

**COMMONWEALTH OF VIRGINIA**  
**Department of Environmental Quality**  
**Valley Regional Office**

**STATEMENT OF LEGAL AND FACTUAL BASIS**

Masco Cabinetry, LLC  
Shenandoah County, Virginia  
Permit No. VRO81062

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Masco Cabinetry has applied for renewal of the Title V Operating Permit for its wood cabinets manufacturing facility in Shenandoah County, Virginia. The Department has reviewed the application and has prepared a Title V Operating Permit.

Engineer/Permit Contact:

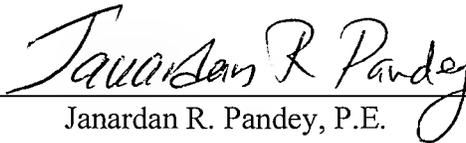


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Date:

8/15/2014

Air Permit Manager:



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8/15/14

## **FACILITY INFORMATION**

### Permittee

Masco Cabinetry, LLC  
P. O. Box 719  
Mount Jackson, Virginia 22842

### Facility

Masco Cabinetry – Merillat Mount Jackson Plant  
State Route 720 at Interstate 81  
Shenandoah County, Virginia  
Plant ID No. 51-171-0063

## **SOURCE DESCRIPTION**

Facility Description: NAICS Code 337110 (Wood Kitchen Cabinet and Countertop Manufacturing) and SIC Code 2434 (Wood Kitchen Cabinets)

Masco Cabinetry, LLC (referred to herein as Masco, the company, or the permittee) manufactures wood cabinet components for kitchen and bath cabinets. The cabinets are made using a manufacturing process that involves several key stages with regulated emission units in each phase. The first step is to air dry the wood that is received from various lumber mills for up to 50 days to achieve a moisture content of 15 to 20 percent. The wood then enters one of the two drying kilns (DK1 or DK2) to lower the moisture content below 10 percent. Once the wood is dry, it moves through woodworking operations (W1) where it is cut, shaped, and sanded into the desired design based on the cabinet specifications. All woodworking operations have particulate matter emissions which are controlled by an extensive baghouse system that is completely enclosed.

Following the woodworking operations, some of the cabinet components enter gluing operations where lumber is glued to form panels, frames, or doors. Lastly, the cabinet will enter the finishing operations (F1), which are regulated by 40 CFR 63, Subpart JJ. Finishing operations involve various spray booths that are significant sources of volatile organic compounds (VOC's) and hazardous air pollutants (HAP's). The spray booths control devices include dry filters and a combination of dry filters and water wash along with a regenerative thermal oxidizer (RTO) on-site. At the final stage, the cabinets go through a sealer/sander function where particulate matter emissions are controlled by the baghouse system. The finished cabinets then enter a steam heated drying oven to cure before being packed and shipped.

In addition to the cabinet making process described above, Masco also produces a rigid thermo foil (RTF) product. The RTF production process is accomplished in two ways. In both scenarios, medium density fiber board (MDF) is delivered to the facility with a laminate already applied on one side. The boards are then machined to produce the appearance of a center panel with a decorative profile around the outer edge. At this point the process splits. In the first

scenario, the fabricated MDF board is covered with a RTF product that is pre-coated with a heat-activated adhesive. The cabinet is then placed in a heated membrane press where using high heat and pressure, the RTF product is secured to the surface of the MDF board. The excess RTF is trimmed and the cabinet is readied for shipping. In the second scenario, the fabricated MDF board is put in an adhesive spray booth and coated with heat-resistant glue and hardener before the RTF material (without a pre-coated adhesive) is attached. The cabinet is then placed in the membrane press as described above, trimmed, and readied for shipping. The second scenario is necessary for customers who desire a heat resistant replacement door product.

All operations described above are supported by two boilers (B1 & B2) that supply heat for the wood drying kilns, finishing operations, and general plant heating. Boiler 1 is fired using wood dust that is collected by the baghouse system and is the primary boiler for the facility. Boiler 2 is used as a backup boiler and is fired with natural gas or distillate oil. Both boilers will be subject to 40 CFR 63, Subpart DDDDD starting January 31, 2016. The facility also houses two emergency fire water pumps (FP1 & FP2) that are regulated by 40 CFR 63, Subpart ZZZZ.

The facility is a Title V major source of volatile organic compounds (VOC) and total hazardous air pollutants (total HAP or THAP). This source is located in an attainment area for all pollutants, and is a Prevention of Significant Deterioration (PSD) major source. The facility was initially permitted under a PSD permit issued on December 10, 1984, and there have been numerous amendments and modifications to this permit since then. The current PSD permit was approved November 18, 2002, with amendments dated February 8, 2006; February 22, 2008; January 12, 2009; May 26, 2009; August 12, 2010; January 28, 2011; and February 15, 2011. For the purposes of this document, the current PSD permit will be referred to as the "PSD permit approved November 18, 2002, as amended February 15, 2011."

## **COMPLIANCE STATUS**

A full compliance evaluation of this facility, including a site visit, was most recently conducted on June 20, 2013. In addition, all reports and other data required by permit conditions or regulations, which are submitted to the DEQ, are evaluated for compliance. Based on these compliance evaluations, the facility has not been found to be in violation of any state or federal applicable requirements at this time.

## **CHANGES TO THE EXISTING TITLE V PERMIT**

There are two primary changes to the PSD permit since the last time this Title V permit was renewed: (i) The PSD permit was changed to remove a baghouse unit (BH8) since it was collecting a small percentage of the particulate matter from the finishing operations and it was proven that fabric filter BH6 could handle the additional load. (ii) The PSD permit and Title V permit were amended due to additional production of RTF product at the facility. The increase in RTF production necessitated the construction of an additional spray booth and also an increase in throughput for adhesives and hardeners. A summary of all substantive or otherwise

noteworthy revisions to the Title V permit since the significant amendment dated April 27, 2011 follows.

- Global Changes: All references to the facility's PSD permit are changed from "11/18/02 Permit as amended 5/29/09" to "11/18/02 Permit as amended 2/15/11" to reflect the most recent amendment to the PSD permit. Minor changes to make the general conditions consistent with current agency boilerplate.
- Facility Information: Facility address was updated based on the permit application and the Facility Description was expanded to be more inclusive of operations.
- Emission Units: Emission unit list was updated to include the Fire water pumps since they are subject to MACT ZZZZ.
- Fuel Burning Equipment Requirements – Units B1 & B2: Emission limit Conditions were expanded to match the PSD permit approved November 18, 2002, as amended February 15, 2011. Condition 48 of the PSD permit was added to the limitations from recordkeeping to maintain consistency across all sections of the permit. Lastly, Conditions were added that reference MACT DDDDD. The compliance date for the existing boilers is January 31, 2016.
- Fuel Burning Equipment Requirements – Units FP1 & FP2: The requirements of 40 CFR 63 (MACT) Subpart ZZZZ for the existing diesel fire water pumps were added.
- Woodworking Equipment Requirements – Unit W1: The DEQ Title V boilerplate was updated since the last renewal of this permit to include new standard CAM Conditions; therefore the CAM Conditions for the fabric filters were added/updated/removed as necessary to more closely match the current boilerplate. Pressure drop monitoring was also expanded to include daily observations.
- Finishing Operation Requirements – Unit F1: The DEQ Title V boilerplate was updated since the last renewal of this permit to include new standard CAM Conditions; therefore the CAM Conditions for the RTO were added/updated/removed as necessary to more closely match the current boilerplate. The notification requirements for the RTF adhesive spray booth were removed since they have been satisfied.
- Facility Wide Conditions for Hazardous Air Pollutant Emissions: MACT Subpart JJ was updated November 21, 2011 to add requirements for formaldehyde emissions, changed the work practice standards regarding approved air spray guns, and added a new continuing compliance option that tests the viscosity of the coating being used. All of these changes have been incorporated into the current Title V renewal.

**EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION**

The emissions units at this facility consist of the following:

**Table I: Significant Emission Units and Control Devices**

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date**
<b>Fuel Burning Equipment</b>							
B1	BS1	Industrial Wood-fired Boiler Model 3-3900-150-HRT (1987)	28.5 MMBtu/hr	Zurn Multicyclone	M1	PM PM-10	11/18/02, as amended 2/15/11
B2	BS2	Superior Boiler Works (1987)	14.7 MMBtu/hr	---	---	---	11/18/02, as amended 2/15/11
FP1	FPS1	Caterpillar Diesel Fire Water Pump (1986 or earlier) Model 3208-DINA	121 HP	---	---	---	---
FP2	FPS2	Caterpillar Diesel Fire Water Pump (1986 or earlier) Model 3306	287 HP	---	---	---	---
<b>Woodworking Operations</b>							
W1	BHS1-BHS4	Miscellaneous Woodworking Equipment	Various	Pneumafil fabric filters Model 13.5-448-10	BH1-BH4	PM PM-10	11/18/02, as amended 2/15/11
W1	BHS5	Miscellaneous Woodworking Equipment	Various	Pneumafil fabric filter Model 15-470-12	BH5	PM PM-10	
W1	BHS6	Miscellaneous Woodworking Equipment	Various	Waltz-Holst Fabric Filter Model 12-456-7045	BH6	PM PM-10	
W1	BHS7	Waste Wood Loadout System	Various	Pneumafil fabric filter Model 11.5-316-8	BH7	PM PM-10	

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date**
<b>Finishing Operations</b>							
F1	FS1- FS11, BHS6, OS1- OS26	One Automatic Sealer/Sander; One Stand Alone Hand Spray Booth; One RTF Adhesive Spray Booth; and One Finishing Line Consisting of One Sap Stain Booth, Two Staining Booths, One Sealer Booth, and One Top Coat Spraying Booth with Drying Ovens and Microprocessor Controlled Automatic Spraying and Air-assisted Airless Spraying Guns	Various	Sealer Booth: Regenerative Thermal Oxidizer (RTO) Spray booths: Water Wash and/or Dry Filter Automatic Sealer/Sander: Pneumafil Fabric Filter Model 8.5-156-10	F01- F06, BH6, RTO	RTO: VOC All Else: PM PM-10	11/18/02, as amended 2/15/11
<b>Kilns</b>							
DK1, DK2		Dry kilns		---	---	---	---

\*The Size/Rated capacity is provided for informational purposes only, and is not an applicable requirement.

\*\*The PSD Permit was issued on 11/18/2002 and amended on 2/8/2006, 2/22/2008, 1/12/2009, 5/26/2009, 8/12/2010, 1/28/2011, and 2/15/2011. It will be referred to herein as "11/18/02 Permit as amended 2/15/11).

**EMISSIONS INVENTORY**

A copy of the 2013 pollutant emissions report is included as Attachment A. Emissions are summarized in the following tables.

**Table II: 2013 Actual Facility-wide Criteria Pollutant Emissions**

<b>2013 Criteria Pollutant Emissions in Tons/Year (TPY)*</b>						
<b>Emission Unit</b>	<b>VOC</b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM-10</b>	<b>PM-2.5</b>	<b>NO<sub>x</sub></b>
<b>Boilers (B1 &amp; B2)</b>	2.38	6.84	0.34	3.42	4.60	1.21
<b>Woodworking (W1)**</b>	0.24	--	--	3.31	2.81	--
<b>Finishing (F1)</b>	411.75	--	--	0.26	0.65	--
<b>TOTALS</b>	<b>414.37</b>	<b>6.84</b>	<b>0.34</b>	<b>6.99</b>	<b>8.06</b>	<b>1.21</b>

\*Values in emissions report are rounded

\*\*Woodworking emission values also include emissions from the Dry Kilns (DK1 & DK2)

**Table III: 2013 Actual Facility-wide Hazardous Air Pollutant Emissions**

<b>Pollutant</b>	<b>Emissions (TPY)</b>
Total HAPs	109.88

## **EMISSION UNIT APPLICABLE REQUIREMENTS – Boilers (B1 and B2)**

### **Limitations**

The following limitations are state BACT requirements from the PSD permit approved November 18, 2002, as amended February 15, 2011. The condition numbers specified below are from the 2011 permit; the most recent copy of the permit is included as Attachment B.

- Condition 3: Particulate emissions from the Industrial wood-fired boiler (B1) shall be controlled by a multicyclone.
- Condition 4: Emission limits for criteria pollutants from the Industrial wood-fired boiler (B1).
- Condition 5: Emission limits for criteria pollutants from the Superior boiler (B2).
- Condition 6: Approved fuels for the Industrial wood-fired boiler (B1) are waste wood and sawdust.
- Condition 7: Approved fuels for the Superior boiler (B2) are natural gas and distillate oil.
- Condition 8: Limit on sulfur content for distillate oil for the Superior boiler (B2).
- Condition 10: Visible emission limit for the Industrial wood-fired boiler (B1) and the Superior boiler (B2).
- Condition 48: Requires the development of a maintenance schedule, an inventory of spare parts for air pollution control equipment, written operating procedures for air pollution control equipment, and for operators to be trained in the proper operation of that equipment.

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

9 VAC 5-50-20 E, Compliance. This requires proper operation and maintenance of any affected facility.

### **Monitoring**

The monitoring requirements in Condition 3 and Attachment B of the PSD permit approved November 18, 2002, as amended February 15, 2011 have been modified to meet Part 70 requirements.

The permit requires proper operation of the boiler in conjunction with the operation of a

multicyclone to comply with the particulate matter and the visible emission requirements for the Industrial wood-fired boiler (B1).

Periodic monitoring for the visible emission limit on the Industrial wood-fired boiler (B1) includes a visible emission observation of the boiler stack. The visible emission observation will include a determination of the presence of visible emissions. If visible emissions are observed, an EPA Method 9 (40 CFR Part 60, Appendix A) visible emission evaluation (VEE) will be conducted unless the condition is corrected in a timely manner such that no visible emissions are present. The cause and corrective measures taken are to be recorded. For each VEE conducted, a minimum of six minutes of observation is required. If any of the observations exceed the applicable opacity limit, the observation period will continue for a total of 60 minutes of observation. If excess emissions are expected for greater than one hour, DEQ malfunction procedures shall be implemented.

The multicyclone shall be equipped with a device to continuously measure the differential pressure drop across the multicyclone. An annual internal inspection on the multicyclone is required to ensure structural integrity.

Equations for calculating actual annual particulate emissions (PM and PM-10) for the Industrial wood-fired boiler (B1) were developed for the PSD permit (see Attachment B of the permit approved November 11, 2002, as amended February 15, 2011) and are included as a Condition in the Title V permit. Annual emissions will be calculated on a monthly basis. These calculations provide the basis for determining compliance with the annual particulate emission limits for the Industrial wood-fired boiler (B1).

