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

B257624880

FACILITY: MARSH PLATING CORPORATION		**SRN / ID:** B2576
LOCATION: 103 N GROVE, YPSILANTI		**DISTRICT:** Jackson
CITY: YPSILANTI		**COUNTY:** WASHTENAW
CONTACT: Marc Whitman , Healthy and Safety Manager		**ACTIVITY DATE:** 04/09/2014
STAFF: Erik Gurshaw	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MINOR
SUBJECT: 2014 Targeted Inspection		
RESOLVED COMPLAINTS:		

SRN: B2576
COMPANY: Marsh Plating Corporation
COMPANY ADDRESS: 103 N. Grove St.; Ypsilanti, MI 48198
PURPOSE OF INSPECTION: Self-Initiated
CONTACT PERSON: Mr. Marc Whitman, Health and Safety Manager (Ph: 734-340-2918; E-mail: marc.whitman@marshplating.com)
COMPANY PHONE NUMBER: 734-483-5767

INTRODUCTION

On April 9, 2014, AQD staff, Erik Gurshaw, conducted an unannounced, targeted inspection at Marsh Plating Corporation located at 103 N. Grove St. in Ypsilanti, Michigan. The purpose of the inspection was to determine compliance 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 Environmental Quality, Air Quality Division (MDEQ-AQD) Rules; Permit To Install (PTI) Number 928-85 for an E-coat paint dip line; PTI Number 20-86 for a copper immersion system and associated moisture extractor; PTI Number 552-86 for an alkaline copper plating line; and PTI Number 1138-89 for a rack and barrel style plating process and associated drag out materials recovery system. The facility is also subject to area source MACT Subpart WWWWWW for Plating and Polishing Operations since it has several zinc-nickel alloy plating tanks and several trivalent chromate plating tanks. MACT Subpart WWWWWW regulates emissions of cadmium, chromium, lead, manganese, and nickel from plating and polishing operations. The company submitted an Initial Notification indicating that they were subject to this Subpart on October 29, 2008, and indicated that they were in compliance with the Subpart on June 29, 2010. The compliance deadline for existing sources was July 1, 2010. Emissions from the zinc-nickel alloy plating tanks and the chromate plating tanks are controlled by rooftop scrubbing units and management practices. It should be noted that the AQD has not accepted delegation for MACT Subpart WWWWWW.

COMPANY OVERVIEW

Upon arriving at the facility, AQD staff introduced themselves and stated the purpose of the visit to Mr. Matthew Marsh, President. Mr. Marsh informed AQD staff that Mr. Marc Whitman is the company's Health and Safety Manager and is responsible for environmental compliance matters. Mr. Marsh called Mr. Whitman and he joined AQD staff and Mr. Marsh in a conference room approximately 30 minutes after AQD staff's arrival. Mr. Marsh and Mr. Whitman assisted AQD staff during the inspection. Mr. Marsh indicated that Marsh Plating Corporation operates three eight hour shifts a day Monday through Friday and that approximately 100 people are employed by the company. Marsh Plating plates metal parts with a zinc-nickel alloy, pure zinc, a zinc-iron alloy, a zinc-tin alloy, trivalent chrome, or copper depending upon customer specifications. The percentage of nickel within the zinc-nickel plating alloy ranges from 5 to 15% depending upon customer specifications. The percentage of iron within the zinc-iron plating alloy is fixed at 0.5%. The zinc-tin plating alloy is composed of 70% tin and 30% zinc. The company also has an e-coating painting line and associated curing oven. The majority of the company's client base consists of the Big 3 automotive makers and Honda, Toyota, and Nissan. The company also has some contracts within the truck industry, however. The types of metal parts plated include fluid handling components (tubing) and brake and steering

components. The company has four zinc-nickel plating lines, three zinc plating lines, one zinc-iron plating line, one zinc-tin plating line, and one copper plating line. Twelve rooftop scrubbing units control emissions from all of the tanks comprising the company's ten plating lines. In addition to the plating lines, the e-coat painting line and associated natural gas-fired curing oven, and the scrubbers, the company also has two natural gas-fired boilers which are used to produce steam to heat the plating tanks, one horizontal band saw, one shearing machine, one hydraulic press, one drill press, and seven portable welding machines. All of the metal working machinery vent to the general plant environment and are exempt from Permit-To-Install (PTI) requirements pursuant Rule 285(l)(vi)(B). The welding machines are exempt from PTI requirements pursuant Rule 285(i). The steam generating boilers are exempt from PTI requirements pursuant Rule 282(b)(i). The curing oven is permitted under PTI #928-85.

