Inspection Report: Precoat Metals, Clean Air Act Stationary Source

Facility Name:	Precoat Metals
Inspection Date:	September 26, 2023
Facility Address:	4301 South Spring Avenue, St. Louis, MO 63118
FRS ID #:	110000441255
Federal Facility:	No
NCI:	Creating Clean Air for Communities
Facility size:	Major Source
Activity:	Partial Compliance Evaluation
State Referral:	No
EJ:	Yes
NAICS code:	332812 – Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers
Lead Inspector:	Bryan Lange, ERG Inspector, (919) 622-2374
Asst. Inspector:	Elizabeth Hubbard, ERG Inspector Trainee, (919) 468-7894
State Inspector:	Robert Barnacle, Missouri Department of Natural Resources (MoDNR)
Facility Contact:	Anu Singh, Director of EHS, (314) 802-5807, anu_singh@precoat.com

1. **Plant Description:**

According to the facility's 2018 operating permit, "Precoat Metals operates two continuous metal coil surface coating lines. Coil line 1 consists of an aqueous pretreatment section (cleaning, rinsing, chemical treatment), a prime coating section (coater and oven), a printer coater and ultraviolet curing station and a finish coating section (coater, oven and combined oxidizer for the prime and finish ovens and dual fired waste heat boiler). Coil line 2 consists of an aqueous pretreatment section (cleaning, scrubbing, rinsing, and chemical treatment), a prime coating section (coater, oven, and oxidizer) and a finish coating section (coater, oven, oxidizer, and combined waste heat boiler). The installation has six bulk solvent storage tanks, a gas-fired boiler, and a variety of maintenance activities including grinding, degreasing, and sandblasting."

According to the State of Missouri, February 2023 Finding of Compliance, "For the period January 2022 to December 2022, the 12-month running total for VOCs emitted was 25.7 tons. There were 758,412 gallons of paint and 81,419 gallons of solvent processed for a total of 839,831 gallons in that period with a total of 4,469,184 pounds of VOCs applied."

Figure 1: Satellite image of the Precoat Metals facility in St. Louis, MO.

2. Facility Entry:

The representatives of the United States Environmental Protection Agency ("EPA"), Bryan Lange and Elizabeth Hubbard from Eastern Research Group, Inc. ("ERG"), and a representative from the Missouri Department of Natural Resources ("MoDNR"), Robert Barnacle, arrived at the Precoat Metals facility at 4301 South Spring Avenue, St. Louis, MO ("Precoat Metals", or "the facility"), at approximately 1:30 pm. The ERG and MoDNR representatives ("the inspectors") were met at the administration building by Anu Singh, Director of Environment, Health, and Safety ("EHS"); Derek Walker, EHS Manager; and Mike Faulkner, Plant Manager ("the facility representatives"). The inspectors presented their identification credentials and provided an overview and scope of the inspection. The inspectors explained that ERG worked as contractors to conduct facility inspections for EPA. They provided a copy of EPA's "Small Business Resources Information Sheet."

3. Opening Conference/Technical Discussion:

The inspectors explained that they were at the facility to conduct a routine Clean Air Act ("CAA") inspection that was part of a national initiative to look at facilities located close to residential neighborhoods, including a focus on volatile organic compounds ("VOCs") and hazardous air pollutants ("HAPs"). The inspectors explained that during the facility walkthrough, they would capture digital images of the facility's processes and emission points using a digital point and shoot camera, as well as an optical gas imaging, forward looking infrared ("FLIR") video camera, model GF320, that were not intrinsically safe. Therefore, they requested that the facility representatives inform them of any areas where there could be a potentially explosive atmosphere. The facility representatives said they would let the inspectors know of any areas where they could not take the cameras during the walkthrough. The list of digital images and FLIR videos taken during the inspection are included in Appendix A.

