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

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

Background Report Reference

AP-42 Section Number: 10.6.1

Background Report Section: 4

Reference Number: 87

Title: Source Emission Testing Louisiana Pacific Canada, LTD, Dawson Creek, B C

BOVAR-CONCORD Environmental

October 1995

BOVAR Environmental

8563 Commerce Court
Burnaby, British Columbia
Canada V5A 4N5
Phone: 604-444-3370
Fax: 604-444-3371

4-87)

RECEIVED
NOV 27 1995
LOUISIANA PACIFIC CORP.
HAYWARD, WISCONSIN

JOB NUMBER 5216618

SOURCE EMISSION TESTING

Prepared For:

LOUISIANA-PACIFIC CANADA LTD.
P.O. Box 2338
Dawson Creek, BC
V1G 4P2

Kones only

Prepared By:

BOVAR-CONCORD ENVIRONMENTAL
8563 Commerce Court
Burnaby, BC
V5A 4N5

BOV 6618

October, 1995

TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 RESULTS 1

3.0 METHODS 3

4.0 SOURCE TESTING TEAM 4

5.0 DISCUSSION 4

APPENDICES

Appendix A: Field Data - QA/QC Sheets

Appendix B: Laboratory Results

1.0 INTRODUCTION

BOVAR-CONCORD Environmental (BCE) conducted source emission tests at Louisiana Pacific's (LP) Orientated Strand Board (OSB) facility located in Dawson Creek, B.C. on October 6, 1995. A series of three particulate tests were performed on the Konus stack at the request of LP.

Mr. Cameron Eggleston of the BC MELP (Ft. St. John office) was on-site to witness testing procedures (the first two tests) as well as gather process information during the testing program.

2.0 RESULTS

All field data sheets, QA/QC data sheets, chain of custody, lab results, and computer printouts may be located in the appendices. Calculations were performed by BCE using a proprietary computer program.

Tables 1.0 contains a summary of the relevant testing information.

TABLE 1.0

SUMMARY KONUS

PARTICULATE

Parameter	Test One	Test Two	Test Three	Average*
Test Period				
- Date	95/10/06	95/10/06	95/10/06	
- Time	9:10-10:39	12:16-15:09	17:42-19:14	
Average Gas Temperature				
- °C	177.8	151.9	163.7	170.8
Average Gas Velocity				
- *m/s*	9.36	6.86	8.55	8.96
Stream Flow Rate				
- DSm^3/hr	34,017	26,109	32036	33027
Water Content				
- mole %	6.66	7.87	6.79	6.73
Particulate (12 % CO_2)				
- mg/DSm^3	198.5	78.3	194.0	196.3
- mg/s	860	260	792	826
- kg/hr	3.096	0.936	2.852	2.974
Flue Gas Composition (% wet)				
- O_2	15.50	15.50	15.50	15.50
- CO_2	5.50	5.50	5.50	5.50
- CO	0.00	0.00	0.00	0.00
Isokinetic Variation				
- %	98.2	101.2	99.5	98.9

* average does not include test two

3.0 METHODS

All testing was conducted in accordance to the methods specified in LP operating permit PA-7596. The surveys were conducted in accordance to the British Columbia Ministry of Environment, Lands and Parks (BC MELP) source testing guidelines (B.C. code). As per BC MELP regulations, if a method could not be found in the BC code, the relevant U.S. Environmental Protection Agency (EPA) method was used. The following table lists the sampling and analytical methods used.

Parameter	Sampling Method	Analytical Method
Particulate	USEPA Method 202	USEPA 600 Method 5

All of the sampling was done isokinetically using an EPA Method 5 kit. The following table gives the train set up of the parameter tested. The train consisted of a heated probe, hotbox, series of impingers cooled by ice , umbilical cord, meter, and a pump.

Test parameter	Probe	Filter	Impingers			
			1st	2nd	3rd	4th
Particulate	Stainless steel	Filter	100ml DI H_20	100ml DI H_20	Empty	Silica Gel

4.0 SOURCE TESTING TEAM

The following list details the BCE team who conducted the source sampling.

Project Manager	Brad Reshetylo
Train Operator	Rob Hamm
Train Recoveries	Brad Reshetylo Rob Hamm

5.0 DISCUSSION

Initially, the sampling program was to take place on October 5, 1995. However, due to a failure of a thermal line on the press, sampling was postponed until October 6. A total of three tests for particulate were performed on the Konus stack. Carbon dioxide and oxygen samples were taken at approximately four minute intervals through the duration of each test. Samples were analyzed using fyrites and an average was calculated for each test. The process was down for 90 minutes during the second particulate test during which time the sampling was stopped and the probe was removed from the stack and capped. Due to inconsistencies of process conditions between the first two tests LP requested BCE to performed a third test.

APPENDIX A

FIELD DATA - QA/QC SHEETS

APPENDIX B

LABORATORY RESULTS

APPENDIX A

FIELD DATA-QA/QC SHEETS

MOISTURE ANALYSIS DATA SHEET

Project #:	5216618	Client:	LOUISIANA PACIFIC
Date:	OCT 5/95	Test:	PIK-P
Sample Location:	KONUS	Filter I.D.:	
Pre Weights by:	RH	Post Weights by:	

Impinger #	Impinger Contents	Final Wt. (g)	Initial Wt. (g)	Net Condensate (g)
1	200 mls H2O	48.1	641.1	690.0
2	" "	10.9	675.7	686.6
3	EMPTY	8.5	481.5	490.0
4	SILICA GEL	14.3	712.4	726.7
5				
6				
7				
8				
XAD Trap				
			Total (g)	81.8

BALANCE QC CHECK

	Actual (g) (A)	Measured (g) (M)	<10%	Initials
Pre weights	500	500		RH
Post weights	500	500		RH

$$\frac{A - M}{A} \times 100 \quad <10\%$$

Comments:

Signature: [signature]

Date: OCT 5/95

E:\FORMS\MADS.FRM

BOVAR-CONCORD Environmental

DATE: 10 / 06 / 95

SAMPLING TRAINS DATA SHEET

Client: LOUISIANA PACIFIC Project #: 521668 Sample Location: KONUS STACK Operators: BR / RH

Run #: TIKP Traverse #: 1 SOUTH Traverse Direction: ~~SOUTH~~ PK OUT Start Time: ~~08:48~~ 09:10 AM Finish Time: 9:46

Pt.	Time (Min.)	O_2 (%)	Vel. Press. (ΔP)	Orifice Press. (ΔH)	Gas Meter Reading Desired (ft^3)	Gas Meter Reading Actual (ft^3)	Stack Temp. (°F)	Probe Temp. (°F)	Box Temp. (°F)	Imp. Temp. (°F)	XAD Temp. (°F)	Meter Inlet (°F)	Meter Outlet (°F)	Vac. in Hg
1	0		0.35	~~0.44~~ 3.4 in	/	509.420	355	210	236	39	NA	50	49	1.0
2	2		0.35	~~0.48~~ 3.4 in	511.671	511.671	367	200	247	38	NA	56	55	1.0
3	4		0.31	3.1	513.922	513.915	356	197	247	38	NA	57	55	1.0
4	6		0.19	2.3	516.041	516.041					NA	58	56	
5	8		0.17	2.15	517.70	517.65	354	201	258	39	NA	60	56	[illegible]
6	10		0.16	2.10	519.22	519.15	354	203	247	39	NA	61	56	
7	12		0.16	2.10	520.742	520.65	354	203	247	40	NA	61	56	3.5
8	14		0.15	2.05	522.22	522.20	352	202	246	40	NA	63	56	3.5
9	16		0.15	2.00	523.69	523.70	353	202	246	39	NA	63	57	3.5
10	18		0.13	1.6	525.06	525.00	352	200	246	39	NA	62	57	3.0
11	20		0.13	1.6	526.43	526.43	351	200	241	39	NA	63	57	3.0
12	22		0.13	1.6	527.80	527.78	350	196	246	40	NA	64	57	3.0

Pre test leak check: Rate (cfm) .001 at 15 inches Hg (Vacuum) Leak Volume Start: 509.170 Leak Volume End: 509.420

Post test leak check: Rate (cfm) _____ at _____ inches Hg (Vacuum) Leak Volume Start: _____ Leak Volume End: _____

K value calculated by: _____ Checked by: _____ Operator Signature: B Rich

E:\FORMS\STDS.FRM

BOVAR-CONCORD Environmental

DATE: __/__/__

SAMPLING TRAINS DATA SHEET

Client: LOUISIANA PACIFIC Project #: 5216618 Sample Location: KONUS Operators: RH/BR

Run #: T1KP Traverse #: 1 Traverse Direction: OUT Start Time: 9:10 Finish Time: 9:46

