#37

REPORT OF AIR EMISSIONS TESTS AND VOC REMOVAL EFFICIENCY FOR LOUISIANA PACIFIC CORPORATION URANIA OSB FACILITY

Urania, Louisiana
May 11 and 12, 1995

Louisiana Pacific Corporation
Post Office Box 490
Urania, Louisiana 71480

ph: 318/459-3111

Prepared for
Louisiana Pacific Corporation
Post Office Box 3107
Conroe, Texas 77305

ph: 409/760-5921
Contact: Dr. James T. Boswell

Performed By:
Environmental Monitoring Laboratories
Ridgeland, Mississippi
< 601/856-3092 >

ENVIRONMENTAL MONITORING LABORATORIES, INC.

P.O. Box 655 • 624 Ridgewood Road
Ridgeland, Mississippi 39158

phone: 601/856-3092
fax : 601/853-2151

July 18, 1995

Subject: Louisiana Pacific Corporation
Urania, Louisiana

no inlets & outlet

On May 11 and 12, 1995, Environmental Monitoring Laboratories performed air emissions testing for Louisiana Pacific Corporation's oriented strand board (OSB) facility in Urania, Louisiana. Testing was performed to determine emissions of particulate matter (PM), volatile organic compounds (VOC), formaldehyde (HCOH) nitrogen oxides (NOx), and carbon monoxide (CO) from the regenerative thermal oxidizer (RTO) system controlling emissions from two OSB dryers. Testing was also simultaneously performed at the RTO inlets to determine removal efficiency. One of the two inlets was tested; velocity was measured from the other.

Test Results:

DRYERS RTO	PM		VOC as C		HCOH		CO		NOx	
	#/hr.	gr/dscf	#/hr.	ppm	#/hr.	ppm	#/hr.	ppm	#/hr.	ppm
RTO OUTLET	8.08	0.010	1.68	10	0.095	0.23	22.41	57	18.89	29
RTO D1 INLET (Measured)	41.5	0.158	47	837	1.13	7.95	23.52	178	9.26	43
INLET TOTAL (Projected)	97.93	*0.158*	122	*837*	2.94	*7.95*	55.45	*178*	21.75	*43*
REMOVAL EFFICIENCY	91.7		98.6		96.8		59.6		13.1	

estimated

The testing project was coordinated by Dr. James T. Boswell of Louisiana Pacific Corporation. Danny Russell of Environmental Monitoring laboratories coordinated sample collection and analysis and report preparation. All formaldehyde samples were shipped to Oxford Laboratories in Wilmington, North Carolina, for analysis. Otherwise sample custody was limited to Mr. Russell.

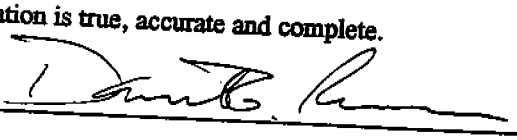
Following is a report of the test.

REPORT OF AIR EMISSIONS TESTS FOR
LOUISIANA PACIFIC CORPORATION
URANIA OSB FACILITY
URANIA, LOUISIANA
MAY 11 AND 12, 1995

CONTENTS

REPORT CERTIFICATION

I certify that I have examined the information submitted herein, and based upon my inquires of those responsible for obtaining the data or upon my direct acquisition of data, I believe the submitted information is true, accurate and complete.

Signed 

Daniel G. Russell

1.0 TEST RESULTS:

The following tables present the measured flow parameters and test results for air emissions and inlet loading samples taken on May 11 and 12, 1995, for the RTO at Louisiana Pacific Corporation 's OSB facility in Urania, Louisiana.

1.1 Dryers RTO

1.1.1 PM/NOx/CO Emissions Test - May 11, 1995

Run No. ..... / Date ..... / Time Start ..... / Time End		1 5/11/95 1731 1836	2 5/12/95 0753 0858	3 5/12/95 0947 1048	AVG. ——— — —
PARTICULATE EMISSIONS	#/hr	9.28	5.41	9.56	8.08
PARTICULATE EMISSIONS	gr/dscf	0.012	0.007	0.013	0.010
CO EMISSIONS	#/hr	21.27	23.90	22.05	22.41
CO EMISSIONS	ppm	54	59	57	57
NOx EMISSIONS	#/hr	20.63	18.23	17.79	18.89
NOx EMISSIONS	ppm	32	28	28	29
VOLUMETRIC FLOWRATE	acfm	151662	154608	153589	153287
VOLUMETRIC FLOWRATE	dscfm	90302	92847	88999	90716
VELOCITY	ft./sec.	63.8	65.0	64.6	64.5
STACK TEMPERATURE	°F	289	292	290	291
MOISTURE	%	14.8	14.0	17.2	15.3
SAMPLE RATE	% isokinetic	98	102	103	101

Dryers RTO

1.1.2 VOC/HCOH Emissions Test - May 12, 1995

Run No.		4	5	6	AVG.
Date		5/12/95	5/12/95	5/12/95	———
Time Start		1323	1454	1613	———
Time End		1423	1555	1714	———
FORMALDEHYDE EMISSIONS	#/hr	0.090	0.099	0.095	0.095
FORMALDEHYDE EMISSIONS	ppm	0.22	0.24	0.24	0.23
VOC EMISSIONS	#/hr	2.28	1.63	1.13	1.68
VOC EMISSIONS	ppm as C	13.7	9.9	7.2	10.2
VOLUMETRIC FLOWRATE	acfm	151541	151087	146417	149682
VOLUMETRIC FLOWRATE	dscfm	89228	87954	83977	87053
VELOCITY	ft./sec.	63.3	63.2	61.2	62.6
STACK TEMPERATURE	°F	304	306	305	305
MOISTURE	%	14.4	15.1	16.4	15.3
SAMPLE RATE	% isokinetic	99	102	103	101

1.2 RTO Inlet

1.2.1 PM/NOx/CO Loading Test - May 11, 1995

Run No. ..... Date ..... Time Start ..... Time End		1 5/11/95 1731 1834	2 5/12/95 0753 0900	3 5/12/95 0947 1048	AVG. ——— — —
PARTICULATE LOADING	#/hr	44.64	28.00	51.97	41.54
PARTICULATE LOADING	gr/dscf	0.165	0.108	0.202	0.158
CO LOADING	#/hr	17.89	12.17	40.48	23.52
CO LOADING	ppm	130	93	310	178
NOx LOADING	#/hr	9.01	10.44	8.34	9.26
NOx LOADING	ppm	40	49	39	43
VOLUMETRIC FLOWRATE	acfm	49447	46837	48500	48262
VOLUMETRIC FLOWRATE	dscfm	31555	30159	29938	30551
VELOCITY	ft./sec.	41.5	39.3	40.7	40.5
STACK TEMPERATURE	°F	208	193	207	202
MOISTURE	%	16.9	18.2	19.9	18.3
SAMPLE RATE	% isokinetic	100	106	110	106

No. 2 Inlet estimated based on flow + concentration * NOT SAMPLED

PARTICULATE LOADING	#/hr	61.95	36.45	70.79	56.40
CO LOADING	#/hr	24.83	15.84	55.14	31.94
NOX LOADING	#/hr	12.50	13.60	11.36	12.49
VOLUMETRIC FLOWRATE	acfm	70390	64141	67394	67308
VOLUMETRIC FLOWRATE	dscfm	43783	39265	40781	41276
VELOCITY	ft./sec.	59.0	53.8	56.5	56.4
STACK TEMPERATURE	°F	225	227	220	224

Combined

PARTICULATE LOADING	#/hr	106.59	64.45	122.75	97.93
CO LOADING	#/hr	42.72	28.01	95.63	55.45
NOX LOADING	#/hr	21.52	24.04	19.69	21.75
VOLUMETRIC FLOWRATE	acfm	119837	110978	115895	115570
VOLUMETRIC FLOWRATE	dscfm	75338	69424	70719	71827

RTO Inlet

1.2.2 VOC/HCOH Loading Test - May 12, 1995

Run No. ..... / Date ..... / Time Start ..... / Time End		4 5/12/95 1322 1422	5 5/12/95 1453 1554	6 5/12/95 1612 1713	AVG. ——— ——— ———
FORMALDEHYDE LOADING	#/hr	0.513	1.333	1.551	1.132
FORMALDEHYDE LOADING	ppm	3.94	9.21	10.71	7.95
VOC LOADING	#/hr	40.32	55.19	45.34	46.95
VOC LOADING	ppm as C	773.5	953.3	782.6	836.5
VOLUMETRIC FLOWRATE	acfm	44967	50521	51168	48885
VOLUMETRIC FLOWRATE	dscfm	27881	30965	30985	29944
VELOCITY	ft./sec.	37.7	42.4	42.9	41.0
STACK TEMPERATURE	°F	222	224	227	224
MOISTURE	%	17.8	18.5	19.1	18.5
SAMPLE RATE	% isokinetic	103	100	91	98

No. 2 Inlet

FORMALDEHYDE LOADING	#/hr	0.844	2.188	2.378	1.803
VOC LOADING	#/hr	66.29	90.58	69.53	75.46
VOLUMETRIC FLOWRATE	acfm	61026	67496	62767	63763
VOLUMETRIC FLOWRATE	dscfm	37691	41425	38433	39183
VELOCITY	ft./sec.	51.2	56.6	52.6	53.5
STACK TEMPERATURE	°F	224	223	219	222

Combined

FORMALDEHYDE LOADING	#/hr	1.357	3.521	3.929	2.936
VOC LOADING	#/hr	106.61	145.77	114.86	122.41
VOLUMETRIC FLOWRATE	acfm	105993	118017	113936	112649
VOLUMETRIC FLOWRATE	dscfm	65572	72390	69418	69127

2.0 SOURCE DESCRIPTION:

Louisiana Pacific Corporation operates an Oriented Strand Board (OSB) plant in Urania, Louisiana. Process description here is limited to a brief description of the emissions sources and their sampling locations. Detailed descriptions of the processes, the pollution control equipment, and records of operating rates and conditions during testing may be supplied by Louisiana Pacific Corporation.

Two rotary dryers are used for drying wood flakes. Each dryer exhausts to a primary cyclone, then to high efficiency multicyclones. Exhausts from the multiclones are directed to a mixing chamber then to a Smith Engineering Company (SEC) regenerative thermal oxidizer (RTO). RTO inlet sampling was done at the inlets to the multiclones. The multiclone inlets were sampled in rectangular 53.5 inch by 53.5 inch downflow ducts. Three sample ports were installed at a location 4.5 diameters downstream of an elbow and 1.6 diameters upstream of a vertical to horizontal elbow. The RTO exhausts to the atmosphere by way of a vertical 85.25 inch diameter stack. Two sample ports are provided at a location that is 3.7 diameters downstream of the inlet duct and 6.4 diameters below the stack exit. Sketches of the stacks and sampling locations are provided in Appendix A.

3.0 TEST PROCEDURES:

Test procedures used are those described in 40 CFR, Part 60, Appendix A and in Part 266, Appendix IX.

Particulate sampling was done as described in Method 5. An exception was the inclusion of the condenser section particulate. Reported particulate is based on three fractions: the front half, the back half organic (methylene chloride extraction), and the back half aqueous. The contribution of each fraction can be reviewed in Section 4.0.

Carbon monoxide concentrations were continuously monitored as described in Method 10. Two TECO Model 48H gas correlation filter NDIRs in various ranges were used to monitor CO at the inlet and outlet. Instrument calibration and bias checks were performed prior to and following each series of tests, and a mid range system bias check was made following each run by directing calibration to the gas sampling probe.

Nitrogen oxides were continuously monitored as described in Method 7E. Two TECO Model 10S analyzers were used. Instrument calibration was performed prior to and following each series of tests, and a mid range system bias check was made prior to and following each run by directing calibration to the gas sampling probe.

VOC concentrations were measured using Method 25A (continuous monitoring with a flame ionization detector). Two TECO Model 51 heated FIDs were used. The 0 to 100 ppm scale and the 0 to 1000 ppm scale were used for calibrations using zero air, and appropriate low, mid and high range concentrations of EPA protocol propane in nitrogen. Since calibrations are made with propane (C_3H_8), results as methane (CH_4) (or as carbon) are determined by increasing the measured concentration by a factor of three. A continuous trace of VOC as propane was recorded and manually integrated for each 60 minute test period. Instrument calibration was performed initially, and following each 60 minute test period. Any necessary adjustments were made after recording the response of the mid range calibration gas. which was introduced at the inlet to the VOC sampling probe. The gas samples were directed to the heated FID analyzers by way of heated teflon sample lines maintained at a minimum temperature of 250°F.

Instrument calibrations were made with Protocol 1 cylinder gas and with the aid of an Environics Model 2020 gas diluter. (Carbon monoxide cylinder gas was certified rather than Protocol 1). All calibrations were made by introducing calibration gas at the probe inlet.

Formaldehyde was measured using the procedure described in CFR 40, Part 266, Appendix IX, Method 0011. Reagent preparation and sample analysis was performed by Oxford Laboratories of Wilmington, North Carolina.

Inlet sampling was done simultaneously with outlet sampling in order to determine removal efficiency or additional pollutant contribution. This was accomplished by operating two sampling trains simultaneously – one at the outlet and another at one of the two inlets. At the conclusion of each test run, the velocity was measured at the other inlet location. Pollutant concentrations and other gas characteristics were presumed to be identical in both stacks for the calculation of total RTO inlet loading.

4.0 DATA REDUCTION

Louisiana Pacific Corporation - Urania, Louisiana
Dryers RTO
PM/NOx/CO Emissions Test - May 11, 1995

Collected Test Data:

	RUN 1	RUN 2	RUN 3	
Date :	5/11/95	5/12/95	5/12/95	
Time start :	1731	0753	0947	
Time end :	1836	0858	1048	
1. As : sq ft	39.6384	39.6384	39.6384	
2. Dn : in.	0.270	0.270	0.270	
3. Cp : dimensionless	0.84	0.84	0.84	
4. Theta : minutes	60.00	60.00	60.00	
5. Y : dimensionless	1.00	1.00	1.00	
6. Pbar : in. Hg	29.70	29.79	29.79	
7. Pg : in. H2O	-0.4	-0.4	-0.4	
8. Vm : cf (dry gas)	56.08	59.939	58.583	
9. sqr(DP),avg : in.H2O^.5	0.9272	0.9463	0.9350	
10. DH : in. H2O	3.0342	3.2042	3.1583	
11. ts : degrees F	289.04	292.08	290.38	290.50
12. tm : degrees F	98.56	94.85	103.96	
13. Vlc : ml	196	198	243	
14. CO2 : percent	3.00	3.00	3.00	
15. O2 : percent	17.50	17.50	17.50	
16. CO : percent	0.01	0.01	0.03	
17. CO : ppm	54.00	59.00	56.80	57
18. M,PM : milligrams				
front half	29.4	19.6	35.2	
back half organic	5.2	2.7	6.3	
back half aqueous	6.6	2.9	3.2	
19. NOx : ppm	32.0	27.5	28.0	29

Louisiana Pacific Corporation - Urania, Louisiana
Dryers RTO
PM/NOx/CO Emissions Test - May 11, 1995

Calculations:

		RUN 1	RUN 2	RUN 3	AVG.
1. Pm	: in.Hg				
	(DH/13.6)+Pbar	29.9231	30.0256	30.0222	
2. Ps	: in. Hg				
	(Pg/13.6)+Pbar	29.6706	29.7606	29.7606	
3. An	: sq ft				
	((Dn/24)^2)(3.1416)	3.98E-04	3.98E-04	3.98E-04	
4. Vmstd	: dscf				
	Vm Y(Pm/Pstd)(Tstd/Tm)	53.017	57.240	55.035	
5. Vwstd	: scf				
	(.04707cf/ml)(Vlc)	9.226	9.320	11.438	
6. Bws	: dimensionless				
	Vwstd/(Vwstd+Vmstd)	0.1482	0.1400	0.1721	0.1534
7. Md	: mol.wt. dry basis				
	.44 CO2+.32 O2+.28(CO+N2)	29.18	29.18	29.18	
8. Ms	: mol.wt. wet basis				
	Md(1-Bws)+18 Bws	27.52	27.61	27.26	
9. Vs	: ft/sec				
	Kp Cp (sqrDP)sqr(Ts/(Ps Ms))	63.77	65.01	64.58	64.45
10. Q	: cfm				
	Vs As(60 sec/min)	151662	154608	153589	153287
11. Qstw	: scfm				
	Q(Ps/Pstd)(Tstd/Ts)	106016	107965	107496	107159
12. Qstd	: dscfm				
	Qstw(1-Bws)	90302	92847	88999	90716
13. I	: percent				
[(100 Ts)(.002669 Vlc+(Vm Pm/Tm)]/(60 theta Vs Ps An)		97.56	102.44	102.76	100.92

Particulate Emissions

14. E,PM	: pounds/hr				
	(M,PM/Vmstd)(Qstd)(60)/(453590)				
front half		6.624	4.205	7.530	6.120
back half organic		1.172	0.579	1.348	1.033
back half aqueous		1.487	0.622	0.685	0.931
Total		9.283	5.407	9.562	8.084
15. C,PM	: grains/dscf				
	(M,PM/Vmstd)(.0154 grains/mg)				
front half		0.0085	0.0053	0.0098	0.0079
back half organic		0.0015	0.0007	0.0018	0.0013
back half aqueous		0.0019	0.0008	0.0009	0.0012
Total		0.0120	0.0068	0.0125	0.0104

CO Emissions

16. E,CO	: pounds/hr				
	(C,CO)(7.27e-8)(Qstd)(60)	21.27	23.90	22.05	22.41

NOx Emissions

17. E,NOx	: pounds/hr				
	C,NOx(1.19e-7)(Qstd)(60)	20.63	18.23	17.79	18.89

Louisiana Pacific Corporation - Urania, Louisiana
Dryers RTO
VOC/HCOH Emissions Test - May 12, 1995

Collected Test Data:

	RUN 4	RUN 5	RUN 6	
Date :	5/12/95	5/12/95	5/12/95	
Time start :	1323	1454	1613	
Time end :	1423	1555	1714	
1. As : sq ft	39.8712	39.8712	39.8712	
2. Dn : in.	0.264	0.264	0.264	
3. Cp : dimensionless	0.84	0.84	0.84	
4. Theta : minutes	60.00	60.00	60.00	
5. Y : dimensionless	1.00	1.00	1.00	
6. Pbar : in. Hg	29.79	29.79	29.79	
7. Pg : in. H2O	-0.38	-0.38	-0.38	
8. Vm : cf (dry gas)	53.591	54.599	53.678	
9. sqr(DP),avg : in.H2O^.5	0.9153	0.9098	0.8797	
10. DH : in. H2O	2.7654	2.7088	2.5800	
11. ts : degrees F	303.54	306.00	305.25	304.93
12. tm : degrees F	100.13	105.58	115.92	
13. Vlc : ml	181	193	206	
14. CO2 : percent	3.50	3.50	3.50	
15. O2 : percent	17.00	17.00	17.00	
16. CO : percent	0	0	0	
17. M,HCOH : micrograms	388	434	421	
18. C,VOC : ppm as CH_4	3.9	2.8	2.0	

No. 2 Dryer RTO Inlet (velocity only)

	RUN 1	RUN 2	RUN 3	
Date :	5/11/95	5/12/95	5/12/95	
Time start :	1840	0915	1055	
Time end :	1900	0930	1115	
1. As : sq ft	19.8767	19.8767	19.8767	
2. Cp : dimensionless	0.84	0.84	0.84	
3. Pg : in. H2O	-8.8	-8.8	-8.8	
4. sqr(DP),avg : in.H2O^.5	0.8833	0.8029	0.8446	
5. ts : degrees F	225.00	226.67	220.33	224.00

Louisiana Pacific Corporation - Urania, Louisiana
Dryers RTO
VOC/HCOH Emissions Test - May 12, 1995

Calculations:

	RUN 4	RUN 5	RUN 6	AVG.
1. Pm : in.Hg (DH/13.6)+Pbar	29.9933	29.9892	29.9797	
2. Ps : in. Hg (Pg/13.6)+Pbar	29.7621	29.7621	29.7621	
3. An : sq ft ((Dn/24)^2)(3.1416)	3.80E-04	3.80E-04	3.80E-04	
4. Vmstd : dscf Vm Y(Pm/Pstd)(Tstd/Tm)	50.641	51.089	49.310	
5. Vwstd : scf (.04707cf/ml)(Vlc)	8.520	9.085	9.696	
6. Bws : dimensionless Vwstd/(Vwstd+Vmstd)	0.1440	0.1510	0.1643	0.1531
7. Md : mol.wt. dry basis .44 CO2+.32 O2+.28(CO+N2)	29.24	29.24	29.24	
8. Ms : mol.wt. wet basis Md(1-Bws)+18 Bws	27.62	27.54	27.39	
9. Vs : ft/sec Kp Cp (sqrDP)sqr(Ts/(Ps Ms))	63.35	63.16	61.20	62.57
10. Q : cfm Vs As(60 sec/min)	151541	151087	146417	149682
11. Qstw : scfm Q(Ps/Pstd)(Tstd/Ts)	104240	103594	100490	102775
12. Qstd : dscfm Qstw(1-Bws)	89228	87954	83977	87053
13. I : percent [(100 Ts)(.002669 Vlc+(Vm Pm/Tm)]/(60 theta Vs Ps An)	99.22	101.55	102.66	101.14

