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AIR QUALITY DIV.

**RESULTS OF THE MARCH 13, 2014
PARTICULATE EMISSION COMPLIANCE TEST
ON THE PLANERSYSTEM BAGHOUSE AT THE POTLATCH
LAND & LUMBER FACILITY IN GWINN MICHIGAN
Permit No. MI-ROP-N5940-2013**

Submitted to:

**POTLATCH LAND AND LUMBER
GWINN SAWMILL
650 A Avenue
Gwinn, Michigan 49841**

Attention:

Lauren Lueneburg

Reviewed by:


Kathleen Eickstadt
Source Testing Coordinator

Report Number 14-33009(Planer)
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KE/kce

ABBREVIATIONS

ACFM	actual cubic feet per minute
cc (ml)	cubic centimeter (milliliter)
DSCFM	dry standard cubic foot of dry gas per minute
DSML	dry standard milliliter
DEG-F (°F)	degrees Fahrenheit
DIA.	Diameter
FT/SEC	feet per second
g	gram
GPM	gallons per minute
GR/ACF	grains per actual cubic foot
GR/DSCF	grains per dry standard cubic foot
g/dscm	grams per dry standard meter
HP	horsepower
HRS	hours
IN.	inches
IN.HG.	inches of mercury
IN.WC.	inches of water
LB	pound
LB/DSCF	pounds per dry standard cubic foot
LB/HR	pounds per hour
LB/10 ⁶ BTU	pounds per million British Thermal Units heat input
LB/MMBTU	pounds per million British Thermal Units heat input
MW	megawatt
mg/dscm	milligrams per dry standard cubic meter
ug/dscm	micrograms per dry standard cubic meter
microns (um)	micrometer
MIN.	minutes
ng	nanograms
PM	particulate matter
PPH	pounds per hour
PPM	parts per million
ppmC	parts per million carbon
ppm,d	parts per million, dry
ppm,w	parts per million, wet
ppt	parts per trillion
PSI	pounds per square inch
SQ.FT.	square feet
TPD	tons per day
ug	micrograms
v/v	percent by volume
w/w	percent by weight

Standard conditions are defined as 68 °F (20 °C) and 29.92 IN. of mercury pressure

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1 INTRODUCTION

On March 13, 2014, Interpoll Laboratories personnel conducted a particulate emission compliance test on the Planer System Baghouse at the Potlatch Gwinn facility located in Gwinn, Michigan. On-site testing was performed by Steve Edson and Jake Ward. Coordination between testing activities and plant operation was provided by Lauren Lueneburg of Potlatch. The test was not witnessed by a representative of the Michigan DEQ.

Particulate evaluations were performed in accordance with EPA Methods 1 - 5, CFR Title 40, Part 60, Appendix A (revised July 1, 2013). A preliminary determination of the gas linear velocity profile was made before the first particulate determination to allow selection of the appropriate nozzle diameter for isokinetic sample withdrawal. An Interpoll Labs sampling train, which meets or exceeds specifications in the above-cited reference, was used to extract particulate samples by means of a heated glass-lined probe.

The important results of the test are summarized in Section 2. Detailed results are presented in Section 3. Field data and all other supporting information are presented in the appendices.

2 SUMMARY AND DISCUSSION

The air emission results are summarized in the following tables. An overview of all results is presented in the table below:

1(a) Emission Unit Tested	1(b) Limitation Basis	1(c) Pollutant and Emission Limit	1(d) Test Result
Planersystem	R336.1331(1)(c)	PM 0.01gr/dscf 5.2 lb/hr	PM < 0.00004 gr/dscf < 0.015 Lb/Hr

No difficulties were encountered in the field by Interpoll Labs or in the laboratory analysis of the samples, which were conducted by Interpoll Labs. On the basis of these facts and a complete review of the data and results, it is our opinion that the results reported herein are accurate and closely reflect the actual values, which existed at the time the test was performed.

Test 11 Summary of the Results of the March 13, 2014 Particulate Emission Compliance Test on the Planer System Baghouse at the Potlatch Land & Lumber Facility in Gwinn, Michigan.