Pt.	Time (Min.)	O_2 (%)	Vel. Press. (ΔP)	Orifice Press. (ΔH)	Gas Meter Reading Desired (ft^3)	Gas Meter Reading Actual (ft^3)	Stack Temp. (°F)	Probe Temp. (°F)	Box Temp. (°F)	Imp. Temp. (°F)	XAD Temp. (°F)	Meter Inlet (°F)	Meter Outlet (°F)	Vac. in Hg
13	24		0.13	1.6	529.174	529.165	350	195	246	39	NA	64	57	3.0
14	26		0.14	1.7	530.598	530.598	350	192	246	39	NA	66	58	3.1
15	28		0.16	2.0	532.120	532.120	352	191	246	39	NA	66	58	3.5
16	30		0.16	2.0	533.640	533.640	350	190	246	40	NA	66	58	4.0
17	32		0.15	1.95	535.116	335.120	347	191	246	40	NA	67	59	4.0
18	34		0.130	1.60	536.488	536.488	320	186	247	40	NA	67	59	3.0
					537.860	537.862								

Pre test leak check: Rate (cfm) ____ at ____ inches Hg (Vacuum) Leak Volume Start: _____ Leak Volume End: _____

Post test leak check: Rate (cfm) ____ at ____ inches Hg (Vacuum) Leak Volume Start: _____ Leak Volume End: _____

K value calculated by: _____ Checked by: _____ Operator Signature: B Rostitz

E:\FORMS\STDS.FRM

BOVAR-CONCORD Environmental

DATE: 10 / 6 / 95

SAMPLING TRAINS DATA SHEET

Client: LOUISIANA PACIFIC Project #: 5216618 Sample Location: KONUS Operators: RH/BR

Run #: TIKP Traverse #: 2 E Traverse Direction: OUT Start Time: 10:03 Finish Time: 10:39

Pt.	Time (Min.)	O_2 (%)	Vel. Press. (ΔP)	Orifice Press. (ΔH)	Gas Meter Reading Desired (ft^3)	Gas Meter Reading Actual (ft^3)	Stack Temp. (°F)	Probe Temp. (°F)	Box Temp. (°F)	Imp. Temp. (°F)	XAD Temp. (°F)	Meter Inlet (°F)	Meter Outlet (°F)	Vac. in Hg
1	0		0.18	2.2	538.402 BR	538.2	344	188	248	39	NA	62	59	4.0
2	2		0.17	2.1	539.671	539.680	349	188	246	40	NA	62	60	4.7
3	4		0.18	2.2	541.285	541.30	350	190	246	40	NA	62	60	4.5
4	6		0.19	2.35	542.944	542.94	352	192	247	40	NA	62	60	5.0
5	8		0.20	2.40	544.646	544.645	356	190	247	39	NA	63	59	5.5
6	10		0.19	2.35	546.305	546.305	356	197	246	39	NA	63	59	5.5
7	12		0.19	2.35	547.964	547.920	357	197	246	40	NA	63	59	5.2
8	14		0.19	2.35	549.623	549.610	356	197	245	40	NA	64	59	5.5
9	16		0.17	2.10	551.192	551.157	356	197	246	40	NA	64	59	5.5
10	18		0.17	2.10	552.761	552.76	356	200	247	40	NA	64	59	5.5
11	20		0.18	2.20	554.375	554.375	356	204	247	40	NA	64	60	5.5
12	22		0.19	2.35	556.034	556.045	355	206	246	40	NA	64	60	5.5

Pre test leak check: Rate (cfm) _____ at _____ inches Hg (Vacuum) Leak Volume Start: _____ Leak Volume End: _____

Post test leak check: Rate (cfm) _____ at _____ inches Hg (Vacuum) Leak Volume Start: _____ Leak Volume End: _____

K value calculated by: _____ Checked by: _____ Operator Signature: BRobb

E:\FORMS\STDS.FRM

BOVAR-CONCORD Environmental

DATE: 10/6/95

SAMPLING TRAINS DATA SHEET

PAGE __ OF __

Client: Louisiana Pacific Project #: 5216614 Sample Location: Kornus Operators: RH/BR

Run #: T1KP Traverse #: 2E Traverse Direction: OUT Start Time: 10:03 Finish Time: 10:39

Pt.	Time (Min.)	O_2 (%)	Vel. Press. (ΔP)	Orifice Press. (ΔH)	Gas Meter Reading Desired (ft^3)	Gas Meter Reading Actual (ft^3)	Stack Temp. (°F)	Probe Temp. (°F)	Box Temp. (°F)	Imp. Temp. (°F)	XAD Temp. (°F)	Meter Inlet (°F)	Meter Outlet (°F)	Vac. in Hg
13	24		0.20	2.4	557.736	557.73	355	198	247	39	NA	65	60	6.0
14	26		0.19	2.35	559.395	559.395	354	196	246	39	NA	65	60	6.0
15	28		0.19	2.35	561.054	561.055	354	185	247	40	NA	65	60	6.0
16	30		0.19	2.35	562.713	562.720	351	180	246	40	NA	65	60	6.0
17	32		0.17	2.10	564.282	564.282	347	176	246	39	NA	65	60	6.0
18	34		0.16	2.00	565.804	565.804	336	178	246	40	NA	65	60	6.0
					567.326	567.320								

Pre test leak check: Rate (cfm) ____ at ____ inches Hg (Vacuum) Leak Volume Start: 565.804 Leak Volume End: 565.950

Post test leak check: Rate (cfm) ____ at ____ inches Hg (Vacuum) Leak Volume Start: ____ Leak Volume End: ____

K value calculated by: ____ Checked by: ____ Operator Signature: BR

E:\FORMS\STDS.FRM

BOVAR-CONCORD Environmental

AIR TESTING SERVICES INC. PARTICULATE EMISSION REPORT

CLIENT	: LOUISIANA-PACIFIC	DATE	: 10/06/95
JOBSITE	: DAWSON CREEK	RUN	: T1K-P
REF.No.	: 5216618	LOC.	: KONUS

RUN TIME : 9:10 TO 10:39

PARTICULATE CONCENTRATION	91.0 mg/DSm3	0.0398 gr/DScf
	50.4 mg/Am3	0.0220 gr/Acf
@ 12% CO2	198.5 mg/DSm3	0.0868 gr/DScf
PARTICULATE EMISSION RATE	0.860 g/s	6.82 lb/hr
SAMPLE GAS VOLUME	1.5331 DSm3	54.135 DScf
AVERAGE ISOKINETICITY	98.2 %	

FLUE GAS CHARACTERISTICS

MOISTURE	6.66 %	
TEMPERATURE	177.8 deg C	352.0 deg F
FLOW	34017 DSm3/hr	20022 DScfm
	61449 Am3/hr	36168 Acfm
VELOCITY	9.36 m/s	1842.0 fpm

GAS ANALYSIS	O2	15.50 %
	CO2	5.50 %
	CO	0.00 %
	SO2	0.00 %
	MOL. WT.	29.61 g/gmole D.B.
	MOL. WT.	28.84 g/gmole W.B.

*STANDARD CONDITIONS : METRIC 20 deg C, 101.3 kPa
: IMPERIAL 68 deg F, 29.92 in.Hg

AIR TESTING SERVICES INC. PARTICULATE EMISSION REPORT

CLIENT	: LOUISIANA-PACIFIC	DATE	: 10/06/95
JOBSITE	: DAWSON CREEK	RUN	: T1K-P
REF.No.	: 5216618	LOC.	: KONUS

STACK HEIGHT	18.3 m	60.0 ft.
STACK DIAMETER	1.52 m	60.0 in.
STACK AREA	1.824 m2	19.64 sq.ft.
BAROMETRIC PRESSURE	92.5 kPa	27.30 in.Hg
STATIC PRESSURE	-34.9 Pa	-0.14 in.H2O
NOZZLE DIAMETER	9.42 mm	0.3710 in.
PITOT COEFFICIENT	0.837	
METER CORRECTION FACTOR	1.010	

CONDENSATE COLLECTION

CONDENSATION IN IMPINGER 1	48.1 g
CONDENSATION IN IMPINGER 2	10.9 g
CONDENSATION IN IMPINGER 3	8.5 g
SILICA GEL WEIGHT GAIN	14.3 g
TOTAL MOISTURE GAIN	81.8 g

PARTICULATE COLLECTION

FILTER PARTICULATE	0.1322 g
WASHINGS PARTICULATE	0.0073 g
IMPINGER PARTICULATE	0.0000 g
TOTAL PARTICULATE	0.1395 g

TOTAL SAMPLING TIME 72.0 min.

