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PERMIT TO INSTALL - DETERMINING APPLICABILITY

GUIDEBOOK

Developed by:
The Clean Air Assistance Program
Environmental Science and Services Division
Michigan Department of Environmental Quality

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DISCLAIMER FOR USE

This publication is intended for guidance only and may be impacted by changes in legislation, rules, and regulations adopted after the date of publication. This document must not be used as a substitute for Article II, Chapter 1, Part 55 (Air Pollution Control) of the Natural Resources and Environmental Protection Act, P.A. 451 of 1994 and its Rules, and does not constitute the rendering of legal advice. Diligent efforts were made to prepare this document, but its accuracy is not guaranteed. Reliance on information from this document is not usable as a defense in any enforcement action or litigation.

This document is intended to provide a logical, comprehensive, step-by-step approach to determining what activities trigger the need for a Permit to Install as identified in Rule 201 of the Michigan Administrative Rules for Air Pollution Control. The thickness of this document is proof of the complexity of the regulations pertaining to the applicability of the Permit to Install requirement. If you have questions about any of the materials in this document, need a quick answer, or want verification of your understanding of these requirements, call the Clean Air Assistance Program at (800) 662-9278.

Rule 201 along with all of the other rules pertaining to the applicability of the Permit to Install that are cited in this document can be found at the Michigan Department of Environmental Quality, Air Quality Division's web site www.michigan.gov/deqair.

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CHAPTER 1 – Introduction to the Permit to Install Program

Many businesses are faithful in getting their building permits, electrical permits, or mechanical permits for the installation of new structures and equipment from their local building official. However, many of those same businesses may not be aware that an air permit from the Michigan Department of Environmental Quality (DEQ), Air Quality Division (AQD), may be required for equipment and activities that emit air contaminants.

Rule 201 of the Michigan Administrative Rules for Air Pollution Control (hereafter referred to as the Michigan Rules) require a facility to obtain a Permit to Install before installing, constructing, reconstructing, relocating, or modifying equipment that emits air contaminants. Not all sources of air pollution need a permit. In addition to Michigan Rule 201, there are numerous other rules that exempt insignificant sources of air pollution from the need to get a permit.

Below are some of the important characteristics of the Permit to Install program:

- A Permit to Install is a state license to construct a source of air contaminant emissions.
- As long as the facility complies with the conditions of the permit, public health and the environment are protected.
- By going through the permitting process, the applicant will know which state and federal rules apply to the equipment covered under the permit.
- Conditions of the Permit to Install limit the potential to emit of the applicant's facility. This is a good thing as explained in Chapter 2.4.
- No fees are associated with obtaining a Permit to Install.
- A Permit to Install does not expire or have to be renewed. The permit is good for as long as the equipment is in operation. However, it may require notification of completion of the installation, construction, reconstruction, relocation, or modification [Michigan Rule 201(7)(a)] and notification of the status of compliance [Michigan Rule 201(7)(b)].

In addition to the benefits, there are some drawbacks associated with the Permit to Install program:

- Some applications can take many hours to complete. The amount of time depends on the number and complexity of the regulations to which the equipment is subject. Regulatory applicability generally depends on the type and quantity of air contaminant emissions.

- Some facilities may have to hire a consultant to complete the permit application, which costs money.

- Depending on the type and quantity of expected emissions, the Permit to Install may take several months to issue. That is why it is important to submit a complete application early in the planning process.

- To obtain a Permit to Install, some facilities may have to make operational changes, substitute materials, or install add-on control devices to comply with the applicable rules and regulations.

The Permit Section of the AQD administers the Permit to Install program for the entire state. Beginning in the fall of 2001, the AQD assumed all air regulatory activities that were previously administered by the Wayne County Department of Environment.

The Renewable Operating Permit Program

It is important not to confuse the Permit to Install with Michigan's other air-permitting program: the Renewable Operating Permit (ROP). The ROP program is required by Title V of the Clean Air Act Amendments of 1990. The ROP program clarifies the requirements that apply to a facility that emits air contaminants. A facility's obligations are scattered among numerous state and federal regulations. The ROP pulls all of the requirements into a single document which helps the facility, state and local regulatory agencies, the U.S. Environmental Protection Agency (EPA), and the public understand the facility's regulatory obligations.

Facilities that meet the definition of a "major source" must obtain a Renewable Operating Permit. For guidance on determining whether or not a facility is a "major source" and subject to the ROP program, contact the Clean Air Assistance Program (See Chapter 5 - Where to Go for Additional Information).

The ROP program does not supersede or replace the Permit to Install requirements. Facilities that do not have to apply for an ROP are still required to submit Permit to Install applications when installing or modifying processes that emit air contaminants. Facilities subject to the ROP program will have their existing and any new Permit to Install conditions incorporated into the facility's ROP.

CHAPTER 2 – Air Jargon

The following terms and definitions are provided to help you gain a better understanding of the concepts within this guidebook. Some of these terms are defined in the Michigan Rules, as noted.

2.1 Devices

There are three types of devices: process devices, control devices, and stacks. A process device is equipment that generates air contaminants, such as a boiler. A control device is equipment that captures and/or destroys air contaminants, such as a scrubber. A stack is a conduit for dispersing air contaminants.

2.2 Emission Units and Flexible Groups

An **emission unit** contains one or more process devices, zero or more control devices, and all related stacks. Therefore, an emission unit could be as simple as a parts cleaning tank that contains one process device (the tank of solvent), no control devices, and no stacks. On the other hand, an emission unit could be as complex and large as an entire painting line consisting of many process devices (i.e., paint guns, booths, ovens, and flash-off areas), control devices (i.e., particulate filters), and stacks.

Many facilities have hundreds or even thousands of process devices, control devices, and stacks. All or many of these devices are subject to multiple air regulations. Some of these regulations are state requirements (such as the air toxics rules) and some are federal requirements (such as New Source Performance Standards – NSPS). To provide some order and consistency in how the various air regulations are administered, these devices must be placed into some type of logical grouping, or emission unit. It is simpler to deal with ten emission units than 100 devices. The grouping of devices should be consistent between the various air regulatory programs.

The AQD's Operational Memorandum No. 6 explains how a facility should organize its devices into the proper emission unit groupings. To obtain a copy of Operational Memorandum No. 6, go to **www.michigan.gov/deqair**, then "Laws and Rules," and finally "Air Quality Division Operational Memorandums," or contact the Clean Air Assistance Program. See Chapter 5 - Where to Go For Additional Information.

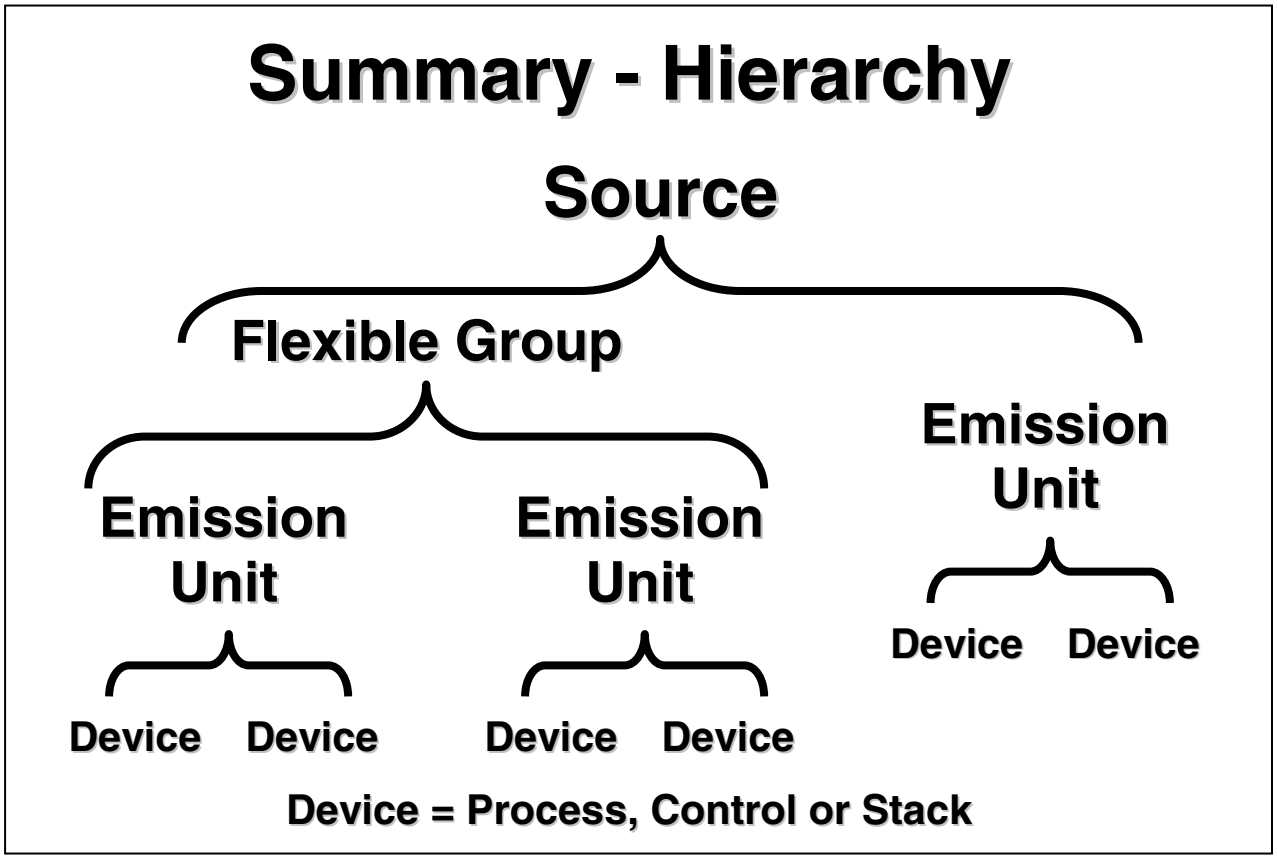
Flexible groups are combinations of emission units and can allow a company more freedom to operate their emission units while still assuring compliance with air quality rules and regulations. As the name flexible implies, it frees up the need to request future changes to a permit that would otherwise have little or no impact on the environment. A flexible group consists of two or more emission units. Two reasons for creating flexible groups include: assigning an applicable requirement that is common to two or more emission units; or, assigning identical requirements to two or more emission units.

2.3 Stationary Source

A stationary source consists of all the buildings and structures that house the emission units. If your stationary source has existing permits and has submitted the annual Michigan Air Emissions Reporting System (MAERS) report, then it should have a unique State Registration Number (SRN). All of the emission units belonging to this SRN define your stationary source. The terms “facility” and “source” are interchangeable.

Stationary sources can range from a simple auto body shop, which can contain two emission units (i.e., a spray paint booth and solvent cleaning station), to a pharmaceutical manufacturing plant, which can contain multiple buildings housing hundreds of emission units.

In summary, stationary sources can be broken down into many levels. The highest level is the stationary source itself. The next level is the flexible group level followed by the emission unit level. Next is the device level, which can be broken down into process devices, control devices, and stacks.



2.4 Potential to Emit

Potential to emit (PTE) is defined in Michigan Rule 116(m). It is generally the emission of air contaminants from an emission unit operating at its maximum rate capacity, 24 hours per day, 365 days a year. A facility's PTE is the summation of the PTE of all the emission units. PTE is typically reported in tons of a specific air contaminant per year, e.g., 200 tons of sulfur dioxide per year. The DEQ developed a document that guides a facility through a PTE determination. The "Potential to Emit Workbook" is located at **www.michigan.gov/deqair**. Click on "Clean Air Assistance" and then on "Potential to Emit" under the heading "Air Permitting."

One of the ways the PTE of emission units can be reduced is by placing restrictions on operating hours, the amount of raw materials used, and/or requiring the use of control devices. These restrictions limit PTE as long as they are part of a special condition of an approved Permit to Install or Renewable Operating Permit.

Special conditions of a permit are the tools that the AQD uses to lower the PTE of an emission unit and, in turn, the stationary source. Many facilities operating without air permits will have actual emissions much lower than their PTE because many emission units do not run continuously and at full capacity. Special conditions are also used to implement specific requirements (other than emission limits) applied on an emission unit by state or federal regulations.

2.5 Major Source

A major source is a stationary source whose PTE exceeds established annual emission threshold levels. These levels have been set for individual air contaminants. There are four different types of major sources:

- Major Prevention of Significant Deterioration (PSD) Source
- Major National Emissions Standards for Hazardous Air Pollutants (NESHAP) Source
- Major Offset Source
- Major Renewable Operating Permit (ROP) Source

Each one of these major sources has different annual emission threshold levels. For example, if your source's PTE of sulfur dioxide is greater than 250 tons per year, it is a Major PSD Source. If a facility's PTE of a hazardous air pollutant (HAP) is greater than ten tons, it would qualify as a major NESHAP source.

