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

B591840325

FACILITY: H.B. Fuller Co.		**SRN / ID:** B5918
LOCATION: 2727 Kinney Ave. NW, GRAND RAPIDS		**DISTRICT:** Grand Rapids
CITY: GRAND RAPIDS		**COUNTY:** KENT
CONTACT: Tim Hula , EHS Manager		**ACTIVITY DATE:** 06/19/2017
STAFF: Adam Shaffer	**COMPLIANCE STATUS:** Non Compliance	**SOURCE CLASS:** SM OPT OUT
SUBJECT: Scheduled unannounced inspection.		
RESOLVED COMPLAINTS:		

Facility Description

H.B. Fuller is a chemical manufacturing company that creates a variety of solvent cements, resins and polyurethanes used mostly by industries. The company is currently in operation under one Opt Out Permit to Install (PTI) No. 275-04C.

Prior to the inspection H.B. Fuller was reviewed to determine if any additional federal regulations/requirements were applicable to the facility. H.B. Fuller is a chemical manufacturing company and is potentially subject to several New Source Performance Standards (NSPS). The potentially applicable NSPS are as follows:

- 40 CFR 60 Subpart Kb (Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984) – During the inspection two tank farms were identified throughout the facility. The tanks observed ranged in size up to 12,000 gallons. This is less than the required 75 m^3 size needed (19813 gallons); therefore, this standard is not applicable.

- 40 CFR 60, Subpart NNN (Standards of Performance for Volatile Organic Compounds (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMO) Distillation Operations) – During the inspection a 400-gallon solvent recovery still was observed. In the PTI No. 275-04C application, H.B. Fuller states that the recovery still will be used as a batch process; therefore, this standard is not applicable.

Additionally, several maximum available control technology (MACT) standards are potentially applicable to H.B. Fuller and are discussed further below:

- 40 CFR Part 63, Subpart FFFF (National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing) – H.B Fuller was formerly in operation with a Title V renewable operating permit (ROP) No. 199600089. This permit was voided on April 25, 2008. Per 40 CFR, Subpart FFFF all existing sources as of November 10, 2003 that are subject to this MACT standard must comply by May 10, 2008. Since H.B Fuller's Title V permit was voided before the 2008 deadline and are no longer considered a major source for hazardous air pollutants (HAPs) this standard does not apply.

- 40 CFR Part 63, Subpart VVVVVV (National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources) – As stated in the application for PTI No. 275-04B, one chemical identified in the Table 1 HAP is present in raw materials on site, but at a concentration less than 0.0024 percent; therefore, this standard does not apply to this site.

No additional potential NSPS or MACT standards were identified that may apply to this site.

Compliance Evaluation

Prior to entering the facility, offsite odor and visible emission observations were completed. A mild chemical odor was observed along the eastern property boundary. During the initial visible emissions observation, visible emissions appeared to be emanating from the central portions of the building; however, during the roof inspection and after speaking with onsite personnel this was verified to be steam. Upon entering the facility, AQD staff met with Mr. Tim Hula, EHS Manager, and Ms. Amanda Ryan, Facility Engineer. The purpose of the inspection was explained to Mr. Hula and Ms. Ryan, which included a facility walk through and wrap up discussion.

EUSOLVCEM

This emission unit includes an adhesive mixing and drumming process that includes two mixers and one drum filling station used to produce a solvent based adhesive cement. The most recent Preventative Maintenance (PM) / Malfunction Abatement Plan (MAP) on file from H.B. Fuller was reviewed prior to the site inspection. The PM/MAP was from when the facility was in operation under the former ROP No. 199600089 and voided PTI No. 51-02. AQD will require that an updated

copy of the PM/MAP be submitted to the AQD. The two condensers were observed in operation at the time of the inspection. The outlet temperatures for the two condensers were observed at 50°F and 70°F respectively during the inspection, which is within the satisfactory operating level of 80°F. The two condensers are also equipped with indicators that will alert if the cooling water outlet temperature exceeds 80°F. Records were requested from May 2016 through May 2017. Temperature records were provided for the months of March through May 2017 which after reviewed were below the cooling water outlet temperature limit of 80°F. However, in a follow up email from H.B Fuller staff it was stated that starting in March 2017 outlet water temperature records are historized. Prior to this, operators would record the temperature outlet water if a warning light went off. H.B Fuller staff stated that during the period requested, no record of any alarms going off were found.