AIR TESTING SERVICES INC. PARTICULATE EMISSION REPORT

CLIENT : LOUISIANA-PACIFIC
JOBSITE : DAWSON CREEK
REF.No. : 5216618

DATE : 10/06/95
RUN : T1K-P
LOC. : KONUS

PT. NO.	TIME min.	STACK TEMP. F	VEL. PRES. in.H2O	ORIF. PRES. in.H2O	METER VOL. cu.ft.	MTR. TMP. F	PROB. TEMP. F	OVEN TEMP. F	EXIT TEMP. F	PUMP VAC. in.Hg	WAL DIS in
TRAVERSE NO. 1											
1	0.0	355	0.350	3.40	509.42	50	210	236	39	1.0	1.
2	2.0	367	0.350	3.40	511.67	56	200	247	38	1.0	2.
3	4.0	356	0.310	3.10	513.91	56	197	247	38	1.0	4.
4	6.0	356	0.190	2.30	516.04	57	197	247	38	1.0	6.
5	8.0	354	0.170	2.15	517.65	58	201	258	39	3.0	8.
6	10.0	354	0.160	2.10	519.17	59	203	247	39	3.5	11.
7	12.0	354	0.160	2.10	520.65	59	203	247	40	3.5	14.
8	14.0	352	0.150	2.05	522.20	60	202	246	40	3.5	17.
9	16.0	353	0.150	2.00	523.70	60	202	246	39	3.5	22.
10	18.0	352	0.130	1.60	525.08	60	200	246	39	3.0	37.
11	20.0	351	0.130	1.60	526.43	60	200	246	39	3.0	42.
12	22.0	350	0.130	1.60	527.78	61	196	246	40	3.0	45.
13	24.0	350	0.130	1.60	529.17	61	195	246	39	3.0	48.
14	26.0	350	0.140	1.70	530.59	62	192	246	39	3.1	51.
15	28.0	352	0.160	2.00	532.12	62	191	246	39	3.5	53.
16	30.0	350	0.160	2.00	533.64	62	190	246	40	4.0	55.
17	32.0	357	0.150	1.95	535.12	63	191	246	40	4.0	57.
18	34.0	320	0.130	1.60	536.49	63	186	247	40	3.0	59.
	36.0				537.86						
TRAVERSE NO. 2											
1	0.0	344	0.180	2.20	538.20	61	188	248	39	4.0	1.
2	2.0	349	0.170	2.10	539.68	61	188	246	39	4.2	2.
3	4.0	350	0.180	2.20	541.30	61	190	246	39	4.5	4.
4	6.0	352	0.190	2.35	542.94	61	192	247	39	5.0	6.
5	8.0	356	0.200	2.40	544.65	61	190	247	39	5.5	8.
6	10.0	356	0.190	2.35	546.31	61	197	246	39	5.5	11.
7	12.0	357	0.190	2.35	547.92	61	197	246	40	5.2	14.
8	14.0	356	0.190	2.35	549.61	62	197	245	40	5.5	17.
9	16.0	356	0.170	2.10	551.16	62	200	246	40	5.5	22.
10	18.0	356	0.170	2.10	552.76	62	204	247	40	5.5	37.
11	20.0	356	0.180	2.20	554.38	62	206	247	40	5.5	42.
12	22.0	355	0.190	2.35	556.05	62	204	247	40	5.5	45.
13	24.0	355	0.200	2.40	557.73	63	198	246	39	6.0	48.
14	26.0	354	0.190	2.35	559.40	63	196	246	39	6.0	51.
15	28.0	354	0.190	2.35	561.06	63	185	247	40	6.0	53.

AIR TESTING SERVICES INC. PARTICULATE EMISSION REPORT

CLIENT : LOUISIANA-PACIFIC
JOBSITE : DAWSON CREEK
REF.No. : 5216618

DATE : 10/06/95
RUN : T1K-P
LOC. : KONUS

PT. NO.	TIME min.	STACK TEMP. F	VEL. PRES. in.H2O	ORIF. PRES. in.H2O	METER VOL. cu.ft.	MTR. TMP. F	PROB. TEMP. F	OVEN TEMP. F	EXIT TEMP. F	PUMP VAC. in.Hg	WAL DIS in
16	30.0	351	0.190	2.35	562.72	63	180	246	40	6.0	55.
17	32.0	347	0.170	2.10	564.28	63	176	246	39	6.0	57.
18	34.0	336	0.160	2.00	565.80	63	178	247	39	6.0	59.
	36.0				567.32						
		352	0.179	2.19		60	195	246	39	4.1	

MOISTURE ANALYSIS DATA SHEET

Project #:	526618	Client:	LOUISIANA PACIFIC - D.C
Date:	OCT 5/95	Test:	TRK-P
Sample Location:	KONUS	Filter I.D.:	
Pre Weights by:	BR	Post Weights by:	

Impinger #	Impinger Contents	Final Wt. (g)	Initial Wt. (g)	Net Condensate (g)
1	200 ml H_2O	749.2	692.2	57.0
2	" "	685.7	~~685.3~~ 676.0	10.7
3	EMPTY	461.5	459.7	1.8
4	SILICA GEL	BR	~~731.5~~	8.0
5		734.7	726.7	
6				
7				
8				
XAD Trap				
			Total (g)	77.5

BALANCE QC CHECK

	Actual (g) (A)	Measured (g) (M)	<10%	Initials
Pre weights	500	500		BH
Post weights	500	500		BM

$$\frac{A - M}{A} \times 100 \quad <10\%$$

Comments:

Signature: [signature]

Date: OCT 6/95

E:\FORMS\MADS.FRM

BOVAR-CONCORD Environmental

DATE: 10 / 6 / 95

SAMPLING TRAINS DATA SHEET

Client: LOUISIANA PACIFIC Project #: 5216618 Sample Location: KONUS Operators: RH/PR

Run #: T2KP Traverse #: 1E Traverse Direction: OUT Start Time: 12:16 Finish Time: ~~12:52~~ 14:22

Pt.	Time (Min.)	O_2 (%)	Vel. Press. (ΔP)	Orifice Press. (ΔH)	Gas Meter Reading Desired (ft^3)	Gas Meter Reading Actual (ft^3)	Stack Temp. (°F)	Probe Temp. (°F)	Box Temp. (°F)	Imp. Temp. (°F)	XAD Temp. (°F)	Meter Inlet (°F)	Meter Outlet (°F)	Vac. in Hg
1	0		0.120	1.6	~~567.21~~	567.21	325	190	244	40	NA	55	56	2.0
2	2		0.130	1.7	568.557	568.55	325	150	240	39	NA	57	55	2.0
3	4		0.140	1.8	569.954 ~~570.012~~	569.95 ~~570.012~~	324	152	246	39	NA	58	55	2.0
4	6		0.150	1.9	571.518 .44	571.~~50~~ 40	324	158	254	40	NA	58	55	2.5
5	8		0.140	1.8	572.~~024~~ 92	572.92	324	158	244	40	NA	58	55	2.5
6	10		0.120	1.6	574.35	574.35	324	158	244	40	NA	59	56	2.5
7	12		0.120	1.6	575.722	575.722	320	159	244	40	NA	60	56	2.0
8	14		.090	1.1	577.069	577.069	318	160	244	40	NA	60	56	2.0
9	16		.090	1.1	578.236	578.236	320	160	244	40	NA	60	56	2.0
10	18	14:04	0.18 BR	1.9	579.~~715~~ 405	579.~~715~~ 40	284	159	245	39	NA	58	57	2.0
11	20		0.09	1.2	580.90	580.86	227	155	245	40	NA	57	56	2.0
12	22		0.09	1.2	582.087	582.090	287	150	245	40	NA	57	56	2.0

Pre test leak check: Rate (cfm) 0.005 at 12 inches Hg (Vacuum) Leak Volume Start: 566.044 Leak Volume End: 567.21

Post test leak check: Rate (cfm) ____ at ____ inches Hg (Vacuum) Leak Volume Start: ____ Leak Volume End: ____

K value calculated by: ____ Checked by: ____ Operator Signature: [signature]

* STOP TEST AT POINT 8 PROCESS DOWN
12:34 - 14:04
* CHANGE ISO TAB. AT ...

E:\FORMS\STDS.FRM

BOVAR-CONCORD Environmental

DATE: __/__/__

SAMPLING TRAINS DATA SHEET

Client: _____ Project #: _____ Sample Location: KONUS Operators: KH/PK

Run #: 12KP Traverse #: 1E Traverse Direction: OUT Start Time: 12:16 Finish Time: 14:22

Pt.	Time (Min.)	O_2 (%)	Vel. Press. (ΔP)	Orifice Press. (ΔH)	Gas Meter Reading Desired (ft^3)	Gas Meter Reading Actual (ft^3)	Stack Temp. (°F)	Probe Temp. (°F)	Box Temp. (°F)	Imp. Temp. (°F)	XAD Temp. (°F)	Meter Inlet (°F)	Meter Outlet (°F)	Vac. in Hg
13	24		.06	0.80	583.055	583.150	289	144	248	41	NA	58	56	1.0
14	26		.07	0.90	584.101	584.160	293	148	248	41	NA	58	56	1.0
15	28		.08	1.1	585.219	585.220	290	148	248	40	NA	58	56	2.0
16	30		.08	1.1	586.337	586.380	287	149	248	40	NA	58	56	2.0
17	32		.07	0.87	587.381	587.390	283	151	246	41	NA	59	56	2.0
18	34		.06	0.80	588.501	588.501	261	150	246	40	NA	59	57	2.0
					589.619	589.62								

Pre test leak check: Rate (cfm) _____ at _____ inches Hg (Vacuum) Leak Volume Start: _____ Leak Volume End: _____

Post test leak check: Rate (cfm) _____ at _____ inches Hg (Vacuum) Leak Volume Start: _____ Leak Volume End: _____