2.6 Minor Source

Facilities whose PTE is less than the major source applicability thresholds are considered minor sources. A "true" minor source is one that could not exceed the annual threshold levels, even while operating continuously at its maximum capacity. A "synthetic" minor source is a facility whose PTE is limited by some form of federally enforceable restriction. Such a restriction is typically a permit with conditions or some

type of registration with AQD that legally restricts its PTE to below the major source threshold.

2.7 Air Contaminants

In high school chemistry, the concept that all matter is in either a solid, liquid, or gaseous state is taught. This same concept applies to air contaminants. There are solid and liquid air contaminants that are referred to as particulates, and there are many air pollutants in a gaseous state. Every air contaminant belongs somewhere on the pie chart in Figure 2-1. This pie chart represents the universe of air contaminants.

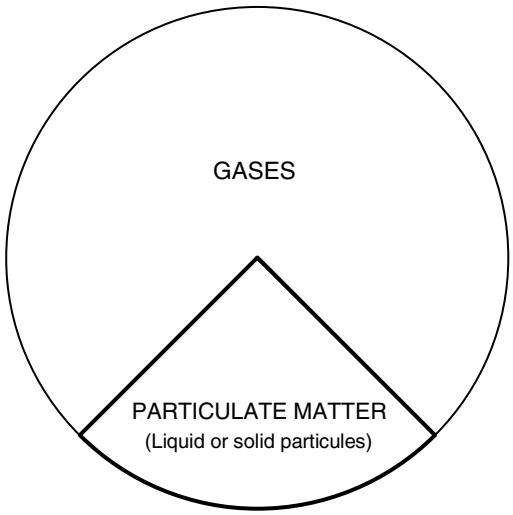


Figure 2-1 - Universe of Air Contaminants

All of the state and federal air quality regulations like the NSPS or the ROP program target defined groups of air contaminants.

Table 2-1 summarizes all of the groups of air contaminants. For further information about air contaminants, contact the Clean Air Assistance Program (see Chapter 5 - Where to Go For Additional Information) and request the publication entitled, *"What is an Air Contaminant/Pollutant?"*

Table 2-1 – Groups of Air Contaminants	
Name of Group	**Group Members**
Criteria	SO_2, NO_2, CO, lead, ozone, and PM (10 & 2.5)
Class I and II	chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), halons, carbon tetrachloride, and methyl chloroform
Ozone Precursors	VOC and NOx
Hazardous Air Pollutants (HAPs)	188 compounds
Toxic Air Contaminants (TACs)	There is no definitive listing. See Michigan Rule 120(f)
NSPS	Criteria air contaminants plus cadmium, dioxin/furan, fluorides, hydrogen chloride, hydrogen sulfide, mercury, nonmethane organic compounds, reduced sulfur compounds, sulfuric acid mist, total organic compounds, total particulate matter, and total reduced sulfur
NESHAP	Arsenic, asbestos, beryllium, benzene, mercury, radionuclides, and vinyl chloride
Title V Regulated Air Contaminants	Criteria air contaminants, Class I and II air contaminants, ozone precursors, HAPs, and NSPS and NESHAP air contaminants

2.8 Screening Levels

A screening level is the concentration of a Toxic Air Contaminant (TAC) that is designed to be protective of public health. Michigan Rule 225 requires that new releases of TACs result in offsite impacts (predicted ambient impacts) that are less than the established screening levels.

If the predicted ambient impact (i.e., concentration) is below the screening level, then the TAC emission is acceptable. If the predicted ambient impact exceeds the screening level, then the facility must make changes to (1) reduce the emissions, (2) improve the dispersion of the air contaminant, or (3) do both (1) and (2) to reduce the predicted ambient impact below the screening level.

In general, Initial Threshold Screening Levels (ITSL) are screening levels designed to be protective for *noncarcinogenic* effects, and Initial Risk Screening Levels (IRSL) and Secondary Risk Screening Levels (SRSL) for *carcinogenic* effects. Screening levels are developed from toxicological data and are expressed in concentrations of micrograms per cubic meter (ug/m^3) and in various averaging times; i.e., 1 hour, 8 hours, 24 hours, and annual.

The AQD maintains a list of screening levels. This list is updated periodically as more air contaminants are evaluated. The list of these screening levels is available at **www.michigan.gov/deqair** (Select "Air Toxics") or from the Clean Air Assistance Program at (800) 662-9278.

Michigan Rule 227 provides methods to determine whether the predicted ambient impact of each subject TAC is below their associated screening level. The facility calculates its emission rate for the TAC and compares it to acceptable emission rates that are calculated using tables found in Michigan Rule 227 and the appropriate screening level for the TAC. If the emission rate for the TAC is below the emission rate determined by the Michigan Rule 227 tables, then the emission is acceptable. If the TAC emission exceeds that rate, then computer models may have to be used to determine if the TAC emission is acceptable.

NOTE: CONVERTING ppm TO $\mu g/m^3$

Airborne contaminants are often expressed in parts per million (ppm), which is a volume-per-volume measurement. Converting ppm of an air contaminant to micrograms per cubic meter (weight-per-volume measurement) is simple if you know the molecular weight of the air contaminant. The molecular weight for most organic and inorganic compounds can be found in a chemical engineer's handbook. If you do not have access to a handbook, simply add the atomic weights of each element in the compound to determine the molecular weight of the compound. Once you have determined the molecular weight of the air contaminant, divide it by the conversion factor 0.02404. Then multiply this value by the number of ppm.

For example: Convert 120 ppm of methane to $\mu g/m^3$

Methane (CH_4) contains 1 atom of carbon and 4 atoms of hydrogen. Carbon and hydrogen have atomic weights of 12.02 and 1.01, respectively. The molecular weight of methane is
$(12.02 \times 1) + (1.01 \times 4) = 16.06$

$(16.06 \div 0.02404) \times 120 \text{ ppm} = 80{,}166 \ \mu g/m^3$

CHAPTER 3 - What Triggers the Need for a Permit to Install?

3.1 Michigan Rule 201

According to Michigan Rule 201, a person must not *install*, *construct*, *reconstruct*, *relocate*, or *modify* an emission unit that may emit an air contaminant unless the Department of Environmental Quality issues a Permit to Install (PTI) authorizing the action.

It is easy to conclude from reading this rule that a PTI is required for all new emission units and just about anything that is done to an existing emission unit. Fortunately, in addition to Michigan Rule 201, there are definitions in Part 1 of the Michigan Rules and PTI exemptions in the Part 2 Rules that narrow the applicability of Michigan Rule 201. The permit exemptions are identified in Michigan Rules 280 through 290. Michigan Rule 278 does not allow a facility to use the permit exemptions if the project meets specific criteria. These criteria are discussed in Chapter 3.4.

A common violation, sometimes requiring the payment of fines and penalties, is the installation of an emission unit without a Permit to Install. It pays to know what triggers the need for a permit.

3.2 Overview of the Steps to Determine if a PTI is Needed

The purpose of the guidebook is to present the process or logical steps to follow in answering that often-asked and all-important question: "Do I need a Permit to Install?" The Permit Exemption Process Flowchart in Figure 3-1 designates three major steps in identifying what needs a permit:

Step #1 – Define the air project
Step #2 – Taking the Michigan Rule 278 test
Step #3 – Applying the exemptions

The first step is defining the project. The project will consist of one or more activities: installation/construction, reconstruction, relocation, or modification. According to Michigan Rule 201, these are the activities that trigger the need for a permit. In most cases, it will be very easy to identify all of the activities that make up the project. Further, the project may affect one or more emission units. For example, if installation of a new boiler is required and no other changes will be made at a source, then the project consists of the installation of one emission unit. If the new boiler installation would coincide with the changeover from fuel oil to natural gas at one existing boiler, the project would include the installation and a modification (fuel switch) involving two emission units.

What happens if the facility needs to install a new coating line to paint plastic parts, make a modification to a boiler in the powerhouse, and then six months later, install another new coating line to paint metal parts? Should the two installations and one modification be included into one project or are they three individual projects? Here, the time frame used in defining the project becomes very important. Project time frame is discussed on page 3-6.

Once the project has been defined, the next step is to put the project through the Michigan Rule 278 test (see Appendix B), i.e., determine if the project meets any of the criteria in this rule. If the project passes the test (it does not meet any of the criteria in Rule 278), then the individual emission units within the project may be compared to the available exemptions in Rules 280-290. These exemptions in the Michigan Part 2 Rules specifically cover the installation/construction, reconstruction, relocation, and modification of emission units. If the project does not pass the Michigan Rule 278 test, then none of the emission units that are part of the project can use the exemptions. Also, if the project does pass the Michigan Rule 278 test, but one or more of the emission units do not fall within one of the exemptions identified in Michigan Rules 280 through 290, then an application for a PTI is required for those emission units not exempt.

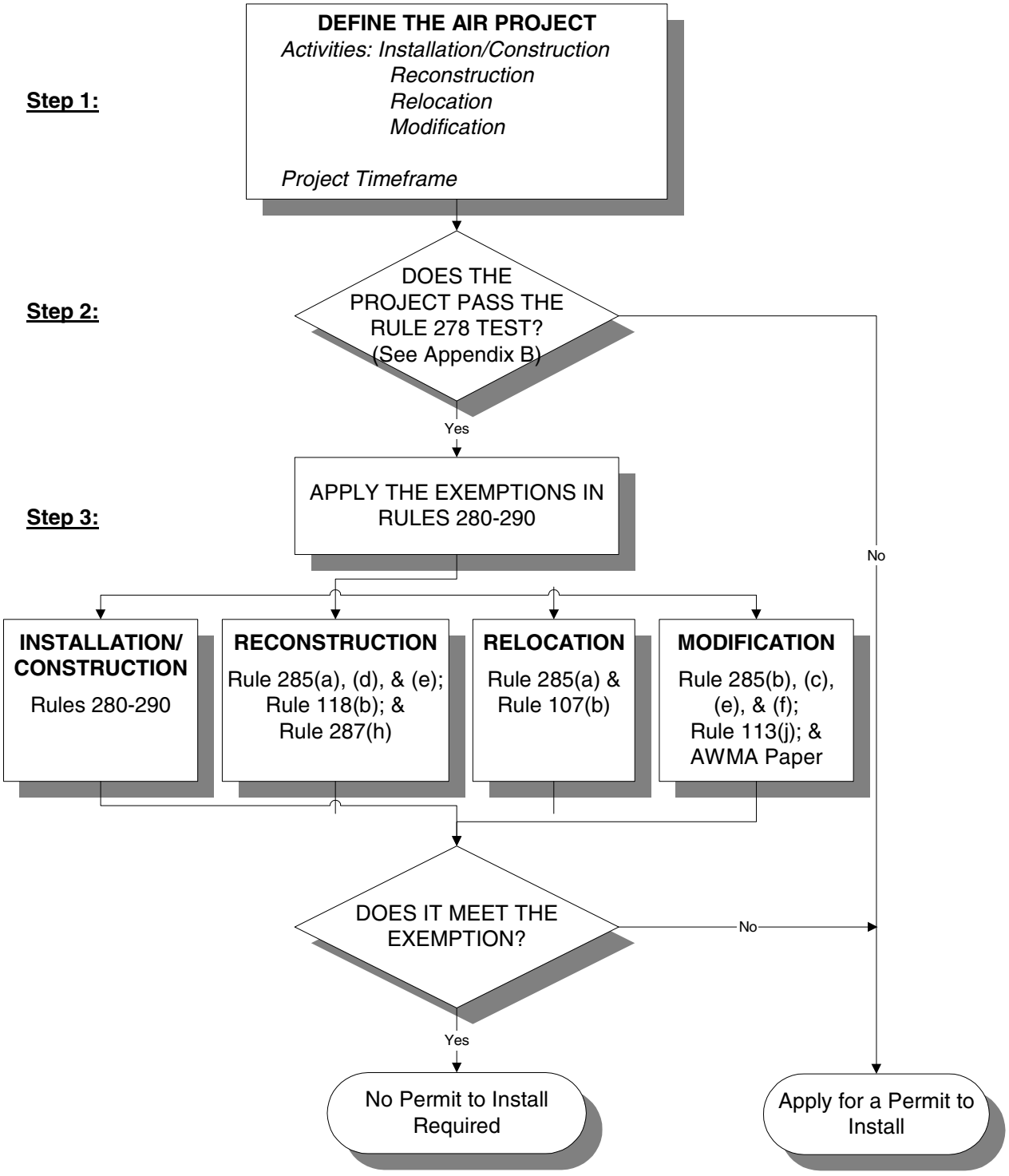


Figure 3-1 – Permit Process Flowchart

3.3 Step 1: Define the Air Project

The first step in determining whether a permit is necessary is defining the project. To define the project, one needs to understand the different activities that can trigger the need for a permit, as well as the timing of these activities.

Activities

To properly define the project, a clear understanding of the four important terms in Michigan Rule 201 that trigger the need for a PTI need to be defined - installation/construction, reconstruction, relocation, and modification.

These four terms are more commonly referred to as “activities.” The project will consist of one or more of these activities. Activity means the concurrent and related installation, construction, relocation, or modification of any process or process equipment. Below are some broad definitions of the activities. A more complete definition of these terms, including when they trigger the PTI requirement, are found in the installation/construction, relocation, reconstruction, and modification flowcharts in Section 3.5. Having a clear understanding of the differences between the terms is needed to ensure the selection of the appropriate flowchart.

