

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

N582225856

FACILITY: A A Gear & Manufacturing		SRN / ID: N5822
LOCATION: 1045 DURANT, HOWELL		DISTRICT: Lansing
CITY: HOWELL		COUNTY: LIVINGSTON
CONTACT: Mark Kenny, Plant Manager		ACTIVITY DATE: 07/08/2014
STAFF: Daniel McGeen	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: Scheduled inspection.		
RESOLVED COMPLAINTS:		

7/8/2014, the Department of Environmental Quality (DEQ), Air Quality Division (AQD), conducted a scheduled inspection of A A Gear & Manufacturing.

Environmental contacts:

Mark Kenny, Plant Manager; 517-552-3100, ext. 2101; mkenny@aa-gear.com

Facility description:

This facility is a medium volume, vertically integrated batch manufacturing company, which makes gears, splines, and shafts, as stated on their website, www.aa-gear.com. Their main customer is the agricultural industry.

Emission units:

Emission units	Control equipment, and exhaust system	Exemption rule
Numerous metal machining processes, including 25+ lathes, 7+ milling machines, 20+ gear & spline hobbling machines, 10+ gear & spline shaping machines, shaving & honing processes, vertical & horizontal broaching machines, spline rolling, gear grinding, rack & spline grinding, gear honing, and Jlg grinding processes	Some/most equipped with particulate control systems, all exhaust indoors	285(l)(vi)(B)
CNC wire EDM process	Exhausts indoors	285(l)(vi)(B)
Magnaflux & Nital etch processing	Exhaust indoors	285(r)(v)
Flow forming (similar to rolling processes)	Exhaust indoors	285(l)(vi)(B)
Tool making shop	Some equipped with particulate control systems; all exhaust indoors	285(l)(vi)(A) and (B)
Parts washing machines	Exhaust indoors	285(r)(iv)
Rust preventative dip tank	Exhausts indoors	285(r)(i)

Regulatory overview:

This facility performs metal working activities, but does not conduct any heat treating, or any coating of parts. Therefore, its potential to emit (PTE) of criteria air pollutants is likely to be very low. Criteria pollutants are those for which a National Ambient Air Quality Standard exists; carbon monoxide (CO), nitrogen oxides (NOx), sulfur dioxide (SO₂), particulate matter smaller than 10 microns (PM-10), lead, and volatile organic compounds (VOCs). The PTE for these pollutants is likely to be far below the 100 tons per year (TPY) major source threshold for any one criteria pollutant. Minor sources, unlike major ones, are not subject to the federally required Renewable Operating Permit program. Furthermore, the PTE for hazardous air pollutants (HAPs) is also likely to be well below the thresholds of 10 TPY for a single HAP or 25 TPY for aggregate HAPs for a major HAP source.

This facility operates numerous metal working processes, which appear to be exempt from the requirement of Rule 201 to obtain a permit to install from the Air Quality Division. A more detailed listing, from their website, is attached to this inspection activity report. The exemption rules which apply to their processes are identified in the table of emission units, below.

Fee status:

This facility is not considered fee-subject, for the following reasons. Because it is not a major source for criteria pollutants, it is not classified as Category I. Additionally, because it is not a major source for Hazardous Air Pollutants (HAPs), and is not subject to federal New Source Performance Standards, it is not classified as Category II. Finally, because it is not subject to federal Maximum Achievable Control Technology standards, it is not classified as Category III. The facility is not required to submit an annual air emissions report via the Michigan Air Emissions Reporting System (MAERS).

Location:

This facility is located in a modern industrial park on the west side of Howell. To the immediate north, east, and west are other industries. To the south are wastewater treatment facilities, and undeveloped land. The closest residences are 900 feet to the east, where there is an apartment complex.

Recent history:

This company began as Michigan Automatic Turning, Inc., in 1970. Two additional companies were acquired, over time, and it became A A Gear & Manufacturing. In 2010, they purchased their Howell plant, where Blue Water Automotive Systems Plant 1 had been located, prior to its closure in approximately 2008 or 2009. It had been a plastic automotive parts manufacturer. A A Gear & Manufacturing moved into the building in spring of 2011, and has about 100 employees. The plant is approximately 110,000 square feet, in size. They are ISO 9001: 2000 certified.