The inspectors asked for background information about Precoat Metals and the facility. The facility representatives explained that the facility coats metal parts which are used in cans, metal sidings, refrigerators, dryers, metal roofs, and more. The coatings used at the facility include corrosion resistant coatings. Customers own the metal coils that are being coated, but the facility owns the coatings. Other facilities owned by Precoat Metals coat much thicker steel products than this facility. The facility representatives explained that the facility operates two lines: Line 1 is 100 feet long and runs at 400 feet per minute and Line 2 is 125 feet long and runs at 540 feet per minute. There is a 10-foot ultraviolet-capable section of line as well. The facility has mostly operated 24 hours a day, 7 days a week since 2010; however, the facility had recently dropped to 5 days a week in the few weeks prior to the inspection due to decreased customer demand. The facility was expected to be back up to operating 6 to 7 days a week soon. Their peak season is in the summer while the winter is less busy. The facility representatives explained that coating runs could vary greatly in length depending on the customer and how much of a specific product they need. The lines may run the same product for as long as 72 hours or coat a single metal coil and be done with a run in 1 hour.

The facility representatives described the coating processes at the facility. The coatings are applied to the metal coils through a roller coating process, which the facility representatives said has the highest transfer efficiency of any means of coating application. The coating equipment allows for manipulation of the thickness of coating applied. The metal coils are then moved into an oven that operates at 600 to

900 °F where the metal is heated to evaporate the solvent from the coating; emissions are captured in the oven step. This process is repeated for the prime coating, followed by the finish coating. Lower explosive limit ("LEL") monitors are present in the ovens and will shut the process down at 45% LEL. The coating room and ovens are under negative pressure to better capture emissions. Captured emissions are routed to the thermal oxidizer ("TO"), and the processed gas from the TO is routed to a waste heat boiler which generates heat for baths used to clean the metals prior to coating application. The facility representatives showed the inspectors a monitoring screen for the Line 1 TO, as well as a diagram outlining the coil coating process. See photos DSCN7511.JPG and DSCN7512.JPG.

The inspectors asked what fuel the waste heat boiler burns and what fraction of its required heat content comes from the process lines. The facility representatives stated that Line 1 uses about 10% natural gas, and the rest of the heating requirements are satisfied with the waste heat from the TO. The inspectors asked how frequently the waste heat boiler was tuned, and the facility representatives said the boiler was tuned annually. The facility representatives showed the inspectors a spreadsheet used to calculate combustion emissions at the facility. See photos DSCN7515.JPG and DSCN7516.JPG.

The inspectors inquired about whether the facility gets any odor complaints from the surrounding community. Mr. Singh said that the facility does get complaints sometimes and that MoDNR would perform an evaluation when complaints come in. Mr. Singh said that complaints are part of being in a residential area.

The inspectors asked whether any of the coatings used at the facility contain hexavalent chromium. The facility representatives explained that coatings used on Line 1 may contain hexavalent chromium, while Line 2 coatings would only contain trivalent chromium.

The inspectors inquired about the capture efficiency for the TO and how it was determined. The facility representatives provided the following emission capture efficiencies for the coating lines:

- Line 1 prime coat – 99.87%,
- Line 1 finish coat – 97.83%
- Line 2 prime coat – 99.68%
- Line 2 finish coat – 99.42%

The facility representatives said that these capture efficiencies were determined using EPA method 204[1] and through stack testing. The inspectors asked what the destruction efficiency of the TO was. The facility representatives said that the destruction efficiency for the TO is over 99%. The facility representatives informed the inspectors that the last stack test on the thermal oxidizer was done one week prior to the inspection by a third-party provider. Additionally, the facility representatives said that they believed performance benchmark tests on Lines 1 and 2 were last completed around 2004 or 2005, though they weren't sure of the exact date. They said the tests were completed around the time the

[1] https://www.epa.gov/emc/method-204-permanent-pte-or-temporary-total-enclosure-tte-determining-capture-efficiency

surface coating of metal coil NESHAP was promulgated.[2] They explained that testing frequency would increase to every 5 years with the updates made to the facility's new operating permit.