Formaldehyde Emissions

14. E,HCOH : pounds/hr (M,HCOH/Vmstd)(Qstd)(60)/(453590000)	0.090	0.099	0.095	0.095
15. C,HCOH : ppm (M,HCOH/Vmstd)(.0283)	0.22	0.24	0.24	0.23

VOC Emissions

16. C'VOC : ppm as Carbon, dry ((C,VOC)*3)/(1-Bws)	13.67	9.89	7.18	10.25
17. E,VOC : pounds/hr (C'VOC)(3.116e-8)(Qstd)(60)	2.28	1.63	1.13	1.68

Louisiana Pacific Corporation - Urania, Louisiana
RTO Inlet - PM/NOx/CO Loading Test - May 11, 1995

Collected Test Data:

		RUN 1	RUN 2	RUN 3	
Date	:	5/11/95	5/12/95	5/12/95	
Time start	:	1731	0753	0947	
Time end	:	1834	0900	1048	
1. As	: sq ft	19.8767	19.8767	19.8767	
2. Dn	: in.	0.210	0.240	0.240	
3. Cp	: dimensionless	0.84	0.84	0.84	
4. Theta	: minutes	60.00	60.00	60.00	
5. Y	: dimensionless	1.00	1.00	1.00	
6. Pbar	: in. Hg	29.70	29.79	29.79	
7. Pg	: in. H2O	-9	-9	-9	
8. Vm	: cf (dry gas)	24.463	31.526	32.877	
9. sqr(DP),avg	: in.H2O^.5	0.6285	0.6013	0.6139	
10. DH	: in. H2O	0.4983	0.8917	0.9050	
11. ts	: degrees F	207.67	192.83	206.92	202.47
12. tm	: degrees F	98.38	86.04	94.54	
13. Vlc	: ml	99	144	165	
14. CO2	: percent	2.50	2.50	2.50	
15. O2	: percent	18.00	18.00	18.00	
16. CO	: percent	0.01	0.01	0.03	
17. CO	: ppm	130.00	92.50	310.00	178
18. M.PM	: milligrams				
	front half	235.9	201.2	381.7	
	back half organic	6.5	9.3	20.1	
	back half aqueous	3.5	3	8.1	
19. NOx	: ppm	40.0	48.5	39.0	43

No. 2 Dryer RTO Inlet (velocity only)

		RUN 1	RUN 2	RUN 3	
Date	:	5/11/95	5/12/95	5/12/95	
Time start	:	1840	0915	1055	
Time end	:	1900	0930	1115	
1. As	: sq ft	19.8767	19.8767	19.8767	
2. Cp	: dimensionless	0.84	0.84	0.84	
3. Pg	: in. H2O	-8.8	-8.8	-8.8	
4. sqr(DP),avg	: in.H2O^.5	0.8833	0.8029	0.8446	
5. ts	: degrees F	225.00	226.67	220.33	224.00

Louisiana Pacific Corporation - Urania, Louisiana
RTO Inlet
PM/NOx/CO Loading Test - May 11, 1995

Calculations:

	RUN 1	RUN 2	RUN 3	AVG.
1. Pm : in.Hg (DH/13.6)+Pbar	29.7366	29.8556	29.8565	
2. Ps : in. Hg (Pg/13.6)+Pbar	29.0382	29.1282	29.1282	
3. An : sq ft ((Dn/24)^2)(3.1416)	2.41E-04	3.14E-04	3.14E-04	
4. Vmstd : dscf Vm Y(Pm/Pstd)(Tstd/Tm)	22.990	30.419	31.237	
5. Vwstd : scf (.04707cf/ml)(Vlc)	4.660	6.778	7.767	
6. Bws : dimensionless Vwstd/(Vwstd+Vmstd)	0.1685	0.1822	0.1991	0.1833
7. Md : mol.wt. dry basis .44 CO2+.32 O2+.28(CO+N2)	29.12	29.12	29.12	
8. Ms : mol.wt. wet basis Md(1-Bws)+18 Bws	27.25	27.09	26.91	
9. Vs : ft/sec Kp Cp (sqrDP)sqr(Ts/(Ps Ms))	41.46	39.27	40.67	40.47
10. Q : cfm Vs As(60 sec/min)	49447	46837	48500	48262
11. Qstw : scfm Q(Ps/Pstd)(Tstd/Ts)	37951	36879	37382	37404
12. Qstd : dscfm Qstw(1-Bws)	31555	30159	29938	30551
13. I : percent [(100 Ts)(.002669 Vlc+(Vm Pm/Tm)]/(60 theta Vs Ps An)	100.36	106.37	110.04	105.59

No. 2 Dryer RTO Inlet

	RUN 1	RUN 2	RUN 3	AVG.
1. Vs : ft/sec Kp Cp (sqrDP)sqr(Ts/(Ps Ms))	59.02	53.78	56.51	56.44
2. Q : cfm Vs As(60 sec/min)	70390	64141	67394	67308
3. Qstw : scfm Q(Ps/Pstd)(Tstd/Ts)	52658	48015	50920	50531
4. Qstd : dscfm Qstw(1-Bws)	43783	39265	40781	41276

Louisiana Pacific Corporation - Urania, Louisiana
RTO Inlet
PM/NOx/CO Loading Test - May 11, 1995

Loading Calculations

Particulate Loading

	RUN 1	RUN 2	RUN 3	AVG.
14. E,PM : pounds/hr (M,PM/Vmstd)(Qstd)(60)/(453590)				
front half	42.829	26.387	48.391	39.202
back half organic	1.180	1.220	2.548	1.649
back half aqueous	0.635	0.393	1.027	0.685
Total	44.645	28.000	51.966	41.537
15. C,PM : grains/dscf (M,PM/Vmstd)(.0154 grains/mg)				
front half	0.1580	0.1019	0.1882	0.1494
back half organic	0.0044	0.0047	0.0099	0.0063
back half aqueous	0.0023	0.0015	0.0040	0.0026
Total	0.1647	0.1081	0.2021	0.1583

CO Loading

16. E,CO : pounds/hr (C,CO)(7.27e-8)(Qstd)(60)	17.89	12.17	40.48	23.52

NOx Loading

17. E,NOx : pounds/hr C,NOx(1.19e-7)(Qstd)(60)	9.01	10.44	8.34	9.26

Projected Combined Emission Rates

Particulate Loading

	RUN 1	RUN 2	RUN 3	AVG.
1. E,PM : No. 1 Inlet	44.64	28.00	51.97	41.54
No. 2 Inlet	61.95	36.45	70.79	56.40
Total	106.59	64.45	122.75	97.93

Carbon Monoxide Loading

2. E,CO : No. 1 Inlet	17.89	12.17	40.48	23.52
No. 2 Inlet	24.83	15.84	55.14	31.94
Total	42.72	28.01	95.63	55.45

NOx Loading

3. E,NOx : No. 1 Inlet	9.01	10.44	8.34	9.26
No. 2 Inlet	12.50	13.60	11.36	12.49
Total	21.52	24.04	19.69	21.75

Louisiana Pacific Corporation - Urania, Louisiana
RTO Inlet
VOC/HCOH Loading Test - May 12, 1995

Collected Test Data:

	RUN 4	RUN 5	RUN 6	
Date :	5/12/95	5/12/95	5/12/95	
Time start :	1322	1453	1612	
Time end :	1422	1554	1713	
1. As : sq ft	19.8767	19.8767	19.8767	
2. Dn : in.	0.250	0.250	0.250	
3. Cp : dimensionless	0.84	0.84	0.84	
4. Theta : minutes	60.00	60.00	60.00	
5. Y : dimensionless	1.00	1.00	1.00	
6. Pbar : in. Hg	29.79	29.79	29.79	
7. Pg : in. H2O	-9	-9	-9	
8. Vm : cf (dry gas)	31.037	34.087	31.397	
9. sqr(DP),avg : in.H2O^.5	0.5670	0.6352	0.6411	
10. DH : in. H2O	0.9567	1.2225	1.2408	
11. ts : degrees F	221.67	223.58	226.58	223.94
12. tm : degrees F	92.29	102.54	109.42	
13. Vlc : ml	136	154	146	
14. CO2 : percent	4.00	4.00	4.00	
15. O2 : percent	16.50	16.50	16.50	
16. CO : percent	0	0	0	
17. M,HCOH : micrograms	4120	10400	11000	
18. C,VOC : ppm as CH_4	212.0	259.0	211.0	

No. 2 Dryer RTO Inlet (velocity only)

	RUN 4	RUN 5	RUN 6	
Date :	5/12/95	5/12/95	5/12/95	
Time start :	1430	1458	1612	
Time end :	1445	1608	1713	
1. As : sq ft	19.8767	19.8767	19.8767	
2. Cp : dimensionless	0.84	0.84	0.84	
3. Pg : in. H2O	-8.8	-8.8	-8.8	
4. sqr(DP),avg : in.H2O^.5	0.7680	0.8492	0.7908	
5. ts : degrees F	224.33	222.67	219.00	222.00

Louisiana Pacific Corporation - Urania, Louisiana
RTO Inlet
VOC/HCOH Loading Test - May 12, 1995

Calculations:

	RUN 4	RUN 5	RUN 6	AVG.
1. Pm : in.Hg (DH/13.6)+Pbar	29.8603	29.8799	29.8812	
2. Ps : in. Hg (Pg/13.6)+Pbar	29.1282	29.1282	29.1282	
3. An : sq ft ((Dn/24)^2)(3.1416)	3.41E-04	3.41E-04	3.41E-04	
4. Vmstd : dscf Vm Y(Pm/Pstd)(Tstd/Tm)	29.613	31.951	29.075	
5. Vwstd : scf (.04707cf/ml)(Vlc)	6.402	7.249	6.872	
6. Bws : dimensionless Vwstd/(Vwstd+Vmstd)	0.1777	0.1849	0.1912	0.1846
7. Md : mol.wt. dry basis .44 CO2+.32 O2+.28(CO+N2)	29.3	29.3	29.3	
8. Ms : mol.wt. wet basis Md(1-Bws)+18 Bws	27.29	27.21	27.14	
9. Vs : ft/sec Kp Cp (sqrDP)sqr(Ts/(Ps Ms))	37.70	42.36	42.90	40.99
10. Q : cfm Vs As(60 sec/min)	44967	50521	51168	48885
11. Qstw : scfm Q(Ps/Pstd)(Tstd/Ts)	33908	37990	38309	36736
12. Qstd : dscfm Qstw(1-Bws)	27881	30965	30985	29944
13. I : percent [(100 Ts)(.002669 Vlc+(Vm Pm/Tm)]/(60 theta Vs Ps An)	103.23	100.29	91.20	98.24

Louisiana Pacific Corporation - Urania, Louisiana
RTO Inlet
VOC/HCOH Loading Test - May 12, 1995

Loading Calculations:

Formaldehyde Loading

	RUN 4	RUN 5	RUN 6	AVG.
14. E,HCOH : pounds/hr (M,HCOH/Vmstd)(Qstd)(60)/(453590000)	0.513	1.333	1.551	1.132
15. C,HCOH : ppm (M,HCOH/Vmstd)(.0283)	3.94	9.21	10.71	7.95

VOC Loading

16. C'VOC : ppm as Carbon, dry ((C,VOC)*3)/(1-Bws)	773.49	953.28	782.61	836.46
17. E,VOC : pounds/hr (C'VOC)(3.116e-8)(Qstd)(60)	40.32	55.19	45.34	46.95

	RUN 4	RUN 5	RUN 6	AVG.
No. 2 Dryer RTO Inlet				
1. Vs : ft/sec Kp Cp (sqrDP)sqr(Ts/(Ps Ms))	51.17	56.60	52.63	53.47
2. Q : cfm Vs As(60 sec/min)	61026	67496	62767	63763
3. Qstw : scfm Q(Ps/Pstd)(Tstd/Ts)	45839	50823	47517	48060
4. Qstd : dscfm Qstw(1-Bws)	37691	41425	38433	39183

Projected Combined Emission Rates

HCHO Loading

1. E,HCHO : No. 1 Inlet	0.51	1.33	1.55	1.13
No. 2 Inlet	0.84	2.19	2.38	1.80
Total	1.36	3.52	3.93	2.94

VOC Loading

	RUN 4	RUN 5	RUN 6	AVG.
2. E,VOC : No. 1 Inlet	40.32	55.19	45.34	46.95
No. 2 Inlet	66.29	90.58	69.53	75.46
Total	106.61	145.77	114.86	122.41

5.0 NOMENCLATURE

SYMBOL	UNITS	DESCRIPTION
An	ft^2	Nozzle cross sectional area
As	ft^2	Stack cross sectional area
Bws	dimensionless	Wet gas fraction
CO_2	percent	Carbon dioxide content by volume
CO	percent	Carbon monoxide content by volume
Cp	dimensionless	Pitot correction factor
C,X	as labeled	Concentration of pollutant X
DGF	dimensionless	Dry gas fraction
Dn	inches	Nozzle diameter
ΔH (delta H)	in. H_2O	Pressure drop across meter orifice
ΔP (delta P)	in. H_2O	Stack gas velocity pressure
E,X	#/hr	Emission rate of pollutant X
E'X	#/MM Btu	Emission rate of pollutant X
F	dscf	Volume of flue gas per MM Btu
I	percent	Nozzle velocity/stack gas velocity
Kp	consistent	Pitot tube constant
M,X	milligrams	Sample weight of polhutant X
Md	#/# mole	Dry molecular weight of stack gas
Ms	#/# mole	Wet molecular weight of stack gas
N2	percent	Nitrogen content by volume, dry basis
O_2	percent	Oxygen content by volume, dry basis
Pbar	in. Hg	Barometric pressure
Pg	in. Hg	Stack static pressure
Pm	in. Hg	Total pressure at meter (Pbar+(DH/13.6)
Ps	in. Hg	Total stack pressure (Pbar+(Pg/13.6))
Pstd	in. Hg	Standard barometric pressure = 29.92
Q	acfm	Volumetric flow rate at stack conditions
Qstd	dscfm	Volumetric flow rate at standard conditions, dry basis
Qstdw	scfm	Volumetric flow rate at standard conditions, wet basis
θ (theta)	minutes	Sample duration
tm	°F	Meter temperature (Tm denotes °R)
ts	°F	Stack temperature (Ts denotes °R)
Tstd	°R	Standard temperature = 528°R
Vlc	ml	volume of water collected
Vm	ft^3	Volume of dry gas sampled through meter
Vmstd	dscf	Sample volume at standard conditions
Vwstd	scf	Sample volume of water vapor
Y	dimensionless	Meter coefficient
Xsair	percent	Excess air

6.0 CALIBRATIONS:

Measurement devices used by Environmental Monitoring Laboratories and subject to changes in measurement precision are initially calibrated prior to use. Those instruments for which calibration factors are subject to change or for which calibration checks are required, are calibrated following each field use or as otherwise directed and noted. Calibration procedures for specific equipment are as follows.

Dry Gas Meter:

Dry gas meters are periodically removed from the sampling consoles and cleaned and repaired (new gaskets etc. as required). Following the overhaul of a meter, the measuring precision is checked by the Bell Prover Method and adjusted when necessary to read to within 2% of 100% accuracy. This service is provided by Big Three Meter Company in Jackson, Mississippi. Overhaul service or any six month period is followed by a five point calibration described in APTD-0576 using either a wet test meter or calibrated dry gas meter (used exclusively for calibrations) as a standard reference. Following field use, a gas meter calibration is checked in one of two ways. [1] Three calibration checks at intermediate orifice settings are performed or [2] orifice meter coefficients are used.

If a meter coefficient obtained from pre-test and post-test checks differs by more than 5%, the coefficient (Y) giving the lower sample volume is used in the calculations.

Orifice:

The orifice coefficient is initially determined and is rechecked following a major gas meter repair and calibration.

Nozzles:

Nozzles are checked before each field use with a precision (.001 in.) dial caliper. Three measurements on different axes are made; an average of those three readings is used in calculations. If the tolerance among measurements exceeds 0.004 inches (highest to lowest reading) the nozzle is repaired and recalibrated or discarded.

Pitot Tubes:

Pitot tubes meeting EPA geometry standards are assigned a coefficient of 0.84. Pitot tubes are visually inspected for damage before, during and after use. Those pitot tubes not meeting the geometry standards are assigned a coefficient from the manufacturer's calibration which it retains unless damaged. All pitot tubes used by Environmental Monitoring Laboratories are manufactured by NAPP, Inc.

Temperature Measuring Instruments:

Most temperature measurements are made with a type K thermocouple and an Omega digital thermocouple thermometer which has an initial calibration traceable to NBS. Other measurements are made using bimetallic dial thermometers. The thermocouples and dial thermometers are checked following or during a test series against an ASTM mercury in glass thermometer.

Barometer:

Aneroid field barometers are checked against and adjusted to readings from a mercury barometer or readings obtained from local weather authorities.

Differential Pressure Gauges:

Velocity head (delta P) and orifice pressure differential (delta H) measurements are made using water manometers of the appropriate range unless otherwise noted in the test data. Manometers do not require calibration.

7.0 APPENDICES

A. Field and Laboratory Data

B. Calibrations

C. Instrument Recorder Traces/Data Log

D. HCOH Analysis Report (Oxford Laboratories)

7.0 APPENDICES

APPENDIX A.

SAMPLING AND ANALYTICAL DATA

RTO OUTLET

STACK CONFIGURATION AND SAMPLE POINT LAYOUT FOR CIRCULAR STACKS

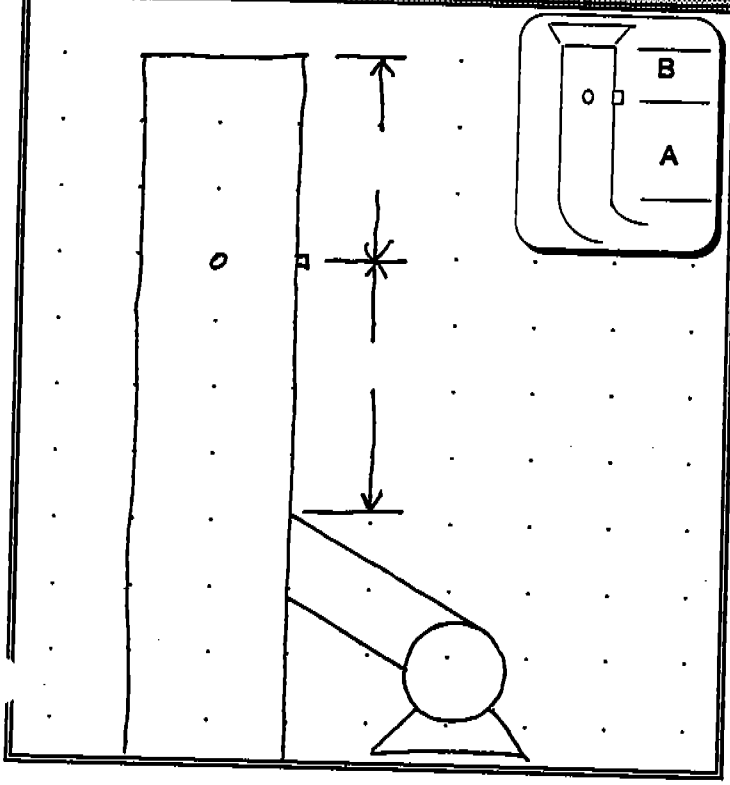
PLANT: L.P. - Urania OSB **Date:**

SOURCE: OSB RTO

TEST FOR: PM set up

TEST OPERATORS: Russell

SKETCH OF STACK



PERCENT OF DIAMETER

	points on a diameter							
	2	4	6	8	10	12	14	16
point no.								
1	14.6	6.7	4.4	3.2	2.6	2.1	1.8	1.6
2	85.4	25.0	14.6	10.5	8.2	6.7	5.7	4.9
3		75.0	29.6	19.4	14.6	11.8	9.9	8.5
4		93.3	70.4	32.3	22.6	17.7	14.6	12.5
5			85.4	67.7	34.2	25.0	20.1	16.9
6			95.6	80.6	65.8	35.6	26.9	22.0
7				89.5	77.4	64.4	36.6	28.3
8				96.8	85.4	75.0	63.4	37.5
9					91.8	82.3	73.1	62.5
10					97.4	88.2	79.9	71.7
11						93.3	85.4	78.0
12						97.9	90.1	83.1
13							94.3	87.5
14							98.2	91.5
15								95.1
16								98.4

Point No.	inches from wall	velocity head
1	1.8	
2	5.7	
3	10.1	
4	15.1	
5	21.3	
6	30.3	
7	54.9	
8	63.9	
9	70.2	
10	75.2	
11	79.5	
12	83.5	

STACK DIAMETER: 85.25

Distance from ports to disturbance:

A. to upstream disturbance

B. to downstream disturbance

Upstream diameters:

Downstream diameters:

Minimum No. sample points required:

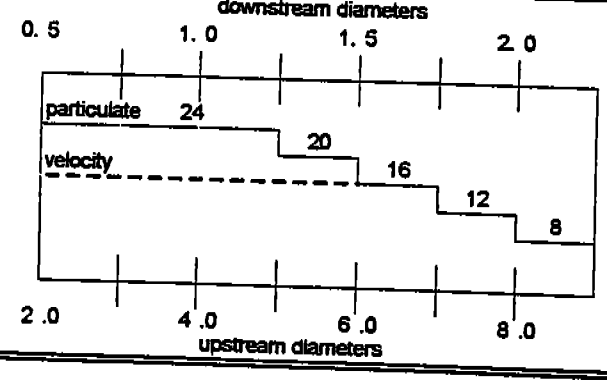
No. sample points selected:

Port Length:

Port Type:

Port Access:

MINIMUM NO. OF POINTS ON A DIAMETER



Pitot ID: Pitot Cp: Stack Temp:

Remarks:

Plant: Louisiana Pacific – Urania OSB
Sampling Location: DXB Dryer RTO
Test For: PM/CO/NOx
Test Operators: Rinaca / B. McKnight / Carruth

RUN No. 1
Date 5-11-95
Time start 1731 end 1836

Meter Box	RAC
Sample Box	No. 3
Probe/Pitot	7' ar
Pitot Cp	.84
Nozzle Dia.	.270
Filter No.	
Amb. Temp. °F	85
Bar. Press. "Hg	29.70
Static Press. "H_2O	-.40

No. Sample Pts.	12x2
Minutes/Pt.	2.5

NOMOGRAPH

ΔH@	1.90
Meter Temp.	100
% H_2O	18
C-Factor	.85
Stack Temp.	300
Ref. ΔP	.57

Gas Analysis	Fyrite
CO_2	3.0
O_2	17.5
CO	
Time	

Condensate: tare 200 fin 375
Silica gel: tare 682 fin 703

Remarks:
① .270
② .270 } Dn = .270
③ .270

Port Point	El. Time, Min.	DGM Reading, Ft.³	Velocity Head ΔP, in. H_2O	Orifice ΔH in. H_2O	Stack Temp. °F	Meter Temp. °F In	Meter Temp. °F Out	Oven Temp. °F	Imp. Temp. °F	Vac. in. Hg
1	0:00	748.410	0.81	2.75	301	85	81	268	64	2
2	2:30	750.5	0.84	2.90	291	83	82	265	60	2
3	5:00	752.8	0.92	3.20	300	85	82	265	58	2
4	7:30	755.0	0.89	3.05	293	87	85	255	54	2
5	10:00	757.2	0.91	3.10	297	91	88	250	54	2
6	12:30	759.8	0.88	3.05	298	93	87	247	54	2
7	15:00	762.1	0.94	3.25	202	94	88	249	56	2
8	17:30	764.4	1.05	3.75	285	96	89	253	56	2
9	20:00	767.0	1.15	4.00	302	94	89	251	57	2
10	22:30	769.5	0.83	2.80	287	100	91	247	57	2
11	25:00	771.5	0.80	2.70	250	104	92	250	56	2
12	27:30	773.8	0.84	2.90	231	109	89	250	55	2
1	30/0:00	775.884	0.67	2.25	288	107	88	253	50	2
2	2:30	778.0	0.66	2.25	247	100	93	250	54	2
3	5:00	780.5	0.62	2.20	298	102	94	252	56	2
4	7:30	782.6	0.48	1.65	298	107	101	250	56	2
5	10:00	785.0	0.47	1.60	303	107	99	249	56	2
6	12:30	787.6	0.52	1.80	287	110	101	248	56	2
7	15:00	789.8	1.10	3.90	301	113	102	250	56	2
8	17:30	792.6	1.20	4.25	291	119	98	251	58	2
9	20:00	794.6	1.20	4.25	300	125	101	252	60	2
10	22:30	797.1	1.20	4.25	281	120	101	257	66	2
11	25:00	799.7	1.00	3.50	268	130	103	250	62	2
12	27:30	802.1	1.00	3.50	288	132	104	244	60	2
end	60	804.490								
		56.080	.9272	3.0342	287.04	98.56				

Leak check .025 → .025 = .004 @ 7" Hg

pitot +ve 6.2
pitot –ve 6.2

Plant	LOUISIANA PACIFIC CO. URANIA, LA. OSB
Sampling Location	OSB DRYERS RTO.
Test For	PM / CO / NOx
Test Operators	RUSSELL / B. McKNIGHT / CARRUTH
RUN No.	2
Date	5-12-95
Time start	0753
end	0858

Meter Box	RAC
Sample Box	NO. 2
Probe/Pitot	7' SS
Pitot Cp	.84
Nozzle Dia.	.270
Filter No.	
Amb. Temp. °F	65°
Bar. Press. "Hg	29.69
Static Press. "H_2O	

No. Sample Pts.	12 x 2
Minutes/Pt.	2.5
NOMOGRAPH	
ΔH@	1.50
Meter Temp.	100
% H_2O	18
C-Factor	.86
Stack Temp.	300
Ref. Δ P	.54

Gas Analysis	Fyrite
CO_2	2
O_2	17.5
CO	
Time	
Condensate: tare	200
fin	382
Silica gel: tare	718
fin	734

Remarks:

Port	Point	El. Time, Min.	DGM Reading, Ft.³	Velocity Head Δ P, in. H_2O	Orifice Δ H in. H_2O	Stack Temp. °F	Meter Temp., °F In	Meter Temp., °F Out	Oven Temp. °F	Imp. Temp. °F	Vac. in. Hg
1	1	0:00	826.862	0.85	3.00						
	2	2:30	829.6	0.85	3.00	285	71	68	253	52	2
	3	5:00	831.5	0.91	3.20	302	77	70	252	52	2
	4	7:30	833.9	0.89	3.05	291	78	71	254	52	2
	5	10:00	836.4	0.94	3.25	309	84	73	251	52	2
	6	12:30	838.8	0.90	3.10	300	88	75	251	52	2
	7	15:00	841.2	0.98	3.40	301	93	69	248	52	2
	8	17:30	843.6	1.20	4.20	302	101	69	247	52	2
	9	20:00	846.7	1.10	3.80	302	103	72	246	53	2
	10	22:30	849.2	0.92	3.20	299	105	77	252	53	2
	11	25:00	851.9	0.84	2.90	286	110	79	252	53	2
	12	27:30	854.1	0.85	3.00	285	113	84	248	53	2
						284	112	77	257	53	2
2	1	30:00	856.591	0.74	2.55						
	2	2:30	858.7	0.70	2.40	289	109	84	255	53	2
	3	5:00	860.9	0.52	1.80	305	111	83	252	53	2
	4	7:30	862.7	0.34	1.85	289	113	88	250	53	2
	5	10:00	864.5	0.34	1.15	304	113	86	251	53	2
	6	12:30	866.1	0.50	1.70	291	113	88	253	53	2
	7	15:00	867.6	1.40	4.90	297	118	90	253	53	2
	8	17:30	870.2	1.50	5.25	303	116	90	249	53	2
	9	20:00	873.2	1.40	4.80	299	121	91	247	53	2
	10	22:30	876.5	1.30	4.50	294	123	97	250	53	2
	11	25:00	879.2	1.10	3.80	289	131	100	251	53	2
	12	27:30	882.4	1.10	3.80	250	133	99	248	53	2
END		60:00	884.861			254	~~135~~	102	248	53	2
			52.939	.9463	3.2042	292.08	99.85				

LEAK CHECK: .058 → .060 = .002

~~total ΔP~~ 6.8

~~ΔH total P~~ 6.9

Plant LOUISIANA PACIFIC CO. URANIA, LA. OSB

Sampling Location OSB DRYERS RTO

Test For PM / CO / NOx

Test Operators McKNIGHT / CARRUTH

RUN No. 3

Date 5-12-95

Time start 0947 end 1048

Meter Box	RAC
Sample Box	NO. 3
Probe/Pitot	7' SS.
Pitot Cp	.84
Nozzle Dia.	.270
Filter No.	
Amb. Temp. °F	65
Bar. Press. "Hg	29.69
Static Press. "H_2O	

No. Sample Pts.	12x2
Minutes/Pt.	2.5
NOMOGRAPH	
ΔH@	1.96
Meter Temp.	100
% H_2O	18
C-Factor	.86
Stack Temp.	360
Ref. Δ P	.54

Gas Analysis FYRITE

CO_2	3		
O_2	~~10~~ 17.5		
CO			
Time			

Condensate: tare 200 fin 415

Silica gel: tare 686 fin 714

Remarks:

Port	Point	El. Time, Min.	DGM Reading, Ft.³	Velocity Head Δ P, in. H_2O	Orifice Δ H in. H_2O	Stack Temp. °F	Meter Temp., °F In	Meter Temp., °F Out	Oven Temp. °F	Imp. Temp. °F	Vac in. Hg
1	1	000	885.069	0.84	2.90						
	2	230	887.2	0.82	[illegible].90	296	89	87	249	58	2
	3	500	889.6	0.85	2.95	291	90	87	251	58	2
	4	730	892.1	0.86	3.00	300	93	87	247	58	2
	5	1000	894.6	6.90	3.10	284	97	85	247	58	2
	6	1230	896.9	0.95	3.30	298	98	88	252	58	2
	7	1500	899.6	0.92	3.20	289	102	85	249	58	2
	8	1730	901.8	0.90	3.10	306	107	89	245	58	2
	9	2000	904.5	1.10	3.80	288	114	91	220	58	2
	10	2230	707.0	0.90	3.10	307	112	82	220	58	2
	11	2500	909.7	0.97	3.40	286	113	91	244	58	2
	12	2730	912.1	0.90	3.10	291	115	82	265	58	2
						289	121	83	251	58	2
2	1	30/00	914.651	0.55	1.90						
	2	230	916.9	0.58	2.00	289	117	91	248	58	2
	3	500	918.5	0.45	1.55	296	117	94	254	58	2
	4	730	920.3	0.38	1.30	291	118	94	248	58	2
	5	1000	922.0	0.30	1.05	285	118	94	252	58	2
	6	1230	923.6	0.45	1.55	287	121	96	253	58	2
	7	1500	925.3	1.40	4.90	282	128	94	253	58	2
	8	1730	928.2	1.60	5.50	296	132	96	247	58	2
	9	2000	931.6	1.50	5.20	289	133	96	250	57	2
	10	2230	934.5	1.40	4.90	292	127	96	251	57	2
	11	2500	938.2	1.30	4.60	277	131	100	251	57	2
	12	2730	940.4	1.00	3.50	282	135	102	249	57	2
		[illegible]	943.652			282	136	102	249	57	2
			58.583	.9350	3.1583	290.38	103.96				

LEAK CHECK: .000 → .005 = .005 cfm @ 6"Hg

+ pitot-p 6.8

− pitot-p 6.9

Plant: LOUISIANA PACIFIC CO. [illegible], LA. OSB
Sampling Location: OSB DRYERS RTO
Test For: HCHO / VOC
Test Operators: G. McKNIGHT / [illegible]

RUN No. 4
Date: 5-12-95
Time start: 1323 end: 1423

Meter Box	RAC
Sample Box	NO. 2
Probe/Pitot	7' [illegible]
Pitot Cp	.84
Nozzle Dia.	.264
Filter No.	
Amb. Temp. °F	68°
Bar. Press. "Hg	29.79
Static Press. "H_2O	

No. Sample Pts.	12x2
Minutes/Pt.	2.5
NOMOGRAPH	
ΔH@	1.90
Meter Temp.	100
% H_2O	18
C-Factor	.86
Stack Temp.	300
Ref. Δ P	.58

Gas Analysis: FYRITE
CO_2: 2.5
O_2:
CO:
Time:

Condensate: tare Remarks fin
Silica gel: tare Remarks fin

Remarks:

Impingers:	Tare	Final
1) DNPH	572	708
2) DNPH	608	637
3) MT	483	486
4) SGel	740	753

0.264 (Qtz)
0.264
0.264 } Dn = .264

Port Point	El. Time, Min.	DGM Reading, Ft.³	Velocity Head Δ P, in. H_2O	Orifice Δ H in. H_2O	Stack Temp. °F	Meter Temp., °F In	Meter Temp., °F Out	Oven Temp. °F	Imp. Temp. °F	Vac in. Hg
1	0:00	943.910	0.85	3.00	297	91	79	N/A	58	2
2	2:30	945.8	0.86	2.80	303	79	77		58	2
3	5:00	948.5	0.85	3.00	306	83	78		58	2
4	7:30	950.7	0.86	2.70	303	95	78		58	2
5	10:00	955.8	0.86	2.70	301	98	82		58	2
6	12:30	956.140	0.88	2.80	300	101	84		58	2
7	15:00	957.6	0.82	2.60	303	103	81		58	2
8	17:30	959.7	0.90	2.80	300	107	82		58	2
9	20:00	962.1	0.85	2.70	311	111	84		58	2
10	22:30	964.3	0.95	3.00	301	114	84		58	2
11	25:00	966.9	0.93	2.95	308	116	85		58	2
12	27:30	969.2	0.88	2.80	304	115	78		58	2
1	30:00	971.368	0.30	0.85	309	114	89		58	2
2	2:30	972.6	0.28	0.87	309	118	88		58	2
3	5:00	974.0	0.30	0.85	305	116	90		58	2
4	7:30	975.0	0.50	1.40	306	115	91		58	2
5	10:00	976.7	0.56	1.75	300	116	91		58	2
6	12:30	978.6	0.86	2.70	308	120	94		58	2
7	15:00	980.8	1.40	4.40	307	123	95		58	2
8	17:30	983.5	1.40	4.40	310	127	95		58	2
9	20:00	986.5	1.40	4.40	291	131	96		58	2
10	22:30	989.5	1.20	3.80	311	134	100		58	2
11	25:00	992.4	1.10	3.45	294	136	103		58	2
12	27:30	994.8	1.10	3.45	309	136	103		58	2
end	60:00	997.501							58	2
		53.591	.9153	2.7659	303.54	100.18				

LEAK CHECK: .011 → .015 = .004 cfm @ 8" Hg

Total Vo 6.5
Total [illegible] 6.8

Plant: LOUISIANA PACIFIC CO. URANIA LA OSB

Sampling Location: OSB DRYERS RO

Test For: HC HO/VOC

Test Operators: D.MCKNIGHT / CHARLUTH

RUN No. 5

Date: 5-12-95

Time start 1454 end 1555

Meter Box	RAC
Sample Box	No. 3
Probe/Pitot	7' tefgtz
Pitot Cp	.84
Nozzle Dia.	.244
Filter No.	
Amb. Temp. °F	70°
Bar. Press. "Hg	29.79
Static Press. "H_2O	

No. Sample Pts.	12x2
Minutes/Pt.	2.5
NOMOGRAPH	
ΔH@	1.90
Meter Temp.	100
% H_2O	18
C-Factor	.86
Stack Temp.	300
Ref. ΔP	.58

Gas Analysis: FYRITE

CO_2	2.5
O_2	
CO	
Time	

Condensate: tare Remarks fin

Silica gel: tare Remarks fin

Remarks:

Impingers:	Tare	Final
1) DNPH	592	705.5
2) DNPH	592	645
3) MEA	494.5	499.5
4) S.Gel	687.5	709.0

Port	Point	El. Time, Min.	DGM Reading, Ft.³	Velocity Head ΔP, in. H_2O	Orifice ΔH in. H_2O	Stack Temp. °F	Meter Temp., °F In	Meter Temp., °F Out	Oven Temp. °F	Imp. Temp. °F	Vac. in. Hg
1	1	00	997.821	0.95	3.00						
	2	230	002.1	0.85	2.70	291	102	97	N/A	58	2
	3	500	002.4	0.85	2.70	306	104	98		58	2
	4	730	004.7	0.81	2.66	293	107	92		58	2
	5	1000	007.0	0.90	2.80	306	113	95		58	2
	6	1230	009.3	0.80	2.50	296	115	100		58	2
	7	1500	011.5	0.80	2.50	311	120	98		58	2
	8	1730	013.7	0.90	2.80	300	122	98		58	2
	9	2000	016.0	0.84	2.60	307	128	100		58	2
	10	2230	018.3	0.90	2.80	305	127	100		58	2
	11	2500	020.6	0.90	2.80	307	132	99		58	2
	12	2730	022.8	0.90	2.80	303	129	98		58	2
						311	131	102		58	2
	1	30/00	025.230	0.35	1.10						
	2	230	026.8	0.32	1.00	316	129	101		58	2
	3	500	028.2	0.30	0.95	315	129	98		58	2
	4	730	029.8	0.40	1.25	314	128	100		58	2
	5	1000	031.7	0.50	1.60	300	125	107		58	2
	6	1230	033.3	0.77	2.45	313	128	103		58	2
	7	1500	035.5	1.30	4.10	308	130	104		58	2
	8	1730	037.9	1.40	4.40	310	133	105		58	2
	9	2000	041.1	1.40	4.40	309	134	106		58	2
	10	2230	043.9	1.10	3.50	310	138	110		58	2
	11	2500	046.7	1.20	3.80	304	145	106		58	2
	12	2730	049.2	1.20	3.80	304	143	108		58	2
	00	60/00	052.420			305	142	112		58	2

LEAK CHECK: .081 → .085 = .004 @ 7"Hg

+ pitot ✓ 58

− pitot ✓ 58

54.599 .9098 2.7088 306.00 114.02

Plant LOUISIANA PACIFIC CO. URANIA, LA. OSB

Sampling Location OSB DRYERS RTO

Test For HCHO / VOC

Test Operators McKNIGHT / [illegible]

RUN No. 6

Date 5-12-95

Time start 1613 end 1714

Meter Box	RAC
Sample Box	NO.
Probe/Pitot	7' ref.
Pitot Cp	.84
Nozzle Dia.	.264
Filter No.	
Amb. Temp. °F	70°
Bar. Press. "Hg	29.79
Static Press. "H_2O	-.38

No. Sample Pts.	12x2
Minutes/Pt.	2.5
NOMOGRAPH	
ΔH@	1.90
Meter Temp.	100
% H_2O	18
C-Factor	.86
Stack Temp.	300
Ref. ΔP	.58

Gas Analysis

CO_2 .03

O_2

CO

Time

Condensate: tare ___ fin ___

Silica gel: tare ___ fin ___

Remarks:

impingers:	tare	final
1) DNPH	575	723.5
2) DNPH	605	640
3) MT	482	487
4) S.Gel	64[illegible]	715.0

Port Point	El. Time, Min.	DGM Reading, Ft.³	Velocity Head ΔP, in. H_2O	Orifice ΔH in. H_2O	Stack Temp. °F	Meter Temp., °F In	Meter Temp., °F Out	Oven Temp. °F	Imp. Temp. °F	Vac. in. Hg
1	000	052.750	0.90	2.80	314	113	106	N/A	56	2
2	230	055.0	0.86	2.70	306	116	102		56	2
3	500	057.4	0.92	2.90	308	119	112		56	2
4	730	059.8	0.90	2.80	305	120	104		56	2
5	1000	062.2	0.88	2.80	314	117	108		56	2
6	1230	064.3	0.90	2.80	297	120	108		56	2
7	1500	067.0	0.85	2.70	311	125	108		56	2
8	1730	069.1	0.80	2.50	300	125	97		56	2
9	2000	071.4	0.90	2.80	311	126	105		56	2
10	2230	073.9	0.90	2.80	298	127	105		56	2
11	2500	076.2	0.80	2.50	315	128	109		56	2
12	2730	078.3	0.76	2.40	299	132	105		56	2
1	30/00	080.706	0.35	1.10	304	132	105		56	2
2	230	082.3	0.30	0.94	309	124	109		56	2
3	500	083.6	0.32	1.00	308	124	109		56	2
4	730	084.7	0.25	0.78	318	122	106		56	2
5	1000	086.3	0.58	1.80	294	120	111		56	2
6	1230	088.1	0.80	2.50	301	121	101		56	2
7	1500	090.2	1.10	3.50	295	121	110		56	2
8	1730	092.8	1.30	4.10	310	124	115		56	2
9	2000	095.7	1.30	4.10	297	127	113		56	2
10	2230	098.5	1.10	3.20	306	130	111		56	2
11	2500	101.4	1.10	3.20	299	136	112		56	2
12	2730	103.6	1.10	3.20	307	132	112		56	2
END	60/00	106.428								
		53.678	.8797	2.5800	305.25	115.92				

LEAK CHECK: .054 → .058 = .004 @ 8 "Hg

+ pitot - 0 5.9

- pitot - 0 6.4

PARTICULATE CATCH ANALYSIS

SAMPLES: L.P. - Uranium OSB RTO

DATE TAKEN: 5-12-95 DATE ANALYZED: 5-14-95

DELIVERED BY: DGR RECEIVED BY: DGR

ANALYZED BY: DGR

(Attach chain of custody if additional exchanges occur)

FILTERS:

RUN NO.	1	2	3	
FILTER NO.	2715	2711	2718	
FILTER TARE, gms.	.5713	.5576	.5608	
	.5855	.5676	.5787	
	.5856	5676	.5787	
FINAL WEIGHT, gms.	.5856	.5676	.5787	
NET GAIN, gms.	.0143	.0100	.0179	

