TECHNICAL FACT SHEET

January 30, 2024

Purpose and Summary

The Michigan Department of Environment, Great Lakes, and Energy, Air Quality Division (AQD), is proposing to act on Permit to Install (PTI) application No. APP-2023-0259 from Industrial Metal Coating (IMC). The permit application is for the proposed modification of two existing burn-off ovens to install and operate additional pollution control devices, called secondary chamber afterburners. The proposed project is subject to permitting requirements of the Department's Rules for Air Pollution Control. Before acting on this application, the AQD is holding a public comment period and a public hearing, if requested in writing, to allow all interested parties the opportunity to comment on the proposed PTI. All relevant information received during the comment period and hearing, if held, will be considered by the decision maker before taking final action on the application.

Background Information

IMC coats metal parts used in the automotive industry. Parts are placed on racks and coated using an electrodeposition (e-coat) process. E-coating is a method of painting that uses electrical current to deposit paint on a surface. After the parts are cured, they are removed from the racks. The racks are placed in a burn-off oven to remove the cured coating and prepare them to be reused.

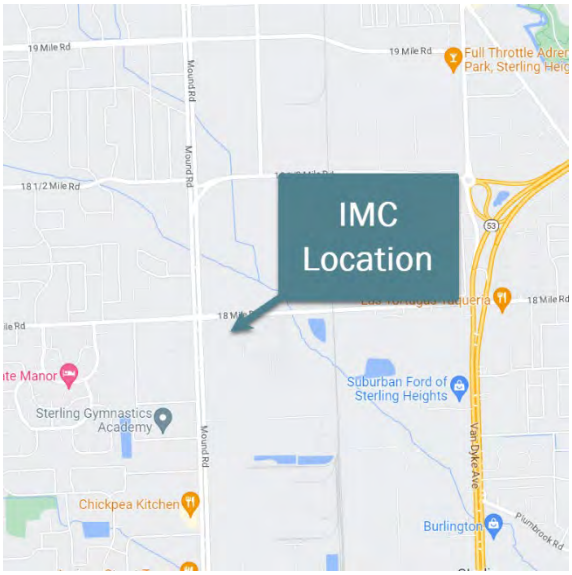

Figure 1: Location of IMC 6070 18 Mile Rd, Sterling Heights

On September 2, 2022, the AQD and IMC entered into a consent judgement in response to odor complaints related to IMC. As part of the consent judgment, IMC installed secondary chamber afterburners (afterburners) on two of their four existing burn-off ovens under PTI 25-16A. Afterburners use high heat to reduce emissions, including potentially odorous compounds. This permit application is to install two additional secondary chamber afterburners on the remaining two existing burn-off ovens located at the facility.

Proposed Facility and Present Air Quality

IMC is located at 6070 Eighteen Mile Road in Sterling Heights (Figure 1). This location is in Macomb County, which is designated as attaining the National Ambient Air Quality Standards (NAAQS) for all pollutants. The proposed increases in criteria pollutant emissions, detailed below, are very low and not expected to have an appreciable impact on the current air quality in the area surrounding the facility.

Pollutant Emissions

The installation of the two additional afterburners is expected to result in emission reductions for particulate matter (PM) and volatile organic compounds (VOCs). The afterburners are fired by natural gas, so it is expected that emissions of non-PM and VOC pollutants, such as oxides of nitrogen (NOx) and carbon monoxide (CO), will increase by approximately 0.7 tons per year total for both ovens combined. The coatings used by Industrial Metal Coating contain a small amount of chlorine, which is converted to hydrogen chloride (HCl) under the conditions inside the ovens and afterburners. Emissions of HCl are expected to remain the same as previously estimated (approximately 1.4 pounds per year (lbs/yr)) because secondary chamber afterburners are not designed to control HCl.

Key Permit Review Issues

Staff evaluated the proposed project to identify all state rules and federal regulations which are, or may be, applicable. The tables in Appendix 1 summarize these rules and regulations.

- **Rule 224 TBACT Analysis**
  Rule 224 requires Best Available Control Technology for toxic air contaminants (T-BACT). All non-VOC toxic air contaminants (TACs), except HCl, are effectively controlled by the afterburners. Emissions of HCl are expected to remain the same at an estimated 1.4 pounds/year. In the AQD's experience with similar but much larger sources, additional control of HCl is not cost effective.

- **Rule 225 Toxics Analysis**
  Rule 225 requires the emission of individual TACs be compared against their respective health-based screening levels. TAC emission rates due to natural gas combustion were estimated using United States Environmental Protection Agency (USEPA) emission factors found in AP-42 Chapter 1.4, and HCl emissions were estimated using the worst-case assumption that 100% of the chlorine present in the coating was emitted as HCl. For comparison to the 1 hour screening level for HCl, the maximum hourly emissions used in the analysis assume that all four burn-off ovens with afterburners operate simultaneously. AQD staff reviewed IMC's TAC emission rates and found that all TAC emission rates are less than the respective Allowable Emission Rates (AERs) determined per Rule 227(1)(a) and will comply with the requirements of Rule 225.

