AP42 Section:	10.6.1
Title:	Comments and letters from industry and contractor

Note: This material is related to a section in *AP42, 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 file number, the AP42 chapter and then the section. The file name "rel01_c01s02.pdf" would mean the file relates to AP42 chapter 1 section 2. The document may be out of date and related to a previous version of the section. The document has been saved for archival and historical purposes. The primary source should always be checked. If current related information is available, it will be posted on the AP42 webpage with the current version of the section.

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January 8, 1997

Mr. Laxmi Kesari
U. S. Environmental Protection Agency
Room 3117-C, Maildrop 2248-A
Ariel Rios
1200 Pennsylvania Avenue, NW
Washington, D.C. 20044

Dear Mr. Kesari:

The purpose of this letter is to acknowledge receipt of two boxes of emission test reports and correspondence related to emission tests conducted by Louisiana-Pacific Corporation (LP) at several of their wood products manufacturing facilities. The boxes were received by Midwest Research Institute (MRI) on December 30, 1996. The enclosure summarizes the documents included in the two boxes. Please note that the enclosure also lists letters from LP to the U. S. Environmental Protection Agency (EPA) that include supplemental information regarding the emission tests performed. However, correspondence that served only as test report transmittal letters and did not include additional data or information are not listed in the enclosure.

We are planning to begin reviewing the emission test reports this month for incorporation into revised AP-42 sections for the wood products industry under Contract No. 68-D2-0159 between MRI and EPA's Emission Factor and Inventory Group (EFIG). Please contact Dallas Safriet of EFIG or me if you have any questions concerning this work.

Sincerely,

Richard J. Marinshaw

cc: Dallas Safriet, EPA (MD-14)

WOOD PRODUCTS TEST REPORTS AND RELATED DOCUMENTS RECEIVED FROM OECA ON 12/30/96

NO	TITLE	REPORT NO.	PRODUCT	SOURCE	LOCATION	COMPANY	DATE OF REPORT
1	Results of the July 23-25, 1996 Air Emission Compliance Tests at the Louisiana-Pacific OSB Plant, Sagola, Michigan	6-8024	OSB	D/P	Sagola, MI	Interpoll Laboratories, Inc., Circle Pines, Minnesota	8/29/96
2	Report of Air Emissions and Inlet Loading Tests for Louisiana-Pacific Corp., Urania, Louisiana, MDF Plant		MDF	D/P	Urania, LA	Environmental Monitoring Laboratories, Ridgeland, Mississippi	2/17/94
3	Louisiana-Pacific Corp. Regenerative Thermal Oxidizer CO and Flow CEMS, Chilco, Idaho, September 16, 1994		OSB	D/P	Chilco, ID	AmTest-Air Quality, Inc., Preston, WA	9/29/94
4	Report of Air Emissions Tests for Louisiana-Pacific Corp., Plywood Plant, Urania, Louisiana, February 6, 7, and 8, 1995		PLY	D/P	Urania, LA	Environmental Monitoring Laboratories, Ridgeland, Mississippi	4/24/95
5	Report of Air Emissions Tests for Louisiana-Pacific Corp., Hanceville, Alabama, June 14-17, 1994		OSB	D/P	Hanceville, AL	Environmental Monitoring Laboratories, Ridgeland, Mississippi	7/30/94
6	Results of the February 20-22, 1996 EPA and State Air Emission Compliance Testing at the Louisiana-Pacific OSB Plant in Hayward, Wisconsin	6-7318	OSB	D/P/H	Hayward, WI	Louisiana-Pacific Corp., Hayward, Wisconsin	3/14/96
7	Revised of the June 21-23, 1994 Air Emission Compliance Tests at the Louisiana-Pacific Standboard Plant in Chilco, Idaho	4-3191R	OSB	D/P/H/O	Chilco, ID	Interpoll Laboratories, Inc., Circle Pines, Minnesota	8/17/94

NO	TITLE	REPORT NO.	PRODUCT	SOURCE	LOCATION	COMPANY	DATE OF REPORT
8	Results of the November 8 & 9, 1994 Relative Accuracy Certifications at the Louisiana-Pacific Plant Located in Hayward, Wisconsin	4-4294	OSB	D/P	Hayward, WI	Interpoll Laboratories, Inc., Circle Pines, Minnesota	11/21/94
9	Certification Report for Continuous Emission Monitoring System, Louisiana-Pacific Corp., Oroville Boilers #4 and #5		MDF	B	Oroville, CA	Carnot, Concord, CA	5/94
10	Results of the July 12-15, 1994 Air Emission Compliance Tests at the Louisiana-Pacific OSB Plant in Hayward, Wisconsin	4-3366	OSB	D	Hayward, WI	Interpoll Laboratories, Inc., Circle Pines, Minnesota	8/9/94
11	Medium Density Fiberboard Production Line #2, Emission Measurement Evaluation for the Louisiana-Pacific Oroville, California Facility		MDF	D/P/H/O	Oroville, CA	Science & Engineering Analysis Corp. (Seacor), Fort Collins, Colorado	8/94
12	Results of the August 23-26, 1994 Relative Accuracy Certifications of Four CO/Flow CERM Systems at the Louisiana-Pacific Plant Located in Hayward, Wisconsin	4-3688R	OSB	D/P	Hayward, WI	Interpoll Laboratories, Inc., Circle Pines, Minnesota	9/27/94
13	Results of the May 9-12, 1994 Air Emission Compliance Tests at the Louisiana-Pacific Waferboard Plant in Missoula, Montana	4-2837	PB	D/P/H/O	Missoula, MT	Interpoll Laboratories, Inc., Circle Pines, Minnesota	6/8/94
14	Results of the February 1, 1994 Air Emission Compliance Test on the GEKA (Thermal Oil Heater) at the Louisiana Pacific Waferboard Plant in Tomahawk, Wisconsin	4-2197	OSB	H	Tomahawk, WI	Interpoll Laboratories, Inc., Circle Pines, Minnesota	2/4/94
15	Results of the December 7, 1993 Air Emission Compliance Testing at the Louisiana-Pacific OSB Plant in Tomahawk, Wisconsin	3-1854	OSB	D	Tomahawk, WI	Interpoll Laboratories, Inc., Circle Pines, Minnesota	1/11/94

NO	TITLE	REPORT NO.	PRODUCT	SOURCE	LOCATION	COMPANY	DATE OF REPORT
16	Results of the April 12 & 13, 1995 Air Emission Compliance Tests at the Louisiana-Pacific OSB Plant, Sagola, Michigan	5-5194	OSB	P	Sagola, MI	Interpoll Laboratories Inc., Circle Pines, Minnesota	4/21/95
17	Volatile Organic Compound and Particulate Emission Testing at Louisiana-Pacific Corp., Houlton, Maine	APCC 96053	OSB	D	Houlton, ME	Air Pollution Characterization and Control, LTD, Portland, Maine	7/96
18	Results of the March 18-21, 1996, EPA and State Air Emission Compliance Testing at the Louisiana Pacific OSB Plant in Hayward, Wisconsin	6-7451	OSB	D/P/H	Hayward, WI	Interpoll Laboratories Inc., Circle Pines, Minnesota	4/15/96
19	Results of the May 21 & 22, 1996 Air Emission Compliance Testing at the Louisiana Pacific OSB Plant in Two Harbors, Minnesota	6-7712	OSB	D/P	Two Harbors, MN	Interpoll Laboratories Inc., Circle Pines, Minnesota	6/10/96
20	Report of Emissions Testing of a Regenerative Thermal Oxidizer Louisiana-Pacific Corp., Houlton, Maine (2 Copies)	18226	OSB	D/P	Houlton, ME	TRC Environmental Corp., Windsor, Connecticut	5/95
21	Report of Air Emissions Tests and VOC Removal Efficiency for Louisiana- Pacific Corp., Urania OSB Facility, Urania, Louisiana, May 11 & 12, 1995		OSB	D	Urania, LA	Environmental Monitoring Laboratories, Inc., Ridgeland, Mississippi	7/18/95
22	Report of Air Emissions Tests for Louisiana-Pacific Corp., New Waverly OSB Facility, New Waverly, Texas, May 31, and June 1, 1995		OSB	D	New Waverly, TX	Environmental Monitoring Laboratories, Inc., Ridgeland, Mississippi	7/18/95

NO	TITLE	REPORT NO.	PRODUCT	SOURCE	LOCATION	COMPANY	DATE OF REPORT
23	Report of Air Emissions Tests and VOC Removal Efficiency for Louisiana- Pacific Corporation, Corrigan OSB Facility Corrigan, Texas, June 2, 1995		OSB	D	Corrigan, TX	Environmental Monitoring Laboratories, Inc., Ridgeland, Mississippi	7/18/95
24	Report of Air Emissions Tests for Louisiana-Pacific Corp., Clayton MDF Plant, Clayton, Alabama, June 6 & 7, 1995		MDF	P/D	Clayton, AL	Environmental Monitoring Laboratories, Inc., Ridgeland, Mississippi	7/30/94
25	Report of Air Emissions Tests for Louisiana-Pacific Corp., Athens, Georgia, June 20-June 23, 1995		OSB	D/P	Athens, GA	Environmental Monitoring Laboratories, Inc., Ridgeland, Mississippi	7/30/94
26	Oxidizer Efficiency Sampling, Kirby Forest Products, Silsbee, Texas, July 11-14, 1995	W-1713-95	OSB	D/P	Silsbee, TX	Armstrong Environmental, Inc., Dallas, Texas	7/22/95
27	Report of Emissions and Inlet Loading Tests for Monsanto/Dynawave Scrubber, Louisiana-Pacific, Corrigan OSB Facility, Corrigan, Texas, May 27, 28, and 29, 1992		OSB	D	Corrigan, TX	Environmental Monitoring Laboratories, Inc., Ridgeland, Mississippi	7/29/92
28	Air Emissions Compliance Test Report for Louisiana-Pacific, Dungannon, Virginia, Test Dates: August 30-31, 1995, September 12-13, 1995,		OSB	D/P/H	Dungannon, VA	ETS, Inc., Roanoke, Virginia	10/23/95
29	Letter and attachment from R. Schultz to M. Wood and L Kesari, USEPA, Washington, D.C., Calibration drift test results for September 16, 1994 test on CO and opacity monitoring systems on RTO stack at Louisiana-Pacific Corp. OSB plant, Chilco, Idaho		OSB	RTO CEMs	Chilco, ID	Louisiana-Pacific Corp., Hayward, Wisconsin	10/28/94

NO	TITLE	REPORT NO.	PRODUCT	SOURCE	LOCATION	COMPANY	DATE OF REPORT
30	Letter and attachment from S. Somers, to M. Wood and L. Kesari, USEPA, Washington, D.C., Revised test method description and PM laboratory data for April 19, 1995, test on press RTO at Louisiana-Pacific Corp., Houlton, Maine		OSB	Others	Houlton, ME	Louisiana-Pacific Corp., Hayward, Wisconsin	6/22/95
31	Letter and attachment from E. Smith to M. Wood and L. Kesari, USEPA, Washington, D.C., Revised operating data sheets for June 20-23, 1995 test at Louisiana-Pacific Corp., Athens, Georgia		OSB	D/P	Athens, GA	Louisiana-Pacific Corp., Portland, Oregon	9/6/95
32	Letter and attachment from K. Seelig, to L. Kesari, USEPA, Washington, D.C., Correction of VOC emission rates for July 23-25, 1996 test at Louisiana-Pacific Corp., Sagola, Michigan		OSB	D/P	Sagola, MI	Louisiana-Pacific Corp., Hayward, Wisconsin	11/5/96
33	Letter from E. Smith to L. Kesari, USEPA, Washington, D.C., VOC control efficiency calculation for August 30-31, 1995, test at Louisiana-Pacific Corp., Dungannon, Virginia		OSB	D	Dungannon, VA	Louisiana-Pacific Corp., Portland, Oregon	12/28/95
34	Facsimile from J. Boswell, to L. Kesari, USEPA, Washington, D.C., Test data for August 22 and September 5, tests at Louisiana-Pacific Corp., Clayton, Alabama		MDF	D/P	Clayton, AL	Louisiana-Pacific Corp., Conroe, Texas	9/15/95
35	Letter from E. Smith, to M. Wood, USEPA, Washington, D.C., Need for additional PM Testing at the Louisiana-Pacific plant in Hayward, Wisconsin and Chilco, Idaho		OSB	D	Hayward, WI & Chilco, ID	Louisiana-Pacific Corp., Portland, Oregon	9/1/94

NO	TITLE	REPORT NO.	PRODUCT	SOURCE	LOCATION	COMPANY	DATE OF REPORT
36	Letter and attachment from E. Smith, to M. Wood and L. Kesari, USEPA, Washington, D.C., Results of revised emission evaluation for Louisiana-Pacific Corp. plant in Missoula, Montana		PB	D/P/O	Missoula, MT	Louisiana-Pacific Corp., Portland, Oregon	11/7/94
37	Letter and attachment from J. Boswell, to L. Kesari, USEPA, Washington, D.C., Revised VOC calculations for June 14-17, 1994, test at Louisiana-Pacific Corp., facility in Hanceville, Alabama		OSB	D/P	Hanceville, AL	Louisiana-Pacific Corp., Conroe, Texas	10/19/94
38	Letter and attachment from J. Evensen, to M. Wood and L. Kesari, USEPA, Washington, D.C., Results of emission tests conducted in May 1994 at Louisiana-Pacific Corp. plant in Missoula, Montana		PB	D/P	Missoula, MT	Louisiana-Pacific Corp., Hayden Lake, Idaho	8/10/94
39	Letter and attachment from E. Smith, to M. Wood and L. Kesari, USEPA, Washington, D.C., Results of emission tests conducted at Louisiana-Pacific Corp. plant in Oroville, California during June 7-20, 1994		MDF	D/P	Oroville, CA	Louisiana-Pacific Corp., Portland, Oregon	8/25/94
40	Letter from R. Schultz, to B. Hartley, Maine Dept. of Environmental Protection, Augusta, Maine, Revised RTO control efficiencies for Louisiana-Pacific Corp. plant in Hayward Wisconsin		OSB	D/P	Hayward, WI	Louisiana-Pacific Corp., Hayward, Wisconsin	12/14/94

D-Dryer
P-Press
B-Boiler
H-Heater
O-Others

OSB-Oriented Strandboard
PLY-Plywood
PB-Particleboard
MDF-Medium density fiberboard

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Date: January 29, 1997

Subject: OSB emission test reports
Revise and Update Chapters and Sections in AP-42
EPA Contract 68-D2-0159, Work Assignment IV-05
MRI Project 4604-05

From: David Bullock

To: Dallas Safriet
EPA/EMAD/EFIG (MD-14)
U. S. Environmental Protection Agency
Research Triangle Park, N.C. 27711

Enclosed (Enclosure 1) is a table documenting the OSB test reports received through you on December 12, 1996 from Louisiana-Pacific Corporation for review and possible inclusion in AP-42 Section 10.6.1, Waferboard/Oriented Strandboard Manufacturing. Seventy-four emission test reports were received from Louisiana-Pacific. All of the reports are for the OSB industry. Eighteen of the reports are duplicates of those received from OECA. Four of the remaining reports include results for thermal-oil heaters only.

Also enclosed (Enclosure 2) is a "Table of Source Tests" submitted by Louisiana-Pacific with the emission test reports. As indicated in Enclosure 1, we received four test reports that were not listed in Louisiana-Pacific's "Table of Source Tests." In addition, we received one test report that was listed, but not marked as being included. Finally, one test report marked as being included, was not received (4-3191, Chilco, ID, January 21, 1994).

It may be appropriate to send a copy of Enclosure 1 documenting the test reports received from Louisiana-Pacific to their environmental coordinator for their records.

In addition to the reports received from Louisiana-Pacific, twenty-eight emission test reports were received from OECA. Six of these reports were for industries other than OSB (plywood, particleboard, and MDF). One of the remaining reports includes results for a thermal-oil heater only. The net result is that we have received 78 OSB emission test reports, five of which include data for thermal-oil heaters only.

Please let me know if you need any additional information.

WOOD PRODUCTS TEST REPORTS AND RELATED DOCUMENTS RECEIVED FROM LOUISIANA PACIFIC

No.	Title	Report No.	Product	Source	Location	Company	Date of Report
1.	Official Emission Test Report for Engineering Data of Wafer Dryer for Particulate on Dryer WESP Exhaust Stack Louisiana-Pacific Corp., Montrose, Colorado	EMG	OSB	D	Montrose, CO	The Emission Measurement Group, Inc., Englewood, CO	6/9/95
2.	Emissions Testing of a Press Regenerative Thermal Oxidizer Louisiana-Pacific Corp., Houlton, Maine	TRC 624	OSB	P	Houlton, ME	TRC Environmental Corp., Windsor, CO	1/96
3.*	Results of the August 27 & 28, 1996 Air Emission Engineering Determinations at the Louisiana-Pacific Corp., Plant in Newberry, Michigan	6-8201E	OSB	D/P	Newberry, MI	Interpoll Laboratories Inc., Circle Pines, MN	10/4/96
4.	Report of Air Emissions Tests for Louisiana-Pacific Corp., Montrose, CO, December 6, through 8, 1994	EML 1294	OSB	D/P	Montrose, CO	Environmental Monitoring Laboratories, Ridgeland, MS	1/30/95
5.	Report of Air Emissions Tests and VOC Removal Efficiency for Louisiana-Pacific Corp., Urania OSB Facility, Urania, Louisiana, May 11 & 12, 1995	EML 51195	OSB	D	Urania, LA	Environmental Monitoring Laboratories, Ridgeland, MS	7/18/95
6.	Results of the June 16, 1994 Particulate Emissions Engineering Test on the No. 1 and No. 2 Lines at the Louisiana-Pacific Corp., Facility Located in Hayward, WI	PACE 694	OSB	D	Hayward, WI	Pace Incorporated, Minneapolis, MN	7/18/94

No.	Title	Report No.	Product	Source	Location	Company	Date of Report
7.	Results of the June 7-10, 1994 Air Emission Compliance Tests at the Louisiana-Pacific OSB Plant in Hayward, Wisconsin	4-3097	OSB	P/H	Hayward, WI	Interpoll Laboratories Inc., Circle Pines, MN	8/19/94
8.	Results of the June 21-23, 1994 Air Emission Compliance Tests at the Louisiana-Pacific Strandboard Plant in Chilco, Idaho	4-3191R	OSB	D/P/H/O	Chilco, ID	Interpoll Laboratories Inc., Circle Pines, MN	8/17/94
9.	Results of the January 25-29, 1993 Air Emission Compliance Tests at the Louisiana-Pacific Waferboard Plant in Montrose, Colorado	3-8023	OSB	D/P	Montrose, CO	Interpoll Laboratories Inc., Circle Pines, MN	3/31/93
10.	Results of the July 19 & 20, 1994 Air Emission Compliance Tests at the Louisiana-Pacific OSB Plant in Montrose, Colorado	4-3396	OSB	D	Montrose, CO	Interpoll Laboratories Inc., Circle Pines, MN	8/17/94
11.	Results of the August 27-29, 1996 Air Emissions Compliance Tests at the Louisiana-Pacific OSB Plant, Newberry, Michigan	6-8201	OSB	D/P	Newberry, MI	Interpoll Laboratories Inc., Circle Pines, MN	10/2/96
12.	Results of the July 11-13, 1995 Air Emission Compliance Tests at the Louisiana-Pacific Waferboard Plant in Tomahawk, Wisconsin	5-6006	OSB	D/P/H	Tomahawk, WI	Interpoll Laboratories Inc., Circle Pines, MN	7/18/95

