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

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

AP42 Section:	10.5
Background Chapter	4
Reference:	15
Title:	Report of Air Emissions Tests for Louisiana Pacific Corporation Plywood Plant, Urania, Louisiana, February 6, 7, and 8, 1995, prepared by Environmental Monitoring Laboratories, April 1995. 2002 supplement

CH4 #14
PLYWOOD
1997

REPORT OF
AIR EMISSIONS TESTS
FOR
LOUISIANA PACIFIC CORPORATION
PLYWOOD PLANT

Urania, Louisiana
February 6, 7, and 8, 1995

Louisiana Pacific Corporation
Post Office Box 490
Urania, Louisiana 71480

ph: 318/495-3111

Louisiana Pacific Corporation
P. O. Box 3107
Conroe, Texas 77305

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

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

Louisiana-Pacific

From the desk of

JAMES T. BOSWELL

05/31/95

Laxmi,

Attached is the sampling report for Urania Plywood - Call after you have reviewed it.

Regards

Jim

$NO_x \rightarrow NO_2$

on the No. 1 veneer dryer, No. 4 veneer dryer, and press

--- INSERT A ---

15

Reference ~~4 (OECA)~~

This report presents the results of air emissions tests performed ~~on~~ February 6-8, 1995, at the Louisiana Pacific Corporation plywood plant located in Urania, Louisiana. ~~Pollutants tested for are particulate, VOC, and selected organic compounds.~~

~~The Urania plant uses four veneer dryers and one press to manufacture plywood.~~ The number one, two, and three ~~dryers~~ each have four zones. The first three zones are drying zones each with a single exhaust, the fourth zone is the cooling zone with two exhausts. The fourth dryer is a ~~re-dryer with~~ two heating zones and one cooling zone. All emissions from these sources are emitted uncontrolled to the atmosphere. No other ~~process data or description is provided.~~

no # Because this report does not contain sufficient data to evaluate the source operating conditions during the test, and no emission factors could be developed, these emission data are not incorporated into AP-42 Section ~~xxxx~~ 10.5, and are not addressed further in this background report.

REFERENCE

15 ~~4.~~ Report of Emissions Tests for Louisiana Pacific Corporation Plywood Plant, Urania, Louisiana, February 6,7, and 8,1995

The report contains no production data for the veneer dryers or for the press, therefore no emission factors could be developed from the emission rates reported.

ENVIRONMENTAL MONITORING LABORATORIES, INC.

P.O. Box 655 ● 606 B Highway 51 North
Ridgeland, Mississippi 39158

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

April 24, 1995

Subject: Louisiana Pacific Corporation -- Urania, Louisiana
Plywood plant

On February 6, 7, and 8, 1995, Environmental Monitoring Laboratories performed air emissions testing for Louisiana Pacific Corporation in Urania, Louisiana. Testing was performed to determine particulate, VOC, and selected organic compounds from emission points associated with the plywood plant operations at the request of Louisiana Pacific Corporation.

Results of the testing are summarized in the tables below.

		PRESS VENT	DRYER NO. 1	DRYER NO. 4
PARTICULATE	#/hr	0.59	7.14	3.71
	gr/dscf	0.006	0.008	0.012
VOC	#/hr as C	3.46	28.69	8.28
	ppm as C	149	262	127
SPECIES				
Acrolein	#/hr	< 0.01	< 0.06	< 0.03
Phenol	#/hr	< 0.02	< 0.09	< 0.05
Methanol	#/hr	0.81	< 0.40	< 0.60
a-pinene	#/hr	0.37	2.46	0.62
b-pinene	#/hr	0.03	1.33	0.36
camphene	#/hr	0.00	0.08	0.02
limonene	#/hr	0.05	0.23	0.07

The testing project was coordinated by Dr. James T. Boswell of Louisiana Pacific Corporation. Danny Russell of Environmental Monitoring Laboratories was responsible for the collection and transport of samples and for sample analysis and for report preparation.

Following is a report of the test.

REPORT OF AIR EMISSIONS TESTS
FOR LOUISIANA PACIFIC CORPORATION
PLYWOOD PLANT
URANIA, LOUISIANA
FEBRUARY 6, 7, AND 8, 1995

CONTENTS

1.0	TEST RESULTS	page 1
2.0	SOURCE DESCRIPTION	4
3.0	TEST PROCEDURES	4
4.0	DATA REDUCTION	5
5.0	NOMENCLATURE	16
6.0	CALIBRATION	17
7.0	APPENDICES:	18

A. Field and Laboratory Data
B. Calibrations
C. VOC Traces
D. Speciation Analysis (Bonner Analytical)

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 measured flow parameters and test results for emissions testing done on February 6, 7, and 8, 1995, for the plywood plant at Louisiana Pacific Corporation in Urania, Louisiana.

1.1 Press Vent
VOC/PM Emissions Test - February 6, 1995

Run No.		1	2	AVG.
Date		2/6/95	2/6/95	------
Time Start		1407	1530	----
Time End		1508	1632	----
Particulate Emissions	#/hr	0.69	0.50	0.59
Particulate Emissions	grains/dscf	0.006	0.005	0.006
VOC Emissions	#/hr	3.21	3.70	3.46
VOC Emissions	ppm as C	138	160	149
Organic Species	#/hr			
Acrolein		0.01		0.01
Phenol		0.02		0.02
Methanol		0.81		0.81
Alpha Pinene		0.37		0.37
Alpha Pinene		0.03		0.03
Camphene		0.00		0.00
Limonene		0.05		0.05
Organic Species	ppm			
Acrolein		0.10		0.10
Phenol		0.10		0.10
Methanol		1.30		1.30
Alpha Pinene		1.40		1.40
Alpha Pinene		0.10		0.10
Camphene		0.00		0.00
Limonene		0.20		0.20
Volumetric Flowrate	acfm	12784	12665	12725
Volumetric Flowrate	dscfm	12438	12348	12393
Velocity	ft./sec.	30.1	29.9	30.0
Stack Temperature	°F	73	75	74
Moisture	%	1.7	1.3	1.5

1.2 No. 1 Veneer Dryer
VOC/PM Emissions Test - February 7, 1995

ZONE		1	2	3	4A	4B	4C	Weighted Total
Particulate Emissions	#/hr	0.30	1.52	1.04	*1.43*	1.43	*1.43*	7.14
Particulate Emissions	grains/dscf	0.033	0.061	0.091	*0.009*	0.009	*0.009*	0.008
VOC Emissions	#/hr	4.08	20.79	2.34	0.44	0.63	0.41	28.69
VOC Emissions	ppm as C	2111	3760	955	13	18	13	262
Organic Species	#/hr							
Acrolein		0.0009	0.0051	0.0024	*0.0162*	0.0162	*0.0162*	0.0569
Phenol		0.0015	0.0086	0.0020	*0.0271*	0.0271	*0.0271*	0.0936
Methanol		0.0068	0.0234	0.0095	*0.1202*	0.1202	*0.1202*	0.4001
Alpha Pinene		0.4933	1.3690	0.2500	*0.1179*	0.1179	*0.1179*	2.4660
Beta Pinene		0.3022	0.6347	0.1523	*0.0786*	0.0786	*0.0786*	1.3250
Camphene		0.0178	0.0498	0.0086	*0.0000*	0.0000	*0.0000*	0.0762
Limonene		0.0844	0.1058	0.0402	*0.0000*	0.0000	*0.0000*	0.2305
Volumetric Flowrate	acfm	2844	9298	2812	17891	18562	17296	68702
Volumetric Flowrate	dscfm	1034	2958	1306	17629	18515	17139	58582
Velocity	ft./sec.	15.1	49.3	14.9	23.2	24.1	22.5	
Stack Temperature	°F	274	310	291	68	62	65	
Moisture	%	49.6	53.7	34.1	1.6	1.6	1.6	

1.3 No. 4 Veneer Dryer
VOC/PM Emissions Test - February 7, 1995

ZONE		1	2	3A	3B	Weighted Total
Particulate Emissions	#/hr	1.22	0.92	0.93	0.63	3.71
Particulate Emissions	grains/dscf	0.066	0.062	0.007	0.005	0.012
VOC Emissions	#/hr	5.54	2.17	0.28	0.29	8.28
VOC Emissions	ppm as C	1410	688	10	10	127
Organic Species	#/hr					
Acrolein		0.0019	0.0015	0.0134	*0.0134*	0.0302
Phenol		0.0032	0.0025	0.0225	*0.0225*	0.0507
Methanol		0.0065	0.0060	0.0536	*0.5360*	0.6021
Alpha Pinene		0.3938	0.1653	0.0326	*0.0326*	0.6243
Beta Pinene		0.2061	0.0882	0.0326	*0.0326*	0.3594
Camphene		0.0137	0.0037	0.0000	*0.0000*	0.0174
Limonene		0.0458	0.0257	0.0000	*0.0000*	0.0715
Volumetric Flowrate	acfm	5165	2782	15032	15114	38094
Volumetric Flowrate	dscfm	2094	1685	15339	15530	34649
Velocity	ft./sec.	27.1	13.6	20.8	20.9	
Stack Temperature	°F	316	294	59	55	
Moisture	%	41.11	14.57	0.84	0.87	

2.0 Source Description: : Louisiana Pacific's Urania, Louisiana plywood plant uses four veneer dryers and 1 press to manufacture plywood. The Nos. 1, 2, and 3 veneer dryers each has four zones. The first three zones are drying zones and each has a single exhaust. Zone 4 is a cooling zone and has three inlet air stacks and three outlet stacks. The No. 4 dryer is a re-dryer and has two heating zones and a cooling zone. The two heating zones each have a single stack. The cooling zone has two intake stacks and two outlet stacks. There are two presses each of which has an exhaust to the atmosphere. The No. 1 and No. 4 veneer dryers and the No. 1 press vent were selected for testing. Diagrams of the stacks and selection of sample points are provided in Appendix A. Additional process descriptions and operating conditions during testing may be requested from Louisiana Pacific Corporation.

3.0 Test Procedures:

Test procedures used are those described in the Code of Federal Regulations, Title 40, Part 60, Appendix A. Specifically, Method 1 was used to determine the number of sample points, Method 2 to determine velocity, Method 3 to determine oxygen and carbon dioxide content of the stack gas, and Method 5 to determine flow rates, moisture content, and particulate emissions. The sampling train used is identical to that described in Method 5. VOC emissions were determined using Method 25A. Sampling departed from typical procedures in that single samples or duplicate samples were collected rather than the more typical triplicate testing.

Samples for organic compound speciation screening were collected in NIOSH sampling tubes of XAD-2 resin and charcoal connected in series using a personnel sample pump and low rate sampling. Those samples were shipped to Bonner Analytical Testing in Hattiesburg, Mississippi, for analysis. Target compounds for positive identification included acrolein, phenol, and methanol. Target compounds for tentative identification were pinene isomers. A copy of the report of that analysis is provided in Appendix D.

Filters were recovered by rinsing the front half of the filter holder into the probe wash and securing the filters in glass petri dishes. Part of the sample filter normally adheres to the filter gasket, and some of the adhering material is recovered into the probe wash. Therefore some of the filter weight is attributed to the probe wash weight. Filters were heated in an oven for 2 hours at 105° C, desiccated at least 24 hours and weighed to constant weight. Probe wash samples in acetone were evaporated to dryness over low heat in tarred beakers, desiccated for at least 24 hours and weighed to constant weight. Weighings are made at 6 hour or greater intervals (samples stored in desiccator). Final weights are considered valid and are recorded if there is no more than 0.5 milligrams difference from the previous weighing.

4.0 DATA REDUCTION

Louisiana Pacific Corporation
Press Vent
VOC/PM Emissions Test - February 6, 1995

Collected Test Data:

			RUN 1	RUN 2	
	Date	:	2/6/95	2/6/95	
	Time start	:	1407	1530	
	Time end	:	1508	1632	
1.	As	: sq ft	7.0686	7.0686	
2.	Dn	: in.	0.310	0.310	
3.	Cp	: dimensionless	0.84	0.84	
4.	Theta	: minutes	60.00	60.00	
5.	Y	: dimensionless	1.00	1.00	
6.	Pbar	: in. Hg	29.90	29.90	
7.	Pg	: in. H2O	0.15	0.15	
8.	Vm	: cf (dry gas)	55.990	55.287	
9.	sqr(DP),avg	: in.H2O^.5	0.5321	0.5270	
10.	DH	: in. H2O	2.6458	2.5875	
11.	ts	: degrees F	73.29	74.50	73.90
12.	tm	: degrees F	87.31	95.19	
13.	Vlc	: ml	20	14.5	
14.	CO2	: percent	0.00	0.00	
15.	O2	: percent	20.90	20.90	
16.	CO	: percent	0	0	
17.	M,PM	: milligrams			
		front half	17.7	11.3	
		back half organic	3.5	3.5	
		back half aqueous	1.6	1.3	
18.	C,VOC	: ppm as CH_4	45.3	52.7	
17.	M,PM	: ppm			
		acrolein	0.1		
		phenol	0.1		
		methanol	1.3		
		alpha pinene	1.4		
		beta pinene	0.1		
		camphene	0		
		limonene	0.2		

Louisiana Pacific Corporation
Press Vent
VOC/PM Emissions Test - February 6, 1995

Calculations:		RUN 1	RUN 2	AVG.
1. Pm	: in.Hg (DH/13.6)+Pbar	30.0945	30.0903	
2. Ps	: in. Hg (Pg/13.6)+Pbar	29.9110	29.9110	
3. An	: sq ft ((Dn/24)^2)(3.1416)	5.24E-04	5.24E-04	
4. Vmstd	: dscf Vm Y(Pm/Pstd)(Tstd/Tm)	54.330	52.879	
5. Vwstd	: scf .(.04707cf/ml)(Vlc)	0.941	0.683	
6. Bws	: dimensionless Vwstd/(Vwstd+Vmstd)	0.0170	0.0127	0.0149
7. Md	: mol.wt. dry basis .44 CO2+.32 O2+.28(CO+N2)	28.836	28.836	
8. Ms	: mol.wt. wet basis Md(1-Bws)+18 Bws	28.65	28.70	
9. Vs	: ft/sec Kp Cp (sqrDP)sqr(Ts/(Ps Ms))	30.14	29.86	30.00
10. Q	: cfm Vs As(60 sec/min)	12784	12665	12725
11. Qstw	: scfm Q(Ps/Pstd)(Tstd/Ts)	12653	12508	12581
12. Qstd	: dscfm Qstw(1-Bws)	12438	12348	12393
13. I	: percent {(100 Ts)(.002669 Vlc+(Vm Pm/Tm)}/(60 theta Vs Ps An)	98.18	96.25	97.22

Louisiana Pacific Corporation
Press Vent
VOC/PM Emissions Test - February 6, 1995

Particulate Emissions

14. E,PM	: pounds/hr			
	(M,PM/Vmstd)(Qstd)(60)/(453590)			
front half		0.536	0.349	0.443
back half organic		0.106	0.108	0.107
back half aqueous		0.048	0.040	0.044
Total		0.690	0.497	0.594
15. C,PM	: grains/dscf			
	(M,PM/Vmstd)(.0154 grains/mg)			
front half		0.0050	0.0033	0.0042
back half organic		0.0010	0.0010	0.0010
back half aqueous		0.0005	0.0004	0.0004
Total		0.0065	0.0047	0.0056

VOC Emissions

16. C'VOC	: ppm as Carbon, dry			
	((C,VOC)*3)/(1-Bws)	138.25	160.14	149.20
17. E,VOC	: pounds/hr			
	(C'VOC)(3.116e-8)(Qstd)(60)	3.21	3.70	3.46

Speciation

21. E,Species	: #/hr			
	(C,species)(mw/385.1e6)(Qstd)(60)			
acrolein	1.4560E-07	0.01		0.01
phenol	2.4438E-07	0.02		0.02
methanol	8.3199E-08	0.81		0.81
alpha pinene	3.5378E-07	0.37		0.37
beta pinene	3.5378E-07	0.03		0.03
camphene	3.5378E-07	0.00		0.00
limonene	3.5378E-07	0.05		0.05

Louisiana Pacific Corporation - Urania Plywood Plant
No. 1 Veneer Dryer
VOC/PM Emissions Test - February 7, 1995

Collected Test Data:

			D1Z1-R1	D1Z1-R2	D1Z2-R1	D1Z2-R2	D1Z3-R1	D1Z3-R2	D1Z4 A	D1Z4 B	D1Z4 C
	Date	:	2/7/95	2/7/95	2/7/95	2/7/95	2/7/95	2/7/95	2/7/95	2/7/95	2/7/95
	Time start	:	0915	1025	0915	1025	1232	1348	1738	1626	1731
	Time end	:	1018	1125	1019	1125	1332	1448	1745	1729	1737
1.	As	: sq ft	3.1416	3.1416	3.1416	3.1416	3.1416	3.1416	12.8295	12.8295	12.8295
2.	Dn	: in.	0.497		0.325		0.490	0.490		0.310	
3.	Cp	: dimensionless	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
4.	Theta	: minutes	60.00	60.00	60.00	60.00	30.00	60.00		60.00	
5.	Y	: dimensionless	1.00		1.00		1.00	1.00		1.00	
6.	Pbar	: in. Hg	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98
7.	Pg	: in. H2O	-0.04	-0.04	0.3	0.3	0.3	0.3	-0.14	-0.14	-0.14
8.	Vm	: cf (dry gas)	31.535		36.935		15.780	33.810		44.255	
9.	sqr(DP),avg	: in.H2O^.5	0.2092	0.2022	0.6424	0.6528	0.2135	0.2029	0.4128	0.4309	0.4002
10.	DH	: in. H2O	0.8225		1.1635		0.8308	0.9500		1.6917	
11.	ts	: degrees F	280.50	267.00	305.00	315.25	294.00	287.75	68.00	61.58	65.00
12.	tm	: degrees F	90.50	97.90	89.20		73.79	86.92		90.19	
13.	Vlc	: ml	634		880		165	377.5		15	
14.	CO2	: percent	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00
15.	O2	: percent	20.90	20.90	20.90		20.90	20.90	20.90	20.90	20.90
16.	CO	: percent	0	0	0		0	0	0	0	0
17.	M,PM	: milligrams									
		front half	57.2		124.3		117.9	132		14.4	
		back half organic	6.7		15.5			9.7		9.6	
		back half aqueous	1.3		0.5			1.1		0.9	
18.	C,VOC	: ppm as CH_4	342.0	368.0	600.0	560.0	230.0	190.0	4.4	6.0	4.2
19.	M,Species	: ppm									
		acrolein	*0.1*		*0.2*		0.2			0.1	
		phenol	*0.1*		*0.2*		0.1			0.1	
		methanol	1.3		*1.6*		1.4			1.3	
		alpha pinene	22.2		22		8.7			0.3	
		beta pinene	13.6		10.2		5.3			0.2	
		camphene	0.8		0.8		0.3			0	
		limonene	3.8		1.7		1.4			0	

Louisiana Pacific Corporation - Urania Plywood Plant
No. 1 Veneer Dryer
VOC/PM Emissions Test - February 7, 1995

Calculations:

		D1Z1-R1	D1Z1-R2	D1Z2-R1	D1Z2-R2	D1Z3-R1	D1Z3-R2	D1Z4 A	D1Z4 B	D1Z4 C
1. Pm	: in.Hg (DH/13.6)+Pbar	30.0405	29.9800	30.0656	29.9800	30.0411	30.0499	29.9800	30.1044	29.9800
2. Ps	: in. Hg (Pg/13.6)+Pbar	29.9771	29.9771	30.0021	30.0021	30.0021	30.0021	29.9697	29.9697	29.9697
3. An	: sq ft ((Dn/24)^2)(3.1416)	1.35E-03		5.76E-04		1.31E-03	1.31E-03		5.24E-04	
4. Vmstd	: dscf Vm Y(Pm/Pstd)(Tstd/Tm)	30.368		35.682		15.672	32.782		42.732	
5. Vwstd	: scf (.04707cf/ml)(Vlc)	29.842		41.422		7.767	17.769		0.706	
6. Bws	: dimensionless Vwstd/(Vwstd+Vmstd)	0.4956	0.4956	0.5372	0.5372	0.3314	0.3515	0.0163	0.0163	0.0163
7. Md	: mol.wt. dry basis .44 CO2+.32 O2+.28(CO+N2)	28.836	28.836	28.836	28	28.836	28.836	28.836	28.836	28.836
8. Ms	: mol.wt. wet basis Md(1-Bws)+18 Bws	23.47	23.47	23.01	22.63	25.25	25.03	28.66	28.66	28.66
9. Vs	: ft/sec Kp Cp (sqrDP)sqr(Ts/(Ps Ms))	15.41	14.76	48.56	50.10	15.30	14.54	23.24	24.11	22.47
10. Q	: cfm Vs As(60 sec/min)	2905	2782	9153	9443	2883	2741	17891	18562	17296
11. Qstw	: scfm Q(Ps/Pstd)(Tstd/Ts)	2076	2025	6335	6449	2025	1941	17921	18821	17423
12. Qstd	: dscfm Qstw(1-Bws)	1047	1021	2932	2985	1354	1258	17629	18515	17139
13. I	: percent [(100 Ts)(.002669 Vlc+(Vm Pm/Tm)]/(60 theta Vs Ps An)	112.78		110.67		92.59	104.18		94.15	

Louisiana Pacific Corporation - Urania Plywood Plant
No. 1 Veneer Dryer
VOC/PM Emissions Test - February 7, 1995

Particulate Emissions

14. E,PM : pounds/hr (M,PM/Vmstd)(Qstd)(60)/(453590)										
front half		0.261		1.351		1.347	0.670		0.825	
back half organic		0.031		0.168			0.049		0.550	
back half aqueous		0.006		0.005			0.006		0.052	
Total		0.297		1.525		1.347	0.725		1.427	
15. C,PM : grains/dscf (M,PM/Vmstd)(.0154 grains/mg)										
front half		0.0290		0.0536		0.1159	0.0620		0.0052	
back half organic		0.0034		0.0067			0.0046		0.0035	
back half aqueous		0.0007		0.0002			0.0005		0.0003	
Total		0.0331		0.0606		0.1159	0.0671		0.0090	

VOC Emissions

16. C'VOC : ppm as Carbon, dry ((C,VOC)*3)/(1-Bws)		2034.25	2188.74	3889.54	3630.08	1031.94	878.96	13.42	18.30	12.81
17. E,VOC : pounds/hr (C'VOC)(3.116e-8)(Qstd)(60)		3.98	4.18	21.32	20.26	2.61	2.07	0.44	0.63	0.41

