STANDARD air contaminant discharge permit

review report

Department of Environmental Quality

**Source Information:**

|  |  |
| --- | --- |
| SIC | 2431, 4961 |
| NAICS | 321911, 221330 |

|  |  |
| --- | --- |
| Source Categories (Table 1 Part, code) | B, 71 |
| Public Notice Category | III |

**Compliance and Emissions Monitoring Requirements:**

|  |  |
| --- | --- |
| FCE | No |
| Compliance schedule | No |
| Unassigned emissions | Yes |
| Emission credits | No |
| Special Conditions | No |

|  |  |
| --- | --- |
| Source test [date(s)] | No |
| COMS | No |
| CEMS | No |
| PEMS | No |
| Ambient monitoring | No |

**Reporting Requirements**

|  |  |
| --- | --- |
| Annual report (due date) | 2/15 |
| Quarterly report (due dates) | No |

|  |  |
| --- | --- |
| Monthly report (due dates) | No |
| Excess emissions report | No |

**Air Programs**

|  |  |
| --- | --- |
| Synthetic Minor (SM) | Yes |
| SM -80 | Yes |
| NSPS (list subparts) | No |
| NESHAP (list subparts) | No |
| Part 68 Risk Management | No |
| CFC | No |
| NSR | No |
| PSD | No |
| RACT | No |
| TACT | No |

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PERMITTING

PERMITTEE IDENTIFICATION

# JELD-WEN, inc. dba JELD-WEN owns and operates a wood products facility located within the Bend city limits on the north side of the city.

PERMITTING ACTION

# The proposed permit is a new Standard Air Contaminant Discharge Permit (ACDP) for an existing source. The Standard ACDP will replace the current Title V permit because the emissions have been reduced to the point that a Title V permit is no longer required.

OTHER PERMITS

# No other permits have been issued or are required by the DEQ for this source. However, the Department does recognize this source as a conditionally exempt small quantity generator of hazardous waste.

ATTAINMENT STATUS

# The source is located in an area that is meeting the ambient air quality standards for all pollutants.

# The source is located within 100 kilometers of the following Class I air quality protections areas: Diamond Peak, Mt. Jefferson, Mt. Washington and Three Sisters Wilderness Areas.

source description

overview

# The facility is an integrated group of two manufacturing and assembly operations on the same property. The input to the facility consists of pre-dried lumber, cutstock, millwork, wood veneer, and other components for the fabrication and assembly of doors and windows. Output from the two operations includes cutstock, millwork, wood veneer, wood residuals, doors and windows. All of the activities at the plant fall under the single Standard Industrial Classification (SIC) code for millwork; however, the plant is currently organized into two operational centers as follows:

Millwork Manufacturing - Bend (MMB) mills, or machines cutstock from on-site or outside vendors, producing millwork that is used by others to make windows and doors. To prevent premature degradation of the window and door components, raw material (cutstock) is treated in a pressure vessel using a proprietary process that uses a water-based solution instead of a solvent-based solution for treating wood.

Window Division - Bend (WDB) assembles windows using materials from MMB and other vendors. Wood residuals are generated from sawing and routing. A primer line coats some of the window parts with primer prior to assembly.

Wood residuals (the by-products from ripping, sawing, machining, and sanding of the wood) from MMB and WDB are collected and transported pneumatically to two truck loadout bins. Any unusable wood pieces are hogged or chipped and pneumatically transported into the truck loadout bins. All of the wood residuals are trucked off site for sale to others or disposal at qualified facilities.