INSTALLATION/ CONSTRUCTION DEFINED

Installation/construction pertains to the installation of new emission units, e.g. installing a third boiler in an existing powerhouse or breaking ground for a new business that will emit air contaminants. These two terms, installation and construction, basically mean the same thing. However, it is important to understand the subtle differences between the two terms.

Installation means installing new emission units into an existing building or an existing site, whereas construction means constructing a new building along with installing new emission units within the building or installing emission units at a new site. For example, if a new emission unit is installed into an existing building, then that activity is considered “installing” an emission unit. If the installation requires breaking ground for a new building that will house an emission unit, then that activity is considered “constructing” an emission unit.

The distinction between installation and construction will affect when a PTI must be obtained by the facility. If the project consists of installing a new emission unit at an existing source, the facility is required to obtain an approved PTI before installation begins. If the project consists of constructing a new source containing one or more new emission units, the facility must acquire the approved PTI prior to pouring the foundations of the new building that will house the new emission units.

Many businesses make the mistake of breaking ground for a building that will house an emission unit before getting a Permit to Install. This is a violation of Michigan Rule 201.

RECONSTRUCTION DEFINED

Reconstruction is simply the one-for-one replacement of the components of an emission unit, e.g., replace a fan with a fan, replace piping with piping. However, not all replacements of components require a Permit to Install. According to Michigan Rule 118(b), the definition of reconstruction is the replacement of components of an existing emission unit so that the fixed capital cost of the new components is more than 50 percent of the fixed capital cost that would be required to construct a comparable, entirely new emission unit. The minor replacement of components is not considered a reconstruction and, therefore, can take place without a permit.

The fixed capital cost of new components is cumulative. For example, if the replacement of new components in 1997 equals 40 percent of the fixed capital cost and years later the facility plans to make more replacements of components, a PTI will be required if the cost of replacement of components exceeds 10 percent of the fixed cost. Typically, emission units are scrapped before the cost of replacement exceeds 50 percent of the fixed capital cost of a comparable, entirely new emission unit. Reconstruction includes activities that may not result in an appreciable change in the quality, nature, quantity, or impact of the emission of an air contaminant. If appreciable changes in emissions occur, the activity may be a modification not a reconstruction.

RELOCATION DEFINED

Relocation is moving an existing emission unit. Relocation may occur within the same facility or from one facility to another. For example, instead of operating a degreaser in Bay B-11, a company will move it to Bay F-61 of the manufacturing plant. Relocation does not include any activities that will change the emission rate of air contaminants from the emission unit. Relocation is simply picking up the emission unit and moving it to a new spot within the same geographical site. If changes in the emissions occur concurrently with the move, then this may be considered a modification. An emission unit moved to a different geographical site is considered an installation. Recently issued PTIs for portable crushers and asphalt plants may allow the emission units to be moved to a new geographic site without having to obtain a new PTI.

MODIFICATION DEFINED

The term modification (or modify) is defined in Michigan Rule 113(j). According to this rule, the modification of an emission unit is the physical or operational change to an existing emission unit that results in one or more of the following:

(a) the emission of a toxic air contaminant (TAC) that was not permitted before the change;
(b) the increase of an air contaminant over a permitted limit; or
(c) the increase of an air contaminant for which there is no permitted limit.

Some physical and operational changes that may qualify as a modification include substituting new raw materials such as coatings or fuels; increasing the hours of operation over previously permitted levels; or increasing the capacity of the emission unit, such as adding additional spray guns to a coating booth.

There are activities that warrant an approved PTI even though they do not fit under the definition of installation/construction, reconstruction, relocation, or modification. These activities include the following:

- *Obtaining federally enforceable limitations to restrict a source's potential to emit to below the applicable major source thresholds in order to avoid the applicability of the ROP program.*
- *Consolidate terms and conditions from existing PTI within a ROP.*
- *Replacing or removing special conditions of an approved Permit to Install.*

Project Time Frame

In most cases, the project will consist of the installation of one new emission unit or the modification of an existing emission unit. However, there may be times, especially for larger facilities, where there will be activities that affect multiple emission units occurring concurrently or sequentially; i.e., phased in over time.

For situations involving multiple emission unit activities, the time period that is used to define the project becomes very important. There are no hard and fast rules for determining the timeframe of a project. Projects can consist of emission unit activities occurring within a month, a year, or several years.

If there are multiple installations and modifications of emission units at the same time, all of those should be considered part of the same project. If the emission unit activities are occurring sequentially or in phases, then it is a little harder to define the project. In this case, the following rule of thumb may be useful: the collection of emission unit activities that make up the project should be the same collection of emission unit activities that is brought before the company's board of directors for approval. For example, the facility plans to install a new coating line. The coating line will increase the demand of power from the powerhouse. Therefore, the boiler will need to be modified within six months of installing the coating line. When going to the board for approval of this project, the request would include both the new installation of the coating line as well as the modification to the powerhouse. The request presentation would include both of the projects to the board. Therefore, the project would consist of one installation of a new emission unit and one modification on an existing emission unit.

Testing Your Knowledge of Emission Unit Activities

Now is a good time to test how well you understand the various emission unit activities that could make up your project. Answers for the example problems are located in Appendix A.

Example Problem #1
A company replaces a maintenance spray paint booth with an identical new booth. Is this project . . .

(a) an installation
(b) a relocation
(c) a modification

of an emission unit?

Example Problem #2
A company replaces all of the refractory within an incinerator with new refractory. Is this project a . . .

(a) modification
(b) reconstruction

of an emission unit?

Example Problem #3
A company moves an entire coating line to a new location within its building and adds some new paint spray application equipment to the line. Is this . . .

(a) a relocation of an emission unit
(b) a modification of an emission unit
(c) both (a) and (b)?

3.4 Step 2: Taking the Michigan Rule 278 Test

Many of the permit exemptions in Rules 280-290 have no production or material usage related limits associated with them. In most cases, facilities installing these emission units will not be generating a large or significant amount of emissions. However, like every good rule, there are exceptions and this is where Michigan Rule 278 comes into play. The purpose of Michigan Rule 278 is to prevent a company from installing an emission unit with significant emissions without a PTI.

For example, Rule 285(g) exempts internal combustion engines that have less than 10,000,000 Btu/hour maximum heat input from the PTI requirement (Michigan Rule 201). Most of these engines operate on an emergency basis, i.e., a couple of hundred hours per year. However, if a company plans on running the engine around the clock, the emissions of nitrogen oxide could very well exceed the significant levels. Rule 278 excludes the use of the exemptions specified in Rules 280-290 if the emissions will be significant. In this case, the company would not use Rule 285(g) and would therefore need to apply for a PTI.

Michigan Rule 278 serves as an initial screening of projects involving the "installation/construction" or "modification" of emission units or activities. If the proposed project (as defined in Chapter 3.3) does not satisfy any of the criteria contained within the Rule, then the facility can evaluate the permit exemptions in Michigan Rules 280 through 290 to determine if a part or the entire project is exempt from having to obtain a PTI. If

the project satisfies one or more of the criteria in Rule 278, the facility must apply for a Permit to Install. The process of applying the criteria in Rule 278 is referred to as "taking the Rule 278 test." *Remember that if the project does not pass the Rule 278 test, then no portion of the project may use an exemption.*

If the emission of air contaminants from your emission unit approach or exeed the significant levels found in Tables B-2 and B-3 in Appendix B, then you need to complete the Rule 278 test found in Appendix B. Below are the instructions for taking this test. If the emissions will be well below the thresholds, you can skip to Section 3.5.

The completion of the Rule 278 questionnaire (see Appendix B) is broken up into three steps:

Step #1: Type of Project

Identify the type of project involved. See Section 3.3.

Step #2: Answer the Test Questions

Calculate both the potential to emit (PTE) and the expected emissions resulting from the project. Then, based on the project type that was determined in Step #1, answer the appropriate question(s) in the Rule 278 Questionnaire in Appendix B.

The questionnaire is composed of the criteria in Michigan Rule 278, which include the definitions of a major Prevention of Significant Deterioration (PSD) source, major PSD modification, major Offset source, major Offset modification, and major Hazardous Air Pollutant (HAP) source. The PSD and HAP requirements are found in the Code of Federal Regulations (CFR). The Offset requirements are found in Michigan Rule 220.

Step #3: What to Do With the Test Results

If the answer is "YES" to any of the other questions in the questionnaire, do one of two things:

(1) Apply for a PTI containing legally enforceable conditions to lower the facility's PTE to avoid becoming a major source (this is known as a synthetic minor permit); or

(2) Submit a PTI application and comply with the federal and state requirements associated with being a major source or major modification.

If the answer is "NO" to all of the questions applicable to the project type, the project has passed the Rule 278 test. The source may then evaluate the permit exemptions found in Rule 280 through 290 to determine if they exempt any of the emission units that make up the project. Unlike the criteria in Rule 278 that applies to the activities of the whole project, the exemptions in Rules 280 through 290 are applied to the individual emission units. NOTE: It is possible to have a portion of emission unit activities within a project subject to the PTI requirement and a portion of emission unit activities exempt.

Sham Permitting

The definition of the project is critical to a successful evaluation of Rule 278. The more emission unit activities that the company has under one project, the more emissions the project emits, which increases the chances of the company meeting one of the criteria in Rule 278.

Facilities must not stage construction, i.e., break one project into two or more projects to avoid meeting the criteria in Rule 278. This is considered a violation of Michigan Rule 278. The criteria in Appendix B must be applied to the entire project, not individual phases of the project. For example, if a facility plans to install three boilers during a two-year period, the aggregate emissions from the three boilers (not the individual emissions from each boiler) are considered when taking the Rule 278 test. Staging construction to avoid the criteria in Rule 278 may also violate the federal PSD or Michigan Offset requirements, which would be a violation of federal law.

Testing Your Knowledge of Michigan Rule 278

Example Problem #4

A company plans to install three generators over an 18-month timeframe. The actual emission of NO_x from each generator is predicted to be 15 tons per year. Is a PTI required for the generators?

See Appendix A for the answer.

3.5 Step 3: Applying the Exemptions

All of the emission unit activities contained within projects that pass the Michigan Rule 278 test can then be considered for one of the many exemptions found in Rules 280 through 290. If the emission unit activity is not covered by an exemption, a PTI must be obtained for that emission unit.

If an emission unit activity is covered by an exemption, then Rule 278a requirements apply. Rule 278(a) requires that the owner of an exempt emission unit must be able to provide information demonstrating the applicability and compliance with the exemption. The demonstration must be provided within 30 days of a written request from the DEQ. The demonstration may include the following information:

- A description of the exempt process or process equipment, including the date of installation.
- The specific exemption being used by the process or process equipment.
- An analysis demonstrating that Rule 278 does not apply to the emission unit.
- The keeping of records as required within a specific exemption.

Michigan Rules 280 through 290 contain exemptions for the installation/construction of new emission units and the reconstruction, relocation, and modification of existing emission units. To aid in the application of the exemptions to the emission units, use the flowcharts provided in the following pages.

When using the reconstruction, relocation, and modification flowcharts, be aware that it is presumed that the existing emission unit was not installed in violation of Rule 201, i.e., either it has an approved Permit to Install, it is grandfathered (installed before August 15, 1967 and never reconstructed or modified after that date), or it is exempt. If the emission unit violated Michigan Rule 201 on its original installation and there are no new permit exemptions that apply to the emission unit, then the facility should fix the violation by applying for a Permit to Install. For example, if the facility is trying to determine if a modification to an emission unit needs a permit, but the emission unit was initially installed without a PTI and it remains in violation of Rule 201, then the facility would need to apply for a PTI regardless if an exemption covers the modification.

Instructions for Using the Installation/ Construction Flowchart

The purpose of the Installation/Construction Flowchart (see Figure 3-2) is to help facilities determine whether or not the installation or construction of new emission units is subject to the PTI requirement found in Michigan Rule 201.

Boxes 1 & 2 –Determine if the cumulative increase in emission of air contaminants resulting from a proposed project that involves the installation or construction of emission units will meet any of the criteria in Rule 278. If the proposed project passes the test (i.e., it is not subject to any of the applicable criteria in Rule 278), determine if any of the exemptions identified in Rules 280 through 290 (Box 3) can be applied to each proposed installation or construction of emission units. If the project does not pass the Rule 278 test (Box 2) (i.e., it is subject to at least one of the applicable criteria in Rule 278), apply for a PTI regardless if the emission unit is exempt under Rules 280 through 290.

Box 3 – The Michigan Rules that exempt the installation or construction of emission units are listed in Table 3-1.

