DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

B716261160

FACILITY: SMS Technical Services LLC, Warren Division		**SRN / ID:** B7162
LOCATION: 12880 EAST 9 MILE ROAD, WARREN		**DISTRICT:** Warren
CITY: WARREN		**COUNTY:** MACOMB
CONTACT: Mohsen Kambod , Environmental Consultant		**ACTIVITY DATE:** 11/18/2021
STAFF: Adam Bognar	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MINOR
SUBJECT: Scheduled Inspection		
RESOLVED COMPLAINTS:		

On November 18, 2021, I, Adam Bognar, Environmental Engineer with the Michigan Department of Environment, Great Lakes, and Energy– Air Quality Division (EGLE-AQD) conducted a scheduled inspection of SMS Technical Services (the "facility"), located at 12880 East 9 Mile Road, 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 (EGLE-AQD) rules; Permit to Install (PTI) Nos. 136-04, 374-98, 375-86, 374-86, 927-93A; and 40 CFR Part 63 Subpart N – National Emissions Standards for Chromium Emissions From Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks (Chrome NESHAP).

I arrived at SMS Technical Services at around 8:30 am. I met with Mr. Dale Batsford, Operations Manager (586-238-4209, dale.batsford@sms-group.com), and Mr. Mohsen Kambod, Consultant. I identified myself and stated the purpose for the inspection. Mr. Batsford and Mr. Kambod showed me around the manufacturing facility. All records were reviewed digitally.

SMS Technical Services performs hard chrome plating and electroless nickel plating on customer supplied industrial parts. There are approximately 15 employees. The single chrome tank is operated almost 24/7 during three shifts. The electroless nickel line is run on a more limited basis.

Many of the processes at this facility have been removed/decommissioned in recent years. Currently, only "Chrome Tank #20" and three electroless nickel lines are running.

Permit to Install No. 374-86

This permit was issued in 1987 for a hard chrome plating tank (tank #20) and associated scrubber system. Chrome tank #20 is used to perform hard chrome plating on large (approximately 10 feet long and 1.5 ft diameter) steel rollers. These steel rollers are used at steel mills in order to flatten steel. As the rollers are used in this way, the hard chrome plating begins to wear off. Once the chrome plating has worn off, the steel mills send the rollers back to SMS Technical Services for re-plating.

This permit was approved prior to the promulgation of the Chrome NESHAP therefore applicable requirements from this NESHAP are not included in this PTI. Applicable requirements from the Chrome NESHAP are evaluated later in the report.

The chrome tank used for this process is very deep compared to typical plating tanks, at around 15 feet. The rectifier capacity is 15,000 amps. There are no rinse tanks associated with this process. After chrome plating, the large steel roller is lifted out of the tank. The roller is held above the tank and the chrome solution is allowed to drip back into the tank. An operator rinses the newly plated roller off with plain water. This water is also allowed to drip into the chrome tank.

To prevent the chrome tank from becoming diluted with rinse water, the facility operates an atmospheric evaporator. This evaporator draws chrome bath fluid from the chrome tank and sprays it onto fabric beds within the evaporator. A blower runs a stream of atmospheric temperature air through the fabric beds, causing the water to evaporate. The residual fluid that does not evaporate is recycled back into the chrome tank.

Mr. Batsford stated that this is the only process that SMS Technical Services wants to keep at this facility. All other processes will eventually be removed or relocated.

Special Condition 14: Limits chromium emissions to 3.35x10-4 lbs/hour and 1.47x10-3 tons/year. SMS Technical Services provided me with a chromium emissions test conducted on this tank/scrubber on January 24, 2011. This test showed an average chromium emission rate of 9.5x10-5 lb/hr (4.161x10-4 tons/year). This test shows compliance with the above emission limit.

The AQD Michigan Air Compliance and Enforcement System (MACES) database shows another stack test (EPA 114 request) was scheduled for October 7, 2014. I could not locate these stack test results in AQD files and the facility could not locate them either. It is possible that this test was never conducted. SMS Technical Services is still trying to locate files and determine if this test took place.

A pressure drop of 0.5" of water across the composite mesh pad system was established in the 2011 through stack testing. The chrome NESHAP (Subpart N) allows composite mesh pad systems to be operated within + or - 2" of water from the standard pressure drop established in the performance test. This establishes an acceptable operating range of 0" of water to 2.5" of water for the composite mesh pad system.

Based on the records I reviewed of daily pressure drop across this scrubber, this scrubber unit should meet the stated emission limits.

Special Condition 15: Limits visible emissions from this chrome plating process to a 6-minute average of 20% opacity. I did not notice any opacity coming from the stacks outside the building.

Special Condition 16: Requires verification of chromium emission rate by testing. This test was completed most recently in January 2011 based on the files I reviewed. Another stack test was completed on this tank in 1998.

