INITIAL TITLE V AIR PERMIT APPLICATION REVIEW
Revised 7/12/99

APPLICANT:	SITE LOCATION:		COUNTY:
JELD-WEN, Inc. dba. JELD-WEN Fiber of NC	Marion		McDowell
TECHNICAL CONTACT:	**PHONE:**	**RESPONSIBLE OFFICIAL:**	**TITLE:**
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REVIEW ENGINEER:	**SIGNATURE:**		**DATE:**
Susan McCarthy, P.E./Jenny Sheppard			August 29, 2002
REGIONAL CONTACT:	**REGIONAL OFFICE:**		**SIC CODE:**
Michael Koerschner, P.E.	Asheville Regional Office		2493
APPLICATION NUMBER:	**EXISTING PERMIT NUMBER:**		**NEW PERMIT NUMBER:**
560169A5.A	06486R05		06486T06

I. Introduction

The U.S. Environmental Protection Agency (EPA) has given final approval to North Carolina's Title V operating permits program effective on October 1, 2001. This EPA approval triggered the requirements for Title V facilities to submit permit applications to the Division of Air Quality. Title V facilities are required to obtain an operating permit which addresses all applicable regulations under the State Implementation Plan, Federal Implementation Plan, and other provisions of the Clean Air Act (CAA). The Title V Operating Permit will define all of the facility's obligations under the CAA.

This Initial Title V Air Permit application Review intends to convey all pertinent emissions data, rules, policies, and engineering assumptions used to construct the DRAFT Title V operating permit. The primary source of information used to construct the DRAFT permit is the above referenced air permit application.

II. Background Information

The DRAFT Title V operating permit replaces an existing Air Quality Construction and Operation Permit No. 06486R05 issued on November 2, 2001 and is currently scheduled to expire on September 30, 2006.

Pursuant to 15A NCAC 2Q .0506 JELD-WEN Fiber of North Carolina, Inc. submitted its initial Title V application to the Division of Air Quality on December 13, 1996. The application was considered complete for processing on December 18, 1996. The DRAFT permit is required to go to public notice pursuant to 15A NCAC 2Q .0521.

III. Facility Description

JELD-WEN Fiber of North Carolina, Inc. manufactures fiberboard door skins. The facility is Title V due to the fact that they emit greater than 100 tons per year of VOCs, greater than 10 tons per year of an individual HAP, and greater than 25 tons per year of all HAPs combined. JELD-WEN reported on their 1999 emissions inventory that they emitted 101.1 tons of VOCs, 18.92 tons of methanol, and 26.27 tons of formaldehyde during the year 2000. In addition, they have the potential to emit greater than 100 tons per year of PM_{10} and CO.

IV. Statement of Compliance

The DAQ has reviewed the compliance status of this facility. On its latest inspection of October 18, 2001 by Michael Koerschner of the Asheville Regional Office, the facility was in compliance with all applicable

requirements. However, the facility has the following history of noncompliance.

- 7/3/96 - The 1995 Air Emissions Inventory was received in the Asheville Regional Office which indicated that the facility-wide emission rate of formaldehyde emissions during the calendar year were 8.3 tons per year (average rate of 0.47/lbs 15 minutes) in excess of the 0.04 lbs/15-minutes TPER in what was then 2H .0610 (now 2Q .0711).

- 12/13/96 - The Title V application was received by the DAQ. Section E of the application requires the Permittee to "Identify the applicable requirements for which compliance is not yet achieved." The Permittee indicated that compliance is unknown as air toxics modeling has not yet been conducted. In addition, the permit application listed benchmarks which they anticipated would be achieved by certain dates.

- 7/1/97 - The 1996 Air Emissions Inventory was received in the Asheville Regional Office which indicated that the facility-wide emission rate of formaldehyde emissions during the calendar year were 10,995 pounds per year (average rate of 0.29/lbs 15 minutes).

- 7/1/97 - A Notice of Violation was sent to JELD-WEN for exceeding the emission level in 15A NCAC 2H .0610(h) and Air Quality Permit No. 6486R3. The NOV required JELD-WEN to submit a demonstration of compliance no later than January 21, 1998.

- 1997 to 2001* - JELD-WEN models out of compliance (in excess of 2D .1100 AAL) and is required to devise a way to meet compliance with the AAL for formaldehyde.

- 1998 to 2000 - DAQ received and investigated numerous complaints regarding JELD-WEN being the cause of wood dust found on neighbor's vehicles.

- March 29, 2000 - JELD-WEN received a Notice of Violation/ Notice of Initiation of Enforcement Action from DAQ. The Fiber Line 1 dryer tube had a leak that was emitting wood fiber in violation of General Condition and Limitation B.6, "The facility shall be properly operated and maintained at all times in a manner that will effect an overall reduction in air pollution."

- February 21, 2001* - The Press Vent Exhaust Stack was not operating at the modeled height. Thus the facility was found to be in continued violation of 2Q .0700. The NOV requests that the facility submit a response to bring the facility into compliance by 3/16/2001 or request a compliance schedule or a SOC.

- November 2, 2001 - Air Permit No. 06486R06 was issued, an d the facility finally achieved compliance with the AAL for formaldehyde.

[1]

[1] According to JELD-WEN, "Assumptions built into this model are extremely conservative - they substantially overstate anticipated actual levels. Testing done by NCDENR (*A Study to Determine the Concentrations of Formaldehyde at the Residential Border Surroundings JELD-WEN Fibers of North Carolina,*

V. Summary of Emission Sources and Control Devices

The following table identifies all emission sources and associated control devices for which the Initial Title V Operating Permit is being issued.