Speciation

21. E,Species : #/hr (C,species)(mw/385.1e6)(Qstd)(60)										
acrolein	1.4560E-07	0.0009		0.0051		0.0024			0.0162	
phenol	2.4438E-07	0.0015		0.0086		0.0020			0.0271	
methanol	8.3199E-08	0.0068		0.0234		0.0095			0.1202	
alpha pinene	3.5378E-07	0.4933		1.3690		0.2500			0.1179	
beta pinene	3.5378E-07	0.3022		0.6347		0.1523			0.0786	
camphene	3.5378E-07	0.0178		0.0498		0.0086			0.0000	
limonene	3.5378E-07	0.0844		0.1058		0.0402			0.0000	

Louisiana Pacific Corporation - Urania Plywood Plant
No. 4 Veneer Dryer -- Zone 2 Stack
VOC/PM Emissions Test - February 7, 1995

Collected Test Data:			D4Z1-R1	D4Z1-R2	D4Z2-R1	D4Z2-R2	D4Z3A	D4Z3B
	Date	:	2/8/95	2/8/95	2/9/95	2/9/95	2/9/95	2/9/95
	Time start	:	0915	1140	1033	1140	1357	0920
	Time end	:	1019	1240	1134	1240	1457	1024
1.	As	: sq ft	3.2739	3.1416	3.4088	3.4088	12.0482	12.0482
2.	Dn	: in.	0.405		0.490		0.310	0.373
3.	Cp	: dimensionless	0.84	0.84	0.84	0.84	0.84	0.84
4.	Theta	: minutes	60.00	60.00	60.00	60.00	60.00	60.00
5.	Y	: dimensionless	1.00	1.00	1.00	1.00	1.00	1.00
6.	Pbar	: in. Hg	30.27	30.27	30.27	30.27	30.27	30.27
7.	Pg	: in. H2O	-0.06	-0.06	-0.05	0.05	-0.03	-0.03
8.	Vm	: cf (dry gas)	35.937		34.190		39.820	55.320
9.	sqr(DP),avg	: in.H2O^.5	0.3681	0.3607	0.2025	0.1940	0.3749	0.3783
10.	DH	: in. H2O	1.1958		0.9988		1.3333	2.8667
11.	ts	: degrees F	316.71	315.00	285.58	301.50	59.04	55.29
12.	tm	: degrees F	79.75		79.31		88.88	95.96
13.	Vlc	: ml	529		123		7	10
14.	CO2	: percent	0.00	0.00	0.00	0.00	0.00	0.00
15.	O2	: percent	20.90	20.90	20.90	20.90	20.90	20.90
16.	CO	: percent	0	0	0	0	0	0
17.	M,PM	: milligrams						
		front half	134.2		127.7		12.8	13.7
		back half organic	16.8		7.7		4.8	2.6
		back half aqueous	1.9		1.6		0.3	0.2
18.	C,VOC	: ppm as CH_3	311.0	242.6	200.0	192.0	3.2	3.3
17.	M,PM	: ppm						
		acrolein	*0.1*			*0.1*	0.1	
		phenol	*0.1*			*0.1*	0.1	
		methanol	0.6			*0.7*	0.7	
		alpha pinene	8.6			4.5	0.1	
		beta pinene	4.5			2.4	0.1	
		camphene	0.3			0.1	0	
		limonene	1.0			0.7	0	

Louisiana Pacific Corporation - Urania Plywood Plant
No. 4 Veneer Dryer -- Zone 2 Stack
VOC/PM Emissions Test - February 7, 1995

Calculations:	D4Z1-R1	D4Z1-R2	D4Z2-R1	D4Z2-R2	D4Z3A	D4Z3B
1. Pm : in.Hg (DH/13.6)+Pbar	30.3579	30.2700	30.3434	30.2700	30.3680	30.4808
2. Ps : in. Hg (Pg/13.6)+Pbar	30.2656	30.2656	30.2663	30.2737	30.2678	30.2678
3. An : sq ft ((Dn/24)^2)(3.1416)	8.95E-04		1.31E-03		5.24E-04	7.59E-04
4. Vmstd : dscf Vm Y(Pm/Pstd)(Tstd/Tm)	35.669		33.947		38.879	53.523
5. Vwstd : scf (.04707cf/ml)(Vlc)	24.900		5.790		0.329	0.471
6. Bws : dimensionless Vwstd/(Vwstd+Vmstd)	0.4111	*0.4111*	0.1457	*0.1457*	0.0084	0.0087
7. Md : mol.wt. dry basis .44 CO2+.32 O2+.28(CO+N2)	28.836	28.836	28.836	28.836	28.836	28.836
8. Ms : mol.wt. wet basis Md(1-Bws)+18 Bws	24.38	24.38	27.26	27.26	28.74	28.74
9. Vs : ft/sec Kp Cp (sqrDP)sqr(Ts/(Ps Ms))	27.12	26.55	13.82	13.38	20.79	20.91
10. Q : cfm Vs As(60 sec/min)	5327	5004	2828	2737	15032	15114
11. Qstw : scfm Q(Ps/Pstd)(Tstd/Ts)	3663	3448	2026	1920	15469	15667
12. Qstd : dscfm Qstw(1-Bws)	2157	2031	1730	1641	15339	15530
13. I : percent [(100 Ts)(.002669 Vlc+(Vm Pm/Tm))/(60 theta Vs Ps An)	100.87		85.12		97.10	91.20

Louisiana Pacific Corporation - Urania Plywood Plant
No. 4 Veneer Dryer -- Zone 2 Stack
VOC/PM Emissions Test - February 7, 1995

Particulate Emissions

14. E,PM : pounds/hr						
(M,PM/Vmstd)(Qstd)(60)/(453590)						
front half	1.074		0.861		0.668	0.526
back half	0.134		0.052		0.251	0.100
organic						
back half	0.015		0.011		0.016	0.008
aqueous						
Total	1.223		0.924		0.934	0.633
15. C,PM : grains/dscf						
(M,PM/Vmstd)(.0154 grains/mg)						
front half	0.0579		0.0579		0.0051	0.0039
back half	0.0073		0.0035		0.0019	0.0007
organic						
back half	0.0008		0.0007		0.0001	0.0001
aqueous						
Total	0.0660		0.0622		0.0071	0.0047

VOC Emissions

16. C'VOC : ppm as Carbon, dry						
((C,VOC)*3)/(1-Bws)	1584.31	1235.86	702.33	674.24	9.68	9.99
17. E,VOC : pounds/hr						
(C'VOC)(3.116e-8)(Qstd)(60)	6.39	4.69	2.27	2.07	0.28	0.29

Speciation

21. E,Species : #/hr						
(C,species)(mw/385.1e6)(Qstd)(60)						
acrolein	1.4560E-07	0.0019			0.0015	0.0134
phenol	2.4438E-07	0.0032			0.0025	0.0225
methanol	8.3199E-08	0.0065			0.0060	0.0536
alpha pinene	3.5378E-07	0.3938			0.1653	0.0326
beta pinene	3.5378E-07	0.2061			0.0882	0.0326
camphene	3.5378E-07	0.0137			0.0037	0.0000
limonene	3.5378E-07	0.0458			0.0257	0.0000

Speciation Calculations:

Sample Location	Run No.	Counter Start	Counter Stop	Count	ml per count	Pbar In. Hg	Ta °F	Volume std ml	Acrolein		Phenol		Methanol		a-pinene		b-pinene		camphene		limonene		Sum as carbon
									ug	ppm	ug	ppm	ug	ppm	ug	ppm	ug	ppm	ug	ppm	ug	ppm	
PV 1	1	205592	222983	17391	0.2485	29.98	65	4355	*2.0*	*0.2*	*4.0*	*0.2*	13.8	2.4	32.6	1.3	2.6	0.1	0.6	0.02	4.0	0.2	20.5
D1Z1	1	222983	236071	13088	0.2485	29.98	46	3401	*2.0*	*0.3*	*4.0*	*0.3*	11.0	2.4	393.7	20.4	240.8	12.5	14.9	0.8	66.5	3.5	376.6
D1Z2	1	249867	259657	9790	0.2485	29.98	45	2549	*2.0*	*0.3*	*4.0*	*0.4*	*10.0*	*2.9*	292.2	20.2	135.6	9.4	10.5	0.7	22.4	1.6	325.4
D1Z3	1	259657	270610	10953	0.2485	29.98	50	2824	*2.0*	*0.3*	*4.0*	*0.4*	*10.0*	*2.7*	128.3	8.0	78.3	4.9	3.7	0.2	20.4	1.3	150.0
D1Z4B	1	270610	283019	12409	0.2485	29.98	56	3162	*2.0*	*0.3*	*4.0*	*0.3*	*10.0*	*2.4*	4.8	0.3	2.5	0.1	0.0	0.00	0.5	0.0	9.5
D4Z1	1	283565	311174	27609	0.2485	30.27	46	7243	*2.0*	*0.1*	*4.0*	*0.1*	*10.0*	*1.0*	322.8	7.9	171.5	4.2	10.8	0.3	39.1	1.0	134.9
D4Z2	2	311174	333938	22764	0.2485	30.27	42	6019	*2.0*	*0.1*	*4.0*	*0.2*	*10.0*	*1.2*	141.5	4.1	75.2	2.2	4.4	0.1	21.8	0.6	73.9
D4Z3A	1	333938	355904	21966	0.2485	30.27	50	5717	*2.0*	*0.1*	*4.0*	*0.2*	*10.0*	*1.3*	2.3	0.1	1.6	0.0	0.0	0.0	0.2	0.0	4.1

* Results shown in italics are calculated on LOD values

Acrolein MW =	56.07	ug/l to ppm factor =	428.7	(24040/MW)
Phenol MW =	94.11		255.4	
Methanol MW =	32.04		750.3	
Pinene(s) MW =	136.24		176.5	

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 pollutant 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 Analytical Data

B. Calibration Data

C. VOC Traces

D. Speciation Analyses (Bonner Analytical)

7.0 APPENDICES

APPENDIX A.

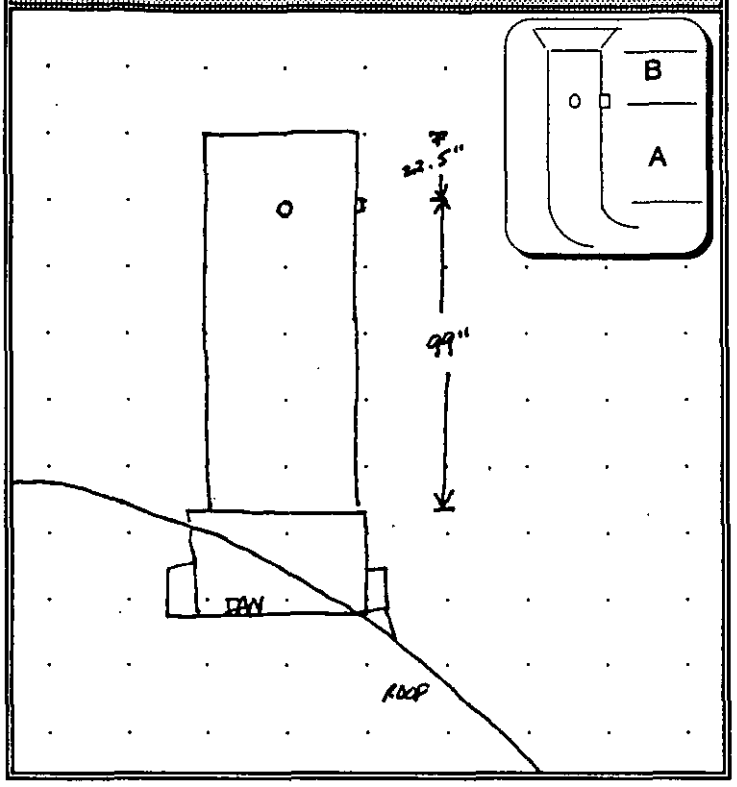
SAMPLING AND ANALYTICAL DATA

PRESS VENT

STACK CONFIGURATION AND SAMPLE POINT LAYOUT FOR CIRCULAR STACKS

PLANT: LOUISIANA PACIFIC PLYWOOD URANIA LA **Date:** 2-6-95
SOURCE: #1 PRESS VENT STACK
TEST FOR: PM / VOC
TEST OPERATORS: D. RUSSELL / B. McKNIGHT / G. McKNIGHT / L. CARRUTH

SKETCH OF STACK



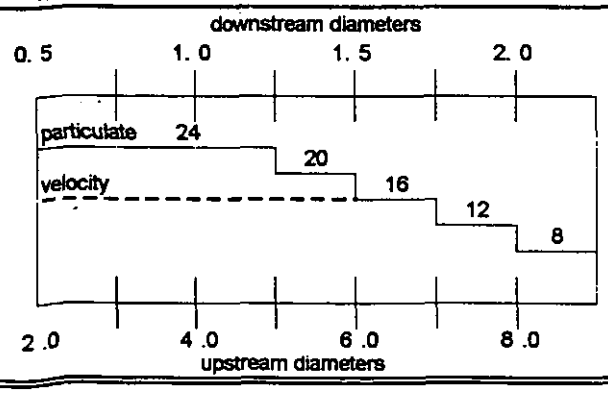
PERCENT OF DIAMETER

point no.	points on a diameter: 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

STACK DIAMETER:	36"
Distance from ports to disturbance:	
A. to upstream disturbance	99"
B. to downstream disturbance	22.5
Upstream diameters:	2.75
Downstream diameters:	.625
Minimum No. sample points required:	24
No. sample points selected:	12X2
Port Length:	0"
Port Type:	5" HOLE CUT
Port Access:	ROOF / WOODEN PLATFORM

Point No.	Inches from wall	velocity head
1	.8	.30
2	2.4	.28
3	4.2	.27
4	6.4	.27
5	9.0	.27
6	12.8	.27
7	23.2	.30
8	27.0	.30
9	29.6	.31
10	31.8	.31
11	33.6	.29
12	35.2	.27
		AVG. ΔP .286

MINIMUM NO. OF POINTS ON A DIAMETER



Pitot ID: Pitot Cp: Stack Temp: 80

Remarks:

Plant: LOUISIANA PACIFIC PLYWOOD PLANT URANIA LA.
Sampling Location: #1 PRESS VENT STACK
Test For: PM / VOC
Test Operators: D. RUSSELL / B. MCKNIGHT / G. MCKNIGHT / L. CRUMPTH

RUN No. 1
Date 2-6-95
Time start 1407 end 1508

Meter Box	HODORSEN	No. Sample Pts.	12X2	Gas Analysis		Remarks:	
Sample Box	NO. 4	Minutes/Pt.	2.5	CO_2		//	
Probe/Pitot	4' INC			O_2			
Pitot Cp	.84	NOMOGRAPH		CO		AVG VOC 45.5 ppm	
Nozzle Dia.	.310	ΔH@	1.75	Time			
Filter No.		Meter Temp.	100				
		% H_2O	10	Condensate:		HAP PUMP	
Amb. Temp. °F	65	C-Factor	.93	tare 200	fin 197	START	STOP
Bar. Press. "Hg	29.90	Stack Temp.	80	Silica gel:		205592 →	222983
Static Press. "H_2O	+ .15	Ref. ΔP	.20	tare 691	fin 714		

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	0100	823.040	0.27	2.50	75	66	63	245	50	2
2	230	825.0	0.27	2.50	73	71	63	257	50	2
3	500	827.2	0.26	2.40	78	77	63	246	49	2
4	730	829.5	0.27	2.50	72	82	64	241	48	2
5	1000	831.6	0.27	2.50	76	86	65	250	48	2
6	1230	834.2	0.25	2.30	75	90	67	245	48	2
7	500	836.9	0.29	2.70	71	93	69	251	48	2
8	1730	838.2	0.32	3.00	67	96	71	244	48	2
9	2000	840.9	0.32	3.00	70	98	74	245	47	2
10	2230	843.3	0.33	3.10	70	100	76	258	47	2
11	2500	845.8	0.30	2.80	70	102	78	250	47	2
12	2730	848.2	0.27	2.50	69	102	80	249	47	2
1	30/00	850.735	0.34	3.20	75	95	82	249	50	2
2	230	853.4	0.35	3.30	78	100	84	242	50	2
3	500	855.7	0.32	3.00	89	102	85	248	50	2
4	730	858.2	0.32	3.00	78	103	85	254	50	2
5	1000	860.7	0.28	2.60	79	104	87	250	49	2
6	1230	863.1	0.25	2.30	76	105	88	246	49	2
7	500	865.5	0.26	2.40	70	105	88	249	48	2
8	1730	867.6	0.29	2.70	69	105	89	252	48	2
9	2000	869.9	0.29	2.70	69	105	90	242	48	2
10	2230	873.0	0.26	2.40	70	107	91	253	49	2
11	2500	874.8	0.29	2.20	70	107	91	246	48	2
12	2730	876.8	0.20	1.90	70	107	90	250	48	2
	60/00	879.030								

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

+ pitot ✓
− pitot ✓

4.6
5.2

55.990 .5321 2.6458 73.29 87.31

Plant: LOUISIANA-PACIFIC PLYWOOD PLANT URANIA LA.
Sampling Location: #1 PRESS VENT STACK
Test For: PM / VOC
Test Operators: D. RUSSELL / B. MCKNIGHT / G. MCKNIGHT / L. CARPENTER

RUN No. 2
Date 2-6-95
Time start 1530 end 1632

Meter Box	ANDERSON	No. Sample Pts.	12x2	Gas Analysis	
Sample Box	NO. 8	Minutes/Pt.	2.5	CO_2	
Probe/Pitot	4' ine	NOMOGRAPH		O_2	
Pitot Cp	.84	ΔH@	1.75	CO	
Nozzle Dia.	.310	Meter Temp.	100	Time	
Filter No.		% H_2O	10	Condensate:	
Amb. Temp. °F	65	C-Factor	.93	tare 200 fin 197	
Bar. Press. "Hg	29.90	Stack Temp.	80	Silica gel:	
Static Press. "H_2O	+.15	Ref. ΔP	.20	tare 652.5 fin 670	

Remarks: AVG. 52.7 VOC

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	879.368	0.25	2.30	75	83	87	253	50	2
2	200	881.5	0.26	2.40	80	84	86	242	50	2
3	500	883.5	0.26	2.40	86	86	86	247	50	2
4	730	885.8	0.26	2.40	75	90	84	249	50	2
5	1000	888.1	0.24	2.20	77	93	84	255	61	2
6	1230	890.2	0.23	2.15	74	94	84	247	61	2
7	1500	892.3	0.29	2.70	71	97	85	237	61	2
8	1730	894.6	0.32	3.00	66	100	86	253	63	2
9	2000	897.3	0.32	3.00	52	102	87	246	63	2
10	2230	899.5	0.30	2.80	53	103	88	244	64	2
11	2500	901.9	0.30	2.80	53	104	89	252	64	2
12	2730	904.3	0.27	2.80	53	104	90	250	64	2
1	30/00	906.811	0.30	2.80	73	99	96	252	64	2
2	230	908.9	0.31	2.90	80	100	93	241	58	2
3	500	911.2	0.34	3.20	81	102	93	239	58	2
4	730	913.6	0.32	3.00	92	104	93	251	58	2
5	1000	916.2	0.30	2.80	86	105	94	248	58	2
6	1230	918.7	0.28	2.60	79	106	94	245	58	2
7	1500	921.0	0.25	2.30	72	106	95	247	58	2
8	1730	923.2	0.29	2.70	96	106	94	247	58	2
9	2000	925.2	0.29	2.70	80	107	96	247	58	2
10	2230	928.1	0.26	2.40	80	108	96	245	57	2
11	2500	930.5	0.20	1.85	86	107	96	247	56	2
12	2730	932.4	0.25	2.30	80	106	97	246	56	2
	00/40/60	934.655								

LEAK CHECK: .038 → .040 = .002 cfm @ 8" Hg

+ pitot ✓ @ 4.0
− pitot ✓ @ 4.8

55.2870 .5270 2.5875 74.50 95.19

PARTICULATE CATCH ANALYSIS

SAMPLES: L. P. - Urania Pressvent

DATE TAKEN: 2-6-95 DATE ANALYZED: 2-16-95

DELIVERED BY: DGR RECEIVED BY: DGR

ANALYZED BY: DGR

(Attach chain of custody if additional exchanges occur)

FILTERS:

RUN NO.	PV1 R1	PV1 R2			
FILTER NO.	2505	2506			
FILTER TARE, gms.	.5672	.5665			
	.866	.5749			
	.5765	.5746			
FINAL WEIGHT, gms.	.5765	.5746			
NET GAIN, gms.	.0093	.0081			

PROBE WASH:

RUN NO.	PV1 R1	PV1 R2			
CONTAINER I.D.	"	"			
VOLUME INTACT?	✓	✓			
VOLUME, ml					
	(I)	(L)	( )	( )	( )
TARE WEIGHT, gms.	104.4416	98.8270			
	100.4495	98.8300			
	100.4500	98.8302			
FINAL WEIGHT, gms	100.4500	98.8302			
NET GAIN, gms.	.0084	.0032			
LESS BLANK, gms.					