Table 3-1 – Installation/Construction Permit Exemptions

RULE NO.	PARAGRAPHS	EMISSION UNITS
Rule 280	All	Cooling & ventilating equipment
Rule 281	All	Cleaning, washing, & drying equipment
Rule 282	All	Furnace, ovens, & heaters
Rule 283	All	Testing & inspection equipment
Rule 284	All	Containers
Rule 285	(g) – (ii)	Miscellaneous equipment
Rule 286	All	Plastic processing equipment
Rule 287	All	Surface coating
Rule 288	All	Oil & gas processing
Rule 289	All	Asphalt & concrete production
Rule 290	All	Sources with limited emissions

Box 4 – Some of the exemptions in Rules 280 through 290 do have some recordkeeping requirements associated with them. A facility must fully comply with those requirements to be covered by the exemptions. To help a facility comply with the recordkeeping requirement in Rules 287(c) and 290, the Clean Air Assistance Program has developed forms. See Appendix C for a Rule 287(c) recordkeeping form, Appendix D for a Rule 290 recordkeeping form, and Appendix E for a Rule 290 example.

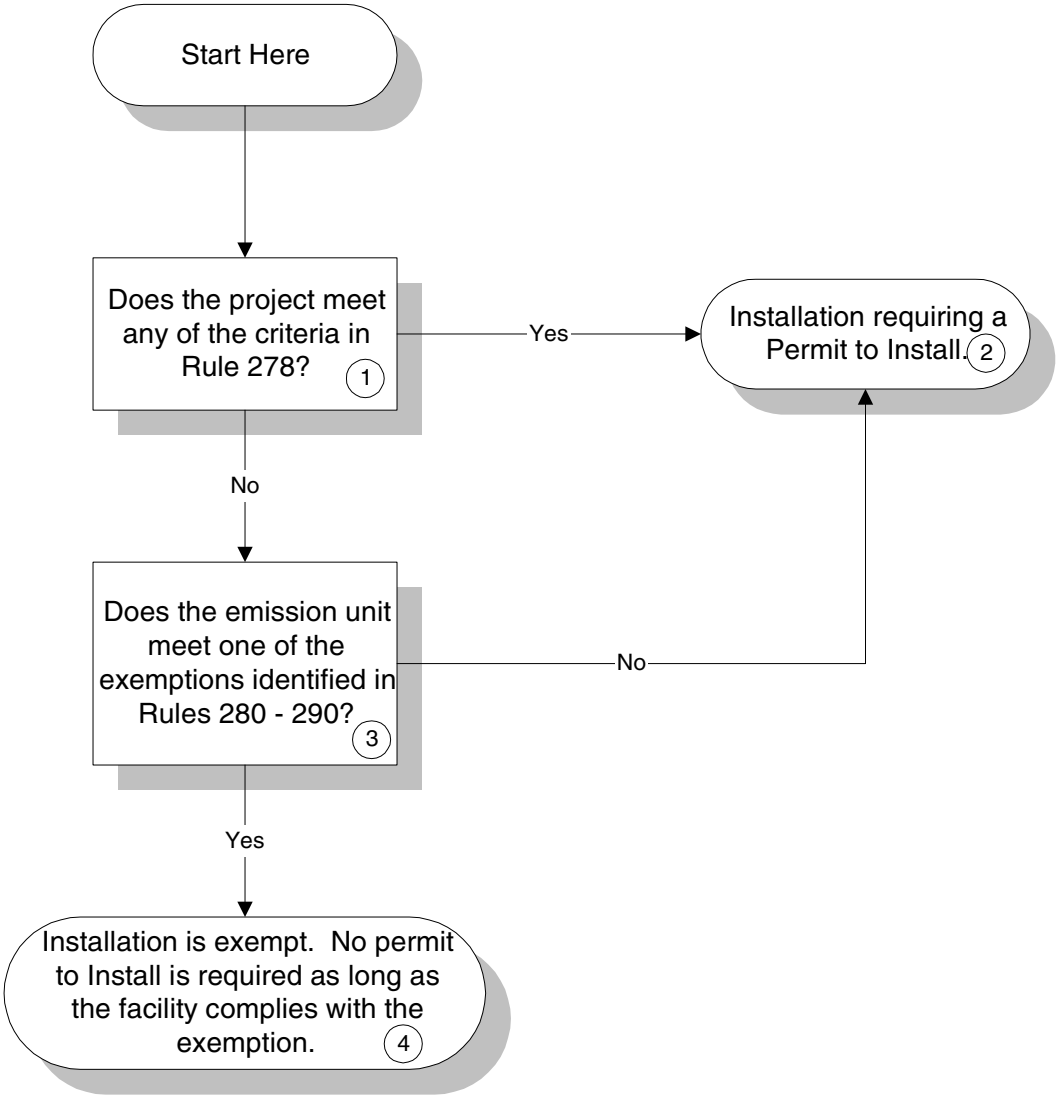


Figure 3-2 – Installation/Construction Flowchart
Use the flowchart to determine if the installation or construction of an emission unit at a facility will require a Permit to Install.

Instructions for Using the Reconstruction Flowchart

The purpose of the reconstruction flowchart (see Figure 3-3) is to help facilities determine whether or not the reconstruction of an emission unit is subject to the PTI requirement found in Rule 201. Reconstruction can be easily confused with the modification or installation/construction of emission units. Reconstruction is the one-for-one replacement of components of an emission unit that should not result in an

appreciable change in emissions. For example, scrapping an old degreaser and replacing it with a new degreaser is an installation of a new emission unit, not a reconstruction. Replacing a coating booth in a coating line with an oven is a modification, not a reconstruction.

Box 1 – If the replacement of components results in an appreciable change in the quality, nature, quantity, or impact of the emission of air contaminant, the facility may be making a modification to the emission unit, not reconstructing it.

Boxes 2 & 3 – If the cost of the replacement of the emission unit components is 50 percent or less of the fixed capital cost of an entirely new emission unit, then the replacement does not meet the definition of reconstruction (see Michigan Rule 118(b)). Some examples of replacement of components that do not qualify as reconstruction include routine maintenance and replacing minor parts, such as replacing bags in a baghouse, replacement of engines, compressors, or turbines as part of a normal maintenance program, and ductwork. See Michigan Rule 285(a) for more examples.

NOTE: The fixed capital cost of new components is cumulative. For example, replacing new components in 1997 equaled 40 percent of the fixed capital cost. In a future year, the facility plans to replace additional components and the cost of replacement exceeds 10 percent of the fixed cost. The replacement is considered reconstruction, and a PTI may be required.

Boxes 4 & 5 – If the emission unit is exempt under one of the "installation/construction" permit exemptions and it will still meet the exemption after the reconstruction, then this reconstruction does not need a PTI. The facility must comply with any of the requirements in the permit exemption. For example, Michigan Rule 287(c) requires a facility using the exemption to keep records of coating usage.

Boxes 6 & 7 – According to Michigan Rule 285(d), reconstruction or replacement of air pollution control equipment with equivalent or more efficient equipment is not subject to the PTI requirement.

Box 8 – According to Michigan Rule 285(e), replacing air pollution control equipment to comply with a National Emission Standard for Hazardous Air Pollutants (NESHAP) can proceed without a PTI.

Box 9 – According to Michigan Rule 287(h), replacing a coating applicator system with a coating applicator system that has equivalent or higher design transfer efficiency is not subject to the PTI requirements unless the change is specifically prohibited by a permit condition.

Box 10 – If the reconstruction does not meet any of the exemptions identified in Boxes 4, 6, 8, or 9, a PTI is required.

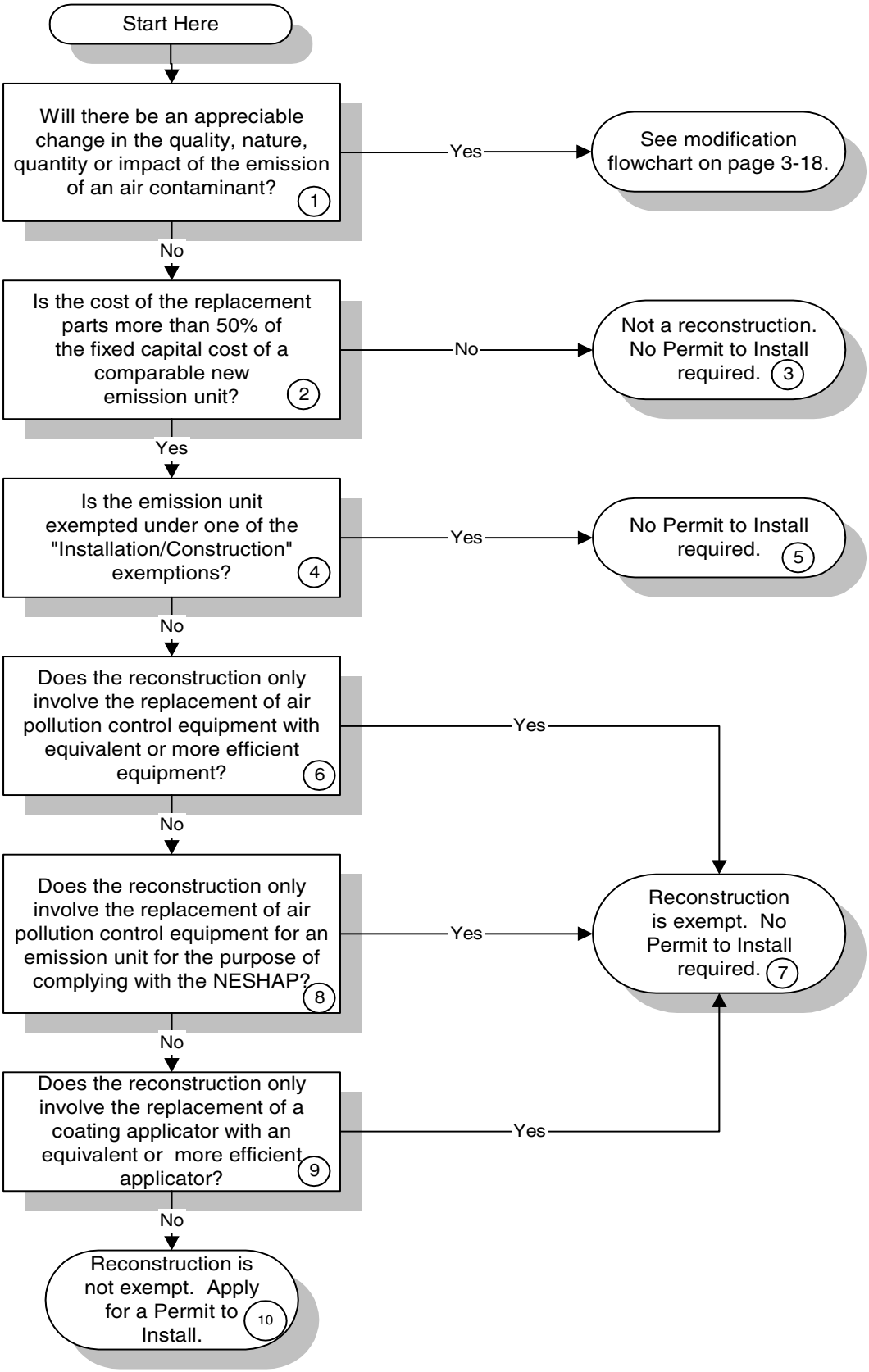


Figure 3-3 – Reconstruction Flowchart

Use the flowchart to determine if reconstructing an emission unit will require a Permit to Install.

Instructions for Using the Relocation Flowchart

The purpose of the relocation flowchart (see Figure 3-4) is to help facilities determine whether or not relocating an emission unit is subject to the PTI requirement found in Michigan Rule 201. Relocation is simply moving an emission unit from one location to another location. It does not include replacing components or making physical or operational changes to the emission unit.

Boxes 1 & 2 – If the emission unit is exempt from the PTI requirement under one of the "installation/construction" permit exemptions and after the relocation it will still meet the exemption, then the emission unit may be relocated without a Permit to Install. The facility must comply with any requirement in the exemption. For example, facilities using the exemption in Michigan Rule 290 must keep records of emissions.

Boxes 3-6 – According to Michigan Rule 285(a), if the relocation will take place within the same geographical site and there will be no appreciable change in the quality, nature, quantity, or impact of the emission of air contaminants, a PTI is not required. Geographical site is defined in Michigan Rule 107(b) as contiguous land ownership by one landowner. A public right-of-way, such as a road, railroad, or watercourse through part of the site is not considered to break the continuity. Relocating emission units that results in the downwash or poor dispersion of air contaminants can result in an appreciable change in the impact of the emission of air contaminants, especially if those air contaminants are toxic or odorous.