All other actual emissions from the operation of the Industrial wood-fired boiler (B1) will be calculated using the following equation:

$$E = F \times \left( \frac{C}{W} \right) \dots\dots\dots\text{Equation 1}$$

Where:

- E = Emission rate (lb/time period)
- F = Pollutant-specific emission factors as follows:
  - SO<sub>2</sub> = 0.15 lb/ton waste wood<sup>1</sup>
  - CO = 4.00 lb/ton waste wood<sup>1</sup>
  - NO<sub>x</sub> = 0.68 lb/ton waste wood<sup>1</sup>
  - VOC = 1.40 lb/ton waste wood<sup>1</sup>
- C = Capacity of the boiler (MM Btu/time period)
- W = BTU value of waste wood<sup>1</sup> (16.8 MM Btu/ton)

<sup>1</sup>Waste wood is defined as internally produced milled wood from the manufacturing process.

Short term and annual limits other than particulate matter for the Industrial wood-fired boiler (B1) are based on the full rated capacity of the boiler. Therefore, if the boiler is operated at capacity or below, there should not be a violation of the hourly or annual emission rates.

Actual emission from the operation of the Superior boiler (B2) will be calculated using the following equations:

For natural gas combustion:

$$E = F \times N \quad \text{.....Equation 2}$$

Where:

E = Emission Rate (lb/time period)  
F = Pollutant specific emission factors as follows:

PM = 6.2 lb/MM ft<sup>3</sup>  
PM-10 = 6.2 lb/MM ft<sup>3</sup>  
SO<sub>2</sub> = 0.6 lb/MM ft<sup>3</sup>

N = Natural gas consumed (MM ft<sup>3</sup>/time period)

For distillate oil combustion:

$$E = F \times O \quad \text{.....Equation 3}$$

Where:

E = Emission Rate (lb/time period)  
F = Pollutant specific emission factors as follows:

PM = 2.0 lb/1000 gal  
PM-10 = 1.0 lb/1000 gal  
SO<sub>2</sub> = 143.6\*S lb/1000 gal (S = weight percent sulfur)

O = Distillate oil consumed (1000 gal/time period)

The short term and annual emission limits established for the Superior boiler (B2) are based on the full capacity of the boiler. Therefore, if the boiler is operated at capacity or below, there should not be a violation of the hourly or annual emission rates. The emission limits take the worst case between the two fuels. Compliance with the emission limit established for SO<sub>2</sub> is demonstrated by burning distillate oil with a sulfur content limit of 0.34% by weight or less as specified in Condition 8 the PSD permit approved November 18, 2002, as amended February 15, 2011.

The Superior boiler (B2) has a VEE limit of 20% opacity and no additional monitoring is required for the VEE limit for this boiler.

### **Compliance Assurance Monitoring (CAM)**

Although boiler B1 has a multicyclone for the control of particulate emissions, CAM does not apply because the uncontrolled particulate emissions are less than 100 tons/year (TPY). Unit B2 has no add-on control equipment and is therefore not subject to CAM.

### **Recordkeeping**

The recordkeeping requirements in Condition 9 and 37 of the PSD permit approved November 18, 2002, as amended February 15, 2011, have been modified to meet Part 70 requirements.

The permit includes a requirement that fuel certifications accompany each shipment of distillate oil and show: the name of the fuel supplier, the date the shipment was received, the volume of oil received, a statement that the oil complies with ASTM specifications for numbers 1 or 2 fuel oil, and the sulfur content (in weight percent) of the oil. These fuel certifications shall be kept on file and current for the most recent five years.

The permittee is required to keep records of all monitoring and testing required by the permit. These records include:

The monthly and annual throughput of natural gas and distillate oil for the Superior boiler (B2);

DEQ approved pollutant-specific emission factors and equations;

The number of hours per day of operation of the Industrial wood-fired boiler (B1);

The hourly steam pressure of the Industrial wood-fired boiler (B1);

Multicyclone pressure drop readings;

Industrial wood-fired boiler (B1) visible emissions observation results including the date, time, and name of person performing each inspection, whether or not visible emissions were observed, and an EPA Method 9 observation record;

Multicyclone inspection results including the date, time, and name of person performing each inspection, a list of the items inspected, and any maintenance or repairs performed as a result of the inspection;

Monthly and annual cumulative emissions of PM and PM-10 from the Industrial wood-fired boiler (B1);

Results of all stack tests and visible emissions observations/evaluations; and  
Records of maintenance, operating procedures, and training.

All records shall be kept on site and be current for the most recent five years.

### **Testing**

The permit does not require source tests for the boilers (B1 & B2). The Department and EPA have the authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

### **Reporting**

No specific reporting has been included in the permit for boilers (B1 & B2).

### **Boiler MACT**

The boilers (B1 and B2) will be subject to 40 CFR Part 63, Subpart DDDDD, *National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heater* (Boiler MACT) starting January 31, 2016. To avoid having to comply with the boiler MACT, the permittee would have to have federally enforceable limits on its facility-wide emissions of hazardous air pollutants (HAPs) to below major-source thresholds prior to the first substantive compliance date of the Boiler MACT. Conditions have been added throughout the permit regarding the Boiler MACTs future applicability date of January 31, 2016.

### **Streamlined Requirements**

There are no streamlined requirements in this section of the permit.

## **EMISSION UNIT APPLICABLE REQUIREMENTS – Fire Water Pumps (FP1 and FP2)**

### **Limitations**

The facility operates two diesel fire water pumps (FP1 & FP2). Each fire water pump is powered by a compression ignition (CI) reciprocating internal combustion engine (RICE) and was constructed prior to 2006.

Due to the construction date of the fire water pumps (FP1 & FP2), the New Source Performance Standards, 40 CFR 60 Subpart IIII are not applicable; Subpart IIII standards apply to units constructed after June 2006. The fire water pumps are subject to the MACT requirements of 40 CFR 63 Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (MACT 4Z).

The MACT 4Z establishes maintenance requirements for the fire water pumps (FP1 and FP2) along with operational conditions that define emergency operation. After January 1, 2015 the fire water pumps (FP1 & FP2) have limitations on the diesel fuel that can be used if the units are contractually obligated to operate as part of an emergency load response program as outlined in the permit.

Being subject to MACT 4Z means that the permittee is also subject to 40 CFR 63 Subpart A, General Provisions. Any applicable limitations from the general provisions have also been included in the permit.

### **Monitoring and Recordkeeping**

The requirement for the installation of a non-resettable hour meter establishes compliance with the hour limitations specified in MACT 4Z. Also, the required maintenance and operating plans assure compliance with the MACT 4Z requirements to maintain and operate the fire water pumps (FP1 & FP2) to meet the work practice standards.

The recordkeeping requirements demonstrate compliance with MACT 4Z by requiring records of the hours of operation of the fire water pumps (FP1 & FP2) and also any maintenance conducted in order to demonstrate that each fire water pump is operated and maintained in accordance with its own maintenance plan.

MACT 4Z contains adequate monitoring and recordkeeping to meet Title V requirements. No additional monitoring or recordkeeping has been included in the Title V permit. Record retention is different from the MACT in that all 5 years of data needs to be kept on site to more closely match DEQ requirements.

### **Testing**

The permit does not require source tests. The Department and EPA have the authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

### **Reporting**

MACT 4Z establishes that if the emergency engines are operating during an emergency and it is not possible to shut down the engine in order to perform the management practice requirements in the permit, the management practice can be delayed until the emergency is over. Sources must report any failure to perform the management practice on the schedule required and the federal, state or local law under which the risk was deemed unacceptable.

There are additional reporting requirements for a facility under MACT 4Z if the fire water pumps (FP1 & FP2) are operated as part of an emergency load response program and these reports must be submitted annually.

### **Streamlined Requirements**

There are no streamlined requirements pertaining to the fire water pumps.

## **EMISSION UNIT APPLICABLE REQUIREMENTS – Woodworking Equipment (W1)**

### **Limitations**

The following limitations are state BACT requirements from the PSD permit approved November 18, 2002, as amended February 15, 2011. The condition numbers specified below are from the 2011 permit; a copy of the permit is enclosed as Attachment B.

- Condition 11: Particulate emissions from the woodworking equipment (W1) shall be controlled by fabric filters (BH1-BH7).
- Condition 12: Transfer of collected material from the woodworking equipment (W1) shall be controlled by fabric filter and/or a completely enclosed transfer system.
- Condition 13: Fugitive particulate emissions from the collection and transfer of collected wood waste shall be controlled by complete enclosure.
- Condition 15: Limit on the wood throughput for the manufacture of wood cabinets.
- Condition 17: Emission limits from the fabric filters associated with the woodworking equipment (W1).
- Condition 18: Visible emission limit for the fabric filter stacks associated with the woodworking equipment (W1).
- Condition 19: Fugitive visible emission limit for the woodworking equipment (W1).
- Condition 48: Requires the development of a maintenance schedule, an inventory of spare parts for air pollution control equipment, written operating procedures for air pollution control equipment, and for operators to be trained in the proper operation of that equipment.

### **Monitoring**

The monitoring requirement in Condition 14 of the PSD permit approved November 18, 2002, as amended February 15, 2011 has been modified to meet part 70 requirements.

There is a Monitoring requirement in the permit in addition to the CAM for Masco to maintain devices to continuously measure the pressure drop across each fabric filter for verification of the operational status. The device measuring pressure drop shall be observed daily and a log shall be kept by the permittee.

### **Compliance Assurance Monitoring (CAM)**

The wood working equipment meets all the requirements of CAM applicability since the uncontrolled emissions of particulate matter from the woodworking equipment (W1) exceed 100 TPY, the equipment is subject to emissions limits, and add on equipment (fabric filters (BH1-BH7)) is used to achieve those emission limits.

The full CAM plan for the fabric filters (Attachment A to the permit and Attachment C to the Statement of Basis) includes the following indicators:

Indicators 1 and 2 – Visible emissions were selected as a performance indicator because they are indicative of good operation and maintenance of the fabric filters. When the fabric filters are operating properly, there will not be any visible emissions from the exhaust. Any increase in visible emissions indicates reduced performance of a particulate matter control device; therefore, the presence of visible emissions is used as a performance indicator. An excursion is defined as the presence of visible emissions, unless the facility chooses to conduct a Method 9 VEE, where an excursion is defined as an average opacity of five percent during any one six-minute period in any hour. Regardless of which option the facility chooses, a Quality Improvement Plan (QIP) shall be developed if three excursions per each control device occur in a two-week period.

Indicator 3 – Monthly external filter inspections and annual internal filter inspections are required by qualified personnel. Inspections will alert the facility of bag deterioration and necessary corrective maintenance to obtain the proper control efficiencies in order to meet emission limitations. An excursion in this Indicator is defined as failure to perform the monthly or annual inspection of the filters.

Conditions 43-50, 52, and 56 are new standard Conditions that were added to the DEQ Title V boilerplate since the last renewal of this permit and are based on 40 CFR Part 64, *Compliance Assurance Monitoring*.

### **Recordkeeping**

The recordkeeping requirements in Condition 37 of the PSD permit approved November 18, 2002, as amended February 15, 2011, have been modified to meet Part 70 requirements.

The permittee is required to keep records of all monitoring and testing required by the permit. These records include:

Monthly and annual throughput of wood used for the manufacture of wood cabinets;

Daily pressure drop readings on each fabric filter;

Records required by the CAM plan including daily visible emissions observations on each stack, monthly and annual inspection logs, and records of excursions;

Results of all stack tests and visible emissions evaluations; and

Records of maintenance, operating procedures, and training.

All records shall be kept on site and be current for the most recent five years.

In addition to the limitations, monitoring, and recordkeeping established for the fabric filters (BH1- BH7) discussed above, the woodworking equipment (W1) is also subject to Compliance Assurance Monitoring (CAM) recordkeeping under 40 CFR Part 64.

### **Testing**

The permit does not require source tests for the woodworking equipment (W1). The permit contains a condition that if requested by DEQ, the permittee shall conduct a VEE for the fabric filters (BH1- BH7) to demonstrate compliance with the visible emission limits contained in this permit. The Department and EPA have the authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

### **Reporting**

As part of the CAM plan, the permittee shall submit CAM reports semi-annually with other required reports required by the general conditions. These reports shall include: a summary of information on excursions, a summary of information on monitor downtime incidents, and a description of actions taken to implement a QIP if necessary.

### **Streamlined Requirements**

The 5% opacity limit for the fabric filter stacks and the 10% opacity limit for the fugitive emission points are more stringent than the Virginia Administrative Code Standard for visible emissions, 9 VAC 5-50-80. Therefore, only the more stringent 5% and 10% opacities were included in the permit.

## **EMISSION UNIT APPLICABLE REQUIREMENTS - Finishing Operations (F1)**

### **Limitations**

The following limitations are state BACT requirements from the PSD permit approved November 18, 2002, as amended February 15, 2011. Please note that the condition numbers are from the 2011 permit; a copy of the permit is enclosed as Attachment B.

- Condition 20: Particulate emissions from each spray booth (F1), including emissions from the RTF production process, shall be controlled by either dry filters or a combination of water wash and dry filters.
- Condition 21: Particulate emissions from the automatic sealer sander (F1) shall be controlled by a fabric filter (BH6).
- Condition 22: VOC emissions from the finishing operation (F1) shall be controlled by the use of lower VOC finishes and/or routing VOC emissions to the RTO.
- Condition 23: VOC emissions from the RTF process are limited to 0.33 lb VOC/gal of glue and hardener used on a daily average.
- Condition 24: The RTO shall maintain a VOC destruction efficiency of at least 95.0%.
- Condition 25: The enclosure for the sealer booth shall have a capture efficiency of at least 95.0%.
- Condition 26: The RTO shall maintain a minimum combustion zone temperature determined by performance testing and a minimum residence time of 0.9 seconds.
- Condition 29: The approved fuel for the RTO is natural gas.
- Condition 30: VOC throughput limit for the finishing equipment (F1).
- Condition 31: Glue and hardener throughput limit for the RTF process.
- Condition 32: Emission limit for particulate matter and volatile organic compounds for the finishing operation (F1), including the RTF production process.
- Condition 34: Visible emissions limit from the RTO exhaust.
- Condition 35: Visible emissions limit for each finishing operation.
- Condition 36: Requires the permittee to continually seek new technology to include: selection and use of finishes with less photochemically reactive solvents,

spraying equipment and techniques with improved transfer efficiencies, and water-base coatings.

Condition 48: Requires the development of a maintenance schedule and an inventory of spare parts for air pollution control equipment, written operating procedures for air pollution control equipment, and for operators to be trained in the proper operation of that equipment.