PARTICULATE SAMPLE WEIGHT:

RUN NO.	1	2			
filter + probe, mg.	17.7	11.3			

BACK

BACK HALF PARTICULATE CATCH ANALYSIS

Methylene Chloride Extraction

SAMPLES: L.P. - Uranium Press Vent

DATE TAKEN: 2-8-95 DATE ANALYZED: 2-16-95

DELIVERED BY: DER RECEIVED BY: DER

ANALYZED BY: DER

(Attach chain of custody if additional exchanges occur)

RUN NO.	PV1R1	PV1R2			
CONTAINER I.D.	" BAK	" BAK			
VOLUME INTACT?					
VOLUME, ml					

Organic Fraction

	(A)	(D)	( )	( )	( )
TARE WEIGHT, gms.	104.7105	99.7456			
	104.7141	99.7494			
	104.7140	99.7491			
FINAL WEIGHT, gms.	104.7140	99.7491			
less blank, gms.					
NET GAIN, milligrams	3.5	3.5			

Aqueous Fraction

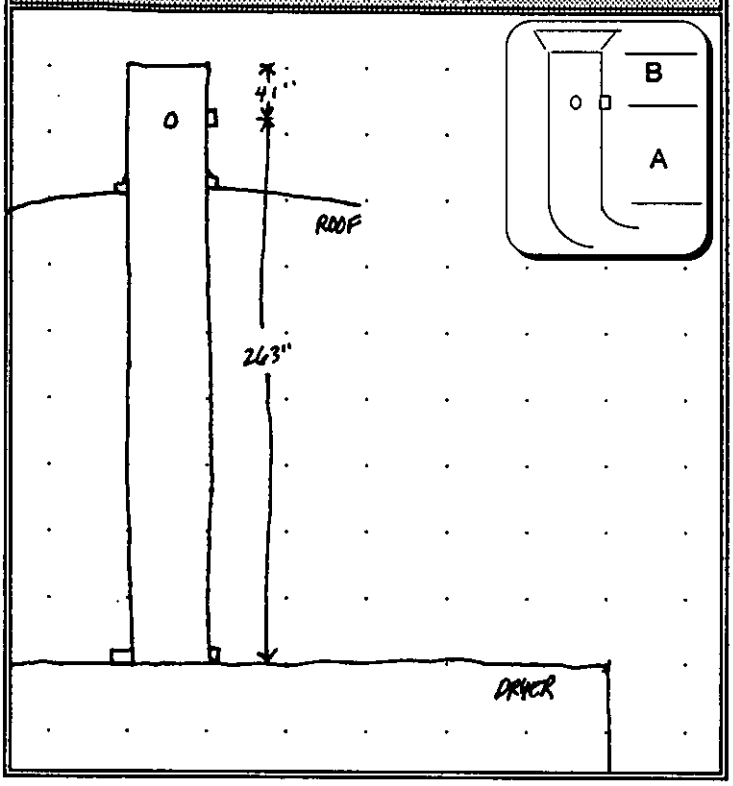
	(B)	(F)	( )	( )	( )
TARE WEIGHT, gms.	101.6390	97.5703			
	101.6402	97.5716			
	101.6406	97.5716			
FINAL WEIGHT, gms.	101.6406	97.5716			
less blank, gms.					
NET GAIN, milligrams	1.6	1.3			

DRYER NO. 1

STACK CONFIGURATION AND SAMPLE POINT LAYOUT FOR CIRCULAR STACKS

PLANT: LOUISIANA PACIFIC - PLYWOOD PLANT URANIA LA. **Date:** 2-6-94
SOURCE: #1 VENEER DRYER ZONE 1
TEST FOR: PM / VOC
TEST OPERATORS: D. RUSSELL / B. MCKNIGHT / B. MCKNIGHT / L. CARROLL

SKETCH OF STACK



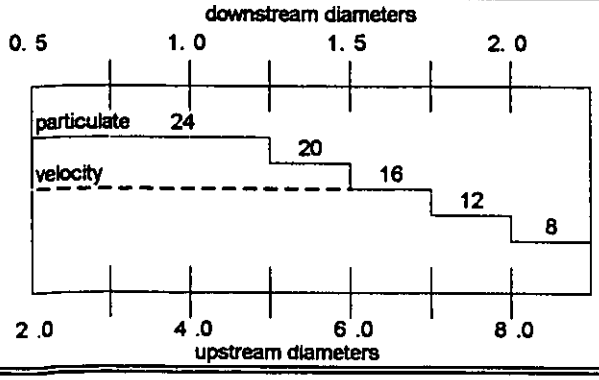
PERCENT OF DIAMETER

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

Point No.	Inches from wall	velocity head
1	1.1	.050
2	3.5	.048
3	7.1	.049
4	16.9	.050
5	20.5	.041
6	22.9	.040
		AVG ΔP .046

STACK DIAMETER:	24"
Distance from ports to disturbance:	
A. to upstream disturbance	263"
B. to downstream disturbance	41"
Upstream diameters:	10.9
Downstream diameters:	1.70
Minimum No. sample points required:	12
No. sample points selected:	6X2
Port Length:	0"
Port Type:	3" HOLE
Port Access:	ROOF / BOARDS

MINIMUM NO. OF POINTS ON A DIAMETER



Pitot ID: Pitot Cp: Stack Temp: 265

Remarks: WET BULB 180
Dry = 265
~50%

Plant: LOUISIANA PACIFIC – PLYWOOD PLANT VRANIA LA.
Sampling Location: #1 VENEER DRYER ZONE 1
Test For: pm / VOC
Test Operators: D. RUSSELL / B. McKNIGHT / G. McKNIGHT / L. CRAWFORD

RUN No. 1
Date 2-7-94
Time start 0915 end 1019

Meter Box	RAC	No. Sample Pts.	6x2	Gas Analysis	
Sample Box	No. 4	Minutes/Pt.	5.0	CO_2	
Probe/Pitot	3' inc.	NOMOGRAPH		O_2	
Pitot Cp	.84	ΔH@	1.90	CO	
Nozzle Dia.	.490	Meter Temp.	100	Time	
Filter No.		% H_2O	50%	Condensate:	
Amb. Temp. °F	46°	C-Factor	~~.270~~ N.35	tare 200 fin 814	
Bar. Press. "Hg	29.98	Stack Temp.	270	Silica gel:	741
Static Press. "H_2O	-.04	Ref. ΔP	.10	tare 721 fin ~~[illegible]~~	

Remarks: HAP
START 222983 → END 236071

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	198.873	0.044	0.82	253	71	70	247	50	2
2	500	201.4	0.048	0.90	286	75	69	270	52	2
3	1000	204.2	0.045	0.85	289	81	71	264	52	2
4	1500	207.0	0.045	0.85	280	86	72	260	50	2
5	2000	209.6	0.045	0.85	281	90	76	240	50	2
6	2500	212.2	0.040	0.75	280	100	80	237	50	2
1	30/00	214.728	0.045	0.85	247	101	85	254	50	2
2	500	217.5	0.044	0.83	290	105	91	250	50	2
3	1000	220.1	0.044	0.83	292	106	91	260	50	2
4	1500	222.8	0.050	0.94	290	118	95	257	50	2
5	2000	225.3	0.040	0.75	289	122	97	262	50	2
6	2500	227.9	0.036	0.65	289	122	98	260	50	2
END	60/00	230.408								

LEAK CHECK: .050 → .070 = .002 cfm @ 15" Hg

31.5350 | .4335 | .8225 | 280.50 | 90.50

.2842

Plant: Louisiana Pacific - Urania Plywood
Sampling Location: #1 (VENEER DRYER ZONE 1)
Test For: Velocity for VOC
Test Operators: Rusher/McKnight/McKnight/Carroll

RUN No. 2
Date 2-7-95
Time start 1025 end 1040

Meter Box	RK	No. Sample Pts.	6x2	Gas Analysis	AIR
Sample Box	N/A	Minutes/Pt.	N/A	CO_2	
Probe/Pitot	3'55	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	48	C-Factor		tare ____ fin ____	
Bar. Press. "Hg	29.98	Stack Temp.		Silica gel:	
Static Press. "H_2O	-.04	Ref. ΔP		tare ____ fin ____	

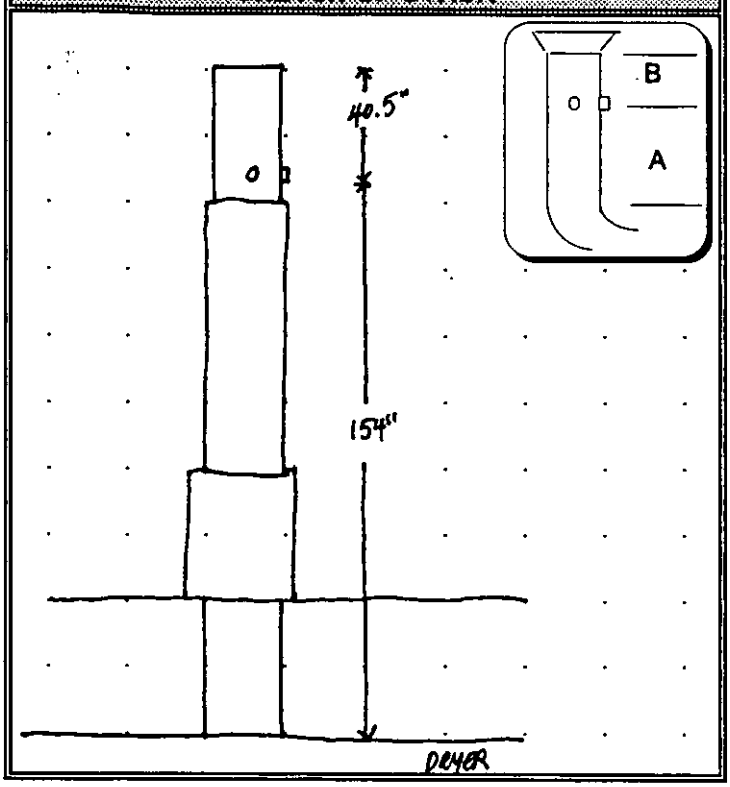
Remarks:

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	N/A	N/A	0.039	N/A		N/A	N/A	N/A	N/A	N/A
2			0.042							
3			0.044		262					
4			0.045		280					
5			0.045							
6			0.046							
1			0.036							
2			0.042		259					
3			0.043							
4			0.040							
5			0.040							
6			0.030							
			.2022		267.00					

STACK CONFIGURATION AND SAMPLE POINT LAYOUT FOR CIRCULAR STACKS

PLANT: LOUISIANA PACIFIC – PLYWOOD PLANT URANIA LA. **Date:** 2-6-95
SOURCE: #1 VENEER DRYER ZONE 2
TEST FOR: PM / VOC
TEST OPERATORS: D. RUSSELL / B. MCKNIGHT / E. MCKNIGHT / L. CARLUTA

SKETCH OF STACK



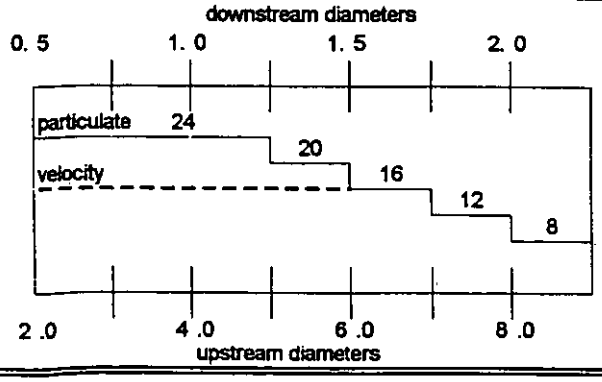
PERCENT OF DIAMETER

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

STACK DIAMETER:	24"
Distance from ports to disturbance:	
A. to upstream disturbance	154"
B. to downstream disturbance	40.5
Upstream diameters:	6.4
Downstream diameters:	1.68
Minimum No. sample points required:	16
No. sample points selected:	20 (10 X 2)
Port Length:	0"
Port Type:	3" HOLE CUT
Port Access:	WOODEN PLATFORM / ROOF

Point No.	inches from wall	velocity head
1	.6	.50
2	2.0	.52
3	3.6	.55
4	5.4	.56
5	8.2	.55
6	15.8	.53
7	18.6	.50
8	20.5	.48
9	22.0	.30
10	23.4	.30
		AVG. ΔP: .479

MINIMUM NO. OF POINTS ON A DIAMETER



Pitot ID: Pitot Cp: Stack Temp: 315

Remarks: WET BULB 178°

Plant: LOUISIANA - PACIFIC PLYWOOD PLANT URANIA LA.
Sampling Location: #1 VENEER DRYER ZONE 2
Test For: PM / VOC
Test Operators: D. RUSSELL / B. MCKNIGHT / G. MCKNIGHT / L. CARRUTH

RUN No. 1
Date 2-7-95
Time start 0915 end 1015

Meter Box	ANDERSEN	No. Sample Pts.	10 x 2	Gas Analysis	
Sample Box	NO. 3	Minutes/Pt.	3.0	CO_2	
Probe/Pitot	3 FT. INC.	NOMOGRAPH		O_2	
Pitot Cp	.84	ΔH@	1.75	CO	
Nozzle Dia.	.315	Meter Temp.	100	Time	
Filter No.		% H_2O	50	Condensate:	1000 ml
Amb. Temp. °F	45°	C-Factor	~.35	tare 200	fin
Bar. Press. "Hg	29.98	Stack Temp.	315	Silica gel:	
Static Press. "H_2O	+.30	Ref. ΔP	.66	tare 670	fin 1064.5

Remarks:
HAP Pump
Start END
249867 259657
~~APPL PUMP~~
~~START~~ ~~STOP~~
~~197697~~
Water in Silica gel

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	935.100	0.45	1.25	315	70	67	240	65	2
2	300	937.1	0.46	1.30	312	73	63	245	52	2
3	600	938.7	0.43	1.20	311	77	68	243	52	2
4	900	940.7	0.45	1.25	309	81	68	249	52	2
5	1200	942.5	0.46	1.30	307	85	70	248	52	2
6	1500	944.4	0.44	1.20	267	89	73	251	53	2
7	1800	946.4	0.42	1.15	310	92	75	263	53	2
8	2100	948.5	0.40	1.10	315	95	78	267	53	2
9	2400	950.1	0.32	0.90	317	98	81	260	54	2
10	2700	951.8	0.24	0.72	310	98	85	264	55	2
11										
1	3000	953.460	0.36	1.00	303	96	91	246	56	2
2	300	955.2	0.41	1.15	309	98	92	270	56	2
3	600	957.0	0.45	1.25	310	100	92	260	56	2
4	900	958.9	0.45	1.25	320	102	92	260	56	2
5	1200	960.9	0.46	1.30	320	103	93	265	56	2
6	1500	962.7	0.47	1.35	312	105	94	264	56	2
7	1800	964.8	0.47	1.35	310	106	95	265	56	2
8	2100	966.9	0.44	1.25	311	108	98	266	56	2
9	2400	968.5	0.40	1.15	262	109	106	256	52	2
10	2700	970.1	0.30	0.85	270	104	98	262	56	1.7
END	6000	972.035								
		LEAK CHECK:	.025	→	.027	÷	.002	cfm @	17" Hg	
		+ pitot	3.6							
		− pitot	3.8							
		~~36.000~~ 36.935	.6424	1.1635	305.00		89.20			

Plant: LOUISIANA PACIFIC PLYWOOD PLANT ORANGE LA.
Sampling Location: #1 VENEER DRYER ZONE 2
Test For: VELOCITY FOR VOC
Test Operators: B. McKNIGHT / L. CATHCART

RUN No. 2
Date: 2-7-95
Time start ____ end ____

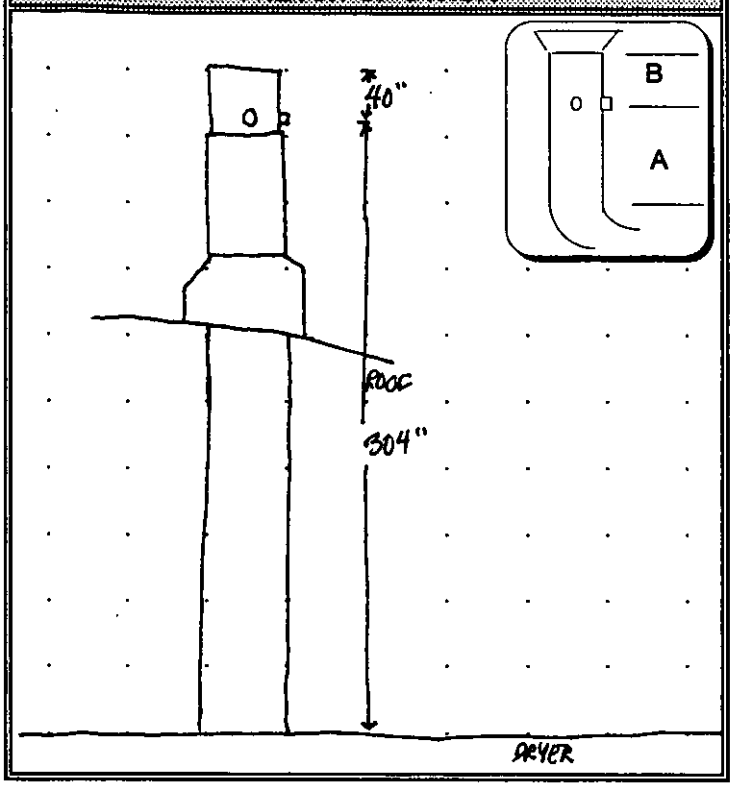
Meter Box	ANDERSEN	No. Sample Pts.	10X2	Gas Analysis	Remarks:
Sample Box	N/A	Minutes/Pt.		CO_2	
Probe/Pitot	3 ft.	NOMOGRAPH		O_2	
Pitot Cp	.84 N/A	ΔH@	N/A	CO	
Nozzle Dia.	N/A	Meter Temp.		Time	
Filter No.		% H_2O		Condensate:	
Amb. Temp. °F	45°	C-Factor		tare ____ fin ____	
Bar. Press. "Hg		Stack Temp.		Silica gel:	
Static Press. "H_2O		Ref. ΔP		tare ____ fin ____	

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		N/A	0.41	N/A	318	N/A	N/A	N/A	N/A	N/A
2			0.44							
3			0.45							
4			0.45							
5			0.46							
6			0.46							
7			0.45							
8			0.43							
9			0.40		315					
10			0.30							
1			0.45							
2			0.45		318					
3			0.45							
4			0.47							
5			0.47							
6			0.47							
7			0.46							
8			0.46		310					
9			0.33							
10			0.30							
			6.528		315.25					

STACK CONFIGURATION AND SAMPLE POINT LAYOUT FOR CIRCULAR STACKS

PLANT: LOUISIANA - PACIFIC PLYWOOD PLANT URANIA LA **Date:** 2-7-95
SOURCE: #1 VENEER DRYER ZONE 3
TEST FOR: PM / VOC
TEST OPERATORS: D. RUSSELL / B. MCKNIGHT / G. MCKNIGHT / L. CARRUTH

SKETCH OF STACK



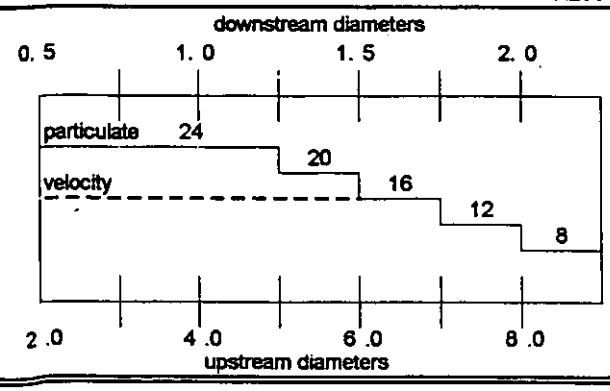
PERCENT OF DIAMETER

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

Point No.	Inches from wall	velocity head
1	1.1	.040
2	3.5	.045
3	7.1	.048
4	16.9	.045
5	20.5	.045
6	22.9	.045
		AVG ΔP: .044

STACK DIAMETER:	24"
Distance from ports to disturbance:	
A. to upstream disturbance	304"
B. to downstream disturbance	40"
Upstream diameters:	12.6
Downstream diameters:	1.6
Minimum No. sample points required:	12
No. sample points selected:	6X2
Port Length:	0"
Port Type:	3" HOLE IN STACK
Port Access:	ROOF / BOARDS

MINIMUM NO. OF POINTS ON A DIAMETER



Pitot ID: Pitot Cp: Stack Temp:

Remarks: DRY BULB: 300
WET BULB: 220

Plant: LOUISIANA - PACIFIC PLYWOOD PLANT URANIA LA.
Sampling Location: #1 VENEER DRYER ZONE 3
Test For: PM (VOC
Test Operators: O. RUSSELL / B. MCKNIGHT / G. MCKNIGHT / L. CADRUTH

RUN No. 1
Date 2-7-95
Time start 1231 end 1333

Meter Box	ANDERSEN	No. Sample Pts.	6 X 2	Gas Analysis		Remarks:	
Sample Box	#3	Minutes/Pt.	2.50	CO_2			
Probe/Pitot	3/4 inc.			O_2			
Pitot Cp	.84	NOMOGRAPH		CO			
Nozzle Dia.	.490	ΔH@	1.75	Time			
Filter No.		Meter Temp.	100			HAP	
		% H_2O	60	Condensate:		START → FIN	
Amb. Temp. °F	50°	C-Factor	.30	tare 200	fin 360	259657 270610	
Bar. Press. "Hg	29.98	Stack Temp.	300	Silica gel:			
Static Press. "H_2O		Ref. ΔP	.096	tare 710	fin 715	LOST BACK HALF	

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	979.865	0.045	0.88	286	65	64	265	55	2
2	230	981.890	0.040	0.78	316	68	64	266	56	2
3	500	982.5	0.050	0.98	316	70	70	269	40	2
4	730	983.8	0.098	0.98	276	72	65	261	42	2
5	1000	985.2	0.042	0.82	280	75	66	264	42	2
6	1230	986.5	0.046	0.78	290	77	67	264	43	2
1	15/00	987.840	0.035	0.68	285	77	71	222	45	2
2	230	989.0	0.041	0.78	269	80	71	251	45	2
3	500	990.3	0.050	0.98	300	83	74	254	45	2
4	730	991.7	0.050	0.98	301	86	76	256	44	2
5	1000	993.2	0.035	0.68	305	87	77	263	43	2
6	1230	994.5	0.034	0.65	304	88	78	242	43	2
END	30/00	995.650								
		LEAK CHECK:	101 →	105 =	.004	CAN @	7 "Hg			
		+ pbtr @	4.0							
		− pbtr @	3.9							
		15.7850	.2135	.8308	294.00		73.79			

Plant: LOUISIANA - PACIFIC PLYWOOD PLANT URANIA LA.
Sampling Location: #1 VENEER DRYER ZONE 3
Test For: PM / VOC
Test Operators: D. RUSSELL / B. MCKNIGHT / G. MCKNIGHT / L. CARRUTH

RUN No. R2
Date 2-7-95
Time start 1349 end 1457

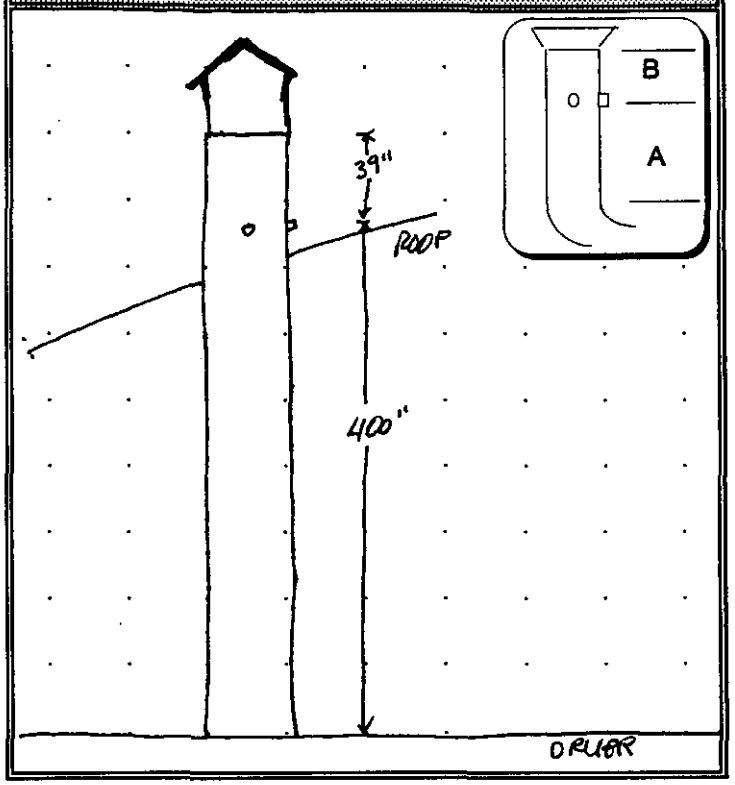
Meter Box	ANDERSEN	No. Sample Pts.	6X2	Gas Analysis	Remarks:
Sample Box	No. 4	Minutes/Pt.	5.0	CO_2	
Probe/Pitot	3 ft in			O_2	
Pitot Cp	.84	NOMOGRAPH		CO	
Nozzle Dia.	.490	ΔH@	1.75	Time	
Filter No.		Meter Temp.	100		
		% H_2O	35	Condensate:	
Amb. Temp. °F	50°	C-Factor	.54	tare 200 fin 569	
Bar. Press. "Hg	29.95	Stack Temp.	300	Silica gel:	
Static Press. "H_2O		Ref. ΔP	.08	tare 667.5 fin 676.0	

