

## AIR QUALITY PERMIT

Issued to: Plum Creek Manufacturing, L.P.  
Columbia Falls Operations  
P.O. Box 1990  
Columbia Falls, Montana 59912

Permit #2667-13  
Administrative Amendment (AA)  
Request Received: 5/9/07  
Department Decision on AA: 7/23/07  
Permit Final: 8/08/07  
AFS Number: 029-0008

An air quality permit, with conditions, is hereby granted to Plum Creek Manufacturing, L.P. (Plum Creek), pursuant to Sections 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.740, *et seq.*, as amended, for the following:

### SECTION I: Permitted Facilities

#### A. Plant Location

Plum Creek's Columbia Falls facility is located in Section 7 and the SW<sup>1</sup>/<sub>4</sub> of Section 8, Township 30 North, Range 20 West, in Flathead County. The facility includes a sawmill, a planer, a plywood plant, and a medium density fiberboard (MDF) plant. The MDF plant has two production lines: Line 1 manufactures MDF through a batch press process and Line 2, through the use of a continuous press.

#### B. Current Permit Action

On May 9, 2007, the Montana Department of Environmental Quality (Department) received notification of proposed changes to the permitted Plum Creek facility under the provisions contained in ARM 17.8.745 (de minimis rule) and a request for an administrative amendment under the provisions contained in ARM 17.8.764. Specifically, Plum Creek proposed the following changes:

- Increase in air-flow from the Line 2 press vents to the existing Line 2 venturi scrubbers and biofilter.
- Installation and operation of a knock-out box particulate matter control and a new Line 1 biofilter emission control system for the Line 1 press vents and Line 1 MDF fiber dryers. The Line 1 MDF fiber dryers are currently controlled by four wet ESPs and the Line 1 press vents are currently uncontrolled.

The proposed Line 1 changes do not result in any increase in permitted allowable emissions; rather, the knock-out box will result in a decrease in particulate matter (PM) and particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM<sub>10</sub>) emissions from Line 1 operations. The increased air-flow through the Line 2 press vents will result in an increase in emissions of particulate and PM<sub>10</sub> from the Line 2 operations. However, because the proposed increase in emissions is below 15 tons per year, the project qualifies as a de minimis change under ARM 17.8.745(1). A more detailed discussion of the current permit action is contained in Section I.D of the permit analysis to this permit.

SECTION II: Limitations and Conditions

A. Line 1 MDF Fiber Dryers and press vents

1. Hours of operation of the Line 1 MDF fiber dryers and press vents shall be limited to 8500 hours per year (hr/yr) (ARM 17.8.749).
2. Plum Creek shall operate and maintain four ESPs on the Line 1 MDF fiber dryers (ARM 17.8.749).
3. Prior to construction and initial operation of the Line 1 biofilter under Permit #2667-13, Line 1 MDF fiber dryer emissions of total particulate shall be limited to 23.14 pounds per hour (lb/hr) (ARM 17.8.752).
4. Prior to construction and initial operation of the Line 1 biofilter under Permit #2667-13, Line 1 MDF fiber dryer emissions of PM<sub>10</sub> shall be limited to 23.14 lb/hr (ARM 17.8.752).
5. Prior to construction and initial operation of the Line 1 biofilter under Permit #2667-13, Line 1 MDF fiber dryer emissions of Volatile Organic Compounds (VOC) shall be limited to 131.10 lb/hr (ARM 17.8.752).
6. After construction and initial operation of the Line 1 biofilter under Permit #2667-13, emissions from the four ESPs controlling emissions from the Line 1 MDF fiber dryers shall be routed through the Line 1 biofilter and exhausted to the atmosphere through the Line 1 biofilter stacks (ARM 17.8.749).
7. After construction and initial operation of the Line 1 biofilter under Permit #2667-13, Line 1 MDF fiber dryer and Line 1 press vent total particulate emissions, as emitted from the Line 1 biofilter stacks, shall be limited to 30.88 lb/hr (ARM 17.8.749).
8. After construction and initial operation of the Line 1 biofilter under Permit #2667-13, Line 1 MDF fiber dryer and Line 1 press vent emissions of PM<sub>10</sub>, as emitted from the Line 1 biofilter stacks, shall be limited to 25.99 lb/hr (ARM 17.8.749).
9. After construction and initial operation of the Line 1 biofilter under Permit #2667-13, Line 1 MDF fiber dryer and Line 1 press vent emissions of VOCs, as emitted from the Line 1 biofilter stacks, shall be limited to 139.14 lb/hr (ARM 17.8.749).
10. Prior to construction and initial operation of the line 1 biofilter under Permit #2667-13, visible emissions from the Line 1 MDF fiber dryers, as emitted from the four ESPs controlling emissions from the Line 1 MDF fiber dryers, shall be limited to 20% opacity averaged over 6 consecutive minutes (ARM 17.8.304).
11. After construction and initial operation of the Line 1 biofilter under Permit #2667-13, visible emissions from the Line 1 MDF fiber dryers and the Line 1 press vents, as emitted from the Line 1 biofilter stacks, shall be limited to 20% opacity averaged over 6 consecutive minutes (ARM 17.8.304).

12. The initial source test of the Line 1 MDF fiber dryer ESPs was conducted on December 18-19, 1995, to demonstrate compliance with the emission limitations contained in Sections II.A.3 and 4. Prior to construction and initial operation of the Line 1 biofilter under Permit #2667-13, Plum Creek shall continue testing on an every 3-year basis to demonstrate compliance with the emission limitations or another testing/monitoring schedule as may be approved by the Department. The test methods shall conform to 40 Code of Federal Regulations (CFR) Part 51, Appendix M, including back half, for PM<sub>10</sub>; 40 CFR Part 60, Appendix A, including back half, for total particulate; and the Montana Source Test Protocol and Procedures Manual. The Department may allow a total particulate test if the back half is included and it is acknowledged this test can be used as a surrogate for PM<sub>10</sub> (ARM 17.8.105 and ARM 17.8.106).
13. Within 180 days of initial operation of the Line 1 biofilter under Permit #2667-13, Plum Creek shall conduct source testing to demonstrate compliance with the total particulate and PM<sub>10</sub> emission limitations contained in Sections II.A.7 and 8, respectively. After the initial source test, Plum Creek shall continue testing on an every 3-year basis to demonstrate compliance with the emission limitations or another testing/monitoring schedule as may be approved by the Department in writing. The test methods shall conform to 40 CFR Part 51, Appendix M, including back half, for PM<sub>10</sub>; 40 CFR Part 60, Appendix A, including back half, for total particulate; and the Montana Source Test Protocol and Procedures Manual. The Department may allow a total particulate test if the back half is included and it is acknowledged this test can be used as a surrogate for PM<sub>10</sub> (ARM 17.8.105 and ARM 17.8.106).
14. The initial VOC source test for the Line 1 MDF fiber dryers was conducted on December 18-19, 1995, to demonstrate compliance with the emission limitation contained in Section II.A.5. Prior to construction and initial operation of the Line 1 biofilter under Permit #2667-13, Plum Creek shall continue testing on an every 3-year basis to demonstrate compliance with the emission limitation or according to another testing/monitoring schedule as approved by the Department. The test methods shall conform to 40 CFR Part 60, Appendix A and the Montana Source Test Protocol and Procedures Manual (ARM 17.8.105 and ARM 17.8.106).
15. Within 180 days of initial operation of the Line 1 biofilter under Permit #2667-13, Plum Creek shall conduct source testing to demonstrate compliance with the VOC emission limitations contained in Section II.A.9. After the initial source test, Plum Creek shall continue testing on an every 3-year basis to demonstrate compliance with the emission limitations or another testing/monitoring schedule as may be approved by the Department in writing. The test methods shall conform to 40 CFR Part 60, Appendix A and the Montana Source Test Protocol and Procedures Manual (ARM 17.8.105 and ARM 17.8.106).

B. Line 2 MDF Fiber Dryers

1. Plum Creek shall install, operate, and maintain two venturi scrubbers with three biofilter stacks as control for the Line 2 MDF fiber dryers (ARM 17.8.749).
2. Plum Creek shall install, operate, and maintain a flue gas recirculation/low NO<sub>x</sub> burner (FGR/LNB) on the heat source for the Line 2 MDF fiber dryer (ARM 17.8.752).

3. Total particulate emissions from the Line 2 MDF fiber dryer venturi scrubbers and biofilter stacks shall be limited to 23.1 lb/hr (ARM 17.8.752).
4. PM<sub>10</sub> emissions from the Line 2 MDF fiber dryer venturi scrubbers and biofilter stacks shall be limited to 23.1 lb/hr (ARM 17.8.752).
5. VOC emissions from the Line 2 MDF fiber dryer combined stack shall be limited to 78.1 lb/hr (ARM 17.8.752).
6. Visible emissions from the Line 2 MDF fiber dryers combined stack shall be limited to 20% opacity averaged over 6 consecutive minutes (ARM 17.8.304).
7. Within 180 days of initiation of the increase in air flow (25,000 dry standard cubic feet per minute (dscfm) to 40,000 dscfm) from the Line 2 press vents to the existing Line 2 venturri scrubbers and biofilter under Permit #2667-13, Plum Creek shall conduct source testing to demonstrate compliance with the emission limitations contained in Sections II.B.3 and 4. After the initial source test, Plum Creek shall continue testing on an every 3-year basis to demonstrate compliance with the emission limitations or according to another testing/monitoring schedule as may be approved by the Department in writing. The test methods shall conform to 40 CFR Part 51, Appendix M, including back half, for PM<sub>10</sub>; 40 CFR Part 60, Appendix A, including back half, for total particulate; and the Montana Source Test Protocol and Procedures Manual. The Department may allow a total particulate test if the back half is included and it is acknowledged this test can be used as a surrogate for PM<sub>10</sub> (ARM 17.8.105 and ARM 17.8.106).

C. Plywood Veneer Dryers

1. Plum Creek shall operate and maintain the ESP on the veneer dryers (ARM 17.8.749).
2. Plywood veneer dryer emissions of total particulate shall be limited to 10.00 lb/hr (ARM 17.8.749).
3. Plywood veneer dryer emissions of PM<sub>10</sub> shall be limited to 10.00 lb/hr (ARM 17.8.749).
4. Visible emissions shall be limited to 20% opacity averaged over 6 consecutive minutes (ARM 17.8.304).
5. The initial source test for the plywood veneer dryers was conducted on September 19, 1995, to demonstrate compliance with emission limitations contained in Section II.C.2 and 3. The testing shall continue on an every 3-year basis to demonstrate compliance with the emission limitations or according to another testing/monitoring schedule as approved by the Department. The test methods shall conform to 40 CFR Part 51, Appendix M, including back half, for PM<sub>10</sub>; 40 CFR Part 60, Appendix A, including back half, for total particulate; and the Montana Source Test Protocol and Procedures Manual. The Department may allow a total particulate test if the back half is included and it is acknowledged this test can be used as a surrogate for PM<sub>10</sub> (ARM 17.8.105 and ARM 17.8.106).

D. Riley-Union Stoker Boiler (wood-fired)

1. Plum Creek shall operate and maintain the ESP on the Riley-Union Stoker boiler (ARM 17.8.752).
2. Boiler emissions of total particulate shall be limited to 8.77 lb/hr (ARM 17.8.752).
3. Boiler emissions of PM<sub>10</sub> shall be limited to 6.94 lb/hr (ARM 17.8.752 and ARM 17.8.749).
4. Boiler emissions of NO<sub>x</sub><sup>1</sup> shall be limited to 134.50 lb/hr (ARM 17.8.752).
5. Boiler emissions of CO shall be limited to 468 lb/hr (ARM 17.8.752).
6. Visible emissions shall be limited to 20% opacity averaged over 6 consecutive minutes (ARM 17.8.304).
7. The initial source test on the wood-fired boiler ESP was conducted on July 18, 1995, to demonstrate compliance with emission limitations contained in Sections II.D.2 and 3. Plum Creek shall continue testing on an every 3-year basis to demonstrate compliance with the emission limitations or according to another testing/monitoring schedule as approved by the Department. The test methods shall conform to 40 CFR Part 51, Appendix M, including back half, for PM<sub>10</sub>; 40 CFR Part 60, Appendix A, including back half, for total particulate; and the Montana Source Test Protocol and Procedures Manual. The Department may allow a total particulate test if the back half is included and it is acknowledged this test can be used as a surrogate for PM<sub>10</sub> (ARM 17.8.105 and ARM 17.8.106).
8. A source test on the wood-fired boiler was conducted on July 18, 1995, to test for NO<sub>x</sub> and CO, concurrently, and to demonstrate compliance with the emission limitations contained in Sections II.D.4 and 5. Plum Creek shall continue testing on an every 3-year basis to demonstrate compliance with the emission limitations or according to another testing/monitoring schedule as approved by the Department. The test methods shall conform to 40 CFR Part 60, Appendix A and the Montana Source Test Protocol and Procedures Manual (ARM 17.8.105 and ARM 17.8.106).

E. Combined Sawmill and Planer Process

1. Plum Creek shall comply with the emission limitations contained in Table 1 (ARM 17.8.749).

Table 1

Emission Unit	Total Particulate Emissions	PM <sub>10</sub> Emissions
Planer #3 Cyclone	5.55 lb/hr	2.22 lb/hr
Planer #4 Cyclone	13.90 lb/hr	5.55 lb/hr
Planer Shavings Bin Cyclone	1.39 lb/hr	0.56 lb/hr
Planer Chip Bin Cyclone	1.39 lb/hr	0.56 lb/hr
Sawmill Chip Bin Cyclone	1.39 lb/hr	0.56 lb/hr

<sup>1</sup>NO<sub>x</sub> reported as NO<sub>2</sub>.

2. Visible emissions from all emission points contained in the combined sawmill and planer process shall each be limited to 20% opacity averaged over 6 consecutive minutes (ARM 17.8.304).
3. If any point source within the combined sawmill and planer process exceeds an applicable opacity limit, the Department may require all point sources in that process to be tested to determine compliance with mass emission limits. These tests shall conform to Environmental Protection Agency (EPA) test specifications under 40 CFR 60, Appendix A, including back half. PM<sub>10</sub> tests shall conform to 40 CFR 51, Appendix M, including back half and the Montana Source Test Protocol and Procedures Manual. All sources where tests are required must be equipped with stacks and sampling ports, with safe access for the sampling personnel. The Department may allow a total particulate test if the back half is included and it is acknowledged this test can be used as a surrogate for PM<sub>10</sub> (ARM 17.8.105 and ARM 17.8.106).

F. Total Plywood Process Excluding the Veneer Dryers

1. Plum Creek shall comply with the emission limitations contained in Table 2 (ARM 17.8.749 and ARM 17.8.752).

Table 2

Emissions Unit	Total Particulate Emissions	PM <sub>10</sub> Emissions
Plywood Chip Bin Cyclone	1.30 lb/hr	0.52 lb/hr
Plywood Sander Dust Baghouse	1.35 lb/hr	1.35 lb/hr
Plywood 18" Trim Hog Baghouse	0.58 lb/hr	0.58 lb/hr
Plywood 30" Trim Hog Baghouse	0.58 lb/hr	0.58 lb/hr

2. Visible emissions from all emission points contained in the total plywood process, excluding the veneer dryers, shall each be limited to 20% opacity averaged over 6 consecutive minutes (ARM 17.8.304).
3. If any point source within the total plywood process, excluding the veneer dryers, exceeds an applicable opacity limit, the Department may require all point sources in that process to be tested to determine compliance with mass emission limits. These tests shall conform to EPA test specifications under 40 CFR 60, Appendix A, including back half. PM<sub>10</sub> tests shall conform to 40 CFR 51, Appendix M, including back half and the Montana Source Test Protocol and Procedures Manual. All sources where tests are required must be equipped with stacks and sampling ports, with safe access for the sampling personnel. The Department may allow a total particulate test if the back half is included and it is acknowledged this test can be used as a surrogate for PM<sub>10</sub> (ARM 17.8.105 and ARM 17.8.106).