No.	Title	Report No.	Product	Source	Location	Company	Date of Report
13.	Results of the September 1-2, 1993 Performance Evaluation of the Pilot Scale Thermal Oxidizer at the Louisiana-Pacific Plant in Hayward, Wisconsin	3-9924	OSB	D	Hayward, WI	Interpoll Laboratories Inc., Circle Pines, MN	10/20/93
14.	Results of the February 20-22, 1996, EPA and State Air Emission Compliance Testing at the Louisiana-Pacific OSB Plant in Hayward, Wisconsin	6-7318	OSB	D/P/H	Hayward, WI	Interpoll Laboratories Inc., Circle Pines, MN	3/14/96
15.	Louisiana-Pacific Corp. Oriented Strandboard Facility Fuel Dryer E-Tube Stack Montrose, Colorado, October 25, 1994	AmTEST 1094	OSB	D	Montrose, CO	AmTest Air Quality, Inc., Preston, WA	11/15/94
16.	Results of the December 7, 1993 Air Emission Compliance Testing at the Louisiana-Pacific OSB Plant in Tomahawk, Wisconsin	3-1854	OSB	D	Tomahawk, WI	Interpoll Laboratories Inc., Circle Pines, MN	1/11/94
17.	Volatile Organic Compound and Particulate Emission Testing at Louisiana-Pacific Corp., Houlton, Maine	96053	OSB	D	Houlton, ME	Air Pollution Characterization and Control, LTD, Portland, ME	7/96
18.	Results of the April 4 & 5, 1995 Particulate Emission Engineering Testing at the Louisiana-Pacific Plant in Hayward, Wisconsin	5-5158	OSB	D	Hayward, WI	Interpoll Laboratories Inc., Circle Pines, MN	4/18/95

No.	Title	Report No.	Product	Source	Location	Company	Date of Report
19.	Results of the July 12-15, 1994 Air Emission Compliance Tests at the Louisiana-Pacific OSB Plant in Hayward, Wisconsin	4-3366	OSB	D	Hayward, WI	Interpoll Laboratories Inc., Circle Pines, MN	8/9/94
20.	Results of the October 25 & 26, 1995 Air Emission Engineering Tests of Line 1 at the Louisiana-Pacific OSB Plant in Hayward, Wisconsin	5-6731	OSB	D/P	Hayward, WI	Interpoll Laboratories Inc., Circle Pines, MN	11/17/95
21.	Results of the May 14, 1996 Air Emission Engineering Testing at the Louisiana-Pacific OSB Plant in Hayward, Wisconsin	6-7684	OSB	D	Hayward, WI	Interpoll Laboratories Inc., Circle Pines, MN	6/3/96
22.	Results of the April 11, 1995 Air Emission Evaluation Testing at the Louisiana-Pacific Plant in Hayward, Wisconsin	5-5204	OSB	D	Hayward, WI	Interpoll Laboratories Inc., Circle Pines, MN	4/21/95
23.	Results of a Series of Source Emission Tests Performed on Three Huntington Energy Systems Inc. Regenerative Thermal Oxidizers at Louisiana-Pacific Corp., Hayward, Wisconsin, Feb. 16-18, 1994	MMT 9531	OSB	D/P	Hayward, WI	MMT Environmental Services, Inc., St. Paul, MN	3/23/94
24.	Result of the June 2 & 3, 1994 Particulate Emission Engineering Testing at the Louisiana-Pacific Plant in Hayward, Wisconsin	4-3068	OSB	D	Hayward, WI	Interpoll Laboratories Inc., Circle Pines, MN	7/8/94

No.	Title	Report No.	Product	Source	Location	Company	Date of Report
25.	Report of Air Emissions Tests for Louisiana-Pacific Corp., Athens, GA, June 20 through June 23, 1995	EML 801	OSB	D/P	Athens, GA	Environmental Monitoring Laboratories, Ridgeland, MS	7/30/95
26.	Results of the January 26 and 27, 1993 Removal Efficiency Engineering Tests at the Louisiana-Pacific Waferboard Plant in Montrose, Colorado	3-8023E	OSB	D	Montrose, CO	Interpoll Laboratories Inc., Circle Pines, MN	3/18/93
27.	Results of the March 29-31, 1994 Air Emission Compliance Tests at the Louisiana-Pacific OSB Plant in Montrose, Colorado	4-2558	OSB	D/P	Montrose, CO	Interpoll Laboratories Inc., Circle Pines, MN	4/21/94
28.	Results of the August 23, 1995 Air Emission Compliance Tests at the Louisiana-Pacific Waferboard Plant in Tomahawk, Wisconsin	5-6375	OSB	P	Tomahawk, WI	Interpoll Laboratories Inc., Circle Pines, MN	9/25/95
29.*	Results of the March 21, 1996 Air Emission Compliance Test of the Line 1 Thermal Oil Heater at the Louisiana-Pacific Plant in Hayward, Wisconsin.	6-7451E	OSB	H	Hayward, WI	Interpoll Laboratories Inc., Circle Pines, MN	4/24/96
30.	Results of the March 18-21, 1996 EPA and State Air Emission Compliance Testing at the Louisiana-Pacific OSB Plant in Hayward, Wisconsin	6-7451	OSB	D/P/H	Hayward, WI	Interpoll Laboratories Inc., Circle Pines, MN	4/15/96

No.	Title	Report No.	Product	Source	Location	Company	Date of Report
31.	Results of the August 17-19, 1993 Air Emission Compliance Tests, at the Louisiana-Pacific Waferboard Plant in Tomahawk, Wisconsin	3-9772	OSB	D/P/H	Tomahawk, WI	Interpoll Laboratories Inc., Circle Pines, MN	9/30/93
32.	Results of the February 1, 1994 Air Emission Compliance Test on the GEKA at the Louisiana-Pacific Waferboard Plant in Tomahawk, Wisconsin	4-2197	OSB	H	Tomahawk, WI	Interpoll Laboratories Inc., Circle Pines, MN	2/4/94
33.	Report of Air Emissions Tests for Louisiana-Pacific Corp., Hanceville, Alabama, June 14-17, 1994	61494	OSB	D/P	Hanceville, AL	Environmental Monitoring Laboratories, Ridgeland, MS	7/30/94
34.	Source Emissions Survey of Louisiana-Pacific Corp., Silsbee, TX, for ERM Southwest, Inc., Vol. 1-3	MET 9611	OSB	D	Silsbee, TX	Metco Environmental, Addison, TX	1/96
35.	Emissions Testing for Carbon Monoxide, Chromium, Nitrogen Oxides, Total Hydrocarbons, Stationary Source Sampling Report, Roxboro OSB Plant, Roxboro, North Carolina	Entropy	OSB	D/P	Roxboro, NC	Entropy, Inc., RTP, NC	8/96
36.	Results of the June 1993 Air Emissions Tests at Two Louisiana-Pacific Waferboard Plants (Sagola, Michigan and Two Harbors, Minnesota)	3-9202	OSB	P	Sagola, MI Two Harbors, MN	Interpoll Laboratories Inc., Circle Pines, MN	9/2/93

No.	Title	Report No.	Product	Source	Location	Company	Date of Report
37.	Data Package for the MDI Samples Collected at the LP/Sagola and LP/Two Harbors Plants on June 26 & 29, 1993 and Analyzed by Reverse Phase HPLC at 254nm and 275nm using N-p-nitrobenzyl-N-proplyamine (Data for Report No. 36)	3-9202	OSB	P	Sagola, MI Two Harbors, MN	Interpoll Laboratories Inc., Circle Pines, MN	11/5/93
38.	Sagola, Michigan Dryer Test, Louisiana-Pacific, Hayward Plant	6-7830	OSB	D	Sagola, MI Houlton, ME	Interpoll/APCC	6/96
39.	Results of the April 12 & 13, 1995 Air Emission Compliance Tests at the Louisiana-Pacific OSB Plant, Sagola, Michigan	5-5194	OSB	P	Sagola, MI	Interpoll Laboratories Inc., Circle Pines, MN	4/21/95
40.	Results of the July 23-25, 1996 Air Emission Compliance Tests at the Louisiana-Pacific OSB Plant, Sagola, Michigan	6-8024	OSB	D/P	Sagola, MI	Interpoll Laboratories Inc., Circle Pines, MN	8/29/96
41.	Results of the May 21 & 22, 1996 Air Emissions Engineering Testing at the Louisiana-Pacific OSB Plant in Two Harbors, Minnesota	6-7712E	OSB	D	Two Harbors, MN	Interpoll Laboratories Inc., Circle Pines, MN	6/18/96
42.	Results of the May 21 & 22, 1996 Air Emissions Compliance Testing at the Louisiana-Pacific OSB Plant in Two Harbors, Minnesota	6-7712	OSB	D/P	Two Harbors, MN	Interpoll Laboratories Inc., Circle Pines, MN	6/10/96
43.	Louisiana-Pacific Corporation Regenerative Thermal Oxidizer CO and Flow CEMS, Chilco, Idaho, August 1, 1995	AM 895	OSB	D/P	Chilco, ID	AmTest Air Quality, Inc., Preston, WA	8/31/95

No.	Title	Report No.	Product	Source	Location	Company	Date of Report
43.	Louisiana-Pacific Corporation Regenerative Thermal Oxidizer CO and Flow CEMS, Chilco, Idaho, August 1, 1995	AM 895	OSB	D/P	Chilco, ID	AmTest Air Quality, Inc., Preston, WA	8/31/95
44.	Results of the December 1 & 2, 1993 Air Emission Tests on the RTO at the Louisiana-Pacific Plant in Chilco, Idaho	3-1805	OSB	D/P	Chilco, ID	Interpoll Laboratories Inc., Circle Pines, MN	1/4/94
45.	Source Emissions Survey of Louisiana Pacific-Corp. Press House RTO Stack (EPNRTO3) and Press House Numbers 1 and 2 Vent Ducts, Silsbee, Texas, Volume 1 & 2.	MET 9611A	OSB	P	Silsbee, TX	Metco Environmental, Addison, TX	1/96
46.	Report of Air Emissions and Inlet Loading Tests for Kirby Forest Industries-Silsbee OSB Facility Press Vent RTO, Silsbee, TX, April 27, 1995	EML	OSB	P	Silsbee, TX	Environmental Monitoring Laboratories, Ridgeland, MS	5/6/95
47.	Oxidizer Efficiency Sampling, Kirby Forest Products, Silsbee, TX, July 11-14, 1995	ARM 1713	OSB	D/P	Silsbee, TX	Armstrong Environmental Inc., Dallas, TX	7/22/95
48.	Air Emissions Compliance Test Report for Louisiana-Pacific, Dungannon, Virginia, Test Dates: August 30-31, 1995, September 12-13, 1995	ETS 576	OSB	D/P/H	Dungannon, VA	ETS, Inc., Roanoke, VA	10/23/95
49.	Source Emission Testing, Louisiana-Pacific Canada, LTD., Dawson Creek, BC	BC 4964	OSB	D/P/H	Dawson Creek, BC	Bovar-Concord Environmental, Burnaby, BC	1/11/95
50.	Source Emission Testing, Louisiana-Pacific Canada, LTD., Dawson Creek, BC	BC 6618	OSB	D/P/H/O	Dawson Creek, BC	Bovar-Concord Environmental, Burnaby, BC	4/95

No.	Title	Report No.	Product	Source	Location	Company	Date of Report
51.	Source Emission Testing, Louisiana-Pacific Canada LTD., Dawson Creek, BC	BOV 6618	OSB	H	Dawson Creek, BC	Bovar-Concord Environmental, Burnaby, BC	10/95
52.	Air Emission Test Results, June 1994 Louisiana-Pacific Canada LTD., Dawson Creek, BC	McCall 694	OSB	D/P/H/O	Dawson Creek, BC	N. R. McCall & Associated Environmental Consultants LTD., Victoria, BC	8/15/94
53.	Summary of Results Methods 1, 2, 3A, 4 and 5 Geoenergy at Louisiana-Pacific, Chilco, Idaho	AmTest 594	OSB	D	Chilco, ID	AM Test Air Quality, Inc., Preston, WA	6/28/94
54.	Report of Air Emissions Tests and VOC Removal Efficiency for Louisiana-Pacific Corp., Corrigan OSB Facility, Corrigan, TX, June 2, 1995	EML 6295	OSB	D	Corrigan, TX	Environmental Monitoring Laboratories, Ridgeland, MS	7/18/95
55.	Summary of Results Methods 1, 2, 3A, 4 and 5 Geoenergy at Louisiana-Pacific, Dawson Creek, British Columbia, June 1994	AmTest 694	OSB	D	Dawson Creek, BC	Am Test Air Quality, Inc., Preston, WA	6/28/94
56.*	Air Emissions Test Report for the Wet Scrubber, Louisiana-Pacific Corp., Dungannon, VA, March 8, 1995	95-403-T	OSB	O	Dungannon, VA	ETS, Inc., Roanoke, VA	3/28/95
57.	Data Package for the MDI Samples Collected at the LP/Dungannon Plant on June 29, 1994 Using the EPA Draft 1,2-PP Method (Data for Report No. 64)	4-3252	OSB	D/P/H	Dungannon, VA	Interpoll Laboratories Inc., Circle Pines, MN	8/19/94

No.	Title	Report No.	Product	Source	Location	Company	Date of Report
58.*	Results of the March 28, 1994 Oxides of Nitrogen Engineering Test on the Dryer Stack at the Louisiana-Pacific Plant in Dungannon, VA	4-2557E	OSB	D	Dungannon, VA	Interpoll Laboratories Inc., Circle Pines, MN	4/20/94
59.	Report of Air Emissions Tests for Louisiana-Pacific Corp., New Waverly OSB Facility, May 31, and June 1, 1995	EML 595	OSB	D	New Waverly, TX	Environmental Monitoring Laboratories, Ridgeland, MS	7/1/95
60.	Results of the September 21-23, 1993 Air Emission Compliance Tests at the Louisiana-Pacific Waferboard Plant in Dawson Creek, British Columbia	3-1060	OSB	D/P/H	Dawson Creek, BC	Interpoll Laboratories Inc., Circle Pines, MN	11/11/93
61.	Results of the June 8-10, 1993 EPA-Required Air Emission Compliance Tests at the Louisiana-Pacific Waferboard Plant in Dungannon, Virginia	3-9053	OSB	D/P/H	Dungannon, VA	Interpoll Laboratories Inc., Circle Pines, MN	7/22/93
62.	Air Emissions Compliance Test Report for Louisiana-Pacific Dungannon, Virginia, Test Dates, September 10-11, 1996	96-815-T	OSB	D/P/H	Dungannon, VA	ETS, Inc., Roanoke, VA	10/11/96
63.	Results of the December 14-17, 1993 State-Required Air Emission Compliance Tests at the Louisiana-Pacific Waferboard Plant in Dungannon, Virginia	3-1906	OSB	D/P/H	Dungannon, VA	Interpoll Laboratories Inc., Circle Pines, MN	1/21/94

No.	Title	Report No.	Product	Source	Location	Company	Date of Report
64.	Results of the June 28 & 29, 1994 Air Emission Compliance Tests at the Louisiana-Pacific OSB Plant in Dungannon, VA	4-3252	OSB	D/P/H	Dungannon, VA	Interpoll Laboratories Inc., Circle Pines, MN	8/3/94
65.	Air Emissions Diagnostic Test Report for Louisiana Pacific, Dungannon, Virginia, July 27-28, 1995	ETS 553	OSB	O	Dungannon, VA	ETS, Inc., Roanoke, VA	8/29/95
66.	Report of Emissions Testing of a Regenerative Thermal Oxidizer, Louisiana-Pacific Corp., Houlton, Maine	TRC 226	OSB	P	Houlton, ME	TRC Environmental Corp., Windsor, CT	5/95
67.	Report Emissions Testing of a Thermal Oil Heater, Louisiana-Pacific Corp., Houlton, Maine	TRC 624	OSB	H	Houlton, ME	TRC Environmental Corp., Windsor, CT	1/96
68.	Compliance Emission Test Report, Particulate Emissions Compliance Testing, Thermal Oil Heater Stack, Houlton, Maine Waferboard Facility, March 4, 1993	EAST	OSB	H	Houlton, ME	Eastmount Engineering, Walpole, MA	3/30/93
69.	Louisiana-Pacific Corp., Oriented Strandboard Facility Fuel Dryer E-Tube Stack, Montrose, Colorado, June 15, 1995	AmTest 695	OSB	D	Montrose, CO	AmTest Air Quality, Inc., Preston, WA	7/21/95
70.	Air Emissions Test Report for the Wet Scrubber, Louisiana-Pacific Corp, Dungannon, VA, February 16, 1995	ETS 403	OSB	D	Dungannon, VA	ETS, Inc., Roanoke, VA	3/1/95
71.	Air Emissions Test Report for the Wet Scrubber and RTO Stack, Louisiana-Pacific Corp., Dungannon, VA, March 9-10, 1995	ETS 415	OSB	D/P	Dungannon, VA	ETS, Inc., Roanoke, VA	4/5/95

No.	Title	Report No.	Product	Source	Location	Company	Date of Report
72.	Results of the March 11, 1993 MDI Emission Compliance Tests at the Louisiana-Pacific Waferboard Plant in Dungannon, Virginia	3-8324	OSB	P	Dungannon, VA	Interpoll Laboratories Inc., Circle Pines, MN	4/15/93
73.	Results of the March 29, 1994 Oxides of Nitrogen Emission Compliance Test on the Dryer Stack at the Louisiana-Pacific Plant in Dungannon, Virginia	4-2557	OSB	D	Dungannon, VA	Interpoll Laboratories Inc., Circle Pines, MN	4/20/94
74.**	Report of Air Emissions and Inlet Loading Tests for Louisiana Pacific Corporation Hanceville, OSB Plant, Hanceville, Alabama, March 31, 1994	33194	OSB	D	Hanceville, AL	Environmental Monitoring Laboratories, Ridgeland, MS	3/3/96

D - Dryer OSB - Oriented Strandboard
P - Press
H - Heater
O - Other

* These four test reports were included in the three boxes of data submitted to EPA, but were not included in Louisiana-Pacific's Table of Source Tests.

** This test report was included in Louisiana-Pacific's Table of Source Tests, but was not marked as being included in the submittal.

