M2973
MANUAL

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

M297350517

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| **FACILITY:** NEW BOSTON RTM, INC. | | **SRN / ID:** M2973 |
| **LOCATION:** 19155 SHOOK, NEW BOSTON | | **DISTRICT:** Detroit |
| **CITY:** NEW BOSTON | | **COUNTY:** WAYNE |
| **CONTACT:** Michael D. Angerer , President | | **ACTIVITY DATE:** 09/12/2019 |
| **STAFF:** C. Nazaret Sandoval | **COMPLIANCE STATUS:** Compliance | **SOURCE CLASS:** SM OPT OUT |
| **SUBJECT:** Scheduled Inspection FY 2019 | | |
| **RESOLVED COMPLAINTS:** | | |

**Source**: SRN M2973 – New Boston RTM

**Location**: 19155 Shook Road, New Boston, MI 48164

**Date of Inspection**: September 12, 2019

**Reason for Inspection**: Targeted Inspection

**Inspector**: Nazaret Sandoval, DEQ - AQD

**Personnel Present**: Mr. Michael D. Angerer, President

Email: newbostonrtm@yahoo.com

**Facility Phone Number:** (734) 753-9956

## INSPECTION NARRATIVE

On September 12, 2019, AQD staff, Nazaret Sandoval, conducted a targeted inspection at New Boston RTM (RTM).

Upon arriving at the facility at about 10:30 AM, I met with Mr. Michael Angerer, the president of the company and I stated the purpose of the visit. The purpose of the inspection was to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451; the Michigan Department of Environmental Quality, Air Quality Division (MDEQ-AQD) Administrative Rules; and Permit-To-Install (PTI) 217-04A.

First, I verified Mr. Angerer's contact information and questioned if there had been any changes in the company management, number of employees and hours of operations. I also asked if there are changes in the process, new equipment, new products, etc. Mr. Angerer indicated that the company's contact information in AQD database is correct. He added that the company operates Monday through Friday from 7:30 AM until 5:00 PM. No process or process equipment changes have taken place since the last AQD inspection in year 2014. However, there has been a slight increase in the work force, from 14 employees in 2014 to 20 employees at the present time in 2019.

During the opening meeting, we discussed the permit conditions, the recordkeeping procedures, and the emissions calculation methods. I checked the Excel sheets that he maintains in his computer for each one of the emission units (EUs) identified in the PTI 217-04A (herein the PTI) and the emissions calculations for the pollutants regulated by the PTI. Records are collected and properly maintained. He also showed me the two binders where he keeps the Safety Data Sheets (SDSs) for all the chemicals that are used in the

manufacturing process at RTM. There are currently ten to fifteen products that are regularly used at the facility. I asked Mr. Angerer for a layout of the manufacturing process and he provided a copy of a simplified diagram he had on his wall that shows the facility's buildings.

After the opening meeting, at about 11:30 AM, Mr. Angerer lead the walk-through the plant explaining the manufacturing process for the mold fabrication. We concluded the walk-through around 12:30 PM and came back to his office to wrap up our discussions. I received hard copies of the facility emission records for the period from 1/1/2018 to 7/1/2019. I requested copies of the SDSs for the product that are used in large volumes and those that have the highest VOC and/or HAP concentration. I also asked him to email me the emission calculations Excel sheets. I left the facility at about 1:30 PM. The requested excel sheet and SDSs records were sent to me via email on 9/13/2019 and on 9/16/2019. A revision of the VOC emission factor (EF) used in the calculations for one of the EUs was requested. The revised excel form was emailed to me on 9/18/2019.