G. Total Line 1 MDF Process Excluding Drying

1. Hours of operation for the Line 1 MDF process shall be limited to 8500 hr/yr (ARM 17.8.749).
2. Plum Creek shall operate and maintain the Line 1 MDF materials handling baghouse (ARM 17.8.752).

3. Plum Creek shall comply with the emission limitations contained in Table 3 (ARM 17.8.752 and ARM 17.8.749).

Table 3

Emission Unit	Total Particulate Emissions	PM <sub>10</sub> Emissions
Line 1 MDF North Sander Baghouse #7	2.12 lb/hr	2.12 lb/hr
Line 1 MDF South Sander Baghouse #8	2.12 lb/hr	2.12 lb/hr
Line 1 MDF Board Trim Baghouse #10	0.52 lb/hr	0.52 lb/hr
Line 1 MDF Boiler Sanderdust Baghouse #11	0.84 lb/hr	0.84 lb/hr
Line 1 MDF Booksaw Baghouse #5	1.93 lb/hr	1.93 lb/hr
Line 1 MDF Sander Hog Baghouse #6	1.93 lb/hr	1.93 lb/hr
Line 1 MDF Metering Bin Baghouse #1	1.93 lb/hr	1.93 lb/hr
Line 1 MDF Felter Baghouse #1	1.93 lb/hr	1.93 lb/hr
Line 1 MDF Felter Baghouse #2	1.93 lb/hr	1.93 lb/hr
Line 1 MDF Sanderdust Fuel Baghouse	0.16 lb/hr	0.16 lb/hr
Line 1 MDF ADS Baghouse (includes both baghouses)	1.93 lb/hr	1.93 lb/hr

4. Prior to construction and initial operation of the Line 1 biofilter under Permit #2667-13, total combined emissions from the 6 press vent fans and the 10 board cooler fan vents shall be limited to 25.80 lb/hr of total particulate (ARM 17.8.752).
5. Prior to construction and initial operation of the Line 1 biofilter under Permit #2667-13, total combined emissions from the 6 press vent fans and the 10 board cooler fan vents shall be limited to 9.50 lb/hr of PM<sub>10</sub> (ARM 17.8.752).
6. Prior to construction and initial operation of the Line 1 biofilter under Permit #2667-13, total combined emissions from the 6 press vent fans and the 10 board cooler fan vents shall be limited to 13.40 lb/hr of VOC (ARM 17.8.752).
7. After construction and initial operation of the Line 1 biofilter under Permit #2667-13, emissions from the 6 Line 1 press vents shall be routed through a knock-out box and the Line 1 biofilter and vented through the Line 1 biofilter stacks (ARM 17.8.749).
8. After construction and initial operation of the Line 1 biofilter under Permit #2667-13, total combined emissions from the 10 board cooler fan vents shall be limited to 10.32 lb/hr of total particulate (ARM 17.8.749).
9. After construction and initial operation of the Line 1 biofilter under Permit #2667-13, total combined emissions from the 10 board cooler fan vents shall be limited to 3.80 lb/hr of PM<sub>10</sub> (ARM 17.8.749).
10. After construction and initial operation of the Line 1 biofilter under Permit #2667-13, total combined emissions from the 10 board cooler fan vents shall be limited to 5.36 lb/hr of VOC (ARM 17.8.749).

11. Visible emissions from all emission points contained in the total Line 1 MDF process, excluding drying, shall each be limited to 20% opacity averaged over 6 consecutive minutes (ARM 17.8.304).
12. An initial source test for the Line 1 MDF ADS baghouse was conducted on September 19, 1995, to demonstrate compliance with the limitations contained in Table 3. Plum Creek shall continue the testing on an every 3-year basis to demonstrate compliance with the emission limitations or according to another testing/monitoring schedule as approved by the Department. The test methods shall conform to 40 CFR Part 51, Appendix M, including back half, for PM<sub>10</sub>; 40 CFR Part 60, Appendix A, including back half, for total particulate; and the Montana Source Test Protocol and Procedures Manual. The Department may allow a total particulate test only if the back half is included and it is acknowledged this test can be used as a surrogate for PM<sub>10</sub> (ARM 17.8.105 and ARM 17.8.106).
13. If any point source within the total Line 1 MDF process, excluding drying, exceeds an applicable opacity limit, the Department may require all point sources in that process to be tested to determine compliance with mass emission limits. These tests shall conform to EPA test specifications under 40 CFR 60, Appendix A, including back half. PM<sub>10</sub> tests shall conform to 40 CFR 51, Appendix M, including back half and the Montana Source Test Protocol and Procedures Manual. All sources where tests are required must be equipped with stacks and sampling ports, with safe access for the sampling personnel. The Department may allow a total particulate test only if the back half is included and it is acknowledged this test can be used as a surrogate for PM<sub>10</sub> (ARM 17.8.105 and ARM 17.8.106).

H. Total Line 2 MDF Process Excluding Drying

1. Plum Creek shall install, operate, and maintain the Line 2 North and South MDF Sander Baghouses (ARM 17.8.752).
2. Plum Creek shall install, operate, and maintain the Line 2 MDF Reject Baghouse and Line 2 MDF Forming Baghouse (ARM 17.8.752).
3. Plum Creek shall install, operate, and maintain the Line 2 Burner Fuel Baghouse (ARM 17.8.752).
4. Emissions from the press vents shall be routed to the venturi scrubber and biofilters (ARM 17.8.752).
5. Plum Creek shall comply with the emission limitations contained in Table 4 (ARM 17.8.752 and ARM 17.8.749).

Table 4

Emission Unit	Total Particulate Emissions	PM <sub>10</sub> Emissions
Line 2 MDF North Sander Baghouse	2.14 lb/hr	2.14 lb/hr
Line 2 MDF South Sander Baghouse	2.14 lb/hr	2.14 lb/hr
Line 2 MDF Reject Baghouse	3.43 lb/hr	3.43 lb/hr
Line 2 MDF Forming Baghouse	2.14 lb/hr	2.14 lb/hr
Line 2 MDF Coen Fuel Bin Baghouse	0.43 lb/hr	0.43 lb/hr

6. Visible emissions from all emission points contained in the total Line 2 MDF process, excluding drying, shall each be limited to 20% opacity averaged over 6 consecutive minutes (ARM 17.8.304).
7. The initial source test on the Line 2 MDF North and South Sander Baghouse was conducted on September 12, 2002, to demonstrate compliance with the limitations contained in Table 4. Plum Creek shall continue the testing on an every 3-year basis to demonstrate compliance with the emission limitations contained in Table 4 or according to another testing/monitoring schedule as approved by the Department. The test methods shall conform to 40 CFR Part 51, Appendix M, including back half, for PM<sub>10</sub>; 40 CFR Part 60, Appendix A, including back half, for total particulate; and the Montana Source Test Protocol and Procedures Manual. The Department may allow a total particulate test only if the back half is included and it is acknowledged this test can be used as a surrogate for PM<sub>10</sub> (ARM 17.8.105 and ARM 17.8.106).
8. The initial source test on the Line 2 MDF Reject Baghouse was conducted on September 12, 2002, to demonstrate compliance with the limitations contained in Table 4. Plum Creek shall continue the testing on an every 3-year basis to demonstrate compliance with the emission limitations or according to another testing/monitoring schedule as approved by the Department. The test methods shall conform to 40 CFR Part 51, Appendix M, including back half, for PM<sub>10</sub>; 40 CFR Part 60, Appendix A, including back half, for total particulate; and the Montana Source Test Protocol and Procedures Manual. The Department may allow a total particulate test only if the back half is included and it is acknowledged this test can be used as a surrogate for PM<sub>10</sub> (ARM 17.8.105 and ARM 17.8.106).
9. The initial source test on the Line 2 MDF Forming Baghouse was conducted on September 12, 2002, to demonstrate compliance with the limitations contained in Table 4. Plum Creek shall continue the testing on an every 3-year basis to demonstrate compliance with the emission limitations or according to another testing/monitoring schedule as approved by the Department. The test methods shall conform to 40 CFR Part 51, Appendix M, including back half, for PM<sub>10</sub>; 40 CFR Part 60, Appendix A, including back half, for total particulate; and the Montana Source Test Protocol and Procedures Manual. The Department may allow a total particulate test only if the back half is included and it is acknowledged this test can be used as a surrogate for PM<sub>10</sub> (ARM 17.8.105 and ARM 17.8.106).
10. If any point source within the total Line 2 MDF process, excluding drying, exceeds an applicable opacity limit, the Department may require all point sources in that process to be tested to determine compliance with mass emission limits. These tests shall conform to EPA test specifications under 40 CFR 60, Appendix A, including back half. PM<sub>10</sub> tests shall conform to 40 CFR 51, Appendix M, including back half and the Montana Source Test Protocol and Procedures Manual. All sources where tests are required must be equipped with stacks and sampling ports, with safe access for the sampling personnel. The Department may allow a total particulate test only if the back half is included and it is acknowledged this test can be used as a surrogate for PM<sub>10</sub> (ARM 17.8.105 and ARM 17.8.106).

I. Fugitive Dust from Mill Vehicles and Log Yard Activity

1. A chemical dust suppressant shall be applied to the major roads on the log yard to control fugitive dust from all log-handling equipment. The application schedule shall be no less than once per year. Water sprays shall be used as necessary to control dust emissions on active areas of the log yard. The opacity of the log yard dust emissions shall not exceed 20% averaged over 6 consecutive minutes at any time (ARM 17.8.308).
2. Chemical dust suppressants shall be applied to the major haul routes throughout the plant to control fugitive dust from the haul trucks. The application schedule shall be not less than once per year. The opacity of the haul road dust emissions shall not exceed 20% averaged over 6 consecutive minutes at any time (ARM 17.8.308).

J. 96.4-MMBtu/hr Natural Gas/Diesel Boiler

1. Emissions of total particulate from the boiler shall be limited to 0.73 lb/hr when burning natural gas (ARM 17.8.752).
2. Emissions of PM<sub>10</sub> from the boiler shall be limited to 0.73 lb/hr when burning natural gas (ARM 17.8.752).
3. Emissions of total particulate from the boiler shall be limited to 1.37 lb/hr when burning diesel fuel (ARM 17.8.752).
4. Emissions of PM<sub>10</sub> from the boiler shall be limited to 1.37 lb/hr when burning diesel fuel (ARM 17.8.752).
5. Boiler emissions of NO<sub>x</sub><sup>2</sup> shall be limited to 6.75 lb/hr and 0.07 pounds per million British thermal units (lb/MMBtu) when burning natural gas (ARM 17.8.752).
6. Boiler emissions of NO<sub>x</sub><sup>3</sup> shall be limited to 13.74 lb/hr when burning diesel fuel (ARM 17.8.752).
7. Boiler emissions of CO shall be limited to 7.91 lb/hr and 0.082 lb/MMBtu when burning natural gas (ARM 17.8.752).
8. Boiler emissions of CO shall be limited to 3.44 lb/hr when burning diesel fuel (ARM 17.8.752).
9. Diesel fuel burned in the boiler shall have sulfur content of 0.05% or less (ARM 17.8.752).
10. Burning of diesel fuel shall be limited to 165,000 gallons during any rolling 12-month time period (ARM 17.8.752).
11. Visible emissions shall be limited to 20% opacity averaged over 6 consecutive minutes (ARM 17.8.304).

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<sup>2</sup>NO<sub>x</sub> reported as NO<sub>2</sub>.

<sup>3</sup>NO<sub>x</sub> reported as NO<sub>2</sub>.

12. Plum Creek shall comply with all applicable standards and limitations, and the monitoring, recordkeeping and reporting requirements contained in 40 CFR Part 60 for the boiler. The following subparts, at a minimum, are applicable (ARM 17.8.340):
  - a. Subpart A - General Provisions applies to all equipment or facilities subject to an NSPS subpart listed below.
  - b. Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units.
13. The boiler shall be initially tested while burning natural gas for NO<sub>x</sub> and CO, concurrently, to demonstrate compliance with the emission limits in Sections II.J.5 and 7. The initial source testing shall be conducted within 180 days of the initial start up date of the boiler (ARM 17.8.105 and ARM 17.8.749).
14. The boiler shall be initially tested while burning diesel fuel for NO<sub>x</sub> and CO, concurrently, to demonstrate compliance with the emission limits in Sections II.J.6 and 8. The initial source testing shall be conducted within 180 days of the initial start up date of the boiler (ARM 17.8.105 and ARM 17.8.749).

K. Additional Testing Requirements

1. The Department may require further testing (ARM 17.8.105).
2. Plum Creek shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

L. Monitoring Requirements

No ambient monitoring is required at this time.

M. Operational Reporting Requirements

1. Plum Creek shall supply the Department with annual production information for all emission points, as required by the Department in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in the emission inventory contained in the permit analysis.

Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information may be used for calculating operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505). Plum Creek shall submit the following information annually to the Department by March 1 of each year; the information may be submitted along with the annual emission inventory (ARM 17.8.505).

Hours of operation of the 96.4-MMBtu/hr boiler while burning diesel fuel

2. Plum Creek shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.745, that would include a change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location or fuel specifications, or would result in an increase in source capacity above its permitted operation or the addition of a new emission unit. The notice must be submitted to the Department, in writing, 10 days prior to start up or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(1)(d) (ARM 17.8.745).
3. All records compiled in accordance with this permit must be maintained by Plum Creek as a permanent business record for at least 5 years following the date of the measurement, must be available at the plant site for inspection by the Department and must be submitted to the Department upon request (ARM 17.8.749).
4. Plum Creek shall submit the hours of operation of the Line 1 MDF plant annually to the Department by March 1 of each year; the information may be submitted with the emission inventory (ARM 17.8.505).

N. Notification

1. Within 15 days after the actual start-up date of the Line 1 biofilter, accomplished under the permit action for Permit #2667-13, Plum Creek shall provide the Department with written notification of the actual start-up date of the affected unit (ARM 17.8.749).
2. Within 15 days after the actual start-up date of the increase in air flow from the Line 2 press vents to the existing Line 2 venturri scrubbers and biofilter, accomplished under the permit action for Permit #2667-13, Plum Creek shall provide the Department with written notification of the actual start-up date of the increase in air flow to the affected units (ARM 17.8.749).

SECTION III: General Conditions

- A. Inspection – Plum Creek shall allow the Department’s representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (CEMS, CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.
- B. Waiver – The permit and the terms, conditions, and matters stated herein shall be deemed accepted if Plum Creek fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving Plum Creek of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.* (ARM 17.8.756).
- D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement action as specified in Section 75-2-401, *et seq.*, MCA.

- E. Appeals – Any person or persons jointly or severally adversely affected by the Department’s decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department’s decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department’s decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department’s decision on the application is final 16 days after the Department’s decision is made.
- F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by the Department at the location of the source.
- G. Permit Fee – Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by Plum Creek may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.

Permit Analysis  
Plum Creek Manufacturing, L.P.  
Columbia Falls Facility  
Permit #2667-13

I. Introduction/Process Description

A. Site Location

Plum Creek Manufacturing, L.P. (Plum Creek) currently operates a sawmill, planer, plywood plant, and medium density fiberboard (MDF) plant in Section 7 and the SW $\frac{1}{4}$  of Section 8, Township 30 North, Range 20 West, Flathead County, Montana, near Columbia Falls. The nearest Class I area is Glacier National Park, which is approximately 13 kilometers northeast of the facility.

B. Process Description

This facility consists of three plants, all located at the same site: the sawmill, the plywood mill, and the MDF plant. The sawmill and plywood mill receive raw logs by truck. The logs are stored and sorted before being transferred to the mill for sawing into dimension lumber or to the plywood plant for peeling into veneer. Waste wood such as chips, sawdust, and planer shavings are transferred to the MDF plant for processing into fiberboard. Wood shavings and sawdust are also received from outside facilities as raw material for the fiberboard plant. All three plants share one boiler as a source of process steam for their operations. The boiler uses wood as a fuel and burns a mixture of bark, sawdust, sanderdust, and reject material from the plywood and fiberboard operations. The veneer dryer is also heated with wood through the use of a Wellons cell. The exhaust gases from the Wellons unit make direct contact with the veneer and then exit to the atmosphere through an E-tube wet electrostatic precipitator (ESP). This scrubber was installed during the summer of 1991 and reduced veneer dryer emissions from those recorded during the study period of September, 1989, through April, 1990.

