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

P102152303

FACILITY: Metal Forming Technology, Inc.		**SRN / ID:** P1021
LOCATION: 48750 Structural Drive, CHESTERFIELD		**DISTRICT:** Southeast Michigan
CITY: CHESTERFIELD		**COUNTY:** MACOMB
CONTACT: Fred Guimaraes , Plant Manager		**ACTIVITY DATE:** 01/09/2020
STAFF: Adam Bognar	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** Minor
SUBJECT: Scheduled Inspection		
RESOLVED COMPLAINTS:		

On January 9, 2019, Michigan Department of Environment, Great Lakes, and Energy– Air Quality Division (EGLE-AQD) Staff, I, Adam Bognar conducted a scheduled inspection of Metal Forming Technology (the "facility" or "MFT") located at 48750 Structural Drive, Chesterfield, MI 48051. The purpose of the inspection was to determine the facility's compliance with the requirements of the federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451); Michigan Department of Environment, Great Lakes, and Energy-Air Quality Division (EGLE-AQD) Administrative Rules; and Permit to Install No. 74-19.

I arrived at the facility at around 10 am. I met with Mr. Fred Guimaraes, Plant Manager, and Mr. Andrea Spagnoli, Plant Manager. I identified myself, provided credentials, and stated the purpose of the inspection. The three of us sat down and held a pre-inspection meeting. During this meeting we discussed the conditions of PTI No. 74-19 and current facility operations. After the pre-inspection meeting, Mr. Guimaraes and Mr. Spagnoli gave me a tour of the manufacturing facility.

Metal Forming Technology is an Italian manufacturing company that specializes in the hot forging and machining of brass and aluminum OEM parts. At this facility, only machining takes place – no forging. A majority of these parts are industrial and institutional plumbing fixtures. Operations began at this facility in September 2019. There are six employees operating from 7 am to 11:30 pm.

The parts are forged at a neighboring Metal Forming Technology facility at 48630 Structural Drive, Chesterfield, MI 48051 (SRN: N7705). Once the parts are forged at the neighboring facility, they are sent to this facility for further processing using transfer machines. There are three transfer machines that utilize robots, CNC technology, drills, and cutting blades to create the desired characteristics of the part.

The transfer machines use a cutting oil, Helios Cut W 10 ES/FF, to lubricate and cool the parts & tooling during processing. Evaporation of this cutting fluid is the main source of emissions at this source (VOC). To control these emissions, all three transfer machines are attached to an oil mist collection system that pulls evaporated cutting fluid away from the transfer machines, into shared ducting, through a 4-stage filter, and finally pushes the cleaned gases out through a stack. The oil mist collector has an estimated VOC control efficiency of 95%.

The cutting fluid is applied at a concentration of approximately 8% cutting oil and 92% water. This cutting oil is stored next to the process in two 55-gallon drums. The drums are attached to an automatic mixer that mixes the appropriate amount of cutting oil and water to create the cutting fluid as applied. Cutting fluid emissions were evaluated by the AQD Permit section. They are expected to be in compliance with Rule 225 (screening levels for toxic air contaminants).

Metal chips generated through machining operations are continuously vacuumed up from each transfer machine by another ducting system. The metal chips are ducted away from the transfer machines to a hopper on top of a centrifuge. The chips fall into the centrifuge where they are spun at high speeds to separate the cutting fluid from the metal chips. The cutting fluid is collected, filtered through a fine filter, then reused in the transfer machines. The metal chips are collected in a box below the centrifuge and eventually sent to recycling centers that will melt down the chips for reuse.

PTI No. 74-19

PTI No. 74-19 was issued to MFT on June 4, 2019 for three transfer machines controlled by an oil mist collector and for a 300 CFM natural-gas fired wastewater evaporator. This is the first AQD inspection of this source. I observed that the three transfer machines were installed, all controlled by a communal oil mist collector.

The wastewater evaporator was purchased, but never installed. Mr. Guimaraes explained that they have not generated any wastewater to evaporate. So far, all of the recovered cutting fluid has been reused in the transfer machines. Mr. Guimaraes showed me the storage building where the evaporator is kept, still wrapped and attached to the shipping pallets.

