

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

N067759072

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: 06/29/2021
STAFF: April Lazzaro	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MAJOR
SUBJECT: Announced, scheduled inspection.		
RESOLVED COMPLAINTS:		

Staff, April Lazzaro arrived at the facility for an announced scheduled inspection. This inspection included the entire stationary source to meet the Full Compliance Evaluation criteria. I met with facility representatives at the Energy Center to begin the inspection.

Steelcase representatives included the following staff: Lynn Zimmerman, PE, Manager, Operations Sustainability, Jiarui Cai, PE, Environmental Engineer Sustainability, Alex Barsimian, H & S Manager, Dan Guarizo, Assistant Supervisor Energy Center and Muhan Chen, Communications Liaison. At the Kentwood Seating & Non-Manufacturing facility we met with Jarrett Luyk, Safety and Environmental. At the Wood Furniture facility, we met with Karen Andrus, Environmental Engineer.

FACILITY DESCRIPTION

Steelcase Inc., Kentwood Complex is a furniture company that manufactures a range of architecture, furniture and technology products and services for office environments as well as the education, health care and retail industries. Each of the sections is located within industrial or commercial areas.

SECTION	NAME	FACILITY ADDRESS
1	Kentwood West	4350 52 nd Street
2	Energy Center	4382 52 nd Street
3	Kentwood Seating & Non-Manufacturing	4384 52 nd Street
4	Wood Furniture	4100 68 th Street

The Kentwood West facility is identified in Section 1 of the Renewable Operating Permit (ROP) and located at 4350 52nd Street, Kentwood, Michigan. The activities in Kentwood West include fabricating, powder coating and assembly of metal office furniture. The fabrication process employs sheet steel machining, shears, punches,

notchers, presses, brakes, sanders, drills and welders. These fabricated parts are coated with powder coat then assembled into a final product. The Kentwood West facility also houses a paint booth exempt from permitting pursuant to Rule 287(2)(c).

The Energy Center facility is identified in Section 2 of the ROP and is located at 4382 52nd Street, Kentwood, Michigan. The equipment at the Energy Center includes four natural gas fired boilers. Boiler 1 is a natural gas-fired boiler with a maximum heat input rate of 43.2 MMBTU/hr and a maximum steam production rate of 30,000 lb/hr. Boiler 2 is a natural gas-fired boiler with a maximum heat input capacity of 48 MMBTU/hr and a maximum steam production rate of 40,000 lb/hour. Boiler 1 and Boiler 2 are exempt from permitting pursuant to Rule 282(2)(b). Boiler 4 is a natural gas-fired boiler with a maximum heat input rate of 90 MMBTU/hr and a maximum steam production rate of 70,000 lb/hr.

The Kentwood Seating & Non-Manufacturing operations are identified in Section 3 of the ROP and are located at 4384 52nd Street, Kentwood, Michigan. The activities in the Non-Manufacturing operations include the activities found at the Physical Distribution Center and the Fleet Facility. Within those facilities, activities include manufacturing support services including research and development, maintenance, shipping and receiving, warehousing and fleet maintenance. The Physical Distribution Center also houses a manufacturing subset named Kentwood Seating that conducts light assembly and operates a low volume paint booth exempt from permitting pursuant to Rule 287(2)(c).

The Wood Furniture plant is identified in Section 4 of the ROP and is located at 4100 68th Street, Caledonia, Michigan. The activities in the Wood Furniture facility include the manufacturing of wood office furniture which is comprised of woodworking equipment, wood finishing lines and adhesive stations. The wood finishing lines are the High Volume Stain, High Volume Clear, Low Volume Stain, Low Volume Clear, Work Surface, Roll Coat, Hang Line, Special Line and Adhesive Line. Coatings applied are stains, washcoats, tiecoats, topcoats, sealers, fillers, glazes and lacquers. Exhaust from the manual spray booths are vented through dry fabric filters for particulate removal. All water wash particulate control systems at the Wood Furniture plant have been replaced with dry fabric filters. The woodworking equipment consists of carving, cutting, routing, turning, drilling, sawing, sanding, planing and buffing wood components. The particulate from the wood working equipment is collected and exhausted through one of the seven baghouses.

