

**REVIEW REPORT**

**Emerald Forest Products, Inc., Plant #3**

**Permit No. 202526**

1. General Background Information

Emerald Forest Products, Inc., Plant #3, operates a veneer-drying facility in Creswell that processes approximately 144 million square feet per year on a 3/8" basis (the PSELs essentially limit the facility to approximately 225 million square feet per year on a 3/8" basis). The operation consists of two (2) gas-fired veneer dryers. Veneer Dryer No. 3 is controlled by a Burley Wet Scrubber, and Veneer Dryer No. 5 is controlled by a high-energy Venturi Scrubber. The operating schedule for the facility is approximately 6,000 hours per year (24 hours per day, 5 days per week, and 50 weeks per year).

2. Reasons for Permit Action

The facility operates a process listed in Table 1, Part B, of LRAPA Title 37, and is therefore required to obtain a permit. The facility's permit expired on July 21, 2008. The primary reason for the permit issuance is to renew the expired permit.

3. Enforcement History

The facility was issued a Notice of Non-Compliance (NON No. 2391) on September 16, 2002, for not operating each veneer dryer and all air contaminant control equipment at full efficiency. The damper was out of adjustment on the veneer dryer scrubbing system, which caused emissions to be higher than normal. To remedy the situation, the facility was required to revise veneer dryer start-up procedures to check position of dampers and adjust as necessary to minimize emissions.

4. Performance Testing

Both veneer dryers at the facility were tested on November 18 and 19, 2003, for VOCs, methanol, and formaldehyde. VOC results were presented on an "as carbon" basis. The results were used in estimating emissions for this permit.

5. Plant Site Emission Limits

In accordance with LRAPA 34-060(5)(A), the PSELs in the permit are based on projected operating conditions, as reflected in the permit application.

In accordance with LRAPA Title 42, the annual PSELs for the facility have been set equal to the Generic PSEL level for each criteria pollutant, except for VOC which is set at the level established in the previous permit. To be conservative, the VOC emission factors use the highest measurement out of the three (3) runs from each dryer. The VOC emission factor also includes VOCs from fugitive emissions. Emission values less than 0.5 tons per year are not included in the PSELs as per the ODEQ *Permitting and Guidance Manual*. The following 12-month rolling PSELs will be in the permit (all values are in tons per year).

| Source                  | PM/PM <sub>10</sub> | NO <sub>x</sub> | CO        | VOC       |
|-------------------------|---------------------|-----------------|-----------|-----------|
| Gas-fired Veneer Dryers | 33                  | 39              | 99        | 60        |
| <b>Totals</b>           | <b>33</b>           | <b>39</b>       | <b>99</b> | <b>60</b> |

The attachment to this report contains the calculations of the PSELS.

**Baseline Emission Rates (BERs) and Significant Emission Rate (SER) Comparison**

The BER was established in the previous permit and was based upon a production rate of 72 million square feet on a 3/8" basis per year for Veneer Dryer No. 3 and one (1) plywood press operating 6,000 hours per year and approximately 50 million square feet per year on a 3/8" basis.

The BER (tons per year) and SER comparison for the facility is as follows:

| Pollutant        | Baseline Emissions (tons/yr) | Proposed PSEL (tons/yr) | Increase from Baseline (tons/yr) | SER (tons/yr) |
|------------------|------------------------------|-------------------------|----------------------------------|---------------|
| PM               | 19                           | 33                      | 14                               | 25            |
| PM <sub>10</sub> | 19                           | 33                      | 14                               | 15            |
| CO               | 27                           | 99                      | 72                               | 100           |
| NO <sub>x</sub>  | 6                            | 39                      | 33                               | 40            |
| VOC              | 28                           | 60                      | 32                               | 40            |
| SO <sub>2</sub>  | 0                            | NA                      | 0                                | 40            |

6. Other Emission Limitations

LRAPA's process weight rule specifies limits on the emissions of particulate matter for specific processes as a function of the amount of material processed [LRAPA 32-045(A)]. In accordance with DEQ guidance, the process weight rule does not apply to industrial process equipment for which specific emission standards for particulate have been adopted. Also, the process weight rule does not apply to fuel burning equipment, and fugitive emission sources. The industrial process equipment located at the facility are not subject to the process weight rule.

LRAPA 33-060(3)(B) limits particulate matter emissions from veneer and plywood production to one (1) pound per 1000 square feet of veneer or plywood (excluding veneer dryers, fuel-burning equipment, and refuse-burning equipment). The PM limit based on this rule is 18 tons per year. The facility has no other emissions sources.

The permit includes general visible emissions limitations for the facility in addition to specific visible emission limitations for veneer dryers. The permit includes general grain loading limitations for the facility.