K value calculated by: _____ Checked by: _____ Operator Signature: BRok

E:\FORMS\STDS.FRM

BOVAR-CONCORD Environmental

DATE: __/__/__

SAMPLING TRAINS DATA SHEET

Client: LOUISIANA PACIFIC Project #: 52,6618 Sample Location: KONJ Operators: RH / BR

Run #: T2 KP Traverse #: 250.70 Traverse Direction: UP Start Time: 14:33 Finish Time: 15:09

Pt.	Time (Min.)	O_2 (%)	Vel. Press. (ΔP)	Orifice Press. (ΔH)	Gas Meter Reading Desired (ft^3)	Gas Meter Reading Actual (ft^3)	Stack Temp. (°F)	Probe Temp. (°F)	Box Temp. (°F)	Imp. Temp. (°F)	XAD Temp. (°F)	Meter Inlet (°F)	Meter Outlet (°F)	Vac. in Hg
1	0		.13	1.70	~~582.510~~ NA	588.510	300	165	246	40	NA	58	57	2.5
2	2		.14	1.90	589.926	589.915	296	168	246	40	NA	58	57	2.0
3	4		.13	1.70	591.405	591.405	294	176	247	39	NA	58	57	2.5
4	6		.09	1.20	592.830	592.830	294	180	247	39	NA	58	57	2.5
5	8		.08	1.10	594.016	594.016	292	182	247	39	NA	59	57	2.0
6	10		.08	1.10	595.134	595.165	292	182	246	40	NA	59	57	2.0
7	12		.10	1.35	596.252	596.275	291	183	246	39	NA	59	56	2.5
8	14		.12	1.65	597.502	597.535	292	186	247	40	NA	60	56	2.5
9	16		.13	1.70	598.871	598.870	296	185	246	40	NA	60	56	2.5
10	18		.12	1.65	600.296	600.295	292	186	247	40	NA	60	56	2.5
11	20		.12	1.65	601.665	601.665 ~~603.059~~	291	187	246	41	NA	61	56	2.5
12	22		.11	1.55	603.034	603.035	291	187	246	40	NA	61	56	2.5

Pre test leak check: Rate (cfm) ____ at ____ inches Hg (Vacuum) Leak Volume Start: ____ Leak Volume End: ____

Post test leak check: Rate (cfm) ____ at ____ inches Hg (Vacuum) Leak Volume Start: ____ Leak Volume End: ____

K value calculated by: ____ Checked by: ____ Operator Signature: ____

E:\FORMS\STDS.FRM

BOVAR-CONCORD Environmental

DATE: __/__/__

SAMPLING TRAINS DATA SHEET

Client: LOUISIANA PACIFIC Project #: 521668 Sample Location: Kenus Operators: RH/BR

Run #: T2KP Traverse #: 2 South Traverse Direction: OUT Start Time: ~~12:46~~ 14:33 Finish Time: ~~15:52~~ 15:09

Pt.	Time (Min.)	O_2 (%)	Vel. Press. (ΔP)	Orifice Press. (ΔH)	Gas Meter Reading Desired (ft^3)	Gas Meter Reading Actual (ft^3)	Stack Temp. (°F)	Probe Temp. (°F)	Box Temp. (°F)	Imp. Temp. (°F)	XAD Temp. (°F)	Meter Inlet (°F)	Meter Outlet (°F)	Vac. in Hg
13	24		.08	1.10	604.345	604.360	289	181	246	40	NA	61	57	2.5
14	26		.10	1.30	605.463	605.52	288	184	246	40	NA	61	57	2.5
15	28		.09	1.20	606.713	606.713	287	186	247	41	NA	61	57	2.5
16	30		.09	1.20	607.899	607.899	285	189	245	40	NA	61	57	2.5
17	32		.09	1.20	609.065	609.065	283	173	246	40	NA	62	57	2.5
18	34		.09	1.20	610.271	610.271	280	173	246	40	NA	62	57	2.5
					611.457	611.457								

Pre test leak check: Rate (cfm) 0.005 at 15 inches Hg (Vacuum) Leak Volume Start: 611.457 Leak Volume End: 611.510

Post test leak check: Rate (cfm) ____ at ____ inches Hg (Vacuum) Leak Volume Start: ____ Leak Volume End: ____

K value calculated by: ____ Checked by: ____ Operator Signature: [signature]

E:\FORMS\STDS.FRM

BOVAR-CONCORD Environmental

AIR TESTING SERVICES INC. PARTICULATE EMISSION REPORT

CLIENT	: LOUISIANA-PACIFIC	DATE	: 10/06/95
JOBSITE	: DAWSON CREEK	RUN	: T2K-P
REF.No.	: 5216618	LOC.	: KONUS

RUN TIME : 12:16 TO 15:09

PARTICULATE CONCENTRATION	35.9 mg/DSm3	0.0157 gr/DScf
	20.8 mg/Am3	0.0091 gr/Acf
@ 12% CO2	78.3 mg/DSm3	0.0342 gr/DScf
PARTICULATE EMISSION RATE	0.260 g/s	2.07 lb/hr
SAMPLE GAS VOLUME	1.2119 DSm3	42.794 DScf
AVERAGE ISOKINETICITY	101.2 %	

FLUE GAS CHARACTERISTICS

MOISTURE	7.87 %	
TEMPERATURE	151.9 deg C	305.5 deg F
FLOW	26109 DSm3/hr	15367 DScfm
	45049 Am3/hr	26515 Acfm
VELOCITY	6.86 m/s	1350.4 fpm

GAS ANALYSIS	O2	15.50 %
	CO2	5.50 %
	CO	0.00 %
	SO2	0.00 %
	MOL. WT.	29.61 g/gmole D.B.
	MOL. WT.	28.70 g/gmole W.B.

*STANDARD CONDITIONS : METRIC 20 deg C, 101.3 kPa
: IMPERIAL 68 deg F, 29.92 in.Hg

AIR TESTING SERVICES INC. PARTICULATE EMISSION REPORT

CLIENT	: LOUISIANA-PACIFIC	DATE	: 10/06/95
JOBSITE	: DAWSON CREEK	RUN	: T2K-P
REF.No.	: 5216618	LOC.	: KONUS

STACK HEIGHT	18.3 m	60.0 ft.
STACK DIAMETER	1.52 m	60.0 in.
STACK AREA	1.824 m2	19.64 sq.ft.
BAROMETRIC PRESSURE	92.5 kPa	27.30 in.Hg
STATIC PRESSURE	-34.9 Pa	-0.14 in.H2O
NOZZLE DIAMETER	9.42 mm	0.3710 in.
PITOT COEFFICIENT	0.837	
METER CORRECTION FACTOR	1.010	

CONDENSATE COLLECTION

CONDENSATION IN IMPINGER 1	57.0 g
CONDENSATION IN IMPINGER 2	10.7 g
CONDENSATION IN IMPINGER 3	1.8 g
SILICA GEL WEIGHT GAIN	8.0 g
TOTAL MOISTURE GAIN	77.5 g

PARTICULATE COLLECTION

FILTER PARTICULATE	0.0424 g
WASHINGS PARTICULATE	0.0011 g
IMPINGER PARTICULATE	0.0000 g
TOTAL PARTICULATE	0.0435 g

TOTAL SAMPLING TIME 72.0 min.

