

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

N067749922

FACILITY: Steelcase Inc.- Kentwood Complex		SRN / ID: N0677
LOCATION: 5353 Broadmoor Avenue SE, KENTWOOD		DISTRICT: Grand Rapids
CITY: KENTWOOD		COUNTY: KENT
CONTACT: Lynn Zimmerman , Manager, Operations Environmental Compliance		ACTIVITY DATE: 08/14/2019
STAFF: Chris Robinson	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: FY '19 on-site inspection to determine the facility's compliance status with MI-ROP-N0677-2014a, PTI No. 180-17, and any other applicable air quality rules and regulations.		
RESOLVED COMPLAINTS:		

Chris Robinson (CR) from the Department of Environment, Great Lakes, and Energy (EGLE) Air Quality Division (AQD) was onsite to conduct an unannounced inspection of Steelcase Inc. – Kentwood Complex (SRN N0677) on August 14, 2019, to determine the facility's compliance status with respect to Renewable Operating Permit (ROP) No. MI-ROP-N0677-2014a, Permit to Install (PTI) No. 180-17 and any other applicable State and Federal Air Quality Rules and Regulations. CR met with Mr. Lynn Zimmerman, Steelcase's Operations Environmental Compliance Manager, Associate Environmental Engineers Floyd Wilson, Jiarui Cai, and intern Leona Lia at Steelcase's Grand Rapids Complex (SRN N0980) located at 901 44th Street.

Weather conditions were mostly cloudy, approximately 65°F with winds coming out of the east northeast at approximately 7mph (www.weatherunderground.com). CR visually surveyed the perimeter upon arrival to each building for odors and visible emissions. None were observed.

FACILITY DESCRIPTION

Steelcase is a metal and wood office furniture manufacturer. The Kentwood Complex consists of four (4) buildings each represented by a different section in the ROP. The Computer Furniture Plant (Section 1) and the Kentwood East Facility (Section 4) were shut down and sold, however sections remain in the ROP as a placeholder. There are three (3) ROP sections for three (3) buildings used for manufacturing wood or metal office furniture, one section for the Energy Center's boilers, and a final section for all non-manufacturing and support services. Each section's facility name and address are as follows:

ROP Sec. No.	Facility Name	Facility Address
4	Computer Furniture Plant	5353 Broadmoor
2	Kentwood West (Kentwood Plant)	4350 52nd Street
3	Energy Center	4382 52nd Street
4	Kentwood East	4386 52nd Street
5	Non-Manufacturing (Development Center, Physical Distribution Center and Fleet Facility)	6100 East Paris Avenue & 4384 52 nd Street
6	Wood Furniture Division	4100 68 th Street

REGULATORY REQUIREMENTS

Steelcase is subject to Title 40 of the Code of Federal Regulations, Part 70, because the potential to emit VOCs, NO_x, SO₂ and CO exceeds 100 tons per year (tpy).

Steelcase had been a major source of Hazardous Air Pollutants (HAPs) because the potential to emit of any single/combined HAPs regulated by the Clean Air Act, Section 112 was greater than 10/25 tpy. Steelcase accepted HAP synthetic minor limits on January 28, 2016, therefore becoming a synthetic minor facility prior to the January 31, 2016 compliance date for the Boiler NESHAP (40 CFR 63 Subpart JJJJJ) and any future National Emission Standards for Hazardous Air Pollutants (NESHAP) or MACT promulgations. The facility is subject to the Boiler Area Source NESHAP.

The facility was subject to Prevention of Significant Deterioration (PSD)(40 CFR 52.21) regulations during New Source Review due to potential emissions of NO_x, SO₂, PM and VOC of more than 250 tpy. The permittee

originally accepted restrictions on sulfur-in-fuel and natural gas use for EUEC-BOILER1 and EUEC-BOILER4, respectively, to avoid further regulation under PSD.

Since the EPA rescinded the "Once in, always in" policy, this facility is no longer subject to any major source NESHAP, which includes the Wood NESHAP (40 CFR, Part 63, Subpart JJ), the Metal Furniture NESHAP (40 CFR 63 Subpart RRRR), and the Reciprocating Internal Combustion Engine (RICE) NESHAP (40 CFR, Part 63, Subpart ZZZZ). These requirements will be removed from ROP MI-ROP-N0677-2014a upon renewal.