7. Hazardous Air Pollutants

The projected HAP emissions from the facility are estimated to be 21.7 tons per year for total HAPs and 8.7 tons per year for the largest single HAP (acetaldehyde). This facility is a "true minor" source of HAPs, and is not subject to any NESHAP (National Emission Standard for Hazardous Air Pollutants).

8. Typically Achievable Control Technology (TACT)

LRAPA Title 32-008 requires an existing emission unit at a facility to meet TACT if the emissions unit has emissions of criteria pollutants greater than ten (10) tons per year of any gaseous pollutant or five (5) tons per year of particulate, the emissions unit is not subject to the emissions standards under LRAPA Title 32, Title 33, Title 39, or Title 46 for the pollutants emitted, and the facility is required to have a permit. The proposed veneer drying operation is subject to Title 33 for veneer dryer emissions and is, therefore, not required to meet TACT.

9. New Source Review (NSR) and Prevention of Significant Deterioration (PSD)

Because the proposed increases in emissions above baseline for all regulated pollutants are below the Significant Emission Rates (SERs) in LRAPA Title 38, the facility is not subject to LRAPA's New Source Review (NSR) requirements for PM<sub>10</sub> nor the Prevention of Significant Deterioration (PSD) requirements for SO<sub>x</sub>, NO<sub>x</sub>, CO, and VOC.

10. New Source Performance Standards (NSPS)

There are no sources at the facility that are subject to new source performance standards.

11. Production Limits

In order to ensure that the facility's PSELS are not exceeded, the facility is required to perform calculations to estimate emissions on a 12-month rolling basis. The records of these calculations are required to be kept on-site for a period of two (2) years.

12. Performance Testing

No performance testing is required at this time.

13. Continuous Compliance

To ensure compliance with the annual (12-month rolling) PSELS, the facility is required to keep a record of the following information for a period of two (2) years.

|    | <u>Parameter</u>   | <u>Minimum<br/>Recording Frequency</u> |
|----|--|--|
| a. | Veneer production by species (square feet, 3/8 inch basis).  | Monthly                                |
| b. | Visual inspection of dryer for fugitive emissions (date log) | Daily                                  |
| c. | PSEL calculations required by permit Condition 11.           | Monthly                                |

14. Reporting Requirements

By March 15<sup>th</sup> of each year, the facility is required to submit an annual report to include the PSEL calculations and production values.

15. Public Notice

The draft permit was on public notice from July 1, 2010 to August 4, 2010. No written comments were submitted during the 35-day comment period.

|      | Current PSEL | Baseline | SER | Baseline + SER | Proposed PSEL |
|------|--------------|----------|-----|----------------|---------------|
| PM   | 23.2         | 19       | 25  | 44             | 32.6          |
| PM10 | 23.2         | 19       | 15  | 34             | 32.6          |
| SO2  | 0            | 0        | 40  | 40             | 1.0           |
| NOx  | 10.1         | 6.11     | 40  | 46.11          | 13.5          |
| VOC  | 23.3         | 27.7     | 40  | 67.7           | 44.2          |
| CO   | 41           | 27.43    | 100 | 127.43         | 2.3           |

**Proposed PSEL Calculations:**

Dryer No.3

Maximum Hourly Production: 13 Mft<sup>2</sup> 3/8" / hr  
Throughput: 95000 Mft<sup>2</sup> 3/8"yr

|               | Emission Factor | Units                     | Source  | Max. Hourly | Units  | Maximum Annual | Units   |
|---------------|-----------------|---------------------------|---------|-------------|--------|----------------|---------|
| PM            | 0.29            | lbs/Mft <sup>2</sup> 3/8" | DEQ     | 3.8         | lbs/hr | 13.8           | tons/yr |
| PM10          | 0.29            | lbs/Mft <sup>2</sup> 3/8" | DEQ     | 3.8         | lbs/hr | 13.8           | tons/yr |
| SO2           | -               | -                         | DEQ     | -           | -      | -              | -       |
| NOx           | 0.12            | lbs/Mft <sup>2</sup> 3/8" | DEQ     | 1.6         | lbs/hr | 5.7            | tons/yr |
| VOC           | 0.26            | lbs/Mft <sup>2</sup> 3/8" | 2003 ST | 3.4         | lbs/hr | 12.4           | tons/yr |
| CO            | 0.02            | lbs/Mft <sup>2</sup> 3/8" | DEQ     | 0.3         | lbs/hr | 1.0            | tons/yr |
| Methanol      | 0.022           | lbs/Mft <sup>2</sup> 3/8" | 2003 ST | 0.3         | lbs/hr | 1.0            | tons/yr |
| Foramaldehyde | 0.02            | lbs/Mft <sup>2</sup> 3/8" | 2003 ST | 0.3         | lbs/hr | 1.0            | tons/yr |