Special Condition 17: States that the permittee shall not operate the equipment unless the baffled wet scrubber is installed and operating correctly. A baffled wet scrubber is installed. It is technically a combination packed bed scrubber and composite mesh pad scrubber. A performance test was conducted on this scrubber in 2011 which established a standard pressure drop of 0.5" of water. The operator of the chrome tank monitors this pressure drop and takes readings each day of tank operation. Compliance with the Chrome NESHAP's inspection and maintenance requirements also indicates that this scrubber is operating correctly.

There are three magnahelic pressure gauges on this scrubber. Going from right to left, the first two gauges are stages 1 & 2 of the composite mesh pad scrubber. The 3rd gauge is for the HEPA filter. During the stack test in 2011, 0.5" of water was the pressure drop across stages 1 & 2 (did not include HEPA). The scrubber was operating during my inspection. The magnahelic gauges read the following: Stage 1 – 0.45" of water, Stage 2 – 1" of water, HEPA – 0.75" of water.

On December 14, 2021, Mr. Batsford and Mr. Kambod stated that they checked the magnahelic gauge with a digital manometer on December 14, 2021. Based on this check Mr. Kambod is confident that the pressure gauges are calibrated correctly.

Special Condition 18: States that the disposal of collected air contaminants shall be performed in a way which minimizes their introduction to the outer air. No waste is expected to be generated from this process. Parts are rinsed above the chrome tank such that all rinse water is returned to the chrome tank. An atmospheric evaporator evaporates any excess water.

Special Condition 19: Specifies stack requirements. Stacks from this process appeared to be exhausted vertically unobstructed. I did not verify stack dimensions during this inspection.

Special Condition 20: States that the permittee shall not substitute raw materials for those which would cause an increase in emissions. This process appears to be operated in the same manner as when it was permitted. This is a purpose-built chrome tank to achieve the task of hard chrome plating large steel rollers.

Grinding Machine
There is a large automatic grinding machine used to clean rollers before they are chrome plated. This grinding machine vents into the in-plant environment. This grinding operation appears to be exempt from Rule 201 requirements pursuant to Rule 285(2)(l)(vi)(B).

Permit to Install No. 927-93A
PTI No. 927-93A was issued on October 26, 1998 for an atmospheric evaporator system. This system is used to evaporate excess rinse water from chrome tank #20. This evaporator does not appear to be subject to the Chrome NESHAP because it is not considered a chrome tank.

Special Condition 1: States that the chromium emissions from the atmospheric evaporator system shall not exceed 0.03712 milligrams per cubic meter, corrected to 70 degrees Fahrenheit and 29.92 inches Hg. The evaporator was off during my inspection. Emissions from the evaporator are controlled by a mesh pad scrubber with chevron mist eliminator.

The facility conducted a stack test on this evaporator on December 13, 2000. Although this test was not requested by AQD, this facility was required to perform this test as a stipulation of Consent Order No. 22-2000. The results showed an average chromium emission rate of 0.029 mg/M^3 (78% of limit).

Special Condition 2: States that the permittee shall not operate the evaporator system unless the mist eliminator and mesh pad scrubber are installed and operating correctly. The evaporator and scrubber were both turned off during this inspection. The evaporator is only turned on intermittently when the chrome tank fluid level becomes too high. An operator checks the status of the mist eliminator and mesh pad each month and notes these checks in a maintenance log.

Special Condition 3: States that the permittee shall maintain a written log indicating that the evaporator system is not operated for more than 55 hours per week. This log is maintained. The operator of the evaporator unit records the number of hours the evaporator is operated each day. The operator also records the amount of time the evaporator is washed down. I reviewed from January 2020 through November 2021. The longest the evaporator was run on a weekly basis was 42 hours during the week of March 9, 2020. Generally, the evaporator is run around 20-30 hours per week based on the records I reviewed.

Special Condition 4: States that the permittee shall maintain a written record of each wash down of the mesh pad scrubber and mist eliminator, including wash down time. These records are maintained. The daily record sheet shows that the scrubber is washed down after each operation. Sometimes up to 3 times per day if the scrubber is used during each of the 3 shifts. The wash down time is always 30 seconds. Washdown water is recycled to the evaporator tank.

Special Condition 5: States that the permittee shall not operate the system unless the atmospheric evaporator maintenance plan has been implemented and maintained. This plan is maintained. Each month, an operator inspects for leaks on critical components, checks for bad bearings in the blower, and checks the mist eliminator/mesh pads. Mr. Batsford provided me with records of these inspections. The evaporator is operated in accordance with the operation and maintenance plan based on the records I reviewed.

Special Condition 6: Specifies stack requirements. I did not verify stack parameters during this inspection.
Special Condition 7: States that verification of chromium emission rates may be required if requested by the AQD. AQD is not requesting chromium emission testing for the atmospheric evaporator at this time.