COMPLIANCE EVALUATION

A records request was sent to the company to fulfill the requirements of a Full Compliance Evaluation. A complete response to that request was received timely.

SOURCE-WIDE CONDITIONS

The source-wide conditions apply to all process located at the stationary source including equipment covered by other permits, grandfathered equipment, exempt equipment, and any future equipment.

Emission Limits

NO_x emissions are limited to less than 225 tons per year (tpy) based on a 12-month rolling time period. Reported source-wide NO_x emissions through April 2021 are 8.01 tons.

SO₂ emissions are limited to less than 225 tons per year (tpy) based on a 12-month rolling time period. Reported source-wide SO₂ emissions through April 2021 are 0.12 tons.

Emissions of each individual Hazardous Air Pollutant (HAP) are limited to less than 9.0 tons based on a 12-month rolling time period. The highest reported individual HAP is hexane with reported emissions through April 2021 of 0.27 tons.

Emissions of each aggregate HAPs are limited to less than 22.5 tons based on a 12-month rolling time period. Reported aggregate HAP emissions through April 2021 are 0.63 tons.

Material Limits

Natural gas usage is limited to 471 million cubic feet per year based on a 12-month rolling time period. This limitation applies to EUCC-BOILER1, EUCC-BOILER2 and EUCC=BOILER4. Reported natural gas usage for these boilers through April 2021 was 159.7 million cubic feet.

The source-wide conditions prohibit the use of coal at the facility, and it has been determined that Steelcase, Inc. no longer utilizes any coal. The coal fired boiler has been decommissioned and rendered inoperable.

Monitoring/Recordkeeping

Steelcase is maintaining the required monthly and 12-month total records required of the source.

Each Responsible Official certifies to the compliance status as required.

Section 1- Kentwood West

Kentwood west contains a variety of exempt equipment as previously described.

EUKWW-MAINTBOOTH currently utilizes the Rule 287(2)(c) exemption contained in FGKWW-RULE287(2)(c). During the inspection, I observed the clipboard that the facility utilizes for coating tracking. Additional monthly records of coating usage were requested. Monthly usage for 2021 was less than one gallon per month. These values indicate compliance with the 200 gallon per month limit.

EUKWW-SOLVENT, EUKWW-SOLVENTSHEET and EUKWW-ADHWELD utilize the Rule 290 exemption contained in FGKWW-RULE290. Monthly emissions records were requested. Monthly emissions for the three emission units combined were less than 200 pounds of VOC per month. These values indicate compliance with the 1,000 pounds of emissions per month limit.

EUKWW-MT-EMG-GEN is an existing 890 hp diesel-fired compression ignition reciprocating internal combustion engine. The engine was observed during the inspection and the non-resettable hours meter read 707 hours. The CAT Genset is identified as 6FA05537 on the face plate. Records of maintenance and oil change

was requested. The most recent oil change and maintenance was conducted on March 23, 2021. This indicates compliance with the requirements of 40 CFR Part 63, Subpart ZZZZ.

Section 2- Energy Center

The Energy Center houses the 3 natural gas fired boilers and one diesel-fired emergency generator. The coal fired boiler is still present, but has been rendered permanently inoperable and was removed from the permit during the most recent renewal process.

EUEC-BOILER1 and EUEC-BOILER2 are subject to the emission and material limitations in the Source-Wide conditions that have been previously addressed in this report. Otherwise, these natural gas-fired boilers are exempt from permitting.