- **Rule 702 VOC Emissions**
  Rule 702 requires an evaluation of the following four items to determine what will result in the lowest maximum allowable emission rate of VOCs:

  a. BACT or a limit listed by the department on its own initiative
  b. New Source Performance Standards
  c. VOC emission rate specified in another permit
  d. VOC emission rate specified in the Part 6 rules for existing sources

  The use of afterburners is considered VOC BACT for burn-off ovens and was determined to result in the lowest maximum allowable emission rate.

Key Aspects of Draft Permit Conditions

- **Usage Limits**
  The draft permit limits how many carts of paint racks are allowed to be processed in the burn-off ovens each year. This limit was previously accepted by the company to restrict the potential to emit of the ovens.

- **Emission Control Device Requirements**
  The draft permit also includes emission control device requirements. The facility is required to install and operate afterburners on all four burn-off ovens at the facility. The permit conditions define satisfactory operation as maintaining a minimum temperature of 1400 °F and a minimum retention time of 0.5 seconds in each of the afterburners.

Conclusion

Based on the analyses conducted to date, AQD staff concluded that the proposed project would comply with all applicable state and federal air quality requirements. This project, as proposed, would not violate the federal NAAQS or the state and federal Prevention of Significant Deterioration Increments.

Based on these conclusions, proposed permit terms and conditions were developed which would ensure the proposed facility design and operation are enforceable and sufficient monitoring, recordkeeping, and reporting would be performed by the applicant to determine compliance with these terms and conditions. If the permit application is deemed approvable, the delegated decision maker may determine a need for additional or revised conditions to address issues raised during the public participation process.

If you would like additional information about this proposal, please contact Jacob Young, AQD, at 517-582-5218 or YoungJ30@Michigan.gov.

Appendix 1
STATE AIR REGULATIONS

State Rule	Description of State Air Regulations
R 336.1201	Requires an Air Use Permit for new or modified equipment that emits, or could emit, an air pollutant or contaminant. However, there are other rules that allow smaller emission sources to be installed without a permit (see Rules 336.1279 through 336.1290 below). Rule 336.1201 also states that the Department can add conditions to a permit to assure the air laws are met.
R 336.1205	Outlines the permit conditions that are required by the federal Prevention of Significant Deterioration (PSD) Regulations and/or Section 112 of the Clean Air Act. Also, the same types of conditions are added to their permit when a plant is limiting their air emissions to legally avoid these federal requirements. (See the Federal Regulations table for more details on PSD.)
R 336.1224	New or modified equipment that emits toxic air contaminants must use the Best Available Control Technology for Toxics (T-BACT). The T-BACT review determines what control technology must be applied to the equipment. A T-BACT review considers energy needs, environmental and economic impacts, and other costs. T-BACT may include a change in the raw materials used, the design of the process, or add-on air pollution control equipment. This rule also includes a list of instances where other regulations apply and T-BACT is not required.
R 336.1225 to R 336.1232	The ambient air concentration of each toxic air contaminant emitted from the project must not exceed health-based screening levels. Initial Risk Screening Levels (IRSL) apply to cancer-causing effects of air contaminants and Initial Threshold Screening Levels (ITSL) apply to non-cancer effects of air contaminants. These screening levels, designed to protect public health and the environment, are developed by Air Quality Division toxicologists following methods in the rules and U.S. EPA risk assessment guidance.
R 336.1279 to R 336.1291	These rules list equipment to processes that have very low emissions and do not need to get an Air Use permit. However, these sources must meet all requirements identified in the specific rule and other rules that apply.
R 336.1301	Limits how air emissions are allowed to look at the end of a stack. The color and intensity of the color of the emissions is called opacity.
R 336.1331	The particulate emission limits for certain sources are listed. These limits apply to both new and existing equipment.
R 336.1370	Material collected by air pollution control equipment, such as dust, must be disposed of in a manner, which does not cause more air emissions.
R 336.1401 and R 336.1402	Limit the sulfur dioxide emissions from power plants and other fuel burning equipment.
R 336.1601 to R 336.1651	Volatile organic compounds (VOCs) are a group of chemicals found in such things as paint solvents, degreasing materials, and gasoline. VOCs contribute to the formation of smog. The rules set VOC limits or work practice standards for existing equipment. The limits are based upon Reasonably Available Control Technology (RACT). RACT is required for all equipment listed in Rules 336.1601 through 336.1651.
R 336.1702	New equipment that emits VOCs is required to install the Best Available Control Technology (BACT). The technology is reviewed on a case-by-case basis. The VOC limits and/or work practice standards set for a particular piece of new equipment cannot be less restrictive than the Reasonably Available Control Technology limits for existing equipment outlined in Rules 336.1601 through 336.1651.
R 336.1801	Nitrogen oxide emission limits for larger boilers and stationary internal combustion engines are listed.
R 336.1901	Prohibits the emission of an air contaminant in quantities that cause injurious effects to human health and welfare, or prevent the comfortable enjoyment of life and property. As an example, a violation may be cited if excessive amounts of odor emissions were found to be preventing residents from enjoying outdoor activities.
R 336.1910	Air pollution control equipment must be installed, maintained, and operated properly.
R 336.1911	When requested by the Department, a facility must develop and submit a malfunction abatement plan (MAP). This plan is to prevent, detect, and correct malfunctions and equipment failures.