Electroless Nickel Tanks
SMS Technical Services operates four electroless nickel plating tanks. Electroless nickel tank #'s 29, 7, 19 are vented outside via stack. Nickel strip tank #30 is also vented outside via stack. Electroless Nickel tank #30 vents to the general in-plant environment. Although the process is labeled "electroless", an electric current is required for this plating to occur. The difference is that this electric current is produced by oxidation/reduction reactions occuring inside the plating solution rather than from an external rectifier. Electroless Nickel plating does appear to meet the definition of electroplating.

The tanks were installed without the need for a permit, pursuant to a previous permit to install exemption. These tanks have not been modified since that time and appear to be grandfathered under exemption Rule 35 (b)/Rule284(b).

The grandfathered status of these tanks was communicated to SMS Technical Services in an activity report from AQD staff Bob Elmouchi dated November 15, 2004 and also in a letter from the facility dated October 16, 2008. This letter can be found in AQD files. The tanks appear to be very old. I didn't notice any signs of new equipment in this area. Mr. Batsford stated that SMS Technical Services plans to move the entire electroless nickel plating process to a separate facility in the near future.

The electroless nickel plating tanks appear to be subject to 40 CFR Part 63 - National Emissions Standards for Hazardous Air Pollutants: Area Source Standards for Plating and Polishing Operations (NESHAP WWWWWW). The AQD has not taken delegation of 40 CFR Part 63 Subpart WWWWWW (6W) standards therefore compliance was not evaluated.

Permit to Install Nos. 136-04, 375-86, & 374-98
The equipment associated with these PTI's is no longer operational or not currently operational. Chrome tank #15 associated with PTI No. 136-04 has been removed from the facility since 2018. The associated scrubber system has also been removed.

The shot blaster and sand blaster associated with PTI No. 375-93 have been decommissioned. According to Mr. Kambod, these units have not been used for the past 5 years. Mr. Kambod stated that the facility is in the process of removing both units to clear room for more storage space. Both units are being used for storage and did not appear to be in working order.

The Hydrochloric Acid tanks/scrubber associated with PTI No. 374-98 have not been used since 2019. The two HCl tanks are still installed, but were not filled with HCl during my inspection. I did not evaluate the conditions of this PTI. Only one of the two tanks is still connected to the scrubber. The scrubber is located on the roof. Mr. Batsford stated that only the HCl tank connected to the scrubber will be used going forward.

Mr. Batsford stated on January 27, 2022 that they are holding a meeting to discuss whether or not to begin using the HCl tank for a new work order. He stated that he turned on the scrubber unit on January 26, 2022 and it is functioning properly. I asked Mr. Batsford to provide me with the record sheet he will use to continuously demonstrate that the scrubber is functioning along with the first data points on that sheet. I will also ask for a picture of the liquid indication device. I will evaluate these items should the facility notify AQD that this tank has been re-filled.

Mr. Kambod stated that SMS Technical Services is working on submitting a request to void permits 136-04 and 375-06.

Bake Ovens
There are two 1.5 MMBTU/hr natural gas fired bake ovens used to relieve stress within metal parts before and after chrome plating activities. These ovens appear to be exempt from permitting pursuant to Rule 282(2)(a)(i).

40 CFR Subpart N – Chrome NESHAP

Mr. Kambod provided me with the three most recent "Ongoing Compliance Status Reports" required to be completed annually per the Chrome NESHAP. SMS Technical Services completes these reports every 6 months. The past three reports were filled out every 6 months from January 1, 2020 to July 1, 2021.

These ongoing compliance status reports show that the total amp-hours used in the hard chromium electroplating tanks was approximately 25 million amp-hours. From January 1, 2021 through July 1, 2021, total amp hours used were reported at 13,679,143 hours. These records show that this facility is considered a small hard chromium electroplating facility per the Chrome NESHAP because the total annual amp-hours used is less than 60 million.

Quarterly reports are maintained per Table 1 of the chrome NESHAP. Each month the scrubber operator inspects the pump, nozzles, mist eliminator, ducting, mesh pads, drain lines, and checks for leaks in the unit. The operator notes these inspections on monthly check-sheets. Mr. Batsford provided these check-sheets dated from January 2020 to present. The pump received new bearings/belt in March 2020. The mesh pad was last changed out in July 2020.

Subpart N limits chromium emissions to 0.015 mg/dscm. An average chromium emission rate of 9.5x10-5 lb/hr and flow rate of 3,909 dry standard cubic feet per minute was established during the January 24, 2011 stack test. This equates to a chromium emission rate of 0.0063 mg/dscm. SMS Technical Services demonstrates compliance with this chromium emission limit through stack testing, maintaining pressure drop across the CMP system within the parameters set during the stack test, and recording daily pressure drop readings.

I left the facility at around 9:30 am.

Compliance Determination

SMS Technical Services LLC appears to comply 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 (EGLE-AQD) rules; Permit to Install Nos. 374-86, 927-93A, 136-04, 375-86, & 374-98; and 40 CFR Part 63 Subpart N – National Emissions Standards for Chromium Emissions From Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks (Chrome NESHAP).

NAME Adam Bognar DATE 1/27/2022 SUPERVISOR K. Kelly