EUEC-BOILER4 is a natural gas-fired boiler with emission and material limitations. NO_x emissions are limited to 9.0 pounds per hour based on a 24-hour operating hour as determined at the end of each calendar day. Compliance with the limit is based upon stack testing and/or monitoring of NO_x emissions using a portable emission analyzer. A record of the required quarterly monitoring was requested and received. Additional evaluation was conducted as the quarterly NO_x reading for the first quarter 2021 was 70 ppm. Based on Steelcase engineering calculations, the anticipated exhaust rate of the boiler is 6,601.74 CFM. As such, the average NO_x emissions rate calculated by the AQD is approximately 3.31 lb/hr. Steelcase also calculates the pound per hour emission rate for this boiler. Data submitted to AQD for the first quarter 2021 indicates a maximum hourly emissions rate of 4.8 lb/hr NO_x, which indicates compliance with the hourly limit. This boiler also has a mass NO_x emission limit of 39.4 tons per year based on a 12-month rolling time period. 12-month total emissions ending in May 2021 were reported at 6.3860 tons, which indicates compliance with the limit.

Natural gas usage is limited to 85,540 cubic feet per hour based on a 24-hour rolling time period. The heating value and heat input is based on utilization of pipeline quality natural gas. Natural gas usage was requested, and the highest reported 24-hour usage was 46,667 in February, 2021, which indicates compliance with the limit.

EUEC-DIE-GENER is an existing 126 hp diesel-fired compression ignition reciprocating internal combustion engine subject to 40 CFR Part 63 Subpart ZZZZ and is equipped with an above ground diesel fuel storage tank that has recently been replaced. The engine serial number is 124861 and the most recent maintenance and oil change was conducted on March 23, 2021.

Section 3- Kentwood Seating & Non-manufacturing Facilities

The activities in the Non-Manufacturing operations include the activities found at the Physical Distribution Center and the Fleet Facility.

EUPDC-SEATINGBOOTH currently utilizes the Rule 287(2)(c) exemption contained in FGNMF-RULE287(2)(c). Monthly records of coating usage were requested. Monthly usage for 2021 was less than two gallons per month. This indicates compliance with the 200 gallon per month limit.

EUKW-MT-EMG-GEN-FLT-NG, is an existing 100 hp natural gas fired spark ignition (SI) reciprocating internal combustion engine , **EUKW-MT-EMG-GEN-PDC** is an 830 hp diesel-fired compression ignition (CI) reciprocating internal combustion engine and **EUFPH-FIRE-PUMP** is an 340 hp diesel-fired compression ignition (CI) reciprocating internal combustion engine which are grouped in **FGKW-MT-EMG-GEN** and are subject to 40 CFR Part 63 Subpart **ZZZZ**.

EUKW-MT-EMG-GEN-FLT-NG was observed, and the non-resettable hours meter read 610.2 hours. The serial number was 02198. The most recent maintenance and oil change was conducted on March 23, 2021.

EUKW-MT-EMG-GEN-PDC was observed, and the non-resettable hours meter read 862.1 hours. The serial number was KC-94643. The most recent maintenance and oil change was conducted on March 23, 2021.

EUFPH-FIRE-PUMP was observed, and the non-resettable hours meter read 580 hours. The serial number was not found, this is an Alys Chalmers fire pump. The most recent maintenance and oil change was conducted on March 23, 2021.

Documentation and information obtained on the reciprocating internal combustion engines indicate compliance with 40 CFR Part 63 Subpart **ZZZZ**.

Section 4- Wood Furniture

The activities in the Wood Furniture facility include the manufacturing of wood office furniture which is comprised of woodworking equipment, wood finishing lines and adhesive stations. The wood finishing lines are the High Volume Stain, High Volume Clear, Low Volume Stain, Low Volume Clear, Work Surface, Roll Coat, Hang Line, Special Line and Adhesive Line. Coatings applied are stains, washcoats, tiecoats, topcoats, sealers, fillers, glazes and lacquers. Exhaust from the manual spray booths are vented through dry fabric filters for particulate removal.

EUWOOD-DIESELGEN is a existing 474 hp diesel-fired compression ignition (CI) reciprocating internal combustion engine subject to 40 CFR Part 63 Subpart **ZZZZ**. The generator room was accessed, and the engine is a Kohler Detroit diesel engine set. The non-resettable hours meter read 246.8 hours. The most recent maintenance and oil change was conducted on March 23, 2021.