AIR TESTING SERVICES INC. PARTICULATE EMISSION REPORT

CLIENT : LOUISIANA-PACIFIC
JOBSITE : DAWSON CREEK
REF.No. : 5216618

DATE : 10/06/95
RUN : T2K-P
LOC. : KONUS

PT. NO.	TIME min.	STACK TEMP. F	VEL. PRES. in.H2O	ORIF. PRES. in.H2O	METER VOL. cu.ft.	MTR. TMP. F	PROB. TEMP. F	OVEN TEMP. F	EXIT TEMP. F	PUMP VAC. in.Hg	WAL DIS in
TRAVERSE NO. 1											
1	0.0	325	0.120	1.60	567.21	56	190	244	40	2.0	1.
2	2.0	325	0.130	1.70	568.55	56	150	240	39	2.0	2.
3	4.0	324	0.140	1.80	569.95	57	152	246	39	2.0	4.
4	6.0	324	0.150	1.90	571.40	57	158	254	40	2.5	6.
5	8.0	324	0.140	1.80	572.92	57	158	244	40	2.5	8.
6	10.0	324	0.120	1.60	574.35	58	158	244	40	2.5	11.
7	12.0	320	0.100	1.60	575.77	58	159	244	40	2.0	14.
8	14.0	318	0.090	1.10	577.07	58	160	244	40	2.0	17.
9	16.0	320	0.090	1.10	578.24	58	160	244	40	2.0	22.
10	18.0	384	0.140	1.90	579.40	58	159	245	39	2.0	37.
11	20.0	387	0.090	1.20	580.86	57	155	245	40	2.0	42.
12	22.0	387	0.090	1.20	582.00	57	150	245	40	2.0	45.
13	24.0	289	0.060	0.80	583.15	57	144	248	41	1.0	48.
14	26.0	293	0.070	0.90	584.16	57	148	248	41	1.0	51.
15	28.0	290	0.080	1.10	585.22	57	148	248	40	2.0	53.
16	30.0	287	0.080	1.10	586.38	57	149	248	40	2.0	55.
17	32.0	283	0.070	0.87	587.39	58	151	246	41	2.0	57.
18	34.0	261	0.060	0.80	588.50	58	150	246	40	2.0	59.
	36.0				589.62						
TRAVERSE NO. 2											
1	0.0	300	0.130	1.70	588.51	58	165	246	40	2.5	1.
2	2.0	296	0.140	1.90	589.92	58	168	246	40	3.0	2.
3	4.0	294	0.130	1.70	591.41	58	176	247	39	2.5	4.
4	6.0	294	0.090	1.20	592.83	58	180	247	39	2.5	6.
5	8.0	292	0.080	1.10	594.02	58	182	247	39	2.0	8.
6	10.0	292	0.080	1.10	595.17	58	182	246	40	2.5	11.
7	12.0	291	0.100	1.35	596.28	58	183	246	39	2.5	14.
8	14.0	292	0.120	1.65	597.54	58	186	247	40	2.5	17.
9	16.0	296	0.130	1.70	598.87	58	185	246	40	2.5	22.
10	18.0	292	0.120	1.65	600.30	58	186	247	40	2.5	37.
11	20.0	291	0.120	1.65	601.67	59	187	246	41	2.5	42.
12	22.0	291	0.110	1.55	603.04	59	187	246	40	2.5	45.
13	24.0	289	0.080	1.10	604.36	59	181	246	40	2.5	48.
14	26.0	288	0.100	1.30	605.52	59	184	246	40	2.5	51.
15	28.0	287	0.090	1.20	606.71	59	186	247	41	2.5	53.

AIR TESTING SERVICES INC. PARTICULATE EMISSION REPORT

CLIENT : LOUISIANA-PACIFIC
JOBSITE : DAWSON CREEK
REF.No. : 5216618

DATE : 10/06/95
RUN : T2K-P
LOC. : KONUS

PT. NO.	TIME min.	STACK TEMP. F	VEL. PRES. in.H2O	ORIF. PRES. in.H2O	METER VOL. cu.ft.	MTR. TMP. F	PROB. TEMP. F	OVEN TEMP. F	EXIT TEMP. F	PUMP VAC. in.Hg	WAL DIS in
16	30.0	285	0.090	1.20	607.90	59	189	245	40	2.5	55.
17	32.0	283	0.090	1.20	609.09	60	173	246	40	2.5	57.
18	34.0	280	0.090	1.20	610.27	60	173	246	40	2.5	59.
	36.0				611.46						
		306	0.102	1.38		58	168	246	40	2.2	

MOISTURE ANALYSIS DATA SHEET

Project #:	521668	Client:	L.P. D-C
Date:	OCT 6/95	Test:	T3K-P
Sample Location:		Filter I.D.:	
Pre Weights by:	RH	Post Weights by:	

Impinger #	Impinger Contents	Final Wt. (g)	Initial Wt. (g)	Net Condensate (g)
1		62.2	669.7	731.9
2		128 ~~42.8~~	691.7	694.5
3		2.7	461.5	464.2
4		12.0	700.3	712.3
5				
6				
7				
8				
XAD Trap				
			Total (g)	77.9

BALANCE QC CHECK

	Actual (g) (A)	Measured (g) (M)	<10%	Initials
Pre weights	500	500		RH
Post weights	500	500		RH

$$\frac{A - M}{A} \times 100 \quad <10\%$$

Comments:

Signature: [signature]

Date: OCT 6/95

E:\FORMS\MADS.FRM

BOVAR-CONCORD Environmental

DATE: 10 / 06 / 95

SAMPLING TRAINS DATA SHEET

Client: LOUISIANA PACIFIC Project #: 5216614 Sample Location: KONUS Operators: BR / RH

Run #: TSKP Traverse #: 1 SOUTH Traverse Direction: OUT Start Time: 17:42 Finish Time: 18:18

Pt.	Time (Min.)	O_2 (%)	Vel. Press. (ΔP)	Orifice Press. (ΔH)	Gas Meter Reading Desired (ft^3)	Gas Meter Reading Actual (ft^3)	Stack Temp. (°F)	Probe Temp. (°F)	Box Temp. (°F)	Imp. Temp. (°F)	XAD Temp. (°F)	Meter Inlet (°F)	Meter Outlet (°F)	Vac. in Hg
1	0		.18	2.3	—	612.43 ~~611.765~~	315	174	247	39	NA	54	54	2.5
2	2		.18	2.3	613.415	613.750	318	178	242	40	NA	53	54	2.5
3	4		.18	2.3	615.065	615.380	320	180	246	40	NA	54	54	2.5
4	6		.20	2.5	616.715	616.980	322	182	247	39	NA	54	54	2.5
5	8		.22	2.8	618.454	618.590	324	186	244	40	NA	55	54	3.0
6	10		.22	2.8	620.278	620.350 ~~622.102~~	325	190	247	41	NA	56	54	3.0
7	12		.21	2.6	622.102	622.150	325	191	247	41	NA	56	54	3.2
8	14		.20	2.5	623.884	623.885	325	192	246	40	NA	57	54	3.2
9	16		.18	2.3	625.623	625.625	325	193	246	40	NA	58	54	3.2
10	18		.16	2.1	627.277	627.295	324	193	247	40	NA	58	54	3.5
11	20		.16	2.1	628.829	628.860 ~~630.385~~	324	190	246	40	NA	59	54	3.5
12	22		.16	2.1	630.385	630.385	324	190	246	40	NA	59	54	3.5

Pre test leak check: Rate (cfm) .005 at 17 inches Hg (Vacuum) Leak Volume Start: 611.575 Leak Volume End: 612.130 ~~611.765~~

Post test leak check: Rate (cfm) ____ at ____ inches Hg (Vacuum) Leak Volume Start: ____ Leak Volume End: ____

K value calculated by: ____ Checked by: ____ Operator Signature: [signature]

E:\FORMS\STDS.FRM

BOVAR-CONCORD Environmental

DATE: 10 / 06 / 95

SAMPLING TRAINS DATA SHEET

Client: Louisiana Pacific Project #: 5216618 Sample Location: Ironus Operators: BR / RM

Run #: T3KP Traverse #: 130TH Traverse Direction: OUT Start Time: 12:42 Finish Time: 18:18

Pt.	Time (Min.)	O_2 (%)	Vel. Press. (ΔP)	Orifice Press. (ΔH)	Gas Meter Reading Desired (ft^3)	Gas Meter Reading Actual (ft^3)	Stack Temp. (°F)	Probe Temp. (°F)	Box Temp. (°F)	Imp. Temp. (°F)	XAD Temp. (°F)	Meter Inlet (°F)	Meter Outlet (°F)	Vac. in Hg
13	24		.15	1.9	631.941	631.945	324	188	246	41	NA	58	55	3.5
14	26		.16	2.1	633.447	633.445	324	185	245	41	NA	59	55	3.5
15	28		.10	1.3	635.003	635.003	321	181	246	40	NA	60	55	3.5
16	30		.10	1.3	636.233	636.233	315	178	245	40	NA	60	55	3.0
17	32		.10	1.3	637.46	637.46	315	178	245	40	NA	60	55	3.0
18	34		.10	1.3	638.69	638.69	325	178	245	40	NA	60	55	3.0
					639.927	639.927								

Pre test leak check: Rate (cfm) _____ at _____ inches Hg (Vacuum) Leak Volume Start: _____ Leak Volume End: _____

Post test leak check: Rate (cfm) _____ at _____ inches Hg (Vacuum) Leak Volume Start: _____ Leak Volume End: _____

K value calculated by: _____ Checked by: _____ Operator Signature: [signature]

E:\FORMS\STDS.FRM

BOVAR-CONCORD Environmental

DATE: 10 / 06 / 95

SAMPLING TRAINS DATA SHEET

Client: LOUISIANA PACIFIC Project #: 521668 Sample Location: KONUS Operators: CH/BR

Run #: T3KP Traverse #: 2 EAST Traverse Direction: OUT Start Time: 18:38 Finish Time: 19:14

Pt.	Time (Min.)	O_2 (%)	Vel. Press. (ΔP)	Orifice Press. (ΔH)	Gas Meter Reading Desired (ft^3)	Gas Meter Reading Actual (ft^3)	Stack Temp. (°F)	Probe Temp. (°F)	Box Temp. (°F)	Imp. Temp. (°F)	XAD Temp. (°F)	Meter Inlet (°F)	Meter Outlet (°F)	Vac. In Hg
1	0		.14	1.8	/	639.923	329	157	246	40	NA	60	56	3.5
2	2		.140	1.8	641.378	641.378 ~~642.833~~	322	158	245	41	NA	60	56	3.5
3	4		.150	1.9	642.877	642.833	334	159	246	40	NA	61	56	4.0
4	6		.150	1.9	644.339	644.339 ~~645.845~~	335	161	247	40	NA	61	56	4.0
5	8		.150	1.9	645.845	645.800	336	162	247	40	NA	62	57	4.5
6	10		.140	1.8	647.351	647.335	336	160	246	40	NA	62	57	4.5
7	12		.130	1.7	648.806	648.785	336	160	247	41	NA	62	57	4.5
8	14		.120	1.6	650.208	650.208	335	161	247	40	NA	61	57	4.0
9	16		.120	1.6	651.555	651.555	336	161	245	40	NA	61	57	4.0
10	18		.130	1.7	652.902	652.950	336	157	246	41	NA	61	57	4.0
11	20		.150	1.9	654.304	654.304	335	157	246	40	NA	61	57	4.5
12	22		.170	2.2	655.81	655.810	335	157	246	40	NA	61	57	4.5