**PROCESS DESCRIPTION**

For over 15 years New Boston RTM has been operating a custom closed molded fiberglass process known as Low-pressure RTM or LRTM, Lite Resin Transfer Molding. The LRTM is a composite molding process with two counter molds (male and female). Typically, the molds are joined, vacuum clamped, and resin is injected using vacuum assist into the mold cavity. The company has created numerous custom RTM parts serving a wide range of applications and industries, including automotive, recreation, military, medical, agricultural, aerospace, alternative energy and more. Example of products include reinforced plastic doors, hatches, and miscellaneous covers for the boat manufacturing industry. However, at the present time (9/2019), 100% of their products made at the facility are to supply the boat manufacturing industry.

The company's molding process occurs in three distinct stages:

Tooling Stage
Production stage
Finishing stage

There is a paved parking lot that separates the tooling building from the production/finish building. Please refer to the attached facility layout for the location of each stage of the manufacturing process.

<u>Tooling Stage (Building 1) – EUTOOLING</u>

This building houses the office, the storage area and the tooling area. The tooling and fixtures area take up three sections/partitions in the south end of the building.
Section one is used for foam cutting and thermoforming/casting by heating a form in an electric oven to about 300 °F. In the middle section they have a cement mixer for concrete casting. Section three is used for open molding and lamination. Laminated tools (molds) are made of alternating layers of fiberglass and resin. The mold is coated with wax, followed by the resins and reinforcement material. The mold is left open while the materials react and harden (cure).
The tooling stage process starts with a hand molded or open molded fiberglass reinforced plastic part from a customer. The customer is interested in having the part mass produced via New Boston RTM's custom closed molding process. Once a part arrives, the company casts a female mold in polymer concrete. A very thin layer of tooling gelcoat is then applied to the top of the female mold. A corresponding male mold is then fabricated via fiberglass lamination. Vacuum seals and gaskets are incorporated into the top of the male mold and a very thin layer of tooling gelcoat is applied to the inside of the mold. The gel coat is applied using a spray gun and the emissions are to the in-plant environment. There is one spray booth equipped with dry filters and an exhausted stack SVTOOLING. Air is drawn through the

system by means of an induced draft fan. The spray booth was not in use at the time of the inspection. The open molding process is infrequently used; hence the spray guns are only used about ten times per year. At the time of the inspection there was an operator working on a laminated open mold where wax had been applied.

Production Stage (Building 2) -EUMAIN
From the tooling building the finished mold castings are sent to the production building which is located north of building 1 and across from the parking lot. The start of the production stage begins when a thin layer of white gelcoat is applied to the inside of the female mold. A layer of fiberglass is then applied on top of the white gelcoat layer. After the application of the fiberglass layer, the male mold is installed on top of the female mold and a vacuum is applied through the male mold's appendages. Full vacuum is applied to the outside clamps of the male mold and a half vacuum is applied to the interior of the mold. Applying a half vacuum to the interior of the mold assists the molding process. Plastic resins are then pumped into the cavity between the male and female mold castings. The mold is closed, and the part is cured and allowed to set for a specified period of time before being removed from the mold and sent to the finishing area.
There are about 60 molds stations along the building and three spray booths connected to exhaust stacks (SVNORTH, SVMIDDLE, SVSOUTH) with induced draft fans. The mix tanks, day tanks, drums and totes for storing raw material are located in the middle of this building. From the main mix tank the resin is pumped to various stations in the molding area. All material storage containers were covered. They keep a week-supply of resin on-hand.

Finishing Stage (End section of Building 2)
In the finishing stage, plastic parts are trimmed and buffed. Sanding and cutting occurs at a down draft table which vents to a collector inside of the facility. Nicks, gouges and scratches are repaired by filling the defective areas with poly-putty and repair filler. Touch-up gel is applied to the parts if necessary. The parts then go through a final inspection before being shipped to the customer.

Clean up Operations
The clean-up solvent, acetone, is used in two ways: to purge the spray guns to avoid hardening and clogging and applied to rags to wipe off excess material from finished parts. In addition, acetone is used as a solvent in the some of the miscellaneous solvents.