### **Monitoring**

The monitoring requirement in Condition 27 of the PSD permit approved November 18, 2002, as amended February 15, 2011 have been modified to meet Part 70 requirements. These are monitoring requirements in addition to the compliance assurance monitoring for the finishing operations (F1).

An equation for calculating VOC emissions from finishing material has been included in the permit. It uses the total mass of finishing material applied and the weight fraction of VOC applied. In addition, the permittee will inspect each control device (F01-F06) each day the spray booths and/or automatic sealer/sander are operated. The inspections shall include a check of correct filter placement, filter condition, and observation of the pressure drop across the filters. A log recording the results of the inspection including pressure drop and any maintenance or corrective action taken shall be kept. A new monitoring condition for the RTO was included in this renewal; the permittee shall continuously measure and record the combustion zone temperature when the RTO is operating.

### **Compliance Assurance Monitoring**

Although the finishing equipment (F1) uses filters and waterwash for control of particulate emissions, CAM does not apply to these devices since their uncontrolled particulate matter emissions are less than 100 TPY.

However, the finishing equipment meets all of the requirements of CAM applicability for VOC emissions since the uncontrolled emissions exceed 100 TPY, the equipment is subject to emissions limits, and add on equipment (RTO) can be used to achieve these limits.

The full CAM plan for the RTO (Attachment B to the permit and Attachment D to the Statement of Basis) includes the following indicators:

Indicator 1 - Combustion zone temperature was selected as a performance indicator because a high enough temperature must be maintained within the combustion zone to ensure 95% destruction of VOCs. If the combustion zone temperature falls below the required level established by stack testing, then the facility may not be in compliance with the annual VOC emission limit. In addition, falling below the minimum combustion zone temperature may also indicate a violation of the permit conditions requiring 95.0% destruction efficiency for VOCs (Condition 61) and a minimum combustion zone

temperature (Condition 63), both of which are intended to ensure compliance with the VOC emission limit. An excursion would consist of falling below the minimum combustion zone temperature (based on rolling three-hour averages) six times in any semi-annual reporting period. An annual accuracy check of the thermocouple measuring the combustion zone temperature shall be conducted by adding a second (redundant) thermocouple to the RTO incineration chamber and measuring via hand-help monitor. This accuracy check does not need to be performed if the thermocouple has been replaced within the last 12 months.

Indicator 2 - Annual inspections of the burner and valves on the air lines leading to the regenerative beds shall be conducted to ensure there is no corrosion, mechanical failures, and the seal integrity of the valves is intact. This will help ensure proper operation of the burner and valves and ensure there is no air leakage. This annual inspection must be conducted by an authorized technician and is only required during a calendar year in which the RTO is operated.

Indicator 3 – After initial startup of the RTO, stack testing for VOC emissions shall be conducted at least every five years to verify 95% destruction efficiency and to verify the capture efficiency of the sealer booth enclosure. Testing shall be done when finishing operations (F1) are operating at normal conditions using the test procedures as required by EPA Method 25, 25A, or 25B (40 CFR 60, Appendix A).

Conditions 75-82, 84, and 93 are new standard Conditions that were added to the DEQ Title V boilerplate since the last renewal of this permit and are based on 40 CFR 64, *Compliance Assurance Monitoring*.

### **Recordkeeping**

The recordkeeping requirements in Condition 37 of the PSD permit approved November 18, 2002, as amended February 15, 2011, have been modified to meet Part 70 requirements.

The permittee is required to keep records of all monitoring and testing required by the permit. These records include:

- MSDS or a certified product data sheet showing VOC content, water content, and solids content for each finishing material and glue used;

- Monthly and annual material balance including throughput and emissions of VOC and PM;

- Average hourly material balance including throughput and emissions of PM;

- The hours per day of operation of the finishing line (F1);

- Finishing control device (F01- F06) inspection results;

The hours of operation of the sealer booth when RTO is in bypass or shutdown;  
Monthly and annual throughput of VOC to the sealer booth;

Annual throughput of glue to the RTF adhesive spray booth;

Monthly and annual throughput of VOC used on areas of the finishing line not controlled by the RTO;

three hour averages of the combustion zone temperatures recorded in the RTO;

Monthly records of any three hour period during which the combustion zone temperature of the RTO was below the minimum required temperature based on stack test results;

Maintenance and calibration records for the RTO thermocouple;

Records showing VOC content for glues and hardeners used in the RTF process;

Records required by the CAM plan including annual temperature accuracy checks, annual inspection logs, and records of all excursions;

Results of all stack tests and visible emissions evaluations; and

Records of maintenance, operating procedures, and training.

All records shall be kept on site and be current for the most recent five years.

In addition to the limitations, monitoring, and recordkeeping established for the RTO discussed above, the finishing equipment (F1) is also subject to Compliance Assurance Monitoring (CAM) recordkeeping under 40 CFR Part 64.

### **Testing**

The permit requires an initial performance test for VOC emissions and a VEE to be conducted after start-up of the RTO. After the initial performance tests are completed, tests will be performed biennially until two consecutive performance tests show compliance with the VOC emission limit, then the intervals decrease to every five years. Besides testing for the RTO, the permit does not require source tests for the finishing operations. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

### **Reporting**

The reporting requirements in Conditions 36 and 38 of the PSD permit approved November 18, 2002, as amended February 15, 2011, have been modified to meet Part 70 requirements. The permittee shall submit reports documenting the following:

Quarterly material balance reports showing the monthly and annual throughput, density, and percent VOC by weight of each finishing material used;  
Quarterly material balance reports showing monthly and annual emissions of VOC from the finishing operation; and

Semi-annual reports to address emerging pollution prevention technology.

Finally, semi-annual reporting requirements pertaining to the CAM plan need to be submitted and will include: a summary of information on excursions, a summary of information on monitor downtime incidents, and a description of actions taken to implement a QIP if necessary.

### **Notifications**

The notification requirement pertaining to the start-up of the RTO has been included since no notifications of startup have been received as of the date of this permit renewal. The notification requirements pertaining to the start-up of the RTF adhesive spray booth have been removed since those Conditions have been satisfied.

### **Streamlined Requirements**

The 5% opacity limit for each finishing operation and the RTO is more stringent than the Virginia Administrative Code Standard for visible emissions, 9 VAC 5-50-80. Therefore, only the more stringent 5% opacities are included in the permit.

## **EMISSION UNIT APPLICABLE REQUIREMENTS - Dry Kilns (DK1 and DK2)**

### **Applicability & Notifications**

The two dry kilns (DK1 and DK2) are subject to the Plywood and Composite Wood Products MACT (Subpart DDDD). The only applicable requirement for these units under Subpart DDDD, however, is the initial notification, which was set forth in Condition VI.B. of the 2004 Title V permit. Since Masco satisfied this requirement in 2005, this condition has been removed. Currently there are no emission standards or monitoring requirements applicable to the facility under Subpart DDDD.

## **FACILITY-WIDE CONDITIONS**

### **Limitations**

The permittee is subject to the 40 CFR 63 Subpart JJ, National Emission Standards for Wood Furniture Manufacturing Operations (Wood Furniture MACT). All applicable limitations from the Wood Furniture MACT have been included in the permit including changes from the November 21, 2011 amendment to Subpart JJ. This amendment added limits on formaldehyde emissions that the facility has to comply with by November 21, 2014. Also, the amendment to Subpart JJ changed what type of air spray guns can be used under the work practice standards.

Being subject to the Wood Furniture MACT means that the permittee is also subject to 40 CFR 63 Subpart A, General Provisions. Any applicable limitations from the general provisions have also been included in the permit.

### **Monitoring**

The Wood Furniture MACT contains requirements for continuous compliance, including monthly and/or daily recordkeeping depending on the method of compliance chosen by the facility. These requirements have been incorporated into the permit, including a new section with two ways to comply with the November 21, 2014 formaldehyde emission requirements. There is also a new continuing compliance option that uses the viscosity of the coating to demonstrate compliance.

The Wood Furniture MACT contains adequate monitoring to meet Title V periodic monitoring requirements, so no additional monitoring has been incorporated into the Title V permit.

### **Recordkeeping**

The Wood Furniture MACT contains requirements for recordkeeping, including maintenance or certified product data sheets for each material used and all calculations used to demonstrate continuous compliance. There were two additions to the record keeping, one for formaldehyde content of finishing material and another that has specific requirements if viscosity is being used to demonstrate compliance.

The Wood Furniture MACT contains adequate recordkeeping to meet Title V recordkeeping requirements. No additional recordkeeping has been included in the Title V permit. Record retention is different from the MACT in that all 5 years of data needs to be kept on site to more closely match DEQ requirements.

### **Testing**

The permit does not require source tests. The Department and EPA have the authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

### **Reporting**

The Wood Furniture MACT requires that a source report their compliance status annually, as well as demonstrating continuous compliance semi-annually to both the Department and the EPA. These requirements have been included in the permit and will be submitted concurrently with the reporting requirements contained in the General Conditions of the permit.

### **Streamlined Requirements**

The permittee has opted not to use a control device to meet the MACT requirements. Therefore, all requirements regarding a control device have not been included in the permit.

## GENERAL CONDITIONS

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110 that apply to all Federal-operating permit sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

### Comments on General Conditions

#### Permit expiration (Conditions 108 to 113)

This condition refers to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by §2.2-604 and §10.1-1185 of the *Code of Virginia*, and the “Department of Environmental Quality Agency Policy Statement No. 2-09”.

These general conditions cite the Article that follows:

Article 1 (9 VAC 5-80-50 et seq.), Part II of 9 VAC 5 Chapter 80. *Federal Operating Permits for Stationary Sources*.

These general conditions cite the sections that follow:

9 VAC 5-80-80. Application

9 VAC 5-80-140. Permit Shield

9 VAC 5-80-150. Action on Permit Applications

#### Deviation, Failure, Malfunction Reporting (Conditions 118 to 119)

Section 9 VAC 5-20-180 requires malfunction and excess emission reporting within four hours of discovery. Section 9 VAC 5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting is required within two days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to section 9 VAC 5-20-180 including Title V facilities. Section 9 VAC 5-80-250 is from the Title V regulations. Title V facilities are subject to both sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180 and 9 VAC 5-80-250. The report must be made within four daytime business hours of discovery of the malfunction.

These general Conditions cite the sections that follow:

9 VAC 5-40-50. Notification, Records, and Reporting

9 VAC 5-50-50. Notification, Records, and Reporting

#### Permit Modification (Condition 123)

This general condition cites the sections that follow:

9 VAC 5-80-50. Applicability, Federal Operating Permit for Stationary Sources

9 VAC 5-80-190. Changes to Permits

- 9 VAC 5-80-260. Enforcement
- 9 VAC 5-80-1100. Applicability, Permits for New and Modified Stationary Sources
- 9 VAC 5-80-1605. Applicability, Permits for Major Stationary Sources and Modifications  
Located in Prevention of Significant Deterioration Areas
- 9 VAC 5-80-2000. Applicability, Permits for Major Stationary Sources and Major Modifications  
Locating in Nonattainment Areas

Malfunction as an Affirmative Defense (Conditions 137 to 140)

The regulations contain two reporting requirements for malfunctions that coincide. The reporting requirements are listed in sections 9 VAC 5-80-250 and 9 VAC 5-20-180. The malfunction requirements are listed in Conditions 137 to 140 and Conditions 118 to 119. For further explanation see the comments on Conditions 118 to 119.

These general conditions cite the sections that follow:

- 9 VAC 5-80-110. Permit Content
- 9 VAC 5-20-180. Facility and Control Equipment Maintenance or Malfunction

Asbestos Requirement

The Virginia Department of Labor and Industry under Section 40.1-51.20 of the Code of Virginia also holds authority to enforce 40 CFR 61 Subpart M, *National Emission Standards for Asbestos*.

This boilerplate Condition can be omitted if the facility does not contain asbestos. Through an e-mail dated July 2, 2009, Masco stated that its facility does not contain asbestos. Accordingly, this general condition is not included in the permit.

## STATE ONLY APPLICABLE REQUIREMENTS

The permittee did not identify any state-only requirements in their application, and all requirements in their PSD permit approved November 18, 2002, as amended February 15, 2011 are federally enforceable. Therefore, no state-only requirements have been included in the permit.

## FUTURE APPLICABLE REQUIREMENTS

The boilers (B1 and B2) will be subject to 40 CFR Part 63, Subpart DDDDD, *National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heater* (Boiler MACT) starting January 31, 2016. To avoid having to comply with the boiler MACT, the permittee would have to agree to federally enforceable limits on its facility-wide emissions of hazardous air pollutants (HAPs) to bring them below major-source thresholds prior to the first substantive compliance date of the Boiler MACT.

## INAPPLICABLE REQUIREMENTS

The provisions of 40 CFR Part 98 – Mandatory Greenhouse Gas Reporting require owners and operators of general stationary fuel combustion sources that emit 25,000 metric tons CO<sub>2</sub>e or more per year in combined emissions from such units, to report greenhouse gas (GHG) emissions, annually. The definition of “applicable requirement” in 40 CFR 70.2 and 71.2 does not include requirements such as those included in Part 98, promulgated under Clean Air Act (CAA) section 114(a)(1) and 208. Therefore, the requirements of 40 CFR Part 98 are not applicable under the Title V permitting program.

As a result of several EPA actions regarding GHG under the CAA, emissions of GHG must be addressed for a Title V permit renewed after January 1, 2011. The current state PSD permit for Masco Cabinetry contains no GHG-specific applicable requirements and there have been no modifications at the facility requiring a modified PSD permit. Therefore, there are no applicable requirements for the facility specific to GHG.

The permittee did not identify any inapplicable requirements in their application.

The following requirements were identified as inapplicable:

*40 CFR 60 Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units* is not an applicable requirement for the boilers (B1 & B2). The boilers were manufactured and constructed before the applicability date of Subpart Dc, and are therefore not subject to NSPS Subpart Dc.

*40 CFR 63, Subpart JJJJJ, National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources* has been identified as being not

applicable to the boilers (B1 & B2). The boilers (B1 & B2) would be subject to 40 CFR 63 Subpart DDDDD since the facility is a major source for HAPs; therefore the Boiler MACT for Area Sources is not applicable.

*40 CFR 60 Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines* is not an applicable requirement for the fire water pumps (FP1 & FP2). The fire water pumps were constructed and manufactured before the applicability date of Subpart IIII, and are therefore not subject to NSPS Subpart IIII.

*40 CFR 63, Subpart QQQQ, National Emission Standards for Hazardous Air Pollutants: Surface Coating of Wood Building Products* has been identified as being not applicable to the facility. The facility is subject to 40 CFR 63 Subpart JJ; therefore MACT Subpart QQQQ is not applicable.

