

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

N191664395

FACILITY: Comfort Research		SRN / ID: N1916
LOCATION: 1719 Elizabeth NW, GRAND RAPIDS		DISTRICT: Grand Rapids
CITY: GRAND RAPIDS		COUNTY: KENT
CONTACT: Michael Kitchen , Vice President of Operations		ACTIVITY DATE: 07/14/2022
STAFF: Michael Cox	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled Unannounced Inspection		
RESOLVED COMPLAINTS:		

Air Quality Division (AQD) staff Michael Cox (MTC) arrived at the Comfort Research facility located at 1719 Elizabeth Ave. NW, Grand Rapids, MI on July 14, 2022, at 9:00am to complete a scheduled unannounced inspection. Prior to entering the facility, offsite odors and emission observations were completed. No odors or visible emissions were observed.

Facility Description

Comfort Research is a chair manufacturer that utilizes virgin expanded polystyrene (EPS) beads or recycled foam to create the desired product for the chairs. The facility is a synthetic minor source of volatile organic compounds (VOCs). VOC emissions are due to the pentane content of the EPS beads. The facility is in operation with Opt-out Permit to Install (PTI) Number 84-19. Additionally, Comfort Research is in operation under Consent Order AQD No. 4-2013. The site currently has approximately eighty (80) employees and operates one shift five days a week.

Compliance Evaluation

Upon arrival onsite, AQD staff MTC met with Mr. Jerry Gowdzwaard, Maintenance Manager, who provided a walkthrough of the facility and answered site specific questions. Due to not receiving records from the facility in a timely manner following the site visit on July 14, 2022, a violation notice was sent to the facility for not maintaining the records as required by PTI No. 84-19 on August 2, 2022, with a response deadline requiring records to be submitted to the Grand Rapids District Office by August 23, 2022. Records were provided by Mr. Mike Kitchen, Vice President of Operations, following the violation notice on the August 23, 2022, deadline and this inspection report was able to be completed.

PTI No. 84-19

FGEXPANDONLY

This flexible group consists of the EPS raw bead expansion process with a Hirsch expander and 29 curing nets. The Hirsch expander is used for both

the first and second stage expansion. The 29 curing nets are used to hold the bead for curing after each stage of expansion.

FGEXPANDONLY is associated with the loose fill bean beads process. This flexible group is subject to a VOC emission limit of 89.55 tons per year (tpy) per a 12-month rolling time period. Records of VOC emissions from FGEXPANDONLY were reviewed for the time period of January 2021 through June 2022. The highest 12-consecutive month VOC emission occurred during the 12-month period ending in November 2021, when 50.83 tons of VOC was emitted.

FGEXPANDONLY is subject to several EPS bead material limits. The EPS beads are limited to a VOC content of 6.5 pounds of VOCs per 100 pounds of EPS beads processed. VOC contents for each lot were requested and provided for the time period of January 2021 through June 2022. The highest VOC content for the EPS beads was noted to be 5.6% of VOC, or 5.6 pounds of VOC per 100 pounds of EPS beads processed, which was recorded for several months during the time period covered by this inspection.

The EPS beads have a material throughput limit of 30,800 beads per day. Records were reviewed for the time period of January 2021 through June 2022. The highest number of beads processed on a daily basis was noted to have occurred on the dates of October 11, 2021, October 13, 2021, and October 14, 2021, when 24,640 pounds of beads were processed.

The EPS beads have a material throughput limit of 2,755,385 pounds of beads per year on a 12-month rolling time period basis. Records were reviewed for the time period of January 2021 through June 2022. The highest 12-consecutive month throughput of EPS beads occurred during the 12-month period ending in November 2021, when 1,841,280 pounds of EPS beads were processed.

Per Special Condition (SC) VII.1, Comfort Research is required to report for each calendar month in which the data was collected and recorded for a period of one year after the approval of PTI No. 159-15, or longer upon the request of the AQD District Supervisor. It should be noted that PTI No. 159-15 was voided on February 27, 2017, and this condition should reference PTI No. 84-19. Comfort Research reported accordingly for the time period of August 2019 through August 2021, which coincides with the issuance of PTI No. 84-19 on August 2, 2019. The facility was not asked to report for a longer period of time and has since ceased reporting.

During the site inspection the rooftop was accessed, and the three stacks listed in PTI No. 84-19 were observed. The three stacks were observed venting unobstructed vertically. The stacks appeared to be consistent with the dimensions listed in PTI No. 84-19.

FGFUSION

This flexible group consists of the EPS raw bead expansion process with a Hirsch expander, 29 curing nets, and a molding machine. When operating as part of FGFUSION, the Hirsch expander is used for a single expansion stage. The curing nets are used to hold the expander beads for curing between expansion and molding. This flexible group also includes a molding machine emission unit that the source claims is covered under permitting exemption Rule 290.

FGFUSION is associated with the shape molding bead process. This flexible group is subject to a VOC emission limit of 24.0 tpy per a 12-month rolling time period. Records of VOC emissions from FGFUSION were reviewed for the time period of January 2021 through June 2022. The highest 12-consecutive month VOC emission occurred during the 12-month periods ending in December 2021 and January 2022, when 1.00 ton of VOC was emitted.