The fiber dryers are heated primarily with wood. Two Coen and two Energex sander dust burners heat the flash-tube dryers to dry the wood fiber for fiberboard manufacture. The dryers are controlled with long cone high-efficiency cyclones, four GeoEnergy E-tube wet ESPs, two venturi scrubbers, and three biofilters. The proposed Line 1 biofilter system will control emissions from the Line 2 processes.

Fugitive emissions from wood-waste transfer are controlled with baghouses or cyclones. Fugitive emissions from haul roads and the log deck are controlled with chemical dust suppressant. The equipment associated with this facility at the time of Permit Action #2667-13 is listed below.

Permitted Process Equipment and Control Equipment:

1. The MDF fiber dryers include face and core dryer(s). The Line 1 Core dryer consists of a sanderdust Coen burner with a heating capacity of 50 million British thermal units per hour (MMBtu/hr). The Line 2 Core dryer consists of a sanderdust burner with a heating capacity of 85 MMBtu/hr. The two Energex face dryers are proposed to be replaced by one burner with a capacity of 50 MMBtu/hr<sup>4</sup>. The Line 1 MDF fiber dryers are controlled with four GeoEnergy

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<sup>4</sup> Permit #2667-05 permitted the replacement of the two Energex burners with one Coen burner with a capacity of 50 MMBtu/hr. Section III.H. requires construction to begin by 4/17/98, otherwise Plum Creek must request an extension of time and/or a permit modification to commence construction.

E-tube wet ESPs. Each ESP is designed to accommodate a stack flow of 70,000 actual cubic feet per minute (acfm) (280,000 acfm total). The dryers are capable of processing 57 ton per hour (ton/hr) of dry fiber. The Line 1 press vents and MDF fiber dryers are also routed through a particulate control knock-out-box to the proposed Line 1 biofilter system (Permit #2667-13). The proposed Line 1 biofilter will have a total air flow rate, including ambient air added to cool the biofilter inlet, of 900,000 dscfm. The Line 2 MDF fiber dryers are controlled with two venturi scrubbers and the Line 2 biofilter system with a total stack flow of 600,000 acfm.

2. Two plywood veneer dryers with one Geo-Energy wet ESP control, and a combined design capacity of 22,100 square feet per hour (ft<sup>2</sup>/hr) of plywood on a 3/8-inch basis. The veneer dryers are heated with a Wellons unit, which has a design capacity of 30 MMBtu/hr.
3. One wood-fired Riley-Union Stoker boiler with a current input capacity of 292.4 MMBtu/hr firing rate. This boiler is controlled with a PPC Industries ESP and has a maximum steaming capacity of 170,000 pounds per hour (lb/hr) of steam.
4. The combined sawmill and planer process includes the following point sources of emissions:

Description	Flow (acfm)
Planer #3 Cyclone	24,000
Planer #4 Cyclone	60,000
Planer Shavings Bin Cyclone	6,000
Planer Chip Bin Cyclone	6,000
Sawmill Chip Bin Cyclone	6,000
Sawmill Sawdust Target Box	6,000
Seven Drying Kilns	NA

5. Total plywood process excluding the veneer dryers. This process includes the following point sources of emissions:

Description	Flow (acfm)
Plywood Chip Bin Cyclone	5,560
Plywood Sander Baghouse	35,000
Plywood 18" Trim Baghouse	15,000
Plywood 30" Trim Baghouse	15,000

6. Total MDF process excluding drying. This process includes the following point sources of emissions:

Description	Flow (acfm)
Line 1 MDF N. Sander Baghouse	55,000
Line 1 MDF S. Sander Baghouse	55,000
Line 1 MDF Board Trim Baghouse	13,400
Line 1 MDF Sanderdust Fuel Baghouse	4,100
Line 1 MDF Boiler Sanderdust Baghouse	21,700
Line 1 MDF Booksaw Baghouse	50,000
Line 1 MDF Sander Hog Baghouse	50,000
Line 1 MDF Metering Bin Baghouse	50,000
Line 1 MDF Fire Dump Cyclone (emergency only)	
Line 1 MDF Felter Baghouse #1	50,000
Line 1 MDF Felter Baghouse #2	50,000
Line 1 MDF Reject Fiber Cyclone & Baghouse	Vents inside
Line 1 MDF ADS Baghouse	50,000
Line 2 MDF North Sander Baghouse	50,000 dscfm
Line 2 MDF South Sander Baghouse	50,000 dscfm
Line 2 MDF Reject Baghouse	80,000 dscfm
Line 2 MDF Forming Baghouse	50,000 dscfm
Line 2 Coen Fuel Bin Baghouse	4,100 dscfm

7. Fugitive dust from mill vehicles and log yard activity.
8. One natural gas/diesel boiler with a design capacity of 75,000 lb/hr steam (96.4 MMBtu/hr input).

C. Permit History

Prior to **Permit Modification #2667-02**, only the plywood veneer dryer (#2667), the Wellons unit (#1501), the Line 1 MDF fiber dryers (#2233), new baghouses at the Line 1 MDF plant (#2174), and the original Line 1 MDF plant (#5640051073) were subject to air quality permits. The sawmill and the plywood plant pre-date the Montana Clean Air Act and were not required to obtain a permit unless a modification of the source occurred, or a standard changed affecting the facility. Permit #2667-02 replaced **Permit #2667-01**.

On January 5, 1994, **Permit #2667-03** was issued to Plum Creek for the installation of the Combustion Engineering natural gas boiler. This boiler supplies the steam necessary for the lumber drying kilns to operate year round. Prior to this installation, the steam supplied to the lumber drying kilns was shut off due to the increased demand for steam from the rest of the facility during the winter months. The lumber that was intended to be dried in the kilns was stacked outside and allowed to air dry as much as possible. When capacity allowed, this lumber was then placed in the kiln for a final polishing dry, if necessary. Permit #2667-03 replaced Permit #2667-02.

On July 11, 1994, **Permit #2667-04** was issued to Plum Creek for the construction and operation of an ESP on the wood-fired Riley-Union Stoker boiler. This ESP replaced the wet scrubber that was used to control emissions from the boiler. This installation alleviated back pressure on the boiler that allowed the steam production to increase to 170,000 lb/hr and also increased the maximum input capacity to 292.4 MMBtu/hr. This additional steam was sufficient to allow for a plant production increase of 13%.

At the MDF plant, an additional sander, an air density separator, and a blow hog were proposed to be installed. The emissions from the sander are controlled by a baghouse (the Line 1 MDF sander baghouse). The emissions from the air density separator and the

blow hog vent to the Line 1 MDF materials handling baghouses. In addition, secondary refiners were installed in the Line 1 MDF process to improve fiber quality and two more platens were added to the Line 1 MDF press to increase the capacity of the press.

To offset the increase in particulate emissions from the construction of the new sources and the increase in production capabilities, Plum Creek agreed to reduce the enforceable emission rate from the veneer dryers. In 1991, Plum Creek installed an ESP on the veneer dryer stack at the Columbia Falls plywood plant. Although the ESP was required to be installed on the stack to control opacity, a decrease in particulate emissions was also achieved. The decrease in particulate emissions had not been reflected in the permit or the State Implementation Plan (SIP) until the issuance of this permit. Conditions in Permit #2667-04 reduced particulate emissions from this project below significance levels.

The construction of the new sources of emissions, coupled with the increase in production capabilities, resulted in a net decrease of total particulate of 26.4 ton per year (TPY), a net increase in particulate matter less than 10 microns in diameter ( $PM_{10}$ ) of 5.6 TPY, a net increase in nitrogen oxides ( $NO_x$ ) of 315 TPY, a net increase in carbon monoxide (CO) of 162 TPY, a net increase in Volatile Organic Compounds (VOC) of 97.7 TPY, and a negligible increase in toxic air pollutants (TAP). The emissions increase of  $NO_x$ , CO, and VOC exceeded significance levels and were, therefore, subject to a New Source Review (NSR)/Prevention of Significant Deterioration (PSD) review.

Since this permit was subject to PSD review, the Federal Land Managers (FLMs) were given an opportunity to review the application submitted by Plum Creek. Through the course of the FLM review, Plum Creek was asked to conduct additional modeling for Air Quality Related Values (AQRV), namely episodic acidification in Glacier National Park, and also a regional haze analysis. Bison Engineering, on behalf of Plum Creek, submitted additional modeling verifying that the increase in  $NO_x$  emissions resulted in a potential of hydrogen (pH) change less than 0.01 units in the two lakes that were analyzed. One of the FLMs, the National Park Service (NPS), then conducted a regional haze analysis and determined that this alteration would not contribute significantly to visibility degradation in Glacier National Park.

In addition to the modeling requests, the NPS requested that Plum Creek supply more information supporting the Best Available Control Technology (BACT) conclusions in the application. The NPS requested that the BACT analysis for the boiler also address Selective Non-Catalytic Reduction (SNCR) for the control of  $NO_x$  from the boiler.

Also, the NPS requested that Plum Creek further explain assumptions made in the BACT analysis for the control of particulate from the Line 1 MDF fiber dryers. Plum Creek submitted this information to the Department of Environmental Quality (Department) as requested.

After Plum Creek submitted the additional information, the Department determined this information was sufficient to support the original BACT conclusions contained in the application and the Preliminary Determination (PD) was then issued. Permit #2667-04 replaced Permit #2667-03.

On April 17, 1995, **Permit #2667-05** was issued to Plum Creek for the installation of four GeoEnergy E-tube wet ESPs on the stacks of the Line 1 MDF fiber dryers. Each ESP was designed to accommodate a stack flow of 70,000 acfm (280,000 acfm total) and

resulted in a net decrease in particulate emissions from the Line 1 MDF fiber dryers. The four ESPs vent to a single stack.

Plum Creek also proposed to replace the two Energex burners used to heat the face dryer with a larger Coen burner. The Coen burner has a heating capacity of 50 MMBtu/hr. This increase in available heat to the Line 1 MDF Fiber Dryers, along with Plum Creek's proposed installation of two additional platens for the Line 1 MDF Press, increased the capacity of the dryers from 37 ton/hr of bone dry fiber processed to 57 ton/hr of bone dry fiber processed. This production increase resulted in a significant net emissions increase in VOC of 94 ton/year. Therefore, Permit #2667-05 was subject to a PSD review for VOC. There were also insignificant increases in NO<sub>x</sub>, CO, and sulfur dioxide (SO<sub>2</sub>) as a result of this production increase; but no net increase in particulate because of the installation of the ESPs.

Plum Creek also proposed to change the allowable emissions for the baghouses at the facility. The previous method of determining the allowable emissions was to assume that baghouses were 90% more efficient than cyclones. Manufacturers typically guaranteed an emission rate of 0.005 grains per dry standard cubic foot (gr/dscf) for baghouses. The allowable emissions for the baghouses were changed to the pound-per-hour equivalent of the 0.005 gr/dscf emission rate.

In addition, Plum Creek proposed to re-install an existing cyclone in the Line 1 MDF raw materials storage building. This 10,000 acfm cyclone is called the board trim cyclone and vents inside the Line 1 MDF building. This cyclone allows trim to be recycled into the Line 1 MDF process. The emissions from this cyclone are controlled by the existing Line 1 MDF material handling baghouse.

Plum Creek also proposed to re-configure the Line 1 MDF materials handling baghouse that was permitted in the Permit #2667-04. In Permit #2667-04, a single baghouse with an airflow of 70,000 dry standard cubic feet per minute (dscfm) was permitted at the Line 1 MDF materials handling building. Plum Creek proposed to change the configuration of this baghouse to 2 - 25,000 dscfm units because of changes to the project design. The units vent to one common stack.

As a final modification to their facility under this permit action, Plum Creek proposed to install an ESP between the Wellons cell and the veneer dryers. The ESP removes particulate from the gas stream used to heat the veneer dryers and provides for higher product quality. This ESP is not a source of emissions or a stack associated with a source of emissions. However, the installation of the ESP constituted a changed condition of operation that did not result in an increase in emissions. Therefore, Plum Creek's permit was modified to reflect the changed operating condition. This modification to the facility was incorporated into the above-requested permit alteration. Permit #2667-05 replaced Permit #2667-04.

On May 5, 1995, Plum Creek was issued **Permit Modification #2667-06** to allow for an extension of time for the completion of the NO<sub>x</sub> and CO testing on the Riley-Union Stoker boiler. Plum Creek was then required to demonstrate compliance with the NO<sub>x</sub> and CO limits on the Riley-Union Stoker boiler by September 22, 1995. The source test was conducted on July 18, 1995.

On July 26, 1995, **Permit #2667-07** was issued to increase the allowable CO emissions from the Riley-Union Stoker boiler from 100 lb/hour to 468 lb/hour. The 100-lb/hour CO limit was based on AIRS Facility Subsystem Emission Factors (AFSEF) emission factors and was later determined to be inappropriate for a 20-year-old boiler.

Manufacturers' data and tests on similar boilers suggested that CO emissions from a boiler of this type can range up to 1.6 lb/MMBtu. With a heat input capacity of 292.4 MMBtu/hour, this yielded an hourly emission rate of 468 lb/hr. The allowable CO emissions for the boiler were increased by 1,612 ton/year, but actual CO emissions did not change.

The allowable CO emission increase exceeded significance levels and, therefore, was subject to PSD review. As required by the PSD review process, the appropriate FLMs, as well as the United States Environmental Protection Agency (EPA), were given the opportunity to comment on the proposal. No comments were received from any of the parties. Permit #2667-07 replaced Permit #2667-06.

**Permit Modification #2667-08** was issued by the Department to correct particulate emission limits for the Line 1 MDF Felter #1 & #2 Baghouses. The emission limits were correctly calculated in the permit analysis of Permit #2667-07 as 1.93 lb/hr of particulate, but the emission limit was incorrectly typed as 0.39 lb/hr in the permit. Also, the modification updated the rebuilt plywood facility chip handling process by replacing the Plywood #1 Chip Bin Cyclone and Plywood #2 Chip Bin Cyclone emission limits with a single emission limit for the new Plywood Chip Bin Cyclone; the new emission limit equals the sum of former cyclone emission limits. Formerly, each cyclone had emission limits of 0.65 lb/hr for particulate matter (PM) and 0.26 lb/hr for PM<sub>10</sub>. The new Plywood Chip Bin Cyclone emission limit is 1.30 lb/hr for pm and 0.52 lb/hr for PM<sub>10</sub>. This change was allowed under the de minimis rule.

In addition, this modification updated the rule citations, removed testing and notification requirements already met by Plum Creek, updated the existing equipment list, and updated the emission inventory by including the sawmill sawdust target box, the plywood fines bin target box, and the drying kilns.

The sawmill sawdust target box had not been included in any permit application, emission inventory, or permit since 2667-M (10/24/91). In Permit #2667-M (10/24/91), the Sawdust Bin Cyclone (sawmill sawdust target box) had allowable PM<sub>10</sub> emissions of 0.77 lb/hr. Permit #2667-M (1/24/92), included all the cyclones in the sawmill planer process with a PM<sub>10</sub> emission limit of 12.92 lb/hr; however, the Sawdust Bin Cyclone was no longer listed as a part of the process. Permit #2667-04 assigned individual emission limits to each cyclone. Permit #2667-08 added the sawdust target box and drying kilns to the equipment list and emission inventory, but did not include any emission limits. Permit #2667-08 replaced Permit #2667-07.

A review of the permitting actions demonstrated that the sander baghouse, blow hog, four additional press platens, and the replacement of the two Energex sanderdust burners with one Coen sanderdust burner had not commenced. The sander baghouse, blow hog, and two additional press platens were required to commence construction by July 11, 1997, while the Energex sanderdust burners and 2 additional press platens were required to commence construction by April 17, 1998. A letter dated May 22, 1996, from Mitchell Leu requested that the construction projects be delayed for approximately 2 to 3 years. An alteration to the permit is required for a delay in the commencement of construction of more than 3 years (Administrative Rules of Montana (ARM) 17.8.731). This rule (and accompanying time period in the permit) would give the Department the opportunity to review the BACT determination to ensure that it is still valid. Thus, if construction on the projects had not commenced by April 17, 1998, Plum Creek would have to request a permit alteration.