The wood Furniture Division operates seven baghouses subject to the federal Compliance Assurance Monitoring (CAM) rule under Title 40 of the Code of Federal Regulations, Part 64.

COMPLIANCE EVALUATION

All annual and semi-annual reports were submitted on time and complete. No issues were reported. All stacks required to be vented unobstructed vertically upwards to ambient air, do so. Stack dimensions were not explicitly measured but observations appeared to meet dimensions specified in the ROP or PTI. In addition, none of the stacks have been modified. All "Exempt" references below refer to Rule 201 permitting requirements, unless stated otherwise.

> MI-ROP-N0677-2014a

ROP SOURCE-WIDE CONDITIONS:

Source-wide emissions (based on a 12-month rolling time period) are limited to 225 tpy (each) for NO_x and SO₂, individual HAPs of 9 tpy and aggregate HAPs of 22.5 tpy. Records provided by Steelcase present monthly emissions for a 12 month period along with a rolling 12-month calculation for those months, not a rolling 12-month total for each month. The facility will start including monthly 12-month rolling totals. Based on the monthly records for the time period of August 1, 2018 through July 31, 2019, Steelcase is in compliance with these limits. The July 2019 12-month rolling totals were 18.27 tons for NO_x and 0.12 tons for SO₂. Aggregate HAPs were 1,261 pounds (0.63 tons/yr) which also demonstrates compliance with the individual HAP limit of 9 tpy. HAP content of all materials received are determined by use of manufacturer's formulation data.

Boilers EUEC-BOILER1, EUEC-BOILER2, and EUEC-BOILER4 are also subject to a maximum fuel usage of 471 million ft³ per 12-month rolling time period. From August 1, 2018 through July 31, 2019, the total fuel used amongst all three boilers combined was 167.70 million ft³. The facility no longer burns coal. Type and amount of fuel used is tracked along with appropriate NO_x and SO₂ emission factors. Emission calculations for NO_x, SO₂ and HAPs are being maintained (**Attachment A**).

ROP SECTION 2 (KENTWOOD WEST):

The Kentwood West facility fabricates and coats metal office furniture via powder coating. This location operates five (5) powder coating lines. No liquid paint, except for some aerosol touch up is used. Ancillary activities include sheet steel machining, shears, punches, notchers, presses, brakes, sanders, drills and welding. Emissions are generated by some of this equipment which appear to be exempt per Rule 285(l)(vi)(B). Small dust collectors that vent to the in-plant environment are utilized. The powder coating lines utilize pulsating filter cartridges to capture/collect PM emissions and loose powder generated during the process. The recovered powder is then reused.

EUKWW-MT-EMG-GEN is an existing emergency stationary RICE, Caterpillar 3412 Genset rated at 890 HP.

The installation date is unknown, however per Mr. Zimmerman, the emergency generator was installed during the construction of the building back in 1987. Therefore, this generator is too old to be subject to New Source Performance Standards (NSPS) which has an applicability date of 7/11/2005. Since the facility is no longer Major for HAPS and it is located at a commercial facility not contractually obligated to operate, it no longer appears to be subject to 40 CFR, Part 63, Subpart ZZZZ. Per discussions with Mr. Zimmerman and Jiarui Cai, none of the generators for any of the facilities have operated for more than 24-hours. Fuel deliveries are tracked, and the facility only uses Ultra Low Sulfur Diesel (**Attachment B**). The facility operates other emergency generators subject to the same standards; therefore this discussion will be referenced per each applicable section.

FGKWW-NESHAPRRRR: All painting in this facility is conducted via powder coating on one of five lines. As such, there are no requirements for compliance with FGKWW-NESHAPRRRR because the Surface Coating of Metal furniture NESHAP does not apply to powder coating operations because the materials do not contain

organic HAPs. Due to the "Once in, always in" policy being rescinded, the facility has requested in their ROP Renewal application to remove this NESHAP from the ROP.

