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.

AP-42 Section Number: 10.6.1

Background Report 4

Reference Number: 84

Title: Report of Air Emissions and Inlet Loading Tests for Kirby Forest Industries, Silsbee OSB Facility Press House Numbers 1 & 2 Vent Ducts, Silsbee Texas, April 27, 1995

Environmental Monitoring Laboratories, Inc.

May 1995

4-84)

REPORT OF
AIR EMISSIONS AND INLET LOADING TESTS
FOR
KIRBY FOREST INDUSTRIES – SILSBEE OSB FACILITY
PRESS VENT RTO

Silsbee, Texas
April 27, 1995

Prepared for
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May 6, 1995

Subject: Kirby Forest Industries
Silsbee, Texas

On April 27, 1995, Environmental Monitoring Laboratories performed air emissions testing for Kirby Forest Industries' oriented strand board (OSB) facility in Silsbee, Texas. Testing was performed to determine emissions of particulate matter (PM) and total hydrocarbon as carbon (VOC) from the Press Vent regenerative thermal oxidizer (RTO). Testing was also done at the inlet to determine inlet loading of PM and VOC. This testing was done at the request of Louisiana pacific Corporation. Kirby Forest Industries is a wholly owned subsidiary of Louisiana Pacific Corporation.

Results are shown in the table below.

	PARTICULATE		VOC AS C	
	#/hr	gr/dscf	#/hr	ppm
Outlet	1.87	0.002	3.05	17
Inlet	12.01	0.018	43.03	293
Removal Efficiency	84%	89%	93%	94%

The testing project was coordinated by Dr. James T. Boswell of Louisiana Pacific Corporation. Danny Russell of Environmental Monitoring laboratories coordinated sample collection and analysis and report preparation.

Following is a report of the test.

REPORT OF AIR EMISSIONS AND INLET LOADING TESTS FOR
KIRBY FOREST INDUSTRIES – SILSBEE OSB FACILITY
PRESS VENT RTO
SILSBEE, TEXAS
APRIL 27, 1995

CONTENTS

1.0	TEST RESULTS	page 1
2.0	SOURCE DESCRIPTION	3
3.0	TEST PROCEDURES	3
4.0	DATA REDUCTION	4
5.0	NOMENCLATURE	9
6.0	CALIBRATION	10
7.0	APPENDICES:	11

A. Field and Laboratory Data
B. Calibrations
C. VOC Recorder Traces

REPORT CERTIFICATION

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

Signed _____

Daniel G. Russell

1.0 TEST RESULTS:

The following tables present the measured flow parameters and test results for air emissions and loading testing done on April 27, 1995, for Kirby Forest Industries 's OSB facility in Silsbee, Texas.

Kirby Forest Industries -- Silsbee OSB Facility
Press Vent RTO

Run No.		1	2	3	AVG.
Date		4/27/95	4/27/95	4/27/95	——
Time Start		1150	1402	1542	——
Time End		1251	1502	1642	——
PARTICULATE EMISSIONS	#/hr	1.84	1.96	1.82	1.87
PARTICULATE EMISSIONS	gr/dscf	0.002	0.002	0.002	0.002
VOC EMISSIONS	#/hr	3.07	3.20	2.89	3.05
VOC EMISSIONS	ppm	17.5	16.0	16.5	16.6
VOLUMETRIC FLOWRATE	acfm	135484	155396	136998	142626
VOLUMETRIC FLOWRATE	dscfm	93968	106920	93881	98256
VELOCITY	ft./sec.	52.6	60.3	53.1	55.3
STACK TEMPERATURE	°F	273	276	272	274
MOISTURE	%	3.9	4.3	5.2	4.5
SAMPLE RATE	% isokinetic	95	94	95	95

Kirby Forest Industries - Silsbee, Texas
Press Vents RTO Inlet

Run No.		1	2	3	AVG.
Date		4/27/95	4/27/95	4/27/95	——
Time Start		1845	2015	2004	——
Time End		1948	2118	2108	——
PARTICULATE EMISSIONS	#/hr	***24.22***	11.26	12.77	12.01
PARTICULATE EMISSIONS	gr/dscf	***0.036***	0.017	0.019	0.018
VOC EMISSIONS	#/hr	48.03	39.82	41.24	43.03
VOC EMISSIONS	ppm	327.5	275.3	275.0	292.6
VOLUMETRIC FLOWRATE	acfm	109255	108581	113209	110348
VOLUMETRIC FLOWRATE	dscfm	78447	77365	80214	78675
VELOCITY	ft./sec.	68.3	67.9	70.8	69.0
STACK TEMPERATURE	°F	126	129	133	129
MOISTURE	%	3.8	4.1	4.0	4.0
SAMPLE RATE	% isokinetic	90	91	90	90

Run No. 1 particulate results deleted from average

2.0 SOURCE DESCRIPTION: Kirby Forest Industries, a wholly owned subsidiary of Louisiana Pacific Corporation, operates an Oriented Strand Board (OSB) plant in Silsbee, Texas. A Research Cottrell regenerative thermal oxidizer (RTO) has been installed to control emissions from the press vent.

Source description here is limited to a description of the sampling locations. Detailed process descriptions and operating conditions during testing may be supplied by Louisiana Pacific Corporation.

The RTO exhausts to the atmosphere by way of a 88.75 inch diameter vertical stack extending through the roof of the building housing the press. Two sample ports at 90° are provided at a location that is 25 feet (3.3 diameters) below the point where the stack exits the roof and 20 feet (2.7 diameters) above the system inlet duct to stack transition. Sketches of the stack and sampling locations are provided in Appendix A.

The RTO inlet has two ducts from the press. Both inlets were sampled in a rectangular, horizontal section of duct leading to a knock out chamber. Each duct is equipped with four sample ports along the vertical wall of the duct.

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

Particulate sampling was done as described in Method 5. An exception was the inclusion of the condenser section particulate as described in Method 202. Reported particulate is based on three fractions: the front half, the back half organic (methylene chloride extraction), and the back half aqueous. The contribution of each fraction can be reviewed in Section 4.0.

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

4.0 DATA REDUCTION

Kirby Forest Industries -- Silsbee OSB Facility
Press Vent RTO
PM/VOC Emissions Test - April 27, 1995

Collected Test Data:

		RUN 1	RUN 2	RUN 3	
Date :		4/27/95	4/27/95	4/27/95	
Time start :		1150	1402	1542	
Time end :		1251	1502	1642	
1. As	: sq ft	42.9600	42.9600	42.9600	
2. Dn	: in.	0.310	0.310	0.310	
3. Cp	: dimensionless	0.84	0.84	0.84	
4. Theta	: minutes	60.00	60.00	60.00	
5. Y	: dimensionless	1.00	1.00	1.00	
6. Pbar	: in. Hg	29.98	29.98	29.98	
7. Pg	: in. H2O	0.22	0.22	0.22	
8. Vm	: cf (dry gas)	69.711	78.864	70.618	
9. sqr(DP),avg	: in.H2O^.5	0.7891	0.9025	0.7966	
10. DH	: in. H2O	4.3563	5.6188	4.4188	
11. ts	: degrees F	273.21	276.42	271.96	273.86
12. tm	: degrees F	108.60	113.90	116.52	
13. Vlc	: ml	57	70	77	
14. CO2	: percent	0.00	0.00	0.00	
15. O2	: percent	20.90	20.90	20.90	
16. CO	: percent	0.00	0.00	0.00	
17. VOC	: ppm as propane	5.6	5.1	5.2	5.3
18. M,PM	: milligrams				
	front half	8.2	8.5	8.6	
	back half organic	0.9	1.3	0.4	
	back half aqueous	0.6	0.4	0.6	

Kirby Forest Industries -- Silsbee OSB Facility
Press Vent RTO
PM/VOC Emissions Test - April 27, 1995

