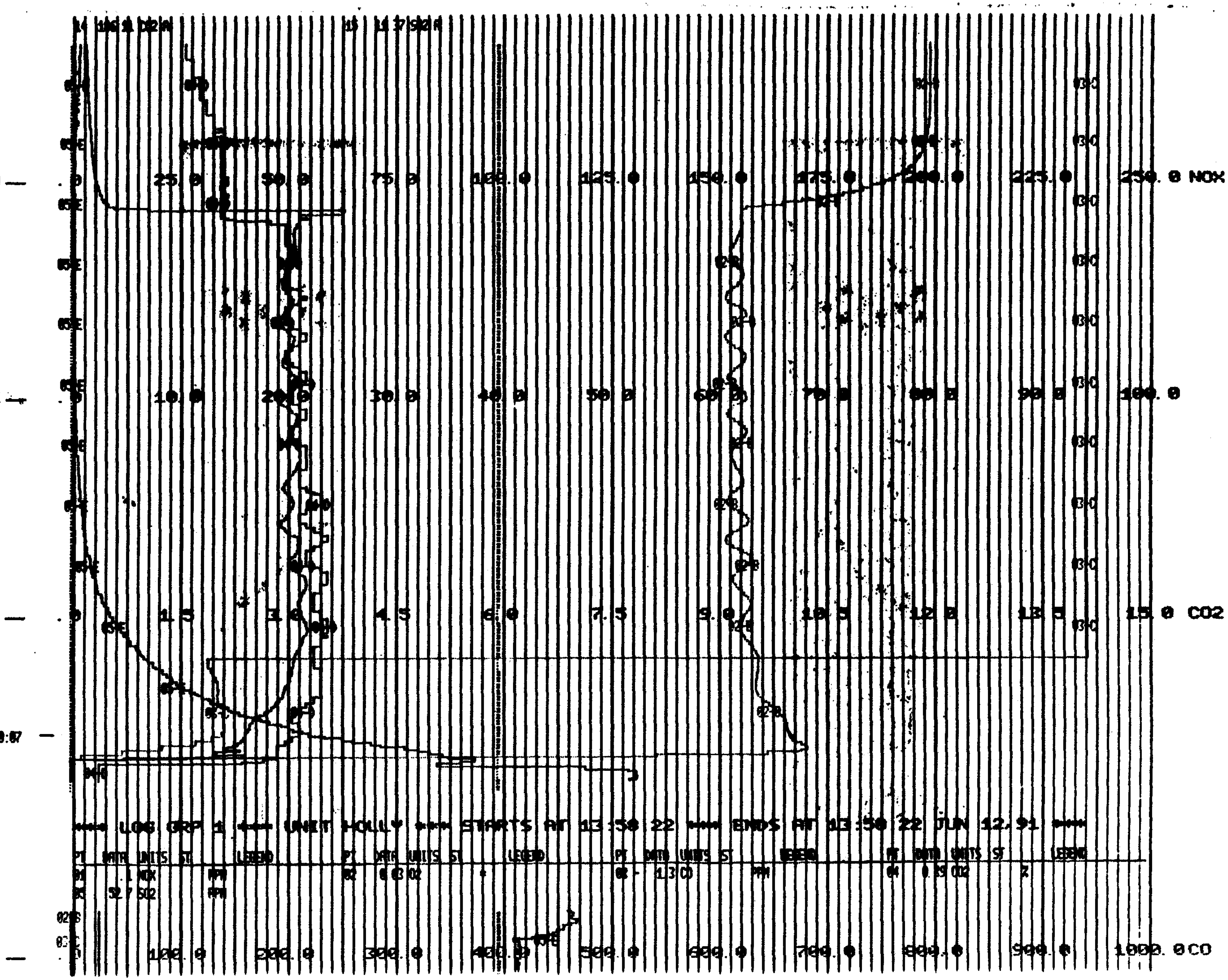
A00197



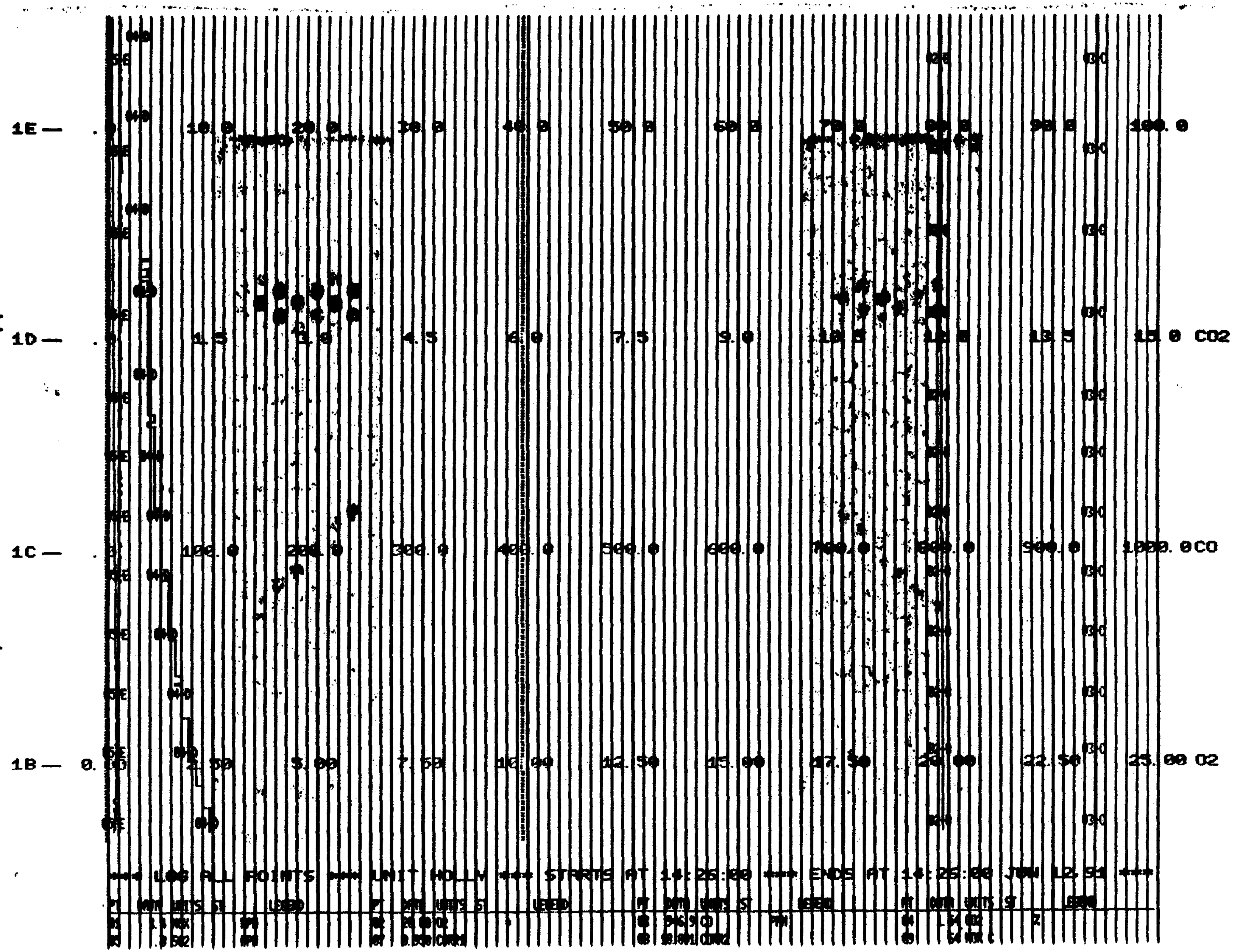
CO 503 Drift

A00198

A00199

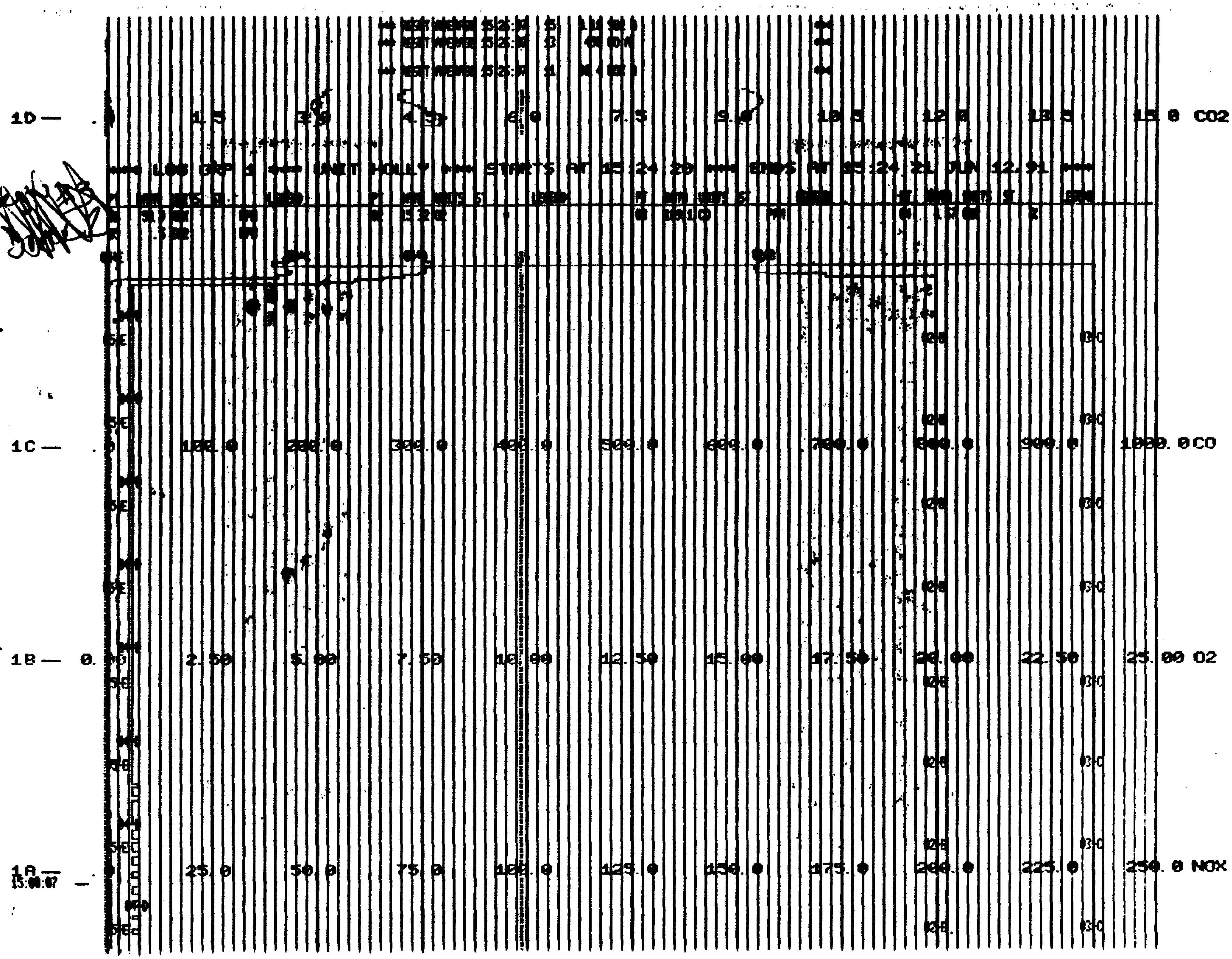


250.0 NOX
100.0
15.0 CO2
1000.0 CO
1A
1E
1D
1C
14:00:07
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 13:50 22 *** ENDS AT 13:50 22 JUN 12, 91 ***
PT DATA UNITS ST LEGEND
01 1 NOX PPM
05 52.7 SO2 PPM
02 0.03 O2 %
03 1.3 CO PPM
04 0.19 CO2 %



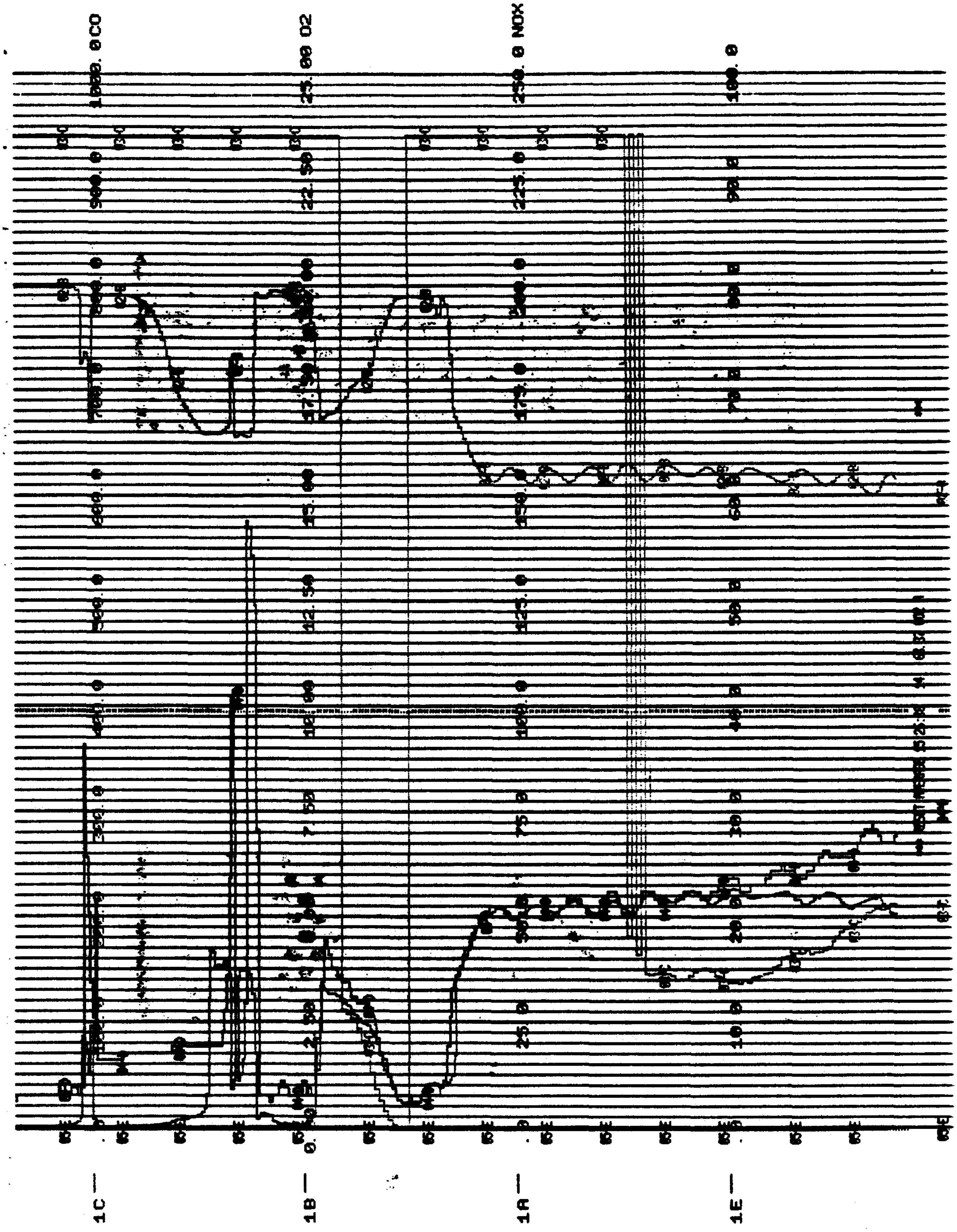
1E — 0 10.0 20.0 30.0 40.0 50.0 60.0 70.0 80.0 90.0 100.0
1D — 0 1.5 3.0 4.5 6.0 7.5 9.0 10.5 12.0 13.5 15.0 CO2
1C — 0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
1B — 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 O2
*** LOG ALL POINTS *** UNIT HOLLY *** STARTS AT 14:26:00 *** ENDS AT 14:26:00 JUN 12 91 ***

A00200

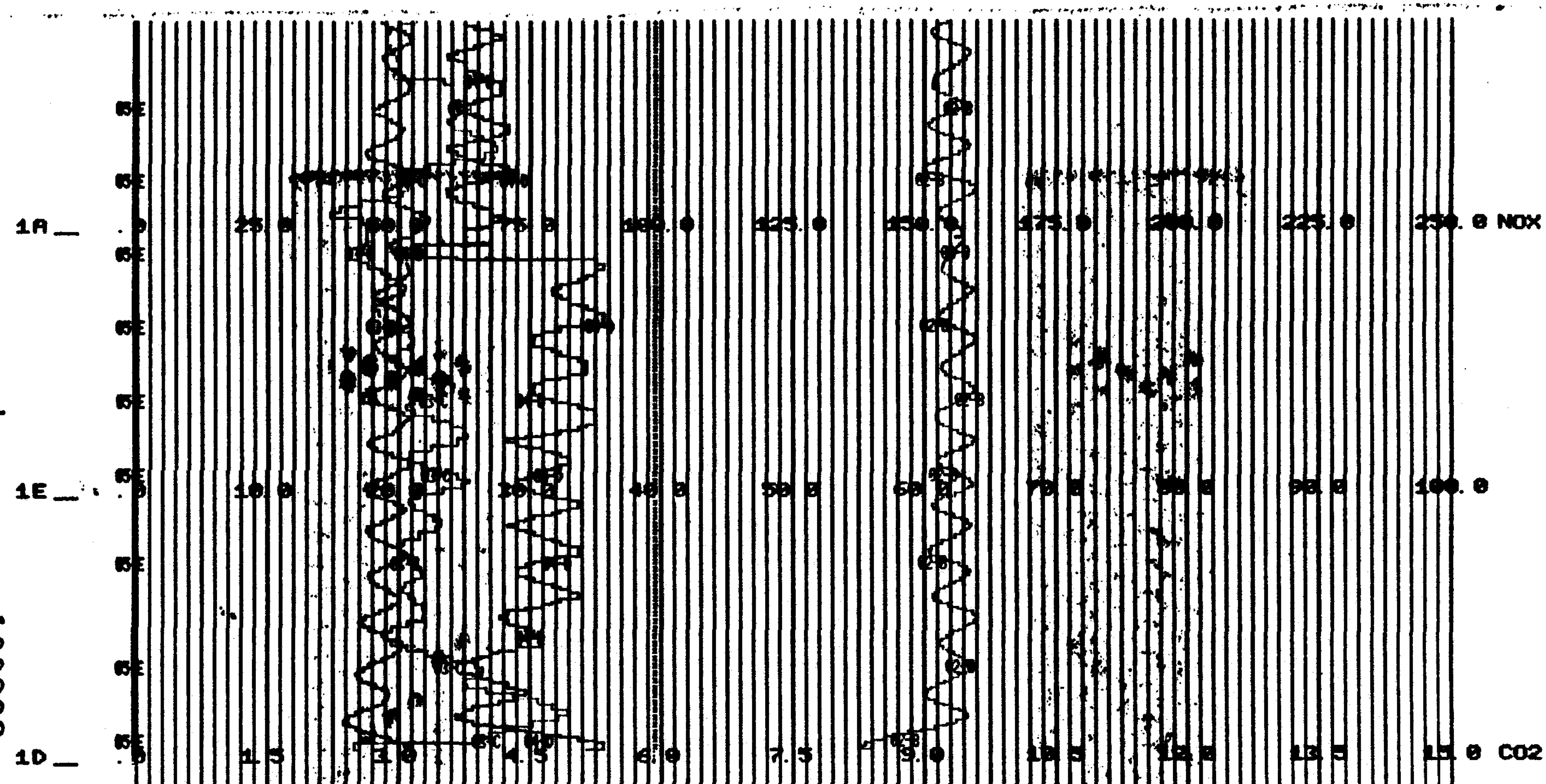


1D
1C
1B
1A
0 1.5 3.0 4.5 6.0 7.5 9.0 10.5 12.0 13.5 15.0 CO2
0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
0. 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 O2
0 25.0 50.0 75.0 100.0 125.0 150.0 175.0 200.0 225.0 250.0 NOX

A00201



A00202



*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 16:04:57 *** ENDS AT 16:04:59 JUN 12,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	51.5	NOX		PPM	02	14.65	O2		%	03	173.2	CO		PPM	04	1.12	CO2		%
05	.2	SO2		PPM															

Begin test 3 Drger 2

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 16:03:44 *** ENDS AT 16:03:45 JUN 12,91 ***

PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND	PT	DATA	UNITS	ST	LEGEND
01	51.1	NOX		PPM	02	15.44	O2		%	03	946.9	CO		PPM	04	1.14	CO2		%
05	.2	SO2		PPM															

GRP 1

A0G203

FIELD DATA

PLANT Holly Sugar
DATE 6/11/91
SAMPLING LOCATION Dryer #3
SAMPLE TYPE Particulate
RUN NUMBER #3
OPERATOR Marcotte
AMBIENT TEMPERATURE 78°F
BAROMETRIC PRESSURE 28.90
STATIC PRESSURE, (P_s) -0.
FILTER NUMBER (s) 3.130 (3")

DRYER #3
PARTICULATE
RUN #3

PROBE LENGTH AND TYPE #3 (5' S.S.)
NOZZLE I.D. 0.2450
ASSUMED MOISTURE, % 25%
SAMPLE BOX NUMBER WES #11
METER BOX NUMBER WES #11
METER $\Delta H_@$ WES #11
C FACTOR —
PROBE HEATER SETTING 250° F
HEATER BOX SETTING 250° F
REFERENCE Δp #5 (0-2")

ml
+ g
= VLC

SCHEMATIC OF TRAVERSE POINT LAYOUT

prelеak √L .015 cfm @ 15" READ AND RECORD ALL DATA EVERY 2½ MINUTES postleak √L .010 cfm @ 10"

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
	0	4:00	853.693									
1		4:02½	855.285	0.75	1.53	1.53	209	78	78	3	247	62
2	5	4:05	856.980	0.85	1.74	1.74	209	79	79	5	252	58
3		4:07½	858.775	0.95	1.94	1.94	210	80	79	6	246	55
4	10	4:10	860.585	0.95	1.94	1.94	211	83	79	6	245	62
5		4:12½	862.370	0.90	1.84	1.84	212	83	79	5	247	63
6	15	4:15	864.105	0.85	1.74	1.74	213	86	80	5	248	62
7		4:17½	865.425	0.45	0.92	0.92	215	86	80	3	248	63
8	20	4:20	866.560	0.33	0.68	0.68	214	88	80	3	248	63
9		4:22½	867.630	0.30	0.62	0.62	213	88	80	3	249	64
10	25	4:25	868.695	0.30	0.62	0.62	213	88	81	3	248	62
11		4:27½	869.875	0.35	0.72	0.72	214	88	81	3	247	61
12	30	4:30	871.055	0.35	0.72	0.72	213	87	81	3	248	61
*	STOP	4:32	SWITCH PORTS *									*
1		4:34½	872.600	0.75	1.53	1.53	215	87	81	4	248	60
2	35	4:37	874.090	0.65	1.33	1.33	214	87	81	4	247	59
3		4:39½	875.525	0.60	1.23	1.23	214	87	81	4	249	59
4	40	4:42	876.870	0.50	1.03	1.03	213	87	81	4	248	60
5		4:44½	878.290	0.60	1.23	1.23	214	86	82	5	246	61
6	45	4:47	879.935	0.80	1.64	1.64	212	87	82	7	248	60
7		4:49½	881.550	0.75	1.54	1.54	213	87	81	6	247	61
8	50	4:52	882.945	0.55	1.13	1.13	212	88	82	5	248	62
9		4:54½	884.125	0.35	0.72	0.72	211	88	82	4	246	63
10	55	4:57	885.105	0.25	0.52	0.52	210	88	81	4	248	62
COMMENTS: 11		4:59½	886.090	0.25	0.52	0.52	211	88	82	4	250	62
12	60	5:02	887.178	0.30	0.62	0.62	210	88	82	4	248	61

EPA (Dur) 235
4/72

A0C218

FIELD DATA

PLANT Holly Sugar
DATE
SAMPLING LOCATION Dryer #3 South stack
SAMPLE TYPE Velocity/~~[illegible]~~ Temp
RUN NUMBER #1
OPERATOR
AMBIENT TEMPERATURE
BAROMETRIC PRESSURE
STATIC PRESSURE, (P_s)
FILTER NUMBER (s)

PROBE LENGTH AND TYPE
NOZZLE I.D.
ASSUMED MOISTURE, %
SAMPLE BOX NUMBER
METER BOX NUMBER
METER $\Delta H_@$
C FACTOR
PROBE HEATER SETTING
HEATER BOX SETTING
REFERENCE Δp

SCHEMATIC OF TRAVERSE POINT LAYOUT

READ AND RECORD ALL DATA EVERY ______ MINUTES

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m_{in}}$), °F	DRY GAS METER TEMPERATURE OUTLET ($T_{m_{out}}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
1				.35			208					
2				.30			222					
3				.25			224					
4				.30			225					
5				.50			227					
6				.50			227					
7				.75			227					
9				.65			225					
9				.60			223					
10				.50			223					
11				.60			223					
12				.65			220					
1				.50			228					
2				.45			226					
3				.20			241					
4				.23			250					
5				.35			270					
6				.50			243					
7				.45			250					
8				.50			248					
9				.45			242					
10				.40			251					
11				.33			245					
12				.30			240					

COMMENTS:

.430

234

NE port

NW port

A00219

FIELD DATA

PLANT Holly Sugar
DATE 6/11/91
SAMPLING LOCATION Dryer # 3
SAMPLE TYPE Particulate
RUN NUMBER # 2
OPERATOR Marcotte
AMBIENT TEMPERATURE 96°F
BAROMETRIC PRESSURE 28.90
STATIC PRESSURE, (P_s) -0-
FILTER NUMBER (s) 3.129 (3")

DRYER # 3
PARTICULATE
RUN # 2

PROBE LENGTH AND TYPE #3 (s.s. - 5')
NOZZLE I.D. 0.2450
ASSUMED MOISTURE, % 25%
SAMPLE BOX NUMBER WES # 11
METER BOX NUMBER WES # 11
METER $\Delta H_@$ WES # 11
C FACTOR —
PROBE HEATER SETTING 250° F
HEATER BOX SETTING 250° F
REFERENCE Δp #5 (0-2")

ml
9
+
= VLC

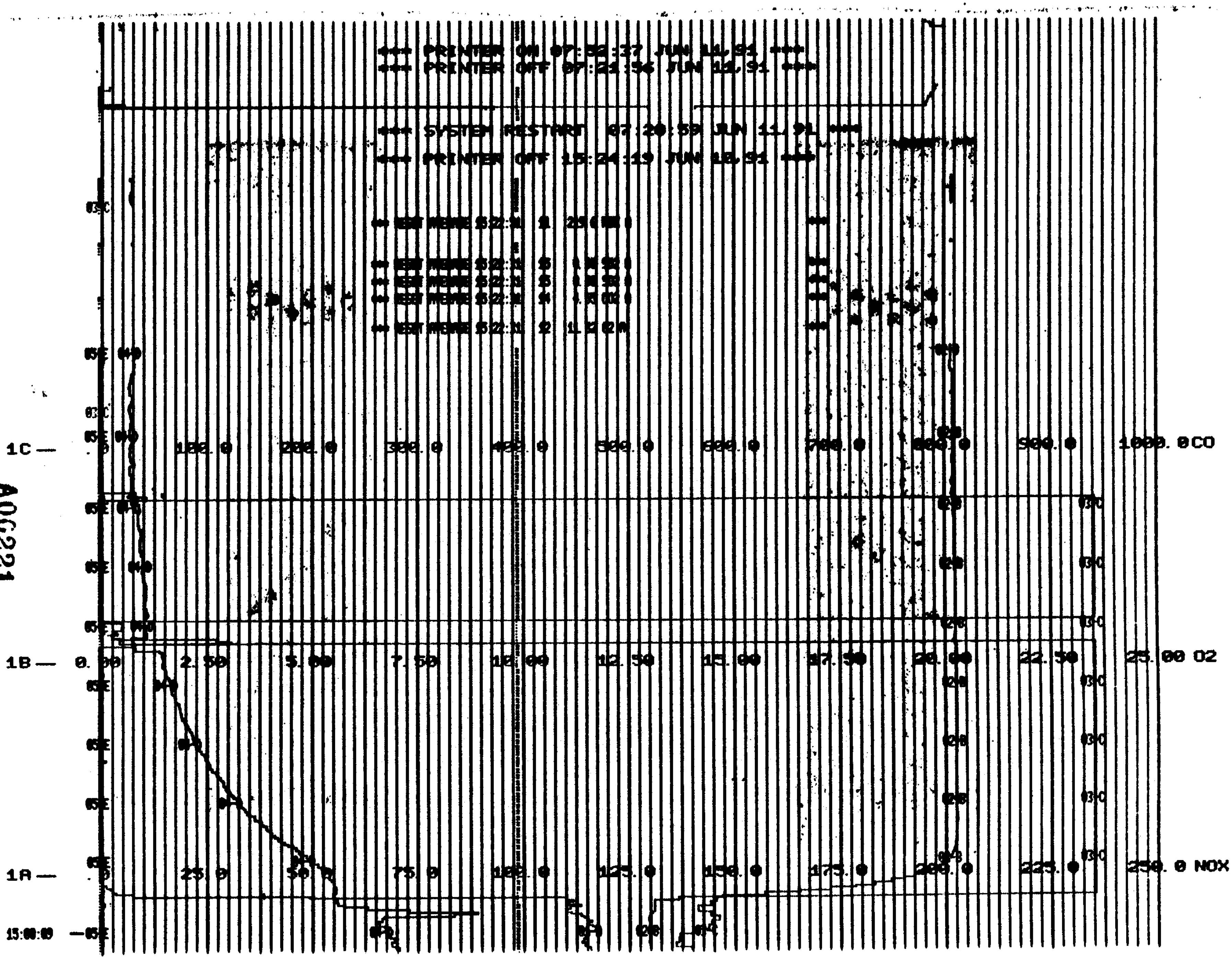
SCHEMATIC OF TRAVERSE POINT LAYOUT

preleak ✓ < .015 cfm @ 15" READ AND RECORD ALL DATA EVERY 2½ MINUTES postleak ✓ < .010 cfm @ 10"

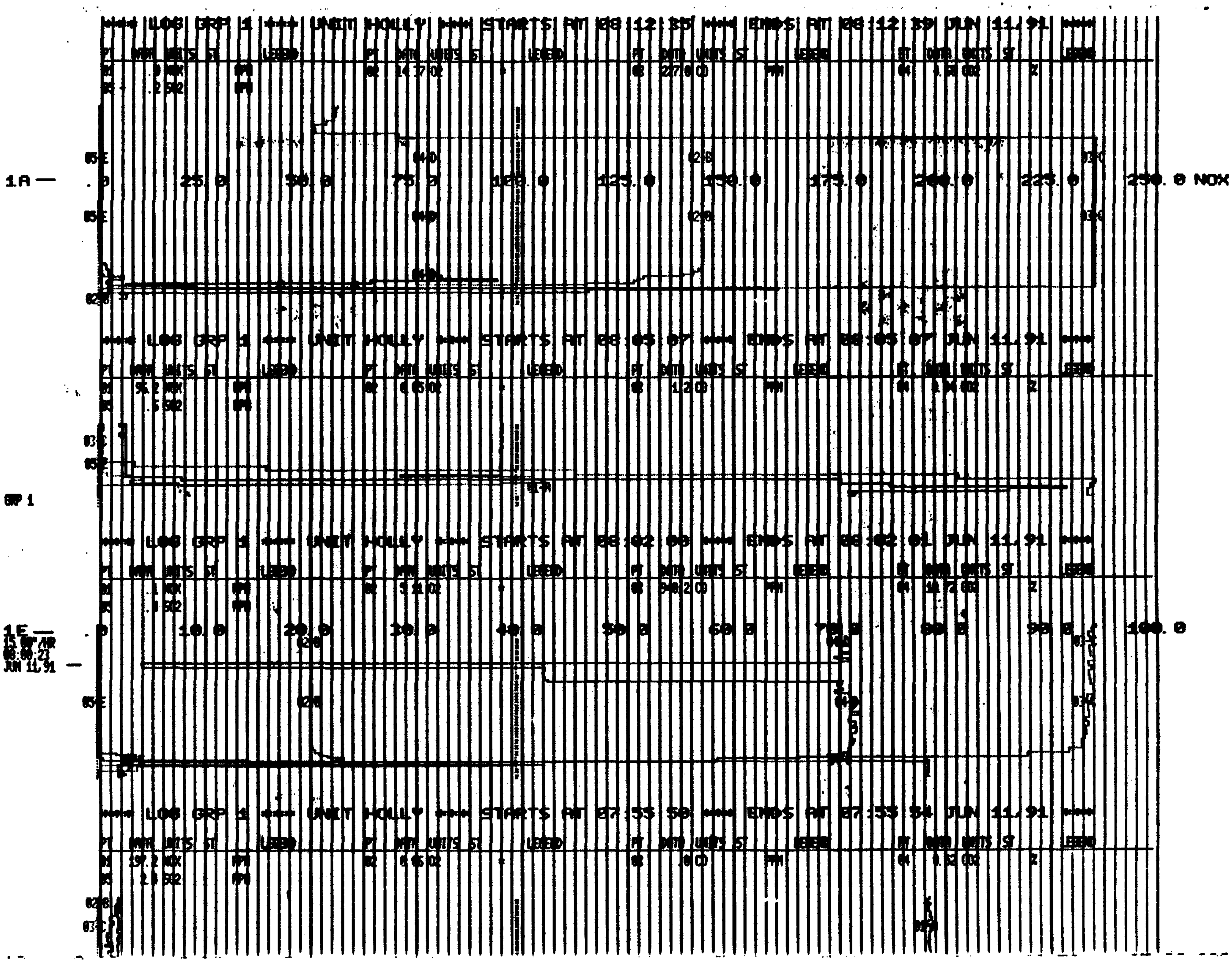
TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft³	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
	0	1:07	820.314									
1		1:09½	821.800	0.60	1.23	1.23	221	92	92	3	244	66
2	5	1:12	823.205	0.55	1.13	1.13	223	91	91	3	246	56
3		1:14½	824.570	0.52	1.07	1.07	220	90	90	3	249	57
4	10	1:17	825.980	0.57	1.17	1.17	221	89	90	3	251	57
5		1:19½	827.520	0.61	1.38	1.38	218	90	90	3	250	61
6	15	1:22	828.925	0.55	1.14	1.14	212	90	90	3	249	64
7		1:24½	830.395	0.60	1.25	1.25	210	91	90	4	247	66
8	20	1:27	831.550	0.35	0.73	0.73	211	92	90	3	250	65
9		1:29½	832.690	0.35	0.73	0.73	212	92	90	3	248	63
10	25	1:32	833.800	0.30	0.62	0.62	212	92	90	3	247	62
11		1:34½	835.005	0.35	0.73	0.73	212	92	90	3	250	64
12	30	1:37	836.198	0.40	0.83	0.83	210	92	90	2	248	64
*	STOP	1:40	SWITCH PORTS *									
1		1:42½	837.070	0.90	1.87	1.87	215	93	91	6	250	65
2	35	1:45	839.560	0.69	1.43	1.43	214	93	91	5	248	64
3		1:47½	840.820	0.40	0.83	0.83	214	92	90	4	244	61
4	40	1:50	842.010	0.35	0.72	0.72	215	92	90	4	247	60
5		1:52½	843.490	0.65	1.34	1.34	216	93	89	5	245	60
6	45	1:55	845.165	0.80	1.65	1.65	217	93	89	6	247	59
7		1:57½	846.930	0.90	1.86	1.86	218	93	89	7	246	60
8	50	2:00	848.385	0.55	1.13	1.13	220	93	89	5	248	61
9		2:02½	849.640	0.40	0.82	0.82	221	93	90	4	251	62
10	55	2:05	850.800	0.35	0.72	0.72	221	92	89	4	246	60
COMMENTS: 11		2:07½	852.020	0.40	0.82	0.82	222	92	89	4	246	60
12	60	2:10	853.265	0.35	0.72	0.72	223	91	88	4	247	60