On October 8, 1999, Plum Creek submitted a permit application to add a second MDF production line (Line 2) to the Columbia Falls facility. Unlike Line 1 (batch press), the new production line would utilize a continuous press for the production of MDF. Adding Line 2 to the MDF facility would greatly increase the production of MDF and profit from the facility. New limits were added to the permit and new emitting units were added to the emission inventory in the permit analysis.

The addition of Line 2 triggered the PSD rules for CO, NO<sub>x</sub>, and ozone (measured as VOC). Because Plum Creek agreed to various limits, the contemporaneous emission changes of PM and PM<sub>10</sub> were below the PSD significance levels. For this reason, no additional air quality analyses were required for PM and PM<sub>10</sub>. Plum Creek submitted dispersion modeling that demonstrated that the nitrogen dioxide (NO<sub>2</sub>) emissions consume 10.8% (0.27 grams per cubic meter (g/m<sup>3</sup>)) of the annual Class I increment and 19.8% (4.96 g/m<sup>3</sup>) of the annual Class II increment.

Since this permit was subject to a PSD review, the FLMs and EPA were also given an opportunity to review the application submitted by Plum Creek. Through the course of the FLM review, the NPS requested that Plum Creek revise the regional haze and deposition analyses that were done and repeat the AQRV analysis. In addition, the NPS requested additional information regarding the BACT analysis. Plum Creek submitted the requested information. No comments were received from EPA or any other FLMs.

The Department received comments on the PD from the NPS on December 1, 1999, and from Plum Creek on December 2, 1999. All comments received on the PD were addressed in the permit, as the Department deemed appropriate. **Permit #2667-09** replaced Permit #2667-08.

On April 23, 2001, Plum Creek submitted an application for an alteration in the design of the Line 2 MDF dryer emissions control equipment. The ESP would be replaced by two venturi scrubbers operating in series with a bio-filter system.

The addition of Line 2 triggered PSD review for CO, NO<sub>x</sub>, and ozone (measured as VOC). Plum Creek is not subject to the NSR nonattainment area permitting requirements for this permitting action.

Since the BACT determination had changed since the initial issuance of Permit #2667-09 for the second MDF line, the FLMs and EPA were given an opportunity to review the application submitted by Plum Creek. The change in the BACT would cause the emission dispersion characteristics of the stacks to change, although the emission limits for the Line 2 MDF dryers would remain the same.

In addition to changing the emission controls for the second line, Plum Creek made minor changes to several cyclones and baghouses on the existing and proposed MDF lines. The sizes and locations of some of the Line 2 baghouses changed in the new design. Two cyclones were removed from the existing MDF line, and some of the baghouse names were changed. The emission inventory reflected the change in flow rates based on the volume of cooling air introduced into the bio-filter system.

Due to the dryer stack dispersion characteristics and the baghouses, Plum Creek submitted a revised PM<sub>10</sub> compliance demonstration with this application. The modeling shows that the second line MDF project would not cause or contribute to a violation of the Montana Ambient Air Quality Standards (MAAQS). **Permit #2667-10** replaced Permit #2667-09.

On December 5, 2001, Plum Creek submitted a New Source Review (NSR)/PSD application for three historical projects at the Columbia Falls facility. During an independent compliance awareness review performed in 2000, Plum Creek discovered that the 1989 MDF Coen Burner Project, the 1990 MDF Line Speed Up Project, and the 1992 MDF Heating and Humidification Project should have gone through PSD permitting prior to the projects being constructed and/or implemented. Based on the PSD Significant Emission Rates (SERs), the 1989 MDF Coen Burner Project would have been subject to PSD permitting for CO and NO<sub>x</sub>; the 1990 MDF Line Speed Up Project, for PM, PM<sub>10</sub>, and VOC; and the 1992 MDF Heating and Humidification Project, for PM, PM<sub>10</sub>, and VOC. As the Columbia Falls area (including the Plum Creek facility) was designated as a nonattainment area for PM<sub>10</sub> by the EPA on November 15, 1990, the 1992 project would have triggered nonattainment area NSR permitting for PM<sub>10</sub>. This permitting action addresses the PSD permitting, as well as the nonattainment area NSR permitting, which should have occurred prior to construction/implementation of the above-mentioned projects.

In addition, on November 19, 2002, the Department received a request from Plum Creek to remove the requirement limiting the MDF Line 2 equipment to 8760 hours per year. As there are only 8760 hours in a year, this requirement was not necessary and was removed.

In response to further research by the Department and comments received in the PD of Permit #2667-11, the discussion regarding Low NO<sub>x</sub> Burners as a BACT option for NO<sub>x</sub> control was revised. In addition, Section II.L of Permit #2667-11's PD was eliminated, as the emissions from the Coen Burner were already incorporated into the Line 1 MDF limitations and conditions. Line 1 MDF (including the Coen Burner) was currently tested as one emission point on an every 3-year basis. The BACT requirement for good combustion practices did not change the overall potential to emit, which was the basis for the original Coen Burner NO<sub>x</sub> and CO limits placed in the PD of Permit #2667-11. **Permit #2667-11** replaced Permit #2667-10.

On October 18, 2004, Plum Creek submitted a complete Montana Air Quality Permit application to the Department for the addition of a 1993 Babcock and Wilcox 96.4-MMBtu/hr (75,000 lb/hr) boiler to be fired on natural gas and diesel fuel. Plum Creek also removed the 22,000 lb/hr CE Boiler and the 20,000 lb/hr Plywood Boiler. The permit action added the 1993 Babcock and Wilcox 96.4-MMBtu/hr (75,000 lb/hr) boiler and included updates the permit to reflect current permit language and rule references used by the Department. **Permit #2667-12** replaced Permit #2667-11.

#### D. Current Permit Action

On May 9, 2007, the Department received notification of proposed changes to the permitted Plum Creek facility under the provisions contained in the ARM 17.8.745 (de minimis rule) and a request for an administrative amendment under the provisions contained in ARM 17.8.764. Specifically, Plum Creek proposed the following changes:

- Increase in air-flow from the Line 2 press vents to the existing Line 2 venturi scrubbers and Line 2 biofilter system from 25,000 dry-standard cubic feet per minute (dscfm) to 40,000 dscfm. The existing Line 2 biofilter is sufficiently sized to accommodate the increased flow-rate and associated emissions from the Line 2 press vent collection flow increase of 15,000 dscfm.
- Installation and operation of a particulate control knock-out-box and Line 1 biofilter emission control system for the Line 1 press vents and Line 1 MDF fiber dryers. The proposed Line 1 biofilter will have a total air-flow rate, including

ambient air inflow to cool the biofilter inlet, of 900,000 dscfm. The Line 1 MDF fiber dryers are currently controlled by four wet electrostatic precipitators (wet ESPs) and the Line 1 press vents are currently uncontrolled.

The proposed Line 1 changes do not result in any increase in permitted allowable emissions; rather, the knock-out box will result in a decrease in PM and PM<sub>10</sub> emissions from Line 1 operations. The currently uncontrolled Line 1 press vents and the four wet ESPs controlling emissions from the Line 1 MDF fiber dryers would be routed through the proposed Line 1 biofilter. Further, in an effort to prevent excess particulate matter from disrupting the Line 1 biofilter media, Plum Creek proposed the installation of a knock-out box to control particulate emissions from the Line 1 press vents prior to the proposed biofilter inlet. The increased air-flow through the Line 2 press vents will result in an increase in PM and PM<sub>10</sub> emissions from the Line 2 operations. However, because the proposed increase in emissions is below 15 tons per year, the project qualifies as a de minimis change under ARM 17.8.745(1). The proposed project does not result in any increase in any other regulated pollutant from Plum Creek operations. An emission inventory for the proposed project is contained in Section IV of this permit analysis.

The primary purpose for the proposed project is to reduce hazardous air pollutant (HAP) emissions from Line 1 and Line 2 operations and thereby enable Plum Creek to comply with upcoming Maximum Achievable Control Technology (MACT) requirements for the wood products industry. Further, the Plum Creek facility is a major source of emissions as defined under the New Source Review (NSR) permitting program; however, because the proposed project does not result in any emissions increase greater than the applicable pollutant specific NSR “significant emissions thresholds”, as defined in ARM 17.8.801, the proposed project does not constitute a major modification as defined in ARM 17.8.801. Finally, because the Plum Creek facility is located in a PM<sub>10</sub> nonattainment area, Plum Creek submitted modeling to demonstrate that the proposed increase in PM<sub>10</sub> emissions from the Line 2 operations will comply with the applicable National Ambient Air Quality Standards (NAAQS) and MAAQS. An ambient air quality impact analysis showing project compliance with the applicable NAAQS/MAAQS is contained in Section VI of this permit analysis. **Permit #2667-13** replaces Permit #2667-12.

#### E. Additional Information

Additional information, such as applicable rules and regulations, BACT/Reasonable Available Control Technology (RACT) determinations, air quality impacts, and environmental assessments, is included in the analysis associated with each change to the permit.

## II. Applicable Rules and Regulations

The following are partial quotations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the ARM and are available upon request from the Department. Upon request, the Department will provide references for locations of complete copies of all applicable rules and regulations or copies where appropriate.

#### A. ARM 17.8 Subchapter 1 – General Provisions, including, but not limited to:

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emissions of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment, including instruments and sensing devices, and shall conduct tests, emission or

ambient, for such periods of time as may be necessary using methods approved by the Department.

3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source, or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq.*, Montana Code Annotated (MCA).

Plum Creek shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation, or to continue for a period greater than 4 hours.
5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction in the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner that a public nuisance is created.

B. ARM 17.8, Subchapter 2 – Ambient Air Quality, including, but not limited to:

1. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
2. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
3. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
4. ARM 17.8.213 Ambient Air Quality Standard for Ozone
5. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
6. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
7. ARM 17.8.221, Ambient Air Quality Standard for Visibility
8. ARM 17.8.222 Ambient Air Quality Standard for Lead
9. ARM 17.8.223 Ambient Air Quality Standard for PM<sub>10</sub>
10. ARM 17.8.230 Fluoride in Forage

Plum Creek must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3 – Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.
2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter. (2) Under this rule, Plum Creek shall not cause or authorize the use of any street,

road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter. (4) This rule requires reasonable precautions for fugitive emission sources and RACT for existing fugitive emission sources located in a nonattainment area. The Department, in consultation with EPA, determined that the use of chemical stabilization on major haul roads and on working areas within the log decks, in conjunction with watering, will satisfy these requirements.

3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere, particulate matter caused by the combustion of fuel in excess of the amount determined by this rule.
4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere, particulate matter in excess of the amount set forth in this rule.
5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. Commencing July 1, 1972, no person shall burn any gaseous fuel containing sulfur compounds in excess of 50 grains per 100 cubic feet of gaseous fuel, calculated as hydrogen sulfide at standard conditions.
6. ARM 17.8.324 Hydrocarbon Emissions--Petroleum Products. (3) No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such a tank is equipped with a vapor loss control device as described in (1) of this rule.
7. ARM 17.8.340 Standard of Performance for New Stationary Sources. This rule incorporates, by reference, 40 Code of Federal Regulations (CFR) Part 60, Standards of Performance for New Stationary Sources (NSPS). This facility is not an NSPS affected source because it does not meet the definition of any NSPS subpart defined in 40 CFR Part 60. There are no NSPS requirements for plywood plants or MDF plants.

40 CFR Part 60, Subpart D, Standard of Performance for fossil-fuel-fired steam generators does not apply to the Riley-Union Stoker wood-fired steam boiler because it does not have the capabilities of firing fossil fuel at a heat input rate of more than 250 million Btu per hour.

40 CFR Part 60, Subpart Db, Standard of Performance for Small Industrial-Commercial-Institutional Steam Generating Units does not apply to the Riley-Union Stoker wood-fired steam boiler because it was not constructed, reconstructed, or modified after June 19, 1984. The Riley-Union Stoker wood-fired steam boiler was fabricated in 1973.

40 CFR Part 60, Subpart Dc, Standard of Performance for Small Industrial-Commercial-Institutional Steam Generating Units applies to the Plum Creek – Columbia Falls facility 96.4-MMBtu/hr natural gas/diesel fired boiler because the boiler was constructed after to June 9, 1989.

8. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. The source, as defined and applied in 40 CFR Part 63, shall comply with the requirements of 40 CFR Part 63, as listed below:

Subpart A - General Provisions applies to all NESHAP source categories subject to a Subpart as listed below.

Subpart DDDDD – Industrial Boilers and Process Heaters shall apply to, as applicable, but not limited to, the 96.4-MMBtu/hr Natural Gas/Diesel Boiler.

- D. ARM 17.8. Subchapter 5 – Air Quality Permit Application, Operation, and Open Burning Fees, including, but not limited to:

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. The current permit action does not require an application or an application fee because it is an administrative action conducted in accordance with ARM 17.8.745(2) and ARM 17.8.764.

2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit, excluding an open burning permit, issued by the Department. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, as described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that pro-rate the required fee amount.

- E. ARM 17.8, Subchapter 7 – Permit, Construction, and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit alteration to construct, alter or use any air contaminant sources that have the Potential to Emit (PTE) greater than 25 tons per year of any pollutant. Plum Creek has a PTE greater than 25 tons per year of PM, PM<sub>10</sub>, NO<sub>x</sub>, CO, and VOC; therefore, an air quality permit is required.
3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.
4. ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis

Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.

5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, alteration or use of a source. Plum Creek submitted the required permit application for the current permit action. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. The current permit action does not require public notice because it is an administrative action conducted in accordance with ARM 17.8.745(2) and ARM 17.8.764.
6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.
7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The current permit action does not require a BACT analysis and determination because it is an administrative action conducted in accordance with ARM 17.8.745(2) and ARM 17.8.764.
8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.
9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving Plum Creek of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.*
10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.
11. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or altered source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.
12. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana,

the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the SIP.

13. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.
14. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of Intent to Transfer, including the names of the transferor and the transferee, is sent to the Department.

F. ARM 17.8, Subchapter 8 – Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.
2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications – Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through 17.8.827 shall apply to any major stationary source and any major modification with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.
3. ARM 17.8.822 Air Quality Analysis. This rule requires a major stationary source to supply an analysis of the ambient air quality in the area that the emissions from the major stationary source or major modification would affect. This rule further requires that the analysis shall contain air quality monitoring data for any pollutant that may be emitted in a significant amount and for which no ambient air quality standard exists. An air quality analysis was performed and is described in Section VI of this permit analysis.

Plum Creek's Columbia Falls facility is not a listed source, but it is defined as a "major stationary source" since it has the potential to emit more than 250 tons per year of any pollutant. The current permit action is not subject to PSD review because the proposed project does not result in any emissions increase greater than the applicable pollutant specific NSR "significant emissions thresholds", as defined in ARM 17.8.801 and thus the proposed project does not constitute a major modification as defined in ARM 17.8.801.

G. ARM 17.8, Subchapter 9 – Permit Requirements for Major Stationary Sources or Major Modifications Locating within Nonattainment Areas, including, but not limited to:

ARM 17.8.906 Baseline for Determining Credit for Emissions and Air Quality Offsets.

(1) This rule specifies that emission offsets in nonattainment areas are required to be in the form of, and against, actual emissions. (2) Where the emission limitation under the SIP allows greater emissions than the actual emissions of the source, emission offset credit will be allowed only for control below the actual emissions. (6) All emission reductions claimed as offset credit shall be federally enforceable. (7) Emission offsets may only be obtained from the same source or other sources in the same nonattainment area. (9) In the case of emission offsets involving sulfur dioxide, particulates, and carbon monoxide, area-wide mass emission offsets are not acceptable and the applicant shall perform atmospheric simulation modeling to ensure that the emission offsets provide a positive net air quality benefit. However, the Department may exempt the applicant from the atmospheric simulation modeling requirement if the emission offsets provide a positive net air quality benefit, are obtained from an existing source on the same premises or in the immediate vicinity of the new source, and the pollutants disperse from substantially the same effective stack height. The Department hereby exempts Plum Creek from these modeling requirements. (10) Credits for an emission reduction can be claimed to the extent that the Department has not relied on it in issuing any air quality preconstruction permit under Subchapters 7, 8, 9 and 10, or Montana has not relied on it in a demonstration of attainment or reasonable further progress.