## COMPLIANCE PLAN

As of the most recent Full Compliance Evaluation with Site Visit (conducted June 20, 2013), the facility was found to be operating in compliance with all applicable requirements.

## INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

Insignificant emission units include the following:

**Table IV. Insignificant Emission Units**

<b>Emission Unit No.</b>	<b>Emission Unit Description</b>	<b>Citation<sup>1</sup> (9 VAC )</b>	<b>Pollutant(s) Emitted (5-80-720 B)</b>	<b>Rated Capacity (5-80-720 C)</b>
PW1, PW2, PW3	Parts Washers	5-80-720 B	VOC	---
G1	Gluing (water-based glues)	5-80-720 B	VOC	---
RTF	Rigid Thermo Foil (RTF) Membrane Press	5-80-720 B	VOC	---

<sup>1</sup>The citation criteria for insignificant activities are as follows:

- 9 VAC 5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application
- 9 VAC 5-80-720 B - Insignificant due to emission levels
- 9 VAC 5-80-720 C - Insignificant due to size or production rate

## **CONFIDENTIAL INFORMATION**

The permittee did not submit a request for confidentiality. All portions of the Title V application are suitable for public review.

## **PUBLIC PARTICIPATION**

A public notice regarding the draft permit was placed in the *Northern Virginia Daily* on June 27, 2014. West Virginia, the only affected state, was sent a copy of the public notice in an email dated June 26, 2014. All persons on the Title V mailing list were also sent a copy of the public notice via either letter June 27, 2014 or emailed dated June 26, 2014. Public comments were accepted from June 27, 2014 to July 28, 2014. No public comments were received.

EPA was notified of the public notice and sent a copy of the Statement of Basis and draft permit on June 26, 2014. The 45-day EPA review period ran concurrently with the public comment period and ended on August 11, 2014. No comments were received from the EPA.

## ATTACHMENTS

The following information is attached:

- ATTACHMENT A: 2013 Annual Emissions Update
- ATTACHMENT B: Prevention of Significant Deterioration (PSD) Permit  
Issued on November 18, 2002 as amended February 15, 2011
- ATTACHMENT C: CAM Plan for the Fabric Filters (BH1 - BH7)
- ATTACHMENT D: CAM Plan for the Regenerative Thermal Oxidizer (RTO)

**ATTACHMENT A**  
**2013 Annual Emissions Update**

Registration Number: 81062

County - Plant ID: 171-00063

Plant Name: Masco Cabinetry LLC

**POLLUTANT EMISSIONS REPORT (PLANT) (Tons/Year)**

Parameter List

Pollutant Type: Criteria Pollutants

Years: 2013 - 2013

	CO	NH3	NO2	PB	PM 10	PM 2.5	SO2	VOC
2013	6.841	0.002	1.208	0.001	6.989	8.054	0.338	414.375

Registration Number: 81062

County - Plant ID: 171-00063

Plant Name: Masco Cabinetry LLC

**POLLUTANT EMISSIONS REPORT (PLANT) (Tons/Year)**

Parameter List

Pollutant Type: Hazardous Pollutants

Years: 2013-2013

	CRC	DBUPH	DEHP	EBENZ	FORM	ISPBZ	MTBTN	MTETN
2013	0.010	0.000	0.000	9.740	0.280	0.110	0.120	32.640

Total HAPS:  
109.88

Registration Number: 81062

County - Plant ID: 171-00063

Plant Name: Masco Cabinetry LLC

**POLLUTANT EMISSIONS REPORT (PLANT) (Tons/Year)**

Parameter List

Pollutant Type: Hazardous Pollutants

Years: 2013 -2013

	<u>MTHOL</u>	<u>MXYL</u>	<u>NHEXA</u>	<u>NIC</u>	<u>OXYL</u>	<u>PAH1</u>	<u>PXYL</u>	<u>TOLU</u>
2013	24.870	0.000	0.000	0.000	41.520	0.180	0.000	0.410

Registration Number: 81062

County - Plant ID: 171-00063

Plant Name: Masco Cabinetry LLC

**POLLUTANT EMISSIONS REPORT (PLANT) (Tons/Year)**

Parameter List

Pollutant Type: Hazardous Pollutants

Years: 2013-2013

XYLS

2013

0.000

Commonwealth of Virginia  
Department of Environmental Quality

Run Date 05/05/2014 10:43:43 AM

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Registration Number : 81062

County - Plant Id: 171-00063

Plant Name : Masco Cabinetry LLC

<b>POLLUTANT EMISSIONS REPORT (STACK/POINT) (TONS/YEAR)</b>
---

Parameter List

Pollutant Type: All Pollutants

Years: 2013 - 2013

Inventory Year 2013

Stack #: 1 Boiler (B1)

Point #: 1	CO	NO2	PB	PM	PM 10	PM 2.5	SO2	VOC
Segment #: 1	6.832	1.163	0.001	0.342	3.416	4.593	0.255	2.382
	6.832	1.163	0.001	0.342	3.416	4.593	0.255	2.382

Stack #: 2 Boiler (B2)

Point #: 2	CO	NH3	NO2	PB	PM	PM 10	PM 2.5	SO2
Segment #: 1	0.010	0.002	0.046	0.000	0.004	0.004	0.004	0.083
Segment #: 2	0.000	0.000	0.000		0.000	0.000		0.000
	0.010	0.002	0.046	0.000	0.004	0.004	0.004	0.083



Commonwealth of Virginia  
Department of Environmental Quality

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Registration Number : 81062

County - Plant Id: 171-00063

Plant Name : Masco Cabinetry LLC

<b>POLLUTANT EMISSIONS REPORT (STACK/POINT) (TONS/YEAR)</b>
---

Parameter List

Pollutant Type: All Pollutants

Years: 2013-2013

Inventory Year 2013

Stack #: 4

Point #: 21	MTHOL	MXYL	NIC	OXYL	PAH1	PM	PM 10	PM 2.5
1						0.647	0.259	0.647
10								
11					0.180			
12								
13				41.520				
14		0.000						
15								
16								
17			0.000					
18								
Segment #: 3						0.110		
Segment #: 4		0.000						
Segment #: 5			0.000					
Segment #: 6				9.740				
Segment #: 7					0.280			
Segment #: 8								
Segment #: 9								32.640
	0.010	0.000	0.000	9.740	0.280	0.110	0.120	32.640

Commonwealth of Virginia  
Department of Environmental Quality

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Registration Number : 81062

County - Plant Id: 171-00063

Plant Name : Masco Cabinetry LLC

<b>POLLUTANT EMISSIONS REPORT (STACK/POINT) (TONS/YEAR)</b>
---

Parameter List

Pollutant Type: All Pollutants

Years: 2013-2013

Inventory Year 2013

Stack #: 4

Point #: 21	PXYL	TOLU	VOC					
1			132.390					
10								
11								
12		0.410						
13								
14								
15	0.000							
16								
17								
18			4.880					
3								
4								
5								
6								
7								
8	24.870							
9								
	24.870	0.000	0.000	41.520	0.180	0.647	0.259	0.647

Commonwealth of Virginia  
Department of Environmental Quality

Run Date 05/05/2014 10:43:43 AM

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Registration Number : 81062

County - Plant Id: 171-00063

Plant Name : Masco Cabinetry LLC

<b>POLLUTANT EMISSIONS REPORT (STACK/POINT) (TONS/YEAR)</b>
---

Parameter List

Pollutant Type: All Pollutants

Years: 2013 - 2013

Inventory Year 2013

Stack #: 4

3  
4  
5  
6  
7  
8  
9

0.000      0.410      137.270

Point #: 22	MTETN	MTHOL	NHEXA	TOLU	VOC	XYLS
Segment #: 1					9.490	
Segment #: 2			0.000			
Segment #: 3				0.000		
Segment #: 4		0.000				
Segment #: 5	0.000					
Segment #: 6						0.000
	0.000	0.000	0.000	0.000	9.490	0.000

Point #: 23	DBUPH	DEHP	EBENZ	FORM	ISPBZ	MTBTN	MTETN	MTHOL
Segment #: 1								
Segment #: 10								0.000



Registration Number : 81062

County - Plant Id: 171-00063

Plant Name : Masco Cabinetry LLC

**POLLUTANT EMISSIONS REPORT (STACK/POINT) (TONS/YEAR)**

Parameter List

Pollutant Type: All Pollutants

Years: 2013 - 2013

Inventory Year 2013

Stack #: 4

11			0.000					
12						0.000		
13		0.000						
14	0.000							
15				0.000				
3								
4								
5								
6								
7								
8								
9								
	0.000	0.000	0.000	0.000	0.000	0.000	135.910	

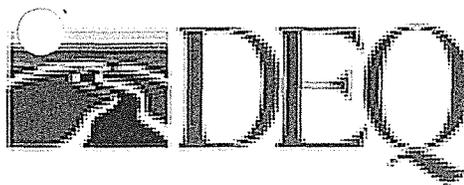
Point #: 24      CRC      DBUPH      DEHP      EBENZ      FORM      ISPBZ      MTBTN      MTETN

Segment #: 1  
 Segment #: 10  
 Segment #: 11  
 Segment #: 12  
 Segment #: 13  
 Segment #: 14

0.000







VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

2013 EMISSION STATEMENT

RECEIVED  
FEB 26 2014

FACILITY NAME Masco Cabinetry		REGISTRATION # 81062	CONTACT PERSON	
LOCATION ADDRESS 1325 Industrial Park Road Mount Jackson VA 22842			JURISDICTION Shenandoah County	
MAILING ADDRESS P.O. Box 719		MAILING CITY AND STATE Mount Jackson VA	ZIP CODE 22842	
OWNER NAME Nick Hearne		TELEPHONE NUMBER	PRIMARY NAICS CODE 337110	For Agency Use Only Title V

FACILITY TOTALS (sum emissions from attached pages)

	Annual		Ozone Season	
Total VOC EMISSIONS FOR 2013	414.39	TONS/YR	2,524.82	LBS/DAY
Total NOx EMISSIONS FOR 2013	1.21	TONS/YR	5.57	LBS/DAY
Total SO2 EMISSIONS FOR 2013	0.34	TONS/YR	NA	LBS/DAY
Total PM-10 EMISSIONS FOR 2013	6.73	TONS/YR	NA	LBS/DAY
Total Pb EMISSIONS FOR 2013	4.019E-04	TONS/YR	NA	LBS/DAY
Total TRS EMISSIONS FOR 2013	NA	TONS/YR	NA	LBS/DAY
Total TNMOC EMISSIONS FOR 2013	NA	TONS/YR	NA	LBS/DAY
Total non-VOC/non-PM HAP EMISSIONS FOR 2013	0.56	TONS/YR	NA	LBS/DAY
Total CO EMISSIONS FOR 2013	6.84	TONS/YR	NA	LBS/DAY
Total PM-2.5 EMISSIONS FOR 2013	7.90	TONS/YR	NA	LBS/DAY
Total NH3 EMISSIONS FOR 2013	0.00	TONS/YR	NA	LBS/DAY

PLEASE ATTACH "ANNUAL UPDATE" FORM

PLEASE ATTACH "EMISSION STATEMENT CERTIFICATION FORM" with appropriate signature

*Handwritten signature and date:*  
3/7/14



**VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY**

**EMISSION STATEMENT CERTIFICATION FORM**

REC  
FEB 28 2014  
To  
File

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering and evaluating the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SIGNATURE Nicholas A. Hearne DATE 02/25/2014

PRINTED NAME Nick Hearne

TITLE Plant Manager

COMPANY Masco Cabinetry

REGISTRATION NUMBER 81062

TELEPHONE NUMBER 540-477-2961

**2013 Annual Emissions Summary  
MascoCabinetry/Merillat, Mount Jackson, Va**

Source	Emission/Unit Process	Annual Emission in Tons				
		VOC	NOX	SOX	PM10	CO
B1	Wood Fired Boiler	2.392	1.162	0.256	3.417	6.834
B2	Oil Fired Boiler	6.500E-04	4.578E-02	8.218E-02	1.910E-03	9.540E-03
W1	<i>Machining (Woodworking) Operations</i>					
	Dry Kilns	0.242	0.000	0.000	0.000	0.000
	Rough Mill Wood Input	0.000	0.000	0.000	2.218	0.000
	<b>Total Tons Emitted W1</b>	<b>0.242</b>	<b>0.000</b>	<b>0.000</b>	<b>2.218</b>	<b>0.000</b>
	<b>Total Lbs Emitted W1</b>	<b>484.450</b>	<b>0.000</b>	<b>0.000</b>	<b>4435.65</b>	<b>0.000</b>
F1	<i>Finishing Operations (breakdown by stack below)</i>					
	Finish H-1 Hand Spray Booth	10.388	0.000	0.000	0.006105	0.000
	Finishing Misc - Other Fin Ops	118.963	0.000	0.000	5.339E-02	0.000
	Finish - Stain	1.633	0.000	0.000	1.230E-03	0.000
	Finish - Edge	0.000	0.000	0.000	0.000	0.000
	Still	0	0.000	0.000	0.000	0.000
	RTF Spray Booth	1.409	0.000	0.000	0.005	0.000
	<i>Subtotal (AVU -Total VOC)</i>	<i>132.393</i>	<i>0.000</i>	<i>0.000</i>	<i>0.065</i>	<i>0.000</i>
	Catalyst	4.876	0.000	0.000	5.695E-02	0.000
	Cleaning	9.495	0.000	0.000	3.382E-02	0.000
	Sealer Booth	129.079	0.000	0.000	4.196E-01	0.000
	Top Coat Booth	135.913	0.000	0.000	5.166E-01	0.000
	<b>Total Tons Emitted F1</b>	<b>411.757</b>	<b>0.000</b>	<b>0.000</b>	<b>1.092</b>	<b>0.000</b>
	<b>Total Lbs Emitted F1</b>	<b>823513.670</b>	<b>0.000</b>	<b>0.000</b>	<b>2184.520</b>	<b>0.000</b>

<b>Total All - Tons</b>	<b>414.39</b>	<b>1.21</b>	<b>0.34</b>	<b>6.73</b>	<b>6.84</b>
<b>Total All - Lbs</b>	<b>828783.40</b>	<b>2415.21</b>	<b>676.93</b>	<b>13458.25</b>	<b>13687.59</b>

REC'D  
 FEB 28 2014  
 TO: [unclear]  
 FROM: [unclear]

# Combustion Source - Emissions by Fuel - Summary

Start Date : 01/01/2013  
 End Date : 12/31/2013  
 Detailed Chemical Names: No

Description  
 Printed On 02/05/2014

**Emissions Summary for Facility ID** 22842MRLLTST Masco Cabinetry

Source ID: Boil 1 Permit Item No(s): 6/9/19/24  
 Process Description: Wood Fired Boiler  
 Percentage Annual Throughput:  
 Dec-Feb 25.0% Mar-May 25.00% Jun-Aug 25.00% Sep-Nov 25.00%