EPA (Dur) 235

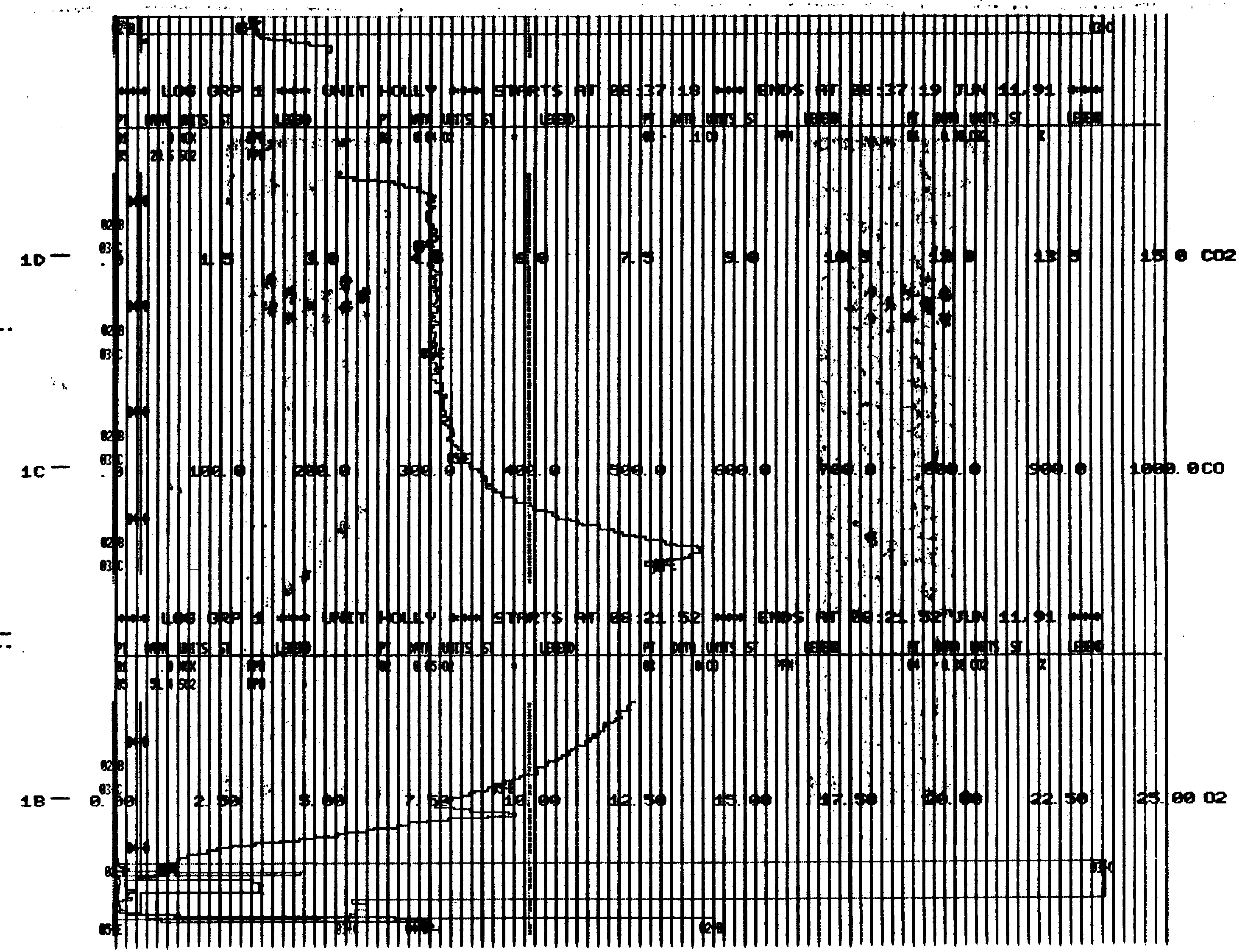
A00220


*** PRINTER ON 07:32:17 JUN 11,91 ***
*** PRINTER OFF 07:21:56 JUN 11,91 ***
*** SYSTEM RESTART 07:20:59 JUN 11,91 ***
*** PRINTER OFF 15:24:19 JUN 10,91 ***
1C
0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
1B
0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 O2
1A
0 25.0 50.0 75.0 100.0 125.0 150.0 175.0 200.0 225.0 250.0 NOX
15:00:00

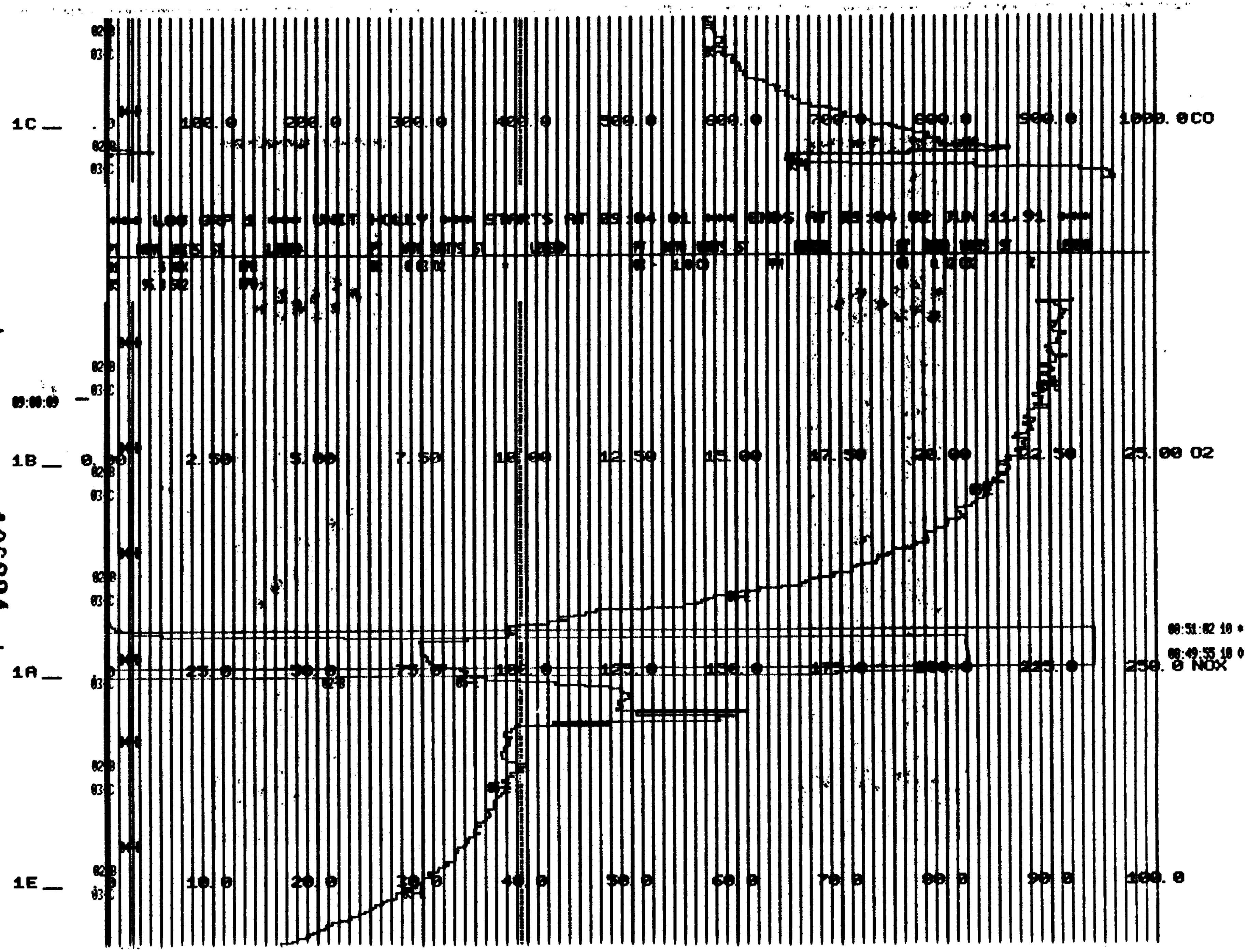
A00221


*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 08:12:35 *** ENDS AT 08:12:39 JUN 11,91 ***
1A
0 25.0 50.0 75.0 100.0 125.0 150.0 175.0 200.0 225.0 250.0 NOX
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 08:05:07 *** ENDS AT 08:05:07 JUN 11,91 ***
GRP 1
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 08:02:00 *** ENDS AT 08:02:01 JUN 11,91 ***
1E
JUN 11,91
0 10.0 20.0 30.0 40.0 50.0 60.0 70.0 80.0 90.0 100.0
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 07:55:50 *** ENDS AT 07:55:54 JUN 11,91 ***

A0C222

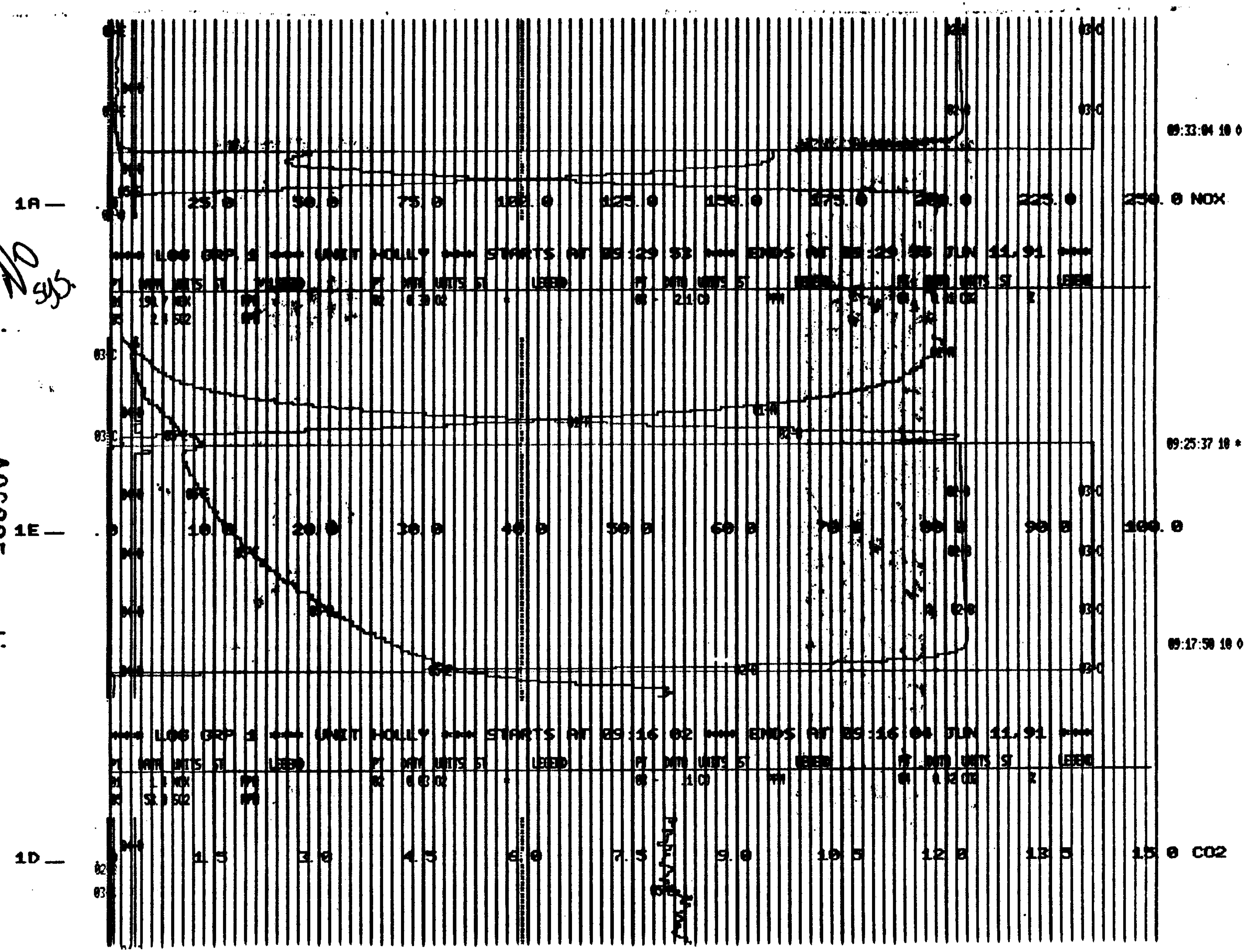

*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT *** ENDS AT JUN 11,91 ***
1D
0 1.5 3.0 4.5 6.0 7.5 9.0 10.5 12.0 13.5 15.0 CO2
1C
0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT *** ENDS AT JUN 11,91 ***
1B
0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 O2

A00223



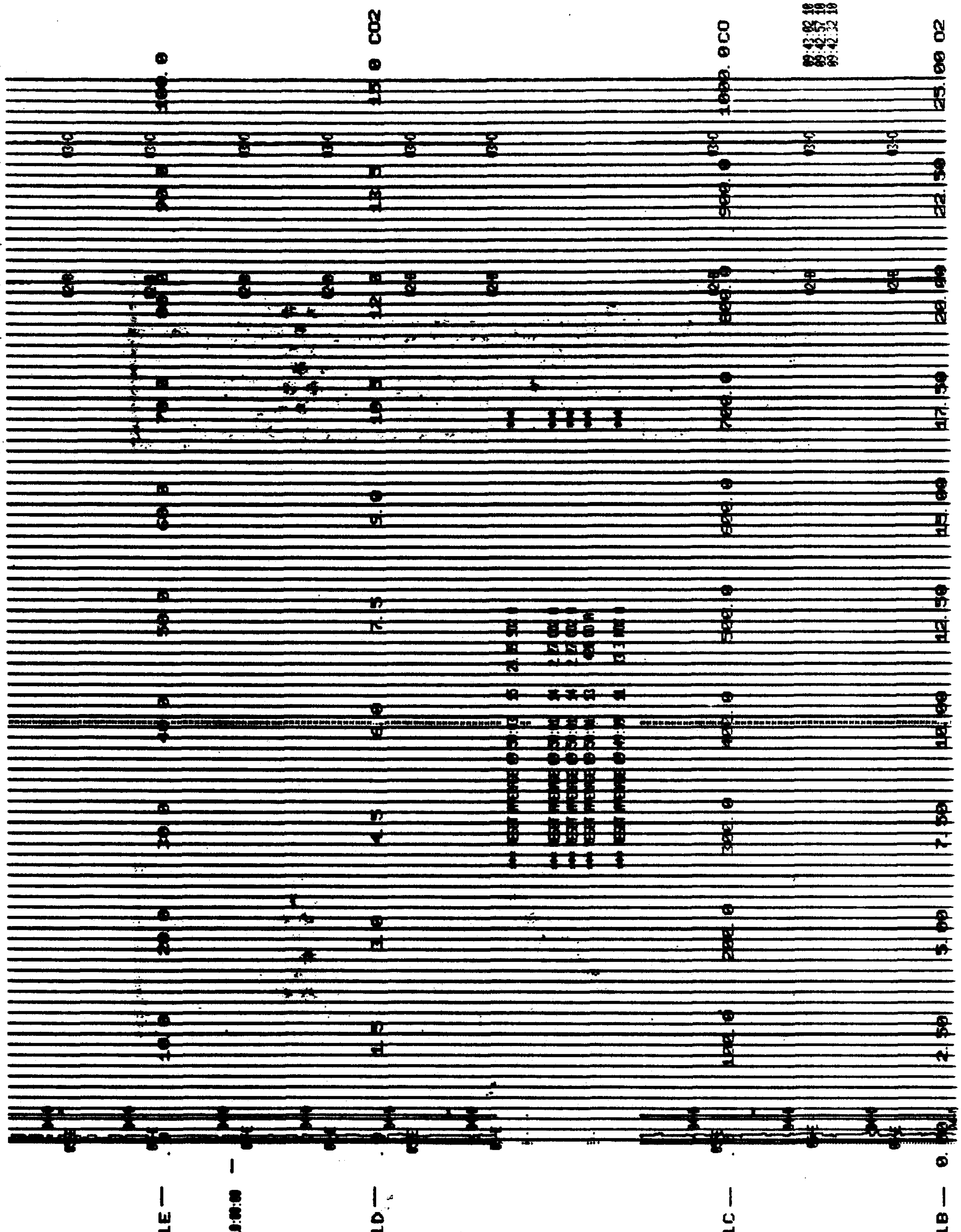
1C
1B
1A
1E
100.0
200.0
300.0
400.0
500.0
600.0
700.0
800.0
900.0
1000.0 CO
0.00
2.50
5.00
7.50
10.00
12.50
15.00
17.50
20.00
22.50
25.00 O2
25.0
50.0
75.0
100.0
125.0
150.0
175.0
200.0
225.0
250.0 NOX
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0

A00224

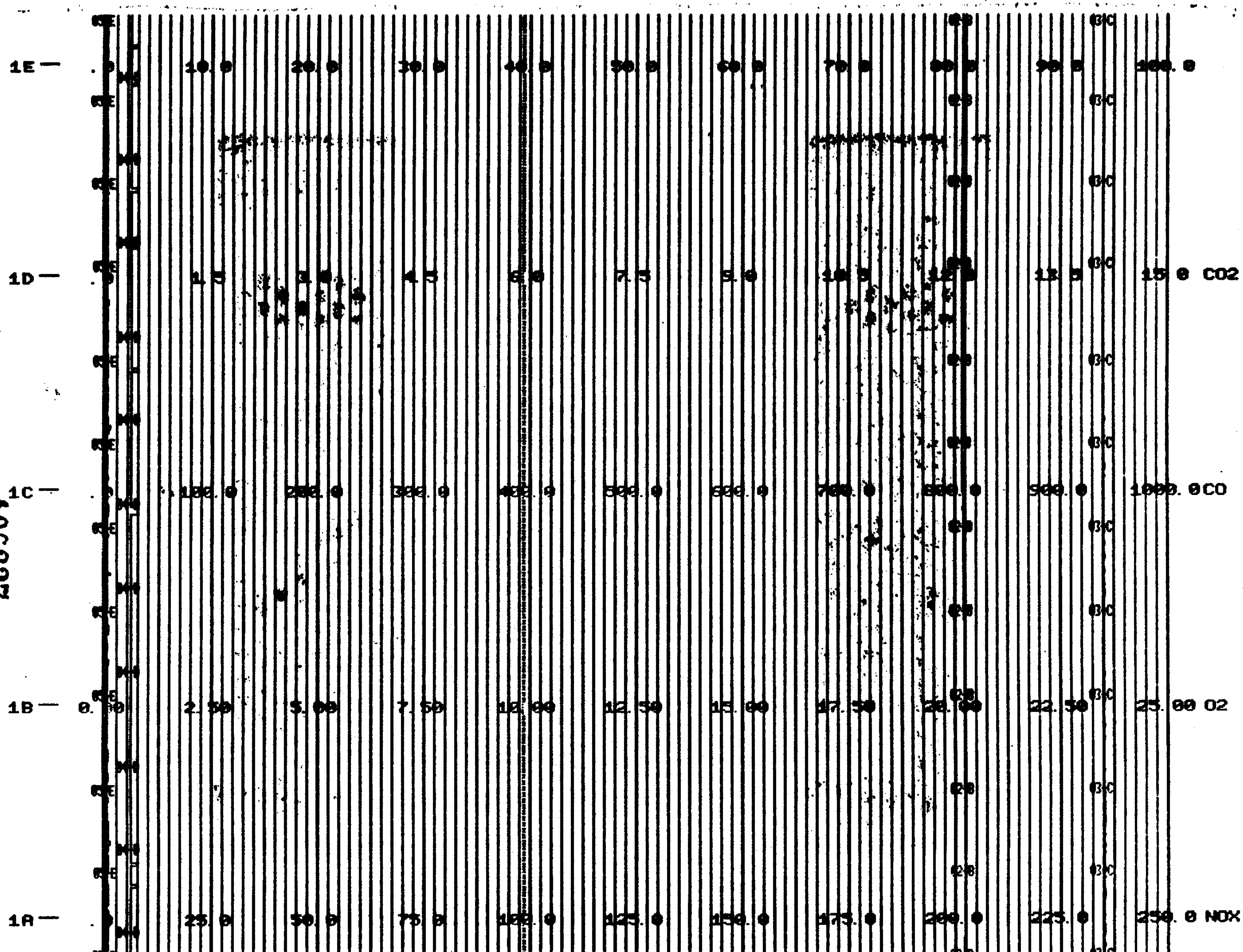


NO 595

A0C225

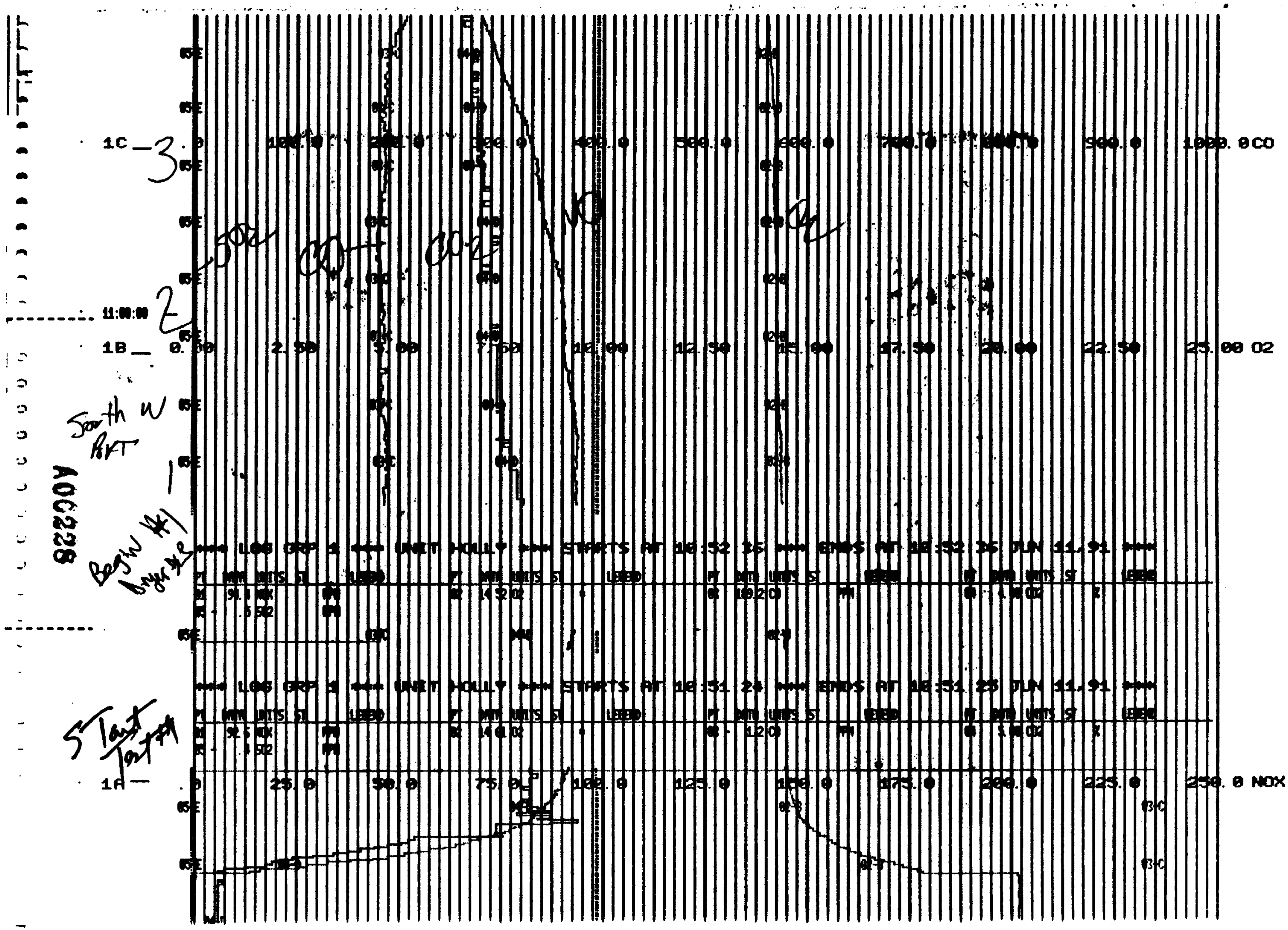


A00226



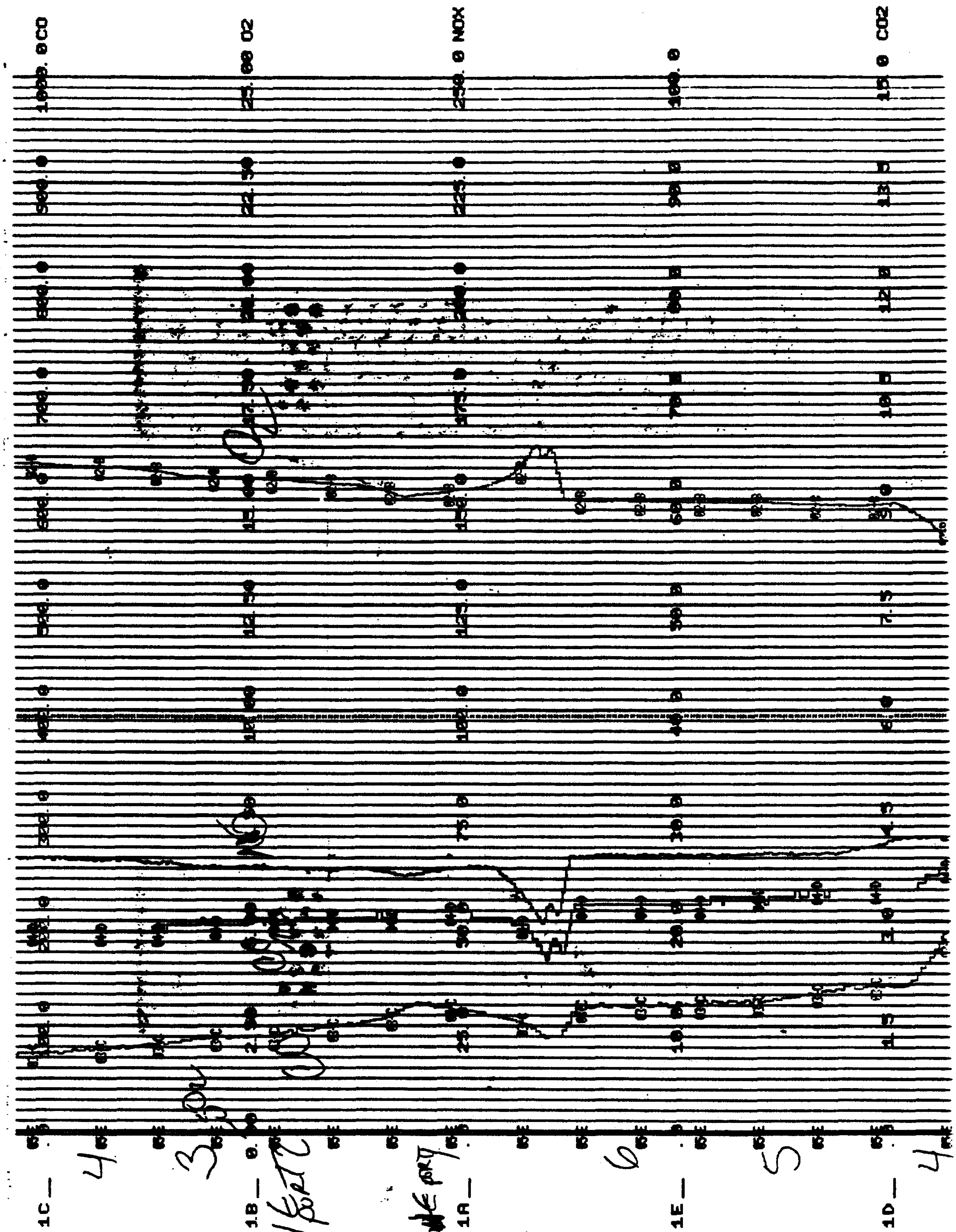
1E
.0 10.0 20.0 30.0 40.0 50.0 60.0 70.0 80.0 90.0 100.0
1D
1.5 3.0 4.5 6.0 7.5 9.0 10.5 12.0 13.5 15.0 CO2
1C
100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
1B
0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 O2
1A
25.0 50.0 75.0 100.0 125.0 150.0 175.0 200.0 225.0 250.0 NOX

A0C227

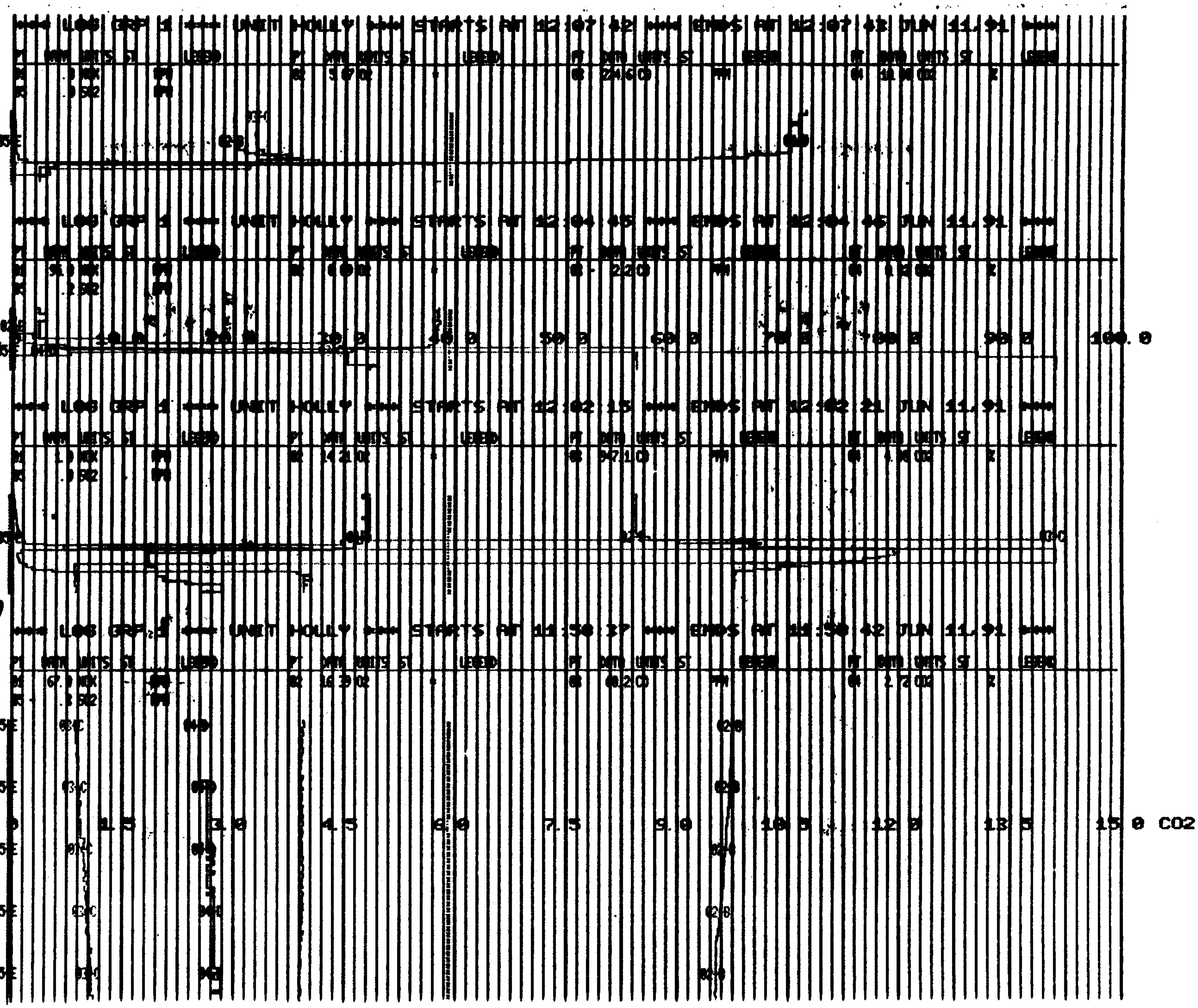


1C
0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
11:00:00
1B
0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 O2
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 10:52 36 *** ENDS AT 10:52 36 JUN 11,91 ***
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 10:51 24 *** ENDS AT 10:51 25 JUN 11,91 ***
1A
0 25.0 50.0 75.0 100.0 125.0 150.0 175.0 200.0 225.0 250.0 NOX
3
2
1
SO2
CO
CO2
NO
O2
South W
Begin #1
Start Test #1

A0C228



A00229



1E

12:00:01

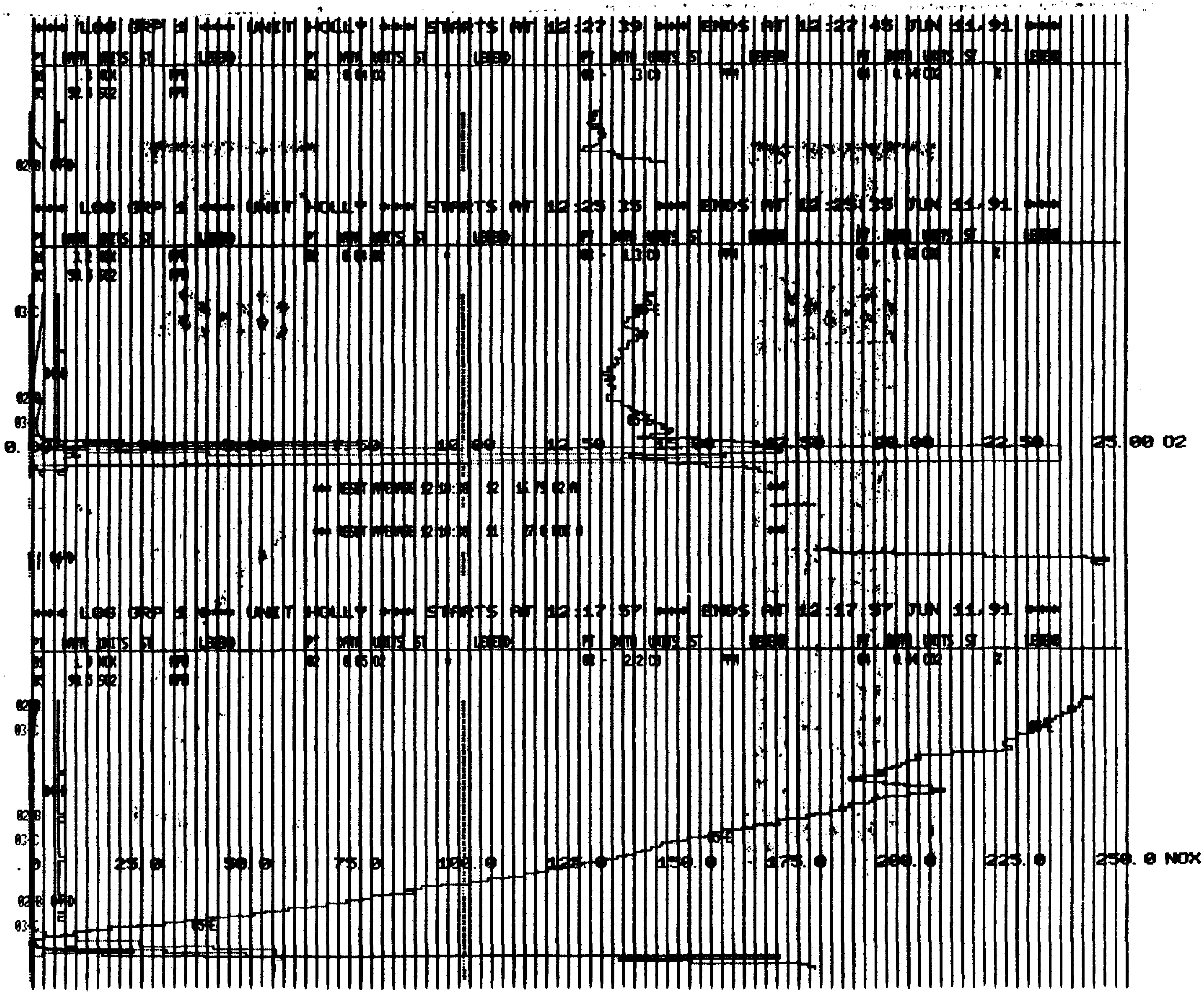
End test #3

6

1D

5

A0C230

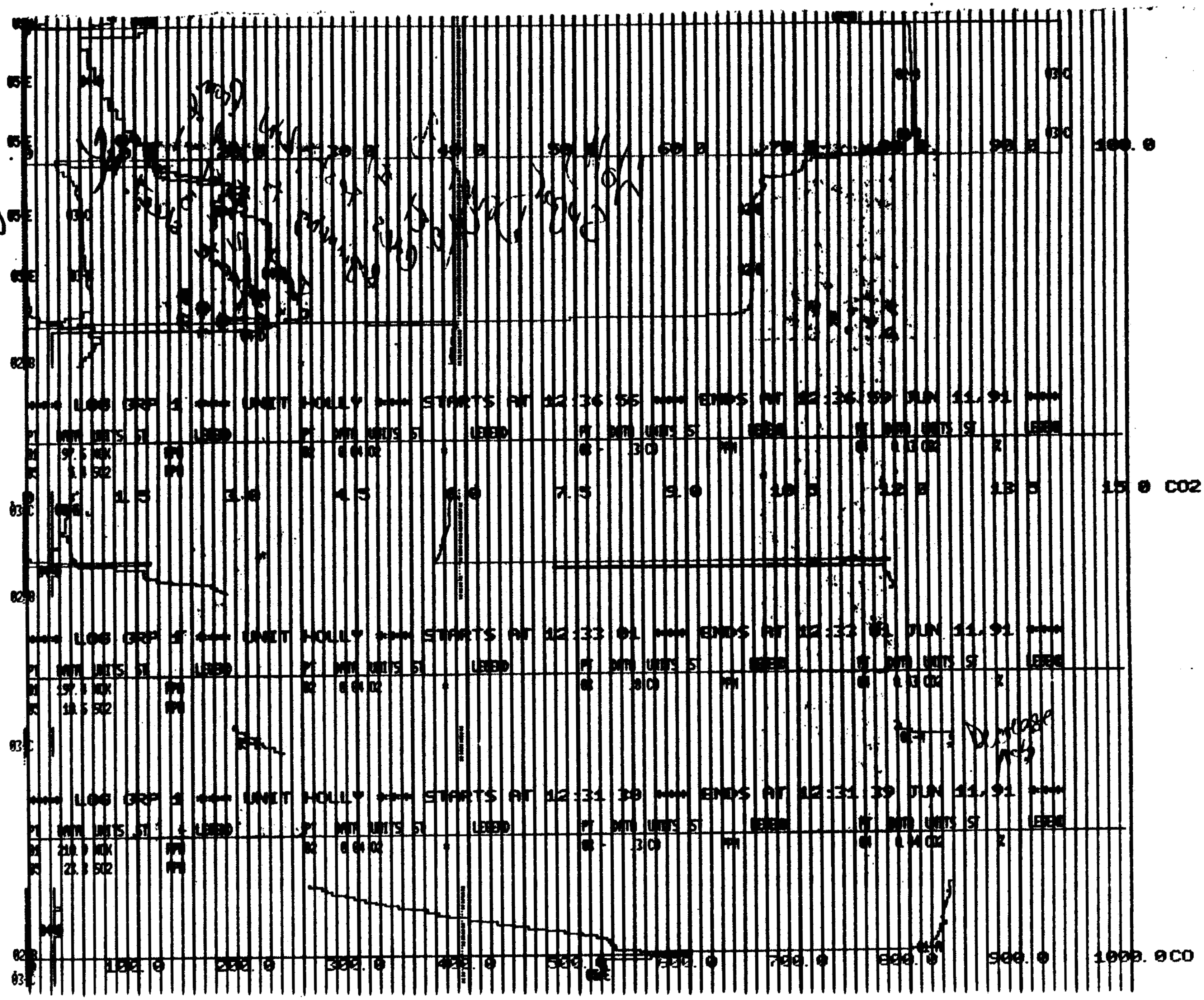

*** LOG GRP 4 *** UNIT HOLLY *** STARTS AT 12:27:19 *** ENDS AT 12:27:45 JUN 11, 91 ***
*** LOG GRP 4 *** UNIT HOLLY *** STARTS AT 12:25:15 *** ENDS AT 12:25:35 JUN 11, 91 ***
*** LOG GRP 4 *** UNIT HOLLY *** STARTS AT 12:17:57 *** ENDS AT 12:17:57 JUN 11, 91 ***
1B
0.
25.00 02
1A
25.0
50.0
75.0
100.0
125.0
150.0
175.0
200.0
225.0
250.0 NOX

