

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

N501237397

FACILITY: Camshaft Machine Co		SRN / ID: N5012
LOCATION: 717 Woodworth Rd, JACKSON		DISTRICT: Jackson
CITY: JACKSON		COUNTY: JACKSON
CONTACT:		ACTIVITY DATE: 10/28/2016
STAFF: Mike Kovalchick	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: Minor
SUBJECT: Unannounced compliance inspection		
RESOLVED COMPLAINTS:		

Minor Source Inspection**Facility Contact**

Jason Walsh (JW)-Facilities Manager jwalsh@camshaftmachine.com ph 517-990-3016

Purpose

On October 28, 2016, I conducted an unannounced inspection of Camshaft Machine Company (Company) in Jackson. The purpose of the inspection was to determine the facility's compliance status with the applicable federal and state air pollution regulations, particularly Michigan Act 451, Part 55, Air Pollution Control Act and administrative rules.

Facility Location

The facility is located in the city of Jackson. It is surrounded by commercial and residential areas on all sides with closest residence approximately 150 feet away on West side of building. See attached aerial image.

Facility Background

The facility was last inspected on March 20, 2012 with no violations found. They manufacture camshafts; in particular they do manganese phosphate etching of cast iron camshafts. The Company has been around for more than 80 years. Currently, there are 50 employees working one shift, 5 days a week.

Regulatory Applicability

No Active Permits.

Metal cutting, grinding, turning and milling machines exempt per Rule 285(l)(vi)(B) used to size cast iron camshafts blanks they receive.

Manganese phosphate Etching line previously considered exempt per Rule 290.

Arrival & Facility Contact

Visible emissions or odors were not observed upon my approach to the Company's facility. I arrived at approximately 9:30 AM, proceeded to the facility office to request access for an inspection, provided my identification, and met with Jason Walsh (JW) who is the facilities manager. A pre-inspection conference was held with JW and provided a copy of the MDEQ brochure: *Rights and Responsibilities Environmental Regulatory Inspections*. I informed JW of my intent to conduct a facility inspection and to review the various records as necessary. JW extended his full cooperation during the inspection, accompanied me during the entire duration of the inspection, and addressed all my questions.

Pre-Inspection Meeting

JW outlined some background information such as there have been no significant changes to the

operations since the Company was last inspected by the AQD.

We discussed the manganese phosphate etching line that does not have an air permit but has a dedicated exhaust system. (See attached photos showing the etching line and roof exhaust). Because of the dedicated exhaust system, the etching line does not qualify for a Rule 285(r) exemption which exempts the process if it vented into the general in-plant environment. A short time after the previous inspection, the Company did make a Rule 290 demonstration as outlined below:

“May 8, 2012 Jason provided an inventory of all the equipment and identified the applicable exemption associated with the equipment. He also completed a Rule 290 acid emission calculation to demonstrate that the plating line could operate under Rule 290 due to the ITSL and the monthly emission limit. The spreadsheet shows that the calculated ITSL is 120.73287 ug/m³ which is greater than 10 according to the screening level. The monthly emissions would be 0.004974 lb/hr x 24 hr/day x 7 day/week x 4 week/month = 3.3425 pounds per month which is less than 20 pounds of uncontrolled emissions according to Rule 290(a)(ii)(C).”

Attachment (1) is the spreadsheet referenced above.

Onsite Inspection

JW escorted me as I conducted the onsite tour portion of the inspection.

The focus was on the manganese phosphate etching line. Attachment (2) is complete description of the line and how it is operated. The temperature of the tanks was at 190 degrees F. The overall condition of the tanks was poor. (JW indicated that they will need to replace them soon.) The steamy emissions from the tanks were be drawn off and exhausted out the roof. See attached photos for pictures of the etching line.

There were also two small parts cleaners(exempt per Rule 290 due to very limited emissions and maintaining monthly usage records) and a couple of small ovens(exempt per Rule 282(a) for less than 10 MM BTUs in size) that exhausted outside. Most of the other plants related to metal processing where exhausted to the general in plant environment.