EUWOOD-BOILER1 and **EUWOOD-BOILER2** were observed in the boiler room. These Cleaver Brooks boilers are rated at 24.5 MMbtu/hour and are subject to 40 CFR Part 60 Subpart Dc. Boiler #1 serial number was OL099492, and Boiler #2 serial number was OL099493. The facility is maintaining monthly natural gas usage as required, which is on aver 60 mcf per month for 2021.

Several of the coating lines were not operating during the inspection, however the Specials line was observed. Filter placement appeared appropriate on the spray booth.

Records for the coating usage pursuant to **FGWOOD-NESHAPJJ**, **FGWOOD-RULE290** and **FGWOOD-RULE287(2)(c)** were requested and reviewed for the ten emission units included in these flexible groups. All documents and recordkeeping (see attached) were complete and indicate compliance with the limitations. Additional information was requested pursuant to 40 CFR Part 63 Subpart **JJ**, including operator training

documentation as required. This was provided timely, and the records indicate compliance.

FGWOOD-RULE287(2)(c) emission unit records were evaluated. The highest reported usage for the past year was EUWOOD-SPECIALS at 40.2 gallons. The records indicate compliance with the 200 gallon per month limit.

FGWOOD-RULE290 emission unit records were evaluated. The highest reported emissions for the past year was EUWOOD-HANG at 392 pounds of VOC. The records indicate compliance with the 1,000 lb/month VOC limit.

There are also seven baghouses at the Wood Plant identified as EUWOOD-DC-1, EUWOOD-DC-2, EUWOOD-DC-3, EUWOOD-DC-4, EUWOOD-DC-5, EUWOOD-DC-7, EUWOOD-DC-8 and found in FGWOOD-WOODWORKING. Each emission unit is subject to an emission limit, and compliance with the limit is established through compliance with monitoring and recordkeeping provisions.

The control panel was observed where the pressure drop indicators are located for each unit. The values recorded for each are as follows:

EUWOOD-DC-1: was not operating at the time of the inspection.

EUWOOD-DC-2: 1.62" H₂O

EUWOOD-DC-3: 1.94" H₂O

EUWOOD-DC-4: 2.21" H₂O

EUWOOD-DC-5: 2.45" H₂O

EUWOOD-DC-7: 0.10" H₂O

EUWOOD-DC-8: 2.22" H₂O

These baghouses are also equipped with broken bag alarms, and no alarms were activated at the time of the inspection. There was a problem identified with EUWOOD-DC-7. A baghouse pressure drop of 0.10" H₂O is not acceptable and falls outside the range Steelcase has identified in the facility Compliance Assurance Monitoring (CAM) Plan. This acceptable range is between 1-5" H₂O. Records were requested from January 2020-May 2021 to determine the length of time the baghouse pressure drop was outside of the acceptable range. The baghouse was out of the specified range in January 2020. Due to an AQD error, the baghouses were erroneously removed from the ROP in the version of the permit effective in December 2014. When the error was noted during a 2017 compliance inspection, Steelcase agreed to accept conditions of a Permit to Install to reinstate the requirements for the baghouses. A modification to the ROP was submitted in April 2020, and the changes were incorporated into the current permit which has an effective date of November 4, 2020. As such, while the actual problem was occurring for a significant period, the actual violation of the existing CAM Plan provisions date back to November 4, 2020.

The previous ROP did contain a Preventative Maintenance Plan (PMP) provision for the baghouses that requires a weekly pressure drop check but does not identify an acceptable pressure drop range. Facility staff maintains information in an excel spreadsheet to demonstrate compliance with the recordkeeping provisions. That spreadsheet identifies that if the pressure drop is less than 1" H₂O, it is in "yellow" status.

While at the facility I informed them that a pressure drop reading of 0.10" H₂O is not acceptable, and we identified that the permit requires a minimum of 1" H₂O to be considered compliant. Specifically, the permit states, "an excursion is a departure from the indicator range of no visible emissions on a 6-minute average or a departure from the indicator range of 1-5" WC for pressure drop readings."