A0C231

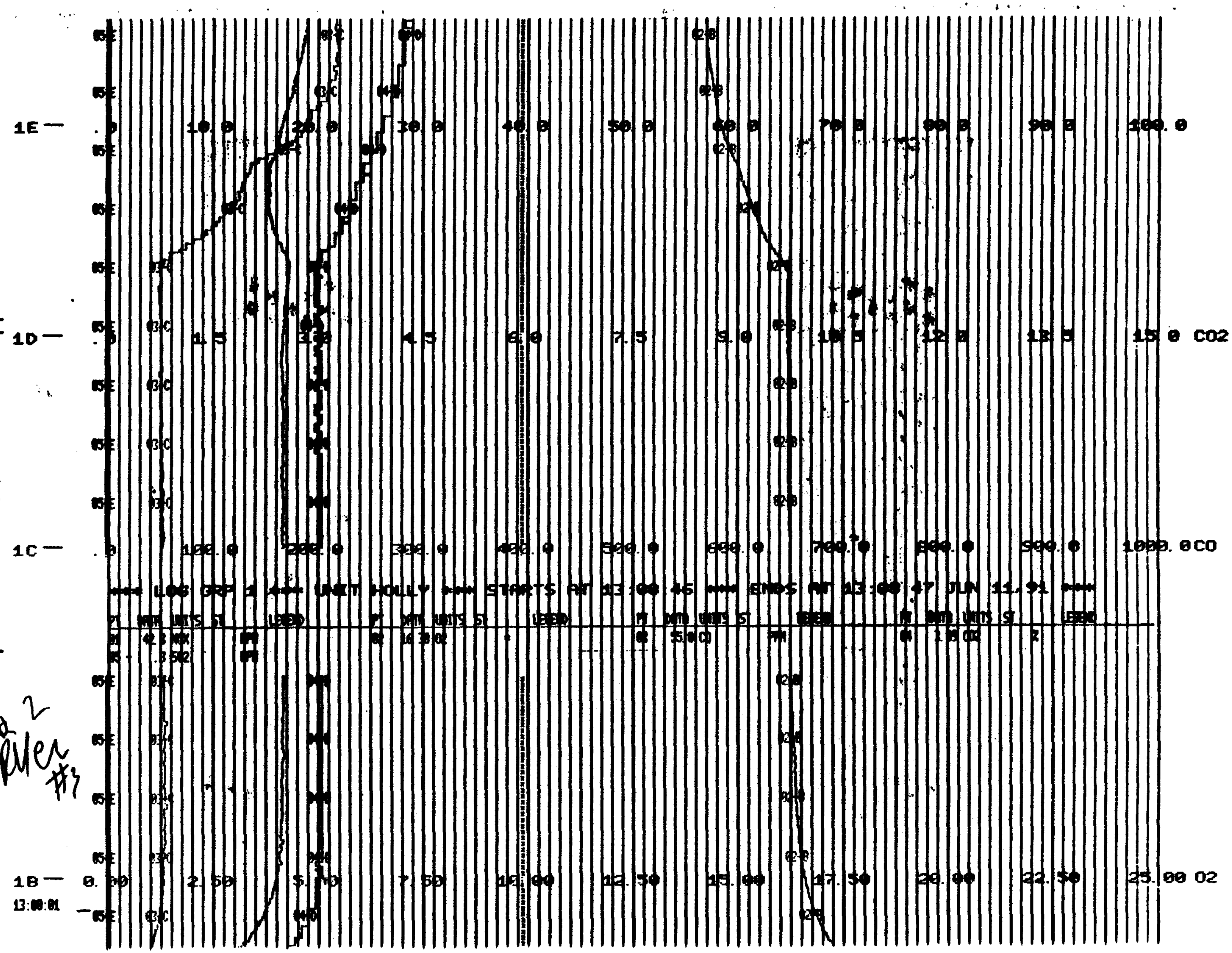
1E

1D

A0C232

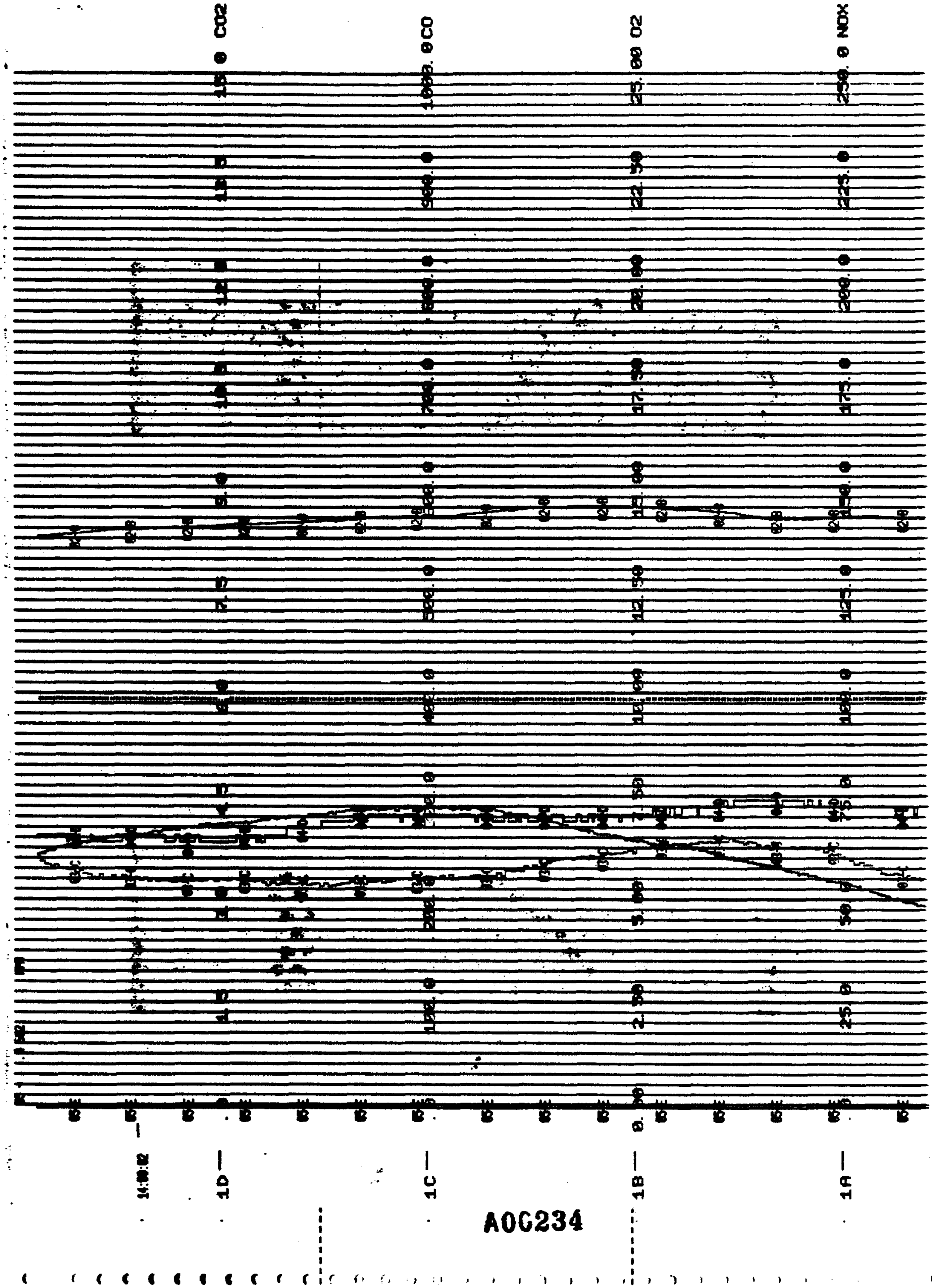


1C

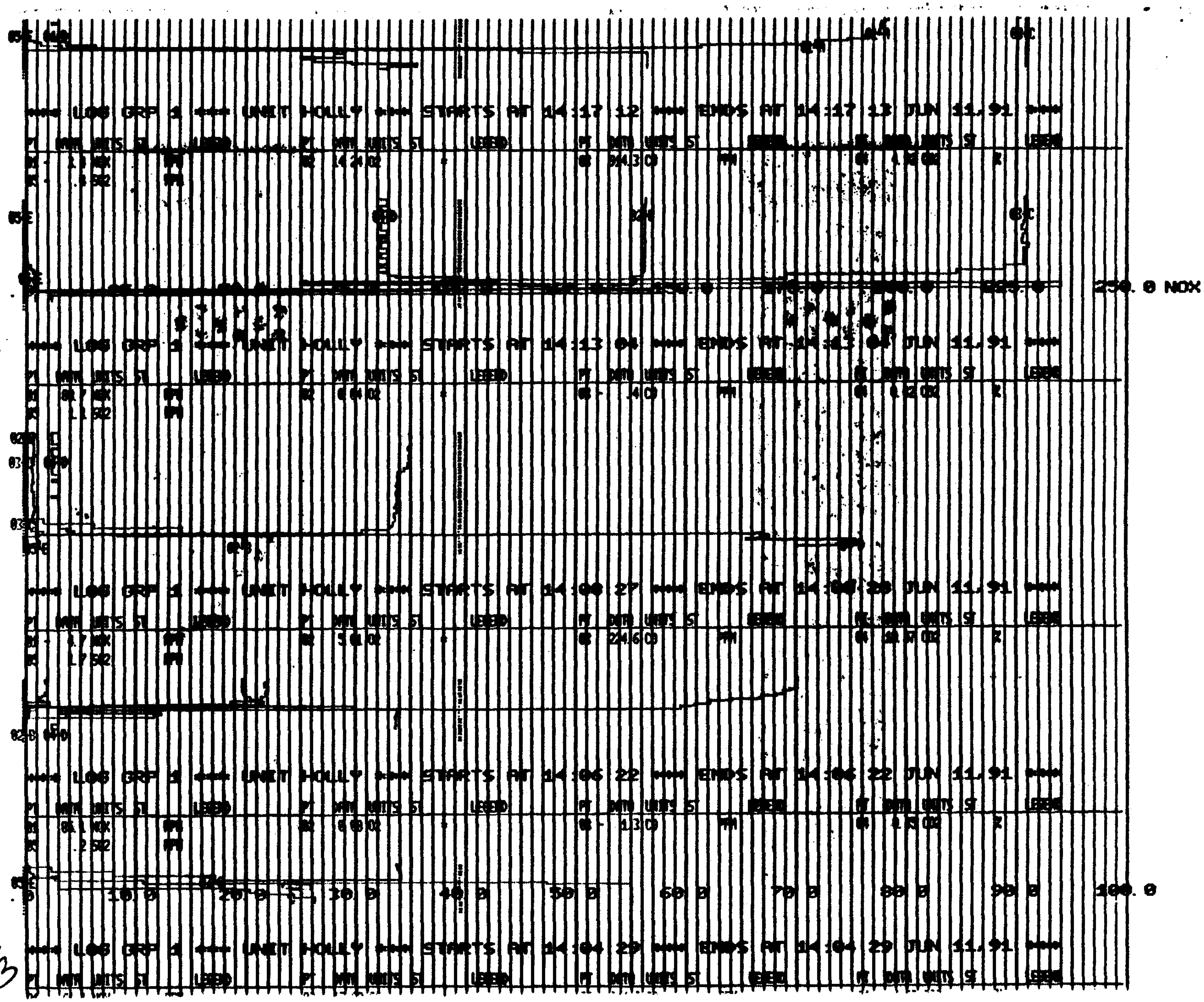


A00233

Test #2
Dryer #3



A0C234

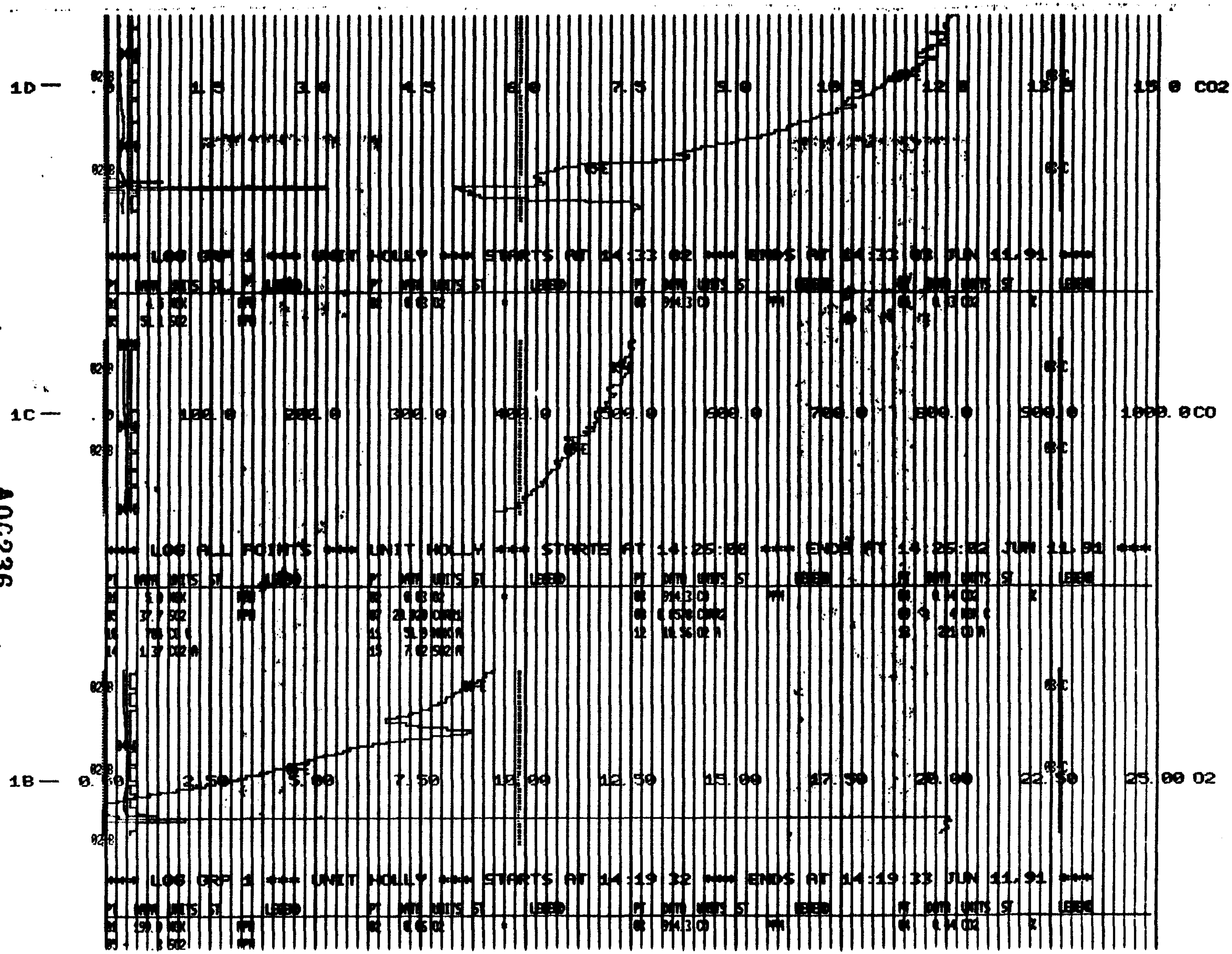


1A

1E

A00235

End #2
Run 3



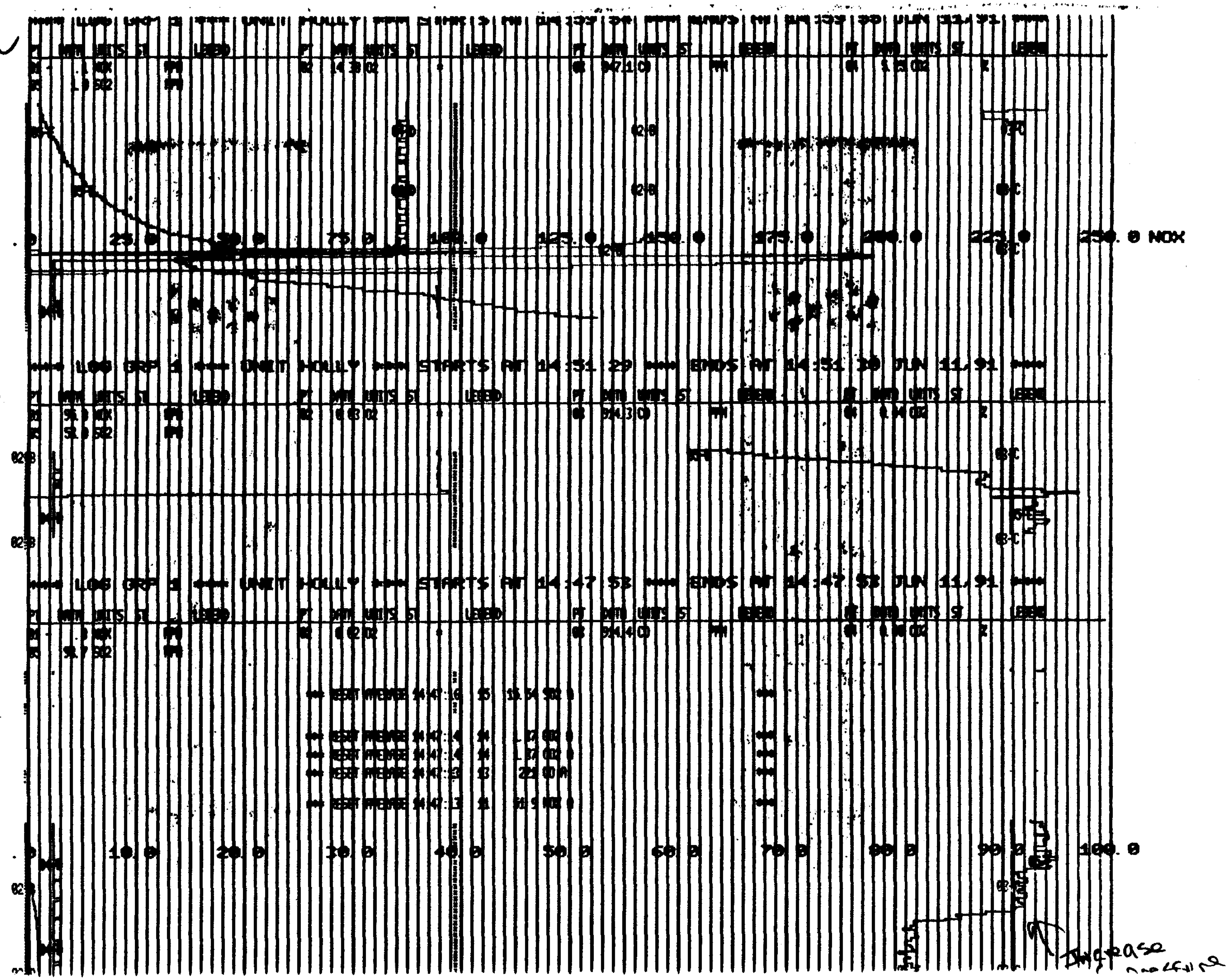
1D
0 1.5 3.0 4.5 6.0 7.5 9.0 10.5 12.0 13.5 15.0 CO2
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 14:33:02 *** ENDS AT 14:33:03 JUN 11,91 ***
1C
0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
*** LOG ALL POINTS *** UNIT HOLLY *** STARTS AT 14:25:00 *** ENDS AT 14:25:02 JUN 11,91 ***
1B
0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 O2
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 14:19:32 *** ENDS AT 14:19:33 JUN 11,91 ***

A0G236

CO2 or CAL

1A —

CAL NO

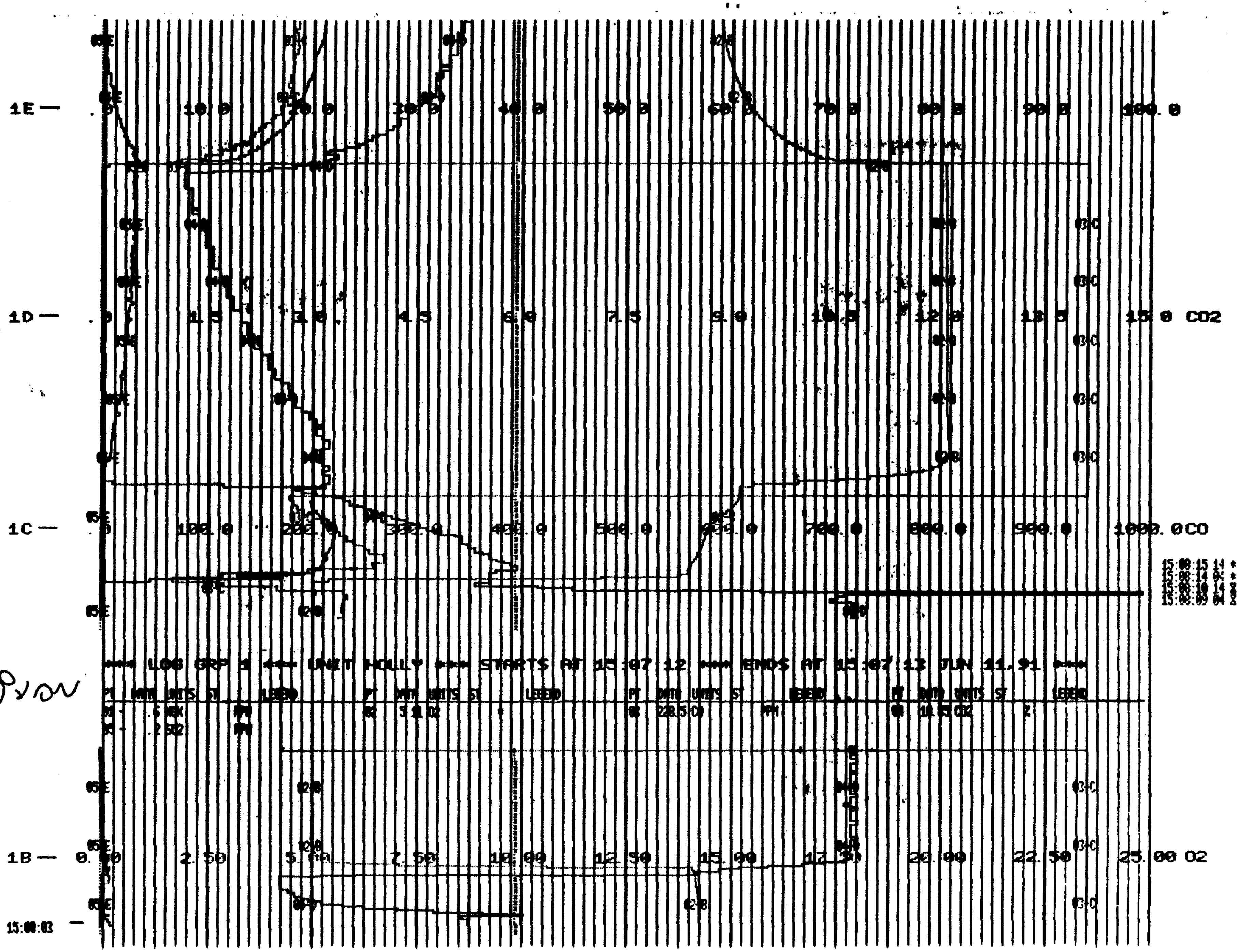


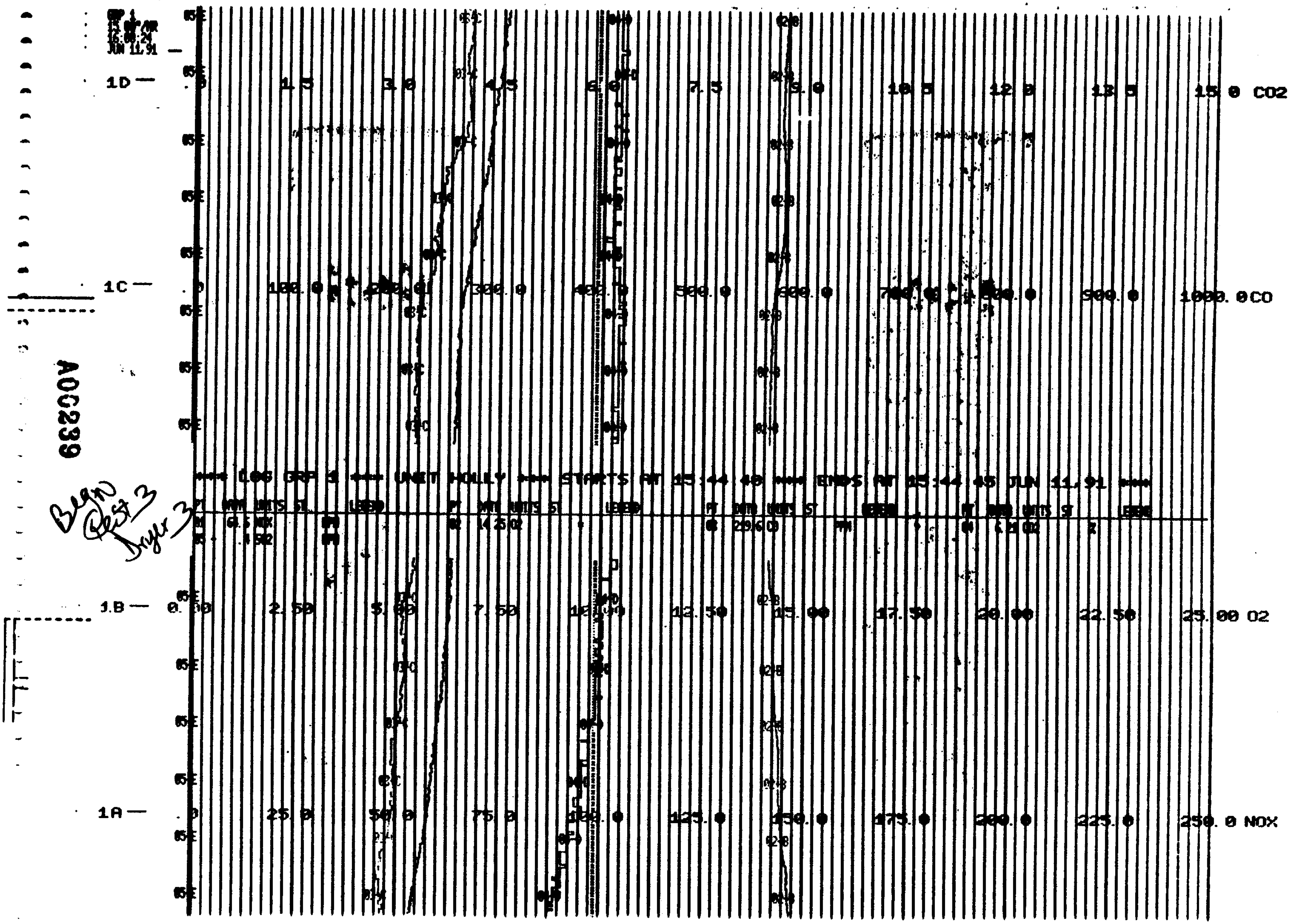
1E —

A00237

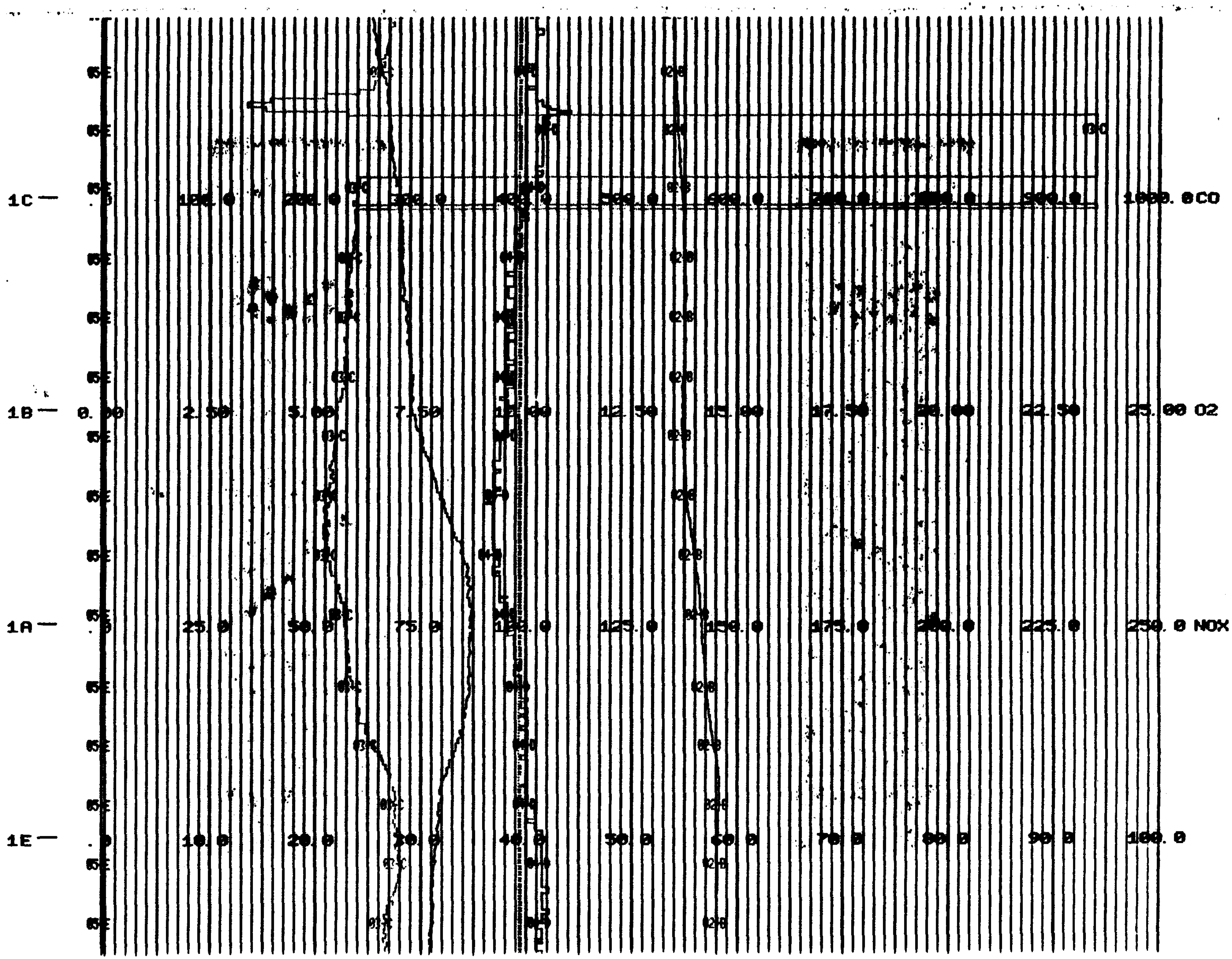
A0C238

Low CO₂ ...