A roof inspection was conducted (Roof was accessed via stairs inside the plant.) Ventilation duct and exhaust from the etching line was in satisfactory condition although it was being exhausted in a horizontal direction. See attached photo of etching line exhaust. One notable observation was large areas of what appeared to be cast iron fallout on the roof. See attached photo showing discolored water on roof. It was not clear where the fallout was coming from. The old facility has numerous general roof vents and many stacks that are no longer connected to processes in the facility. I informed JW that particulate fallout would be a problem if it impacted any of the surrounding homes near the plant.

Recordkeeping Review

I reviewed the MSDS's for the cleaner they used in the parts washers and the chemicals used in the etching line. (See Attachment (3) and (4).)

In the etching line, they use Parco Lubrite 2. It was the same material that was being used during the previous inspection. The etching tank liquid contains 10% of the Parco Lubrite 2 material and 90% water. Attachment (5) shows the amount of this material purchased in 2016 which is little less than 500 gallons.

Of particular concern is the nickel nitrate which is a known human carcinogen which makes up between 0.1 to 1% of the Parco Lubrite 2. Per an online source of information on this chemical:

“2.2.1.3 Nickel nitrate used in chemical pre-treatment of metals. Nickel nitrate solution and nickel nitrate hexahydrate are used as components of products used in the pretreatment of metals prior to painting and prior to cold-forming processes such as tube or wire drawing, cold heading etc.. The main ingredients in the acid phosphating solution are zinc, manganese, nickel, phosphate and nitrate ions. Additionally an accelerator can be used. The main reactions which occur in the phosphating solution are : a) etching of the metal by the acid solution b) depolarisation of the hydrogen atoms developed during etching by the accelerator to prevent the formation of hydrogen gas c) Deposition of an inorganic crystalline zinc-phosphate layer on the metal. R424_0308_hh_chapter0124567_clean.doc 22 Nickel

nitrate in the phosphating solution results in nickel-phosphate on the metallic surface. This phosphate has the general formula: $ZnMe (P_4O_{10})_n \cdot nH_2O$, where Me can be Zn, Fe, Mn, Ca and Ni and n is 2 when the metal is Ca, or 4 in all other cases. About 40-50% of the nickel is going into the zinc/nickel/manganese phosphate layer (which is also called conversion coating). About 20-30% of the introduced nickel goes into the zinc phosphating sludge, that contains mainly iron-phosphate and some zinc phosphate. About 30% is carried out of the treatment bath with the metal parts (e.g. car bodies) that are pretreated before subsequent painting."

However, it appears that this chemical compound could potentially be emitted in small amounts with steamy emissions/highly agitated tank solution from the etching line. Per Rule 290, to be exempt, the Initial Risk Screening Level (IRSL) must be greater than or equal to 0.04 micrograms per cubic meter. Nickel compounds are listed at .0042.

Per a post inspection email from AQD Toxicologist Mike Depa (See Attachment (6)), he calculated the IRSL for nickel nitrate to be $0.013 \mu\text{g}/\text{m}^3$ for $Ni(NO_3)_2$; which is less than the required $0.04 \mu\text{g}/\text{m}^3$ in order to qualify for a Rule 290 exemption. Note: Rule 290 does not have any de minimis levels for pollutants. Since none of the permit exemptions are applicable, the etching line should have already had a permit to install and hence a Rule 201 violation.

Post-Inspection Meeting

I held a brief post-inspection meeting with JW. I reviewed my findings that the Company appeared to be in compliance. I noted that I was somewhat concerned by the apparent iron oxide fallout that was seen on part of the roof and recommended that JW investigate the matter. I thanked JW for his time and cooperation, and departed the facility at approximately 11:00 AM.

(Note: After the Post-Inspection Meeting, on Monday, October 31, 2016, I notified JW that upon further review of the MSDS for the tank solution, a violation was discovered.)