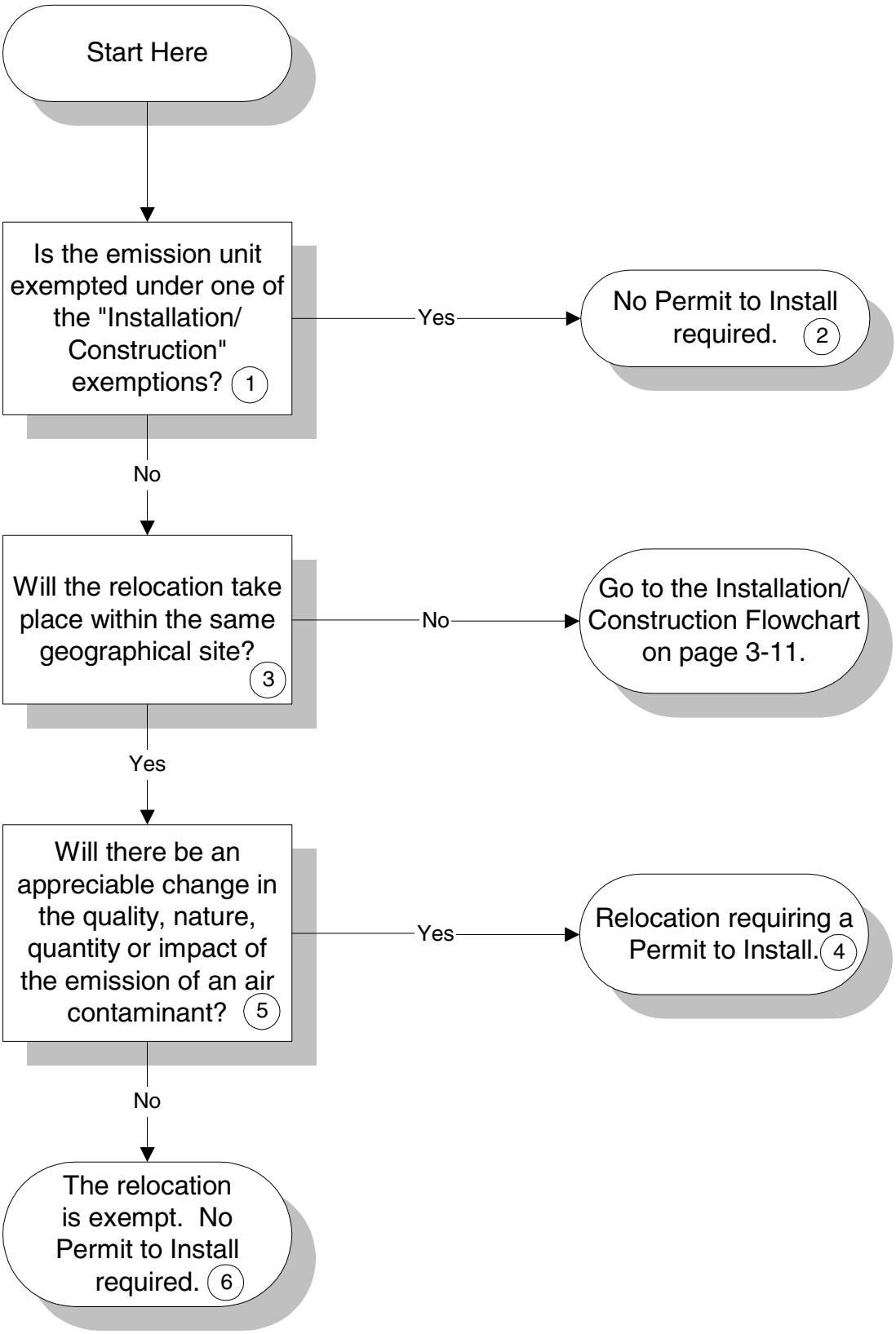


Figure 3-4 – Relocation Flowchart

Use the flowchart to determine if relocating an emission unit will require a Permit to Install.

Instructions for Using the Modification Flowchart

The purpose of the modification flowchart (see Figure 3-5) is to help facilities determine whether or not a proposed physical or operational change to an emission unit meets the definition of a "modification." If the change is a modification, the flowchart will help the facility determine if the modification is exempt or subject to the PTI requirement found in Michigan Rule 201.

Box 1 – If the physical or operational change does not increase the potential emissions of an air contaminant, it is not a modification. Table 3-2 has some examples of physical and operational changes. Do not confuse physical or operational changes with reconstruction. Reconstruction is a one-for-one replacement of components of an emission unit that should not result in any appreciable change in emissions.

Table 3-2 – Examples of Physical and Operational Changes

PHYSICAL CHANGES	OPERATIONAL CHANGES
Change in the sequence of a process.	Increasing the temperature of the afterburner.
Adding a control device to the emission unit.	Increasing the hours of operation.
Changing the quantity or quality of raw materials, such as fuels and coatings.	Changing the curing time of a part in an oven.

Boxes 2, 3, and 4 – If the proposed physical or operational change could not increase emissions or emit an air contaminant not previously emitted and the emission unit is covered under an existing PTI, determine if the change will require changes to any conditions of the permit. Changes to permit conditions may include the addition of new conditions, or changes to existing conditions. If permit condition changes are required, complete a permit application requesting the appropriate changes be made to the permit conditions. Include supporting information with the application. If there are no conflicts with the existing permit conditions, the proposed change does not meet the definition of a modification and does not require any action.

According to Michigan Rules 285(e) and (f), the following physical changes to an emission unit are exempt from the PTI requirement:

- Installing air pollution control equipment for an emission unit to comply with a National Emission Standard for Hazardous Air Pollutants (NESHAP).
- Installing air pollution control equipment for an existing emission unit if the control equipment itself does not actually generate a significant amount of an air contaminant as defined in Michigan Rule 119(e) or a meaningful quantity of a toxic air contaminant.

Box 5 & 6 – Determine if the cumulative increase in emissions of air contaminants resulting from a proposed construction project that involves the modification of emission units will meet any of the criteria in Michigan Rule 278. If the facility does not pass the Rule 278 test (i.e., it is subject to one or more of the applicable criteria in Rule 278), then apply for a Permit to Install.

Boxes 7, 8, & 9 – If the emission unit is exempt under one of the "installation/construction" permit exemptions and after the proposed change it will still meet the exemption, then this modification does not need a Permit to Install. The facility must comply with any requirement in the exemption. For example, Michigan Rule 287(c) requires the facility to keep records of coating usage.

Boxes 10, 11, 12, 13, & 14 – If a PTI already exists for the emission unit, the facility should review the special conditions of the permit to find out if there is an emission limit for the air contaminant being increased. Emission limits for coating operations are often expressed in units of pounds of volatile organic compound (VOC) per gallon of coating, pounds of VOC per hour, or tons of VOC per year.

If there is an emission limit for the air contaminant being increased and if the proposed increase in emission requires a change to the existing permit limit, then the proposed change is a modification requiring a new PTI (see Box 11). If the emissions increase is allowed by the existing emission limit but requires changes to any other permit condition, the facility must apply for a PTI (see Box 12). If the increase does not require changes to existing emission limits or any other permit condition, then the proposed change is not a modification and no action is required (see Box 14).

If there is no emission limit for the air contaminant being increased, the change is a modification – go to Box 15.

Note: Many HAPS and toxic air contaminants are also VOC's. However, a VOC limit in a PTI does not limit the emission of a specific HAP or toxic air contaminant.

Boxes 15-21 – These boxes contain the modification exemptions in Michigan Rules 285(b) and (c). If the modification involves changes to a supply or supplier of the same type of virgin fuel (Box 15) or changes to material storage piles (Box 16), the modification is exempt (Box 17).

If the modification does not fit any of those exemptions, determine if the modification results in a meaningful change in the quality or nature or meaningful increase in the quantity of an air contaminant (Boxes 18 & 19). If not meaningful, the modification is exempt. If it is a meaningful change in the nature or a meaningful increase in the quantity of an air contaminant, then it is a modification that requires a Permit to Install.

The adjective "meaningful" is defined in a paper that the Air Quality Division presented at an Air and Waste Management Association (AWMA) conference on May 11, 1993 (provided in Appendix G). An example of how to determine a meaningful change is outlined in the next section.

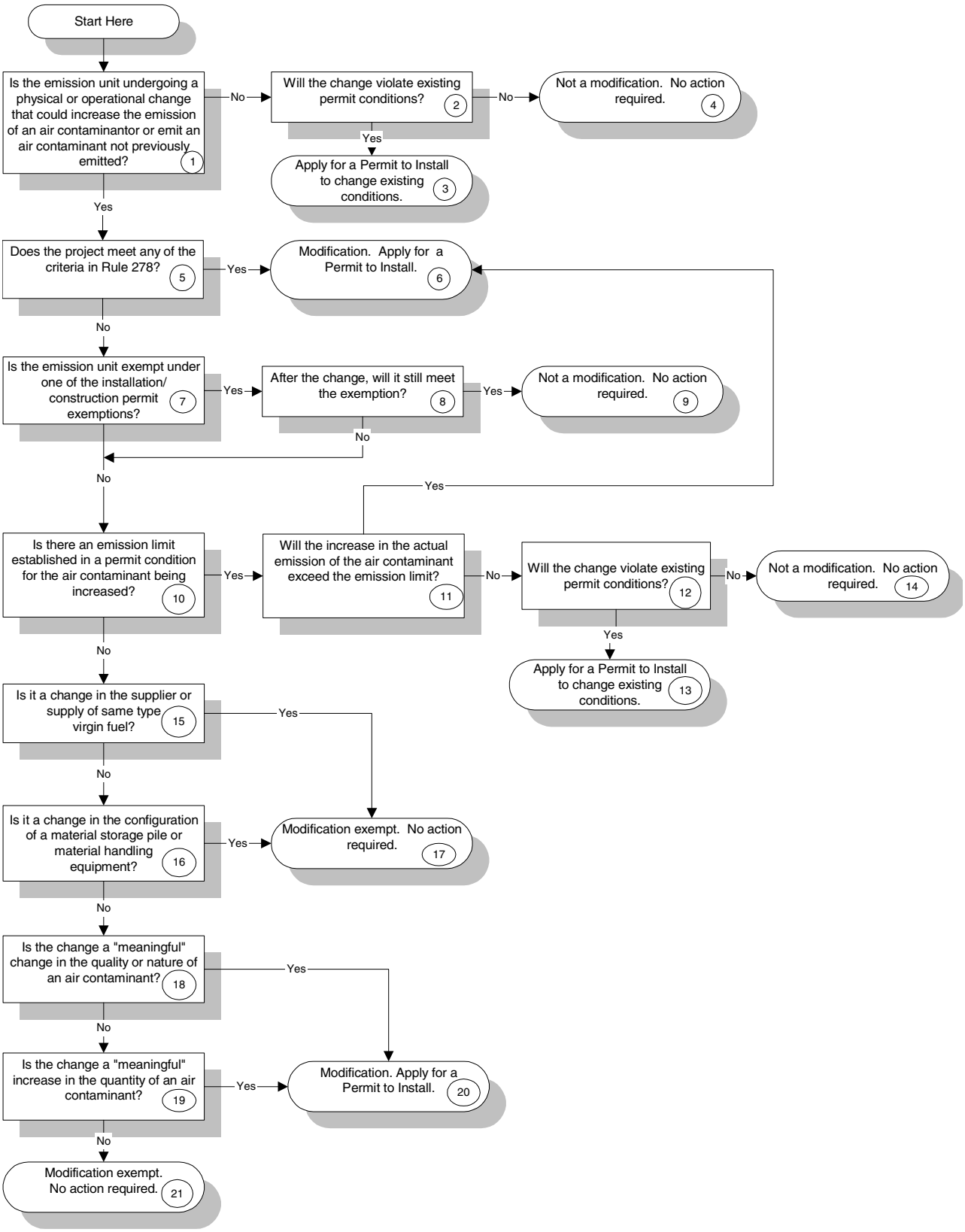


Figure 3-5 – Modification Flowchart

Use the flowchart to determine if a change to an emission unit will require a Permit to Install.

MEANINGFUL CHANGE IN THE NATURE OF AN AIR CONTAMINANT

If the modification will cause the emission of a TAC that was not emitted before, then determine if this new emission represents a meaningful change in the nature of an air contaminant. Below is a seven-step method to determine what is a meaningful change in the nature of emission. The following example will help illustrate each step.

Example Problem #5

Company XYZ has a PTI (Permit No. 1111-91) for an adhesive machine. The adhesive machine uses "Sticky Adhesive." According to its MSDS sheet, the adhesive contains the following ingredients:

1,1,1, TCA	96.5% (by weight)
1,4-Dioxane	2.5% (by weight)
1,2 Butylene oxide	0.47% (by weight)

According to Special Condition 16 of the Permit to Install, "The VOC emission rate from the adhesive machine shall not exceed 3.6 pounds per hour, 1 ton per month, or 10.61 tons per year."

Company XYZ would like to switch to "Strong-Hold Adhesive." The MSDS information for "Strong-Hold Adhesive" is listed below. Is this a meaningful change in the nature of emission?

Methyl ethyl ketone	17% (by weight)
Cyclohexanone	83% (by weight)

Step 1 - Identify the Toxic Air Contaminants (TACs)

Identify all of the TACs emitted before and after the proposed modification. In addition to the chemical name, identify its Chemical Abstract Service (CAS) Number.

Air contaminant	CAS Number	Hourly potential to emit (lb/hr)	Screening level ($\mu g/m^3$)	Adjusted screening level ($\mu g/m^3$)	Calculated hazard potential
Existing 1,1,1 TCA 1,4-Dioxane 1,2 Butylene oxide	 71-55-6 123-91-1 106-88-7				
Modification MEK Cyclohexanone	 78-93-3 108-94-1				

Step 2 - Calculate Hourly PTE

Calculate the hourly potential to emit for each TAC.