Table of Source Tests

(Enclosure 2)

10-Oct-96 IO-inlet/outlet	TEST LIST		DRYER											THERMAL OIL											PRESS									COMBINED (RTO)										
ID	SITE		BEN	CO	HCHO	NOX	PAH	PHEN	SOX	PM	f1/2	b1/2	VOC	BEN	CO	HCHO	NOX	PAH	PHEN	SOX	PM	f1/2	b1/2	VOC	CO	HCHO	MDI	NOX	PHEN	PM	f1/2	b1/2	VOC	CO	HCHO	MDI	NOX	PHEN	PM	f1/2	b1/2	VOC	SOX	OTHER / COMMENT
aml51105	URA	11-May-95		IO	IO	IO				IO	IO	IO	IO																															
5-8375	TO	23-Aug-95																							O					O														
5-6006	TO	11-Jul-95		O		O									O		O								O					O	O	O												
4-2197	TO	1-Feb-94													O						O	O	O																					
3-1854	TO	7-Dec-93		O	O	O																																						dryer on gas
~~3-0772~~	~~TO~~	~~2-Dec-93~~		X				X																																				dryer on gas
3-0772	TO	17-Aug-93	O	O	IO	O		O		IO	IO	IO	IO	O	O	O	O	O	O		O	O	O		O	O			O	O	O	O	O											Benzene and POM on Geka & Dryer
6-7712	TH	21-May-96		O	O	O				O	O	O	IO												O			O		O	O	O	O											
6-7712E	TH	21-May-96		I	I					I	I	I																																cyl /E-Tube/rto
3-9202	TH	28-Jun-93																								X	X		X		X		X											Testing by ICI
MET9611A	SIL	16-Jan-96																							IO	IO	O	IO	O	IO	IO	IO	IO											
MET9611	SIL	15-Jan-96		IO	IO	IO			O	IO	IO	IO	IO																															
ARM1713	SIL	11-Jul-95																							IO	IO	IO	IO	IO	IO	IO	IO	IO											
EML	SIL	27-Apr-95																												IO	IO	IO	IO											
6-6024	SA	23-Jul-96		IO	IO	IO				IO	IO	IO	IO												IO	IO	O	IO	IO	IO	IO	IO	IO											methane - dryers: chromium - dryers
6-7630	SA	12-Jun-96																																										
5-6194	SA	12-Apr-95																							IO	IO	IO	IO	IO	IO	IO	IO	IO											
* 3-9202	SA	25-Jun-93																								X	X		X		X		X											Testing by ICI
ENTROPY	ROX	6-Aug-96		IO		IO				IO	IO	IO	IO												IO			IO		IO	IO	IO	IO											
EML595	NWV	31-May-95		IO	IO	IO				IO	IO	IO	IO																															
6-8201	NE	27-Aug-96		IO	IO	IO			O	IO	IO	IO	IO												O	O	O	O		O	O	O	O											methanol - dryers: methane - press,phenol (both)
	~~NE~~	~~8-Aug-96~~		IO		IO				IO	IO	IO	IO																															
~~aml53105~~	~~NE~~	~~8-May-95~~		IO	IO	IO				IO	IO	IO	IO																															
amtest695	MO	5-Jun-95								O	O	O																																WESP
EMG	MO	31-May-95								O	O	O																																WESP
eml1294	MO	6-Dec-94		O	O					O	O	O	O													O	O			O	O	O	O											
amtest1094	MO	25-Oct-94								O	O	O																																E-TUBE OUTLET
4-3396	MO	19-Jul-94		O						O	O	O																																also CO out of burner
4-2558	MO	29-Mar-94		IO	O					O	O	O	O													O	O			O	O	O	O											also CO out of burner
3-8023E	MO	28-Jan-93			IO					IO	IO	IO	IO																															E-TUBE INLET /OUTLET
3-8023	MO	25-Jan-93		O	O					O	O	O	O													O	O			O	O	O	O											E-TUBE OUTLET
96053	HO	9-Jul-96		IO	IO	IO				IO	IO	IO	IO																															
~~96051~~	~~HO~~	~~20-Jun-96~~																																										
TRC624	HO	13-Dec-95																			IO	IO	IO		IO	IO		IO																
TRC226	HO	19-Apr-95																							IO					IO	IO	IO	IO											
EAST	HO	4-Mar-93																				X																						
6-7684	HAY2	14-May-96		I		I				I	I	I																																
6-7451	HAY2	18-Mar-96	O	IO	O	IO	O	O		IO	IO	IO	IO	O	O	O	O				O	O	O		IO	O		IO		O	O	O	IO											
4-3068	HAY2	2-Jun-94								IO	IO	IO																																engineering tests, LINE 2
3-9024	HAY2	1-Sep-93		IO	IO	IO				IO	IO	IO	IO																															RTO PILOT inlet and outlet
6-7318	HAY1	20-Feb-96	O	IO	O	IO	O	O		O	O	O	IO	O	O	O	O	O	O		O	O	O		IO	O	O	IO		O	O	O	IO											METHANE ON DRYER AND PRESS RTO
5-6731	HAY1	25-Oct-95	IO	IO	IO	IO				IO	IO	IO													IO			IO		IO	IO	IO												engineering tests
5-5204	HAY1	11-Apr-95								IO	IO	IO																																WESP surf. & core dryer.
5-3158	HAY1	5-Apr-95								IO	IO	IO																																WESP surf. & core dryer.
4-3366	HAY	12-Jul-94	O	IO	O	IO	O	O		IO	IO	IO	IO																															both lines,RTO outlet and primary or multiclone c
pace694	HAY	16-Jun-94								IO	IO	IO																																engineering tests, both lines
4-3097	HAY	7-Jun-94												O	O	O	O	O	O		O	O	O		O	O	O	O		IO	IO	IO	IO											both lines
mmt0531	HAY	16-Feb-94								IO	IO	IO																																engineering tests, LINE 1
61494	HAN	14-Jun-94	IO	IO	IO					IO	IO	IO	IO												IO	IO		IO		IO	IO	IO	IO											
33194	HAN	31-Mar-94		IO		IO				IO	IO	IO	IO																															
96-815-T	DU	10-Sep-96		IO	IO	IO				IO	IO	IO	IO		O	O	O				O	O	O	O										IO	IO	O	IO		IO	IO	IO	IO		
ETS578	DU	30-Aug-95		O	IO	O			O	IO	IO	IO	O		O	O	O			O	O	O	O	O	O	O	O	O	O				O	O	O	O	O	O	O	O	O	O	O	
ETS553	DU	27-Jul-95																																O	O	O	O		O	O	O	O	O	RTO first two tests destroyed at lab, third valid.
ETS415	DU	9-Mar-95		O		O				IO	IO	IO	O												I			I					I	IO			IO					IO		RTO eval. & WESP particle size.
ETS403	DU	16-Feb-95							IO	IO	IO	IO																																WESP pm,metals check.
4-3252	DU	28-Jun-94		O	O	O				O	O	O	O								O	O	O			O	O		O				O											KONUS PM-10
4-2557	DU	28-Mar-94				O																																						
3-1906	DU	17-Dec-93		O	O	O				O	O	O	O								O	O	O			O	O		O				O											KONUS PM-10
3-9063	DU	8-Jun-93		O	O	O				O	O	O	O								O	O	O			O	O		O				O											KONUS PM-10
3-8324	DU	11-Mar-93																									X																	
Box6618	DA	6-Oct-95																				O																						
BC6618	DA	3-Apr-96			O					O	O	O									O	O	O			O	O																	
BC4964	DA	28-Sep-94			O					O	O	O										O				O	O																	HCN an dryer, phenol , MDI, and hcho on bagho
mccall694	DA	20-Jun-94			O					O	O	O										O				O																		HCN an dryer, phenol and hcho on baghouse, m
amtest694	DA	7-Jun-94								IO	IO	IO																																engineering test w/metals analysis
3-1060	DA	21-Sep-93			O			O		O	O	O	O									O		O		O	O		O				O											HCN on dryer
eml6295	COR	5-Jun-95		IO	IO	IO				IO	IO	IO	IO																															
AM695	CH	1-Aug-95																																O										CEMS
4-3101R	CH	21-Jun-94		O	O	IO				IO	IO	IO	IO		O		O				O	O	O	O	O	O	O	O	O	IO	IO	IO	IO											O* as controlled by RTO, sinding lines for VOC
amtest504	CH	26-May-94								X	X	X																																engineering test w/metals analysis
4-3191	CH	21-Jan-94																																		O								
3-1o05	CH	1-Dec-93											IO																															engineering tests
EML601	ATH	[illegible]-Jun-96		IO		IO				O	O	O	IO												IO	O		IO		O	O	O	IO											

* TESTS FOR BOTH TWO HARBORS & SAGOLA (1 COPY)

– OTHER TESTS NOT HIGHLIGHTED WERE ENG. TESTS PAID FOR BY GEO. OR WILLAMETTE(?). COULD NOT LOCATE.

MIDWEST RESEARCH INSTITUTE
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November 5, 1996

Mr. David Word
National Council of the Paper Industry
for Air and Stream Improvement, Inc.
Post Office Box 141020
Gainesville, Florida 32614-1020

Dear Mr. Word:

As we discussed on Friday, November 1, 1996 by telephone, I am sending you a copy of the spreadsheet files with the data used for the statistical analyses of the emission data presented in the revised draft background report for AP-42 Section 10.6.1, Waferboard/Oriented Strandboard Manufacturing. The dryer data are contained in the file DRYERDTA.WQ1, and the press data are contained in PRESSDTA.WQ1 on the enclosed diskette. Also enclosed are printouts of these two spreadsheets.

Please do not hesitate to call me if you have any questions concerning the enclosed material or need additional information.

Sincerely,

Richard J. Marinshaw
Senior Environmental Engineer

cc: Dallas Safriet, EPA (MD-14)

3 Enclosures (diskette plus two spreadsheet printouts)

OSB PRESS EMISSIONS DATA USED IN STATISTICAL ANALYSES

tcode	ucode	poll	t	th	soft	tm	er	ef	pr	mdi	pf	rat
044-062392A	1P044	CO	430	0.75	100	M10	3.99	0.13	31.08		772	B
088-121092A	1P088	CO	410	0.44	5	M10	1.43	0.086	16.66	700	429	A
096-060490A	1P096	CO		0.72	0	M10	1.38	0.11	12.25	237	334	A
096-060490C	1P096	CO		0.44	0	M10	1.51	0.14	11.15	223	311	A
096-060590E	1P096	CO		0.44	0	M10	0.91	0.053	17.28	354	444	A
096-060590F	1P096	CO		0.72	0	M10	0.88	0.047	18.84	375	474	A
096-060690B	1P096	CO	410	1.13	40	M10	0.71	0.036	19.74	364	457	A
096-060690C	1P096	CO	410	1.13	40	M10	0.81	0.066	12.29	230	289	A
096-060790A	1P096	CO	410	0.44	100	M10	0.82	0.066	12.53	232	323	A
096-060790B	1P096	CO	410	0.44	100	M10	1.00	0.057	17.45	364	459	A
096-060890A	1P096	CO	410	0.72	100	M10	0.73	0.061	11.99	233	325	A
096-060890B	1P096	CO	410	0.72	100	M10	0.78	0.040	19.47	49	62	A
210-021292D	1P210	CO	401	0.44	0	M10	3.40	0.20	16.80	749		A
211-022592A	1P211	CO	400	0.44	0	M10	3.80	0.084	45.43	547	863	A
044-062392A	1P044	CO	430	0.75	100	OD7	9.98	0.32	31.08		772	B
044-062392B	1P044	CPM	430	0.38	100	OD7	6.62	0.24	27.71		579	B
044-092393A	1P044	CPM	430	0.75	100	OD7	5.47	0.18	28.11		668	A
088-121092A	1P088	CPM	410	0.44	5	M202	3.86	0.23	16.66	700	429	A
096-012893A	2P096	CPM	210	0.44		M202	1.04	0.052	20.15	279	466	A
096-060490A	1P096	CPM		0.72	0	M202	1.26	0.10	12.25	237	334	A
096-060490C	1P096	CPM		0.44	0	M202	1.56	0.14	11.15	223	311	A
096-060590E	1P096	CPM		0.44	0	M202	1.55	0.090	17.28	354	444	A
096-060590F	1P096	CPM		0.72	0	M202	0.95	0.050	18.84	375	474	A
096-060690B	1P096	CPM	410	1.13	40	M202	1.73	0.14	19.74	364	457	A
096-060690C	1P096	CPM	410	1.13	40	M202	1.30	0.11	12.29	230	289	A
096-060790A	1P096	CPM	410	0.44	100	M202	0.58	0.046	12.53	232	323	A
096-060790B	1P096	CPM	410	0.44	100	M202	0.76	0.044	17.45	364	459	A
096-060890A	1P096	CPM	410	0.72	100	M202	0.69	0.058	11.99	233	325	A
096-060890B	1P096	CPM	410	0.72	100	M202	4.54	0.23	19.47	365	458	A
210-021292C	1P210	CPM	401	0.44	0	M202	0.41	0.024	16.80	749		A
211-022592A	1P211	CPM	400	0.44	0	M5	0.13	0.0030	45.43	547	863	A
211-022692A	1P211	CPM	400	0.44	0	M5	0.67	0.014	45.43	537	870	A
4	3	CPM	425		100	M202	7.44	0.40	18.6			A
7	6	CPM	380		100	M202	3.4	0.22	15.6			A

OSB PRESS EMISSIONS DATA USED IN STATISTICAL ANALYSES

tcode	ucode	poll	t	th	soft	tm	er	ef	pr	mdi	pf	rat
044-062392A	1P044	FOR	430	0.75	100	TO-5	0.057	0.0018	31.08		772	B
044-062392A	1P044	FOR	430	0.75	100	P&CAM1	0.23	0.0074	31.08		772	B
044-062392B	1P044	FOR	430	0.38	100	P&CAM1	0.28	0.010	27.71		579	B
044-062392B	1P044	FOR	430	0.38	100	TO-5	0.085	0.0030	27.71		579	B
069-062492A	1P069	FOR	406	0.38	0	M0011	1.30	0.051	25.60			C
070-012793A	1P070	FOR	400	0.44	85	M0011	2.38	0.073	32.48			A
088-121092C	1P088	FOR	410	0.44	5	M0011	0.68	0.041	16.66	700	429	A
088-121588C	2P088	FOR	420	0.44	5	MN3500	1.73	0.13	13.16	287	287	C
096-012993A	2P096	FOR	210	0.44		M0011	0.94	0.048	19.59	286	443	A
096-060490A	1P096	FOR		0.72	0	MN3500	0.21	0.018	12.25	237	334	C
096-060490C	1P096	FOR		0.44	0	MN3500	0.23	0.020	11.15	223	311	C
096-060590E	1P096	FOR		0.44	0	MN3500	0.28	0.016	17.28	354	444	C
096-060590F	1P096	FOR		0.72	0	MN3500	0.28	0.015	18.84	375	474	C
096-060690B	1P096	FOR	410	1.13	40	MN3500	0.16	0.0079	19.74	364	457	C
096-060690C	1P096	FOR	410	1.13	40	MN3500	0.093	0.0076	12.29	230	289	C
096-060790A	1P096	FOR	410	0.44	100	MN3500	0.10	0.0080	12.53	232	323	C
096-060790B	1P096	FOR	410	0.44	100	MN3500	0.17	0.0095	17.45	364	459	C
096-060890A	1P096	FOR	410	0.72	100	MN3500	0.073	0.0061	11.99	233	325	C
096-060890B	1P096	FOR	410	0.72	100	MN3500	0.10	0.0052	19.47	365	458	C
174-041191C	1P174	FOR		0.44	40		0.41	0.094	36.30			C
210-021292D	1P210	FOR	401	0.44	0	M0011	1.68	0.10	16.80	749		A
211-022592B	1P211	FOR	400	0.44	0	M0011	2.97	0.065	45.43	547	863	A
225-020692D	2P225	FOR	400	0.47	0	M0011	2.22	0.15	14.40	162	354	A
225-041990B	1P225	FOR		0.44	0	MN3500	1.60	0.10	15.30	605		C
4	3	FOR	425		100	M0011	0.89	0.05	18.6			A
7	6	FOR	380		100	M0011	1.7	0.11	15.6			A
088-031193A	1P088	MDI	410	0.44	5	N347	0.064	0.0040	16.16	220	435	A
088-031193B	1P088	MDI	410	0.44	5	N347	0.096	0.0059	16.16	350	435	A
096-012893B	2P096	MDI	210	0.44		N347	0.028	0.0014	20.15	279	466	A
096-092790A	1P096	MDI	410	0.44	0	N347	0.027	0.0019	14.70	366		A
096-092790B	1P096	MDI	410	1.13	20	N347	0.013	0.0008	16.20	361		A
069-062492A	1P069	NAPHTHA	406	0.38	0	NM1501	0.14	0.0056	25.60			A
070-012893A	1P070	NAPHTHA	400	0.44	85	NM1501	0.014	0.0004	34.56			A
044-062392A	1P044	NOX	430	0.75	100	M7E	0.17	0.0055	31.08		772	B

OSB PRESS EMISSIONS DATA USED IN STATISTICAL ANALYSES

tcode	ucode	poll	t	th	soft	tm	er	ef	pr	mdi	pf	rat
044-062392A	1P044	PHENOL	430	0.75	100	TO-8	0.46	0.015	31.08		772	B
044-062392B	1P044	PHENOL	430	0.38	100	TO-8	1.79	0.064	27.71		579	B
069-062492A	1P069	PHENOL	406	0.38	0	N3500	1.16	0.045	25.60			A
070-012893A	1P070	PHENOL	400	0.44	85	MM5	2.53	0.073	34.56			A
088-120992D	1P088	PHENOL	410	0.44	5	M5X	0.16	0.0097	16.30	700	429	A
088-120992E	1P088	PHENOL	410	0.44	5	N347	0.18	0.011	16.30	700	429	A
088-121588C	2P088	PHENOL	420	0.44	5	M604	0.032	0.0049	13.16	287	287	A
044-062392A	1P044	PM	430	0.75	100	M5	7.40	0.24	31.08		772	B
044-062392B	1P044	PM	430	0.38	100	M5	7.04	0.25	27.71		579	B
044-092393A	1P044	PM	430	0.75	100	M5	4.39	0.15	28.11		668	A
069-062492A	1P069	PM	406	0.38	0	M5	0.68	0.026	0.00			A
088-121092A	1P088	PM	410	0.44	5	M5	2.13	0.13	16.66	700	429	A
096-012893A	2P096	PM	210	0.44		M5	1.95	0.097	20.15	279	466	A
096-060490A	1P096	PM		0.72	0	M5	1.46	0.12	12.25	237	334	A
096-060490C	1P096	PM		0.44	0	M5	0.73	0.065	11.15	223	311	A
096-060590E	1P096	PM		0.44	0	M5	0.55	0.032	17.28	354	444	A
096-060590F	1P096	PM		0.72	0	M5	0.95	0.050	18.84	375	474	A
096-060690B	1P096	PM	410	1.13	40	M5	0.80	0.040	19.74	364	457	A
096-060690C	1P096	PM	410	1.13	40	M5	0.63	0.051	12.29	230	289	A
096-060790A	1P096	PM	410	0.44	100	M5	0.58	0.047	12.53	232	323	A
096-060790B	1P096	PM		0.44	100	M5	1.06	0.061	17.45	364	459	A
096-060890A	1P096	PM		0.72	100	M5	1.04	0.086	11.99	233	325	A
096-060890B	1P096	PM		0.72	100	M5	1.26	0.065	19.47	365	458	A
210-021292C	1P210	PM	410	0.44	0	M5	3.02	0.18	16.80	749		A
211-022592A	1P211	PM	400	0.44	0	M5	2.62	0.058	45.43	547	863	A
4	3	PM	425		100	M5	8.54	0.46	18.6			A
7	6	PM	380		100	M5	6.4	0.41	15.6			A
044-062392A	1P044	PM&CPM	430	0.75	100	M5/OD7	17.4	0.56	31.08		772	B
044-062392B	1P044	PM&CPM	430	0.38	100	M5/OD7	12.9	0.47	27.71		579	B
044-092393A	1P044	PM&CPM	430	0.75	100	M5	9.86	0.33	28.11		668	A
088-121092A	1P088	PM&CPM	410	0.44	5	M5/202	5.99	0.36	16.66	700	429	A
096-012893A	2P096	PM&CPM	210	0.44		M5/202	3.00	0.15	20.15	279	466	A
096-060490A	1P096	PM&CPM		0.72	0	M5/202	3.02	0.17	12.25	237	334	A
096-060490C	1P096	PM&CPM		0.44	0	M5/202	1.98	0.18	11.15	223	311	A

OSB PRESS EMISSIONS DATA USED IN STATISTICAL ANALYSES

tcode	ucode	poll	t	th	soft	tm	er	ef	pr	mdi	pf	rat
096-060590E	1P096	PM&CPM		0.44	0	M5/202	2.10	0.12	17.28	354	444	A
096-060590F	1P096	PM&CPM		0.72	0	M5/202	1.89	0.10	18.84	375	474	A
096-060690B	1P096	PM&CPM	410	1.13	40	M5/202	2.53	0.13	19.74	364	457	A
096-060690C	1P096	PM&CPM	410	1.13	40	M5/202	1.93	0.16	12.29	230	289	A
096-060790A	1P096	PM&CPM	400	0.44	100	M5/202	1.16	0.093	12.53	232	323	A
096-060790B	1P096	PM&CPM	400	0.44	100	M5/202	1.82	0.10	17.45	364	459	A
096-060890A	1P096	PM&CPM	400	0.72	100	M5/202	1.73	0.14	11.99	233	325	A
096-060890B	1P096	PM&CPM	400	0.72	100	M5/202	5.33	0.27	19.47	365	458	A
210-021292C	1P210	PM&CPM	401	0.44	0	M5/202	3.43	0.20	16.80	749		A
211-022592A	1P211	PM&CPM	400	0.44	0	M5	2.75	0.061	45.43	547	863	A
044-092393A	1P044	PM10	430	0.75	100	M201A	3.07	0.10	28.11		668	A
211-022692A	1P211	PM10	400	0.44	0	M201A	4.90	0.11	45.43	537	870	A
044-092393A	1P044	PM10&CP	430	0.75	100	M201A/O	8.54	0.29	28.11		668	A
211-022692A	1P211	PM10&CP	400	0.44	0	M5/202	5.56	0.12	45.43	537	870	A
225-020692B	2P225	PM10&CP	400	0.47	0	M201A	4.86	0.34	14.40	162	354	A
044-062392A	1P044	VOC	430	0.75	100	M25A	2.77	0.089	31.08		772	B
044-092393A	1P044	VOC	430	0.75	100	M25A	5.44	0.18	28.11		668	A
069-062492A	1P069	VOC	403	0.38	0	M25A	0.79	0.031	25.60			A
083-011990A	1P083	VOC		0.44	5	M25A	11.1	0.39	28.20	292	491	A
083-011990A	1U083	VOC		0.44	5	M25A	10.3	0.37	28.20	292	491	A
083-012090A	1P083	VOC		0.44	5	M25A	2.61	0.093	28.20	285	503	A
083-012090A	1U083	VOC		0.44	5	M25A	7.56	0.27	28.20	285	503	A
088-121092A	1P088	VOC	410	0.44	5	M25A	2.10	0.13	16.66	700	429	A
088-121588C	2P088	VOC	420	0.44	5	M25A	0.73	0.055	13.16	287	287	A
096-012893C	2P096	VOC	210	0.44		M25	4.28	0.21	20.15	279	466	A
096-060490A	1P096	VOC		0.72	0	M25A	0.58		12.25	237	334	D
096-060490C	1P096	VOC		0.44	0	M25A	0.75		11.15	223	311	D
096-060590E	1P096	VOC		0.44	0	M25A	0.13		17.28	354	444	D
096-060590F	1P096	VOC		0.72	0	M25A	0.47		18.84	375	474	D
096-060690B	1P096	VOC	410	1.13	4040	M25A	2.50		19.74	364	457	D
096-060690C	1P096	VOC	410	1.13	40	M25A	2.70		12.29	230	289	D
096-060790A	1P096	VOC	410	0.44	100	M25A	8.90		12.53	232	323	D
096-060790B	1P096	VOC	410	0.44	100	M25A	13.0		17.45	364	459	D
096-060890A	1P096	VOC	410	0.72	100	M25A	11.0		11.99	233	325	D