I further explained that a pressure drop reading that low indicates improper operation and that it is possibly a violation. Steelcase vowed to look into the matter immediately and noted that they have had Waltz Holst conduct maintenance and they have not identified a problem.

Two days after the inspection, I received a call from Steelcase during which they reported the findings of the inspection of Baghouse #7. The inspection found that the arm that rotates across the top of each chamber of the baghouse was not moving because the chain had fallen off the drive. As such, the unit was continuously pulsing one section of the baghouse only. That section also just happened to be the one closest to the pressure drop gauge. I informed Steelcase that since the section of bags has been continuously pulsed, they are likely to fail/wear sooner than the rest of the bags and need to be closely monitored.

Based on the requirements in the permit, the low pressure drop should have triggered additional inspections and action from Steelcase; however, those were not conducted until after AQD staff noted the problem during the inspection. As such, this is a violation of MI-ROP-N0677-2020. A Violation Notice will be issued for failure to properly operate the baghouse, and for violating the provisions of the CAM Plan. Additionally, the manufacturer's information on the baghouses indicates the proper pressure drop range is 2-6" H₂O. The Violation Notice will request that Steelcase reevaluate the CAM Plan range, and that they update the Preventative Maintenance/Malfunction Abatement Plan (PM/MAP) to include an appropriate pressure drop range for the baghouses. The AQD will also request that the PM/MAP be updated to include a response to baghouse broken bag alarms and to align with the requirements of Rule 911.

COMPLIANCE SUMMARY

Steelcase Inc., Kentwood Complex was in non-compliance at the time of the inspection.

