



Industrial User Facility Inspection Report

U.S. EPA, Region 8

Name of industry and location:	Control Authority / NPDES Permit No.
American Eagle Instruments 6575 Butler Creek Road Missoula, MT 59808	City of Missoula NPDES Permit No. MT-0022594
IU – NPDES ID	MTP000009
Date of visit:	Approximate Time of visit:
September 26, 2023	1000 – 1130
Name(s) / Affiliation / email of inspector(s):	
<u>U.S. EPA:</u> Al Garcia, garcia.al@epa.gov Lisa-kay Prideaux, prideaux.lisakay@epa.gov <u>City of Missoula:</u> Nate Gordon, gordonn@ci.missoula.mt.us	
General Facility Information:	
<u>Representatives at Inspection:</u> - Conor Vegge – Quality Assurance Manager, cvegge@younginnovations.com - Tom Stierns – Manufacturing and Automation Engineer, tstierns@younginnovations.com - Tina Bishop – Quality Specialist - Tammy Grubios – CNC Machining Department - Jim Miller – Ultrasonic Cleaning Department	
<u>Type of Business Operations:</u> Dental Tool Manufacturing – machining, ultrasonic cleaning, heat treatment, tumbling, electro-polishing.	
<u>Facility Information:</u> - About 75 employees 5 days/week, two 8-hour shifts, 2nd shift is currently only 3 people	
Inspection Description:	
Al Garcia and Lisa-kay Prideaux from the U.S. Environmental Protection Agency (EPA) and Nate Gordon from the City of Missoula (City) conducted an oversight significant industrial user (SIU) inspection of the American Eagle Instruments facility (the facility) located on 6575 Butler Creek, Missoula, MT 59808. The SIU inspection was conducted as part of the EPA Pretreatment audit of the City's Publicly Owned Treatment Works (POTW) Pretreatment Program and is intended to provide a general overview of the facility to ensure the Pretreatment records reviewed by the EPA adequately address current conditions at the facility. The EPA oversight SIU	

inspection consisted of an evaluation of the wastestreams generated from the unit operations and processes at the facility, including potential for spills and slug discharges. The facility discharges to the sewer collection system leading to the City's POTW.

Upon arriving at the facility on September 26, 2023 at approximately 10:00 a.m., Al Garcia and Lisa-kay Prideaux of the EPA presented credentials to the facility representatives and explained the purpose of the inspection. During the opening interview, the facility representatives provided an overview of the operations and processes at the facility, wastestreams generated and management of these wastestreams. The opening interview was followed by a facility tour to visually inspect the unit operations. The EPA conducted a closing conference to discuss potential findings and recommendations identified during the inspection.

Process Description:

The American Eagle Instruments facility located at 6575 Butler Creek Road, Missoula MT 59808 is a dental tool manufacturing facility and produces about 2,800 finished hand dental tools per day. The raw materials such as bar stock, 440 stainless steel alloys, plastics, and aluminum are received on the southwest side of the building and are stored in racks located in a small, enclosed storage warehouse. The chemicals used in the facility such as GenTech cleaning agents (two barrels), machining coolants (2-3 drums), acids in barrels and other cleaning agents are stored in the warehouse or are stored on the process floor. It appears that the facility has adequate spill containment equipment/measures to minimize the potential for spills to occur to the sanitary sewer.

The plastic and metal raw materials are sent to the machining department for cutting, forming and other machining unit operations. The facility has 11 CNC machines, of which 9 are currently in use. The CNC machines have coolant sumps of various sizes. The scrap metal and plastic generated in the machining operations are collected and disposed in the domestic trash except for scrap aluminum, which is collected and recycled. The plastic and metal machined parts are sent to a centrifuge to spin dry and to promote coolant removal from the part. The waste oil from the centrifuge and the machines are collected and transferred into a waste oil drum. The waste oil is transported off-site by Safety Kleen, about 1 drum every 3 weeks. The centrifuge and oil collection drums are contained in spill containment. The supply coolant is also stored in this containment.

The machined parts are cleaned in a degreasing tank (about 20 gallons in capacity) using a GenTech vapor degreasing compound. The GenTech supply is stored in the warehouse and according to Tammy Grubious, the chemical is transferred to a closed 5-gallon carboy and transported to the degreasing tank. The degreasing tank evaporates continuously and is rarely completely changed out. The tank is refreshed as needed, due to evaporation loss.

The parts are then sent to the ultrasonic department for secondary cleaning. The facility has two ultrasonic cleaning lines in this room. One process line is used for the more oily plastic parts and the other line is used for metal parts. According to Jim Miller, the plastics parts are pre-soaked and rinsed in a sink to remove the oily residue prior cleaning in the ultrasonic tanks. The plastics ultrasonic cleaning is a series of three 5-to-10-gallon tanks. These tanks are cleaned out and discharged to the sewer once per day. The series of 3 metals ultrasonic tanks are smaller, about 5 gallons and are discharged once per day. The facility also has a small ultrasonic tank that uses a Simple Green solution. This tank is discharged about once per month. All wastewater discharged from this department goes to the sewer.

The cleaned parts are moved to the makeup department where they are fabricated, shaped and sharpened into the final configuration. This is accomplished by pneumatic press stations and minimal use of spray water.

