

NPDES Inspection Report – Pretreatment Categorical Industrial User

National Database Information	
Inspection Entry Date/Time: March 28, 2024 / 08:00	Inspection Type: Pretreatment Categorical Industrial User (CIU)
Inspection Closing Date/Time: March 28, 2024 / 09:49	NPDES ID Number: MTPF00102
Inspection ID: 202403_MTPF00102	
Lead inspector and affiliation: Lisa-kay Prideaux / EPA Region 8 Montana Operations Office	

Facility Location Information	
Site/Facility Name & Location: C. Sharps Arms Company, Inc. 100 Centennial Drive Big Timber, Montana 59011 45.8392866; -109.9415455	Mail Report (Electronic Delivery) to: Tim Corwin, Production Manager C. Sharps Arms Company, Inc. info@csharpsarms.com

Contact Information	
	Name(s)/Title
Person/Company meeting definition of Owner/Operator	C. Sharps Arms Company, Inc.
Facility Contacts:	Pat Dulin / C. Sharps Arms Company, Inc. / Vice President (not present) Tim Corwin / C. Sharps Arms Company, Inc. / Production Manager (present)
Authorized Official(s)	Pat Dulin / C. Sharps Arms Company, Inc. / Vice President

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

Report Review and Signature		
Drafter Name	Address/Phone Number	Date
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EMILIO LLAMOZAS Digitally signed by EMILIO LLAMOZAS Date: 2024.05.06 16:10:11 -06'00'	U.S. EPA Region 8 NPDES & Wetlands Section Supervisor Llamozas.Emilio@epa.gov	05/01/2024
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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 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 Thursday, March 28, 2024, at approximately 08:00, U.S. Environmental Protection Agency (EPA) inspector Lisa-kay Prideaux (inspector) conducted an announced pretreatment Significant Industrial User (SIU) inspection of C. Sharps Arms Company, Inc. (facility) located at 100 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. The EPA inspector introduced themselves and met with Mr. Tim Corwin, Production Manager, presented their inspector credentials and 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 and are maintained by EPA in accordance with the Quality Assurance Field Activities Procedure and Standard Operating Procedure.

Facility Description and Process Overview

Mr. Corwin provided an overview of the operations and processes at C. Sharps Arms Company, Inc. The company was started in New York in 1975 and moved to Big Timber, Montana in 1979. In 1983 the facility split from the parent company, constructed the current building and started to manufacture replicas of the 1874 Sharps rifles through a combination of fabrication and assembly, discharging to the

Big Timber POTW. Some metal components of the rifles (barrels and screws) 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. Other metal components (receivers and trim parts) 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.

The process starts by taking various types of steel stock (bullets and rods) and creating the steel components needed to fabricate the Sharps rifle. The metal components are fabricated using milling and grinding machines, with finish work by hand. The facility has three 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 to produce heat. Some steel components undergo a bluing process (barrels and screws) while other components undergo a case hardening process (screws, fasteners, lock plates, and bolts).

For the bluing process, the steel components are bead-blasted for texturing to hide machine and polishing marks and to give an even, uniform look to the surface of the metal parts, and then cleaned with acetone. Steel components are cleaned in a heated tank with a soap solution to remove oil from the surfaces then are rinsed in a hot water bath. After the steel components are cleaned and rinsed, the metal salt coating occurs and consists of immersing the metal components in a solution of HeatBath Nickel Pentrate®, a metal salt, to provide a decorative color. The metal components are then placed in a cold rinse tank for cooling. Parts are scrubbed with degrease steel wool by hand and then the process, excluding the bead-blasting and soap tank, is repeated until the desired color is achieved. Once the desired color is reached, metal components are then placed into the final boil-out hot water rinse tank. The final step is immersion in a water displacement oil bath.

The cold-water rinse tank has a continuous tap-water flow into the tank to keep the temperature cool and has a continuous discharge via overflow into a 125-gallon holding tank. The cold-water rinse tank is the only tank that discharges to the 125-gallon holding tank via an overflow. All remaining tanks are left filled for the next batch operation and are recharged as necessary. After production is complete, contents of the 125-gallon holding tank is discharged into a sealed floor drain with riser into the City of Big Timber's POTW. The facility operates the bluing process approximately once each month.

