

**CLEAN WATER ACT INSPECTION REPORT
U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 5**

Purpose: Clean Water Act – Industrial User Inspection

Facility: Serra Laser Precision, LLC.
2400 Commerce Drive
Libertyville, Illinois 60048

Date of Inspection: April 24, 2025

U.S. EPA Representatives: Jennifer Bush, Environmental Scientist, (312) 886-0879
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Illinois EPA Representative: Malik Carroll, Environmental Protection Engineer
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Facility Representatives: Cameron Adams, President
Brian Connell, Plant Manager

Report Prepared by: Jennifer Bush, Environmental Scientist, (312) 886-0879
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Inspector Signature: JENNIFER BUSH

Digitally signed by
JENNIFER BUSH
Date: 2025.06.17
08:49:50 -05'00'

Approver Name and Title: Molly Smith, Section 1 Supervisor, Water Enforcement and Compliance Assurance Branch, U.S. EPA Region 5 Enforcement and Compliance Assurance Division

Approver Signature: MOLLY SMITH

Digitally signed by
MOLLY SMITH
Date: 2025.06.17
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Purpose of Inspection:

The purpose of the inspection performed by the U.S. Environmental Protection Agency (EPA) was to investigate elements of the Clean Water Act (CWA) and associated pretreatment regulations with respect to Serra Laser Precision, LLC. ("Laser Precision" or "Facility"), located at 2400 Commerce Drive Libertyville, Illinois 60048.

Background:

Laser Precision is a metal fabrication and metal finishing facility for the construction and agriculture industry. Laser Precision has a permit through the Illinois Environmental Protection Agency (IEPA) to discharge metal finishing wastewater to the Village of Libertyville ("Village") publicly owned treatment works (POTW). The Village does not run a Federally approved pretreatment program, and IEPA does not run an approved pretreatment program. Laser Precision is a categorical industrial user, as defined in 40 C.F.R. § 403.6, due to the powder coating metal finishing process onsite. Therefore, the EPA is both the Approval Authority and Control Authority, as defined in 40 C.F.R. § 403.3(c) and (f).

Laser Precision provided EPA with the most recent IEPA Water Pollution Control Permit ("Permit") issued by IEPA. The Permit (Permit Number 2021-EE-66344) has an effective date of July 21, 2021, and an expiration date of June 30, 2026.

Laser Precision is required to submit periodic compliance reports to EPA on a semi-annual basis.

Inspection:

Opening Conference

Jennifer Bush and Sophie Bazan of EPA and Malik Carroll of IEPA arrived at the facility on April 24, 2025, at 9:46 a.m. CST and were met by Cameron Adams (President). The Opening Conference began at 9:50 a.m. CST. Brian Connell (Powder Coating/Plant Manager) joined the Opening Conference at 10:03 a.m. CST. During the Opening Conference, EPA staff presented their credentials and discussed the ability to claim Confidential Business Information (CBI). The Opening Conference ended at 10:27 a.m. CST. The following information was provided to EPA by Laser Precision staff:

- **General Plant Information:**
 - Laser Precision is a metal fabrication facility for various industries and products, including but not limited to, tractors, bulldozers, construction equipment, etc.
 - The Libertyville Laser Precision facility opened in 2007.
 - There are approximately 110 employees onsite.
 - The facility operates five days a week, with overtime on Saturdays as needed. The first shift is 7:00 a.m. – 3:30 p.m., second shift is 3:30 p.m. – 2:00 a.m. Second shift is only utilized Monday – Thursday.

