

December 17, 2001

**MEMORANDUM**

TO: Daniel P. Salgado  
New Source Review Coordinator  
Air Quality Division

FROM: Natalie DelRio, Air Quality Analyst *9/9BD*  
State Office of Technical Services

SUBJECT: **PERMIT TO CONSTRUCT TECHNICAL ANALYSIS**  
P-010046, Boise Cascade, Emmett  
(Laminated Beam Plant Amendment, PTC No. 045-00001)

**PURPOSE**

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200 (*Rules for the Control of Air Pollution in Idaho*) for issuing permits to construct (PTC).

**PROJECT DESCRIPTION**

Boise Cascade is proposing to amend PTC No. 045-00001 issued May 21, 2001, for the expansion of its laminated beam plant.

**SUMMARY OF EVENTS**

On November 6, 2001, the Idaho Department of Environmental Quality (DEQ) received an application from Boise Cascade for its laminated beam plant. This amendment will allow Boise Cascade to remove three cyclones and one baghouse and add one cyclone. On November 14, 2001, the application was determined complete.

**DISCUSSION**

1. **Process Description**

The Boise Cascade facility in Emmett, Idaho, consists of two major processes: cogeneration and laminated beam plant. Due to recent closures of their plywood mill and part of the specialty lumber operation, Boise Cascade wishes to simplify the process equipment at the laminated beam plant.

The proposed equipment modification involves the permanent dismantling of seven cyclones (C8, C11, C12, C13, C14, C21, and C27) and one baghouse (BH3), and the relocation of one cyclone (C22).

The proposed modification to the facility will decrease emissions of particulate matter with an aerodynamic diameter less than 10 micrometers (PM<sub>10</sub>) from the laminated beam plant by 0.81 pounds per hour and 2.24 tons per year.

2. Equipment Listing

**Cyclone C22**

Function	Collect wood byproduct generated from the finger jointer operation and the beam texturing process
Stack height (m)	21.3
Stack Diameter (m)	1.22
Exit Velocity (m/s)	0.001 (horizontal stack)
Temperature (K)	294 (ambient)

**Baghouse BH1**

Function	Controls the exhaust of C22, which collects wood byproduct generated from the finger jointer operation and the beam texturing process
Stack Height (m)	13.1
Stack Diameter (m)	0.61
Exit velocity (m/s)	35.2
Temperature (K)	294 (ambient)

3. Emission Estimates

Kleinfelder Inc. engineering consultants estimated the emissions at the laminated beam plant based on the maximum amount of laminated beams that could be produced and the maximum amount of wood removed in the finger jointing, sanding, planing, trimming, and molding processes. For PM<sub>10</sub> estimates, it was assumed that all sawdust and shavings produced are potentially PM<sub>10</sub>. Emissions factors published by DEQ for the wood products industry were used to estimate PM<sub>10</sub> emissions controlled and vented by the cyclone and baghouse. Calculations were performed assuming a medium efficiency cyclone.

Emissions of PM<sub>10</sub> are expected to decrease due to this modification.

4. Modeling

Boise Cascade contracted Kleinfelder Inc. to model the PM<sub>10</sub> emissions from all the point sources in the laminated beam plant. The modeling results for PM<sub>10</sub> were less than the significant contribution levels of 5 micrograms per meter cubed (µg/m<sup>3</sup>) on a 24-hour average and 1µg/m<sup>3</sup> on an annual average. A summary of the modeling is contained in the appendix of this technical memorandum.

5. Facility Classification

Boise Cascade is a timber and wood products facility. The Standard Industrial Classification for the specialty lumber portion of the facility is 2421, which refers to establishments primarily engaged in sawing rough lumber, timber form logs, bolts, or resawing cants and flitches into lumber. This includes box lumber and softwood cut stock, planing mills combined with sawmills, and separately operated planing mills which are engaged primarily in producing surfaced lumber and standard workings or patterns of lumber. This facility is classified as a major facility as defined in IDAPA 58.01.01.006.55. The Aerometric Information Retrieval System facility subsystem classification for this facility is "A," which means the facility has the potential to emit more than 100 tons per year of at least one criteria air pollutant. The facility is not a designated facility as defined in IDAPA 58.01.01.006.27.

6. Area Classification

The Boise Cascade Emmett facility is located in Emmett, Idaho, which is in Zone 11 and Air Quality Control Region 63. The area is classified as attainment or unclassifiable for all criteria pollutants.

7. Regulatory Review

IDAPA 58.01.01.201                      Permit to Construct Required

Boise Cascade is proposing a physical change to an emissions unit, which would increase the amount of air pollutants emitted to the atmosphere without the federally enforceable removal of other equipment. Therefore, this constitutes a modification as defined in IDAPA 58.01.01.006.58. The facility has requested a PTC amendment, so exemption criteria have not been evaluated.