Pre test leak check: Rate (cfm) _____ at _____ inches Hg (Vacuum) Leak Volume Start: _____ Leak Volume End: _____

Post test leak check: Rate (cfm) _____ at _____ inches Hg (Vacuum) Leak Volume Start: _____ Leak Volume End: _____

K value calculated by: _____ Checked by: _____ Operator Signature: [signature]

F:\FORMS\STDS.FRM

BOVAR-CONCORD Environmental

DATE: 10 / 06 / 95

SAMPLING TRAINS DATA SHEET

Client: LOUISIANA PACIFIC Project #: 5216618 Sample Location: KONUS Operators: RH/BR

Run #: 13 KI Traverse #: 2 EAST Traverse Direction: OUT Start Time: 1858 Finish Time: 1914

Pt.	Time (Min.)	O_2 (%)	Vel. Press. (ΔP)	Orifice Press. (ΔH)	Gas Meter Reading Desired (ft^3)	Gas Meter Reading Actual (ft^3)	Stack Temp. (°F)	Probe Temp. (°F)	Box Temp. (°F)	Imp. Temp. (°F)	XAD Temp. (°F)	Meter Inlet (°F)	Meter Outlet (°F)	Vac. in Hg
13	24		.170	2.1	657.414	657.414	334	176	246	41	NA	61	57	5.1
14	26		.170	2.1	659.018	659.018 ~~660.622~~	333	160	246	41	NA	62	57	5.0
15	28		.180	2.3	660.622	660.622	330	156	247	40	NA	62	57	5.0
16	30		.160	2.1	662.272	662.272	328	157	246	41	NA	62	57	5.0
17	32		.150	1.9	663.828	663.828	325	157	247	41	NA	61	57	5.0
18	34		.130	1.7	665.334	665.334	312	159	246	41	NA	62	57	5.0
					666.736	666.736								

Pre test leak check: Rate (cfm) .005 at 17 inches Hg (Vacuum) Leak Volume Start: 666.736 Leak Volume End: 669.930

Post test leak check: Rate (cfm) _____ at _____ inches Hg (Vacuum) Leak Volume Start: _____ Leak Volume End: _____

K value calculated by: _____ Checked by: _____ Operator Signature: [signature]

E:\FORMS\STDS.FRM

BOVAR-CONCORD Environmental

AIR TESTING SERVICES INC. PARTICULATE EMISSION REPORT

CLIENT	: LOUISIANA-PACIFIC	DATE	: 10/06/95
JOBSITE	: DAWSON CREEK	RUN	: T3K-P
REF.No.	: 5216618	LOC.	: KONUS

RUN TIME : 17:42 TO 19:14

PARTICULATE CONCENTRATION	88.9 mg/DSm3	0.0389 gr/DScf
	50.7 mg/Am3	0.0222 gr/Acf
@ 12% CO2	194.0 mg/DSm3	0.0848 gr/DScf
PARTICULATE EMISSION RATE	0.792 g/s	6.28 lb/hr
SAMPLE GAS VOLUME	1.4623 DSm3	51.633 DScf
AVERAGE ISOKINETICITY	99.5 %	

FLUE GAS CHARACTERISTICS

MOISTURE	6.79 %	
TEMPERATURE	163.7 deg C	326.7 deg F
FLOW	32036 DSm3/hr	18856 DScfm
	56147 Am3/hr	33047 Acfm
VELOCITY	8.55 m/s	1683.1 fpm

GAS ANALYSIS	O2	15.50 %
	CO2	5.50 %
	CO	0.00 %
	SO2	0.00 %
	MOL. WT.	29.61 g/gmole D.B.
	MOL. WT.	28.82 g/gmole W.B.

*STANDARD CONDITIONS : METRIC 20 deg C, 101.3 kPa
: IMPERIAL 68 deg F, 29.92 in.Hg

AIR TESTING SERVICES INC. PARTICULATE EMISSION REPORT

CLIENT	: LOUISIANA-PACIFIC	DATE	: 10/06/95
JOBSITE	: DAWSON CREEK	RUN	: T3K-P
REF.No.	: 5216618	LOC.	: KONUS

STACK HEIGHT	18.3 m	60.0 ft.
STACK DIAMETER	1.52 m	60.0 in.
STACK AREA	1.824 m2	19.64 sq.ft.
BAROMETRIC PRESSURE	92.5 kPa	27.30 in.Hg
STATIC PRESSURE	-34.9 Pa	-0.14 in.H2O
NOZZLE DIAMETER	9.42 mm	0.3710 in.
PITOT COEFFICIENT	0.837	
METER CORRECTION FACTOR	1.010	

CONDENSATE COLLECTION

CONDENSATION IN IMPINGER 1	62.2 g
CONDENSATION IN IMPINGER 2	2.8 g
CONDENSATION IN IMPINGER 3	2.7 g
SILICA GEL WEIGHT GAIN	12.0 g
TOTAL MOISTURE GAIN	79.7 g

PARTICULATE COLLECTION

FILTER PARTICULATE	0.1283 g
WASHINGS PARTICULATE	0.0017 g
IMPINGER PARTICULATE	0.0000 g
TOTAL PARTICULATE	0.1300 g

TOTAL SAMPLING TIME 72.0 min.

AIR TESTING SERVICES INC. PARTICULATE EMISSION REPORT

CLIENT : LOUISIANA-PACIFIC
JOBSITE : DAWSON CREEK
REF.No. : 5216618

DATE : 10/06/95
RUN : T3K-P
LOC. : KONUS

PT. NO.	TIME min.	STACK TEMP. F	VEL. PRES. in.H2O	ORIF. PRES. in.H2O	METER VOL. cu.ft.	MTR. TMP. F	PROB. TEMP. F	OVEN TEMP. F	EXIT TEMP. F	PUMP VAC. in.Hg	WAL DIS in
TRAVERSE NO. 1											
1	0.0	315	0.180	2.30	612.13	54	174	247	39	2.5	1.
2	2.0	318	0.180	2.30	613.75	54	178	247	40	2.5	2.
3	4.0	320	0.180	2.30	615.38	54	180	246	40	2.5	4.
4	6.0	322	0.200	2.50	616.98	54	182	247	39	2.5	6.
5	8.0	324	0.220	2.80	618.59	55	186	244	40	3.0	8.
6	10.0	325	0.220	2.80	620.35	55	190	247	41	3.0	11.
7	12.0	325	0.210	2.60	622.15	55	191	247	41	3.2	14.
8	14.0	325	0.200	2.50	623.89	56	192	246	40	3.2	17.
9	16.0	325	0.180	2.30	625.63	56	193	246	40	3.2	22.
10	18.0	324	0.160	2.10	627.30	57	193	247	40	3.5	37.
11	20.0	324	0.160	2.10	628.86	57	190	246	40	3.5	42.
12	22.0	324	0.160	2.10	630.39	56	190	246	40	3.5	45.
13	24.0	324	0.150	1.90	631.95	56	188	246	41	3.5	48.
14	26.0	324	0.160	2.10	633.45	57	185	245	41	3.5	51.
15	28.0	321	0.100	1.30	635.00	58	181	246	40	3.5	53.
16	30.0	315	0.100	1.30	636.23	58	178	245	40	3.0	55.
17	32.0	315	0.100	1.30	637.46	58	178	245	40	3.0	57.
18	34.0	325	0.100	1.30	638.69	58	178	245	40	3.0	59.
	36.0				639.92						
TRAVERSE NO. 2											
1	0.0	329	0.140	1.80	639.92	58	157	246	40	3.5	1.
2	2.0	322	0.140	1.80	641.38	58	158	245	41	3.5	2.
3	4.0	334	0.150	1.90	642.83	59	159	246	40	4.0	4.
4	6.0	335	0.150	1.90	644.34	59	161	247	40	4.0	6.
5	8.0	336	0.150	1.90	645.80	60	162	247	40	4.5	8.
6	10.0	336	0.140	1.80	647.34	60	160	246	40	4.5	11.
7	12.0	336	0.130	1.70	648.79	60	160	247	41	4.5	14.
8	14.0	335	0.120	1.60	650.21	59	161	247	40	4.0	17.
9	16.0	336	0.120	1.60	651.56	59	161	245	40	4.0	22.
10	18.0	336	0.130	1.70	652.95	59	159	245	41	4.0	37.
11	20.0	335	0.150	1.90	654.30	59	157	246	40	4.5	42.
12	22.0	335	0.170	2.20	655.81	59	157	246	40	4.5	45.
13	24.0	334	0.170	2.10	657.41	59	157	246	41	5.0	48.
14	26.0	333	0.170	2.10	659.02	60	160	246	41	5.0	51.
15	28.0	330	0.180	2.30	660.62	60	156	247	40	5.0	53.

