

**NORTH CAROLINA DIVISION OF
AIR QUALITY**

Air Permit Review

Permit Issue Date: **Date, 2006**

Region: Asheville Regional Office
County: Caldwell
NC Facility ID: 1400007
Inspector's Name: Patrick Ballard
Date of Last Inspection: 04/05/2005
Compliance Code: C/In Compliance With
 Procedural Reqr

Facility Data			Permit Applicability (this application only)		
<p>Applicant (Facility's Name): Bernhardt Furniture Company - Plants 1, 3, & 7</p> <p>Facility Address: Bernhardt Furniture Company - Plants 1, 3, & 7 1502 Morganton Boulevard Lenoir, NC 28645</p> <p>SIC: 2511 / Wood Household Furniture NAICS: 337122 / Nonupholstered Wood Household Furniture Manufacturing</p> <p>Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V</p>			<p>SIP: NA NSPS: NA NESHAP: 15A NCAC 2D .1111 (40 CFR 63, Subparts DDDD and DDDDD) PSD: NA PSD Avoidance: NA NC Toxics: 15A NCAC 2Q .0705 112(r): NA Other: NA</p>		
Contact Data			Application Data		
Facility Contact	Authorized Contact	Technical Contact	<p>Application Number: 1400007.05A Date Received: 12/13/2005 Application Type: Renewal Application Schedule: TV-Renewal Existing Permit Data Existing Permit Number: 02000/T22 Existing Permit Issue Date: 11/23/2004 Existing Permit Expiration Date: 11/30/2006</p>		
Joe Riddle Environmental Manager (828) 759-6359 P O Box 740 Lenoir NC, 28645	Pete Craymer VP Accounting and Transportation (828) 758-9811 P O Box 740 Lenoir NC, 28645-0740	Joe Riddle Environmental Manager (828) 759-6359 P O Box 740 Lenoir NC, 28645			
<p>Review Engineer: Mark Cuilla</p> <p>Review Engineer's Signature: Date: Date, 2006</p>			<p style="text-align: center;">Comments / Recommendations:</p> <p>Issue 02000/T23 Permit Issue Date: Date, 2006 Permit Expiration Date: Date, 2011</p>		

I. Purpose of Application

This permitting action is a renewal of an existing Title V permit pursuant to 2Q .0513. The existing Title V permit (**02000T22**) was issued on November 23, 2004, and is currently scheduled to expire on November 30, 2006. The renewal application was received on December 13, 2005, or at least nine months prior to the expiration date. Therefore, the existing permit shall not expire until the renewal permit has been issued or denied. All terms and conditions of the existing permit shall remain in effect until the renewal permit has been issued or denied.

II. Facility Description

The facility is a wood furniture manufacturing complex consisting of three plants (1, 3, and 7); *Plant 1, the majority of which is permanently closed in 2003, consists of lumber drying operations.* Permitted equipment includes boilers, wood collection system, dust bin, and drying kilns. Plants 3 and 7 operate wood furniture finishing operations with permitted equipment including boilers, wood collection systems, flyash separator, wood drying kilns, and finishing operations.

ARO noted in its latest inspection report that the complex recently added a steam line from Plant 3 to Plant 7 such that the boilers from Plant 3 serve Plant 7. The Plant 7 boilers are rarely used.

III. History/Background/Application Chronology

December 13, 2005 – Permit application **1400007.05A** received and deemed complete for processing.

January 24, 2006 – I spoke with Joe Riddle of Bernhardt Furniture concerning the need for a CAM demonstration for all control devices. I explained that the calculations should be made on a source/control device breakdown (e.g., all emission units being controlled by a single device).

January 30, 2006 – Received CAM demonstration from Joe Riddle.

March 29, 2006 – DRAFT permit sent to Permittee, Regional Office, and Title V Coordinator for comment prior to public notice and EPA review. As a result of reviewing the DRAFT permit, the Permittee had some additional modifications associated with the selling of Plant 1. See Section IX of this Document for a discussion.

April 19, 2006 – Permittee requested that permit be renewed without removing Plant 1 equipment. Therefore, equipment was returned to the permit as requested. Note, this required that the equipment be un-ended in the ESM. The Permittee and regional office were given an additional DRAFT to review prior to notice.