PROBE WASH:

RUN NO.	1	2	3	
CONTAINER I.D.	RTO R1	RTO R2	RTO R2	
VOLUME INTACT?	✓	✓	✓	
VOLUME, ml	190	170	170	
TARE WEIGHT, gms.	(7) 111.5403	(56) 105.8162	(65) 114.7832	( ) 109.6115
	111.5559	105.8261	114.8008	109.6116
	111.5554	105.8258	114.8005	109.6113
FINAL WEIGHT, gms	111.5554	105.8258	114.8005	109.6116
NET GAIN, gms.	.0151	.0096	.0173	-0-
LESS BLANK, gms.	-0-	-0-	-0-	

PARTICULATE SAMPLE WEIGHT:

RUN NO.	1	2	3	
filter + probe, mg.	29.4	19.6	35.2	

BACK HALF PARTICULATE CATCH ANALYSIS

Methylene Chloride Extraction

SAMPLES: L.P.-Urania OSB RTO

DATE TAKEN: 5-12-95 DATE ANALYZED: 5-17-95

DELIVERED BY: [illegible] RECEIVED BY: [illegible]

ANALYZED BY: [illegible]

(Attach chain of custody if additional exchanges occur)

RUN NO.	1	2	3	
CONTAINER I.D.	RTO R1 BAK	RTO R2 BAK	RTO R3 BAK	
VOLUME INTACT?	✓	✓	✓	
VOLUME, ml	400	400	450	

Organic Fraction

	(B)	(87)	( )	( )
TARE WEIGHT, gms.	101.6403	107.2286	109.6222	
	101.6459	107.2310	109.6280	
	101.6455	107.2313	109.6285	
FINAL WEIGHT, gms.	101.6455	107.2313	109.6285	
less blank, gms.				
NET GAIN, milligrams	5.2	2.7	6.3	

Aqueous Fraction

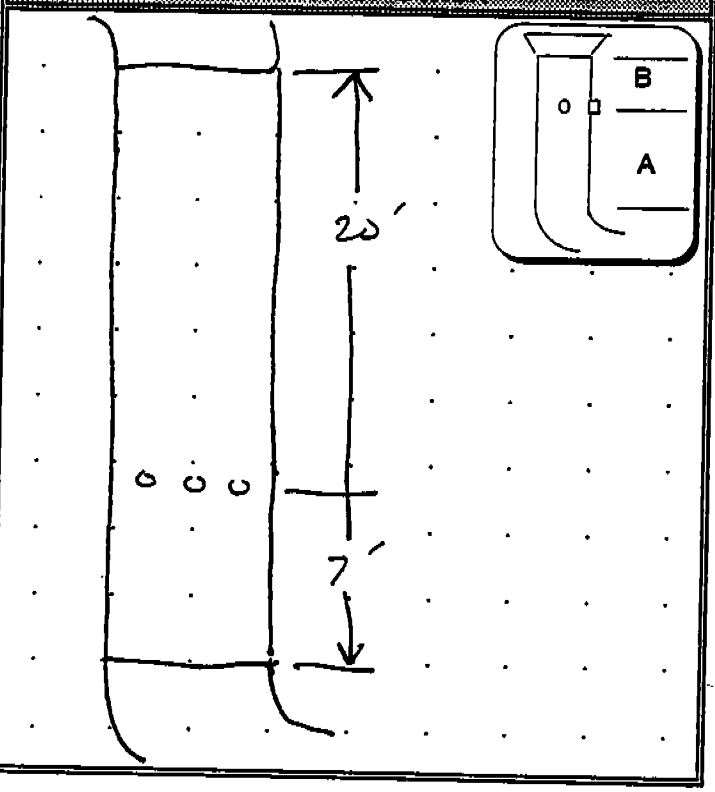
	(L)	(45)	( )	( )
TARE WEIGHT, gms.	98.8218	107.2491	114.0145	
	98.8287	107.2520	114.0178	
	98.8284	107.2520	114.0177	
FINAL WEIGHT, gms.	98.8284	107.2520	114.0177	
less blank, gms.				
NET GAIN, milligrams	6.6	2.9	3.2	

RTO INLET

STACK CONFIGURATION AND SAMPLE POINT LAYOUT FOR CIRCULAR STACKS

PLANT: LOUISIANA PACIFIC CO. URANIA, LA, - OSB **Date:** 5-11-95
SOURCE: OSB DRYERS RTO 2&1
TEST FOR: PM / CO / NOx
TEST OPERATORS:

SKETCH OF STACK



PERCENT OF DIAMETER

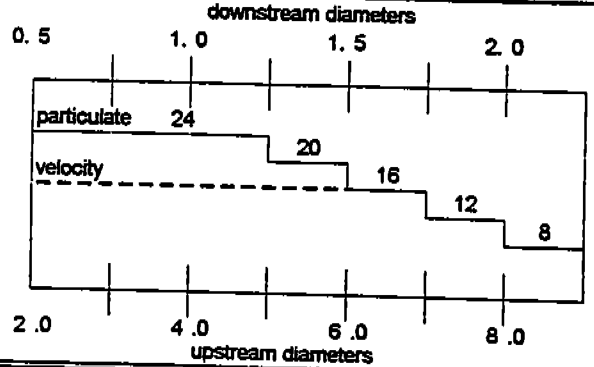
point no.	2	4	6	8	10	12	14	16
1	14.6	6.7	4.4	3.2	2.6	2.1	1.8	1.6
2	85.4	25.0	14.6	10.5	8.2	6.7	5.7	4.9
3		75.0	29.6	19.4	14.6	11.8	9.9	8.5
4		93.3	70.4	32.3	22.6	17.7	14.6	12.5
5			85.4	67.7	34.2	25.0	20.1	16.9
6			95.6	80.6	65.8	35.6	26.9	22.0
7				89.5	77.4	64.4	36.6	28.3
8				96.8	85.4	75.0	63.4	37.5
9					91.8	82.3	73.1	62.5
10					97.4	88.2	79.9	71.7
11						93.3	85.4	78.0
12						97.9	90.1	83.1
13							94.3	87.5
14							98.2	91.5
15								95.1
16								98.4

(points on a diameter)

Point No.	inches from wall	velocity head ΔP 1	2	3
1	6.7	.44		
2	20.1	.46		
3	33.4	.70		
4	46.8	.55		

STACK DIAMETER: 53.5 x 53.5
Distance from ports to disturbance:
A. to upstream disturbance
B. to downstream disturbance
Upstream diameters: 4.5
Downstream diameters: 1.6
Minimum No. sample points required:
No. sample points selected: 12 (3x4)
Port Length:
Port Type:
Port Access:

MINIMUM NO. OF POINTS ON A DIAMETER



Pitot ID: Pitot Cp: Stack Temp: [illegible]
Remarks: 200

Plant: Louisiana Pacific Co. Urania LA.
Sampling Location: OSB Dryers RTO Inlet
Test For: PM / CO / NOx
Test Operators: Russell / B. McKnight / G. McKnight

RUN No. 1
Date 5-11-95
Time start 1731 end 1834

Meter Box	Anderson	No. Sample Pts.	4X3	Gas Analysis	
Sample Box	NO. 1	Minutes/Pt.	5.0	CO_2	2.5
Probe/Pitot	5' S.S.			O_2	18
Pitot Cp	.84	NOMOGRAPH		CO	
Nozzle Dia.	.210	ΔH@	1.75	Time	
Filter No.		Meter Temp.	100		
		% H_2O	21	Condensate:	
Amb. Temp. °F	85	C-Factor	75	tare 200	fin 292
Bar. Press. "Hg	29.76	Stack Temp.	200	Silica gel:	712 / 719
Static Press. "H_2O	-9.1	Ref. Δ P	1.5	tare ~~682~~	fin ~~703~~

Remarks:

Port	Point	El. Time, Min.	DGM Reading, Ft.³	Velocity Head Δ P, in. H_2O	Orifice Δ H in. H_2O	Stack Temp. °F	Meter Temp., °F In	Meter Temp., °F Out	Oven Temp. °F	Imp. Temp. °F	Vac. in. Hg
1	1	0.00	466.100	0.57	0.70	206	83	82	221	58	2
	2	5.00	468.7	0.66	0.82	206	88	82	256	58	2
	3	10.00	470.4	0.54	0.65	203	93	83	257	58	2
	4	15.00	472.9	0.45	0.55	206	96	86	252	58	2
					.35						
2	1	20/0.00	475.182	0.29	~~3.50~~	209	97	91	252	58	2
	2	5.00	477.0	0.42	0.52	212	99	94	254	58	2
	3	10.00	479.1	0.41	0.51	215	103	98	257	58	2
	4	15.00	481.3	0.35	0.43	200	103	104	255	58	2
					.37						
3	1	40/0.00	482.990	0.30	~~3.80~~	208	110	105	250	58	2
	2	5.00	484.9	0.32	0.40	209	113	107	252	58	2
	3	10.00	487.0	0.30	~~3.27~~	209	114	108	256	58	2
	4	15.00	488.9	0.24	0.30	209	113	109	256	58	2
END		60/0	490.563								

Leak check: .015 → .018 = .003 cfm @ 7"Hg

+ pitot ΔP 6.8
− pitot ΔP 6.5

24.463 .6285 1.5483 202.67 98.38

Plant	LOUSIANA PACIFIC CORP URANIA LA, OSB
Sampling Location	OSB DRYERS RTO INLET
Test For	PM / CO / NO_x
Test Operators	RUSSELL / B. MCKNIGHT / G. MCKNIGHT
RUN No.	2
Date	5-[illegible]-95
Time start	0753 end 0900

Meter Box	ANDERSEN	No. Sample Pts.	3X4	Gas Analysis	Fyrite
Sample Box	NO. 4	Minutes/Pt.	5.0	CO_2	2.5
Probe/Pitot	5' SS.			O_2	18
Pitot Cp	.84	NOMOGRAPH		CO	
Nozzle Dia.	.240	ΔH@	1.75	Time	
Filter No.		Meter Temp.	100		
		% H_2O	16	Condensate:	
Amb. Temp. °F	[illegible]	C-Factor	.79	tare 200	fin 345
Bar. Press. "Hg	29.70	Stack Temp.	200	Silica gel:	
Static Press. "H_2O	-9.0	Ref. ΔP	0.79	tare 697	fin 706

Remarks: HIGH VAC 576.586

Port	Point	El. Time, Min.	DGM Reading, Ft.³	Velocity Head ΔP, in. H_2O	Orifice ΔH in. H_2O	Stack Temp. °F	Meter Temp. °F In	Meter Temp. °F Out	Oven Temp. °F	Imp. Temp. °F	Vac in. Hg
1	1	000	490.845	0.20	0.47	172	67	65	254	50	2
	2	500	492.9	0.36	0.85	176	73	66	257	50	2
	3	1000	495.5	0.26	0.60	179	82	67	256	50	2
	4	1500	497.5	0.14	0.33	181	85	71	258	50	2
2	1	2000	499.591	0.40	0.95	181	90	76	259	50	2
	2	500	502.3	0.42	0.98	185	96	80	257	50	2
	3	1000	505.2	0.30	0.70	186	97	84	253	50	2
	4	1500	507.7	0.22	0.57	187	98	87	251	50	2
3	1	4000	509.900	0.85	[illegible] 50	182	103	91	253	50	2
	2	500	513.3	0.54	1.25	225	104	91	257	50	2
	3	000	515.7	0.45	1.10	230	105	91	200	50	15
	4	1500	518.6	0.60	1.40	230	105	91	205	50	
	010	6000	522.371								

LEAK CHECK: .020 → .022 = .002 @ 15" Hg

+ pitot 3.9
− pitot 4.5

			31.526	.6013	.8917	192.83	86.04				

Plant	LOUISIANA PACIFIC CO. URANIA LA. OSB.	RUN No.	3
Sampling Location	OSB DRYERS RTO INLET	Date	5-12-95
Test For	PM / CO / NOx	Time start	0946 end 1047
Test Operators	RUSSELL / B. MCKNIGHT / F. MCKNIGHT		

Meter Box	ANDERSEN	No. Sample Pts.	3X4	Gas Analysis	FYRITE
Sample Box	NO. 1	Minutes/Pt.	5.0	CO_2	2.50
Probe/Pitot	5 ft. s.s.			O_2	18.0
Pitot Cp	.84	NOMOGRAPH		CO	
Nozzle Dia.	.240	ΔH@	1.75	Time	
Filter No.		Meter Temp.	100		
		% H_2O	16	Condensate:	tare 200 fin 364
Amb. Temp. °F	65	C-Factor	.79		
Bar. Press. "Hg	29.70	Stack Temp.	200	Silica gel:	
Static Press. "H_2O	-9.0	Ref. ΔP	0.79		tare 702 fin 713

Remarks:

Port	Point	El. Time, Min.	DGM Reading, Ft.³	Velocity Head ΔP, in. H_2O	Orifice ΔH in. H_2O	Stack Temp. °F	Meter Temp. °F In	Meter Temp. °F Out	Oven Temp. °F	Imp. Temp. °F	Vac. in. Hg
1	1	0.00	523.243	0.65	1.50	194	79	82	247	58	2
	2	5.00	526.3	0.50	1.15	212	88	80	265	58	2
	3	10.00	529.4	0.45	1.05	212	93	80	262	58	2
	4	15.00	532.4	0.45	1.05	200	98	82	260	58	2
2	1	20/0.00	535.652	0.45	1.05	204	101	86	242	58	2
	2	5.00	538.5	0.38	0.90	218	104	88	258	58	2
	3	10.00	541.2	0.30	0.70	218	105	91	259	58	2
	4	15.00	543.8	0.50	1.15	200	107	91	261	58	2
3	1	40/0.00	546.210	0.30	0.70	210	105	91	258	57	2
	2	5.00	549.7	0.32	0.75	215	107	91	245	57	2
	3	10.00	552.2	0.22	0.57	200	110	100	244	57	2
	4	15.00	554.5	0.15	0.35	260	109	101	259	57	2
	END	60.00	556.120								

LEAK CHECK: .068 → .072 = .004 cfm @ 7 1/2

+ pitot ΔP 6.8
− pitot ΔP 6.9

	33.377	.6139	.9050	206.92	94.54

PARTICULATE CATCH ANALYSIS

SAMPLES: L.P. - Illinois OSB RTO Outlet

DATE TAKEN: 5-12-95 DATE ANALYZED: 5-17-95

DELIVERED BY: DEQ RECEIVED BY: DEQ

ANALYZED BY: DEQ

(Attach chain of custody if additional exchanges occur)

FILTERS:

RUN NO.	1	2	3	
FILTER NO.	2770	2716	2717	
FILTER TARE, gms.	.5654	.5619 ~~.5586~~	.5586	
	.6789	.6810	.7852	
	.6787	.6811	.7848	
FINAL WEIGHT, gms.	.6787	.6811	.7848	
NET GAIN, gms.	.1133	.1192	.2262	

PROBE WASH:

RUN NO.	1	2	3	
CONTAINER I.D.	RTO N R1	RTO N R2	RTO N R3	
VOLUME INTACT?	✓	✓	✓	
VOLUME, ml	200	200	220	
TARE WEIGHT, gms.	(F) 97.5730	(2) 104.7543	(89) 106.4100	( )
	97.6960	104.8362	106.5659	
	97.6956	104.8263	106.5655	
FINAL WEIGHT, gms	97.6956	104.8263	106.5655	
NET GAIN, gms.	.1226	.0820	.1555	
LESS BLANK, gms.				

PARTICULATE SAMPLE WEIGHT:

RUN NO.	1	2	3	
filter + probe, mg.	235.9	201.2	381.7	

BACK HALF PARTICULATE CATCH ANALYSIS

Methylene Chloride Extraction

SAMPLES: L.P. - OSB RTO Inlet

DATE TAKEN: 5-12-95 DATE ANALYZED: 5/17/95

DELIVERED BY: DEL RECEIVED BY: DE

ANALYZED BY: DEL

(Attach chain of custody if additional exchanges occur)

RUN NO.	1	2	3	
CONTAINER I.D.	RTO N R1 BAK	RTO N R2 BAK	RTO N R3 BAK	
VOLUME INTACT?	✓	✓	✓	
VOLUME, ml	320	400	400	

Organic Fraction

TARE WEIGHT, gms.	(26) 98.6611	(71) 115.8185	(80) 107.9636	( )
	98.1680	~~115.8267~~	107.9840	
	98.6676	115.8276	107.9837	
		115.8278		
FINAL WEIGHT, gms.	98.6676	115.8278	107.9837	
less blank, gms.				
NET GAIN, milligrams	6.5	9.3	20.1	

Aqueous Fraction

TARE WEIGHT, gms.	(61) 113.9825	(67) 111.4650	(K) 97.6483	( )
	113.9860	111.4677	97.6566	
	113.9860	111.4641	97.6564	
FINAL WEIGHT, gms.	113.9860	111.4681	97.6564	
less blank, gms.				
NET GAIN, milligrams	3.5	3.0	8.1	

Plant Louisiana Pacific - Urania OSB
Sampling Location OSB Dryer No. RTO Inlet
Test For HCHO / VOC
Test Operators Russell / B. McKnight / G. McKnight

RUN No. 4
Date 5-12-95
Time start 1322 end 1422

Meter Box: Andersen
Sample Box: No. 4
Probe/Pitot: 5' teflon
Pitot Cp: .84
Nozzle Dia.: .250 QTZ
Filter No.:

Amb. Temp. °F: 68°
Bar. Press. "Hg: 29.79
Static Press. "H_2O: -9.0

No. Sample Pts.: 3x4
Minutes/Pt.: 5.0

NOMOGRAPH
ΔH@: 1.75
Meter Temp.: 100
% H_2O: 16
C-Factor: .79
Stack Temp.: 200
Ref. ΔP: .62

Gas Analysis: Fyrite
CO_2: 4.0
O_2: 16.5
CO:
Time:

Condensate: tare Remarks fin
Silica gel: tare Remarks fin

Remarks:

impingers	Tare	Final
1) DNPH	595	701
2) DNPH	581	598
3) MT	474.5	476
4) S.Gel	706	717.5

Port Point	El. Time, Min.	DGM Reading, Ft.³	Velocity Head ΔP, in. H_2O	Orifice ΔH in. H_2O	Stack Temp. °F	Meter Temp. °F In	Meter Temp. °F Out	Oven Temp. °F	Imp. Temp. °F	Vac. in. Hg
1	0	557.301	0.30	0.70	208					
2	5	559.5	0.30	0.70	230	72	72	N/A	58	2
3	10	561.7	0.24	0.76	210	77	72		58	2
4	15	564.5	0.18	0.57	200	88	76		58	2
						95	78		58	2
1	20/0	566.650	0.40	1.20						
2	5	569.7	0.35	1.05	218	98	82		58	2
3	10	572.6	0.22	0.65	233	101	86		58	2
4	15	575.1	0.20	0.60	228	102	90		58	2
					230	102	93		58	2
1	40/0	577.2	0.50	1.50						
2	5	580.6	0.50	1.50	234	108	97		58	2
3	10	583.6	0.42	1.25	234	111	99		58	2
4	15	586.5	0.35	1.05	233	109	101		58	2
end	60	588.338			202	105	101		58	2

LEAK CHECK: .087 → .089 = .002 cfm @ 6" Hg

~~total ΔP 6.3~~
~~total ΔH 6.8~~

31.037	.5670	.9567	221.67		92.29

Plant: Louisiana Pacific - Urania OSB
Sampling Location: RTO Inlet
Test For: HCHO / VOC
Test Operators: Russell / B. McKnight / G. McKnight

RUN No. 5
Date 5-12-95
Time start 1453 end 1554

Meter Box	Anderson	No. Sample Pts.	4x3	Gas Analysis	Fyrite
Sample Box	NO.1	Minutes/Pt.	5	CO_2	2.0
Probe/Pitot	5' Teflon	NOMOGRAPH		O_2	18.0
Pitot Cp	.840	ΔH@	1.75	CO	
Nozzle Dia.	.250 Qtz	Meter Temp.	100	Time	
Filter No.		% H_2O	16		
Amb. Temp. °F	68	C-Factor	.79	Condensate: tare Remarks fin	
Bar. Press. "Hg	29.79	Stack Temp.	200	Silica gel: tare Remarks fin	
Static Press. "H_2O		Ref. Δ P	.62		

Remarks:

impingers:	tare	final
1) DNPH	586	688
2) DNPH	592	610.5
3) MT	4886	4895
4) S.Gel	702	712