EUMOLD was installed in 2016 and is exempt from permitting per Rule 290. Monthly emission records for FGFUSION were reviewed for the time period of January 2021 through June 2022 and are below the 1,000 lbs. per month limit of uncontrolled emissions.

FGFUSION is subject to several EPS bead material limits. The EPS beads are limited to a VOC content of 6.5 pounds of VOCs per 100 pounds of EPS beads processed. VOC contents for each lot were requested and provided for the time period of January 2021 through June 2022. The highest VOC content for the EPS beads was noted to be 4.8% of VOC, or 4.8 pounds of VOC per 100 pounds of EPS beads processed, which was recorded for several months during the time period covered by this inspection.

The EPS beads have a material throughput limit of 4,500 beads per day. Records were reviewed for the time period of January 2021 through June 2022. The highest number of beads processed on a daily basis was noted to have occurred on July 20, 2021, when 2,203 pounds of beads were processed.

The EPS beads have a material throughput limit of 738,462 pounds of beads per year on a 12-month rolling time period basis. Records were reviewed for the time period of January 2021 through June 2022. The highest 12-consecutive month throughput of EPS beads occurred during the 12-month period ending in December 2021, when 42,278 pounds of EPS beads were processed.

As stated earlier, per Special Condition (SC) VII.1, Comfort Research is required to report for each calendar month in which the data was collected and recorded for a period of one year after the approval of PTI No. 159-15,

or longer upon the request of the AQD District Supervisor. It should be noted that PTI No. 159-15 was voided on February 27, 2017, and this condition should reference PTI No. 84-19. Comfort Research reported accordingly for the time period of August 2019 through August 2021, which coincides with the issuance of PTI No. 84-19 on August 2, 2019. The facility was not asked to report for a longer period of time and has since ceased reporting.

During the site inspection the rooftop was accessed, and the three stacks listed in PTI No. 84-19 were observed. The three stacks were observed venting unobstructed vertically. The stacks appeared to be consistent with the dimensions listed in PTI No. 84-19.

FGFACILITY

This flexible group applies source-wide to all process equipment including equipment covered by other permits, grand-fathered equipment, and exempt equipment.

This flexible group is subject to a VOC emission limit of 89.9 tpy per a 12-month rolling time period. Records of VOC emissions from FGFACILITY were reviewed for the time period of January 2021 through June 2022. The highest 12-consecutive month VOC emission occurred during the 12-month period ending in November 2021, when 51.91 tons of VOC was emitted.

FGFACILITY has a material throughput limit of 2,755,385 pounds of EPS beads per year on a 12-month rolling time period basis, with a maximum of 6.5 pounds of VOC per 100 pounds of EPS beads processed. Records were reviewed for the time period of January 2021 through June 2022. The highest 12-consecutive month throughput of EPS beads occurred during the 12-month period ending in November 2021, when 1,883,158 pounds of EPS beads were processed.

Consent Order AQD No. 4-2013

The facility appears to have met the requirements of Consent Order AQD No. 4-2013. Per Consent Order AQD No. 4-2013, General Provisions paragraph 27 "This Consent Order shall remain in full effect for a period of at least three (3) years. Thereafter, the Consent Order shall terminate only upon written notice of termination issued by the AQD Chief. Prior to issuance of a written notice of termination, the Company shall submit a request..." Due to this fact Consent Order AQD No. 4-2013 remains in effect.

Additional Observations

- Two 6.275 MMBtu/hr. boilers were observed during the site inspection that are used for steam generation. The boilers were noted

to have been manufactured each on 05/28/1964. The boilers are included in PTI No. 84-19 as EUCBOILER1 and EUCBOILER2, but no special conditions were required for either unit. Based on the size the boilers are not subject to New Source Performance Standards Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. It was noted that EUCBOILER1 was due to be inspected on July 19, 2022, and EUCBOILER2 was last inspected on December 2, 2021. EUSUPBOILER referenced in PTI No. 84-19 was dismantled and removed from the facility in 2017.

- The maintenance area was observed during the inspection with various metal machining equipment and a welding area. The equipment observed appeared to be exempt from Rule 201 permitting per Rule 285(2)(l)(vi)(b) and Rule 285(2)(i).
- One emergency generator was observed during the site inspection that is used to power their server during a power outage. The emergency generator is a Cummins C20N6 20 kW sized generator that runs on natural gas with a propane backup and was installed in the summer of 2016. The emergency generator is subject to NSPS Subpart JJJJ for Stationary Spark Ignition Internal Combustion Engines. CR staff stated that every Tuesday the engine will run for approximately fifteen minutes for maintenance checks and readiness testing. Documentation verifying the engine meets the EPA emission standards was requested and provided. Maintenance is conducted on an annual basis.
- One foam shredder (EUFOAMSHRED) was observed during the site inspection. Foam materials are brought on site and sorted. Material is then shredded and stored before being placed in bags used for seating process of the chairs.

Conclusion

As stated previously, a violation notice was issued to the facility for not providing records required by PTI No. 84-19 during and following the inspection. Based on the facility walkthrough, observations made, and records received on August 23, 2022, Comfort Research appears to be in compliance with PTI No. 84-19, Consent Order AQD No. 4-2013 and applicable air quality rules.

NAME Michael T. Cox

DATE 9/2/2022

SUPERVISOR 