

**DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection**

B600151967

FACILITY: Herman Miller, Inc	SRN / ID: B6001
LOCATION: 855 E. Main Ave., ZEELAND	DISTRICT: Grand Rapids
CITY: ZEELAND	COUNTY: OTTAWA
CONTACT: Fred Gordon , Environmental Manager	ACTIVITY DATE: 01/08/2020
STAFF: Chris Robinson	COMPLIANCE STATUS: Compliance
SUBJECT: FY '20 on-site inspection to determine the facility's compliance status with respect to PTI 9-18A and any other applicable air quality rules and regulations.	
RESOLVED COMPLAINTS:	

A scheduled unannounced inspection of Herman Miller, Inc. (SRN B6001) was completed by AQD staff Chris Robinson (CR) on January 8, 2020. The area surrounding the building located at 855 East Main Avenue in Zeeland, Ottawa County Michigan was surveyed for odors and visible emissions. None were observed. AQD staff met with the facility's Environmental Manager, Fred Gordon. Intent of the visit was provided along with identification.

A) FACILITY DESCRIPTION

Herman Miller manufactures wood office furniture and operates a wood waste boiler. The manufacturing operation is composed of wood finishing lines, adhesive application stations, woodworking equipment and maintenance parts washers. The wood finishing lines are made up of various coating booths and ovens. The coating operations includes an ultraviolet finish line and the Rhodes Line3, which are used to apply stains, topcoats and sealers. The woodworking equipment consists of carving, cutting, routing, turning, drilling, sawing, sanding, planing, and buffing wood components. Exhaust from the woodworking machinery is directed to one of seven dust collection systems. Depending upon weather conditions, the exhaust from the dust collectors can either be internally or externally vented.

REGULATORY ANALYSIS

Herman Miller was subject to Title 40 of the Code of Federal Regulations (CFR), Part 70, because the facility had been subject to the National Emission Standard for Hazardous Air Pollutants (NESHAP) for Wood Furniture Manufacturing promulgated in 40 CFR, Part 63, Subparts A and JJ. A May 16, 1995 EPA Memo provided guidance that once a source was major for Hazardous Air Pollutants (HAPs) and subject to a NESHAP they were always subject, in this case to 40 CFR, Part 63, Subparts A and JJ, and to 40 CFR, Part 70. With the issuance of PTI No. 162-13, Herman Miller became a "synthetic minor" source of HAP emissions by accepting legally enforceable permit conditions limiting potential Individual HAP emissions to less than 10tpy and Aggregate HAP emissions to less than 25 tpy. Yet they remained subject to 40 CFR Part 70 since they had previously been subject to a NESHAP. With EPA's withdrawal of this policy in January 2018, the source claimed that they were an "Area" source, obtained PTI No. 9-18A and voided ROP No. MI-ROP-B6001-2014. Herman Miller currently operates under PTI No. 9-18A and several Rule 201 permitting exemptions which are discussed below.

1) PTI no. 9-18A

EUBOILER3162

A 28 MMBtu/hour wood waste fired boiler is installed at this facility that is used to generate steam primarily for on-site space heating and cooling, some process steam heating and the capability to generate electricity via a steam driven turbine generator. The fuel consists of wood and resinated wood waste produced on-site. This unit is subject to rule 40 CFR Part 63, Subpart JJJJJJ (Area Source Boiler MACT) as an existing Area Source Boiler.

This boiler was included in PTI9-18A since it is still installed and operational. The unit has not operated well since it was re-permitted in 2015. These modifications included a new fuel feeding system, lower hearth combustion controls, and a new Heat Recovery Steam Generator (HRSG). With continued operational issues, Herman Miller has not run the biomass boiler since 2016 but has maintained necessary records. Mr. Gordon also indicated that the boiler is equipped with a reburn tunnel, fabric filter collector and hydrochloric acid gas sorbent injection system as required in Special Condition (SC) III.1. Fuel is limited to wood waste and there has been no fuel substitutions, therefore prior notification of substitutions has not been required (SC III.2).

This boiler is subject to the emission limits specified in SC I.1-5. Special Conditions I.1, I.3 and I.4 are all based

on testing, which has not been conducted since the unit has not been able to achieve the 90% design capacity. As discussed in the previous inspection report, CR informed Mr. Gordon that if the unit becomes operational, the Preventative Maintenance Plan and Malfunction Abatement Procedures for the new boiler configuration should be updated. In addition, the AQD requests that Herman Miller, Inc. keep AQD staff updated on the status of the boiler. Special Condition V.2 requires the facility to notify the AQD within 30 days after start-up of EUBOILER3162 and upon reaching 90% design capacity.

FGDUSTCOLLECTORS

Herman Miller operates the following eight (8) baghouses for collecting dust created by woodworking machinery used for the cutting, shaping, sanding, boring, edge profiling, edge banding, etc., of office furniture components.