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	996.860	0.040	0.91	290	74	76	262	50	2
2	500	999.5	0.050	1.15	304	80	75	258	50	2
3	1000	002.7	0.050	1.15	312	87	75	257	41	2
4	1500	005.6	0.048	1.10	270	90	77	260	41	2
5	2000	008.7	0.038	0.88	280	93	80	257	40	2
6	2500	011.3	0.038	0.88	290	95	82	259	40	2
1	30/00	014.180	0.040	0.91	286	90	85	254	40	2
2	500	016.7	0.041	0.91	288	95	87	262	40	2
3	1000	019.5	0.042	1.00	290	97	87	256	40	2
4	1500	022.5	0.040	0.91	276	99	90	256	40	2
5	2000	025.1	0.039	0.90	280	97	90	261	40	2
6	2500	028.1	0.030	0.70	287	96	89	258	40	2
END	10/00	030.670								
		LEAK CHECK:	.022 →	.024	= .002	cfm @ 7 "Hg				
		+ pitot up	5.9							
		- pitot up	6.0							
		33.810	.2027	.9500	287.75		86.92			

STACK CONFIGURATION AND SAMPLE POINT LAYOUT FOR CIRCULAR STACKS

PLANT: LOUISIANA-PACIFIC PLYWOOD PLANT URANIA LA **Date:** 2-7-95
SOURCE: #1 VENEER DRYER ZONE 4 STACKS A, B, C
TEST FOR: PM / VOC
TEST OPERATORS: O. RUSSELL / B. McKNIGHT / G. McKNIGHT / L. CARRUTH

SKETCH OF STACK



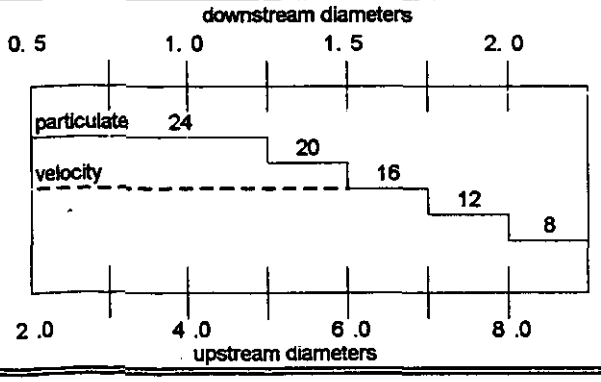
PERCENT OF DIAMETER

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

STACK DIAMETER:	48.5"
Distance from ports to disturbance:	
A. to upstream disturbance	400"
B. to downstream disturbance	39"
Upstream diameters:	8.2
Downstream diameters:	.80
Minimum No. sample points required:	24
No. sample points selected:	12X2
Port Length:	0"
Port Type:	3" HOLE
Port Access:	ROOF / BOARDS

Point No.	Inches from wall	velocity head
1	1.0	.20
2	3.2	.20
3	5.7	.20
4	8.6	.21
5	12.1	.22
6	17.3	.23
7	31.2	.25
8	36.4	.26
9	39.9	.25
10	42.8	.24
11	45.3	.22
12	47.5	.20
		/ AVG ΔP: .223

MINIMUM NO. OF POINTS ON A DIAMETER



Pitot ID: _____ Pitot Cp: _____ Stack Temp: 70

Remarks:

Plant: LOUISIANA-PACIFIC PLYWOOD PLANT URANIA LA.
Sampling Location: #1 VENEER DRYER ZONE 4 STACK A
Test For: VELOCITY FOR VOC
Test Operators: D. RUSSOL / B. MCKNIGHT / O. MCKNIGHT / L. CARRUTH

RUN No. 1
Date 2-7-95
Time start 1738 end

Meter Box	ANDERSON	No. Sample Pts.	12X2	Gas Analysis	Remarks:
Sample Box	N/A	Minutes/Pt.		CO_2	
Probe/Pitot	5' INC	NOMOGRAPH		O_2	
Pitot Cp	.84	ΔH@	N/A	CO	
Nozzle Dia.	N/A	Meter Temp.		Time	
Filter No.		% H_2O		Condensate	
Amb. Temp. °F	56	C-Factor		tare N/A fin	
Bar. Press. "Hg	29.98	Stack Temp.		Silica gel:	
Static Press. "H_2O	-.10	Ref. ΔP		tare fin	

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		N/A	0.10	N/A	68	N/A	N/A	N/A	N/A	N/A
2			0.09							
3			0.10							
4			0.13							
5			0.17							
6			0.19							
7			0.19							
8			0.23							
9			0.22							
10			0.20							
11			0.15							
12			0.14							
1			0.16							
2			0.17							
3			0.19							
4			0.22							
5			0.22							
6			0.22							
7			0.22							
8			0.23							
9			0.20							
10			0.15							
11			0.15							
12			0.12							

N/A LEAK CHECK: → = cfm @ "Hg

+ pitot @ 5.9
− pitot @ 6.4

4128

Plant: LOUISIANA - PACIFIC PLYWOOD PLANT URANIA LA.
Sampling Location: #1 VENEER DRYER ZONE 4 STACKS B
Test For: PM / VOC
Test Operators: D. RUSSELL / B. McKNIGHT / G. McKNIGHT / L. CARROLL

RUN No. 1
Date 2-7-95
Time start 1626 end 1729

Meter Box	ANDERSEN	No. Sample Pts.	12X2	Gas Analysis	Remarks:
Sample Box	NO. 3	Minutes/Pt.	2.5	CO_2	
Probe/Pitot	5' INC.			O_2	
Pitot Cp	.84	NOMOGRAPH		CO	
Nozzle Dia.	.310	ΔH@	1.75	Time	
Filter No.		Meter Temp.	100		HAP
		% H_2O	12	Condensate:	
Amb. Temp. °F	56	C-Factor	.895	tare 200 fin 205	START STOP
Bar. Press. "Hg	29.98	Stack Temp.	70	Silica gel:	270610 → 283019
Static Press. "H_2O	-.14	Ref. ΔP	.205	tare 710 fin 720	

	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	030.971	0.16	1.45	61	71	71	248	38	2
2	2	230	032.5	0.18	1.60	63	77	71	254	38	2
3	3	500	034.7	0.18	1.60	62	83	71	258	38	2
4	4	730	036.1	0.19	1.70	62	87	72	252	38	2
5	5	1000	037.8	0.20	1.80	63	87	73	249	38	2
6	6	1230	039.7	0.22	2.00	63	93	74	260	38	2
7	7	1500	041.7	0.25	2.30	61	96	76	253	37	2
8	8	1730	043.9	0.24	2.20	60	99	78	251	37	2
9	9	2000	046.3	0.24	2.20	59	101	80	254	39	2
10	10	2230	048.2	0.19	1.70	59	102	81	256	40	2
11	11	2500	049.9	0.17	1.55	60	101	83	251	40	2
12	12	2730	051.7	0.17	1.55	58	102	84	257	40	2
13	1	3000	053.635	0.12	1.10	65	93	87	255	40	2
14	2	230	055.1	0.14	1.25	65	97	88	253	40	2
15	3	500	056.6	0.16	1.45	65	99	88	258	40	2
16	4	730	058.3	0.17	1.55	64	101	89	249	39	2
17	5	1000	060.0	0.18	1.60	63	102	89	247	38	2
18	6	1230	061.8	0.20	1.80	62	104	89	265	39	2
19	7	1500	063.7	0.22	2.00	60	105	90	249	39	2
20	8	1730	066.0	0.22	2.00	59	106	91	251	39	2
21	9	2000	067.9	0.20	1.80	65	107	92	260	39	2
22	10	2230	069.8	0.19	1.70	60	107	92	255	38	2
23	11	2500	071.6	0.15	1.35	58	107	93	250	39	2
24	12	2730	073.9	0.15	1.35	62	106	94	249	39	2
25	END	6900	075.226								
26											
27											
28											
29			LEAK CHECK:	.021	→ .025	.004		Chm = 7 Hg			
30											
31			+ pitot to	5.2							
32			- pitot to	6.0							
33			44.255	.4309	1.6917	61.58		90.19			
34											
35											

Plant: LOUISIANA - PACIFIC PLYWOOD PLANT ARANSAS LA.
Sampling Location: #1 VENEER DRYER ZONE 4 STACK C
Test For: VELOCITY FOR VOC
Test Operators: D. RUSSELL / B. MCKNIGHT / G. MCKNIGHT / L. CARRITH

RUN No. 1
Date 2-7-95
Time start 1731 end 1737

Meter Box	~~AMBIENT~~	No. Sample Pts.	12X2	Gas Analysis	
Sample Box	N/A	Minutes/Pt.		CO_2	
Probe/Pitot	5 ft inc	NOMOGRAPH		O_2	
Pitot Cp	.84	ΔH@	N/A	CO	
Nozzle Dia.	N/A	Meter Temp.		Time	
Filter No.		% H_2O		Condensate:	
Amb. Temp. °F	54°	C-Factor		tare N/A fin	
Bar. Press. "Hg	29.88	Stack Temp.		Silica gel:	
Static Press. "H_2O	~~[illegible]~~ 0	Ref. ΔP		tare fin	

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		N/A	0.13	N/A	65	N/A	N/A	N/A	N/A	N/A
2			0.15							
3			0.16							
4			0.15							
5			0.17							
6			0.17							
7			0.17							
8			0.21							
9			0.22							
10			0.22							
11			0.21							
12			0.21							
1										
2			0.18							
3			0.19							
4			0.18							
5			0.18							
6			0.17							
7			0.16							
8			0.16							
9			0.16							
10			0.16							
11			0.16							
12			0.16							

N/A LEAK CHECK: → = closed "Hg

+ pitot ✓ @ 6.0
- pitot ✓ @ 6.5

.4002

PARTICULATE CATCH ANALYSIS

SAMPLES: L.P. - Urain Plywood Dryer No. 1

DATE TAKEN: 2-8-95 DATE ANALYZED: 2-16-95

DELIVERED BY: DCR RECEIVED BY: DCR

ANALYZED BY: DCR

(Attach chain of custody if additional exchanges occur)

FILTERS:

RUN NO.	D1Z1	D1Z2	D1Z3R1	D1Z3R2	D1Z4B
FILTER NO.	2544	2546	2547	2545	2548
FILTER TARE, gms.	.5750	.5765	.5785	.5773	.5778
	.6048	.6375	.6320	.6435	.5813
	.6046	.6376	.6323	.6430	.5815
FINAL WEIGHT, gms.	.6046	.6376	.6323	.6430	.5815
NET GAIN, gms.	.0296	.0611			

PROBE WASH:

RUN NO.	D1Z1	D1Z2	D1Z3R1	D1Z3R2	D1Z4B
CONTAINER I.D.					
VOLUME INTACT?					
VOLUME, ml					
TARE WEIGHT, gms.	(91) 102.8052	(6) 98.5615	(90) 107.9655	(E) 99.1381	(B) 101.6465
	102.8331	98.6247	108.0293	99.2045	101.6543
	102.8328	98.6247	108.0296	99.2044	101.6542
FINAL WEIGHT, gms	102.8328	98.6247	108.0296	99.2044	101.6542
NET GAIN, gms.	.0276	.0632			
LESS BLANK, gms.					

PARTICULATE SAMPLE WEIGHT:

RUN NO.	D1Z1	D1Z2	D1Z3R1	D1Z3R2	D1Z4B
filter + probe, mg.	57.2	124.3	117.9	132.0	14.4

BACK HALF PARTICULATE CATCH ANALYSIS

Methylene Chloride Extraction

SAMPLES: L.P. Urania Plywood - Dryer No. 1

DATE TAKEN: 2-7-95 DATE ANALYZED: 2-16-95

DELIVERED BY: DGR RECEIVED BY: DGR

ANALYZED BY: DGR

(Attach chain of custody if additional exchanges occur)

RUN NO.	D1Z1	D1Z2	D1Z3R1	D1Z3R2	D1Z4B
CONTAINER I.D.	"	"	(Lost)	"	"
VOLUME INTACT?					
VOLUME, ml	880	1000		569	

Organic Fraction

	( )(4)	(2)	( )	(7)	(56)
TARE WEIGHT, gms.	98.8216	104.7525		111.5376	105.8146
	98.8287	104.7684		111.5474	105.8251
	98.8283	104.7680		111.5473	105.8246
FINAL WEIGHT, gms.	98.8283	104.7680		111.5473	105.8246
less blank, gms.					
NET GAIN, milligrams	6.7	15.5		9.7	9.6

Aqueous Fraction

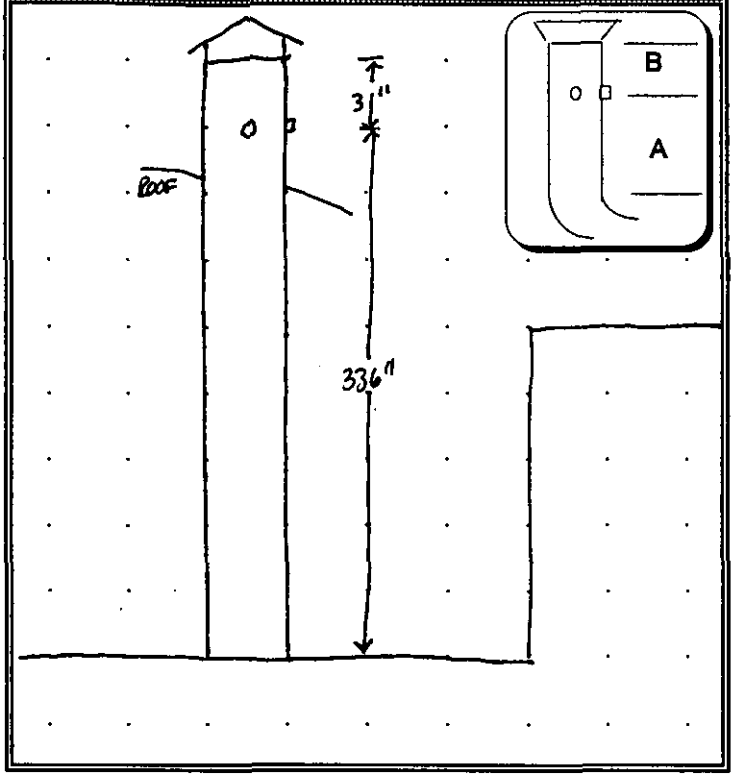
	(1) 200	(4) 200	( )	(45) 200	(65)
TARE WEIGHT, gms.	103.1839	108.4553		107.2486	114.7816
	103.1842	108.4555		107.2493	114.7829
	103.1842	108.4554		107.2490	114.7825
FINAL WEIGHT, gms.	103.1842	108.4554		107.2490	114.7825
less blank, gms.					
NET GAIN, milligrams	1.3	0.5		1.1	0.9

DRYER NO. 4

STACK CONFIGURATION AND SAMPLE POINT LAYOUT FOR CIRCULAR STACKS

PLANT: LOUISIANA PACIFIC PLYWOOD PLANT URANIA LA **Date:** 2-8-96
SOURCE: #4 VENEER DRYER STACK 4-A
TEST FOR: PM / VOC
TEST OPERATORS: D. RUSSELL / B. McKNIGHT / G. McKNIGHT / L. CHERRYTH

SKETCH OF STACK



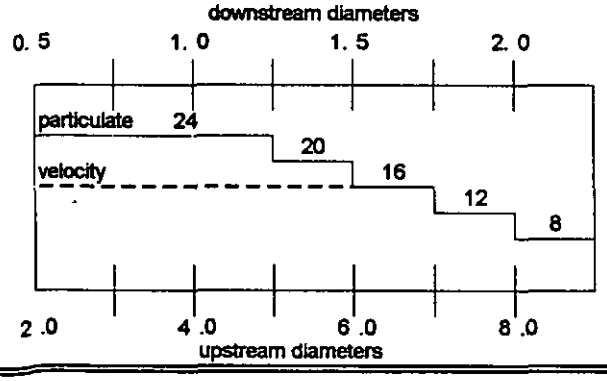
PERCENT OF DIAMETER

point no.	points on a diameter: 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

STACK DIAMETER:	47"
Distance from ports to disturbance:	
A. to upstream disturbance	336
B. to downstream disturbance	31"
Upstream diameters:	7.1
Downstream diameters:	.65
Minimum No. sample points required:	24
No. sample points selected:	12x2
Port Length:	0"
Port Type:	3" HOLE IN STACK
Port Access:	ROOF & BOARDS

Point No.	inches from wall	velocity head
1	1.0	.18
2	3.1	.18
3	5.5	.18
4	8.3	.18
5	11.8	.19
6	16.7	.17
7	30.3	.15
8	35.3	.12
9	38.7	.12
10	41.5	.12
11	43.9	.12
12	46.0	.12
		AVG ΔP: .15

MINIMUM NO. OF POINTS ON A DIAMETER



Pitot ID: _____ Pitot Cp: _____ Stack Temp: 60

Remarks:

Plant: LOUISIANA PACIFIC PLYWOOD PLANT (URANIA LA.)
Sampling Location: #4 VENEER DRYER STACK 4-A
Test For: PM / VOC
Test Operators: D. BASSETT / L. CARLETTA

RUN No. 1
Date 2-8-95
Time start 1357 end

Meter Box	RAC	No. Sample Pts.	12X2	Gas Analysis	Remarks:
Sample Box	NO. 4	Minutes/Pt.	2.5	CO_2	
Probe/Pitot	5' S.S.			O_2	
Pitot Cp	.82	NOMOGRAPH		CO	
Nozzle Dia.	.310	ΔH@	1.75	Time	
Filter No.		Meter Temp.	100		HAP
		% H_2O	10	Condensate:	
Amb. Temp. °F	50	C-Factor	.93	tare 200 fin 200	START →
Bar. Press. "Hg	30.27	Stack Temp.	600	Silica gel:	333938 353984
Static Press. "H_2O	-.03	Ref. ΔP	.195	tare 683.0 fin 691.0	

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	113.649	0.18	.70	60	71	69	252	60	2
2	230	115.9	0.18	.70	59	76	68	256	58	2
3	500	117.2	0.17	.60	59	81	69	259	58	2
4	730	118.9	0.18	1.70	61	84	69	258	58	2
5	1000	120.8	0.16	1.50	61	88	70	259	56	2
6	1230	122.7	0.14	1.30	61	90	72	253	50	2
7	1500	124.3	0.11	1.05	60	92	73	254	48	2
8	1730	125.7	0.11	1.05	61	93	75	256	48	2
9	2000	127.3	0.11	1.05	60	95	77	262	48	2
10	2230	128.8	0.10	0.95	61	96	80	255	49	2
11	2500	130.1	0.09	0.85	59	97	82	251	48	2
12	2730	131.5	0.09	0.85	60	97	83	261	48	2
1	30/00	132.966	0.15	1.40	60	95	85	251	40	2
2	230	134.6	0.17	1.60	60	100	86	262	40	2
3	500	136.2	0.15	1.40	56	102	87	260	40	2
4	730	137.9	0.16	1.50	58	103	88	258	40	2
5	1000	139.7	0.15	1.40	56	103	89	259	40	2
6	1230	141.5	0.17	1.60	56	104	90	252	40	2
7	1500	143.3	0.17	1.60	59	105	91	252	40	2
8	1730	145.1	0.14	1.30	58	106	92	254	41	2
9	2000	146.9	0.14	1.30	58	105	92	257	41	2
10	2230	148.4	0.15	1.40	58	105	93	261	40	2
11	2500	149.9	0.12	1.10	58	105	94	252	40	2
12	2730	151.8	0.12	1.10	58	105	94	260	40	2
END	60/00	153.469								

LEAK CHECK: .032 → .035 = .003 @ 7 Hg

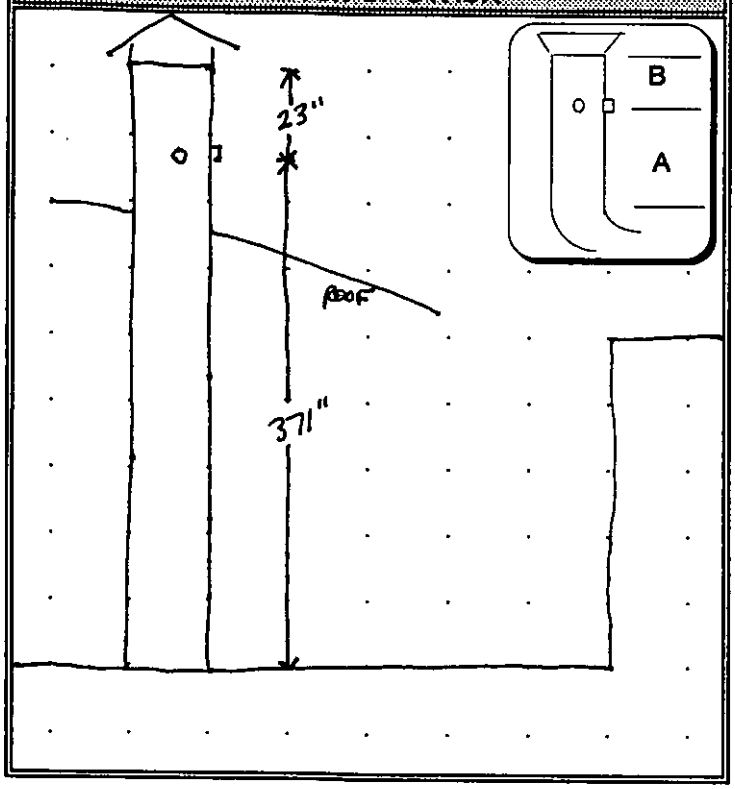
+ pitot @ 3.9
− pitot @ 4.9

39.820 | 3.749 | 1.3333 | 59.04 | 88.88

STACK CONFIGURATION AND SAMPLE POINT LAYOUT FOR CIRCULAR STACKS

PLANT: LOUISIANA PACIFIC PLYWOOD PLANT URANIA **Date:** 2-8-95
SOURCE: #4 VENEER DRYER STACK 4-B
TEST FOR: PM / VOC
TEST OPERATORS: D. BISSELL / B. McKNIGHT / G. McKNIGHT / L. CARRUTH