IDAPA 58.01.01.203                      Permit Requirements for New and Modified Stationary Sources

Emissions limits, operating requirements, monitoring requirements, and recordkeeping requirements for this source have been placed in the permit to comply with the National Ambient Air Quality Standards (NAAQS).

IDAPA 58.01.01.577                      Ambient Air Quality Standards for Specific Air Pollutants

Emissions of NAAQS pollutants were modeled and none are expected at levels approaching the standard for each air pollutant.

40 CFR 52                                      Prevention of Significant Deterioration

The facility is a Prevention of Significant Deterioration (PSD) major facility as defined in IDAPA 58.01.01.006.55, and has the potential to emit more than 250 tons per year of any criteria air pollutant. The emission decreases due to this modification are not considered significant as defined in IDAPA 58.01.01.006.92; therefore, PSD review is not applicable.

40 CFR 60

New Source Performance Standards (NSPS)

There are no New Source Performance Standards applicable to this modification.

40 CFR 61 & 63

National Emission Standards for Hazardous Air Pollutants (NESHAP) and Maximum Achievable Control Technology (MACT)

There are no applicable NESHAP or MACT requirements for this facility.

8. Permit Requirements

8.1 Emission Limits

The PM<sub>10</sub> emissions limits in this permit are for emissions controlled by and vented to the cyclone and baghouse. The PM<sub>10</sub> emissions limits in the permit are based on the control devices being operated properly. Requirements for the proper operation of the control devices are contained in the operating requirement section of the permit.

8.2 Operating Requirements

Throughput limits on the daily board feet of lumber through each process are contained in the permit. The throughput limits directly correspond to the emission limits for the points of emission at the facility, and Boise Cascade can demonstrate compliance with the emissions limits through compliance with the throughput limits.

The other operating requirements in the permit correspond to the proper operation of the pollution control devices. The permit includes requirements for Boise Cascade to maintain the pressure drop across the baghouse within the range specified by the manufacturer and the operations and maintenance manual.

9. Permit Coordination

A Title V operating permit for this facility has been drafted and a copy sent to Boise Cascade for review on January 12, 2001. Since that time, Boise Cascade has closed the majority of the Emmett facility. DEQ is awaiting a Title V application update from Boise Cascade reflecting the status of the facility after the closure. This permit will be issued in time for terms and conditions herein to be incorporated into the Title V permit. The engineer responsible for writing the Title V permit has been made aware of the changes taking place at the facility and will be provided with a copy of this permit and technical memorandum.

10. AIRS Information

This amendment does not affect the information already in the AIRS database.

## FEES

The Boise Cascade facility is a major facility as defined in IDAPA 58.01.01.008.10 and is therefore subject to registration and registration fees in accordance with IDAPA 58.01.01.527. According to the Air Emissions Database Master List for 2001, the Boise Cascade, Emmett facility has registered 641 tons of pollutants by paying fees. This modification will not impact the annual fees because this facility is subject to an emission fee cap.

## RECOMMENDATION

Based on review of application materials and all applicable state and federal rules and regulations, DEQ staff recommends that Boise Cascade be issued amended PTC No. 045-00001 for the laminated beam plant. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD requirements.

NBD/tk

AIR.SSBG.B013.0402.460

G:\Air Permits\PTC\Boise Cascade Emmett\Final Prep\IP-010046 Tech Memo.doc

## **Appendix**

**MEMORANDUM**

**TO:** Natalie DelRio, State Office of Technical Services  
**FROM:** *RPH* Rick Hardy, Air Quality Modeler, State Office of Technical Services  
**SUBJECT:** Modeling Review for Amendment to PTC No. 045-0001 for Laminated Beam Plant Expansion, Boise Cascade Corporation in Emmett, Idaho  
**DATE:** December 7, 2001

---

**1. SUMMARY:**

On November 6, 2001, Boise Cascade Corporation submitted an application to amend Permit to Construct (PTC) No. 045-00001, dated May 22, 2001, for the Laminated Beam Plant Expansion, Emmett Wood Products Complex in Emmett, Idaho. The recent permit was issued for installation of a continuous press and beam texturing system for the Laminated Beam Plant in Emmett. The recent closure and dismantling of the Plywood and Planing Mill facilities formerly located in the Emmett complex have resulted in permanent shutdown and dismantling of numerous pneumatic systems. To reduce power consumption and maintenance requirements for the remaining operations, Boise Cascade is preparing to relocate Cyclone 22 (C22) and associated truck loading bin from the demolished plywood facility to a new location adjacent to the cluster of five cyclones located between the former Planning Mill and Premier Products operations. The relocated C22 cyclone and truck loading bin will emit 0.21 pounds per hour (lbs/hr) or 0.92 tons per year (T/yr). In conjunction with this change Boise Cascade will permanently dismantle Cyclones C8, C11, C12, C13, C14, C21, and C27, and Baghouse BH3, resulting in a net reduction of permitted emissions from these processes related to the Laminated Beam Plant of 0.81 lb/hr or 2.24 T/yr. Since C22 is relocating with respect to the plant property, revised modeling was submitted.