Emission Source ID No.	**Emission Source Description**	**Control Device ID No.**	**Control Device Description**
B1	wood-fired boiler (43.6 million Btu per hour maximum heat input capacity)	MC1	one multicyclone (70 two-inch diameter tubes)
B2 **NSPS**	one natural gas-fired boiler (33.48 million Btu per hour maximum heat input)	n/a	n/a
	Fiber Line Drying Operations consisting of:		
C FL1D C FL2D	C Fiber Line 1 fiber drying operations C Fiber Line 2 fiber drying operations	C D1 C D2	C one cyclone (132 inches in diameter) C one cyclone (132 inches in diameter)

and Columbia Carolina, Inc., March 1999) confirmed that formaldehyde cannot be found in the ambient air at or above extremely low detection levels."

FL1 C F1 C 1	**Fiber Line 1 fiber collection/ recycling operations consisting of:** C forming and shave-off operations C fiber collection/ recycling operations	 C BHF1 C FR1 PC1 BH1	 C one bagfilter (3,196 square feet of filter area) installed on the forming and shave-off operations C one cyclone (Fiber Recycle Cyclone, 60 inches in diameter) vented to one cyclone (180 inches in diameter) vented to one bagfilter (4,651 square feet of filter area - *this bagfilter also controls fibers collected by bagfilter (ID No. BHF1)*
FL2 C F2 C 2	**Fiber Line No. 2 collection/ recycling operations consisting of:** C forming and shave-off operations C fiber collection/ recycling operations	 C BHF2 C FR2 PC2 BH2	 C one bagfilter (3,196 square feet of filter area) C one cyclone (Fiber Recycle Cyclone; 60 inches in diameter) vented to one cyclone (180 inches in diameter) vented to one bagfilter (4,651 square feet of filter area - *this bagfilter also controls fibers collected by the bagfilter (ID No. BHF2) AND the airstream which transfers woodwaste to the Dry Fuel Silo*
 C P1 C P2	**Presses including:** C Fiber Line 1 Hot Press C Fiber Line 2 Hot Press	 n/a n/a	 n/a n/a
PB1	one primer coating operation consisting of one dry filter type spray booth and one steam-heated curing oven	n/a	n/a
1W	stacked skins sizer trim process	BH1W	one bagfilter (4,651 square feet of filter area)

VI. Emission Source-by-Source Evaluation

A. wood-fired boiler (ID No. B1, 43.6 million Btu per hour maximum heat input capacity) with associated multicyclone (ID No. MC1; 70 two-inch diameter tubes)

1. Description

This hogged fuel boiler provides the majority of the steam used at the facility in the refining and drying of wood fiber. The fuel to this boiler consists of waste wood fiber generated on site and infrequently, wet chips, brought in from off-site. According to the Title V application, the overall moisture content of the

wood burned is greater than 19%, because the dry fiber is wetted prior to firing in the boiler.

2. Applicable Regulatory Requirements

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
particulate matter	0.50 pounds per million Btu heat input	15A NCAC 2D .0504
sulfur dioxide	2.3 pounds per million Btu	15A NCAC 2D .0516
visible emissions	20 percent opacity	15A NCAC 2D .0521
particulate matter	See Section VII.(A)(5)	15A NCAC 2D .0501(e)

a. **2D .0504 "Particulates from Wood Burning Indirect Heat Exchangers**

i. Regulatory Analysis

This boiler is subject to 2D .0504 since wood can be burned for the primary purpose of indirect heat transfer. Allowable emissions of particulate matter from wood fuel combustion shall be calculated as follows:

$$\mathbf{E = 1.1698\ Q^{-0.2230}}$$

where E = allowable particulate emission rate in pounds per million Btu, and
Q = maximum permitted heat input rate in million Btu per hour

The maximum heat input from this boiler is 43.6 million Btu per hour heat input.

$E = 1.1698 \times (43.6)^{-0..2230} = 0.50$ pound per million Btu
$E = 0.50$ lb/mmBtu x 43.6 mmBtu/hr = 21.8 lbs/hour

This boiler was stack tested in 1990 by Entropy Environmentalists which resulted in a particulate emission rate of 0.143 pounds of particulate per million Btu indicating compliance. The AP-42 emission factor for wet (>19% moisture content) wood combustion with a multicyclone is 0.22 pounds per million Btu heat input [ref: AP-42; Table 1.6-1; 7/2001] also indicating compliance. In addition, the AP-42 emission factor for wet wood combustion with no controls is 0.33 pounds particulates per million Btu heat input [ref: AP-42, Table 1.6-1, 7/2001], which would indicate compliance even with no controls. This boiler, however, burns very fine wood fibers, and there is potential for the fibers to carry through and bypass the multicyclone. Since the wood burned is very fine, the Asheville Regional Office is requesting a particulate stack test on the boiler with results submitted to the DAQ by December 31, 2002.

ii. Testing Requirements

The facility is required to stack test the boiler utilizing (1) EPA Reference Method No. 5 or (2) in accordance with a protocol approved by DAQ to ensure that the particulate emission rate does not

exceed 0.50 pound per million Btu.

iii. Monitoring/Recordkeeping Requirements

To ensure that optimum control efficiency of particulate matter is obtained by the multicyclone (ID No. MC1), inspections and maintenance will be performed as recommended by the manufacturer. If no manufacturer's recommendations are available, as a minimum, the inspections will include an annual internal inspection of the multicyclone's structural integrity and a monthly external visual inspection of the ductwork and collection units for leaks. Monthly inspections should provide assurance of compliance since the expected life of a multicyclone is several years.

iv. Reporting Requirements

A summary report of the monitoring will be submitted by January 30th and July 30th of each year. The results of any maintenance to the control devices shall be reported within 30 days of a written request by DAQ.

b. **2D .0516 "Sulfur Dioxide Emissions from Combustion Sources"**

i. Regulatory Analysis

This boiler is a source of combustion which discharges through a stack and therefore is subject to .0516(a). Allowable emissions of sulfur dioxide from this source while firing natural gas or fuel oil shall not exceed 2.3 pounds per million Btu.