Multiply the percent by weight of the TAC by the VOC emission limit in the permit condition (e.g., 3.6 pound/hour) to calculate the hourly PTE of TACs.

Air contaminant	CAS Number	Hourly potential to emit (lb/hr)	Screening level ($\mu g/m^3$)	Adjusted screening level ($\mu g/m^3$)	Calculated hazard potential
Existing 1,1,1 TCA 1,4-Dioxane 1,2 Butylene oxide	 71-55-6 123-91-1 106-88-7	 0.965 x 3.6 = 3.47 0.025 x 3.6 = 0.09 0.0047 x 3.6 = 0.02			
Modification MEK Cyclohexanone	 78-93-3 108-94-1	 0.17 x 3.6 = 0.61 0.83 x 3.6 = 2.98			

Step 3 - Identify Screening Levels

Identify the screening levels for each TAC emitted before and after the proposed modification. The AQD maintains a list of screening levels at **www.michigan.gov/deqair**. Click on "Air Toxics."

Air contaminant	CAS Number	Hourly potential to emit (lb/hr)	Screening level ($\mu g/m^3$)	Adjusted screening level ($\mu g/m^3$)	Calculated hazard potential
Existing 1,1,1 TCA 1,4-Dioxane 1,2 Butylene oxide	 71-55-6 123-91-1 106-88-7	 0.965 x 3.6 = 3.47 0.025 x 3.6 = 0.09 0.0047 x 3.6 = 0.02	 19,000 (1 hr) 0.18 (annual) 1.2 (annual)		
Modification MEK Cyclohexanone	 78-93-3 108-94-1	 0.17 x 3.6 = 0.61 0.83 x 3.6 = 2.98	 1,000 (24 hr) 1,000 (8 hr)		

Step 4 - Calculate Adjusted Annual Screening Levels

Convert all screening levels to an adjusted annual screening level.

(a) Divide 1-hour levels by 75.
(b) Divide 8-hour levels by 18.
(c) Divide 24-hour levels by 10.

Air contaminant	CAS Number	Hourly potential to emit (lb/hr)	Screening level (µg/m^3)	Adjusted screening level (µg/m^3)	Calculated hazard potential
Existing 1,1,1 TCA 1,4-Dioxane 1,2 Butylene oxide	 71-55-6 123-91-1 106-88-7	 0.965 x 3.6 = 3.47 0.025 x 3.6 = 0.09 0.0047 x 3.6 = 0.02	 19,000 (1 hr) 0.18 (annual) 1.2 (annual)	 19,000/75 = 253 0.18 1.2	
Modification MEK Cyclohexanone	 78-93-3 108-94-1	 0.17 x 3.6 = 0.61 0.83 x 3.6 = 2.98	 1,000 (24 hr) 1,000 (8 hr)	 1,000/10 = 100 1,000/18 = 55	

Step 5 - Calculate Hazard Potential

Calculate the hazard potential for each TAC. The hazard potential is simply the hourly PTE divided by the adjusted annual screening level.

Air contaminant	CAS Number	Hourly potential to emit (lb/hr)	Screening level (µg/m^3)	Adjusted screening level (µg/m^3)	Calculated hazard potential
Existing 1,1,1 TCA 1,4-Dioxane 1,2 Butylene oxide	 71-55-6 123-91-1 106-88-7	 0.965 x 3.6 = 3.47 0.025 x 3.6 = 0.09 0.0047 x 3.6 = 0.02	 19,000 (1 hr) 0.18 (annual) 1.2 (annual)	 19,000/75 = 253 0.18 1.2	 3.47/253 = 0.01 0.009/0.18 = 0.50* 0.02-1.2 = 0.01
Modification MEK Cyclohexanone	 78-93-3 108-94-1	 0.17 x 3.6 = 0.61 0.83 x 3.6 = 2.98	 1,000 (24 hr) 1,000 (8 hr)	 1,000/10 = 100 1,000/18 = 55	 0.61/100 = 0.01 2.98/55 = 0.05*

Step 6 - Find TAC with Highest Hazard Potential

Identify the highest hazard potential for both the existing operation and proposed modification.

Under existing operations, 1,4-Dioxane has the highest hazard potential of 0.5.

Under the proposed modification, Cyclohexanone has the highest hazard potential of 0.05.

Step 7 - Determine the Percent Change in Hazard Potential

Calculate the percent change in the hazard potential due to the change. If the proposed change increases the hazard potential over ten percent, the change is considered meaningful and a PTI is required. If the change in the hazard potential is ten percent or less, the modification is not meaningful and a PTI is not required.

Calculate the percent change in hazard potential (HP):

$$\frac{\text{HP (modification)} - \text{HP (existing)}}{\text{HP (existing)}} \times 100 = \frac{0.05 - 0.5}{0.5} \times 100 = -90\%$$

The modification (i.e., switching from "Sticky Adhesive" to "Strong-Hold Adhesive") will decrease the hazard potential. Therefore, this is not a meaningful change in the nature of emissions.

MEANINGFUL INCREASE IN THE QUANTITY OF AN AIR CONTAMINANT

According to Box 10 of the Modification Flow Chart, if the facility is increasing the emission of an air contaminant for which there is a limit in a special condition of a Permit to Install, either the increase will be over the limit (modification requiring a permit) or equal to or under the limit (not a modification; no permit required). See Example Problem #6 below. (The answer to this problem is in Appendix A).

Example Problem #6

Company ABC has a PTI (Permit number 9301-93) for a coating line that consists of one paint applicator (spray gun). The spray gun:

- coats 10 parts per hour;
- applies 0.5 gallons of paint per part;
- uses a coating with a VOC content of 3.7 pounds/gallon; and
- coats 25,000 parts per year.

Hourly Emissions

10 parts/hr x 0.5 gal/part x 3.7 lb VOC/gal = 18.5 lb/hr

Annual Emissions

25,000 parts/yr x 0.5 gal/part x 3.7 lb/gal x 1 ton/2000 lb = 23.1 ton/yr

According to special condition #15 of PTI 9301-92, "The VOC emission rate from the coating line shall not exceed 20 pounds per hour nor 25 tons per year."

Company ABC would like to install another spray gun to increase its hourly output of coated parts but not increase the total number of parts painted during the year. In other words, instead of painting 25,000 parts in 12 months, they want to do it in six months. Do they need a permit for this change?

If the modification will increase the emissions of an air contaminant for which there is no emission limit in an existing permit condition, find out if the increase is meaningful. Increases that are ten percent or less based upon the PTE on an hourly basis and that are ten percent or less than the federal significant thresholds, based upon the PTE on an annual basis, are not considered meaningful if the predicted ambient levels would not exceed the ITSLs and IRSLs contained in Michigan Rule 225. See Example Problem #7 below. (The answer to this problem is in Appendix A).

Example Problem #7

Company LMN has a PTI (Permit number 2222-81) for one reaction injection molding machine. It uses mold release R2D2-11, which contains 1.1% toluene by weight and has a density of 8.34 pounds per gallon.

Mold Release R2D2-11 Usage Rate:
250 molds/hr x 0.012 gal/mold x 8.34 lb/gal = 25 lb/hr

Toluene Emission Rate:
25 lb/hr x 1.1 lb toluene/100 lb R2D2-11 = 0.28 lb/hr

According to Special Condition #14 of PTI 222-81, "Applicant shall not substitute any mold release agents for those described in this permit application that would result in an appreciable change in the quality or any appreciable increase in the quantity of the emission of an air contaminant without prior notification to and approval by the Air Quality Division."

Company LMN would like to use a new mold release, C3PO, containing 1.4 percent toluene and has the same density as the R2D2-11 mold release. Does it need a permit for this change? In other words, is the proposed increase in toluene emissions meaningful?

CHAPTER 4 – Miscellaneous Issues

Do I need to contact the Air Quality Division if my emission unit is covered under an exemption?

- If your emission unit activity; i.e., installation/construction, relocation, reconstruction, or modification, is covered under an exemption, you do not have to provide any notification to the Air Quality Division (AQD). However, in cases where there may be an interpretation issue, it is always a good idea to contact either the Clean Air Assistance Program or the district office of the AQD for verification. Be aware that some of the exemptions do require you to comply with specific requirements in order to use the exemptions. For example, Michigan Rule 287(c) requires recordkeeping and operation of a particulate control system on any exhaust system.

If my emission unit is exempt from the Permit to Install requirements, are there other air quality rules that apply?

- Even though an emission unit may be exempt from Michigan Rule 201, that emission unit still needs to comply with all applicable state and/or federal rules. For example, although Michigan Rules exempt certain cold cleaners from having to obtain a Permit to Install, the facility may need to comply with Michigan Rule 707 which pertains to the proper operation of cold cleaners. Michigan Rule 282(b)(i) exempts sweet natural gas-fired boilers that have a rated heat input capacity of not more than 50,000,000 Btu per hour from the Permit to Install requirement; however, the boilers may still be subject to the federal New Source Performance Standard (NSPS), Subpart Dc.

What if no exemptions are available for my proposed emission unit activity?

- If no exemptions apply to your proposed emission unit activity, you will need to apply for a Permit to Install and receive an approved permit prior to the installation/construction, reconstruction, relocation, and/or modification of the emission unit. Contact the Clean Air Assistance Program for an application (see Chapter 5 - Where to Go For Additional Information).

Are the permit exemptions retroactive?

- Yes, they are. They apply to all emission units, regardless of when they were first installed. For example, if you have a permit for a coating line that was installed in 1987 but it is now exempt under Michigan Rule 287(c), you can request that the permit be voided. Conversely, if you were supposed to get a permit for your coating line when it was installed in 1987 but it is now covered under an exemption, you do not need to apply for a Permit to Install.

Can more than one permit exemption apply to my emission unit?

- Yes, they can. Exemptions are applied at either the process device or emission unit level. Some exemptions may apply to individual process devices within an emission unit whereas some exemptions may apply to multiple devices within an emission unit. The following two examples illustrate this point.

> ***Example 1*:**
> A company operates a reaction injection molding machine that injects a coating into the mold. This emission unit has two different process devices: plastic injection molding and coating. Two permit exemptions may be applied to the one emission unit provided that the emission unit does not meet any of the criteria in Michigan Rule 278. Michigan Rule 286(e) exempts reaction injection molding, and Rule 287(c) exempts surface coating lines that use less than 200 gallons a month from the Permit to Install requirement.
>
> ***Example 2*:**
> A company operates a coating line containing two individual booths: prime coat and top coat. The emission unit contains both booths because there is a dependency between these two process devices. Michigan Rule 287(c) is an exemption for surface coating lines; therefore, the exemption must be applied at the emission unit level, not the process device level. To properly use the exemption, the total paint usage from both booths must be less than 200 gallons per month, not 200 gallons from the prime coat booth and another 200 gallons from the top coat booth.

Does transfer of ownership or change in a company name require the submittal of new permit applications?

- No. The terms and conditions automatically apply to the new owner or operator. If a permit applicant voluntarily elects to have their permit officially amended to reflect the change in ownership, Michigan Rule 219 explains the procedures that must be followed. The new owner must submit a letter (that contains the following information) to the appropriate AQD district office supervisor:
  - description of the source and emission units
  - identification of the new owner
  - written agreement between the current and new owner
  - a written statement by the new owner that the conditions of the permits are understood and accepted.

  The AQD has 60 days to respond to the request.

  Companies may also send a letter to the district office supervisor explaining any company name changes. The AQD will place copies of the letter into the appropriate files and make the necessary corrections to the appropriate internal databases.

Can I get permission to begin installation/construction of an emission unit while my Permit to Install application is being processed?

- Rule 201 requires a facility to obtain a Permit to Install prior to the construction/ installation of emission units. However, since it may take several months before a permit is issued, some companies could suffer economic losses if they hold off construction until the permit is issued. Some of these situations are avoidable through proper planning; others are not. One of the mechanisms that the Air Quality Division has in place to address these timing conflicts is a "construction waiver." Construction waivers are permissible under Michigan Rule 202 and allow a company to begin construction before the Permit to Install is issued. However, a construction waiver will not allow the company to begin operating the equipment, even on a trial basis, without first obtaining its permit. Usually, final action on a permit application is completed before any major construction has commenced.

  There are several requirements that a company must satisfy to have its construction waiver request approved:

  (1) **Permit Requirement:** Construction waiver requests must be accompanied by permit application submittal, or a permit application must be under review prior to the request.

  (2) **Non-PSD Applications:** Construction waivers will not be approved for sources that are subject to the PSD or major HAP source regulations. These federal requirements cannot be waived for any major source or major modification. However, major Offset sources that are subject to Michigan Rule 220 can apply for construction waivers. Companies are required to demonstrate that they are not subject to the PSD or major HAP source regulations when they request a construction waiver.