AIR TESTING SERVICES INC. PARTICULATE EMISSION REPORT

CLIENT : LOUISIANA-PACIFIC
JOBSITE : DAWSON CREEK
REF.No. : 5216618

DATE : 10/06/95
RUN : T3K-P
LOC. : KONUS

PT. NO.	TIME min.	STACK TEMP. F	VEL. PRES. in.H2O	ORIF. PRES. in.H2O	METER VOL. cu.ft.	MTR. TMP. F	PROB. TEMP. F	OVEN TEMP. F	EXIT TEMP. F	PUMP VAC. in.Hg	WAL DIS in
16	30.0	328	0.160	2.10	662.27	60	157	246	41	5.0	55.
17	32.0	325	0.150	1.90	663.83	59	157	247	41	5.0	57.
18	34.0	312	0.130	1.70	665.33	60	159	246	41	5.0	59.
	36.0				666.74						
		327	0.154	2.00		57	172	246	40	3.8	

START @ 9:08

TILL P.

9:15 6.5% CO_2
15 % O_2

9:19 5%
16.5

9:25 5%
16%

9:29 5.5
15.5

9:33 4.5
16.0

9:37 4.5
16.5

9:41 5.0
16.0

9:45 5.0
16.0

9:49 5.0
16.0

PT #5 9:22
#6 9:24

1ST TRAY ENDS @ 9:50

2 10:03
6.0

10:04 5.8%
15.5%

10:08 5.5%
15.5%

10:12 5.5%
15.0%

10:16 6.0%
14.5%

10:20 5.5%
15.0%

10:24 5.0%
16.0%

10:28 5.5
16.0

10:32 5.0
15.5

10:36 5.0
16.0

TEST #2

M.#2 12:16

12:19 15.5 % O_2
5 % CO_2

12:23 17 %
4 %

12:28 18 %
3 %

#11 14:04

14:05 5.5
16.0

14:09 5.0
15.5

14:13 5.0
16.0

14:17 4.0
17.0

PT 2 @ 14:33

14:34 14.5 O_2
6.2 CO_2

14:38 16.0
4.5

17.0
14:40 4.5

14:46 16.0
5.5

14:50 16.0
5.5

16.0
14:56 5.0

15:00 15.5
5.2

15:04 15.0
5.0

PRETEST PREPARATION CHECKLIST

PROJECT MANAGER: BRAD RESHETYLO
PROJECT NO. 516618 CLIENT LOUISIANA PACIFIC
TASK: KON

1. Do you have a copy of the budget? ✓

2. Do you have a copy of the proposal? ✓

3. Do you understand the scope of work to be performed? ✓

4. The sampling systems to be used on this project are:

Particulate	✓	MM5	___
Metals	___	VOST	___
Rader	___	Continuous Gases	___
Fyrites	___	Other ___	

5. Do you have copies of the appropriate sampling methodologies? ✓

6. Do you have copies of the following Date Forms:

QA/QC checklist	Y ✓	N ___	NA ___
VOST QA/QC checklist	Y ___	N ___	NA ✓
Rader QA/QC checklist	Y ___	N ___	NA ✓
Continuous gases QA/QC checklist	Y ___	N ___	NA ✓
Field sheets	Y ✓	N ___	NA ___
Recent calibration factors	Y ✓	N ___	NA ___
Chain of custody sheets	Y ✓	N ___	NA ___
Extra charges summary sheets	Y ___	N ___	NA ✓
Blue book	Y ___	N ___	NA ✓
Pollution Control Data	Y ✓	N ___	NA ___
Summary Sheet	Y ✓	N ___	NA ___

PRETEST PREPARATION CHECKLIST

PROJECT MANAGER: BRAD RESHETILO
PROJECT NO. 516618 CLIENT LOUISIANA PACIFIC

7. Is the sampling equipment functioning properly (before it's taken into the field)? Examples:

probe temp. ind.	✓	oven temp. indicator	✓
stack temp. ind.	✓	probe heat ind.	✓
probe heat	✓	oven heat	✓
magnehelics	NA	pumps	✓
strip chart record.	NA	gas analyzers	NA
leak checks	✓	other	NA

8. Have the following been cleaned, proofed, weighed, prepared according to the appropriate sampling methodologies:

sample jars and lids	✓
glassware	✓
filters	✓
liners/probes	✓
nozzles	✓
wash bottles	✓
probe brushes	✓
sample capturing/ringing solutions	✓
other _____	

9. Has the client been called to check?

scope of work	✓
test objective	✓
test schedule	✓
sampling site conditions	✓
port conditions	✓
process conditions	✓
accomadations	✓

BRAD RESHETILO
Name

Signature

E:\FORMS\PREP.QAQ

BOVAR-CONCORD Environmental

NOZZLE CALIBRATION FORM

Date: Oct 5, 1995

1. Vernier Caliper used to measure ID of nozzle to the nearest 0.025 mm (0.001 inch)?
   YES

2. Four measurements obtained using four different diameters? YES

3. Difference between high and low measurements does not exceed 0.1 mm (0.004 inch)

4. Nozzle permanently and uniquely marked? YES

5. Nozzle round? YES

Nozzle I.D. #	Nozzle Diameter[a]				ΔD[b]	D_{avg}[c]	Pre-Test Calibration Value
	D_1 (in. or mm)	D_2 (in. or mm)	D_3 (in. or mm)	D_4 (in. or mm)			
	.370	.370	.375	.370	.005	.371	

where: [a]$D_{1,2,3,4}$ = four different nozzle diameters (mm or inches); each diameter must be within (0.025 mm) 0.001 in.

[b]ΔD = maximum difference between any two diameters $\Delta D \leq 0.10$ mm or 0.004 in.

[c]D_{avg} = average of D_1, D_2, D_3 and D_4

Comments: [signature] LOUISIANA PACIFIC KONIST

QA/QC CHECKLIST

PROJECT # 521661Y DATE: OCT 6/95 TEST T1K-P - T3K-P

Client: LOUISIANA PACIFIC Location: D.C. KOKOMO Operator: BR.

Sample Type: PARTICULATE Reference Method: 5

Modifications:

ITEM	✓	COMMENTS
PRELIMINARY DATA		
Was preliminary velocity profile performed?	✓	
Avg. ΔP	→	0.20
Static positive or negative	→	NEG.
Average Temperature	→	350
Estimate % H_2O	→	37
How estimated?	→	PREVIOUS TESTS
Estimate Gas Composition	→	O_2% 16 CO_2(%) 5 CO(ppm) 0
How Estimated?	→	PREVIOUS TESTS
Proper nozzle selected?	✓	0.371
K factor	→	
Number of sampling points per traverse	→	18
Probe markings correct?	✓	
Time per point	→	2 MINUTES
Number of readings per point	→	1
Barometric Pressure Measured?	✓	AIRPORT
Mercury		
Aneroid		
Other		
PROBE NOZZLE:		
Nickel plated stainless steel or		
Stainless Steel or	✓	
Glass or		
Quartz		
Button Hook or		
Elbow		
Cleaned according to protocol	✓	
Round ? Undamaged?	✓	
PROBE LINER:		
Borosilicate or		
Quartz or		
Other	✓	STAINLESS STEEL
Cleaned according to protocol	✓	
PROBE HEATING SYSTEM:		
Checked	✓	
Temperature 250 ± 25°F	✓	
Stable	✓	

PROJECT # 5216618 DATE: OCT 6/95 TEST T1K-P - T3K-P

ITEM	✓	COMMENTS
PITOT TUBE/METER BOX		
Type "S" or	✓	
Other		
Properly attached to probe (no interference with nozzle)	✓	
Modifications	—	
Connected to:		
inclined manometer	✓	
magnehilic gauge		Range: _____ Division: _____
micromanometer		Range: _____
Pitot lines checked for leak	✓	
Pitot pressure gauge zeroed	✓	
Orifice pressure gauge zeroed	✓	
Meter box levelled	✓	
Gas Temperature Sensor	✓	
Thermocouple	✓	
Type		
Temp. checked against ambient temp	✓	
FILTER HOLDER		
Borosilicate glass	✓	
Other		
FRIT MATERIAL		
Teflon		
Borosilicate glass	✓	
Other		
GASKET MATERIAL		
Silicone		
Other	✓	
Filter assembly cleaned according to Protocol		
FILTER TYPE		
Glass Fibre	✓	
Quartz		
Other		
Filter checked visually for irregularities	✓	
Filter centered properly	✓	
Filter labelled	✓	
Filter heated	✓	
Temperature (250 ± 25°F)	✓	
CONDENSER/XAD-2 TRAP		
Glass		
Cleaned according to protocol		
Thermocouple attached to trap		
XAD-2 Trap covered with foil at all times		

