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

N687461309

FACILITY: Quantum Composites Inc.		**SRN / ID:** N6874
LOCATION: 1310 South Valley Center Drive, BAY CITY		**DISTRICT:** Bay City
CITY: BAY CITY		**COUNTY:** BAY
CONTACT: Duane Gohr , Production Manager		**ACTIVITY DATE:** 12/09/2021
STAFF: Benjamin Witkopp	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Facility inspection		
RESOLVED COMPLAINTS:		

Ben Witkopp of the Michigan Department of Environment, Great Lakes, and Energy - Air Quality Division (AQD) visited Quantum Composites, Inc. on December 9, 2021. Quantum is now part of LyondellBasell. LyondellBasell is one of the largest plastics, chemicals, and refining companies in the world. I met with Duane Gohr, Site Manager. The facility was issued a renewable operating permit (ROP). MI-ROP-N6874-2016 regulates the emission of volatile organic compounds (VOC) and hazardous air pollutant (HAP) emissions. Due to the nature of the material it uses, and its products, the facility is subject to 40 CFR Part 63 Subpart WWWW, Reinforced Plastic Composites Production. The site also has small boilers and an emergency engine.

The facility is considered a major source of (HAPs) due to the potential to emit (PTE) over 10 tons per year (tpy) of a single HAP and/or over 25 tpy of all HAPs combined. The permit contains operational limits to restrict the VOC PTE. The operational limits consist of operating hours, material usage, and styrene limits. Prevention of Significant Deterioration (PSD) regulations don't apply to VOC due to the operational constraints.

The facility is a sheet molding compound (SMC) facility. Though there were plans at one point to also manufacture bulk molding compound (BMC) Duane confirmed that never came to fruition. Making SMC involves the use of resins, fillers, and other chemicals to produce the desired compounds for a variety of end users. The mix formulations are specific to customer's needs and desired characteristics. The facility tracks styrene percent by product group and emission unit. Mixers of various sizes are used to produce paste material in batches. Any potential emissions from the mixers are routed to a VTI dust collector. The air leaving the VTI dust collector is routed through an energy recovery unit prior to discharge. The paste material is used in one of the three molding compound machines. They are identified as SMCI, SMCII, and SMCIII. Duane said SMCIII is rarely used. Structural reinforcement in the paste can be provided by the addition of chopped fibrous material. Typically, the fibers are carbon fiber or fiberglass. SMCI is different from the other lines in that it is the one equipped to handle carbon fiber chopping / addition. The emissions from the chopping are routed to a Torit dust collector which exhausts internally. SMCI is also the only one to use heat, if necessary, to facilitate a desired reaction rate, texture, etc. On each of the SMC lines, the paste mixture is spread between layers of carrier film. The resulting product is cut to desired length, packaged, and subsequently shipped. It can also be stored in a cooler. The production equipment is cleaned with solvents. Cleaning is essential to avoid any possible contamination between batches. A solvent dispensing area is located on the south side of the production area. Spent solvents are stored on site until disposed. The facility also has quality assurance and product development testing laboratories. Duane said the product development is becoming a very key part of the facility importance. The laboratory areas are deemed exempt from having to obtain an air use permit. It should be noted the person

responsible for environmental, health, and safety issues is no longer with Quantum. Therefore, longer term records, e.g., tons per 12 month rolling time period, were not readily available until a later date.

FGSMCBMC

The flexible group in the permit covers the mixing, solvents, and the individual production lines. We reviewed production information. We found the months of June, July, and August in 2021 to have been the highest of the last two years. Records required by the permit were requested for those months and were subsequently provided.

None of the lines were in operation at the time due to it being late in the day. Duane confirmed production had occurred during the day. The solvent use area was checked and found to have some issues. Several pails of solvents did not have lids on them. Duane and I scoured the area but didn't even find enough lids to cover the pails. Also, though a grounding strip was available some of the barrels were not alligator clipped to it. Lastly, there was a barrel on a barrel dolly. It was left horizontal to the floor and some solvent was dripping onto the cardboard beneath. Duane immediately corrected issues as best he could. This was pointed out to Duane as being a training opportunity. Duane later confirmed he had done so.

There are emission limits of 37.2 tpy for VOCs, based on a 12-month rolling time period as determined at the end of each calendar month and 8.8 pound per hour limit for styrene based on a calendar day average. The company uses mix formulation and the employee time record to perform activities to produce a report. The hours of operation and pounds of each formulation used by the individual processes along with permit specified emission calculations results in emissions records. The results would be on the high side as they do not subtract waste amounts.

VOC emission rates were 4.11 tpy for the 12-month rolling time period ending June 2021. This is on the high side because solvent waste amounts disposed are not considered. It also includes acetone, used in cleanup, which is not VOC. This amount is well below the permit limit. Review of records showed the hourly styrene emission rates were below the permit limit of 8.8 pph. The permit contains some errors regarding other pollutants. These are not discussed here. Corrections have been made to the ROP undergoing renewal at this point. Hopefully all errors have been addressed.