Because the Plum Creek facility is located in a PM<sub>10</sub> nonattainment area, Plum Creek submitted modeling under the current permit action (Permit #2667-13) to demonstrate that the proposed increase in PM<sub>10</sub> emissions from the Line 2 operations will comply with the applicable NAAQS/MAAQS. An ambient air quality impact analysis showing project compliance with the applicable NAAQS/MAAQS is contained in Section VI of this permit analysis.

H. ARM 17.8, Subchapter 12 – Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any stationary source having:
  - a. PTE > 100 tons/year of any pollutant;
  - b. PTE > 10 tons/year of any one HAP, PTE > 25 tons/year of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or
  - c. PTE > 70 tons/year of PM<sub>10</sub> in a serious PM<sub>10</sub> nonattainment area.
2. ARM 17.8.1204 Air Quality Operating Permit Program. (1) Title V of the FCAA amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing Air Quality Permit #2667-13 for Plum Creek, the following conclusions were made:
  - a. The facility's PTE is greater than 100 tons/year for PM<sub>10</sub>, NO<sub>x</sub>, CO and VOC.
  - b. The facility's PTE is greater than 10 tons/year for any one HAP and greater than 25 tons/year for all HAPs.
  - c. This source is not located in a serious PM<sub>10</sub> nonattainment area.
  - d. This facility is subject to a current NSPS (Subpart Dc).

- e. This facility is not subject to any current NESHAP standards.
- f. This source is not a Title IV affected source, nor a solid waste combustion unit.
- g. This source is not an EPA designated Title V source.

Based on these facts, the Department determined that Plum Creek is subject to the Title V operating permit program. Plum Creek was issued Title V Operating Permit #OP2667-00 on January 14, 1999, Title V Operating Permit #OP2667-01 on September 11, 2003, and Title V Operating Permit #OP2667-02 on August 23, 2005. The current project constitutes a significant modification of Plum Creek's existing Title V operating permit; therefore, Plum Creek submitted an application for a significant modification to Title V Operating Permit #OP2667-02 concurrent with the proposed request for the current administrative amendment under Permit #2667-13.

### III. BACT Determination

A BACT determination is required for each new or altered source. Plum Creek shall install on the new or altered source the maximum air pollution control capability, which is technically practicable and economically feasible, except that BACT shall be utilized.

The current permit action does not require a BACT analysis and determination because it is an administrative action conducted in accordance with ARM 17.8.745(2) and ARM 17.8.764.

### IV. Emission Inventory--Criteria Pollutants

#### A. Point Source Emission Inventory

Emission Source	PM	PM <sub>10</sub>	NO <sub>x</sub>	VOC	CO	SO <sub>x</sub>
Riley -Union Stoker Boiler	38.4	30.4	589.13	19.71	2049.00	16.43
Veneer Dryer	43.80	43.80		25.75		
Line 1 MDF ADS Baghouse	8.04	8.04				
Line 1 biofilter (Line 1 MDF Fiber Dryers and press vents)	131.26	110.47	281.56	591.35	361.25	1.99
Planer #3 Cyclone	24.33	9.73				
Planer #4 Cyclone	60.82	24.33				
Planer Shavings Bin Cyclone	6.08	2.43				
Planer Chip Bin Cyclone	6.08	2.43				
Sawmill Chip Bin Cyclone	6.08	2.43				
Sawmill Sawdust Target Box	2.15	1.07				
Sawmill Drying Kilns	18.65	18.65		158.49		
Plywood Chip Bin Cyclone	5.69	2.28				
Plywood Fines Target Box	5.69	2.28				
Plywood Sander Dust Baghouse	5.91	5.91				
Plywood 18" Hog Baghouse	2.53	2.53				
Plywood 30" Hog Baghouse	2.53	2.53				
Plywood Fines Bin Target Box	5.69	2.28				
Line 1 MDF N. Sander Baghouse #7	9.01	9.01				
Line 1 MDF S. Sander Baghouse #8	9.01	9.01				
Line 1 MDF Board Trim Baghouse #10	0.52	0.52				
Line 1 MDF Sanderdust Fuel Baghouse	0.67	0.67				
Line 1 MDF Booksaw Baghouse #5	8.19	8.19				
Line 1 MDF Sander Hog Baghouse #6	8.19	8.19				
Line 1 MDF Metering Bin Baghouse #1	8.19	8.19				
Line 1 MDF Felter Baghouse #1	8.19	8.19				
Line 1 MDF Felter Baghouse #2	8.19	8.19				
Line 1 MDF Blr Sndrdst BH#11	3.56	3.56				
Line 1 MDF Board Coolers (10)	43.86	16.15		22.78		

Line 2 biofilter (Line 2 MDF Fiber Dryers and press vents)	101.33	101.33	190.20	341.76	316.00	3.49
Line 2 MDF North Sander Baghouse	9.37	9.37				
Line 2 MDF South Sander Baghouse	9.37	9.37				
Line 2 MDF Reject Baghouse	9.37	9.37				
Line 2 MDF Forming Baghouse	9.37	9.37				
Line 2 MDF Coen Fuel Bin Baghouse	1.88	1.88				
Line 2 MDF Hot Oil Natural Gas Burner	0.50	0.50	11.3	0.47	2.8	0.05
96.4-MMBtu/hr Natural Gas/Diesel Boiler	3.15	2.40	30.40	2.17	34.11	0.83
<b>Total</b>	<b>625.65</b>	<b>495.05</b>	<b>1,102.6</b>	<b>1,162.5</b>	<b>2,763.2</b>	<b>22.8</b>

Emission Calculations:

**Riley-Union Stoker Boiler**

PM Emissions

Emission Factor: 0.030 lb/MMBtu {Information from Company, 1/26/94}  
Hours of operation: 8760 hour/year  
Design Capacity: 292.4 MMBtu/hr  
0.030 lb/MMBtu \* 292.4 MMBtu/hr = 8.77 lb/hr {Permitted Allowable}  
Calculations: 8.77 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 38.4 ton/yr

PM<sub>10</sub> Emissions:

Emission Factor: 6.94 lb/hr (Permitted Allowable)  
Hours of operation: 8760 hr/year  
Calculations: 6.94 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 30.4 ton/yr

NO<sub>x</sub> Emissions:

Emission Factor: 46 lb/MMBtu {Information from Company, 1/26/94}  
Hours of operation: 8760 hr/year  
Design Capacity: 292.4 MMBtu/hr  
0.46 lb/MMBtu \* 292.4 MMBtu/hr = 134.50 lb/hr {Permitted Allowable}  
Calculations: 134.50 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 589.13 ton/yr

VOC Emissions:

Emission Factor: 0.18 lb/ton {AP-42, Table 1.6-3, Rev. 10/92}  
Control Efficiency: 0.0%  
Process Rate: 219000 ton/year {Estimated Maximum}  
Calculations: 219000 \* ton/yr \* 0.18 lb/ton \* 0.0005 ton/lb = 19.71 ton/yr

CO Emissions:

Emission Factor: 1.6 lb/MMBtu {Information from manufacturer}  
Control Efficiency: 0.0%  
Design Capacity: 292.4 MMBtu/hr  
Calculations: 292.4 MMBtu/hr \* 1.6 lb/MMBtu \* 8760 hr/yr \* .0005 ton/lb = 2049 ton/yr

SO<sub>x</sub> Emissions:

Emission Factor: 0.15 lb/ton {AFSEF, SCC 1-02-009-02, page 24}  
Control Efficiency: 0.0%  
Process Rate: 219000 ton/year {Estimated Maximum}  
Calculations: 219000 \* ton/year \* 0.15 lb/ton \* 0.0005 ton/lb = 16.43 ton/yr

**Veneer Dryer**

PM Emissions

Emission Factor: 0.50 lb/MSF {Information from Company, 1/26/94}  
Hours of Operation: 8760 hr/yr  
Design Capacity: 20 MSF/hr  
0.50 lb/MSF \* 20.0 MSF/hr = 10.00 lb/hr {Permitted Allowable}  
Calculations: 10.00 lb/hr \* 8760 \* 0.0005 ton/lb = 43.80 ton/yr

PM<sub>10</sub> Emissions:

Emission Factor: 0.50 lb/MSF {Information from Company, 1/26/94}  
Hours of Operation: 8760 hr/yr  
Design Capacity: 20 MSF/hr  
0.50 lb/MSF \* 20.0 MSF/hr = 0.00 lb/hr Permitted Allowable

Calculations:  $10.00 \text{ lb/hr} * 8760 * 0.0005 \text{ ton/lb} = 43.80 \text{ ton/yr}$

VOC Emissions:

Emission Factor:  $2.94 \text{ lb}/10^4 \text{ ft}^2$  {AFSSCC 3-07-007-15, pg 143}

Hours of Operation: 8760 hr/yr

Design Capacity: 20 MSF/hr

$2.94 \text{ lb}/10^4 \text{ ft}^2 * 20.0 \text{ MSF/hr} = 5.88 \text{ lb/hr}$  {Permitted Allowable}

Calculations:  $5.88 \text{ lb/hr} * 8760 * 0.0005 \text{ ton/lb} = 25.75 \text{ ton/yr}$

**Line 1 MDF Sander Baghouse**

Hours of Operation: 8500 hr/yr (Permitted Allowable)

PM Emissions

Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}

Design Capacity: 48548 dscfm

$0.005 \text{ gr/dscf} * 48548 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb}/7000 \text{ gr} = 2.08 \text{ lb/hr}$  (Permitted Allowable)

Calculations:  $8500 \text{ hr/yr} * 2.08 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 8.84 \text{ ton/yr}$

PM<sub>10</sub> Emissions:

Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}

Design Capacity: 48548 dscfm

$0.005 \text{ gr/dscf} * 48548 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb}/7000 \text{ gr} = 2.08 \text{ lb/hr}$  (Permitted Allowable)

Calculations:  $8500 \text{ hr/yr} * 2.08 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 8.84 \text{ ton/yr}$

**Line 1 MDF Materials Handling Baghouse**

Hours of Operation: 8500 hr/yr (Permitted Allowable)

PM Emissions

Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}

Design Capacity: 44135 dscfm

$0.005 \text{ gr/dscf} * 44135 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb}/7000 \text{ gr} = 1.89 \text{ lb/hr}$  (Permitted Allowable)

Calculations:  $8500 \text{ hr/yr} * 1.89 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 8.04 \text{ ton/yr}$

PM<sub>10</sub> Emissions:

Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}

Design Capacity: 44135 dscfm

$0.005 \text{ gr/dscf} * 44135 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb}/7000 \text{ gr} = 1.89 \text{ lb/hr}$  (Permitted Allowable)

Calculations:  $8500 \text{ hr/yr} * 1.89 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 8.04 \text{ ton/yr}$

**Line 1 MDF Fiber Dryers (Emissions Vent to Line 1 biofilter)**

Hours of Operation: 8500 hr/yr (Permitted Allowable)

Design Capacity:  $100 \text{ MMBtu/hr} * 1 \text{ ton}/16 \text{ MMBtu} = 6.25 \text{ ton/hr}$  {Face and Core Dryers}

PM Emissions

Emission Factor: 0.015 gr/dscf {Information from Company, 2/9/95}

Design Capacity: 180000 dscfm {This includes all 4 stacks}

$0.015 \text{ gr/dscf} * 180000 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb}/7000 \text{ gr} = 23.14 \text{ lb/hr}$

Calculations:  $8500 \text{ hr/yr} * 23.14 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 98.36 \text{ ton/yr}$

PM<sub>10</sub> Emissions

Emission Factor: 0.015 gr/dscf {Information from Company, 2/9/95}

Design Capacity: 180000 dscfm {This includes all 4 stacks}

$0.015 \text{ gr/dscf} * 180000 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb}/7000 \text{ gr} = 23.14 \text{ lb/hr}$

Calculations:  $8500 \text{ hr/yr} * 23.14 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 98.36 \text{ ton/yr}$

VOC Emissions

Emission Factor: 2.30 lb/ton

Design Capacity: 57 ton/hr

$2.30 \text{ lb/ton} * 57 \text{ ton/hr} = 131.10 \text{ lb/hr}$  {Permitted Allowable for Face and Core Dryer}

Calculations: 8500 hr/yr \* 131.10 lb/hr \* 0.0005 ton/lb = 557.18 ton/yr

NO<sub>x</sub> Emissions:

Emission Factor: 10.60 lb/ton {Information from Company, 2/9/95}

Design Capacity: 6.25 ton/hr {Information from Company, 2/9/95}

10.60 lb/ton \* 6.25 ton/hr = 66.25 lb/hr

Calculations: 8500 hr/yr \* 66.25 lb/hr \* 0.0005 ton/lb = 281.56 ton/yr

SO<sub>x</sub> Emissions:

Emission Factor: 0.075 lb/ton

Design Capacity: 6.25 ton/hr {Information from Company, 2/9/95}

0.075 lb/ton \* 6 ton/hr = 0.47 lb/hr

Calculations: 8500 hr/yr \* 0.47 lb/hr \* 0.0005 ton/lb = 1.99 ton/yr

CO Emissions:

Emission Factor: 13.60 lb/ton

Design Capacity: 6.25 ton/hr {Information from Company, 2/9/95}

13.60 lb/ton \* 6 ton/hr = 85.00 lb/hr

Calculations: 8500 hr/yr \* 85.00 lb/hr \* 0.0005 ton/lb = 361.25 ton/yr

**Line 1 press vents (Emissions Vent to Line 1 Biofilter)**

PM Emissions

Emission Factor: 7.74 lb/hr (see calculation in EI for Permit #2667-13 in Section IV.C of Permit Analysis)

Calculations: 7.74 lb/hr \* 8500 hr/yr \* 0.0005 ton/lb = 32.90 ton/yr

PM<sub>10</sub> Emissions

Emission Factor: 2.85 lb/hr (see calculation in EI for Permit #2667-13 in Section IV.C of Permit Analysis)

Calculations: 2.85 lb/hr \* 8500 hr/yr \* 0.0005 ton/lb = 12.11 ton/yr

VOC Emissions

Emission Factor: 8.04 lb/hr (see calculation in EI for Permit #2667-13 in Section IV.C of Permit Analysis)

Calculations: 8.04 lb/hr \* 8500 hr/yr \* 0.0005 ton/lb = 34.17 ton/yr

**Line 1 biofilter: Summary of Combined Emissions (Line 1 MDF Fiber Dryers and Press Vents Venting to Line 1 Biofilter)**

PM Emissions: Line 1 biofilter (Line 1 MDF Fiber Dryers and Line 1 press vents)

Calculations: 98.36 ton/yr + 32.90 ton/yr = 131.26 ton/yr

PM<sub>10</sub> Emissions: Line 1 biofilter (Line 1 MDF Fiber Dryers and Line 1 press vents)

Calculations: 98.36 ton/yr + 12.11 ton/yr = 110.47 ton/yr

VOC Emissions: Line 1 biofilter (Line 1 MDF Fiber Dryers and Line 1 press vents)

Calculations: 557.18 ton/yr + 34.17 ton/yr = 591.35 ton/yr

**Planer #3 Cyclone**

Hours of Operation: 8760 hr/yr

PM Emissions

Emission Factor: 0.03 gr/dscf {Information from Company, 1/26/94}

Design Capacity: 21600 dscfm

0.03 gr/dscf \* 21600 dscfm \* 60 min/hr \* 1 lb/7000 gr = 5.55 lb/hr {Permitted Allowable}

Calculations: 8760 hr/yr \* 5.55 lb/hr \* 0.0005 ton/lb = 24.33 ton/yr

PM<sub>10</sub> Emissions:

Emission Factor: 0.012 gr/dscf {Information from Company, 1/26/94}

Design Capacity: 21600 dscfm

Calculations:  $0.012 \text{ gr/dscf} * 21600 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb}/7000 \text{ gr} = 2.22 \text{ lb/hr}$  {Permitted Allowable}  
 $8760 \text{ hr/yr} * 2.22 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 9.73 \text{ ton/yr}$