Date, 2006 – DRAFT permit sent to 30-day public notice and 45-day EPA review.

IV. Permit Modifications/Changes and ESM Discussion

The following table describes the modifications to the current permit as part of the renewal process.

Page(s)	Section	Description of Change(s)
Attachment	Insignificant Activities	-added equipment per Permittee
Cover	-	-amended all dates and permit revision numbers
All	Header	-amended permit revision number
3-5	Equipment Table	-added MACT Subpart references -edited equipment descriptions where needed -removed equipment where requested by Permittee
6	2.1 A	-amended equipment descriptions to add "firetube design"
6-7	2.1 A (table)	-added MACT reference
8	2.1 A.1 2.1 A.2 2.1 A.2.d 2.1 A.2.e 2.1 A.2.f	-moved condition (previously A.7) -renumbered Section (previously A.1) -corrected cross reference -changed testing date and applicable sources (limited to Plant 3) -added equipment identification numbers

Page(s)	Section	Description of Change(s)
9	2.1 A.3 2.1 A.3.a 2.1 A.3.b 2.1 A.2.c 2.1 A.3.d 2.1 A.3.e	-renumbered Section (previously A.2) -updated shell language -updated shell language -updated shell language -corrected cross reference -changed testing date and applicable sources (limited to Plant 3)
10	2.1 A.3.f 2.1 A.4 2.1 A.4.a 2.1 A.4.b 2.1 A.4.c 2.1 A.4.d 2.1 A.4.e 2.1 A.4.f 2.1 A.5.a 2.1 A.5.b 2.1 A.5.c	-added equipment identification numbers and corrected cross reference -renumbered Section (previously A.3) -updated shell language -updated shell language -updated shell language -corrected cross reference -changed testing date and applicable sources (limited to Plant 3) -corrected cross reference -added equipment identification numbers -corrected cross reference -added equipment identification numbers
11	2.1 A.6.a 2.1 A.6.b 2.1 A.6.c 2.1 A.6.d 2.1 A.6.e 2.1 A.6.f 2.1 A.7.a 2.1 A.7.b	-added equipment identification numbers -corrected cross reference -added equipment identification numbers -updated shell language -corrected cross reference -updated shell language -updated shell language and added identification numbers -added equipment identification numbers
12	2.1 A.7.c 2.1 A.7.d 2.1 A.7.e 2.1 B	-corrected cross reference -updated shell language -updated shell language -updated equipment descriptions
13	2.1 B.1.b 2.1 B.2.a	-added equipment identification numbers and updated shell language -added equipment identification numbers and updated shell language
14	2.1 B.2.c 2.1 C 2.1 C (table)	-added equipment identification numbers and updated shell language -updated equipment descriptions -added MACT subpart name
15	2.1 C.1.b 2.1 C.1.c 2.1 C.2.a 2.1 C.2.b	-updated shell language -added equipment identification numbers -updated shell language -updated shell language
16	2.1 C.2.d 2.1 D.1.a 2.1 D.1.b	-added equipment identification numbers and updated shell language -added equipment identification numbers -updated shell language
17	2.1 D.1.c 2.1 D.1.d 2.1 D.2.a 2.1 D.2.c	-added equipment identification numbers -added equipment identification numbers -added equipment identification numbers -added equipment identification numbers and updated shell language
18	2.1 D.2.d 2.1 E (table)	-added recordkeeping requirements -added MACT subpart requirements
22	2.2 A.7.e.iii	-corrected cross reference

Page(s)	Section	Description of Change(s)
27	2.2 C	-added Last MACT/air toxics requirement
27-35	General Conditions	-updated shell language

The following table indicates the modifications to ESM as a result of this permit renewal:

Current Description	Change resulting from permit renewal
NA	Four natural gas-fired gas packs for heating make up air for Plant 3 clean room (6.3 million Btu per hour maximum heat input, each; ID Nos. I-3.1 through I-3.4)
One wood fuel/coal-fired boiler No. 1 (38.3 million Btu per hour maximum heat input capacity while firing wood fuel and 19.1 million Btu per hour heat input capacity while firing coal; ID No. ES-120)	One <i>firetube design</i> wood fuel/coal-fired boiler No. 1 (38.3 million Btu per hour maximum heat input capacity while firing wood fuel and 19.1 million Btu per hour heat input capacity while firing coal; ID No. ES-120)
One No. 2 oil/wood fuel-fired boiler No. 2 (10.1 million Btu per hour maximum heat input capacity; ID No. ES-121)	One <i>firetube design</i> No. 2 oil/wood fuel-fired boiler No. 2 (10.1 million Btu per hour maximum heat input capacity; ID No. ES-121)
One No. 2 oil/coal/wood fuel fired boiler No. 3 (20.6 million Btu per hour maximum heat input capacity; ID No. ES-122)	One <i>firetube design</i> No. 2 oil/coal/wood fuel fired boiler No. 3 (20.6 million Btu per hour maximum heat input capacity; ID No. ES-122)
One natural gas/No. 2 fuel oil-fired boiler (16.8 million Btu per hour maximum heat input capacity; ID No. ES-123)	One <i>firetube design</i> natural gas/No. 2 fuel oil-fired boiler (16.8 million Btu per hour maximum heat input capacity; ID No. ES-123)
Plant 1 wood material collection system installed on woodworking operations (ID No. ES-WDSP-1) with associated bagfilter (ID No. CD-105)	Plant 1 <i>woodworking operations</i> (ID No. ES-WDSP-1)
Plant 3 wood material collection system installed on woodworking operations (ID No. ES-WDSP-3)	Plant 3 <i>woodworking operations</i> (ID No. ES-WDSP-3)
Plant 7 wood material collection system installed on woodworking operations (ID No. ES-WDSP-7)	Plant 7 <i>woodworking operations</i> (ID No. ES-WDSP-7)
One wood fuel/coal-fired boiler (14.3 million Btu per hour maximum heat input capacity; ID No. ES-320)	One <i>firetube design</i> wood fuel/coal-fired boiler (14.3 million Btu per hour maximum heat input capacity; ID No. ES-320)
One wood waste-fired boiler (14.3 million Btu per hour maximum heat input capacity; ID No. ES-321)	One <i>firetube design</i> wood waste-fired boiler (14.3 million Btu per hour maximum heat input capacity; ID No. ES-321)
One wood waste/coal-fired boiler No. 1 (15.4 million Btu per hour maximum heat input capacity; ID No. ES-721)	One <i>firetube design</i> wood waste/coal-fired boiler No. 1 (15.4 million Btu per hour maximum heat input capacity; ID No. ES-721)
One wood waste/coal-fired boiler No. 2 (10.0 million Btu per hour maximum heat input capacity; ID No. ES-722)	One <i>firetube design</i> wood waste/coal-fired boiler No. 2 (10.0 million Btu per hour maximum heat input capacity; ID No. ES-722)
One bagfilter (4,614 square feet of filter area; ID No. CD-712)	End-dated per Permittee; re. "is no longer usable"
One bagfilter (6,927 square feet of filter area; ID No. CD-719)	End-dated per Permittee; re. "was never installed"
One bagfilter (3,255 square feet of filter area; ID No. CD-314)	End-dated per Permittee
Plant 7 dry kilns (ID No. ES-DK-7)	End-dated per Permittee

V. Regulatory Review

The facility is currently subject to the following regulations:

15A NCAC 2D .0503, Particulates from Fuel Burning Indirect Heat Exchangers
15A NCAC 2D .0504, Particulates from Wood Burning Indirect Heat Exchangers
15A NCAC 2D .0512, Particulates from Miscellaneous Wood Products Finishing
15A NCAC 2D .0515, Particulates from Miscellaneous Industrial Processes
15A NCAC 2D .0516, Sulfur Dioxide Emissions from Combustion Sources
15A NCAC 2D .0521, Control of Visible Emissions
15A NCAC 2D .1111, Maximum Achievable Control Technology
15A NCAC 2D .1806, Control and Prohibition of Odorous Emissions

A regulatory review for these existing requirements will not be included in this document.

As a result of this renewal, the following regulation(s) have been added to the permit:

15A NCAC 2Q .0705, Existing Sources and SIC Calls

VI. NSPS, NESHAPS/MACT, PSD, 112(r), CAM

NSPS – The facility is not currently subject to any New Source Performance Standards. This permit renewal does not change this status.