The AP-42 emission factor for sulfur dioxide from combustion sources is 2.3 pounds per million Btu heat input. The AP-42 emission factor for sulfur dioxide from wood combustion is 0.025 pounds per million Btu heat input [ref: AP-42; Table 1.6-1; 7/2001], and compliance with 2D .0516 is indicated.

ii. Monitoring/ Recordkeeping/ Reporting Requirements

No monitoring/ recordkeeping/ reporting will be required for sulfur dioxide emissions from this source.

c. **2D .0521 "Control of Visible Emissions"**

i. Regulatory Analysis

The wood-fired boiler (ID No. B1) was established after July 1, 1971 and is subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that six-minute averaging not more than 87 percent opacity may occur not more than once any hour nor more than four times in any 24-hour period. Compliance is indicated with this regulation, because the latest inspection report did not cite any opacity exceedances. In addition, there has not been a documented violation of 2D .0521 at this facility.

ii. Monitoring Requirements

The Permittee will either observe the emission points of the sources above once a day for visible emissions above normal or perform a Method 9. Daily observations should provide reasonable assurance of compliance. The Permittee will establish what normal visible emissions are through recordkeeping.

iii. Recordkeeping Requirements

The results of the observations and tests along with any corrective actions taken to reduce visible emissions shall be recorded in a log book.

iv. Reporting Requirements

A summary report of the observation results will be submitted by January 30 and July 30 of each year.

B. One natural gas-fired boiler (ID No. B2; 33.48 million Btu per hour maximum heat input capacity)

1. Description:

This 33.48 million Btu per hour boiler combusts natural gas. It was first operated in March 1997 and is NSPS-affected. Emissions are uncontrolled.

2. Applicable Regulatory Requirements

The following provides a summary of emission and/or operation limits for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
particulate matter	0.44 pounds per million Btu heat input	15A NCAC 2D .0503
sulfur dioxide	2.3 pounds per million Btu heat input	15A NCAC 2D .0516
visible emissions	20 percent opacity	15A NCAC 2D .0521
NA	recordkeeping only; monthly fuel records	15A NCAC 2D .0524 (40 CFR Part 60 Subpart Dc)
particulate matter	See Section VII.(A)(5)	15A NCAC 2D .0501(e)

a. **2D .0503(a) "Particulates from Fuel Burning Indirect Heat Exchangers"**

i. Regulatory Analysis

This rule applies to installations burning fuel, including natural gas and fuel oils, for the purpose of producing heat or power by indirect heat transfer.

Allowable emissions of particulate matter from fuel combustion shall be calculated as follows:

$$E = 1.090\ Q^{-0.2594}$$

where: E =allowable particulate emission rate, pounds per million Btu
Q=maximum heat input rate (total at plant site), million Btu per hour

Allowable particulate emissions for Boiler B2 are determined based on a total plant site heat input rate from the fuel-fired indirect heat exchangers. Since this is the only fuel burning indirect heat exchanger at this facility, allowable particulate emissions are:

$$E = 1.09 \times (33.48)^{-0.2594} = 0.44 \text{ pound per million Btu}$$

or $E = 0.44$ lb/million Btu x 33.48 million Btu per hour = 14.73 lbs/hour

The AP-42 emission factor for total particulate emissions from natural gas combustion is 7.6 pounds of particulate per million cubic feet combusted [ref: AP-42 Table 1.4-2; July 1998]. Assuming a heating value of 1,020 Btu per cubic foot, this equates to:

$$\frac{7.6 \text{ lb particulate}}{1{,}000{,}000 \text{ cubic ft}} \times \frac{1 \text{ cuft}}{1{,}020 \text{ Btu}} \times \frac{1{,}000{,}000 \text{ Btu}}{\text{million Btu}} = 0.007 \frac{\text{pounds particulate}}{\text{million Btu heat input}}$$

ii. Monitoring/Recordkeeping/Reporting Requirements

Since the potential particulate emissions are less than the allowable, no monitoring, recordkeeping or reporting are required. Stack testing is not required to ensure compliance with this regulation. However the test method condition will be put in the permit in the event that DAQ or EPA finds that due to improper operation violations, etc, source testing is required.

b. **2D .0516 "Sulfur Dioxide Emissions From Combustion Sources"**

i. Regulatory Analysis

Sulfur dioxide emissions from any source of combustion that is discharged from any vent, stack, or chimney shall not exceed 2.3 pounds per million Btu heat input.

ii. Monitoring/Recordkeeping/Reporting Requirements

There are no testing, monitoring, recordkeeping, and reporting requirements for this source due to the inherently low sulfur content of natural gas.

The AP-42 emission factor for total sulfur dioxide emissions from natural gas combustion is 0.6 pounds of sulfur dioxide per million cubic feet combusted [ref: AP-42 Table 1.4-2; July 1998]. Assuming a heating value of 1,020 Btu per cubic foot, this equates to:

$$\frac{0.6 \text{ lb particulate}}{1{,}000{,}000 \text{ cubic ft}} \times \frac{1 \text{ cuft}}{1{,}020 \text{ Btu}} \times \frac{1{,}000{,}000 \text{ Btu}}{\text{million Btu}} = 0.0006 \frac{\text{pounds particulate}}{\text{million Btu heat input}}$$

c. **2D .0521 "Control Of Visible Emissions"**

i. Regulatory Analysis
Visible emissions shall not exceed 20 percent opacity when averaged over a six-minute period for sources established after July 1, 1971. Compliance with this regulation will be indicated by inspection of the facility.

ii. Monitoring Requirements

There are no monitoring/recordkeeping/reporting requirements for natural gas-fired boilers.

d. **2D .0524 "New Source Performance Standards" (40 CFR 60 Subpart Dc)**

i. Regulatory Analysis

This boiler is subject to the visible emission and sulfur dioxide limitations in NSPS Part 60 Subpart Dc since it was constructed after June 9, 1989 and has a maximum design heat capacity greater than 10 million Btu per hour. There are no Subpart Dc emission limitations for natural gas combustion.