60,000 CFM - EUDUSTCOLLECTOR1, EUDUSTCOLLECTOR2, EUDUSTCOLLECTOR3

75,000 CFM - EUDUSTCOLLECTOR4, EUDUSTCOLLECTOR5, EUDUSTCOLLECTOR6

50,000 CFM - EUDUSTCOLLECTOR7, EUDUSTCOLLECTOR8

These emission units are subject to the following Particulate Matter (PM) emission limits:

Pollutant	Limit	Time Period
Particulate	0.005lb/1,000lb exhaust gases, calculated on a dry gas basis	Hourly
PM	50.0 tpy	12-month rolling
PM2.5	50.0 tpy	
PM10	50.0 tpy	

Testing was required (SC V.1) within 270 days of permit issuance in order to verify that the facility could meet their requested emission limit for PM of 0.005 lbs./1,000 lbs. of exhaust gases. The facility tested three of the baghouses (#3, #5, & #8), one per type (50,000, 60,000 and 75,000 CFM). Testing was conducted on September 10-12, 2019. The facility provided proper notifications and reports. Results, as indicated below are within the specified limit of 0.005 lbs./1,000 lbs. of exhaust gases. Compliance with the 50tpy emission limit for PM, PM2.5, and PM10 is demonstrated by properly maintaining and operating the baghouses, which the facility appears to be doing.

- Dust Collector #3 - 0.002 lbs./1,000 lbs. (0.42 lbs./hour)
- Dust Collector #5 - 0.003 lbs./1,000 lbs. (0.83 lbs./hour)
- Dust Collector #8 - 0.003 lbs./1,000 lbs. (0.51 lbs./hour)

A Malfunction Abatement Plan (MAP) was received by the AQD on January 31, 2019, within 30 days from the time the PTI was issued (January 4, 2019) as required per SC III.1. The MAP contains the information required in SC III.1.a-c.

Per Mr. Gordon and site observations during baghouse testing on September 10, 2019 and during this inspection (January 8, 2020), the woodworking equipment is never operated without the baghouses (SC IV.1).

Each baghouse is equipped with both a broken bag detector and a pressure drop gauge (SC IV.2 & VI.1). The broken bag detector continuously monitors for particulate emission (SC VI.1). The baghouses vent both internally and externally depending on building heat requirements throughout the year. If the broken bag detector alarm is activated, the facility follows the requirements in their MAP, which includes conducting non-certified visible emission checks when the collector is discharging to the outside air. Work Orders are created for all alarms for documentation (SC VI.2 VI.3). An example is included in **Attachment B**. Site personnel also take visual pressure gauge readings once per week (SC VI.4). Records were reviewed and are included in **Attachment B**.

FGGENERALPERMIT

This flexible group includes both the UV Finish Line (EUUVFINLINE1) for topcoats and the Rhodes finish line (EURHODESLINE3) for staining. Each line is limited to 10 tpy or 2,000 pounds per month of VOCs, based on a 12-month rolling time period. Emission calculations were provided for January 1, 2019 through December 31, 2019, which are included in **Attachment A**. Based on these records, the maximum reported 12-month rolling total emissions for EURHODESLINE3 was 1.07 tons (November) with a maximum monthly total of 288.8 pounds (January). The maximum reported 12-month rolling total emissions for EUFINLINE1 was 2.96 tons (January) with a maximum monthly total of 438.14 pounds (March). The permit also limits VOC emissions from all coating lines combined to 30 tpy. The maximum reported annual VOC emissions for the lines combined, based on a rolling 12-month period, was 3.95 tons (January). Records appear to indicate that the facility is in compliance

with the specified emission limits. Per observations High volume-low pressure (HVLP) spray guns are being utilized and dry filters were installed and maintained in both of the finishing lines (SC III.1 & III.2). Per discussions with Mr. Gordon All waste coatings and reducers are captured and stored in closed containers and disposed of in an acceptable manner (SC IX.1).

Monthly and annual VOC content, usage rates and emission rate calculations were provided as required per SC VI.2-5 (**Attachment A**). Mr. Gordon indicated that the facility uses point of use records, therefore monthly records of purchase orders and invoices are not required to be kept as allowed by SC VI.1. The facility maintains a current listing of the chemical composition of each coating as required by SC VI.6. Safety data sheets are maintained. Examples are included in **Attachment D**.

FGFACILITY

The HAP content of all materials used is determined based on manufacturer's formulation data. The facility maintains fuel usage, HAP content records and individual and aggregate HAP emission calculations. These records have been provided and are included in **Attachment A**. The facility is subject to a facility-wide individual HAP limit of 9 tpy and an aggregate limit of 22.5 tpy. Based on the provided emission calculations for January 1, 2019 through December 31, 2019 the maximum reported Aggregate HAP emissions were 1.06 tons (December) which is well under both the individual and aggregate HAP limits. Records appear to indicate that the facility is in compliance with the specified emission limits.

2) Rule 201 Permit to Install Exemptions

Cold Cleaners

The facility has one cold cleaner located in the maintenance area. Instructions are posted and the lid is kept closed when not in use. This cold cleaner appears to be exempt from Rule 201 permitting requirements per Rule 281(2)(h) as noted in MAERS.