EUSOLVCEM is equipped with a vapor return system. H.B. Fuller representatives explained that during operation the unit is loaded with solvents and the vapor return system allows vapors emitted from the solvents to return to the bulk storage tanks instead of escaping to the atmosphere. Per special condition (SC).VI.4.a-e H.B. Fuller must keep track and record the daily number of vessel cleaning events, solvents used during the cleaning events, quantity of solvent raw materials used during batch production, batches produced, and records of dates, times, duration and corrective actions taken when the outlet water temperature for either condenser exceeded 80°F. Records provided by H.B. Fuller were concluded to be incomplete and therefore a violation of Opt Out PTI No. 275-04C. H.B. Fuller appears to be keeping track of their records of the outlet water temperature to identify if the temperature exceeds 80°F.

The seven stacks associated with EUSOLVCEM were identified during the inspection. Though the exact dimensions were not measured, it appears that the stack dimensions are consistent with PTI No. 275-04C.

EUHOCKMEYERPASTE

This emission unit includes a paste mixing unit and vacuum pump. This emission unit makes hot melt adhesives and various liquid products and is connected to the activated carbon bed system. During the inspection two separate pieces of equipment consisting of a ten drum two vessel mixing unit and a three drum one vessel mixing unit were observed. After further review it was concluded that the smaller unit (three drum one vessel) is not included in the permit and was previously considered exempt per Rule 290 in a previous email from Mr. Shane Roach of H.B. Fuller in March 2010. Monthly records to verify Rule 290 exemption status were requested and have yet to be received. H.B. Fuller will include, if able, monthly emission records to verify this piece of equipment is exempt per Rule 290 in the violation notice (VN) response.

Per SC.VI.3-4 H.B. Fuller must maintain daily records of the number of cleaning events, the types of solvent used for each cleaning event, the daily number of batches produced and quantity of raw solvent material used during batch production. It was noted on the records provided that 3DRHOCKMEYERPASTE is the three drum one vessel mixing unit discussed above and EUHOCKMEYERPASTE is the ten drum two vessel unit listed in the Opt Out PTI No. 275-04C. H.B. Fuller staff stated that the ten drum two vessel mixing unit does not produce solvent containing materials. The records provided by H.B. Fuller were concluded to be incomplete and therefore a violation of Opt Out PTI No. 275-04C.

One stack listed for EUHOCKMEYERPASTE was verified during the inspection. Though the exact dimensions were not measured, it appears that the stack dimensions are consistent with PTI No. 275-04C.

EUMHTMIXER

This emission unit includes a 1,100-gallon MHT paste mixer vessel equipped with a vacuum pump. The EUMHTMIXER utilizes one condenser and is connected to the one baghouse located on site. The most recent PMP / MAP submitted to the AQD was when the facility was in operation with ROP No. 199600089 and voided PTI No. 51-02. AQD will require that an updated copy of the PM/MAP be submitted to the AQD.

EUMHTMIXER is equipped with one condenser that was observed in operation at the time of the inspection. The outlet temperature for the condenser was 57°F during the inspection, which is within the satisfactory operating level of 80°F. Temperature readings are recorded in a control room. The condenser is also equipped with an indicator that will alert if the cooling water outlet temperature exceeds 80°F. Records were requested from May 2016 through May 2017. Temperature records were provided for the months of January through May 2017 and were in compliance during this period except for an incident on April 22, 2017 when temperature records recorded exceeded the limit of 80°F for approximately 100 minutes with a maximum temperature of 99°F. No additional records were provided with regards to this exceedance, and therefore, is a violation of SC.VI.4. e. In a follow up email from H.B Fuller staff it was stated that starting in March 2017 outlet water temperature records are historized. Prior to this, operators would record the temperature outlet water if a warning light went off. H.B Fuller staff stated that during the period requested no records of an alarm going off were found. H.B. Fuller also utilizes a vapor return system for excess vapors with this emission unit.

Per. SC.4.a-e, H.B. Fuller must maintain daily records of the number of vessel cleaning events, daily records of the solvent used during each vessel cleaning event, daily records of the quantity of each solvent raw material used during batch production, daily records of the number of batches produced, and records of the date and time the alarm activated for the exhaust temperature of the conservation vent condenser, the length of time the exhaust temperature was above 80°F and the actions taken to correct the problem. Records provided were concluded to be incomplete which is a violation of Opt Out PTI No. 275-04C. H.B. Fuller does appear to be keeping track of their outlet water temperatures of the condenser to identify if the temperature exceeds 80°F.

The two stacks associated with EUMHTMIXER were identified during the inspection. Though the exact dimensions were not measured, it appears that the stack dimensions are consistent with PTI No. 275-04C.