The reporting requirements of Subpart Dc have already been met, and compliance is indicated. The only other NSPS Subpart Dc requirement is the requirement under 40 CFR 60.48c(g) which requires that "the owner or operator of each affected facility shall record and maintain records of the amounts of each fuel burned each day." EPA has since determined that monthly accounting of the amount of natural gas fired in a given unit is acceptable. [ref: 12/7/2000 letter from R. Douglas Neeley, Chief, Air and Radiation Technology Branch' Air Pesticides, and Toxics Management Division, to Rob Raney, P.E.]

ii. Monitoring Requirements/ Recordkeeping/ Reporting Requirements

As stated above, the facility must keep monthly records of the amount of natural gas fired in a given unit. No reporting shall be required.

C. Fiber Line Drying Operations Consisting of:

- Fiber Line 1 fiber drying operations (ID No. FL1D) with one associated cyclone (132 inches in diameter, ID No. D1)

- Fiber Line 2 fiber drying operations (ID No. FL2D) with one associated cyclone (132 inches in diameter, ID

No. D2)

1. Description

In the fiber line operations, wood fiber, resin, and wax are heated, mixed, and compressed to form wood fiber door skins. Line 1 was first operated in 1989, and Line 2 was first operated in 1994.

In the fiber line drying operations for Lines 1 and 2 (ID Nos. FL1 and FL2), the wood chips are refined to fiber using rotating plate (disc) refiners in a water/steam solution. Once refined, the fiber/water slurry is injected into the center of the dryer tube which starts just above the wood-fired boiler. A very large fan forces air into the dryer tube, and the fiber/water slurry is injected into the middle. The airstream is heated by steam pipes which traverse the air flow and can be louvered to control the heat in the dryer tube. The tube ends at the dryer cyclones (ID Nos. D1 and D2) which are used to collect the fiber from the dryers on Former Lines 1 and 2, respectively.

2. Applicable Regulatory Requirements

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	**Limits/Standards**	**Applicable Regulation**
particulate matter	adequate ductwork and properly designed collectors	15A NCAC 2D .0512
visible emissions	20 percent opacity	15A NCAC 2D .0521
volatile organic compounds	See Section VII.(A)(1); **State-enforceable only**	15A NCAC 2D .0958
odorous emissions	See Section VII.(A)(2); **State-enforceable only**	15A NCAC 2D .1806
formaldehyde	See Section VII.(A)(3); **State-enforceable only**	15A NCAC 2D .1100
xylene ammonia ethylene glycol monoethyl ether	See Section VII.(A)(4); **State-enforceable only**	15A NCAC 2Q .0711
particulate matter	See Section VII.(A)(5)	15A NCAC 2D .0501(e)

a. **2D .0512 "Particulates from Wood Products Finishing Plants"**

i. Regulation Analysis

This regulation requires "adequate ductwork and properly designed collectors" for the collection of

"particulate matter caused by the working, sanding, or finishing of wood." This system is considered the "working of wood". This system uses cyclones ultimately to control the woodwaste. Properly operated and maintained cyclones installed on woodworking operations are considered properly designed collectors. Compliance with .0512 is indicated with proper operation and maintenance.

ii. Testing Requirements

Because of the uncertainties surrounding the particulate emissions from the dryer cyclones (ID Nos. FL1D and FL2D), the facility will be required to conduct stack testing of particulates from one of the dryers tubes to develop a site-specific emission factor. Testing will be required by December 31, 2002. The Permittee will be required to test the particulate and condensible particulate emissions from one of the dryer tubes (**ID No. FL1D or FL2D**) utilizing EPA Reference Method Nos. 5 and 202 or in accordance with a testing protocol approved by the DAQ.

iii. Monitoring Requirements

To ensure that optimum control efficiency of particulate matter is obtained by the cyclones, monthly inspections will be performed and maintenance will be performed as recommended by the manufacturer. As a minimum, the inspections will include a monthly external inspection of the cyclones and ductwork.

iv. Recordkeeping Requirements

The results of the inspection and maintenance will be kept in a log book.

v. Reporting Requirements

A summary report of the monitoring will be submitted by January 30 and July 30 of each year. The results of any maintenance to the control devices shall be reported within 30 days of a written request by DAQ.

b. **2D .0521 "Control of Visible Emissions"**

i. Regulation Analysis

These sources were established after July 1, 1971 and therefore are subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that six-minute period averaging not more than 87 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. Compliance with this regulation is indicated because the latest inspection report did not cite any opacity exceedances. In general, opacity from the dryers range from 0 to 5% opacity.

ii. Monitoring Requirements

The Permittee will observe the emission points of the woodworking operations emission sources once a day for visible emissions above the normal operating conditions.

iii. Recordkeeping/Reporting Requirements

A summary report of the observation results will be submitted by January 30th and July 30th of each year.

D. Fiber Line Collection/Recycling Operations Consisting of:

Fiber Line No. 1 collection/ recycling operations consisting of:

- Forming and shave-off operations (ID No. F1) controlled by one bagfilter (ID No. BHF1, 3,196 square feet of filter area)
- Fiber Line fiber collection/ recycling operations (ID No. 1) controlled by:
  - one cyclone (ID No. FR1, Fiber Recycle Cyclone; 60 inches in diameter) vented to one cyclone (ID No. PC1, 180 inches in diameter) vented to one bagfilter (ID No. BH1, 4,651 square feet of filter area - *this bagfilter also controls fibers collected by the bagfilter (ID No. BHF1) AND the airstream which transfers woodwaste to the Dry Fuel Silo*

Fiber Line No. 2 collection/ recycling operations consisting of:

- Forming and shave-off operations (ID No. F2) controlled by one bagfilter (ID No. BHF2, 3,196 square feet of filter area)
- Fiber Line fiber collection/ recycling operations (ID No. 2) controlled by:
  - one cyclone (ID No. FR2, Fiber Recycle Cyclone; 60 inches in diameter) vented to one cyclone (ID No. PC2, 180 inches in diameter) vented to one bagfilter (ID No. BH2, 4,651 square feet of filter area - *this bagfilter also controls fibers collected by the bagfilter (ID No. BHF2) AND the airstream which transfers woodwaste to the Dry Fuel Silo*

1. Description

In the fiber line operations, wood fiber, resin, and wax are heated, mixed, and compressed to form wood fiber door skins. Line 1 was first operated in 1989, and Line 2 was first operated in 1994. Forming lines 1 and 2 are similar systems. In these lines, the fiber is mechanically conveyed onto a moving screen to form a mat. The mat is held to the screen via suction provided by the former baghouses (ID Nos. BH1 and BH2). Also, the mat is formed (edges cut off), and the waste is sent to the former baghouses (ID Nos. BH1 and BH2). The fine wood fiber falling to the bottom of these baghouses is conveyed pneumatically back to Primary Cyclones (ID Nos. PC1 and PC2) or can be diverted to the cone of Baghouse (ID No. BH1W). The waste fiber falling to the bottom of PC1 and PC2 is conveyed pneumatically to the boiler fuel silos 1 and 2.