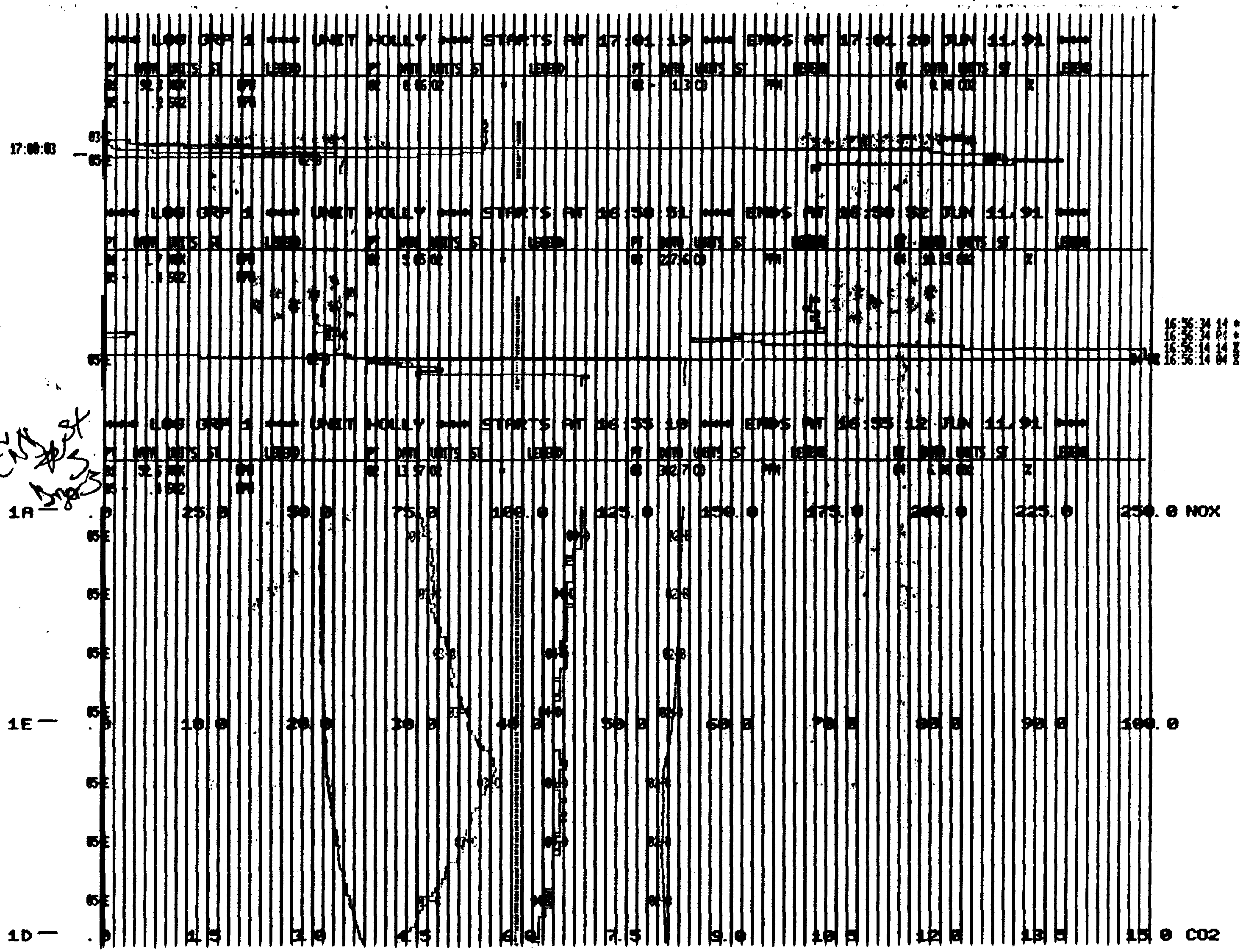



*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 15:44 40 *** ENDS AT 15:44 45 JUN 11,91 ***
1D
0 1.5 3.0 4.5 6.0 7.5 9.0 10.5 12.0 13.5 15.0 CO2
1C
100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
1B
0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 O2
1A
0 25.0 50.0 75.0 100.0 125.0 150.0 175.0 200.0 225.0 250.0 NOX
JUN 11,91
Begin Test 3 Dryer 3

A00239

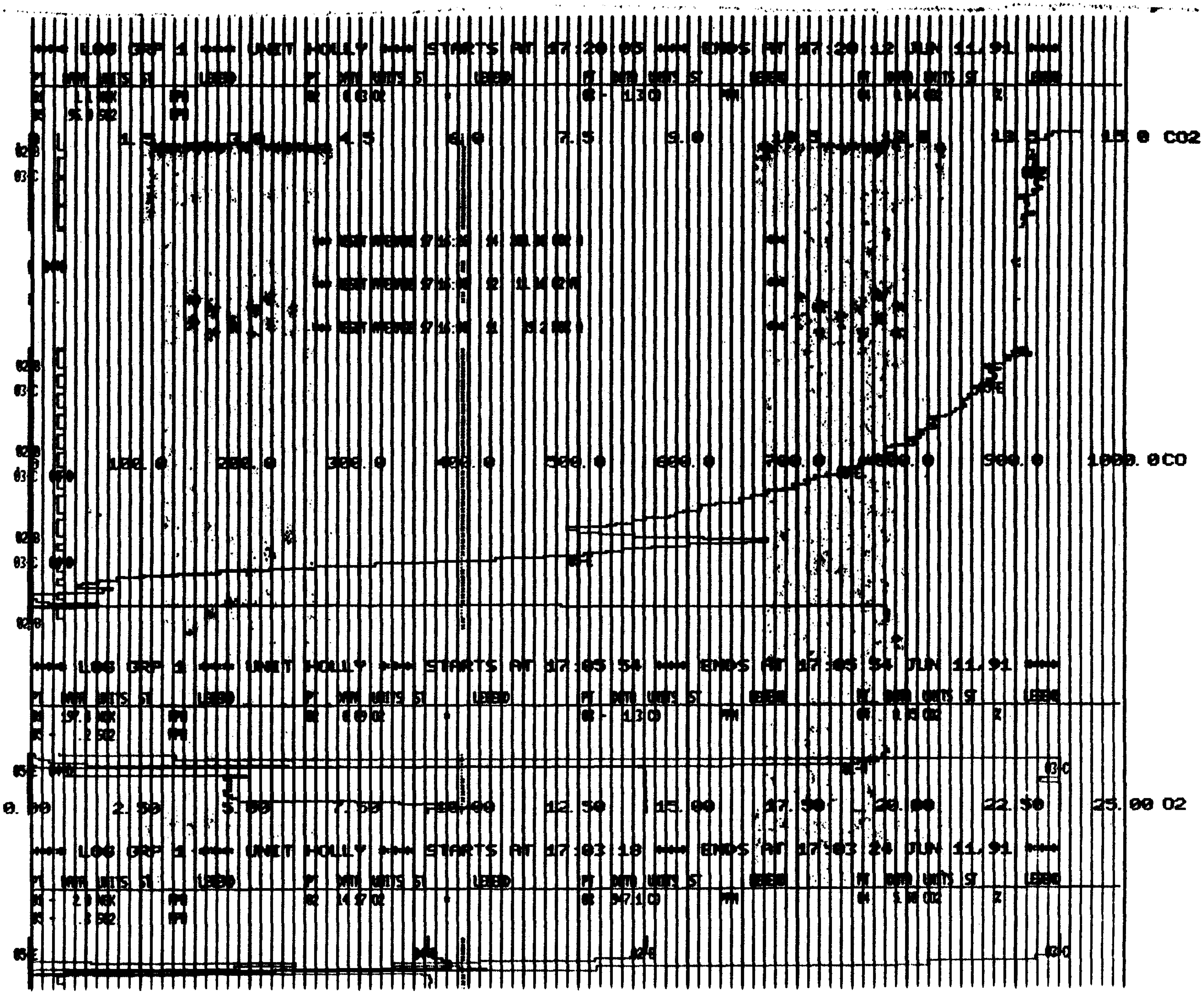

1C
1B
1A
1E
1000.0 CO
25.00 O2
250.0 NOX
100.0
2.50
5.00
7.50
12.50
17.50
22.50
25.0
50.0
75.0
100.0
125.0
150.0
175.0
225.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0

A00240



EN St #3 Bng 3

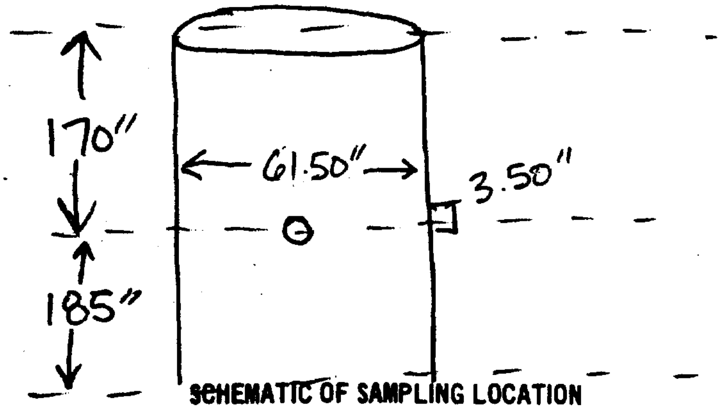
AOC241


*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 17:20 05 *** ENDS AT 17:20 12 JUN 11/91 ***
1D
0 1.5 3.0 4.5 6.0 7.5 9.0 10.5 12.0 13.5 15.0 CO2
1C
100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 1000.0 CO
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 17:05 54 *** ENDS AT 17:05 54 JUN 11/91 ***
1B
0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50 20.00 22.50 25.00 O2
*** LOG GRP 1 *** UNIT HOLLY *** STARTS AT 17:03 18 *** ENDS AT 17:03 24 JUN 11/91 ***

A0C242

TRAVERSE POINT LOCATION FOR CIRCULAR DUCTS

PLANT HOLLY SUGAR
DATE 6/10/91
SAMPLING LOCATION COOLER
INSIDE OF FAR WALL TO
OUTSIDE OF NIPPLE, (DISTANCE A) 65"
INSIDE OF NEAR WALL TO
OUTSIDE OF NIPPLE, (DISTANCE B) 3.50
STACK I.D., (DISTANCE A - DISTANCE B) 61.50"
NEAREST UPSTREAM DISTURBANCE 170" or 2.76 dd
NEAREST DOWNSTREAM DISTURBANCE 185" or 3.01 dd
CALCULATOR HP 32 S



SCHEMATIC OF SAMPLING LOCATION

TRAVERSE POINT NUMBER	FRACTION OF STACK I.D.	STACK I.D.	PRODUCT OF COLUMNS 2 AND 3 (TO NEAREST 1/8 INCH)	DISTANCE B	TRAVERSE POINT LOCATION FROM OUTSIDE OF NIPPLE (SUM OF COLUMNS 4 & 5)
1	.021	61.50	1.29	3.50	4.79"
2	.067		4.12		7.62"
3	.118		7.26		10.76"
4	.177		10.89		14.39"
5	.250		15.38		18.88"
6	.356		21.89		25.39"
7	.644		39.61		43.11"
8	.750		46.13		49.63"
9	.823		50.61		54.11"
10	.882		53.36		56.86"
11	.933		57.38		60.88"
12	.979		60.21		63.71"

EPA (Dur) 232
4/72

A00243

FIELD DATA

PLANT Holly Sugar
DATE
SAMPLING LOCATION Cooler
SAMPLE TYPE
RUN NUMBER
OPERATOR
AMBIENT TEMPERATURE
BAROMETRIC PRESSURE
STATIC PRESSURE, (P_s)
FILTER NUMBER (s)

COOLER VELOCITY TRAVERSE

PROBE LENGTH AND TYPE #28
NOZZLE I.D.
ASSUMED MOISTURE, %
SAMPLE BOX NUMBER
METER BOX NUMBER
METER $\Delta H_@$
C FACTOR
PROBE HEATER SETTING
HEATER BOX SETTING
REFERENCE Δp #13 (0-2")

SCHEMATIC OF TRAVERSE POINT LAYOUT

READ AND RECORD ALL DATA EVERY ______ MINUTES

TRAVERSE POINT NUMBER	SAMPLING TIME, min / CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
1			0.47			71					
2			0.50			70					
3			0.55			70					
4			0.50			70					
5			0.60			70					
6			0.70			71					
7		P_s = -0.50	0.75			70					
8			0.60			70					
9			0.45			70					
10			0.40			71					
11			0.45			70					
12			0.45			70					
1			0.55			70					
2			0.60			71					
3			0.70			70					
4		HIGH *	0.75			70					
5			0.30			70					
6		LOW *	0.20			70					
7			0.35			70					
8			0.40			70					
9			0.55			70					
10			0.60			70					
11.			0.50			71					
12			0.50			70					

COMMENTS:

EPA (Dur) 235
4/72

AVERAGE: 0.52 70

A0C214

FIELD DATA

PLANT: HOLLY SUGAR
DATE: 6/10/91
SAMPLING LOCATION: COOLER
SAMPLE TYPE: PARTICULATE
RUN NUMBER: #1
OPERATOR: MARCOTTE
AMBIENT TEMPERATURE: 76°F
BAROMETRIC PRESSURE: 24.80
STATIC PRESSURE, (P_s): -0.50
FILTER NUMBER (s): 3.125 (3")

COOLER
PARTICULATE
RUN # 1

PROBE LENGTH AND TYPE: #3 (S.S. 5')
NOZZLE I.D.: ~~.222~~ (SS) .50
ASSUMED MOISTURE, %: 5%
SAMPLE BOX NUMBER: WES #11
METER BOX NUMBER: WES #11
METER $\Delta H_@$: WES #11
C FACTOR:
PROBE HEATER SETTING: 250°F
HEATER BOX SETTING: 250°F
REFERENCE Δp: #5 (0-2")

2 ml
g
+
= VLC

SCHEMATIC OF TRAVERSE POINT LAYOUT

Preleak ✓ < .020 cfm @ 15" READ AND RECORD ALL DATA EVERY 2½ MINUTES Postleak ✓ < .012 cfm @ 10"

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft³	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
	0	2:05	674.818									
1	2½	2:07½	676.285	0.45	1.12	1.12	70	76	76	3	235	64
2	5	2:10	677.640	0.47	1.17	1.17	70	77	76	3	248	62
3	7½	2:12½	679.120	0.50	1.24	1.24	71	76	76	3	250	58
4	10	2:15	680.590	0.50	1.24	1.24	70	76	76	3	249	56
5	12½	2:17½	682.130	0.55	1.37	1.37	70	76	77	3	248	54
6	15	2:20	683.750	0.60	1.49	1.49	71	78	77	3	250	53
7	17½	2:22½	685.220	0.48	1.20	1.20	70	78	78	3	249	54
8	20	2:25	686.680	0.48	1.20	1.20	71	80	78	3	251	56
9	22½	2:27½	688.063	0.43	1.07	1.07	72	81	78	3	248	58
10	25	2:51½ ~~2:30~~	689.425	0.40	1.00	1.00	71	82	78	3	251	60
11	27½	2:54 ~~2:32½~~	690.795	0.41	1.03	1.03	70	83	77	3	246	62
12	30	2:56½ ~~2:35~~	692.167	0.40	1.00	1.00	70	83	78	3	248	63
*	STOP	3:01	SWITCH PORTS *									*
1	32½	3:03½	693.635	0.48	1.20	1.20	70	76	77	3	251	64
2	35	3:06	695.170	0.55	1.37	1.37	70	76	76	3	248	63
3	37½	3:08½	696.785	0.60	1.49	1.49	71	77	77	3	249	61
4	40	3:11	698.420	0.63	1.58	1.58	70	77	76	3	251	60
5	42½	3:13½	700.095	0.65	1.62	1.62	71	77	77	4	250	58
6	45	3:16	701.865	0.71	1.77	1.77	71	80	78	4	251	57
7	47½	3:18½	703.780	0.75	1.87	1.87	70	80	78	4	249	59
8	50	3:21	705.845	0.75	1.87	1.87	70	81	78	4	250	60
9	52½	3:23½	707.135	0.57	1.42	1.42	71	81	78	3	248	61
10	55	3:26	708.705	0.55	1.38	1.38	70	83	79	3	247	63
COMMENTS: 11	57½	3:28½	710.210	0.50	1.25	1.25	70	83	79	3	250	64
12	60	3:31	711.698	0.49	1.23	1.23	70	83	80	3	249	64
			(36.880)									

UNIT SHUT OFF * @ point # 9 Restart @ 2:49

A00245

EPA (Dur) 235 1/72

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. ______ 2. ______
3. ______ 4. ______
Indicate by numbers in box under Sample column.

Holly Sugar
Cooler #1
Test #1

Requestor ______
JN ______
Assigned to ______
Date Assigned ______

ALL WEIGHTS IN GRAMS

TARE WEIGHT		SAMPLE NUMBER	FILTER OR CONTAINER #	TARE + SAMPLE WEIGHT	
1. 100.6379	9.	Probe	95.2	1. 100.8985	9.
2. 100.6384	10.			2. 100.8999	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	100.8995	3. 100.9003	11.
4.	12.			4. 100.8991	12.
5.	13.	FILTER OR CONTAINER TARE	100.6382	5. 100.8996	13.
6.	14.			6.	14.
7.	15.	SAMPLE	0.2613	7.	15.
8.	16.			8.	16.

TARE WEIGHT		SAMPLE NUMBER	FILTER OR CONTAINER #	TARE + SAMPLE WEIGHT	
1. 0.3546	9.	Filter	3.125	1. 0.3578	9.
2. 0.3548	10.			2. 0.3576	10.
3. 0.3547	11.	FILTER OR CONTAINER PLUS SAMPLE	0.3578	3. 0.3581	11.
4.	12.			4.	12.
5.	13.	FILTER OR CONTAINER TARE	0.3547	5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE	0.0031	7.	15.
8.	16.			8.	16.

TARE WEIGHT		SAMPLE NUMBER	FILTER OR CONTAINER #	TARE + SAMPLE WEIGHT	
1. 97.7885	9.	Imp I	96.2	1. 97.7912	9.
2. 97.7886	10.			2. 97.7915	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	97.7912	3. 97.7910	11.
4.	12.			4.	12.
5.	13.	FILTER OR CONTAINER TARE	97.7886	5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE	0.0026	7.	15.
8.	16.			8.	16.

TARE WEIGHT		SAMPLE NUMBER	FILTER OR CONTAINER #	TARE + SAMPLE WEIGHT	
1. 98.6677	9.	Imp O	97.2	1. 98.6673	9.
2. 98.6678	10.			2. 98.6679	10.
3.	11.	FILTER OR CONTAINER PLUS SAMPLE	98.6677	3. 98.6680	11.
4.	12.			4.	12.
5.	13.	FILTER OR CONTAINER TARE	98.6678	5.	13.
6.	14.			6.	14.
7.	15.	SAMPLE	0.0001	7.	15.
8.	16.			8.	16.

A00246

FIELD DATA

PLANT Holly Sugar
DATE 6/10/91
SAMPLING LOCATION Cooler
SAMPLE TYPE Particulate
RUN NUMBER #2
OPERATOR Marcotte
AMBIENT TEMPERATURE 77° F
BAROMETRIC PRESSURE 28.90
STATIC PRESSURE, (P_s) -0.50
FILTER NUMBER (s) 3.126 (3")

COOLER
PARTICULATE
RUN # 2

PROBE LENGTH AND TYPE #3 (5' s.s.)
NOZZLE I.D. ~~0.3???~~ (s.s.) .50
ASSUMED MOISTURE, % 5%
SAMPLE BOX NUMBER WES #11
METER BOX NUMBER WES #11
METER $\Delta H_@$ WES #11
C FACTOR —
PROBE HEATER SETTING 250° F
HEATER BOX SETTING 250° F
REFERENCE Δp # 5 (0-2")

4 ml
\+ 9
= VLC

SCHEMATIC OF TRAVERSE POINT LAYOUT

preleak ✓ < .010 cfm @ 15" READ AND RECORD ALL DATA EVERY 2½ MINUTES postleak ✓ < .005 cfm @ 10"

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft³	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\ in}$), °F	OUTLET ($T_{m\ out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
	0	4:35	712.297									
1	2½	4:37½	713.560	0.33	0.82	0.82	70	77	77	3	250	64
2	5	4:40	714.980	0.46	1.14	1.14	71	77	78	3	246	58
3	7½	4:42½	716.530	0.55	1.37	1.37	70	78	78	3	251	57
4	10	4:45	718.095	0.57	1.42	1.42	70	78	78	3	246	53
5	12½	4:47½	719.745	0.62	1.54	1.54	70	78	78	4	250	52
6	15	4:50	721.400	0.62	1.54	1.54	71	81	79	4	248	53
7	17½	4:52½	722.640	0.30	0.75	0.75	70	81	79	3	250	54
8	20	4:55	724.005	0.40	1.00	1.00	69	81	79	3	248	59
9	22½	4:57½	725.340	0.40	1.00	1.00	70	81	79	3	250	58
10	25	5:00	726.625	0.35	0.88	0.88	70	81	79	3	247	60
11	27½	5:02½	727.900	0.35	0.88	0.88	70	82	80	3	251	61
12	30	5:05	729.176	0.35	0.88	0.88	71	82	80	3	247	62
*	STOP	5:07½	SWITCH PORTS *									*
1	32½	5:10	730.760	0.57	1.43	1.43	70	82	80	3	249	63
2	35	5:12½	732.305	0.53	1.33	1.33	70	82	80	3	250	62
3	37½	5:15	733.885	0.57	1.43	1.43	70	83	81	3	248	63
4	40	5:17½	735.525	0.60	1.51	1.51	71	83	81	3	250	61
5	42½	5:20	737.260	0.68	1.71	1.71	70	84	81	3	246	63
6	45	5:22½	738.890	0.60	1.51	1.51	70	84	82	3	249	63
7	47½	5:25	740.395	0.50	1.26	1.26	70	85	81	3	250	63
8	50	5:27½	741.900	0.50	1.26	1.26	71	85	81	3	249	64
9	52½	5:30	743.405	0.50	1.26	1.26	70	85	81	3	251	64
10	55	5:32½	744.815	0.45	1.13	1.13	70	84	80	3	250	62
11	57½	5:35	746.180	0.40	1.01	1.01	70	84	80	3	247	62
12	60	5:37½	747.576	0.42	1.06	1.06	70	84	80	3	250	✓63
			(35.279)									

COMMENTS:

EPA(Dur) 235

A00247

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Completion Dates
1. ______ 2. ______
3. ______ 4. ______
Indicate by numbers in box under Sample column.

Holly Sugar
Cooler #1
Test #2

Requestor ______
JN ______
Assigned to ______
Date Assigned ______

ALL WEIGHTS IN GRAMS

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 103.7480	9.	SAMPLE NUMBER: Probe	FILTER OR CONTAINER #: 98.2	1. 103.8207	9.
2. 103.7490	10.	FILTER OR CONTAINER PLUS SAMPLE: 103.8211		2. 103.8216	10.
3.	11.	FILTER OR CONTAINER TARE: 103.7485		3. 103.8220	11.
4.	12.	SAMPLE: 0.0726		4. 103.8211	12.
5.	13.			5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 0.3541	9.	SAMPLE NUMBER: Filter	FILTER OR CONTAINER #: 3.126	1. 0.3624	9.
2. 0.3545	10.	FILTER OR CONTAINER PLUS SAMPLE: 0.3625		2. 0.3625	10.
3. 0.3543	11.	FILTER OR CONTAINER TARE: 0.3543		3. 0.3625	11.
4.	12.	SAMPLE: 0.0082		4.	12.
5.	13.			5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 98.9167	9.	SAMPLE NUMBER: Imp I	FILTER OR CONTAINER #: 99.2	1. 98.9182	9.
2. 98.9169	10.	FILTER OR CONTAINER PLUS SAMPLE: 98.9183		2. 98.9183	10.
3.	11.	FILTER OR CONTAINER TARE: 98.9168		3. 98.9185	11.
4.	12.	SAMPLE: 0.0015		4.	12.
5.	13.			5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

TARE WEIGHT				TARE + SAMPLE WEIGHT	
1. 99.3829	9.	SAMPLE NUMBER: Imp O	FILTER OR CONTAINER #: 100.2	1. 99.3828	9.
2. 99.3833	10.	FILTER OR CONTAINER PLUS SAMPLE: 99.3830		2. 99.3829	10.
3.	11.	FILTER OR CONTAINER TARE: 99.3831		3. 99.3832	11.
4.	12.	SAMPLE: 0.0001		4.	12.
5.	13.			5.	13.
6.	14.			6.	14.
7.	15.			7.	15.
8.	16.			8.	16.

A00248

FIELD DATA

PLANT HOLLY SUGAR
DATE 6/10/91
SAMPLING LOCATION COOLER
SAMPLE TYPE PARTICULATE
RUN NUMBER #3
OPERATOR MARCOTTE
AMBIENT TEMPERATURE 78°F
BAROMETRIC PRESSURE 28.90
STATIC PRESSURE, (P_s) -0.50
FILTER NUMBER (s) 3.127 (3")

COOLER
PARTICULATE
RUN #3

PROBE LENGTH AND TYPE #3 (5' S.S.)
NOZZLE I.D. ~~0.2300 (S.S.)~~ .50
ASSUMED MOISTURE, % 5%
SAMPLE BOX NUMBER WES #11
METER BOX NUMBER WES #11
METER $\Delta H_@$ WES #11
C FACTOR -
PROBE HEATER SETTING 250°F
HEATER BOX SETTING 250°F
REFERENCE Δp #5 (0-2")

2 ml
+ g
= VLC

SCHEMATIC OF TRAVERSE POINT LAYOUT

READ AND RECORD ALL DATA EVERY 2½ MINUTES

preleak ✓ < .015 cfm @ 15"

postleak ✓ < .010 cfm @ 10"

TRAVERSE POINT NUMBER	SAMPLING TIME, min	CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O DESIRED	ACTUAL	STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F	PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
	0	6:22	748.031									
1	2½	6:24½	749.415	0.41	1.02	1.02	71	78	78	3	250	58
2	5	6:27	750.840	0.48	1.19	1.19	70	72	74	3	248	53
3	7½	6:29½	752.310	0.50	1.24	1.24	70	72	74	3	246	52
4	10	6:32	753.830	0.53	1.31	1.31	70	72	74	3	247	53
5	12½	6:34½	755.425	0.58	1.43	1.43	70	73	74	3	248	53
6	15	6:37	756.935	0.52	1.29	1.29	70	73	73	3	251	54
7	17½	6:39½	758.250	0.37	0.91	0.91	71	75	73	3	250	54
8	20	6:42	759.640	0.44	1.09	1.09	70	75	73	3	247	56
9	22½	6:44½	761.005	0.42	1.04	1.04	71	76	74	3	250	58
10	25	6:47	762.345	0.40	0.99	0.99	71	76	74	3	248	60
11	27½	6:49½	763.615	0.35	0.87	0.87	70	76	74	3	250	61
12	30	6:52	764.846	0.33	0.82	0.82	70	77	74	3	249	61
*	Stop	6:54	SWITCH PORTS *									
1	32½	6:56½	766.175	0.41	1.02	1.02	70	76	74	3	250	59
2	35	6:59	767.645	0.49	1.22	1.22	70	76	74	3	248	60
3	37½	7:01½	769.150	0.52	1.29	1.29	70	75	72	3	249	60
4	40	7:04	770.715	0.57	1.41	1.41	71	75	72	3	248	61
5	42½	7:06½	772.425	0.68	1.68	1.68	70	74	72	3	251	60
6	45	7:09	774.030	0.60	1.48	1.48	71	74	72	3	250	62
7	47½	7:11½	775.820	0.74	1.83	1.83	70	75	72	3	249	61
8	50	7:14	777.470	0.62	1.53	1.53	70	75	71	3	250	61
9	52½	7:16½	779.015	0.54	1.33	1.33	71	75	71	3	251	62
10	55	7:19	780.425	0.48	1.18	1.18	71	75	71	3	250	62
COMMENTS: 11	57½	7:21½	781.805	0.45	1.11	1.11	70	74	71	3	248	61
12	60	7:24	783.180	0.45	1.11	1.11	70	74	70	3	247	60
			(35.149)									

EPA (Dur) 235
4/72

A00249

DESICCATION OF SOLID SAMPLES TO CONSTANT WEIGHT

Holly Sugar
Cooler #1
Test #3

Completion Dates
1. ______ 2. ______
3. ______ 4. ______
Indicate by numbers in box under Sample column.

Requestor ______
JN ______
Assigned to ______
Date Assigned ______

ALL WEIGHTS IN GRAMS

Tare Weight	Sample Number	Filter or Container #	Filter or Container plus Sample	Filter or Container Tare	Sample	Tare + Sample Weight
1. 104.6304 2. 104.6305	Probe	1.3	104.6964	104.6305	0.0659	1. 104.6961 2. 104.6966 3. 104.6966
1. 0.3559 2. 0.3560 3. 0.3561	Filter	3.127	0.3637	0.3560	0.0077	1. 0.3637 2. 0.3637 3. 0.3638
1. 108.3023 2. 108.3027	Imp I	2.3	108.3037	108.3025	0.0012	1. 108.3038 2. 108.3039 3. 108.3035
1. 108.2964 2. 108.2964	Imp O	3.3	108.2969	108.2964	0.0005	1. 108.2966 2. 108.2969 3. 108.2971

A00250

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Cooler
RUN: Particulate 1
DATE: June 10, 1991

GAS METER READING	VELOCITY HEAD	SQUARE ROOT	AVERAGE SQUARED	ORIFICE PRESSURE DELTA H	STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
674.818	0.45	0.670820		1.12	70	76	76
711.698	0.47	0.685565		1.17	70	77	76
---------	0.5	0.707106		1.24	71	76	76
36.880	0.5	0.707106		1.24	70	76	76
=========	0.55	0.741619		1.37	70	76	77
(DIFFERENCE)	0.6	0.774596		1.49	71	78	77
	0.48	0.692820		1.2	70	78	78
	0.48	0.692820		1.2	71	80	78
	0.43	0.655743		1.07	72	81	78
	0.4	0.632455		1	71	82	78
	0.41	0.640312		1.03	70	83	77
	0.4	0.632455		1	70	83	78
	0.48	0.692820		1.2	70	76	77
	0.55	0.741619		1.37	70	76	76
	0.6	0.774596		1.49	71	77	77
	0.63	0.793725		1.58	70	77	76
	0.65	0.806225		1.62	71	77	77
	0.71	0.842614		1.77	71	80	78
	0.75	0.866025		1.87	70	80	78
	0.75	0.866025		1.87	70	81	78
	0.57	0.754983		1.42	71	81	78
	0.55	0.741619		1.38	70	83	79
	0.5	0.707106		1.25	70	83	79
	0.49	0.7		1.23	70	83	80

	AVERAGE	0.730032	0.533	AVERAGE 1.34	AVERAGE 70.41666	AVERAGE	78.29
		=========	=========	============	=========		=========

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Cooler
RUN: Particulate 2
DATE: June 10, 1991

GAS METER READING	VELOCITY HEAD	SQUARE ROOT		ORIFICE PRESSURE DELTA H	STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
712.297	0.33	0.574456		0.82	70	77	77
747.576	0.46	0.678232		1.14	71	77	78
---------	0.55	0.741619		1.37	70	78	78
35.279	0.57	0.754983		1.42	70	78	78
=========	0.62	0.787400		1.54	70	78	78
(DIFFERENCE)	0.62	0.787400		1.54	71	81	79
	0.3	0.547722		0.75	70	81	79
	0.4	0.632455		1	69	81	79
	0.4	0.632455		1	70	81	79
	0.35	0.591607		0.88	70	81	79
	0.35	0.591607		0.88	70	82	80
	0.35	0.591607		0.88	71	82	80
	0.57	0.754983		1.43	70	82	80
	0.53	0.728010		1.33	70	82	80
	0.57	0.754983		1.43	70	83	81
	0.6	0.774596		1.51	71	83	81
	0.68	0.824621		1.71	70	84	81
	0.6	0.774596		1.51	70	84	82
	0.5	0.707106		1.26	70	85	81
	0.5	0.707106		1.26	71	85	81
	0.5	0.707106		1.26	70	85	81
	0.45	0.670820		1.13	70	84	80
	0.4	0.632455		1.01	70	84	80
	0.42	0.648074		1.06	70	84	80
		---------	AVERAGE SQUARED				
	AVERAGE	0.691500	0.478	AVERAGE 1.21	AVERAGE 70.16666	AVERAGE	80.71
		=========	=========	============	=========		=========

A00252

FIELD DATA REDUCTION

SITE: Holly Sugar
UNIT: Cooler
RUN: Particulate 3
DATE: June 10, 1991

GAS METER READING	VELOCITY HEAD	SQUARE ROOT		ORIFICE PRESSURE DELTA H		STACK TEMPERATURE	DRY GAS METER TEMPERATURE	
748.031	0.41	0.640312		1.02		71	78	78
783.180	0.48	0.692820		1.19		70	72	74
---------	0.5	0.707106		1.24		70	72	74
35.149	0.53	0.728010		1.31		70	72	74
=========	0.58	0.761577		1.43		70	73	74
(DIFFERENCE)	0.52	0.721110		1.29		70	73	73
	0.37	0.608276		0.91		71	75	73
	0.44	0.663324		1.09		70	75	73
	0.42	0.648074		1.04		71	76	74
	0.4	0.632455		0.99		71	76	74
	0.35	0.591607		0.87		70	76	74
	0.33	0.574456		0.82		70	77	74
	0.41	0.640312		1.02		70	76	74
	0.49	0.7		1.22		70	76	74
	0.52	0.721110		1.29		70	75	72
	0.57	0.754983		1.41		71	75	72
	0.68	0.824621		1.68		70	74	72
	0.6	0.774596		1.48		71	74	72
	0.74	0.860232		1.83		70	75	72
	0.62	0.787400		1.53		70	75	71
	0.54	0.734846		1.33		71	75	71
	0.48	0.692820		1.18		71	75	71
	0.45	0.670820		1.11		70	74	71
	0.45	0.670820		1.11		70	74	70
		---------	AVERAGE SQUARED					
	AVERAGE	0.700070	0.490	AVERAGE 1.22	AVERAGE	70.33333	AVERAGE	73.83
		=========	=========	============		=========		=========

A00253

			200		mls	VLC
91 Holly Sugar Boiler #3	#1	212	200	12	70	82
" "	2	211		11	52	63
" "	3	215		15	52	67
91- Holly Sugar Boiler #4	#1	218		18	43	61
" "	2	214		14	38	52
" "	3	213		13	22	35
91- Holly Sugar Boiler #2	#1	218	200	18	60	78
" " "	2	214		14	58	72
" " "	3	213		13	62	75
91- Holly Sugar Boiler #1	#1	216½		16½	76	92½
" " "	2	220		20	48	88
" " "	3	214		14	48	62
91 Holly Sugar Cooler #1	#1	212	200	12	8	20
" " "	2	212½		12½	6	18½
" " "	3	213½		13½	4	17½
91 Holly Sugar Dryer #1	#1	236½		36½	446	482½
" " "	2	219½		19½	368	387
" " "	3	220		20	348	368
91 Holly Sugar Dryer #2	#1	222	200	22	290	312
" " "	2	216		16	272	288
" " "	3	221		21	268	289
91 Holly Sugar Dryer #3	#1	213		13	180	193
" " "	2	218		18	210	228
" " "	3	212		12	304	316
91-CBS Moisture	#1	204	200	4	28	32
91-Sees Color Textile Bl 1	#1	~~220~~ 202.8	200	~~30~~ 2.8	30	32.
91-Sees Color Textile Bl 2	#1	~~220~~ 200.8	200	~~25~~ .8	20	20.
91-ABI Blr. #5	#1	205	200	5	26	31
Monsanto Acid Plant #3	#1	216	200	16	207	22
" "	#2	210	200	10	216	22
STP Unit - # Part	#1	213	200	13	172	18
" "	2	214	200	14	201	21
Acid Plant #3 Part	#2	209	200	9	124	13
"	#3	210	200	10	132	14

A00254

WESTERN ENVIRONMENTAL SERVICES

APPENDIX B

SCOTT-MARRIN, INC.
2001 THIRD ST. • UNIT H • RIVERSIDE, CA 92507
TELEPHONE (714) 784-1240

REPORT OF ANALYSIS
EPA PROTOCOL GAS MIXTURES

WEES01
TO:

DATE : 04/05/91

TOM ROONEY
WESTERN ENVIRONMENTAL SERVICES
1010 S. PACIFIC COAST HWY
REDONDO BEACH, CA 90277

CUSTOMER ORDER NUMBER: 2380

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COMPONENT	CONCENTRATION (v/v)	REFERENCE STANDARD	ANALYZER MAKE,MODEL,S/N,DETECTION	EXPIRATION DATE	REPLICATE ANALYSIS DATA	
CYLINDER NO.: JJ14169						
			Carle Insts Model 8000		03/18/91	03/28/91
Carbon Monoxide	946 ± 9 ppm	GMIS	S/N 8249	09/28/92	946 ppm	957 ppm
		Cylinder #	Methanation/FID		947 ppm	942 ppm
Nitrogen	Balance	L382	Gas Chromatography		943 ppm	942 ppm
Cylinder Pressure: 2000 psig		@ 1039 ppm	Last Cal Date: 04/22/91	Mean:	945 ppm	947 ppm
CYLINDER NO.: JJ22988						
			Monitor Labs Model 8440		03/26/91	04/02/91
Nitric Oxide	94.3 ± 0.9 ppm	GMIS	S/N 136	10/02/92	94.1 ppm	94.5 ppm
		Cylinder #	Continuous		94.3 ppm	94.2 ppm
Nitrogen,O2-Free	Balance	CC12643	Chemiluminescence		94.5 ppm	94.3 ppm
Cylinder Pressure: 2000 psig		@ 99.4 ppm	Last Cal Date: 01/31/91	Mean:	94.3 ppm	94.3 ppm
CYLINDER NO.: MM11409						
			Monitor Labs Model 8440		03/15/91	04/05/91
Nitric Oxide	70.6 ± 0.7 ppm	GMIS	S/N 136	10/05/92	70.7 ppm	70.7 ppm
		Cylinder #	Continuous		70.6 ppm	70.4 ppm
Nitrogen,O2-Free	Balance	CC12643	Chemiluminescence		70.5 ppm	70.5 ppm
Cylinder Pressure: 2000 psig		@ 99.4 ppm	Last Cal Date: 01/31/91	Mean:	70.6 ppm	70.5 ppm

ppm = umole/mole   % = mole-%

The above analyses were performed in accordance with EPA-1987 Traceability Protocol # 1, Section 3.0.4, Procedure G1.

Analyst: for M. S. Calhoun
M.S. Calhoun

B00001

Approved:
J.T. Marrin

The only liability of this company for gas which fails to comply with this analysis shall be replacement or reanalysis thereof by the company without extra cost.

SCOTT-MARRIN, INC.

2001 THIRD ST. • UNIT H • RIVERSIDE, CA 92507
TELEPHONE (714) 784-1240

REPORT OF ANALYSIS
EPA PROTOCOL GAS MIXTURES

WEES01

TO:

TOM ROONEY
WESTERN ENVIRONMENTAL SERVICES
1010 SO PACIFIC COAST HWY
REDONDO BEACH, CA 90277

DATE : 04/24/90

CUSTOMER ORDER NUMBER: 2671

PAGE 1

COMPONENT	CONCENTRATION(v/v)	REFERENCE STANDARD	ANALYZER MAKE,MODEL,S/N,DETECTION	EXPIRATION DATE	REPLICATE ANALYSIS DATA	
CYLINDER NO.:	JJ14669					
			Monitor Labs Model 8440		04/09/90	04/18/90
Nitric Oxide	896 ± 9 ppm	GMIS	S/N 136	10/18/91	893 ppm	897 ppm
		Cylinder #	Continuous		896 ppm	897 ppm
Nitrogen,O2-Free Balance		CC28475	Chemiluminescence		892 ppm	897 ppm
Cylinder Pressure: 2000 psig		@ 970 ppm	Last Cal Date: 04/23/90	Mean:	894 ppm	897 ppm

ppm = umole/mole % = mole-%

The above analyses were performed in accordance with EPA-1987 Traceability Protocol # 1, Section 3.0.4, Procedure G1.

Analyst: Steve Kozy
S.B. Kozy

Approved:
J.T.Marrin

B00002

The only liability of this company for gas which fails to comply with this analysis shall be replacement or reanalysis thereof by the company without extra cost.

STANDARD CALIBRATION GASES IN ALUMINUM CYLINDERS

SCOTT-MARRIN, INC.
2001 THIRD ST. • UNIT H • RIVERSIDE, CA 92507
TELEPHONE (714) 784-1240

REPORT OF ANALYSIS
EPA PROTOCOL GAS MIXTURES

WEES01

TO:

TOM ROONEY
WESTERN ENVIRONMENTAL SERVICES
1010 S. PACIFIC COAST HWY
REDONDO BEACH, CA 90277

DATE : 09/27/90

CUSTOMER ORDER NUMBER: 2624

COMPONENT	CONCENTRATION (v/v)	REFERENCE STANDARD	ANALYZER MAKE,MODEL,S/N,DETECTION	EXPIRATION DATE	REPLICATE ANALYSIS DATA	
CYLINDER NO.:	JJ24602					
			Monitor Labs Model 8440		09/10/90	09/17/90
Nitric Oxide	220.7 ± 2.2 ppm	GMIS	S/N 136	03/17/92	220.6 ppm	221.6 ppm
		Cylinder #	Continuous		220.3 ppm	220.7 ppm
Nitrogen,O2-Free Balance		CC49697	Chemiluminescence		220.4 ppm	220.8 ppm
Cylinder Pressure: 2000 psig		@ 254.5 ppm	Last Cal Date: 07/30/90	Mean:	220.4 ppm	221.0 ppm

ppm = umole/mole   % = mole-%

The above analyses were performed in accordance with EPA-1987 Traceability Protocol # 1, Section 3.0.4, Procedure G1.