OSB PRESS EMISSIONS DATA USED IN STATISTICAL ANALYSES

tcode	ucode	poll	t	th	soft	tm	er	ef	pr	mdi	pf	rat
096-060890B	1P096	VOC	410	0.72	100	M25A	11.0		19.47	365	458	D
127-082090A	1P127	VOC	400	0.75	0	M25	11.4	0.36	31.68		1,274	A
127-092289C	1P127	VOC	400	0.75	0	M25	39.0	1.25	31.20		1,255	A
210-021292B	1P210	VOC	401	0.44	0	M25	7.73	0.44	17.50	745		A
210-022389A	1P210	VOC	205	0.44	0	M25	3.92	0.25	15.80	588		A
211-022692B	1P211	VOC	400	0.44	0	M25A	7.24	0.16	45.43	537	870	A
212-100991A	1P212	VOC		0.44	90	M25	5.91	0.33	17.69			A
225-020692C	2P225	VOC	400	0.47	0	M25	3.94	0.27	14.40	162	354	A
4	3	VOC	425		100	M25A	26.0	1.40	18.6			A
7	6	VOC	380		100	M25A	15.3	0.98	15.6			A

OSB DRYER EMISSIONS DATA USED IN STATISTICAL ANALYSES

poll	tm	wood	type	mcin	mcout	mdiff	tin	tout	tdiff	apcd	ef	rat	soft	apcd2
CO	M10	ASPEN	HARD	81.70	6.20	75.50	1,113	272	841	EFB	2.11	A	0	EFB
CO	M10	ASPEN	HARD		6.27		1,160	240	920	EFB	2.09	A	0	EFB
CO	M10	ASPEN	HARD	64.70	6.38	58.32	1,194	217	977	EFB	1.62	A	0	EFB
CO	M10	ASPEN	HARD	93.80	6.04	87.76	1,272	273	999	EFB	5.65	A	0	EFB
CO	M10	ASPEN	HARD	82.00	3.00	79.00	846	200	647	EFB	1.34	B	5	EFB
CO	M10	ASPEN	HARD	97.97	5.45	92.52	1,470	240	1,230	EFB	8.99	A	0	EFB
CO	M10	ASPEN	HARD	82.00	3.00	79.00	1,700	220	1,480	EFB	8.93	A	0	EFB
CO	M10	ASPEN	HARD		4.75		1,236	244	992	EFB	6.92	A	0	EFB
CO	M10	ASPEN	HARD	82.00	2.80	79.20	1,200	204	996	EFB	2.71	A	4	EFB
CO	M10	ASPEN	HARD	80.80	7.99	72.81	993	240	753	EFB	0.60	A	0	EFB
CO	M10	HWOOD	HARD	90.93	5.67	85.26	1,203	234	969	EFB	3.39	A	0	EFB
CO	M10	HWOOD	HARD	96.27	7.84	88.42	814	188	625	EFB	3.73	A	0	EFB
CO	M10	HWOOD	HARD	95.30	5.98	89.32	1,397	229	1,168	EFB	7.24	A	0	EFB
CO	M10	HWOOD	HARD	99.93	5.90	94.04	1,115	257	859	EFB	2.42	A	0	EFB
CO	M10	HWOOD	HARD	127.67	5.75	121.92	1,340	259	1,080	EFB	4.30	A	0	EFB
CO	M10	HWOOD	HARD	99.67	8.82	90.85	934	240	694	EFB	5.23	A	0	EFB
CO	M10	HWOOD	HARD	93.00	8.70	84.30	867	210	658	EFB	8.57	A	0	EFB
CO		MIXED	MIXED		2.70		1,000	236	764	EFB	11.00	B	60	EFB
CO	M10	PINESP	SOFT	33.20	4.60	28.60	759	166	593	EFB	0.45	A	100	EFB
CO	M10	PINESP	SOFT	89.03	9.27	79.77	1,041	196	845	EFB	2.70	A	100	EFB
CO	M10	PINESP	SOFT	50.40	4.28	46.12	848	190	658	EFB	0.62	A	100	EFB
CO		PINESP	SOFT	100.00	7.60	92.40	824			MCLO	2.10	B	100	MC/CYC
CO		PINESP	SOFT	96.00	5.80	90.20	540	183	357	MCLO	2.80	A	100	MC/CYC
CO	M3	PINESP	SOFT	92.30	5.87	86.43	1,162	201	961	MCLO	4.15	B	85	MC/CYC
CO		PINESP	SOFT	100.00	9.60	90.40	834			MCLO	0.53	B	100	MC/CYC
CO		PINESP	SOFT	85.00	7.10	77.90	749	238	511	MCLO	2.70	C	100	MC/CYC
CO		PINESP	SOFT	85.00	6.50	78.50	682	226	456	MCLO	6.90	A	100	MC/CYC
CO		PINESP	SOFT		5.80		544	228	316	MCLO	1.80	A	100	MC/CYC
CO		PINESP	SOFT	100.00	7.70	92.30	815			MCLO	2.30	B	100	MC/CYC
CO		PINESP	SOFT	100.00	8.50	91.50	779	219	560	MCLO	3.90	A	100	MC/CYC
CO		PINESP	SOFT	92.00	5.90	86.10	864	231	633	MCLO	4.60	A	100	MC/CYC
CO		PINESP	SOFT	100.00	9.10	90.90	783			MCLO	0.50	C	100	MC/CYC
CO		PINESP	SOFT	100.00	8.70	91.30	761			MCLO	1.30	B	100	MC/CYC
CO		PINESP	SOFT	86.00	7.30	78.70	729	242	487	MCLO	0.98	C	100	MC/CYC

OSB DRYER EMISSIONS DATA USED IN STATISTICAL ANALYSES

poll	tm	wood	type	mcin	mcout	mdiff	tin	tout	tdiff	apcd	ef	rat	soft	apcd2
CO	M10	ASPEN	HARD	79.50	4.53	74.97	1,388	197	1,191	WESP	7.40	A	20	WESP
CO	M10	MIXED	MIXED	89.40	3.13	86.27	1,118	243	875	WESP	1.87	A	40	WESP
CO	M10	MIXED	MIXED	100.00			912	287	625	WESP		A	50	WESP
CO	M10	MIXED	MIXED	94.47	8.43	86.03	852	275	577	WESP	4.88	A	60	WESP
CO	?	PINESP	SOFT	88.37	6.37	82.00	999	206	793	WESP	2.81	A	85	WESP
CO	M3	PINESP	SOFT	92.30	5.87	86.43	1,162	201	961	WESP	3.89	B	85	WESP
CO	M10B	PINESP	SOFT	91.00	8.60	82.40	984	196	788	WESP	1.79	A	85	WESP
CO	M10B	PINESP	SOFT	82.33	6.40	75.93	994	221	773	WESP	3.52	A	85	WESP
CO	M10B	PINESP	SOFT	93.00	5.20	87.80	952	223	729	WESP	4.82	A	85	WESP
CPM	M202	MIXED	MIXED	89.40	3.13	86.27	1,118	243	875	CYC	1.07	A	40	MC/CYC
CPM	OD7	MIXED	MIXED	88.70	3.10	85.60	1,074			CYC	1.52	B	40	MC/CYC
CPM	OD7	MIXED	MIXED	88.70	3.10	85.60	842			CYC	0.71	B	40	MC/CYC
CPM	M5	SPRU/FI	SOFT	99.00	6.37	92.63	1,184	227	957	CYC	4.42	A	100	MC/CYC
CPM	OD7	SYPINE	SOFT	91.00	8.10	82.90	836	266	570	CYC	0.91	A	70	MC/CYC
CPM	M5A	SYPINE	SOFT	102.00	10.67	91.33	907	229	679	CYC	0.41	A	70	MC/CYC
CPM	M5	ASPEN	HARD				975	239	737	EFB	0.48	A	5	EFB
CPM	M202	ASPEN	HARD	90.17	5.93	84.24	1,325	273	1,051	EFB	0.29	A	0	EFB
CPM	M5	ASPEN	HARD				1,036	247	789	EFB	0.31	A	5	EFB
CPM	M202	ASPEN	HARD	93.80	6.04	87.76	1,272	273	999	EFB	0.50	A	0	EFB
CPM	M202	ASPEN	HARD	64.70	6.38	58.32	1,194	217	977	EFB	0.12	A	0	EFB
CPM	M202	ASPEN	HARD	80.80	7.99	72.81	993	240	753	EFB	0.30	A	0	EFB
CPM	M202	ASPEN	HARD	113.67	6.01	107.65	1,449	257	1,192	EFB	0.45	A	0	EFB
CPM	M202	ASPEN	HARD	97.97	5.45	92.52	1,470	240	1,230	EFB	0.35	A	0	EFB
CPM	M5	HWOOD	HARD	122.67	6.05	116.62	1,292	277	1,015	EFB	0.35	A	0	EFB
CPM	M5	HWOOD	HARD	127.67	5.75	121.92	1,340	259	1,080	EFB	0.32	A	0	EFB
CPM		MIXED	MIXED		2.70		1,000	236	764	EFB	0.75	B	60	EFB
CPM	M202	PINESP	SOFT	33.20	4.60	28.60	759	166	593	EFB	0.38	A	100	EFB
CPM	M202	PINESP	SOFT	50.40	4.28	46.12	848	190	658	EFB	0.60	A	100	EFB
CPM	M202	PINESP	SOFT	89.03	9.27	79.77	1,041	196	845	EFB	0.48	A	100	EFB
CPM	M5	SWOOD	SOFT	57.43	7.00	50.43	952	191	761	EFB	0.47	A	90	EFB
CPM	M202	ASPEN	HARD	79.50	4.53	74.97	1,388	197	1,191	MCLO	0.38	A	20	MC/CYC
CPM		MIXED	MIXED		2.70		1,000	236	764	MCLO	1.50	A	60	MC/CYC
CPM		PINESP	SOFT	85.00	6.50	78.50	682	226	456	MCLO	0.54	A	100	MC/CYC
CPM		PINESP	SOFT		5.80		544	228	316	MCLO	0.67	A	100	MC/CYC

OSB DRYER EMISSIONS DATA USED IN STATISTICAL ANALYSES

poll	tm	wood	type	mcin	mcout	mdiff	tin	tout	tdiff	apcd	ef	rat	soft	apcd2
CPM		PINESP	SOFT	85.00	6.50	78.50	682	226	456	MCLO	0.26	A	100	MC/CYC
CPM		PINESP	SOFT	100.00	9.40	90.60	828			MCLO	0.10	B	100	MC/CYC
CPM		PINESP	SOFT	96.00	5.80	90.20	540	183	357	MCLO	0.33	A	100	MC/CYC
CPM		PINESP	SOFT	85.00	7.10	77.90	749	238	511	MCLO	0.80	C	100	MC/CYC
CPM		PINESP	SOFT	100.00	8.50	91.50	779	219	560	MCLO	0.70	A	100	MC/CYC
CPM		PINESP	SOFT	100.00	9.60	90.40	834			MCLO	0.11	B	100	MC/CYC
CPM	G5T	PINESP	SOFT	93.00	5.20	87.80	952	223	729	MCLO	2.79	A	85	MC/CYC
CPM		PINESP	SOFT	96.00	5.80	90.20	540	183	357	MCLO	0.86	A	100	MC/CYC
CPM	G5T	PINESP	SOFT	90.00	5.00	85.00	843			MCLO		D	85	MC/CYC
CPM		PINESP	SOFT	86.00	7.30	78.70	729	242	487	MCLO	0.17	C	100	MC/CYC
CPM	M5/202	PINESP	SOFT	88.37	6.37	82.00	999	206	793	MCLO	1.58	A	85	MC/CYC
CPM		PINESP	SOFT	100.00	9.10	90.90	783			MCLO	0.12	C	100	MC/CYC
CPM		PINESP	SOFT	100.00	7.70	92.30	815			MCLO	0.15	B	100	MC/CYC
CPM		PINESP	SOFT	85.00	7.10	77.90	749	238	511	MCLO	0.74	B	100	MC/CYC
CPM		PINESP	SOFT	100.00	8.50	91.50	779	219	560	MCLO	0.33	A	100	MC/CYC
CPM		PINESP	SOFT	92.00	5.90	86.10	864	231	633	MCLO	0.62	A	100	MC/CYC
CPM		PINESP	SOFT	100.00	8.00	92.00				MCLO	0.05	C	100	MC/CYC
CPM	G5T	PINESP	SOFT	92.30	5.87	86.43	1,162	201	961	MCLO	3.05	A	85	MC/CYC
CPM	G5T	PINESP	SOFT	90.00	5.53	84.47	1,072	202	871	MCLO	1.96	A	85	MC/CYC
CPM		PINESP	SOFT	100.00	8.70	91.30	761			MCLO	0.13	B	100	MC/CYC
CPM		PINESP	SOFT		5.80		544	228	316	MCLO	1.00	A	100	MC/CYC
CPM		PINESP	SOFT	86.00	7.30	78.70	729	242	487	MCLO	0.38	B	100	MC/CYC
CPM	G5T	PINESP	SOFT	90.00	5.00	85.00	1,135	197	938	MCLO	2.92	A	85	MC/CYC
CPM		PINESP	SOFT	100.00	7.60	92.40	824			MCLO	0.12	B	100	MC/CYC
CPM		PINESP	SOFT	92.00	5.90	86.10	864	231	633	MCLO	1.40	A	100	MC/CYC
CPM		PINESP	SOFT	100.00	8.00	92.00				MCLO	0.12	C	100	MC/CYC
CPM		PINESP	SOFT	100.00	8.00	92.00	850			MCLO	0.053	B	100	MC/CYC
CPM	G5T	PINESP	SOFT	90.00	5.00	85.00	1,158	196	962	MCLO	2.11	A	85	MC/CYC
CPM		PINESP	SOFT	100.00	9.30	90.70	832			MCLO	0.07	B	100	MC/CYC
CPM	M202	ASPEN	HARD	79.50	4.53	74.97	1,388	197	1,191	WESP	0.28	A	20	WESP
CPM	M202	MIXED	MIXED	89.40	3.13	86.27	1,118	243	875	WESP	0.36	A	40	WESP
CPM	G5T	PINESP	SOFT	90.00	5.00	85.00	1,135	197	938	WESP	0.80	A	85	WESP
CPM	G5T	PINESP	SOFT	82.33	6.40	75.93	994	221	773	WESP	0.66	A	85	WESP
CPM	G5T	PINESP	SOFT	90.00	5.00	85.00	842			WESP		D	85	WESP

OSB DRYER EMISSIONS DATA USED IN STATISTICAL ANALYSES

poll	tm	wood	type	mcin	mcout	mdiff	tin	tout	tdiff	apcd	ef	rat	soft	apcd2
CPM	G5T	PINESP	SOFT	92.30	5.87	86.43	1,162	201	961	WESP	0.71	A	85	WESP
CPM	G5T	PINESP	SOFT	90.00	5.00	85.00	1,158	196	962	WESP	1.00	A	85	WESP
CPM	G5T	PINESP	SOFT	90.00	5.53	84.47	1,072	202	871	WESP	0.94	A	85	WESP
CPM	G5T	PINESP	SOFT	90.00	5.00	85.00	843			WESP		D	85	WESP
CPM	M5/202	PINESP	SOFT	88.37	6.37	82.00	999	206	793	WESP	0.55	A	85	WESP
CPM	G5T	PINESP	SOFT	91.00	8.60	82.40	984	196	788	WESP	0.29	A	85	WESP
CPM	G5T	PINESP	SOFT	93.00	5.20	87.80	952	223	729	WESP	0.75	A	85	WESP
CPM	M5	SPRU/FI	SOFT	99.00	6.37	92.63	1,184	227	957	WESP	0.12	A	100	WESP
CPM	M5A	SYPINE	SOFT	102.00	10.67	91.33	907	229	679	WESP	0.35	A	70	WESP
CPM	OD7	SYPINE	SOFT	91.00	8.10	82.90	836	266	570	WESP	0.41	A	70	WESP
FOR	NM1501	MIXED	MIXED	100.33	3.33	97.00	1,126	249	876	CYC	0.28	A	55	MC/CYC
FOR	M0011	MIXED	MIXED	89.40	3.13	86.27	1,118	243	875	CYC	0.41	A	40	MC/CYC
FOR	P&CAM	MIXED	MIXED	94.47	8.43	86.03	852	275	577	CYC	0.037	B	60	MC/CYC
FOR	P&CAM	SPRU/FI	SOFT	99.00	6.37	92.63	1,184	227	957	CYC	0.0058	A	100	MC/CYC
FOR	M0011	ASPEN	HARD	97.97	5.45	92.52	1,467	255	1,212	EFB	0.13	A	0	EFB
FOR	M0011	ASPEN	HARD	89.90	6.30	83.60	1,317	273	1,045	EFB	0.089	A	0	EFB
FOR	MN3500	ASPEN	HARD	80.80	7.99	72.81	993	240	753	EFB	0.033	A	0	EFB
FOR	MN3500	ASPEN	HARD	64.70	6.38	58.32	1,194	217	977	EFB	0.076	A	0	EFB
FOR	M0011	HWOOD	HARD	112.50	5.82	106.68	1,309	253	1,055	EFB	0.15	A	0	EFB
FOR	M0011	HWOOD	HARD	83.13	7.85	75.28	1,095	197	898	EFB	0.10	A	5	EFB
FOR	M0011	HWOOD	HARD	93.67	8.95	84.72	907	221	685	EFB	0.00013	A	0	EFB
FOR	MN3500	HWOOD	HARD	94.97	6.27	88.70	1,080	249	831	EFB	0.79	A	0	EFB
FOR	M0011	HWOOD	HARD	96.33	8.31	88.03	919	250	669	EFB	0.00019	A	0	EFB
FOR	M0011	HWOOD	HARD	106.07	8.34	97.72	932	197	736	EFB	0.00017	A	0	EFB
FOR	N3500	MIXED	MIXED	88.70	7.50	81.20	1,125	235	890	EFB	0.90	B	60	EFB
FOR	N3500	MIXED	MIXED	88.70	5.17	83.53	925	230	695	EFB	0.23	B	85	EFB
FOR	MN3500	PINESP	SOFT	33.20	4.60	28.60	759	166	593	EFB	0.00134	A	100	EFB
FOR	MN3500	PINESP	SOFT	50.40	4.28	46.12	848	190	658	EFB	0.0085	A	100	EFB
FOR	M0011	ASPEN	HARD	68.40	4.77	63.63	1,378	195	1,183	MCLO	0.092	A	20	MC/CYC
FOR	MM0011	PINESP	SOFT	90.00	5.53	84.47	1,072	202	871	MCLO	0.024	A	85	MC/CYC
FOR		PINESP	SOFT	92.00	5.90	86.10	864	231	633	MCLO	0.047	A	100	MC/CYC
FOR		PINESP	SOFT	100.00	8.00	92.00				MCLO	0.061	C	100	MC/CYC
FOR	TO-11	PINESP	SOFT	79.90	5.87	74.03	995	211	784	MCLO	0.55	A	85	MC/CYC
FOR		PINESP	SOFT	100.00	8.00	92.00				MCLO	0.045	C	100	MC/CYC