Port Point	El. Time, Min.	DGM Reading, Ft.³	Velocity Head Δ P, in. H_2O	Orifice Δ H in. H_2O	Stack Temp. °F	Meter Temp., °F In	Meter Temp., °F Out	Oven Temp. °F	Imp. Temp. °F	Vac. in. Hg
1	0	588.969	0.57	1.65	224	91	95	414	56	2
2	5	592.4	0.65	1.90	224	95	94		56	2
3	10	595.9	0.54	1.60	227	97	93		56	2
4	15	598.7	0.50	1.50	225	99	94		56	2
5										
6	1 20/0	601.8	0.40	1.20	218	102	96		56	2
7	2 5	605.0	0.44	1.30	237	105	98		56	2
8	3 10	608.0	0.34	1.00	234	110	98		56	2
9	4 15	610.2	0.21	0.62	240	103	98		56	2
10										
11	1 40/0	612.7	0.40	1.20	182	113	106		56	2
12	2 5	615.3	0.35	1.05	229	116	108		56	2
13	3 10	618.4	0.26	0.75	228	117	110		56	2
14	4 15	620.2	0.30	0.90	215	113	110		56	2
15	d 60	623.056								
16										
17										
18			LEAK CHECK:	.061	→ .063	= .002	@ 7" Hg			
19										
20			+ pitot Δ 6.5							
21			- pitot Δ 6.2							
22										
23										
24										
25		34.087	.6352	1.225	223.58		102.54			
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										

Plant: Louisiana Pacific - Urania OSB
Sampling Location: OSB 1 Dryer RTO Inlet
Test For: HCHO/VOC
Test Operators: Russell/B. McKnight/G. McKnight

RUN No. 6
Date 5-12-95
Time start 1612 end 1713

Meter Box	Anderson
Sample Box	
Probe/Pitot	5' teflon
Pitot Cp	.84
Nozzle Dia.	.250 QTZ
Filter No.	
Amb. Temp. °F	68°
Bar. Press. "Hg	29.79
Static Press. "H_2O	-9.0

No. Sample Pts.	4x3
Minutes/Pt.	5.0
NOMOGRAPH	
ΔH@	1.75
Meter Temp.	100
% H_2O	16
C-Factor	.79
Stack Temp.	200
Ref. ΔP	.62

Gas Analysis: Fyrite

CO_2	~~~~ 4.0		
O_2	16.8		
CO			
Time			

Condensate: tare Remarks fin
Silica gel: tare Remarks fin

Remarks:

impingers:	Tare	Final
1) DNPH	596.5	716.5
2) DNPH	587	603
3) MT	474	478
4) S Gel	717	723

Port Point	El. Time, Min.	DGM Reading, Ft.³	Velocity Head ΔP, in. H_2O	Orifice ΔH in. H_2O	Stack Temp. °F	Meter Temp., °F In	Meter Temp., °F Out	Oven Temp. °F	Imp. Temp. °F	Vac in. Hg
1	0	623.458	0.25	0.74	216	97	104	N/A	58	2
2	5	625.8	0.36	1.05	232	99	102		58	2
3	10	628.1	0.25	0.72	230	98	102		58	2
4	15	630.5	0.30	0.88	215	106	160		58	2
									58	2
1	20/0	633.650	0.50	1.50	216	113	101		58	2
2	5	635.7	0.40	1.20	221	108	102		58	2
3	10	638.5	0.40	1.20	221	115	105		58	2
4	15	640.6	0.37	1.10	220	116	106		58	2
1	40/0	643.750	0.65	1.90	280	115	108		58	2
2	5	647.2	0.40	1.75	224	114	108		58	2
3	10	650.4	0.44	1.30	224	116	110		58	2
4	15	652.0	0.52	1.55	220	111	110		58	2
end	60	654.855							58	2

LEAK CHECK: .015 → .018 = .003 cfm @ 7"

+ pitot ✓@ 6.4
− pitot ✓@ 6.9

31.397	.6411	1.2408	226.58	109.42

Plant Louisiana Pacific - Ukiah OSB
Sampling Location OSB V Dryer RTO Inlet
Test For Velocity / Temperature
Test Operators B. McKnight / G. McKnight

RUN No. 1
Date 5/11/95
Time start ____ end ____

Meter Box	Anderson	No. Sample Pts.	4x3	Gas Analysis	
Sample Box	N/A	Minutes/Pt.		CO_2	
Probe/Pitot	S'	NOMOGRAPH		O_2	
Pitot Cp	.84	ΔH@	N/A	CO	
Nozzle Dia.	N/A	Meter Temp.		Time	
Filter No.	N/A	% H_2O		Condensate:	
Amb. Temp. °F		C-Factor		tare N/A fin	
Bar. Press. "Hg		Stack Temp.		Silica gel:	
Static Press. "H_2O	-3.8	Ref. Δ P		tare N/A fin	

Remarks:

Port Point	El. Time, Min.	DGM Reading, $Ft.^3$	Velocity Head Δ P, in. H_2O	Orifice Δ H in. H_2O	Stack Temp. °F	Meter Temp., °F In	Meter Temp., °F Out	Oven Temp. °F	Imp. Temp. °F	Vac. in. Hg
1	N/A	N/A	0.59	N/A		N/A	N/A	N/A	N/A	N/A
2			0.60							
3			0.70							
4			0.95							
1			0.70		225					
2			0.73							
3			0.90							
4			1.05							
1			0.63							
2			0.75							
3			0.85							
4			1.00							
		.8833								

Plant: Louisiana Pacific - Urania OSB
Sampling Location: OSB Dryer RTO Inlet
Test For: Velocity
Test Operators: B. McKnight / G. McKnight

RUN No. 2
Date: 5-12-95
Time start _____ end _____

Meter Box	Andreu	No. Sample Pts.	3 x 4	Gas Analysis	
Sample Box	N/A	Minutes/Pt.	N/A	CO_2	
Probe/Pitot	5'	NOMOGRAPH		O_2	
Pitot Cp	.84	ΔH@	N/A	CO	
Nozzle Dia.	N/A	Meter Temp.		Time	
Filter No.	N/A	% H_2O		Condensate:	
Amb. Temp. °F		C-Factor		tare N/A fin	
Bar. Press. "Hg		Stack Temp.		Silica gel:	
Static Press. "H_2O		Ref. Δ P		tare fin	

Remarks:

Port Point	El. Time, Min.	DGM Reading, Ft.³	Velocity Head Δ P, in. H_2O	Orifice Δ H in. H_2O	Stack Temp. °F	Meter Temp., °F In	Meter Temp., °F Out	Oven Temp. °F	Temp. °F	Vac. in. Hg
1	N/A	N/A	0.64	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2			0.73							
3			0.80	2.37						
4			0.80							
1			0.43							
2			0.48							
3			0.48	2.18						
4			0.56							
1			0.62							
2			0.72	2.25						
3			0.76							
4			0.80							
		8029								

Plant Louisiana Pacific – Urania OSB
Sampling Location OSB Dryer RTO Inlet
Test For Velocity
Test Operators B. McKnight / G. McKnight

RUN No. 3
Date 5-12-95
Time start _____ end _____

Meter Box	Andersen	No. Sample Pts.	4x3	Gas Analysis	Remarks:
Sample Box	N/A	Minutes/Pt.	N/A	CO_2	
Probe/Pitot	5'	NOMOGRAPH		O_2	
Pitot Cp	.84	ΔH@	N/A	CO	
Nozzle Dia.	N/A	Meter Temp.		Time	
Filter No.	N/A	% H_2O		Condensate:	
Amb. Temp. °F		C-Factor		tare N/A fin	
Bar. Press. "Hg		Stack Temp.		Silica gel:	
Static Press. "H_2O		Ref. Δ P		tare fin	

Port Point	El. Time, Min.	DGM Reading, Ft.³	Velocity Head Δ P, in. H_2O	~~Orifice ΔH in. H_2O~~ STACK TEMP	Stack Temp. °F	Meter Temp., °F In	Meter Temp., °F Out	Oven Temp. °F	Imp. Temp. °F	Vac. in. Hg
1	N/A	N/A	0.60	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2			0.78							
3			0.74	222						
4			0.75							
1			0.62							
2			0.80							
3			0.80	219						
4			0.83							
1			0.60							
2			0.68							
3			0.78	220						
4			0.61							
			.844							

Plant: Louisiana Pacific - Urania OSB
Sampling Location: OSB Dryer RTO Inlet
Test For: Velocity for HCHO/VOC
Test Operators: B. McKnight/G. McKnight

RUN No. 4
Date 5-12-95
Time start _____ end _____

Meter Box	Anderson	No. Sample Pts.	4 x 3
Sample Box	N/A	Minutes/Pt.	
Probe/Pitot	S	NOMOGRAPH	
Pitot Cp	.84	ΔH@	N/A
Nozzle Dia.	N/A	Meter Temp.	
Filter No.	N/A	% H_2O	
Amb. Temp. °F		C-Factor	
Bar. Press. "Hg		Stack Temp.	
Static Press. "H_2O		Ref. Δ P	

Gas Analysis
CO_2
O_2
CO
Time

Condensate:
tare N/A fin _____
Silica gel:
tare _____ fin _____

Remarks: _____

Port Point	El. Time, Min.	DGM Reading, Ft.³	Velocity Head Δ P, in. H_2O	Orifice Δ H in. H_2O	Stack Temp. °F	Meter Temp., °F In	Meter Temp., °F Out	Oven Temp. °F	Imp. Temp. °F	Vac. in. Hg
1	N/A	N/A	0.53	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2			0.75							
3			0.77	220						
4			0.80							
1			0.44							
2			0.54	230						
3			0.62							
4			0.72							
1			0.40							
2			0.52							
3			0.53	223						
4			0.52							

.2680

Plant: Louisiana Pacific – Urania OSB
Sampling Location: OSB Dryer RTO Inlet
Test For: Velocity
Test Operators: B. McKnight/G. McKnight

RUN No. 5
Date 5-12-95
Time start ____ end ____

Meter Box	Anderson	No. Sample Pts.	4x3	Gas Analysis	
Sample Box	N/A	Minutes/Pt.	N/A	CO_2	
Probe/Pitot	5'.	NOMOGRAPH		O_2	
Pitot Cp	.84	ΔH@	N/A	CO	
Nozzle Dia.	N/A	Meter Temp.		Time	
Filter No.	N/A	% H_2O		Condensate:	
Amb. Temp. °F		C-Factor		tare N/A fin	
Bar. Press. "Hg		Stack Temp.		Silica gel:	
Static Press. "H_2O		Ref. Δ P		tare fin	

Remarks:

Port Point	El. Time, Min.	DGM Reading, Ft^3	Velocity Head Δ P, in. H_2O	Orifice Δ H in. H_2O	Stack Temp. °F	Meter Temp., °F In	Meter Temp., °F Out	Oven Temp. °F	Imp. Temp. °F	Vac. in. Hg
1	N/A	N/A	0.55	N/A		N/A	N/A	N/A	N/A	N/A
2			0.62							
3			0.67	2.23						
4			0.90							
1			0.82							
2			0.84	2.20						
3			0.84							
4			0.70							
1			0.88	2.25						
2			0.60							
3			0.64							
4			0.65							
			.8492							

Plant: Louisiana Pacific - Urania OSB
Sampling Location: OSB Dryer RTO Inlet
Test For: Velocity
Test Operators: B. McKnight / G. McKnight

RUN No. 6
Date: 5-12-95
Time start _____ end _____

Meter Box	Anderson	No. Sample Pts.	4x3	Gas Analysis	N/A
Sample Box	N/A	Minutes/Pt.		CO_2	
Probe/Pitot	5'	NOMOGRAPH		O_2	
Pitot Cp	.84	ΔH@	N/A	CO	
Nozzle Dia.	N/A	Meter Temp.		Time	
Filter No.	N/A	% H_2O		Condensate:	
Amb. Temp. °F		C-Factor		tare N/A fin	
Bar. Press. "Hg		Stack Temp.		Silica gel:	
Static Press. "H_2O		Ref. Δ P		tare fin	

Remarks:

Port Point	El. Time, Min.	DGM Reading, Ft.³	Velocity Head Δ P, in. H_2O	Orifice Δ H in. H_2O	Stack Temp. °F	Meter Temp., °F in	Meter Temp., °F Out	Oven Temp. °F	Imp. Temp. °F	Vac. in. Hg
1	N/A	N/A	0.60	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2			0.61							
3			0.73	220						
4			1.00							
1			0.40							
2			0.41							
3			0.44	217						
4			0.85							
1			0.50							
2			0.56	220						
3			0.74							
4			0.82							

.7908

APPENDIX B.

CALIBRATION DATA

DRY GAS METER CALIBRATION

Meter ID	Andersen		
Calibration Method	DGM/DGM	**By**	DGR
Calibration Meter ID	651729	**Pbar**	30.05
Date	2/18/95		

Vac. in. Hg	DH in. H_2O	Time min	Calibrating Meter Vi ft^3	Vf ft^3	Temp °F	Field Meter Vi ft^3	Vf ft^3	Temp. in init.	Temp. in final	Temp out init.	Temp out final	Y	Q	K	DH@
1	5.00	10.00	705.781	718.433	70	142.259	154.458	55	82	55	62	1.012	1.22	0.713	1.810
1	4.00	14.00	718.433	734.176	70	154.458	169.964	72	88	62	73	1.013	1.11	0.716	1.798
1	3.00	14.00	734.176	747.841	70	169.964	183.706	83	88	73	80	1.008	0.98	0.724	1.755
1	2.00	15.00	747.841	759.444	70	183.706	195.595	84	86	80	83	0.995	0.79	0.707	1.841
1	1.00	17.50	759.444	769.343	70	195.595	205.763	86	84	82	85	0.997	0.58	0.734	1.711
Averages:												**1.00**			**1.78**

$Y = [Vcal)(Pbar)(Tdgm)]/[(Vdgm)(Pm)(Tcal)]$

$K = Q(sqrt((Pm\ Mm)/((Tm\ out)(DH))$

$Q = ((Vmi-Vmf)/min.)(TM,out/Tm,avg)(Y)$

$DH@ = 0.921/K^2$

Where:

Y = Meter correction factor, dimensionless

Vcal = Volume of gas through calibrating meter, cubic feet

Vdgm = Volume of gas through field dry gas meter, cubic feet

Pbar = Barometric pressure, in. Hg

Pm = Meter pressure, (Pbar = DH/13.6)

Tdgm = Average dry gas meter temp, degrees R

Tcal = Temperature of gas at calibrating meter, degrees R

DRY GAS METER CALIBRATION

Meter ID Anderson

Calibration Method DGM/DGM **By** DGR

Calibration Meter ID 651729 **Pbar** 29.7

Date 7/4/95

Vac. in. Hg	DH in. H_2O	Time min	Calibrating Meter Vi ft^3	Calibrating Meter Vf ft^3	Calibrating Meter Temp °F	Field Meter Vi ft^3	Field Meter Vf ft^3	Field Meter Temp. in Init.	Field Meter Temp. in Final	Field Meter Temp. out Init.	Field Meter Temp. out Final	Y	Q	K	DH@
2	1.95	15.00	322.694	334.714	70	684.211	696.211	70	97	70	86	1.017	0.81	0.735	1.703
2	1.95	16.00	334.714	347.527	82	696.211	709.226	95	114	87	102	1.011	0.815	0.73	1.730
2	1.95	16.00	347.527	360.266	86	709.226	722.318	108	119	101	111	1.010	0.821	0.727	1.740
Averages:												1.01			1.72

$Y = [Vcal)(Pbar)(Tdgm)]/[(Vdgm)(Pm)(Tcal)]$

$K = Q(sqrt((Pm\ Mm)/((Tm\ out)(DH))$

$Q = ((Vmi\text{-}Vmf)/min.)(TM,out/Tm,avg)(Y)$

$DH@ = 0.921/K^2$

Where:

Y = Meter correction factor, dimensionless

Vcal = Volume of gas through calibrating meter, cubic feet

Vdgm = Volume of gas through field dry gas meter, cubic feet

Pbar = Barometric pressure, in. Hg

Pm = Meter pressure, (Pbar + DH/13.6)

Tdgm = Average dry gas meter temp, degrees R

Tcal = Temperature of gas at calibrating meter, degrees R

DRY GAS METER CALIBRATION

Meter ID RAC

Calibration Method DGM/DGM **By** GNM

Calibration Meter ID 651729 **Pbar** 29.76

Date 7/13/95

Vac. in. Hg	DH in. H2O	Time min	Calibrating Meter			Field Meter						Y	Q	K	DH@
			Vi ft³	Vf ft³	Temp °F	Vi ft³	Vf ft³	Temp. in		Temp out					
								init.	final	init.	final				
1	5.00	8.50	432.392	442.521	76	569.427	579.951	91	103	91	92	0.983	1.21	0.682	1.982
1	4.00	9.50	442.521	452.659	83	579.951	590.419	103	120	92	97	0.994	1.08	0.676	2.013
1	3.00	11.00	452.659	462.725	86	590.419	600.891	117	128	97	104	0.999	0.93	0.671	2.049
1	2.00	13.50	462.725	472.804	88	600.891	611.460	126	135	104	111	1.003	0.77	0.673	2.036
1	1.00	18.25	472.804	482.837	89	611.460	622.042	132	135	109	117	1.005	0.57	0.703	1.862
Averages:												**1.00**			**1.99**

$Y = [Vcal)(Pbar)(Tdgm)]/[(Vdgm)(Pm)(Tcal)]$

$K = Q(sqrt((Pm\ Mm)/((Tm\ out)(DH))$

$Q = ((Vmi-Vmf)/min.)(TM,out/Tm,avg)(Y)$

$DH@ = 0.921/K^2$

Where:

Y = Meter correction factor, dimensionless

Vcal = Volume of gas through calibrating meter, cubic feet

Vdgm = Volume of gas through field dry gas meter, cubic feet

Pbar = Barometric pressure, in. Hg

Pm = Meter pressure, (Pbar = DH/13.6)

Tdgm = Average dry gas meter temp, degrees R

Tcal = Temperature of gas at calibrating meter, degrees R

DRY GAS METER CALIBRATION

Meter ID RAC

Calibration Method DGM/DGM **By** DGR

Calibration Meter ID 651729 **Pbar** 30.05

Date 2/18/95

Vac. in. Hg	DH in. H2O	Time min	Calibrating Meter			Field Meter						Y	Q	K	DH@
			Vi ft³	Vf ft³	Temp °F	Vi ft³	Vf ft³	Temp. in		Temp out					
								Init.	final	Init.	final				
1	5.00	12.50	772.047	787.047	59	612.402	627.716	59	98	58	69	0.990	1.2	0.694	1.911
1	4.00	19.25	787.047	807.415	59	627.716	648.935	96	111	68	77	1.004	1.08	0.691	1.929
1	3.00	13.45	807.415	819.741	62	648.935	661.985	109	114	77	82	0.998	0.94	0.692	1.921
1	2.00	18.00	819.741	832.838	62	661.985	675.978	110	108	81	84	0.992	0.75	0.676	2.015
1	1.00	21.00	832.838	844.241	62	675.978	688.173	106	111	84	87	0.995	0.57	0.716	1.795
Averages:												1.00			1.91

$Y = [Vcal)(Pbar)(Tdgm)]/[(Vdgm)(Pm)(Tcal)]$

$K = Q(sqrt((Pm\ Mm)/((Tm\ out)(DH))$

$Q = ((Vmi-Vmf)/min.)(TM,out/Tm,avg)(Y)$

$DH@ = 0.921/K^2$

Where:

Y = Meter correction factor, dimensionless

Vcal = Volume of gas through calibrating meter, cubic feet

Vdgm = Volume of gas through field dry gas meter, cubic feet

Pbar = Barometric pressure, in. Hg

Pm = Meter pressure, (Pbar + DH/13.6)

Tdgm = Average dry gas meter temp, degrees R

Tcal = Temperature of gas at calibrating meter, degrees R

PITOT TUBE GEOMETRY CALIBRATION

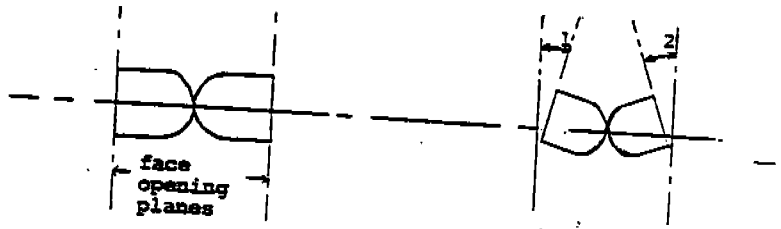
Pitot tube/probe identification: S'ss Date Checked: 5-11-95 By:

Pitot tubes having the following geometric characteristics are assigned a pitot tube coefficient of 0.84.