#### Planer #4 Cyclone

Hours of Operation: 8760 hr/yr

##### PM Emissions

Emission Factor: 0.03 gr/dscf {Information from Company, 1/26/94}  
Design Capacity: 54000 dscfm  
 $0.03 \text{ gr/dscf} * 54000 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb}/7000 \text{ gr} = 13.89 \text{ lb/hr}$  {Permitted Allowable}

Calculations:  $8760 \text{ hr/yr} * 13.89 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 60.82 \text{ ton/yr}$

##### PM<sub>10</sub> Emissions:

Emission Factor: 0.012 gr/dscf {Information from Company, 1/26/94}  
Design Capacity: 54000 dscfm  
 $0.012 \text{ gr/dscf} * 54000 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb}/7000 \text{ gr} = 5.55 \text{ lb/hr}$  {Permitted Allowable}

Calculations:  $8760 \text{ hr/yr} * 5.55 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 24.33 \text{ ton/yr}$

#### Planer Shavings Bin Cyclone

Hours of Operation: 8760 hr/yr

##### PM Emissions

Emission Factor: 0.03 gr/dscf {Information from Company, 1/26/94}  
Design Capacity: 5400 dscfm  
 $0.03 \text{ gr/dscf} * 5400 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb}/7000 \text{ gr} = 1.39 \text{ lb/hr}$  {Permitted Allowable}

Calculations:  $8760 \text{ hr/yr} * 1.39 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 6.08 \text{ ton/yr}$

##### PM<sub>10</sub> Emissions:

Emission Factor: 0.012 gr/dscf {Information from Company, 1/26/94}  
Design Capacity: 5400 dscfm  
 $0.012 \text{ gr/dscf} * 5400 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb}/7000 \text{ gr} = 0.56 \text{ lb/hr}$  {Permitted Allowable}

Calculations:  $8760 \text{ hr/yr} * 0.56 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 2.43 \text{ ton/yr}$

#### Planer Chip Bin Cyclone

Hours of Operation: 8760 hr/yr

##### PM Emissions

Emission Factor: 0.03 gr/dscf {Information from Company, 1/26/94}  
Design Capacity: 5400 dscfm  
 $0.03 \text{ gr/dscf} * 5400 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb}/7000 \text{ gr} = 1.39 \text{ lb/hr}$  {Permitted Allowable}

Calculations:  $8760 \text{ hr/yr} * 1.39 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 6.08 \text{ ton/yr}$

##### PM<sub>10</sub> Emissions:

Emission Factor: 0.012 gr/dscf {Information from Company, 1/26/94}  
Design Capacity: 5400 dscfm  
 $0.012 \text{ gr/dscf} * 5400 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb}/7000 \text{ gr} = 0.56 \text{ lb/hr}$  {Permitted Allowable}

Calculations:  $8760 \text{ hr/yr} * 0.56 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 2.43 \text{ ton/yr}$

#### Sawmill Chip Bin Cyclone

Hours of Operation: 8760 hr/yr

PM Emissions  
 Emission Factor: 0.03 gr/dscf {Information from Company, 1/26/94}  
 Design Capacity: 5400 dscfm  
 $0.03 \text{ gr/dscf} * 5400 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 1.39 \text{ lb/hr}$  {Permitted Allowable}  
 Calculations:  $8760 \text{ hr/yr} * 1.39 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 6.08 \text{ ton/yr}$

PM<sub>10</sub> Emissions:  
 Emission Factor: 0.012 gr/dscf {Information from Company, 1/26/94}  
 Design Capacity: 5400 dscfm  
 $0.012 \text{ gr/dscf} * 5400 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 0.56 \text{ lb/hr}$  {Permitted Allowable}  
 Calculations:  $8760 \text{ hr/yr} * 0.56 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 2.43 \text{ ton/yr}$

**Sawmill Sawdust Target Box**

Hours of Operation: 8760 hr/yr

PM Emissions  
 Emission Factor: 0.10 lb/BDT Oregon DEQ/AQ Permitting Inspection  
 Design Capacity: 4.9 BDT/hr {Information from Company, 7/12/95}  
 $0.10 \text{ lb/BDT} * 4.90 \text{ BDT/hr} = 0.49 \text{ lb/hr}$   
 Calculations:  $8760 \text{ hr/yr} * 0.49 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 2.15 \text{ ton/yr}$

PM<sub>10</sub> Emissions:  
 Emission Factor: 0.05 lb/BDT Oregon DEQ/AQ Permitting Inspection  
 Design Capacity: 4.9 BDT/hr {Information from Company, 7/12/95}  
 $0.05 \text{ lb/BDT} * 4.90 \text{ BDT/hr} = 0.25 \text{ lb/hr}$   
 Calculations:  $8760 \text{ hr/yr} * 0.25 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 1.07 \text{ ton/yr}$

**Sawmill Drying Kilns**

Hours of Operation: 8760 hr/yr

PM Emissions  
 Emission Factor: 0.20 lb/MBF {Information from Company, 7/12/95}  
 Design Capacity: 186,457 MBF/yr {NCASI, ltr 3/18/94 from David Word}  
 $0.20 \text{ lb/MBF} * 186457 \text{ MBF/yr} = 37291.4 \text{ lb/MBF}$   
 Calculations:  $0.20 \text{ lb/MBF} * 186457 \text{ MBF/yr} * 0.0005 \text{ ton/lb} = 18.65 \text{ ton/yr}$

PM<sub>10</sub> Emissions:  
 Emission Factor: 0.20 lb/MBF {Information from Company, 7/12/95}  
 Design Capacity: 186,457 MBF/yr {NCASI, ltr 3/18/94 from David Word}  
 $0.20 \text{ lb/MBF} * 186457 \text{ MBF/yr} = 37291.4 \text{ lb/MBF}$   
 Calculations:  $0.20 \text{ lb/MBF} * 186457 \text{ MBF/yr} * 0.0005 \text{ ton/lb} = 18.65 \text{ ton/yr}$

VOC Emissions:  
 Emission Factor: 1.70 lb/MBF {NCASI, TB No. 718, July 1996}  
 Design Capacity: 186,457 MBF/yr {based on average of species tests}  
 $1.70 \text{ lb/MBF} * 186457 \text{ MBF/yr} = 316976.9 \text{ lbs/MBF}$   
 Calculations:  $1.70 \text{ lb/MBF} * 186457 \text{ MBF/yr} * 0.0005 \text{ ton/lb} = 158.49 \text{ ton/yr}$

**Plywood Chip Bin Cyclone**

Hours of Operation: 8760 hr/yr

PM Emissions:  
 Emission Factor: 0.03 gr/dscf {Information from Company, 1/26/94} {Permitted Allowable}  
 Design Capacity: 5000 dscfm de minimus Change Notification 2/26/97  
 $0.03 \text{ gr/dscf} * 5000 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 1.30 \text{ lb/hr}$   
 Calculations:  $8760 \text{ hr/yr} * 1.30 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 5.69 \text{ ton/yr}$

PM<sub>10</sub> Emissions:  
 Emission Factor: 0.012 gr/dscf {Information from Company, 1/26/94}  
 Design Capacity: 5000 dscfm

0.012 gr/dscf \* 5000 dscfm \* 60 min/hr \* 1 lb/7000 gr = 0.52 lb/hr {Permitted Allowable}  
8760 hr/yr \* 0.52 lb/hr \* 0.0005 ton/lb = 2.28 ton/yr {Permit #2667-07}

Calculations:

**Plywood Fines Target Box**

Hours of Operation: 8760 hr/yr

PM Emissions:

Emission Factor: 0.03 gr/dscf (de minimus change notification 2/26/97)

Design Capacity: 2500 dscfm

0.03 gr/dscf \* 2500 dscfm \* 60 min/hr \* 1 lb/7000 gr = 1.30 lb/hr

Calculations: 8760 hr/yr \* 1.30 lb/hr \* 0.0005 ton/lb = 5.69 ton/yr

PM<sub>10</sub> Emissions:

Emission Factor: 0.014 gr/dscf (de minimus change notification 2/26/97)

Design Capacity: 2500 dscfm

0.014 gr/dscf \* 2500 dscfm \* 60 min/hr \* 1 lb/7000gr = 0.852 lb/hr

Calculations: 8760 hr/yr \* 0.52 lb/hr \* 0.0005 ton/lb = 2.28 ton/yr

**Plywood Sander Dust Baghouse**

Hours of Operation: 8760 hr/yr

PM Emissions:

Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}

Design Capacity: 31488 dscfm

0.005 gr/dscf \* 31488 dscfm \* 60 min/hr \* 1 lb/7000 gr = 1.35 lb/hr {Permitted Allowable}

Calculations: 8760 hr/yr \* 1.35 lb/hr \* 0.0005 ton/lb = 5.91 ton/yr

PM<sub>10</sub> Emissions:

Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}

Design Capacity: 31488 dscfm

0.005 gr/dscf \* 31488 dscfm \* 60 min/hr \* 1 lb/7000gr = 1.35 lb/hr {Permitted Allowable}

Calculations: 8760 hr/yr \* 1.35 lb/hr \* 0.0005 ton/lb = 5.91 ton/yr

**Plywood 18" Hog Baghouse**

Hours of Operation: 8760 hr/yr

PM Emissions:

Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}

Design Capacity: 13495 dscfm

0.005 gr/dscf \* 13495 dscfm \* 60 min/hr \* 1 lb/7000 gr = 0.58 lb/hr {Permitted Allowable}

Calculations: 8760 hr/yr \* 0.58 lb/hr \* 0.0005 ton/lb = 2.53 ton/yr

PM<sub>10</sub> Emissions:

Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}

Design Capacity: 13495 dscfm

0.005 gr/dscf \* 13495 dscfm \* 60 min/hr \* 1 lb/7000 gr = 0.58 lb/hr {Permitted Allowable}

Calculations: 8760 hr/yr \* 0.58 lb/hr \* 0.0005 ton/lb = 2.53 ton/yr

**Plywood 30" Hog Baghouse**

Hours of Operation: 8760 hr/yr

PM Emissions:  
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}  
Design Capacity: 13495 dscfm  
 $0.005 \text{ gr/dscf} * 13495 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 0.58 \text{ lb/hr}$  {Permitted Allowable}  
Calculations:  $8760 \text{ hr/yr} * 0.58 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 2.53 \text{ ton/yr}$

PM<sub>10</sub> Emissions:  
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}  
Design Capacity: 13495 dscfm  
 $0.005 \text{ gr/dscf} * 13495 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 0.58 \text{ lb/hr}$  {Permitted Allowable}  
Calculations:  $8760 \text{ hr/yr} * 0.58 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 2.53 \text{ ton/yr}$

**Line 1 MDF N. Sander Baghouse #7**

Hours of Operation: 8500 hr/yr {Permitted Allowable}

PM Emissions:  
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}  
Design Capacity: 49482 dscfm  
 $0.005 \text{ gr/dscf} * 49482 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 2.12 \text{ lb/hr}$  {Permitted Allowable}  
Calculations:  $8500 \text{ hr/yr} * 2.12 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 9.01 \text{ ton/yr}$

PM<sub>10</sub> Emissions:  
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}  
Design Capacity: 49482 dscfm  
 $0.005 \text{ gr/dscf} * 49482 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 2.12 \text{ lb/hr}$  {Permitted Allowable}  
Calculations:  $8500 \text{ hr/yr} * 2.12 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 9.01 \text{ ton/yr}$

**Line 1 MDF S. Sander Baghouse #8**

Hours of Operation: 8500 hr/yr {Permitted Allowable}

PM Emissions:  
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}  
Design Capacity: 49482 dscfm  
 $0.005 \text{ gr/dscf} * 49482 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 2.12 \text{ lb/hr}$  {Permitted Allowable}  
Calculations:  $8500 \text{ hr/yr} * 2.12 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 9.01 \text{ ton/yr}$

PM<sub>10</sub> Emissions:  
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}  
Design Capacity: 49482 dscfm  
 $0.005 \text{ gr/dscf} * 49482 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 2.12 \text{ lb/hr}$  {Permitted Allowable}  
Calculations:  $8500 \text{ hr/yr} * 2.12 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 9.01 \text{ ton/yr}$

**Line 1 MDF Board Trim Baghouse #10**

Hours of Operation: 8500 hr/yr {Permitted Allowable}

PM Emissions:  
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}  
Design Capacity: 4498 dscfm  
 $0.005 \text{ gr/dscf} * 4498 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 0.19 \text{ lb/hr}$  {Permitted Allowable}  
Calculations:  $8500 \text{ hr/yr} * 0.19 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 0.82 \text{ ton/yr}$

PM<sub>10</sub> Emissions:  
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}  
Design Capacity: 4498 dscfm

0.005 gr/dscf \* 4498 dscfm \* 60 min/hr \* 1 lb/7000 gr = 0.19 lb/hr {Permitted Allowable}  
Calculations: 8500 hr/yr \* 0.19 lb/hr \* 0.0005 ton/lb = 0.82 ton/yr

**Line 1 MDF Sanderdust Fuel Baghouse**

Hours of Operation: 8500 hr/yr {Permitted Allowable}

PM Emissions:

Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}

Design Capacity: 13495 dscfm  
0.005 gr/dscf \* 13495 dscfm \* 60 min/hr \* 1 lb/7000 gr = 0.58 lb/hr {Permitted Allowable}

Calculations: 8500 hr/yr \* 0.58 lb/hr \* 0.0005 ton/lb = 2.46 ton/yr

PM<sub>10</sub> Emissions:

Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}

Design Capacity: 13495 dscfm  
0.005 gr/dscf \* 13495 dscfm \* 60 min/hr \* 1 lb/7000 gr = 0.58 lb/hr {Permitted Allowable}

Calculations: 8500 hr/yr \* 0.58 lb/hr \* 0.0005 ton/lb = 2.46 ton/yr

**Line 1 MDF Booksaw Baghouse #5**

Hours of Operation: 8500 hr/yr {Permitted Allowable}

PM Emissions:

Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}

Design Capacity: 44983 dscfm  
0.005 gr/dscf \* 44983 dscfm \* 60 min/hr \* 1 lb/7000 gr = 1.93 lb/hr {Permitted Allowable}

Calculations: 8500 hr/yr \* 1.93 lb/hr \* 0.0005 ton/lb = 8.19 ton/yr

PM<sub>10</sub> Emissions:

Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}

Design Capacity: 44983 dscfm  
0.005 gr/dscf \* 44983 dscfm \* 60 min/hr \* 1 lb/7000 gr = 1.93 lb/hr {Permitted Allowable}

Calculations: 8500 hr/yr \* 1.93 lb/hr \* 0.0005 ton/lb = 8.19 ton/yr

**Line 1 MDF Sander Hog Baghouse #6**

Hours of Operation: 8500 hr/yr {Permitted Allowable}

PM Emissions:

Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}

Design Capacity: 44983 dscfm  
0.005 gr/dscf \* 44983 dscfm \* 60 min/hr \* 1 lb/7000 gr = 1.93 lb/hr {Permitted Allowable}

Calculations: 8500 hr/yr \* 1.93 lb/hr \* 0.0005 ton/lb = 8.19 ton/yr

PM<sub>10</sub> Emissions:

Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}

Design Capacity: 44983 dscfm  
0.005 gr/dscf \* 44983 dscfm \* 60 min/hr \* 1 lb/7000 gr = 1.93 lb/hr {Permitted Allowable}

Calculations: 8500 hr/yr \* 1.93 lb/hr \* 0.0005 ton/lb = 8.19 ton/yr

**Line 1 MDF Metering Bin Baghouse #1**

Hours of Operation: 8500 hr/yr {Permitted Allowable}

PM Emissions:  
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}  
Design Capacity: 44983 dscfm  
 $0.005 \text{ gr/dscf} * 44983 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 1.93 \text{ lb/hr}$  {Permitted Allowable}  
Calculations:  $8500 \text{ hr/yr} * 1.93 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 8.19 \text{ ton/yr}$