Calculations:		RUN 1	RUN 2	RUN 3	AVG.
1. Pm	: in.Hg (DH/13.6)+Pbar	30.3003	30.3931	30.3049	
2. Ps	: in. Hg (Pg/13.6)+Pbar	29.9962	29.9962	29.9962	
3. An	: sq ft ((Dn/24)^2)(3.1416)	5.24E-04	5.24E-04	5.24E-04	
4. Vmstd	: dscf Vm Y(Pm/Pstd)(Tstd/Tm)	65.556	73.704	65.507	68.256
5. Vwstd	: scf (.04707cf/ml)(Vlc)	2.683	3.295	3.624	
6. Bws	: dimensionless Vwstd/(Vwstd+Vmstd)	0.0393	0.0428	0.0524	0.0448
7. Md	: mol.wt. dry basis .44 CO2+.32 O2+.28(CO+N2)	28.84	28.84	28.84	
8. Ms	: mol.wt. wet basis Md(1-Bws)+18 Bws	28.41	28.37	28.27	
9. Vs	: ft/sec Kp Cp (sqrDP)sqr(Ts/(Ps Ms))	52.56	60.29	53.15	55.33
10. Q	: cfm Vs As(60 sec/min)	135484	155396	136998	142626
11. Qstw	: scfm Q(Ps/Pstd)(Tstd/Ts)	97813	111700	99075	102863
12. Qstd	: dscfm Qstw(1-Bws)	93968	106920	93881	98256
13. I	: percent [(100 Ts)(.002669 Vlc+(Vm Pm/Tm)]/(60 theta Vs Ps An)	95.30	94.17	95.32	94.93

Particulate Emissions

14. E,PM	: pounds/hr (M,PM/Vmstd)(Qstd)(60)/(453590)				
front half		1.555	1.631	1.630	1.605
back half organic		0.171	0.249	0.076	0.165
back half aqueous		0.114	0.077	0.114	0.101
Total		1.839	1.957	1.820	1.872
15. C,PM	: grains/dscf (M,PM/Vmstd)(.0154 grains/mg)				
front half		0.0019	0.0018	0.0020	0.0019
back half organic		0.0002	0.0003	0.0001	0.0002
back half aqueous		0.0001	0.0001	0.0001	0.0001
Total		0.0023	0.0021	0.0023	0.0022

VOC Emissions

16. C'VOC	: ppm as C (C,VOC)(3)/(1-Bws)	17.49	15.98	16.46	16.64
17. C,VOC	: #/hr as C (C'VOC)(3.116e-8)(Qstd)(60)	3.07	3.20	2.89	3.05

Kirby Forest Industries - Silsbee, Texas
Press Vents RTO Inlet
PM/VOC Inlet Loading Test -- April 27, 1995

Collected Test Data:

		RUN 1	RUN 2	RUN 3	
	Date :	4/27/95	4/27/95	4/27/95	
	Time start :	1845	2015	2004	
	Time end :	1948	2118	2108	
1.	As : sq ft	26.6667	26.6667	26.6667	
2.	Dn : in.	0.240	0.240	0.240	
3.	Cp : dimensionless	0.84	0.84	0.84	
4.	Theta : minutes	60.00	60.00	60.00	
5.	Y : dimensionless	1.00	1.00	1.00	
6.	Pbar : in. Hg	24.75	24.75	24.75	
7.	Pg : in. H2O	0.65	0.65	0.65	
8.	Vm : cf (dry gas)	64.291	64.613	67.081	
9.	sqr(DP),avg : in.H2O^.5	1.0426	1.0332	1.0739	
10.	DH : in. H2O	3.8408	3.8104	3.7563	
11.	ts : degrees F	126.29	129.00	132.88	129.39
12.	tm : degrees F	107.96	116.04	123.42	
13.	Vlc : ml	42	45	45	
14.	CO2 : percent	0.00	0.00	0.00	
15.	O2 : percent	20.90	20.90	20.90	
16.	CO : percent	0.00	0.00	0.00	
17.	VOC : ppm as propane	105.0	88.0	88.0	93.7
18.	M,PM : milligrams				
	front half	*105.2*	47.2	52.7	
	back half organic	*9.6*	5.4	6.6	
	back half aqueous	*1.9*	1.9	1.8	

Kirby Forest Industries - Silsbee, Texas
Press Vents RTO Inlet
PM/VOC Inlet Loading Test -- April 27, 1995

Calculations:	RUN 1	RUN 2	RUN 3	AVG.
1. Pm : in.Hg (DH/13.6)+Pbar	25.0324	25.0302	25.0262	
2. Ps : in. Hg (Pg/13.6)+Pbar	24.7978	24.7978	24.7978	
3. An : sq ft ((Dn/24)^2)(3.1416)	3.14E-04	3.14E-04	3.14E-04	
4. Vmstd : dscf Vm Y(Pm/Pstd)(Tstd/Tm)	50.004	49.545	50.779	50.110
5. Vwstd : scf (.04707cf/ml)(Vlc)	1.977	2.118	2.118	
6. Bws : dimensionless Vwstd/(Vwstd+Vmstd)	0.0380	0.0410	0.0400	0.0397
7. Md : mol.wt. dry basis .44 CO2+.32 O2+.28(CO+N2)	28.84	28.84	28.84	
8. Ms : mol.wt. wet basis Md(1-Bws)+18 Bws	28.42	28.39	28.40	
9. Vs : ft/sec Kp Cp (sqrDP)sqr(Ts/(Ps Ms))	68.28	67.86	70.76	68.97
10. Q : cfm Vs As(60 sec/min)	109255	108581	113209	110348
11. Qstw : scfm Q(Ps/Pstd)(Tstd/Ts)	81548	80672	83560	81927
12. Qstd : dscfm Qstw(1-Bws)	78447	77365	80214	78675
13. I : percent [(100 Ts)(.002669 Vlc+(Vm Pm/Tm)]/(60 theta Vs Ps An)	90.18	90.60	89.56	90.11

Particulate Emissions

14. E,PM : pounds/hr (M,PM/Vmstd)(Qstd)(60)/(453590)				
front half	*21.831*	9.749	11.012	10.381
back half organic	*1.992*	1.115	1.379	1.247
back half aqueous	*0.394*	0.392	0.376	0.384
Total	*24.217*	11.257	12.767	12.012
15. C,PM : grains/dscf (M,PM/Vmstd)(.0154 grains/mg)				
front half	*0.0324*	0.0147	0.0160	0.0153
back half organic	*0.0030*	0.0017	0.0020	0.0018
back half aqueous	*0.0006*	0.0006	0.0005	0.0006
Total	*0.0359*	0.0169	0.0185	0.0177

VOC Emissions

16. C'VOC : ppm as C (C,VOC)(3)/(1-Bws)	327.45	275.29	275.01	292.58
17. C,VOC : #/hr as C (C'VOC)(3.116e-8)(Qstd)(60)	48.03	39.82	41.24	43.03

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 Laboratory Data

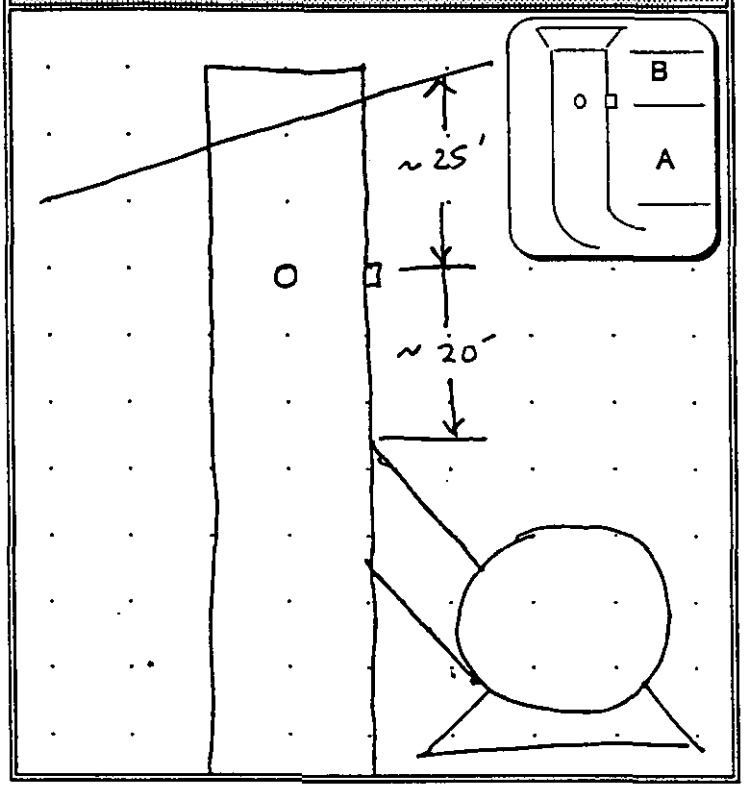
B. Calibrations

C. VOC Recorder Traces

STACK CONFIGURATION AND SAMPLE POINT LAYOUT FOR CIRCULAR STACKS

PLANT: Kirby Forest Industries - Silsbee OSB **Date:** 4-27-95
SOURCE: Press Vents RTO outlet
TEST FOR: PM/VOC
TEST OPERATORS: Russell/G. McKnight/B McKnight