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 in a drum and is disposed of when full. Once the metal components are removed from the oven, they are submerged in water in a 103-gallon quench tank. The quench tank helps to rapidly cool the heat-treated steel components and develop the desired color. Components are then rinsed in a 5-gallon cold-water rinse tank and placed in the final 8-gallon boil-out

tap water tank. All tanks except the boil-out tank are left filled for the next batch operation and are recharged as necessary.

Records

After the facility representative provided a background description of the facility operations, the inspector commenced to review facility records. C. Sharps Arms' Slug Discharge Control Plan, which contains the Solvent Management Plan, was approved by EPA on April 13, 2020. Approval of the Solvent Management Plan allows C. Sharps Arms to submit a total toxic organics (TTO) certification statement with each periodic compliance report in lieu of sampling for TTOs. C. Sharps Arms was required to submit the Baseline and 90-day Compliance Report within 90-days of the effective date of their Administrative Order on Consent (AOC, CWA-08-2019-0128) (December 26, 2019). C. Sharps Arms submitted the required Baseline and 90-day Compliance Reports on September 19, 2019, and it was reviewed and approved by EPA on October 2, 2019. The inspector performed a review of Discharge Monitoring Reports (DMRs) for the timeframe of January 1, 2023, to December 31, 2023. C. Sharps Arms had copies of all sampling and reporting documentation to support the completion of the reviewed DMRs. The facility had one exceedance for monitoring period ending December 31, 2023. The facility exceeded the total cyanide daily maximum limit of 1.2 mg/L and monthly average limit of 0.65 mg/L with a 1.5 mg/L result for a sample collected on September 12, 2023. The facility notified the EPA on October 2, 2023, and collected the required 30-day resample on October 11, 2023, with a result of 0.108 mg/L (compliant with limit).

Signed TTO certifications were included with each DMR submittal. Material Safety Data Sheets are kept for all chemicals on-site. Standard Operating Procedures (SOPs) are maintained for the bluing and case hardening process. Mr. Corbin asked questions regarding the current AOC, and what would be required to close out the action. The inspector stated the AOC will remain in effect until the issuance of a control mechanism.

Site visit

After facility representative interviews and records review, Mr. Corwin, walked the inspector 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. Corwin 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 bluing building, located as a separate building on the southwest side of the main building, where the bluing and case hardening operations occur. The room is set up where all processes occur on the south side of the building, and the north side is set for chemical storage. The entire area encompassing the bluing and case hardening process is sunken approximately 4-inches as secondary containment to contain any minor tank top-over spills and/or drips during process flow. There are three floor drains in the bluing building which connect to the City of Big Timber's POTW. One drain is within the containment, which is sealed with a non-removable riser and access only from the 125-gallon holding tank industrial hose, which is discharged (photo 796). The other two drains are located on the higher portion of the building floor and are permanently sealed off (photo 797). The area is used for chemical storage; all chemicals stored in this area are dry materials (photos 791, 797, & 802). Chemicals stored in this area include, but are not limited to Nickel Pentrate, soaps, degreasers, sodium cyanide, and various salts. The facility also sweeps up all metal shavings and collects any used steel wool pads at the end of each shift and puts them in a

dumpster located outside the main building (photo 803). When the dumpster is full, the facility calls to have shavings removed and recycled.