1. Face openings perpendicular to transverse axis: ($\alpha 1$ and $\alpha 2 < 10^0$)

$\alpha 1$ = 0

$\alpha 2$ = 0



2. Face openings parallel to longitudinal axis: (β_1 and $\beta_2 < 5^0$; $P = 1.05\ D_t$ to $1.50\ D_t$; $P_A = P_B$)

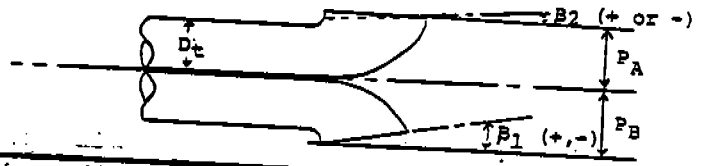
D_t = .375"

P_A = .5"

P_B = .5"

β_1 = 0

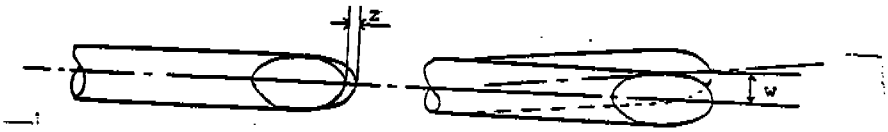
β_2 = 0



3. Both legs equal length and centerline coincident ($z < .125$ inch; $w < .031$ inch)

z = 0

w = 0



PITOT/PROBE CLEARANCE CHECK:

Nozzle ID: .210/.240/.256 Nozzle dia: .210"/.240"/.256" Date: 5-11-95

II. Pitot/probe/nozzle assemblies have the same Cp as the isolated Pitot tube when the following conditions exist.

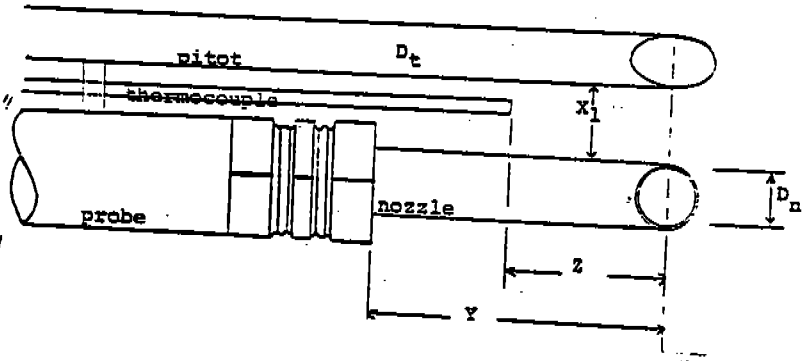
1. $D_t > .188$ & $< .375$ inch — D_t = .375"

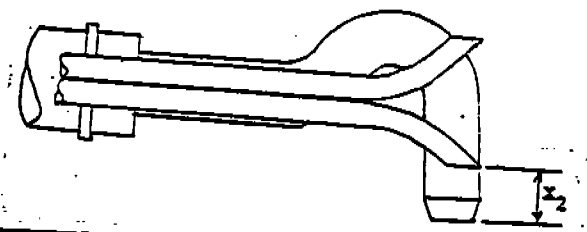
2. $X_1 \geq .75$ inch — X_1 = .85"/1.0"/1.1"

3. $X_2 \geq 0$ inch — X_2 = .4"/.5"/.5"

4. $Y \geq 3.0$ inch — Y = 6.2"

5. $z \geq 2.0$ inch — z = 6.2"





PITOT TUBE GEOMETRY CALIBRATION

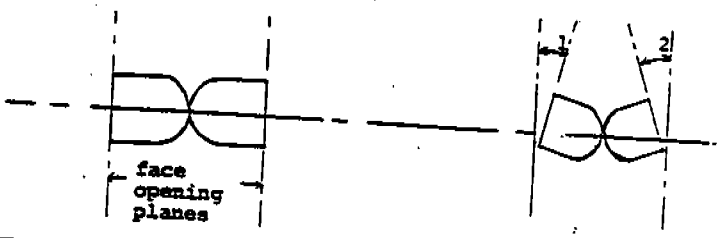
Pitot tube/probe identification: 7'55 Date Checked: 5-11-95 By: PER

Pitot tubes having the following geometric characteristics are assigned a pitot tube coefficient of 0.84.

1. Face openings perpendicular to transverse axis: ($\alpha 1$ and $\alpha 2 < 10^0$)

$\alpha 1$ = 0

$\alpha 2$ = 0

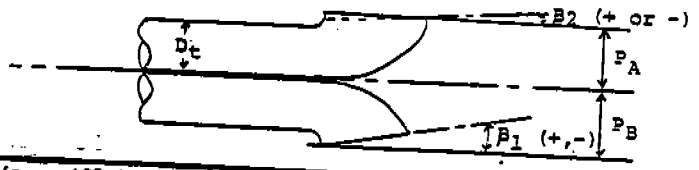


2. Face openings parallel to longitudinal axis: (β_1 and $\beta_2 < 5^0$; $P = 1.05\ D_t$ to $1.50\ D_t$; $P_A = P_B$)

D_t = .375 β_1 = 0

P_A = .50 β_2 = 0

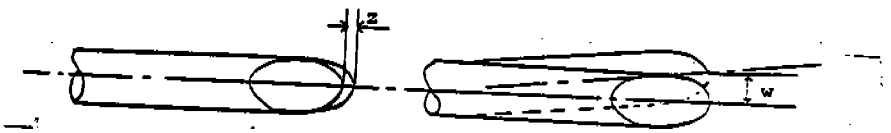
P_B = .50



3. Both legs equal length and centerline coincident ($z < .125$ inch; $w < .031$ inch)

z = 0

w = 0



PITOT/PROBE CLEARANCE CHECK:

Nozzle ID: .270 ss / .264 Qtz Nozzle dia: .270" / .264" Date: 5-11-95

II. Pitot/probe/nozzle assemblies have the same Cp as the isolated Pitot tube when the following conditions exist.

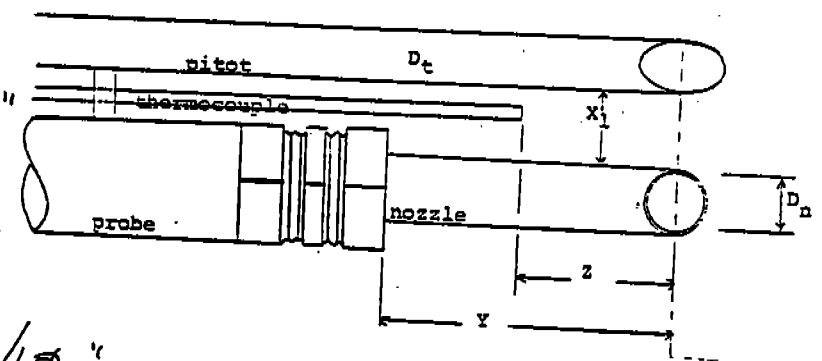
1. $D_t > .188$ & $< .375$ inch — D_t = .375"

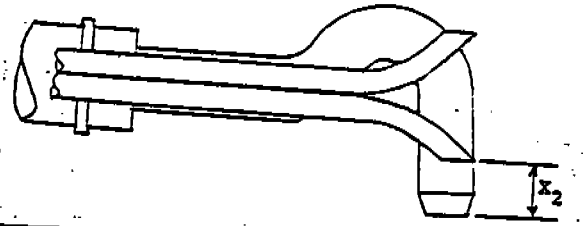
2. $X_1 \geq .75$ inch — X_1 = 1.0" / 1.1"

3. $X_2 \geq 0$ inch — X_2 = .7" / .5"

4. $Y \geq 3.0$ inch — Y = 6.2" / 6.2"

5. $z \geq 2.0$ inch — z = 2.2" / 2.2"





Scott Specialty Gases, Inc.

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

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
ENVIRONMENTAL MON
242 INGLESIDE DRIVE
MADISON, MS 39110

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

Purchase Order : DRV0116
Scott Project # : 576120

ANALYTICAL INFORMATION

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

Cylinder Number : ALM049194
Cylinder Pressure + : 1900 psig
Certificate Date : 2/1/95
Previous Certificate Date : None
Expiration Date : 2/1/98

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	953.4 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

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

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1668	6/7/96	ALM-032015	95.5 ppm Propane in Air.

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Prop:Beckman/400/1002059	1/19/95	Flame Ionization Detection

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

Components: Propane

First Triad Analysis

Date: 2/1/95 Response Units: mv

Z1=0.00	R1=14.40	T1=143.00
R2=14.40	Z2=0.00	T2=143.00
Z3=0.00	T3=143.00	R3=14.40

Avg. Conc. of Cust. Cyl. 953.4 ppm

Second Triad Analysis

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4

r=1.00000	NTRM 1668
Constants:	A=-0.237940000
B=6.669000000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes

Analyst

MSP/P-1

6122 Propane

Scott Specialty Gases, Inc.

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

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer:
ENVIRONMENTAL MON
242 INGLESIDE DRIVE
MADISON, MS 39110

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

Purchase Order : DRV0116
Scott Project # : 576120

ANALYTICAL INFORMATION

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

Cylinder Number : ALM016861
Cylinder Pressure + : 1900 psig

Certificate Date : 1/27/95
Previous Certificate Date : None

Expiration Date : 1/27/98

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	475.3 ppm	±1% NIST Directly Traceable

Balance Gas: Air

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

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1668	6/7/96	ALM-032015	95.5 ppm Propane in Air.

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Prop:Beckman/400/1002059	1/19/95	Flame Ionization Detection

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

Components: Propane

First Triad Analysis

Date: 1/27/95 Response Units: mv

Z1=0.00	R1=14.40	T1=71.30
R2=14.40	Z2=0.00	T2=71.30
Z3=0.00	T3=71.30	R3=14.40

Avg. Conc. of Cust. Cyl. 475.3 ppm

Second Triad Analysis

Calibration Curve

Concentration=$A+Bz+Cz^2+Dz^3+Ez^4$

r=1.00000 NTRM 1668

Constants:

B=6.669000000	A=-0.237940000
D=0.000000000	C=0.000000000
	E=0.000000000

Special Notes

Analyst

ASP/P-1

70.76 Propane

Scott Specialty Gases, Inc.

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

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
ENVIRONMENTAL MON
242 INGLESIDE DRIVE
MADISON, MS 39110

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

Purchase Order : DRV0116
Scott Project # : 576120

ANALYTICAL INFORMATION

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

Cylinder Number : ALM016008
Cylinder Pressure + : 1900 psig

Certificate Date : 1/27/95
Previous Certificate Date : None

Expiration Date : 1/27/98

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	90.46 ppm	±1% NIST Directly Traceable

Balance Gas: Air

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

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1668	6/7/96	ALM-032015	95.5 ppm Propane in Air

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Propane : Beckman/400/1002059	1/19/95	Flame Ionization Detector

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

Components
Propane

First Triad Analysis

Date: 1/27/95 Response Units: mv

Z1=0.00	R1=95.50	T1=90.50
R2=95.50	Z2=0.00	T2=90.40
Z3=0.00	T3=90.50	R3=95.50

Avg. Conc. of Cust. Cyl. 90.46 ppm

Second Triad Analysis

Calibration Curve

Concentration=$A+Bx+Cx^2+Dx^3+Ex^4$

r=1.00000	NTRM 1668
Constants:	A=-0.086524000
B=1.000900000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes

Mail

MISP/P-1

Analyst

Scott Specialty Gases, Inc.

500 WEAVER PARK ROAD, LONGMONT, CO 80501 (303) 442-4700, (303) 651-3094 FAX (303) 772-7873

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
ENVIRONMENTAL MONITORING
242 INGLESIDE DRIVE
MADISON, MS 39110

Assay Laboratory
Scott Specialty Gases, Inc.
500 Weaver Park Road
Longmont, CO 80501

Purchase Order DRV0825
Scott Project # 0815606
CGA Fitting 660
QC Number 11039435
File Number 15606-01

ANALYTICAL INFORMATION

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

Cylinder Number ALM-043125
Cylinder Pressure 2000 psig
Certification Date 08/30/94
Previous Certification Dates None
Expiration Date 08/30/96

ANALYZED CYLINDER

Components	Certified Concentration
Nitric Oxide (NO)	2400 ppm
Nitrogen (N2)	2401ppm
	Balance

Analytical Uncertainty*
±1% NIST Directly Traceable
Reference Value Only

*Analytical uncertainty is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 2631	06/18/95	ALM-022283	2814.0ppm NO / N2
GMIS	NONE	AAL-19328	2170.0ppm NO / N2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Monitor Labs 8840-857	08/22/94	Chemiluminescence

ANALYZER READINGS

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

Components (Nitric Oxide)

First Triad Analysis
Date: 12/22/93 Response Units: mv
Z1 = 0.0000 R1 = 0.4316 T1 = 0.4795
R2 = 0.4316 Z2 = 0.0000 T2 = 0.4795
Z3 = 0.0000 T3 = 0.4795 R3 = 0.4316
Avg. Conc. of Cust. Cyl. = 2401.1 ppm

Second Triad Analysis
Date: 08/30/94 Response Units: mv
Z1 = 0.0000 R1 = 0.4316 T2 = 0.4796
R2 = 0.4316 Z2 = 0.0000 T2 = 0.4796
Z3 = 0.0000 T3 = 0.4796 R3 = 0.4316
Avg. Conc. of Cust. Cyl. = 2401.6 ppm

Calibration Curve
Concentration = A+Bx+Cx²+Dx³+Ex⁴
r = 0.999997 NTRM 2631
Constants: A = -11.764180
B = 5151.8800 C = -232.7234
D = 0 E = 0

Special Notes
Do not use when cylinder pressure is below 150 psig.

Analyst: Diana L. Beehler

Scott Specialty Gases, Inc.

102.0 NOx

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

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
ENVIRONMENTAL MONITORING
242 INGLESIDE DRIVE
MADISON, MS 39110

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

Purchase Order : DRV0826
Scott Project # : 570523

ANALYTICAL INFORMATION

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

Cylinder Number : ALM036349
Cylinder Pressure + : 1900 psig

Certificate Date : 8/30/94
Previous Certificate Date : None

Expiration Date : 8/30/96

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Nitric Oxide	99.90 ppm	±1% NIST Directly Traceable
Total Oxides of Nitrogen	102.0 ppm	Reference Value Only

Balance Gas: Nitrogen

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

REFERENCE STANDARD

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

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
NO - Horiba/OPE-235/483814	8/24/94	Chemiluminesence

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

Components: Nitric Oxide

First Triad Analysis

Date: 3/28/94 Response Units: mv

Z1=0.00	R1=95.20	T1=99.80
R2=95.20	Z2=0.00	T2=99.80
Z3=0.00	T3=99.80	R3=95.20

Avg. Conc. of Cust. Cyl. 99.80 ppm

Second Triad Analysis

Date: 8/30/94 Response Units: mv

Z1=0.00	R1=95.20	T1=100.00
R2=95.20	Z2=0.00	T2=100.00
Z3=0.00	T3=100.00	R3=95.20

Avg. Conc. of Cust. Cyl: 100.0 ppm

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4

r=0.99999	NTRM 1684
Constants:	A=0.000000000
B=1.000000000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes

Don Eccles Jr

Analyst

12.90 NOx

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083
(313) 589-2950 FAX: (313) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
ENVIROMENTAL MONITORING
242 INGLESIDE DRIVE
MADISON MS 39110

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

Purchase Order 0630DR
Scott Project # 553186

ANALYTICAL INFORMATION

Certified to exceed the minimum specifications of EPA Protocol 1 Procedure # G1, Section Number 3.0.4

Cylinder Number ALM022478
Cylinder Pressure 1900 psig
Certification Date 7-19-93
Previous Certification Dates None
General Exp. Date 7-19-95
Acid Rain Exp. Date 7-19-95

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Nitric Oxide	12.90 ppm	±1% NIST Directly Traceable
Total Oxides of Nitrogen	12.90 ppm	Reference Value Only
Balance Gas: Nitrogen		

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

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM 2629A	1-4-95	FF-28502	19.40 ppm NO in N_2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
NO: Horiba/OPE-235/560543082	5-18-93	Chemiluminescence

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

Components: Nitric Oxide

First Triad Analysis

Date: 7-11-93 Response Units: mv

Z1=0.00	R1=19.40	T1=12.90
R2=19.40	Z2=0.00	T2=12.90
Z3=0.00	T3=12.90	R3=19.40

Avg. Conc. of Cust. Cyl. 12.90 ppm

Second Triad Analysis

Date: 7-19-93 Response Units: mv

Z1=0.00	R1=19.40	T1=12.90
R2=19.40	Z2=0.00	T2=12.90
Z3=0.00	T3=12.90	R3=19.40

Avg. Conc. of Cust. Cyl. 12.90 ppm

Calibration Curve

Concentration=A+Bx+Cx²+Dx³+Ex⁴

r=0.99999	SRM 2629A
Constants:	A=0.01381712
B=0.9992878	C=0
D=0	E=0

Concentration=A+Bx+Cx²+Dx³+Ex⁴

Concentration=A+Bx+Cx²+Dx³+Ex⁴

Special Notes

If this product is used for Acid Rain Rule Compliance, the *Acid Rain Expiration Date* noted above applies per 40 CFR Part 75, Appendix H. Otherwise, the *General Expiration Date* applies.

F. P. Doran

Analyst Frank P. Doran

Scott Specialty Gases, Inc.

Shipped From: 3714 LAPAS DRIVE
HOUSTON TX 77023
Phone: 713-644-4820 Fax: 713-644-0244

CERTIFICATE OF ANALYSIS

ENVIRONMENTAL MONITORING
DANNY RUSSELL
P O BOX 655

RIDGELAND MS 39158

PROJECT #: 04-43368-001
PO#: DRV0517
ITEM #: 04024315 2AL
DATE: 5/26/95

CYLINDER #: ALM055984

BLEND TYPE : ACUBLEND MASTER GAS

ANALYTICAL ACCURACY: +/- 1%
PRODUCT EXPIRATION: 5/24/96

COMPONENT	REQUESTED GAS CONC	MOLES	ANALYSIS (MOLES)	
CARBON MONOXIDE	452.	PPM	453.	PPM
OXYGEN	11.	%	11.01	%
NITROGEN		BALANCE		BALANCE

2000 PSI

453

THIS PRODUCT IS TRACEABLE TO ALL PRODUCTION & ANALYTICAL DOCUMENTATION BY BOTH THE PROJECT & CYLINDER SERIAL NUMBERS IDENTIFIED ON THIS CERTIFICATE OF ANALYSIS.

ANALYST: _____

Scott Specialty Gases, Inc.

Shipped From: 3714 LAPAS DRIVE
HOUSTON TX 77023
Phone: 713-644-4820 Fax: 713-644-0244

CERTIFICATE OF ANALYSIS

ENVIRONMENTAL MONITORING
DAN RUSSELL
P O BOX 655

RIDGELAND MS 39158

PROJECT #: 04-29381-003
PO#: DRV-0107
ITEM #: 04021453 2AL
DATE: 1/11/94

CYLINDER #: ALM007930
FILL PRESSURE: 2000 PSI
BLEND TYPE : ACUBLEND MASTER GAS

ANALYTICAL ACCURACY: +/- 1%
PRODUCT EXPIRATION: 1/11/95

COMPONENT	REQUESTED GAS CONC MOLES		ANALYSIS (MOLES)	
CARBON MONOXIDE	4,500.	PPM	4,540.	PPM
NITROGEN		BAL		BAL

ANALYST: _____ APPROVED BY: _____

Scott Specialty Gases, Inc.

Shipped From: 3714 LAPAS DRIVE
HOUSTON TX 77023
Phone: 713-644-4820 Fax: 713-644-0244

CERTIFICATE OF ANALYSIS

ENVIRONMENTAL MONITORING
DANNY RUSSELL
P O BOX 655

RIDGELAND MS 39158

PROJECT #: 04-39907-002
PO#: DRV0116
ITEM #: 04024520 2AL
DATE: 1/27/95

CYLINDER #: AAL19761

BLEND TYPE : ACUBLEND MASTER GAS

ANALYTICAL ACCURACY: +/-1%
PRODUCT EXPIRATION: 1/27/96

COMPONENT	REQUESTED GAS CONC	MOLES	ANALYSIS (MOLES)	
CARBON DIOXIDE	12.	%	12.08	%
CARBON MONOXIDE	955.	PPM	953.	PPM
OXYGEN	3.	%	3.03	%
NITROGEN		BALANCE		BALANCE

2000 PSI

THIS PRODUCT IS TRACEABLE TO ALL PRODUCTION & ANALYTICAL DOCUMENTATION BY BOTH THE PROJECT & CYLINDER SERIAL NUMBERS IDENTIFIED ON THIS CERTIFICATE OF ANALYSIS.