The inspectors asked the facility representatives how much VOC was emitted from the process each year. The facility representatives reported that, based on VOC mass balance calculations, around 2 million pounds of VOC are applied per year and 20 to 30 tons of VOC emissions are generated per year. The facility does not calculate emission factors because capture and control efficiencies are fixed based on stack tests. If the TO is down, then the emissions are considered to be 100%. The facility representatives showed the inspectors an emission calculation spreadsheet used to determine 12-month rolling pounds of VOC used, 12-month rolling tons of VOC emitted, and pounds of VOC emitted per gallon of coating solids applied. See photo DSCN7514.JPG.

The inspectors asked how much of the facility's coatings are solvent-based and how much are water-based. The facility representatives explained that they use both water- and solvent-based coatings. While they would prefer to use as many water-based coatings as possible, they do not control which type of paint is used during a coating process. The coating manufacturers dictate the choice of paint, including if the paint is water- or solvent-based. The inspectors asked what information is provided by coating manufacturers about the contents of the coatings used at the facility and how this information is used to determine emissions. The facility representatives explained that coating manufacturers provide VOC and HAP contents as well as safety data sheets ("SDS") for all the coatings the facility purchases. The contents of the coatings are entered into a database which is used to calculate emissions.

The inspectors asked how the facility disposed of any excess coatings or residues. The facility representatives explained that most of the paint that does not make it onto the metal coils is captured and reused. Paint residues are cleaned with solvents which are then sent to a third party, "Reclaim Energy," as hazardous waste. Reclaim Energy recovers the solvents and sends them back to the facility to be used again for cleaning. The main solvents used on site are methyl ethyl ketone ("MEK") and acetone. The facility representatives said they try to use acetone for cleaning as much as possible since it is not a HAP, but some coatings require MEK. The inspectors asked whether methylene chloride was used on site. The facility representatives said no, the facility does not have any chlorinated solvents on site. The facility staff reported acetone usage of approximately 5,000 to 6,000 pounds per month and MEK usage of approximately 1,100 to 1,480 pounds per month, both of which are used for cleaning and as coating additives to reduce viscosity. The facility representatives showed the inspectors a monthly solvent usage report for 2022. See photo DSCN7513.JPG.

The inspectors noted that there was a reciprocating internal combustion engine ("RICE") permitted as an emergency generator for the facility. The inspectors asked how frequently the RICE is used and whether there is a natural gas storage tank on site for the RICE. The facility representatives explained that the RICE is only used as a backup generator to provide power to the facility's computer server, and there is no fuel tank for natural gas on site for the RICE. It is a small unit similar in size to a home generator. The facility representatives showed the inspectors a spreadsheet with details about the emergency RICE at

[2] 40 CFR Part 63 Subpart SSSS, *National Emission Standards for Hazardous Air Pollutants: Surface Coating of Metal Coil* was promulgated June 10, 2002, and required compliance with the standards within 3 years, including conducting a performance test no later than the compliance date. See 67 FR 39794 (June 10, 2002).

various facilities owned by Precoat Metals, including the RICE at the St. Louis facility. See photo DSCN7517.JPG.

The inspectors noted that the facility's 2018 operating permit would be expiring soon and inquired about whether the facility had submitted a new operating permit. The facility representatives informed the inspectors that they had already submitted an updated permit application which was under review by MoDNR.

4. Facility Tour/Walkthrough:

At approximately 3:30 PM, the facility representatives led the inspectors on a tour of the facility. Line 1 was operating during the walkthrough, but Line 2 was not. The group followed the basic production process, including the storage area for blank metal coils, the coil wash cycles, the coating application room, the drying ovens, the thermal oxidizer, and the final product area for coated metal coils.

The inspectors observed blank metal coils in the process area that had not yet been coated, as well as new, clean roller coaters. See photos DSCN7518.JPG and DSCN7520.JPG.

The facility representatives showed the inspectors a log of the coils that had been coated for one of the facility's customers. See photo DSCN7519.JPG.