NESHAPS/MACT – The facility’s two wood furniture finishing operations (**ID Nos. ES-SBP-3 and ES-SBP-7**) are currently subject to the Wood Furniture MACT (40 CFR 63, Subpart JJ). As of the latest inspection, the facility was found to be in compliance. This permit renewal does not affect this status; continued compliance is expected.

As a result of this permit renewal, it was determined that the facility is subject to the following additional MACTs under 40 CFR 63:

- Subpart DDDDD, Plywood and Composite Wood Products Manufacturing. The facility is subject to this MACT because it operates wood drying kilns. According to the Subpart, the dry kilns do not have any emission limits or operational requirements except for initial notification. This permit application completes this requirement. The permit has been amended to include this MACT placeholder.

-Subpart DDDDD, Industrial, Commercial, and Institutional Boilers and Process Heaters. The facility is subject to this MACT because it operates four boilers. Each of these boilers is classified as “firtube design”; therefore, for the purposes of the MACT they are considered small regardless of their maximum heat input capacities. According to the Subpart all existing, small, solid, liquid, or gaseous fuel-fired boilers fall into Population I sources with no requirements. The permit has been amended to include this MACT placeholder.

PSD – The facility is not currently subject to any Prevention of Significant Deterioration requirements. This permit renewal does not change this status.

112(r) – The facility is not subject to Section 112(r) of the Clean Air Act requirements because it does not store any of the regulated substances in quantities above the thresholds in the Rule. This permit renewal does not affect this status.

CAM – 40 CFR 64 requires that a continuous assurance monitoring plan be developed for all equipment located at a major facility, that have pre-controlled emissions above the major source threshold, and use a control device to meet an applicable standard.

1. The facility currently has seven boilers that are each controlled by an associated multicyclone for particulate control. These multicyclones would be subject to CAM if pre-controlled emissions of PM₁₀ from the individual boiler is greater than 100 tons per year. The largest boiler is rated at 38.3 million Btu per hour maximum heat input capacity while firing wood (**ID No. ES-120**). A check against the DAQ

spreadsheet for wood combustion, it is determined that estimated uncontrolled PM₁₀ emissions from this boiler are 51.5 tons per year; well below the major source threshold for CAM applicability. Therefore CAM will not apply to this control device. In addition, it is not expected that CAM would be applicable to the remaining multicyclones because of the associated lower boiler heat input ratings.

- Plants 1, 3 and 7 all have wood working processes (**ID Nos. ES-WDSP-1, ES-WDSP-3, and ES-WDSP-7**) controlled by bagfilters and transfer cyclones. These control devices are for particulate control and therefore are potentially subject to CAM. The Permittee has provided the following calculations indicating that CAM does not apply to this equipment:

Plant 3: Actual board feet (wood) processed = 66,377 bd ft
Actual board feet (particle board) processed = 951,425 bd ft
Potential board feet (wood) processed = $66,377(8760/2000) = 290,731.26$ bd ft
Potential board feet (particle board) processed = $951,425(8760/2000) = 4,167,241.50$ bd ft
Weight – wood = 3.5 lbs/bd ft; particle board = 4.0 lbs/bd ft
Assumed percentage of all processed material that is “waste” = 65% (wood); 15% (particle board)
Therefore; wood = 661,413.62 lbs; particle board = 2,500,344.90 lbs

Breakdown of processes

Wood rough end @ 40% = 264,565.45 lbs
Wood machining @ 20% = 132,282.724 lbs
Wood sanding @ 5% = 33,070.68 lbs
Particle board rough end @ 9.5% = 237,532.77 lbs
Particle board machining @ 4.5% = 112,515.52 lbs
Particle board sanding @ 1.0 % = 25,003.45 lbs

Percentage of waste that is PM₁₀*

Wood rough end @ 1.89% = 5,000.29 lbs
Wood machining @ 0.37% = 489.45 lbs
Wood sanding @ 23.8% = 7,870.82 lbs
Particle board rough end @ 1.89% = 4,489.37 lbs
Particle board machining @ 0.37% = 416.31 lbs
Particle board sanding @ 23.8% = 5,950.82 lbs
Total = 24,217.06 lbs (**12.11 tons**)