ROP SECTION 3 (ENERGY CENTER):

Mr. Bill Boss provided a tour of the Energy Center along with pertinent information. The Energy Center includes four (4) boilers. Only one (1) boiler runs at a time and seasonally. Boiler No. 1 (43.2 MMBtu/hr) used to burn fuel oil but no longer operates. Boiler No. 2 (48 MMBtu/hr) and Boiler No. 4 (90 MMBtu/hr) are both natural gas-fired only. Boiler No. 3 is a coal fired boiler that has been decommissioned because the facility no longer uses coal. The facility has taken a source wide limit to only burn natural gas. Additionally, the facility has accepted source-wide emission limits.

Boiler No. 1 (EUEC-BOILER1) and Boiler No. 4 (EUEC-BOILER4) are subject to the emission limits listed below. Emission records were provided and are also summarized below.

ID	Pollutant	Limit	Time Period	Facility Calculated Emissions (7/1/2018 – 8/26/2019)
EUEC-BOILER1	SO ₂	1.26 lb/MM Btu	24-hour period	0.0006 lb/MMBTU
		49.45 lb/hr		0.012 lb/hr
		39.0 TPY	12-month rolling	0.006 tons
EUEC-BOILER4	NO _x	9.0 lb/hr	24-hour period	4.418 lb/hr
		39.4 tpy	12-month rolling	6.542 tons
		0.10 lb/MMBTU	24-hour period	0.098 lb/MMBTU

Boiler No. 4 is also subject to a maximum natural gas usage of 86,540 ft³/hour based on a 24-hour rolling time period and 1,040 Btu per scf natural gas. Based on the records provided (**Attachment A**), the maximum calculated fuel usage rate from July 1, 2018 through August 26, 2019 was 441.8 ft³/hr at 1,040 Btu per scf. Per discussions with Mr. Boss, the flow meter has a resolution of 86 standard cubic feet of natural gas and an accuracy of +/- 1.25% of the reading. Steam production is monitored and recorded continuously using a steam flow transmitter with a resolution of 200 lbs. of steam and an accuracy of +/- 0.2% of the reading. Also, the NO_x emission rate is measured and recorded quarterly using a portable emission analyzer with a resolution of 0.0001 lbs NO_x/MMBTU of natural gas and an accuracy of +/- 5% of the reading.

EUEC-DIE-GENER is an existing emergency stationary RICE. This unit was installed when the building was initially constructed in the 1980's. Therefore, the discussion for EUKWW-MT-EMG-GEN in "ROP Section 2 (Kentwood West)" applies to this unit also. A fuel oil Safety Data Sheet was provided (**Attachment B**) indicating that the sulfur content of fuel is less than 1.5% by weight at 18,000 Btu/lb.

FGEC-BOILERS2&3 consisted of natural gas/coal-fired Boiler No. 2 and coal-fired Boiler No. 3. Boiler No. 2 has a maximum steam production rate of 40,000 lb/hour while Boiler No. 3 has a maximum steam production rate of 80,000 lb/hour. The ROP description and limitations in this flexible group only apply when burning coal. Steelcase took fuel restrictions to eliminate coal which were added during the ROP modification in October 2016. Boiler No. 3 has been decommissioned. All remaining coal was removed from the facility in May of 2016 and the storage pile areas were restored to natural coverings in July/August of 2016. The Continuous Emissions Monitoring System (CEMS) and a Continuous Opacity Monitoring System (COMS) are still installed but no longer operate. All emission limits for this section are based on CEMS and COMS data obtained during coal-burning operations which no longer apply because Steelcase took a source-wide restriction preventing the facility from burning coal, which they no longer do.

ROP SECTION 5 (NON-MANUFACTURING FACILITIES):

Non-manufacturing facilities include two facilities that provide support services for the manufacturing plants including research and development, maintenance, shipping and receiving, warehousing and fleet maintenance.

FGKW-MT-EMG-GEN consists of two (2) existing emergency stationary RICE. These units were installed when the buildings were initially constructed in the 1980's. Therefore, the discussion for EUKWW-MT-EMG-GEN in "ROP Section 2 (Kentwood West)" applies to these units also. A diesel fuel Safety Data Sheet was provided (**Attachment B**) indicating that the sulfur content of fuel is less than 1.5% by weight at 18,000 Btu/lb.