Kleinfelder, consultant for Boise Cascade; amended the modeling from the PTC No. 045-00001 (May 22, 2001) to demonstrate that the relocated cyclone and the Laminated Beam Plant cyclone/baghouse (BH1) do not cause an exceedence of either the 24-hour or annual particulate matter with a nominal diameter less than 10 micrometers PM<sub>10</sub> National Ambient Air Quality Standards (NAAQS).

There are no emissions of toxic air pollutants. The modeling analysis provided by Kleinfelder demonstrated compliance with all applicable regulatory requirements.

**2. DISCUSSION:**

**2.1 Applicable Air Quality Impact Limits**

This facility is located in Gem County, which is designated an unclassifiable area for PM<sub>10</sub>. Therefore, total ambient impacts, including background, for this criteria pollutant must be below the National Ambient Air Quality Standards (NAAQS), listed in Table 1.

**Table 1. Applicable regulatory limits**

Pollutant	Averaging Period	Regulatory Limit <sup>1</sup> ( $\mu\text{g}/\text{m}^3$ ) <sup>2</sup>
PM <sub>10</sub> <sup>3</sup>	Annual	50
	24-hour	150

1. IDAPA 58.01.01.577  
2. Micrograms per cubic meter  
3. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

## 2.2 Background Concentrations

In accordance with Department of Environmental Quality (DEQ) guidance, background concentrations for Gem County, Idaho were represented by the general statewide background concentrations of 86 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) for the 24-hour period and  $32.7 \mu\text{g}/\text{m}^3$  for the annual period.

## 2.3 Modeling Impact Assessment

The only pollutant of concern is  $\text{PM}_{10}$ . Kleinfelder, the applicant's contractor used, the most current version of ISCST3 (00101), an approved U.S. Environmental Protection Agency model. They assumed rural dispersion and accounted for elevated terrain surrounding the facility. Meteorological data from the national weather service station at the Boise Airport was used for the years 1987 through 1991. The receptor grid used included a 100 meter (m) resolution grid approximately centered on the facility with a single ring of receptors spaced 25 m along the plant property line. Since the maximum concentration occurred on the property line; DEQ modeling staff added a 100 m band of receptors spaced 25 m apart along property line. This confirmed the maximum reported value is located on the property line.

Table 2 lists the source parameters used in the analysis. DEQ staff agrees with the assumptions used in the modeling. The emission rates used in the ambient air assessment are presented in Table 3. These are the same emission rates presented in the application.

Table 2. Source parameters

Source	Exit Velocity (m/s) <sup>1</sup>	Exit Diameter (m) <sup>2</sup>	Exit Temperature (°K) <sup>3</sup>	Height (m)	Operational Restrictions
Beam Baghouse	32.17	0.61	294	13.1	None
Cyclone C22	0.001 <sup>4</sup>	1.22	294	21.3	None

1. Meters per second

2. Meters

3. Degrees Kelvin

4. Horizontal exhaust treated as having minimal vertical velocity.

Table 3.  $\text{PM}_{10}$ <sup>1</sup> emission rates

Source	Pound per hour	Ton per year
Beam Plant Baghouse	0.02	0.09
Cyclone C22	0.21	0.92

1. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.

### 3. MODELING RESULTS:

The ambient impacts and the comparison to the NAAQS, verified by DEQ modeling are listed in Table 4.

**Table 4. PM<sub>10</sub> ambient impacts**

<b>Averaging Period</b>	<b>Predicted Ambient Concentration (µg/m<sup>3</sup>)<sup>1&amp;2</sup></b>	<b>Background Concentration (µg/m<sup>3</sup>)</b>	<b>Total Ambient Concentration (µg/m<sup>3</sup>)</b>	<b>NAAQS<sup>3</sup> (µg/m<sup>3</sup>)</b>	<b>Exceeds the Standard (Y or N)</b>
24-hour	1.22	86	87.2	150	N
Annual	0.2	32.7	32.9	50	N

1. Micrograms per cubic meter
2. Highest 2<sup>nd</sup> –highest value
3. National Ambient Air Quality Standard

### 4. CONCLUSIONS

Modeling analysis submitted with Boise Cascade's amendment application was reviewed and verified by DEQ staff and found to meet DEQ requirements. The proposed amendment results in minimal impact beyond the Boise Cascade property line, and in fact, a reduction in emissions results from the changes requested by Boise Cascade in this amendment.

Electronic copies of the modeling analysis are saved on disk. Natalie DelRio reviewed this modeling memo to ensure consistency with the permit and technical memorandum.

MA:bm G:\VH\WMANDERSON\PTC\SAWTOOTH\MODELING TECH MEMO.DOC