- There are no seasonal changes to production, and there are no scheduled shutdowns throughout the year.
- Laser Precision currently still operates under the Laser Precision name, but was recently acquired by Weller Metal Works.
- Manufacturing Process:
 - Laser Precision receives mild carbon steel, and small amounts of aluminum and stainless steel as raw materials. The facility receives 2-3 truckloads of raw materials per week.
 - Operations onsite include laser cutting, bending, machining, welding, and powder coating.
 - Processes conducted for each product are customer dependent.
 - An estimated 40%-45% of products go through the powder coating process onsite.
 - The powder coating area was added to the building and began operations in 2013.
 - There is chemical storage near the powder coating area and wash lines. Chemicals are kept in 55-gallon drums, with no secondary containment.
- Water Usage, Waste Generation, and Pretreatment:
 - Laser Precision receives water from and discharges to the Village of Libertyville.
 - Other than domestic use, water is only used in the deburring and powder coating areas.
 - The only process wastewater that generated/discharged is in the powder coating 7-stage rinse series.
 - Laser Precision converts the Village of Libertyville water to Reverse Osmosis (RO) water with an onsite RO system.
 - The 7-stage rinse series prior to the powder coating process is listed below:
 - Stage 1: Alkaline Cleaner
 - Stage 2: RO Water Rinse
 - Stage 3: RO Water Rinse
 - Stage 4: RO Water Rinse
 - Stage 5: RO Water Rinse
 - Stage 6: Conversion Coating (Zirconium)
 - Stage 7: RO Rinse
 - Laser Precision hauls discharge from Stage 1 and Stage 7 (liquid waste) offsite with Beaver Oil.
 - There is no solid waste hauled offsite.
 - Stage 1 (Alkaline Cleaner) and Stage 6 (Zirconium Conversion Coating) backflow into themselves.
 - Stage 2 – Stage 5 are back flowed into each other (i.e. Stage 5 backflows into Stage 4, Stage 4 backflows into Stage 3, Stage 3 backflows into Stage 2, and Stage 2 is discharged to the Village of Libertyville).
 - Stage 7 discharges to the Village of Libertyville through the same outfall as Stage 2.

- Stage 1 and Stage 6 are reused until the batch becomes “dead”, or unusable. When the stages become a dead batch, the tanks at each stage are pumped and hauled offsite. Laser Precision told EPA the stages are typically hauled offsite once a year, but can occur as needed.
- Laser Precision staff monitor pH levels of the RO rinse water daily. Laser Precision told EPA the pH levels typically don’t need to be adjusted, but if needed staff would use caustic to raise the pH level.
- Wastewater Sampling:
 - Laser Precision has a third party (Scientific Control Laboratories) conduct all sampling of the effluent. Scientific Control Laboratories uses their own sampling equipment, and brings samples to the laboratory for analysis.
 - Laser Precision told EPA if the monitoring results indicated a violation of permit limits, Scientific Control Laboratories would notify Laser Precision staff prior to writing the semi-annual report.
 - Laser Precision told EPA the facility has implemented a Toxic Organic Management Plan (TOMP) since the last EPA inspection (in 2020).
 - There is no flow meter onsite. Laser Precision staff review the Village of Libertyville water usage bill to determine the process wastewater discharge rate.

Plant Walk Through

The plant walk through began at 10:30 a.m. CST and Laser Precision staff showed EPA the following:

- Pre-powder Coating Rinse Process
 - Products are hung overhead on a conveyor system;
 - Stage 1:
 - Alkaline rinse.
 - All discharge transferred from this Stage to a holding tank for offsite disposal.
 - Last disposal of Stage 1 discharge occurred approximately two weeks prior to the time of the inspection.
 - 275—gallon tank.
 - Stage 2:
 - RO rinse water.
 - “Dirtier” stage due to rinse immediately after Alkaline Stage and backflow from other stages.
 - 740-gallon tank.
 - Stage 3:
 - RO rinse water.
 - 1750-gallon tank.
 - Stage 4:
 - RO rinse water.
 - 890-gallon tank.

- Stage 5:
 - RO rinse water.
 - 1450-gallon tank.
 - Halo rinse: pumps from Stage 5 RO tank and rinses products using a spray nozzle, which is angled back into Stage 4 (and Stage 4 into stage 3, and Stage 3 into Stage 2).
 - At the time of the inspection, the tank was labeled “Last Dump 5/20/2024”. Laser Precision told EPA this refers to the last draining of Stage 5 to the holding tank prior to discharging to the Village. Laser Precision stated the draining of Stage 5 is dependent on conductivity levels. The conductivity levels in the stages are checked by Laser Precision staff daily.
- Stage 6:
 - Conversion coating.
 - At the time of the inspection, a 55-gallon drum was connected to Stage 6.
 - Water within Stage 6 is constantly recycled until it is no longer usable. Once the stage becomes a dead batch, Laser Precision staff manually open the valve to drain the tank. The pipe from Stage 6 leads to a holding tank, which is hauled for offsite disposal.
 - Stage 6 is not connected to Stage 5 or Stage 7. There is a separate discharge/drain from Stage 6, similar to Stage 1.
 - 890-gallon tank.
- Stage 7:
 - RO rinse water.
 - Laser Precision told EPA this stage should be the “cleanest” rinse stage because it is replenished, not a backflow rinse. This is intentional, as it is the final stage prior to dry-off and powder coating.
 - 750-gallon tank.
- Stages 2, 3, 4, 5, and 7 discharge to a rinse water holding tank. The tank holds approximately 5200 gallons.
- From the rinse water holding tank, wastewater is transferred to a pumping station. If neutralization is needed, it would occur in the pumping station. The discharge is then piped overhead for discharge to the Village of Libertyville.
- If pH adjustment occurs within the rinse process, staff would adjust the levels in the individual stages.
- Powder coating area discharge is isolated from the rest of the wastewater discharge from Laser Precision. There is no mixing of other wastewater prior to discharge to the Village of Libertyville.
- The discharge from Stages 1 and 6 are stored within the same holding tank prior to offsite disposal. Laser Precision told EPA these stages were previously stored separately, but Beaver Oil allows for the stages to be mixed.
- Samples are collected from the pumping station by Scientific Control Laboratories.
- RO System