**REGULATORY BACKGROUND**
The operations at New Boston RTM are regulated under AQD permit PTI 217-04A, issued on October 1, 2007. PTI 217-04A includes enforceable limits for hazardous air pollutants (HAPs) that have been accepted to restrict the facility's potential to emit to less than the major source threshold for:
- The National Emission Standards for HAPs (NESHAP), Subpart WWWW for Reinforced Plastic Composites Production.
- The Renewable Operating Permit (ROP) Program.

The permit also establishes VOC emission rates limits for each EU, as well as limiting the Styrene and Methyl Methacrylate (MMA) contain in the resins and gelcoats used for tooling and in production.

The facility is not subject to NESHAP Subpart VVVV because it is not considered a boat manufacturing facility.

**COMPLIANCE EVALUATION**
PTI 217-04A sets a 12-month rolling VOC limit for the gel coating process in the production

building (EUMAIN), a 12-month rolling VOC limit for the gelcoating process in the tooling building (EUTOOLING), a 12-month rolling VOC limit for the various solvents used by the facility (EUMISCSOLVENTS), a 12-month rolling acetone and VOC limit for cleanup solvents used by the facility (EUCLEANUP), and individual and aggregate 12-month rolling HAP limits for the entire facility (FGFACILITY).

Various recordkeeping and monitoring requirements are also incorporated into the permit and they are evaluated for each emission unit.

The requirements that are common to EUMAIN, EUTOOLING, EUMISCSOLVENTS and EUCLEANUP are grouped and evaluated here:

Records are maintained on file for at least five years. Mr. Angerer provided monthly records for the period from 1/1/2018 to 7/1/2019.

On a monthly basis the company keeps records of VOC and Acetone (for EUCLEANUP) emission calculations determining the monthly emission rate in tons per calendar month, and the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month.

It appears as if the required calculations are completed for each calendar month in a spreadsheet that has been established in accordance with Appendix B of PTI 217-04A.

Any booth associated with EUMAIN and EUTOOLING operates with an exhaust filter which is installed, maintained and operated in a satisfactory manner. Filters are changed regularly but the frequency is based on the usage. In average, they are changed once every two weeks or monthly.

All the stacks seem to have the permitted with dimensions of 30 inches in diameter and 25 feet above ground level. Mr. Angerer indicated that there no changes have occurred since the original installation of the stacks in accordance with the dimension cited on the PTI. The facility was not in production at the time of the inspection. There were no exhaust gases or particulates discharging or through the stacks.

EUMAIN

EUMAIN is the emission unit for the gelcoating and molding process in the production building (Building 2). The PTI, Special Condition 1.1a, sets a VOC emission limit of 8.5 tons per 12-month rolling time period. VOC emissions are based on emissions of styrene and MMA from the white gelcoats, colored gelcoats, and resins used in the production building. Emissions are based on the weight percentage of styrene and MMA in the white and colored gelcoats and the emission factors listed in the Special Conditions (SC) 1.3a and 1.3b, respectively. VOC emissions from the production resin are assumed to be 0.01 x (%VOC/100) lb per lb of production resin used (pursuant SC 1.2a). The company assumes that all of the gelcoat and production resin it purchases in a given month is emitted during the same month. The spreadsheet automatically calculate VOC emissions based on purchase records. Monthly purchase order logs list the type, amount, and VOC content of each gelcoat and resin used. The PTI sets a styrene and MMA concetration limit of 32% by weight and 10% by weight, respectively, for the white and colored gelcoats. The PTI also sets concentration limits for styrene and MMA in the production resin of 60% by weight and 3% by weight, respectively.

According to Mr. Angerer, the facility uses multiples types of gelcoats and production resins. During the site visit I spot checked some of the SDSs for the gelcoats and production resins to verify compliance with the concentration limits set by the PTI. I also asked Mr. Angerer to email me copies of the SDSs for the products that are used in large quantities and

those with the highest styrene and MMA concentrations. Based on the SDSs that were provided it appears as if the resins and gelcoats used in the closed molding operations have styrene and MMA concentrations that are below the limits established in the PTI.