PM<sub>10</sub> Emissions:  
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}  
Design Capacity: 44983 dscfm  
 $0.005 \text{ gr/dscf} * 44983 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000gr} = 1.93 \text{ lb/hr}$  {Permitted Allowable}  
Calculations:  $8500 \text{ hr/yr} * 1.93 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 8.19 \text{ ton/yr}$

**Line 1 MDF Felter Baghouse #1**

Hours of Operation: 8500 hr/yr {Permitted Allowable}

PM Emissions:  
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}  
Design Capacity: 44983 dscfm  
 $0.005 \text{ gr/dscf} * 44983 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 1.93 \text{ lb/hr}$  {Permitted Allowable}  
Calculations:  $8500 \text{ hr/yr} * 1.93 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 8.19 \text{ ton/yr}$

PM<sub>10</sub> Emissions:  
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}  
Design Capacity: 44983 dscfm  
 $0.005 \text{ gr/dscf} * 44983 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 1.93 \text{ lb/hr}$  {Permitted Allowable}  
Calculations:  $8500 \text{ hr/yr} * 1.93 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 8.19 \text{ ton/yr}$

**Line 1 MDF Felter Baghouse #2**

Hours of Operation: 8500 hr/yr {Permitted Allowable}

PM Emissions:  
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}  
Design Capacity: 44983 dscfm  
 $0.005 \text{ gr/dscf} * 44983 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 1.93 \text{ lb/hr}$  {Permitted Allowable}  
Calculations:  $8500 \text{ hr/yr} * 1.93 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 8.19 \text{ ton/yr}$

PM<sub>10</sub> Emissions:  
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}  
Design Capacity: 44983 dscfm  
 $0.005 \text{ gr/dscf} * 44983 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 1.93 \text{ lb/hr}$  {Permitted Allowable}  
Calculations:  $8500 \text{ hr/yr} * 1.93 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 8.19 \text{ ton/yr}$

**Line 1 MDF Blr Sndrdst Boiler Baghouse #11**

Hours of Operation: 8500 hr/yr {Permitted Allowable}

PM Emissions:  
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}  
Design Capacity: 13495 dscfm  
 $0.005 \text{ gr/dscf} * 13495 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 0.58 \text{ lb/hr}$  {Permitted Allowable}  
Calculations:  $8500 \text{ hr/yr} * 0.58 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 2.46 \text{ ton/yr}$

PM<sub>10</sub> Emissions:  
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}  
Design Capacity: 13495 dscfm

0.005 gr/dscf \* 13495 dscfm \* 60 min/hr \* 1 lb/7000 gr = 0.58 lb/hr {Permitted Allowable}  
 Calculations: 8500 hr/yr \* 0.58 lb/hr \* 0.0005 ton/lb = 2.46 ton/yr

**Line 1 MDF Board Coolers (Uncontrolled)**

Hours of Operation: 8500 hr/yr {Permitted Allowable}  
 Number of Board Coolers: 10

PM Emissions:  
 Emission Factor: 10.32 lb/hr (Permitted Allowable: see calculation in EI for Permit #2667-13 below)  
 Calculations: 10.32 lb/hr \* 8500 hr/yr \* 0.0005 ton/lb = 43.86 ton/yr

PM<sub>10</sub> Emissions:  
 Emission Factor: 3.80 lb/hr (Permitted Allowable: see calculation in EI for Permit #2667-13 below)  
 Calculations: 3.80 lb/hr \* 8500 hr/yr \* 0.0005 ton/lb = 16.15 ton/yr

VOC Emissions:  
 Emission Factor: 5.36 lb/hr (Permitted Allowable: see calculation in EI for Permit #2667-13 below)  
 Calculations: 5.36 lb/hr \* 8500 hr/yr \* 0.0005 ton/lb = 22.78 ton/yr

**Line 2 MDF Fiber Dryers (Emissions Vent to Line 2 biofilter)**

Hours of Operation: 8760 hr/yr (Permitted Allowable)  
 Design Capacity: 85 MMBtu/hr \* 1 ton/16MMBtu = 5.31 ton/hr  
 5.31 ton/hr \* 8760 hr/yr = 46500 ton/yr

PM Emissions  
 Emission Factor: 0.015 gr/dscf {Information from Company, 2/9/95}  
 Design Capacity: 140000 dscfm {This includes all 4 stacks}  
 0.015 gr/dscf \* 140000 dscfm \* 60 min/hr \* 1 lb/7000 gr = 18.0 lb/hr (Permitted Allowable)  
 Calculations: 8760 hr/yr \* 18.0 lb/hr \* 0.0005 ton/lb = 78.8 ton/yr

PM<sub>10</sub> Emissions:  
 Emission Factor: 0.015 gr/dscf {Information from Company, 2/9/95}  
 Design Capacity: 140000 dscfm {This includes all 4 stacks}  
 0.015 gr/dscf \* 140000 dscfm \* 60 min/hr \* 1 lb/7000gr = 18.0 lb/hr (Permitted Allowable)  
 Calculations: 8760 hr/yr \* 18.0 lb/hr \* 0.0005 ton/lb = 78.8 ton/yr

VOC Emissions:  
 Emission Factor: 2.30 lb/ton  
 Design Capacity: 33.1 ton/hr  
 2.30 lb/ton \* 33.1 ton/hr = 76.1 lb/hr {Permitted Allowable for Core Dryer}  
 Calculations: 8760 hr/yr \* 76.1 lb/hr \* 0.0005 ton/lb = 333.0 ton/yr

NO<sub>x</sub> Emissions:  
 Control Efficiency: 23% FGR/LNB (Efficiency provided by Plum Creek on 08/03/99)  
 Emission Factor: 10.60 lb/ton {Information from Company, 2/9/95}  
 Design Capacity: 5.31 ton/hr {Information from Company, 2/9/95}  
 0.60 lb/ton \* 5.31 ton/hr = 56.3 lb/hr  
 Calculations: 8760 hr/yr \* 56.3 lb/hr \* 0.0005 ton/lb = 247.0 ton/yr  
 47.0 ton/yr \* (1.0 - 0.23) = 190.2 ton/yr

SO<sub>x</sub> Emissions:  
 Emission Factor: 0.15 lb/ton  
 Design Capacity: 46500 ton/yr {Information from Company, 2/9/95}  
 0.15 lb/ton \* 46500 ton/yr = 6975.0 lb/yr  
 Calculations: 6975.0 lb/yr \* 0.0005 ton/lb = 3.49 ton/yr

CO Emissions:  
 Emission Factor: 13.60 lb/ton  
 Design Capacity: 46500 ton/yr {Information from Company, 2/9/95}

Calculations:  $13.60 \text{ lb/ton} * 46500 \text{ ton/yr} = 632400 \text{ lb/yr}$   
 $632400 \text{ lb/yr} * 0.0005 \text{ ton/lb} = 316.2 \text{ ton/yr}$

**Line 2 Press Vent Emissions (Emissions Vent to Line 2 biofilter)**

Hours of Operation: 8760 hr/yr  
Additional flow to ESP = 40,000 dscfm (Permit #2667-13 increase from 25,000 dscfm)

PM Emissions  
Emission Factor: 0.015 gr/dscf {Permit Limit}  
 $0.015 \text{ gr/dscf} * 40,000 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000gr} = 5.14 \text{ lb/hr}$   
Calculations:  $5.14 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 22.53 \text{ ton/yr}$

PM<sub>10</sub> Emissions:  
Emission Factor: 0.015 gr/dscf {Permit Limit}  
 $0.015 \text{ gr/dscf} * 40,000 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000gr} = 5.14 \text{ lb/hr}$   
Calculations:  $5.14 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 22.53 \text{ ton/yr}$

VOC Emissions:  
Emission Factor: 2.0 lb/hr {based on industry data}  
Calculations:  $2.0 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 8.76 \text{ ton/yr}$

**Line 2 biofilter: Summary of Combined Emissions (Line 2 MDF Fiber Dryers and Press Vents Venting to Line 1 Biofilter)**

PM Emissions: Line 2 biofilter (Line 2 MDF Fiber Dryers and Line 2 press vents)  
Calculations:  $78.8 \text{ ton/yr} + 22.53 \text{ ton/yr} = 101.33 \text{ ton/yr}$

PM<sub>10</sub> Emissions: Line 2 biofilter (Line 2 MDF Fiber Dryers and Line 2 press vents)  
Calculations:  $78.8 \text{ ton/yr} + 22.53 \text{ ton/yr} = 101.33 \text{ ton/yr}$

VOC Emissions: Line 2 biofilter (Line 2 MDF Fiber Dryers and Line 2 press vents)  
Calculations:  $333.0 \text{ ton/yr} + 8.76 \text{ ton/yr} = 341.76 \text{ ton/yr}$

**Line 2 North Sander Baghouse**

Hours of Operation: 8760 hr/yr (Permitted Allowable)  
Design Capacity: 50000 cfm

PM Emissions  
Emission Factor: 0.005 gr/dscf {Basis for limit}  
Design Capacity: 50000 dscfm  
 $0.005 \text{ gr/dscf} * 50000 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 2.14 \text{ lb/hr}$  (Permitted Allowable)  
Calculations:  $2.14 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 9.37 \text{ ton/yr}$

PM<sub>10</sub> Emissions:  
Emission Factor: 0.005 gr/dscf {Basis for limit}  
Design Capacity: 50000 dscfm  
 $0.005 \text{ gr/dscf} * 50000 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 2.14 \text{ lb/hr}$  (Permitted Allowable)  
Calculations:  $2.14 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 9.37 \text{ ton/yr}$

**Line 2 South Sander Baghouse**

Hours of Operation: 8760 hr/yr (Permitted Allowable)  
Design Capacity: 50000 cfm

PM Emissions  
Emission Factor: 0.005 gr/dscf {Basis for limit}

Design Capacity: 50000 dscfm  
 $0.005 \text{ gr/dscf} * 50000 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 2.14 \text{ lb/hr}$  (Permitted Allowable)  
Calculations:  $8760 \text{ hr/yr} * 2.14 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 9.37 \text{ ton/yr}$

PM<sub>10</sub> Emissions:  
Emission Factor: 0.005 gr/dscf {Basis for limit}  
Design Capacity: 50000 dscfm  
 $0.005 \text{ gr/dscf} * 50000 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 2.14 \text{ lb/hr}$  (Permitted Allowable)  
Calculations:  $8760 \text{ hr/yr} * 2.14 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 9.37 \text{ ton/yr}$

### Line 2 Reject Baghouse

Hours of Operation: 8760 hr/yr (Permitted Allowable)  
Design Capacity: 50000 cfm

PM Emissions  
Emission Factor: 0.005 gr/dscf {Basis for limit}  
Design Capacity: 50000 dscfm  
 $0.005 \text{ gr/dscf} * 50000 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 2.14 \text{ lb/hr}$  (Permitted Allowable)  
Calculations:  $8760 \text{ hr/yr} * 2.14 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 9.37 \text{ ton/yr}$

PM<sub>10</sub> Emissions:  
Emission Factor: 0.005 gr/dscf {Basis for limit}  
Design Capacity: 50000 dscfm  
 $0.005 \text{ gr/dscf} * 50000 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 2.14 \text{ lb/hr}$  (Permitted Allowable)  
Calculations:  $8760 \text{ hr/yr} * 2.14 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 9.37 \text{ ton/yr}$

### Line 2 Forming Baghouse

Hours of Operation: 8760 hr/yr (Permitted Allowable)  
Design Capacity: 50000 cfm

PM Emissions  
Emission Factor: 0.005 gr/dscf {Basis for limit}  
Design Capacity: 50000 dscfm  
 $0.005 \text{ gr/dscf} * 50000 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 2.14 \text{ lb/hr}$  (Permitted Allowable)  
Calculations:  $8760 \text{ hr/yr} * 2.14 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 9.37 \text{ ton/yr}$

PM<sub>10</sub> Emissions:  
Emission Factor: 0.005 gr/dscf {Basis for limit}  
Design Capacity: 50000 dscfm  
 $0.005 \text{ gr/dscf} * 50000 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 2.14 \text{ lb/hr}$  (Permitted Allowable)  
Calculations:  $8760 \text{ hr/yr} * 2.14 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 9.37 \text{ ton/yr}$

### Line 2 Coen Fuel Bin Baghouse

Hours of Operation: 8760 hr/yr (Permitted Allowable)  
Design Capacity: 10000 cfm

PM Emissions  
Emission Factor: 0.005 gr/dscf {Basis for limit}  
Design Capacity: 10000 dscfm  
 $0.005 \text{ gr/dscf} * 10000 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 0.43 \text{ lb/hr}$  (Permitted Allowable)  
Calculations:  $8760 \text{ hr/yr} * 0.43 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 1.88 \text{ ton/yr}$

PM<sub>10</sub> Emissions:  
Emission Factor: 0.005 gr/dscf {Basis for limit}

Design Capacity: 10000 dscfm  
 $0.005 \text{ gr/dscf} * 10000 \text{ dscfm} * 60 \text{ min/hr} * 1 \text{ lb/7000 gr} = 0.43 \text{ lb/hr}$  (Permitted Allowable)  
 Calculations:  $8760 \text{ hr/yr} * 0.43 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 1.88 \text{ ton/yr}$

**Line 2 MDF Hot Oil Natural Gas Burner**

Hours of Operation: 8760 hr/yr  
 The 17.7 MMBtu/hr natural gas burner will burn 18436 scf/hr of natural gas or 161.5 mmcf/yr.

**PM Emissions**

Emission Factor: 6.2 lb/mmcf {AP-42, Table 1.4-1, Rev. 10/92}  
 Design Capacity:  $6.2 \text{ lb/mmcf} * 18436 \text{ scf/yr} * 1 \text{ mmcf/1000000 scf} = 0.11 \text{ lb/hr}$   
 $0.11 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.50 \text{ ton/yr}$

**PM<sub>10</sub> Emissions:**

Emission Factor: 6.2 lb/mmcf {AP-42, Table 1.4-1, Rev. 10/92}  
 Design Capacity:  $6.2 \text{ lb/mmcf} * 18436 \text{ scf/yr} * 1 \text{ mmcf/1000000 scf} = 0.11 \text{ lb/hr}$   
 $0.11 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.50 \text{ ton/yr}$

**VOC Emissions:**

Emission Factor: 5.8 lb/mmcf {AP-42, Table 1.4-1, Rev. 10/92}  
 Design Capacity:  $5.8 \text{ lb/mmcf} * 18436 \text{ scf/yr} * 1 \text{ mmcf/1000000 scf} = 0.107 \text{ lb/hr}$   
 $0.107 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.47 \text{ ton/yr}$

**NO<sub>x</sub> Emissions:**

Emission Factor: 100 lb/mmcf {AP-42, Table 1.4-1, Rev. 10/92}  
 Design Capacity:  $100 \text{ lb/mmcf} * 18436 \text{ scf/yr} * 1 \text{ mmcf/1000000 scf} = 1.84 \text{ lb/hr}$   
 $1.84 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 8.08 \text{ ton/yr}$

**CO Emissions:**

Emission Factor: 35 lb/mmcf {AP-42, Table 1.4-1, Rev. 10/92}  
 Design Capacity:  $35 \text{ lb/mmcf} * 18436 \text{ scf/yr} * 1 \text{ mmcf/1000000 scf} = 0.645 \text{ lb/hr}$   
 $0.645 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 2.83 \text{ ton/yr}$

**96.4-MMBtu/hr Natural Gas/Diesel Boiler (75,000 lb/hr)**

Hours of Operation: 8520 hr/yr fired on natural gas  
 Gallons per Year Diesel Consumption: 165000 gal/yr

**PM Emissions Natural Gas**

Emission Factor 7.6 lb/MMscf (AP-42, Table 1.4-2 7/98)  
 Hourly Calculation  $(7.6 \text{ lb/MMscf}) / (1020 \text{ Btu/scf}) * (96.4 \text{ lb/MMBtu}) * (8520/8760 \text{ hr/hr}) = 0.70 \text{ lb/hr}$   
 Annual Calculation  $0.70 \text{ lb/hr} * ((8520 \text{ hr/yr} * 0.0005 \text{ ton/lb})) = 2.98 \text{ ton/yr}$