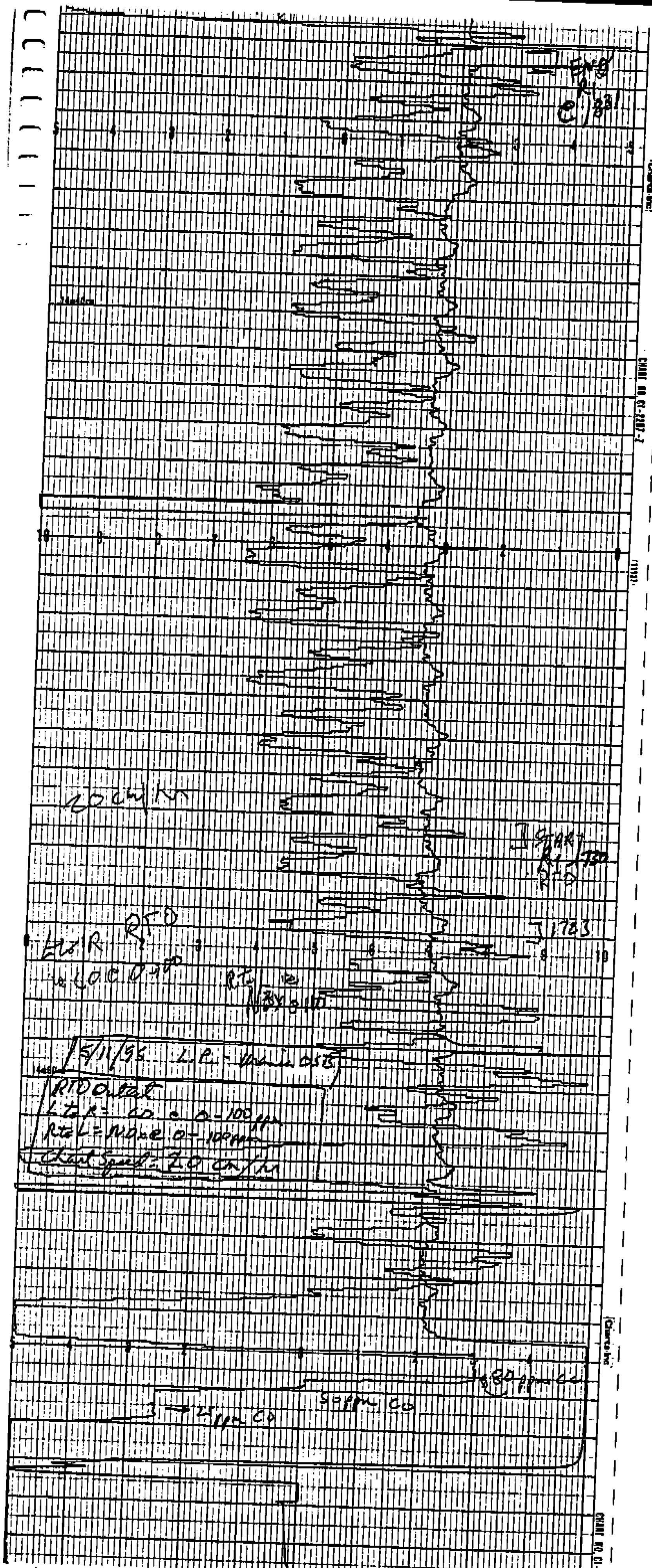
ANALYST: _____

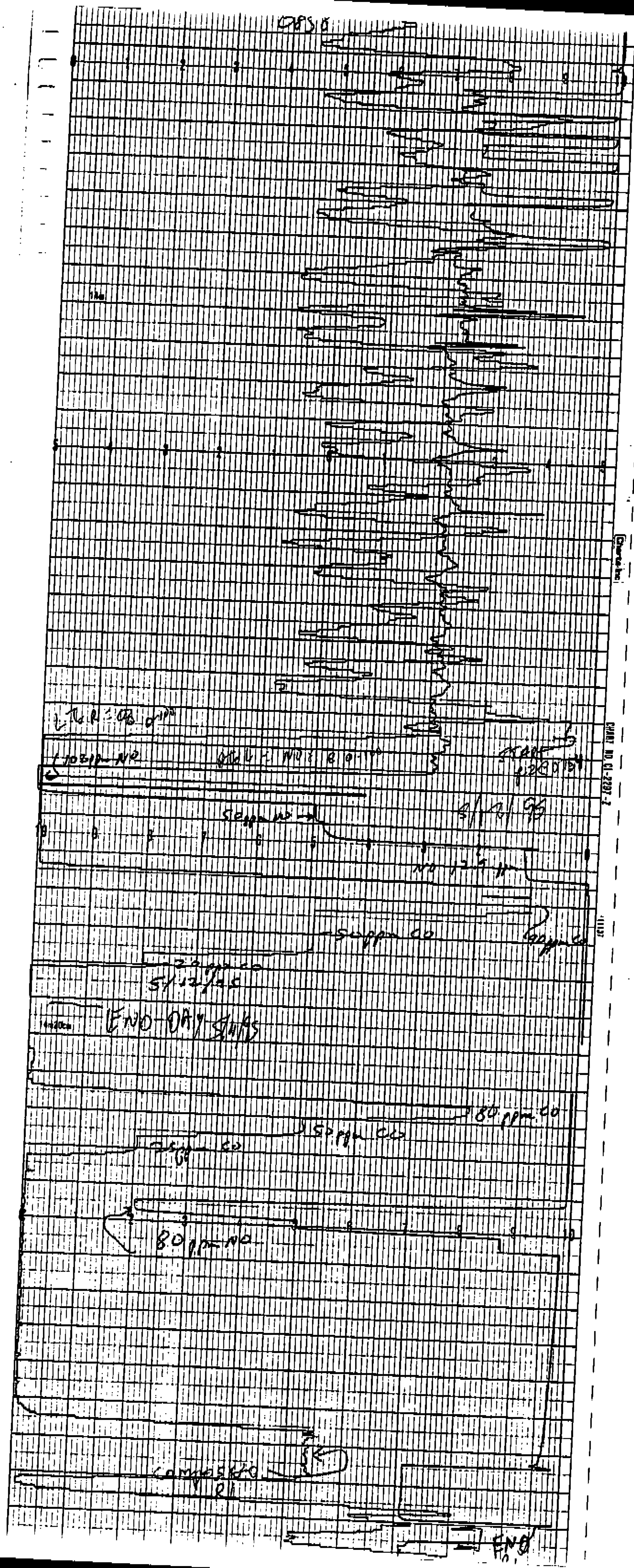
APPENDIX C.

RECORDER TRACES

RTO OUTLET

NOx AND CO RECORDER TRACE


20 cm/hr
5/11/95 L.P.
RTD Output
Chart Speed = 20 cm/hr
5 ppm CO
80 ppm CO
25 ppm CO


0850
START
50ppm NO
50ppm CO
80 ppm CO
50 ppm CO
80 ppm NO
END
CHART NO. CL-2292-Z

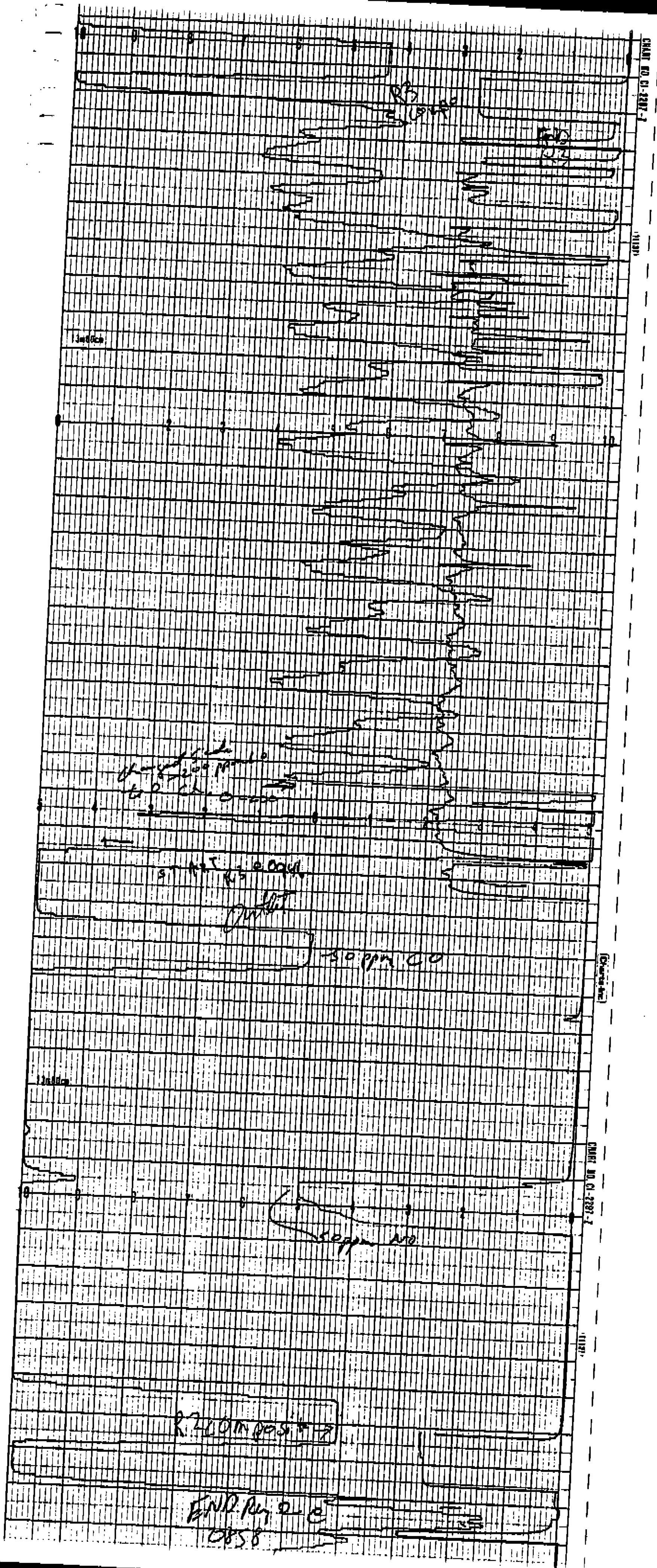
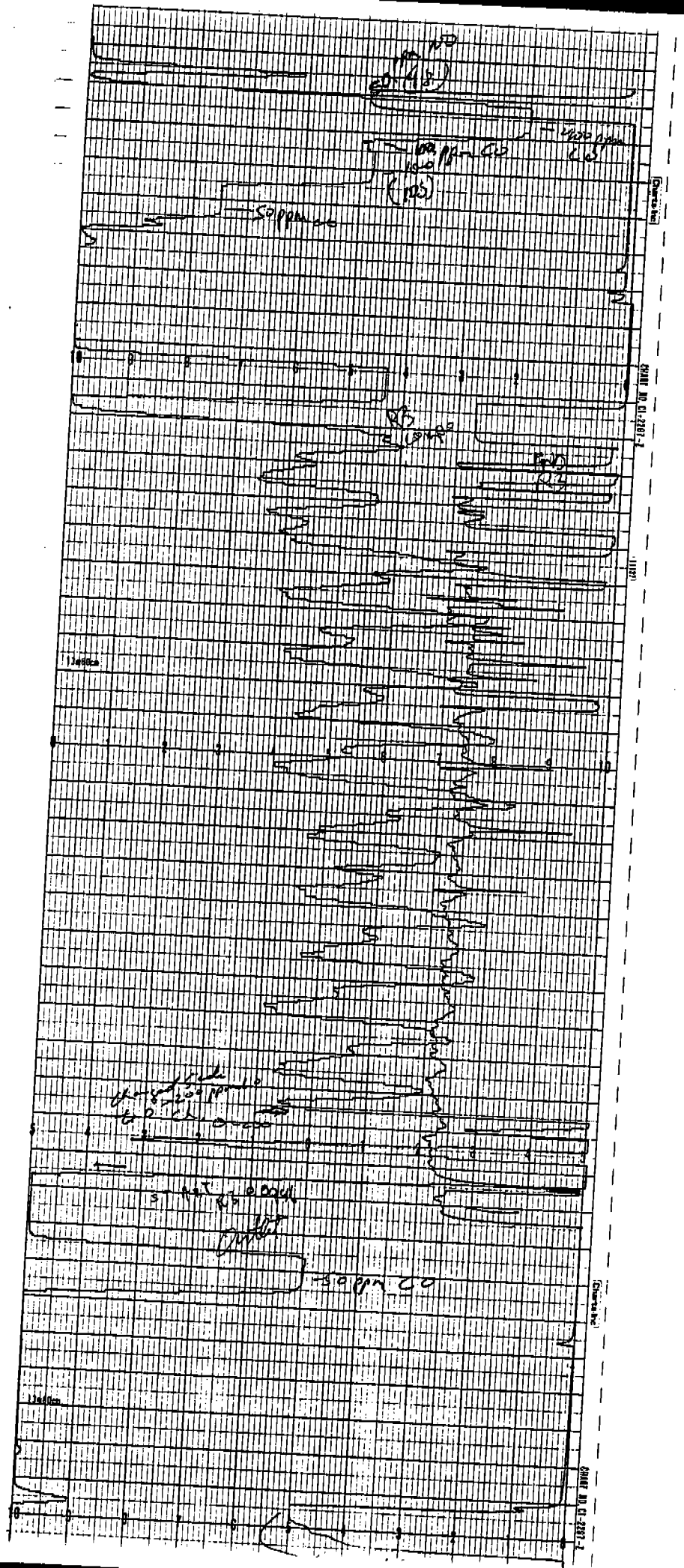
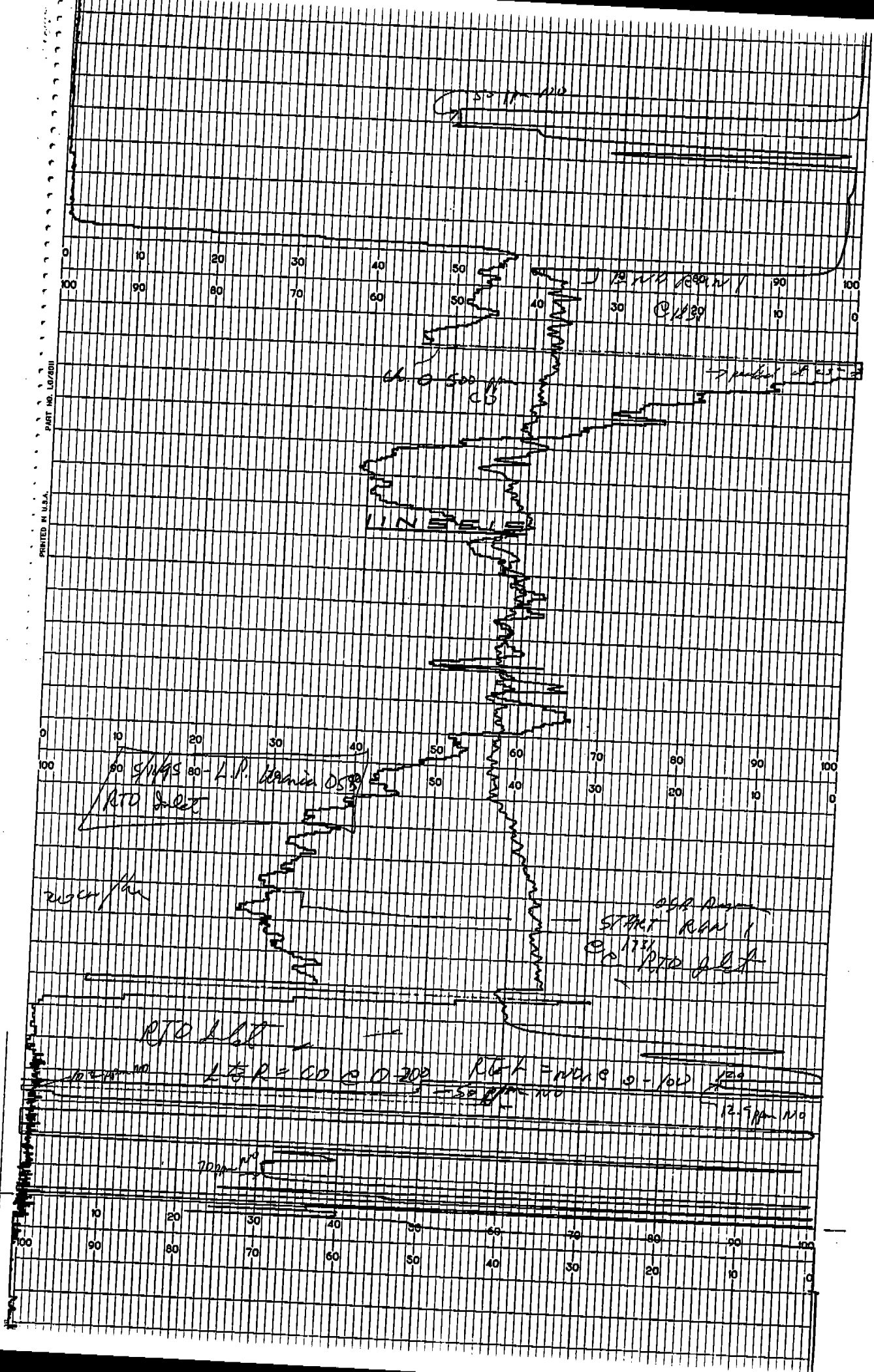


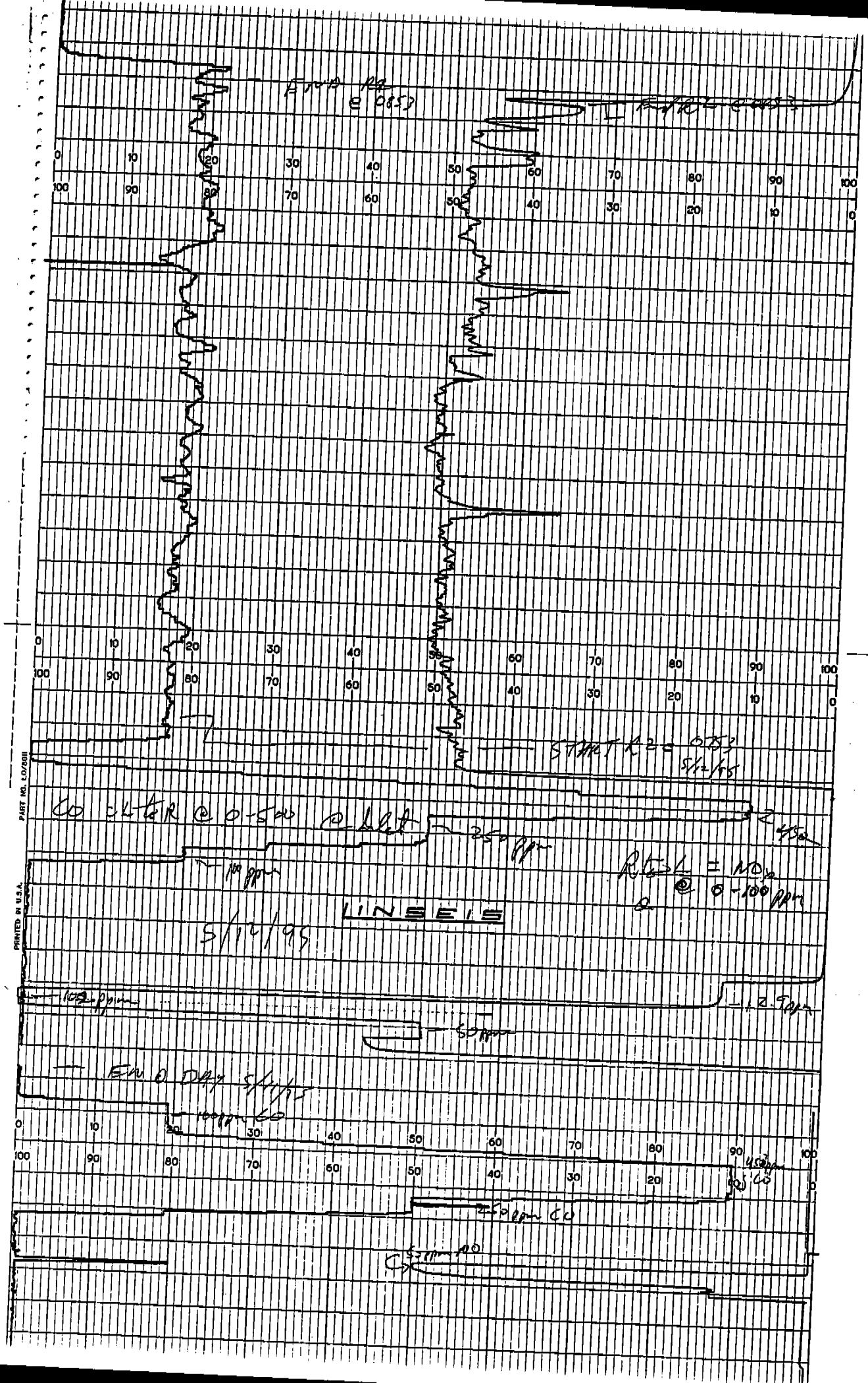
CHART NO. CL-2287-2
50 ppm CO
50 ppm NO
R2 Composite
END Run 2 C
0858