SKETCH OF STACK



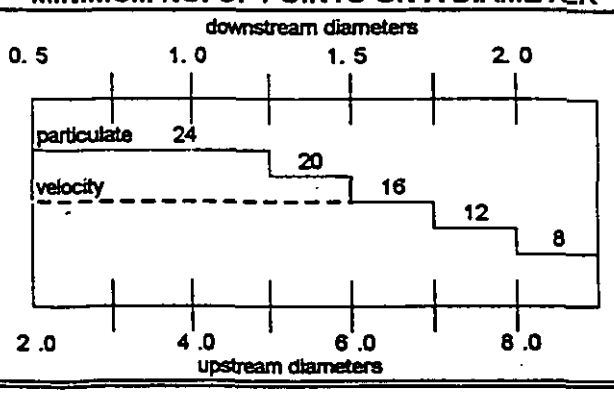
PERCENT OF DIAMETER

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: 89.75"
Distance from ports to disturbance:
A. to upstream disturbance
B. to downstream disturbance
Upstream diameters:
Downstream diameters:
Minimum No. sample points required:
No. sample points selected:
Port Length: 5.25"
Port Type: 4" pipe nipple
Port Access: platform

Point No.	Inches from wall	velocity head
1	1.9	
2	6.0	
3	10.6	
4	15.9	
5	22.4	
6	32.0	
7	57.8	
8	67.3	
9	73.9	
10	79.2	
11	83.7	
12	87.9	

MINIMUM NO. OF POINTS ON A DIAMETER



Pitot ID: Pitot Cp: Stack Temp: 785

Remarks:

$\Delta p \sim .4 \rightarrow .6$

Plant Louisiana Pacific - (Ruby Forest Products) - Silsbee OSB
Sampling Location Press Vents Outlet RTO
Test For PM/VOC
Test Operators Russ / B. McKnight

RUN No. 1
Date 4-27-95
Time start 1150 end 1251

Box	Andersen	No. Sample Pts.	12x2	Gas Analysis	Est.		Remarks:
Sample Box	No. 4	Minutes/Pt.	2.5	CO_2			
Probe/Pitot	8'55			O_2			
Pitot Cp	.84	NOMOGRAPH		CO			
Nozzle Dia.	310	ΔH@	1.75	Time			
Filter No.		Meter Temp.	100				
		% H_2O	13	Condensate:	251		
Amb. Temp. °F	Bldg ~80	C-Factor	.89	tare 200	fin		
Bar. Press. "Hg	29.98	Stack Temp.	285	Silica gel:			
Static Press. "H_2O	.22	Ref. ΔP	.28	tare 734	fin 740		

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	477.222	0.38	2.80	278	84	84	261	69	2
2	230	479.5	0.37	2.50	269	92	84	256	66	2
3	500	481.1	0.33	2.20	283	97	84	250	60	2
4	730	483.6	0.37	2.45	267	102	85	255	60	2
5	1000	485.9	0.48	3.20	282	107	86	260	60	2
6	1230	488.1	0.50	3.30	270	111	87	260	63	2
7	1500	490.8	0.88	5.50	266	116	90	260	62	2
8	1730	493.6	0.95	6.50	277	119	92	249	63	3
	2000	496.9	1.00	6.90	281	121	53	252	65	4
10	2230	500.7	1.00	6.90	270	123	96	253	65	4
11	2500	504.5	0.92	6.10	266	125	99	249	65	4
12	2730	507.9	0.76	5.00	269	124	100	256	66	4
1	30/00	511.4	0.75	5.00	275	124	102	251	65	4
2	230	514.7	0.84	5.50	262	125	103	250	65	4
3	500	517.9	1.00	6.70	283	127	105	253	65	4
4	730	521.2	1.00	6.70	278	128	106	247	65	2
5	1000	525.1	0.96	6.60	286	128	108	252	65	2
6	1230	528.6	0.90	6.00	264	129	109	250	65	2
7	1500	531.1	0.48	3.20	266	129	110	251	65	2
8	1730	535.5	0.37	2.45	271	126	111	252	65	2
9	2000	538.0	0.35	2.25	267	126	111	250	65	2
10	2230	540.8	0.33	2.20	275	124	111	257	66	2
11	2500	542.2	0.38	2.50	277	123	111	251	66	2
12	2730	544.4	0.35	2.40	275	124	112	251	65	2
end	60	546.933								

Leak Check: .051 → .062 = .011 cfm @ 8 in Hg

69.711	.7891	4.3563	273.21		168.60

Plant Kirby Forest Industries - Silsbee OSB
Sampling Location Press Vents RTO
Test For PM/VOC
Test Operators Russell/B. McKnight

RUN No. 2
Date 4-27-95
Time start 1402 end 1502

N Box	Anderson	No. Sample Pts.	12x2	Gas Analysis		Remarks:	
Sample Box	No. 3	Minutes/Pt.	2.5	CO_2			
Probe/Pitot	8' SS			O_2			
Pitot Cp	.84	NOMOGRAPH		CO			
Nozzle Dia.	.310	ΔH@	1.75	Time			
Filter No.		Meter Temp.					
		% H_2O		Condensate:			
Amb. Temp. °F	Pedg: 85	C-Factor		tare 200	fin 245		
Bar. Press. "Hg		Stack Temp.		Silica gel:			
Static Press. "H_2O	-.22	Ref. ΔP	.28	tare 680	fin 705		

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	547.451	0.37	2.45	274	91	91	253	67	2
2	230	549.3	0.34	2.20	281	93	91	250	66	2
3	500	551.6	0.38	2.50	281	98	90	251	65	2
4	730	553.6	0.35	2.30	281	102	91	253	65	2
5	1000	556.0	0.44	2.90	277	106	92	251	64	2
6	1230	558.3	0.43	2.80	271	109	94	250	64	2
7	1500	560.9	0.90	6.00	284	110	95	253	65	2
8	1730	564.1	0.95	6.40	269	122	98	250	65	2
	2000	567.6	1.05	7.00	286	126	100	248	65	2
10	2230	571.1	1.10	7.40	285	129	102	252	65	4
11	2500	576.0	0.96	6.40	275	130	106	250	65	4
12	2730	578.7	0.87	5.75	275	130	106	253	65	3
1	000	582.7	0.93	5.85	275	130	108	254	65	3
2	230	585.9	1.05	7.00	276	131	110	253	66	4
3	500	590.6	1.05	7.00	285	133	111	253	66	4
4	730	593.7	1.05	7.00	271	133	113	255	66	4
5	1000	596.8	1.10	7.40	265	134	113	249	65	4
6	1230	601.0	0.95	6.30	269	134	114	248	65	4
7	1500	604.7	0.88	5.80	292	134	114	250	65	4
8	1730	608.1	0.97	6.40	271	133	115	249	65	4
9	2000	610.8	1.15	7.70	276	133	115	247	65	4
10	2230	614.6	1.05	7.40	271	134	117	251	66	4
11	2500	619.0	0.94	6.30	271	135	118	252	66	4
12	2730	622.8	0.96	6.60	273	135	118	251	65	4
end	66	626.315								

leak check: .035 → .037 = .002 @ 8" Hg

78.864	.9025	5.6188	276.42	113.90	

Plant
Sampling Location PRESS VENTS RTO
Test For
Test Operators

RUN No. 3
Date
Time start 1542 end 1642

M. Box		No. Sample Pts.		Gas Analysis		Remarks:	
Sample Box		Minutes/Pt.		CO_2			
Probe/Pitot		NOMOGRAPH		O_2			
Pitot Cp		ΔH@		CO			
Nozzle Dia.		Meter Temp.		Time			
Filter No.		% H_2O		Condensate:			
Amb. Temp. °F		C-Factor		tare 200	fin 241		
Bar. Press. "Hg		Stack Temp.		Silica gel:			
Static Press. "H_2O		Ref. ΔP		tare 678	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	000	626.725	0.40	2.60	271	97	99	249	65	2
2	230	629.0	0.40	2.60	274	99	99	248	64	2
3	500	631.3	0.37	2.45	269	103	98	252	64	2
4	730	633.6	0.34	2.20	277	106	98	249	64	2
5	1000	635.8	0.36	2.40	270	110	98	254	64	2
6	1230	638.1	0.46	3.00	289	113	99	254	64	2
7	1500	640.6	0.81	5.50	285	120	100	249	64	3
•	1730	643.8	0.95	6.40	282	125	103	251	64	4
	2000	647.6	1.00	6.70	275	129	105	245	63	4
10	2230	651.1	1.00	6.70	272	131	107	254	63	4
11	2500	654.8	0.90	6.00	270	133	109	255	63	4
12	2730	658.3	1.10	7.50	270	134	110	254	63	4
1	30/00	662.050	0.50	3.30	280	134	112	255	63	4
2	230	664.8	0.40	2.60	283	130	113	250	63	4
3	500	667.3	0.40	2.70	283	128	113	250	63	4
4	730	669.7	0.35	2.30	250	128	113	250	63	4
5	1000	671.8	0.36	2.40	284	126	114	250	63	2
6	1230	674.4	0.45	3.00	280	127	115	250	63	2
7	1500	676.8	0.50	3.30	270	129	116	251	63	2
8	1730	679.6	1.00	6.00	272	132	116	251	63	2
9	2000	682.5	0.97	6.50	271	135	117	270	62	2
10	2230	686.5	0.99	6.70	252	138	118	248	62	2
11	2500	689.8	1.00	6.70	250	138	119	255	62	2
12	2730	693.5	0.98	6.50	248	138	119	249	62	2
end	60	697.393								