The facility representatives informed the inspectors that Line 1 has seven wash cycles: five are water, one is chromium, and the last is caustic. One coil is fed through the wash cycles at a time. See images DSCN7522.JPG through DSCN7525.JPG.

When the group arrived at the Line 1 coating room, the facility representatives informed the inspectors that they could not take the cameras inside due to the possibility of a flammable atmosphere, so the inspectors left the cameras outside of the room. The inspectors noted a strong, sharp odor in the coating room. They observed coating being poured onto the metal coil and rolled with roller coaters and could see that excess paint from the rollers was being collected and fed back into the process. The facility representatives informed the inspectors that they can add solvent to the coatings to reach a certain viscosity and that they use recipes to know how much solvent to add. The facility representatives informed the inspectors that they were running a low-VOC coating that day.

The inspectors noted a slight odor near the drying ovens. The inspectors looked at the Line 1 prime coat drying oven using the FLIR camera and did not see any apparent emissions. The facility representatives informed the inspectors that coils move from the prime coat drying oven to quench to cool down. See photos DSCN7526.JPG, DSCN7527.JPG, and DSCN7534.JPG.

The facility representatives showed the inspectors multiple process monitoring screens and control boxes including the Line 1 TO control box, the Line 1 oven process control screen, the Line 1 coating thickness monitoring screen, and the Line 1 TO monitoring screens. See photos DSCN7528.JPG, DSCN7530.JPG, DSCN7531.JPG, and DSCN7533.JPG. The facility representatives informed the inspectors that the process control screen for the ovens uses a touchscreen and that operators could select and change various temperature settings using that screen.

The inspectors were shown the Line 1 waste heat boiler and TO inside the building, then the group stepped outside for the inspectors to see the exhaust stacks for the TO and waste heat boiler. The inspectors observed heat coming from the TO and waste heat boiler stacks using the FLIR camera but no apparent emissions. See photos DSCN7529.JPG, DSCN7535.JPG through DSCN7539.JPG and video MOV_2763.mp4.

At approximately 4:30 pm, the inspectors and facility representatives returned to the conference room.

5. Closing Conference:

The inspectors thanked the facility representatives for their time and cooperation during the inspection. The inspectors explained to the facility representatives that EPA would provide Precoat Metals with an inspection report in approximately 60 days. They explained that the report would be available to the public through the Freedom of Information Act, and therefore, if the company wanted to claim any notes or digital images as confidential business information ("CBI"), they could do so today or within 10 days following the inspection. They provided the facility representatives with the EPA's confidentiality notice form. Mr. Walker signed the form. See Appendix B.

The inspectors summarized questions and concerns raised during the inspection. They noted that during the facility walkthrough, they observed heat from the thermal oxidizer and waste heat boiler exhaust stacks with the FLIR camera but no apparent emissions. The inspectors explained that they had no areas of concern based on their observations and discussions with the facility representatives. They provided the facility representatives with a Notice of Preliminary Findings form and explained that EPA may follow up with additional questions. See Appendix C.

The inspectors did not take copies of any documents.

At approximately 4:50 pm, the inspectors departed from the facility.

6. Appendices

A. Digital Image Log
B. Confidentiality Notice Form
C. Notice of Preliminary Findings Form

Inspection Report Sign-Off

Lead Inspector's Name: Bryan Lange, ERG

Signed by Jason Sese for Bryan Lange

X Jason Sese Digitally signed by Jason Sese Date: 2023.12.05 13:11:20 -05'00'

Lead Inspector

Assisting Inspector's Name: Elizabeth Hubbard, ERG

X Elizabeth Hubbard Digitally signed by Elizabeth Hubbard Date: 2023.12.05 10:27:52 -05'00'

Assisting Inspector

Supervisor's Name: Tracey Casburn, Air Branch Chief, ECAD

X TRACEY CASBURN Digitally signed by TRACEY CASBURN Date: 2023.12.07 14:23:29 -06'00'

Supervisor