SKETCH OF STACK



PERCENT OF DIAMETER

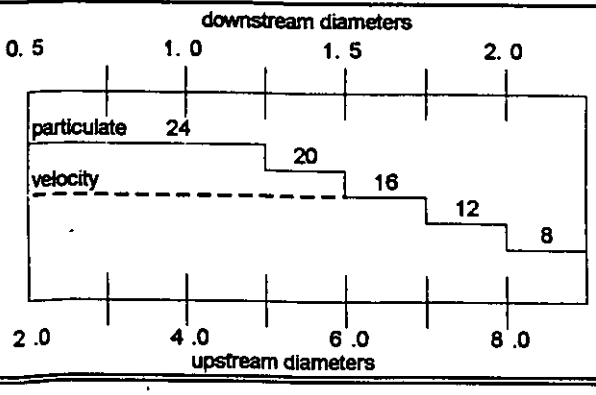
points on a diameter

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

STACK DIAMETER:	47"
Distance from ports to disturbance:	
A. to upstream disturbance	371"
B. to downstream disturbance	23"
Upstream diameters:	7.9
Downstream diameters:	.489
Minimum No. sample points required:	24
No. sample points selected:	12X2
Port Length:	0"
Port Type:	3" HOLE
Port Access:	ROOF / BOARDS

Point No.	inches from wall	velocity head
1		.16
2		.16
3		.17
4		.17
5		.16
6		.15
7		.15
8		.14
9		.14
10		.14
11		.13
12		.13 / AVG ΔP: .15

MINIMUM NO. OF POINTS ON A DIAMETER



Pitot ID: _____ Pitot Cp: _____ Stack Temp: 50

Remarks:

Plant: LOUISIANA PACIFIC PLYWOOD PLANT URANIA LA.
Sampling Location: #4 VENEER DRYER STACK 4-B
Test For: PM / VOC
Test Operators: D. RUSSELL / B. MCKNIGHT / G. MCKNIGHT / C. CHRISTY

RUN No. 1
Date 2/8/95
Time start 1358 end 1502

Meter Box	RAC	No. Sample Pts.	12 x 2	Gas Analysis	AIR
Sample Box	No. 3	Minutes/Pt.	2.5	CO_2	
Probe/Pitot	5'SS	NOMOGRAPH		O_2	
Pitot Cp	.84	ΔH@	1.95	CO	
Nozzle Dia.	.373	Meter Temp.	90	Time	
Filter No.		% H_2O	20	Condensate:	
Amb. Temp. °F	50	C-Factor	1.0	tare 200	fin 198
Bar. Press. "Hg	30.27	Stack Temp.	75	Silica gel:	
Static Press. "H_2O	-.03	Ref. ΔP	.093	tare 734	fin 746

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	0.00	272.172	0.15	3.00	58	72	74	256	53	2
2	230	274.5	0.15	3.00	52	77	74	246	49	2
3	500	276.6	0.15	3.00	58	79	75	267	42	2
4	730	279.0	0.15	3.00	55	82	74	253	42	2
5	1000	281.3	0.14	2.80	54	89	78	257	42	2
6	1230	283.6	0.14	2.80	59	95	78	259	44	2
7	1500	285.8	0.14	2.80	53	98	78	271	43	2
8	1730	288.1	0.14	2.80	55	102	79	262	51	2
9	2000	290.4	0.14	2.80	55	105	83	248	51	2
10	2230	292.8	0.13	2.60	53	109	83	255	51	2
11	2500	295.3	0.11	2.20	56	112	84	267	46	2
12	2730	296.8	0.13	2.60	58	109	83	255	49	2
1	3000	299.431	0.16	3.20	55	108	87	265	46	2
2	230	301.7	0.16	3.20	55	110	88	259	43	2
3	500	304.3	0.15	3.00	56	112	89	258	43	2
4	730	306.3	0.14	2.80	53	113	88	259	41	2
5	1000	308.7	0.14	2.80	56	118	93	260	44	2
6	1230	311.1	0.14	2.80	55	119	94	257	44	2
7	1500	313.3	0.15	3.00	56	120	95	260	43	2
8	1730	315.6	0.15	3.00	54	121	94	260	42	2
9	2000	318.4	0.15	3.00	55	122	96	258	42	2
10	2230	320.3	0.15	3.00	56	123	96	257	42	2
11	2500	322.7	0.14	2.80	55	126	99	261	42	2
12	2730	324.9	0.14	2.80	55	125	98	260	43	2
	60	327.492								

Leak check .057 → .061 = .004 yes 9" Hg

pitot ok

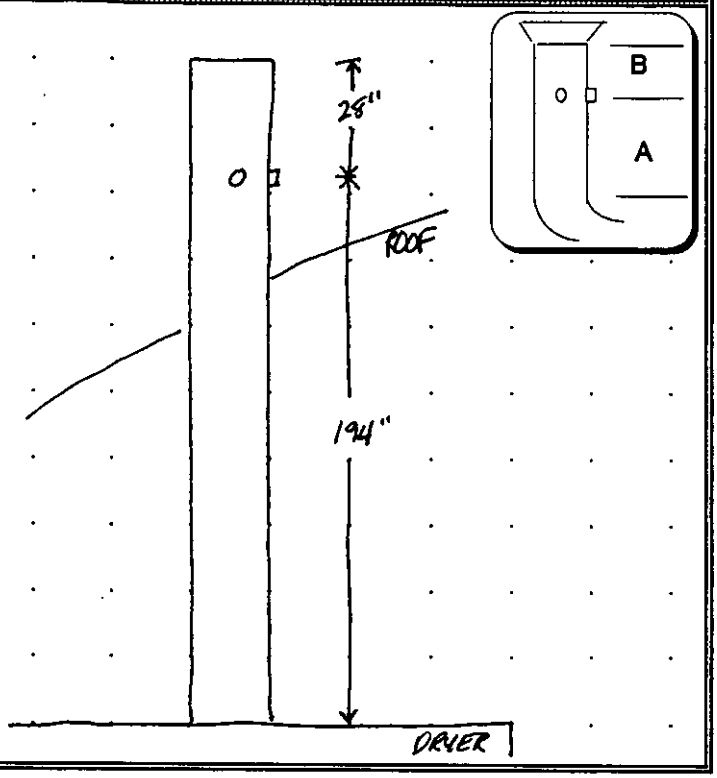
pitot ok

55.320 .3783 2.8467 55.29 95.96

STACK CONFIGURATION AND SAMPLE POINT LAYOUT FOR CIRCULAR STACKS

PLANT: LOUISIANA-PACIFIC PLYWOOD PLANT URANIA LA. **Date:** 2-8-95
SOURCE: #4 DRYER ZONE 1
TEST FOR: PM / VOC
TEST OPERATORS: D. RUSSELL / R. PACKNIGHT / G. PACKNIGHT / L. GARRETT

SKETCH OF STACK



PERCENT OF DIAMETER

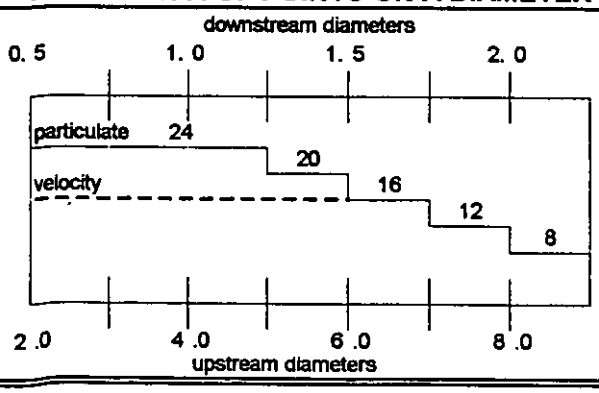
points on a diameter

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

STACK DIAMETER:	24.5
Distance from ports to disturbance:	
A. to upstream disturbance	194"
B. to downstream disturbance	28"
Upstream diameters:	7.9
Downstream diameters:	1.14
Minimum No. sample points required:	24
No. sample points selected:	12X2
Port Length:	0"
Port Type:	3" HOLE
Port Access:	ROOF BOARDS

Point No.	inches from wall	velocity head
1	.5	.12
2	1.6	.13
3	2.9	.14
4	4.3	.14
5	6.1	.15
6	8.7	.15
7	15.8	.15
8	18.4	.14
9	20.2	.13
10	21.6	.12
11	22.9	.10
12	24.0	.08

MINIMUM NO. OF POINTS ON A DIAMETER



Pitot ID: Pitot Cp: Stack Temp: 320

Remarks: Pg = -.06 Wet Bulb = 160

est. 35% H2O

Plant: LOUISIANA PACIFIC PLYWOOD PLANT URANIA LA.
Sampling Location: #4 DRYER ZONE 1
Test For: PM / VOC
Test Operators: D. RUSSELL / B. MCKNIGHT / G. MCKNIGHT / L. CARPENTER

RUN No. 1
Date 2-8-95
Time start 1034 end 1127

Meter Box	RAC	No. Sample Pts.	12x2	Gas Analysis	
Sample Box	#3	Minutes/Pt.	2.5	CO_2	
Probe/Pitot	3 ft. ss.			O_2	
Pitot Cp	.84	NOMOGRAPH		CO	
Nozzle Dia.	.373	ΔH@	1.95	Time	
Filter No.		Meter Temp.	90		
		% H_2O	34	Condensate:	715
Amb. Temp. °F	46	C-Factor	.60	tare 200 fin	
Bar. Press. "Hg	30.27	Stack Temp.	320	Silica gel:	
Static Press. "H_2O	-.06	Ref. ΔP	22	tare 720 fin	734

Remarks: Nozzle
① .372
② .373 } .373
③ .373

HAP PUMP

START → END
283545 311174

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	0100	235.916	0.15	1.30	313	58	56	261	37	2
2	230	237.5	0.16	1.40	313	60	57	262	33	2
3	500	239.1	0.18	1.55	311	62	57	266	38	2
4	730	240.7	0.18	1.55	314	68	58	250	38	2
5	1000	242.3	0.18	1.55	317	71	59	267	38	2
6	1230	243.9	0.17	1.45	315	77	62	250	38	2
7	1500	245.2	0.16	1.40	315	81	65	265	38	2
8	1730	247.5	0.12	1.00	315	83	67	269	39	2
9	2000	248.9	0.11	0.95	315	85	65	264	36	2
10	2230	250.3	0.09	0.78	315	89	67	265	37	2
11	2500	251.5	0.07	0.60	315	90	68	260	37	2
12	2730	252.6	0.05	0.43	315	93	68	257	40	2
1	3000	253.931	0.15	1.30	324	97	73	270	40	2
2	230	255.5	0.16	1.40	325	95	71	266	46	2
3	500	257.0	0.18	1.55	320	96	75	262	43	2
4	730	258.4	0.18	1.55	323	99	75	263	44	2
5	1000	260.1	0.18	1.55	322	102	77	263	44	2
6	1230	261.8	0.17	1.45	322	105	78	260	45	2
7	1500	263.6	0.15	1.30	320	105	79	260	51	2
8	1730	265.1	0.14	1.20	312	107	80	260	50	2
9	2000	266.6	0.11	0.95	315	108	80	260	51	2
10	2230	268.1	0.11	0.95	315	108	82	260	51	2
11	2500	269.4	0.10	0.85	315	109	84	260	51	2
12	2730	270.6	0.08	0.69	315	109	83	264	52	2
END	0000	271.853								

leak check: .013 → .020
pitot +ve
pitot -ve

35.9370 .3681 1.1958 316.71 79.75

Plant: Louisiana Pacific - Urania Plywood
Sampling Location: No. 4 Dryer, Zone 1 Vent
Test For: Velocity
Test Operators: Russell / Cumutt

RUN No. 2
Date 2/8/95
Time start 1140 end

Meter Box	RAC	No. Sample Pts.	12	Gas Analysis	AIR
Sample Box		Minutes/Pt.	N/A	CO_2	
Probe/Pitot		NOMOGRAPH		O_2	
Pitot Cp		ΔH@	N/A	CO	
Nozzle Dia.		Meter Temp.		Time	
Filter No.		% H_2O		Condensate:	
Amb. Temp. °F		C-Factor		tare N/A	
Bar. Press. "Hg		Stack Temp.		Silica gel:	
Static Press. "H_2O		Ref. ΔP		tare	

Remarks:
HAP Pump
START 311174
STOP

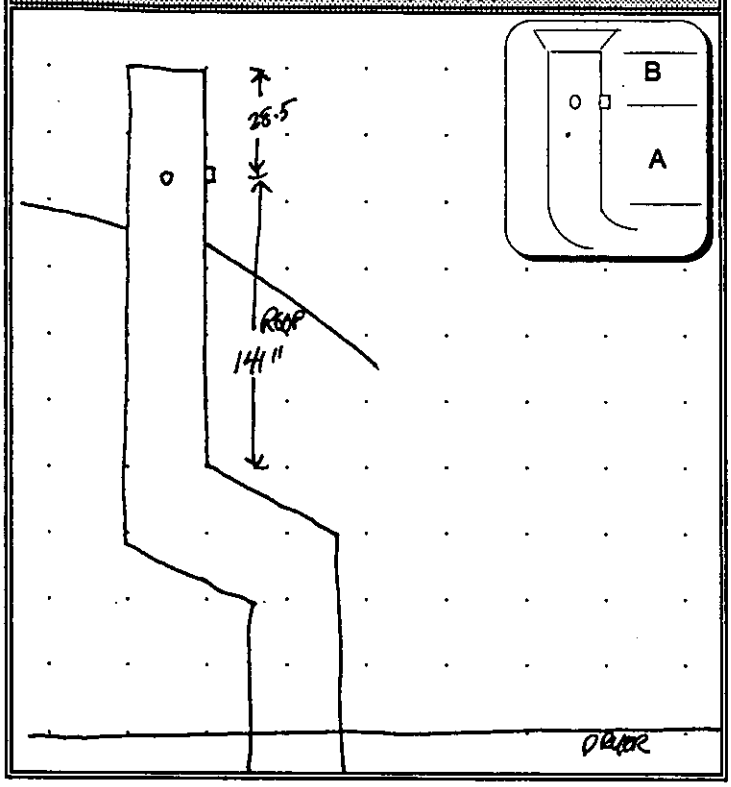
Port Point	El. Time, Min.	DGM Reading, Ft.³	Velocity Head ΔP, in. H_2O	Orifice ΔH in. H_2O	Stack Temp °F	Meter Temp., °F In	Meter Temp., °F Out	Oven Temp. °F	Imp. Temp. °F	Vac. in. Hg
1		N/A	0.14	N/A		N/A	N/A	N/A	N/A	N/A
2			0.14							
3			0.16							
4			0.16							
5			0.16		315					
6			0.16							
7			0.15							
8			0.13							
9			0.12							
10			0.10							
11			0.08							
12			0.06							
1			0.14							
2			0.15							
3			0.15							
4			0.15							
5			0.16							
6			0.15							
7			0.16							
8			0.14							
9			0.13							
10			0.12							
11			0.09							
12			0.07							
end										

3607

STACK CONFIGURATION AND SAMPLE POINT LAYOUT FOR CIRCULAR STACKS

PLANT: LOUISIANA-PACIFIC PLYWOOD PLANT URANIA LA. **Date:** 2-8-95
SOURCE: #4 DRYER ZONE 2
TEST FOR: PM / VOC
TEST OPERATORS: D. RUSSELL / B. MCKNIGHT / G. MCKNIGHT / L CARRUTH

SKETCH OF STACK



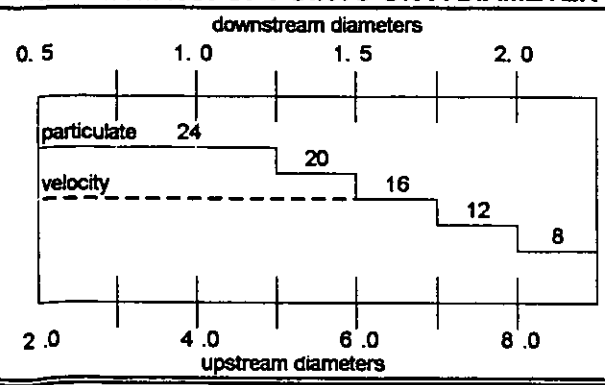
PERCENT OF DIAMETER

point no.	points on a diameter: 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

STACK DIAMETER:	25
Distance from ports to disturbance:	
A. to upstream disturbance	141"
B. to downstream disturbance	28.5
Upstream diameters:	5.64
Downstream diameters:	1.14
Minimum No. sample points required:	24
No. sample points selected:	12x2
Port Length:	0"
Port Type:	3" HOLE
Port Access:	ROOF / BOARDS

Point No.	Inches from wall	velocity head
1	.5	.050
2	1.7	.050
3	3.0	.050
4	4.4	.045
5	6.3	.040
6	8.9	.042
7	16.1	.040
8	18.8	.041
9	20.6	.042
10	22.1	.040
11	23.3	.041
12	24.5	.042
		AVG. ΔP: .043

MINIMUM NO. OF POINTS ON A DIAMETER



Pitot ID: Pitot Cp: Stack Temp: 275

Remarks: WET BULB: 145

DRY BULB: 275

Plant: LOUISIANA - PACIFIC PULPWOOD PLANT URANIA LA.
Sampling Location: #4 V. DRYER ZONE 2
Test For: PM / VOC
Test Operators: D. RUSSELL / B. MCKNIGHT / G. MCKNIGHT / L. CARRUTH

RUN No. 1
Date 2-8-95
Time start 1037 end 1134

Meter Box	ANDERSON	No. Sample Pts.	12x2	Gas Analysis	Remarks:
Sample Box	NO. 4	Minutes/Pt.	2.5	CO_2	
Probe/Pitot	3' Hi Vol	NOMOGRAPH		O_2	⊖ .490
Pitot Cp	.84	ΔH@	1.75	CO	⊖ AVG. .490
Nozzle Dia.	.490	Meter Temp.	100	Time	⊖ .490
Filter No.		% H_2O	35	Condensate:	
Amb. Temp. °F	42°	C-Factor	.545	tare 200 fin 316	
Bar. Press. "Hg	30.27	Stack Temp.	275	Silica gel:	
Static Press. "H_2O	-.05	Ref. ΔP	079	tare 676.0 fin 683.0	

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	079.045	0.060	1.45	302	60	56	250	50	2
2	230	080.7	0.052	1.25	304	66	56	252	50	2
3	500	082.2	0.050	1.20	303	71	57	245	40	2
4	730	083.60	0.052	1.25	301	75	58	239	40	2
5	1000	085.2	0.048	1.15	300	79	59	250	40	2
6	1230	086.7	0.042	1.00	286	81	61	247	40	2
7	1500	088.2	0.040	0.95	275	83	63	260	40	2
8	1730	089.5	0.038	0.90	270	85	65	249	40	2
9	2000	090.8	0.030	0.72	270	86	67	252	40	2
10	2230	092.1	0.030	0.72	271	86	68	248	41	2
11	2500	093.3	0.030	0.72	272	88	70	240	38	2
12	2730	094.3	0.030	0.72	270	89	72	241	39	2
1	30/00	095.705	0.040	0.95	276	86	75	261	36	2
2	230	097.3	0.061	1.50	299	91	76	252	36	2
3	500	098.8	0.052	1.25	305	94	78	251	36	2
4	730	100.44	0.055	1.30	305	95	79	258	36	2
5	1000	102.1	0.050	1.20	306	96	80	249	36	2
6	1230	103.8	0.050	1.20	306	96	80	248	36	2
7	1500	105.3	0.038	0.90	290	97	82	246	36	2
8	1730	107.3	0.030	0.72	280	96	83	255	36	2
9	2000	108.1	0.030	0.72	270	95	83	250	36	2
10	2230	109.3	0.031	0.74	268	96	84	250	37	2
11	2500	110.7	0.031	0.74	265	97	85	255	32	2
12	2730	112.0	0.030	0.72	266	97	85	260	32	2
END	60/00	113.235								

LEAK CHECK 0.010 → 0.091 - .001 Clean 27 "Hg

- pitot vr 5.0
- pitot vr 4.9

34.190 .2025 .9988 285.58 79.31

Plant: LOUISIANA PACIFIC PLYWOOD PLANT URANIA LA.
Sampling Location: #4 VENEER DRYER ZONE 2
Test For: VELOCITY FOR VOC
Test Operators: B. MCKNIGHT / G. MCKNIGHT

RUN No. 2
Date 2-8-95
Time start 1140 end 11:44

Meter Box	ANDERSEN	No. Sample Pts.	12X2	Gas Analysis	N/A	Remarks:	
Sample Box		Minutes/Pt.	N/A	CO_2			
Probe/Pitot	3/4" NE			O_2			
Pitot Cp	.84	NOMOGRAPH		CO			
Nozzle Dia.		ΔH@	N/A	Time			
Filter No.		Meter Temp.				HAP Pump	
		% H_2O		Condensate:		Start 311174	
Amb. Temp. °F	42°	C-Factor		tare N/A fin		Stop 333938	
Bar. Press. "Hg	30.27	Stack Temp.		Silica gel:			
Static Press. "H_2O	-.05	Ref. ΔP		tare fin			

Port Point	El. Time, Min.	DGM Reading, Ft³	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		N/A	0.040	N/A		N/A	N/A	N/A	N/A	N/A
2			0.041		302					
3			0.041							
4			0.050							
5			0.048							
6			0.040							
7			0.032							
8			0.030							
9			0.028							
10			0.028							
11			0.030							
12			0.030							
1			0.040							
2			0.050		301					
3			0.051							
4			0.048							
5			0.045							
6			0.045							
7			0.043							
8			0.035							
9			0.030							
10			0.030							
11			0.030							
12			0.028							
			1940							

PARTICULATE CATCH ANALYSIS

SAMPLES: L.P. - Urania Plywood - Dryer No. 4

DATE TAKEN: 2-8-95 DATE ANALYZED: 2-16-95

DELIVERED BY: DGR RECEIVED BY: DGR

ANALYZED BY: DGR

(Attach chain of custody if additional exchanges occur)

FILTERS:

RUN NO.	D4Z1	D4Z2	D4Z3A	D4Z3B	
FILTER NO.	2550	2549	2551	2552	
FILTER TARE, gms.	.5769	.5772	.5757	.5763	
	.6308	.6391	.5793	.5804	
	.6307	.6394	.5793	.5802	
FINAL WEIGHT, gms.	.6307	.6394	.5793	.5802	
NET GAIN, gms.	.0538	.0622	.0036	.0039	

PROBE WASH:

RUN NO.	D4Z1	D4Z2	D4Z3A	D4Z3B	
CONTAINER I.D.	"	"	"	"	
VOLUME INTACT?	✓	✓	✓	✓	
VOLUME, ml	170	160	180	200	
TARE WEIGHT, gms.	(27) 98.8409	(62) 113.1179	(1) 103.1825	(45) 107.2496	( )
	98.9215	113.1839	103.1920	107.2597	
	98.9213	113.1834	103.1917	107.2594	
FINAL WEIGHT, gms	98.9213	113.1834	103.1917	107.2594	
NET GAIN, gms.	.0804	.0655	.0092	.0098	
LESS BLANK, gms.					