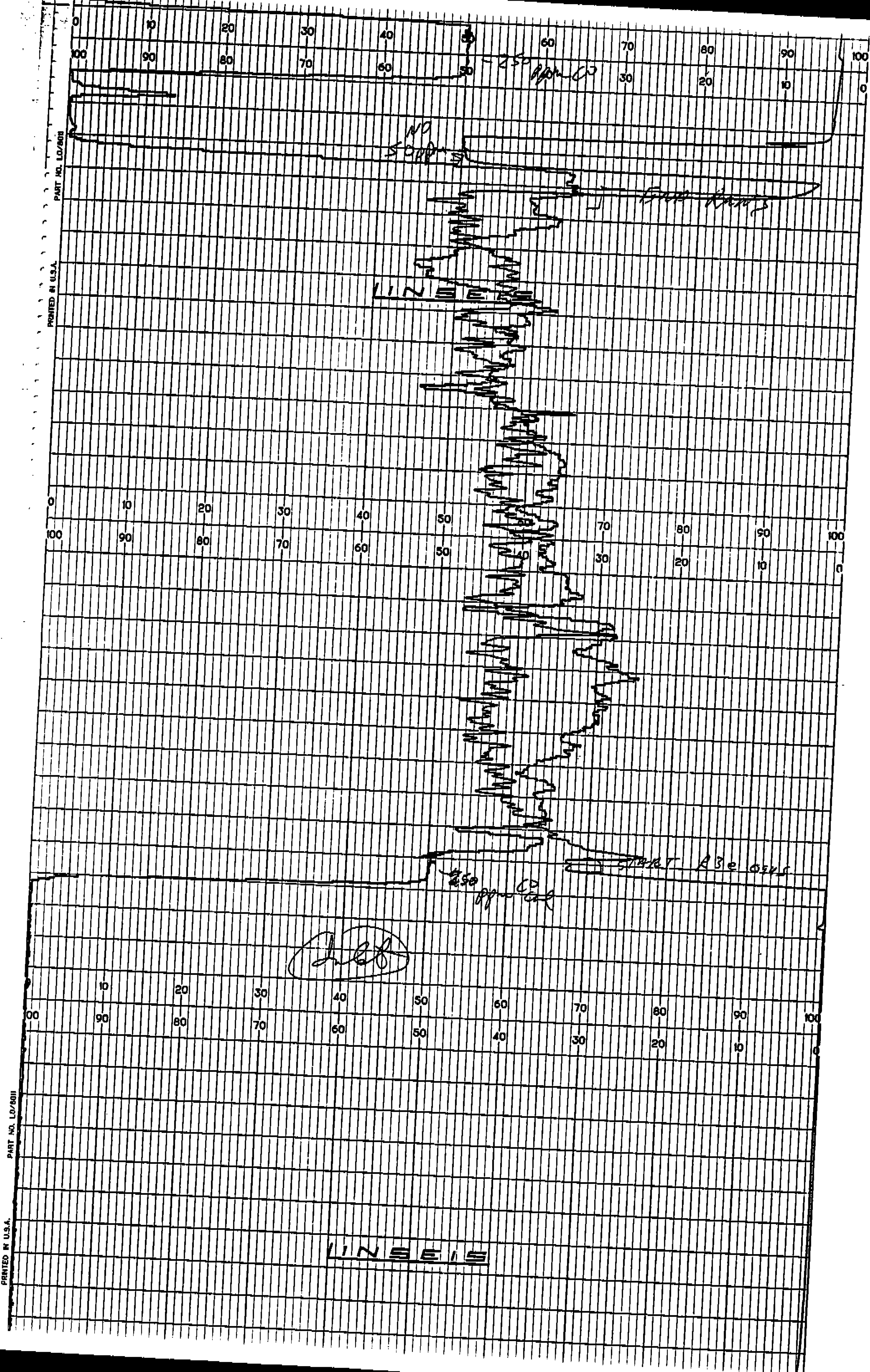


RTO INLET

NOx AND CO RECORDER TRACE

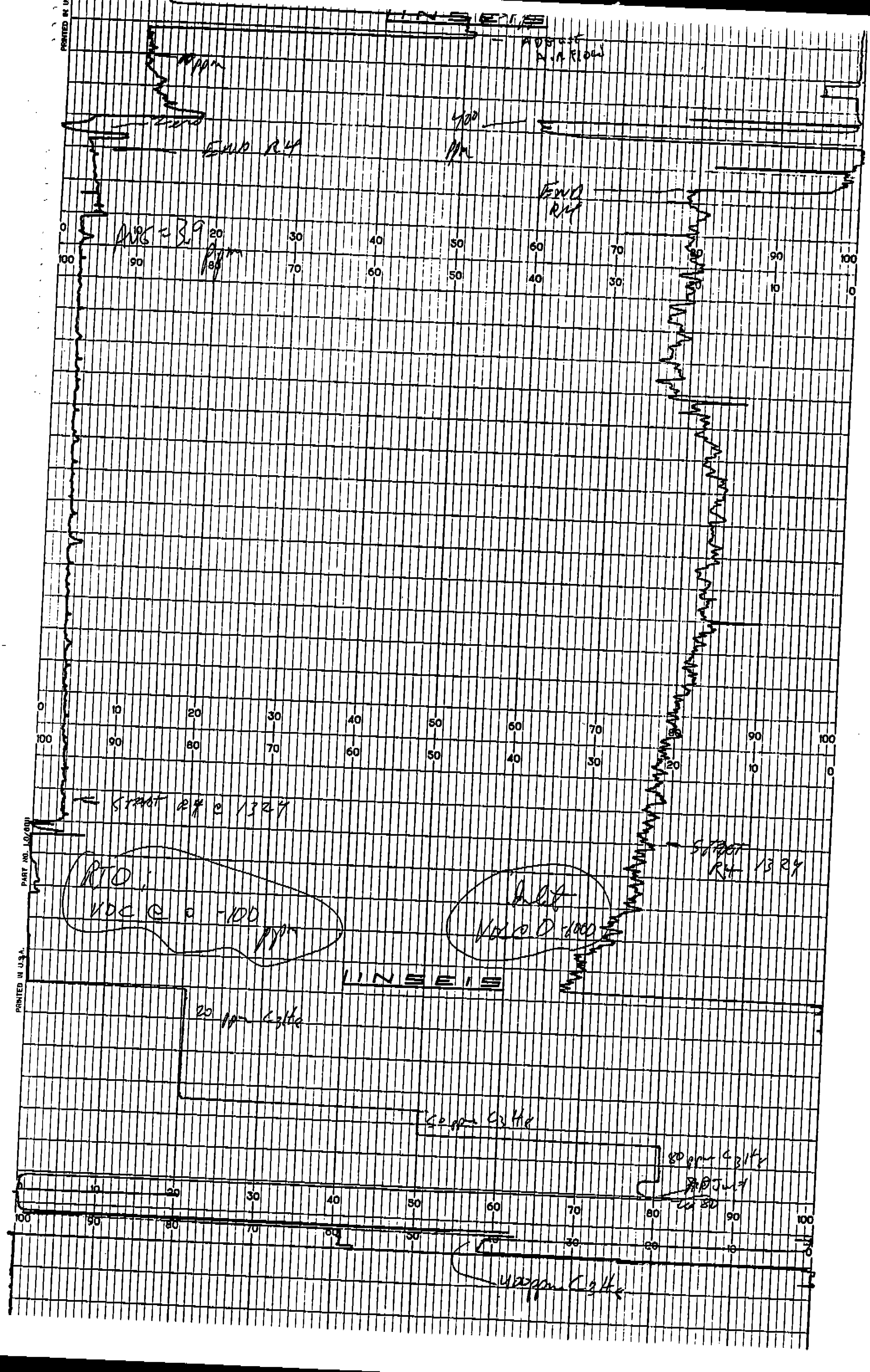

PRINTED IN U.S.A. PART NO. L60/8011

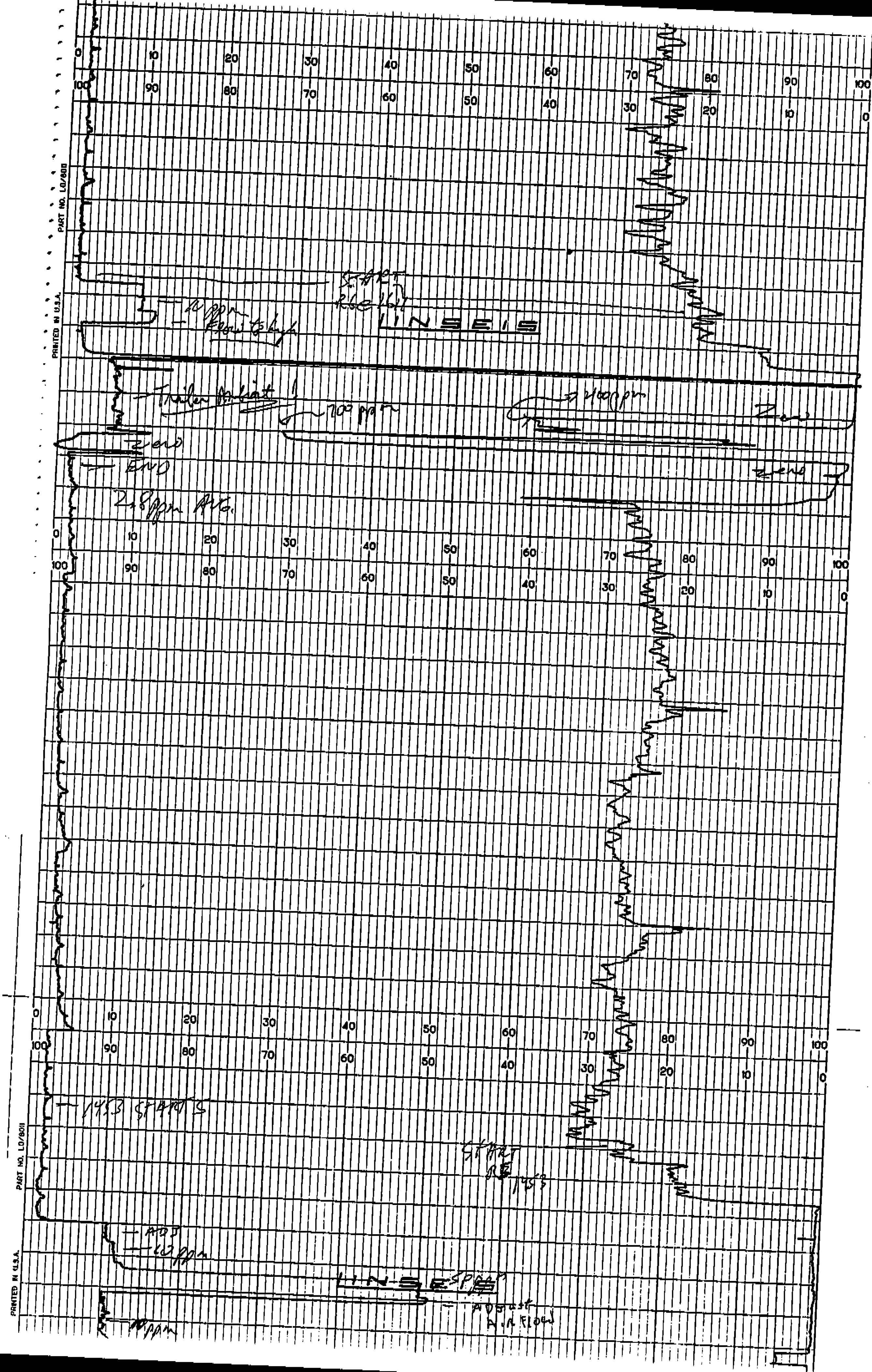

PART NO. LO/2011
PRINTED IN U.S.A.
5/12/95
LINEIN

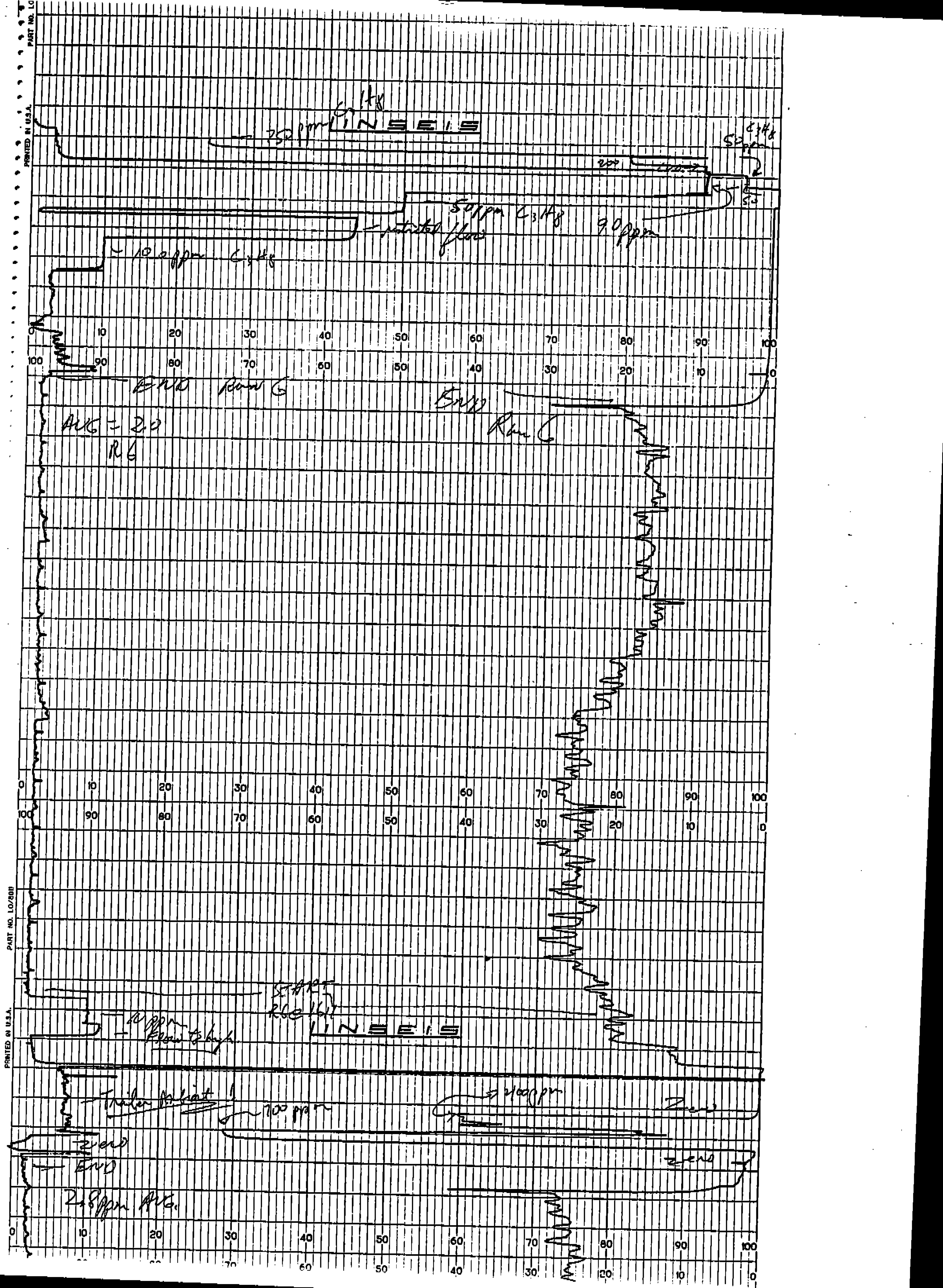


PART NO. L0/8011
PRINTED IN U.S.A.
250 ppm CO
NO
50ppm
LINSEIS
START R3e 0545
250 ppm CO Cal
PART NO. L0/8011
PRINTED IN U.S.A.
LINSEIS

VOC RECORDER TRACE


LINSEIS
End R4
400 ppm
End R4
AVG = 3.9 ppm
Start R4 @ 1324
RTO: VOC @ 0-100 ppm
Alt VOC @ 0-1000
Start R4 1324
20 ppm C3H8
60 ppm C3H8
80 ppm C3H8
420 ppm C3H8
PRINTED IN U.S.A.


PART NO. L0/8011
PRINTED IN U.S.A.
LINSEIS
START
10 ppm
Trailer
70 ppm
400 ppm
Zero
END
2.8 ppm AVG.
1453 STARTS
START
ADJ
60 ppm
SPAN
ADJUST AIR FLOW
10 ppm



LINSEIS
PRINTED IN U.S.A.
PART NO. LO/501
10 ppm C_3H_8
50 ppm C_3H_8
90 ppm
END Run G
AVG = 2.0
End Run G
LINSEIS
100 ppm
Zero
END
2.8 ppm AVG.

OXFORD Laboratories Inc.

Analytical and Consulting Chemists
1316 South Fifth Street
Wilmington, N.C. 28401
(910) 763-9793
Fax (910) 343-9688

DATE RECEIVED 05-15-95
DATE REPORTED 06-08-95
95W6753

ENVIRONMENTAL MONITORING
242 INGLE SIDE DR.
MADISON, MS 39110

P.O. # 051395

ATTENTION: DANNY RUSSELL

SAMPLE DESCRIPTION: 7 FORMALDEHYDE

1. RTO R4
2. RTO R5
3. RTO R6
4. INLET R4
5. INLET R5
6. INLET R6

RESULTS

	1	2	3	4	5	6
Formaldehyde, as HCHO, Total ug	388	434	421	4120	10400	11000

OXFORD Laboratories Inc.

Analytical and Consulting Chemists
1316 South Fifth Street
Wilmington, N.C. 28401
(910) 763-9793
Fax (910) 343-9688

DATE RECEIVED 05-15-95
DATE REPORTED 06-08-95
95W6753

ENVIRONMENTAL MONITORING
242 INGLE SIDE DR.
MADISON, MS 39110

P.O. # 051395

ATTENTION: DANNY RUSSELL

SAMPLE DESCRIPTION: 7 FORMALDEHYDE

7. FIELD BLANK

RESULTS

	7
Formaldehyde, as HCHO, Total ug	84.0

Ann McMillan
ANN MCMILLAN, ANALYST

CHAIN OF CUSTODY AND REQUEST FOR ANALYSIS

PAGE 1 OF 1

ENVIRONMENTAL MONITORING LABORATORIES
POST OFFICE BOX 655
RIDGELAND, MISSISSIPPI 39158

PHONE: 601/856-3092
FAX: 601/853-2151 Attention: Danny Russell

Laboratory: Oxford Labs.

Please return copy of chain of custody with analytical report

Attention: EML PO No. 051395

Project: Louisiana Pacific - Urania, La. 25B Plant - Formaldehyde emissions Tests for RTO Inlet/Outlet

Rush ☐ Routine ☑ Fax Results ☑

No. of containers	SAMPLE ID	Sample matrix	REMARKS	ANALYSES REQUESTED: HCHO - 0011	UNITS
1	RTO R4	Aqueous	Methylene Chloride	✓	
1	RTO R5	"		✓	
1	RTO R6	"		✓	
1	Inlet R4	"		✓	
1	Inlet R5	"		✓	
1	Inlet R6	"		✓	
1	Field BLANK	"		✓	
1	Excess Reagent				

Relinquished by: (print name; initial)	Date/time	Received by: (print name; initial)	Date/time
Daniel G. Russell	5/13/95		
Relinquished by: (print name; initial)	Date/time	Received by: (print name; initial)	Date/time
Relinquished by: (print name; initial)	Date/time	Received by: (print name; initial)	Date/time
COURIER	Date Shipped	Received for lab by:	Date/time
Fed Ex		Mary Congleton	5/15/95 10:00

URANIA LOUISIANA OSB STACK TEST OPERATIONAL SUMMARY

05/11/95

DRYER R-T-O

	FACE DRYER 1	CORE DRYER 2
Dry Furnish Moisture (%)	4.1 - 8.5	5.2 - 8.4
Inlet Temp. (°F)	720 - 880	780 - 960
Outlet Temp. (°F)	221 - 268	200 - 297
Production (lbs/hr)	17,280	17,520

12 PLATEN PRESS*

Press Temp. (°F)	385 - 395
Thickness (in)	0.438**
Density (nominal, lbs/cu ft)	46

PRODUCTION (Finished 3/8 in basis) 17,472 ft^2/hr ***
25,051 lbs/hr

*The OSB press, loader, and unloader are completely enclosed. All openings into this enclosure were evaluated for inlet air flows by Jim Boswell, L-P - Southern Division Environmental Control using a Kurz Instrument Model 490 FM hotwire Anemometer (Cert. of Calibration 10/20/94, NIST Traceable). All air flows for each opening exceeded the 200 ft/min velocity necessary to ensure 100% capture and control within the press enclosure. No press sample was done as these

emissions are ducted to the inlet of the MDF dryers or alternately to the MDF dryer R-T-O's.

**Nominal Thickness = 7/16 inch

***Annualized Production of 153,054,720 ft^2 3/8 basis (8760 hrs)

URANIA LOUISIANA OSB STACK TEST OPERATIONAL SUMMARY

05/12/95

DRYER R-T-O

	FACE DRYER 1	CORE DRYER 2
Dry Furnish Moisture (%)	3.8 - 7.2	4.6 - 8.6
Inlet Temp. (°F)	760 - 960	950 - 1190
Outlet Temp. (°F)	221 - 257	237 - 271
Production (lbs/hr)	17,400	17,850

12 PLATEN PRESS*

Press Temp. (°F)	385 - 395
Thickness (in)	0.438**
Density (nominal, lbs/cu ft)	46

PRODUCTION (Finished 3/8 in basis) 16,800 ft^2/hr*** 12.0 / dryer
24,150 lbs/hr 6.0 / dryer

*The OSB press, loader, and unloader are completely enclosed. All openings into this enclosure were evaluated for inlet air flows by Jim Boswell, L-P - Southern Division Environmental Control using a Kurz Instrument Model 490 FM hotwire Anemometer (Cert. of Calibration 10/20/94, NIST Traceable). All air flows for each opening exceeded the 200 ft/min velocity necessary to ensure 100% capture and control within the press enclosure. No press sample was done as these

emissions are ducted to the inlet of the MDF dryers or alternately to the MDF dryer R-T-O's.

**Nominal Thickness = 7/16 inch

***Annualized Production of 147,168,000 ft^2 3/8 basis (8760 hrs)