Analyst: Steve Kozy
S.B. Kozy

Approved: JMarrin
J.T.Marrin

B00003

The only liability of this company for gas which fails to comply with this analysis shall be replacement or reanalysis thereof by the company without extra cost.

STANDARD CALIBRATION GASES IN ALUMINUM CYLINDERS

SCOTT-MARRIN, INC.
2001 THIRD ST. • UNIT H • RIVERSIDE, CA 92507
TELEPHONE (714) 784-1240

REPORT OF ANALYSIS
EPA PROTOCOL GAS MIXTURES

WEES01

TO:

TOM ROONEY
WESTERN ENVIRONMENTAL SERVICES
1010 S. PACIFIC COAST HWY
REDONDO BEACH, CA 90277

DATE : 07/13/90

CUSTOMER ORDER NUMBER: VERBAL

PAGE 1

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COMPONENT	CONCENTRATION(v/v)	REFERENCE STANDARD	ANALYZER MAKE,MODEL,S/N,DETECTION	EXPIRATION DATE	REPLICATE ANALYSIS DATA	
CYLINDER NO.: JJ773						
			Monitor Labs Model 8440		06/21/90	07/02/90
Nitric Oxide	197.6 ± 2.0 ppm	GMIS	S/N 136	01/02/92	198.8 ppm	196.1 ppm
		Cylinder #	Continuous		198.1 ppm	197.7 ppm
Nitrogen,O2-Free Balance		CC49697	Chemiluminescence		198.8 ppm	196.0 ppm
Cylinder Pressure: 2000 psig		@ 254.7 ppm	Last Cal Date: 04/20/90	Mean:	198.6 ppm	196.6 ppm
CYLINDER NO.: JJ22402						
			Monitor Labs Model 8440		06/21/90	07/02/90
Nitric Oxide	203.7 ± 2.0 ppm	GMIS	S/N 136	01/02/92	203.9 ppm	203.7 ppm
		Cylinder #	Continuous		203.2 ppm	203.8 ppm
Nitrogen,O2-Free Balance		CC49697	Chemiluminescence		203.6 ppm	203.7 ppm
Cylinder Pressure: 2000 psig		@ 254.7 ppm	Last Cal Date: 04/20/90	Mean:	203.6 ppm	203.8 ppm

ppm = umole/mole   % = mole-%

The above analyses were performed in accordance with EPA-1987 Traceability Protocol # 1, Section 3.0.4, Procedure G1.

Analyst: J.W. Gay

Approved: J.T.Marrin

B00004

The only liability of this company for gas which fails to comply with this analysis shall be replacement or reanalysis thereof by the company without extra cost.

STANDARD CALIBRATION GASES IN ALUMINUM CYLINDERS

SCOTT-MARRIN, INC.
2001 THIRD ST. • UNIT H • RIVERSIDE, CA 92507
TELEPHONE (714) 784-1240

REPORT OF ANALYSIS
EPA PROTOCOL GAS MIXTURES

WEES01

TO:

TOM ROONEY
WESTERN ENVIRONMENTAL SERVICES
1010 S. PACIFIC COAST HWY
REDONDO BEACH, CA 90277

DATE : 09/18/90

CUSTOMER ORDER NUMBER: 2644

PAGE 1

COMPONENT	CONCENTRATION(v/v)	REFERENCE STANDARD	ANALYZER MAKE,MODEL,S/N,DETECTION	EXPIRATION DATE	REPLICATE ANALYSIS DATA
CYLINDER NO.:	JJ9043				
			Varian Model 1860		09/05/90
Oxygen	7.44 ± 0.07 %	GMIS	S/N None	03/05/92	7.43 %
		Cylinder #	Thermal Conductivity		7.45 %
		CC62350	Gas Chromatography		7.44 %
		@ 9.68 %	Last Cal Date: 07/25/90		Mean: 7.44 %
			Varian Model 1860		09/11/90
Carbon Dioxide	8.40 ± 0.08 %	GMIS	S/N None	03/11/92	8.39 %
		Cylinder #	Thermal Conductivity		8.41 %
Nitrogen	Balance	CC28297	Gas Chromatography		8.40 %
Cylinder Pressure: 2000 psig		@ 7.40 %	Last Cal Date: 07/19/90		Mean: 8.40 %

ppm = umole/mole % = mole-%

The above analyses were performed in accordance with EPA-1987 Traceability Protocol # 1, Section 3.0.4, Procedure G1.

Analyst: Mark Monson
M.J. Monson

Approved: [signature]
J.T.Marrin

B00005

SCOTT-MARRIN, INC.
2001 THIRD ST. • UNIT H • RIVERSIDE, CA 92507
TELEPHONE (714) 784-1240

REPORT OF ANALYSIS

WEESØ1
TO: Tom Rooney
Western Environmental Services
1010 S. Pacific Coast Highway
Redondo Beach, CA 90277

DATE: 06 January 1991

CUSTOMER ORDER NUMBER: 2362

CYLINDER NUMBER JJ12449

COMPONENT	CONCENTRATION(v/v)
Nitrogen Dioxide	93.4 ± 1.0 ppm
Air	Balance

CYLINDER NUMBER

COMPONENT	CONCENTRATION(v/v)

CYLINDER NUMBER JJ12449

COMPONENT	CONCENTRATION(v/v)

CYLINDER NUMBER

COMPONENT	CONCENTRATION(v/v)

(The above analysis is traceable to the National Institute of Standards & Technology,)
(SRM 1684b, Cylinder Number FF18308.)

ANALYST Steve Kozy
S.B. Kozy

APPROVED [signature]
J.T. Marrin

B00006

SCOTT-MARRIN, INC.
2001 THIRD ST. • UNIT H • RIVERSIDE, CA 92507
TELEPHONE (714) 784-1240

REPORT OF ANALYSIS

WEES01

TO: Tom Rooney
Western Environmental Services
1010 S. Pacific Coast Hwy
Redondo Beach, CA 90277

DATE: 3 June 1991

CUSTOMER ORDER NUMBER: T. Rooney

CYLINDER NUMBER CC12770

COMPONENT	CONCENTRATION (v/v)
Sulfur Dioxide	51.7 ± 1.0 ppm
Nitrogen*	Balance

*Oxygen-Free

Cylinder Pressure: 2000 psig

Replicate	5/27/91	51.6 ppn	6/3/91	51.4 ppm
Analysis		52.0 ppm		51.8 ppm
Data On		51.6 ppm		51.6 ppm
SO_2:	Mean	51.7 ppm		51.6 ppm

Expiration Date SO_2: 12/03/92

(The Sulfur Dioxide analysis was performed in accordance with Section 3.0.4 of the revised EPA traceability protocol No. 1 dated June 9, 1987. The analysis is traceable to the National Institute of Standards and Technology by direct intercomparison with GMIS, cylinder number CC28644 at 49.2 ppm Sulfur Dioxide in Nitrogen. The analysis was performed using an Interscan Model RM2450P, S/N 72138 gas chromatograph with electrochemical detection.)

ANALYST Mark Monson
M.J. Monson

APPROVED [signature]
J.T. Marrin

The only liability of this company for gas which fails to comply with this analysis shall be replacement or reanalysis thereof by the company without extra cost.

SMF - 01

B00007

SCOTT - MARRIN, INC. **2001 THIRD ST., UNIT H** **RIVERSIDE, CALIFORNIA 92507**

REPORT OF ANALYSIS

CUSTOMER ORDER NUMBER: 2394 / reanalysis

CYLINDER NUMBER JJ13551

COMPONENT	CONCENTRATION (v/v)
Sulfur Dioxide	99.8 ± 2.0 ppm
Nitrogen	Balance

Cylinder Pressure: 1100 psig

Replicate	4/24/91		99.3 ppm
Analysis			100.7 ppm
Data On			100.5 ppm
SO_2:		Mean	100.2 ppm

Expiration Date SO_2: 10/24/92

(The Sulfur Dioxide analysis was performed in accordance with Section 3.0.4 of the revised EPA traceability protocol No. 1 dated June 9, 1987. The analysis is traceable to the National Institute of Standards and Technology by direct intercomparison with GMIS, cylinder number CC68658 at 102.5 ppm Sulfur Dioxide in Nitrogen. The analysis was performed using an Interscan Model RM2450P, S/N 72138 gas chromatograph with electrochemical detection. The last multipoint calibration was performed 1/30/91.)

SCOTT-MARRIN, INC.
2001 THIRD ST. • UNIT H • RIVERSIDE, CA 92507
TELEPHONE (714) 784-1240

REPORT OF ANALYSIS
EPA PROTOCOL GAS MIXTURES

WEES01

TO:

DATE : 04/24/90

TOM ROONEY
WESTERN ENVIRONMENTAL SERVICES
1010 SO PACIFIC COAST HWY
REDONDO BEACH, CA 90277

CUSTOMER ORDER NUMBER: 2672

PAGE 1

COMPONENT	CONCENTRATION(v/v)	REFERENCE STANDARD	ANALYZER MAKE,MODEL,S/N,DETECTION	EXPIRATION DATE	REPLICATE ANALYSIS DATA	
CYLINDER NO.:	JJ14679					
			Carle Insts Model 8000		04/04/90	04/13/90
Carbon Monoxide	230.5 ± 2.3 ppm	GMIS	S/N 8249	10/13/91	230.4 ppm	230.8 ppm
		Cylinder #	Methanation/FID		229.1 ppm	231.4 ppm
Nitrogen	Balance	FF16453	Gas Chromatography		230.2 ppm	231.2 ppm
Cylinder Pressure: 2000 psig		@ 267.5 ppm	Last Cal Date: 01/20/90		Mean: 229.9 ppm	231.1 ppm

ppm = umole/mole   % = mole-%

The above analyses were performed in accordance with EPA-1987 Traceability Protocol # 1, Section 3.0.4, Procedure G1.

Analyst: J.W. Gay   Approved: J.T.Marrin

J.W. Gay

B00009

J.T.Marrin

The only liability of this company for gas which fails to comply with this analysis shall be replacement or reanalysis thereof by the company without extra cost.

STANDARD CALIBRATION GASES IN ALUMINUM CYLINDERS

SCOTT-MARRIN, INC.
2001 THIRD ST. • UNIT H • RIVERSIDE, CA 92507
TELEPHONE (714) 784-1240

REPORT OF ANALYSIS
EPA PROTOCOL GAS MIXTURES

WEES01

TO:

DATE : 04/05/91

TOM ROONEY
WESTERN ENVIRONMENTAL SERVICES
1010 S. PACIFIC COAST HWY
REDONDO BEACH, CA 90277

CUSTOMER ORDER NUMBER: 2380

PAGE 1

COMPONENT	CONCENTRATION (v/v)	REFERENCE STANDARD	ANALYZER MAKE,MODEL,S/N,DETECTION	EXPIRATION DATE	REPLICATE ANALYSIS DATA	
CYLINDER NO.: JJ14169						
			Carle Insts Model 8000		03/18/91	03/28/91
Carbon Monoxide	946 ± 9 ppm	GMIS	S/N 8249	09/28/92	946 ppm	957 ppm
		Cylinder #	Methanation/FID		947 ppm	942 ppm
Nitrogen	Balance	L382	Gas Chromatography		943 ppm	942 ppm
Cylinder Pressure: 2000 psig		@ 1039 ppm	Last Cal Date: 04/22/91		Mean: 945 ppm	947 ppm
CYLINDER NO.: JJ22988						
			Monitor Labs Model 8440		03/26/91	04/02/91
Nitric Oxide	94.3 ± 0.9 ppm	GMIS	S/N 136	10/02/92	94.1 ppm	94.5 ppm
		Cylinder #	Continuous		94.3 ppm	94.2 ppm
Nitrogen,O2-Free	Balance	CC12643	Chemiluminescence		94.5 ppm	94.3 ppm
Cylinder Pressure: 2000 psig		@ 99.4 ppm	Last Cal Date: 01/31/91		Mean: 94.3 ppm	94.3 ppm
CYLINDER NO.: MM11409						
			Monitor Labs Model 8440		03/15/91	04/05/91
Nitric Oxide	70.6 ± 0.7 ppm	GMIS	S/N 136	10/05/92	70.7 ppm	70.7 ppm
		Cylinder #	Continuous		70.6 ppm	70.4 ppm
Nitrogen,O2-Free	Balance	CC12643	Chemiluminescence		70.5 ppm	70.5 ppm
Cylinder Pressure: 2000 psig		@ 99.4 ppm	Last Cal Date: 01/31/91		Mean: 70.6 ppm	70.5 ppm

ppm = umole/mole   % = mole-%

The above analyses were performed in accordance with EPA-1987 Traceability Protocol # 1, Section 3.0.4, Procedure G1.

Analyst: for M. S. Calhoun
M. S. Calhoun

Approved:
J.T. Marrin

B00010

REPORT OF ANALYSIS

CUSTOMER ORDER NUMBER: 2380

COMPONENT	CONCENTRATION (v/v)	REFERENCE STANDARD	ANALYZER MAKE, MODEL, S/N, DETECTION	EXPIRATION DATE	REPLICATE ANALYSIS DATA
CYLINDER NO.: JJ22625					
			Varian Model 1860		03/21/91
Oxygen	5.34 ± 0.05 %	GMIS	S/N None	09/21/91	5.37 %
		Cylinder #	Thermal Conductivity		5.26 %
		CC81219	Gas Chromatography		5.38 %
		@ 5.19 %	Last Cal Date: 02/28/91		Mean: 5.34 %
			Varian Model 1860		03/22/91
Carbon Dioxide	9.60 ± 0.10 %	GMIS	S/N None	09/22/91	9.59 %
		Cylinder #	Thermal Conductivity		9.62 %
Nitrogen	Balance	CC60263	Gas Chromatography		9.60 %
Cylinder Pressure: 2000 psig		@ 17.61 %	Last Cal Date: 01/23/91		Mean: 9.60 %
CYLINDER NO.: MM9989					
			Varian Model 1860		03/20/91
Oxygen	7.76 ± 0.08 %	GMIS	S/N None	09/20/91	7.76 %
		Cylinder #	Thermal Conductivity		7.78 %
		CC62350	Gas Chromatography		7.75 %
		@ 9.62 %	Last Cal Date: 03/12/91		Mean: 7.76 %
			Varian Model 1860		03/22/91
Carbon Dioxide	14.55 ± 0.15 %	GMIS	S/N None	09/22/91	14.54 %
		Cylinder #	Thermal Conductivity		14.56 %
Nitrogen	Balance	CC60263	Gas Chromatography		14.54 %
Cylinder Pressure: 2000 psig		@ 17.61 %	Last Cal Date: 01/23/91		Mean: 14.55 %
CYLINDER NO.: JJ23011					
			Varian Model 1860		03/23/91
Oxygen	3.05 ± 0.03 %	GMIS	S/N None	09/23/91	3.05 %
		Cylinder #	Thermal Conductivity		3.05 %
		CC81219	Gas Chromatography		3.04 %
		@ 5.19 %	Last Cal Date: 02/28/91		Mean: 3.05 %
			Varian Model 1860		03/22/91
Carbon Dioxide	11.67 ± 0.12 %	GMIS	S/N None	09/22/91	11.68 %
		Cylinder #	Thermal Conductivity		11.69 %
Nitrogen	Balance	CC60263	Gas Chromatography		11.65 %
Cylinder Pressure: 2000 psig		@ 17.61 %	Last Cal Date: 01/23/91		Mean: 11.67 %

ppm = umole/mole   % = mole-%

The above analyses were performed in accordance with EPA-1987 Traceability Protocol # 1, Section 3.0.4, Procedure G1.

SCOTT-MARRIN, INC.
2001 THIRD ST. • UNIT H • RIVERSIDE, CA 92507
TELEPHONE (714) 784-1240

REPORT OF ANALYSIS
EPA PROTOCOL GAS MIXTURES

WEES01
TO:

TOM ROONEY
WESTERN ENVIRONMENTAL
1010 S. PACIFIC COAST HWY
REDONDO BEACH, CA 90277

DATE : 08/20/90

CUSTOMER ORDER NUMBER: 2609

COMPONENT	CONCENTRATION(v/v)	REFERENCE STANDARD	ANALYZER MAKE,MODEL,S/N,DETECTION	EXPIRATION DATE	REPLICATE ANALYSIS DATA
CYLINDER NO.:	JJ24283				
			Varian Model 1860		08/13/90
Oxygen	11.49 ± 0.11 %	GMIS	S/N None	02/13/92	11.52 %
		Cylinder #	Thermal Conductivity		11.52 %
		CC62350	Gas Chromatography		11.42 %
		@ 9.68 %	Last Cal Date: 07/25/90		Mean: 11.49 %
			Varian Model 1860		08/14/90
Carbon Dioxide	6.17 ± 0.06 %	GMIS	S/N None	02/14/92	6.19 %
		Cylinder #	Thermal Conductivity		6.13 %
Nitrogen	Balance	CC28297	Gas Chromatography		6.18 %
Cylinder Pressure: 2000 psig		@ 7.40 %	Last Cal Date: 07/19/90		Mean: 6.17 %
CYLINDER NO.:	JJ25219				
			Varian Model 1860		08/13/90
Oxygen	14.51 ± 0.15 %	GMIS	S/N None	02/13/92	14.53 %
		Cylinder #	Thermal Conductivity		14.51 %
		CC12233	Gas Chromatography		14.49 %
		@ 23.85 %	Last Cal Date: 07/25/90		Mean: 14.51 %
			Varian Model 1860		08/14/90
Carbon Dioxide	4.40 ± 0.04 %	GMIS	S/N None	02/14/92	4.41 %
		Cylinder #	Thermal Conductivity		4.40 %
Nitrogen	Balance	CC28297	Gas Chromatography		4.40 %
Cylinder Pressure: 2000 psig		@ 7.40 %	Last Cal Date: 07/19/90		Mean: 4.40 %

ppm = umole/mole   % = mole-%

The above analyses were performed in accordance with EPA-1987 Traceability Protocol # 1, Section 3.0.4, Procedure G1.

Analyst: Mark Monson
M.J. Monson

Approved: [signature]
J.T.Marrin

B00011

The only liability of this company for gas which fails to comply with this analysis shall be replacement or reanalysis thereof by the company without extra cost.

SCOTT-MARRIN, INC.
2001 THIRD ST. • UNIT H • RIVERSIDE, CA 92507
TELEPHONE (714) 784-1240

REPORT OF ANALYSIS
EPA PROTOCOL GAS MIXTURES

WEES01

TO: DATE : 02/11/91

TOM ROONEY
WESTERN ENVIRONMENTAL SERVICES
1010 S. PACIFIC COAST HWY
REDONDO BEACH, CA 90277

CUSTOMER ORDER NUMBER: 2444 PAGE 1

COMPONENT	CONCENTRATION (v/v)	REFERENCE STANDARD	ANALYZER MAKE, MODEL, S/N, DETECTION	EXPIRATION DATE	REPLICATE ANALYSIS DATA
CYLINDER NO.:	JJ12468				
			Varian Model 1860		01/21/91
Oxygen	3.07 ± 0.03 %	GMIS	S/N None	07/21/92	3.07 %
		Cylinder #	Thermal Conductivity		3.06 %
		CC81219	Gas Chromatography		3.07 %
		@ 5.18 %	Last Cal Date: 11/19/90		Mean: 3.07 %
			Varian Model 1860		01/23/91
Carbon Dioxide	13.68 ± 0.14 %	GMIS	S/N None	07/23/92	13.66 %
		Cylinder #	Thermal Conductivity		13.70 %
Nitrogen	Balance	CC60263	Gas Chromatography		13.68 %
Cylinder Pressure: 2000 psig		@ 17.62 %	Last Cal Date: 01/23/91		Mean: 13.68 %
CYLINDER NO.:	JJ23432				
			Varian Model 1860		01/18/91
Oxygen	5.11 ± 0.05 %	GMIS	S/N None	07/18/92	5.11 %
		Cylinder #	Thermal Conductivity		5.11 %
		CC81219	Gas Chromatography		5.12 %
		@ 5.18 %	Last Cal Date: 11/19/90		Mean: 5.11 %
			Varian Model 1860		01/23/91
Carbon Dioxide	10.34 ± 0.10 %	GMIS	S/N None	07/23/92	10.34 %
		Cylinder #	Thermal Conductivity		10.34 %
Nitrogen	Balance	CC60263	Gas Chromatography		10.36 %
Cylinder Pressure: 2000 psig		@ 17.62 %	Last Cal Date: 01/23/91		Mean: 10.34 %

ppm = umole/mole % = mole-%

The above analyses were performed in accordance with EPA-1987 Traceability Protocol # 1, Section 3.0.4, Procedure G1.

Analyst: J.T. Marrin

Approved: J.T.Marrin

B00012

The only liability of this company for gas which fails to comply with this analysis shall be replacement or reanalysis thereof by the company without extra cost.

WESTERN ENVIRONMENTAL SERVICES

GAS METER CALIBRATION

Meter Number: 11
Barometric Pressure: 29.97
Date: June 14, 1991
Calibrated By: J. T. Hastriter

Orifice	Standard Meter Start	Standard Meter Finish	Temp F	Test Meter Start	Test Meter Finish	Temp F	Time Min	V	Delta H
0.50	604.511	608.468	73	126.724	130.545	72	10	1.032	1.80
0.50	608.468	612.452	76	130.545	134.391	72	10	1.027	1.80
1.00	612.606	618.159	78	134.534	139.873	72	10	1.026	1.87
1.00	618.159	623.701	82	139.873	145.214	73	10	1.018	1.90
2.00	623.875	631.651	84	145.395	152.870	73	10	1.014	1.94
2.00	631.651	639.400	87	152.870	160.343	73	10	1.005	1.98
						Average		1.020	1.88

B00013

WESTERN ENVIRONMENTAL SERVICES

PITOT TUBE CALIBRATION

Date: June 19, 1991
Calibrated by: Sean Marcotte
Number: ~~30~~ #3
Source: Magnehlic 0–2"

Delta P std	Delta P leg 1	Delta P leg 2	Cp leg 1	Cp leg 2
0.25	0.35	0.35	0.85	0.85
0.50	0.70	0.70	0.85	0.85
0.75	1.10	1.05	0.83	0.85
1	1.4	1.40	0.85	0.85
1.25	1.65	1.65	0.87	0.87
		Averages	0.84	0.85
		Average	0.84	

B00014

SCOTT-MARRIN, INC.
2001 THIRD ST. • UNIT H • RIVERSIDE, CA 92507
TELEPHONE (714) 784-1240

REPORT OF ANALYSIS
EPA PROTOCOL GAS MIXTURES

WEESØ1

TO:

TOM ROONEY
WESTERN ENVIRONMENTAL SERVICES
1Ø1Ø S. PACIFIC COAST HWY
REDONDO BEACH, CA 9Ø277

DATE : Ø5/2Ø/91

CUSTOMER ORDER NUMBER: T ROONEY

PAGE 1

COMPONENT	CONCENTRATION(v/v)	REFERENCE STANDARD	ANALYZER MAKE,MODEL,S/N,DETECTION	EXPIRATION DATE	REPLICATE ANALYSIS DATA	
CYLINDER NO.: MM9903						
			Carle Insts Model 8000		04/25/91	05/10/91
Carbon Monoxide	503 ± 5 ppm	GMIS	S/N 8249	11/10/92	504 ppm	504 ppm
		Cylinder #	Methanation/FID		501 ppm	505 ppm
Nitrogen	Balance	CC28362	Gas Chromatography		500 ppm	503 ppm
Cylinder Pressure: 2000 psig		@ 494 ppm	Last Cal Date: 04/16/91		Mean: 501 ppm	504 ppm

ppm = umole/mole % = mole-%

The above analyses were performed in accordance with EPA-1987 Traceability Protocol # 1, Section 3.Ø.4, Procedure G1.

Analyst: Mark Monson
M.J. Monson

Approved:
J.T. Marrin

B00015

The only liability of this company for gas which fails to comply with this analysis shall be replacement or reanalysis thereof by the company without extra cost.

STANDARD CALIBRATION GASES IN ALUMINUM CYLINDERS

SCOTT - MARRIN, INC. 2001 THIRD ST., UNIT H RIVERSIDE, CALIFORNIA 92507

REPORT OF ANALYSIS

CUSTOMER ORDER NUMBER: 2394/reanalysis

CYLINDER NUMBER JJ19003

COMPONENT	CONCENTRATION (v/v)
Sulfur Dioxide	19.42 ± 0.38 ppm
Nitrogen	Balance

Cylinder Pressure: 1350 psig

Replicate	4/18/91	18.92 ppm
Analysis		19.45 ppm
Data On		19.20 ppm
SO_2:	Mean	19.19 ppm

Expiration Date SO_2: 10/18/92

(The Sulfur Dioxide analysis was performed in accordance with Section 3.0.4 of the)
(revised EPA traceability protocol No. 1 dated June 9, 1987. The analysis is)
(traceable to the National Institute of Standards and Technology by direct)
(Intercomparison with GMIS, cylinder number CC28644 at 49.2 ppm Sulfur Dioxide in)
(Nitrogen. The analysis was performed using an Interscan Model RM2450P, S/N 72138)
(gas chromatograph with electrochemical detection. The last multipoint calibra-)
(tion was performed 1/30/91.)

B00016

SCOTT-MARRIN, INC.
2001 THIRD ST. • UNIT H • RIVERSIDE, CA 92507
TELEPHONE (714) 784-1240

REPORT OF ANALYSIS
EPA PROTOCOL GAS MIXTURES

WEES01

TO:

DATE : 04/24/90

TOM ROONEY
WESTERN ENVIRONMENTAL SERVICES
1010 SO PACIFIC COAST HWY
REDONDO BEACH, CA 90277

CUSTOMER ORDER NUMBER: 2672

PAGE 1

COMPONENT	CONCENTRATION(v/v)	REFERENCE STANDARD	ANALYZER MAKE,MODEL,S/N,DETECTION	EXPIRATION DATE	REPLICATE ANALYSIS DATA	
CYLINDER NO.:	JJ14679					
			Carle Insts Model 8000		04/04/90	04/13/90
Carbon Monoxide	230.5 ± 2.3 ppm	GMIS	S/N 8249	10/13/91	230.4 ppm	230.8 ppm
		Cylinder #	Methanation/FID		229.1 ppm	231.4 ppm
Nitrogen	Balance	FF16453	Gas Chromatography		230.2 ppm	231.2 ppm
Cylinder Pressure: 2000 psig		@ 267.5 ppm	Last Cal Date: 01/20/90	Mean:	229.9 ppm	231.1 ppm

ppm = umole/mole % = mole-%

The above analyses were performed in accordance with EPA-1987 Traceability Protocol # 1, Section 3.0.4, Procedure G1.

Analyst: J.W. Gay

Approved: J.T.Marrin

B00017

The only liability of this company for gas which fails to comply with this analysis shall be replacement or reanalysis thereof by the company without extra cost.

STANDARD CALIBRATION GASES IN ALUMINUM CYLINDERS

SCOTT - MARRIN, INC. 2001 THIRD ST., UNIT H RIVERSIDE, CALIFORNIA 92507

REPORT OF ANALYSIS

CUSTOMER ORDER NUMBER: 2394/reanalysis

CHRONOLOGICAL RECORD OF CERTIFIED CONCENTRATIONS

CYLINDER NUMBER: JJ19003

DATE	Sulfur Dioxide		
4/20/89	19.48 ppm		
5/1/89	19.59 ppm		
4/18/91	19.19 ppm		
AVERAGE	19.42 ppm		

B00018

WESTERN ENVIRONMENTAL SERVICES

APPENDIX C

WESTERN ENVIRONMENTAL SERVICES

NOMENCLATURE

%CO	Percent CO by volume, dry
$\%CO_2$	Percent CO_2 by volume, dry
%EA	Percent excess air in stack gas
%I	Percent Isokinetic
%M	Percent Moisture in Stack Gas, by Volume
$\%N_2$	Percent N_2 by volume, dry
$\%O_2$	Percent O_2 by volume, dry
A_s	Stack Area, ft^2
C_p	Pitot Tube Coefficient
C_{sf}	Particulate concentrations at standard conditions (1), dry, based on probe, cyclone and filter catch, GRS/SDCF
C_{st}	Particulate concentration at standard conditions (1), dry, based on total catch, GRS/SDCF
D_n	Sampling nozzle diameter, in.
E_f	Particulate emission rate, based on probe, cyclone and filter catch, lbs/hr
E_t	Particulate emission rates based on total particulate catch, lbs/hr
I_c	Percent of particulate caught in impingers
M_d	Mole Fraction Dry Stack Gas
M_f	Particulate collected in probe, cyclone and filter, mg.
M_t	Total particulate collected mg.
MW	Molecular Weight of Wet Stack Gas, gm/gm-mole
MW_c	Molecular Weight of Chemical
MW_d	Molecular Weight of Dry Stack Gas, gm/gm-mole
P	Velocity head, in. H_2O
P_b	Barometric Pressure, in. Hg.
PE_f	Particulate emission rate on a process basis, probe, cyclone and filter catch
PE_t	Particulate emission rate on a process basis, Total catch
P_m	Average Orifice Pressure Drop, in. Hg.

CALCULATIONS

1. Volume of water vapor at standard conditions [1]

$$V_{w_{std}} = .00267 * \frac{460 + T_{std}}{29.92} * Vlc$$

2. Volume of dry gas sampled at standard conditions [1]

$$V_{m_{std}} = 17.64 * \frac{V_m (P_b + P_m)}{(T_m + 460)}$$

3. Percent moisture in stack gas by volume.

$$\%M = \frac{100 * V_{w_{std}}}{V_{w_{std}} + V_{m_{std}}}$$

4. Mole fraction dry stack gas.

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

5. Molecular weight of dry stack gas (gm/gm - Mole)

$$MW_d = [(\%\ CO_2 * .44) + (\%\ O_2 * .32) + (\%\ N_2 * .28) + (\%\ CO * .28) + (\%\ \text{Additional Gas} * \text{MW of Additional Gas})]$$

6. Molecular weight of wet stack gas (gm/gm - Mole)

$$MW + (18 * Bwo) + [(1-Bwo) * MW_d]$$

7. Stack gas velocity at stack conditions [2], (ft/sec)

$$V_s = 85.49 * CP * \sqrt{\Delta P} * \sqrt{\frac{(T_s + 460)}{Ms * P_s}}$$

8. Stack gas volumetric flow rate at stack conditions.

$$Q_a = V_s * A_s * 60$$

CALCULATIONS

9. Stack gas volumetric folw rate at standard conditions [1]

$$Q_s = Q_a * \frac{528}{460 + T_s} * \frac{P_s}{29.92} * (1.00 - Bwo)$$

10. Percent isokinetic

$$\%I = \left[\frac{(T_s + 460) * V_{m\,std}}{P_s * V_s * AN * T_t} * (1 - Bwo) \right] * .0945$$

11. Particulate Concentrations at standard conditions [1], dry, based on probe, cyclone and filter catch.

$$C_{sf} = \frac{M_f * 15.43}{V_{m_{std}} * 1000}$$

12. Particulate concentration at standard conditions [1], dry, based on total catch.

$$C_{st} = \frac{M_t * 15.43}{V_{m_{std}} * 1000}$$

13. Particulate emission rate, based on probe, cyclone, and filter catch.

$$E_f = \frac{M_f * 60 * Q_s}{454{,}000 * V_{m_{std}}}$$

14. Particulate emission rate, based on total catch.

$$E_t = \frac{M_t * 60 * Q_s}{454{,}000 * V_{m_{std}}}$$

CALCULATIONS

15. Particulate emission rate on a process basis, probe, cyclone, and filter catch.

$$PE_f = \frac{E_f}{P_u}$$

16. Particulate emission rate on a process basis, total catch.

$$PE_t = \frac{E_f}{P_u}$$

17. Particulate emission rate, part per million.

$$ppm = \frac{M_t}{V_{m_{std}}} * \frac{863.3}{MW_c}$$

(1) Standard conditions: 68^0, 29.92 "Hg

(2) $\sqrt{\Delta P_s * (T_s + 460)}$ is determined by averaging the square root of the product of the velocity head (ΔP_s) and the absolute stack temperature (T_s + 460) for each indibidual point

Boiler #1
Test #1
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
NOx

Gas Concentration (ppm)	368
Gas Molecular Weight (MW)	46
Volumetric Flow Rate (DSCFM)	16298

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	43.68	lbs/day=	1048.246	lbs/yr=	382609.8
				tons/yr=	191.3049

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
CO

Gas Concentration (ppm)	0
Gas Molecular Weight (MW)	28
Volumetric Flow Rate (DSCFM)	16298

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	0.00	lbs/day=	0	lbs/yr=	0
				tons/yr=	0

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
SO2

Gas Concentration (ppm)	154
Gas Molecular Weight (MW)	64
Volumetric Flow Rate (DSCFM)	16298

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	25.43	lbs/day=	610.3209	lbs/yr=	222767.1
				tons/yr=	111.3835

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Methane

Gas Concentration (ppm)	4.59
Gas Molecular Weight (MW)	16
Volumetric Flow Rate (DSCFM)	16298

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	0.19	lbs/day=	4.547683	lbs/yr=	1659.904
				tons/yr=	0.829952

Boiler #1
Test #2
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
NOx

Gas Concentration (ppm)	365
Gas Molecular Weight (MW)	46
Volumetric Flow Rate (DSCFM)	16252

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	43.20	lbs/day=	1036.766	lbs/yr=	378419.6
				tons/yr=	189.2098

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
CO

Gas Concentration (ppm)	0
Gas Molecular Weight (MW)	28
Volumetric Flow Rate (DSCFM)	16252

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	0.00	lbs/day=	0	lbs/yr=	0
				tons/yr=	0

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
SO2

Gas Concentration (ppm)	163
Gas Molecular Weight (MW)	64
Volumetric Flow Rate (DSCFM)	16252

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	26.84	lbs/day=	644.1658	lbs/yr=	235120.5
				tons/yr=	117.5602

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Methane

Gas Concentration (ppm)	2.15
Gas Molecular Weight (MW)	16
Volumetric Flow Rate (DSCFM)	16252

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	0.09	lbs/day=	2.124166	lbs/yr=	775.3207
				tons/yr=	0.387660

Boiler #1
Test #3
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
NOx

Gas Concentration (ppm)	322
Gas Molecular Weight (MW)	46
Volumetric Flow Rate (DSCFM)	16382

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 38.41 lbs/day= 921.9426 lbs/yr= 336509.0
tons/yr= 168.2545

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
CO

Gas Concentration (ppm)	0
Gas Molecular Weight (MW)	28
Volumetric Flow Rate (DSCFM)	16382

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 0.00 lbs/day= 0 lbs/yr= 0
tons/yr= 0

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
SO2

Gas Concentration (ppm)	145
Gas Molecular Weight (MW)	64
Volumetric Flow Rate (DSCFM)	16382

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 24.07 lbs/day= 577.6146 lbs/yr= 210829.3
tons/yr= 105.4146

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Methane

Gas Concentration (ppm)	4.61
Gas Molecular Weight (MW)	16
Volumetric Flow Rate (DSCFM)	16382

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 0.19 lbs/day= 4.591040 lbs/yr= 1675.729
tons/yr= 0.837864

Boiler #2
Test #1
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
NOx

Gas Concentration (ppm)	233
Gas Molecular Weight (MW)	46
Volumetric Flow Rate (DSCFM)	19041

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 32.31 lbs/day= 775.4017 lbs/yr= 283021.6
tons/yr= 141.5108

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
CO

Gas Concentration (ppm)	22
Gas Molecular Weight (MW)	28
Volumetric Flow Rate (DSCFM)	19041

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 1.86 lbs/day= 44.56498 lbs/yr= 16266.21
tons/yr= 8.133109

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
SO2

Gas Concentration (ppm)	131
Gas Molecular Weight (MW)	64
Volumetric Flow Rate (DSCFM)	19041

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 25.27 lbs/day= 606.5467 lbs/yr= 221389.5
tons/yr= 110.6947

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Methane

Gas Concentration (ppm)	14.24
Gas Molecular Weight (MW)	16
Volumetric Flow Rate (DSCFM)	19041

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 0.69 lbs/day= 16.48325 lbs/yr= 6016.388
tons/yr= 3.008194

Boiler #2 Test #1
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-Methane

Gas Concentration (ppm)	1.5
Gas Molecular Weight (MW)	44
Volumetric Flow Rate (DSCFM)	19041

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	0.20	lbs/day=	4.774819	lbs/yr=	1742.809
				tons/yr=	0.871404

Boiler #2
Test #2
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
NOx

Gas Concentration (ppm)	282
Gas Molecular Weight (MW)	46
Volumetric Flow Rate (DSCFM)	18904

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 38.82 lbs/day= 931.7168 lbs/yr= 340076.6
tons/yr= 170.0383

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
CO

Gas Concentration (ppm)	21
Gas Molecular Weight (MW)	28
Volumetric Flow Rate (DSCFM)	18904

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 1.76 lbs/day= 42.23323 lbs/yr= 15415.12
tons/yr= 7.707564

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
SO2

Gas Concentration (ppm)	158
Gas Molecular Weight (MW)	64
Volumetric Flow Rate (DSCFM)	18904