For this source, the Permittee requested that a provision be included in the permit allowing for the creation of fugitive dust during required control equipment maintenance (bagfilter changes, etc.) with the understanding that the facility will control fugitive dust to the extent practical. Although the facility should realize that they cannot operate the source while bypassing the control devices while performing maintenance procedures, the DAQ realizes that fugitive dust is normal during bagfilter changes, etc. and a special stipulation in the Title V permit is not deemed necessary. As JELD-WEN stated, the facility should control fugitive dust to the extent practical. In addition, any *excess* emissions shall recorded in a log book and reported to DAQ as outlined in Section 3 *General Conditions,* Part I.A.

2. Applicable Regulatory Requirements

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation

particulate matter	adequate duct work and properly designed collectors	15A NCAC 2D .0512
visible emissions	20 percent opacity	15A NCAC 2D .0521
volatile organic compounds	See Section VII.(A)(1); **State-enforceable only**	15A NCAC 2D .0958
odorous emissions	See Section VII.(A)(2); **State-enforceable only**	15A NCAC 2D .1806
formaldehyde	See Section VII.(A)(3); **State-enforceable only**	15A NCAC 2D .1100
xylene ammonia ethylene glycol monoethyl ether	See Section VII.(A)(4); **State-enforceable only**	15A NCAC 2Q .0711
particulate matter	See Section VII.(A)(5)	15A NCAC 2D .0501(e)

a. **2D .0512 "Particulates from Miscellaneous Wood Products Finishing Plants"**

i. Regulation Analysis

This regulation requires "adequate ductwork and properly designed collectors" for the collection of "particulate matter caused by the working, sanding, or finishing of wood." This system uses fabric filters ultimately to control the woodwaste. Properly operated and maintained fabric filters installed on woodworking operations are considered properly designed collectors. Compliance with .0512 is indicated with proper operation and maintenance.

ii. Monitoring Requirements

To ensure that optimum control efficiency of particulate matter is obtained by the cyclones, monthly inspections will be performed and maintenance will be performed as recommended by the manufacturer. As a minimum, the inspections will include a monthly external inspection of the bagfilters, cyclones, and ductwork, and an annual internal inspection of the bagfilters to ensure structural integrity.

iii. Recordkeeping Requirements

The results of the inspection and maintenance will be kept in a log book.

iv. Reporting Requirements

A summary report of the monitoring will be submitted by January 30 and July 30 of each year. The results of any maintenance to the control devices shall be reported within 30 days of a written request by DAQ.

b. **2D .0521 "Control of Visible Emissions"**

i. Regulation Analysis

These sources were established after July 1, 1971 and therefore are subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that six-minute period averaging not more than 87 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. Compliance with this regulation is indicated because the latest inspection report did not cite any opacity exceedances. In general, the fiber lines collection/recycling systems generally operate with no visible emissions. If visible emissions ever do occur, they are generally due to a malfunction of the control units.

ii. Monitoring Requirements

The Permittee will observe the emission points of the woodworking operations emission sources once a day for visible emissions above the normal operating conditions.

iii. Recordkeeping/Reporting Requirements

A summary report of the observation results will be submitted by January 30th and July 30th of each year.

E. Fiber Line Presses consisting of:

- Fiber Line 1 Hot Press (ID No. P1)
- Fiber Line 2 Hot Press (ID No. P2)

1. Description

In the fiber line press operations, wood fiber, resin, and wax are compressed to form wood fiber door skins. Line 1 was first operated in 1989, and Line 2 was first operated in 1994.

2. Applicable Regulatory Requirements

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
particulate matter	adequate ductwork and properly designed collectors	15A NCAC 2D .0512
visible emissions	20 percent opacity	15A NCAC 2D .0521
volatile organic compounds	See Section VII.(A)(1); **State-enforceable only**	15A NCAC 2D .0958
odorous emissions	See Section VII.(A)(2); **State-enforceable only**	15A NCAC 2D .1806
formaldehyde	See Section VII.(A)(3); **State-enforceable only**	15A NCAC 2D .1100

xylene ammonia ethylene glycol monoethyl ether	See Section VII.(A)(4); **State-enforceable only**	15A NCAC 2Q .0711
particulate matter	See Section VII.(A)(5)	15A NCAC 2D .0501(e)

a. **2D .0512 "Particulates from Miscellaneous Wood Products Finishing Plants"**

i. Regulation Analysis

This regulation requires "adequate ductwork and properly designed collectors" for the collection of "particulate matter caused by the working, sanding, or finishing of wood." The presses are considered the "working" of wood. No control equipment is used to control particulate emissions from this process; however, particulate emissions from this process are minimal (1.65 lbs/hour).

ii. Monitoring/ Recordkeeping/ Reporting Requirements

No monitoring/recordkeeping/ reporting will be required for compliance with this regulation.

b. **2D .0521 "Control of Visible Emissions"**

i. Regulation Analysis

These sources were established after July 1, 1971 and therefore are subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that six-minute period averaging not more than 87 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. Compliance with this regulation is indicated because the latest inspection report did not cite any opacity exceedances.

ii. Monitoring Requirements

The Permittee will observe the emission points of the woodworking operations emission sources once a day for visible emissions above the normal operating conditions.

iii. Recordkeeping/Reporting Requirements

A summary report of the observation results will be submitted by January 30th and July 30th of each year.