PARTICULATE SAMPLE WEIGHT:

RUN NO.	D4Z1	D4Z2	D4Z3A	D4Z3B	
filter + probe, mg.	134.2	127.7	12.8	-13.7	

BACK HALF PARTICULATE CATCH ANALYSIS

Methylene Chloride Extraction

SAMPLES: L.P. - Maria Playwood - Dryer No. 4

DATE TAKEN: 2-8-95 DATE ANALYZED: 2-16-95

DELIVERED BY: DCR RECEIVED BY: DSR

ANALYZED BY: DCR

(Attach chain of custody if additional exchanges occur)

RUN NO.	D4Z3A	D4Z3B	D4Z1	D4Z2
CONTAINER I.D.	"	"	"	"
VOLUME INTACT?	✓	✓	✓	✓
VOLUME, ml				

Organic Fraction

TARE WEIGHT, gms.	(80) 107.9650	(86) 108.1475	(67) 111.4654	(69) 112.5823
	107.9701	108.1505	111.4821	112.5901
	107.9698	108.1501	111.4822	112.5900
FINAL WEIGHT, gms.	107.9698	108.1501	111.4822	112.5900
less blank, gms.				
NET GAIN, milligrams	4.8	2.6	16.8	7.7

Aqueous Fraction

TARE WEIGHT, gms.	(83) 105.1044	(87) 107.2289	(68) 112.5348	(71) 115.8196
	105.1050	107.2291	112.5367	115.8213
	105.1047	107.2291	112.5367	115.8212
FINAL WEIGHT, gms.	105.1047	107.2291	112.5367	115.8212
less blank, gms.				
NET GAIN, milligrams	0.3	0.2	1.9	1.6

APPENDIX B.

CALIBRATION DATA

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.	DH	Time	Calibrating Meter			Field Meter						Y	Q	K	DH@
			Vi	Vf	Temp	Vi	Vf	Temp. in		Temp out					
in. Hg	in. H_2O	min	ft^3	ft^3	°F	ft^3	ft^3	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

DRY GAS METER CALIBRATION

Meter ID RAC - 591349

Calibration Method DGM/DGM **By** L.C.

Calibration Meter ID 651729 **Pbar** 29.9

Date 4/4/95

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@
2	1.80	15.00	930.296	940.625	64	575.511	586.219	68	86	70	74	0.980	0.696	0.664	2.091
2	1.80	15.00	940.625	951.152	65	586.219	597.048	84	112	71	77	1.007	0.711	0.676	2.013
2	1.80	15.00	951.152	962.235	66	597.048	608.649	98	112	79	88	1.002	0.76	0.717	1.791
Averages:												1.00			1.97

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 Andersen

Calibration Method DGM/DGM **By** L.C

Calibration Meter ID 651729 **Pbar** 29.9

Date 4/4/95

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@
2	1.80	15.00	962.635	973.186	66	339.349	350.242	82	94	83	84	1.001	0.72	0.68	1.976
2	1.80	15.00	973.186	984.181	69	350.242	361.470	86	94	84	91	1.011	0.76	0.71	1.827
2	1.80	15.00	984.181	995.222	70	361.470	372.937	93	101	89	95	1.003	0.76	0.71	1.804
Averages:												**1.00**			**1.87**

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	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	Calibrating Meter Vf ft^3	Calibrating Meter Temp °F	Field Meter Vi ft^3	Field Meter Vf ft^3	Temp. in initial	Temp. in final	Temp out initial	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

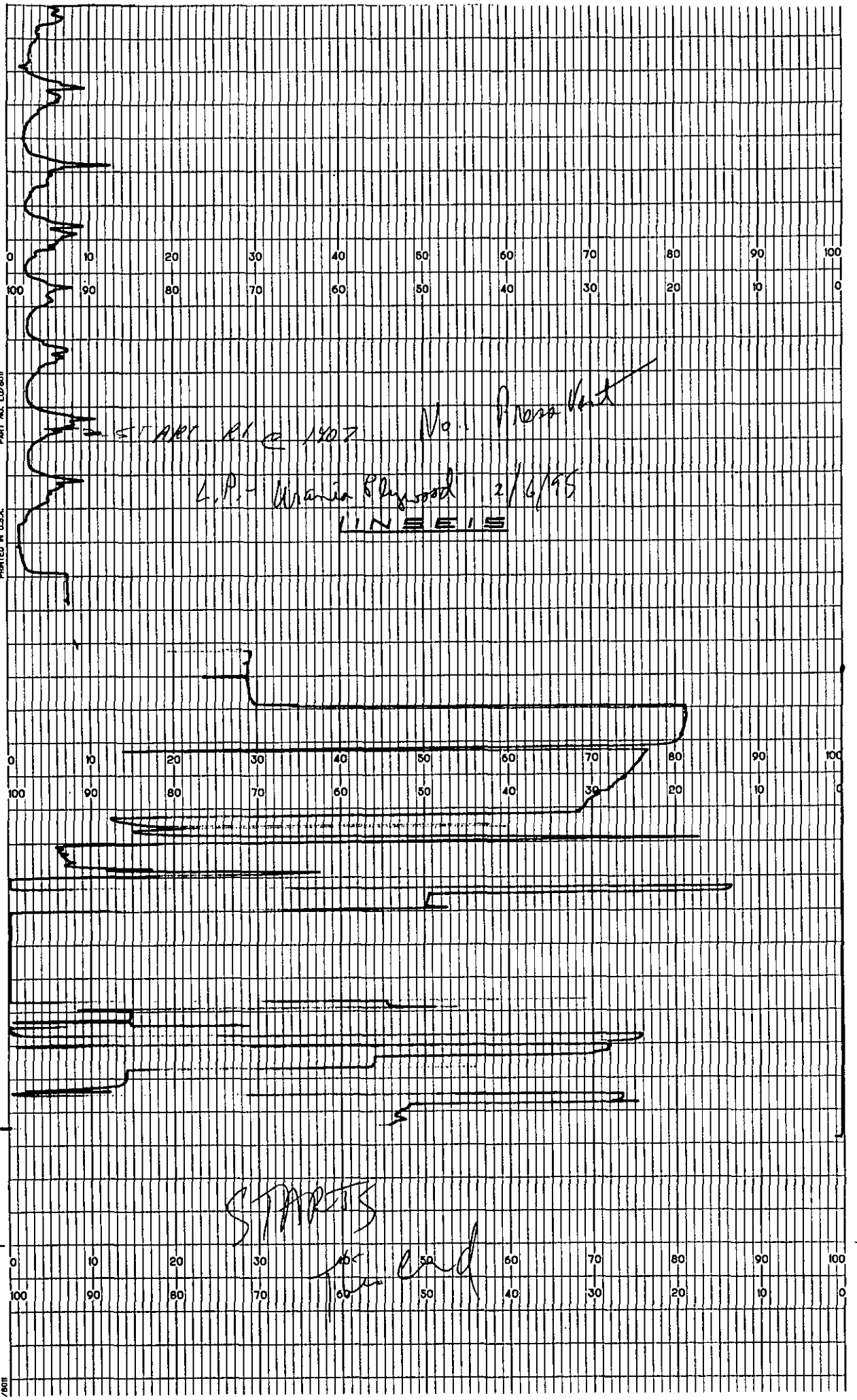
Pm = Meter pressure, (Pbar = DH/13.6)

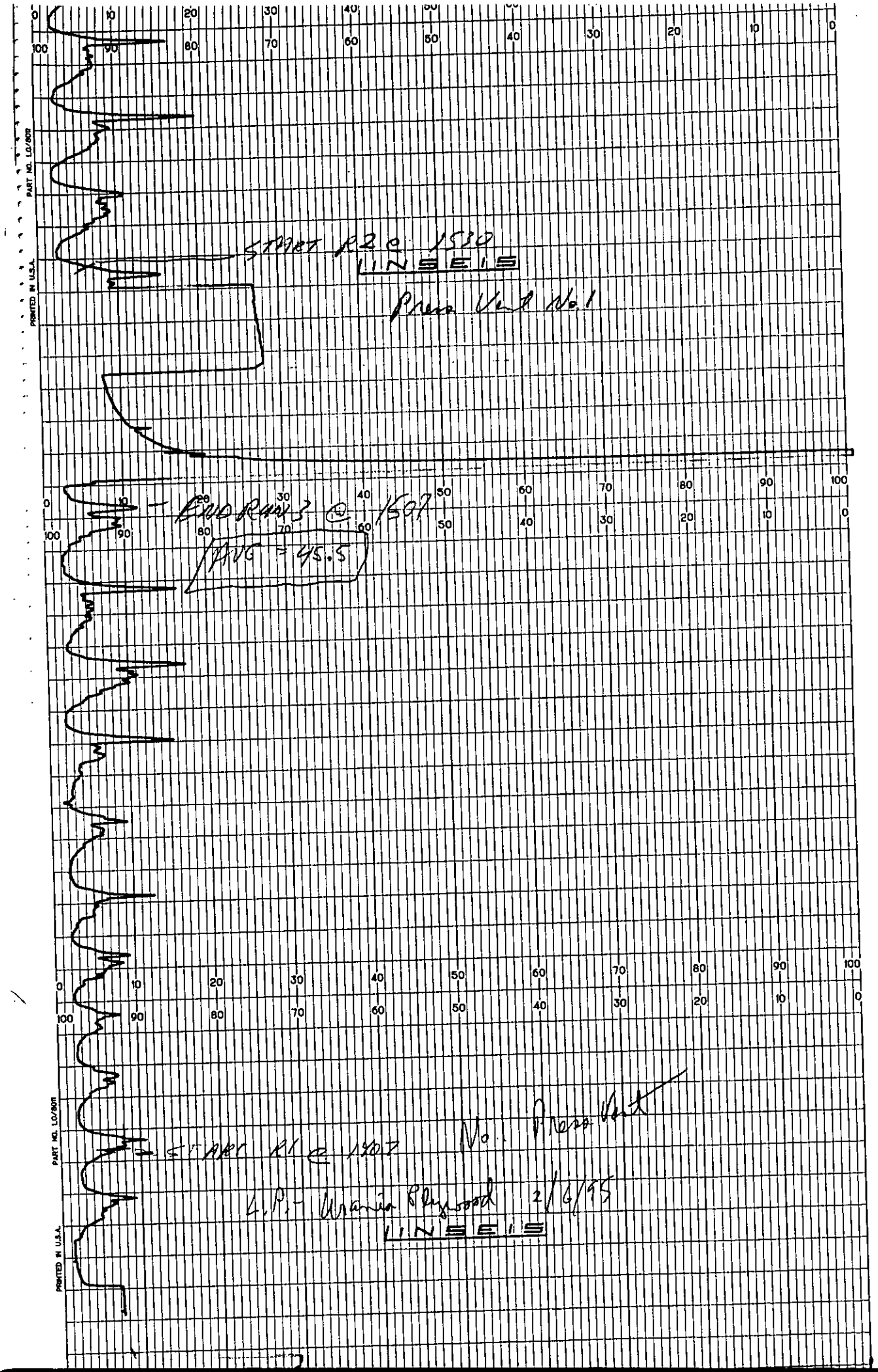
Tdgm = Average dry gas meter temp, degrees R

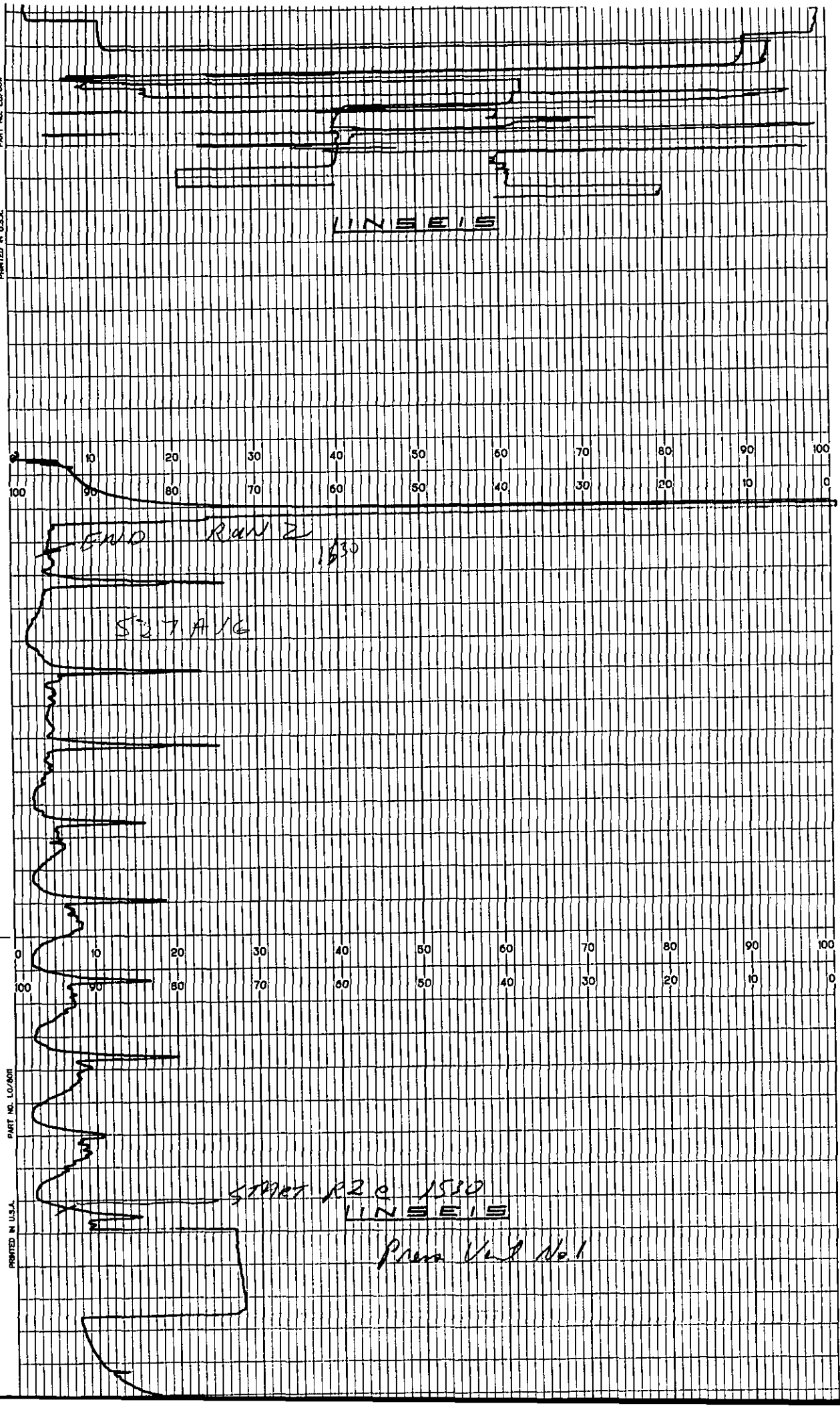
Tcal = Temperature of gas at calibrating meter, degrees R

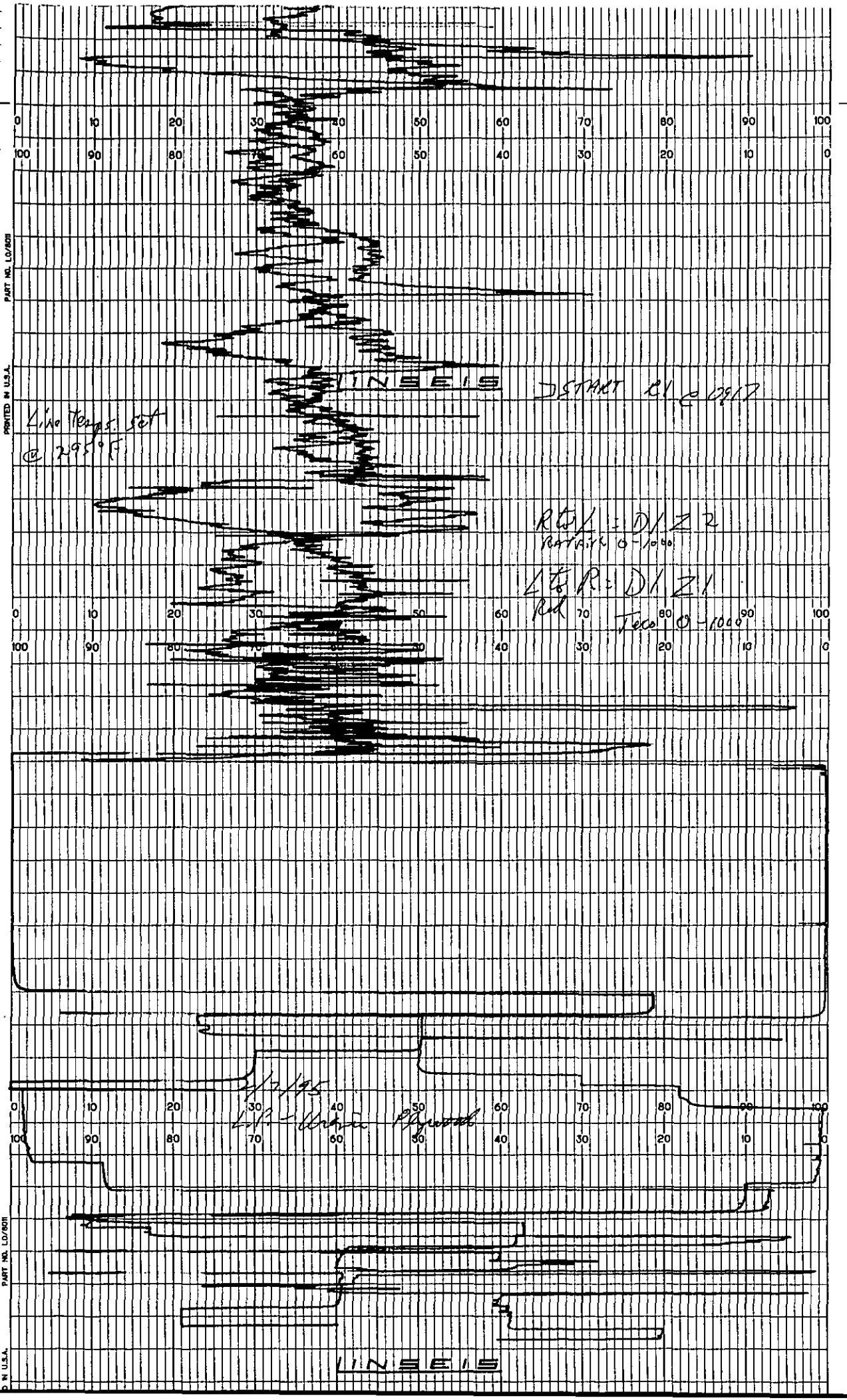
APPENDIX C.