- Dry oven
- Powder Coating
- Machining
 - Coolant is used in this area and hauled offsite by C&R, along with any scrap metal.
- The new side of the building includes welding, logistics, and powder coating.
- The older/original side of the building includes machining, bending, laser cutting, and deburring.
- Deburring
 - Uses Village of Libertyville water.
 - Closed-loop system. Once the water is used, it is hauled offsite by Beaver Oil.
 - This water is hauled offsite separately from the 7-stage rinses.

The site walk-through ended at 11:08 a.m. CST.

Closing Conference

The Closing Conference began at 11:10 a.m. CST. EPA and Laser Precision staff discussed the following:

- Cybersecurity questions were completed.
- No claim of CBI.
- No areas of concern at the time of inspection.

EPA staff completed the Closing Conference at 11:21 a.m. CST and left the facility at 11:30 a.m. CST.

Post-Inspection Activities

Following the Inspection, EPA reviewed the semi-annual self-monitoring reports submitted by Laser Precision to EPA on the following dates:

- January 31, 2025;
- July 22, 2024;
- January 30, 2024;
- July 13, 2023; and,
- January 1, 2023.

The self-monitoring reports indicated no violations of the applicable categorical pretreatment standards.

Attachments

- A. Photo Log: Photos taken during U.S. Environmental Protection Agency Inspection of Laser Precision (April 24, 2025)

**Serra Laser Precision, LLC.
EPA Inspection April 24, 2025
All photos taken by Jennifer Bush, Environmental Scientist, U.S. EPA
Camera: Ricoh WG-4 SR Adventure Proof, Serial No. 3101181**



1: RIMG0280

Description: Overview of Stage 2 of rinse series

Location: Serra Laser Precision, LLC. – Powder Coating Rinse Area

Date/Time: April 24, 2025, 10:35 a.m. CST



2: RIMG0281

Description: Overview of Stage 3 of rinse series

Location: Serra Laser Precision, LLC. – Powder Coating Rinse Area

Date/Time: April 24, 2025, 10:36 a.m. CST



3: RIMG0282

Description: Overview of Stage 4 in rinse series

Location: Serra Laser Precision, LLC. – Powder Coating Rinse Area

Date/Time: April 24, 2025, 10:37 A.M. CST



4: RIMG0283

Description: Overview of Stage 5 of rinse series

Location: Serra Laser Precision, LLC. – Powder Coating Rinse Area

Date/Time: April 24, 2025, 10:44 a.m. CST



5: RIMG0284

Description: Overview of Stage 6 of rinse series, with chemical storage connection and holding tank in foreground

Date/Time: April 24, 2025, 10:46 a.m. CST



6: RIMG0285

Description: Overview of Stage 7 of rinse series

Location: Serra Laser Precision, LLC. – Powder Coating Rinse Area

Date/Time: April 24, 2025, 10:50 a.m. CST



7: RIMG0286

Description: Overview of rinse holding tanks and pumping station (right)

Location: Serra Laser Precision, LLC. – Powder Coating Rinse Area

Date/Time: April 24, 2025, 10:57 a.m. CST



8: RIMG0287

Description: Overview of onsite RO system

Location: Serra Laser Precision, LLC. – Powder Coating Rinse Area

Date/Time: April 24, 2025, 10:59 a.m. CST



9: RIMG0288

Description: Overview of rinse series, with Stage 1 in foreground

Location: Serra Laser Precision, LLC. – Powder Coating Rinse Area

Date/Time: April 24, 2025, 11:01 a.m. CST