The fleet maintenance includes the maintenance building and truck wash. A CRC Bioremediation Smart washer that uses OzzyJuice is used in the maintenance area for parts washing. Per the manufacturer's website OzzyJuice is an aqueous degreasing solution that contains no Volatile Organic Products (VOCs). Therefore, this unit appears exempt per Rule 281(2)(k) for aqueous based parts washers.

The truck wash building uses several boilers and water heaters for the washing process. Based on discussions with Mr. Zimmerman this equipment is exempt per Rule 282(2)(b)(i) for being natural gas fired-only, for indirect heat and having a heat input capacity of not more than 50,000,000 Btu/hr. The following equipment was noted: two (2) Hydrowash Heaters (600,000 Btu/hr each), one (1) Weil-Molain boiler (1.7MM Btu), one (1) Teledyne water heater (715,000 Btu) and one (1) Huron Valley Sales water heater (unknown BTU but too small to be > 50,000,000 BTU/Hr).

ROP Section 6 (WOOD FURNITURE):

The Wood Furniture Division manufactures various items of wood office furniture. This includes woodworking, wood finishing lines, adhesive lines, wood staining etc. All VOC emissions are uncontrolled from this facility. The facility's seven large externally vented baghouses are currently covered under Permit to Install 180-17, which will be rolled into the ROP during the next renewal.

The onsite visit of the wood plant was conducted as part of a meeting on May 14, 2019 (CA_N067748848). CR met with Karen Andres, Jairua Cai and Ke Yang from Steelcase and their consultant Matt Kwiatkowski from ERM. A tour of the facility was provided. Records were reviewed as part of the August 14, 2019 inspection. All of the coating equipment in this location is operated under either Rule 290 or Rule 287(2)(c) exemptions, and are subject to 40 CFR Part 60, Subpart JJ (Wood Furniture NESHAP). This location also operates two (2) 20.4 MMBtu/hr natural gas-fire only boilers (EUWOOD-BOILER1 and EUWOOD-BOILER2) subject to NSPS Dc. They were initially covered under PTI No. 286-99 which was rolled into the ROP. However, the boiler requirements were never carried over. Therefore, they will need to be added during the next ROP renewal.

Facility Declared Exemption	Emission Unit	Limit	MAX Mthly pounds of Emissions (August 1, 2018 – July 31, 2019)
Rule 290 Exempt Emission Units	EUWOOD-HVSTAIN	1,000 lbs/month Each	32.8
	EUWOOD-HVCLEAR		106.5
	EUWOOD-LVSTAIN		62.2
	EUWOOD-LVCLEAR		252.0
	EUWOOD-HANG		133.9
	EUWOOD-WORKSURFACE		159.0
	EUWOOD-ADHESIVE		140.0
	EUWOOD-CLEANING		516.0
Rule 287 Exempt Emission Units	EUWOOD-SPECIALS	200 gallons/month Each	53.0
	EUWOOD-ROLL		22.7

Compliance with FGWOOD-NESHAPJJ and the Wood Furniture NESHAP is currently conducted using the following methods: coatings/thinners/cleaning- averaging approach, adhesives- compliant materials approach. Certified Product Data Sheets (**Attachment B**) were reviewed. Additionally, the facility reports compliance with the 0.8 kg VHAP/kg solids as applied. The highest VHAP reported in the months reviewed was 0.01726 lb VHAPS/LB Solids (0.00783 kg VHAP/kg solids) as applied.

The diesel-fired RICE engine was discussed along with the fuel oil requirements. Steelcase gets certified fuel at or below 15 ppm which is below the sulfur content limit of 1.7 ppm/Btu heat input. This engine is set up for emergency use only, and the maintenance plan is followed. The tables for the RICE MACT will be updated during the next permit renewal.

Monthly records were provided (**Attachment A**) along with certified product data sheets (**Attachment B**), VHAP content and VOC content information.