**Combustion Source Fuel Summary**

Type of Fuel Used	Amount	Unit	Sulfur Content	Ash Content	Carbon Content	Calcium Content	Chlorine Content	BTU
Wood	6,834,256.00000	lb	0.00%	0.00%	0	0	0	8,400.00000 (BTU/lb)

*x 8400 = BTUS per pound. Move decimal 6 places to left to get million BTUS*

Control Device ID: Multicyclone Control Device Description: Wood Burner Boiler

*5,740,750,400*

Combined Control Efficiency (if more than one used) 71.00%

**Control Efficiency per Chemical Component**

CAS	Chemical Name	Control Efficiency
NA-ERAEnviro	PM (TOTAL)	71.00%
NA-ERAEnviro	PM-10 (TOTAL)	71.00%
NA-ERAEnviro	PM-2.5 (FILTERABLE)	71.00%

**Emission Summary for Fuel**

**EPA Criteria Pollutant Emissions**

CAS	Chemical Name	Emission Factor A	Emission Factor B	Unit	Emissions (ton)
0000630-08-0	CO		4.00e+00	lb / ton	6.83426
0007439-92-1	LEAD	0.00e+00	4.80e-05	lb / million BTUs	3.99580E-04
0007446-09-5	SO2		1.50e-01	lb / ton	0.25628
NA-ERAEnviro	HAPS			/	1.05226
NA-ERAEnviro	NOX		6.80e-01	lb / ton	<u>1.16182</u>
NA-ERAEnviro	PM (FILTERABLE)		2.00e+00	lb / ton	3.41713
NA-ERAEnviro	PM (TOTAL)			/	3.41713
NA-ERAEnviro	PM-10 (TOTAL)		2.00e+00	lb / ton	<u>3.41713</u>
NA-ERAEnviro	PM-2.5 (FILTERABLE)		1.60e-01	lb / million BTUs	4.59262
NA-ERAEnviro	PM-2.5 (TOTAL)			/	4.59262
NA-ERAEnviro	SARA312			/	5,609.27827

Combustion Source - Emissions by Fuel - Summary

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NA-ERAEnviro SARA313  
 NA-ERAEnviro SOX  
 NA-ERAEnviro VHAPS  
 NA-ERAEnviro VOC

1.50e-01 lb / ton 1.07317  
 1.40e+00 lb / ton 0.25628  
 0.49119  
 2.39199

*wood fired boiler*  
*Amnt for Annual Emission Summary*

All Other Pollutants

CAS	Chemical Name	Emission Factor A	Emission Factor B	Unit	Emissions (lb)
0000050-00-0	FORMALDEHYDE	0.00e+00	4.40e-03	lb / million BTUs	252.59411
0000050-32-8	BENZO[A]PYRENE	0.00e+00	2.60e-06	lb / million BTUs	0.14926
0000051-28-5	2,4-DINITROPHENOL	0.00e+00	1.80e-07	lb / million BTUs	0.01033
0000053-70-3	DIBENZO[A,H]ANTHRACENE	0.00e+00	9.10e-09	lb / million BTUs	5.224105E-04
0000056-23-5	CARBON TETRACHLORIDE	0.00e+00	4.50e-05	lb / million BTUs	2.58335
0000056-55-3	BENZO[A]ANTHRACENE	0.00e+00	6.50e-08	lb / million BTUs	3.731504E-03
0000065-85-0	BENZOIC ACID	0.00e+00	4.70e-08	lb / million BTUs	2.698164E-03
0000066-25-1	HEXANAL	0.00e+00	7.00e-06	lb / million BTUs	0.40185
0000067-64-1	ACETONE	0.00e+00	1.90e-04	lb / million BTUs	10.90747
0000067-66-3	CHLOROFORM	0.00e+00	2.80e-05	lb / million BTUs	1.60742
0000071-43-2	BENZENE	0.00e+00	4.20e-03	lb / million BTUs	241.11256
0000071-55-6	1,1,1-TRICHLOROETHANE	0.00e+00	3.00e-05	lb / million BTUs	1.72223
0000074-82-8	METHANE	0.00e+00	2.10e-02	lb / million BTUs	1,205.56278
0000074-87-3	METHYL CHLORIDE	0.00e+00	2.30e-05	lb / million BTUs	1.32038
0000075-01-4	VINYL CHLORIDE	0.00e+00	1.80e-05	lb / million BTUs	1.03334
0000075-07-0	ACETALDEHYDE	0.00e+00	8.30e-04	lb / million BTUs	47.64843
0000075-09-2	METHYLENE CHLORIDE	0.00e+00	2.90e-04	lb / million BTUs	16.64825
0000075-69-4	TRICHLOROFLUOROMETHANE	0.00e+00	4.10e-05	lb / million BTUs	2.35372
0000075-83-9	BROMOMETHANE	0.00e+00	1.50e-05	lb / million BTUs	0.86112
0000078-84-2	ISOBUTYRALDEHYDE	0.00e+00	1.20e-05	lb / million BTUs	0.68889
0000078-87-5	PROPYLENE DICHLORIDE	0.00e+00	3.30e-05	lb / million BTUs	1.89446
0000078-93-3	METHYL ETHYL KETONE	0.00e+00	5.40e-06	lb / million BTUs	0.31000
0000079-01-6	TRICHLOROETHYLENE	0.00e+00	3.00e-05	lb / million BTUs	1.72223
0000083-32-9	ACENAPHTHENE	0.00e+00	9.10e-07	lb / million BTUs	0.05224
0000085-01-8	PHENANTHRENE	0.00e+00	7.00e-06	lb / million BTUs	0.40185
0000086-73-7	FLUORENE	0.00e+00	3.40e-06	lb / million BTUs	0.19519
0000086-74-8	CARBAZOLE	0.00e+00	1.80e-06	lb / million BTUs	0.10333
0000087-86-5	PENTACHLOROPHENOL	0.00e+00	5.10e-08	lb / million BTUs	2.927795E-03
0000088-06-2	2,4,6-TRICHLOROPHENOL	0.00e+00	2.20e-08	lb / million BTUs	1.262971E-03
0000088-75-5	2-NITROPHENOL	0.00e+00	2.40e-07	lb / million BTUs	0.01378
0000091-20-3	NAPHTHALENE	0.00e+00	9.70e-05	lb / million BTUs	5.56855
0000091-57-6	2-METHYL NAPHTHALENE	0.00e+00	1.60e-07	lb / million BTUs	9.185240E-03
0000091-58-7	2-CHLORONAPHTHALENE	0.00e+00	2.40e-09	lb / million BTUs	1.377786E-04
0000095-47-6	O-XYLENE	0.00e+00	2.50e-05	lb / million BTUs	1.43519
0000095-57-8	2-CHLOROPHENOL	0.00e+00	2.40e-08	lb / million BTUs	1.377786E-03
0000098-86-2	ACETOPHENONE	0.00e+00	3.20e-09	lb / million BTUs	1.837048E-04
0000100-02-7	4-NITROPHENOL	0.00e+00	1.10e-07	lb / million BTUs	6.314853E-03
0000100-41-4	ETHYLBENZENE	0.00e+00	3.10e-05	lb / million BTUs	1.77964

*use on non voc non hap tab  
 of Annual Emissions Summary  
 2013*

Combustion Source - Emissions by Fuel - Summary

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0000100-42-5	STYRENE	0.00e+00	1.90e-03	lb / million BTUs	109.07473
0000100-52-7	BENZALDEHYDE	0.00e+00	8.50e-07	lb / million BTUs	0.04880
0000104-87-0	P-TOLUALDEHYDE	0.00e+00	1.10e-05	lb / million BTUs	0.63149
0000107-02-8	ACROLEIN	0.00e+00	4.00e-03	lb / million BTUs	229.63101
0000107-06-2	ETHYLENE DICHLORIDE	0.00e+00	2.90e-05	lb / million BTUs	1.66482
0000108-88-3	TOLUENE	0.00e+00	9.20e-04	lb / million BTUs	52.81513
0000108-90-7	CHLOROBENZENE	0.00e+00	3.30e-05	lb / million BTUs	1.89446
0000108-95-2	PHENOL	0.00e+00	5.10e-05	lb / million BTUs	2.92780
0000117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	0.00e+00	4.70e-08	lb / million BTUs	2.698164E-03
0000120-12-7	ANTHRACENE	0.00e+00	3.00e-06	lb / million BTUs	0.17222
0000123-38-6	PROPIONALDEHYDE	0.00e+00	6.10e-05	lb / million BTUs	3.50187
0000124-38-9	CO2	0.00e+00	1.95e+02	lb / million BTUs	1.119451E07
0000127-18-4	TETRACHLOROETHYLENE	0.00e+00	3.80e-05	lb / million BTUs	2.18149
0000129-00-0	PYRENE	0.00e+00	3.70e-06	lb / million BTUs	0.21241
0000191-24-2	BENZO(G,H,I)PERYLENE	0.00e+00	9.30e-08	lb / million BTUs	5.338921E-03
0000192-97-2	BENZO[E]PYRENE	0.00e+00	2.60e-09	lb / million BTUs	1.492602E-04
0000193-39-5	INDENO(1,2,3-CD)PYRENE	0.00e+00	8.70e-08	lb / million BTUs	4.994474E-03
0000198-55-0	PERYLENE	0.00e+00	5.20e-10	lb / million BTUs	2.985203E-05
0000205-99-2	BENZO[B]FLUORANTHENE	0.00e+00	1.00e-07	lb / million BTUs	5.740775E-03
0000206-44-0	FLUORANTHENE	0.00e+00	1.60e-06	lb / million BTUs	0.09185
0000207-08-9	BENZO(K)FLUORANTHENE	0.00e+00	3.60e-08	lb / million BTUs	2.066679E-03
0000208-96-8	ACENAPHTHYLENE	0.00e+00	5.00e-06	lb / million BTUs	0.28704
0000218-01-9	CHRYSENE	0.00e+00	3.80e-08	lb / million BTUs	2.181495E-03
0000529-20-4	O-TOLUALDEHYDE	0.00e+00	7.20e-06	lb / million BTUs	0.41334
0000540-49-8	1,2-DIBROMOETHENE	0.00e+00	5.50e-05	lb / million BTUs	3.15743
0001746-01-6	2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN	0.00e+00	5.00e-03	ng / kg	0.00000
0002050-68-2	DICHLOROBIPHENYL	0.00e+00	7.40e-10	lb / million BTUs	4.248174E-05
0002051-24-3	DECACHLOROBIPHENYL	0.00e+00	2.70e-10	lb / million BTUs	1.550009E-05
0002051-60-7	MONOCHLOROBIPHENYL	0.00e+00	2.20e-10	lb / million BTUs	1.262971E-05
0002051-61-8	TRICHLOROBIPHENYL	0.00e+00	2.60e-09	lb / million BTUs	1.492602E-04
0004170-30-3	CROTONALDEHYDE	0.00e+00	9.90e-06	lb / million BTUs	0.56834
0007439-89-6	IRON	0.00e+00	9.90e-04	lb / million BTUs	16.48177
0007439-96-5	MANGANESE	0.00e+00	1.60e-03	lb / million BTUs	26.63720
0007439-97-6	MERCURY	0.00e+00	3.50e-06	lb / million BTUs	0.20093
0007439-98-7	MOLYBDENUM	0.00e+00	2.10e-06	lb / million BTUs	0.03496
0007440-02-0	NICKEL	0.00e+00	3.30e-05	lb / million BTUs	0.54939
0007440-09-7	POTASSIUM	0.00e+00	3.90e-02	lb / million BTUs	649.28167
0007440-22-4	SILVER	0.00e+00	1.70e-03	lb / million BTUs	28.30202
0007440-23-5	SODIUM	0.00e+00	3.60e-04	lb / million BTUs	5.99337
0007440-24-6	STRONTIUM	0.00e+00	1.00e-05	lb / million BTUs	0.16648
0007440-31-5	TIN	0.00e+00	2.30e-05	lb / million BTUs	0.38291
0007440-32-6	TITANIUM METAL POWDER	0.00e+00	2.00e-05	lb / million BTUs	0.33296
0007440-36-0	ANTIMONY	0.00e+00	7.90e-06	lb / million BTUs	0.13152
0007440-38-2	ARSENIC	0.00e+00	2.20e-05	lb / million BTUs	0.36626
0007440-39-3	BARIUM	0.00e+00	1.70e-04	lb / million BTUs	2.83020
0007440-41-7	BERYLLIUM	0.00e+00	1.10e-06	lb / million BTUs	0.01831
0007440-43-9	CADMIUM	0.00e+00	4.10e-06	lb / million BTUs	0.06826