The permit also has pounds per year processing rate limits of 64,600,000, 180,000 and 1,000,000 for EUMIXERS, EUBMCMIXER, and EUPRESS respectively. Typical production was around 10,000 pounds per day, though some days were higher, and others lower. The limits are based on a 12-month rolling time period. Records review showed 296,385 pounds for the mixers. As previously mentioned, BMC was not installed. The press was not used for production but at one time was planned for such. It is used in the laboratory area for testing purposes.

In addition, the permit contains restrictions on the number of hours per year to operate EUSMCI, EUSMCII and EUSMCIII. The restrictions vary depending on both the material being processed and the equipment involved and are based on a 12-month rolling time period. SMCI has a polyimide group limit of 350 hours and a limit of 6,000 hours for the polyester, phenolic, and epoxy group. SMCII has a limit of 6,000 hours for the polyester group. SMCIII's polyester group has a limit of 4,000 hours. Records review showed the highest hours of operation being 53 1,308

333 and 1 respectively as shown in the records ending August 2021. These hours of production are well below permitted values.

The solvent use area is involved with record keeping too. As suggested years ago, the facility uses a dip stick to measure solvent use. The dip stick measurements correspond to the containers volume. The liquid height is recorded and then converted to the volume used by an employee. Solvent usage is based on amount of solvent used minus amount of solvent sent for disposal. Special Condition II.2 limits the net cleaning solvent usage rate to less than 100 gallons per month. The facility does have a report of net solvent usage, but it doesn't show how those values were determined. e.g., use minus disposal per month. This was discussed with Duane. The highest net solvent usage was 47 gallons.

The two dust collectors the facility uses also have requirements. The Torit unit is to undergo preventative maintenance. Records indicated the inspection and maintenance is occurring monthly. The VTI bulldog unit is to have its pressure drop read once per shift. The records provided did not make sense. For a long stretch of time the readings were 0.04 inches of water. The next page showed 0.4 inches. The following page then jumped up to 2.1 inches and near the end of that page rose to 2.4 inches. The last page showed 2.6 inches and then had a notation of a filter change. However, the next reading after the filter change was still 2.6 inches. Subsequent values were then recorded as zero. That would be indicative of a problem such as broken filter media, loose or failed gasket, etc. These observations were shared with Duane. He called back and had the maintenance supervisor on the call. They had reviewed the records and the observations made. They felt they arrived at an explanation for the readings. They said there are actually three indicator needles on the gauge. One is a low setting and another the high setting. Those settings are 0.4 and 2.6 inches of water respectively. The third needle is the actual pressure drop. Therefore, the first page was recording the value of the low setting but even had an incorrect decimal place. The second page was also recording just the low setting but at least the decimal place was proper. The third page was apparently presenting the actual pressure drop. The reading of 2.6 inches on the final page, after a filter change, was recording the high setting. After that, the value was incorrectly being read as zero. Since a variety of people were making the readings and individuals were apparently recording readings based on those before them it was apparent to all that instruction and training of staff was needed. Both Duane and the supervisor subsequently planned to update the sheets and train the staff in proper reading of the gauge.

FGMACT

The facility is subject to 40 CFR Part 63 Subpart WWWW, Reinforced Plastic Composites Production. The regulation is part of a group of regulations termed Maximum Achievable Control Technology (MACT)standards. The facility is basically subject to the work practice standards in Table 4 of 40 CFR, Part 63, Subpart WWWW.

The total facility wide VOC emissions are basically also the HAPs emissions therefore a separate record is not present. The total VOC emissions were 4.11 tpy for the 12-month rolling time period ending June 2021. This is on the high side because solvent waste amounts disposed are not considered. It also includes acetone, used in cleanup, which is not a VOC nor HAP. This amount is well below the permit limit of less than 100 tpy based on a 12-month rolling time period.

FGBOILERMACT

The facility has three boilers EULOCHINVAR#1, EULOCHINVAR#2 and EUSTEAMBOILER. The boilers are subject to the MACT standards for existing boilers and process heaters at a major source of HAPs, 40 CFR Part 63, Subparts A and DDDDD. It should be noted the current ROP did not delineate between existing vs new equipment. The consequences are not discussed here. Corrections have been made to the ROP undergoing renewal at this point. Hopefully all errors have been addressed. The MACT requirements include meeting the tune-up and energy assessment work practice standards for each applicable boiler, completing a one-time energy assessment, and maintaining records of maintenance on the units. The latest five-year tune-up for all units was conducted on July 26, 2021.

FGRICEMACT

The facility has one emergency generator that utilizes natural gas and was installed in November of 2012. The generator is available the facility loses power. Maintaining temperature in a cooler where product may be stored is critical. It should be noted the current ROP is incorrect as the engine is stated as being "existing." In reality, the engine would be deemed "new" and the means of compliance would be through federal New Source Performance Standards (NSPS). The specific NSPS involved would be subpart JJJJ for spark ignition engines. These regulations are not discussed here. Corrections have been made to the ROP undergoing renewal at this point. Hopefully all errors have been addressed. The engine is being maintained by Hamilton Electric. The unit was serviced on the day of the inspection, December 9, 2021.

CONCLUSION

The facility is considered to be in compliance with its current permit. Duane was very responsive to correct actionable items.

NAME B. Lickteig DATE 12-28-21 SUPERVISOR Chris Hare