LEAK CHECK: 090 → 093 = .003 in. @ 7 Hg

70.618 .7966 4.4188 271.96 116.52

PARTICULATE CATCH ANALYSIS

SAMPLES: Kirby - Solabu OSB Press Vent RTO

DATE TAKEN: 4-27-95 DATE ANALYZED: 4-29-95

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

ANALYZED BY: [illegible]

(Attach chain of custody if additional exchanges occur)

FILTERS:

RUN NO.	1	2	3	
FILTER NO.	2670	2756	2672	
FILTER TARE, gms.	.5645	.5665	.5542	
	.5681	.5699	.5570	
	.5680	.5700	.5570	
FINAL WEIGHT, gms.	.5680	.5700	.5570	
NET GAIN, gms.	.0035	.0035	.0028	

PROBE WASH:

RUN NO.	1	2	3	
CONTAINER I.D.	RTO R1	RTO R2	RTO R3	
VOLUME INTACT?	—	—	—	
VOLUME, ml	180	200	150	
TARE WEIGHT, gms.	(J) 104.4062	(65) .7836 114.~~7836~~	(J) 104.6244	( )
	104.4111	114.7886	104.6301	
	104.4109	114.7886	104.6302	
FINAL WEIGHT, gms	104.4109	114.7886	104.6302	
NET GAIN, gms.	.0047	.0050	.0058	
LESS BLANK, gms.				

PARTICULATE SAMPLE WEIGHT:

RUN NO.	1	2	3	
filter + probe, mg.	8.2	8.5	8.6	
	0.0082 g	0.0085 g	0.0086 g	

BACK HALF PARTICULATE CATCH ANALYSIS

Methylene Chloride Extraction

SAMPLES: KFI - Silsbee OSB - Press Vent RTO

DATE TAKEN: 4-27-95 DATE ANALYZED: 5-5-95

DELIVERED BY: [signature] RECEIVED BY: [signature]

ANALYZED BY: [signature]

(Attach chain of custody if additional exchanges occur)

RUN NO.	1	2	3	
CONTAINER I.D.	RTO R1	RTO R2	RTO R3	
VOLUME INTACT?	✓	✓	✓	
VOLUME, ml	270	270	270	

Organic Fraction

	(1)	(86)	(2)	( )
TARE WEIGHT, gms.	103.1821	108.1468	104.7533	
	103.1833	108.1481	104.7539	
	103.1830	108.1481	104.7537	
FINAL WEIGHT, gms.	103.1830	108.1481	104.7537	
less blank, gms.				
NET GAIN, milligrams	.0009 g	.0013 g	.0004 g	

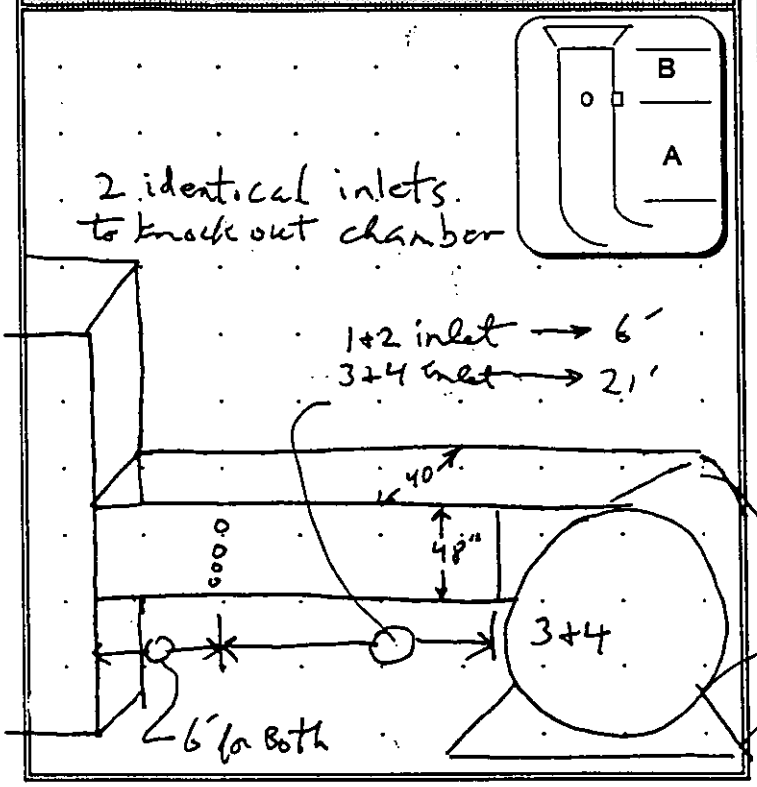
Aqueous Fraction

	(83)	(56)	(68)	( )
TARE WEIGHT, gms.	105.1047	105.8161	112.5344	
	105.1057	105.8164	112.5353	
	105.1053	105.8165	112.5350	
FINAL WEIGHT, gms.	105.1053	105.8165	112.5350	
less blank, gms.				
NET GAIN, milligrams	0.0006 g 0.6	0.4	0.6	
	0.0006 g	0.0004 g	0.0006 g	

STACK CONFIGURATION AND SAMPLE POINT LAYOUT FOR CIRCULAR STACKS

PLANT: Kirby Forest Industries · Silsbee OSB **Date:** 4-27-95
SOURCE: Press Vents RTO Inlet
TEST FOR: PM/VOC
TEST OPERATORS: Russell/B. McKnight / G. McKnight

SKETCH OF STACK



PERCENT OF DIAMETER

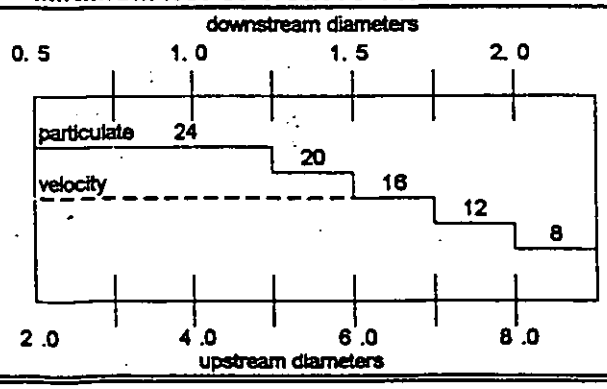
points on a diameter

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

Point No.	Inches from wall	velocity head
1	8.0	
2	24.0	
3	40.0	

STACK DIAMETER: 40x48
Distance from ports to disturbance:
A. to upstream disturbance
B. to downstream disturbance
Upstream diameters:
Downstream diameters:
Minimum No. sample points required:
No. sample points selected:
Port Length: 4.5"
Port Type: 3" pipe nipple
Port Access: Fork lift / Board

MINIMUM NO. OF POINTS ON A DIAMETER



Pitot ID: Pitot Cp: Stack Temp:

Remarks:

Plant Kirby Forest Industries - Silsbee OSB
Sampling Location Press Vents RTO inlet
Test For PM/VOC
Test Operators Russell

RUN No. 1
Date 4-27-95
Time start 1149 end 1301

I. Box	PAC	No. Sample Pts.	(3x4)x2	Gas Analysis	AIR
Sample Box	No. 2	Minutes/Pt.	2.5	CO_2	
Probe/Pitot	4'55	NOMOGRAPH		O_2	
Pitot Cp	.84	ΔH@	1.90	CO	
Nozzle Dia.	.240	Meter Temp.	100	Time	
Filter No.		% H_2O	>10	Condensate:	
Amb. Temp. °F	Bldg 80	C-Factor	1.0	tare 200	fin 228
Bar. Press. "Hg		Stack Temp.	125	Silica gel:	
Static Press. "H_2O		Ref. ΔP	.57	tare 699	fin 713

