

DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
**ACTIVITY REPORT: On-site Inspection**

U50230019766433

<b>FACILITY:</b> US Machine Co. Inc.		<b>SRN / ID:</b> U502300197
<b>LOCATION:</b> 32940 Janet Ave, Fraser		<b>DISTRICT:</b> Warren
<b>CITY:</b> Fraser		<b>COUNTY:</b> MACOMB
<b>CONTACT:</b>		<b>ACTIVITY DATE:</b> 01/09/2023
<b>STAFF:</b> Iranna Konanahalli	<b>COMPLIANCE STATUS:</b> Compliance	<b>SOURCE CLASS:</b>
<b>SUBJECT:</b> FY 2023 scheduled inspection of US Machine Co. ("USM") located at 32940 Janet Ave., Fraser, MI 48026-2248		
<b>RESOLVED COMPLAINTS:</b>		

**US Machine Co. Inc. (U-50-23-00197)**  
**32940 Janet Ave,**  
**Fraser, [MI](#) 48026-2248**

**Phone: (586) 294-5670**

**Contacts:**

1. **Christopher Steudle**, President and Owner, [cSteudle@usmachine.com](mailto:cSteudle@usmachine.com)
2. **Sarah Heffner**, [sHeffner@usmachine.com](mailto:sHeffner@usmachine.com)

On January 9, 2023, I conducted a level-2 **FY 2023 scheduled inspection** of US Machine Co. ("USM") located at 32940 Janet Ave., Fraser, MI 48026-2248. 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 Environment, Great Lakes and Energy, Air Quality Division (EGLE-AQD) administrative rules.

During the inspection, **Sarah Heffner** (Phone: 586-294-5670; E-mail: [sHeffner@usmachine.com](mailto:sHeffner@usmachine.com)), assisted me with a walk-through inspection of predominantly mills and lathes machining operations. Also, via phone, **Christopher Steudle**, (Phone: 586-294-5670; E-mail: [cSteudle@usmachine.com](mailto:cSteudle@usmachine.com) ), President and Owner, assisted me.

About June 9, 1971, the company restructured and became U. S. Machine Company Inc. ( a "C" corporation). U. S. Machine Company provides engineering, design and build services. Early customers included Martin Electric, Saginaw Steering Gear, and General Motors.

U. S. Machine performs manufacturing involving machining. Manufacturing involves CNC machines (2), Mills (10) and Lathes (6), hand-held welder (1) (sparingly used for repair and not manufacturing), etc. The machines consist of:

1. Bridgeport mill
2. ALPHA 400 lathe
3. ALPHA 550 Plus lathe
4. HESS Machine Tool lathes
5. SIBAURA (Toshiba Machine) Mills
6. LUCAS Mill, etc.

None of the above mentioned machines discharges exhaust to outside ambient air (air contaminants, if any, discharged to in-plant environment only) and hence exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1285(l).. **Only** Water-based cutting tool coolant (no oil) is used in the machines.

### **Paint booth**

One 8 ft. D \* 8 ft. W \* 8 ft. H (J.C. Metal Fabrication) paint spray booth is present. The booth is equipped with a back-draft filter system for overspray paint particles. This booth has not been used (idle) for several years as all painting, if needed, has been outsourced to A1 Fabricators.

The booth is exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1287(2)(c) as it has been idle for several years (0 (idle) << 200 gallons per month).

### **Welding**

One hand-held acetylene welding machine (MIG) is present for repair (not manufacturing). Exhaust is released to in-plant environment.

Acetylene (C<sub>2</sub>H<sub>2</sub> CAS # 74-86-2 with carbon-to-carbon triple bonds; VP = 44 atm. at 20 °C) and oxygen (O<sub>2</sub>) mixture is used in welding operation to obtain highest flame temperature (adiabatic flame temperature = 2,534 °C = 4,593 °F with stoichiometric air & adiabatic flame temperature = 3,480 °C = 6,296 °F with stoichiometric oxygen). Use of oxygen instead of air avoids quenching effect of atmospheric nitrogen (air ≈ 79 %v N<sub>2</sub> + 21 %v O<sub>2</sub>).

The welding machine is exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1285(2)(i) (brazing, soldering, welding, plasma-cutting)). This exemption, incidentally, does not require emission control.

### **Conclusion:**

US Machine is operating in compliance with Rule 201 (Permit-to-Install) exemption rules and Clean Air Act.

NAME J. S. McNamehall

DATE February 24, 2023

SUPERVISOR Joyce