process and control devices

# The process units, devices, activities and pollution control devices at the facility include the following:

| **Devices Description** | **Pollution Control Device** | **Current Operating Status** |
| --- | --- | --- |
| Cyclone 1 - Cyclone farm/blower 1 | Water Spray | Operating |
| Cyclone 2 - Cyclone farm/blower 1 | Water Spray | Operating |
| Cyclone 3 - Cyclone farm/blower 2 | Water Spray | Operating |
| Cyclone 4 - Cyclone farm/blower 2 | Water Spray | Operating |
| Cyclone 5 - Cyclone farm/blower 3 | Water Spray | Operating |
| Cyclone 6 - Cyclone farm/blower 3 | Water Spray | Operating |
| Cyclone 7 - Cyclone farm/blower 4 | Water Spray | Operating |
| Cyclone 8 - Cyclone farm/blower 4 | Water Spray | Operating |
| Cyclone 9 - Cyclone farm/blower 5 | Water Spray | Shutdown |
| Cyclone 10 - Cyclone farm/blower 5 | Water Spray | Shutdown |
| Cyclone 11 - Cyclone farm/blower 6 | Water Spray | Shutdown |
| Cyclone 12 - Cyclone farm/blower 6 | Water Spray | Shutdown |
| Cyclone 19/Baghouse 26 | Murphy Rogers Baghouse | Operating |
| Baghouse 25 | Baghouse 25 | Operating |
| Cyclone 28/Baghouse 21 | Murphy Rogers Baghouse | Shutdown |
| Cyclone 29/Baghouse 22 | Murphy Rogers Baghouse | Operating |
| Cyclone 33A - on roof | None | Shutdown |
| Cyclone 37/Baghouse 37B – truck bins | Custom Made Murphy Rogers Baghouse | Operating |
| Baghouse 133 | Carter Day | Operating |
| East Truck Bin | Partially Enclosed | Operating |
| West Truck Bin | Partially Enclosed | Operating |
| Electric Veneer Dryer | None | Operating |
| Dehumidification Kilns | None | Operating |
| Natural Gas Fired Boiler | None | Operating |
| Pressure Treatment Vessel | None | Operating |
| Spray Paint Booths | None | Operating |

**Material Handling** - Cyclones 1-6 were installed in 1972 and collect wood residuals from MMB machining. Cyclones 7 and 8 were installed in 1972 and collect wood residuals from MMB machining, finish, fingerjoint and cutlines. Cyclones 9-12 were installed in 1974 and are currently shutdown. Cyclone19 was installed in 1978 and transfers wood residuals into the east truck bin. Baghouse 21 is connected to Cyclone 28 and is also shutdown. Baghouse 22 collects material for the laminating machines at MMB. Cyclone 33A was installed in 1974 and is currently shutdown. Cyclone 28 was installed in 1978 and is currently shutdown. Cyclone 37/Baghouse 37B are connected to the east and west truck bins. Baghouse 133 is used to collect fines from the wood router at WDB.

**Note:** The cyclones and baghouses that are not currently operating (C9-12, C28, and C33A/BH33B) may be used during the next permit term. However, no exact use has been identified at this time. Cyclones C13, C14 and C15 are closed loops without any emission point. There is no cyclone C16 or C18. In addition, cyclone 17, cyclone 27 and target box 48A that were identified in previous permits have been removed.

**Truck loadouts** - There are two truck bins (East and West) that handle wood waste residuals.

**Veneer Drying** - This emissions unit is operated by MMB and consists of one small veneer dryer made by Northwest Electric. The dryer has a single deck with four zones. The veneer dryer is electrically heated. The veneer dryer was installed in 1980.

**Facility wide VOC emissions** - Fugitive VOC emissions from chemicals, including paints, primers, patching compounds, and sap stain-preventing compound are used by each of the two operation centers at the facility.

**Wood dehumidification kilns** – Each kiln is a dehumidification type that uses electricity to heat the kiln air and then passes the kiln air through a condenser to remove moisture. The heat removed by the condenser is used to reheat the air, thus conserving energy. The kilns will reach a temperature of 160°F. The kilns will typically operate as a closed loop, but may vent to atmosphere if necessary to maintain a lower kiln temperature. The condenser is not considered a control device for VOC. Emissions include the VOCs associated with re-drying wood that has been previously kiln-dried. Each kiln can hold about 25,000 board feet.

**Natural gas-fired boiler** – The heat input capacity of the boiler is 8.4 million Btu/hr. The boiler is used to make steam for the pressure treatment vessel.

Special Conditions

# Conditions 2.1 and 2.2 of the permit are requirements established in ACDP 09-0042 that authorized the construction and operation of the pressure treatment system that has replaced the original dip tank system.

compliance

# During the last permit term, the facility was inspected on 9/14/02, 9/30/04, 9/22/06, 9/24/08, 9/29/10 and 3/20/12 and was found to be in compliance with permit conditions.