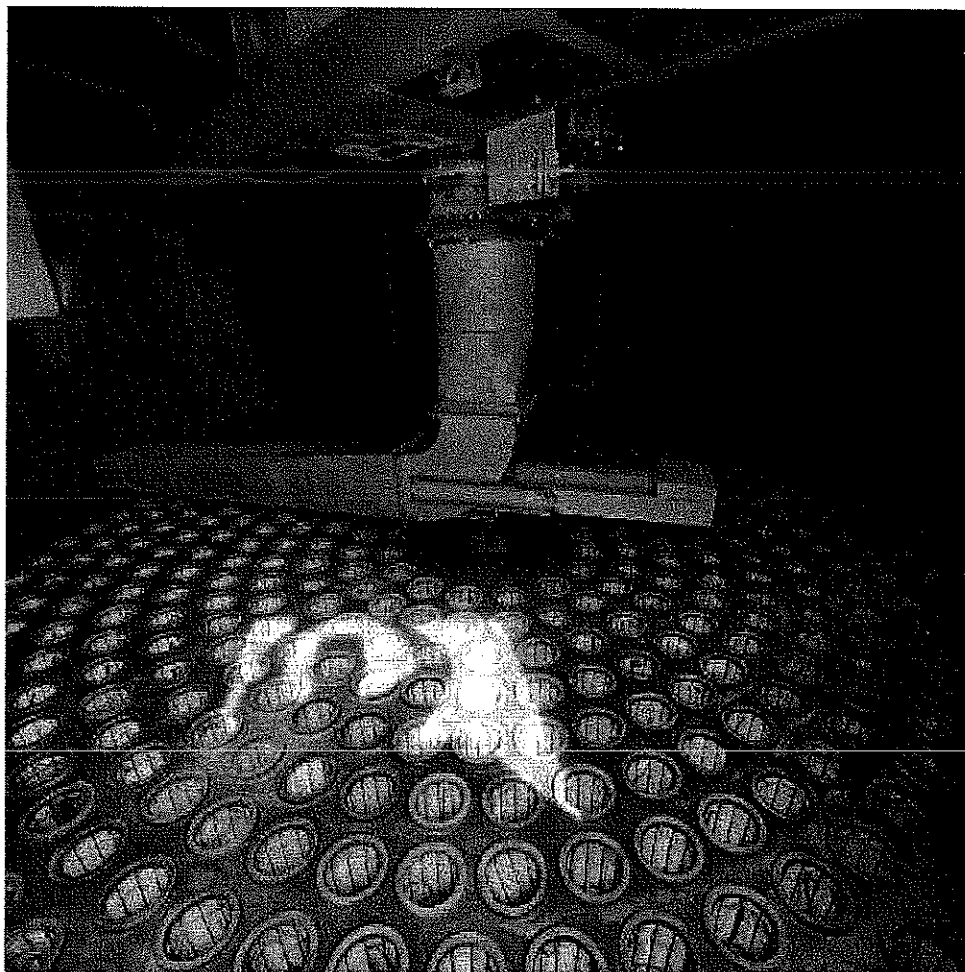


Image 1(Baghouse 7) : View of inside of baghouse. Chain is off drive.

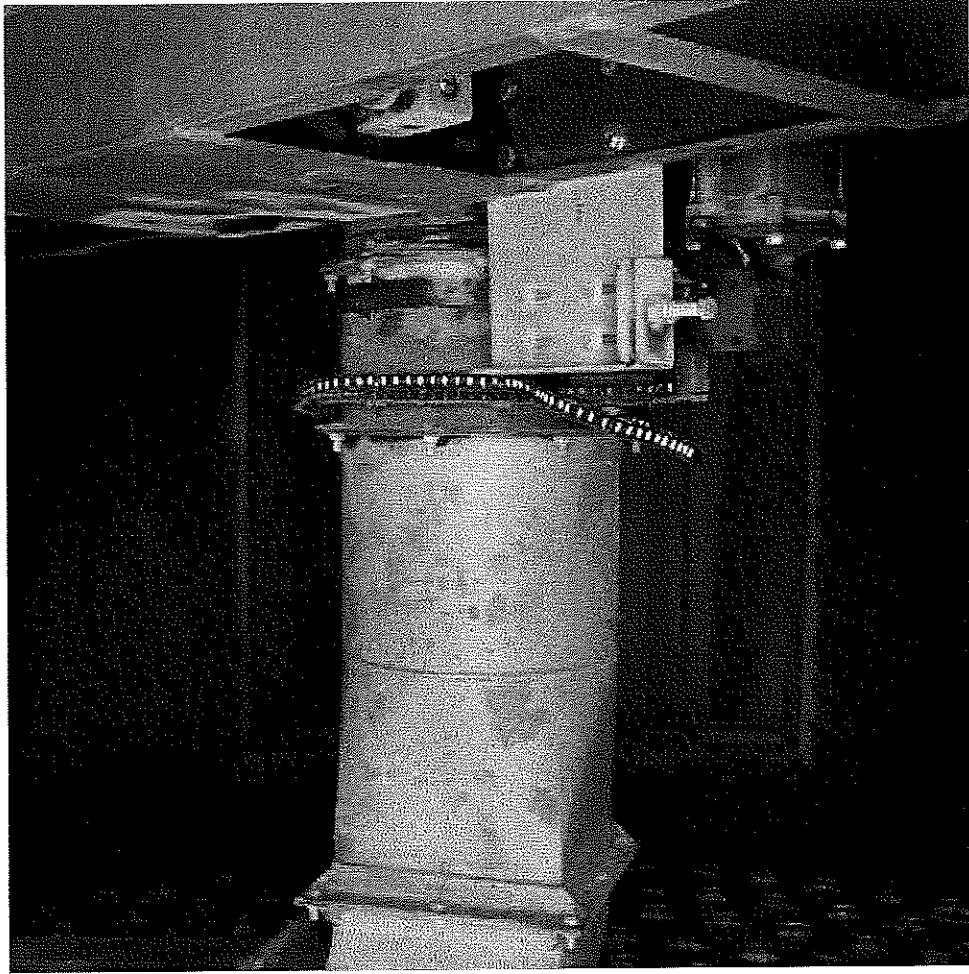


Image 2(Baghouse 7) : Close up of chain off drive.

NAME April Lazzaro

DATE 08/04/2021

SUPERVISOR 