Compliance Summary

Based upon the facility inspection, review of the records, and review of applicable requirements, while the Company is in substantial compliance, it is not in compliance with the requirement to have an air permit for the manganese phosphate etching line. A Violation Notice (VN) will be sent to the Company that will outline the violation and request a corrective action program that includes the submittal of air permit application.

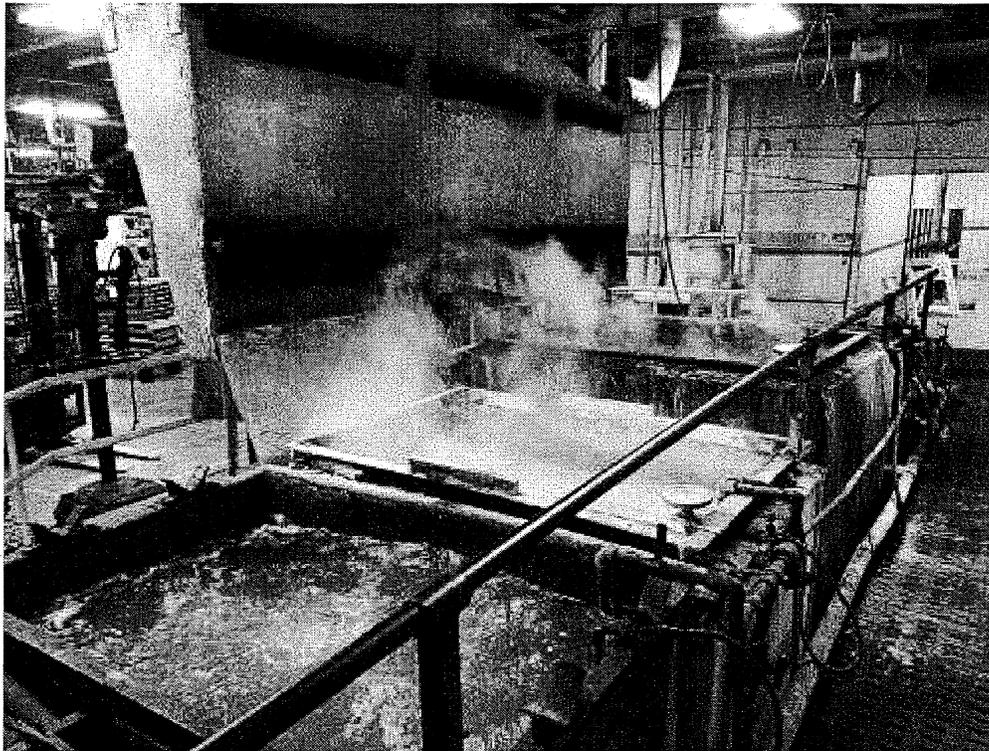


Image 1(Etch Tank Line) : Etch Tank Line and exhaust system

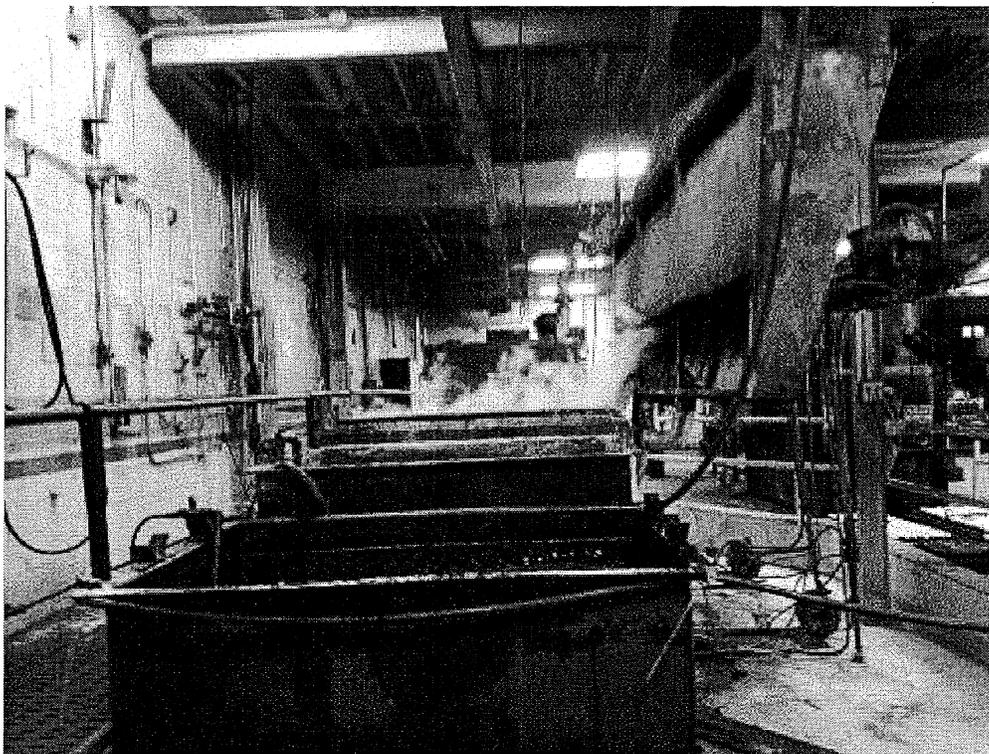


Image 2(Etch tank line) : Etch tank line

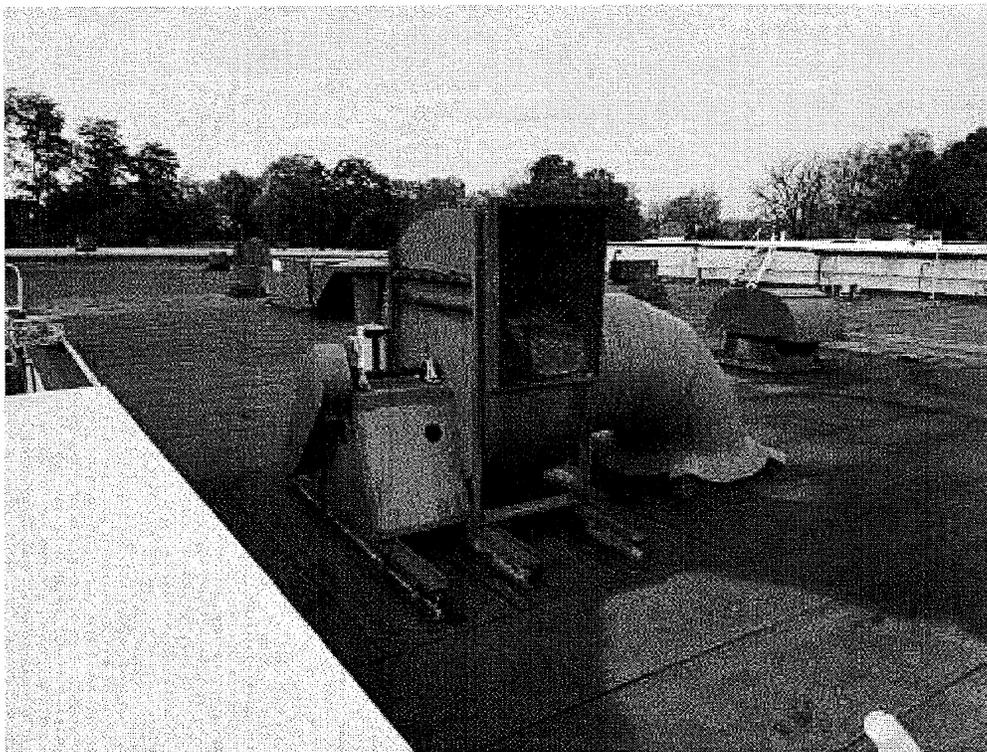


Image 3(Roof Exhaust) : Roof exhaust from etch tank line



Image 4(Roof fallout) : Evidence of fallout on roof. Note discolored pools of water that look like oxidized cast iron.

NAME M. Korachuk

DATE 11/2/2016

SUPERVISOR B