For the operations at EUMAIN, the VOC emissions from gelcoats are calculated using the maximum styrene (32%) and MMA content (10%) allowed by the PTI (per SC 1.3a and 1.3b). The VOC emissions from resins are calculated using the highest styrene content (45.5 %) specified in the SDS composition for the production resin most often used at the facility, which is less than the PTI limit of 60%. The facility uses the MMA concentration permit limit of 3% for the VOC emissions estimate from resins. I verified that the facility is using the styrene and MMA emission factors listed in SC 1.2a, 1.3a and 1.3b., which are derived from the information in PTI - Appendix A.

EMAIN records provided by the facility showed the monthly VOCs emitted from gelcoats and from resins. The 12-month rolling records for year 2019 indicate compliance with the 8.5 ton 12-month rolling VOC emission limit. For the evaluated period, the highest 12-month rolling VOC emission rate for the combined emissions from resins and gelcoats was 4.06 tons per year and was recorded at the end of January 2019.

EUTOOLING

EUTOOLING is the emission unit for the tooling building (Building 2) where mold castings are designed and fabricated. A VOC emission limit of 6.4 tons per 12-month rolling time period is established in the PTI, Special Condition 2.1a. Emissions are based on the styrene and MMA content of the resins and gelcoat used in the tooling process and the emission factors listed in Special Conditions 2.2a and 2.2b. The PTI also sets a material usage limit for styrene and MMA of 48% by weight and 2% by weight, respectively, for the tooling resin, and 50% by weight and 4% by weight, respectively, for the tooling gelcoat. As with EUMAIN, the facility assumes that all of the tooling resins and gelcoats which are purchased in a given month are emitted in the same month. According to Mr. Angerer, monthly purchase record logs record the type, amount, and VOC content of the gelcoats and resins used. The purchase records logs were not reviewed or requested at the time of the inspection.

EUTOOLING records provided by the company showed the monthly calculations for VOC emitted from gelcoats and resins during the evaluated period. The 12-month rolling records indicate compliance with the 6.4 ton 12-month rolling VOC emission limit. The highest 12-month rolling VOC emission rate for the combined emissions from resins and gelcoats was 0.44 tons per year and was recorded at the end of December 2018.

EUMISCSOLVENTS

EUMISCSOLVENTS is the emission unit for emissions from miscellaneous solvents such as mold release agents, catalysts, polishes, waxes, etc. used by the facility. A 3.0 ton per 12-month rolling time period VOC emission limit is established in the permit for emissions from these miscellaneous solvents. The PTI requires the company to identify the type, the amount, and the VOC content of the miscellaneous solvents which are used on a monthly basis.

Records provided by the company on the day of the inspection, for period 1/1/2018 to 7/1/2019, indicated that less than 20 pounds of VOC per month were emitted from polishes, release agents, and waxes during calendar years 2017 and 2018. The EUMISCSOLVENTS summary table did not track them individually and the purchase orders were not reviewed at the site. Therefore, I requested additional information about the specific chemicals, the VOC content and the quantities that are accounted for under this emission unit. Except for the catalysts (which are track separately) it appears as if the facility is not maintaining a monthly

log of the purchase orders with the type, amount, and VOC content for the rest of chemicals that are grouped under this category for EUMISCSOLVENT.

In an email dated 9/19/2019 Mr. Angerer provided the SDSs and reported the usage for the time period from 6/1/2018 through 7/31/2019, for the following products:

280 lbs. of Chemwax 500
200 lbs. of Chemlease 2710
142 lbs. of Fisheye Eliminator
574 lbs. of Propatch

The quantities add up to a total of 1,196 pounds (approx. 0.6 tons).

The 12-month rolling records for EUMISCSOLVENTS (Catalysts) showed a total of 0.03 tons of VOC emitted from catalysts.

