

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

N3602

N360234760

FACILITY: MOELLER MANUFACTURING CO	SRN / ID: N3602
LOCATION: 30100 BECK RD, WIXOM	DISTRICT: Southeast Michigan
CITY: WIXOM	COUNTY: OAKLAND
CONTACT:	ACTIVITY DATE: 05/13/2016
STAFF: Iranna Konanahalli <i>IK</i>	COMPLIANCE STATUS: Compliance
SUBJECT: FY 2016 inspection of Moeller Manufacturing Company, Aerospace Division	SOURCE CLASS: MINOR
RESOLVED COMPLAINTS:	

N3602 - SAR - 2016 05 13

Moeller Manufacturing Company (N3602)
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Void: Permit-to-Install No. 926-92 dated January 15, 1992 – to be voided based upon a request (May 12, 2016, e-mail from Ms. Meggin T. Rowley) to void and FY 2016 inspection. The particulate processes and one paint spray booth are now exempt from Rule 336.1201 pursuant to Rules 336.1285(l) and 336.1287(c).

On May 13, 2016, I conducted a level-2 self-initiated, unscheduled, inspection of Moeller Manufacturing Company, Aerospace Division ("Moeller"), a turbine parts manufacturing company for aircraft, aerospace, and power turbine industries, located at 30100 Beck Road, Wixom, Michigan 48393-2827. 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, Ms. Meggin T. Rowley (Phone: 248-960-3999-ext. 409 or 800-321-8010; Fax: 248-960-8858; E-mail: RowleyM@moeller.com), Lean Champion, assisted me.

During the inspection, Mr. Frank Litfin III (Phone: 248-960-3999-ext. 486; Fax: 248-960-8858; E-mail: litfinf@moeller.com), SPHR, CEBS, Human Resource Manager, did not participate.

Mr. Andrew Kramer (Phone: 248-960-3999-ext. 542; Fax: 248-960-1593; E-mail: kramera@moeller.com), Asst. Facilities Manager, separated about January 2015. Mr. Adam Tessman (Phone: 248-960-3999-ext. 542; Fax: 248-960-1593; E-mail: TessmanA@moeller.com) replaced Mr. Kramer.

Mr. Joseph R Baker (Phone: 248-960-3999; Fax: 248-960-1228; E-mail: bakerj@moeller.com), CPA, Chief Financial Officer, and Mr. Mark Blasiola (Phone: 248-960-3999-ext. 304; Fax: 248-960-1593; E-mail: blasiolam@moeller.com), HR / Accounting Manager did not participate during the inspection.

About 2011, Moeller bought an adjacent building to its south. It now operates manufacturing in two adjacent buildings known as North (Old) and South (New). While North Building exhausts some gases upon filtration to outside ambient air, South Building recirculates /

recycles all exhaust gases upon filtration to the in-plant environment. About 2011, North Building is extended to accommodate more process equipment. Often, the process equipment are moved between the two buildings and such movement is permissible if the processes continue to meet the exemption rules such as Rules 285, 287.

Moeller Manufacturing Company, Aerospace Division ("Moeller") is a machining facility that makes machine parts using precision CNC machines for turbine engine components. The parts are used in aircraft, aerospace, and gas turbine power generation industries. The parts find application in commercial and military aircraft on a global basis. Production of turbine parts involves machining, deburring (taking sharp edges off), polishing, etc. Moeller's products include precision machined parts ranging from small items such as bladelocks to complex brackets, housings, and manifolds.

About 2011, between two buildings, Moeller installed 15-20 downdraft tables (Diversi-tech, Inc.) equipped with self-contained filters for deburring.

While machining is subtractive, 3D printing is additive manufacturing.

NORTH BUILDING

CNC Lathe Machines (46)

About 50 CNC Lathe Machines produce metal chip barrels, which are collected in 55-gallon drums and sold for scrap value. Lathe machines produce little or no particulate matter that can become air-borne. All lathe machines use water-based coolants to remove heat of friction due to cutting. The coolant also controls metal particle emissions.

Lathes perform circular cutting. Mills perform surface cutting. Integrex machines perform combination of both types (mills and lathes) of cutting.

Six (6) or more mist eliminators (ELIMINATOR) were installed about 2015 to improve indoor air quality for worker comfort, safety and health.

Rule 287(c) Paint Spray Booth

One water-based paint spray booth (10 ft. x 6 ft.) with a back-draft dry filter system is present. Although most paints are water based, some solvent-based (MEK) paints are used as well. Paint usage records are not kept; Ms. Phyllis Freeman, Painter, stated previously that about 10-15 gallons of paint per month was used. Both water (mostly) and solvent (sparingly) based coatings are used. I asked Ms. Rowley to install and inspect the filters such that they fit, at all times, snugly without gaps and holes. I also asked her to keep records of paint and solvent usage. The booth is exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.287(c).

The PTI No. 926-92 limits are 50 pounds of VOC per month (SC17) and installation and operation of dry filter system (SC19). This permit is being voided.

Upon keeping usage records, the coating booth now meets all of the Rule 336.1287(c) conditions:

The coating use rate is not more than 200 gallons, as applied, minus water, per month. Any exhaust system that serves only coating spray equipment is supplied with a properly installed and operating particulate control system.

Monthly coating use records are maintained on file for the most recent 2-year period and are made available to the air quality division upon request.