EUTRANSFERMACHINES

Section III – SC 1: States that MFT shall not operate the transfer machines unless the oil mist collector is installed, maintained, and operated in a satisfactory manner. I observed that the oil mist collection system was installed and attached to all three transfer machines. The air filtration unit is located outside of the plant. The system appeared to be operating during my inspection. Mr. Spagnoli briefly turned off the blower system and showed me the filters. The filters looked relatively clean and new.
The controller for the oil-mist collector system displays pressure drop readings for the 1st and 2nd filters. During my inspection the 1st filter (F9 class soft bag filter) was at 11 mmH2O and the 2nd filter (F9 class rigid bag filter) varied between 2.3 mmH2O and 7.5 mmH2O. According to the MAP, acceptable ranges are between 6 mmH2O and 200 mmH2O for the 1st filter, and between 1 mmH2O and 200 mmH2O for the 2nd filter. These two filters are preceded by a separator pre filter and an oil mist filter to create 4 different stages of filtration.

Section III – SC 2: Requires MFT to implement and maintain a malfunction abatement plan (MAP) for the oil mist collector before operating the transfer machines. At the time of this inspection MFT did not have a MAP for the oil mist collector. Mr. Guimaraes stated that MFT is working on translating the manuals for the oil mist collector and transfer machines from Italian to English so that a MAP can be created.

I asked Mr. Guimaraes to send me a MAP by the end of the month. On January 14, 2020, Mr. Guimaraes sent me a MAP for the oil mist collector. I reviewed this MAP and found it to be acceptable (See attached). AQD will not issue a violation notice because MFT has already provided the MAP.

Section III – SC 3: States that MFT shall capture all waste material, store it in closed containers, and dispose of it in an acceptable manner. Waste materials at MFT consist of metal chips and cutting fluid. Metal chips are collected in cardboard boxes located below the centrifuge. These chips are eventually sent to metal recyclers for re-melting.

Waste cutting fluid is collected in two places. Waste cutting fluid collected by the oil-mist collector is stored under the filtration unit in a reservoir. The reservoir is lightly heated in the winter so that the oil/water mixture does not freeze. Mr. Guimaraes stated that the oil mist collector reservoir has not needed to be emptied since MFT began operating in September 2019. Waste cutting fluid generated from the centrifuge is kept in closed drums next to the centrifuge. The waste cutting fluid generated by the centrifuging process is continuously reused in the transfer machines. MFT has not needed to dispose of any cutting fluid since it began operating in September 2019.

Section III – SC 4: States that MFT shall handle all VOC/HAP containing materials in a manner to minimize the generation of fugitive emissions. The virgin cutting oil is stored in sealed drums. The cutting processes in the transfer machines largely occur in closed spaces. The waste cutting fluid is stored in closed containers.

Section VI – SC 1,2: Specifies monitoring/recordkeeping requirements at MFT. MFT is required to keep records of the amount of cutting oil (Helios Cut W 10 ES/FF) used on a monthly and 12-month rolling basis. These records must be kept in a format acceptable to the AQD district supervisor. These records were not kept at the time of this inspection.

Mr. Guimaraes stated that he has the purchase records and can estimate the monthly usage based on the amount of cutting oil purchased, the amount of cutting oil left, and the amount of time the machines operated.
I asked Mr. Guimaraes to create a document that calculates the monthly and 12-month rolling cutting fluid usage. Mr. Guimaraes agreed to create this document and retroactively document the amount of cutting fluid used so far by averaging the total amount used over the months operated. Mr. Guimaraes sent me this document on January 14, 2020 (see attached). Going forward, I asked Mr. Guimaraes to develop a method to accurately assess and document the amount of cutting fluid used based on fluid levels in the drums. AQD will not issue a violation notice because MFT has already provided these records.

Section VIII – SC 1: Specifies stack parameters – Diameter = 21.7 in, Height = 30 ft. I did not take stack measurements during this inspection. The stack is exhausted vertically, unobstructed, and above building height. The stack appears to meet permit requirements based on my visual inspection.

EUWASTEVAP

The 18 gallon/hour wastewater evaporator was never installed. The PTI special conditions of EUWASTEVAP were not evaluated in this inspection. Mr. Guimaraes maintains a MAP for this unit along with the oil filter.
I left the facility at around 11:30 am.

Compliance Determination

Metal Forming Technology appears to be operating in compliance with the requirements of the federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451); Michigan Department of Environment, Great Lakes, and Energy-Air Quality Division (EGLE-AQD) Administrative Rules; and Permit to Install No. 74-19

The violations found during the inspection were corrected in a timely manner. See discussion below.

Pursuant to PTI No. 74-19, MFT failed to maintain records of cutting fluid usage and also failed to implement and maintain a MAP for the transfer machines. Mr. Guimaraes provided me with both these documents in a timely manner – just a few days after my inspection. AQD will not issue a violation notice because the violations are administrative and already resolved.

NAME Adam Bogus DATE 2/4/2020 SUPERVISOR SK