  (3) **No Adversity with Government Agencies or the Community:** Construction waivers will not be approved if any public controversy or zoning issues exist for the proposed construction site. These issues must be resolved prior to the approval of a construction waiver.

  (4) **Risk and Liability:** The company will assume all risk and liability associated with the construction of a source where a construction waiver is granted and a Permit to Install is not approved for the site. The risk includes lost revenue due to construction and penalties if the facility is later determined to be subject to PSD.

  (5) **Hardship Demonstration:** Companies that apply for construction waivers must demonstrate an undue hardship such as the loss of a competitive edge in a marketplace, a significant loss in contracts or bids, or a loss of an opportunity to pursue a business venture.

All construction waiver requests are reviewed and approved by the appropriate AQD district office. Although Permit to Install application reviews are performed in the Central (Lansing) AQD office, construction waiver requests are a district office function. There is no cost associated with processing a waiver request. Final action on the request must be made within 30 days of receipt. Again, it is important to stress that the company assumes all risks associated with constructing prior to permit approval.

CHAPTER 5 – Where to Go for Additional Information

CLEAN AIR ASSISTANCE PROGRAM

Clean Air Assistance Program
Environmental Science and Services Division
Michigan Department of Environmental Quality
525 West Allegan Street
P.O. Box 30457
Lansing, MI 48909-7973
Ph: 1-800-662-9278 • Fax: 517-335-4729

When to Contact:

- Copies of the *What is an Air Contaminant/Pollutant?* Fact Sheet
- Questions regarding Permit Exemptions
- Copies of Permit to Install Applications
- Copies of Air Quality Division's Operational Memoranda No. 3, No. 4 and No. 6
- Copies of the Clean Air Consultant Directory

To access the CAAP Web site, go to **www.michigan.gov/deqair** and click on "Clean Air Assistance."

AIR QUALITY DIVISION

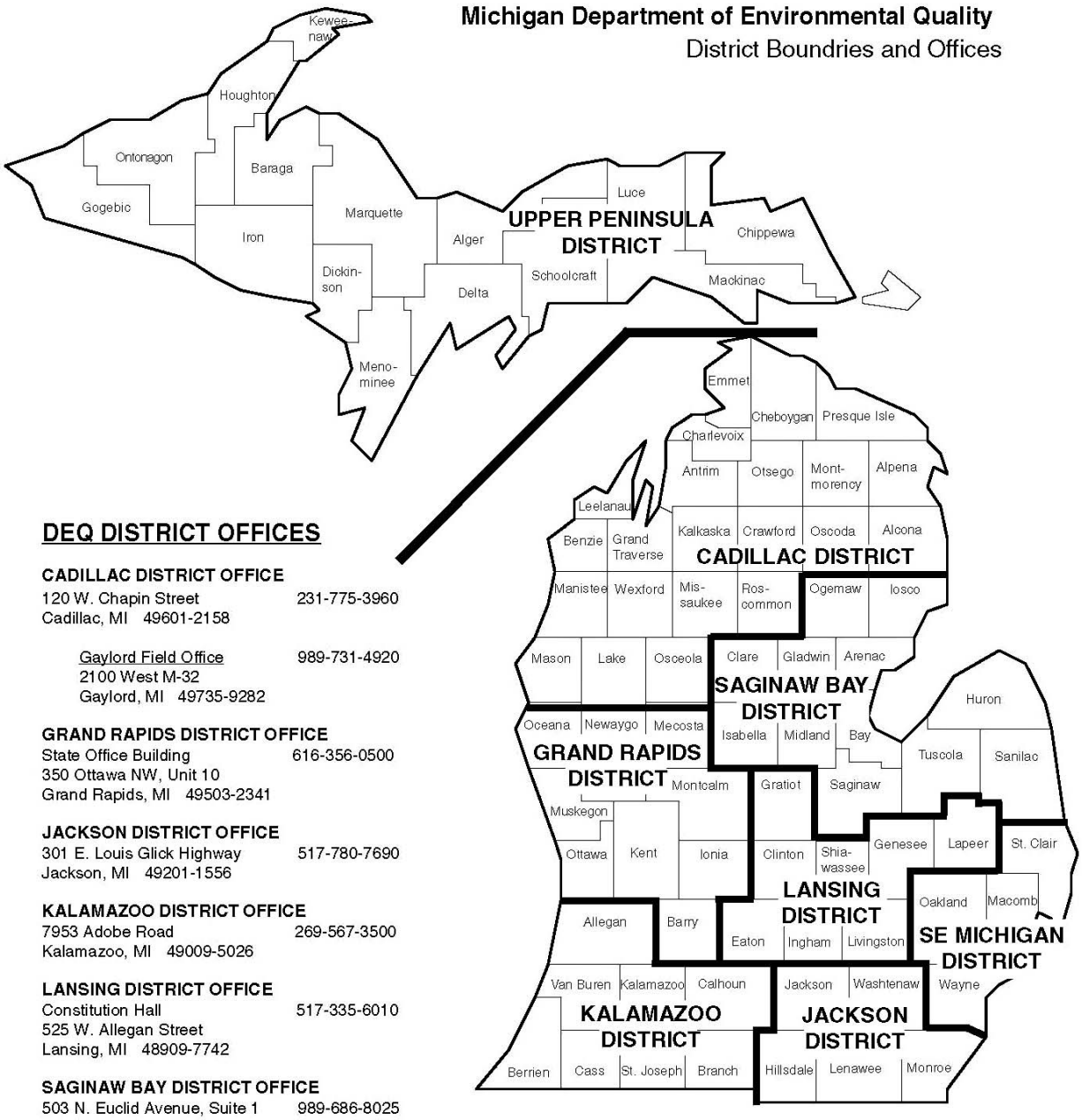
Air Quality Division
Michigan Department of Environmental Quality
525 West Allegan Street
P.O. Box 30260
Lansing, MI 48909-7760
Ph: 517-373-7023 • Fax: 517-335-6993

When to Contact:

- Questions regarding permit exemptions should be directed to the appropriate district office
- Paper copies of the Air Quality Division Rulebook (Rules can be downloaded off the Division's home page.)
- Permit to Install changes for requests for transfer of ownership and/or company name changes should be directed to the appropriate district office.
- Paper copies of the Screening Levels (Screening Levels can also be downloaded off the Division's home page.)

Attached is a map and listing of Air Quality Division district offices.

The Air Quality Division's Web site is **www.michigan.gov/deqair**.



DEQ DISTRICT OFFICES

CADILLAC DISTRICT OFFICE
120 W. Chapin Street 231-775-3960
Cadillac, MI 49601-2158

Gaylord Field Office 989-731-4920
2100 West M-32
Gaylord, MI 49735-9282

GRAND RAPIDS DISTRICT OFFICE
State Office Building 616-356-0500
350 Ottawa NW, Unit 10
Grand Rapids, MI 49503-2341

JACKSON DISTRICT OFFICE
301 E. Louis Glick Highway 517-780-7690
Jackson, MI 49201-1556

KALAMAZOO DISTRICT OFFICE
7953 Adobe Road 269-567-3500
Kalamazoo, MI 49009-5026

LANSING DISTRICT OFFICE
Constitution Hall 517-335-6010
525 W. Allegan Street
Lansing, MI 48909-7742

SAGINAW BAY DISTRICT OFFICE
503 N. Euclid Avenue, Suite 1 989-686-8025
Bay City, MI 48706-2925

SOUTHEAST MICHIGAN DISTRICT OFFICE
27700 Donald Court 586-753-3700
Warren, MI 48092-2793

Detroit Field Office 313-456-4700
Cadillac Place
3058 West Grand Boulevard, Suite 2-300
Detroit, MI 48202-6058

UPPER PENINSULA DISTRICT OFFICE
420 5th Street 906-346-8300
Gwinn, MI 49841

ENVIRONMENTAL ASSISTANCE CENTER
(for general information):
Telephone: 800-662-9278
Fax: 517-241-0673

POLLUTION EMERGENCIES
Telephone: 800-292-4706

DEQ WEB PAGE
www.michigan.gov/deq

APPENDIX A - ANSWER SHEET

Example Problem #1:

(a) installation. This activity would not be a reconstruction because the company is not replacing components of an emission unit, but rather it is replacing the entire emission unit.

Example Problem #2:

(b) reconstruction as long as the capital cost of the new components to date exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new incinerator. This project is not a modification because it does not result in a physical or operational change that would change emissions.

Example Problem #3:

(b) The installation of additional paint application equipment does increase the potential emissions of the coating line and, therefore, is considered a modification.

Example Problem #4:

Since the three generators belong under one project, the total emissions from all three generators are considered when taking the Rule 278 test. Since the actual emissions from the project equals 45 tons per year, the project meets one of the criteria in Rule 278 and, therefore, the facility must obtain a Permit to Install.

Example Problem #6:

Yes, they need a permit for this change. By adding the second applicator, they will exceed the VOC hourly emission rate.

$$\frac{20 \text{ parts}}{\text{hr}} \times \frac{0.5 \text{ gal}}{\text{part}} \times \frac{3.7 \text{ lbs VOC}}{\text{gal}} = 37 \text{ lbs/hr}$$

An emission rate of 37 pounds per hour violates Special Condition #15 of the Permit to Install No. 9301-93.

Example Problem #7:

No, they do not need a permit for this change. The emission unit passed the Rule 278 test and there is an exemption for reaction injection molding machines under Michigan Rule 286(e). The company could request that the existing Permit to Install be voided.

If the emission was not exempt, Company LMN would have to determine if the change was a meaningful increase in emissions. They would determine this, as follows:

Existing toluene emissions: 0.28 lbs/hr

Toluene emissions after the change:

$$\frac{25 \text{ lbs}}{\text{hr}} \times \frac{1.4 \text{ lbs toluene}}{100 \text{ lbs C3PO}} = 0.35 \text{ lbs/hr}$$

Percent change in emissions:

$$\frac{(\text{lbs/hr})\text{change} - (\text{lbs/hr})\text{existing}}{(\text{lbs/hr})\text{existing}} \times 100 = \frac{0.35 \text{ lbs/hr} - 0.28 \text{ lbs/hr}}{0.28 \text{ lbs/hr}} \times 100 = 25\%$$

The increase is greater than ten percent, thus, the change is meaningful and requires a permit.

APPENDIX B – MICHIGAN RULE 278 TEST

To correctly answer the questions, compare the project's PTE and expected emissions to the emission threshold levels in Table B-2 or Table B-3, depending upon the attainment status of the location of your facility. If any one of these thresholds is exceeded, apply for a Permit to Install, regardless of any permit exemptions that may apply. To help calculate your project's PTE, go to **www.michigan.gov/deqair** and click on "Clean Air Assistance," then on "Potential to Emit" under the "Air Permitting" heading.

RULE 278 QUESTIONNAIRE			
PROJECT TYPE	***RULE 278 CRITERIA***	***YES***	***NO***
Major PSD Source (Rule 278(a))			
2, 3, or 4	Is your facility an existing minor source classified under one of the PSD categories (see page B-4), and are you making a change that, by itself, has a PTE of 100 tons per year or more of any regulated air contaminant?		
2, 3, or 4	Is your facility an existing minor source not classified under one of the source categories (see Table B-1), and are you making a change that, by itself, has a PTE of 250 tons per year or more of any regulated air contaminant?		
Major PSD Modification (Rule 278(a))			
2, 3, or 4	Are you making a **physical change** or **change in the method of operation** at an existing major PSD source which would result in both a **significant emissions increase** and a **significant net emissions increase** of a regulated air contaminant for which the area is designated as meeting the NAAQS? ***What is a physical change or change in the method of operation?*** The USEPA does not define what is a physical change or change in the method of operation. It does however, define what is excluded from being a physical or operational change: routine maintenance, repair, and replacement; use of alternative fuels (under certain circumstances); changes of ownership; the addition, replacement, or use of a pollution control project; and increases in operating hours or production rate, unless either are prohibited by permit condition. For a full listing of the exclusions, see 40 CFR 52.21(b)(2)(i) at **www.gpoaccess.gov/cfr/retrieve.html**. ***What are significant emissions increase and significant net emissions increase?*** Modifications at existing PSD sources are subject to the PSD regulations provided that it meets two parts: first, a significant emission increase will occur due to project, and secondly, a significant net emissions increase will occur, which takes into account emission changes from the whole facility. The available methods for determining significant emissions increase and significant net emissions increase are explained in the publication entitled, "PSD Workbook - A Practical Guide to Prevention of Significant Deterioration." The workbook is located at www.michigan.gov/deqair. Click on "Air Permits," and then "Permits to Install/New Source Review."		