> PTI No. 180-77

The onsite visit for this building was conducted on May 14, 2019. Powder coating lines were observed, each equipped with filter cartridges similar to the cartridges installed on the five (5) lines in the Kentwood West Facility. Particulate emissions generated from the woodworking equipment in the Wood Furniture Plant are controlled by seven (7) baghouses. Baghouses EUWOOD-DC-1, 3, 5 & 7 are rated at 61,000 SCFM while baghouses EUWOOD-DC-2, 4 & 8 are rated at 81,000 SCFM. The area around the baghouses appeared well maintained. Differential pressure gauges were observed at the time of the inspection (DC-1=offline, DC-2=1.27, DC-3=0.77, DC-4=5.20, DC-5=2.70, DC-7=0.21, and DC-8=2.05). The facility tracks DP, Maintenance, and hours of operation for when each baghouse vents to both the in-plant environment as well as to ambient air. There were no visible emissions or odors observed.

Conditions for all seven baghouses had been included in the ROP but were incorrectly removed. Therefore, Steelcase applied for this PTI which will be rolled into the facility's ROP during the next renewal. This PTI is an opt-out PTI for PM with 12-month rolling and hourly emission limits. The facility is only required to record visible emission observations and hours of operation when the baghouses are venting to ambient air. Venting of the baghouses to ambient air is limited to 28,000 hours for DC-1,3,5,7 combined and to 21,000 hours for DC-2,4,8 combined. Steelcase tracks hours of operation when each baghouse is vented both externally and internally. Based on these records the maximum 12-month rolling total for DC-1,3,5 (combined) was 14,443 hours (March 2018 - April 2019) and 19,844 hours (March 2018 - April 2019) for DC-2,4,8 combined.

No visible emissions or odors were observed during the site visit. Weekly visible emission observations are being conducted. Records for both the visible emissions and hours of operation are being maintained and were provided (**Attachment C**). In addition, the baghouses have not been modified since they were installed, and the facility maintains a Preventative Maintenance Plan. The facility appears to be operating and maintaining the baghouses properly.

In addition, the baghouses are subject to CAM. The facility submitted a CAM Plan along with the ROP Renewal Application in May 2019.

> Miscellaneous

Steelcase installed a Kohler Model 30REOZK, 60Hz, 2.5L diesel Emergency Generator at the Fire Pump House in 2016. Design Specifications are included in **Attachment D**. This generator is subject to NSPS for "Compression Ignition Internal Combustion Engines" (40CFR, Part 60, Subpart IIII) because it was manufactured after 4/1/2006. Emergency generators with a displacement of less than 10L are subject to NMHC+NOx (9.5 g/kw-hr), CO (5.5 g/kw-hr) and PM (0.80 g/kw-hr) emission limits (40CFR, Part 60, Subpart IIII, Table 1) and fuel specifications per 40 CFR 60.4207. Based on the information provided the emergency generator is certified by the EPA to conform to interim Tier 3 nonroad emissions regulations. This generator does show up on EPA's list of certified engines with a Certificate of Conformity number of GKHL2.48EST-003. Emission Certification levels are as follows: NMHC+NOx=6.2 g/kw-hr, CO=0.9 g/kw-hr and PM=0.26 g/kw-hr with a fuel requirement for Ultra Low Sulfur Diesel (7-15ppm).

NESHAP 40 CFR, Part 63, Subpart ZZZZ is also applicable, however compliance with this standard requires compliance with NSPS Subpart IIII, which is demonstrated by the engine being an EPA certified engine.

> MAERS

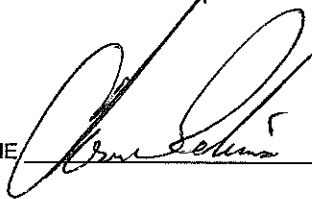
MAERs information submitted by the facility was reviewed by AQD staff on April 5, 2019 for the 2018 reporting season. The 2018 MAERs report is included in **Attachment E**. Per AQD staff, "emissions appeared to correlate with low VOC coatings. No significant changes, all necessary attachments were accounted for".

Conclusion

Based on observations and discussions made during this inspection and a subsequent records review, Steelcase appears to be in compliance with ROP MI-ROP-N0677-2014a, PTI 180-77, and any other applicable air quality rules and regulations.

Attachments

- A - Emission Records
- B - Product & Safety Data Sheets
- C - DC Operation and Other Miscellaneous Maintenance Records
- D - Pump House Generator Specifications and Certification
- E - 2018 MAERs Report

NAME 

DATE 9/26/2019

SUPERVISOR 