NPDES Inspection Report – Pretreatment Categorical Industrial User

National Database Information	
Inspection Entry Date/Time: August 16, 2022 / 13:10	Inspection Type: **Pretreatment Categorical Industrial User (CIU)**
Inspection Closing Date/Time: August 16, 2022 / 14:27	NPDES ID Number: MTPF00101
Inspection ID: 202208_MTPF00101	
Lead inspector and affiliation: Lisa-kay Prideaux / EPA Region 8 Montana Operations Office	
Inspector and affiliation: Emilio Llamozas / EPA Region 8	

Facility Location Information	
Site/Facility Name & Location: **Shiloh Sharps, Inc.** **201 Centennial Drive** **Big Timber, Montana 59011** **45.837893°N; -109.940679°W**	Mail Report (Electronic Delivery) to: **Kirk Bryan, Owner** **Shiloh Sharps, Inc.** **Kirk@shilohrifle.com**

Contact Information	
	Name(s)/Title
Person/Company meeting definition of Owner/Operator	**Shiloh Sharps, Inc.**
Facility Contacts:	**Kirk Bryan / Shiloh Sharps, Inc. / Owner (present during inspection)**
	Robert Bryan / Shiloh Sharps, Inc. / Owner (not present)
	Phyllis Bryan / Shiloh Sharps, Inc. / Owner (not present)
	Lucinda Bryan / Shiloh Sharps, Inc. / Owner (not present)
Authorized Official(s)	**Kirk Bryan / Shiloh Sharps, Inc. / Owner**

Areas Evaluated During Inspection		
Permit	Effluent/Receiving Waters	Compliance Schedule
Records/Reports	Flow Measurement	**Pollution Prevention**
Facility Site Review	**Self-Monitoring Program**	Laboratory
Stormwater	**Operations and Maintenance**	**Pretreatment**

Report Review and Signature		
Drafter Name	Date	Address/Phone Number
Prideaux, LisaKay Digitally signed by Prideaux, LisaKay Date: 2022.10.28 14:11:37 -06'00'	**10.19.2022**	**U.S. EPA Region 8, Montana Operations Office** **10 West 15th Street, Suite 3200** **Helena, Montana 59626** **406-457-5022**
Reviewer Name	Date	Address/Phone Number
Emilio Llamozas	**10/24/2022**	**U.S. EPA Region 8** **1595 Wynkoop Street** **8ENF-W-NW** **Denver, Colorado 80202** **303-312-6407**
Management Reviewer Signature	Date	Address/Phone Number
MICHAEL BOEGLIN Digitally signed by MICHAEL BOEGLIN Date: 2022.10.28 13:55:26 -06'00'		**U.S. EPA Region 8** **1595 Wynkoop Street** **8ENF-W-NW** **Denver, Colorado 80202** **303-312-6250**
Michael Boeglin, NPDES and Wetlands Enforcement Section Supervisor		

Inspection Narrative and Site Description

Introduction

EPA promulgated regulations at 40 C.F.R. part 403 establishing the General Pretreatment Regulations and the Point Source Categorical Standards. These regulations are designed to regulate the introduction of pollutants into POTWs which are determined not to be susceptible to treatment by such treatment works or which could interfere with the operation of such treatment works. The State of Montana has not sought EPA approval of its authority to administer the pretreatment component of the National Pollution Discharge Elimination System (NPDES) program and the City of Big Timber has not developed an EPA-approved pretreatment program. EPA administers the pretreatment portion of the NPDES program in Montana and is the pretreatment "Control Authority," as defined by 40 C.F.R. § 403.3(f), for industrial users that discharge to the Big Timber, Montana Publicly Owned Treatment Works (POTW). The Big Timber POTW discharges into the Boulder River.

Metal finishing facilities that discharge wastewater to a POTW are subject to the Metal Finishing Point Source Category Pretreatment Standards found at 40 C.F.R. part 433. The applicability section of the Metal Finishing Point Source Category states at 40 C.F.R. § 433.10(a), "the provisions of this subpart apply to plants which perform any of the following six metal finishing operations on any basis material: … If any of those six operations are present, then this part applies to discharges from those operations and also to discharges from any of the following 40 process operations." Coating (chromating, phosphating, and coloring) is one of the six metal finishing operations and is described in Table 3-1 on page 3-2 of EPA's 1984 Guidance Manual for Electroplating and Metal Finishing Pretreatment Standards: "Coatings – Any operation that includes chromating, phosphating, metal coloring and passivating… Metal coloring involves the chemical method of converting the metal surface into an oxide or similar metallic compound to produce a decorative finish."

