

U-63-10-0663
 FY 2019 Insp -

DEPARTMENT OF ENVIRONMENTAL QUALITY
 AIR QUALITY DIVISION
 ACTIVITY REPORT: Self Initiated Inspection

U6310066346992

FACILITY: Three M Tool and Machine, Inc., Wind Turbine		SRN / ID: U63100663
LOCATION: Wind Turbine Facility, Wixom		DISTRICT: Southeast Michigan
CITY: Wixom		COUNTY: OAKLAND
CONTACT:		ACTIVITY DATE: 10/17/2018
STAFF: Iranna Konanahalli	COMPLIANCE STATUS: Compliance	SOURCE CLASS:
SUBJECT: FY 2019 inspection of Three M Tool and Machine, Inc. ("Three M")		
RESOLVED COMPLAINTS:		

Three M Tool and Machine, Inc. (U-63-10-0663)
Wind Turbine Facility
50759 Century Court
Wixom, Michigan 48393-2066

www.threem.com

On October 17, 2018, I conducted a level 2 self-initiated **FY 2019 inspection** of Three M Tool and Machine, Inc. ("Three M") located at 50759 Century Court, Wixom, Michigan 48393-2066. The inspection was conducted to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 (PA 451); and Michigan Department of Environmental Quality, Air Quality Division (MDEQ-AQD) administrative rules.

During the inspection, Mr. Larry West (Mobile: 248-207-2212; E-mail: LWest@Three-M.com), Shift Supervisor, assisted me.

Mr. Mike Medwid (Phone: 248-363-1555), owner and president, was not present. Mr. Medwid's office is located at Corp. HQ (**N2937**), 8155 Richardson Road, Walled Lake, Michigan

Mr. John Rusch (Phone: 248-363-1555; Fax: 248-363-4422; Mobile: 248-881-7345; E-mail: jRusch@three-m.com), Plant Manager, separated about November 2013. Mr. Mike Gray (Phone: 248-960-9698; Cell: 248-207-2212; Fax: 248-363-4422; E-mail: mGray@three-m.com), Quality Inspector, retired about February 2018.

Three M (3M) is in machining business and makes machined parts such as gear boxes using vertical and horizontal lathes / mills. Each gear box weighs 4-10 tons. A windmill turbine gear dimension that the gear box accommodates is equal to one man-size (6 feet diameter). The gear boxes are supplied to wind power companies: ZF (4 tons) and Clipper Wind Power (10 tons). At this time (October 2018), there is no wind mill business; neither from ZF nor from Clipper. The plant with expensive machines seems idle. All machines seem idle with very low volume miscellaneous machining business.

In addition, Three M was producing natural gas compression cylinders for GE Oil & Gas and Dresser-Rend, but this work has been moved to Walled Lake facility (N2937). Furthermore,

Three M makes train carriages, hubs (12 feet tall) for windmills, etc. All are big parts (4-15 feet tall) that are machined.

With all this reduction in machining work, being a job-shop, employment has reduced from 15 (2016) to 4 (current, Oct 2018). It is possible this plant will be sold, and all machining work will be consolidated at Walled Lake facility (N2937).

Raw gear box castings are received (at this time practically nil due to reduction in wind mill business). The castings are machined separately. Being heavy, the chips (machined steel chips) fall down. There is no exhaust to outside ambient air. There are both horizontal (4 CNC mills) and vertical (1 lathe) machines. CMM (Computer Measuring Machine – Zeiss MMZ G) machine checks for dimensions of machined parts.

Each machine (4 CNC mills & 1 lathe) is equipped with two (2) liquid filtration systems. Each filtration system consists of a bag filter (8 inches diameter and 36 inches height). All particulate matter is trapped in coolant liquid and not emitted to plant air. The coolant is recycled upon filtration using a pair of liquid phase filter systems.

One Mag VTC 2500 Vertical Turning Center (lathe) equipped with a pair of filter systems as stated above is present. All particulate emissions are trapped in the coolant that goes through liquid phase filter systems. The coolant is recycled upon filtration.

While four (4) CNC mills are equipped with one coolant pit for each machine, one (1) Mag VTC 2500 vertical lathe is not equipped with any pit. Pertaining to CNC mills, upon filtration (only one of two filters is filtering and the other filter is on standby or repair), the coolant is collected in a pit and pumped to the cutting tools. Each machine is equipped with one additional finer filter (Chip Blaster) to remove fine particulate before the coolant is delivered to the cutting tools.

Water-based Mecagreen 127 coolant (CONDAT, Saline, MI) is used during machining and milling. About 2015, Mecagreen 127 replaced water-based Micro-sol coolant (NALCO Tech Cool 3718). Spent coolant is sent out for recycling.

As all particulate emissions are released to in-plant environment with practically non-existent ventilation system (i.e. no dedicated ventilation fan for the plant), the machines are exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1285(2)(l).

While Clipper gear boxes weigh 19,000 pounds, ZF gear boxes weigh 7,000 pounds; gear boxes are not produced at this time (FY2018). Each wind mill when assembled and installed costs 2.5 million dollars. Wind mill business has substantially reduced, almost to nil.

Solvent cleaning

< 1 gallon per month, < 15 gallons (100 pounds) per year lacquer is used for wiping gear boxes or other parts clean. Rags moistened with solvent are used. Solvent-based (ketones) lacquer removes oils, grease and dirt from gear boxes. The lacquer usage has substantially reduced with tremendous reduction in windmill business. The process is exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1290 (actual VOC << 500 pound per month).

CADCO Lacquer Thinner (Cadillac Oil Company Product): Ketone (CAS 78-93-3: Methyl Ethyl Ketone; Synonyms: 2-Butanone; ethyl methyl ketone; MEK; Methyl acetone; Chemical Formula: $\text{CH}_3\text{COCH}_2\text{CH}_3$), Specific Gravity (SG water = 1.0) = 0.81 at 20 °C / °C. Density ρ = 0.8050 g/cm^3 (0.805 kg / L = 6.75 pounds / gallon). Clear liquid in appearance. Boiling Point (BP) = 79.64 °C = 353 K = 175 °F.

Neither a cold / parts cleaner nor paint spray booth is present.

Conclusion:

A small source of PM and VOC (\ll 1 tpy).

NAME

Bill Namahall

DATE

11/19/2018

SUPERVISOR

Joyce B.