Item		Run 1	Run 2	Run 3	Average			
Date of test		03-13-14	03-13-14	03-13-14				
Time (Start/Finish)	(Hrs)	0800 / 0916	0940 / 1055	1115 / 1230				
Volumetric Flow								
Actual	(ACFM)	43914	46827	44083	44941			
Standard	(DSCFM)	41780	44296	41612	42563			
Gas Temperature	(°F)	48	49	50	49			
Moisture Content	(%v/v)	0.12	0.49	0.57	0.39			
Gas Composition	(%v/v, dry)							
Carbon Dioxide		0.03	0.03	0.03	0.03			
Oxygen		20.90	20.90	20.90	20.90			
Nitrogen		79.07	79.07	79.07	79.07			
Sample Volume	(dscf)	36.46	38.88	36.43	37.26			
Isokinetic Variation	(%)	99.4	100.3	100.0	99.9			
Particulate Results-EPA Method 5								
<i>Dry Catch Only</i>								
Sample Mass (Nozzle, PW, Filter)	(g) <	0.0001	<	0.0001	<	0.0001		
Concentration - Actual	(GR/ACF) <	0.00004	<	0.00004	<	0.00004	<	0.00004
Concentration - Standard	(GR/DSCF) <	0.00004	<	0.00004	<	0.00004	<	0.00004
Emission Rate	(LB/HR) <	0.015	<	0.015	<	0.015	<	0.015

Note: Minimum detectable weight assigned a value of 0.0001 grams

The results of all field and laboratory evaluations are presented in this section. Gas composition is presented first followed by the computer printout of the particulate results. Preliminary measurements including test port locations are given in the appendices.

The results have been calculated on a personal computer using Microsoft Excel spreadsheets specifically for source testing calculations. EPA-published equations have been used as the basis of the calculation techniques in these programs. The emission rates have been calculated using the product of the concentration times flow method.

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3.1 Results of Gas Composition and Moisture Determinations

Test Number 11
 FG-Planersystem Baghouse

Results of Gas Composition and Moisture Analyses --- Methods 3A and 4 (% v/v)

Date of Run		Run 1 03-13-14	Run 2 03-13-14	Run 3 03-13-14
Dry basis				
Carbon Dioxide.....	(%)	0.03	0.03	0.03
Oxygen.....	(%)	20.90	20.90	20.90
Nitrogen.....	(%)	79.07	79.07	79.07
Wet basis (Orsat)				
Carbon Dioxide.....	(%)	0.03	0.03	0.03
Oxygen.....	(%)	20.88	20.80	20.78
Nitrogen.....	(%)	78.98	78.68	78.62
Water Vapor.....		0.12	0.49	0.57
Dry Molecular Weight.....	(g/gmole)	28.84	28.84	28.84
Wet Molecular Weight.....	(g/gmole)	28.83	28.79	28.78
Specific Gravity.....		0.996	0.994	0.994
Water Mass Flow.....	(lb/hr)	136	618	665

3.2 Method 5 Sampling Data

Test Number 11
FG-Planersystem Baghouse

Results of EPA Method 5 Sampling Data

		Run 1	Run 2	Run 3
Date of Test		03-13-14	03-13-14	03-13-14
Time of Runs	(Hrs)	0800 / 0916	0940 / 1055	1115 / 1230
Static Pressure	(In. of WC)	-18.00	-18.00	-18.00
Cross Sectional Area	(Sq. ft)	17.72	17.72	17.72
Pitot Tube Coefficient		0.84	0.84	0.84
Water in Sample Gas				
Impingers	(g)	-6.7	-3.0	-2.1
Desiccant	(g)	7.6	7.1	6.5
Total	(g)	0.9	4.1	4.4
Gas Meter Coefficient		0.9973	0.9973	0.9973
Barometric Pressure	(In. of Hg)	28.75	28.75	28.75
Avg. Orifice Pressure Drop	(In. of WC)	1.32	1.51	1.34
Avg. Gas Meter Temperature	(°F)	53.8	54.8	60.2
Volume Through Gas Meter				
Meter Conditions	(CF)	36.92	39.42	37.34
Standard Conditions	(DSCF)	36.46	38.88	36.43
Total Sampling Time	(Min.)	60.00	60.00	60.00
Nozzle Diameter	(In.)	0.218	0.218	0.218
Avg. Stack Gas Temperature	(°F)	48	49	50
Volumetric Flow Rate				
Actual	(ACFM)	43,914	46,827	44,083
Dry Standard	(DSCFM)	41,780	44,296	41,612
Isokinetic Variation	(%)	99.4	100.3	100.0