FGPREPOLYMER2

This flexible group is for the adhesive production using reactor vessels. Diisocyanate emissions are controlled by two parallel activated carbon beds. Particulate emissions are controlled by a baghouse. This flexible group is for the following emission units: EUPOLYREACTOR, EUREACTORA, EUREACTORB, EUREACTORC, EUREACTORD, EUREACTORE, EUREACTORF, EUREACTORG, and EUPASTEMIX. Descriptions and additional information observed during the inspection are discussed further below.

Emission Unit	Description
EUPASTEMIX	This emission unit includes a paste mixer and corresponding ancillary equipment used to blend various other solid or liquid materials. Particulate emissions are controlled by a baghouse.
EUPOLYREACTOR	This emission unit includes a vessel and corresponding ancillary equipment used primarily for manufacturing prepolymers and also for blending polyols. Diisocyanate emissions are controlled by a two parallel activated carbon beds. Particulate emissions are controlled by a baghouse.
EUREACTORA	This emission unit includes a vessel and corresponding ancillary equipment used primarily for blending polyols. Diisocyanate emissions are controlled by two parallel activated carbon beds. Particulate emissions are controlled by a baghouse.
EUREACTORB	This emission unit includes a vessel and corresponding ancillary equipment used primarily for manufacturing prepolymers and also for blending polyols. Diisocyanate emissions are controlled by two parallel activated carbon beds. Particulate emissions are controlled by a baghouse.
EUREACTORC	This emission unit includes a vessel and corresponding ancillary equipment used primarily for blending polyols. Diisocyanate emissions are controlled by two parallel activated carbon beds. Particulate emissions are controlled by a baghouse.
EUREACTORD	This emission unit includes a vessel, solvent condenser, and corresponding ancillary equipment used primarily for manufacturing polyurethane prepolymers and also for blending polyether or polyester polyols. Diisocyanate emissions are controlled by two parallel activated carbon beds. Particulate emissions are controlled by a baghouse.
EUREACTORE	This emission unit includes a vessel, solvent condenser, and corresponding ancillary equipment used primarily for manufacturing polyurethane prepolymers and also for blending polyether or polyester polyols. Diisocyanate emissions are controlled by two parallel activated carbon beds. Particulate emissions are controlled by a baghouse.
EUREACTORF	This emission unit includes a vessel, solvent condenser, and corresponding ancillary equipment used primarily for manufacturing polyurethane prepolymers and also for blending polyether or polyester polyols. Diisocyanate emissions are controlled by two parallel activated carbon beds. Particulate emissions are controlled by a baghouse.
EUREACTORG	This emission unit includes a vessel, solvent condenser, and corresponding ancillary equipment used primarily for manufacturing polyurethane prepolymers and also for blending polyether or polyester polyols. Diisocyanate

	emissions are controlled by two parallel activated carbon beds. Particulate emissions are controlled by a baghouse.

The VOC emissions for FGPREPOLYMER2 are limited to 10.7 tons per year (tpy) based on a total 12-month rolling time period. The Methylene diphenyl diisocyanate (MDI) emissions are limited to 0.00006 tpy. Also, FGPOLYMER2 has Toluene diisocyanate (TDI) emissions that are limited to 0.0044 pounds per hour (pph) per test protocol, and 0.02 tpy per a 12-month rolling time period. The pph limit for TDI was not verified during the course of this inspection. Lastly, FGPREPOLYMER2 is limited to 1,100 batches of prepolymer per each emission unit based on a total 12-month rolling time period.

Records for FGPREPOLYMER2 for monthly, 12-month rolling emission limits, batches produced and vessel cleaning events were provided and concluded to be incomplete; therefore, this is a violation of Opt Out PTI No. 275-04C. Additionally, it appears that EU-REACTOR D is not included in the records that were provided.

Per SC.III.1 FGPREPOLYMER2 must have in place a MAP/PMP in order to operate. The most recent PMP / MAP submitted to the AQD was when the facility was in operation with ROP No. 199600089 and voided PTI No. 51-02. AQD will require that an updated copy of the PM/MAP be submitted to the AQD.