The combined VOC emissions from polishes, release agents, waxes, and catalysts (0.63 tons) are below the 3 ton per 12-month rolling time period VOC emission limit.

The facility assumes that 20% of the acetone purchased is used as a mix-solvent in various operations at the facility. It is assumed that 100% of the acetone used is emitted to the in-plant environment. The 12-month rolling records from 7/1/2018 to 7/1/2019 show a maximum recorded emission of 2.10 tons, reported at the end of June 2019. Since acetone is not a VOC, this amount is not included within the total VOC limit for this emission unit. EUMISCSOLVENTS does not establish limits for acetone emissions when acetone is used as a solvent. Please see EUCLEANUP for additional comments about acetone.

EUCLEANUP

This is the emission unit for emissions from cleanup solvents used by the facility. The PTI sets a 20 ton per 12-month rolling time period acetone emission limit and a 1.0 ton per 12-month rolling time period VOC emission limit for this emission unit. The PTI requires the company to identify the type, the amount, and the VOC content of the cleanup solvents which are used on a monthly basis. The only cleanup solvent used by the company for the past few years has been acetone. The facility assumes that all of the acetone purchased in a given month is 100 % emitted.

The facility assumes that 80% of the acetone purchased is used for clean-up (i.e. purge lines and spray guns) and 20% is used as a solvent in other operations. Records provided by the company indicate that 7.488 tons of acetone was used for clean-up during calendar year 2018. The 12-month rolling records from 7/1/2018 to 7/1/2019 indicate compliance with the 20 tons limit per 12-month rolling time period for acetone, with maximum emissions of 7.78 tons reported at the end of January 2019.

Since the permit does not establish limits for acetone usage under EUMISCSOLVENT, using a conservative approach I have combined the two quantities as if they were emitted from EUCLEANUP (i.e acetone cleanup + acetone solvent). The total emissions add up to approximately 10 tpy, which is still below the permit limit.

FGFACILITY

The PTI sets a 12-month rolling individual and aggregate HAP limit of 9.0 tons per year and 22.5 tons per year, respectively. The HAP content shall be determined from manufacturer's formulation data and be recorded in pounds per pounds or pound per gallon of each HAP containing material used on a monthly basis.

Records provided by the company indicate that the only HAPs emitted are styrene and MMA. For the evaluated period, the highest 12-month rolling aggregated emissions of styrene and MMA (HAPs) were 4.47 tons, reported for the end of December 2018.

At the time of the writing of this inspection report it was noted that (except for acetone) all the SDSs for the chemicals grouped under EUMISCSOLVENTS showed components that are identified as HAPs under the CAA and some contain Styrene. I contacted Mr. Angerer to let him know that he has to account for the HAPs emission contributions that are coming from those compounds and he has to add them to the total reported under FGFACILITY. At this point in time, since the facility is way below their HAPs limit, I did not ask for the revised calculations. However, Mr. Angerer agreed on revising the calculation sheet to include the requested changes moving forward.

**MAERS REPORT**

MAERS report for year 2018 was timely submitted on 3/5/2019. The report was reviewed by AQD during the month of May 2019. The online submittal included attached files to substantiate the emission calculations and a summary of the estimated VOCs generated at each one of the EUs cited above. The calculations were reviewed, and the reported emissions were consistent with past submittals and correlate with changes in throughputs. AQD passed the audit. For audit details see MACES activity report M297348993

**CONCLUSION**

As a result of this inspection, New Boston RTM appears to be in compliance with the conditions of PTI – 217-04A and all other applicable air rules and regulations. Monthly and 12-month rolling emission records for each of the aforementioned emission units and FGFACILITY have been saved in the New Boston RTM folder on AQD files and are attached to this report. Hardcopies of the SDSs for some of the resins, gelcoats, acetone, and other solvents used by the company are also attached to this report.
Purchase records will be requested for review in future inspections.

NAME EHandoval DATE 10/3/2019 SUPERVISOR JK