F. One primer coating operation (ID No. PB1) consisting of one dry filter type spray booth and one steam heated curing oven

1. Description

In this process, doorskins are spray painted in an automated booth with a water/glycol-based primer and dried in an oven.

2. Applicable Regulatory Requirements

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
particulate matter	adequate duct work and properly designed collectors	15A NCAC 2D .0512
visible emissions	20 percent opacity	15A NCAC 2D .0521
volatile organic compounds	See Section VII.(A)(1); **State-enforceable only**	15A NCAC 2D .0958
odorous emissions	See Section VII.(A)(2); **State-enforceable only**	15A NCAC 2D .1806
formaldehyde	See Section VII.(A)(3); **State-enforceable only**	15A NCAC 2D .1100
xylene ammonia ethylene glycol monoethyl ether	See Section VII.(A)(4); **State-enforceable only**	15A NCAC 2Q .0711
particulate matter	See Section VII.(A)(5)	15A NCAC 2D .0501(e)

a. **2D .0512 "Particulates from Wood Products Finishing Plants"**

i. Regulation Analysis

This regulation requires "adequate ductwork and properly designed collectors" for the collection of "particulate matter caused by the working, sanding, or finishing of wood." This system utilizes dry filters to control overspray. Dry filters on spray finishing operations are considered adequate collectors of the particulates associated with overspray. Due to the large size of the pieces being painted (door-sized), overspray is minimized. Compliance with .0512 is indicated with proper operation and maintenance.

ii. Monitoring Requirements

To ensure that optimum control efficiency of particulate matter is obtained by the dry filters, weekly inspections will be performed on the spray booths noting the condition of the filter and an annual inspection shall be conducted of the ductwork noting structural integrity. In addition, maintenance will be performed as recommended by the manufacturer.

iii. Recordkeeping Requirements

The results of the inspection and maintenance will be kept in a log book.

iv. Reporting Requirements

A summary report of the monitoring will be submitted by January 30 and July 30 of each year. The results of any maintenance to the control devices shall be reported within 30 days of a written request by DAQ.

b. **2D .0521 "Control of Visible Emissions"**

i. Regulation Analysis

These sources were established after July 1, 1971 and therefore are subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that six-minute period averaging not more than 87 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. Compliance with this regulation is indicated because the latest inspection report did not cite any opacity exceedances. In general, visible emission from the booth are less than 5% opacity.

ii. Monitoring Requirements

The Permittee will observe the emission points of the paint booth once per week for visible emissions above the normal operating conditions.

iii. Recordkeeping/Reporting Requirements

A summary report of the observation results will be submitted by January 30th and July 30th of each year.

G. One stacked skin sizer trim process controlled by a bagfilter (ID No. BH1W, 4,651 square feet of filter area)

1. Description

In this process, the pressed fiberboard is cut to the right size. The emissions from this process are controlled by a bagfilter. In addition, this bagfilter can control the loading of woodwaste to the dry fuel silos.

For this source, the Permittee requested that a provision be included in the permit allowing for the creation of fugitive dust during required control equipment maintenance (bagfilter changes, etc.) with the understanding that the facility will control fugitive dust to the extent practical. Although the facility should realize that they cannot operate the source while bypassing the control devices while performing maintenance procedures, the DAQ realizes that fugitive dust is normal during bagfilter changes, etc. and a special stipulation in the Title V permit is not deemed necessary. As JELD-WEN stated, the facility should control fugitive dust to the extent practical. In addition, any *excess* emissions shall recorded in a log book and reported to DAQ as outlined in Section 3 *General Conditions*, Part I.A.

2. Applicable Regulatory Requirements

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation

particulate matter	adequate duct work and properly designed collectors	15A NCAC 2D .0512
visible emissions	20 percent opacity	15A NCAC 2D .0521
particulate matter	See Section VII.(A)(5)	15A NCAC 2D .0501(e)

a. **2D .0512 "Particulates from Miscellaneous Wood Products Finishing Plants"**

i. Regulation Analysis

This regulation requires "adequate ductwork and properly designed collectors" for the collection of "particulate matter caused by the working, sanding, or finishing of wood." This system utilizes bagfilter to control the woodwaste from the cutting of the fiberboard. Properly operated and maintained bagfilters on woodworking operations are considered properly designed collectors. Compliance with .0512 is indicated with proper operation and maintenance.

ii. Monitoring Requirements

To ensure that optimum control efficiency of particulate matter is obtained by the bagfilter, monthly inspections will be performed and maintenance will be performed as recommended by the manufacturer. As a minimum, the inspections will include a monthly external inspection of the bagfilter and ductwork and an annual internal inspection of the bagfilters to ensure structural integrity.

iii. Recordkeeping Requirements

The results of the inspection and maintenance will be kept in a log book.

iv. Reporting Requirements

A summary report of the monitoring will be submitted by January 30 and July 30 of each year. The results of any maintenance to the control devices shall be reported within 30 days of a written request by DAQ.

b. **2D .0521 "Control of Visible Emissions"**

i. Regulation Analysis

This source was established after July 1, 1971 and therefore is subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that six-minute period averaging not more than 87 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. Compliance with this regulation is indicated because the latest inspection report did not cite any opacity exceedances, and this source has never been observed with any visible emissions.

ii. Monitoring Requirements

The Permittee will observe the emission points of this woodworking operation once per day for visible emissions above the normal operating conditions.

iii. Recordkeeping/Reporting Requirements

A summary report of the observation results will be submitted by January 30th and July 30th of each year.

VII. Multiple Emission Source Limits

STATE-ONLY REQUIREMENTS

A. Facility-wide affected sources

The above emission sources are subject to this multiple emission source limit.

