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DEPARTMENT OF ENVIRONMENTAL QUALITY AIR QUALITY DIVISION ACTIVITY REPORT: Scheduled Inspection

1000049007		
FACILITY: B & L PLATING		SRN / ID: N0058
LOCATION: 21353 EDOM, WARREN		DISTRICT: Southeast Michigan
CITY: WARREN		COUNTY: MACOMB
CONTACT: Victor Pirrami , Plant Manager		ACTIVITY DATE: 06/20/2019
STAFF: Adam Bognar	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: Scheduled Inspection		
RESOLVED COMPLAINTS:		

On Thursday, June 20, 2019, Michigan Department of Environment, Great Lakes, and Energy-Air Quality Division (EGLE-AQD) staff, I, Adam Bognar, and Kaitlyn Leffert conducted a targeted inspection of B & L Plating, located at 21353 Edom, Warren, MI. The purpose of this inspection was to determine the facility's compliance status with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451; Michigan Department of Environment, Great Lakes, and Energy, Air Quality Division (EGLE-AQD) rules; and 40 CFR Part 63 Subpart N, National Emission Standards for Chromium Emissions from Decorative Chromium Electroplating Tanks (Chrome NESHAP).

The facility currently operates without a permit. All process tanks appear to be exempt from Rule 201 requirements pursuant to Rule 285 (2)(r). Rule 285 (2)(r) exempts metal treatment processes such as cleaning, electroplating, and pickling from Rule 201 requirements if emissions from process tanks are released only into the general in plant environment. All emissions from process tanks at B&L plating are exhausted into the general in plant environment.

We arrived at the facility at around 11 am and met with Ms. Susan Gainer, Office Assistant. We identified ourselves, provided credentials, and stated the purpose of the inspection. Ms. Gainer works at B & L Plating on Thursdays to take care of bookkeeping, finances, and other matters. Ms. Gainer also maintains some of the records required by the Chrome NESHAP. Ms. Gainer assisted us in our record review. Mr. Victor Pirrami, Manager, assisted us for the inspection of the production area.

B & L Plating operates Monday through Friday from 8:30 am to 3:30 pm. There are four full time employees including Mr. Geno Pirrami, president, and his son, Mr. Victor Pirrami. In the past B & L Plating plated parts at a production level, but now operates as an "off the street" plating facility at a much slower pace. Approximately 90% of the plating done is automotive related. Boats, household items, and other miscellaneous jobs make up the remainder of the work. Plating substrates include steel (90% of parts), Zinc, and Brass.

Plating Operations

Mr. Victor Pirrami stated that there have not been any process changes since the last MDEQ-AQD inspection in 2018. The chrome tank is 1000-gallon capacity. At the time of this inspection the amp hour meter on the chrome rectifier read 702669 amp-hours. Electric potential in the chrome tank ranges from 2-5 Volts. 240-amp hours is approximately 1 hour of plating.

Generally, all parts receive three layers of plating: copper \rightarrow nickel \rightarrow chrome. When parts first arrive at the shop they are sent through a series of tanks for cleaning in the following series of processes: Buffing/polishing \rightarrow alkaline cleaning \rightarrow 2x water rinse (remove cleaner) \rightarrow 2-3% sulfuric acid (remove alkaline film) \rightarrow water rinse (acid removal) \rightarrow Copper Strike (sodium cyanide) \rightarrow water rinse (cyanide is recovered) \rightarrow water \rightarrow 2-3% sulfuric acid \rightarrow final water rinse.

The alkaline cleaning tank can also be electrified to strip chromium from parts. The water rinse tank after the cyanide tank is periodically pumped to an on-site chlorine treatment tank (to treat the cyanide) before being discharged. After this cleaning process, the parts are sent to one of the plating lines. This same cleaning process is also used before the nickel plating.

After the initial cleaning, the parts are sent through the following process to receive the three-part plating: copper electroplating \rightarrow buffing \rightarrow cleaning process \rightarrow nickel electroplating (bright or semi-bright) \rightarrow chromium electroplating \rightarrow wiping/buffing \rightarrow end customer.

B&L plating uses a fume suppressant as a control technology to comply with the Chrome NESHAP. The current fume suppressant used in the chrome tank is "Haviland Mist Eliminator PF Free" (SDS in file). Haviland Mist Eliminator PF Free does not contain PFOS, PFOA, or PFAS. Previous inspections by the EGLE-AQD identified

the use of fluorinated fume suppressants in the chrome tank. Use of these fluorinated solvents appears to have stopped prior to September 21, 2015, when a change to the Chrome NESHAP began regulating their use.