OSB DRYER EMISSIONS DATA USED IN STATISTICAL ANALYSES

poll	tm	wood	type	mcin	mcout	mdiff	tin	tout	tdiff	apcd	ef	rat	soft	apcd2
FOR		PINESP	SOFT	100.00	8.70	91.30	777			MCLO	0.054	C	100	MC/CYC
FOR		PINESP	SOFT	85.00	6.50	78.50	682	226	456	MCLO	0.051	A	100	MC/CYC
FOR		PINESP	SOFT	85.00	7.10	77.90	749	238	511	MCLO	0.15	C	100	MC/CYC
FOR	M0011	PINESP	SOFT	79.90	5.87	74.03	995	211	784	MCLO	0.27	A	85	MC/CYC
FOR		PINESP	SOFT	100.00	8.50	91.50	779	219	560	MCLO	0.046	A	100	MC/CYC
FOR		PINESP	SOFT	100.00	8.00	92.00	811			MCLO	0.017	B	100	MC/CYC
FOR		PINESP	SOFT	100.00	7.30	92.70	835			MCLO	0.031	C	100	MC/CYC
FOR	M0011	PINESP	SOFT	92.30	5.87	86.43	1,162	201	961	MCLO	0.019	A	85	MC/CYC
FOR		PINESP	SOFT	96.00	5.80	90.20	540	183	357	MCLO	0.056	A	100	MC/CYC
FOR		PINESP	SOFT	86.00	7.30	78.70	729	242	487	MCLO	0.028	B	100	MC/CYC
FOR		PINESP	SOFT		5.80		544	228	316	MCLO	0.024	A	100	MC/CYC
FOR	M0011	ASPEN	HARD	68.40	4.77	63.63	1,378	195	1,183	WESP	0.062	A	20	WESP
FOR	P&CAM	MIXED	MIXED	94.47	8.43	86.03	852	275	577	WESP	0.078	B	60	WESP
FOR	NM1501	MIXED	MIXED	100.33	3.00	97.33	1,126	249	876	WESP	0.28	A	55	WESP
FOR	M0011	MIXED	MIXED	89.40	3.13	86.27	1,118	243	875	WESP	0.27	A	40	WESP
FOR	M0011	PINESP	SOFT	82.33	6.40	75.93	994	221	773	WESP	0.41	A	85	WESP
FOR	MM0011	PINESP	SOFT	90.00	5.53	84.47	1,072	202	871	WESP	0.011	A	85	WESP
FOR	M0011	PINESP	SOFT	93.00	5.20	87.80	952	223	729	WESP	0.050	A	85	WESP
FOR	M0011	PINESP	SOFT	91.00	8.60	82.40	984	196	788	WESP	0.23	A	60	WESP
FOR	M0011	PINESP	SOFT	92.30	5.87	86.43	1,162	201	961	WESP	0.0043	A	85	WESP
FOR	TO-11	PINESP	SOFT	79.90	5.87	74.03	995	211	784	WESP	0.43	A	85	WESP
FOR	M0011	PINESP	SOFT	79.90	5.87	74.03	995	211	784	WESP	0.35	A	85	WESP
FOR	P&CAM	SPRU/FI	SOFT	99.00	6.37	92.63	1,184	227	957	WESP	0.0026	A	100	WESP
NOx	M7	ASPEN	HARD	82.00	3.00	79.00	846	200	647	EFB	1.24	B	5	EFB
NOx	M7	ASPEN	HARD		4.75		1,236	244	992	EFB	0.76	A	0	EFB
NOx	M7	ASPEN	HARD	82.00	3.00	79.00	1,700	220	1,480	EFB	1.51	A	0	EFB
NOx	M7	HWOOD	HARD	90.93	5.67	85.26	1,203	234	969	EFB	0.38	A	0	EFB
NOx		MIXED	MIXED		2.70		1,000	236	764	EFB	0.50	B	60	EFB
NOx	M7	PINESP	SOFT	89.03	9.27	79.77	1,041	196	845	EFB	0.53	A	100	EFB
NOx	M7E	MIXED	MIXED	89.40	3.13	86.27	1,118	243	875	WESP	0.52	A	40	WESP
NOx	M7	MIXED	MIXED	100.00			912	287	625	WESP	0.60	A	50	WESP
NOx	M7E	PINESP	SOFT	82.33	6.40	75.93	994	221	773	WESP	0.35	A	85	WESP
NOx	M7E	PINESP	SOFT	93.00	5.20	87.80	952	223	729	WESP	0.16	A	85	WESP
PM				88.00	5.49	82.51	624	208	416	CYC	3.90	B		MC/CYC

OSB DRYER EMISSIONS DATA USED IN STATISTICAL ANALYSES

poll	tm	wood	type	mcin	mcout	mdiff	tin	tout	tdiff	apcd	ef	rat	soft	apcd2
PM	M5	MIXED	MIXED	94.47	8.43	86.03	852	275	577	CYC	5.07	A	60	MC/CYC
PM	OD7	MIXED	MIXED	88.70	3.10	85.60	1,074			CYC		B	40	MC/CYC
PM	M5	MIXED	MIXED	100.00	3.50	96.50	912	287	625	CYC	4.53	A	50	MC/CYC
PM	M5	MIXED	MIXED	100.33	3.33	97.00	1,126	249	876	CYC	4.36	A	55	MC/CYC
PM	M5	MIXED	MIXED	89.40	3.13	86.27	1,118	243	875	CYC		A	40	MC/CYC
PM	OD7	MIXED	MIXED	88.70	3.10	85.60	842			CYC		B	40	MC/CYC
PM	M5	SPRU/FI	SOFT	99.00	6.37	92.63	1,184	227	957	CYC	3.15	A	100	MC/CYC
PM	OD7	SYPINE	SOFT	91.00	8.10	82.90	836	266	570	CYC	6.58	A	70	MC/CYC
PM	M5	SYPINE	SOFT	102.00	10.67	91.33	907	229	679	CYC	4.64	A	70	MC/CYC
PM	M5	ASPEN	HARD				975	239	737	EFB	0.66	A	5	EFB
PM	M5	ASPEN	HARD	64.70	6.38	58.32	1,194	217	977	EFB	0.75	A	0	EFB
PM	M5	ASPEN	HARD				1,036	247	789	EFB	0.72	A	5	EFB
PM	M5	ASPEN	HARD	80.80	7.99	72.81	993	240	753	EFB	0.90	A	0	EFB
PM	M5	ASPEN	HARD	93.80	6.04	87.76	1,272	273	999	EFB	1.29	A	0	EFB
PM	M5	ASPEN	HARD	97.97	5.45	92.52	1,470	240	1,230	EFB	2.97	A	0	EFB
PM	M5	HWOOD	HARD	90.93	5.67	85.26	1,203	234	969	EFB	0.65	A	0	EFB
PM	M5	HWOOD	HARD	127.67	5.75	121.92	1,340	259	1,080	EFB	1.03	A	0	EFB
PM	M5	HWOOD	HARD	51.00	8.27	42.73	650	191	459	EFB	0.75	A	5	EFB
PM	M5	HWOOD	HARD	87.20	5.10	82.10	1,173	231	942	EFB	0.84	A	0	EFB
PM	M5	HWOOD	HARD	95.30	5.98	89.32	1,397	229	1,168	EFB	1.20	A	0	EFB
PM	M5	HWOOD	HARD	94.97	6.27	88.70	1,080	249	831	EFB	0.64	A	0	EFB
PM	M5	HWOOD	HARD	90.87	5.59	85.28	1,142	230	912	EFB	0.61	A	0	EFB
PM		MIXED	MIXED		2.70		1,000	236	764	EFB	0.42	B	60	EFB
PM	M5	PINESP	SOFT	50.40	4.28	46.12	848	190	658	EFB	0.49	A	100	EFB
PM	M5	PINESP	SOFT	33.20	4.60	28.60	759	166	593	EFB	0.44	A	100	EFB
PM	M5	PINESP	SOFT	89.03	9.27	79.77	1,041	196	845	EFB	0.76	A	100	EFB
PM	M5	SWOOD	SOFT	57.43	7.00	50.43	952	191	761	EFB	0.47	A	90	EFB
PM		MIXED	MIXED				683	215	468	IWS	1.30	B	60	IWS
PM	M5	ASPEN	HARD	79.50	4.53	74.97	1,388	197	1,191	MCLO	2.50	A	20	MC/CYC
PM	M5	HWOOD	HARD	96.20	4.49	91.71	1,222	218	1,004	MCLO	2.81	A	0	MC/CYC
PM	M5	HWOOD	HARD	74.53	4.49	70.04	1,145	227	918	MCLO	3.01	A	0	MC/CYC
PM	M5	HWOOD	HARD	78.80	8.18	70.62	1,108	216	891	MCLO	8.69	A	0	MC/CYC
PM	M5	HWOOD	HARD		7.24		1,102	203	899	MCLO	8.36	A	0	MC/CYC
PM		MIXED	MIXED		2.70		1,000	236	764	MCLO	3.30	A	60	MC/CYC

OSB DRYER EMISSIONS DATA USED IN STATISTICAL ANALYSES

poll	tm	wood	type	mcin	mcout	mdiff	tin	tout	tdiff	apcd	ef	rat	soft	apcd2
PM	G5T	PINESP	SOFT	92.30	5.87	86.43	1,162	201	961	MCLO	2.35	A	85	MC/CYC
PM		PINESP	SOFT	100.00	7.70	92.30	815			MCLO	1.90	B	100	MC/CYC
PM	G5T	PINESP	SOFT	90.00	5.00	85.00	843			MCLO		D	85	MC/CYC
PM		PINESP	SOFT	100.00	9.10	90.90	783			MCLO	1.60	C	100	MC/CYC
PM		PINESP	SOFT	86.00	7.30	78.70	729	242	487	MCLO	2.40	B	100	MC/CYC
PM		PINESP	SOFT	85.00	6.50	78.50	682	226	456	MCLO	1.30	A	100	MC/CYC
PM		PINESP	SOFT	96.00	5.80	90.20	540	183	357	MCLO	2.60	A	100	MC/CYC
PM		PINESP	SOFT	100.00	9.60	90.40	834			MCLO	1.90	B	100	MC/CYC
PM		PINESP	SOFT	92.00	5.90	86.10	864	231	633	MCLO	2.20	A	100	MC/CYC
PM	G5T	PINESP	SOFT	90.00	5.53	84.47	1,072	202	871	MCLO	3.97	A	85	MC/CYC
PM		PINESP	SOFT	85.00	7.10	77.90	749	238	511	MCLO	2.20	C	100	MC/CYC
PM	M5	PINESP	SOFT	88.37	6.37	82.00	999	206	793	MCLO	3.87	A	85	MC/CYC
PM		PINESP	SOFT	100.00	7.60	92.40	824			MCLO	2.20	B	100	MC/CYC
PM		PINESP	SOFT	100.00	8.70	91.30	761			MCLO	1.50	B	100	MC/CYC
PM		PINESP	SOFT	100.00	8.50	91.50	779	219	560	MCLO	2.10	A	100	MC/CYC
PM	G5T	PINESP	SOFT	93.00	5.20	87.80	952	223	729	MCLO	2.56	A	85	MC/CYC
PM	G5T	PINESP	SOFT	90.00	5.00	85.00	1,158	196	962	MCLO	4.12	A	85	MC/CYC
PM		PINESP	SOFT		5.80		544	228	316	MCLO	3.00	A	100	MC/CYC
PM	G5T	PINESP	SOFT	90.00	5.00	85.00	1,135	197	938	MCLO	1.55	A	85	MC/CYC
PM				88.00	5.49	82.51	624	208	416	WESP	0.36	B		WESP
PM	M5	ASPEN	HARD	79.50	4.53	74.97	1,388	197	1,191	WESP	0.21	A	20	WESP
PM	M5	MIXED	MIXED	100.00			912	287	625	WESP	0.62	A	50	WESP
PM	M5	MIXED	MIXED	89.40	3.13	86.27	1,118	243	875	WESP	0.0083	A	40	WESP
PM	M5	MIXED	MIXED	100.33	3.00	97.33	1,126	249	876	WESP	0.34	A	85	WESP
PM	M5	MIXED	MIXED	94.47	8.43	86.03	852	275	577	WESP	1.44	A	60	WESP
PM	G5T	PINESP	SOFT	90.00	5.00	85.00	842			WESP		D	85	WESP
PM	G5T	PINESP	SOFT	91.00	8.60	82.40	984	196	788	WESP	0.32	A	85	WESP
PM	G5T	PINESP	SOFT	90.00	5.00	85.00	1,158	196	962	WESP	0.89	A	85	WESP
PM	G5T	PINESP	SOFT	90.00	5.00	85.00	1,135	197	938	WESP	0.35	A	85	WESP
PM	M5	PINESP	SOFT	88.37	6.37	82.00	999	206	793	WESP	0.60	A	85	WESP
PM	G5T	PINESP	SOFT	90.00	5.00	85.00	843			WESP		D	85	WESP
PM	G5T	PINESP	SOFT	93.00	5.20	87.80	952	223	729	WESP	0.47	A	85	WESP
PM	G5T	PINESP	SOFT	92.30	5.87	86.43	1,162	201	961	WESP	0.26	A	85	WESP
PM	G5T	PINESP	SOFT	90.00	5.53	84.47	1,072	202	871	WESP	0.34	A	55	WESP

OSB DRYER EMISSIONS DATA USED IN STATISTICAL ANALYSES

poll	tm	wood	type	mcin	mcout	mdiff	tin	tout	tdiff	apcd	ef	rat	soft	apcd2
PM	G5T	PINESP	SOFT	82.33	6.40	75.93	994	221	773	WESP	0.57	A	85	WESP
PM	M5	SPRU/FI	SOFT	99.00	6.37	92.63	1,184	227	957	WESP	0.19	A	100	WESP
PM	OD7	SYPINE	SOFT	91.00	8.10	82.90	836	266	570	WESP	1.76	A	70	WESP
PM	M5	SYPINE	SOFT	102.00	10.67	91.33	907	229	679	WESP	0.74	A	70	WESP
PM		MIXED	MIXED				1,083	245	838	5.00		D	60	5.00
PM&CPM	OD7	MIXED	MIXED	88.70	3.10	85.60	842			CYC	3.22	B	40	MC/CYC
PM&CPM	OD7	MIXED	MIXED	88.70	3.10	85.60	1,074			CYC	3.74	B	40	MC/CYC
PM&CPM	M5/202	MIXED	MIXED	89.40	3.13	86.27	1,118	243	875	CYC	4.60	A	40	MC/CYC
PM&CPM	M5	SPRU/FI	SOFT	99.00	6.37	92.63	1,184	227	957	CYC	7.57	A	100	MC/CYC
PM&CPM	M5	SYPINE	SOFT	102.00	10.67	91.33	907	229	679	CYC	5.06	A	70	MC/CYC
PM&CPM	OD7	SYPINE	SOFT	91.00	8.10	82.90	836	266	570	CYC	7.55	A	70	MC/CYC
PM&CPM	M5/202	ASPEN	HARD	97.97	5.45	92.52	1,470	240	1,230	EFB	3.32	A	0	EFB
PM&CPM	M5	ASPEN	HARD				975	239	737	EFB	1.14	A	5	EFB
PM&CPM	M5	ASPEN	HARD	82.00	3.00	79.00	846	200	647	EFB	2.14	B	5	EFB
PM&CPM	M5	ASPEN	HARD	82.00	2.00	80.00	1,205	205	1,000	EFB	1.79	A	5	EFB
PM&CPM	M5	ASPEN	HARD				1,036	247	789	EFB	1.02	A	5	EFB
PM&CPM	M5/202	ASPEN	HARD	93.80	6.04	87.76	1,272	273	999	EFB	1.79	A	0	EFB
PM&CPM	M5/202	ASPEN	HARD	80.80	7.99	72.81	993	240	753	EFB	1.19	A	0	EFB
PM&CPM	M5/202	ASPEN	HARD	64.70	6.38	58.32	1,194	217	977	EFB	0.87	A	0	EFB
PM&CPM	M5	HWOOD	HARD	93.00	8.70	84.30	867	210	658	EFB	0.74	A	0	EFB
PM&CPM	M5	HWOOD	HARD	99.67	8.82	90.85	934	240	694	EFB	0.60	A	0	EFB
PM&CPM	M5	HWOOD	HARD	127.67	5.75	121.92	1,340	259	1,080	EFB	1.35	A	0	EFB
PM&CPM	M5	HWOOD	HARD	96.27	7.84	88.42	814	188	625	EFB	0.89	A	0	EFB
PM&CPM	M5/202	PINESP	SOFT	89.03	9.27	79.77	1,041	196	845	EFB	1.24	A	100	EFB
PM&CPM	M5/202	PINESP	SOFT	50.40	4.28	46.12	848	190	658	EFB	1.09	A	100	EFB
PM&CPM	M5/202	PINESP	SOFT	33.20	4.60	28.60	759	166	593	EFB	0.82	A	100	EFB
PM&CPM	M5	SWOOD	SOFT	57.43	7.00	50.43	952	191	761	EFB	0.94	A	90	EFB
PM&CPM	M5/202	ASPEN	HARD	79.50	4.53	74.97	1,388	197	1,191	MCLO	2.88	A	20	MC/CYC
PM&CPM	G5T	PINESP	SOFT	92.30	5.87	86.43	1,162	201	961	MCLO	5.40	A	85	MC/CYC
PM&CPM	G5T	PINESP	SOFT	90.00	5.00	85.00	1,158	196	962	MCLO	6.23	A	85	MC/CYC
PM&CPM	G5T	PINESP	SOFT	90.00	5.00	85.00	843			MCLO	3.20	D	85	MC/CYC
PM&CPM	G5T	PINESP	SOFT	90.00	5.00	85.00	1,135	197	938	MCLO	4.46	A	85	MC/CYC
PM&CPM	M5/202	PINESP	SOFT	88.37	6.37	82.00	999	206	793	MCLO	5.45	A	85	MC/CYC
PM&CPM	G5T	PINESP	SOFT	93.00	5.20	87.80	952	223	729	MCLO	5.34	A	85	MC/CYC