State Rule	Description of State Air Regulations
R 336.1912	A facility is required to notify the Department if a condition arises which causes emissions that exceed the allowable emission rate in a rule and/or permit.
R 336.2001 to R 336.2060	Allow the Department to request that a facility test its emissions and to approve the protocol used for these tests.
R 336.2801 to R 336.2804 Prevention of Significant Deterioration (PSD) Regulations **Best Available Control Technology (BACT)**	The PSD rules allow the installation and operation of large, new sources and the modification of existing large sources in areas that are meeting the National Ambient Air Quality Standards (NAAQS). The regulations define what is considered a large or significant source, or modification. In order to assure that the area will continue to meet the NAAQS, the permit applicant must demonstrate that it is installing the BACT. By law, BACT must consider the economic, environmental, and energy impacts of each installation on a case-by-case basis. As a result, BACT can be different for similar facilities. In its permit application, the applicant identifies all air pollution control options available, the feasibility of these options, the effectiveness of each option, and why the option proposed represents BACT. As part of its evaluation, the Air Quality Division verifies the applicant's determination and reviews BACT determinations made for similar facilities in Michigan and throughout the nation.
R 336.2901 to R 336.2903 and R 336.2908	Applies to new "major stationary sources" and "major modifications" as defined in R 336.2901. These rules contain the permitting requirements for sources located in nonattainment areas that have the potential to emit large amounts of air pollutants. To help the area meet the NAAQS, the applicant must install equipment that achieves the Lowest Achievable Emission Rate (LAER). LAER is the lowest emission rate required by a federal rule, state rule, or by a previously issued construction permit. The applicant must also provide emission offsets, which means the applicant must remove more pollutants from the air than the proposed equipment will emit. This can be done by reducing emissions at other existing facilities. As part of its evaluation, the AQD verifies that no other similar equipment throughout the nation is required to meet a lower emission rate and verifies that proposed emission offsets are permanent and enforceable.

FEDERAL AIR REGULATIONS

Citation	Description of Federal Air Regulations or Requirements
Section 109 of the Clean Air Act – National Ambient Air Quality Standards (NAAQS)	The United States Environmental Protection Agency has set maximum permissible levels for seven pollutants. These NAAQS are designed to protect the public health of everyone, including the most susceptible individuals, children, the elderly, and those with chronic respiratory ailments. The seven pollutants, called the criteria pollutants, are carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter less than 10 microns (PM10), particulate matter less than 2.5 microns (PM2.5), and sulfur dioxide (SO_2). Portions of Michigan are currently non-attainment for either ozone or SO_2. Further, in Michigan, State Rules 336.1225 to 336.1232 are used to ensure the public health is protected from other compounds.
40 CFR 52.21 – Prevention of Significant Deterioration (PSD) Regulations **Best Available Control Technology (BACT)**	The PSD regulations allow the installation and operation of large, new sources and the modification of existing large sources in areas that are meeting the NAAQS. The regulations define what is considered a large or significant source, or modification. In order to assure that the area will continue to meet the NAAQS, the permit applicant must demonstrate that it is installing BACT. By law, BACT must consider the economic, environmental, and energy impacts of each installation on a case-by-case basis. As a result, BACT can be different for similar facilities. In its permit application, the applicant identifies all air pollution control options available, the feasibility of these options, the effectiveness of each option, and why the option proposed represents BACT. As part of its evaluation, the Air Quality Division verifies the applicant's determination and reviews BACT determinations made for similar facilities in Michigan and throughout the nation.

Citation	Description of Federal Air Regulations or Requirements
40 CFR 60 – New Source Performance Standards (NSPS)	The United States Environmental Protection Agency has set national standards for specific sources of pollutants. These New Source Performance Standards (NSPS) apply to new or modified equipment in a particular industrial category. These NSPS set emission limits or work practice standards for over 60 categories of sources.
Section 112 of the Clean Air Act **Maximum Achievable Control Technology (MACT)** **Section 112g**	In the Clean Air Act, Congress listed 189 compounds as Hazardous Air Pollutants (HAPS). For facilities which emit, or could emit, HAPS above a certain level, one of the following two requirements must be met: 1) The United States Environmental Protection Agency has established standards for specific types of sources. These Maximum Achievable Control Technology (MACT) standards are based upon the best-demonstrated control technology or practices found in similar sources. 2) For sources where a MACT standard has not been established, the level of control technology required is determined on a case-by-case basis.

Notes: An "Air Use Permit," sometimes called a "Permit to Install," provides permission to emit air contaminants up to certain specified levels. These levels are set by state and federal law, and are set to protect health and welfare. By staying within the levels set by the permit, a facility is operating lawfully, and public health and air quality are protected.

The Air Quality Division does not have the authority to regulate noise, local zoning, property values, off-site truck traffic, or lighting.

These tables list the most frequently applied state and federal regulations. Not all regulations listed may be applicable in each case. Please refer to the draft permit conditions provided to determine which regulations apply.