PROCESS DESCRIPTION

The first stage of the company's metal plating process is the immersion of parts in a soak clean dip tank containing an alkaline detergent at 140 to 180 degrees Fahrenheit for 5 minutes to loosen oils on the parts. From the soak clean dip tank, the parts are immersed in an electrocleaning tank where electricity is used to remove oil from the parts at 140 to 180 degrees Fahrenheit for 5 minutes by reversing the polarity on the parts so that the oil adheres to the edge of the plating tank as opposed to the parts. From the electrocleaning tanks, the parts are immersed in two water rinse tanks in series at ambient temperatures for a few seconds up to a few minutes depending upon the part. From the rinse tanks, the parts are immersed in an acid cleaning tank consisting of a 17%, by volume, HCl solution at ambient temperatures for 5 minutes. Acid cleaning is performed to prep the surface of the parts prior to them being plating. From the acid cleaning tank, the parts are immersed in two water rinse tanks in series at ambient temperatures for a few seconds to a few minutes depending upon the part. From the water rinse stage tanks, the parts are either immersed in plating tanks containing the appropriate metal bath solution or sent through another electrocleaning tank/water rinse tank/acid cleaning tank/water rinse tank stage. The parts going through the second electrocleaning/rinse/acid cleaning/rinse stage are deemed to need another stage of cleaning and surface preparation prior to being plated. The bath of the plating tanks consists of a mixture of metals, electrolytes, and additives. The metal is plated on the parts by applying an electrical charge to the parts. Electrolytes and additives are added to the bath solution to optimize the efficiency of the plating process. The temperature within the plating tanks ranges from 75 to 90 degrees Fahrenheit and the parts are immersed in them for approximately 40 minutes. From the plating tanks, the parts are immersed in two to four water rinse tanks in series for a few seconds to a few minutes at ambient temperatures. From the rinse tanks, the majority of the parts are immersed in a trivalent chromate tank at 75 to 90 degrees Fahrenheit for approximately a minute. The purpose of the chromate tank stage is to add a rust inhibitor layer to the parts and to add color to the parts. The parts will either be silver or black after the chromate tank stage. From the chromate tank, the parts are immersed in two ambient temperature water rinse tanks in series before being sent to a water-soluble rust inhibitor tank or a topcoat tank. The parts immersed in the rust inhibitor tank consist predominantly of tubing. The parts are immersed in this tank at 75 to 90 degrees Fahrenheit for approximately one minute. Parts are immersed in the topcoat tank to add a corrosion-resistant layer to them. The solution within the topcoat tank consists of a water-sodium silicate solution in which the parts are immersed at 75 to 90 degrees Fahrenheit for approximately one minute. After the rust-inhibitor or topcoat tank stage, the parts are dried with hot air generated from steam from the facility's boilers. After being dried, the parts are generally picked up by the company's customers. All of the company's plating lines are automated with hoists. Some of the parts are coated in the e-coat painting line after being plated. The inspection indicated the following with respect to compliance with the company's permits:

PERMIT EVALUATION

PTI #928-85-E-Coat Paint Dip Line

This PTI sets an emission limit for ethylene glycol monobutyl ether and material usage and emission limits for VOCs from the e-coat painting line. According the Mr. Marsh, the company only uses one

paint product in this line. Specifically, the paint being used is Powercorn 590-534 Black manufactured by PPG Industries. The MSDS sheet for this paint indicates that it contains no HAPs and is comprised of 0.47 lbs of VOC per gallon, minus water. Therefore, the ethylene glycol monobutyl ether emission limit is not applicable to the company's current operations and the company is in compliance with the VOC material usage limit of 2.06 lbs per gallon of coating applied, minus water. The company is maintaining paint usage records, but has not been calculating monthly and annual VOC emissions from the e-coat paint line. Mr. Marsh estimates that approximately 6,000 gallons of paint is used in this line per year, but that was a just a very rough estimate. The permit establishes a 37 ton per year VOC emission limit. Mr. Marsh stated that the company is far below this limit based on its paint usage rate and the low VOC content of the paint it uses. AQD staff gave the company until April 15, 2014, to submit electronic records of VOC emissions for the 2013 calendar year. Mr. Marsh and Mr. Whitman said that they should have no problem getting the records to AQD staff by that deadline. AQD staff verified that no visible emissions were emanating from the curing oven stack and that the stack met the dimensions required in the permit (a maximum diameter of 10" and at least 22' above ground level). An evaluation of yearly VOC emissions will be made once the records are received from the company. AQD staff received paint usage and VOC emission calculations from the company via E-mail on April 14, 2013. The records show that 1325 gallons of paint were used during 2013. This equates to 636 pounds of VOC emissions for the year (an average of 53 pounds per month). 636 pounds is far below the 37 ton per year VOC emission limit established in the PTI.

PTI #20-86-Copper Immersion System with Moisture Extractor

Mr. Marsh indicated that the copper immersion system with moisture extractor has not been used in at least 10 years and that the company has no intention of using this equipment in the future. AQD staff suggested to Mr. Marsh and Mr. Whitman that the company have this permit voided.

PTI #552-86-Alkaline Copper Plating Line.

Mr. Marsh said that the company is in the process of completely phasing out this line although it is still being used on a very limited basis. No visible emissions from the scrubber serving this line were observed during the inspection and the stack of the scrubber meets the dimensions listed in the permit. Emissions from this line were originally controlled with a moisture extraction system. Since the issuance of the permit, however, the company has installed a scrubber to control emissions from this line and every other plating line at the facility. The company is performing quarterly Preventative Maintenance (PM) checks on the scrubbers.

PTI #1138-89-Rack and Barrel Style Plating Process and Dragout Materials Recovery System

This permit was issued for a generic rack and barrel style plating process and dragout materials recovery system, but does not specify the type of plating which was being permitted or how many lines the permit would cover. AQD staff assumes that all of the plating lines with the exception of the alkaline copper line are covered under this permit. The dragout materials recovery system referenced in this permit was the control mechanism from the plating processes at the time of the permit's issuance. Since issuance of the permit, however, the company has installed twelve rooftop scrubbers to control emissions from its plating lines. As previously mentioned, the company is performing periodic PM on these scrubbers. PTI #1138-89 contains no Special Conditions so AQD staff had no means with which to evaluate compliance with the permit during the inspection. AQD staff, Mr. Marsh, and Mr. Whitman climbed to the roof and the scrubbers appeared to be properly maintained and operated and no visible emissions were observed to be emanating from them at the time of the inspection.

COMPLIANCE DETERMINATION

Based on this inspection, it was determined that Marsh Plating Corporation is in compliance with its permits and all other applicable air rules and requirements. The company is controlling emissions from its plating lines through the use of rooftop scrubbing units, is maintaining PM records for the

scrubbers, and is below the VOC emission limits established in PTI #928-85. The company's boilers, welders, and metal working machinery are exempt from PTI requirements. The MSDS sheet for the paint used in the E-coat painting line and VOC usage and emission records for 2013 are attached to this report. AQD staff spoke with Mr. Marc Whitman during the afternoon of April 14, 2014. As a result of the inspection, the company is instituting a monthly PM schedule to maintain and service the rooftop scrubbers. Mr. Whitman felt that PM on the scrubbers should be conducted more frequently than it was occurring prior to the inspection.

NAME Erik A. Dvorak DATE 4/15/14 SUPERVISOR