OSB DRYER EMISSIONS DATA USED IN STATISTICAL ANALYSES

poll	tm	wood	type	mcin	mcout	mdiff	tin	tout	tdiff	apcd	ef	rat	soft	apcd2
PM&CPM	G5T	PINESP	SOFT	90.00	5.53	84.47	1,072	202	871	MCLO	5.94	A	85	MC/CYC
PM&CPM	M5/202	ASPEN	HARD	79.50	4.53	74.97	1,388	197	1,191	WESP	0.50	A	20	WESP
PM&CPM	M5/202	MIXED	MIXED	89.40	3.13	86.27	1,118	243	875	WESP	0.68	A	40	WESP
PM&CPM	G5T	PINESP	SOFT	90.00	5.00	85.00	1,135	197	938	WESP	1.15	A	85	WESP
PM&CPM	G5T	PINESP	SOFT	92.30	5.87	86.43	1,162	201	961	WESP	0.98	A	85	WESP
PM&CPM	G5T	PINESP	SOFT	90.00	5.53	84.47	1,072	202	871	WESP	1.27	A	85	WESP
PM&CPM	G5T	PINESP	SOFT	93.00	5.20	87.80	952	223	729	WESP	1.23	A	85	WESP
PM&CPM	G5T	PINESP	SOFT	91.00	8.60	82.40	984	196	788	WESP	0.61	D	85	WESP
PM&CPM	M5/202	PINESP	SOFT	88.37	6.37	82.00	999	206	793	WESP	1.15	A	85	WESP
PM&CPM	G5T	PINESP	SOFT	90.00	5.00	85.00	1,158	196	962	WESP	1.89	A	85	WESP
PM&CPM	G5T	PINESP	SOFT	82.33	6.40	75.93	994	221	773	WESP	1.23	A	85	WESP
PM&CPM	G5T	PINESP	SOFT	90.00	5.00	85.00	843			WESP	1.85	D	85	WESP
PM&CPM	G5T	PINESP	SOFT	90.00	5.00	85.00	842			WESP	2.57	D	85	WESP
PM&CPM	M5	SPRU/FI	SOFT	99.00	6.37	92.63	1,184	227	957	WESP	0.34	A	100	WESP
PM&CPM	OD7	SYPINE	SOFT	91.00	8.10	82.90	836	266	570	WESP	2.32	A	70	WESP
PM&CPM	M5	SYPINE	SOFT	102.00	10.67	91.33	907	229	679	WESP	1.07	A	70	WESP
VOC	M25	MIXED	MIXED	88.70	3.10	85.60	842			CYC	1.74	B	40	MC/CYC
VOC	M25A	MIXED	MIXED	89.40	3.13	86.27	1,118	243	875	CYC	3.49	A	40	MC/CYC
VOC	M25	MIXED	MIXED	100.00	3.50	96.50	912	287	625	CYC	5.71	A	50	MC/CYC
VOC	M25A	MIXED	MIXED	94.47	8.43	86.03	852	275	577	CYC	2.77	A	60	MC/CYC
VOC	M25	MIXED	MIXED	100.33	3.33	97.00	1,126	249	876	CYC	5.03	A	55	MC/CYC
VOC	M25	MIXED	MIXED	88.70	3.10	85.60	1,074			CYC	1.98	B	40	MC/CYC
VOC	M25A	MIXED	MIXED	100.00	3.50	96.50	912	287	625	CYC	3.90	A	50	MC/CYC
VOC	M25	SPRU/FI	SOFT	99.00	6.37	92.63	1,184	227	957	CYC	4.73	A	100	MC/CYC
VOC	M25A	ASPEN	HARD							EFB		D	0	EFB
VOC	M25A	ASPEN	HARD	80.93	11.80	69.13	1,021	217	803	EFB	1.91	A	5	EFB
VOC	M25	ASPEN	HARD	82.00	3.00	79.00	846	200	647	EFB	0.95	B	5	EFB
VOC	M25A	ASPEN	HARD	82.00	2.80	79.20	1,200	204	996	EFB	0.92	A	4	EFB
VOC	M25A	ASPEN	HARD	80.80	7.99	72.81	993	240	753	EFB		D	0	EFB
VOC	M25	ASPEN	HARD							EFB	1.75	B	0	EFB
VOC	M25	ASPEN	HARD		4.75		1,236	244	992	EFB	2.44	A	0	EFB
VOC	M25	ASPEN	HARD	101.17	5.53	95.63	1,458	258	1,201	EFB	3.57	A	0	EFB
VOC	M25	ASPEN	HARD	98.30	6.23	92.07	1,326	273	1,052	EFB	1.27	A	0	EFB
VOC	M25	HWOOD	HARD	94.67	5.67	89.00	1,143	248	896	EFB	1.29	A	0	EFB

OSB DRYER EMISSIONS DATA USED IN STATISTICAL ANALYSES

poll	tm	wood	type	mcin	mcout	mdiff	tin	tout	tdiff	apcd	ef	rat	soft	apcd2
VOC	M25	HWOOD	HARD	91.57	6.18	85.39	1,257	245	1,012	EFB	1.52	A	0	EFB
VOC	M25A	HWOOD	HARD	93.00	8.70	84.30	867	210	658	EFB	1.28	A	0	EFB
VOC	M25A	HWOOD	HARD	99.67	8.82	90.85	934	240	694	EFB	1.28	A	0	EFB
VOC	M25A	HWOOD	HARD	58.50	9.57	48.93	780	182	598	EFB	0.53	A	5	EFB
VOC	M25A	HWOOD	HARD	96.27	7.84	88.42	814	188	625	EFB	0.95	A	0	EFB
VOC	M25A	HWOOD	HARD	83.13	7.85	75.28	1,095	197	898	EFB	1.16	A	5	EFB
VOC	M25	HWOOD	HARD							EFB	0.79	A	0	EFB
VOC	M25A	HWOOD	HARD	94.97	6.27	88.70	1,080	249	831	EFB	1.13	A	0	EFB
VOC	M25A	HWOOD	HARD	51.00	8.27	42.73	650	191	459	EFB	1.88	A	5	EFB
VOC	M25A	MIXED	MIXED		2.70		1,000	236	764	EFB	4.20	B	60	EFB
VOC	M25A	MIXED	MIXED		2.70		1,000	236	764	EFB	4.20	B	60	EFB
VOC	M25A	PINESP	SOFT	89.03	9.27	79.77	1,041	196	845	EFB	3.38	A	100	EFB
VOC	M25A	PINESP	SOFT	50.40	4.28	46.12	848	190	658	EFB		D	100	EFB
VOC	M25A	PINESP	SOFT	33.20	4.60	28.60	759	166	593	EFB		D	100	EFB
VOC	M25	SWOOD	SOFT	57.67	6.57	51.10	1,029	195	834	EFB	4.30	A	90	EFB
VOC	M25	ASPEN	HARD	68.40	4.77	63.63	1,378	195	1,183	MCLO	3.11	A	20	MC/CYC
VOC	M25	HWOOD	HARD	77.00	6.80	70.20	1,165	205	961	MCLO	0.88	A	0	MC/CYC
VOC	M25	HWOOD	HARD	84.63	3.81	80.83	1,181	225	956	MCLO	1.11	A	0	MC/CYC
VOC	M25	MIXED	MIXED		2.70		1,000	236	764	MCLO	4.20	A	60	MC/CYC
VOC	M25	MIXED	MIXED		2.70		1,000	236	764	MCLO	2.93	A	60	MC/CYC
VOC	M25A	PINESP	SOFT	100.00	8.70	91.30	761			MCLO	4.50	B	100	MC/CYC
VOC	M25A	PINESP	SOFT		5.80		544	228	316	MCLO	8.25	A	100	MC/CYC
VOC	M25A	PINESP	SOFT	85.00	7.10	77.90	749	238	511	MCLO	6.83	C	100	MC/CYC
VOC	M25A	PINESP	SOFT	90.00	5.00	85.00	1,158	196	962	MCLO	6.96	A	85	MC/CYC
VOC	M25A	PINESP	SOFT	85.00	6.50	78.50	682	226	456	MCLO	5.63	A	100	MC/CYC
VOC	M25A	PINESP	SOFT	86.00	7.30	78.70	729	242	487	MCLO	6.38	B	100	MC/CYC
VOC	M25A	PINESP	SOFT	100.00	9.10	90.90	783			MCLO	6.00	C	100	MC/CYC
VOC	M25A	PINESP	SOFT	90.00	5.00	85.00	843			MCLO		D	85	MC/CYC
VOC	M25A	PINESP	SOFT	100.00	8.50	91.50	779	219	560	MCLO	8.25	A	100	MC/CYC
VOC	M25A	PINESP	SOFT	96.00	5.80	90.20	540	183	357	MCLO	5.63	A	100	MC/CYC
VOC	M25A	PINESP	SOFT	90.00	5.00	85.00	1,135	197	938	MCLO	6.07	A	85	MC/CYC
VOC	M25A	PINESP	SOFT	100.00	7.60	92.40	824			MCLO	6.00	B	100	MC/CYC
VOC	M25	PINESP	SOFT	90.00	5.00	85.00	1,158	196	962	MCLO	8.45	A	85	MC/CYC
VOC	M25A	PINESP	SOFT	88.37	6.37	82.00	999	206	793	MCLO	6.47	A	85	MC/CYC

OSB DRYER EMISSIONS DATA USED IN STATISTICAL ANALYSES

poll	tm	wood	type	mcin	mcout	mdiff	tin	tout	tdiff	apcd	ef	rat	soft	apcd2
VOC	M25	PINESP	SOFT	90.00	5.53	84.47	1,072	202	871	MCLO	8.95	A	85	MC/CYC
VOC	M25	PINESP	SOFT	90.00	5.00	85.00	843			MCLO		D	85	MC/CYC
VOC	M25A	PINESP	SOFT	100.00	7.70	92.30	815			MCLO	5.18	B	100	MC/CYC
VOC	M25A	PINESP	SOFT	90.00	5.00	85.00	842			MCLO		D	85	MC/CYC
VOC	M25A	PINESP	SOFT	92.00	5.90	86.10	864	231	633	MCLO	7.28	A	100	MC/CYC
VOC	M25A	PINESP	SOFT	100.00	9.60	90.40	834			MCLO	5.10	B	100	MC/CYC
VOC	M25	PINESP	SOFT	93.00	5.20	87.80	952	223	729	MCLO	9.11	A	85	MC/CYC
VOC	M25	PINESP	SOFT	82.33	6.40	75.93	994	221	773	MCLO	8.41	A	85	MC/CYC
VOC	M25	PINESP	SOFT	91.00	8.60	82.40	984	196	788	MCLO	4.63	A	85	MC/CYC
VOC	M25	PINESP	SOFT	90.00	5.00	85.00	842			MCLO		D	85	MC/CYC
VOC	M25	PINESP	SOFT	92.30	5.87	86.43	1,162	201	961	MCLO	7.52	B	85	MC/CYC
VOC	M25	PINESP	SOFT	90.00	5.00	85.00	1,135	197	938	MCLO	8.06	A	85	MC/CYC
VOC	M25	ASPEN	HARD	68.40	4.77	63.63	1,378	195	1,183	WESP	2.73	A	20	WESP
VOC	M25	MIXED	MIXED	100.33	3.00	97.33	1,126	249	876	WESP	2.44	A	55	WESP
VOC	M25	MIXED	MIXED	89.40	3.13	86.27	1,118	243	875	WESP	3.70	A	40	WESP
VOC	M25A	MIXED	MIXED	94.47	8.43	86.03	852	275	577	WESP	2.86	A	60	WESP
VOC	M25A	MIXED	MIXED	100.00			912	287	625	WESP	3.78	A	50	WESP
VOC	M25A	MIXED	MIXED	89.40	3.13	86.27	1,118	243	875	WESP	2.98	A	40	WESP
VOC	M25	MIXED	MIXED	100.00			912	287	625	WESP	3.33	A	50	WESP
VOC	M25	PINESP	SOFT	90.00	5.53	84.47	1,072	202	871	WESP	8.49	A	85	WESP
VOC	M25A	PINESP	SOFT	88.37	6.37	82.00	999	206	793	WESP	6.57	A	85	WESP
VOC	M25	PINESP	SOFT	93.00	5.20	87.80	952	223	729	WESP	5.53	A	85	WESP
VOC	M25A	PINESP	SOFT	90.00	5.00	85.00	842			WESP		D	85	WESP
VOC	M25A	PINESP	SOFT	90.00	5.00	85.00	1,158	196	962	WESP	8.28	A	85	WESP
VOC	M25	PINESP	SOFT	90.00	5.00	85.00	843			WESP		D	85	WESP
VOC	M25	PINESP	SOFT	90.00	5.00	85.00	1,158	196	962	WESP	11.02	A	85	WESP
VOC	M25	PINESP	SOFT	90.00	5.00	85.00	1,135	197	938	WESP	7.38	A	85	WESP
VOC	M25	PINESP	SOFT	92.30	5.87	86.43	1,162	201	961	WESP	9.81	A	85	WESP
VOC	M25	PINESP	SOFT	90.00	5.00	85.00	842			WESP		D	85	WESP
VOC	M25	PINESP	SOFT	91.00	8.60	82.40	984	196	788	WESP	5.01	A	85	WESP
VOC	M25A	PINESP	SOFT	90.00	5.00	85.00	1,135	197	938	WESP	6.51	A	85	WESP
VOC	M25A	PINESP	SOFT	90.00	5.00	85.00	843			WESP		D	85	WESP
VOC	M25	PINESP	SOFT	82.33	6.40	75.93	994	221	773	WESP	4.68	A	85	WESP
VOC	M25	SPRU/FI	SOFT	99.00	6.37	92.63	1,184	227	957	WESP	1.26	A	100	WESP

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Telephone (919) 677-0249
FAX (919) 677-0065

Date: August 13, 1996

Subject: AWMA Emission Inventory Conference Paper
Revise and Update Chapters and Sections in AP-42
EPA Contract 68-D2-0159, Work Assignment IV-05
MRI Project 4604-05

From: Richard Marinshaw

To: Dallas Safriet
EPA/EMAD/EFIG (MD-14)
U. S. Environmental Protection Agency
Research Triangle Park, N.C. 27711

Enclosed are three copies of the paper entitled "Effects of Design and Operating Parameters on Emissions from Oriented Strandboard Material Dryers" for the Air & Waste Management Association's *Emission Inventory: Key to Planning, Pemits, Compliance and Reporting* Conference in New Orleans, Louisiana, on September 4 to 6, 1996.

Please let me know if you have any questions about the paper or need any additional information.

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February 24, 1993

Marcia Mia
Stationary Source Compliance Division (EN-341)
U. S. Environmental Protection Agency
2805 Jefferson Davis Highway
Arlington, VA 22202

Subject: Process Data for Louisiana-Pacific Corporation Compliance Tests

Dear Ms. Mia:

We would like to thank you for the process information that you sent for the compliance tests conducted last year at the Louisiana-Pacific Corporation (Louisiana-Pacific) facilities in Corrigan, Texas; Urania, Louisiana; New Waverly, Texas; and Silsbee, Texas (Kirby Forest Products). As I discussed with you by telephone on January 21 and 22, 1992, we currently are working on a work assignment for the Emission Inventory Branch to revise Chapter 10, Wood Products Industry, of AP-42. The information that you provided will allow us to use most of the test data from the four Louisiana-Pacific facilities to develop emission factors. However, for a few of the sources tested, we still are lacking adequate process data to determine emission factors. The enclosed tables (Tables 1 to 4) summarize the process information received from you and list the additional data, if any, needed for each of the tests. If any of the additional data listed in the tables are available, we would appreciate your help in obtaining copies.

We also have enclosed a list (Table 5) of all of the Louisiana-Pacific compliance test reports that we have received from the Stationary Source Compliance Division.

Thanks again for your help.

Sincerely,

Richard J. Marinshaw
Environmental Engineer

Enclosure

cc: Dallas Safriet, EIB (MD-14)

Enclosure

TABLE 1. LOUISIANA-PACIFIC, CORRIGAN, TEXAS, ORIENTED STRANDBOARD PLANT
MARCH 24 - 28, 1992

Process/source tested	Pollutants Measured	Process Data	
		Provided	Needed
No. 1 Dryer[a]	PM, PM-10, CO, HCOH, THC, CO_2	Average hourly throughputs, based on dump tests[b]	Information on control device
No. 2 Dryer (with multiclone)	PM, PM-10, CO, HCOH, THC, CO_2	Average hourly throughputs, based on dump tests[b]	None
No. 3 Dryer (with multiclone)	PM, PM-10, CO, HCOH, THC, CO_2	Average hourly throughputs, based on dump tests[b]	None
Press (uncontrolled)	PM, HCOH, THC	No. of boards/press cycle; board dimensions; board thicknesses; No. of press loads/hr[b]	None

[a]Control device not specified.
[b]Can calculate process rates for periods approximating individual test runs, but not exactly for each test run period.

TABLE 2. LOUISIANA-PACIFIC, URANIA, LOUISIANA, ORIENTED STRANDBOARD PLANT
APRIL 4 - 9, 1992

Process/source tested	Pollutants Measured	Process Data	
		Provided	Needed
Core Dryer (with multiclone)	PM, PM-10, CO, HCOH, THC, CO_2	Average hourly throughputs, based on dump tests (for only one of two test days)[a]	Throughput data for 4/8/92[b]
Face Dryer (with multiclone)	PM, PM-10, CO, HCOH, THC, CO_2	Average hourly throughputs, based on dump tests (for only one of two test days)[a]	Throughput data for 4/8/92[b]
Press (uncontrolled)	PM, HCOH, THC	No. of boards/press cycle; board dimensions; board thicknesses; No. of press loads/test run[c]	None

[a]Can calculate an average process rate for only one (4/9/92) of the two test days (too few data points to calculate a rate for each test run)
[b]If no other data are available, can assume the same average throughput for the other day (4/8/92) of testing, but must downrate test data accordingly.
[c]Can calculate process rates for individual test runs.

TABLE 3. LOUISIANA-PACIFIC, NEW WAVERLY, TEXAS, ORIENTED STRANDBOARD PLANT
MARCH 30 - APRIL 2, 1992

Process/source tested	Pollutants Measured	Process Data	
		Provided	Needed
Dryer No. 1[a]	PM, PM-10, CO, HCOH, THC, CO_2	Throughputs based on dump tests[b]	Information on control device
Dryer No. 2[a]	PM, PM-10, CO, HCOH, THC, CO_2	Throughputs based on dump tests[b]	Information on control device
Press (uncontrolled)	PM, HCOH, THC	Board dimensions; board thickness[c]	No. of boards per cycle; No. of cycles/hr or No. of cycles/test run

[a]Control device not specified.
[b]May be able to calculate throughput rates for individual test runs.
[c]Some data for number of boards produced is provided but is not self explanatory. Cannot calculate emission factors without additional data.

TABLE 4. KIRBY FOREST PRODUCTS, SILSBEE, TEXAS, ORIENTED STRANDBOARD PLANT
FEBRUARY 24 - MARCH 6, 1992

Process/source tested	Pollutants Measured	Process Data	
		Provided	Needed
No. 1 Dryer (with multiclone)	PM, PM-10, CO, HCOH, VOC, CO_2	Throughput based on dump test for HCOH; throughputs based on wet bin line speed for PM, CO, and VOC[a]	Throughput for PM-10 test runs (3/5/92)[b]
No. 2 Dryer (with multiclone)	PM, PM-10, CO, HCOH, VOC, CO_2	Throughput back calculated from TFP for one day of HCOH testing; throughputs based on wet bin line speed for PM, CO, and VOC[a]	Throughput for second day of HCOH testing (3/3/92); throughput for PM-10 test runs (3/5/92)[b]
No. 3 Dryer (with multiclone)	PM, PM-10, CO, HCOH, VOC, CO_2	Throughputs based on dump test, wet bin line speed, and TFP for one day of HCOH testing; throughput based on dump test, and on wet bin line speed for PM-10; throughputs based on dump test, and on wet bin line speed for one day of PM, CO, and VOC testing[a]	Throughput for second day of HCOH testing (3/6/92); throughput for second day of PM, CO, and VOC testing (2/27/92)[b]
No. 4 Dryer (with multiclone)	PM, PM-10, CO, HCOH, VOC, CO_2	Throughputs based on dump test, wet bin line speed, and TFP for PM-10; throughputs based on dump test, wet bin line speed, and TFP for PM, CO, and VOC testing[a]	Throughput for two days of HCOH testing (3/5/92 and 3/6/92)[b]

No. 5 Dryer (with multiclone)	PM, PM-10, CO, HCOH, VOC, CO_2	Throughputs based on dump test, wet bin line speed, and TFP for PM-10; throughputs based on dump test, wet bin line speed, and TFP for PM, CO, and VOC testing[a]	Throughput for HCOH testing (3/5/92)[b]
Press (uncontrolled)	PM, HCOH, VOC	Exact press opening times; board thicknesses[c]	No. of boards/press cycle; board dimensions

[a]Can calculate an average throughput rate per day only (too few data points to calculate a rate for each test run).
[b]If no other data are available, can assume the same average throughput for test runs lacking throughput data, but must downrate test data accordingly.
[c]Cannot calculate emission factors without additional data.