Regulated Pollutant	Limits/Standards	Applicable Regulation
odors	odorous emissions must be controlled**; State enforceable only**	15A NCAC 2D .1806
volatile organic compounds	work practice standards	15A NCAC 2D .0958
toxic air pollutants	Toxic air pollutant emissions shall not exceed the levels listed in 2Q .0711 unless ambient standards are not exceeded; **State-enforceable only**	15A NCAC 2Q .0711
	Toxic air pollutant emissions shall not exceed their modeled acceptable ambient levels; **State - enforceable only**	15A NCAC 2D .1100

STATE-ENFORCEABLE ONLY

1. 15A NCAC 2D .1806: CONTROL AND PROHIBITION OF ODOROUS EMISSIONS

a. The Permittee shall not operate the facility without implementing management practices or installing and operating odor control equipment sufficient to prevent odorous emissions from the facility from causing or contributing to objectionable odors beyond the facility's boundary.

b. If the Director determines that a source or facility is emitting an objectionable odor, by the procedures described below, the Permittee shall:

i. within 180 days of receipt of written notification from the Director of the requirement to implement maximum feasible controls, complete the determination process outlined in 15A NCAC 2D .1807 and submit to the Director a completed maximum feasible control determination process, a permit application for maximum feasible controls and a compliance schedule;

ii. within 18 months of receipt of written notification from the Director of the requirement to implement maximum feasible controls, have installed and begun operating maximum feasible controls.

c. The Director may require the Permittee to implement maximum feasible controls per 15A NCAC 2D .1806(g) if:

i. a member of the Division staff determines by field investigation that an objectionable odor is present by taking into account nature, intensity, pervasiveness, duration, and source of the odor and other pertinent factors;

ii. the source or facility emits known odor causing compounds such as ammonia, total volatile organics, hydrogen sulfide, or other sulfur compounds at levels that cause objectionable odors beyond the property line of that source or facility; or

iii. the Division receives epidemiological studies associating health problems with odors from the source or facility or evidence of documented health problems associated with odors from the source or facility provided by the State Health Director.

STATE-ENFORCEABLE ONLY

2. 15A NCAC 2D .0958: WORK PRACTICES FOR SOURCES OF VOLATILE ORGANIC COMPOUNDS

a. Pursuant to 15A NCAC 2D .0958, for all sources that use volatile organic compounds (VOC) as solvents, carriers, material processing media, or industrial chemical reactants, or in similar uses that mix, blend, or manufacture volatile organic compounds, or emit volatile organic compounds as a product of chemical reactions, and whose emissions of VOC are greater than 15 pounds per day; the Permittee shall:

(1) store all material, including waste material, containing volatile organic compounds in tanks or in containers covered with a tightly fitting lid that is free of cracks, holes, or other defects, when not in use,
(2) clean up spills of volatile organic compounds as soon as possible following proper safety procedures,
(3) store wipe rags containing volatile organic compounds in closed containers,
(4) not clean sponges, fabric, wood, paper products, and other absorbent materials with volatile organic compounds,
(5) transfer solvents containing volatile organic compounds used to clean supply lines and other coating equipment into closable containers and close such containers immediately after each use, or transfer such solvents to closed tanks, or to a treatment facility regulated under section 402 of the Clean Water Act,
(6) clean mixing, blending, and manufacturing vats and containers containing volatile organic compounds by adding cleaning solvent and close the vat or container before agitating the cleaning solvent. The spent cleaning solvent shall then be transferred into a closed container, a closed tank or a treatment facility regulated under section 402 of the Clean Water Act. [15A NCAC 2D .0958(c)]

b. When cleaning parts with a solvent containing a volatile organic compound, the Permittee shall:
(1) flush parts in the freeboard area,
(2) take precautions to reduce the pooling of solvent on and in the parts,
(3) tilt or rotate parts to drain solvent and allow a minimum of 15 seconds for drying or until all dripping has stopped, whichever is longer,
(4) not fill cleaning machines above the fill line,
(5) not agitate solvent to the point of causing splashing. [15A NCAC 2D .0958(d)]

Monitoring

c. To assure compliance with paragraphs (a) and (b) above, the Permittee shall, at a minimum, perform a visual inspection once per month of all operations and processes utilizing volatile organic compounds. The inspections shall be conducted during normal operations. If the required inspections are not conducted the permittee shall be deemed to be in noncompliance with 15A NCAC 2D .0958.

Recordkeeping

d. The results of the inspections shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. The logbook shall record the following:
   i. the date and time of each inspection; and
   ii. the results of each inspection noting whether or not noncompliant conditions were observed.

   If the required records are not maintained the permittee shall be deemed to be in noncompliance with 15A NCAC 2D .0958.

Reporting

e. The Permittee shall submit a summary report of the observations by January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

STATE-ENFORCEABLE ONLY

3. TOXIC AIR POLLUTANT EMISSIONS LIMITATION AND REQUIREMENT - Pursuant to 15A NCAC 2D .1100 and in accordance with the approved application for an air toxic compliance demonstration, the following permit limit shall not be exceeded:

EMISSION SOURCE(S)	TOXIC AIR POLLUTANT(S)	EMISSION LIMIT(S)
Fiber Line 1 Hot Press and Fiber Line 2 Hot Press (combined)	formaldehyde	8.0 pounds per hour
All other sources of formaldehyde combined	formaldehyde	0.22 pounds per hour

a. Testing Requirement

Under the provisions of North Carolina General Statute 143-215.108, the Permittee shall demonstrate compliance with the Fiber Line 1 Hot Press (ID No. P1) and Fiber Line 2 Hot Press (ID No. P2) combined emission limit by testing the Fiber Line 1 Hot Press and the Fiber Line 2 Hot Press (ID Nos. P1 and P2) for formaldehyde, (1) utilizing an EPA Reference Method, as contained in 40 CFR 60, Appendix A, **OR** (2) in accordance with a testing protocol approved by the DAQ. Details of the emissions testing and reporting requirements can be found in Section 3 - General Condition JJ. The source shall be responsible for ensuring, within the limits of practicality, that the equipment or process being tested is **operated at its maximum** production rate (maximum resin input), or at a lesser rate if specified by the Director or his delegate. The test results must be submitted to the Regional Supervisor, DAQ, in accordance with the approved procedures of the Environmental Management Commission by December 31, 2002.