Mr. Victor Pirrami provided me with records of fume suppressant additions and surface tension measurements for the chrome tank. B & L Plating contracts Haviland Products to perform their surface tension measurements. Samples of the chrome tank bath solution are sent offsite to the Haviland lab for testing of multiple parameters. Haviland recommends the amount of fume suppressant that should be added based on the test results.

Surface tension of the chrome tank is measured by Haviland Products using a tensiometer. The Chrome NESHAP states that surface tension shall not exceed 33 dynes/cm² when measured with a tensiometer. A previous AQD inspection in July 2018 revealed that this surface tension limit was exceeded on a few occasions. AQD used enforcement discretion and did not issue a violation notice because there was only a few exceedances over multiple years, the exceedances were relatively small, and at the time B&L Plating was not aware that the dyne limit decreased from 45 dynes/cm² to 33 dynes/cm².

In response to this surface tension exceedance, B&L Plating sent monthly lab reports to the AQD for six months showing that their surface tension was being kept below 33 dynes/cm². The records that I reviewed over that time period and during this inspection showed that this limit has not been exceeded since my previous July 2018 inspection.

According to the Chrome NESHAP, these tests must be taken at least once for every forty hours of plating time. Mr. Victor Pirrami stated that B&L does so little plating that it would take over a year for this limit to be exceeded. Samples are sent to Haviland more frequently than once every forty hours of plating time so that he can monitor other important parameters of the tank chemistry.

An operation and maintenance (O&M) plan is maintained at the facility in accordance with the Chrome NESHAP.

B&L Plating maintains an ongoing compliance status report in compliance with the Chrome NESHAP. B&L Plating provided me this document in December 2018. I informed Mr. Pirrami that he needs to fill one of these forms out every year and submit it to the AQD.

Boiler

There is one 1.6MM BTU/hr natural gas fired boiler present used for indirect heating of process tanks. This boiler appears to be exempt from Rule 201 requirements pursuant to Rule 282 (2)(b)(i).

Buffing & Polishing

Buffing and polishing operations are exhausted to a Cyclone located outside of the facility. This cyclone was installed in 1996. The cyclone is exhausted outdoors. Permit exemption Rule 285 (2)(I)(vi) for buffing/polishing operations requires a fabric filter be installed with a mechanical pre-cleaner. The cyclone can only be considered a mechanical pre-cleaner.

B & L plating is a relatively small volume plating facility. Mr. Victor Pirrami estimates that approximately 25 parts per week are plated, with each part weighing about 1-2 pounds. The absolute worst-case scenario is that the parts are buffed/polished until the part is completely emitted as 2.5 micrometer diameter particulate matter (PM 2.5). In this unlikely scenario, the potential annual PM 2.5 emissions would be (25 parts) x (2 lbs) x (52 weeks) = 2,600 lbs or 1.3 Tons of PM 2.5.

It is likely that much less than this will be emitted. Parts are generally buffed/polished to remove small imperfections and improve finish quality, not for reshaping or removing large sections of metal. Some of the particulate matter emissions will likely be larger diameter particles that will be captured by the cyclone.

Buffing and polishing operations appear to be exempt from Rule 201 requirements pursuant to Rule 291 (2)(f). This rule states, in part, that emissions from a PM 2.5 emitting process can be considered "de minimis" if they do not have a potential to emit greater than 3 tons per year. B&L plating will probably not exceed this 3-ton potential to emit even if throughput doubles. If production does increase substantially from where it is now, then B&L plating may need to provide more detailed calculations or install a fabric filtration system.

Other Plating Operations

B&L Plating operates two nickel electroplating tanks and one copper electroplating tank. These tanks appear to be exempt from Rule 201 requirements pursuant to Rule 285 (2)(r). These tanks are vented to the general inplant environment. A wetting agent is periodically added to the nickel tanks. The SDS indicates that the wetting

agent does not contain PFAS (See file). 1 informed Mr. Victor Pirrami that he needs to maintain an annual compliance certification report in accordance with 40 CFR Part 63 Subpart WWWWWW (6W) National Emission Standards for Hazardous Air Pollutants – Area Source Standards for Plating and Polishing Operations. The AQD has not taken delegation of 40 CFR Part 63 Subpart WWWWWW (6W).

We left the facility at around 11:45 am.

Compliance Determination

B&L Plating appears to be operating in compliance with the requirements of the federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451); Michigan Department of Environmental Quality-Air Quality Division (MDEQ-AQD) Administrative Rules; and the Chrome NESHAP.

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