TABLE 5. COMPLIANCE TESTS PROVIDED TO MRI BY SSCD

Facility/location	Test date	Comments
Louisiana-Pacific, Kirby Forest Industries, Silsbee, TX	April 1992	Data were not incorporated into the September 1992 draft of AP-42 Section 10.6 due to the lack of process data; process data have been provided to MRI by SSCD; additional emission data will be incorporated into the March 1993 draft of the section (Table 4 details the process data that were provided and the data which are still unavailable)
Louisiana-Pacific, Corrigan, TX	March 24-28, 1992	Data were not incorporated into the September 1992 draft of AP-42 Section 10.6 due to the lack of process data; process data have been provided to MRI by SSCD; additional emission data will be incorporated into the March 1993 draft of the section (Table 1 details the process data that were provided and the data which are still unavailable)
Louisiana-Pacific, New Waverly, TX	March 30-April 2, 1992	Data were not incorporated into the September 1992 draft of AP-42 Section 10.6 due to the lack of process data; process data have been provided to MRI by SSCD; additional emission data will be incorporated into the March 1993 draft of the section (Table 3 details the process data that were provided and the data which are still unavailable)
Louisiana-Pacific, Urania, LA	April 7, 1992	Boiler test only; data not relevant to AP-42 Section 10.6

Louisiana-Pacific, Urania, LA	April 4-9, 1992	Data were not incorporated into the September 1992 draft of AP-42 Section 10.6 due to the lack of process data; process data have been provided to MRI by SSCD; additional emission data will be incorporated into the March 1993 draft of the section (Table 2 details the process data that were provided and the data which are still unavailable)
Louisiana-Pacific, Clayton, AL	May 1992	Data were not incorporated into the September 1992 draft of AP-42 Section 10.6 due to the lack of process data; process data have been obtained and emission data will be incorporated into the March 1993 draft of the section
Louisiana-Pacific, Two Harbors, MN	February 11-13, 1992	Data were incorporated into the September 1992 draft of AP-42 Section 10.6
Louisiana-Pacific, Newberry, MI	February 5-7, 1992	Data were incorporated into the September 1992 draft of AP-42 Section 10.6
Louisiana-Pacific, Sagola, MI	February 1992	Data were incorporated into the September 1992 draft of AP-42 Section 10.6
Louisiana-Pacific, Sagola, MI	February 24-26, 1992	Data were incorporated into the September 1992 draft of AP-42 Section 10.6

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL # of pages ▶ 1

To	From
Rick Mahlmshow	Dallas W Safriet
Dept./Agency MRI	Phone # 919-541-5371
Fax # 677-0065	Fax # 919-541-0684

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

Louisiana-Pacific Corporation

111 S.W. Fifth Avenue
Portland, Oregon 97204
503/221-0800
FAX: 503/796-0204

January 20, 1997 Via FAX

Dallas Safriet
U.S. Environmental Protection Agency
Emission Factor and Inventory Group (MD-14)
Research Triangle Park, NC 27711

RE: **Confidentiality of L-P Source Test Data**

Dear Mr. Safriet:

Please accept my apology for the tardiness of my response on this issue. L-P has decided to retract its request for confidentiality of the submitted source tests and engineering tests sent to your department on December 3, 1996. This will hopefully allow your staff to more effectively use the data to develop accurate emission factors for OSB mills.

Please don't hesitate to call if you have any questions. I can be reached in Portland at (503) 221-0800 ext. 352.

Sincerely,

Michael Brygger
Environmental Coordinator

cc : Norm Radford - Vinson & Elkins
Sue Somers - Hayward
Dennis McCormick
Mark Strohbeck
David Word - NCASI

Louisiana-Pacific Corporation

Talk with Michael on about 12-12-96 would treat it as CBI information until I heard from him
Dallas

111 S.W. Fifth Avenue
Portland, Oregon 97204
503/221-0800
FAX: 503/796-0204

December 3, 1996

Via ~~Federal Express~~ UPS

Dallas Safriet
U.S. Environmental Protection Agency
Emission Factor and Inventory Group (MD-14)
Research Triangle Park, NC 27711

RE: **Comments and Additional Data on the Draft OSB AP-42 Emission Factors**

Dear Mr. Safriet:

This letter is in response to your draft AP-42 Section dated October 16, 1996. Regretfully these comments are a little late, hopefully they can be incorporated into the final document. L-P has also decided to send a substantial about of source test data for incorporation into the new emission factors. L-P requests that these documents are kept confidential as they contain confidential business information about our mills and operations. L-P would appreciate written notification prior to if any of these documents becoming accessible to the public.

The follow are L-P's comments on the draft:

1. Generally, we felt the Section required more data for statistical accuracy, thus the enclosed test reports. However, it appears L-P is the main source of data for the Section. We feel data from other companies is important to make these emission factors representative of the OSB industry as a whole.
2. The Section requires, in a number of locations, a clear definition of what PM10 is and how it relates to total PM. Each table should contain this definition.
3. It is very important that it be clearly defined, throughout the document, how VOCs are represented. (i.e. VOCs as propane or as Carbon.) Again, each table involving VOCs should contain this information to prevent misinterpretations.
4. Please note the attached internal memorandum containing detailed comments on the draft from our Conroe, TX office.

Attached is a list of all the source tests and engineering tests sent along with this letter.

Please don't hesitate to call if you have any questions on our comments or data. I can be reached in Portland at (503) 221-0800 ext. 352.

Sincerely,

Michael Brygger
Environmental Coordinator

Encls. Table of Source Tests
Internal Memo: Draft AP-42 Section - Comments
Three (3) file boxes of source and engineering test documents

cc (w/o boxes): David Word, NCASI, Gainesville, FL
Norm Radford - Vinson & Elkins
Sue Somers - Hayward
Dennis McCormick
Mark Strohbeck

FAX TRANSMISSION

TO: Dallas Safriet, EFIG

FROM: Rick Marinshaw, MRI

DATE: December 12, 1996

RECEIVING FAX NUMBER: 541-0684

SENDING FAX NUMBER: 919-677-0065

THIS FAX CONSISTS OF 3 PAGES (INCLUDING THIS PAGE)

As we discussed, here is the letter from LP transmitting the test reports.

August 11, 1995

Victor Dallons
WTC 2F2
Tacoma WA 98477
Tel (206) 924-6096
Fax (206) 924-6182

Weyerhaeuser

Mr. Dallas Safriet (MD-13)
Emission Inventory Branch
Emission Standards and Engineering Division
Office of Air Quality Planning and Standards
U.S. Environmental Protection Agency
Research Triangle Park, North Carolina 27711

Re: Draft AP-42 Section 10.6.1, "Waferboard/Oriented Strandboard Manufacturing"

Dear Dallas:

Thank you for the opportunity to review this draft AP-42 document. Below you will find our general comments on the AP-42 document and development document. Attached is a marked up copy of these documents with typo and other minor factual corrections.

DATA DEVELOPMENT

Reporting un-specified wood species as "mixed species".

You have stated that wood species is a very important variable affecting emissions from OSB facilities and we agree. However, you have relied on a considerable amount of data to develop emission factors where the wood species is listed as "unknown". If the wood species is not identified, the process is not clearly described. To be consistent with your data acceptance system "...excluded from consideration ...(4) test series where the source process is not clearly identified and described,..." - data where the wood species is not identified should be excluded from use in developing AP-42 emission factors.

Using bad HAPs data.

The only HAPs data presented for developing emission factors was from a Weyerhaeuser facility (reference 10). The sampling was conducted by EPA. The validity of the of the HAPs analysis is highly questionable. Spikes of the HAPs compounds to the field blanks were not recovered by the analysis. This indicates that the analytical results were low. Furthermore, you did not use the HAPs data from reference 13 because of the low recovery of HAPs for data for reference 10. You should likewise delete the reference 10 HAPs data from the draft AP-42.

We object to the inclusion of this poor quality HAPs information in development of AP-42 emission factors. Draft 112(g)

regulations state that the a facility must rely on AP-42 emission factors for HAPs to evaluate if case by case MACT applies. If this wording remains in the regulations, and these emission factors are used, the judgments concerning when MACT is appropriate will be grossly in error.

EMISSION FACTORS FOR NON-POLLUTANTS

Organic and inorganic fraction of condensable.

EPA developed emission factors for "organic" and "inorganic" condensable particulate matter. There is no regulatory requirement for these emission factors and they should be deleted from the report. They only add confusion to the AP-42 document.

As a note, the "organic" and "inorganic" portions of the EPA Method 202 analysis only refer to whether the material is extractable or not with an organic solvent. It has no bearing on whether the material is organic or not. "Extractable" of "non-extractable" would be better descriptors for this material. For wood products emissions, all of this material is organic. In any case, there is no regulatory distinction between these materials and all reference to them should be dropped from the AP-42 document.

EMISSION FACTOR VS. PROCESS CONDITIONS

Lack of Range of Emission Factors

A single average emission factor is presented for each process. Using this average emission factor to project emission limits for new units would result in a 50/50 chance of non-compliance when the emission unit is built. Additional information is needed to arrive at an appropriate safety factor that would assure compliance can be achieved. The information needed to do this is a measure of the emission factor variability and information on what process variables may affect emission rates. At a minimum, the range of emission factors and/or the standard deviation and number of samples needs to be presented.

Although processes were categorized with respect to hardwood vs. mixed species and the type of emission control device used, additional information is needed about process variables that influence emission rates and range of emissions expected within each category. This would allow facilities to make judgments about where their expected emissions will fall within the range of emission factors.

Emission rates are obviously affected by manufacturing process variables. For example, VOCs emissions from the drying process are influenced by wood species and when and where trees are harvested Water removal rates affect emission rates of PM, VOCs, NOx, CO, HAPs. The dryer inlet temperatures affects emissions of PM and HAPs. The type of resins used in the board affect NOx emission rates. Some of these relationships have been described in various

NCASI publications. Rather that re-developing the relationships, you could reference the publications.

No data for pine species.

VOC and PM emission factors for southern pine separate from other pine and softwood species are needed, as well as emission factors for other softwoods. VOC emission factors for southern pine are different than those for firs and other softwoods. The emission factors should be wood species specific. Some discussion about the variability of emission factors for each species should be included.

VOC emissions from drying southern pine depend on when and where the trees are harvested. Emissions are different for wood derived from mountain, plains, and coastal grown trees. VOC emission factors for plantation grown wood are different than those for old-growth. Work by Drew et al shows how the turpentine content of wood (primary source of VOCs from wood drying) varies with location through the South as well as differences between wood species. You should reference this work.

Drew, J., Russell, J., and Bajak, W. Sulfate Turpentine Recovery, Pulp Chemicals Association, New York

NOx and CO Emission Factors

Dryer NOx and CO emission factors for dryers are presented in terms of lb/ODT wood throughput. These are not useful units. NOx and CO emissions are a function of the heat input to a dryer. The heat requirements for drying wood are dependent on dryer design and efficiency, initial and final wood moisture content, whether the heaters are also used to make hot oil for use by the press and soak vats, as well as the average ambient temperature. The combustion units are purchased on the basis of their heat input capacity. There is insufficient information in the draft AP-42 document to relate wood production to heat input to conduct the appropriate conversion of emission factors back to a heat input basis. Consequently, emission factors for NOx and CO should be presented in terms of lb/MMBtu input to avoid confusion that would result when trying to adjust lb/ton emission factors to a specific mill configuration. You can calculate the emission factors in terms of lb/MMBtu input with the test data you have in hand using EPA Method 19.

EMISSION CONTROL TECHNOLOGY

EFB and WESP emission control efficiencies.

The development document presents only the highest PM removal efficiencies measured for these technologies, a level not commonly attainable in practice. You failed to mention that the efficiency of these emission control technologies is limited by a number of process factors. The main limiting factor is the amount of condensable PM in gaseous form that passes through the control

device. Softwood species with high pitch contents have greater amounts of condensable PM in the emissions compared to filterable PM. The amount of condensable PM that remains gaseous as the emissions pass through the control device is a function of the ESP temperature, and is minimally influenced by the inlet concentration. The practical effect is that the particulate control devices are less effective when there are lower concentrations of condensable organics in the inlet.

The amount of condensable material that can be removed is a function of the emission control equipment temperature. For a dry ESP, the temperature in the control equipment is near the exit temperature of the dryer. A wet ESP cools the emissions from the dryer exhaust to the wet bulb temperature, which is a function of the amount of water the dryer removes from the wood. Therefore, WESPs can remove more condensable particulate than a dry ESP, but only to the extent that it can cool the emissions.

The AP-42 document should point out that dry ESPs are most effective for emissions that contain little condensable organics, such as those from hardwood dryers. Wet ESPs are more applicable to emissions that have larger amounts of condensable organics such as those from softwood dryers. Since no data is presented on removal efficiencies, and that removal efficiencies are to a large extent a function of inlet loading as well as inlet temperature or wet bulb temperature, statements about the efficiencies of these devices should be removed from the development and AP-42 documents

Press vent VOC reduction from MDI substitution.

The AP-42 document suggests that using MDI resin decreases the VOC emissions from the press. There is no data to support this statement and it should be removed from the AP-42 document.

Data we have seen indicates that VOC emissions increase when MDI is substituted for phenol-formaldehyde resins. This is thought to result from the use of higher moisture flakes to make up the board. Wetter flakes are not dried to the same extent as dry flakes and therefore fewer of the turpentine (VOCs) materials are removed from them. Because the amount of VOCs in the flakes entering the press is higher, the VOC emissions from the press increases accordingly.

SAMPLING ISSUES

Reporting VOCs as methane.

AP-42 Emission factors for VOCs were presented in terms of lb methane. Weyerhaeuser believes that expressing VOC emission factors in terms of methane is inappropriate. VOC emission factors should be consistent with VOC definitions established by regulation. The only regulation that we know of that establishes the molecular weight basis of VOCs is 40 CFR part 60, Appendix A, Method 25. This Federal Register reference specifies that VOCs

are to be measured and reported using carbon (Molecular weight = 12) as the molecular weight of VOCs. We are unaware of any federal reference to VOCs being expressed as methane. All VOC emission factors in the AP-42 document should be changed to "as carbon."

Measuring aldehydes separately than THC.

In the AP-42 development document, EPA states that a test method in addition to Method 25A should be used to measure aldehyde to offset their low response factors. Weyerhaeuser understands that formaldehyde is a VOC that is not measured by EPA Method 25A. Because of its better precision and ease of use compared to alternative methods, Weyerhaeuser plans to continue using EPA Method 25A for measuring VOCs. In those situations where we believe that formaldehyde may be present in significant quantities, independent formaldehyde measurements will be made. However, because the response factors for other aldehydes, ketones, and alcohols are sufficiently close to those of alkanes, and the amounts of these materials present in wood products emissions are small in comparison to alkanes, there is no need to sample and analyze them for VOC measurement purposes. For example, we find that the per-carbon response of methanol with Method 25A is about 75% of that of per-carbon response to propane. EPA should only recommend that formaldehyde be sampled in addition to Method 25A and the result be combined as carbon.

At times, methane can be present in these sources. Methane is not regulated as a VOC. We wish to retain the right when appropriate to separately analyze for methane and subtract the result from the EPA Method 25A measurement.

Press vent VOC emission factors to include formaldehyde

For press vents, the AP-42 VOC emission factors presented should be the sum, on a carbon basis, of the Method 25A and formaldehyde emission rates.

Formaldehyde measurement methods

We believe that the emissions measurement methods for formaldehyde measurement should be validated for wood products sources via EPA Method 401. To date, the only formaldehyde sampling method to be validated for the wood products industry is the NCASI acetylacetone method. As other methods are validated, those should also be allowed. EPA Method 0011 has not been validated and it is known to give both high and low results. It is also considerably more expensive than other formaldehyde measurement techniques. Therefore it should not be used to report formaldehyde emissions. Recommendations for the use of Method 0011 for formaldehyde measurement should be deleted from the development document. Formaldehyde emission factors should be developed using data from other formaldehyde test procedures as well as from Method 0011.

Cautionary note about significance of front and back half fractions.

The draft AP-42 develop document devotes considerable space to discussing the effect of filter temperature on filterable and condensable organics. Be aware that the filter temperature is not measured by the sampling trains, only a specific location on the probe (usually the hottest) and a specific location in the oven box is measured as indicators. These temperatures can be, and often are, considerably different than the actual gas temperature passing through the filter. The filter temperature is usually unknown. Since the amount of condensable material collected in the back-half of the train is very sensitive to the filter temperature as well as other sampling train and analytical variables, distinctions between filterable and condensable organics are unclear and lack meaning. It is best to report the entire train catch (filterable and condensable PM) as a single factor rather than to try to distinguish between them.

Press vent emission factors units.

Report press vent emissions on basis of lb/MSF3/8, not lb/ton. Conversions of emission factors from lb/ton to MSF involve several factors such as board density, moisture and resin content. You have not explained how you converted the lb/MSF emission data to lb/ton emission factors.

SUMMARY

In summary, we feel that the current draft AP-42 for OSB facilities contains many of the same problems and shortcomings of drafts for other manufacturing processes. We would like to see EPA commit to resolving these issues before going final with the waferboard/OSB AP-42

Thanks for the opportunity to comment

Sincerely

Victor Dallons

Copy: Dave Mumper - CH1L25

David Word - NCASI

8-10-94

1. Lenoir Dayhill
2. Monroe
3. Vienna

TABLE 4-2. SUMMARY OF EMISSION DATA FOR PARTICLEBOARD DRYERS

Source	Control	Pollutant	No. runs	Emission factor, kg/Mg minimum	maximum	average	Emission factor, lb/ton minimum	maximum	average	Rat.	Ref.
Core dryer	none	filterable PM	3	4.3	5.9	5.2	8.7	12	10	A	1
		condensible PM	3	0.046	0.071	0.059	0.093	0.14	0.12	A	1
		filterable PM-10	3	0.85	2.0	1.6	1.7	4.0	3.1	C	1
	multiclone	filterable PM	3	3.0	3.3	3.2	6.1	6.6	6.4	A	1
		condensible PM	3	0.15	0.25	0.19	0.31	0.50	0.39	A	1
		filterable PM-10	3	0.71	0.88	0.82	1.4	1.8	1.6	C	1
		CO	7	0.50	0.71	0.61	1.0	1.4	1.2	A	1
		NOx	7	0.000	0.043	0.012	0.000	0.087	0.024	A	1
		total hydrocarbons	7	0.082	0.13	0.11	0.16	0.26	0.21	A	1
		formaldehyde	3	0.011	0.024	0.018	0.022	0.049	0.036	A	1
		acetaldehyde	3	0.00037	0.00059	0.00049	0.00074	0.0012	0.00098	A	1
		benzaldehyde	3	0.00014	0.00019	0.00016	0.00027	0.00037	0.00031	A	1
		hexaldehyde	3	0.00020	0.00032	0.00025	0.00040	0.00064	0.00049	A	1
		di-n-butylphthalate	3	7.2E-05	7.5E-05	7.4E-05	0.00014	0.00015	0.00015	A	1
		p-cymene	3	4.8E-05	9.3E-05	6.4E-05	9.7E-05	0.000185	0.00013	A	1
		a-pinene	3	0.0021	0.0088	0.0064	0.0043	0.018	0.013	A	1
		b-pinene	3	0.00072	0.0028	0.0020	0.0014	0.0056	0.0039	A	1
		a-terpineol	3	0.00092	0.0038	0.0026	0.0018	0.0075	0.0052	A	1
		toluene	3	0.00015	0.00041	0.00030	0.00030	0.00081	0.00059	A	1
		a-pinene	3	0.0068	0.013	0.0095	0.014	0.025	0.019	A	1
		a-pinene M/Z=136	3	0.0097	0.027	0.018	0.019	0.054	0.036	A	1
		b-pinene	3	0.0027	0.0067	0.0049	0.0054	0.013	0.0099	A	1
		b-pinene M/Z=136	3	0.0063	0.0069	0.0066	0.013	0.014	0.013	B	1
Microboard surface dryer	none	filt. PM	3	0.86	1.2	1.0	1.7	2.3	2.0	A	2
		condens. inorg. PM	3	0.078	0.094	0.089	0.16	0.19	0.18	A	2
		condens. org. PM	3	0.14	0.41	0.25	0.28	0.83	0.49	A	2
		total hydrocarbons	3	0.038	0.073	0.055	0.076	0.15	0.11	A	2
		CO2	12	290	420	350	580	840	710	A	2
	EFB	filt. PM	2	0.22	0.27	0.25	0.44	0.55	0.49	B	2
		condens. inorg. PM	2	0.081	0.14	0.11	0.16	0.27	0.22	B	2
		condens. org. PM	2	0.035	0.036	0.036	0.071	0.073	0.072	B	2
		filterable PM-10	3	0.032	0.14	0.082	0.063	0.28	0.16	A	2
		CO	3	0.57	1.9	1.2	1.1	3.8	2.3	A	2
		NOx	3	0.66	0.72	0.69	1.3	1.4	1.4	A	2
		total hydrocarbons	3	0.17	0.27	0.23	0.34	0.54	0.46	A	2
		formaldehyde	3	0.0056	0.016	0.0094	0.011	0.032	0.019	A	2
		acetaldehyde	3	0.0017	0.0043	0.0026	0.0034	0.0086	0.0052	A	2