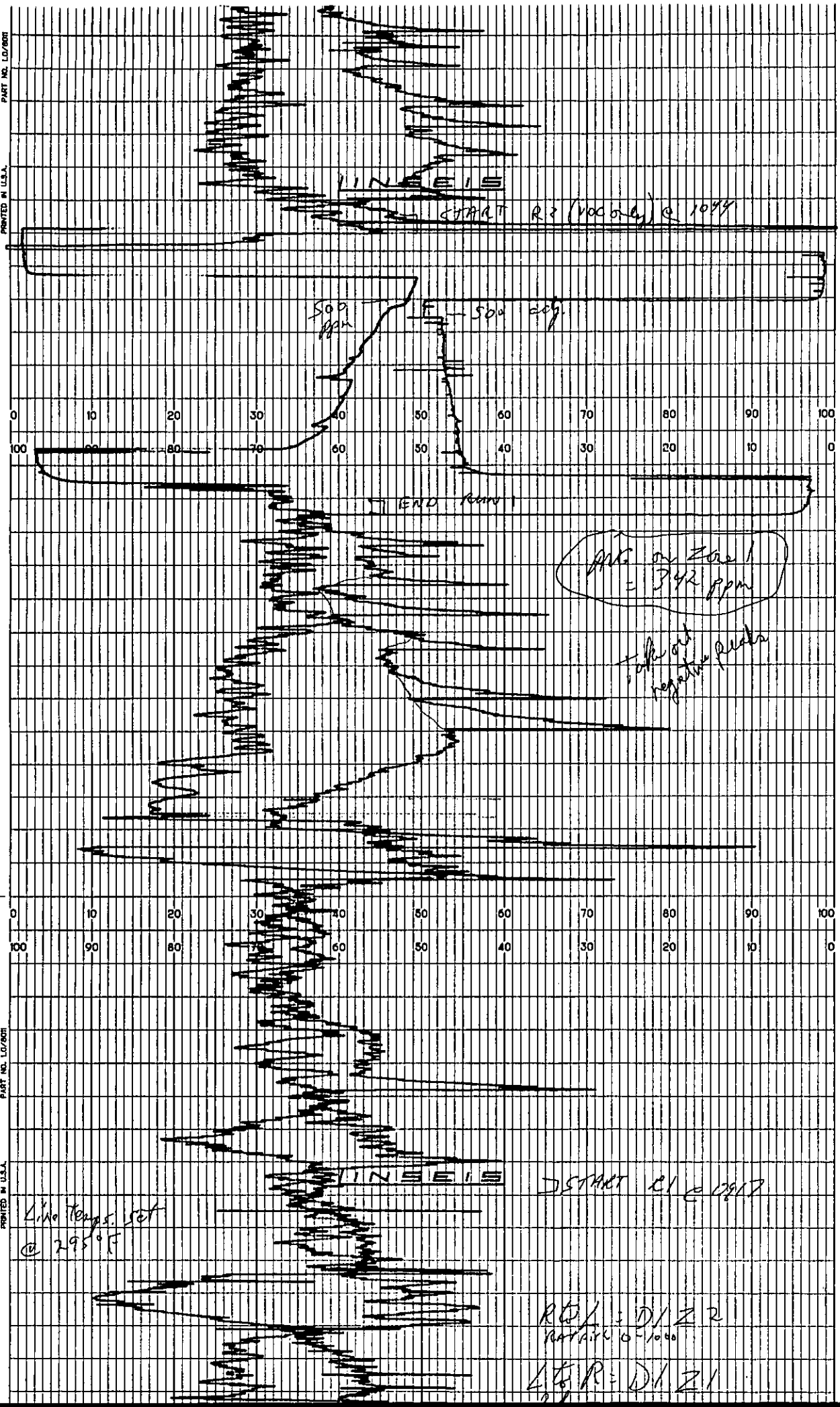
VOC RECORDER TRACE

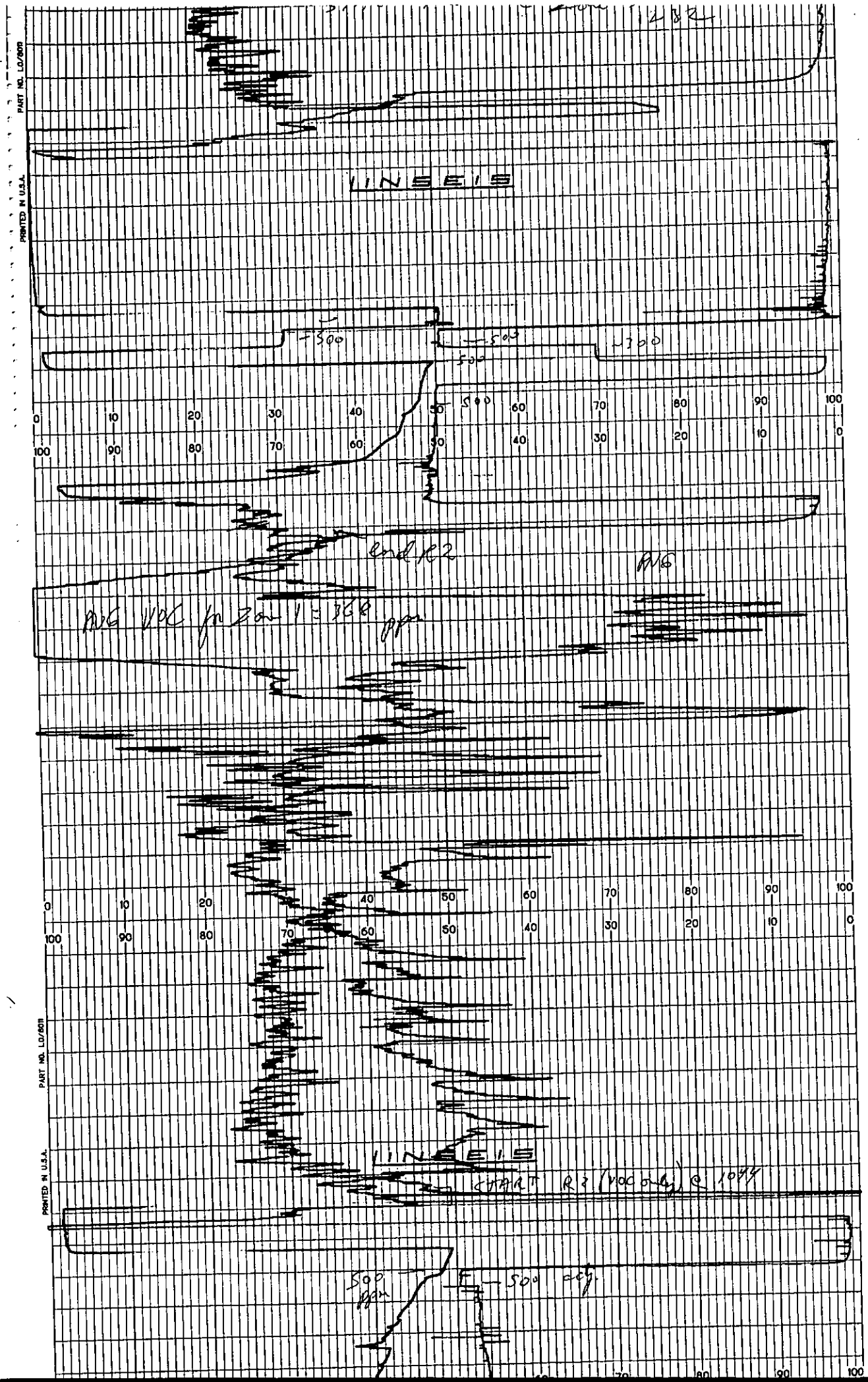

START AT @ 1907 No. Prox Unit
L.P. - Urania Playwood 2/6/95
LINSEIS
STARTS
Fire end
PART NO. LO/801
PRINTED IN U.S.A.

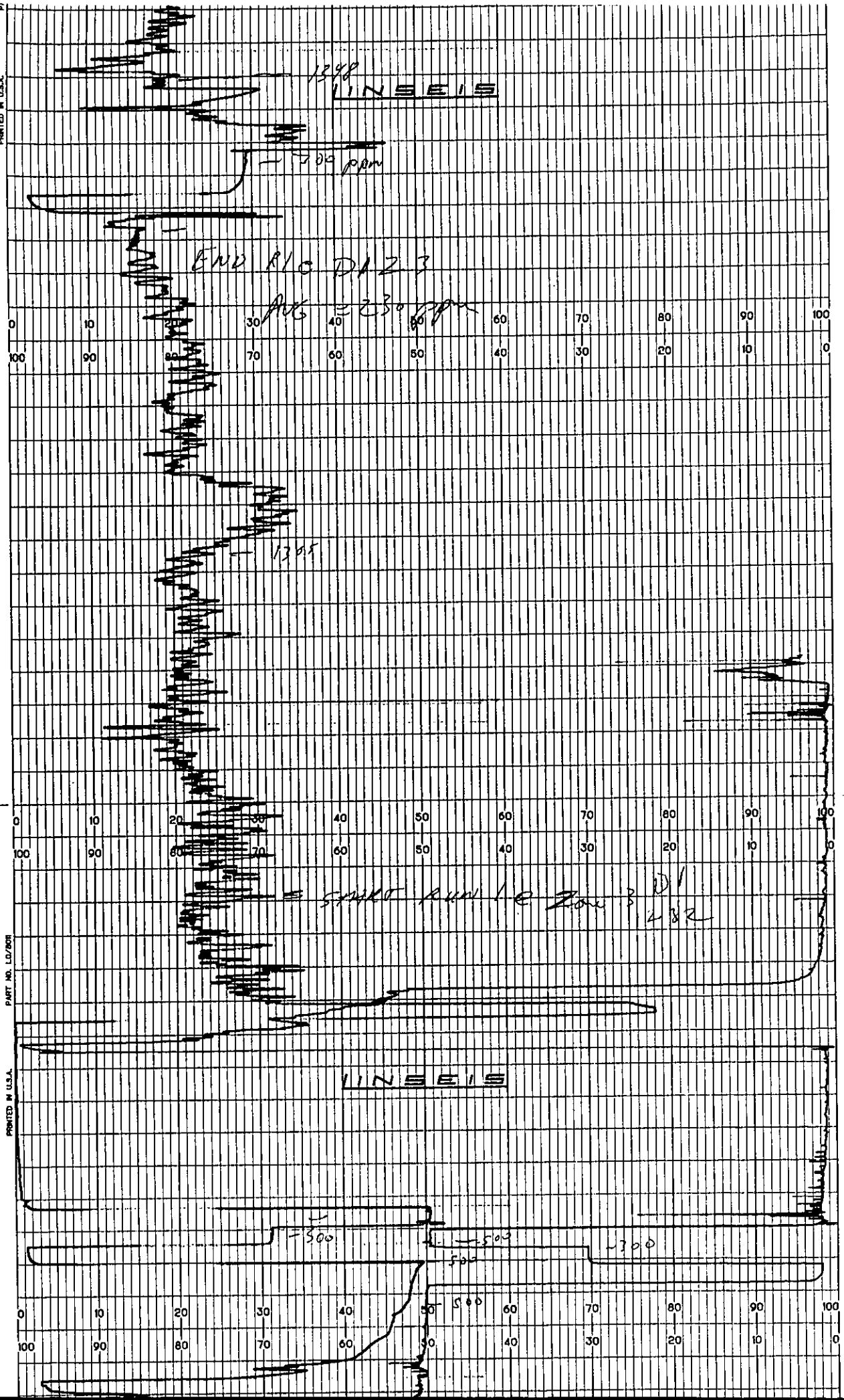

START R2 @ 1530
LINSEIS
Press Vent No. 1
END RUN 3 @ 1597
AVG = 45.5
START R1 @ 1507
No. Press Vent
L.P. - Uranium Plywood 2/6/95
LINSEIS
PART NO. LO/807
PRINTED IN U.S.A.

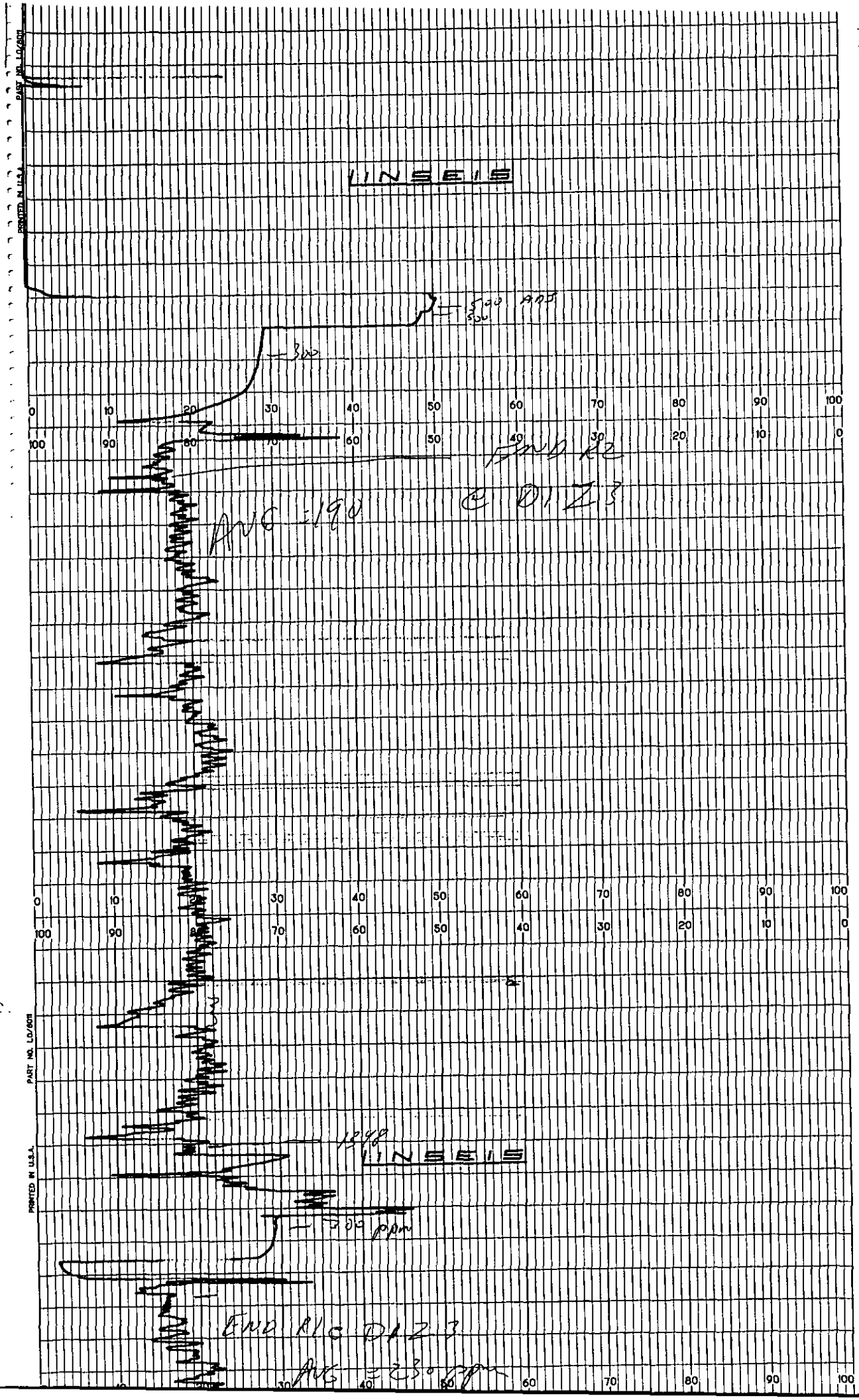

PART NO. LO/8011
PRINTED IN U.S.A.
LINSEIS
0 10 20 30 40 50 60 70 80 90 100
100 90 80 70 60 50 40 30 20 10 0
END Run 2 1630
START A16
0 10 20 30 40 50 60 70 80 90 100
100 90 80 70 60 50 40 30 20 10 0
PART NO. LO/8011
PRINTED IN U.S.A.
START A2 @ 1530
LINSEIS
Press Vessel No. 1

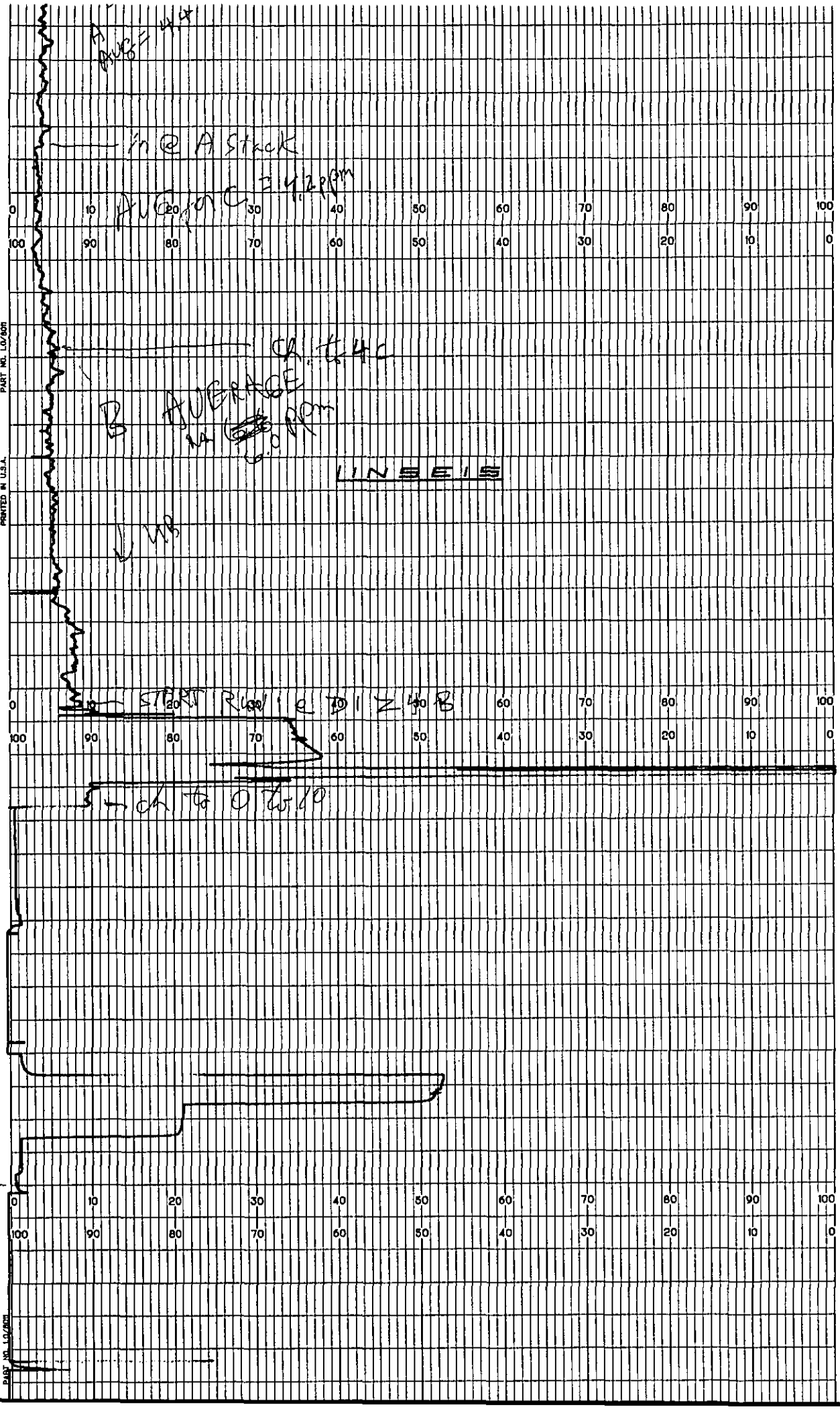

0 10 20 30 40 50 60 70 80 90 100
100 90 80 70 60 50 40 30 20 10 0
PART NO. LD/8011
PRINTED IN U.S.A.
LINSEIS
DSTART 61 @ 0910
Line Temp. set @ 295°F
RTX = DIZ2
RATIO 0-1000
ΔT R = DIZ1
Red Teco 0-1000
2/7/95
LINSEIS

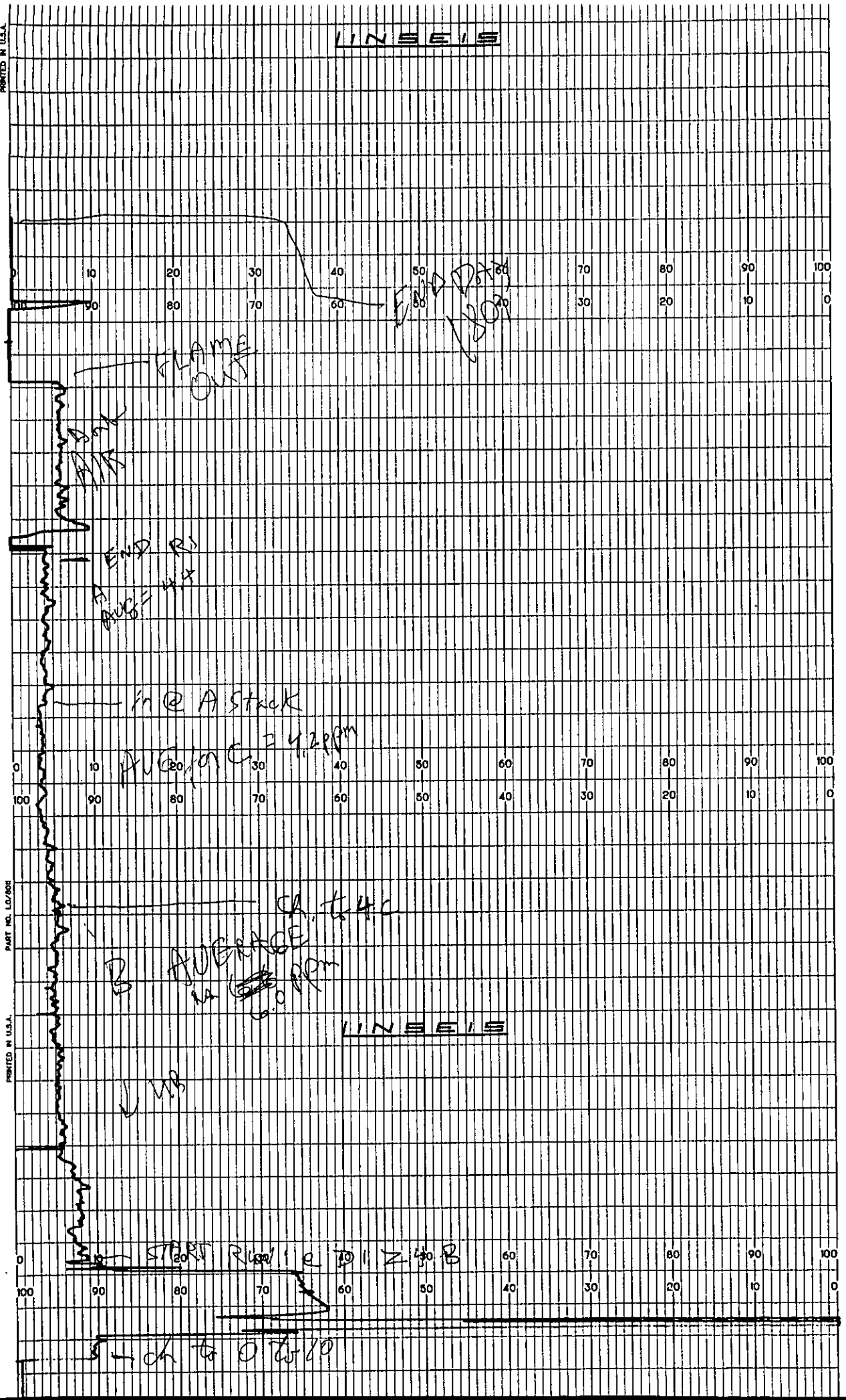

PART NO. LO/8011
PRINTED IN U.S.A.
LINSEIS
START R2 (100 ohm) @ 1044
500 rpm
500 deg.
END Run 1
AVG on Zone 1 = 3142 rpm
take out negative peaks
LINSEIS
START C1 @ 0917
Line Temps. set @ 295°F
RO1 = D1Z2
RATE 10-1000
AVG R = D1Z1

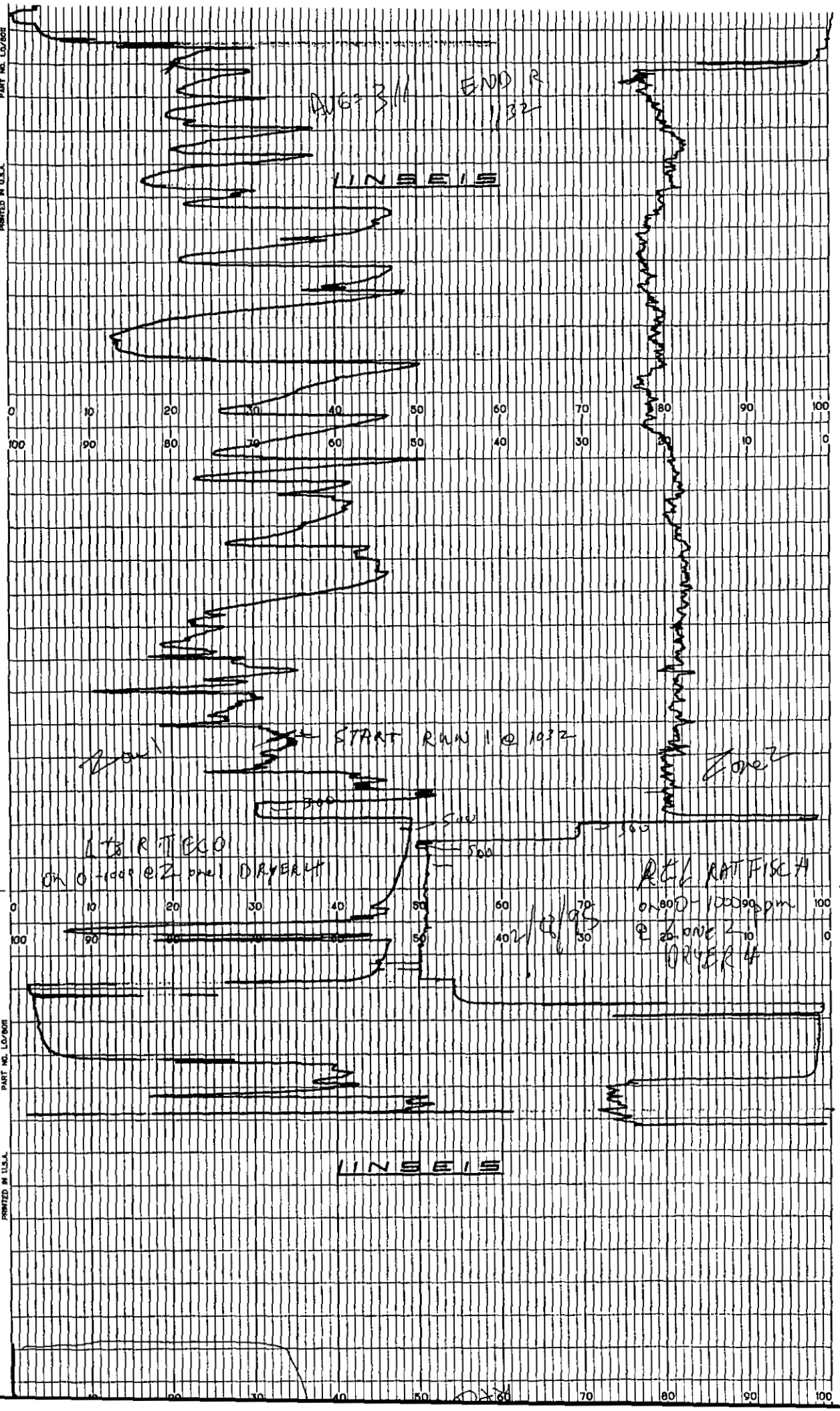

PART NO. LD/8011
PRINTED IN U.S.A.
LINSEIS
~500
~500
~300
500
500
end R2
AVG
AVG VOC for Zone 1 = 368 ppm
LINSEIS
CHART R3 (VOC only) @ 1044
500 ppm
500 ppm