Temperature monitoring devices appeared to be installed for each emission unit in FGPREPOLYMER2. H.B. Fuller has on site two carbon adsorption beds that are used to control diisocyanate emissions. H.B. Fuller stated every six months that the adsorption beds are changed, regardless of the condition. Purchase records were provided when the most recent two carbon bed changes occurred which were on September 28, 2016 and March 24, 2017. Breakthrough is when the activated carbon beds are saturated and no longer able to adequately control isocyanate emissions is 20 parts per billion by volume (pub). At the time of the inspection the isocyanate monitoring device read 0.00 ppbv. Records were requested for select months back to May 2016 to verify compliance. The highest reading observed was on January 25, 2017 at 1.45 ppbv which is well within the limit of 20 ppbv. The daily isocyanate emission recordings reviewed were concluded to be acceptable. The normal operating range of the carbon bed differential pressure is 8 to 20 psig. At the time of the inspection the differential pressure gauge read 16 psig. Select months back to May 2016 were requested of records for the carbon bed differential pressure to verify satisfactory operation. For the months of May and July 2016 the majority of the readings said "Max". When this was brought up to H.B. Fuller staff it was concluded that the gauge was during that time period operating at its maximum reading. The gauge was then replaced to provide a more accurate reading. The two stacks associated with FGPOLYMER2 were observed during the inspection and though the dimensions were not measured they appeared to be consistent with the dimensions identified in PTI No. 275-04C.

FGPARTICULATE

This flexible group is for the adhesive production using vessels in which liquids and powders are mixed. This flexible group is for the following emission units: EUHOCKMEYERPASTE, EUMHTMIXER, EUPOLYREACTOR, EUREACTORA, EUREACTORB, EUREACTORC, EUREACTORD, EUREACTORE, EUREACTORF, EUREACTORG, and EUPASTEMIX. Descriptions of these units are described in previous sections of this report. The particulate matter (PM) emissions for FGPARTICULATE are limited to 0.12 lb per 1,000 pounds of exhaust gases, calculated on a dry gas basis and a 0.53 lb/hr limit per testing. These emission limits would have been verified during the initial construction of the baghouse located on site. Per SC.III.1 FGPREPOLYMER2 must have in place a MAP/PMP in order to operate. The most recent PMP/MAP submitted to the AQD was when the facility was in operation with ROP No. 199600089 and voided PTI No. 51-02. AQD will require an updated copy of the PM/MAP.

During the inspection H.B. Fuller staff stated that no asbestos is used on site for formulation ingredients. The cartridge fabric filter appeared to be installed and operating in a satisfactory manner. The dust collector was in operation at the time of the inspection and the pressure drop reading was at 8.6 inches of water. H.B. Fuller staff stated that the normal operating range for the baghouse was 0-10 inches of water. AQD staff requested documentation to verify the stated range. After reviewing the dust collector manual, the recommended upper range for the pressure drop is 6.0 inches of water. Daily pressure drop and visible emission readings were requested for select months. After reviewing the records provided, large periods of time were noted with daily pressure drop readings exceeding 6.0 inches of water. In the completion of the updated PM/MAP for the dust collector it will include a pressure drop range to help insure satisfactory operation of the dust collector.

Per SC.VI.4 H.B. Fuller must record daily visible emission observations. Records provided only identified if an observation of the stack was completed and no verification if visible emissions were observed. In the future, H.B. Fuller will record on a daily basis if visible emissions are observed. The one stack associated with FGPARTICULATE was observed during the inspection and though the dimensions were not measured they appeared to be consistent with the dimensions identified in PTI No. 275-04C.

FGFACILITY

This flexible group includes all equipment at the facility including equipment covered in the PTI No.275-04C, grand-fathered equipment and all exempt equipment. The VOC emissions for this flexible group are limited to 75 tpy per a 12-month rolling time period. Also, the HAP emissions for this flexible group are limited to less than 9 tpy and less than 22.5 tpy per a 12-month rolling time period for individual and total HAPs respectively. Records provided by H.B. Fuller were concluded to be

incomplete, and therefore, a violation of Opt Out PTI No. 275-04C.

Additional Observations

- At least three parts washers were observed throughout the facility inspection. All parts washers observed were closed at the time of the inspection and utilize toluene as the cleaning agent. AQD AS provided H.B. Fuller staff with several operating procedure labels to be placed on the parts washers. The parts washers appear to be exempt per Rule 281 (2)(h).

- A drum press was observed on site that was verified by H.B. Fuller staff to not be in use. The drum press appears to be exempt per Rule 285(2)(l)(vi)(B).

- Two tank farms were observed throughout the facility inspection. The south tank farm has approximately twenty tanks ranging from 5000 – 12000 gallons in size that contain various raw materials. Vapor pressures were requested for the south tank farm to verify if the tanks are potentially exempt. Records were provided; however, vapor pressures were not included for several tanks. H.B. Fuller will be asked to provide in the VN response potential exemptions, if able, for the tanks observed in the southern tank farm.