TABLE 4-2. (continued)

		acrolein	3	0.00019	0.00055	0.00041	0.00037	0.0011	0.00081	A	2
		acetone	3	0.0053	0.0078	0.0066	0.011	0.016	0.013	A	2
		propanaldehyde	3	0.00010	0.00033	0.00019	0.00020	0.00067	0.00039	A	2
		crotonaldehyde	3	0.00029	0.00052	0.00041	0.00058	0.00103	0.00082	A	2
		n-butyraldehyde	3	0.00083	0.0011	0.00095	0.0017	0.0021	0.0019	A	2
		methyl ethyl ketone	3	4.7E-05	0.00029	0.00017	9.4E-05	0.00059	0.00034	B	2
		benzaldehyde	3	0.0028	0.0066	0.0041	0.0055	0.013	0.0082	A	2
		isoveraldehyde	3	0.00039	0.00075	0.00054	0.00078	0.0015	0.0011	A	2
		valeraldehyde	3	0.0015	0.0026	0.0020	0.0030	0.0051	0.0040	A	2
		o-tolualdehyde	3	0.00021	0.00048	0.00033	0.00042	0.00097	0.00066	A	2
		m/p-tolualdehyde	3	0.0013	0.0038	0.0023	0.0026	0.0075	0.0046	A	2
		hexaldehyde	3	0.0022	0.0037	0.0031	0.0045	0.0074	0.0062	A	2
		2,5-dimethylbenzaldehy	3	0.00048	0.00089	0.00074	0.00096	0.0018	0.0015	A	2
		p-cymene	3	0.00044	0.00054	0.00049	0.00089	0.00108	0.00098	A	2
		a-pinene	3	0.16	0.20	0.18	0.33	0.39	0.36	A	2
		b-pinene	3	0.056	0.064	0.060	0.11	0.13	0.12	A	2
		a-terpineol	3	0.023	0.030	0.026	0.046	0.061	0.052	A	2
		a-pinene	3	0.21	0.34	0.28	0.43	0.68	0.57	A	2
		b-pinene	3	0.090	0.13	0.10	0.18	0.26	0.21	A	2
		methylene chloride	3	0.00060	0.0023	0.0016	0.0012	0.0046	0.0032	A	2
		acetone	3	0.015	0.017	0.016	0.029	0.034	0.032	A	2
		p-cymene	3	0.00072	0.0019	0.0011	0.0014	0.0037	0.0022	A	2
		toluene	3	0.00039	0.00087	0.00062	0.00078	0.0017	0.0012	A	2
		m-/p-xylene	3	1.7E-06	0.00020	0.00010	3.4E-06	0.00040	0.00020	B	2
Microboard core dryer	none	filt. PM	3	0.98	1.7	1.3	2.0	3.4	2.5	A	2
		condens. inorg. PM	3	0.36	0.43	0.40	0.72	0.86	0.81	A	2
		condens. org. PM	3	0.42	0.54	0.48	0.84	1.1	0.96	A	2
		total hydrocarbons	3	1.4	2.0	1.7	2.7	3.9	3.3	A	2
		CO2	12	260	450	360	520	900	730	A	2
	EFB	filt. PM	2	0.49	1.6	1.0	0.97	3.1	2.1	B	2
		condens. inorg. PM	2	0.48	0.49	0.48	0.95	0.98	0.97	B	2
		condens. org. PM	2	0.23	0.25	0.24	0.46	0.51	0.48	B	2
		filt. PM-10	3	0.21	0.40	0.32	0.43	0.81	0.64	A	2
		CO	3	1.4	1.6	1.5	2.9	3.2	3.1	A	2
		NOx	3	0.58	0.72	0.66	1.2	1.4	1.3	A	2
		total hydrocarbons	3	1.1	1.8	1.4	2.3	3.6	2.8	A	2
		formaldehyde	3	0.067	0.095	0.084	0.13	0.19	0.17	A	2
		acetaldehyde	3	0.036	0.038	0.037	0.071	0.077	0.073	A	2
		acrolein	3	0.0059	0.017	0.012	0.012	0.035	0.024	A	2
		acetone	3	0.023	0.072	0.048	0.045	0.14	0.096	A	2

TABLE 4-2. (continued)

		propanaldehyde	3	0.0019	0.0094	0.0054	0.0037	0.019	0.011	A	2
		crotonaldehyde	3	0.0026	0.0098	0.0051	0.0052	0.020	0.010	A	2
		n-butyraldehyde	3	0.0055	0.027	0.015	0.011	0.053	0.030	A	2
		methyl ethyl ketone	3	0.0044	0.0049	0.0046	0.0088	0.0099	0.0092	A	2
		benzaldehyde	3	0.054	0.069	0.059	0.11	0.14	0.12	A	2
		isoveraldehyde	3	0.0086	0.0095	0.0091	0.017	0.019	0.018	A	2
		valeraldehyde	3	0.0040	0.0096	0.0069	0.0080	0.019	0.014	A	2
		o-tolualdehyde	3	0.0044	0.0057	0.0053	0.0088	0.011	0.011	A	2
		m/p-tolualdehyde	3	0.0051	0.018	0.013	0.010	0.037	0.026	A	2
		hexaldehyde	3	0.0098	0.013	0.011	0.020	0.026	0.022	A	2
		2,5-dimethylbenzaldehy	3	0.00083	0.0061	0.0026	0.0017	0.012	0.0053	A	2
		p-cymene	3	4.9E-07	0.0033	0.0022	9.7E-07	0.0067	0.0044	B	2
		a-pinene	3	1.0	1.4	1.1	2.0	2.7	2.3	A	2
		b-pinene	3	0.38	0.42	0.40	0.75	0.83	0.79	A	2
		a-terpineol	3	0.070	0.094	0.083	0.14	0.19	0.17	A	2
		a-pinene	3	0.16	1.1	0.79	0.32	2.2	1.6	A	2
		b-pinene	3	0.11	0.59	0.42	0.22	1.17	0.85	A	2
		methylene chloride	3	0.00013	0.0019	0.0011	0.00025	0.0037	0.0022	A	2
		acetone	3	0.031	0.24	0.14	0.062	0.48	0.29	A	2
		p-cymene	3	0.0029	0.0098	0.0074	0.0058	0.020	0.015	A	2
		toluene	3	0.0052	0.015	0.011	0.010	0.031	0.021	A	2
		chloroform	3	3.9E-06	9.0E-05	3.6E-05	7.8E-06	0.00018	7.2E-05	A	2
		styrene	3	2.051E-06	0.000228	0.00012	4.102E-06	0.000457	0.00024	B	2
		m-/p-xylene	3	0.0021	0.0069	0.0038	0.0042	0.0137	0.0076	A	2
		cumene	3	0.00067	0.0017	0.0010	0.0013	0.0034	0.0020	A	2
		o-xylene	3	2.051E-06	0.000281	0.00015	4.102E-06	0.000561	0.00030	B	2
Face dryer	none	filt. PM	2	0.64	0.65	0.65	1.3	1.3	1.3	C	3
		filt. PM	3	0.50	0.66	0.84	0.99	1.7	1.3	B	3
		condens. inorg. PM	3	0.0038	0.010	0.0075	0.0076	0.020	0.015	B	3
		condens. org. PM	3	0.0019	0.020	0.0093	0.0038	0.041	0.019	B	3
		filterable PM-10	3	0.10	0.11	0.10	0.20	0.21	0.20	B	3
		CO	3	0.016	0.074	0.037	0.033	0.15	0.074	A	3
		CO2	12	20	41	32	40	82	63	A	3
		NOx	3	0.012	0.091	0.039	0.023	0.18	0.078	A	3
		total hydrocarbons	3	0.0036	0.016	0.0080	0.0072	0.031	0.016	A	3
		formaldehyde	3	0.0064	0.0097	0.0081	0.013	0.019	0.016	A	3
		acrolein	3	0.00012	0.00033	0.00022	0.00024	0.00066	0.00044	A	3
		n-butyraldehyde	3	0.00024	0.00044	0.00036	0.00048	0.00089	0.00072	A	3
		benzaldehyde	3	0.00039	0.00058	0.00047	0.00079	0.00116	0.00094	A	3
		isoveraldehyde	3	5.3E-05	0.00025	0.00013	0.00011	0.00049	0.00025	C	3
		valeraldehyde	3	0.00064	0.00076	0.00070	0.0013	0.0015	0.0014	A	3

TABLE 4-2. (continued)

		2,5-dimethylbenzaldehy	3	4.1E-06	4.3E-05	1.7E-05	8.3E-06	8.5E-05	3.5E-05	A	3
		a-pinene	3	0.0052	0.011	0.0078	0.010	0.022	0.016	C	3
		b-pinene	3	0.0033	0.0067	0.0047	0.0065	0.013	0.0094	C	3
		p-cymene	3	0.00032	0.00069	0.00050	0.00064	0.0014	0.0010	A	3
		a-terpineol	3	0.013	0.016	0.015	0.025	0.031	0.029	C	3
		chloromethane	3	1.9E-05	3.2E-05	2.4E-05	3.9E-05	6.4E-05	4.9E-05	A	3
		acetone	3	0.00028	0.0020	0.0010	0.0006	0.0039	0.0020	A	3
		methylene chloride	3	0.00028	0.00057	0.00038	0.00055	0.00114	0.00075	A	3
		methyl ethly ketone	3	2.0E-05	0.00023	9.5E-05	4.0E-05	0.00046	0.00019	A	3
		benzene	3	3.2E-05	9.4E-05	6.2E-05	6.4E-05	0.00019	0.00012	A	3
		toluene	3	0.00015	0.00018	0.00017	0.00030	0.00036	0.00033	A	3
		4-methyl-2-pentenone	3	1.7E-05	1.9E-05	1.8E-05	3.3E-05	3.9E-05	3.6E-05	A	3
		m,p-xylene	3	2.4E-05	5.9E-05	4.4E-05	4.8E-05	1.2E-04	8.7E-05	A	3
		a-pinene	3	0.035	0.063	0.046	0.070	0.13	0.092	A	3
		b-pinene	3	0.0078	0.016	0.011	0.016	0.032	0.022	A	3
		p-cymene	3	0.00073	0.0013	0.0011	0.0015	0.0026	0.0021	A	3
		acrolein	3	0.00017	0.0017	0.00094	0.00034	0.0034	0.0019	A	3
		acrylonitrile	3	4.2E-06	3.5E-05	2.4E-05	8.5E-06	7.0E-05	4.7E-05	A	3
Core dryer	none	filt. PM	3	1.2	3.2	2.0	2.4	6.5	4.0	B	3
		filt. PM	3	1.7	2.2	1.9	3.4	4.3	3.9	B	3
		condens. inorg. PM	3	0.013	0.018	0.016	0.025	0.037	0.032	B	3
		condens. org. PM	3	0.019	0.057	0.032	0.038	0.11	0.065	B	3
		filterable PM-10	3	0.24	0.69	0.47	0.49	1.4	0.93	A	3
		CO	3	0.034	0.14	0.10	0.069	0.28	0.21	A	3
		CO2	10	110	390	160	220	780	310	A	3
		NOx	3	0.11	0.32	0.24	0.23	0.65	0.48	A	3
		total hydrocarbons	3	0.021	0.14	0.074	0.042	0.27	0.15	A	3
		formaldehyde	3	0.019	0.046	0.029	0.039	0.092	0.057	A	3
		acetaldehyde	3	0.0015	0.0091	0.0042	0.0030	0.0182	0.0084	C	3
		acrolein	3	0.00029	0.0022	0.0012	0.0006	0.0044	0.0024	A	3
		n-butyraldehyde	3	0.0017	0.0038	0.0024	0.0034	0.0076	0.0049	A	3
		benzaldehyde	3	0.0018	0.0025	0.0020	0.0036	0.0050	0.0041	A	3
		isoveraldehyde	3	0.00025	0.00048	0.00037	0.00050	0.00096	0.00074	A	3
		valeraldehyde	3	0.0018	0.0061	0.0033	0.0036	0.0121	0.0066	C	3
		m-tolualdehyde	3	6.9E-06	0.00024	0.00014	1.4E-05	0.00048	0.00028	B	3
		hexaldehyde	3	0.0031	0.014	0.0069	0.0062	0.027	0.014	A	3
		a-pinene	3	0.032	0.048	0.039	0.063	0.096	0.078	C	3
		b-pinene	3	0.018	0.027	0.022	0.035	0.054	0.044	C	3
		p-cymene	3	0.0040	0.0049	0.0044	0.0080	0.0098	0.0087	A	3
		a-terpineol	3	0.042	0.065	0.051	0.085	0.129	0.102	C	3
		chloromethane	3	9.0E-05	0.00010	9.8E-05	0.00018	0.00021	0.00020	A	3

TABLE 4-2. (continued)

		acetone	3	0.0013	0.011	0.0060	0.0027	0.021	0.012	A	3
		methylene chloride	3	0.00016	0.00048	0.00032	0.00031	0.00097	0.00064	B	3
		methyl ethyl ketone	3	6.4E-05	0.0047	0.0016	0.00013	0.0093	0.0032	A	3
		benzene	3	0.00011	0.00022	0.00018	0.00023	0.00044	0.00035	A	3
		toluene	3	0.00086	0.0023	0.0016	0.0017	0.0046	0.0032	A	3
		4-methyl-2-pentenone	3	4.6E-05	8.3E-05	6.7E-05	9.1E-05	0.00017	0.00013	A	3
		styrene	3	3.5E-05	0.00010	6.2E-05	7.1E-05	0.00021	0.00012	A	3
		m,p-xylene	3	6.6E-05	8.9E-05	7.9E-05	0.00013	0.00018	0.00016	A	3
		a-pinene	3	0.36	1.2	0.88	0.72	2.4	1.8	A	3
		b-pinene	3	0.16	0.49	0.31	0.31	0.98	0.62	A	3
		p-cymene	3	0.0012	0.014	0.0068	0.0023	0.027	0.014	A	3
		acrolein	3	0.0017	0.0094	0.0044	0.0035	0.0188	0.0088	A	3
		acrylonitrile	3	5.0E-05	9.7E-05	7.1E-05	9.9E-05	0.00019	0.00014	A	3

TABLE 4-3. SUMMARY OF EMISSION DATA FOR PARTICLEBOARD PRESSES

Source	Control	Pollutant	No. runs	Emission factor, kg/thous. sq.m. minimum	maximum	average	Emission factor, lb/thous. sq.ft. minimum	maximum	average	Rat.	Ref.
Particleboard press	none	formaldehyde	3	0.050	0.064	0.057	0.099	0.13	0.11	A	1
		acetaldehyde	3	0.0017	0.0020	0.0018	0.0033	0.0039	0.0035	A	1
		benzaldehyde	3	0.0003897	0.000474	0.00044	0.00078	0.00095	0.00088	A	1
		hexaldehyde	3	0.0027	0.0028	0.0028	0.0054	0.0057	0.0055	A	1
		n-butylaldehyde	3	0.00045	0.00047	0.00046	0.00089	0.00094	0.00092	A	1
		methylethyl ketone	3	0.0011	0.0013	0.0012	0.0022	0.0026	0.0025	A	1
		CO	4	0.030	0.047	0.034	0.060	0.093	0.068	A	1
		total hydrocarbons	5	0.038	0.048	0.042	0.075	0.097	0.084	A	1
		PM-10	2	0.0079	0.056	0.032	0.016	0.11	0.063	C	1
Veneer press		formaldehyde	3	0.025	0.033	0.030	0.0052	0.0067	0.0062	A	1
		acetaldehyde	3	0.00027	0.00073	0.00048	5.492E-05	0.000149	9.9E-05	A	1
		hexaldehyde	3	0.00066	0.0011	0.00084	0.00014	0.00023	0.00017	A	1
		n-butylaldehyde	3	0.00036	0.0011	0.00067	0.00007	0.00023	0.00014	A	1
		methylethyl ketone	3	0.00053	0.0035	0.0017	0.00011	0.00071	0.00035	A	1
		1,1,1-trichloroethane	3	0.00050	0.0015	0.0011	0.00010	0.00030	0.00022	A	1
		2-butanone	3	0.00033	0.0019	0.00099	6.739E-05	0.000385	0.00020	A	1
		toluene	3	0.0010	0.0034	0.0023	0.00021	0.00069	0.00047	A	1
		a-pinene	3	0.0017	0.0041	0.0026	0.00035	0.00084	0.00054	A	1
		b-pinene	3	0.00030	0.00089	0.00055	6.1E-05	0.00018	0.00011	A	1
Microboard press	none	filt. PM	3	0.25	0.42	0.31	0.051	0.086	0.063	B	2
		PM-10	3	0.058	0.12	0.091	0.012	0.024	0.019	B	2
		cond. inorg. PM	3	0.15	0.29	0.23	0.030	0.059	0.048	B	2
		cond. org. PM	3	0.080	0.11	0.093	0.016	0.022	0.019	B	2
		total hydrocarbons	3	1.6	2.3	2.0	0.32	0.47	0.42	B	2
		formaldehyde	3	1.8	2.3	2.1	0.36	0.47	0.42	B	2
		acetaldehyde	3	0.025	0.030	0.028	0.0051	0.0061	0.0058	B	2
		acrolein	3	0.0061	0.0089	0.0073	0.0012	0.0018	0.0015	B	2
		acetone	3	0.036	0.068	0.049	0.0074	0.0139	0.0099	B	2
		propanaldehyde	3	5.334E-05	0.00080	0.00052	1.091E-05	0.000164	0.00011	C	2
		crotonaldehyde	3	0.0035	0.0084	0.0053	0.00072	0.0017	0.0011	B	2
		n-butyraldehyde	3	0.0082	0.011	0.0092	0.0017	0.0022	0.0019	B	2
		methyl ethyl ketone	3	0.00056	0.0023	0.0016	0.00011	0.00047	0.00033	C	2
		benzaldehyde	3	0.0064	0.0098	0.0085	0.0013	0.0020	0.0017	B	2
		isoveraldehyde	3	0.0059	0.0091	0.0078	0.0012	0.0019	0.0016	B	2
		valeraldehyde	3	0.0077	0.018	0.012	0.00157	0.0036	0.0025	B	2
		o-tolualdehyde	3	0.00040	0.00062	0.00053	8.1E-05	0.00013	0.00011	C	2
		m/p-tolualdehyde	3	0.0033	0.0053	0.0043	0.00068	0.0011	0.00088	C	2
		hexaldehyde	3	0.016	0.042	0.028	0.0033	0.0086	0.0057	B	2
		2,5-dimethylbenzaldehy	3	0.0015	0.0023	0.0018	0.00031	0.00048	0.00037	C	2

TABLE 4-3. (continued)

Particleboard press		filt. PM	1	0.61	0.61	0.61	0.12	0.12	0.12	D	3
		condens. inorg. PM	1	0.050	0.050	0.050	0.010	0.010	0.010	D	3
		condens. org. PM	1	0.062	0.062	0.062	0.013	0.013	0.013	D	3
		filterable PM-10	1	0.21	0.21	0.21	0.042	0.042	0.042	D	3
		total hydrocarbons	3	2.1	3.1	2.6	0.43	0.64	0.54	A	3
		formaldehyde	3	1.9	3.1	2.4	0.39	0.62	0.49	A	3
		acetaldehyde	3	0.052	0.36	0.17	0.011	0.074	0.034	C	3
		acrolein	3	0.0093	0.015	0.012	0.0019	0.0032	0.0025	C	3
		acetone	3	0.066	0.11	0.083	0.013	0.023	0.017	B	3
		n-butyraldehyde	3	0.012	0.018	0.015	0.0025	0.0036	0.0031	A	3
		benzaldehyde	3	0.013	0.017	0.014	0.0026	0.0036	0.0029	B	3
		isoveraldehyde	3	0.0023	0.0060	0.0046	0.00046	0.0012	0.00095	C	3
		valeraldehyde	3	0.024	0.034	0.029	0.0049	0.0070	0.0058	A	3
		p-tolualdehyde	3	0.00015	0.0032	0.0014	3.1E-05	0.00065	0.00029	B	3
		hexaldehyde	3	0.091	0.11	0.099	0.019	0.023	0.020	A	3
		2,5-dimethylbenzaldehy	3	0.0015	0.0017	0.0016	0.00031	0.00036	0.00033	B	3

NATIONAL COUNCIL OF THE PAPER INDUSTRY FOR AIR AND STREAM IMPROVEMENT, INC.
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March 7, 1994

Mr. Dallas Safriet (MD-14)
Emission Inventory Branch
Emission Standards and Engineering Division
Office of Air Quality Planning and Standards
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711

Dear Dallas:

Enclosed are two copies of the NCASI technical bulletin on OSB dryer emission measurement methods. Please call David Word at our Southern Regional Center if you have any questions on the content of the report.

Best regards,

John Pinkerton

John E. Pinkerton

Encl. (TB 657)
cc: D. Word