Remarks:

Port Point	El. Time, Min.	DGM Reading, Ft.³	Velocity Head ΔP, in. H_2O	Orifice ΔH in. H_2O	Stack Temp. °F	Meter Temp., °F In	Meter Temp., °F Out	Oven Temp. °F	Imp. Temp. °F	Vac in. Hg
1	000	397.000	1.40	4.50	128	88	86	248	60	2
2	230	399.6	1.80	6.00	127	89	86	254	56	2
3	500	403.7	1.80	6.00	125	87	91	259	59	2
1	730/0	406.5	0.60	1.90	125	98	90	250	59	2
2	230	408.3	0.60	5.20	128	101	90	253	60	2
3	500	411.4	1.00	3.25	123	107	89	255	60	2
	15/00	413.7	0.82	2.65	126	106	92	251	62	2
2	230	416.0	1.40	4.70	127	113	93	248	65	2
3	500	419.1	1.20	3.50	125	112	92	251	64	2
1	2230/0	421.747	0.15	0.48	126	116	97	252	64	2
2	230	423.3	0.95	3.00	128	119	96	250	64	2
3	500	425.9	1.00	3.25	124	120	97	251	65	2
1	30/00	428.0	0.82	2.65	126	121	99	250	65	2
2	230	430.8	1.40	4.50	127	121	100	251	65	2
3	500	433.1	1.30	4.20	125	128	102	265	65	2
							~~100~~			
1	3730/0	435.8	1.10	3.60	126	122	100	260	65	2
2	230	438.5	1.70	5.50	125	130	103	261	65	2
3	500	441.8	1.30	4.20	128	132	105	260	65	2
1	45/00	444.6	1.20	3.90	130	131	105	261	65	2
2	230	447.4	1.50	4.80	125	136	108	250	65	2
3	500	449.9	1.50	4.80	130	138	109	230	65	2
1	5230/0	453.682	0.70	2.30	125	135	108	225	65	2
2	230	455.9	1.20	3.90	126	137	109	220	65	2
3	500	458.7	1.05	3.40	126	140	111	200	65	2
	60	461.291								
		LEAK CHECK: .058 → .060 = .002 @ 5" Hg								
		64.291	1.0426	3.8408	126.29		107.96			

Plant Kirby Forest Industries - Silsbee OSB
Sampling Location Press Vents RTO Inlet
Test For PM / VOC
Test Operators Russell / C. McKnight

RUN No. 2
Date 4-27-95
Time start 1401 end 1504

Box	RAC	No. Sample Pts.	(3x4)x(2)	Gas Analysis	AIR
Sample Box	No. 1	Minutes/Pt.	2.5	CO_2	
Probe/Pitot	4' SS	NOMOGRAPH		O_2	
Pitot Cp	.84	ΔH@	1.95	CO	
Nozzle Dia.	.240	Meter Temp.		Time	
Filter No.		% H_2O		Condensate:	
Amb. Temp. °F	Bldg - 85	C-Factor		tare 200 fin 230	
Bar. Press. "Hg		Stack Temp.		Silica gel:	
Static Press. "H_2O	.65	Ref. ΔP	.57	tare 715 fin 730	

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	000	461.672	1.10	3.55	122	102	101	248	68	2
2	230	464.5	1.40	4.50	122	109	102	252	64	2
3	500	467.1	1.20	3.90	124	107	102	245	60	2
1	730/0	469.7	0.88	2.85	121	109	102	254	62	2
2	230	472.2	1.65	5.30	125	108	105	247	62	2
3	500	475.1	1.40	4.50	122	107	102	253	63	2
	0	478.0	1.00	3.20	124	118	103	249	63	2
2	230	480.8	1.60	5.20	125	120	103	250	63	2
3	500	483.8	1.40	4.50	125	127	104	250	65	2
1	0	486.9	0.86	2.80	129	126	107	259	63	2
2	230	490.3	1.50	7.45	128	131	105	250	64	2
3	500	491.9	1.15	3.70	127	132	107	253	64	2
1	0	494.3	1.55	5.00	130	129	107	251	63	2
2	230	497.8	1.75	5.70	131	129	108	253	65	2
3	500	500.9	1.40	4.50	136	130	109	250	63	2
1	0	503.8	0.70	2.30	134	133	109	251	63	2
2	230	506.1	1.60	5.00	135	134	111	252	63	2
3	500	509.1	0.95	3.10	131	136	112	251	64	2
1	0	512.0	0.86	2.80	130	136	111	250	65	2
2	230	514.4	0.35	4.30	134	136	109	253	65	2
3	500	516.8	0.94	3.10	136	138	108	254	65	2
1	0	519.4	0.59	1.90	134	135	113	259	66	2
2	230	521.5	0.96	3.10	136	136	113	251	65	2
3	500	523.9	0.98	3.20	135	136	113	250	66	2
	60	526.285								
		Recheck:	.066	.056	= .020					
		64.613	1.0332	3.8104	129.00			116.04		

Plant
Sampling Location PRESS VENTS EO - INLET
Test For
Test Operators

RUN No. 3
Date
Time start 1542 end

M Box		No. Sample Pts.		Gas Analysis	
Sample Box		Minutes/Pt.		CO_2	
Probe/Pitot		NOMOGRAPH		O_2	
Pitot Cp		ΔH@		CO	
Nozzle Dia.		Meter Temp.		Time	
Filter No.		% H_2O		Condensate:	
Amb. Temp. °F		C-Factor		tare 200 fin 232	
Bar. Press. "Hg		Stack Temp.		Silica gel:	
Static Press. "H_2O		Ref. ΔP		tare 733 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	000	528.589	1.50	4.80	134	120	113	249	60	2
2	230	533.7	1.70	5.50	135	143	108	249	60	2
3	500	536.9	1.40	4.50	135	123	110	255	60	2
1	0	539.925	0.80	2.60	135	127	108	250	60	2
2	230	542.1	1.50	4.80	133	132	109	254	61	2
3	500	545.2	1.20	3.90	132	130	109	252	61	2
	0	548.048	0.80	2.60	133	131	110	246	61	2
2	230	550.4	1.30	4.20	134	132	109	252	61	2
3	500	553.4	1.10	3.50	131	134	111	259	61	2
1	0	556.100	0.51	1.65	136	134	110	254	61	2
2	230	557.9	0.85	2.80	133	133	112	255	61	2
3	500	560.2	0.98	2.55	135	130	111	253	61	2
1	0	562.410	1.10	3.60	135	135	113	253	61	2
2	230	565.4	1.50	4.80	132	135	111	250	61	2
3	500	568.2	1.20	3.85	131	140	114	251	60	2
1	0	570.999	1.20	3.85	130	135	112	251	66	2
2	230	574.0	1.20	3.85	132	136	113	251	66	2
3	500	576.5	1.10	3.60	131	151	115	250	65	2
1	0	579.115	0.90	2.90	129	136	111	250	65	2
2	230	581.6	1.50	4.80	131	136	114	248	66	2
3	500	586.4	1.20	3.90	131	136	114	248	66	2
1	0	587.449	0.80	2.60	133	140	114	248	66	2
2	230	589.8	1.40	4.50	133	143	119	248	65	2
3	500	592.7	1.40	4.50	135	143	119	248	65	2
4	60	595.670								
		LEAK CHECK: .028 → .035 = .008 cfm @ 5 Hg								
		67.081	1.0739	3.7563	13288		12342			

PARTICULATE CATCH ANALYSIS

SAMPLES: Kirby - Silsbee OSB PremVent RTO Inlet

DATE TAKEN: 4-27-95 DATE ANALYZED: 4-25-95

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

ANALYZED BY: [illegible]

(Attach chain of custody if additional exchanges occur)

FILTERS:

No. 1 had oily spot - may have been contaminated.

RUN NO.	1	2	3	
FILTER NO.	2671	2755	2673	
FILTER TARE, gms.	.5633	.5611	.5647	
	.6504	.5896	.5991	
	.6502	.5896	.5919	
FINAL WEIGHT, gms.	.6502	.5896	.5989	
NET GAIN, gms.	.0869	.0285	.0342	

PROBE WASH:

RUN NO.	1	2	3	
CONTAINER I.D.	RTO R1(N)	RTO(N) R2	RTO R3(N)	
VOLUME INTACT?	✓	✓	✓	
VOLUME, ml	160	150	210	
TARE WEIGHT, gms.	(7) 111.5422	(45) 107.2485	(84) 105.3508	( )
	111.5609	107.2670	105.8694	
	111.5605	107.2672	105.8693	
	111.5605	107.2672	105.8693	
FINAL WEIGHT, gms				
NET GAIN, gms.	.0183	.0187	.0185	
LESS BLANK, gms.				