For the bluing process (photos 792-796), steel components are placed into an 8-gallon tank with a soap/degreaser solution bath (tank 6 – photo 792) then are rinsed with hot water in an 8-gallon tank (tank 5 – photo 792). Steel components are placed in one of the two 8-gallon bluing tanks (tanks 1 or 2 – photo 793) for varying lengths of time. The metal components are then placed in an 8-gallon cold rinse tank (tank 3 – photo 792) for cooling. Next, metal components are placed into the final 8-gallon boil-out hot water rinse tank (tank 4 – photo 792). The final step is immersion into an 8-gallon water displacement oil bath (tank 7 – photo 798). During production, tank 3 has a continuous flow of tap water monitored by a flow meter (photo 794) for temperature control, and a continuous discharge via overflow into a 125-gallon holding tank located directly south of the tank (photo 795 & 796) and is connected via a hose into the top of the tank. Tank 3 is the only tank that discharges to the 125-gallon holding tank via an overflow. The holding tank has a marker to estimate volume, and after production is complete, facility personnel will open the valve to discharge directly through an industrial hose to a sealed floor drain with riser into the City of Big Timber's POTW (photo 796). The tank is tipped at an angle to ensure all contents of the tank are discharged. The facility monitors flow by reading the flow meter prior to the start of production and comparing it to the closing of the last production meter reading. After production, personnel read/record the meter reading and the difference is recorded as the amount of flow for the discharge. If the facility uses more than 100 gallons of water the discharge is broken up into two discharges, as the facility is allowed to only discharge up to 100 gallons per day.

The metal components which undergo the case hardening process are heat treated in an oven containing sodium cyanide (photo 799). Once metal components are removed from the oven, they are submerged in a 103-gallon quench tank containing water (tank 9 – photo 800) and then rinsed in a 5-gallon water tank (tank 10); neither tank are emptied, only tap water is added. Components are then placed in the final 8-gallon boil-out tap water tank (tank 8 - photo 801). Tank 8 is the only tank in the case hardening process which is emptied after each use into a 5-gallon bucket. Prior to the case hardening operation beginning, the tank is filled with water from the last operation (stored in a 5-gallon bucket) and additional tap water if required. At the end of the process, water from tank 8 is then transferred to a 5-gallon bucket which holds the water when not in use. Contents of the bucket are poured back into the tank and topped off with tap water to start the operation again.

Once metal parts are processed, they are polished and assembled in the main building to a final product.

Closing and Follow-Up

A closing conference was held on-site with Mr. Corbin, during which the process for the inspection report was discussed. The inspection concluded at 09:49. Included as an attachment to this inspection report is a Notice of Discharge Requirements Application for C. Sharps Arms Company, Inc. to complete and submit to receive permit coverage.

Findings, Corrective Actions and Recommendations

Finding #1: The facility exceeded an effluent limit specified in the AOC control mechanism and was in Significant Noncompliance for cyanide during the third quarter of 2023.

Specifically, the facility collected an effluent total cyanide sample on September 12, 2023, for the required semi-annual reporting. The result exceeded the daily maximum limit of 1.2 mg/L and the monthly average limit of 0.65 mg/L for the month of September 2023 with a cyanide result of 1.5 mg/L. The facility collected a previous quarter cyanide sample on April 20, 2023, (0.18 mg/L). The method used for analysis is EPA 335.4 which has a lower reporting range of 0.005 to mg/L. Please note that monthly average calculations have to be performed with the samples collected in the same calendar month.

The September 12, 2023, cyanide sample concentration was 1.5 mg/L exceeding the daily maximum limit of 1.2 mg/L. There were two cyanide sample collected between April 1, 2023, and September 30, 2024 (April 20, 2023, with a concentration of 0.18 mg/L, and September 12, 2023, with a concentration of 1.5 mg/L). One of the two samples was above the TRC limit (cyanide daily maximum limit of 1.2 mg/L x TRC value of 1.2 = 1.44 mg/L). Therefore, 50% of the samples collected in the 6-month period (Q2 2023 and Q3 2023) exceeded the daily maximum TRC limit, resulting in a cyanide significant noncompliance (SNC) violation for the daily maximum limit for 3rd quarter 2023.

The September 2023 monthly average cyanide concentration was 1.5 mg/L exceeding the monthly average limit of 0.65 mg/L. There were two cyanide sample collected between April 1, 2023, and September 30, 2024 (April 2023 had a monthly average of 0.18 mg/L, and September 2023 had a monthly average of 1.5 mg/L). One of the two cyanide monthly averages was above the TRC limit (cyanide monthly average limit of 0.65 mg/L x TRC value of 1.2 = 0.78 mg/L). Therefore, 50% of the cyanide monthly averages in the 6-month period (Q2 2023 and Q3 2023) exceeded the monthly average TRC limit, resulting in a cyanide SNC violation for the monthly average limit for 3rd quarter 2023.