Combustion Source - Emissions by Fuel - Summary

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Source ID	Chemical	Amount	Unit	BTU
0007440-47-3	CHROMIUM	0.00e+00	2.10e-05	lb / million BTUs 0.34961
0007440-48-4	COBALT	0.00e+00	6.50e-06	lb / million BTUs 0.10821
0007440-50-8	COPPER	0.00e+00	4.90e-05	lb / million BTUs 0.81576
0007440-62-2	VANADIUM (FUME OR DUST)	0.00e+00	9.80e-07	lb / million BTUs 0.01632
0007440-65-5	YTTRIUM	0.00e+00	3.00e-07	lb / million BTUs 4.994474E-03
0007440-66-6	ZINC	0.00e+00	4.20e-04	lb / million BTUs 6.99226
0007647-01-0	HYDROCHLORIC ACID	0.00e+00	1.90e-02	lb / million BTUs 1,090.74728
0007723-14-0	PHOSPHORUS (YELLOW OR WHITE)	0.00e+00	2.70e-05	lb / million BTUs 0.44950
0007782-49-2	SELENIUM	0.00e+00	2.80e-06	lb / million BTUs 0.04662
0010102-43-9	NITRIC OXIDE	0.00e+00	1.30e-02	lb / million BTUs 746.30077
0018540-29-9	CHROMIUM(VI)	0.00e+00	3.50e-06	lb / million BTUs 0.05827
0025429-29-2	PENTACHLOROBIPHENYL	0.00e+00	1.20e-09	lb / million BTUs 6.888930E-05
0026601-64-9	HEXACHLOROBIPHENYL	0.00e+00	5.50e-10	lb / million BTUs 3.157426E-05
0026914-33-0	TETRACHLOROBIPHENYL	0.00e+00	2.50e-09	lb / million BTUs 1.435194E-04
0028655-71-2	HEPTACHLOROBIPHENYL	0.00e+00	6.60e-11	lb / million BTUs 3.788912E-06
0036088-22-9	TOTAL PENTACHLORODIBENZO-P-DIOXIN	0.00e+00	1.50e-09	lb / million BTUs 8.611163E-05
0037871-00-4	HEPTACHLORODIBENZO-P-DIOXIN	0.00e+00	2.00e-09	lb / million BTUs 1.148155E-04
0041903-57-5	TOTAL TETRACHLORODIBENZO-P-DIOXIN	0.00e+00	4.70e-10	lb / million BTUs 2.698164E-05
NA-ERAEnviro	2,3,7,8,-TETRACHLORODIBENZODIBENZO-P-FURANS	0.00e+00	9.00e-11	lb / million BTUs 5.166698E-06
NA-ERAEnviro	BENZO(J,K)FLUORANTHENE	0.00e+00	1.60e-07	lb / million BTUs 9.185240E-03
NA-ERAEnviro	HEPTACHLORODIBENZO-P-FURANS	0.00e+00	2.40e-10	lb / million BTUs 1.377786E-05
NA-ERAEnviro	HEXACHLORODIBENZO-P-DIOXINS	0.00e+00	1.60e-06	lb / million BTUs 0.09185
NA-ERAEnviro	HEXACHLORODIBENZO-P-FURANS	0.00e+00	2.80e-10	lb / million BTUs 1.607417E-05
NA-ERAEnviro	OCTACHLORODIBENZO-P-DIOXINS	0.00e+00	6.60e-08	lb / million BTUs 3.788912E-03
NA-ERAEnviro	OCTACHLORODIBENZO-P-FURANS	0.00e+00	8.80e-11	lb / million BTUs 5.051882E-06
NA-ERAEnviro	PENTACHLORODIBENZO-P-FURANS	0.00e+00	4.20e-10	lb / million BTUs 2.411126E-05
NA-ERAEnviro	PROPANAL	0.00e+00	3.20e-06	lb / million BTUs 0.18370
NA-ERAEnviro	TETRACHLORODIBENZO-P-FURANS	0.00e+00	7.50e-10	lb / million BTUs 4.305581E-05
NA-ERAEnviro	TOC	0.00e+00	3.90e-02	lb / million BTUs 2,238.90231
<b>Specific Chemicals TOTALS</b>				<b>1.120154E07</b>

Source ID	OB-1	Permit Item No(s)	18/20/21/25/26e/
Process Description	Oil Fired Boiler, Backup		
Percentage Annual Throughput			
Dec-Feb 25.0%	Mar-May 25.00%	Jun-Aug 25.00%	Sep-Nov 25.00%

Combustion Source Fuel Summary

Type of Fuel Used	Amount	Unit	Sulfur Content	Ash Content	Carbon Content	Calcium Content	Chlorine Content	BTU
Fuel Oil No 1,2	3,815.19995	gal	0.30%	0.00%	0	0	0	140,000.00000 (BTU/gal)

$\frac{1}{1000} = 3.82$   
#2

Combustion Source - Emissions by Fuel - Summary

Printed On 02/05/2014

Control Device ID Null-1 Control Device Description Oil Burner - No Control

Combined Control Efficiency (If more than one used) 0.00%

Control Efficiency per Chemical Component

CAS	Chemical Name	Control Efficiency
NA-ERAEnviro	PM (TOTAL)	0.00%
NA-ERAEnviro	PM-10 (TOTAL)	0.00%
NA-ERAEnviro	PM-2.5 (TOTAL)	0.00%

Emission Summary for Fuel

EPA Criteria Pollutant Emissions - Oil Fired Burner data for 2013 Annual Emissions Summary form

CAS	Chemical Name	Emission Factor A	Emission Factor B	Unit	Emissions (ton)
0000630-08-0	CO	0.00e+00	5.00e+00	lb / 1000 gal	9.538000E-03
0007439-92-1	LEAD	0.00e+00	1.25e-03	lb / 1000 gal	2.384500E-06
0007446-09-5	SO2	1.44e+02		lb / 1000 gal	0.08218
NA-ERAEnviro	HAPS			/	3.075242E-06
NA-ERAEnviro	NOX		2.40e+01	lb / 1000 gal	0.04578
NA-ERAEnviro	PM (TOTAL)		2.00e+00	lb / 1000 gal	3.815200E-03
NA-ERAEnviro	PM-10 (TOTAL)		1.00e+00	lb / 1000 gal	1.907600E-03
NA-ERAEnviro	SARA312			/	0.22115
NA-ERAEnviro	SARA313			/	3.075242E-06
NA-ERAEnviro	SOX	1.44e+02		lb / 1000 gal	0.08218
NA-ERAEnviro	VOC	0.00e+00	3.40e-01	lb / 1000 gal	6.485840E-04

CO ✓  
NOX ✓  
PM10 ✓  
SOX ✓

All Other Pollutants

CAS	Chemical Name	Emission Factor A	Emission Factor B	Unit	Emissions (lb)
0000074-82-8	METHANE	0.00e+00	2.16e-01	lb / 1000 gal	0.82408
NA-ERAEnviro	TOC	0.00e+00	5.56e-01	lb / 1000 gal	2.12125
Specific Chemicals TOTALS					2.94533

Oil fired  
Baker VOC

# PM / Dust Emissions Summary - Method 1 (from Usage Records)

Summary of usage, PM / PM10 / PM2.5 Emissions

Printed on 2/15/2014 8:07:19 AM

Permit ID 81062

Masco Cabinetry

1 Emission sources queried in this report's data:

Facility ID	Source ID	Description	(2) Transfer Eff.	(2) PM Ctrl Eff.	(3) VOC Ctrl.	(4) Control Eff.	Hrs. Of Oper.	VOC Capt. Eff.	PM Capt. Eff.	Bldg. PM Capt. Eff.
22842MRLLT ST	R Mill	Wood Input	NA	99.96%	NA	NA		100.00%	100.00%	100.00%

- 1 The data used to calculate emissions is specific to each source setup. However, only the most recent setup is displayed for the above sources.
- 2 Transfer, PM and VOC Efficiencies apply only to Finishing Sources.
- 3 Total Control Efficiency is shown for Boilers and Wood Dust.
- 4 NA indicates that no schedule has been set up.

Start Date : 2013/01/01  
 End Date : 2013/12/31  
 By Source : No  
 By Department: No  
 By Facility : Yes  
 Detailed Chemical Names: No  
 Display Source Info: Yes  
 Display Params info: Yes  
 Apply Waste rate after Amount removed: No  
 Get Chemicals from PM: Yes

Facility Summary Facility ID 22842MRLTST

Waste Summary

Material ID	Volume Used (bdf)	Mass Used (ton)	Amount Removed (ton)	PM Emitted (lb)	PM Emitted (ton)	PM-10 Emitted (lb)	PM-10 Emitted (ton)	PM-2.5 Emitted (lb)	PM-2.5 Emitted (ton)	Amount Waste (ton)
B	764,208.99	1,604.84	0.00	385.16	0.19	385.16	0.19	385.16	0.19	962.90
C	1,516,396.97	2,236.69	0.00	536.80	0.27	536.80	0.27	536.80	0.27	1,342.01
H	327,604.99	679.78	0.00	163.15	8.157E-02	163.15	8.157E-02	163.15	8.157E-02	407.87
M	4,209,393.93	8,629.26	0.00	2,071.02	1.04	2,071.02	1.04	2,071.02	1.04	5,177.55
mdf	2,470,627.96	3,397.11	0.00	815.31	0.41	815.31	0.41	815.31	0.41	2,038.27
Partical Board	423,725.99	529.66	0.00	127.12	6.356E-02	127.12	6.356E-02	127.12	6.356E-02	317.79
RO	168,725.00	302.86	0.00	72.69	3.634E-02	72.69	3.634E-02	72.69	3.634E-02	181.72
SM	629,541.99	1,101.70	0.00	264.41	0.13	264.41	0.13	264.41	0.13	661.02
Waste Facility Totals	1.051E07	18,481.89	0.00	4,435.65	2.22	4,435.65	2.22	4,435.65	2.22	11,089.14

Facility Component Summary

CAS #	Chemical Name	Emissions Stack (lb)	Emissions Fugitive (lb)	Emissions Total (lb)
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Summary Chemicals and Criteria Chemicals

Code N\*\*\* values represent sum totals of individually reported chemicals in the Toxic Category Code

NA-ERAEnviro	PM (TOTAL)	4,435.65	0.00	4,435.65
NA-ERAEnviro	PM-10 (TOTAL)	4,435.65	0.00	4,435.65
NA-ERAEnviro	PM-2.5 (TOTAL)	4,435.65	0.00	4,435.65

VOC Exempt and Specific Chemicals TOTALS 0.00

Handwritten calculation:  

$$\frac{10,510,225.82}{1000} = 10,510.23$$
 Volume used per 1,000 bdf

# Kiln - Emissions by Material - Details

Start Date : 01/01/2013  
 End Date : 12/31/2013  
 Detailed Chemical Names: No

Kiln - Chemical Emissions by Material

Printed On : 02/07/2014

**Emissions Details for Facility ID** 22842MRLTST Masco Cabinetry

Source ID	DK	Permit Item No(s)	n/a
Description	Dry Kiln		
Percentage Annual Throughput	25.0%	25.00%	25.00%
	Mar-May	Jun-Aug	Sep-Nov
ERA_NO_CD	ERA - No control device attached		
	0.00%		

**Emission Summary for Material**

Material	Amount Used	Unit	CAS	Chemical Name	Emission Factor	Emission Factor Unit	Emissions (lb)
C	1,181,420.00	bdf	NA-ERAEnviro	VOC[*]	3.400E-04	lb / bdf	401.68
H	19,619.00	bdf	NA-ERAEnviro	VOC[*]	3.400E-04	lb / bdf	6.67
M	223,805.00	bdf	NA-ERAEnviro	VOC[*]	3.400E-04	lb / bdf	76.09
						<b>Total:</b>	484.45

$$\frac{1424844}{\div 1000} = 1424.844$$

$$\frac{1424844 \times 0.34}{\div 1000} = 484.44696$$

$$\frac{484.44696}{\div 2000} = 0.24222348 \text{ tons}$$

$$\frac{\div 2000}{\div 2000} = 0.242225$$

**ATTACHMENT B**

**PSD Permit issued 11/18/02 as amended 2/15/11**



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

PREVENTION OF SIGNIFICANT AIR QUALITY DETERIORATION PERMIT TO MODIFY AND OPERATE

This permit includes designated equipment subject to National Emission Standards for Hazardous Air Pollutants for Wood Furniture Manufacturing (40 CFR 63 Subpart JJ).

This permit replaces your permit dated November 18, 2002, as amended February 8, 2006, February 22, 2008, January 12, 2009, May 26, 2009, August 12, 2010, and January 28, 2011.

In compliance with the Federal Clean Air Act and the Commonwealth of Virginia Regulations for the Control and Abatement of Air Pollution,

Masco Cabinetry LLC
P.O. Box 719
Mt. Jackson, Virginia 22842
Registration No. 81062
Plant ID No.: 171-0063

is authorized to modify and operate

a wood cabinet door and frame manufacturing facility

located at

State Road 720 at I-81,
1.5 miles Southwest of Mt. Jackson in
Shenandoah County, Virginia

in accordance with the Conditions of this permit.

Approved November 18, 2002 Amended May 26, 2009
Amended February 8, 2006 Amended August 12, 2010
Amended February 22, 2008 Amended January 28, 2011
Amended January 12, 2009 Amended 2/15/11

[Signature]
Deputy Regional Director

Permit consists of 14 pages.
Permit Conditions 1 to 52.
Attachments A, B, and Source Testing Report Format

PERMIT CONDITIONS - the regulatory reference and authority for each condition is listed in parentheses ( ) after each condition.

### APPLICATION

1. Except as specified in this permit, the permitted facility is to be modified and operated as represented in the permit applications dated December 22, 2010, November 30, 2010, June 3, 2010, May 5, 2009, November 20, 2008, December 28, 2007, September 30, 2005, October 3, 2002, November 14, 1998 and October 7, 1996, including amendment pages dated January 26, 2011, January 29, 2008, and December 7, 2005 and supplemental information received January 11, 2011, July 20, 2010, December 19, 2008, November 14, 2005, dated October 31, 1996, November 1, 1996, November 21, 1996, May 22, 1997, December 7, 2005 and other documentation listed in Attachment A. Any changes in the permit application specifications or any existing facilities which alter the impact of the facility on air quality may require a permit. Failure to obtain such a permit prior to construction may result in enforcement action.  
(9 VAC 5-50-390 and 9 VAC 5-80-1210 D)

### PROCESS REQUIREMENTS

2. **Equipment List** – Finishing equipment to be constructed and operated at this facility consists of:
  - one RTF adhesive spray booth for the application of adhesive to RTF components (F1) (MACT Subpart JJ)

Previously permitted equipment at this facility prior to the date of this permit consists of:

- one off-line repair spray booth (MACT Subpart JJ)
- assorted woodworking equipment (W1) for the manufacture of wood cabinet doors and frames and associated fabric filters totaling 383,000 acfm (BH1-7)
- one stand alone hand spray booth and one finishing line consisting of one sap stain booth, two staining booths, one sealer booth, and one top coat spraying booth with drying ovens and microprocessor controlled automatic spraying and air-assisted airless spraying guns (F1) (MACT Subpart JJ)

Fuel burning equipment:

- one Industrial wood-fired boiler, Model 3-3900-150 HRT, with a rated heat input capacity of 28.5 million Btu per hour (B1)
- one Superior Boiler Works natural gas/distillate oil-fired boiler, Model 5-5-3004-S-150, with a rated heat input capacity of 14.7 million Btu per hour (B2)

(9 VAC 5-80-1100 and 9 VAC 5-80-1700 A)

**PROCESS REQUIREMENTS – FUEL BURNING EQUIPMENT**

3. **Emission Controls** - Particulate emissions from the Industrial wood-fired boiler (B1) shall be controlled by a multicyclone. The multicyclone shall be provided with adequate access for inspection. An annual inspection shall be conducted on the multicyclone by the permittee to ensure structural integrity.  
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

**OPERATING/EMISSION LIMITATIONS – FUEL BURNING EQUIPMENT**

4. **Emission Limits** - Emissions from the operation of the Industrial wood-fired boiler (B1) shall not exceed the limits specified below:

Particulate Matter	0.25 lb/MMBtu	17.9 tons/yr
PM-10	0.25 lb/MMBtu	17.9 tons/yr
Sulfur Dioxide	0.26 lbs/hr	1.12 tons/yr
Nitrogen Oxides (as NO <sub>2</sub> )	1.16 lbs/hr	5.06 tons/yr
Carbon Monoxide	6.80 lbs/hr	29.78 tons/yr
Volatile Organic Compounds	2.38 lbs/hr	10.42 tons/yr

Annual emissions shall be calculated monthly as the sum of each consecutive 12-month period. These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these limits shall be determined as stated in Conditions 3, 6, and 10.