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 30.26 lbs/day= 726.2966 lbs/yr= 265098.2
tons/yr= 132.5491

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Methane

Gas Concentration (ppm)	12.56
Gas Molecular Weight (MW)	16
Volumetric Flow Rate (DSCFM)	18904

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 0.60 lbs/day= 14.43399 lbs/yr= 5268.408
tons/yr= 2.634204

Boiler #2
Test #3
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
NOx

Gas Concentration (ppm)	283
Gas Molecular Weight (MW)	46
Volumetric Flow Rate (DSCFM)	18761

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	38.66	lbs/day=	927.9477	lbs/yr=	338700.9
				tons/yr=	169.3504

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
CO

Gas Concentration (ppm)	33
Gas Molecular Weight (MW)	28
Volumetric Flow Rate (DSCFM)	18761

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	2.74	lbs/day=	65.86447	lbs/yr=	24040.53
				tons/yr=	12.02026

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
SO2

Gas Concentration (ppm)	157
Gas Molecular Weight (MW)	64
Volumetric Flow Rate (DSCFM)	18761

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	29.84	lbs/day=	716.2405	lbs/yr=	261427.7
				tons/yr=	130.7138

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Methane

Gas Concentration (ppm)	12.56
Gas Molecular Weight (MW)	16
Volumetric Flow Rate (DSCFM)	18761

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	0.60	lbs/day=	14.32481	lbs/yr=	5228.555
				tons/yr=	2.614277

Boiler #3
Test #1
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
NOx

Gas Concentration (ppm)	210
Gas Molecular Weight (MW)	46
Volumetric Flow Rate (DSCFM)	21181

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 32.39 lbs/day= 777.4041 lbs/yr= 283752.5
tons/yr= 141.8762

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
CO

Gas Concentration (ppm)	13
Gas Molecular Weight (MW)	28
Volumetric Flow Rate (DSCFM)	21181

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 1.22 lbs/day= 29.29349 lbs/yr= 10692.12
tons/yr= 5.346062

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
SO2

Gas Concentration (ppm)	125
Gas Molecular Weight (MW)	64
Volumetric Flow Rate (DSCFM)	21181

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 26.83 lbs/day= 643.8129 lbs/yr= 234991.7
tons/yr= 117.4958

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Methane

Gas Concentration (ppm)	3.44
Gas Molecular Weight (MW)	16
Volumetric Flow Rate (DSCFM)	21181

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 0.18 lbs/day= 4.429433 lbs/yr= 1616.743
tons/yr= 0.808371

Boiler #3
Test #2
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
NOx

Gas Concentration (ppm)	217
Gas Molecular Weight (MW)	46
Volumetric Flow Rate (DSCFM)	19694

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 31.12 lbs/day= 746.9211 lbs/yr= 272626.2
tons/yr= 136.3131

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
CO

Gas Concentration (ppm)	15
Gas Molecular Weight (MW)	28
Volumetric Flow Rate (DSCFM)	19694

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 1.31 lbs/day= 31.42725 lbs/yr= 11470.94
tons/yr= 5.735474

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
SO2

Gas Concentration (ppm)	122.56
Gas Molecular Weight (MW)	64
Volumetric Flow Rate (DSCFM)	19694

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 24.46 lbs/day= 586.9295 lbs/yr= 214229.2
tons/yr= 107.1146

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Methane

Gas Concentration (ppm)	3.5
Gas Molecular Weight (MW)	16
Volumetric Flow Rate (DSCFM)	19694

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 0.17 lbs/day= 4.190301 lbs/yr= 1529.459
tons/yr= 0.764729

Boiler #3
Test #3
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
NOx

Gas Concentration (ppm)	213
Gas Molecular Weight (MW)	46
Volumetric Flow Rate (DSCFM)	21946

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	34.04	lbs/day=	816.9887	lbs/yr=	298200.9
				tons/yr=	149.1004

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
CO

Gas Concentration (ppm)	12
Gas Molecular Weight (MW)	28
Volumetric Flow Rate (DSCFM)	21946

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	1.17	lbs/day=	28.01676	lbs/yr=	10226.11
				tons/yr=	5.113058

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
SO2

Gas Concentration (ppm)	140
Gas Molecular Weight (MW)	64
Volumetric Flow Rate (DSCFM)	21946

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	31.13	lbs/day=	747.1136	lbs/yr=	272696.4
				tons/yr=	136.3482

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Methane

Gas Concentration (ppm)	4.01
Gas Molecular Weight (MW)	16
Volumetric Flow Rate (DSCFM)	21946

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	0.22	lbs/day=	5.349867	lbs/yr=	1952.701
				tons/yr=	0.976350

Boiler #4
Test #1
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
NOx

Gas Concentration (ppm)	268
Gas Molecular Weight (MW)	46
Volumetric Flow Rate (DSCFM)	22826

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	44.55	lbs/day=	1069.167	lbs/yr=	390246.1
				tons/yr=	195.1230

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
CO

Gas Concentration (ppm)	45
Gas Molecular Weight (MW)	28
Volumetric Flow Rate (DSCFM)	22826

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	4.55	lbs/day=	109.2757	lbs/yr=	39885.63
				tons/yr=	19.94281

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
SO2

Gas Concentration (ppm)	151
Gas Molecular Weight (MW)	64
Volumetric Flow Rate (DSCFM)	22826

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	34.92	lbs/day=	838.1273	lbs/yr=	305916.4
				tons/yr=	152.9582

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Methane

Gas Concentration (ppm)	4.12
Gas Molecular Weight (MW)	16
Volumetric Flow Rate (DSCFM)	22826

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	0.24	lbs/day=	5.717027	lbs/yr=	2086.715
				tons/yr=	1.043357

Boiler #4
Test #2
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
NOx

Gas Concentration (ppm)	260
Gas Molecular Weight (MW)	46
Volumetric Flow Rate (DSCFM)	25486

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 48.26 lbs/day= 1158.126 lbs/yr= 422716.3
tons/yr= 211.3581

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
CO

Gas Concentration (ppm)	18
Gas Molecular Weight (MW)	28
Volumetric Flow Rate (DSCFM)	25486

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 2.03 lbs/day= 48.80400 lbs/yr= 17813.46
tons/yr= 8.906731

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
SO2

Gas Concentration (ppm)	140
Gas Molecular Weight (MW)	64
Volumetric Flow Rate (DSCFM)	25486

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 36.15 lbs/day= 867.6268 lbs/yr= 316683.7
tons/yr= 158.3418

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Methane

Gas Concentration (ppm)	1.88
Gas Molecular Weight (MW)	16
Volumetric Flow Rate (DSCFM)	25486

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 0.12 lbs/day= 2.912747 lbs/yr= 1063.152
tons/yr= 0.531576

Boiler #4
Test #3
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
NOx

Gas Concentration (ppm)	278
Gas Molecular Weight (MW)	46
Volumetric Flow Rate (DSCFM)	24912

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	50.43	lbs/day=	1210.415	lbs/yr=	441801.6
				tons/yr=	220.9008

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
CO

Gas Concentration (ppm)	20
Gas Molecular Weight (MW)	28
Volumetric Flow Rate (DSCFM)	24912

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	2.21	lbs/day=	53.00537	lbs/yr=	19346.96
				tons/yr=	9.673480

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
SO2

Gas Concentration (ppm)	150
Gas Molecular Weight (MW)	64
Volumetric Flow Rate (DSCFM)	24912

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	37.86	lbs/day=	908.6635	lbs/yr=	331662.1
				tons/yr=	165.8310

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Methane

Gas Concentration (ppm)	3.1
Gas Molecular Weight (MW)	16
Volumetric Flow Rate (DSCFM)	24912

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	0.20	lbs/day=	4.694761	lbs/yr=	1713.588
				tons/yr=	0.856794

DRYER #1
Test #1
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
NOx

Gas Concentration (ppm)		88		
Gas Molecular Weight (MW)		46		
Volumetric Flow Rate (DSCFM)		34038		

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	21.81	lbs/day=	523.5134	lbs/yr=	191082.3
				tons/yr=	95.54119

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
CO

Gas Concentration (ppm)		360		
Gas Molecular Weight (MW)		28		
Volumetric Flow Rate (DSCFM)		34038		

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	54.32	lbs/day=	1303.610	lbs/yr=	475817.8
				tons/yr=	237.9089

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
SO2

Gas Concentration (ppm)		0		
Gas Molecular Weight (MW)		64		
Volumetric Flow Rate (DSCFM)		34038		

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	0.00	lbs/day=	0	lbs/yr=	0
				tons/yr=	0

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Methane

Gas Concentration (ppm)		18.15		
Gas Molecular Weight (MW)		16		
Volumetric Flow Rate (DSCFM)		34038		

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	1.56	lbs/day=	37.55639	lbs/yr=	13708.08
				tons/yr=	6.854042

DRYER #1 TEST #1
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-C2

Gas Concentration (ppm)	11.76
Gas Molecular Weight (MW)	30
Volumetric Flow Rate (DSCFM)	34038

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	1.90	lbs/day=	45.62636	lbs/yr=	16653.62
				tons/yr=	8.326812

DRYER #1 TEST #1
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-C3

Gas Concentration (ppm)	2.52
Gas Molecular Weight (MW)	44
Volumetric Flow Rate (DSCFM)	~~0~~34038

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	0.59	lbs/day=	0	lbs/yr=	0
				tons/yr=	0

C00021

DRYER #1
Test #2
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
NOx

Gas Concentration (ppm)	70
Gas Molecular Weight (MW)	46
Volumetric Flow Rate (DSCFM)	35148

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	17.92	lbs/day=	430.0112	lbs/yr=	156954.0
				tons/yr=	78.47704

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
CO

Gas Concentration (ppm)	126
Gas Molecular Weight (MW)	28
Volumetric Flow Rate (DSCFM)	35148

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	19.63	lbs/day=	471.1427	lbs/yr=	171967.0
				tons/yr=	85.98354

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
SO2

Gas Concentration (ppm)	0
Gas Molecular Weight (MW)	64
Volumetric Flow Rate (DSCFM)	35148

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	0.00	lbs/day=	0	lbs/yr=	0
				tons/yr=	0

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Methane

Gas Concentration (ppm)	7.99
Gas Molecular Weight (MW)	16
Volumetric Flow Rate (DSCFM)	35148

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	0.71	lbs/day=	17.07224	lbs/yr=	6231.369
				tons/yr=	3.115684

DRYER #1 TEST#2
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-C2

Gas Concentration (ppm)	12.22
Gas Molecular Weight (MW)	30
Volumetric Flow Rate (DSCFM)	35148

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	2.04	lbs/day=	48.95717	lbs/yr=	17869.36
				tons/yr=	8.934684

DRYER #1 TEST #2
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-C3

Gas Concentration (ppm)	0.97
Gas Molecular Weight (MW)	44
Volumetric Flow Rate (DSCFM)	35148

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	0.24	lbs/day=	5.699651	lbs/yr=	2080.372
				tons/yr=	1.040186

DRYER #1
Test #3
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
NOx

Gas Concentration (ppm)	75
Gas Molecular Weight (MW)	46
Volumetric Flow Rate (DSCFM)	34262

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	18.71	lbs/day=	449.1124	lbs/yr=	163926.0
				tons/yr=	81.96302

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
CO

Gas Concentration (ppm)	160
Gas Molecular Weight (MW)	28
Volumetric Flow Rate (DSCFM)	34262

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	24.30	lbs/day=	583.1952	lbs/yr=	212866.2
				tons/yr=	106.4331

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
SO2

Gas Concentration (ppm)	0
Gas Molecular Weight (MW)	64
Volumetric Flow Rate (DSCFM)	34262

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	0.00	lbs/day=	0	lbs/yr=	0
				tons/yr=	0

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Methane

Gas Concentration (ppm)	5.35
Gas Molecular Weight (MW)	16
Volumetric Flow Rate (DSCFM)	34262

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	0.46	lbs/day=	11.14319	lbs/yr=	4067.266
				tons/yr=	2.033633

DRYER #1 TEST#3
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-C2

Gas Concentration (ppm)	10.48
Gas Molecular Weight (MW)	30
Volumetric Flow Rate (DSCFM)	34262

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	1.71	lbs/day=	40.92781	lbs/yr=	14938.65
				tons/yr=	7.469325

DRYER #1 TEST #3
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-C3

Gas Concentration (ppm)	3.45
Gas Molecular Weight (MW)	44
Volumetric Flow Rate (DSCFM)	34262

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	0.82	lbs/day=	19.76094	lbs/yr=	7212.745
				tons/yr=	3.606372

DRYER #2
Test #1
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
NOx

Gas Concentration (ppm)	50
Gas Molecular Weight (MW)	46
Volumetric Flow Rate (DSCFM)	32220

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	11.73	lbs/day=	281.5636	lbs/yr=	102770.7
				tons/yr=	51.38537

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
CO

Gas Concentration (ppm)	200
Gas Molecular Weight (MW)	28
Volumetric Flow Rate (DSCFM)	32220

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	28.56	lbs/day=	685.5463	lbs/yr=	250224.4
				tons/yr=	125.1122

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
SO2

Gas Concentration (ppm)	0
Gas Molecular Weight (MW)	64
Volumetric Flow Rate (DSCFM)	32220

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	0.00	lbs/day=	0	lbs/yr=	0
				tons/yr=	0

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Methane

Gas Concentration (ppm)	30.36
Gas Molecular Weight (MW)	16
Volumetric Flow Rate (DSCFM)	32220

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	2.48	lbs/day=	59.46625	lbs/yr=	21705.18
				tons/yr=	10.85259

DRYER #1 TEST #1
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-C2

Gas Concentration (ppm)	3.95
Gas Molecular Weight (MW)	30
Volumetric Flow Rate (DSCFM)	32220

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	0.60	lbs/day=	14.50665	lbs/yr=	5294.927
				tons/yr=	2.647463

DRYER #2 Test #1
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-C3

Gas Concentration (ppm)	6.13
Gas Molecular Weight (MW)	44
Volumetric Flow Rate (DSCFM)	32220

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 1.38 lbs/day= 33.01885 lbs/yr= 12051.88
tons/yr= 6.025940

DRYER #2 Test #1
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-C4

Gas Concentration (ppm)	2.79
Gas Molecular Weight (MW)	58
Volumetric Flow Rate (DSCFM)	32220

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 0.83 lbs/day= 19.80984 lbs/yr= 7230.592
tons/yr= 3.615296

Test #2
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
NOx

Gas Concentration (ppm)	46
Gas Molecular Weight (MW)	46
Volumetric Flow Rate (DSCFM)	33448

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 11.20 lbs/day= 268.9113 lbs/yr= 98152.63
tons/yr= 49.07631

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
CO

Gas Concentration (ppm)	205
Gas Molecular Weight (MW)	28
Volumetric Flow Rate (DSCFM)	33448

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 30.39 lbs/day= 729.4664 lbs/yr= 266255.2
tons/yr= 133.1276

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
SO2

Gas Concentration (ppm)	0
Gas Molecular Weight (MW)	64
Volumetric Flow Rate (DSCFM)	33448

C00030

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 0.00 lbs/day= 0 lbs/yr= 0

tons/yr= 0

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Methane

Gas Concentration (ppm)	9.73
Gas Molecular Weight (MW)	16
Volumetric Flow Rate (DSCFM)	33448

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 0.82 lbs/day= 19.78455 lbs/yr= 7221.362
tons/yr= 3.610681

DRYER #2 Test #2
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-C2

Gas Concentration (ppm)	8.37
Gas Molecular Weight (MW)	30
Volumetric Flow Rate (DSCFM)	33448

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	1.33	lbs/day=	31.91098	lbs/yr=	11647.50
				tons/yr=	5.823753

DRYER #2 Test #2
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-C3

Gas Concentration (ppm)	7.81
Gas Molecular Weight (MW)	44
Volumetric Flow Rate (DSCFM)	33448

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr= 1.82 lbs/day= 43.67140 lbs/yr= 15940.06
tons/yr= 7.970031

DRYER #2 Test #2
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-C4

Gas Concentration (ppm)	4.95
Gas Molecular Weight (MW)	58
Volumetric Flow Rate (DSCFM)	33448

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr= 1.52 lbs/day= 36.48603 lbs/yr= 13317.40
tons/yr= 6.658700

DRYER #2
Test #3

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
NOx

Gas Concentration (ppm)	51
Gas Molecular Weight (MW)	46
Volumetric Flow Rate (DSCFM)	33760

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	12.54	lbs/day=	300.9218	lbs/yr=	109836.4
				tons/yr=	54.91823

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
CO

Gas Concentration (ppm)	200
Gas Molecular Weight (MW)	28
Volumetric Flow Rate (DSCFM)	33760

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	29.93	lbs/day=	718.3130	lbs/yr=	262184.2
				tons/yr=	131.0921

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
SO2

Gas Concentration (ppm)	0
Gas Molecular Weight (MW)	64
Volumetric Flow Rate (DSCFM)	33760

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	0.00	lbs/day=	0	lbs/yr=	0
				tons/yr=	0

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Methane

Gas Concentration (ppm)	6.47
Gas Molecular Weight (MW)	16
Volumetric Flow Rate (DSCFM)	33760

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	0.55	lbs/day=	13.27852	lbs/yr=	4846.663
				tons/yr=	2.423331

DRYER #2 TEST#3
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-C2

Gas Concentration (ppm)	6.14
Gas Molecular Weight (MW)	30
Volumetric Flow Rate (DSCFM)	33760

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr= 0.98 lbs/day= 23.62736 lbs/yr= 8623.989
tons/yr= 4.311994

DRYER #2 TEST #3
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-C3

Gas Concentration (ppm)	10.12
Gas Molecular Weight (MW)	44
Volumetric Flow Rate (DSCFM)	33760

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 2.38 lbs/day= 57.11614 lbs/yr= 20847.39
tons/yr= 10.42369

DRYER #2 TEST #3
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-C4

Gas Concentration (ppm)	4.54
Gas Molecular Weight (MW)	58
Volumetric Flow Rate (DSCFM)	33760

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 1.41 lbs/day= 33.77610 lbs/yr= 12328.27
tons/yr= 6.164139

DRYER #3
Test #1
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
NOx

Gas Concentration (ppm)	61
Gas Molecular Weight (MW)	46
Volumetric Flow Rate (DSCFM)	29050

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	12.90	lbs/day=	309.7113	lbs/yr=	113044.6
				tons/yr=	56.52231

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
CO

Gas Concentration (ppm)	230
Gas Molecular Weight (MW)	28
Volumetric Flow Rate (DSCFM)	29050

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	29.62	lbs/day=	710.8128	lbs/yr=	259446.6
				tons/yr=	129.7233

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
SO2

Gas Concentration (ppm)	0
Gas Molecular Weight (MW)	64
Volumetric Flow Rate (DSCFM)	29050

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	0.00	lbs/day=	0	lbs/yr=	0
				tons/yr=	0

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Methane

Gas Concentration (ppm)	11.58
Gas Molecular Weight (MW)	16
Volumetric Flow Rate (DSCFM)	29050

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	0.85	lbs/day=	20.45021	lbs/yr=	7464.329
				tons/yr=	3.732164

DRYER #3 TEST #1
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-C2

Gas Concentration (ppm)	14.17
Gas Molecular Weight (MW)	30
Volumetric Flow Rate (DSCFM)	29050

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	1.96	lbs/day=	46.92027	lbs/yr=	17125.89
				tons/yr=	8.562949

DRYER #3 Test #1
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-C3

Gas Concentration (ppm)	4.86
Gas Molecular Weight (MW)	44
Volumetric Flow Rate (DSCFM)	29050

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 0.98 lbs/day= 23.60251 lbs/yr= 8614.919
tons/yr= 4.307459

DRYER #3 Test #1
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-C4

Gas Concentration (ppm)	8.99
Gas Molecular Weight (MW)	58
Volumetric Flow Rate (DSCFM)	29050

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 2.40 lbs/day= 57.55156 lbs/yr= 21006.31
tons/yr= 10.50315

Dryer #3
Test #2
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
NOx

Gas Concentration (ppm)	61
Gas Molecular Weight (MW)	46
Volumetric Flow Rate (DSCFM)	27322

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 12.14 lbs/day= 291.2885 lbs/yr= 106320.3
tons/yr= 53.16016

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
CO

Gas Concentration (ppm)	230
Gas Molecular Weight (MW)	28
Volumetric Flow Rate (DSCFM)	27322

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 27.86 lbs/day= 668.5311 lbs/yr= 244013.8
tons/yr= 122.0069

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
SO2

Gas Concentration (ppm)	0
Gas Molecular Weight (MW)	64
Volumetric Flow Rate (DSCFM)	27322

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 0.00 lbs/day= 0 lbs/yr= 0
tons/yr= 0

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Methane

Gas Concentration (ppm)	19.06
Gas Molecular Weight (MW)	16
Volumetric Flow Rate (DSCFM)	27322

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 1.32 lbs/day= 31.65764 lbs/yr= 11555.04
tons/yr= 5.777520

DRYER #3 Test #2
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-C2

Gas Concentration (ppm)	14.76
Gas Molecular Weight (MW)	30
Volumetric Flow Rate (DSCFM)	27322

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 1.92 lbs/day= 45.96670 lbs/yr= 16777.84
tons/yr= 8.388923

DRYER #3 Test #2
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-C3

Gas Concentration (ppm)	4.16
Gas Molecular Weight (MW)	44
Volumetric Flow Rate (DSCFM)	27322

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 0.79 lbs/day= 19.00123 lbs/yr= 6935.449
tons/yr= 3.467724

DRYER #3 Test #2
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-C4

Gas Concentration (ppm)	4.25
Gas Molecular Weight (MW)	58
Volumetric Flow Rate (DSCFM)	27322

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60
Lbs/Hr= 1.07 lbs/day= 25.58896 lbs/yr= 9339.971
tons/yr= 4.669985

DRYER #3
Test #3
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
NOx

Gas Concentration (ppm)	69
Gas Molecular Weight (MW)	46
Volumetric Flow Rate (DSCFM)	26192

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	13.16	lbs/day=	315.8630	lbs/yr=	115290.0
				tons/yr=	57.64501

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
CO

Gas Concentration (ppm)	250
Gas Molecular Weight (MW)	28
Volumetric Flow Rate (DSCFM)	26192

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	29.03	lbs/day=	696.6104	lbs/yr=	254262.8
				tons/yr=	127.1314

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
SO2

Gas Concentration (ppm)	0
Gas Molecular Weight (MW)	64
Volumetric Flow Rate (DSCFM)	26192

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	0.00	lbs/day=	0	lbs/yr=	0
				tons/yr=	0

SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Methane

Gas Concentration (ppm)	16.24
Gas Molecular Weight (MW)	16
Volumetric Flow Rate (DSCFM)	26192

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	1.08	lbs/day=	25.85817	lbs/yr=	9438.235
				tons/yr=	4.719117

DRYER #3 TEST#3
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-C2

Gas Concentration (ppm)	14.74
Gas Molecular Weight (MW)	30
Volumetric Flow Rate (DSCFM)	26192

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	1.83	lbs/day=	44.00587	lbs/yr=	16062.14
				tons/yr=	8.031072

DRYER #3 TEST #3
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-C3

Gas Concentration (ppm)	6.25
Gas Molecular Weight (MW)	44
Volumetric Flow Rate (DSCFM)	26192

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	1.14	lbs/day=	27.36683	lbs/yr=	9988.896
				tons/yr=	4.994448

DRYER #3 TEST #3
SAMPLE CALCULATIONS- GASEOUS CONSTITUENTS
HC-Non-C4

Gas Concentration (ppm)	4.84
Gas Molecular Weight (MW)	58
Volumetric Flow Rate (DSCFM)	26192

Lbs/Hr=((ppm*DSCFM)/(379*10^6))*MW*60

Lbs/Hr=	1.16	lbs/day=	27.93606	lbs/yr=	10196.66
				tons/yr=	5.098332

SAMPLE CALCULATIONS- NON-PARTICULATES

SITE: Holly Sugar
DATE: June 13, 1991
UNIT: South Stack Dryer #1
RUN: #1

Pb=	29.95	Ts=	239.00
Delta H	1.74	Tstd=	60.00
Pm=	0.13	P=	1.09
Tm	72.00	Stac Dia, In=	39.50
Vm=	40.90	As=	8.51
Vlc=	483.00		
cp=	0.84	Pst=	-0.70
%02=	14.00	Ps	29.90
%C02=	4.90		
%N2=	81.10		
Meter cor	1.02		

Water Vapor at Std Conditions
Vwstd=.00267*((460+Tstd)/29.92)*Vlc
Vwstd= 22.41

Gas Sampled Std=(17.64*Vm*Mc*((Pb+Pm)/(Tm+460)))
Vmstd= 40.992

Percent Moisture
%M=(100*(Vwstd/(Vwstd+Vmstd)))
%M= 35.35

Molecular Weight of Dry Stack Gas
MWd=(%C02*.44)+(%02*.32)+((%N2+%CO)*.28)
MWd= 29.34

Molecular Weight of Wet Stack Gas
Mw=MWd*(1-(%M/100))+(18*(%M/100))
Mw= 25.33

Stack Gas Velocity
Vs=85.49*cp*(p^.5)*((460+Ts)/(Ps*Ms))^.5
Vs= 72.02

Volumetric Flow Rate, ACFM
ACFM= Vs * As * 60
ACFM= 36774

Volumetric Flow Rate DSCFM
DSCFM= ACFM*(520/(460+Ts))*(Ps/29.92)*(1.00-(%M/100))
DSCFM= 17674

SAMPLE CALCULATIONS- NON-PARTICULATES

SITE: Holly Sugar
DATE: June 13, 1991
UNIT: South Stack Dryer #1
RUN: #2

Pb=	29.95	Ts=	216.00
Delta H	1.69	Tstd=	60.00
Pm=	0.12	P=	0.66
Tm	81.00	Stac Dia, In=	39.50
Vm=	40.60	As=	8.51
Vlc=	388.00		
cp=	0.84	Pst=	-0.70
%O2=	15.77	Ps	29.90
%CO2=	4.50		
%N2=	79.73		
Meter cor	1.02		

Water Vapor at Std Conditions
Vwstd=.00267*((460+Tstd)/29.92)*Vlc
Vwstd= 18.00

Gas Sampled Std=(17.64*Vm*Mc*((Pb+Pm)/(Tm+460)))
Vmstd= 40.006

Percent Moisture
%M=(100*(Vwstd/(Vwstd+Vmstd)))
%M= 31.04

Molecular Weight of Dry Stack Gas
MWd=(%CO2*.44)+(%O2*.32)+((%N2+%CO)*.28)
MWd= 29.35

Molecular Weight of Wet Stack Gas
Mw=MWd*(1-(%M/100))+(18*(%M/100))
Mw= 25.83

Stack Gas Velocity
Vs=85.49*cp*(p^.5)*((460+Ts)/(Ps*Ms))^.5
Vs= 54.58

Volumetric Flow Rate, ACFM
ACFM= Vs * As * 60
ACFM= 27870

Volumetric Flow Rate DSCFM
DSCFM= ACFM*(520/(460+Ts))*(Ps/29.92)*(1.00-(%M/100))
DSCFM= 14774

SAMPLE CALCULATIONS- NON-PARTICULATES

SITE: Holly Sugar
DATE: June 13, 1991
UNIT: South Stack Dryer #1
RUN: #3

Pb=	29.95	Ts=	218.00
Delta H	1.57	Tstd=	60.00
Pm=	0.12	P=	0.70
Tm	74.00	Stac Dia, In=	39.50
Vm=	38.90	As=	8.51
Vlc=	368.00		
cp=	0.84	Pst=	-0.70
%02=	15.30	Ps	29.90
%C02=	4.80		
%N2=	79.90		
Meter cor	1.02		

Water Vapor at Std Conditions
Vwstd=.00267*((460+Tstd)/29.92)*Vlc
Vwstd= 17.08

Gas Sampled Std=(17.64*Vm*Mc*((Pb+Pm)/(Tm+460)))
Vmstd= 38.830

Percent Moisture
%M=(100*(Vwstd/(Vwstd+Vmstd)))
%M= 30.54

Molecular Weight of Dry Stack Gas
MWd=(%C02*.44)+(%02*.32)+((%N2+%CO)*.28)
MWd= 29.38

Molecular Weight of Wet Stack Gas
Mw=MWd*(1-(%M/100))+(18*(%M/100))
Mw= 25.90

Stack Gas Velocity
Vs=85.49*cp*(p^.5)*((460+Ts)/(Ps*Ms))^.5
Vs= 56.21

Volumetric Flow Rate, ACFM
ACFM= Vs * As * 60
ACFM= 28703

Volumetric Flow Rate DSCFM
DSCFM= ACFM*(520/(460+Ts))*(Ps/29.92)*(1.00-(%M/100))
DSCFM= 15279

SAMPLE CALCULATIONS- NON-PARTICULATES

SITE: Holly Sugar
DATE: June 12, 1991
UNIT: South Stack Dryer #2
RUN: #1

Pb=	29.95	Ts=	244.00
Delta H	1.42	Tstd=	60.00
Pm=	0.10	P=	0.74
Tm	71.00	Stac Dia, In=	39.50
Vm=	36.77	As=	8.51
Vlc=	312.00		
cp=	0.84	Pst=	-0.65
%02=	16.03	Ps	29.90
%C02=	4.20		
%N2=	79.77		
Meter cor	1.02		

Water Vapor at Std Conditions
Vwstd=.00267*((460+Tstd)/29.92)*Vlc
Vwstd= 14.48

Gas Sampled Std=(17.38*Vm*Mc*((Pb+Pm)/(Tm+460)))
Vmstd= 36.889

Percent Moisture
%M=(100*(Vwstd/(Vwstd+Vmstd)))
%M= 28.19

Molecular Weight of Dry Stack Gas
MWd=(%C02*.44)+(%02*.32)+((%N2+%CO)*.28)
MWd= 29.31

Molecular Weight of Wet Stack Gas
Mw=MWd*(1-(%M/100))+(18*(%M/100))
Mw= 26.12

Stack Gas Velocity
Vs=85.49*cp*(p^.5)*((460+Ts)/(Ps*Ms))^.5
Vs= 58.80

Volumetric Flow Rate, ACFM
ACFM= Vs * As * 60
ACFM= 30024

Volumetric Flow Rate DSCFM
DSCFM= ACFM*(520/(460+Ts))*(Ps/29.92)*(1.00-(%M/100))
DSCFM= 15917

SAMPLE CALCULATIONS- NON-PARTICULATES

SITE: Holly Sugar
DATE: June 12, 1991
UNIT: South Stack Dryer #2
RUN: #2

Pb=	29.95	Ts=	244.00
Delta H	1.36	Tstd=	60.00
Pm=	0.10	P=	0.75
Tm	73.00	Stac Dia, In=	39.50
Vm=	36.05	As=	8.51
Vlc=	288.00		
cp=	0.84	Pst=	-0.65
%O2=	16.81	Ps	29.90
%CO2=	2.31		
%N2=	80.88		
Meter cor	1.02		

Water Vapor at Std Conditions
Vwstd=.00267*((460+Tstd)/29.92)*Vlc
Vwstd= 13.36

Gas Sampled Std=(17.38*Vm*Mc*((Pb+Pm)/(Tm+460)))
Vmstd= 36.032

Percent Moisture
%M=(100*(Vwstd/(Vwstd+Vmstd)))
%M= 27.06

Molecular Weight of Dry Stack Gas
MWd=(%CO2*.44)+(%O2*.32)+((%N2+%CO)*.28)
MWd= 29.04

Molecular Weight of Wet Stack Gas
Mw=MWd*(1-(%M/100))+(18*(%M/100))
Mw= 26.05

Stack Gas Velocity
Vs=85.49*cp*(p^.5)*((460+Ts)/(Ps*Ms))^.5
Vs= 59.28

Volumetric Flow Rate, ACFM
ACFM= Vs * As * 60
ACFM= 30265

Volumetric Flow Rate DSCFM
DSCFM= ACFM*(520/(460+Ts))*(Ps/29.92)*(1.00-(%M/100))
DSCFM= 16297

SAMPLE CALCULATIONS- NON-PARTICULATES

SITE: Holly Sugar
DATE: June 12, 1991
UNIT: South Stack Dryer #2
RUN: #3

Pb=	29.95	Ts=	244.00
Delta H	1.44	Tstd=	60.00
Pm=	0.11	P=	0.76
Tm	74.00	Stac Dia, In=	39.50
Vm=	36.48	As=	8.51
Vlc=	289.00		
cp=	0.84	Pst=	-0.65
%O2=	15.79	Ps	29.90
%CO2=	4.63		
%N2=	79.58		
Meter cor	1.02		

Water Vapor at Std Conditions
Vwstd=.00267*((460+Tstd)/29.92)*Vlc
Vwstd= 13.41

Gas Sampled Std=(17.38*Vm*Mc*((Pb+Pm)/(Tm+460)))
Vmstd= 36.395

Percent Moisture
%M=(100*(Vwstd/(Vwstd+Vmstd)))
%M= 26.93

Molecular Weight of Dry Stack Gas
MWd=(%CO2*.44)+(%O2*.32)+((%N2+%CO)*.28)
MWd= 29.37

Molecular Weight of Wet Stack Gas
Mw=MWd*(1-(%M/100))+(18*(%M/100))
Mw= 26.31

Stack Gas Velocity
Vs=85.49*cp*(p^.5)*((460+Ts)/(Ps*Ms))^.5
Vs= 59.18

Volumetric Flow Rate, ACFM
ACFM= Vs * As * 60
ACFM= 30218

Volumetric Flow Rate DSCFM
DSCFM= ACFM*(520/(460+Ts))*(Ps/29.92)*(1.00-(%M/100))
DSCFM= 16300

SAMPLE CALCULATIONS- NON-PARTICULATES

SITE: Holly Sugar
DATE: June 11, 1991
UNIT: South Stack Dryer #3
RUN: #1

Pb=	28.90	Ts=	234.00
Delta H	0.66	Tstd=	60.00
Pm=	0.05	P=	0.43
Tm	85.00	Stac Dia, In=	39.50
Vm=	26.70	As=	8.51
Vlc=	193.00		
cp=	0.84	Pst=	-0.07
%O2=	13.90	Ps	28.89
%CO2=	4.10		
%N2=	82.00		
Meter cor	1.02		

Water Vapor at Std Conditions
Vwstd=.00267*((460+Tstd)/29.92)*Vlc
Vwstd= 8.96

Gas Sampled Std=(17.38*Vm*Mc*((Pb+Pm)/(Tm+460)))
Vmstd= 25.142

Percent Moisture
%M=(100*(Vwstd/(Vwstd+Vmstd)))
%M= 26.27

Molecular Weight of Dry Stack Gas
MWd=(%CO2*.44)+(%O2*.32)+((%N2+%CO)*.28)
MWd= 29.21

Molecular Weight of Wet Stack Gas
Mw=MWd*(1-(%M/100))+(18*(%M/100))
Mw= 26.27

Stack Gas Velocity
Vs=85.49*cp*(p^.5)*((460+Ts)/(Ps*Ms))^.5
Vs= 45.03

Volumetric Flow Rate, ACFM
ACFM= Vs * As * 60
ACFM= 22991

Volumetric Flow Rate DSCFM
DSCFM= ACFM*(520/(460+Ts))*(Ps/29.92)*(1.00-(%M/100))
DSCFM= 12267

SAMPLE CALCULATIONS- NON-PARTICULATES

SITE: Holly Sugar
DATE: June 11, 1991
UNIT: South Stack Dryer #3
RUN: #2

Pb=	28.90	Ts=	211.00
Delta H	1.08	Tstd=	60.00
Pm=	0.08	P=	0.57
Tm	91.00	Stac Dia, In=	39.50
Vm=	32.95	As=	8.51
Vlc=	223.00		
cp=	0.84	Pst=	-0.07
%O2=	13.90	Ps	28.89
%CO2=	4.10		
%N2=	82.00		
Meter cor	1.02		

Water Vapor at Std Conditions
Vwstd=.00267*((460+Tstd)/29.92)*Vlc
Vwstd= 10.35

Gas Sampled Std=(17.38*Vm*Mc*((Pb+Pm)/(Tm+460)))
Vmstd= 30.722

Percent Moisture
%M=(100*(Vwstd/(Vwstd+Vmstd)))
%M= 25.20

Molecular Weight of Dry Stack Gas
MWd=(%CO2*.44)+(%O2*.32)+((%N2+%CO)*.28)
MWd= 29.21

Molecular Weight of Wet Stack Gas
Mw=MWd*(1-(%M/100))+(18*(%M/100))
Mw= 26.39

Stack Gas Velocity
Vs=85.49*cp*(p^.5)*((460+Ts)/(Ps*Ms))^.5
Vs= 50.73

Volumetric Flow Rate, ACFM
ACFM= Vs * As * 60
ACFM= 25901

Volumetric Flow Rate DSCFM
DSCFM= ACFM*(520/(460+Ts))*(Ps/29.92)*(1.00-(%M/100))
DSCFM= 14500

SAMPLE CALCULATIONS- NON-PARTICULATES

SITE: Holly Sugar
DATE: June 11, 1991
UNIT: South Stack Dryer #3
RUN: #3

Pb=	28.90	Ts=	208.00
Delta H	1.17	Tstd=	60.00
Pm=	0.09	P=	0.56
Tm	83.00	Stac Dia, In=	39.50
Vm=	33.49	As=	8.51
Vlc=	316.00		
cp=	0.84	Pst=	-0.07
%O2=	13.97	Ps	28.89
%CO2=	6.10		
%N2=	79.93		
Meter cor	1.02		

Water Vapor at Std Conditions
Vwstd=.00267*((460+Tstd)/29.92)*Vlc
Vwstd= 14.66

Gas Sampled Std=(17.38*Vm*Mc*((Pb+Pm)/(Tm+460)))
Vmstd= 31.688

Percent Moisture
%M=(100*(Vwstd/(Vwstd+Vmstd)))
%M= 31.64

Molecular Weight of Dry Stack Gas
MWd=(%CO2*.44)+(%O2*.32)+((%N2+%CO)*.28)
MWd= 29.53

Molecular Weight of Wet Stack Gas
Mw=MWd*(1-(%M/100))+(18*(%M/100))
Mw= 25.89

Stack Gas Velocity
Vs=85.49*cp*(p^.5)*((460+Ts)/(Ps*Ms))^.5
Vs= 50.79

Volumetric Flow Rate, ACFM
ACFM= Vs * As * 60
ACFM= 25930

Volumetric Flow Rate DSCFM
DSCFM= ACFM*(520/(460+Ts))*(Ps/29.92)*(1.00-(%M/100))
DSCFM= 13327

WESTERN ENVIRONMENTAL SERVICES

APPENDIX D

P

HOLLY SUGA.. CORPORATION

A SUBSIDIARY OF IMPERIAL HOLLY CORPORATION

SHOW THE FOLLOWING NUMBER ON ALL CORRESPONDENCE INVOICES, ETC.