# The Department received two complaints on 12/7/11 of wood fallout and dust coming from the JELD-WEN facility. DEQ staff contacted JELD-WEN and was informed that the wood fallout was coming from cyclone 7 that had plugged up. JELD-WEN fixed cyclone 7 on 12/9/11.

# No enforcement actions have been taken against this source since the last permit renewal.

emissions

# Proposed PSEL information:

|  |  |  |  |
| --- | --- | --- | --- |
| **Pollutant** | **Baseline Emission Rate (tons/yr)** | **Netting Basis** | **Plant Site Emission Limits (PSEL)** |
| **Previous (tons/yr)** | **Proposed (tons/yr)** | **Previous PSEL (tons/yr)** | **Proposed PSEL (tons/yr)** | **PSEL Increase (tons/yr)** |
| PM | 16.5 | 16.5 | 16.5 | 24 | 24 | 0 |
| PM10 | 10.7 | 10.7 | 10.7 | 14 | 14 | 0 |
| PM2.5 | NA | NA | 10.7 | NA | 11 | NA |
| SO2 | 1 | 1 | 1 | 39 | See Below | 0 |
| NOx | 1 | 1 | 1 | 39 | 39 | 0 |
| CO | 1 | 1 | 1 | 99 | 99 | 0 |
| VOC | 124 | 124 | 124 | 306 | 99 | -207 |
| GHG (CO2e) | 744 | NA | 744 | NA | 74,000 | NA |

## The baseline emission rates for all pollutants except PM2.5 and GHG were established in previous permitting actions and there is no new information that effects the previous determinations.

## PM2.5 and GHG are newly regulated pollutants. The rules do not require establishing a baseline emission rate for PM2.5.

## The baseline emission rate for GHG is equal to the actual emissions during the period of August 2007 through July 2008 in accordance with the definition of “baseline emission rate” in OAR 340-200-0020. The baseline period and amount of natural gas burned during the baseline period was provided by the permittee.

## For all pollutants other than PM2.5, the netting basis is equal to the baseline emission rate.

## The netting basis for PM2.5 is equal to the PM2.5 fraction of the PM10 PSEL times the PM10 netting basis in accordance with the definition of “netting basis” provided in OAR 340-200-0220. The PM2.5 fraction of the PM10 is assumed to be 1. Therefore, the PM2.5 netting basis is equal to the PM10 netting basis.

## The previous PSEL is the PSEL in the current Title V permit.

## The Standard ACDP will not include a PSEL for SO2 because the potential emissions are less than the de minimis level of 1 ton per year.

## The VOC PSEL is being reduced to 99 tons to ensure that the source is no longer subject to the Title V permitting program. Actual emissions are estimated to be less than the PSEL, but the netting basis is still equal to 124 tons (see discussion of unassigned emissions below).

## The PSEL for GHG is set at the generic PSEL level in accordance with OAR 340-222-041(1). Actual emissions in 2011 were only about 650 tons.

## The basis for the PSELs and GHG baseline emission rate is provided in the emission detail sheets at the end of this review report.

## The PSEL is a federally enforceable limit on the potential to emit.

Unassigned emissions

# Since the netting basis for VOC is equal to 124 tons and the PSEL is set at 99 tons, there are 25 tons of unassigned emissions. However, in order for the source to use the unassigned emissions, the permittee would have to obtain a Title V permit.

significant emission rate analysis

# For each pollutant, the proposed Plant Site Emission Limit is less than the Netting Basis plus the significant emission rate, thus no further air quality analysis is required.

Title V major source applicability

criteria pollutants

# A major source is a facility that has the potential to emit 100 tons/yr or more of any criteria pollutant. For greenhouse gases, the source must also have the potential to emit 100,000 tons/year or more of CO2e to be a major source. This facility is not a major source of criteria pollutant emissions. Prior to this permitting action, the source had the potential to emit VOC above 100 tons per year and was issued a Title V Operating permit. However, due to the installation of the pressure treatment process that replaced the dip tank preservative process, the VOC potential emissions are now less than 100 tons per year, so the source is no longer required to have a Title V permit.