PARTICULATE SAMPLE WEIGHT:

RUN NO.	1	2	3	
filter + probe, mg.	105.2	47.2	52.7	
		0.0472 g	0.0527 g	

BACK HALF PARTICULATE CATCH ANALYSIS

Methylene Chloride Extraction

SAMPLES: KFI - Silaloc OSB Press Vent RTO Inlet

DATE TAKEN: 4-27-95 DATE ANALYZED: 5-5-95

DELIVERED BY: DER RECEIVED BY: DER

ANALYZED BY: DER

(Attach chain of custody if additional exchanges occur)

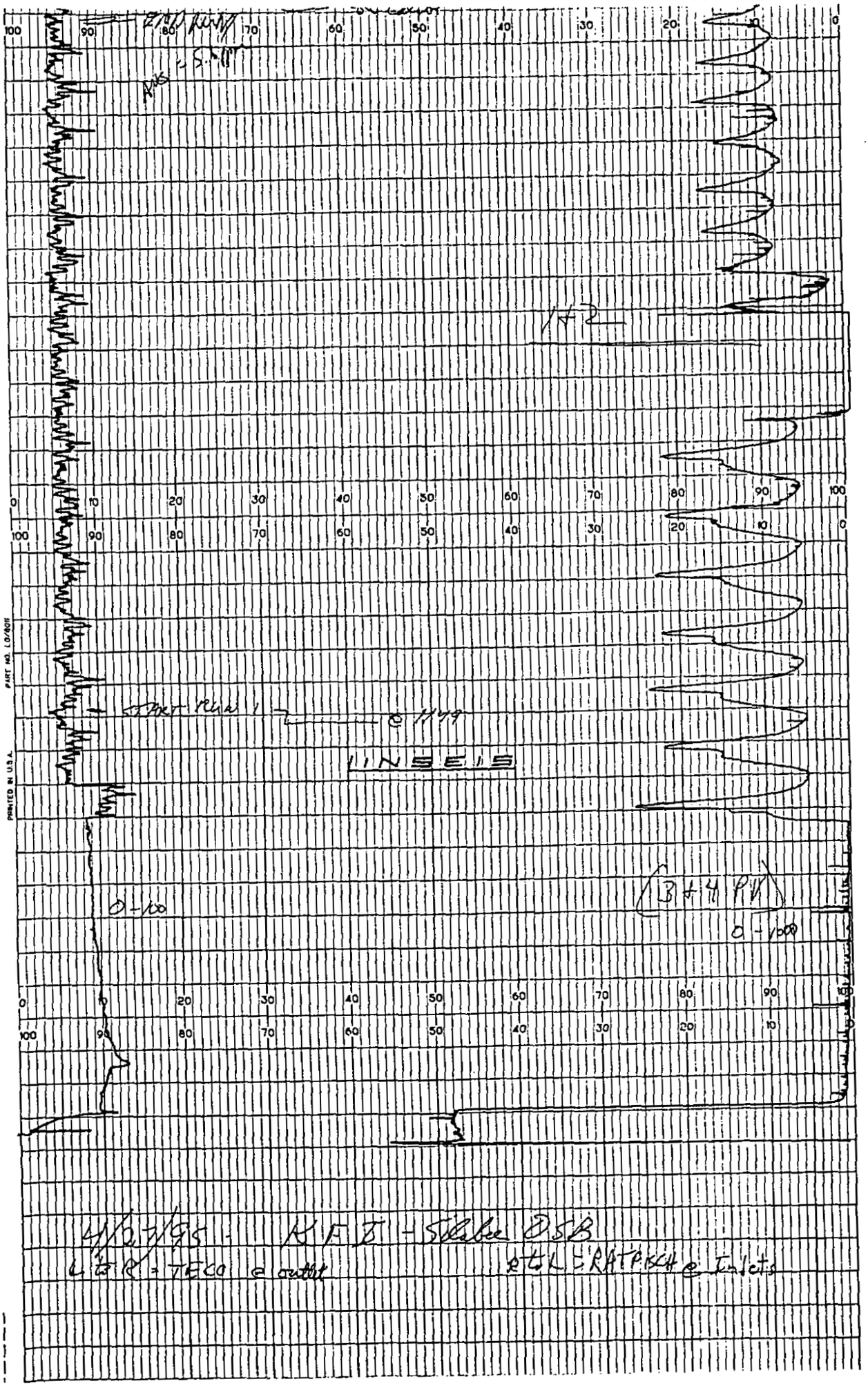
RUN NO.	1	2	3	
CONTAINER I.D.	Sila OSB R1 I	R2 I	R3 I	
VOLUME INTACT?	✓	✓	✓	
VOLUME, ml	~280	280	280	

Organic Fraction

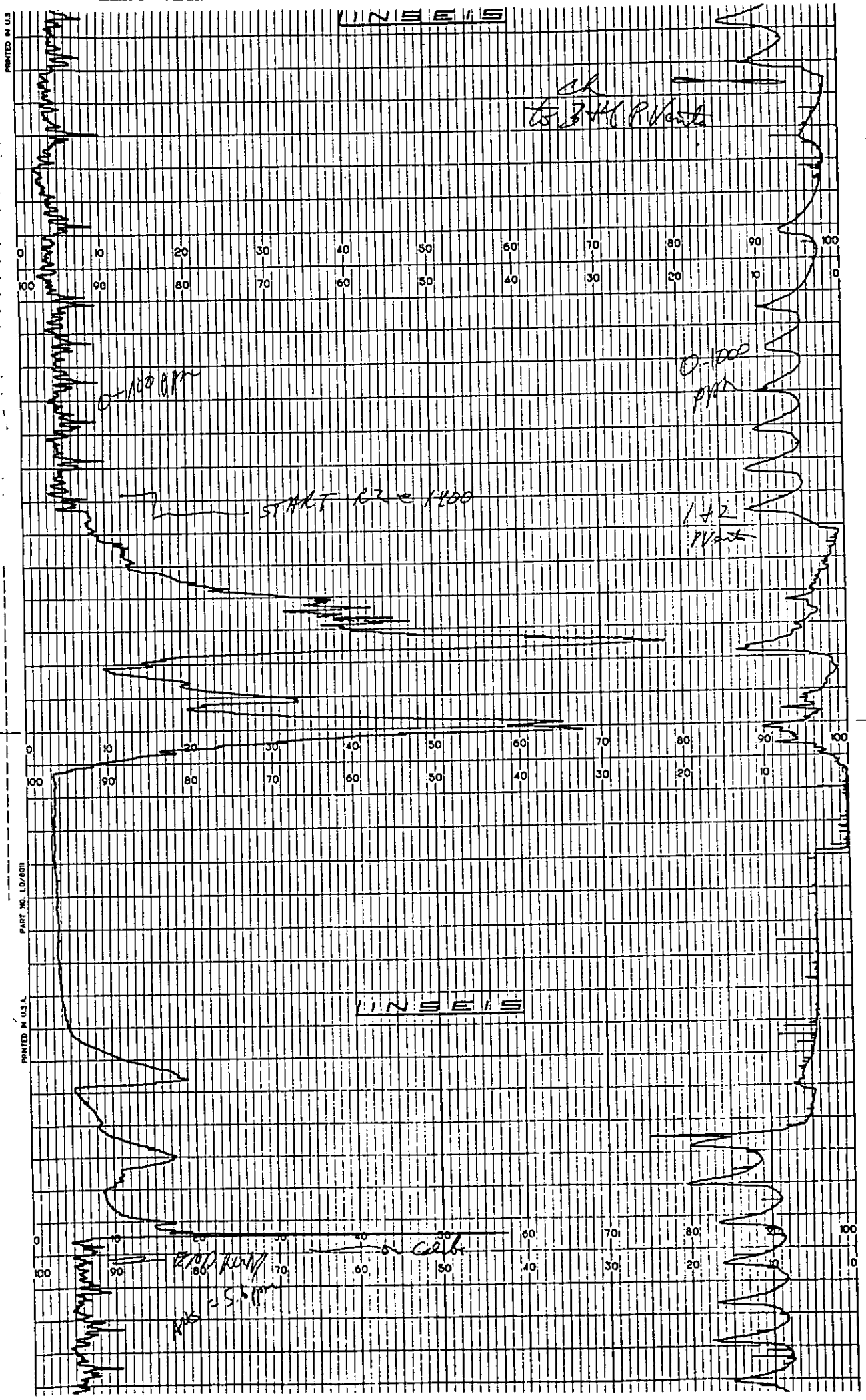
	(89)	(4)	(27)	( )
TARE WEIGHT, gms.	106.4077	108.4567	98.8416	
	106.4175	108.4622	98.8474	
	106.4173	108.4621	98.8482	
FINAL WEIGHT, gms.	106.4173	108.4621	98.8482	
less blank, gms.				
NET GAIN, milligrams	9.6	5.4	6.6	
	0.0096 g	0.0054 g	0.0066 g	