Maximum through put Dryer No. 5: 18 Mft<sup>2</sup> 3/8" / hr  
Throughput: 130000 Mft<sup>2</sup> 3/8"yr

| Dryer No. 5   | Emission Factor | Units                     | Source  | Max. Hourly | Units  | Maximum Annual | Units   |
|---------------|-----------------|---------------------------|---------|-------------|--------|----------------|---------|
| PM            | 0.29            | lbs/Mft <sup>2</sup> 3/8" | DEQ     | 5.2         | lbs/hr | 18.9           | tons/yr |
| PM10          | 0.29            | lbs/Mft <sup>2</sup> 3/8" | DEQ     | 5.2         | lbs/hr | 18.9           | tons/yr |
| SO2           | -               | -                         | DEQ     | -           | -      | -              | -       |
| NOx           | 0.12            | lbs/Mft <sup>2</sup> 3/8" | DEQ     | 1.6         | lbs/hr | 7.8            | tons/yr |
| VOC           | 0.49            | lbs/Mft <sup>2</sup> 3/8" | 2003 ST | 6.4         | lbs/hr | 31.9           | tons/yr |
| CO            | 0.02            | lbs/Mft <sup>2</sup> 3/8" | DEQ     | 0.3         | lbs/hr | 1.3            | tons/yr |
| Methanol      | 0.018           | lbs/Mft <sup>2</sup> 3/8" | 2003 ST | 0.2         | lbs/hr | 1.2            | tons/yr |
| Foramaldehyde | 0.041           | lbs/Mft <sup>2</sup> 3/8" | 2003 ST | 0.5         | lbs/hr | 2.7            | tons/yr |

**Gas-Fired Veneer Dryers (2 Total)**

Maximum Throughput: 31.0 Msqft 3/8"/hr  
 Maximum Throughput: 225000.0 Msqft 3/8"/yr

|              | Emission Factor (lb/1000 sqft) | Annual Emissions (tons/yr) |  |
|--------------|--------------------------------|----------------------------|--|
| PM/PM10      | 0.29                           | 32.6                       | DEQ General ACDDP                                  |
| NOx          | 0.12                           | 13.5                       | DEQ General ACDDP                                  |
| CO           | 0.02                           | 2.3                        | DEQ General ACDDP                                  |
| VOC          | 0.49                           | 55.1                       | Emerald No.3 Nov.2003 Test highest from each dryer |
| Methanol     | 0.022                          | 2.5                        | Emerald No.3 Nov.2003 Test highest from each dryer |
| Formaldehyde | 0.041                          | 4.6                        | Emerald No.3 Nov.2003 Test highest from each dryer |

**Heated Zone Pollutants**

| VOC             | used test result |                         |
|-----------------|------------------|-------------------------|
| Acetaldehyde    | 0.062            | 7.0 DEQ General ACDDP   |
| Acrolein        | 0.012            | 1.4 DEQ General ACDDP   |
| Phenol          | 0.006            | 0.7 DEQ General ACDDP   |
| Propionaldehyde | 0.0016           | 0.2 AP 42, Table 10.5-3 |

**Cooling Zone Pollutants**

| VOC             | used test result |                       |
|-----------------|------------------|-----------------------|
| Acetaldehyde    | 0.012            | 1.4 EPA Plywood MACT  |
| Acrolein        | 0.009            | 1.0 DEQ General ACDDP |
| Phenol          | 0.006            | 0.7 DEQ General ACDDP |
| Propionaldehyde | ND               |                       |

**Fugitive Pollutants**

| VOC          |       |                       |
|--------------|-------|-----------------------|
| Acetaldehyde | 0.046 | 5.2 DEQ General ACDDP |
| Formaldehyde | 0.003 | 0.3 DEQ General ACDDP |
| Methanol     | 0.002 | 0.2 DEQ General ACDDP |
| Phenol       | 0.006 | 0.7 DEQ General ACDDP |
| Phenol       | 0.01  | 1.1 DEQ General ACDDP |

|                    |      |           |
|--------------------|------|-----------|
| TOTAL VOC          | 60.3 | tons/year |
| TOTAL HAP          | 21.7 | tons/year |
| LARGEST SINGLE HAP | 8.7  | tons/year |

Annual Emissions = Maximum Throughput (sqft/yr) x Emission Factor x ton/2000 lbs

Notes  
 The VOC emission factor from the testing on the gas-fired dryer has been multiplied by 1.22 to convert from as-carbon to as propane.  
 PM10 emissions for veneer dryers equal to PM emissions [DEQ Permitting and Inspection Manual (1/1/93)].