The metal parts are heat treated/hardened in two vacuum furnaces which operate at 1900° C under vacuum and are finished in the electropolishing room. The electropolishing line consists of six 60-gallons tanks. The entire room is spill contained by a rubber lining capable of contained a spill from the largest tank, in addition

there are no floor drains in this room. The phosphoric acid and nitric acid and other chemicals used in the process are stored on the process floor. The electropolishing line consists of the following 60-gallon tanks:

1. Electropolish Solution – Phosphoric acid_(sol)
2. Water Rinse – discharged to evaporator when spent.
3. Water Rinse – countercurrent water flow to tank #2.
4. Water Rinse – Fresh water supply and countercurrent to tank #3.
5. Passivation tank – Nitric (HNO₃) acid solution
6. Fresh water Rinse

The rinse waters generated in the electropolishing line are collected and evaporated to maintain a zero discharge from this unit operation. According to Tom Stierns, the acid tanks are not discharged or hauled off site. The facility periodically adds acid into the chemical tank as needed to maintain the operating concentration for that acid chemical tank.

The parts are also tumbled in two tumbler machines configured in a carousel formation. The parts are put into small baskets with media, tumbling detergent/surfactant and loaded into the tumbling machines. The baskets on the carousel are rotated with vibration to provide the appropriate deburring and tumbling operation. The parts and media are recovered from the baskets and the wastewater is discharged through a series of three solids/sludge retention tanks, each with a baffle to allow the wastewater to acquiesce and solids to settle. The wastewater is then discharged to the sewer.

The plastic and stainless-steel handles are sent to the laser department for laser marking. The metals tips are further polished/deburred in one of the 30 manual grinding/deburring stations. The completed parts are then assembled prior to going through QC checks, and are packaged for shipping.

Warehouse—

In addition to chemical storage in this building, the facility conducts physical vapor deposition in the warehouse, a satellite building located west of the main manufacturing building. The facility has two PVD vacuum chambers in this building. The PVD vacuum chambers provides a process that deposits a layer of titanium nitride to the parts. These parts are then heat treated and are ultrasonically cleaned. The completed parts are then sent to assembly in the main manufacturing building.

Wastewater Treatment

The main manufacturing building and the warehouse each have a two-chamber oil and grease interceptor to provide separation of solids and oily residuals, prior to the discharge to the sanitary sewer. The interceptor for the regulated wastewater from the main manufacturing building is installed in the grassy area on the northeast corner of the main manufacturing building. The warehouse interceptor is located near the compressor room on the southwest side. The City has designated the outfall from the 2nd chamber in each interceptor as the permitted monitoring point.

EPA Classification of the Industrial User

The facility manufactures hand dental tools from plastic and metal raw materials. Based on information received during the inspection the facility is categorized as a facility subject to the Metal Finishing Categorical Pretreatment Standards for New Sources. The facility conducts core metal finishing operations: phosphating and passivation and ancillary operations: machining, degreasing/cleaning, tumbling, heat treatment and assembly.

Summary of Findings

American Eagle Instruments

NPDES ID# MTPU00009

August 15, 2023

Pretreatment Inspection Findings	Follow up Action Items
The Pretreatment Regulations at 40 C.F.R. §403.8(f)(2)(vi) define a Slug Discharge as any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch Discharge, which has a reasonable potential to cause Interference or Pass Through, or in any other way violate the POTW's regulations, local limits or Permit conditions. Significant Industrial Users are required to notify the POTW immediately of any changes at its facility affecting potential for a Slug Discharge. If the POTW decides that a slug control plan is needed, the plan shall contain, at a minimum, the following elements: (A) Description of discharge practices, including non-routine batch Discharges; (B) Description of stored chemicals; (C) Procedures for immediately notifying the POTW of Slug Discharges, including any Discharge that would violate a prohibition under § 403.5(b) with procedures for follow-up written notification within five days; (D) If necessary, procedures to prevent adverse impact from accidental spills, including inspection and maintenance of storage areas, handling and transfer of materials, loading and unloading operations, control of plant site run-off, worker training, building of containment structures or equipment, measures for containing toxic organic pollutants (including solvents), and/or measures and equipment for emergency response Based on the facility inspection, slug discharge control plan dated August 2017 did not include the City's current local limits (Section 3.0). In addition, the slug discharge control plan does not describe the current zero discharge practices for the rinsewaters and acid tanks in the electropolishing room. The slug discharge control plan needs to describe the current discharge practices and operator training to ensure these electropolishing wastestreams are not accidentally discharged to the sanitary sewer.	<u>Pretreatment Requirements</u> 40 C.F.R. § 403.8(f)(2)(vi) <u>Corrective Action Item</u> Update the slug discharge control plan dated August 2017 to include the City of Missoula's current local limits and to describe discharge practices for electropolishing wastestreams.

Report Review and Signature		
Drafter Name	Address/Phone Number	Date
Al Garcia	U.S. EPA Region 8 1595 Wynkoop Street 8WD-CWW Denver, Colorado 80202 303-312-6382	10/03/2023
Reviewer Name	Address/Phone Number	Date
Lisa-kay Prideaux	333 -- Senator Max Sieben Baucus Federal Building 8ENF-W-NW Helena, Montana 59601 406-457-5022	10.03.2023
Supervisor Signature/Name	Address/Phone Number	Date
	U.S. EPA Region 8 1595 Wynkoop Street 8WD-CWW Denver, Colorado 80202	10/10/2023
Michael Boeglin	303-312-6250	