- The northern tank farm was observed with approximately nine tanks identified as EUTANK21 through EUTANK29. Three tanks were stated to be empty by H.B. Fuller staff. The remaining six tanks contained either reclaimed hi-Sol, reclaimed toluene, toluol, reclaimed NMP, methyl ethyl ketone, hexane, acetone, VM and P naphtha, or heptane. Emissions for these tanks were included in the May 23, 2017 records provided by Mr. Hula and are included in the FGFACILITY emissions.

- One mini dust collector of an unknown size was observed adjacent to and used in association with EU-MHTMIXER. Waste from this dust collector is collected and combined with the larger dust collector on site. The dust collector is vented externally. This dust collector is used a couple times a month for solvent batches of EU-MHTMIXER. A solvent batch consists of twenty 55-gallon container drums. The size of the dust collector was asked but never verified by H.B. Fuller staff. H.B. Fuller will be asked to provide the size cfm of this dust collector, and if applicable, a potential exemption along with the VN response.

- A PRI distillation system for solvents was observed on site. The distillation system can hold approximately 400 gallons. After speaking with AQD Permits Section, this select piece of equipment was not considered an emission unit based on no actual emissions coming from this part of the process.

- The south warehouse is where all raw materials are stored.

- Approximately 8 ovens were observed during the inspection. The ovens consisted of 2 door models that could hold 4 pallets and 4 door models that could hold 8 pallets. H.B Fuller staff stated that the ovens are 70,000 BTU/hr and 100,000 Btu/hr for the 2 door and 4 door oven models respectively. The ovens are electric steam heated and are used in melting raw materials. Two of these ovens are vented externally while the remaining ovens are vented internally. H.B. Fuller will be asked to provide, if applicable, a potential exemption along with the VN response.

- A repacking area was observed during the inspection where finished products are taken from larger storage containers and poured into smaller containers. A vent was observed in the packing area that vents externally. H.B. Fuller will be asked to include in their VN response an applicable exemption, if able, for the repacking area.

- One 5.23 MMBtu emergency boiler that uses only natural gas and was installed in August 1979 was observed. Based on the date of construction the boiler is exempt from NSPS and appears to be exempt per Rule 282(2)(b)(i). No additional emergency generators were observed.

- A two-roll mill machine was observed that rolls rubber. The rubber during operation is heated up due to friction caused while rolling. H.B. Fuller stated this machine only emits odors. Based on this it appears that this unit is exempt per Rule 285 (2)(l)(vi)(B).

- Prior to the facility inspection, what appeared to be a red patch was observed in google maps on the southwestern portion of the facility rooftop. During the inspection of the rooftop the approximate area was viewed with what appeared to be rust in small areas. The rooftop was also stated by H.B. Fuller staff to have been recently redone.

Conclusion

A final discussion was completed with AQD staff and Mr. Hula, Ms. Ryan and Mr. Timothy Schuster, Operations Manager.

Based on the review of the records provided and the facility walk through, H.B. Fuller is not in compliance with Opt Out PTI No. 146-12. A VN will be sent.

During a previous phone conversation regarding H.B. Fuller's MAERS submittal on May 23, 2017 between AQD staff AS, Mr. Tim Hula, EHS Manager for H.B. Fuller, Ms. Kristin Colberg, Corporate Environmental Engineer for H.B. Fuller, and Mr. Robert Tyler, Environmental Consultant for Woodard and Curran, it was concluded that H.B. Fuller was unable to verify where calculations used for several units in determining emissions were generated from. These calculations were used in submitting the 2016 MAERS Report and in records to verify compliance with PTI No. 275-04C for the June 19, 2017 inspection.

At the end of the facility inspection the records were discussed at length. It was stated by H.B. Fuller staff to use the records in the May 23, 2017 email. Several additional exchanges of emails were completed for additional records; however, as a whole the records were concluded to be incomplete. Mr. Tyler has been in the process of updating H.B. Fullers records. It was determined, however, that based on the lack of records H.B. Fuller is in violation of Opt Out PTI No. 275-04C. In the VN response, H.B. Fuller will also be required to resubmit their 2016 MAERS Report with the updated correct information.

Recommendations

The following are items identified during the inspection and/or reviewing records that; though are not violations, will need to be completed.

- Per SC.VI.4 H.B. Fuller must keep daily records of observations of visible emissions from the baghouse. The records provided only state if a stack inspection was completed. In the future H.B. Fuller will keep daily records of observations of visible emissions from the baghouse stack.

NAME Adam E Frye DATE 8/24/17 SUPERVISOR for HH