On 6/18/2014, I had conducted an odor evaluation in a residential area to the east of the industrial park where the facility is located. I was not able to detect any odors in the residential area. The only odor I detected at all was a faint coolant odor, when I was parked right next to the plant itself.

Arrival:

I arrived at 8:58 AM. As I entered the facility's parking lot, I briefly noticed a barely detectable scent of cooling fluids. Weather conditions were lightly raining and 70 degrees F, with winds 0-5 miles per hour out of the southwest, or south southwest. I met with Mr. Mark Kenny, Plant Manager. During my 6/18/2014 visit to the plant, I had left a copy of the DEQ brochure "Environmental Inspections: Rights and Responsibilities" for Mr. Kenny, who had been offsite, at that time. Subsequently, over the phone, we agreed to today's time and date for the inspection.

Inspection:

We first went through the gear and shaft shop, where a lot of cutting oil is used. Most of the equipment here is served by particulate collectors, to collect mist from oil or coolant. The control devices I initially observed were Royal Filtermist units. The collectors, as well as the occasional machines without collectors, exhaust directly into the plant interior. Rule 285(l)(vi)(B) exempts metal machining operations that exhaust to the in-plant environment from the requirement of Rule 201 to obtain a permit to install. I could not see any signs of particulate emissions inside or outside of the factory.

The mist collectors help prevent coolant from getting wasted. Cracks or joints in the concrete floor are sealed, so if there were to ever be spillage of liquids, they would not travel through the floor and reach soil under the plant. They use mostly water-based coolants. Mr. Kenny e-mailed me copies of the Material Safety Data Sheets (MSDS) for their metal working fluids, which are attached for reference. Some of these function as both coolants and lubricants.

They have a tool room, where metal working processes exhaust to the in-plant environment. The processes appear to be exempt under Rule 285(l)(vi)(B). If any of the processes are used on a nonproduction basis, they would also qualify for the Rule 285(l)(A) exemption.

Mr. Kenny explained that hobbing, shaping, and rolling were all different approaches to forming gears

and teeth. He also explained that spline rolling involves a metal part being rolled by a rack or racks, so that metal is pushed or displaced, to create a desired shape. This process does not cut away, or otherwise waste, any metal. How much metal is displaced depends on how much pressure is used.

A fourth way to form gears and teeth is to use a wire electrical discharge machine (EDM), which they have onsite. A spool of wire performs the cutting, and it exhausts to the in-plant atmosphere. This process was in a small room, along with jig grinding processes. These all appear to be exempt under Rule 285(l)(vi)(B).

A grinding room is serviced by Torit Dryflo collectors. These particulate control devices have washable drums, which can be removed for cleaning.

Some gear grinders had built-in particulate control devices. One used a paper filter to collect fine metal particulate, or schwarf. At least one machine had a chiller, to keep the oil at the proper temperature. Other gear grinders exhausted to shared particulate control devices.

Wash tanks; Rule 285(r)(iv):

They have some wash tanks, which appear to be exempt under Rule 285(r)(iv), as they exhaust to the general, in-plant environment. MSDS sheets for their cleaning solutions are attached for reference.

Rust preventative; Rule 285(r)(l):

They have a rust preventative dip tank, for which an MSDS sheet is attached to this report. The tank exhausts into the general, in-plant environment, and is therefore satisfies the Rule 285(r)(i) exemption criteria for surface treatment of metal.

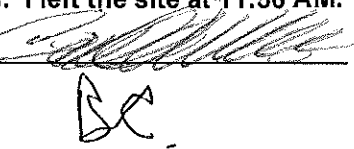
Miscellaneous:

Mr. Kenny explained that A A Gear & Manufacturing has partnered with Mott College, the State of Michigan, and Ann Arbor Spark to improve an existing training program in Michigan for out of work factory employees. This enhances the qualifications of program graduates to enter the workforce. In addition to providing technical expertise, A A Gear & Manufacturing donated approximately \$15,000.00 worth of micrometers, verniers, and other gauges, so the classroom training could involve actual experience with the tools used in the metal machining industry.

Conclusion:

The facility appeared to be clean, organized, and well-maintained. Mr. Kenny was highly knowledgeable and professional. I could not find any instances of noncompliance with Michigan's Air Pollution Control Rules. I left the site at 11:56 AM.

NAME



DATE

8/4/2014

SUPERVISOR