Facility representatives stated no cyanide is used in the bluing process (process which discharges); however, the case hardening process that uses Sodium Cyanide is within the same building, operating at the same time, and the dry chemical storage is also in the same building. Because of these factors there is a potential for cross-contamination. It is unknown at this time how often the potential cross-contamination occurs, or if there is a process occurring at the facility that may be adjusted to limit the potential exposure.

Pretreatment Requirement:

40 CFR 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.

40 CFR Part 433.17(a) for effluent limitations stated any new pretreatment source must attain set effluent limits to include the pollutant total cyanide at a maximum daily limit of 1.20 mg/L and monthly average of 0.65 mg/L.

Industrial users that discharge wastewater regulated by a categorical process, such as metal finishing, are considered Significant Industrial Users, pursuant to 40 C.F.R. § 403.3(v). Therefore, the facility is considered a Significant Industrial User (SIU).

40 C.F.R. §403.8(f)(2)(viii) requires the control authority (in this case EPA) to develop and implement procedures to ensure compliance with the requirements of the Pretreatment Program and states, "Comply with the public participation requirements of 40 C.F.R. part §25 in the enforcement of National Pretreatment Standards. These procedures shall include provision for at least annual public notification in a newspaper(s) of general circulation that provides meaningful public notice within the jurisdiction(s) served by the POTW of Industrial Users which, at any time during the previous 12 months, were in significant noncompliance with applicable Pretreatment requirements. For the purposes of this provision, a Significant Industrial User (or any Industrial User which violates paragraphs (f)(2)(viii)(C), (D), or (H) of this section) is in significant noncompliance if its violation meets one or more of the following criteria:

...

(B) Technical Review Criteria (TRC) violations, defined here as those in which 33 percent or more of all of the measurements taken for the same pollutant parameter during a 6-month period equal or exceed the product of the numeric Pretreatment Standard or Requirement including instantaneous limits, as defined by 40 CFR 403.3(l) multiplied by the applicable TRC (TRC = 1.4 for BOD, TSS, fats, oil, and grease, and 1.2 for all other pollutants except pH)..."

Corrective Action:

Develop a written plan for the facility that includes how the facility will evaluate and eliminate the potential for total cyanide exceedances. Options to evaluate the potential contamination could include but are not prescriptive or limited to obtaining additional cyanide samples during the reporting period to better understand when and how often the facility has cross-contamination showing up in the effluent samples, and/or developing and implementing a good housekeeping program (including how chemicals are stored, accessed and used, and how wash downs of the floors and/or equipment are handled) to limit the amount of cross-contamination. In your response to the EPA, indicate how the facility has addressed this finding.

Finding #2: The monthly average for cyanide was not accurately reported in the DMR.

The cyanide monthly average for the July 1, 2023, to December 31, 2023, reporting period was reported on the Discharge Monitoring Report (DMR) as 0.57 mg/L. Monthly average calculations must be performed with the samples collected in the same calendar month. The highest monthly average for the reporting period should be reported on the DMR. The September 12, 2023, cyanide sample was 1.5 mg/L and the only sample collected in September 2023. Therefore, the facility should have reported 1.5 mg/L for the monthly average for the July 1, 2023, to December 31, 2023, reporting period.

Pretreatment Requirement:

Part E.8 of Attachment 1 to the AOC defines monthly average as, "Monthly Average - The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month."

Corrective Action:

Ensure that monthly averages are calculated only with the samples collected during the calendar month. Ensure that the highest monthly average for the reporting period is reported in the DMR. Revise the DMR submitted for the July 1, 2023, to December 31, 2023, reporting period to indicate the monthly average for cyanide was 1.5 mg/L.

Recommendation #1:

The facility is currently under an Administrative Order on Consent (CWA-08-2019-0128) which requires the issuance of a Notice of Discharge Requirements before the Administrative Order on Consent can be closed out. Included as an attachment to this inspection report, is a Notice of Discharge Requirements Application for C. Sharps Arms Company, Inc. to complete and submit to the EPA.