On Tuesday, August 16, 2022, at approximately 13:10, U.S. Environmental Protection Agency (EPA) inspectors Lisa-kay Prideaux and Emilio Llamozas (inspectors) conducted an announced pretreatment Significant Industrial User (SIU) inspection of Shiloh Sharps, Inc. (facility) located at 201 Centennial Drive in Big Timber, Montana. The purpose of the inspection was to evaluate the facility's compliance with the requirements in 40 C.F.R. Parts 403 and 433 for the General Pretreatment Regulations and Metal Finishing Point Source Category Pretreatment Standards (Subpart A), respectively. EPA inspectors introduced themselves and met with Mr. Kirk Bryan, one of four owners. The inspectors presented their inspector credentials to Mr. Bryan. The inspectors held an opening conference to explain the purpose of the inspection and discussed the role of the EPA regarding pretreatment regulations in Montana. Inspectors asked a series of questions throughout the inspection; observations and photograph descriptions were documented in a bound checklist. All photographs taken during the inspection are included in the attached photo log.

Facility Description and Process Overview

Mr. Bryan provided an overview of the operations and processes at Shiloh Sharps, Inc. The company was started in New York in 1975 and moved to Big Timber, Montana where this facility has been in operation since 1979, manufacturing replicas of the 1874 Sharps rifles through a combination of fabrication and assembly. Metal components of the rifles are colored through the application of a metal salt coating during the bluing process. The bluing process includes cleaning, polishing, rinsing metal components, and immersing them in a solution of black oxide salt, to produce a decorative color finish. Metal components also go through a case hardening process where the metal is heat treated so the surface of the metal component is hardened, while keeping the underlying metal layer ductile. The facility operates four days a week and produces between 300-350 rifles per year.

The process starts by taking various types of steel stock and creating the steel components needed to fabricate the Sharps rifle. The facility has four computer numerical control (CNC) machines that cut the steel stock to the desired specifications. Used oil from the CNC machines is collected and given to local shops to burn in oil heaters during the winter months. Some steel components undergo a bluing process (barrels, screws) while other components undergo a case hardening process (screws, fasteners, firing pins, bolts). For the bluing process, the steel components are first cleaned with acetone, then they are put into a 70-gallon tank with a Du-Lite soap solution

bath which is heated to 150 degrees Fahrenheit. Next, the components are rinsed with water in a different 70-gallon tank bath that is also heated to 150 degrees Fahrenheit. The hot water rinse water overflow flows to a 40-gallon tank with a sump pump. After the steel components are cleaned and rinsed, the components are placed in a 70-gallon tank where they are soaked in a black oxide salt bath (which is composed of Du-Lite Steelkote) for up to 20 minutes; a 35-gallon tank is used for smaller steel components. This black oxide salt bath is continuously replenished with tap water to maintain a constant temperature, and the addition of black oxide salts when needed. The components are then rinsed with cold water in a 70-gallon non-heated rinse tank. The cold-water rinse water overflow flows to the 40-gallon tank with a sump pump. The bluing process line is operated approximately every two weeks.

The metal components which undergo the case hardening process are first cleaned with acetone and are then heat treated in an oven containing sodium cyanide. Sodium cyanide is heated in an oven until it turns to liquid, metal components are heated enough that they begin to absorb carbon from the sodium cyanide. The additional carbon enters the crystalline structure of the surface of the metal, and when cooled, or quenched, hardens. This leaves the surface of the metal component hard, while the interior characteristics of the metal do not change. Depending on the length of time the metal component is exposed to the sodium cyanide, the process will prevent corrosion and provide a decorative finish. Once the oven cools, the sodium cyanide returns to solid form and is reused. Spent sodium cyanide, in ash form, is placed a drum and is recycled when full. The drum is hauled offsite by a contractor, Safety Kleen. Once the metal components are removed from the oven, they are submerged in a quench tank containing water. The quench tank helps to rapidly cool the heat-treated steel components and develop the desired color.

When the process is complete, all rinse water/overflow collected in the 40-gallon tank with a sump pump, is then pumped into a 750-gallon storage tank. The 40-gallon tank has a high and low float valve for activating pumping. The storage tank is gravity fed into a gas fired boil out tank with an automatic float valve to add water as it boils into steam. All treated steel components are then assembled with wooden components to form the final product.

Records

After the facility representative provided a background description of the facility operations, the inspectors asked if the facility had a slug discharge control plan to which Mr. Bryan stated since the operations have changed from discharging to non-discharging, a slug discharge control plan was not needed. Material Safety Data Sheets are kept for all chemicals on-site.