MAIN OFFICE ORDER NO. 310-11651

INVOICE: SHOW SEPARATELY FREIGHT, ALL STATE SALES AND USE TAXES AND FEDERAL EXCISE TAX. INVOICE ONLY FOR ITEMS SHIPPED.

COMPLETED

ORDER ISSUE DATE 04/04/91

-1962 VENDOR CODE MOC927170

TO: MOCK RESOURCES
BOX 19630
IRVINE
CA
92713

SHIP AND INVOICE TO: HOLLY SUGAR CORPORATION
2820 W BETTERAVIA ROAD
SANTA MARIA, CA
93455

BUYER	DEPARTMENT	CAP. IMP.	CONFIRMING TO	TAX STATUS
L. SIMONTON	D. OPERATIONS		CHRIS KUNZI3/22	NO TAX

F.O.B. POINT	SHIP VIA	PREPAID	PAYMENT TERMS
DESTINATION		YES	NET 30

QUANTITY	U/M	DESCRIPTION	UNIT PRICE	EXTENDED AMOUNT

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CC: T. R. ROBBINS
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

R 3036.98

3,000 BL NO. 6 FUEL OIL
TO THE FOLLOWING TYPICAL ANALYSIS:

API GRAVITY MIN 4 MAX 10

SULFUR MAX .5%

FLASH 150 PEG. F

BS & W .5%

BTU 6,500,000 BTU PER BARREL

(CONTINUED NEXT PAGE)

D00001

310-11651
FORM 57-SSC (5 YRS)

Holly Sugar Integrated lb/hr

Test	Date	Time	Oil Rate x60		Steam Rate x 900 x 1.05		Blr. #
1	5 June	11:05	14 x100 = 1400		48		3
2	5 June	12:28	32 x100 = 3200		54		3
3	5 June	2:42	31 x100 3100	x800 lb/hr 2,754	54		3
		[redacted]	Oil Rate x 10		Steam Rate x 1000		
1	6 June	~~13~~ 1324	57	4,560	73	not operating	4
2	6 June	1623	58	4,640	75		4
3	6 June	1821	65	5,200	74		4
				x 100 AVG 4,800			
			Oil Rate x 90		Steam Rate x 1600		
1	7 June	1036	~~38~~ 37	3,700	55		1
2	7 June	1300	37	3,700	56		1
3	7 June	1450	37	3,700 AVG. 3700	56		1
			Oil Rate x 60	x 100	Steam Rate x 900		
1	8 June	1019	39	3900	59		2
2	8 June	1251	37	3700	56		2
3	8 June			AVG. 3800			2

D00003

LABORATORY ANALYSIS REPORT

E.W. SAYBOLT & CO., INC.

NEW JERSEY LAB OFFICE

CUSTOMER
REF. NO(S) :PO#42572/

DATE : 03/28/91

LABORATORY NO. : 0491323
INVOICE NO.:EE-19625A

DESCRIPTION

Sample designated as :
FUEL OIL

Identifying Marks :
SUBMITTED

Submitted by :
SANTA MARIA, CA
HOLLY SUGAR CORP.

Client :
HOLLY SUGAR CORP.

B00002

NOTES

- This laboratory report may not be published or used except in full. It shall not be used in connection with any form of advertising unless written consent is received from an officer of E.W. SAYBOLT & CO., INC.
- Results were based on analysis made at the time samples were received at the laboratory.
- Samples, if any, shall be retained for a period of 45 days unless a longer period is requested in writing.
- Sample nomenclature is designated by the customer.

ANALYSIS

TEST	METHOD	RESULT
GRAVITY, API AT 60 F	D-1298	5.4
VISCOSITY, KIN CST AT 122 F	D-445	100
VISCOSITY, SSF SEC AT 122 F	D-2161	48.6
SULFUR, X-RAY, WT PCT	D-4294	0.39
B.T.U. VALUE (GROSS), BTU/LB	D-240	18076
B.T.U. VALUE (GROSS), BTU/GAL	D-240	155597
BTU/BBL		6,535,074

TG

MEMBERS ASTM-API-SAE

#1 Boiler 6-7-91

Steam flow

10:30 AM	1) 55,000
	2) 56,000
	3) 54,000
	4) 55,000
12:25 PM	1) 56,000
12:40	2) 56,000
1:05	3) 56,000
1:20	4) 56,000
2:30	1) 56,000
2:45	2) 55,000
3:00	3) 56,000
3:15	4) 56,000

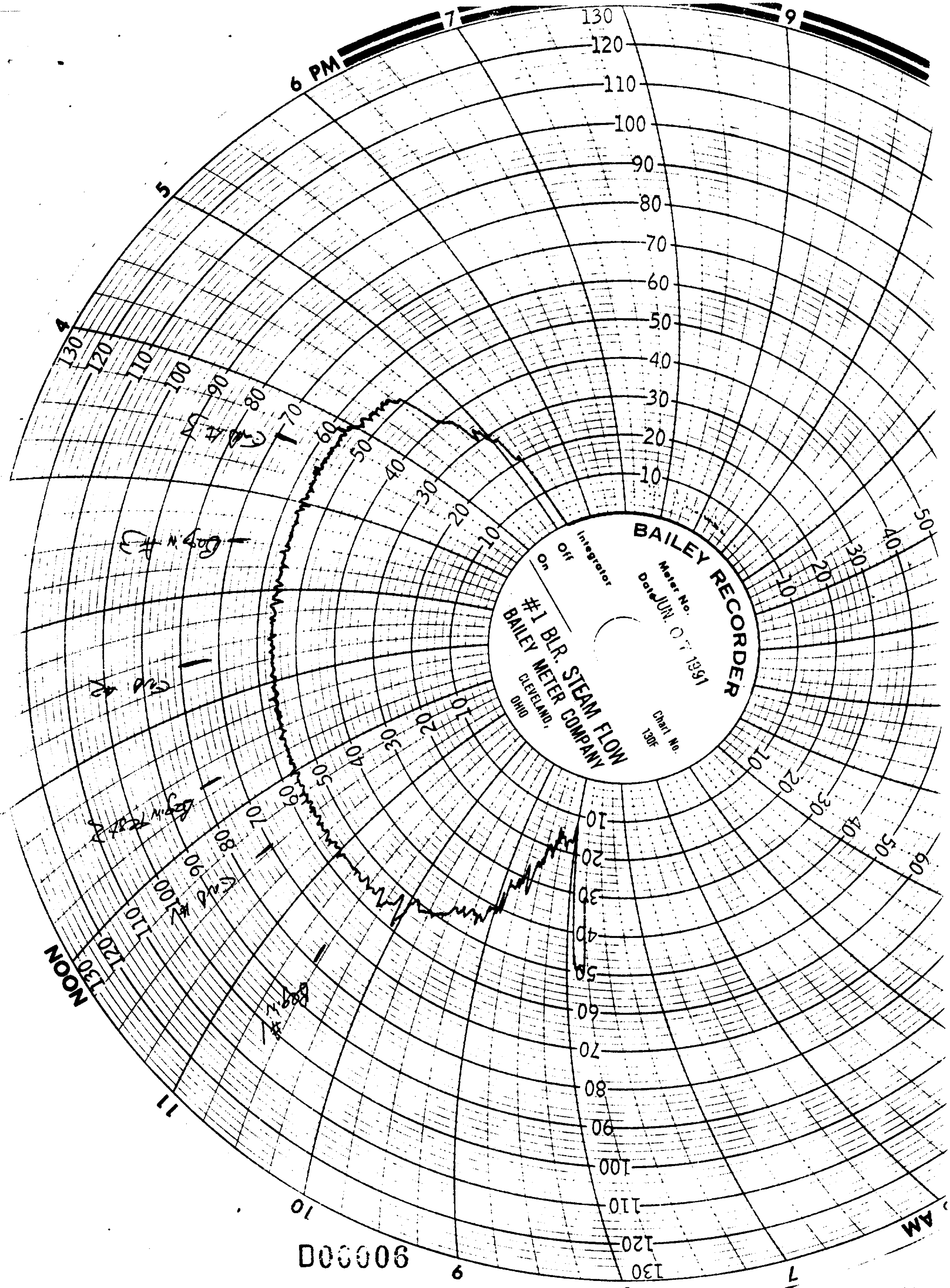
D00004

#1 Boiler 6-7-91

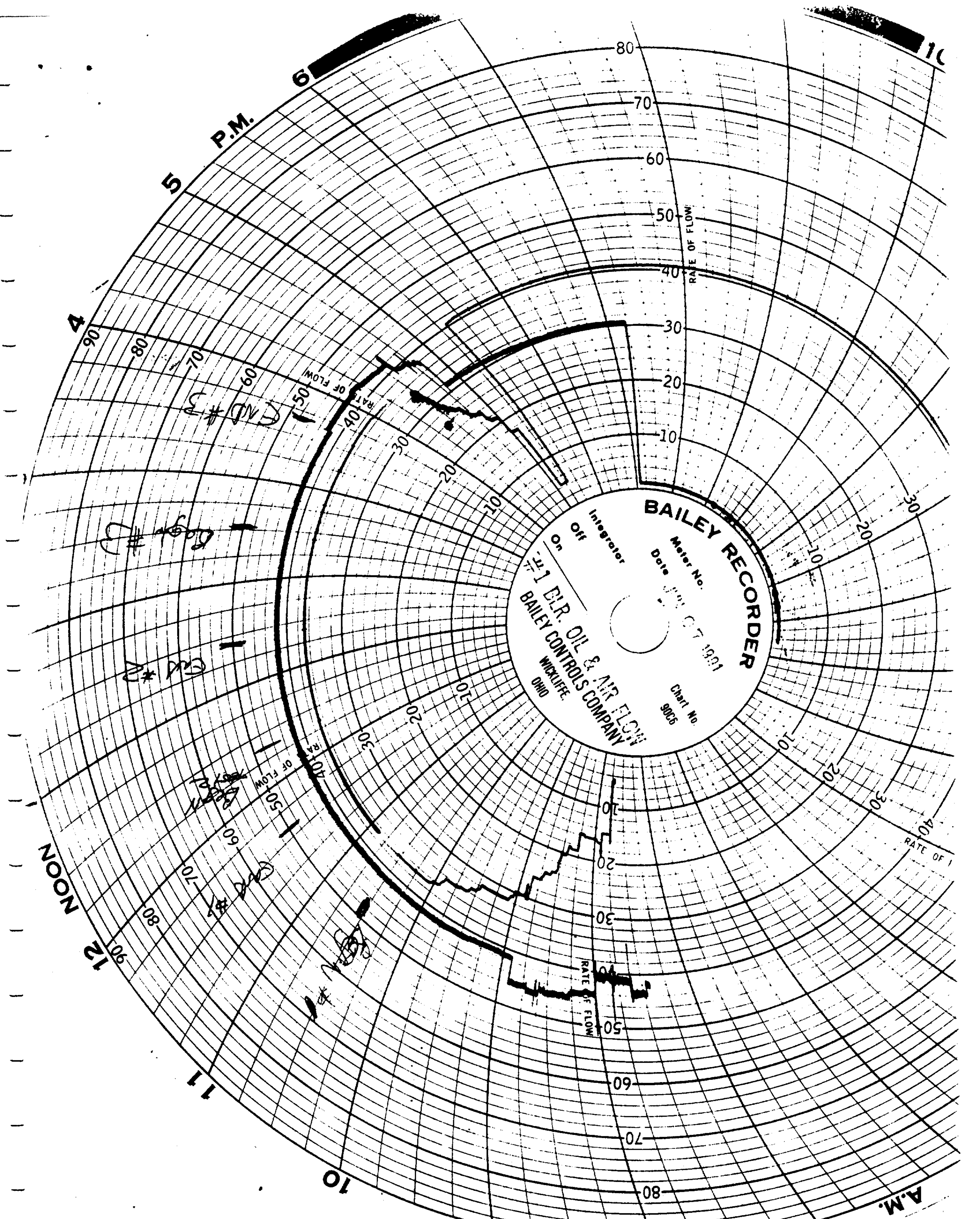
Steam flow

10:30 AM	1) 55,000
	2) 56,000
	3) 54,000
	4) 55,000
12:25 PM	1) 56,000
12:40	2) 56,000
1:05	3) 56,000
1:20	4) 56,000
2:30	1) 56,000
2:45	2) 55,000
3:00	3) 56,000
3:15	4) 56,000

D00005


BAILEY RECORDER
Meter No.
Date JUN 07 1991
Integrator
Off
On
#1 BLR. STEAM FLOW
BAILEY METER COMPANY
CLEVELAND,
OHIO
Chart No.
130F
6 PM
7
9
5
4
NOON
11
10
9
7
AM

D00006


BAILEY RECORDER
Meter No.
Date
Integrator
Off
On
#1 BLR. OIL & AIR FLOW
BAILEY CONTROLS COMPANY
WICKLIFFE,
OHIO
Chart No.
9006
RATE OF FLOW
P.M.
NOON
A.M.

D00007

Final [illegible] completed at 3 [illegible] pm 6-[illegible]

6-8-91

Time	Steam Integrator	Oil Integrator
1015	717644	626893
	717889	627113

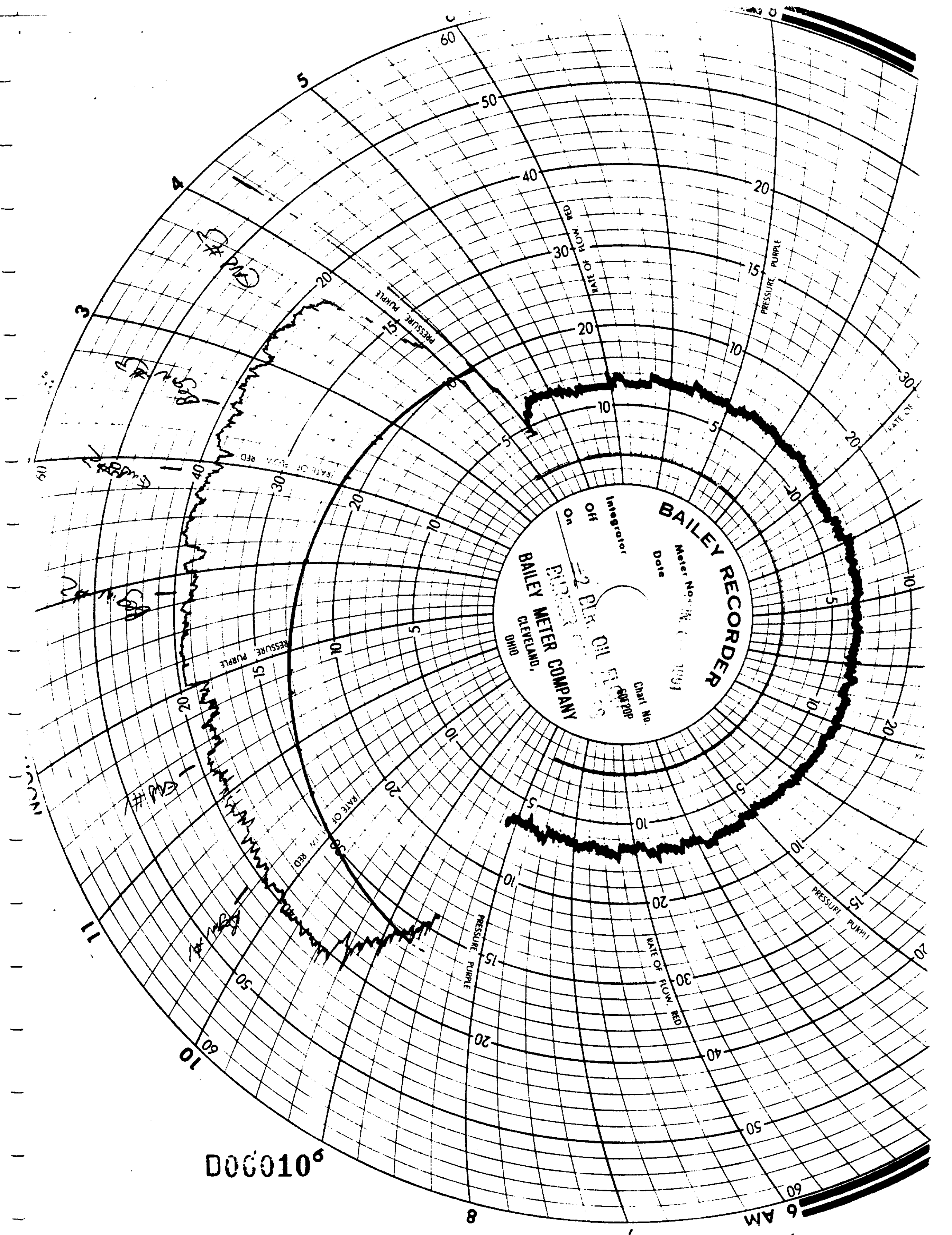
Boiler #2

D00008

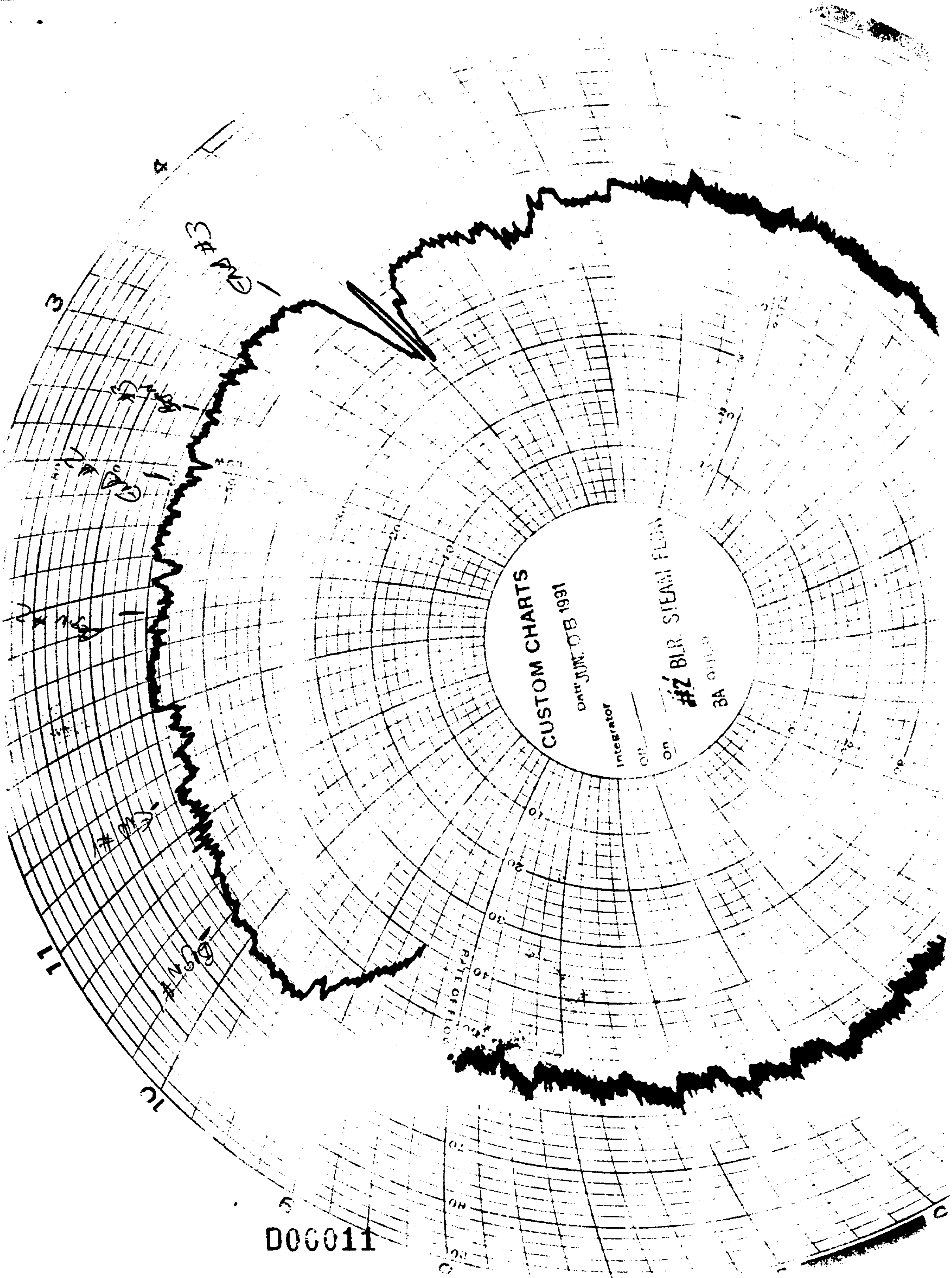
Boiler #2 6-8-91

Time		Steam flow	
10:15	1.	59,000	58,000
10:30		59,000	
10:45		58,000	
11:00		56,000	
12:45	2.	56,000	58,000
1:00		59,000	
1:15		58,000	
1:30		59,000	
2:30	3.	59,000	59,000
2:45		59,000	
3:00		58,000	
3:15		60,000	

D00009


BAILEY RECORDER
Meter No.
Date
Integrator
Off
On
Chart No.
BAILEY METER COMPANY
CLEVELAND,
OHIO
RATE OF FLOW, RED
PRESSURE, PURPLE
6 AM
NOON

D000106


CUSTOM CHARTS
Date JUN 08 1991
Integrator
Off
On
#2 BLR. STEAM FLOW
3A
#3
#1
#2

D00011

Final [illegible] completed a7— [illegible] pm 6-[illegible]

6-8-91

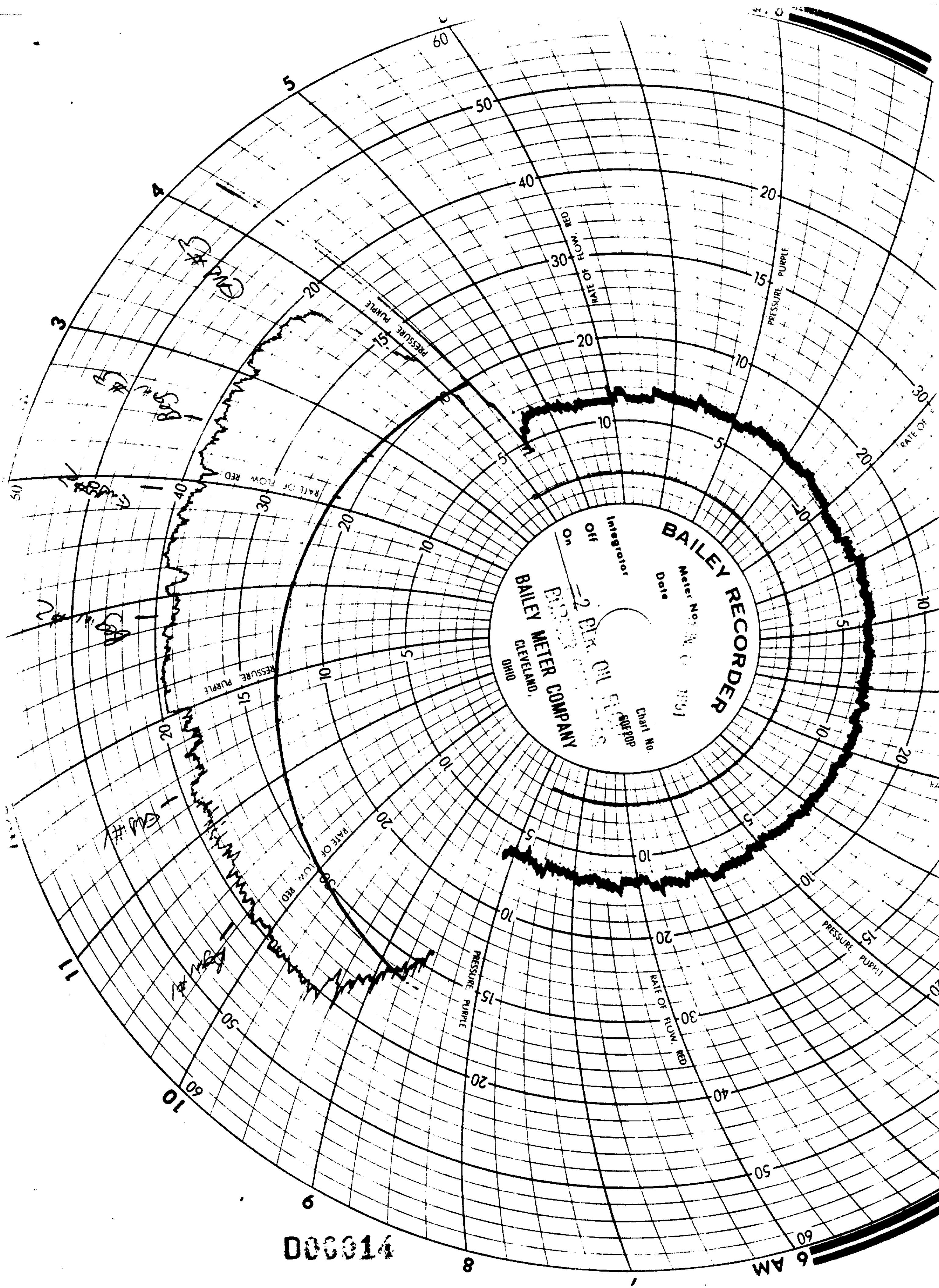
Time	Steam Integrator	Oil Integrator
[illegible]015	717 644	626893
	717 889	627 113

D00012

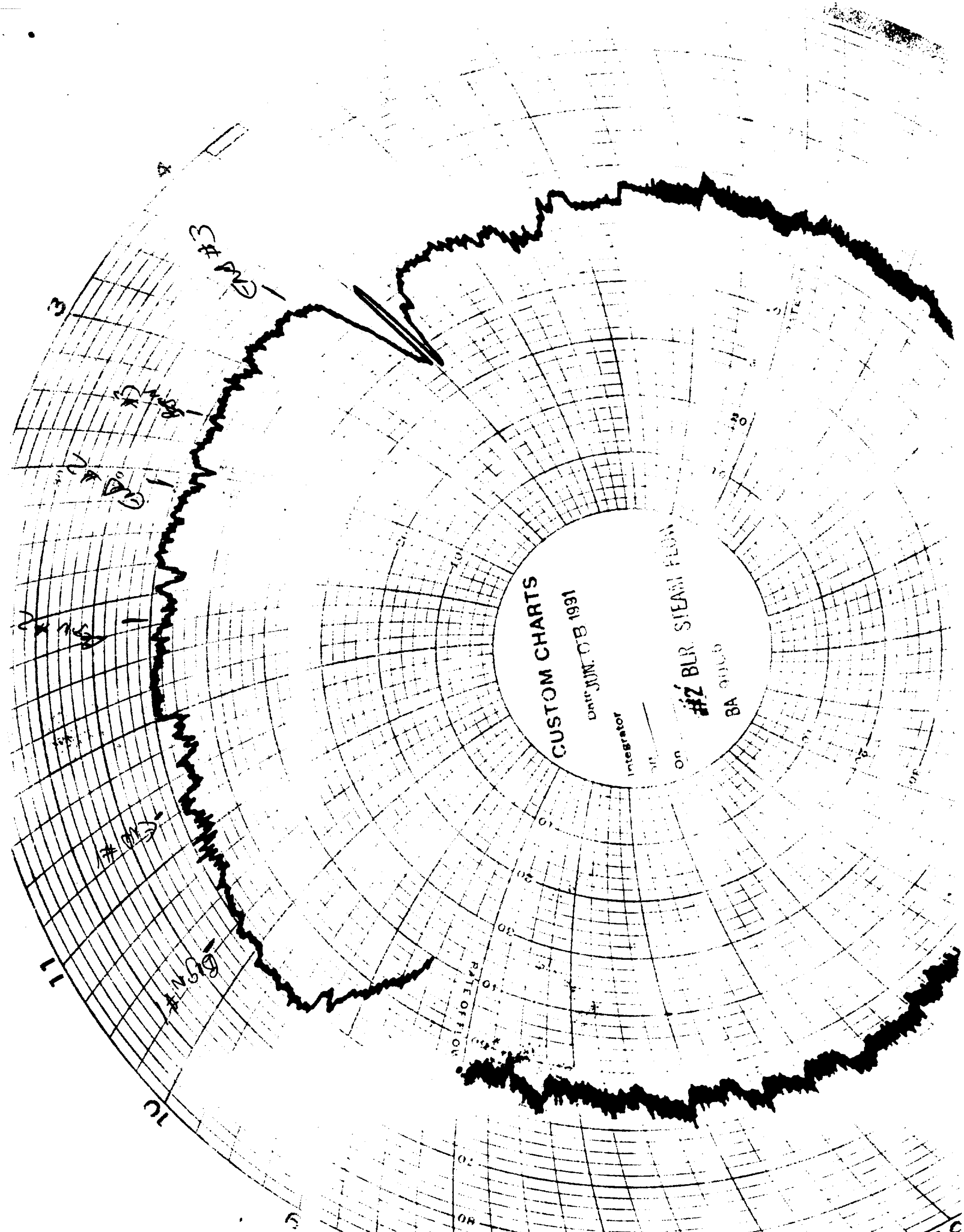
6-8-91

Time		Steam flow
10:15	1.	59,000
10:30		59,000
10:45		58,000
11:00		56,000
12:45	2.	56,000
1:00		59,000
1:15		58,000
1:30		59,000
2:30	3.	59,000
2:45		59,000
3:00		58,000
3:15		60,000

D00013


BAILEY RECORDER
Meter No.
Date
Chart No
Integrator
Off
On
BAILEY METER COMPANY
CLEVELAND, OHIO
RATE OF FLOW, RED
PRESSURE, PURPLE
6 AM

D00014



D00015

6-5-91

3 Boiler

	Steam Integrator	oil [redacted] Integrator #2&3 (x 60)
10 20 AM	755 263	741 098
11 00	755 320	741 148
12 25	755 373	741 210
1 30	755 449	741 263
2 30 PM	755 505	741 313

Boiler #3

D00016

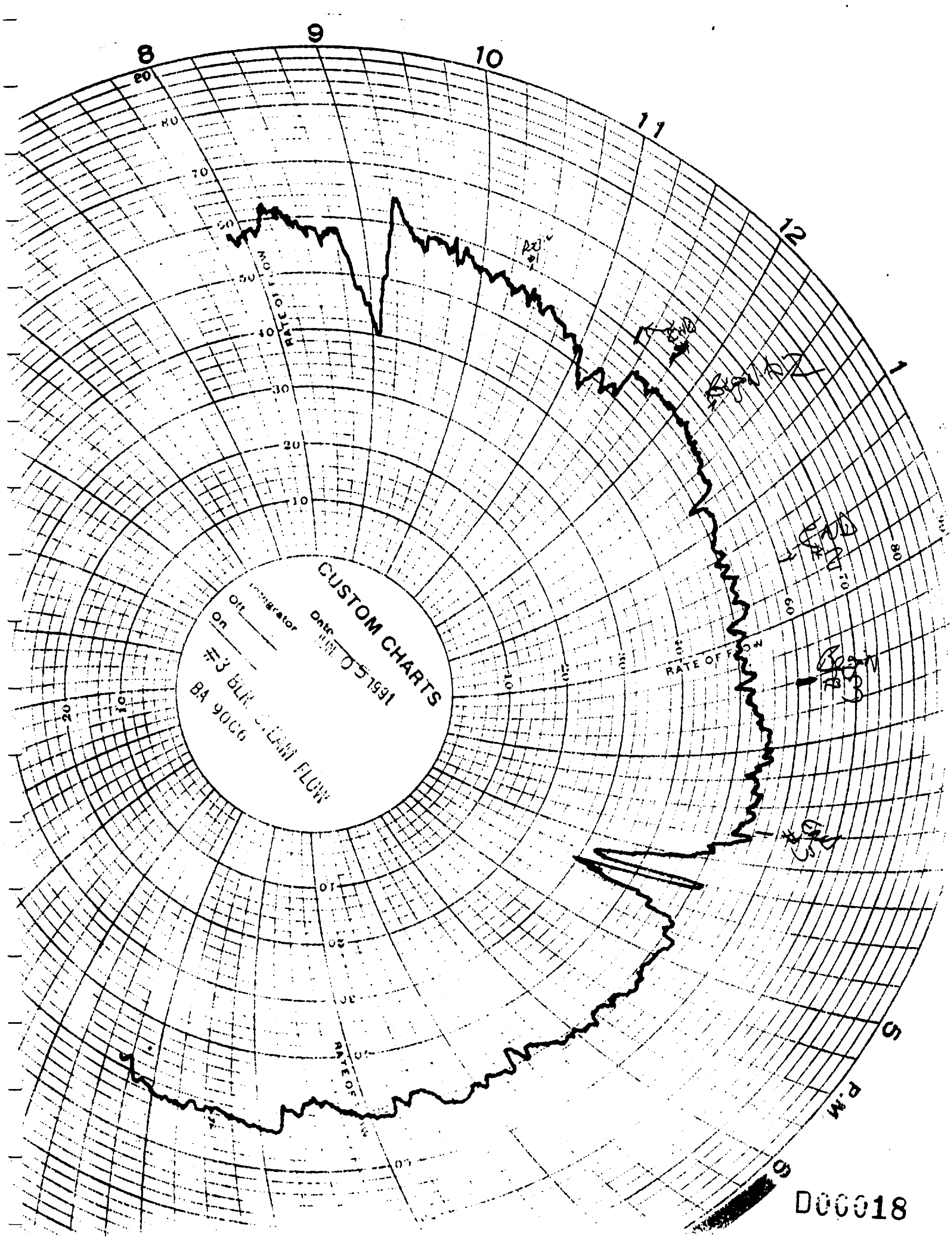
A 2 Boiler 6-5-91

Steam Flow Rate

Time			
10 20	1.	56,000	
10 35	2.	55,000	
10 55	3.	53,000	53,250
11 05	4.	49,000	
12 05	1.	55,000	
12 45	2.	53,000	
12 55	3	52,000	52,750
1 10	4	51,000	
2 30	1	53,000	
45	2	54,000	
3 00	3	56,000	54,400
3 15	4.	55,000	
3 40	5.	54,000	