Emergency Generator

The facility operates six (6) emergency generators (**Attachment C**), which are listed below, throughout the building. All six appear to be exempt from Rule 201 permitting requirements per Rule 285(2)(g) for internal combustion engines with a maximum heat input of 10,000,000 Btu/hour. They also do not appear to be subject to the New Source Performance Standard (NSPS) for Stationary Spark Ignition Internal Combustion Engines promulgated in 40 CFR, Part 60, Subpart JJJJ since they were installed prior to 6/12/2006. The diesel fired engines do not appear to be subject to the NSPS for Stationary Compression Ignition Internal Combustion Engines promulgated in 40 CFR, Part 60, Subpart IIII since they were installed prior to 7/11/2005.

All of the engines appear to be subject to the NESHAP for Stationary Reciprocating Internal Combustion Engines promulgated in 40 CFR, Part 63, Subpart ZZZZ (RICE MACT). The facility is an AREA source for HAPs, therefore subject to the AREA Source RICE MACT, which the AQD does not have delegation for. However, the facility has installed non-resettable hour meters and appears to be conducting the proper maintenance.

Location	Fuel Type	Engine Make	Engine Model	Installation Date
IT North A/C	nat. gas	Kohler	200RZD	2001
Fac Maint	diesel	Detroit Diesel	PTA-1SD-273	1976
Fac Maint	nat. gas	Kohler	45RZ72	2004
IT	diesel		SR4	2002
Mezzanine over office	diesel	Kohler	50ROZJ71	5/31/1995 (purchase)
Bldg B	diesel	Kohler	125ROZJ71	1994

Adhesive Application Stations

Herman Miller operates six (6) spreaders for applying adhesive. Based on a discussion with Mr. Gordon and Jeff Pfof from Environmental Partners, Inc., Herman Miller is claiming that the gluing operations are exempt from Rule 201 permitting requirements per Rule 290. Usage and emissions are being tracked. Records are provided in **Attachment A** and safety data sheets are provided in **Attachment D**. Four (4) types of adhesives are being used, two (2) of which are water-based. The facility tracks monthly usage and emissions for each type of adhesive. The maximum reported VOC emissions for all adhesives combined was 238.5 pounds (February). One of the adhesives also contains Glycol Ether and Vinyl Acetate. The maximum reported emissions for these compounds were 201 pounds (March) for the Glycol Ether and one (1) pound of Vinyl Acetate (March, June-Sept. & Nov.). Based on the information provided and discussions with Mr. Gordon and Mr. Pfof the adhesive

stations appear to be exempt from Rule 201 permitting requirements per Rule 290.

Rule 290 is a Federally Enforceable restriction that can be used to limit a sources Potential to Emit (PTE) for VOC's. Based on the monthly 1,000-pound uncontrolled emission limit specified in the Rule, a sources PTE would be limited to six (6) tons per Rule 290 exempt emission unit. Operating these six (6) stations under Rule 290 limits the PTE for these units to 36 tons (6 stations x 6 tons). Although this does not trip any requirements, this was not accounted for in the PTE that was provided with the application for PTI 9-18A. The PTE provided with the PTI application, which uses an emissions factor for the adhesive, indicated that the site wide VOC PTE was 39.83 tons with only 2.59 tons of that for adhesive. Using Rule 290 to limit the PTE for these six stations increases the facility's VOC PTE to 73.24 tons $((39.83 - 2.59) + 36)$. Permit to Install PTI 9-18A only limits facility-wide HAPs not VOC's. Additional Rule 290 emission units could increase the facility's PTE to above the major source threshold of 100 tpy for VOC's requiring the facility to obtain an ROP or a Title V Opt-out permit. The facility needs to pay close attention to this if changes are made.

3) Other Requirements

The facility operates two 25.1 mmBtu/hr natural gas fired boilers installed in 1977 and 1979 and re-permitted with a physical move and stack height increase in 1981. Originally, they were permitted to burn both fuel oil and natural gas, but Herman Miller, Inc. staff has stated that the boilers do not have the capability to burn fuel oil and the piping required to bring oil to the boilers has been removed. Due to the increased use of the boilers since the wood fired unit has been down, these boilers have been added to the Michigan Air Emissions Reporting System (MAERS) submittal. Both of these boilers appear to be exempt from Rule 201 permitting requirements per rule 282(2)(b)(i) as noted in MAERS.

4) MAERS

The facility's 2018 MAERS emissions data was not selected for audit during the 2019 reporting season and the 2019 report was not available at the of this inspection. The facility submitted their 2018 data on time with no issues reported. The reported information is consistent with the information submitted in the past. A copy of the 2018 MAERS report is included in **Attachment E**. The following emissions were noted in the submittal:

Pollutant	Tons
PM10	2.4
PM2.5	2.4
VOC	4.1

C) COMPLIANCE DETERMINATION

Based on the observations made at the time of this inspection and a subsequent records review, Herman Miller appears to be in compliance with applicable air quality rules and regulations including the requirements of PTI No. 9-18A.

Attachments

- A - Emission Calculations
- B - Logs
- C - Emergency Generator Information
- D - Safety Data Sheets (CD) & Certified Product Data Sheets
- E - 2018 MAERS Report

NAME 

DATE 2/4/2020

SUPERVISOR 