Affected Facility	Pollutant	Emission Limit
Fiber Line 1 Hot Press and Fiber Line 2 Hot Press (combined)	formaldehyde	8.0 lb./hour

b. Operational Restrictions

To ensure compliance with the above limits, the following restrictions shall apply:

i. the exhaust points of the Fiber Line 1 Hot Press and Fiber Line 2 Hot Press must be 90 feet above ground level of the plant;
ii. the exhaust temperature must be above 300 K;
iii. the flow rate of the exhaust must be greater than or equal to 24.25 meters per second.

c. Recordkeeping and Reporting Requirements

For compliance purposes, within 30 days after each calendar year quarter the following shall be reported to the Regional Supervisor, DAQ**:**

i. the Permittee shall maintain records of operational information above 2.2 (A) (3) (a)(ii) and (iii);
ii. a statement whether the emissions limits were exceeded for formaldehyde;
iii. a summary page listing the emission rates of formaldehyde by emission source in pounds per day for each day of the quarter.

STATE-ENFORCEABLE ONLY

4. 15A NCAC 2Q .0711: "PERMIT REQUIREMENTS FOR TOXIC AIR POLLUTANTS"

a. Regulatory Requirements

Pursuant to 15A NCAC 2Q .0711 "Emission Rates Requiring a Permit," for each of the below listed toxic air pollutants (TAPs), the Permittee has made a demonstration that facility-wide actual emissions do not exceed the Toxic Permit Emission Rates (TPERs) listed in 15A NCAC 2Q .0711. The facility shall be operated and maintained in such a manner that emissions of any listed TAPs from the facility, including fugitive emissions, will not exceed TPERs listed in 15A NCAC 2Q .0711.

i. A permit to emit any of the below listed TAPs shall be required for this facility if actual emissions from all sources will become greater than the corresponding TPERs.

ii. PRIOR to exceeding any of these listed TPERs, the Permittee shall be responsible for obtaining a permit to emit TAPs and for demonstrating compliance with the requirements of 15A NCAC 2D.1100 "Control of Toxic Air Pollutants".

iii. In accordance with the approved application, the Permittee shall maintain records of operational information demonstrating that the TAP emissions do not exceed the TPERs as listed below:

	TPERs Limitations			
Pollutant (CAS Number)	Carcinogens (lb/yr)	Chronic Toxicants (lb/day)	Acute Systemic Toxicants (lb/hr)	Acute Irritants (lb/hr)
xylene (1330-20-7)		57		
ammonia (7664-41-7)				0.68
ethylene glycol monoethyl ether (110-80-5)		2.5	0.48	

5. **COMPLIANCE WITH NATIONAL AMBIENT AIR QUALITY STANDARDS** - Pursuant to 15A NCAC 2D.0501(e) and in accordance with an approved modeling protocol the facility shall perform a compliance demonstration for particulate matter. The compliance demonstration must be submitted to the Regional Supervisor, DAQ by December 31, 2002.

VIII. MACT Applicability and Requirements

Based on a review of the facility's current operations and emission sources, the facility will be subject to the MACT for Plywood and Composite Wood Products, Subpart DDDD. It is scheduled for proposal November 2001 and promulgation May 2002.

IX. Permit Shield (including non-applicable requirements)

In accordance with 2Q .0512 the permit will contain a provision stating that compliance with the terms, conditions, and limitations of the Title V permit shall be deemed in compliance with applicable requirements specifically identified in the permit, as of the date of permit issuance. If the permit does not expressly state that a permit shield exists then it shall be presumed not to provide such a shield.

X. Other Applicable Requirements

None.

XI. General Conditions

The "General Conditions" section of the Title V Operating Permits lists additional applicable rule requirements that the permittee must adhere to, as with any other permit condition. These requirements in general are common to all Title V facilities. The general conditions include provisions such as annual fee payment, permit renewal and expiration, transfer of ownership or operation, property rights, submission of documents, inspections and entry procedures, reopen for cause, and severability.

XII. Insignificant Activities

The insignificant activities listed in the application have been reviewed and verified. Because an emission source or activity is insignificant does not mean that the emission source or activity is exempted from any applicable requirement or that the owner or operator of the source is exempted from demonstrating compliance with any applicable requirement.

Emission Source Description	Basis for Exemption
Raw material handling consisting of one wood chip receiving dump-pit and associated pneumatic raw material handling system (ID No. RMH)	NCAC 2D .0503(8)
Boiler fuel silos (170 to 185 ton capacity)	NCAC 2D .0503(8)
Raw material silos (530 ton capacity)	NCAC 2D .0503(8)
Two resin storage tanks (7,400 gallon capacity)	NCAC 2D .0503(8)

One wax storage tank (11,700 gallon capacity)	NCAC 2D .0503(8)
One primer storage tank (11,700 gallon capacity)	NCAC 2D .0503(8)
Spray paint for marking door skins (50 cans/year)	NCAC 2D .0503(8)

XIII. Public Notice

Pursuant to 15A NCAC 2Q .0521, a notice of the draft Title V Operating 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.

XIV. Recommendations

The initial Title V application for JELD-WEN Fiber of North Carolina, Inc. has been reviewed by the DAQ to determine compliance with all procedures and requirements under 15A NCAC 2Q .0500 and 40 CFR Part 70. The DAQ has made a preliminary determination that the facility is complying or will achieve compliance as specified in the draft permit with all applicable requirements. Therefore, the DAQ is proposing to issue the Title V Operating Permit upon completion of the public comment period and the EPA review.

During the public comment period the DAQ received request to hold a public hearing prior to the issuance of the Title V permit. The hearing was June 27, 2002 and the recommendations of the hearing officer and the Acting Division Director (attached) were incorporated into the permit.