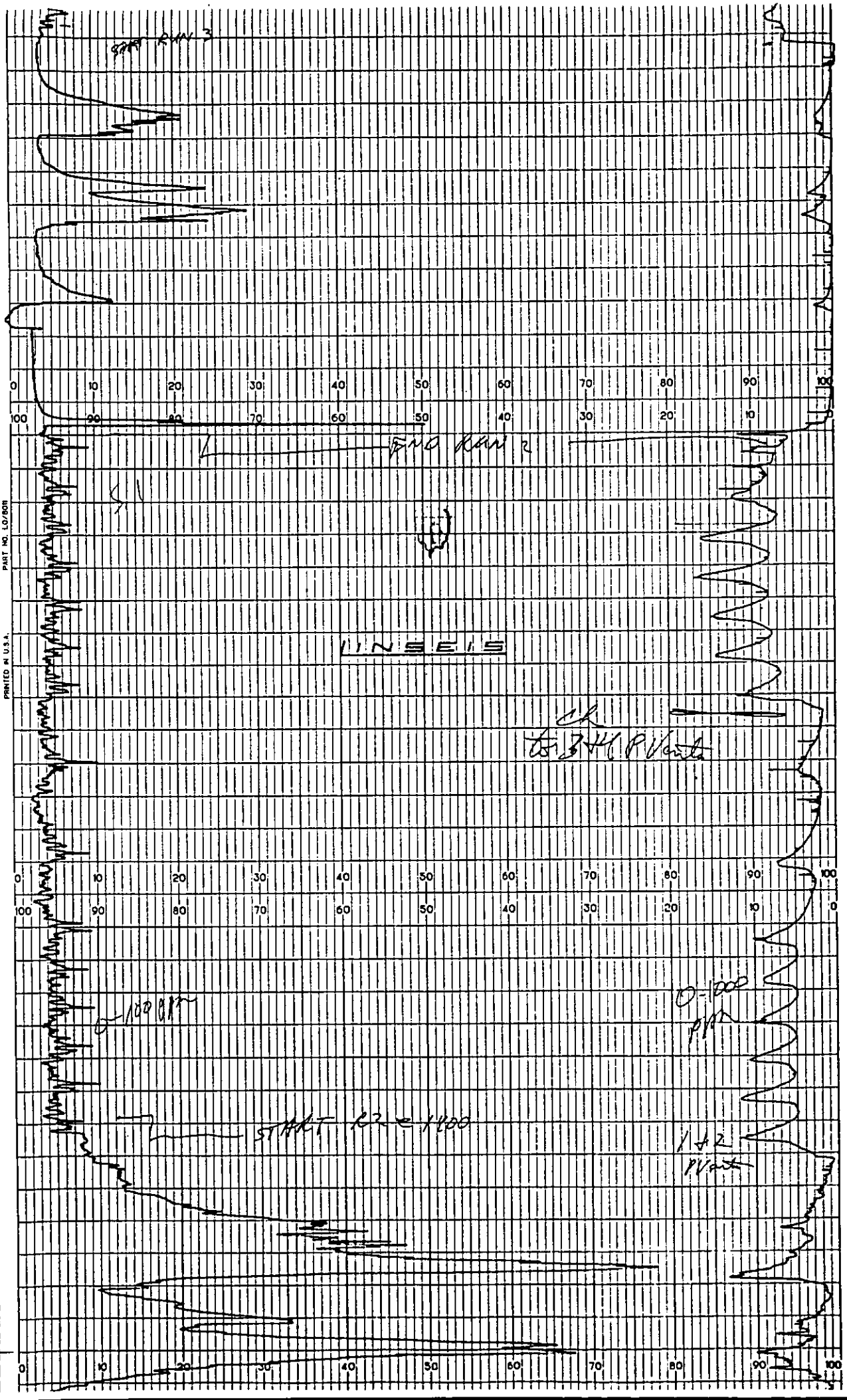
Aqueous Fraction

	(9)	(85)	(91)	( )
TARE WEIGHT, gms.	114.8150	109.1524	102.7993	
FINAL WEIGHT, gms.	114.8169	109.1543	102.8011	
less blank, gms.				
NET GAIN, milligrams	1.9	1.9	1.8	
	0.0019 g	0.0019 g	0.0018 g	

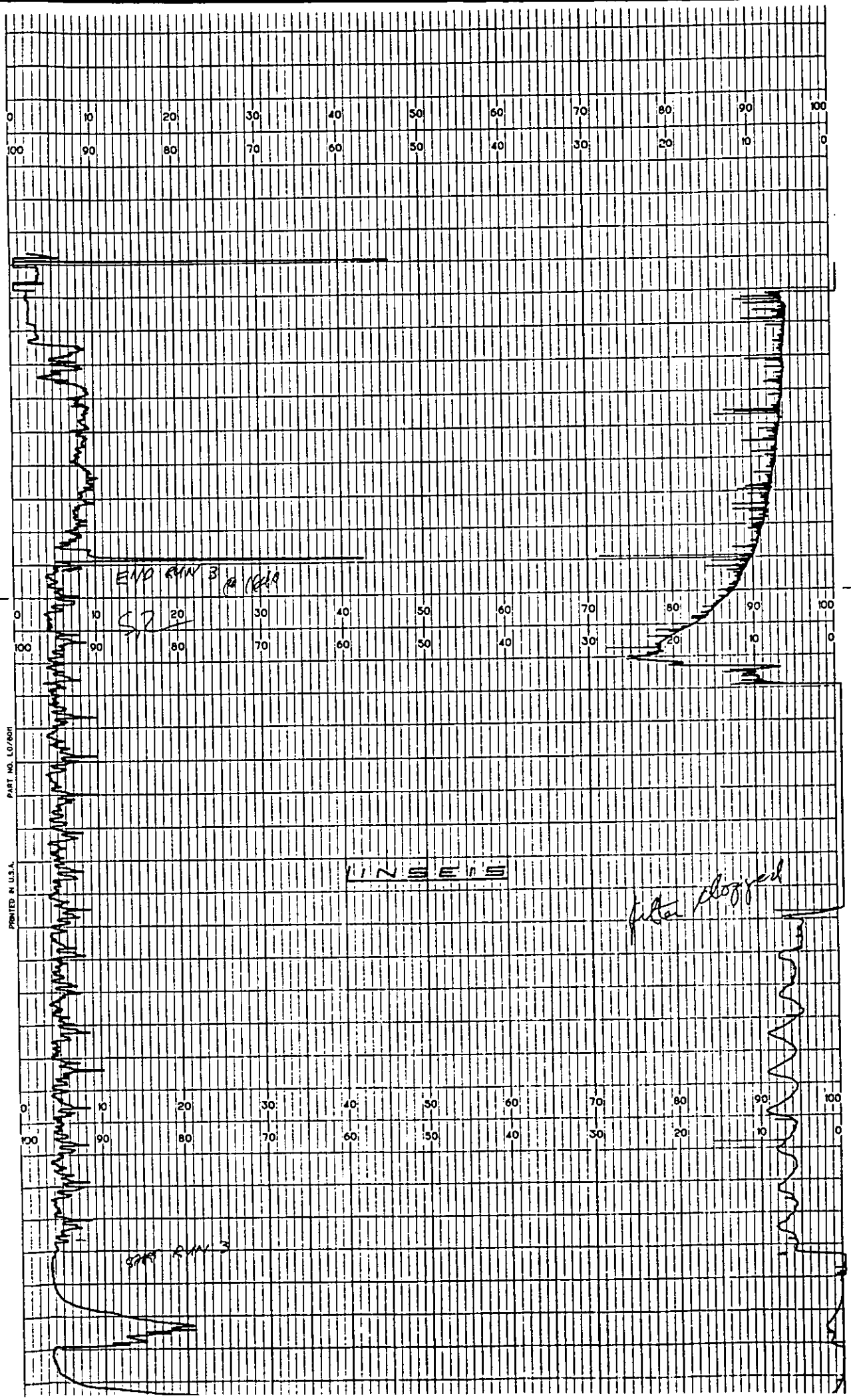


1+2
START RUN 1 @ 1149
LINSEIS
0-100
(3+4 PV)
0-1000
4/27/95 - KFI - Silsbee OSB
L to R = TECO @ outlet
R to L = RATPISCH @ Inlets
PART NO. LO/80II
PRINTED IN U.S.A.