PROJECT # 5216618 DATE: OCT 6/98 TEST TKP - T3L-P

ITEM	✓	COMMENTS
GLASSWARE		
Cleaned and proofed according to protocol	✓	MOISTURE ONLY
IMPINGERS		
No. of Impingers	—	4
Contents #1	—	100 mls H_2O
#2	—	" " "
#3	—	EMPTY
#4	—	SILICA GEL
#5	—	
#6	—	
Impinger weights recorded	✓	
Impingers properly assembled	✓	
Recirculating pump set up properly		
Modifications	—	
Grease used on joints	✓	
Silica gel type	—	
New?	✓	
Used?		
Pre Test Leak Check		
Performed	✓	
Rate	—	< .002 cfm@ 15 "Hg
All openings of sampling train sealed	✓	
Is nozzle sealed when probe is in stack with pump off	✓	
Is care taken to avoid scraping nipple or stackwall	✓	
Effective seal around probe when in-stack	✓	
Probe moved to traverse point at right time	✓	
Nozzle and pitot tube kept parallel to stack at all times	✓	
Filters changed during run	~~N/A~~	NO
Any particulate lost during filter change	~~N/A~~	NO
Sorbent trap kept at ≤68°F	~~N/A~~	
Probe temperature 250 ± 25°F	✓	
Filter box temperature 250 ± 25°F	✓	
Data forms completed and data recorded properly	✓	
Ice level checked	✓	
Condition of silica gel	—	
Leak checks at port changes Before	—	cfm@ "Hg
After	—	cfm@ "Hg
Final leak rate acceptable	—	cfm@ "Hg
General comments on sampling technique	—	
Sample recovery performed on-site?	✓	~~MOISTURE ONLY~~
Sample recovery performed by	—	
Clean-up area - General Environment	—	
Brushes: Nylon bristle	✓	
Other		
Wash Bottles: Glass		

PROJECT # 5216618 DATE: OCT 6, 1995 TEST TIKP

ITEM	✓	COMMENTS
Teflon	✓	
Polyethylene		
Other		
Storage Containers:		
Borosilicate glass	✓	
Polyethylene		
Cap Material	—	
Leak free		
Petri Dishes: borosilicate glass	✓	
plastic		
Balance Type	—	TRIPLE BEAM
Calibrated or QC checked	—	Actual 500 (g) Measured 500 (g)
Probe allowed to cool sufficiently	✓	
Probe and sample train openings covered	✓	
Silica Gel		
Condition/Colour		GOOD / BLUE
Weighed	✓	
Filter Handling		
Tweezers used?	✓	
Condition?	✓	GOOD
Colour of Filter	✓	WHITE
Foil Wrapped?		PA
Probe Rinses		
Acetone		
Other	✓	DI H_2O
Particulate Recovered from		
probe/nozzle	✓	
probe fitting	✓	
probe liner	✓	
front half filter holder	✓	
Impingers		
Recovered according to protocol	✓	
Weighted	✓	
H_2O/Recovery data sheet completed		N.A
Blanks Collected		
Reagents	✓	
Solvents	N.A	
Resin	N.A	
Blank Train	✓	
Samples labelled and stored properly	✓	
Liquid levels marked	✓	
Samples delivered to lab	✓	

QA/QC CHECKLIST
POST-TEST

PROJECT # 5216618	CLIENT NAME: LOUISIANA PACIFIC - DC.

1.	Was the scope of work performed to completion? If not, note deletions or additions made to scope of work. 1 ADDITIONAL PARTICULATE TEST PERFORMED	Y [✓] N [ ] N/A [ ]
2.	Were field samples recovered according to appropriate methodologies? If not, note differences.	Y [✓] N [ ] N/A [ ]
3.	Are the following items fully completed?	
	QC/QA checklists	Y [✓] N [ ] N/A [ ]
	Isotrain sheets	Y [✓] N [ ] N/A [ ]
	Velocity sheets	Y [✓] N [ ] N/A [ ]
	Front sheets	Y [✓] N [ ] N/A [ ]
	Radar sheets	Y [ ] N [ ] N/A [✓]
	Vost sheets	Y [ ] N [ ] N/A [✓]
	Cont. Emission monitoring sheets	Y [ ] N [ ] N/A [✓]
	Sample labels	Y [✓] N [ ] N/A [ ]
	Blue book	Y [ ] N [ ] N/A [✓]
	Chain of Custody sheets	Y [✓] N [ ] N/A [ ]
	Extra charges summary sheet	Y [ ] N [ ] N/A [✓]
	Stripcharts	Y [ ] N [ ] N/A [✓]
	Pollution control data sheets/Process Desc.	Y [ ] N [ ] N/A [✓]
	Other field sheets	Y [✓] N [ ] N/A [ ]
4.	Are all sample jars tightly sealed and stored in appropriate storage containers under appropriate storage conditions?	Y [✓] N [ ] N/A [ ]
5.	Are all sample filters in sealed petri dishes and stored in appropriate containers under appropriate conditions?	Y [✓] N [ ] N/A [ ]
6.	Do you have copies of all relevant process data?	Y [ ] N [ ] N/A [✓]
7.	Is the field data recorded clearly and concisely?	Y [✓] N [ ] N/A [ ]
8.	Has the field data been put in the project file in an organized manner?	Y [✓] N [ ] N/A [ ]
9.	Print name of field recovery sample custodian	BRAD RESHETYLO

APPENDIX B

LABORATORY RESULTS

8577 Commerce Court
Burnaby, B.C.
Canada V5A 4N5
Tel 604 444 4808
Fax 604 444 4511

13-Oct-95

ZENON ENVIRONMENTAL LABORATORIES
Certificate of Analysis

Reported To :

BOVAR-CONCORD ENVIRONMENTAL

Client Code N7

8563 COMMERCE COURT
BURNABY, BC
V5A 4N5

Attention : ROB HAMM
Phone : (604) 444-3370
FAX : (604) 444-3371

Project Information :

Project ID : DAWSON CREEK BC - 5216618

Requisition Forms :

Form 60018192 received on 10-Oct-95 completed on 13-Oct-95
Form 60018193 received on 10-Oct-95 completed on 13-Oct-95

Remarks :

- All organic data is blank corrected except for PCDD/F, Hi-res MS and CLP volatile analyses
- 'MDC' = Minimum Detectable Concentration, '<' = Less than MDC, '---' = Not analyzed
- Solids results are based on dry weight except Biota Analyses & Special Waste Oil & Grease
- Organic analyses are not corrected for extraction recovery standards except for Isotope Dilution methods, (i.e. CARB 429 PAH, all PCDD/F and DBD/DBF analyses)

Methods used by Zenon are based upon those found in 'Standard Methods for the Examination of Water and Wastewater', 18th Edition, published by the American Public Health Association, or on US EPA protocols found in the 'Test Methods For Evaluating Solid Waste, Physical/Chemical Method, SW846', 3rd Edition. Other procedures are based on methodologies accepted by the B.C. Ministry of Environment.

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. Any and all use of these test results shall be limited to the actual cost of the pertinent analysis done. There is no other warranty expressed or implied.
Your samples will be retained at Zenon for a period of 30 days from receipt of data or as per contract.

ZENON Project Manager: Shawn Heier

ANALYTICAL REPORT

Client : BOVAR-CONCORD ENVIRONMENTAL
Project : DAWSON CREEK BC - 5216618

Sparcode	Parameter	Unit	MDC			
			Zenon ID :	95028699	95028700	95028701
			Client ID :	T1K-F	T2K-F	T3K-F
SPECIAL INORGANICS						
GSSPGSSP	Special Analysis	None		--- (1)	--- (2)	--- (3)
			Matrix :	Air	Air	Air
			Sampled on:	95/10/06	95/10/06	95/10/06

Result comments and/or text results :

(1) Text results for sample 95028699 sparcode GSSPGSSP follow :

PARTICULATES = 0.13218 G

(2) Text results for sample 95028700 sparcode GSSPGSSP follow :

PARTICULATES = 0.04095 G

(3) Text results for sample 95028701 sparcode GSSPGSSP follow :

PARTICULATES = 0.12772 G

ZENON

ANALYTICAL REPORT

Client : BOVAR-CONCORD ENVIRONMENTAL
Project : DAWSON CREEK BC - 5216618

			Zenon ID :	95028702	95028703	95028704
			Client ID :	T1K-P	T2K-P	T3K-P
Sparcode	Parameter	Unit	MDC			
SPECIAL INORGANICS						
GSSPGSSP	Special Analysis	None		--- (1)	--- (2)	--- (3)
			Matrix :	Air	Air	Air
			Sampled on:	95/10/06	95/10/06	95/10/06

Result comments and/or text results :

(1) Text results for sample 95028702 sparcode GSSPGSSP follow :

7.3 MG NONFILTERABLE RESIDUE

(2) Text results for sample 95028703 sparcode GSSPGSSP follow :

1.1 MG NONFILTERABLE RESIDUE

(3) Text results for sample 95028704 sparcode GSSPGSSP follow :

1.7 MG NONFILTERABLE RESIDUE