(9 VAC 5-80-1180 and 9 VAC 5-50-260)

5. **Emission Limits** - Emissions from the operation of the Superior gas/oil-fired boiler (B2) shall not exceed the limits specified below:

Particulate Matter	0.014 lb/MMBtu	0.93 tons/yr
Sulfur Dioxide	0.35 lb/MMBtu	22.42 tons/yr

Annual emissions shall be calculated monthly as the sum of each consecutive 12-month period. These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these limits shall be determined as stated in Conditions 7, 8, and 10.

(9 VAC 5-80-1180 and 9 VAC 5-50-260)

6. **Fuel** - The approved fuel for the Industrial wood-fired boiler (B1) is waste wood and sawdust. A change in the fuels may require a permit to modify and operate.  
(9 VAC 5-80-1180)
7. **Fuel** - The approved fuels for the Superior boiler (B2) are natural gas and distillate oil. Distillate oil is defined as fuel oil that meets the specifications for fuel oil numbers 1 or 2 under the American Society for Testing and Materials, ASTM D396-78 "Standard Specification for Fuel Oils". A change in the fuels may require a permit to modify and operate.  
(9 VAC 5-80-1180)
8. **Fuel** - The average sulfur content of the oil to be burned in the Superior boiler (B2) shall not exceed 0.34 percent by weight per shipment.  
(9 VAC 5-80-1180)
9. **Fuel Records** – The permittee shall maintain records of all shipments purchased, indicating sulfur content per shipment. These records shall be available for inspection by the Board. Records shall be maintained for two years.  
(9 VAC 5-50-50)
10. **Visible Emission Limit** - Visible emissions from the Industrial wood-fired boiler stack and the Superior gas/oil-fired boiler stack shall not exceed 20 percent opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 30 percent opacity. This condition applies at all times except during startup, shutdown, or malfunction.  
(9 VAC 5-50-80, 9 VAC 5-80-1180 and 9 VAC 5-50-260)

#### **PROCESS REQUIREMENTS – WOODWORKING EQUIPMENT**

11. **Emission Controls** - Particulate emissions from the woodworking equipment and waste wood load out system shall be controlled by fabric filters (BH1-7). The fabric filters shall be provided with adequate access for inspection.  
(9 VAC 5-80-1180 and 9 VAC 5-50-260)
12. **Emission Controls** - All transfer of the collected material from the woodworking equipment shall be controlled by a fabric filter and/or a completely enclosed transfer system.  
(9 VAC 5-80-1180 and 9 VAC 5-50-260)
13. **Emission Controls** - Fugitive particulate emissions from the collection and transferring of collected wood waste shall be controlled by complete enclosure.  
(9 VAC 5-80-1180 and 9 VAC 5-50-260)
14. **Monitoring Devices** – Each fabric filter (BH1-7) shall be equipped with a device to continuously measure the pressure drop across each fabric filter. Each monitoring device shall be installed, maintained, calibrated and operated in accordance with approved

procedures which shall include, as a minimum, the manufacturer's written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the fabric filter is operating.  
(9 VAC 5-80-1180, 9 VAC 5-50-20 C and 9 VAC 5-50-260)

### **OPERATING/EMISSION LIMITATIONS – WOODWORKING EQUIPMENT**

15. **Throughput** - The annual throughput of wood for the manufacture of wood cabinets shall not exceed 38,325,000 board feet, calculated as the sum of each consecutive 12-month period.  
(9 VAC 5-80-1180 and 9 VAC 5-80-1800)
16. **Testing/Monitoring Ports** - The permitted facility shall be constructed so as to allow for emissions testing upon reasonable notice at any time, using appropriate methods. Test ports shall be provided at the appropriate locations located as required by the appropriate test method.  
(9 VAC 5-50-30 F)
17. **Emission Limits** - Total emissions from the fabric filter exhausts (BHS 1-7) from the operation of the woodworking equipment shall not exceed the limits specified below:

Particulate Matter	0.0022 gr/dscf	31.63 tons/yr
PM-10	0.0022 gr/dscf	31.63 tons/yr

The tons/yr emissions are derived from the estimated overall emission contribution. Compliance with these limits shall be determined as stated in Condition 18.  
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

18. **Visible Emission Limit** - Visible emissions from the fabric filters (BH1-7) shall not exceed five percent opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A). This condition applies at all times except during startup, shutdown and malfunction.  
(9 VAC 5-80-1180, 9 VAC 5-50-80 and 9 VAC 5-50-260)
19. **Visible Emission Limit** - Visible emissions from any fugitive emission points shall not exceed 10 percent opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A). This condition applies at all times except during startup, shutdown and malfunction.  
(9 VAC 5-80-1180, 9 VAC 5-50-80 and 9 VAC 5-50-260)

### **PROCESS REQUIREMENTS – WOOD FINISHING EQUIPMENT**

20. **Emission Controls** – Particulate emissions from each spray booth (F1), including emissions during the rigid thermo foil (RTF) production process, shall be controlled by either dry filters or a combination of water wash and dry filters. The water wash and the filters shall be provided with adequate access for inspection.  
(9 VAC 5-80-1180)

21. **Emission Controls** – Particulate emissions from the automatic sealer sander (F1) shall be controlled by a fabric filter baghouse (BH6). The baghouse shall be provided with adequate access for inspection.  
(9 VAC 5-80-1180)
22. **Emission Controls** – Volatile organic compound (VOC) emissions from the finishing operation shall be controlled by the use of lower VOC finishes and/or routing VOC emissions from the sealer booth to a regenerative thermal oxidizer (RTO). The RTO shall be provided with adequate access for inspection.  
(9 VAC 5-80-1180 and 9 VAC 5-50-260)
23. **Emission Controls** – Volatile organic compound (VOC) emissions from the use of glue (two-part dispersion adhesive (Jowapur 150.17 or equivalent) and hardener (Jowat Hardener 195.40 or equivalent) or one-part adhesive (Jowapur 150.55 or equivalent)) during the rigid thermo foil (RTF) production process in the RTF adhesive spray booth (F1) are limited to 0.33 lb VOC/gal as applied on a daily average. A change in the product specifications of the glue may require a permit to modify and operate.  
(9 VAC 5-80-1180)
24. **Control Efficiency** – The RTO shall maintain a destruction efficiency for VOC emissions of no less than 95.0 percent, on a mass basis.  
(9 VAC 5-80-1180 and 9 VAC 5-50-260)
25. **Capture Efficiency** – The enclosure to the sealer booth shall have a capture efficiency of 95.0 percent as determined by an approved negative pressure enclosure procedure, or alternate methods as approved by DEQ.  
(9 VAC 5-80-1180 and 9 VAC 5-50-260)
26. **Control Parameters** – The RTO shall maintain a minimum combustion zone temperature equal to higher than that determined during the performance testing required by Condition 39 and a residence time of at least 0.9 second. The minimum combustion zone temperature shall be calculated as a three-hour average. Details concerning the method of calculating the three-hour average combustion zone temperature shall be arranged with DEQ.  
(9 VAC 5-80-1180 and 9 VAC 5-50-260)
27. **Monitoring Devices** – The RTO shall be equipped with a device to continuously measure and record the combustion zone temperature. The monitoring device shall be installed, maintained, calibrated, and operated in accordance with approved procedures which shall include, as a minimum, the manufacturer's written requirements or recommendations. The monitoring device shall be provided with adequate access for inspection and shall be in operation when the RTO is operating.  
(9 VAC 5-80-1180 D, 9 VAC 5-50-20 C, and 9 VAC 5-50-260)
28. **Testing/Monitoring Ports** - The facility shall be constructed so as to allow for emissions testing upon reasonable notice at any time, using appropriate methods. Test ports shall be provided at the appropriate locations as required by the appropriate test method.  
(9 VAC 5-50-30 F)

**OPERATING/EMISSION LIMITATIONS – WOOD FINISHING EQUIPMENT**

29. **Fuel** - The approved fuel for RTO is natural gas. A change in the fuel may require a permit to modify and operate.  
(9 VAC 5-80-1180)
30. **Throughput** - The total throughput of VOC to the finishing equipment (F1) shall not exceed the quantity as determined by the following equation:

$$X + Y (1-OCE/100) \leq 533 \text{ tons}$$

where:

- X = VOC throughput to uncontrolled finishing operations (tons)  
Y = VOC throughput to controlled sealer booth (tons)  
OCE = overall VOC control efficiency (capture & control  $\geq$  90%)

Total VOC throughput shall be calculated monthly as the sum of each consecutive 12-month period. OCE shall be that determined in testing of capture system and RTO as required by Conditions 25 and 39, respectively.  
(9 VAC 5-80-1180)

31. **Throughput (Rigid Thermo Foil Process)** – The total throughput of the glues approved in Condition No. 23 to the RTF adhesive spray booth (F1) for the production of RTF cabinet components shall not exceed 7,950 gallons per year, calculated monthly as the sum of each consecutive 12-month period.  
(9 VAC 5-80-1180)
32. **Emission Limits** - Emissions from the operation of the finishing equipment (F1), including emissions from the production of rigid thermo foil (RTF) cabinet components, shall not exceed the limits specified below:

Particulate Matter	3.0 lbs/hr	13.0 tons/yr
PM-10	3.0 lbs/hr	13.0 tons/yr
Volatile Organic Compounds		533 tons/yr

Annual emissions shall be calculated monthly as the sum of each consecutive 12-month period. These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these limits shall be determined as stated in Conditions 20 through 25.  
(9 VAC 5-50-260, 9 VAC 5-80-1800 and 9 VAC 5-80-1180)

33. **Requirements by Reference** – Except where this permit is more restrictive than the applicable requirement, the NESHAP equipment as described in Condition 2 shall be operated in compliance with the requirements of 40 CFR 63, Subpart JJ.

(9 VAC 5-80-1180, 9 VAC 5-60-90 and 9 VAC 5-60-100)

34. **Visible Emission Limit** - Visible emissions from the RTO exhaust shall not exceed five percent opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A). This condition applies at all times except during startup, shutdown, and malfunction.  
(9 VAC 5-50-80 and 9 VAC 5-80-1180)
35. **Visible Emission Limit** - Visible emissions from each finishing operation exhaust shall not exceed five percent opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A). This condition applies at all times except during startup, shutdown, and malfunction.  
(9 VAC 5-50-80 and 9 VAC 5-80-1180)

### **REPORTS AND RECORDS**

36. **Pollution Prevention** – The permittee shall continually seek new technology to include but not be limited to: selection and use of finishes with less photochemically reactive solvents, spraying equipment and techniques with improved transfer efficiencies and water-base coatings when technically and economically acceptable and available to the industry. Status reports will be submitted semi-annually to DEQ, addressing each emerging technology. Reports will be due by March 1st and the September 1st, annually.  
(9 VAC 5-50-50)
37. **On Site Records** - The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with DEQ. These records shall include, but are not limited to:
  - a. The monthly and annual throughput of wood used for the manufacture of wood cabinets (in board feet). Annual throughput shall be calculated as the sum of each consecutive 12-month period.
  - b. Material Safety Data Sheets (MSDS) or other vendor information showing VOC content, water content, and solids content for each coating material, adhesive, thinner or cleaning solution used.
  - c. Material Safety Data Sheets (MSDS) or other vendor information showing VOC content, water content, and solids content for the glue used for the production of rigid thermo foil (RTF) cabinet components.
  - d. A monthly and annual material balance including the throughput and emissions of VOC and particulate matter (PM) (in tons). PM emissions shall be based on the appropriate transfer efficiency and control efficiency. VOC emission calculations from the RTO exhaust shall reflect the control efficiency established during the most recent emission test that demonstrated compliance. Calculations shall also account for any VOC emissions from the bypass stack due to malfunctions.

- e. An average hourly material balance including the throughput and emissions of PM. Average emissions shall be calculated and recorded monthly as the total amount of PM used within a calendar month divided by the total hours of operation of the finishing equipment (F1) to estimate a maximum hourly usage.
- f. The number of hours per day of operation of the finishing line (F1).
- g. Hours of operation of sealer booth when RTO is in bypass or shutdown.
- h. Annual throughput of VOC to the finishing line sealer booth, calculated as the sum of each consecutive 12-month period.
- i. Annual throughput of total glue throughput (dispersion adhesive and hardener) to the RTF adhesive spray booth (F1) for the production of rigid thermo foil (RTF) cabinet components.
- j. Annual throughput of VOC used on areas of the finishing line not controlled by RTO.
- k. Average combustion temperatures recorded in the RTO, calculated hourly as an average of the previous three hours of data.
- l. Monthly records of any three-hour period during which the combustion temperature of the RTO was below the average temperature observed during the most recent emission test that demonstrated compliance. The permittee shall record causes for any excursion, and corrective actions taken.
- m. Maintenance and calibration records (calibrations, checks, and adjustments) for the RTO's combustion zone temperature monitoring device.
- n. The number of hours per day of operation of the Industrial wood-fired boiler (B1).
- o. The hourly steam pressure of the Industrial wood-fired boiler (B1) (in pounds).
- p. Monthly and annual cumulative particulate emissions from the Industrial wood-fired boiler (B1) (in tons). Particulate emissions shall be calculated using the procedure provided in Attachment B to this permit.
- q. The monthly throughput of natural gas and distillate oil for the Superior gas/oil-fired boiler (B2) (in cubic feet and/or gallons).
- r. Results of all stack tests and visible emissions observations and/or evaluations.

These records shall be available for inspection by the DEQ and shall be current for the most recent five years.