* Percentage of PM₁₀/PM taken from DAQ woodworking spreadsheet

Plant 7: Actual board feet (wood) processed = 93,544 bd ft
Potential board feet (wood) processed = $93,544(8760/2000) = 409,722.72$ bd ft
Weight – wood = 3.5 lbs/bd ft
Assumed percentage of all processed material that is “waste” = 65% (wood)
Therefore; = 932,119.19 lbs

Breakdown of processes

Wood rough end @ 40% = 372,847.68 lbs
Wood machining @ 20% = 186,423.84 lbs
Wood sanding @ 5% = 46,605.96 lbs

Percentage of waste that is PM₁₀*

Wood rough end @ 1.89% = 7,046.82 lbs
Wood machining @ 0.37% = 689.77 lbs
Wood sanding @ 23.8% = 11,092.22 lbs
Total = 18,828.81 lbs (**9.41 tons**)

* Percentage of PM₁₀/PM taken from DAQ woodworking spreadsheet

It should be noted that the woodworking operations at Plant 1 are not in operation and the facility is currently seeking a buyer for the equipment. Therefore, CAM does not apply to this Plant.

VII. Facility Wide Air Toxics

The facility is not currently subject to any facility-wide air toxics limitations. However as part of this permit renewal, and because the facility is subject to MACT standards other than the combustion MACT, the following permit condition has been added to Section 2.2 of the permit to require the Permittee to submit a demonstration that the facility is in compliance with NC air toxics at the same time it is required to comply with its last MACT.

State-enforceable only

C. Facility-wide affected sources

1. 15A NCAC 2Q .0705: EXISTING FACILITIES AND SIC CALLS

- a. *In accordance with 15A NCAC 2Q .0705(b), for sources at a facility subject to a MACT standard, excluding that MACT for combustion sources, a permit application shall be required demonstrating compliance with 15A NCAC 2D .1100 by the same deadline that the facility is required to comply with the last MACT. The permit application shall include an evaluation for all toxic air pollutants covered under rule 15A NCAC 2D .1104 for all sources at the facility, excluding those sources exempt from evaluation under 15A NCAC 2Q .0702.*

VIII. Facility Emissions Review

There is no change in emissions for this renewal.

The following table represents the latest years emission inventory from the facility:

Pollutant(s)	2004 Actual Emissions (tpy)
CO	44.36
NO _x	37.44
PM ₁₀	27.10
VOC	194.97
Total HAP/TAP	22.9

IX. Stipulation Review

In its latest inspection report, the ARO noted the following necessary permit correction/additions:

1. Cyclone **ID No. CD-307** (transfer cyclone venting to bagfilter **ID No. CD-311**) is listed in the equipment table twice. This should be corrected. *The permit has been amended to remove the additional record.*
2. Plant 3 – there are four 6.3 million Btu per hour natural gas-fired gas packs for heating the make up air for the clean room that should be added to the permit as insignificant activities the next time the permit is opened. *The permit and ESM have been updated as requested.*
3. Plant 7 – Bagfilter (**ID No. CD-718**) removed from facility. *The Permittee has verified that 719 should be removed as never installed, not 718. Source removed from permit and end-dated in ESM.*

In its review of the DRAFT permit, the Permittee had the following addition requested modifications of the renewed permit:

1. Please remove the following items from the permit:
Control device (**ID No. CD-314**); and
Dry kilns at Plant 7 (**ID No. ES-DK-7**).

X. Public Notice/EPA and Affected State(s) Review

Pursuant to 15A NCAC 2Q .0521, a notice of the DRAFT Title V Permit shall be placed in a newspaper of general circulation in the area where the facility is located. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 2Q .0522, a copy of each permit application, each proposed permit and each final permit pursuant shall be provided to EPA. Also pursuant to 2Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice provided to the public under 2Q .0521 above. Tennessee and Virginia are affected States and Mecklenburg County is an affected Local Program.

XI. Conclusions, Comments, and Recommendations

A professional engineer's seal was not required for this renewal.

A consistency determination was not required for his renewal.

ARO recommends issuance of the permit and was presented with a DRAFT permit prior to notice and issuance.

RCO concurs with ARO's recommendation to issue the renewed air permit.