Hazardous air pollutants

# A major source is a facility that has the potential to emit 10 tons/yr or more of any single HAP or 25 tons/yr or more of combined HAPs. This source is not a major source of hazardous air pollutants. The HAP Emission Detail Sheets are provided at the end of this report.

additional requirements

nsps applicability

# There are no sources at this facility for which federal New Source Performance Standards (NSPS) have been promulgated. The natural gas fired boiler has a heat input capacity less than 10 million Btu/hr hour so it is not subject to 40 CFR Part 60, Subpart Dc.

neshaps/mact applicability

# There are no sources at this facility for which National Emission Standards for Hazardous Air Pollutants (NESHAP) have been promulgated. Natural gas fired boilers are not subject to the NESHAP for boilers located at area sources (40 CFR, Part 63, Subpart JJJJJJ).

RACT applicability

# The RACT rules are not applicable to this source because it is not in the Portland AQMA, Medford AQMA or Salem SKATS.

tact applicability

# The source is meeting the states TACT/Highest and Best Rules for the existing cyclones because the emissions are either below 10 tons per year or the cyclones have baghouses.

public notice

# Pursuant to OAR 340-216-0066(4)(a)(A), issuance of Standard Air Contaminant Discharge Permits require public notice in accordance with OAR 340-209-0030(3)(c), which requires DEQ to provide notice of the proposed permit action and a minimum of 35 days for interested persons to submit written comments. **The public notice was issued on May 22, 2012 and the comment period ended on June 26, 2012. No comments were received in response to the public notice and no changes have been made to the permit.**

Emission Detail Sheets

**PM/PM10/PM2.5**

|  |  |  |  |
| --- | --- | --- | --- |
| **Emissions Device** | **Annual Throughput** | **Emission Factors** | **Emissions (tons/yr)** |
| **PM** | **PM10** | **PM2.5** | **Units** | **PM** | **PM10** | **PM2.5** |
| Cyclone 1 | 811 | BDT | 0.5 | 0.25 | 0.25 | lb/BDT | 0.20 | 0.10 | 0.10 |
| Cyclone 2 | 811 | BDT | 0.5 | 0.25 | 0.25 | lb/BDT | 0.20 | 0.10 | 0.10 |
| Cyclone 3 | 787 | BDT | 0.5 | 0.25 | 0.25 | lb/BDT | 0.20 | 0.10 | 0.10 |
| Cyclone 4 | 787 | BDT | 0.5 | 0.25 | 0.25 | lb/BDT | 0.20 | 0.10 | 0.10 |
| Cyclone 5 | 682 | BDT | 0.5 | 0.25 | 0.25 | lb/BDT | 0.17 | 0.09 | 0.09 |
| Cyclone 6 | 682 | BDT | 0.5 | 0.25 | 0.25 | lb/BDT | 0.17 | 0.09 | 0.09 |
| Cyclone 7 | 642 | BDT | 0.5 | 0.25 | 0.25 | lb/BDT | 0.16 | 0.08 | 0.08 |
| Cyclone 8 | 642 | BDT | 0.5 | 0.25 | 0.25 | lb/BDT | 0.16 | 0.08 | 0.08 |
| Cyclone 9 | 0 | BDT | 0.5 | 0.25 | 0.25 | lb/BDT | 0.00 | 0.00 | 0.00 |
| Cyclone 10 | 0 | BDT | 0.5 | 0.25 | 0.25 | lb/BDT | 0.00 | 0.00 | 0.00 |
| Cyclone 11 | 1708 | BDT | 0.5 | 0.25 | 0.25 | lb/BDT | 0.43 | 0.21 | 0.21 |
| Cyclone 12 | 0 | BDT | 0.5 | 0.25 | 0.25 | lb/BDT | 0.00 | 0.00 | 0.00 |
| Cyclone 13 | 4273 | BDT | 0.5 | 0.25 | 0.25 | lb/BDT | 1.07 | 0.53 | 0.53 |
| Cyclone 19/BH26 | 25 | BDT | 0.04 | 0.04 | 0.04 | lb/BDT | 0.00 | 0.00 | 0.00 |
| Baghouse 22 | 0 | BDT | 0.04 | 0.04 | 0.04 | lb/BDT | 0.00 | 0.00 | 0.00 |
| Baghouse 25 | 1004 | BDT | 0.04 | 0.04 | 0.04 | lb/BDT | 0.02 | 0.02 | 0.02 |
| Cyclone 28/BH21 | 0 | BDT | 0.04 | 0.04 | 0.04 | lb/BDT | 0.00 | 0.00 | 0.00 |
| Cyclone 33A | 167 | BDT | 0.5 | 0.25 | 0.25 | lb/BDT | 0.04 | 0.02 | 0.02 |
| Baghouse 37B | 15 | BDT | 0.04 | 0.04 | 0.04 | lb/BDT | 0.00 | 0.00 | 0.00 |
| Baghouse 133 | 618 | BDT | 0.04 | 0.04 | 0.04 | lb/BDT | 0.01 | 0.01 | 0.01 |
| Truck Loadout | 13493 | BDT | 0.1 | 0.1 | 0.1 | lb/BDT | 0.67 | 0.67 | 0.67 |
| Veneer Dryer | 251542 | ft2 | 8.0 | 8.00 | 8.00 | lb/10,000 ft2 | 0.10 | 0.10 | 0.10 |
| Boiler B3 | 4269592 | ft3 | 7.6 | 7.6 | 7.6 | lb/106 ft3 | 0.27 | 0.27 | 0.27 |
| **Total** | **4.1** | **2.6** | **2.6** |