LINSEIS
0-100 ppm
START R2 @ 1400
0-1000 ppm
1+2 PVents
LINSEIS
PART NO. LD/8011
PRINTED IN U.S.A.



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


END RUN 3
LINSEIS
filter clogged
START RUN 3
PART NO. LO/8011
PRINTED IN U.S.A.

SILSBEE TEXAS OSB STACK TEST OPERATIONAL SUMMARY

07/11/95

PRODUCTION PRESS

Press Temp. (°F)	420 - 440
Thickness (in)	0.438 & 0.719*
Density (nominal, lbs/cu ft)	41
<u>PRODUCTION</u> (Finished 3/8 in basis)	40,920 ft^2/hr ** 52,378 lbs/hr

*Nominal Thickness = 7/16 and 23/32 inch

**Anualized Production of 358,459,200 ft^2 3/8 basis (8760 hrs)

SILSBEE TEXAS OSB STACK TEST OPERATIONAL SUMMARY

07/12/95

PRODUCTION PRESS

Press Temp. (°F)	420 - 440
Thickness (in)	0.438*
Density (nominal, lbs/cu ft)	41
PRODUCTION (Finished 3/8 in basis)	42,336 ft^2/hr ** 54,190 lbs/hr

*Nominal Thickness = 7/16 inch

**Anualized Production of 370,863,360 ft^2 3/8 basis (8760 hrs)

SILSBEE TEXAS OSB STACK TEST OPERATIONAL SUMMARY

07/13/95

PRODUCTION PRESS

Press Temp. (°F)	420 - 440
Thickness (in)	0.438 & 0.469*
Density (nominal, lbs/cu ft)	41
<u>PRODUCTION</u> (Finished 3/8 in basis)	40,320 ft^2/hr ** 51,610 lbs/hr

*Nominal Thickness = 7/16 and 15/32 inch

**Anualized Production of 353,203,200 ft^2 3/8 basis (8760 hrs)

SILSBEE TEXAS OSB STACK TEST OPERATIONAL SUMMARY

07/14/95

PRODUCTION PRESS

Press Temp. (°F)	420 - 440
Thickness (in)	0.438 & 0.250*
Density (nominal, lbs/cu ft)	41
PRODUCTION (Finished 3/8 in basis)	34,576 ft^2/hr ** 44,257 lbs/hr

*Nominal Thickness = 7/16 and 1/4 inch

**Anualized Production of 302,885,760 ft^2 3/8 basis (8760 hrs)

EMMISIONS TESTING
SILSBEE OSB
JULY 11, 1995

DRYER THROUGHPUT SUMMARY

TEST # 1

EMPTY WEIGHT: 13280 LBS.

DRIER #	WOOD FUEL	INLET TEMP	OUTLET TEMP	BIN BOTTOM	OUTLET MOISTURE	INLET MOISTURE	SCREENER TEMPRETURE	DURATION	FULL WEIGHT	LBS. PER HOUR
1	2762.16 lbs.	1103.6 degrees F	215.6 degrees F	33	5.6 %	49 %	135 degrees F	2 min.	14000 lbs.	21600 lbs.
2	2911.1 lbs.	1101.0 degrees F	213.6 degrees F	34	5.0 %	49 %	155 degrees F	2 min.	13920 lbs.	19200 lbs.
3	2484.59 lbs.	1015.6 degrees F	211.4 degrees F	33	5.9 %	49 %	121 degrees F	2 min.	13940 lbs.	19800 lbs.
5	2660.61 lbs.	1021.6 degrees F	208.2 degrees F	33	5.6 %	49 %	137 degrees F	2 min.	13940 lbs.	19800 lbs.

TEST # 2

EMPTY WEIGHT: 13280 LBS.

DRIER #	WOOD FUEL	INLET TEMP	OUTLET TEMP	BIN BOTTOM	OUTLET MOISTURE	INLET MOISTURE	SCREENER TEMPRETURE	DURATION	FULL WEIGHT	LBS. PER HOUR
1	2694.46 lbs.	1053.8degrees F	213.4 degrees F	33	5.9 %	48 %	148 degrees F	2 min.	13980 lbs.	21000 lbs.
2	2708 lbs.	1040.2 degrees F	198.6 degrees F	34	5.4 %	48 %	151 degrees F	2 min.	13980 lbs.	21000 lbs.
3	2430.43 lbs.	1097.4 degrees F	224.8 degrees F	33	4.4 %	48 %	178 degrees F	2 min.	13860 lbs.	17400 lbs.
5	2531.98 lbs.	1037.6 degrees F	208.8 degrees F	33	9.6 %	48 %	144 degrees F	2 min. 33sec.	14140 lbs.	22145 lbs.

TEST # 3

EMPTY WEIGHT: 13240 LBS.

DRIER #	WOOD FUEL	INLET TEMP	OUTLET TEMP	BIN BOTTOM	OUTLET MOISTURE	INLET MOISTURE	SCREENER TEMPRETURE	DURATION	FULL WEIGHT	LBS. PER HOUR
1	2741.85 lbs.	1022.2degrees F	212.8 degrees F	33	5.9 %	57 %	136 degrees F	2 min.	13960 lbs.	21600 lbs.
2	2768.93 lbs.	1007.4 degrees F	197.2 degrees F	34	4.9 %	57 %	143 degrees F	2 min.	13900 lbs.	19800 lbs.
3	2044.54 lbs.	946.6 degrees F	210.8 degrees F	33	5.9 %	49 %	160 degrees F	2 min.	13960 lbs.	21600 lbs.
5	2599.68 lbs.	1019.6 degrees F	206.6 degrees F	33	7.8 %	49 %	138 degrees F	2 min.	13840 lbs.	18000 lbs.

EMMISIONS TESTING
SILSBEE OSB
JULY 12, 1995

DRYER THROUGHPUT SUMMARY

TEST # 2

EMPTY WEIGHT: 13220 LBS.

DRIER #	WOOD FUEL	INLET TEMP	OUTLET TEMP	BIN BOTTOM	OUTLET MOISTURE	INLET MOISTURE	SCREENER TEMPRETURE	DURATION	FULL WEIGHT	LBS. PER HOUR
1	2762.16 lbs.	1029.0 degrees F	212.8 degrees F	33	6.8 %	52 %	125 degrees F	2 min.	13940 lbs.	21600 lbs.
2	2376.27 lbs.	877.6 degrees F	196.4 degrees F	33	5.8 %	52 %	131 degrees F	2 min.	13900 lbs.	20400 lbs.
3	2125.78 lbs.	1017.8 degrees F	206.2 degrees F	33	7.1 %	46.3 %	128 degrees F	2 min.	13820 lbs.	18000 lbs.
5	2775.70 lbs.	994.6 degrees F	203.4 degrees F	33	12.6 %	16.3 %	113 degrees F	2 min.	13820 lbs.	18000 lbs.

TEST # 3

EMPTY WEIGHT: 13220 LBS.

DRIER #	WOOD FUEL	INLET TEMP	OUTLET TEMP	BIN BOTTOM	OUTLET MOISTURE	INLET MOISTURE	SCREENER TEMPRETURE	DURATION	FULL WEIGHT	LBS. PER HOUR
1	2897.56 lbs.	1084.0 degrees F	208.4 degrees F	33	9.3 %	47 %	113 degrees F	2 min.	13940 lbs.	21600 lbs.
2	2538.75 lbs.	912.4 degrees F	194.8 degrees F	33	6.3 %	47 %	127 degrees F	2 min.	13880 lbs.	19800 lbs.
3	2098.70 lbs.	952.4 degrees F	206.4 degrees F	33	7.2 %	50 %	124 degrees F	2 min.	13880 lbs.	19800 lbs.
5	2674.15 lbs.	999.6 degrees F	208.6 degrees F	33	6.5 %	50 %	127 degrees F	2 min.	13820 lbs.	18000 lbs.