Site visit

After facility representative interviews and records review, Mr. Bryan walked the inspectors around each of the processes. We started in the manufacturing area, where there were multiple worktables, tools, computer numerical control (CNC) machines, barrel drilling machines, and other large pieces of equipment used to manufacture the various steel components used in the Sharps rifle. Mr. Bryan stated the raw materials used at the facility primarily include black walnut wood and various types of steel stock (e.g., barrel stock, screw stock). Next, we entered the east side of the building where the bluing and case hardening operations occur. The room is set up where the bluing process is on the east side of the room and the case hardening process is on the west side of the room. The bluing process includes a line of five tanks: a soap bath and hot water rinse (photo 630), two bluing tanks (one for larger parts and one for smaller parts) (photo 629), and a cold rinse water tank (photo 629). The soap tank and two bluing tanks are not drained between batches. The hot water rinse tank and the cold-water rinse tank have overflows on the back of the tanks that send overflow water during the process to the 40-gallon sump tank located behind the hot rinse tank. The hot water rinse tank and cold-water rinse tank are drained after each batch; water is discharged into the 40-gallon sump tank.

The case hardening operation includes an oven containing sodium cyanide and a cold-water quench tank (photo 633). The quench tank is continually replenished with water during the process and is discharged via a siphon hose across the room to the cold-water rinse tank in the bluing process, which discharges into the sump tank. The sump tank (photo 631) is on a high-level float system to pump contents of the tank to the 750-gallon storage tank in the evaporation room (photo 634). The storage tank has a shut-off valve, but when opened water is fed via gravity

into a gas fired boil out tank with an automatic float valve to add water as it boils into steam. The steam is released outside of the building. There is a floor drain located in center east of the bluing room connected to the City of Big Timber's POTW; when either the bluing or case hardening process is ongoing, the drain is plugged (photo 632). When neither of the processes are in operation, the drain remains open due to the emergency eye wash and shower located in the room.

The chemicals are stored in the evaporation room on the south side (photo 635) where there is no floor drain. All chemical drums are marked and are set on wooden pallets. Used oil from the CNC machines is collected and given to local shops to burn in oil heaters during the winter months to produce heat (photo 635).

Closing and Follow-Up

A closing conference was held on-site with Mr. Bryan, during which preliminary findings, as well as the process for the inspection report was discussed. The inspection concluded at 14:27. On August 29, 2022, the EPA sent an email to Mr. Bryan with the preliminary findings from the inspection. In the August 29, 2022, email, the inspector explained the process for closing out the Administrative Order on Consent (AOC) issued by the EPA on September 17, 2019. However, the facility must fully comply with all requirements in the AOC, including addressing the finding listed below before the AOC can be closed. The August 29, 2022, email also included a permit application for the facility to complete and send to EPA Region 8. The AOC will remain in effect until the EPA issues a control mechanism for the facility.

Findings, Corrective Actions and Recommendations

Finding #1: The facility has the potential to discharge process water to the POTW.

Specifically, the facility wants to be considered as a zero-discharge facility; however, there is a floor drain in the process area that is not always plugged, which has the potential to discharge process water to the POTW. There was splatter of water on the wall from the bluing cold-water rinse tank, when hot elements are rinsed (see splatter behind the tank on photo 629). The water slides down the wall to the floor which flows to the floor drain. The facility representative indicated that the floor drain is plugged during the bluing operation so, it is unknown how the facility disposes of this wastewater. Furthermore, when the bluing process soap and bluing tanks are not in use, they are not drained; therefore, processing liquid (Du-Lite soap and black oxide salt) within the tanks remains. These tanks could spill or leak onto the floor of the process area which leads to the floor drain connected to the Big Timber POTW. There is also potential for spills to occur during case hardening quench tank transfer to the bluing cold-water rinse tank for discharge, and addition of new chemicals to the tanks. For these reasons, Shiloh Sharps, Inc. has the potential to discharge process wastewater via the floor drain.

Pretreatment Requirement:

40 C.F.R. Part 403.1(b)(1) states National pretreatment standard regulations apply to pollutants from non-domestic sources covered by Pretreatment Standards which are indirectly discharged into or transported by truck or rail or otherwise introduced into POTWs.

Corrective Action:

Eliminate the potential discharge of process wastewater from the facility to the POTW. This could include but is not prescriptive or limited to secondary containment under the processing tanks or moving the emergency eye wash/shower to another area and plugging the floor drain permanently. In your response to the EPA, indicate how the facility has addressed this finding.

Recommendation #1:

The facility should consider creating standard operating procedures (SOPs) for processes from steel component manufacturing through the soap and bluing tank solution ratios, rinse tank filling and draining, process of plugging the floor drain, process of the case hardening oven, case hardening quench tank filling and draining, and the process of the evaporation storage tank and blow out.