**Gaseous Pollutants:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Emissions Unit** | **Annual Fuel or Throughput** | **Pollutant** | **Emission Factor** | **Emissions (tons/yr)** |
| Boiler | 72,141,176 | ft3 | SO2 | 0.6 | lb/106 ft3 | 0.02 |
| NOx | 94 | lb/106 ft3 | 3.4 |
| CO | 84 | lb/106 ft3 | 1.4 |
| VOC | 5.5 | lb/106 ft3 | 0.2 |
| Veneer Dryer | 251542 | ft2 | VOC | 8 | lb/10000 ft2 | 0.1 |
| Dehumidification Kilns | 50,000,000 | BF | VOC | 0.73 | lb/MBF | 18.3 |

**Greenhouse Gases (40 CFR Part 98):**

**Current Maximum Projected Emissions:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **GHG** | **Emission Factor (kg/MMBtu)** | **Natural Gas Burned****(cubic feet)** | **Natural Gas Burned (MMBtu)\*** | **Global Warming Factor** | **Metric Tons** | **Short Tons** |
| CO2 | 53.02 | 72,141,176 | 74,161 | 1 | 3,932.02 | 4,334.31 |
| N2O | 0.001 | 310 | 22.99 | 25.34 |
| CH4 | 0.0001 | 21 | 0.16 | 0.17 |
| **Total (CO2e)** | **3,955** | **4,360** |

\*The heat input is based on the default higher heating value of natural gas provided in 40 CFR Part 98, Table C-1 (1,028 Btu/cubic foot).

**Baseline Emission Rate (August 2007 through July 2008):**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **GHG** | **Emission Factor (kg/MMBtu)** | **Natural Gas Burned****(cubic feet)** | **Natural Gas Burned (MMBtu)\*** | **Global Warming Factor** | **Metric Tons** | **Short Tons** |
| CO2 | 53.02 | 12,306,401 | 74,161 | 1 | 670.75 | 739.38 |
| N2O | 0.001 | 310 | 3.92 | 4.32 |
| CH4 | 0.0001 | 21 | 0.03 | 0.03 |
| **Total (CO2e)** | **675** | **744** |

\*The heat input is based on the default higher heating value of natural gas provided in 40 CFR Part 98, Table C-1 (1,028 Btu/cubic foot).

**VOC & HAP Material Balance:**

A variety of chemicals and coatings that contain small amounts of VOC and HAP are used in both manufacturing and assembly operations at the facility. JELD-WEN maintains records of the amount of each material used, the VOC and HAP content, and calculates emissions based on the material balance equation provided in Condition 4.4 of the permit. In 2011, the total VOC emissions were 2.88 tons and the total HAP emissions were 0.04 tons, mostly ethylene glycol.