Polishing, deburring machines

4 polishing and 10 deburring machines are present. Each machine has its own capture device for particulate matter emissions. The captured particulate laden exhaust gases are transported via a manifold to two baghouses installed outside the building: one baghouse for deburring and other one for polishing. The deburring baghouse is equipped with three 55-gallon drums for collection of captured dust. The polishing baghouse is equipped with two 55-gallon drums for collection of captured dust. Both baghouses discharge cleaned air downward to outside air. Vertical discharge of exhaust gases is AQD policy but not a rule.

About 2012, Moeller installed one cyclone each (two in all) to pre-clean emissions from deburring and polishing machines by collecting large particles by centrifugal forces action. By preventing impaction of large particles on bags, the bag life is extended.

Shaker mechanism cleans the bags upon shutting down operations..

While deburring removes sharp edges, polishing gives good appearance.

The machines are exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1285.

Sandblasting machines (2)

Two(2) sandblasting machines are present. Each machine is equipped with sand collection system: Trinc (Trinity Tool Company) Model BP2. Sand is reused. All exhaust gases are released to in-plant environment. The machines are exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1285.

Belt sanders (developer)

A steel enclosure with plexiglass doors is used to machine parts or detect defects. The parts are sprayed with dry powder known as "developer". This equipment is also known as "penetrant application station. The parts are prior to introduction. The process is equipped with Torit Dry Flo filters (2) to collect and recycle the powder. No exhaust to outside air; cleaned air is discharged into the plant.

The parts are rinsed or washed (with or without emulsifier). Also hand spray washed. Dried at 140 °F in an oven. Again parts are put into second developer to detect defects. The developer is also equipped with Torit Dry Flo filters.

The process is exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1285.

The PTI No. 926-92 limits are 0.001 pounds of particulate matter (PM) per 1,000 pounds of exhaust (SC15) and 0.01 pounds of particulate matter (PM) per hour (SC16). The permit is being voided.

Cold-cleaner

There is two 6-gallon parts- or cold-cleaners with a solvent tank for immersion cleaning; a lid is present. The cold-cleaner is subject rule 336.611 or 336.1707 depending on if it is new or existing. A cold-cleaner is exempt from Rule 336.1201 pursuant to Rule 281(h) or Rule 285(r)

(iv). Existing cold cleaners were placed into operation prior to July 1, 1979. New cold cleaners were placed into operation on or after July 1, 1979.

I asked Ms. Rowley to ensure that the cold-cleaner is kept closed at all times when idled. In FY 2008, I gave Mr. Blasiola a copy of DEQ's "cold-cleaner operating procedures".

Cold-cleaner solvent: 100% acetone (CAS # 67-64-1, C_3H_6O). Superior Solvent and Chemicals (317-781-4400) of Indianapolis supplies the solvent. Density (ρ) = 0.791 kg / liter. With flash point of -4 (negative) °F and flammability range between 2.5% (LEL) and 12.8% (UEL), by volume, acetone storage and handling involves high risk of fire and explosion. About June 16, 1995 (Final Rule), US EPA excluded acetone from VOC as it has negligible photochemical reactivity. Also, acetone is not Sec 112 Hazardous Air Pollutant (HAP). OSHA 8-hour, 40-hour-work-week limit for acetone is 1,000 ppm.

Because acetone is not VOC, it may not be regulated by RACT rules (SIP). However, extreme precaution must be exercised in handling due to its extreme fire and explosion hazard. Hence, it may be advisable to implement Cold-Cleaner work practices.

Titanium process

Six titanium grinding, polishing machines are present. The machines generate titanium dust or particulate matter. All six processes are ducted to one Hydroton Scrubber (Filter-1, 800-289-0189, www.filter-1.com). The scrubber is equipped with baffles.

About 2013, Integrex e-tower and Integrex Mazak machines were moved from South Building. Also present are five (5) Mazak axis machines. The machines are equipped with their own dust collectors known as TFP Eliminators; one for each machine. Exhaust gases are released into the in-plant environment. The TFP Eliminator consists of 3 stage filters: sponge, mesh, pleated box filters. The TFP Eliminator controls oil based coolant emissions (particulate mist).

Hence, indoor air quality is better than ever before.

SOUTH BUILDING

Hydroton Scrubber controls dust from titanium grinding and polishing operations. One common manifold delivers particulate matter laden exhaust gases to the scrubber equipped with baffles. Upon filtration using the scrubber, exhaust gases are released into the in-plant environment.

Integrex e-tower Mazak machines are equipped with their own dust collectors known as TFP Eliminators; one for each machine. Exhaust gases are released into the in-plant environment. Three (3) Haas machines with mist eliminators are also present.

Several downdraft tables (Diversi-tech, Inc.) equipped with self-contained filters for deburring are present.

Fixture area

In fixture area, grinding, milling, etc. operations take place. Particulate emissions from each machine are captured and ducted via common manifold out an outside dust collector consisting of a cyclone and a baghouse. Filtered exhaust gases are returned to in-plant environment.

As exhaust gases are released into the in-plant environment upon filtration, all process equipment in South Building are exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1285(l).

PTI No. 926-92 – to be voided

AQD received a request to void PTI No. 926-92 via May 12, 2016, e-mail from Ms. Meggin T. Rowley. AQD may void the permit because the particulate processes and one paint spray booth are now exempt from Rule 336.1201 pursuant to Rules 336.1285(l) and 336.1287(c).

All parts coating is outsourced to contract coaters (not painting). Frequently, equipment are moved between the buildings. North building was extended (about 2011).

Conclusion

All process equipment are exempt from Rule 201 (Permit-to-Install) but subject to PM, VOC regulations via Rule 285, 287. Two adjacent buildings known as North (Old) and South (New) operate as one integrated plant.

NAME J. L. Marshall DATE 06/01/2016 SUPERVISOR CJE