**PM Emissions Diesel**

Emission Factor 2 lb/mgal (AP-42, Table 1.3-1 9/98)  
 Annual Calculation  $2 \text{ lb/mgal} * ((165000 \text{ gal/yr})/1000) * (1 \text{ ton}/2000 \text{ lb}) = 0.17 \text{ ton/yr}$

**PM<sub>10</sub> Emissions:**

Emission Factor 5.7 lb/MMscf (AP-42, Table 1.4-2 7/98)  
 Hourly Calculation  $(5.7 \text{ lb/MMscf}) / (1020 \text{ Btu/scf}) * (96.4 \text{ lb/MMBtu}) * (8520/8760 \text{ hr/hr}) = 0.52 \text{ lb/hr}$   
 Annual Calculation  $0.52 \text{ lb/hr} * ((8520 \text{ hr/yr} * 0.0005 \text{ ton/lb})) = 2.23 \text{ ton/yr}$

**PM<sub>10</sub> Emissions Diesel**

Emission Factor 2 lb/mgal (AP-42, Table 1.3-1 9/98)  
 Annual Calculation  $2 \text{ lb/mgal} * ((165000 \text{ gal/yr})/1000) * (1 \text{ ton}/2000 \text{ lb}) = 0.17 \text{ ton/yr}$

**NO<sub>x</sub> Emissions Natural Gas:**

Emission Factor: 0.07 lb/MMBtu (BACT)

Fuel Consumption:	96.4 MMBtu/hr
Hourly Calculation:	0.07 lb/MMBtu * (96.4 MMBtu/hr) = 6.75 lb/hr
Annual Calculation	6.75 lb/hr * ((8520 hr/yr * 0.0005 ton/lb)) = 28.75 ton/yr
<b>NO<sub>x</sub> Emissions Diesel</b>	
Emission Factor	20 lb/mgal (AP-42, Table 1.3-1 9/98)
Annual Calculation	20 lb/mgal * ((165000gal/yr)/1000) * (1 ton/2000 lb) = 1.65 ton/yr
<b>CO Emissions Natural Gas:</b>	
Emission Factor:	0.082 lb/MMBtu (BACT)
Fuel Consumption:	96.4 MMBtu/hr
Hourly Calculation:	0.082 lb/MMBtu * (96.4 MMBtu/hr) = 7.91 lb/hr
Annual Calculation	7.91 lb/hr * ((8520 hr/yr * 0.0005 ton/lb)) = 33.70 ton/yr
<b>CO Emissions Diesel</b>	
Emission Factor	5 lb/mgal (AP-42, Table 1.3-1 9/98)
Annual Calculation	5 lb/mgal * ((165000gal/yr)/1000) * (1 ton/2000 lb) = 0.41ton/yr
<b>VOC Emissions Natural Gas:</b>	
Emission Factor	5.5 lb/MMscf (AP-42, Table 1.4-2 7/98)
Hourly Calculation	(5.5 lb/MMscf) / (1020 Btu/scf) * (96.4 lb/MMBtu) * (8520/8760 hr/hr) = 0.51 lb/hr
Annual Calculation	0.51 lb/hr * ((8520 hr/yr * 0.0005 ton/lb)) = 2.15 ton/yr
<b>VOC Emissions Diesel:</b>	
Emission Factor	0.2 lb/mgal (AP-42, Table 1.3-1 9/98)
Annual Calculation	0.2 lb/mgal * ((165000gal/yr)/1000) * (1 ton/2000 lb) = 0.02 ton/yr
<b>SO<sub>x</sub> Emissions Natural Gas:</b>	
Emission Factor:	0.60 lb/MMcf (AP-42, 1.4-2 7/98)
Hourly Calculation	(0.6 lb/MMscf) / (1020 Btu/scf) * (96.4 lb/MMBtu) * (8520/8760 hr/hr) = 0.06 lb/hr
Annual Calculation	0.06 lb/hr * ((8520 hr/yr * 0.0005 ton/lb)) = 0.24 ton/yr
<b>SO<sub>x</sub> Emissions Diesel:</b>	
Emission Factor	7.1 lb/mgal (AP-42, Table 1.3-1 9/98)
Annual Calculation	7.1 lb/mgal * ((165000gal/yr)/1000) * (1 ton/2000 lb) = 0.59 ton/yr

## B. Fugitive Emissions

	<u>PM (TPY)</u>	<u>PM<sub>10</sub> (TPY)</u>
<b>Planer Process</b>		
Shaving Bin Loadout	15.8	9.0
Chip Bin Loadout	0.5	0.24
<b>Sawmill Process</b>		
Debarker	4.4	2.0
Block Saw	6.7	4.0
Hog (wet)	0.5	0.2
Chip Bin	3.8	2.3
Sawdust Bin	11.0	6.4
<b>Plywood Veneer Prep.</b>		
Debarker	6.3	2.8
Block saw	2.4	1.4
Hog (wet)	0.5	0.2
Chip Bin Loadout	4.2	2.6
Wet Fuel Pile	3.3	2.0
MDF Materials Handling	7.24	3.45
Hog Boiler Fuel Handling	1.35	0.63
<b>Mobile Sources</b>		
Log Trucks	17.2	6.2
Chip, Shaving, Sawdust Trucks	19.2	6.9
Lumber Trucks	5.6	2.0
Le Tourneaus	2.8	1.0
Front End Loaders (MDF)	2.2	0.8
Front End Loaders (Log Yard)	7.5	2.7
Dump Trucks	8.1	2.9

Employee Vehicles	7.2	2.6
Total Fugitive Estimate	137.8	62.3

C. Emission Inventory: Permit #2667-13<sup>c</sup>

Emission Point	PM <sub>10</sub> : Pre-Project Emissions <sup>a</sup> (ton/yr)	PM <sub>10</sub> : Post Project Emissions (ton/yr)	PM <sub>10</sub> : Net Project Potential Emissions Change
Line 1 Biofilter	0.00 <sup>b</sup>	110.47	110.47
Line 1 MDF Fiber Dryers	98.36	0.00 <sup>b</sup>	-98.36
Line 1 Press Vents	24.23 <sup>c</sup>	0.00 <sup>b</sup>	-24.23
Line 2 Biofilter <sup>d</sup>	14.08 <sup>d</sup>	22.53 <sup>d</sup>	8.45
<b>Total</b>	<b>136.67</b>	<b>133.00</b>	<b>-3.67</b>

<sup>a</sup> Emissions based on permit limits contained in previous Montana Air Quality Permit #2667-12.  
<sup>b</sup> Under Permit #2667-13, Line 1 MDF dryers and press vents will be routed to Line 1 biofilter prior to being emitted to the atmosphere. Therefore, these emissions are accounted for by the addition of the Line 1 biofilter stacks.  
<sup>c</sup> Pre-Project PM<sub>10</sub> potential emission rate from the Line 1 press vents are estimated to be 60% of the combined emission limit for the Line 1 press vents and the Line 1 board coolers (board coolers remain uncontrolled).  
<sup>d</sup> The pre-project and post-project potential PM<sub>10</sub> emissions from the Line 2 biofilter are based on a controlled PM<sub>10</sub> emissions concentration of 0.015 gr/dscfm, a pre-project flow rate of 25,000 dscfm, and a post-project flow rate of 40,000 dscfm resulting in a net emission increase of 8.45 ton/yr, as calculated based on a difference of 15,000 dscfm.  
<sup>e</sup> A complete emission inventory is contained in the request for administrative amendment under Montana Air Quality Permit #2667-13 and is on file with the Department. Complete emissions calculations for the proposed project are contained in Section IV.A, Point Source Emission Inventory, of the Permit Analysis to Permit #2667-13.

**Permit #2667-13: Establishing Line 1 Press Vent and Line 1 MDF Board Coolers Emission Rate(s)<sup>a</sup>**

**Line 1 press vents (venting to Line 1 biofilter) and Line 1 Board Coolers (uncontrolled)**

**PM Emission Rate:**

Emissions Permit #2667-12: 25.80 lb/hr combined (uncontrolled Line 1 Press Vent and Board Coolers emission rate)

Emissions Permit #2667-13:

press vents (vented to Line 1 biofilter)

25.80 lb/hr combined \* 60% press vents \* 50% control<sup>a</sup> = 7.74 lb/hr

Board Coolers (Uncontrolled)

25.80 lb/hr combined \* 40% Board Coolers = 10.32 lb/hr

**PM<sub>10</sub> Emission Rate:**

Emissions Permit #2667-12: 9.50 lb/hr combined (uncontrolled Line 1 Press Vent and Board Coolers emission rate)

Emissions Permit #2667-13:

press vents (vented to Line 1 biofilter)

Calculations: 9.50 lb/hr combined \* 60% press vents \* 50% control<sup>a</sup> = 2.85 lb/hr

Board Coolers (Uncontrolled)

Calculations: 9.50 lb/hr combined \* 40% Board Coolers = 3.80 lb/hr

**VOC Emission Rate:**

Emissions Permit #2667-12: 13.40 lb/hr combined (uncontrolled Line 1 Press Vent and Board Coolers emission rate)

Emissions Permit #2667-13:

press vents (vented to Line 1 biofilter)

Calculations: 13.40 lb/hr combined \* 60% press vents = 8.04 lb/hr

Board Coolers (Uncontrolled)

Calculations: 13.40 lb/hr combined \* 40% Board Coolers = 5.36 lb/hr

<sup>a</sup> Allowable pre-project PM, PM<sub>10</sub>, and VOC uncontrolled emission rates from the Line 1 press vents and Line 1 Board Coolers are estimated to be 60% and 40% of the Permit #2667-12 emission limit(s), respectively. Under the current permit action, the Line 1 press vents are routed through a knock-out box (estimated 50% PM and PM<sub>10</sub> control) and the proposed Line 1 biofilter prior to being exhausted to the atmosphere through the Line 1 biofilter stacks, while emissions from the Line 1 Board Coolers remain uncontrolled. Allowable VOC emissions do not change under the current permit action and are conservatively estimated assuming no VOC control is achieved through installation and operation of the proposed Line 1 biofilter. The emission rates provided in the calculations below are used in Section IV.A, Point Source Emission Inventory, of the Permit Analysis to Permit #2667-13, and are enforceable under Permit #2667-13.

V. Existing Air Quality and Monitoring Requirements

The Columbia Falls area is designated as a nonattainment area for PM<sub>10</sub>. However, for the other criteria pollutants, the Columbia Falls Area is attainment/unclassified. The Columbia Falls area (including the Plum Creek facility) was designated as a nonattainment area for PM<sub>10</sub> by EPA on November 15, 1990.

## VI. Ambient Air Impact Analysis

Under the current permit action (Administrative Amendment #2667-13), Plum Creek is proposing to modify the emission control equipment for the Line 1 and Line 2 press vents and the Line 1 MDF fiber dryers. The project includes an increase in flow from the Line 2 press vents to the exiting Line 2 venturi scrubbers and biofilter. This change will result in an increase in potential emissions from the Line 2 biofilter stacks of 8.45 TPY. The Line 1 press vents and MDF dryer stack will be vented through a filter and through a new proposed Line 1 biofilter. The primary purpose of the biofilter is to remove organic emissions from the exhaust streams. The filter upstream of the biofilter will reduce particulate emissions from the press vents, resulting in a net PM<sub>10</sub> emissions decrease for the Line 1 press vents and fiber dryers.

Plum Creek submitted modeling to demonstrate that the proposed changes in emission characteristics from the Line 1 press vents and MDF fiber dryer stack, coupled with the emissions increase from the Line 2 biofilter stacks will not cause or contribute to a violation of the PM<sub>10</sub> ambient air quality standards in Columbia Falls.

The air quality classification for the Plum Creek project area is non-attainment for PM<sub>10</sub>. The Department has approved the Plum Creek modeling protocol and has suggested that the demonstration be made by tracking the change in impacts at the location of the Columbia Falls PM<sub>10</sub> monitor. This monitor is located approximately 800 meters northeast of the Plum Creek facility eastern boundary and 1800 meters northeast of the Line 2 biofilter stacks.

### **MODELING PARAMETERS**

On May 9, 2007, Plum Creek submitted dispersion modeling and then re-submitted the modeling on May 23, 2007, with corrected inputs and the inclusion of all the meteorological files and downwash information as well as the AERMOD input files.

The modeling was performed in accordance with the methodology outlined in the Draft New Source Review Workshop Manual, EPA, October 1990, and Appendix W of 40 CFR 51, Guideline on Air Quality Models (revised), November 9, 2005. EPA's AERMOD model was used along with the BPIP-PRIME downwash algorithm. The modeling included the current allowable PM<sub>10</sub> emissions from the Line 1 press vents and the Line 1 MSD dryer stack as negative emission rates. The total emission from the proposed Line 1 biofilter stacks was included as a positive emission rate. The increased emission from the Line 2 biofilter stacks was included as a positive emission rate. The goal of the modeling was to demonstrate that the net impact of the increases and decreases would not cause or contribute to a violation of the PM<sub>10</sub> NAAQS/MAAQS.

Plum Creek processed surface meteorological data from the Kalispell (Glacier International) Airport National Weather Service (NWS) site using the AERMET processor. Plum Creek submitted the values for surface roughness, albedo and bowen ratio for Department approval prior to modeling. Trinity's modeling used the 5 years of surface meteorological data from 1987-1991, obtained from the EPA SCRAM bulletin board, processed with corresponding upper air data from the Spokane, Washington NWS station. The Department ran the AERMOD modeling files obtained from Plum Creek to verify the modeling results.

Modeled source parameters for the sources included in this modeling exercise were included with the request for the current administrative amendment to the permit and are on file with the Department. The proposed project does not include any increase in production rates; therefore,

the project does not result in any change in fugitive road emissions or other area sources. Only point sources were modeled and downwash was modeled for all sources.

**NAAQS/MAAQS COMPLIANCE DEMONSTRATION**

Major sources locating in or near non-attainment areas must comply with the requirements of ARM 17.8.901 *et. seq.* Sources located in or impacting non-attainment areas can demonstrate that the proposed source or modification will not cause or contribute to a violation of the NAAQS/MAAQS based on the significance levels contained in 40 CFR 51, Appendix S. The PM<sub>10</sub> non-attainment area significance levels are 1 µg/m<sup>3</sup> for the annual average and 5 µg/m<sup>3</sup> for the 24-hour average.

Modeling results for the proposed project are listed in the table below (Non-Attainment Area Modeling). As shown, all of the 24-hour impacts are below 5 µg/m<sup>3</sup> and all of the annual impacts are below 1 µg/m<sup>3</sup>. Therefore, Plum Creek has successfully demonstrated non-significant impact on the Columbia Falls PM<sub>10</sub> non-attainment area.

**Non-Attainment Area Modeling**

<b>Modeling Year</b>	<b>Peak Annual Impact (µg/m<sup>3</sup>)</b>	<b>Peak 24-hour Impact (µg/m<sup>3</sup>)</b>
1987	0.091	1.97
1988	<b>0.097</b>	<b>2.54</b>
1989	0.075	1.82
1990	0.078	1.57
1991	0.087	1.99

**CLASS II PSD INCREMENT COMPLIANCE DEMONSTRATION**

Increment compliance demonstration is not applicable in non-attainment areas.

**CLASS I AREA IMPACT ANALYSIS**

Class I area impact analysis is not required because this is a non-PSD source.

**CONCLUSION**

Through modeling, Plum Creek has demonstrated compliance with the applicable requirements and standards for the proposed addition of a biofilter on Line 1 and changes to the biofilter exhaust for Line 2. Plum Creek has demonstrated that the emissions changes are not projected to cause or contribute to a violation of the PM<sub>10</sub> NAAQS/MAAQS or further degrade air quality in the Columbia Falls non-attainment area.

VII. Taking or Damaging Implication Analysis

As required by 2-10-101 through 105, MCA, the Department conducted a private property taking and damaging assessment and determined there are no taking or damaging implications.

VIII. Environmental Assessment

In accordance with the requirements contained in ARM 17.8.745(2) and ARM 17.8.764, the current permit action is considered an administrative amendment; therefore, an Environmental Assessment is not required under the Montana Environmental Policy Act.

*Permit Analysis Prepared By:* M. Eric Merchant

*Date:* June 18, 2007