D00017

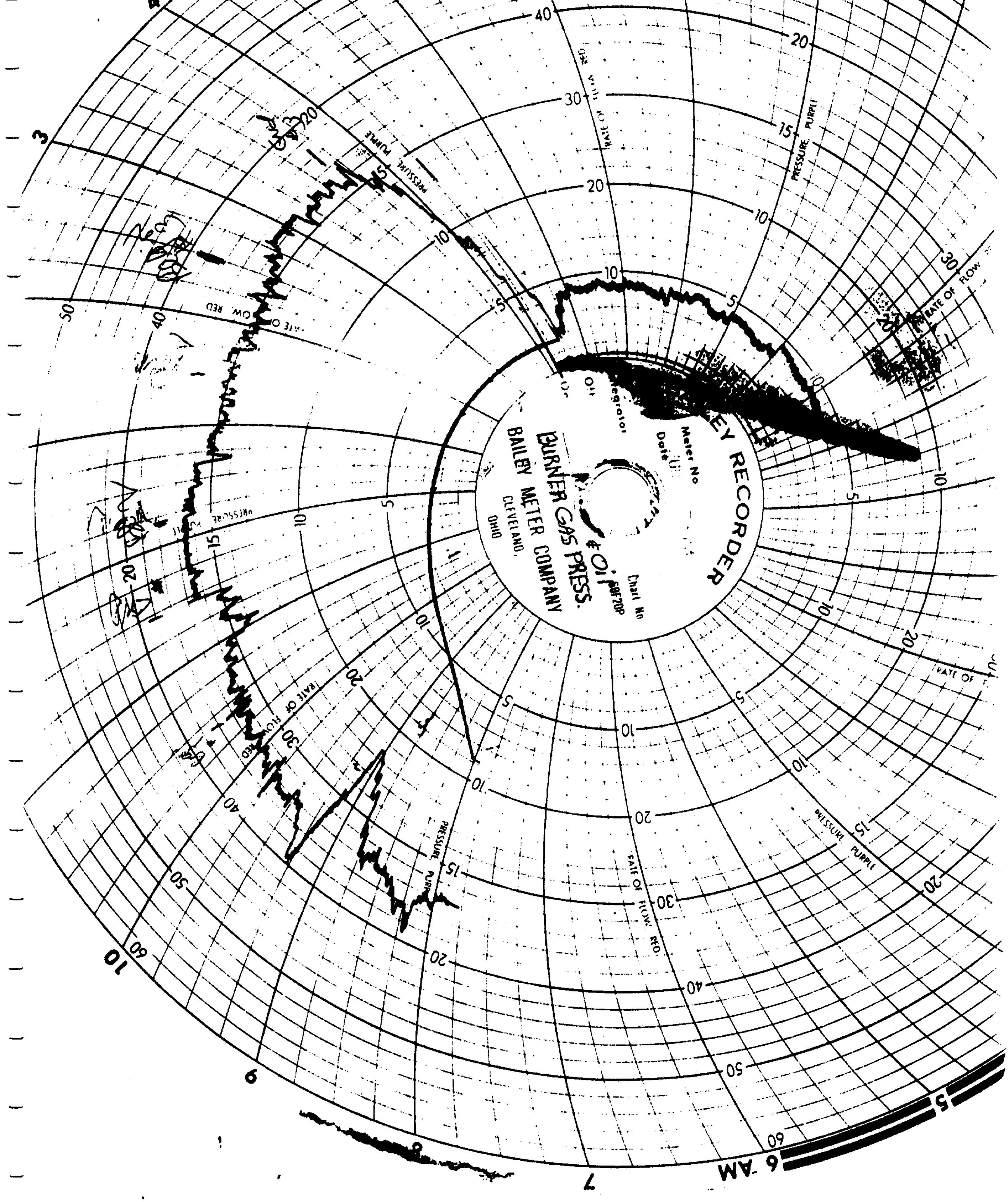
#3 Blr 6-5-91



D00018

6-5-91

3 Blr.



D00019

#4 Blr

6-6-91

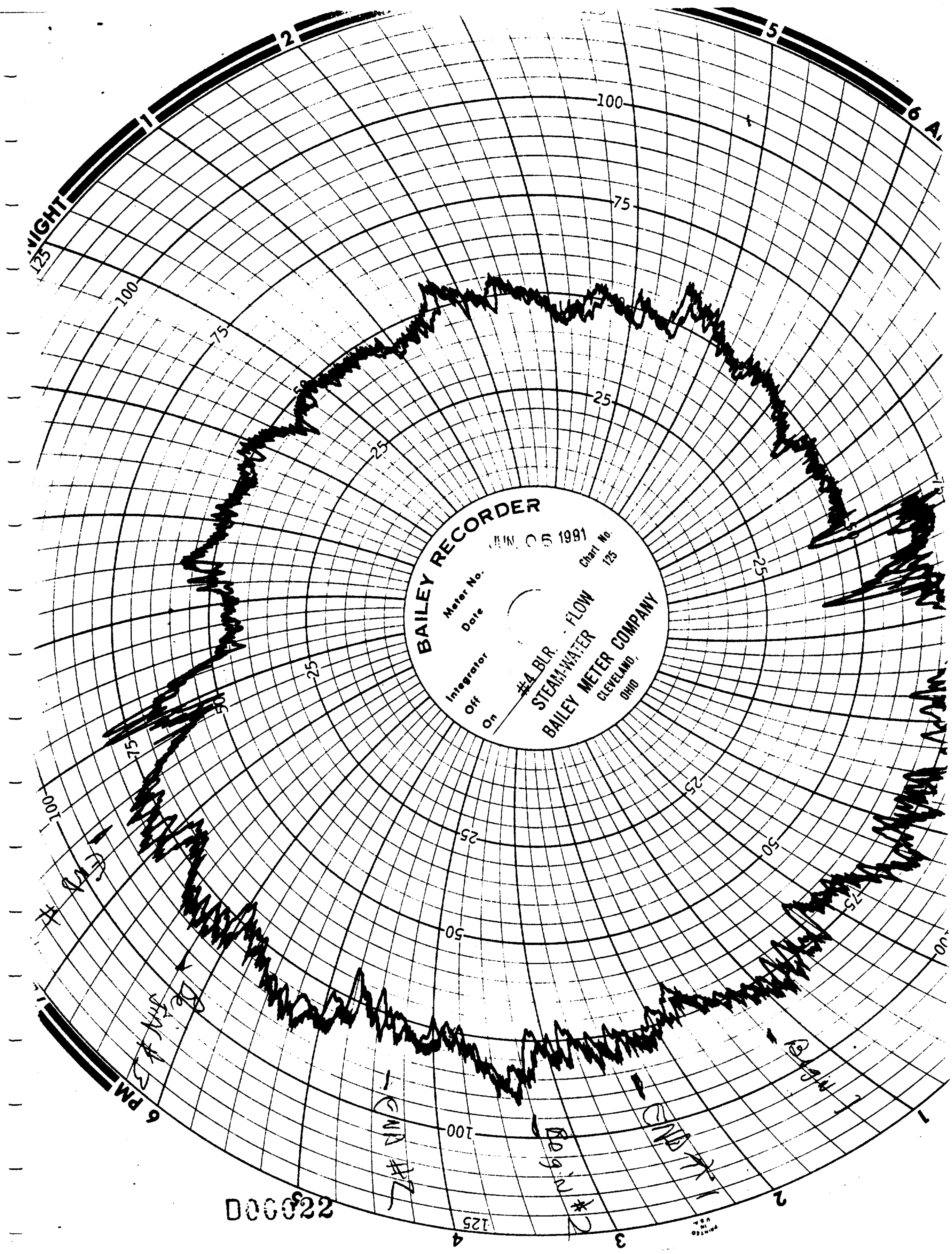
Time	Steam Integrator	Oil Integrator
1120pm		631555
		634539

Boiler #4

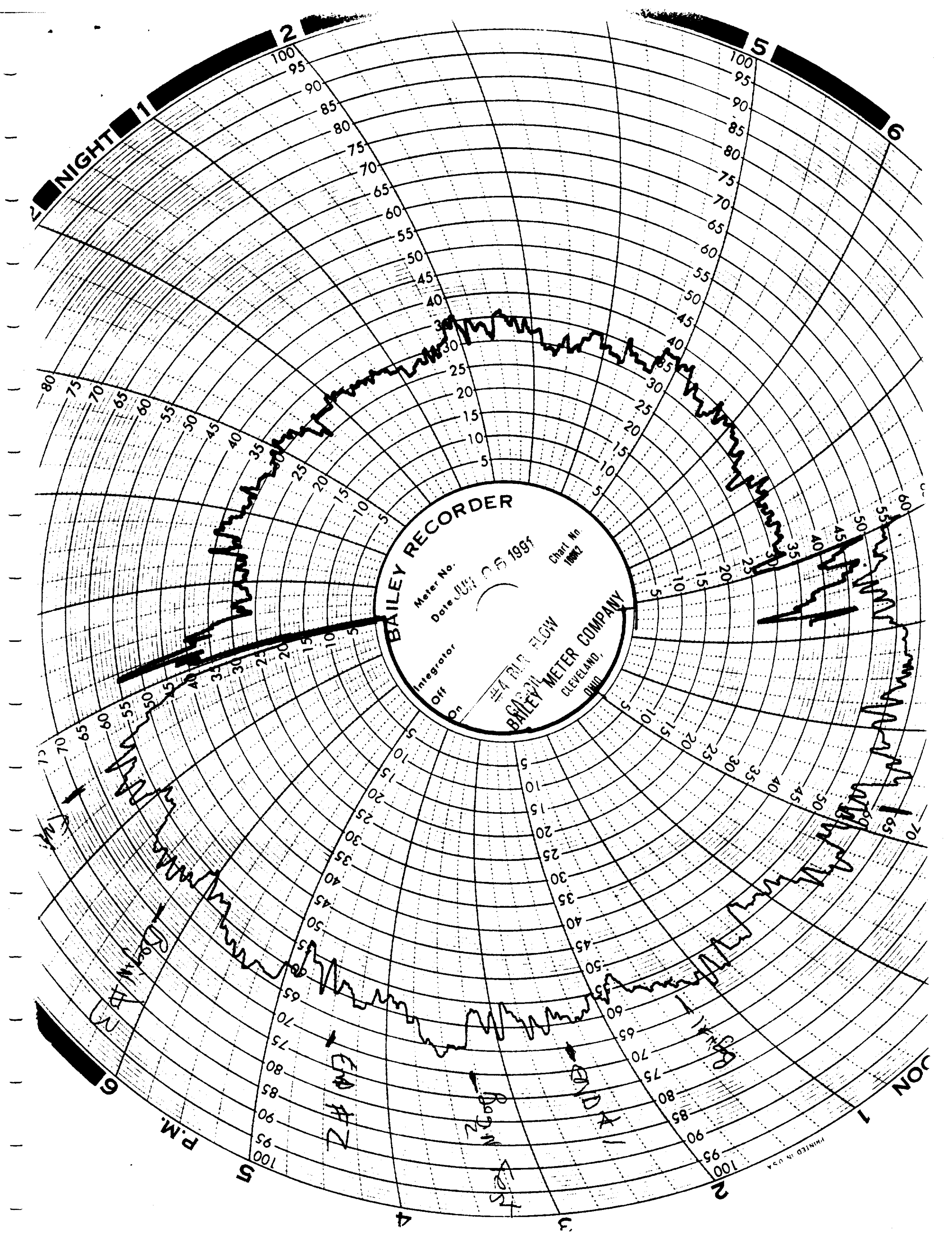
D00020

time	Steam flow Rate	
1:20 PM	1) 76,000	73,500
1:35	2) 73,000	
1:50	3) 70,000	
2:05	4) 75,000	
3:30 PM	1) 84,000	80,500
3:35	2) 83,000	
3:50	3) 77,000	
4:05	4) 78,000	
6:15	1) 75,000	72,500
6:30	2) 77,000	
6:45	3) 68,000	
7:00	4) 70,000	

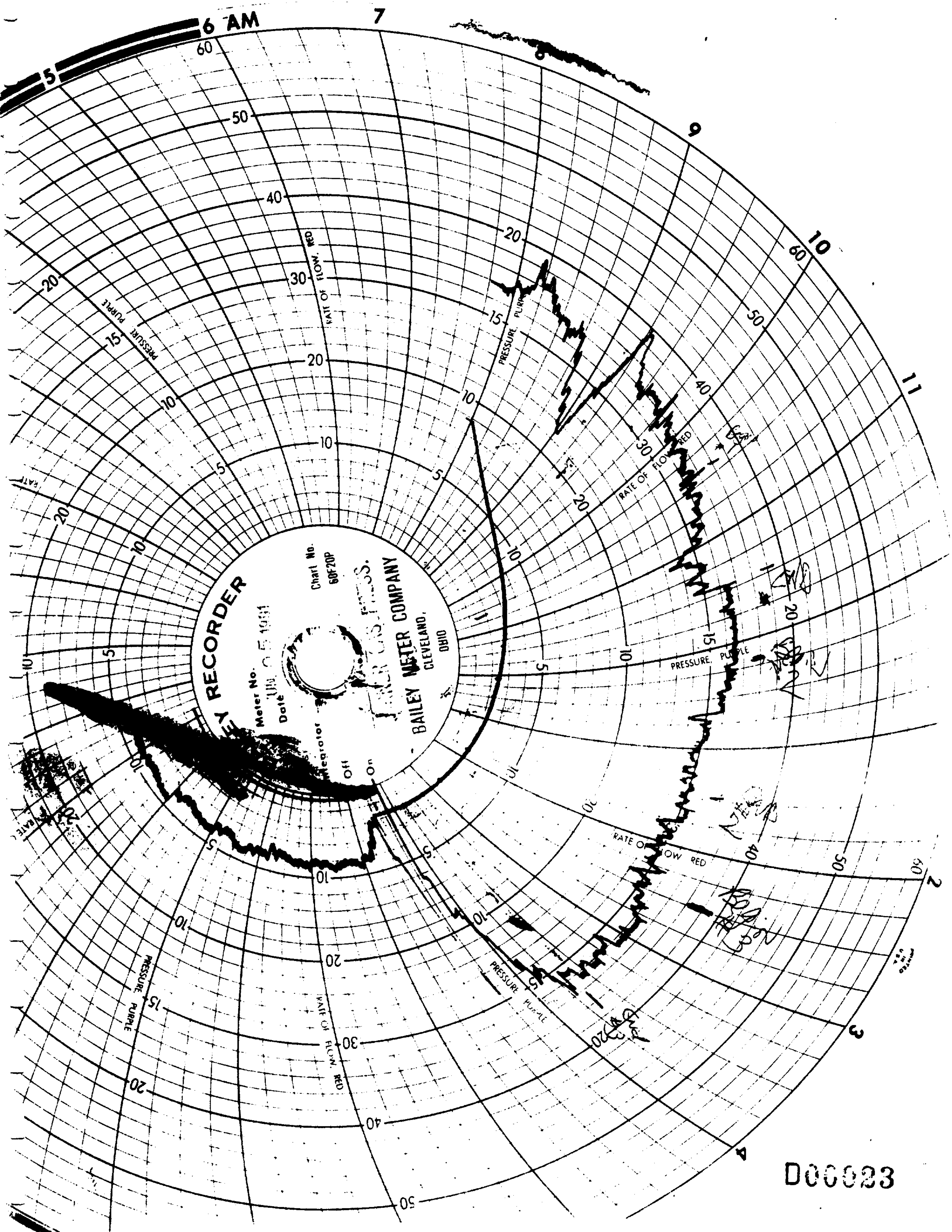
D00021


BAILEY RECORDER
Meter No.
Date
JUN 05 1981
Chart No. 125
Integrator
Off
On
#4 BLR. - FLOW
STEAM-WATER
BAILEY METER COMPANY
CLEVELAND, OHIO
MIDNIGHT
1
2
5
6 AM
6 PM
1
2
3
4
25
50
75
100
125

D00022

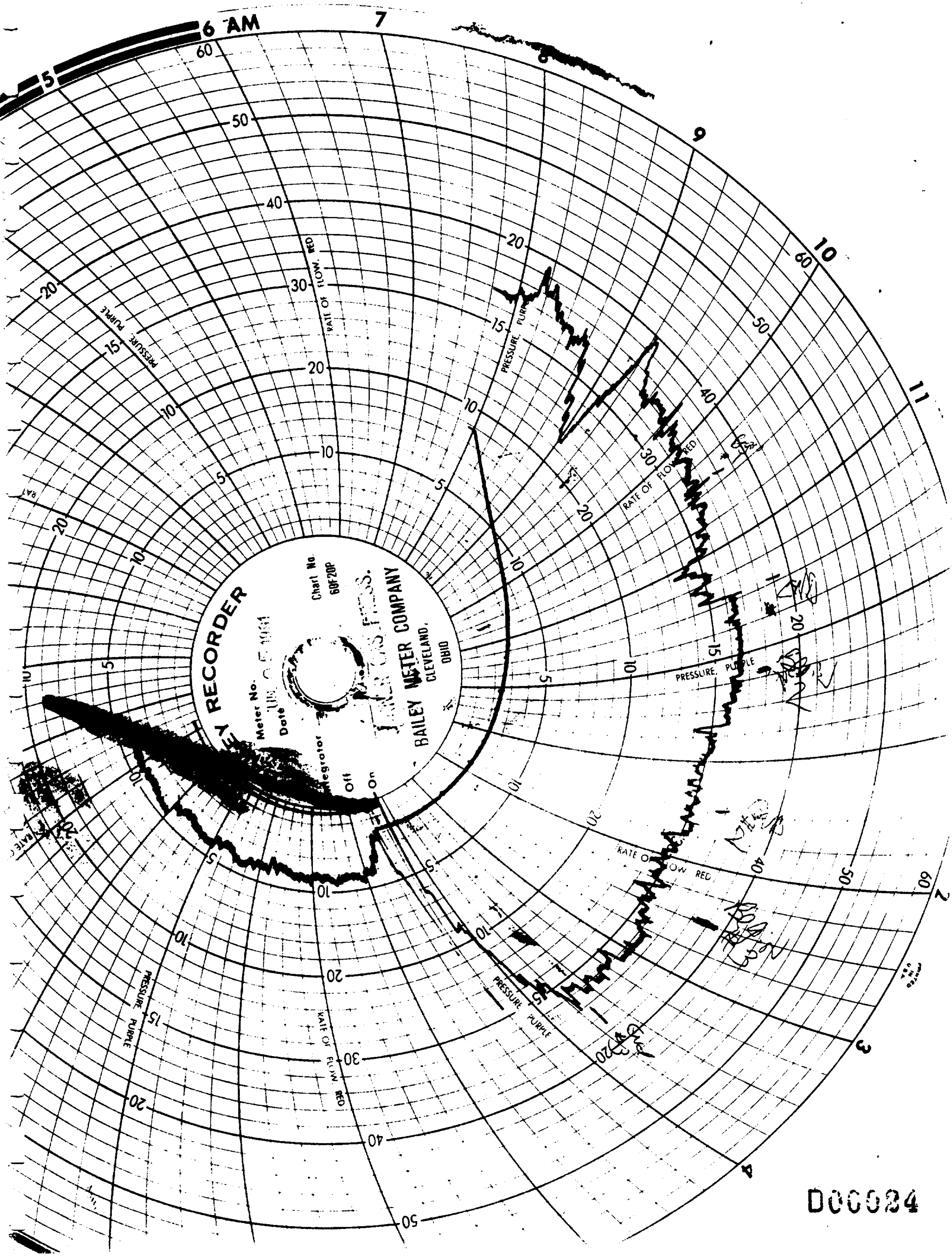


NIGHT
P.M.
NOON
BAILEY RECORDER
Meter No.
Date
Chart No.
Integrator
Off
On
BAILEY METER COMPANY
CLEVELAND, OHIO
PRINTED IN U.S.A.

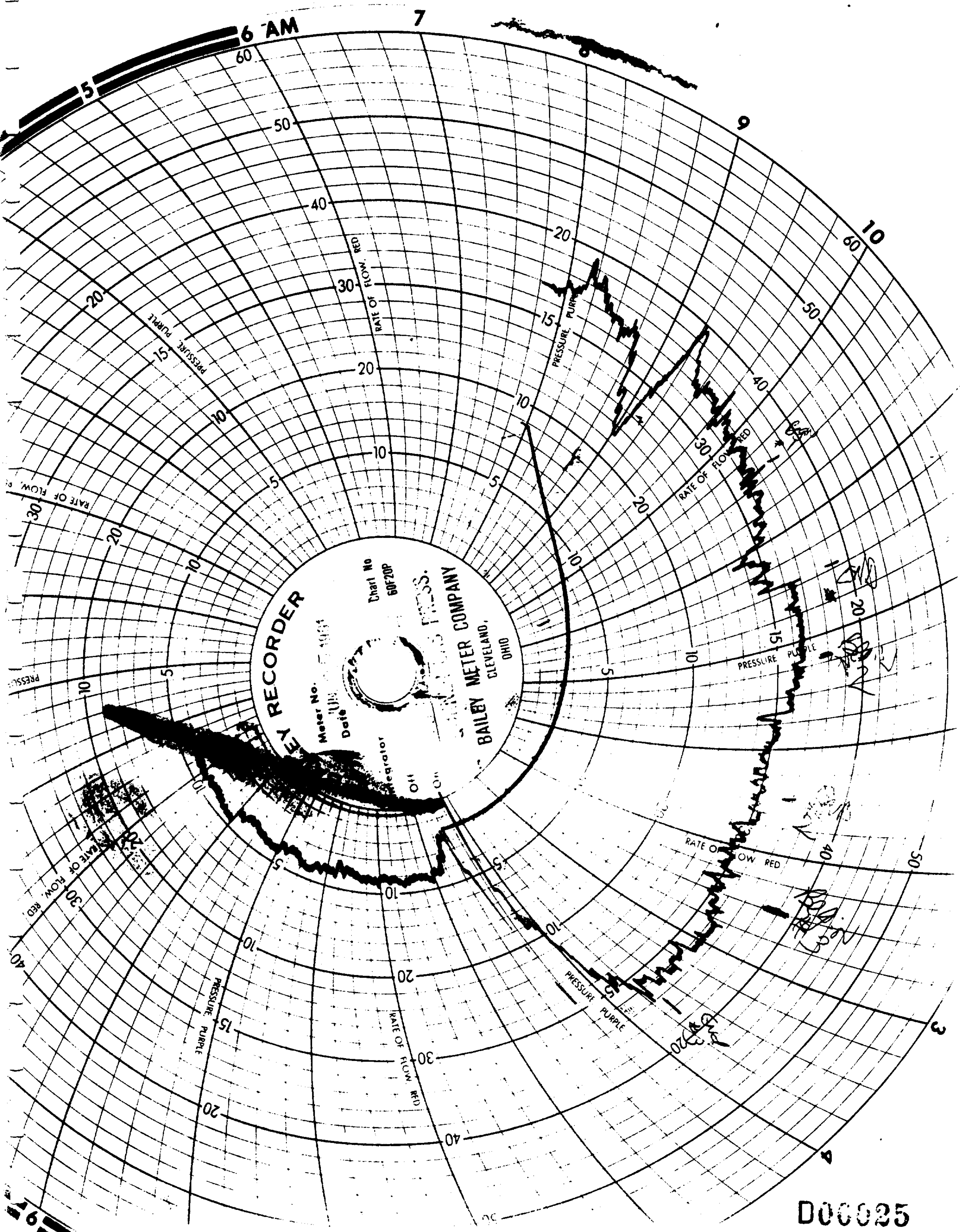


BAILEY METER COMPANY
CLEVELAND, OHIO
RECORDER
Chart No. 60F20P
Meter No.
Date
Integrator
Off
On
RATE OF FLOW RED
PRESSURE PURPLE
6 AM

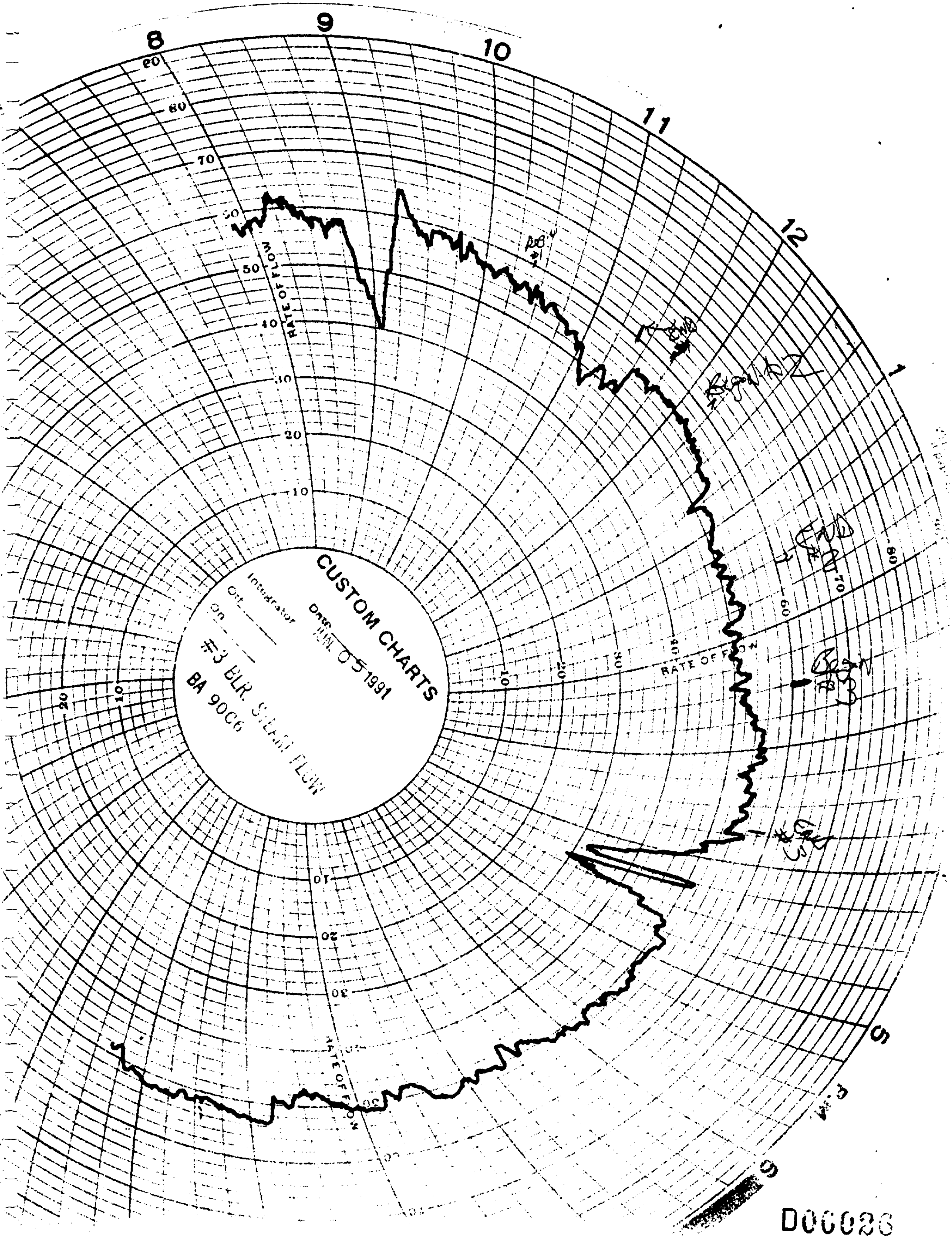
D00023


6 AM
RECORDER
Meter No.
Date
Integrator
Off
On
Chart No.
60F20P
BAILEY METER COMPANY
CLEVELAND,
OHIO
RATE OF FLOW, RED
PRESSURE, PURPLE

D00024


6 AM
7
8
9
10
3
4
5
RECORDER
Meter No.
Date
Chart No
60F20P
BAILEY METER COMPANY
CLEVELAND, OHIO
RATE OF FLOW, RED
PRESSURE, PURPLE

D00025


CUSTOM CHARTS
Date JUN 05 1991
Integrator
Off
On
#3 BLR. STEAM FLOW
BA 90C6
RATE OF FLOW
8
9
10
11
12
1
5
6

D00026

BETTERAVIA BYPRODUCTS
24 HOUR SHIFT REPORT

DAY #49- Mon. DATE JUN 1 0 1991

[illegible] 20.0

	BULK TOTAL	SMALL WHSE	LARGE WHSE	PELLET WHSE	PRESSED PULP DUMPED	BY-PASS DRY SCALE	PRESS WATER OVERFLOW	PULSAIRE
STOP 8 AM	63005070	38528	374209	091122	01095.7	19272.3	00776.0	05121.3
MIDNIGHT	62987415	23675	374209	091122	01095.7	19272.3	00776.0	05113.4
4 PM	62971494	07868	374208	091122	01095.7	19272.4	00776.0	05105.2
8 AM	62958540	04387	374208	091122	01094.8	19271.7	00776.0	05098.0
TOTAL	469.325	TONS PRODUCED						

465.3
+ 4.025

MOLASSES ON PULP	MOLASSES INVENTORY PLANT TANK READINGS		
141.4925	15 FT 9 1/2 IN	77.0	TONS
082.3905	15 FT 1 1/2 IN	80.0	TONS
031.3917	15 FT 2 IN	80.0	TONS
979.7599	13 FT 2 IN	69.0	TONS
161.7386	TOTAL USED		

	#1 DRIER	#2 DRIER	#3 DRIER
STOP 8 AM	185399.8	162609.5	0789657
MIDNIGHT	185630.2	162609.5	0789030
4 PM	185560.8	162609.6	0788494
8 AM	185522.9	162555.6	0788237

NATURAL GAS METERS LARGE	NATURAL GAS METERS SMALL
093953	898570
093953	898567
093953	898565
093953	898560

PG&E MAIN	SUGAR PLANT MAIN	SUGAR PLANT WELLS	BLOCK 5	BLOCK 6
1835	8402	3689	1689	0000
1796	8401	3689	1689	0000
1796	8401	3689	1689	0000
1776	8400	3688	1689	0000

MOLASSES INVENTORY STORAGE TANK READINGS		
6 FT 1/2 IN	385	TONS
6 FT 7 IN	415	TONS
6 FT 3/4 IN	382	TONS
6 FT 6 3/16 IN	411	TONS

OIL TEMPERATURE 148.66°
PRESSED PULP MOISTURE 75.3375 %
DRY BULK MOISTURE 10.758 %

ALUMINUM SULFATE
@ $0.077/LB 8,812.5 LBS

BULK	274.14	TONS
LIME	113.70	TONS

RR CAR OR TRUCK #	TONS
940-13	25.10
920-059	28.51
920-055	28.19

TOTAL USED = 4.5615 TONS

12-8	3,211	LBS
4-12	3182	LBS
8-4	2,730	LBS

TIME	COMMENTS
	7 buckets from [illegible] scale
	950 loader 4.025 TONS
12:10	1 Load of Alum in 2' 4".
1:25	Alum Tank out 7' 7"
3:20a	Chlorine back on Auto

D00028

DAY #51-Wed. DATE: JUN 1 2 1991

BETTERAVIA BYPRODUCTS
24 HOUR SHIFT REPORT

[illegible] FACTOR	200							
	BULK TOTAL	SMALL WHSE	LARGE WHSE	PELLET WHSE	PRESSED PULP DUMPED	BY-PASS DRY SCALE	PRESS WATER OVERFLOW	PULSAIRE
STOP 8 AM	63103188	08220	374231	091122	01095.7	19272.7	00776.0	05167.8
MIDNIGHT	63088020	93833	374222	091122	01095.7	19272.5	00776.0	05160.6
4 PM	63071357	78868	374222	091122	01095.7	19272.5	00776.0	05152.6
8 AM	63054850	75695	374219	091122	01095.7	19272.5	00776.0	05144.8
TOTAL	489.13	TONS PRODUCED						

4 438
5.75

MOLASSES ON PULP	MOLASSES INVENTORY PLANT TANK READINGS		
491.8910	14 FT 10 1/4 IN	63.0	TONS
433.7485	13 FT / IN	58.0	TONS
374.4157	14 FT / IN	62.5	TONS
316.0898	14 FT 11 1/2 IN	65.0	TONS
175.8012	TOTAL USED		

[illegible]	#1 DRIER	#2 DRIER	#3 DRIER
STOP 8 AM	186084.0	162729.3	079064.3
MIDNIGHT	186019.1	162729.3	079064.3
4 PM	185954.7	162716.0	079064.3
8 AM	185896.2	162664.7	079064.3

NATURAL GAS METERS LARGE	NATURAL GAS METERS SMALL
094507	898591
094180	898589
093953	898583
093953	898580

PG&E MAIN	SUGAR PLANT MAIN	SUGAR PLANT WELLS	BLOCK 5	BLOCK 6
1958	8405	3691	1689	0000
1930	8405	3690	1689	0000
1918	8404	3690	1689	0000
1897	8403	3690	1689	0000

MOLASSES INVENTORY STORAGE TANK READINGS		
5 FT 2 IN	322	TONS
5 FT 5 3/4 IN	340	TONS
5 FT 0 IN	310	TONS
5 FT 2 1/2 IN	325	TONS

TIME	COMMENTS
9:30	Chlorine System OFF,
	Need New Parts
9:30	SC162 - System ON
10:10	Increase exchanger 4°
3:15	DECREASED EXCHANGER TO 140°
	#1 Drier ON oil #2 ON gas
2:35	10 950 buckets thru Tart
	Screw 5.75 TONS

[illegible]

OIL TEMPERATURE	148 66°
PRESSED PULP MOISTURE	73.7 %
DRY BULK MOISTURE	10.721 %

ALUMINUM SULFATE @ $0.077/LB 10,312.5 LBS

[illegible]		
BULK	335.16	TONS
LIME	47.30	TONS

RR CAR OR TRUCK #	TONS
920-058	28.22
920-059	28.16

[illegible]		
TOTAL USED -	4,747	TONS
12-8	3230	LBS
4-12	3118	LBS
8-4	3,146	LBS

D00039

DAY #51-Wed. DATE: JUN 1 2 1991

BETTERAVIA BYPRODUCTS
24 HOUR SHIFT REPORT

	20.0								
	BULK TOTAL	SMALL WHSE	LARGE WHSE	PELLET WHSE	PRESSED PULP DUMPED	BY-PASS DRY SCALE	PRESS WATER OVERFLOW	PULSAIRE	MOLASSES ON PULP
STOP 8 AM	63103188	08220	374231	091122	01095.7	19272.7	00776.0	05161.8	491,2910
MIDNIGHT	63088020	93833	374212	091122	01095.7	19272.5	00776.0	05160.6	433.7485
4 PM	63071397	78868	374222	091122	01095.7	19272.5	00776.0	05152.6	374.4197
8 AM	63054250	75695	374217	091122	01095.7	19272.5	00776.0	05144.8	316,0897
TOTAL	489.13	TONS PRODUCED							175.8012

4 53.38
5.75

MOLASSES INVENTORY PLANT TANK READINGS			
14 FT	10 1/4 IN	63.0	TONS
13 FT	1 IN	58.0	TONS
14 FT	IN	62.5	TONS
14 FT	11 1/2 IN	65.0	TONS
TOTAL USED			

	#1 DRIER	#2 DRIER	#3 DRIER
STOP 8 AM	1860840	162729.3	079064.3
MIDNIGHT	186019.1	162729.3	079064.3
4 PM	185954.7	162716.0	079064.3
8AM	185896.2	162664.7	079064.3

NATURAL GAS METERS LARGE	NATURAL GAS METERS SMALL	PG&E MAIN	SUGAR PLANT MAIN	SUGAR PLANT WELLS	BLOCK 5	BLOCK 6
094507	898571	1958	8405	3691	1689	0000
094180	898589	1930	8405	3690	1689	0000
093953	898583	1918	8404	3690	1689	0000
093953	898580	1897	8403	3690	1689	0000

MOLASSES INVENTORY STORAGE TANK READINGS			
5 FT	2 IN	322	TONS
5 FT	5 3/4 IN	340	TONS
5 FT	0 IN	310	TONS
5 FT	2 1/2 IN	325	TONS

OIL TEMPERATURE	148 66°
PRESSED PULP MOISTURE	73.7 %
DRY BULK MOISTURE	10.721 %

ALUMINUM SULFATE @ $0.077/LB 10,312.5 LBS

BULK	335.16	TONS
LIME	47.30	TONS

RR CAR OR TRUCK #	TONS
920-058	28.22
920-059	28.16

TOTAL USED = 4,747 TONS		
12-8	3,230	LBS
4-12	3118	LBS
8-4	3,146	LBS

TIME	COMMENTS
9:30	CHlorine System OFF,
	Need New Parts
9:30	SC1-62 - System ON
10:10	Increase exchanger 4°
3:15	DECREASED EXCHANGER TO 140°
	#1 Drier on oil #2 on gas
2:35	10 950 bucket the Tank
	Served 5.75 TONS

D00030

DAY #52-THURS. DATE: JUN 13 1991

BETTERAVIA BYPRODUCTS
24 HOUR SHIFT REPORT

DAY OPERATOR Robert. SWING OPERATOR Steve GRAVEYARD OPERATOR

	Day								Swing							
#1 MOISTURE	10.6	10.8	11.0	9.4	9.0	9.2	9.4	9.6	10.4	10.5						
#1 RECYCLE	6	6	6	6	6	6	6	6	6	6	6					
#1 MAIN FAN [illegible]	4¼	4¼	4¼	4¼	4¼	3¾	3¾	3¾	3¾	4¾	4¾					
#1 TAIL TEMP [illegible]	245	246	249	247	229	225	223	225	225	225						
[illegible]	1243	1276	1232	1236	1090	1018	1039	1044	1092	1023						
#1 SCALE RATE SETTING	26.7	26.7	26.7	26.7	25.3	25.3	25.3	25.0	25.0	25.0	25.2					

	Day								Swing							
[illegible]	11.8	11.6	11.2	9.6	9.4	9.4	9.6	9.0	10.4	10.2						
[illegible]	5	5	5	5	5	5	5¼	5¼	5	5	5					
[illegible]	5	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼					
[illegible]	234	240	246	233	232	238	230	227	246	247						
[illegible]	1198	1111	1200	991	1019	1175	1061	793	1311	1374						
#2 SCALE RATE SETTING	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN					

	Day								Swing							
[illegible]																
[illegible]																
[illegible]																
[illegible]																
[illegible]																
SCALE RATE SETTING									Hole							

	Day								Swing							
	255 TPH								TPH 255							
[illegible]	7.68	7.80	7.70	7.60	7.50	7.72	7.70	6.96	7.32	7.62						
[illegible]	75.0	73.7	72.3	72.5	72.3	72.2	71.8	72.0	72.0	74.2						
[illegible]	11.0	11.4	11.0	9.4	9.0	7.4	9.3	9.6	10.5	10.4						
[illegible]	4-5	2-6 2-5	4-3	3-5 3-5	3-1	4-4	4-3	4-3	4-5	4-5						
[illegible]	67°	68°	67°	67°	68°	66°	68°	66°	67°	67°						
[illegible]		10.0125			72,725			2								

D00031