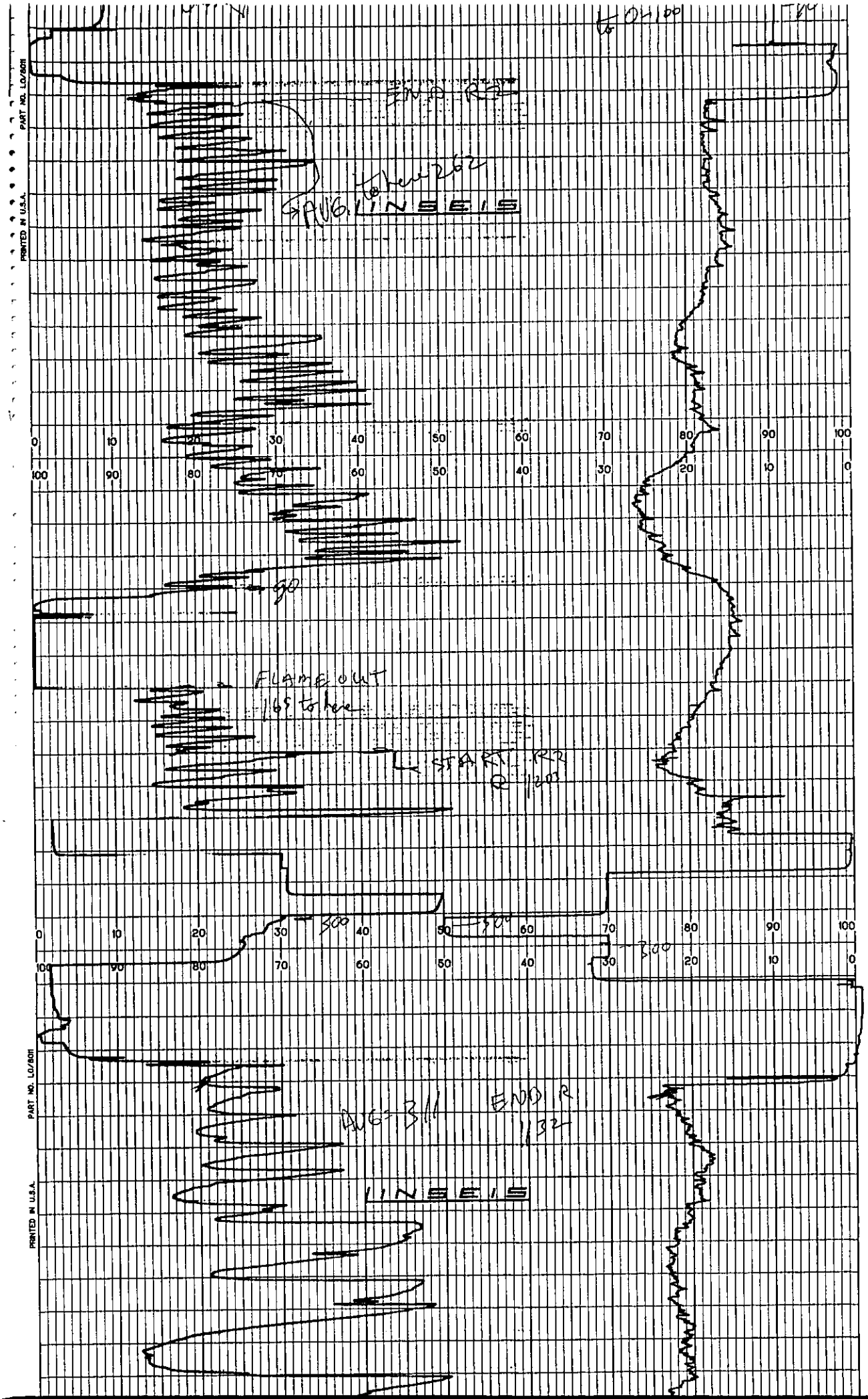

LINSEIS
1348
~700 ppm
END RIO DIAZ 3
AVG ≈ 230 ppm
1305
= SPIKE RUN IN Zone 3 W/ 4 BR
LINSEIS
~500
~500
~300
500
500
PRINTED IN U.S.A.
PART NO. LD/801

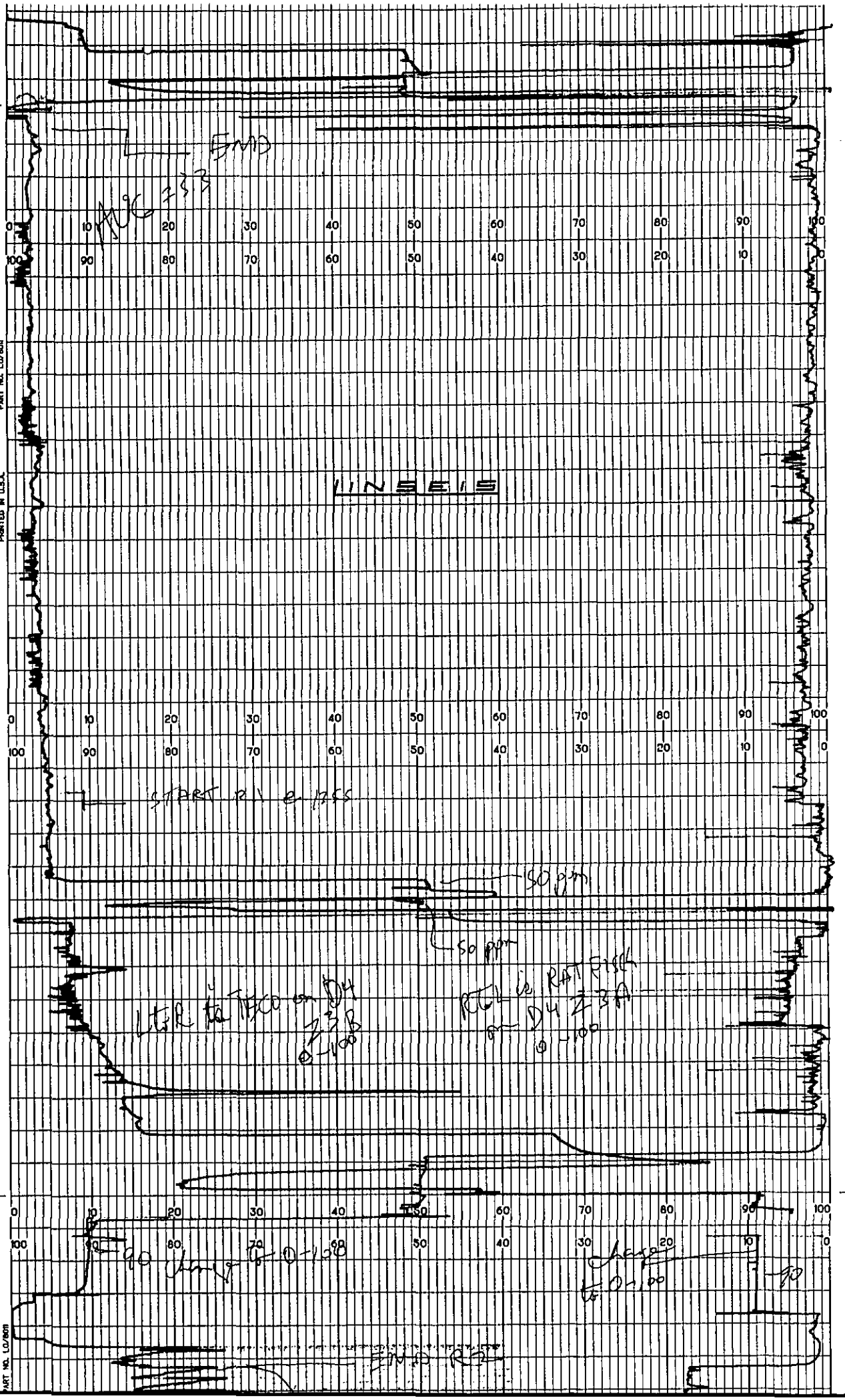

PART NO. LD/8011
PRINTED IN U.S.A.
LINSEIS
300 PPM
300
AVG = 190
1200
LINSEIS
300 ppm
END RIC DIAZ
AVG = 230 ppm


A AVG = 44
in @ A Stack
AVG for C = 42 rpm
CH. 4C
B AVERAGE
LINSEIS
START Rise @ D 1 Z 4B
4 ch to 0 to 10
PART NO. LD/801
PRINTED IN U.S.A.


LINSEIS
END PT
FLAME OUT
END RI
AVG = 4.4
in @ A Stack
AVG in C = 4.2 ppm
ch. to 4c
B AVERAGE
LINSEIS
L HR
START RUN 1 @ 10 IN 40 B
ch to 0 to 10


PART NO. LO/808
PRINTED IN U.S.A.
LINSEIS
END R
1132
START RUN 1 @ 1032
Zone 2
500
500
500
500
LTB R TECO
on 0-1000 @ Z one 1 DRYER 4
RTK RATFISC 4
on 0-1000 ppm
@ Zone 4
DRYER 4
2/13/95
0
10
20
30
40
50
60
70
80
90
100


END RR
AUG. 1962
LINSEIS
90
FLAMEOUT
165 to here
START RR
@ 1203
300
300
300
AUG 3/11
END R
1132
LINSEIS
PART NO. LO/8011
PRINTED IN U.S.A.


END
AUG 7 33
0 10 20 30 40 50 60 70 80 90 100
100 90 80 70 60 50 40 30 20 10 0
PART NO. LO/8011
PRINTED IN U.S.A.
START 21 @ 1755
50 ppm
50 ppm
LEAK TO TFCO on D4 Z-3B @ 0-100
RCL is RAT FISH on D4 Z-3A @ 0-100
90 change to 0-100
change to 0-100
90
END RCL

APPENDIX D.

SPECIATION ANALYSIS

(BONNER ANALYTICAL)

BONNER ANALYTICAL TESTING COMPANY
2703 Oak Grove Road
Hattiesburg, MS 39402
(601) 264-2854

Client: Environmental Monitoring Laboratories

File Number: BT24935
Collected By: Client

Sample Date/Time: @
Date/Time Rec'd: 030395 @ 1420
Date/Time Begun: 032095 @ 0800
Analyst: dec

L.P. Press No. 1

Analytical Parameter	Results total ug	MDL total ug
Acrolein	ND	2.00
Phenol	ND	4.00
Methanol	13.8	10.00
*Alpha-pinene	32.6	NA
*Beta-pinene	2.6	NA
*Camphene	0.6	NA
*Limonene	4.0	NA

Matrix Recoveries: (%)	Matrix Spike	Matrix Spike Duplicate
Acrolein	93.6	89.5
Methanol	102.4	99.3
Phenol	95.2	94.8

All analyses performed in accordance with NIOSH Method 2501 and Method 2000.

* = Estimated Concentrations are reported on these compounds.
MDL = Method Detection Limit.
ND = Not Detected
NA = Not Applicable

Certified by: Rodney W Culpepper
Michael S. Bonner, Ph.D.
BONNER ANALYTICAL TESTING COMPANY

BONNER ANALYTICAL TESTING COMPANY
2703 Oak Grove Road
Hattiesburg, MS 39402
(601) 264-2854

Client: Environmental Monitoring Laboratories

File Number: BT24936
Collected By: Client

Sample Date/Time: @
Date/Time Rec'd: 030395 @ 1420
Date/Time Begun: 032095 @ 0800
Analyst: dec

L.P.-D1-Z1

Analytical Parameter	Results total ug	MDL total ug
Acrolein	ND	2.00
Phenol	ND	4.00
Methanol	11.0	10.00
*Alpha-pinene	393.7	NA
*Beta-pinene	240.8	NA
*Camphene	14.9	NA
*Limonene	66.5	NA

Matrix Recoveries: (%)	Matrix Spike	Matrix Spike Duplicate
Acrolein	93.6	89.5
Methanol	102.4	99.3
Phenol	95.2	94.8

All analyses performed in accordance with NIOSH Method 2501 and Method 2000.

* = Estimated Concentrations are reported on these compounds.
MDL = Method Detection Limit.
ND = Not Detected
NA = Not Applicable

Certified by: Rodney W Cuthrell
Michael S. Bonner, Ph.D.
BONNER ANALYTICAL TESTING COMPANY

BONNER ANALYTICAL TESTING COMPANY
2703 Oak Grove Road
Hattiesburg, MS 39402
(601) 264-2854

Client: Environmental Monitoring Laboratories

File Number: BT24937
Collected By: Client

Sample Date/Time: @
Date/Time Rec'd: 030395 @ 1420
Date/Time Begun: 032095 @ 0800
Analyst: dec

L.P.-D1-Z2

Analytical Parameter	Results total ug	MDL total ug
Acrolein	ND	2.00
Phenol	ND	4.00
Methanol	ND	10.00
*Alpha-pinene	292.2	NA
*Beta-pinene	135.6	NA
*Camphene	10.5	NA
*Limonene	22.4	NA

Matrix Recoveries: (%)	Matrix Spike	Matrix Spike Duplicate
Acrolein	93.6	89.5
Methanol	102.4	99.3
Phenol	95.2	94.8

All analyses performed in accordance with NIOSH Method 2501 and Method 2000.

* = Estimated Concentrations are reported on these compounds.
MDL = Method Detection Limit.
ND = Not Detected
NA = Not Applicable

Certified by: Rodney W Culpepper
Michael S. Bonner, Ph.D.
BONNER ANALYTICAL TESTING COMPANY

BONNER ANALYTICAL TESTING COMPANY
2703 Oak Grove Road
Hattiesburg, MS 39402
(601) 264-2854

Client: Environmental Monitoring Laboratories

File Number: BT24938
Collected By: Client

Sample Date/Time: @
Date/Time Rec'd: 030395 @ 1420
Date/Time Begun: 032095 @ 0800
Analyst: dec

L.P.-D1-Z3

Analytical Parameter	Results total ug	MDL total ug
Acrolein	ND	2.00
Phenol	ND	4.00
Methanol	ND	10.00
*Alpha-pinene	128.3	NA
*Beta-pinene	78.3	NA
*Camphene	3.7	NA
*Limonene	20.4	NA

Matrix Recoveries: (%)	Matrix Spike	Matrix Spike Duplicate
Acrolein	93.6	89.5
Methanol	102.4	99.3
Phenol	95.2	94.8

All analyses performed in accordance with NIOSH Method 2501 and Method 2000.

* = Estimated Concentrations are reported on these compounds.
MDL = Method Detection Limit.
ND = Not Detected
NA = Not Applicable

Certified by: Rodney W Culpepper
Michael S. Bonner, Ph.D.
BONNER ANALYTICAL TESTING COMPANY

BONNER ANALYTICAL TESTING COMPANY
2703 Oak Grove Road
Hattiesburg, MS 39402
(601) 264-2854

Client: Environmental Monitoring Laboratories

File Number: BT24939
Collected By: Client

Sample Date/Time: @
Date/Time Rec'd: 030395 @ 1420
Date/Time Begun: 032095 @ 0800
Analyst: dec

L.P.-D1-Z4B

Analytical Parameter	Results total ug	MDL total ug
Acrolein	ND	2.00
Phenol	ND	4.00
Methanol	ND	10.00
*Alpha-pinene	4.8	NA
*Beta-pinene	2.5	NA
*Camphene	ND	NA
*Limonene	0.5	NA

Matrix Recoveries: (%)	Matrix Spike	Matrix Spike Duplicate
Acrolein	93.6	89.5
Methanol	102.4	99.3
Phenol	95.2	94.8

All analyses performed in accordance with NIOSH Method 2501 and Method 2000.

* = Estimated Concentrations are reported on these compounds.
MDL = Method Detection Limit.
ND = Not Detected
NA = Not Applicable

Certified by: Michael S. Bonner
Michael S. Bonner, Ph.D.
BONNER ANALYTICAL TESTING COMPANY

BONNER ANALYTICAL TESTING COMPANY
2703 Oak Grove Road
Hattiesburg, MS 39402
(601) 264-2854

Client: Environmental Monitoring Laboratories

File Number: BT24940
Collected By: Client

Sample Date/Time: @
Date/Time Rec'd: 030395 @ 1420
Date/Time Begun: 032095 @ 0800
Analyst: dec

L.P.-D4-Z1

Analytical Parameter	Results total ug	MDL total ug
Acrolein	ND	2.00
Phenol	ND	4.00
Methanol	ND	10.00
*Alpha-pinene	322.8	NA
*Beta-pinene	171.5	NA
*Camphene	10.8	NA
*Limonene	39.1	NA

Matrix Recoveries: (%)	Matrix Spike	Matrix Spike Duplicate
Acrolein	93.6	89.5
Methanol	102.4	99.3
Phenol	95.2	94.8

All analyses performed in accordance with NIOSH Method 2501 and Method 2000.

* = Estimated Concentrations are reported on these compounds.
MDL = Method Detection Limit.
ND = Not Detected
NA = Not Applicable

Certified by: Rodney R. Gregory
Michael S. Bonner, Ph.D.
BONNER ANALYTICAL TESTING COMPANY

BONNER ANALYTICAL TESTING COMPANY
2703 Oak Grove Road
Hattiesburg, MS 39402
(601) 264-2854

Client: Environmental Monitoring Laboratories

File Number: BT24941
Collected By: Client

Sample Date/Time: @
Date/Time Rec'd: 030395 @ 1420
Date/Time Begun: 032095 @ 0800
Analyst: dec

L.P.-D4-Z2

Analytical Parameter	Results total ug	MDL total ug
Acrolein	ND	2.00
Phenol	ND	4.00
Methanol	ND	10.00
*Alpha-pinene	141.5	NA
*Beta-pinene	75.2	NA
*Camphene	4.4	NA
*Limonene	21.8	NA

Matrix Recoveries: (%)	Matrix Spike	Matrix Spike Duplicate
Acrolein	93.6	89.5
Methanol	102.4	99.3
Phenol	95.2	94.8

All analyses performed in accordance with NIOSH Method 2501 and Method 2000.

* = Estimated Concentrations are reported on these compounds.
MDL = Method Detection Limit.
ND = Not Detected
NA = Not Applicable

Certified by: Rodney W Culpepper
Michael S. Bonner, Ph.D.
BONNER ANALYTICAL TESTING COMPANY

BONNER ANALYTICAL TESTING COMPANY
2703 Oak Grove Road
Hattiesburg, MS 39402
(601) 264-2854

Client: Environmental Monitoring Laboratories

File Number: BT24942
Collected By: Client

Sample Date/Time: @
Date/Time Rec'd: 030395 @ 1420
Date/Time Begun: 032095 @ 0800
Analyst: dec

L.P.-D4-Z3

Analytical Parameter	Results total ug	MDL total ug
Acrolein	ND	2.00
Phenol	ND	4.00
Methanol	ND	10.00
*Alpha-pinene	2.3	NA
*Beta-pinene	1.6	NA
*Camphene	ND	NA
*Limonene	0.2	NA

Matrix Recoveries: (%)	Matrix Spike	Matrix Spike Duplicate
Acrolein	93.6	89.5
Methanol	102.4	99.3
Phenol	95.2	94.8

All analyses performed in accordance with NIOSH Method 2501 and Method 2000.

* = Estimated Concentrations are reported on these compounds.
MDL = Method Detection Limit.
ND = Not Detected
NA = Not Applicable

Certified by: Rodney K. Culpepper
Michael S. Bonner, Ph.D.
BONNER ANALYTICAL TESTING COMPANY

CHAIN OF CUSTODY AND REQUEST FOR ANALYSIS

ENVIRONMENTAL MONITORING LABORATORIES
POST OFFICE BOX 655
RIDGELAND, MISSISSIPPI 39158

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

Laboratory: Bonner Analytical
Hattiesburg, MS
Please return copy of chain of custody with analytical report
Attention: EML PO No.

Project: Louisiana Pacific - Urania Plywood

Rush ☐ Routine ☑ Fax Results ☑

ANALYSES REQUESTED

Methanol
acrolein
phenol
Pinenes

No. of containers	SAMPLE ID	Sample matrix	REMARKS					UNITS
	L.P. Press No. 1 -	charcoal + XAD		✓	BT 24935			total µg
	L.P. - D1 - Z1 -	"		✓	BT 24936			
	L.P. - D1 - Z2 -	"		✓	BT 24937			
	L.P - D1 - Z3 -	"		✓	BT 24938			
	L.P. - D1 - Z4 B -	"		✓	BT 24939			
	L.P - D4 - Z1 -	"		✓	BT 24940			
	L.P - D4 - Z2 -	"		✓	BT 24941			
	L.P. - D4 - Z3 -	"		✓	BT 24942			
	2 each blank tubes							

Please call Danny @ 856 3092 if any questions.

Relinquished by: (print name; initial)	Date/time	Received by: (print name; initial)	Date/time
Danny Russell DGR	3/3/95	RLCulpepper via Suzuki courier	3/3/95 1420
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

CK RL Culp