(9 VAC 5-50-50)

38. **Material Balance Report** - The permittee shall submit quarterly material balance reports broken down monthly on the use of stains, sealers, top coats, touch-up finishes, and clean-up solvents to DEQ. Such quarterly reports will include gallons of material used by type,

density of each product, and percent VOC by weight. Reports shall be submitted by the 1st of March, June, September, and December.  
(9 VAC 5-50-50)

#### **INITIAL COMPLIANCE DETERMINATION**

39. **Stack Test** – Initial performance tests shall be conducted for VOC emissions from the RTO to determine compliance with the capture and destruction efficiency requirements contained in Conditions 24 and 25. The results of the performance tests shall be used to establish appropriate operating parameter ranges for the RTO, including the minimum combustion zone temperature necessary to achieve the destruction efficiency contained in Condition 24. Upon approval by DEQ, appropriate parameters based upon performance testing, to include minimum combustion zone temperature, shall be incorporated into Condition 26 by reference. The tests shall be performed, and demonstrate compliance, within 60 days after start-up of the RTO. Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30. Control efficiency testing shall be conducted according to 40 CFR 60, Appendix A, Methods 25, 25A, or 25B. Capture efficiency testing shall be conducted according to an approved negative pressure enclosure procedure, or using alternative methods as approved by DEQ. The details of the tests are to be arranged with DEQ. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to DEQ, with 45 days after test completion and shall conform to the test report format enclosed with this permit.  
(9 VAC 5-50-30 and 9 VAC 5-80-1180 D)
40. **Visible Emissions Evaluation** – Concurrently, with the initial performance tests, Visible Emission Evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9, shall be conducted by the permittee on the RTO exhaust. Each test shall consist of 30 sets of 24 consecutive observations (at 15-second intervals) to yield a six-minute average. The details of the tests are to be arranged with DEQ. The permittee shall submit a test protocol at least 30 days prior to testing. Should conditions prevent concurrent opacity observations, DEQ shall be notified in writing, within seven days, and visible emissions testing shall be rescheduled within 30 days. Rescheduled testing shall be conducted under the same conditions (as possible) as the initial performance tests. One copy of the test results shall be submitted to DEQ, within 45 days after test completion and shall conform to the test report format enclosed with this permit.  
(9 VAC 5-50-30 and 9 VAC 5-80-1180 D)

#### **CONTINUING COMPLIANCE DETERMINATION**

41. **Stack Tests** – Following completion of the initial stack testing, the permittee shall perform additional performance tests on a biennial basis to demonstrate compliance with the VOC emission limit and control efficiency requirements contained in Conditions 24 and 32. If two consecutive performance tests demonstrate compliance with the VOC emission limit and the control efficiency requirement, the permitted may request a revised testing schedule no less frequent than once each five-year period. The details for the tests shall be arranged with DEQ.  
(9 VAC 5-50-30 G)

42. **Visible Emission Evaluations** - Upon request by the DEQ, the permittee shall conduct additional visible emission evaluations from the fabric filter (BH6) and the finishing operations exhausts to demonstrate compliance with the visible emission limits contained in this permit. The details of the tests shall be arranged with DEQ.  
(9 VAC 5-50-30 G)

### NOTIFICATIONS

43. **Initial Notifications** – The permittee shall furnish written notification to DEQ of:
- a. The actual start-up date of the RTO, within 15 days after such date.
  - b. The anticipated date of the performance tests of the RTO, postmarked at least 30 days prior to such date.
  - c. The anticipated date of the VEE for the finishing operation exhausts, postmarked at least 30 days prior to such date.
  - d. The actual date on which installation of the new RTF adhesive spray booth (F1) commenced, within 30 days after such date.
  - e. The anticipated start-up date of the new spray booth (F1), postmarked not more than 60 days nor less than 30 days prior to such date.
  - f. The actual start-up date of the new spray booth (F1), within 15 days after such date.
- (9 VAC 5-50-50)

### GENERAL CONDITIONS

44. **Permit Invalidation** – This permit to construct the RTF adhesive spray booth (F1) shall become invalid, unless an extension is granted by the DEQ, if:
- a. A program of continuous construction is not commenced within the latest of the following:
    - i. 18 months from the date of this permit;
    - ii. Nine months from the date that the last permit or other authorization was issued from any other governmental entity;
    - iii. Nine months from the date of the last resolution of any litigation concerning any such permits or authorization; or
  - b. A program of construction is discontinued for a period of 18 months or more, or is not completed within a reasonable time, except for a DEQ-approved period between phases of a phased construction project.
- (9 VAC 5-80-1210)

45. **Permit Suspension/Revocation** - This permit may be suspended or revoked if the permittee:
- a. Knowingly makes material misstatements in the application for this permit or any amendments to it;
  - b. Fails to comply with the conditions of this permit;
  - c. Fails to comply with an emission standards applicable to the equipment listed in Condition 2;
  - d. Causes emissions from this facility which result in violations of, or interferes with the attainment and maintenance of, any ambient air quality standard;
  - e. Fails to operate this facility in conformance with any applicable control strategy, including any emission standards or emission limitations, in the State Implementation Plan in effect on the date that the application for this permit is submitted;
  - f. Fails to modify and operated this facility in accordance with the application for this permit or any amendments to it; or
  - g. Allows the permit to become invalid.

(9 VAC 5-80-1210)

46. **Right of Entry** - The permittee shall allow authorized local, state, and federal representatives, upon the presentation of credentials:
- a. To enter upon the permittee's premises on which the facility is located or in which any records are required to be kept under the terms and conditions of this permit;
  - b. To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit or the State Air Pollution Control Board Regulations;
  - c. To inspect at reasonable times any facility, equipment, or process subject to the terms and conditions of this permit or the State Air Pollution Control Board Regulations;  
and
  - d. To sample or test at reasonable times.

For purposes of this condition, the time for inspection shall be deemed reasonable during regular business hours or whenever the facility is in operation. Nothing contained herein shall make an inspection time unreasonable during an emergency.

(9 VAC 5-170-130)

47. **Notification for Facility or Control Equipment Malfunction** - The permittee shall furnish notification to DEQ, of malfunctions of the affected facility or related air pollution

control equipment that may cause excess emissions for more than one hour, by electronic mail, facsimile transmission, telephone or telegraph. Such notification shall be made as soon as practicable but not later than four daytime business hours after the malfunction is discovered. The permittee shall provide a written statement giving all pertinent facts, including the estimated duration of the breakdown, within 14 days of the discovery. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the permittee shall notify DEQ, in writing.  
(9 VAC 5-20-180 C)

48. **Maintenance/Operating Procedures** – The permittee shall take the following measures in order to minimize the duration and frequency of excess emissions, with respect to air pollution control equipment and process equipment which affect such emissions:
- a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance.
  - b. Maintain an inventory of spare parts.
  - c. Have available written operating procedures for equipment. These procedures shall be based on the manufacturer's recommendations, at a minimum.
  - d. Train operators in the proper operation of all such equipment and familiarize the operators with the written operating procedures. The permittee shall maintain records of the training provided including the names of trainees, the date of training and the nature of the training.

Records of maintenance and training shall be maintained on site for a period of five years and shall be made available to DEQ personnel upon request.  
(9 VAC 5-50-20 E)

49. **Violation of Ambient Air Quality Standard** – The permittee shall, upon request of the DEQ, reduce the level of operation or shut down a facility, as necessary to avoid violating any primary ambient air quality standard and shall not return to normal operation until such time as the ambient air quality standard will not be violated.  
(9 VAC 5-20-180 I)
50. **Change of Ownership** - In the case of a transfer of ownership of a stationary source, the new owner shall abide by any current permit issued to the previous owner. The new owner shall notify DEQ, of the change of ownership within 30 days of the transfer.  
(9 VAC 5-80-1240)
51. **Registration/Update** - Annual requirements to fulfill legal obligations to maintain current stationary source emissions data will necessitate a prompt response by the permittee to requests by the DEQ or the Board for information to include, as appropriate: process and production data; changes in control equipment; and operating schedules. Such requests for information from the DEQ will either be in writing or by personal contact. The availability of information submitted to the DEQ or the Board will be governed by applicable provisions of the Freedom of Information Act, §§ 2.2-3700 through 2.2-3714 of the Code of

Virginia, § 10.1-1314 (addressing information provided to the Board), and 9 VAC 5-170-60 of the State Air Pollution Control Board Regulations. Information provided to federal officials is subject to appropriate federal law and regulations governing confidentiality of such information.

(9 VAC 5-170-60 and 9 VAC 5-20-160)

52. **Permit Copy** – The permittee shall keep a copy of this permit on the premises of the facility to which it applies.

(9 VAC 5-80-1180)

## **Attachment A**

### Document List

1. PSD Permit Application, with supporting documents (Ray Weston, Inc. PSD study report - August 20, 1984) dated September 6, 1984, and site map.
2. PSD determination letter to Merillat Industries, Inc. from the SAPCB dated September 20, 1984.
3. Merillat Industries, Inc. letter to Region VII responding to PSD determination letter requirements with revised data dated October 10, 1984.
4. PSD permit dated December 10, 1984.
5. Merillat Industries, Inc. permit application dated November 20, 1987.
6. Permit dated December 9, 1987.
7. Registration update for replacement wood-fired boiler dated November 1, 1988
8. Consent Agreement and Order signed on April 18 and 22, 1991.
9. Amended PSD permit dated July 11, 1991.
10. Notebook containing Material Safety Data Sheets for stains, sealers, topcoats, touch/clean-up solvents currently in use at Merillat facility received on October 10, 1996.
11. Additional Material Safety Data Sheets described in cover letter from Merillat dated November 7, 1996.

## Attachment B

The following procedure shall be used to calculate particulate emissions from the Industrial wood-fired boiler (B1).

1. Calculate average heat input capacity of the boiler based on the average steam production.

$$\text{Boiler Capacity (MMBtu/hr)} = \text{Steam Production (lb/h)} \times 1040 \text{ (Btu/lb)} / 0.71 \text{ (boiler efficiency)} / 11,000,000$$

2. Calculate tons of particulate emitted based on computed average heat input capacity.

$$\text{Particulate Emissions (tons/month)} = \text{Boiler Capacity (MMBtu/hr)} \times 0.25 \text{ (lb/MMBtu)} \times \text{Time (hours/month)} / 2000 \text{ (lb/ton)}$$

**ATTACHMENT C**

**CAM Plan for the Fabric Filters (BH1 – BH7)**

## Fabric Filter CAM Plan (Units: BH1-BH7)

	Indicator 1	Indicator 2	Indicator 3
<b>Indicator</b>	<b>Opacity</b>	<b>Visible Emission Evaluation (optional - to determine if excursion occurs)</b>	<b>Periodic Structural Inspections</b>
<b>Measurement approach</b>	Daily visible emission observations conducted at each control device emission point.	Method 9 VEE in accordance with 40 CFR 60, Appendix A conducted optionally to determine if an excursion occurs. Results recorded upon completion of each Method 9. If visible emissions are observed by Indicator 1 and a Method 9 VEE is not conducted, then an excursion has occurred.	Monthly external bag filter inspections by a qualified employee. Results recorded monthly.  Annual internal bag filter inspections by a qualified employee. Results recorded upon completion of each inspection.
<b>Indicator range</b>	An excursion is defined as the presence of any visible emission from the control device unless otherwise determined by a Method 9 VEE.	An excursion is defined as an average opacity greater than 5% during one six-minute period in any one hour.	An excursion is defined as failure to perform the monthly or annual inspection of bag filters. Excursions trigger an inspection, corrective action and a reporting requirement.
<b>QIP Threshold</b>	More than 3 excursions in a 2 week period per each control device	More than 3 excursions in a 2 week period per each control device.	Not Applicable
<b><u>Performance criteria:</u></b>			
<b>Data Representativeness</b>	Observation of visible emissions indicates possible damage to bag filter.	Observation of visible emissions greater than 5% indicates replacement or maintenance of bag filters is necessary.	Bags in the fabric filters shall be inspected visually for deterioration and remaining bag life monitored.
<b>Verification of operational status</b>	Records that indicate time, facility operational status and results of each observation.	Pressure drop across each filter.	Pressure drop across each filter.
<b>QA/QC practices and criteria</b>	Trained personnel to perform observations.	Trained personnel shall perform Method 9. One copy of the test results shall be submitted to the Valley Regional Office within 45 days after completion.	Trained personnel perform the inspection and maintenance.
<b>Monitoring frequency and data collection procedure</b>	Daily observation.	Upon the observation of visible emissions from any fabric filter.	Monthly and annual inspections.

**ATTACHMENT D**

**CAM Plan for the Regenerative Thermal Oxidizer (RTO)**

## Regenerative Thermal Oxidizer (RTO) CAM Plan (Unit: RTO)

	Indicator 1	Indicator 2	Indicator 3
<b>Indicator</b>	<b>Combustion Chamber Temperature</b>	<b>Annual Inspection</b>	<b>Periodic Stack Testing</b>
<b>Measurement approach</b>	The combustion zone temperature is continuously monitored by a thermocouple.	The burner and valves on the air lines leading to the regenerative beds shall be inspected annually.	After initial startup of the RTO, EPA Method 25, 25A, or 25B (40 CFR 60, Appendix A) testing shall be conducted at least once every five years to verify destruction efficiency. The enclosure's capture efficiency shall also be verified.
<b>Indicator range</b>	Greater than or equal to the temperature observed during the stack test demonstrating 95.0% destruction efficiency. The monitored temperature shall be a three-hour average.	The burner shall be inspected for corrosion, mechanical failure, etc. The seal integrity of the valves shall be assessed to ensure no leakage.	Greater than or equal to 95.0% VOC destruction efficiency. Greater than or equal to 95.0% capture efficiency for enclosure to the sealer booth.
<b>QIP Threshold</b>	Six excursions below the indicator range in any semi-annual reporting period.	N/A	N/A
<b>Performance criteria:</b>			
<b>Data representativeness</b>	The thermocouple is installed in the combustion chamber as an integral part of the RTO design.	Each valve and associated ductwork is inspected for any warping, splits, or other degradation that may affect the tightness of seal when each valve is closed.	Testing shall be conducted when finishing operations are representative of normal operating conditions.
<b>Verification of operational status</b>	N/A	N/A	N/A
<b>QA/QC practices and criteria</b>	An accuracy check shall be conducted at least annually by inserting a second (redundant) thermocouple probe into the incinerator chamber via a hand-held meter to verify the accuracy of the thermocouple. No accuracy check is required if the thermocouple has been replaced within the previous 12 months. The acceptance criterion is +/- 10 °F.	The RTO manufacturer or other authorized technician familiar with the operating principles of regenerative thermal oxidation units shall conduct the inspection.	Test procedures shall be as required by EPA Method 25, 25A, or 25B (40 CFR 60, Appendix A). Capture efficiency for the sealer booth enclosure shall be determined by an approved negative pressure enclosure procedure or by an alternate method approved by DEQ. Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30 and the test methods and procedures contained in each applicable section or subpart listed in 9 VAC 5-50-410. A test protocol shall be submitted to and approved by the DEQ, prior to testing.
<b>Monitoring frequency and data collection procedure</b>	Temperature is measured and recorded continuously. Three-hour averages shall be calculated hourly as the average of the previous three hours of data.	The burner and valve seals shall be inspected each calendar year in which the RTO operates. Adjustments/repairs shall be made as necessary.	After initial startup of the RTO, at least once every five-year cycle of the permit. The initial performance test required by Condition V.D.2 shall satisfy this requirement upon initial startup of the RTO.