RULE 278 QUESTIONNAIRE			
PROJECT TYPE	***RULE 278 CRITERIA***	***YES***	***NO***
Major Offset Source (Rule 278(b))			
1	Are you constructing a new source that has a PTE of 100 tons per year or more of any regulated air contaminant?		
2, 3, or 4	Are you making a change at an existing minor source, and the change, by itself, has a PTE of 100 tons per year or more of any regulated air contaminant? Are you proposing the addition of a process or process equipment or a physical change in, or change in the method of operation of a process or process equipment at a major offset source which results in a **significant net emissions increase** of any air contaminant for which the area is designated as nonattainment of the NAAQS? ***What is a significant net emissions increase?*** The significant emissions levels are identified in Table B-3 (see page B-5). Any modification at an existing major source that **by itself** does not increase emissions above the significant levels is not considered to be a modification under the offset requirements. Any modification at an existing major source that **by itself** exceeds the significance levels may avoid offsets if the net emissions increase is below the levels in Table B-3. To determine if the net emissions increase is significant, follow these three steps: <u>Step 1: Calculate the Net Emissions Change.</u> Qualify emission increases and decreases made elsewhere in the facility. <u>Step 2: Calculate Baseline</u> Baseline = facility's actual annual emissions average over a representative 24-month period within the last 10 years. <u>Step 3: Compare Net Emissions Change to Baseline</u> Compare net emissions change to baseline. If the net emissions change minus the baseline exceeds the values in Table B-3, the change is a significant net emission increase. If the location of the facility is in a non-attainment area for the air contaminant, the significant net emissions increase is considered to be a modification under the offset requirements. **Example:** Russ Busses Inc.'s permitted VOC emissions are 450 tons per year (TPY). Their actual emissions are 200 TPY. Three years ago they installed a degreaser with a potential VOC emission of 20 TPY. Due to efficiency improvements, the company reduced emissions of VOC by 35 TPY. The company currently produces 15 busses per hour over a single 8-hour shift. Their PTI limits production to 10 hours per day and 20 busses per hour. The company is located in a nonattainment area for ozone.		

RULE 278 QUESTIONNAIRE			
PROJECT TYPE	***RULE 278 CRITERIA***	***YES***	***NO***
Major Offset Source (Rule 278(b)) con't.			
	Question: The company proposes adding a second shift. Annual VOC emissions will increase to 250 TPY. Will this proposed change be considered a major modification under Offsets? Solution: • Adding a second shift will exceed their current permitted production limit of 10 hours per day, thus this is considered a change in the method of operation. • The net emissions change will be: 250 - 35 +20 = 235 TPY. • The VOC baseline emission is 200 TPY. • The net emission change minus the baseline emission (235 - 200) equals 35 TYP which is lower than the significance threshold of 40 TYP. Thus this change is not a major modification under the Offset requirements. Even though this example passes the Rule 278 test, it will still need a new PTI to allow them to increase its operating schedule above the schedule in their permit.		
Expected Emissions (Rule 278 (c))			
1,2,3, or 4	Will the expected actual emission of air contaminants resulting from the proposed project equal or exceed the significant levels found in Table B-3?		
Major HAP Source (Rule 278 (d))			
1,2,3, or 4	Will the potential to emit of a single HAP, or combination of HAPS, resulting from the proposed project equal or exceed 10 or 25 tons per year, respectively?		

Table B-1

PSD Source Categories
• Coal cleaning plants with thermal dryers • Kraft pulp mills • Portland cement plants • Primary zinc smelters • Iron and steel mills • Primary aluminum ore reduction plants • Primary copper smelters • Municipal incinerators capable of charging more than 50 tons of refuse per day • Hydrofluoric acid plants • Petroleum refineries
• Lime plants • Phosphate rock processing plants • Coke oven batteries • Sulfur recovery plants • Carbon black plants with a furnace process • Primary lead smelters • Fuel conversion plants • Sintering plants • Secondary metal production plants • Chemical process plants
• Fossil fuel boilers (or combination thereof) totaling more than 250,000,000 BTU per hour heat input • Petroleum storage and transfer units with a total storage capacity of more than 300,000 barrels or petroleum storage vessels with a capacity of more than 40,000 gallons • Taconite ore processing plants • Glass-fiber processing plants • Charcoal production plants • Fossil fuel-fired steam electric plants of more than 250,000,000 BTU per hour heat input • Phosphate fertilizer plants • Sulfuric acid plants • Nitric acid plants

Table B-2

Significant Net Emission Increase Thresholds for Attainment Areas	
Air Contaminant	**Emission Rate (tons per year)**
Carbon monoxide	100
Nitrogen oxides	40
Sulfur dioxide	40
Particulate matter	25
PM-10	15
Volatile organic compounds	40
Lead	0.6
Asbestos	0.007
Beryllium	0.0004
Mercury	0.1
Vinyl chloride	1.0
Fluorides	3
Sulfuric acid mist	7
Total reduced sulfur compounds (including H_2S)	10
Reduced sulfur compounds (including H_2S)	10
Municipal waste combustor acid gases (measured as SO_2 and HCL)	40
Municipal waste combustor metals	16
Municipal waste combustor organics	3.5×10^{-6}

From the federal PSD regulations (40 CFR 52.21)

Table B-3

Significant Net Emission Increase Thresholds for Non-Attainment Areas	
Air Contaminant	**Emission Rate (tons per year)**
Carbon monoxide	100
Nitrogen oxides	40
Sulfur dioxide	40
Particulate matter	25
PM-10	15
Volatile organic compounds	40
Lead	0.6

From the definition of “significant” in Michigan Rule 119(e) as used in Michigan Rule 220

APPENDIX C - MICHIGAN RULE 287(C) SURFACE COATING RECORDKEEPING FORM

Michigan Rule 287(c) exempts the installation of a new surface coating line meeting certain criteria from having to obtain a Permit to Install. The Clean Air Assistance Program has developed a recordkeeping form (see following page) a source can use to track its monthly emissions and, consequently, verify its compliance with the Rule 287(c).

It should be noted that in order to successfully use this exemption, emissions from the proposed installation and/or modification of emission unit(s) must not meet any of the criteria in Rule 278. If the total emissions from your project exceed the thresholds contained in Rule 278, none of the permit exemptions, including Rule 287(c) can be used.

To obtain an electronic version of this form, go to **www.michigan.gov/deqair** and click on “Clean Air Assistance” and then “Air Permits (Permits to Install)”.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, ENVIRONMENTAL ASSISTANCE DIVISION

RULE 287(c) PERMIT TO INSTALL EXEMPTION RECORD: SURFACE COATING EQUIPMENT

This record is provided as a courtesy for businesses by the Michigan Department of Environmental Quality (MDEQ), Environmental Assistance Division, Clean Air Assistance Program, and is not required to be returned or submitted to the MDEQ unless specifically requested.

Applicable Rule: Rule 287(c) of the Michigan Air Pollution Control Rules

NOTE: Rule 287(c) of the Michigan Air Pollution Control Rules exempts surface coating operations from the Permit to Install program as long as the following conditions are met:

1. The coating use rate shall not be more than 200 gallons, as applied, minus water, per month;
2. Any exhaust system that serves only coating spray equipment is supplied with a properly installed and operating particulate control system; and
3. Monthly coating usage records are maintained on file for the most recent two-year period and are made available to the MDEQ Air Quality Division upon request. (ROP-subject sources must keep records for five years.)

Please print or type all information.

COMPLETE THE MONTHLY COATING USAGE LOG FOR EACH SURFACE COATING LINE USING THE EXEMPTION IN RULE 287(c).	
INSTRUCTIONS FOR COMPLETING THE MONTHLY COATING USAGE LOG:	
Columns	
Columns (a) and (b):	Identify the name of the coating manufacturer and the product identification number. This information can be obtained from the coating container or the MSDS.
Column (c):	List the coating type. This may include but not be limited to the following: precoat, primer/primer surfacer, primer sealer, topcoat, thinners, and reducers.
Column (d):	Record the volume of coating used, as applied, minus water, in gallons. At the end of the month, total the quantities in column (d). This total should not exceed 200 gallons. [To find the volume as applied, minus water, multiply the amount used by 1 minus the volume fraction of water in the coating. For example, if you use 5 gallons of a coating that is 40% water by volume, multiply 5 by (1-0.40). This calculation yields a coating usage of 3 gallons, as applied, minus water.]
Column (e)	Initials of operator or owner.
Column (f)	Record the volume of cleanup solvents used in gallons. Even though Rule 287(c) does not address cleanup solvent usage, it is advisable to keep track of this usage. Facilities that receive Michigan Air Pollution Reporting Forms should include their usage of cleanup solvent on the forms.
SOURCE NAME:	
MONTH/YEAR:	

Manufacturer (a)	Product ID Number (b)	Coating Type (c)	Coating Usage (gal) (d)	Operator's Initials (e)	Cleanup Solvent Usage (gal) (f)
		Total coating used (gal) <200 gal/month		Total cleanup solvent used (gal)	

APPENDIX D - MICHIGAN RULE 290
SOURCES WITH LIMITED EMISSIONS RECORD

Michigan Rule 290 exempts the installation of any emission unit, provided that its emissions stay below the limits contained in the rule. The Clean Air Assistance Program has developed a recordkeeping form (see following pages) a source can use to track its monthly emissions and, consequently, verify its compliance with the Rule 290.

It should be noted that in order to successfully use this exemption, emissions from the proposed installation and/or modification of emission unit(s) must not meet any of the criteria in Rule 278. If the total emissions from your project exceed the thresholds contained in Rule 278, none of the permit exemptions, including Rule 290 can be used.

To obtain an electronic version of this form, go to **www.michigan.gov/deqair** and click on “Clean Air Assistance” and then “Air Permits (Permits to Install)”.

R336.1290 Permit to install exemptions; emission units with limited emissions.

Rule 290. The requirement of R 336.1201(1) to obtain a permit to install does not apply to any of the emission units listed in (a) if the conditions listed in (b), (c), and (d) are met. Notwithstanding the definition in R 336.1121(a), for the purpose of this rule, uncontrolled emissions are the emissions from an emission unit based on actual operation, not taking into account any emission control equipment. Controlled emissions are the emissions from an emission unit based on actual operation, taking into account the control equipment.

(a) An emission unit which meets any of the following criteria:

(i) Any emission unit that emits only noncarcinogenic volatile organic compounds or noncarcinogenic materials which are listed in R 336.1122(f) as not contributing appreciably to the formation of ozone, if the uncontrolled or controlled emissions of air contaminants are not more than 1,000 or 500 pounds per month, respectively.

(ii) Any emission unit that the total uncontrolled or controlled emissions of air contaminants are not more than 1,000 or 500 pounds per month, respectively, and all of the following criteria are met:

(A) For noncarcinogenic air contaminants, excluding noncarcinogenic volatile organic compounds and noncarcinogenic materials which are listed in R 336.1122(f) as not contributing appreciably to the formation of ozone, with initial threshold screening levels greater than or equal to 2.0 micrograms per cubic meter, the uncontrolled or controlled emissions shall not exceed 1,000 or 500 pounds per month, respectively.

(B) For noncarcinogenic air contaminants, excluding noncarcinogenic volatile organic compounds and noncarcinogenic materials which are listed in R 336.1122(f) as not contributing appreciably to the formation of ozone, with initial threshold screening levels greater than or equal to 0.04 micrograms per cubic meter and less than 2.0 micrograms per cubic meter, the uncontrolled or controlled emissions shall not exceed 20 or 10 pounds per month, respectively.

(C) For carcinogenic air contaminants with initial risk screening levels greater than or equal to 0.04 micrograms per cubic meter, the uncontrolled or controlled emissions shall not exceed 20 or 10 pounds per month, respectively.

(D) The emission unit shall not emit any air contaminants, excluding noncarcinogenic volatile organic compounds and noncarcinogenic materials which are listed in R 336.1122(f) as not contributing appreciably to the formation of ozone, with an initial threshold screening level or initial risk screening level less than 0.04 micrograms per cubic meter.

(iii) Any emission unit that emits only noncarcinogenic particulate air contaminants and other air contaminants that are exempted under paragraphs (i) or (ii) of this subdivision if all of the following provisions are met:

(A) The particulate emissions are controlled by an appropriately designed and operated fabric filter collector or an equivalent control system which is designed to control particulate matter to a concentration of less than or equal to 0.01 pounds of particulate per 1,000 pounds of exhaust gases and which do not have an exhaust gas flow rate more than 30,000 actual cubic feet per minute.

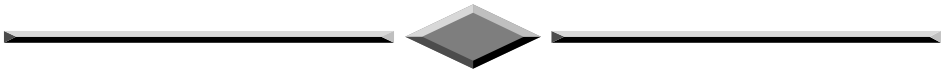
(B) The visible emissions from the emission unit are not more than 5% opacity in accordance with the methods contained in R 336.1303.

(C) The initial threshold screening level for each particulate air contaminant, excluding nuisance particulate, is more than 2.0 micrograms per cubic meter.

(b) A description of the emission unit is maintained throughout the life of the unit.

(c) Records of material use and calculations identifying the quality, nature, and quantity of the air contaminant emissions are maintained in sufficient detail to demonstrate that the emissions meet the emission limits outlined in this rule.

(d) The records are maintained on file for the most recent 2-year period and are made available to the air quality division upon request.



RULE 290 PERMIT TO INSTALL EXEMPTION: SOURCES WITH LIMITED EMISSIONS RECORD

This record is provided as a courtesy for businesses by the Michigan Department of Environmental Quality (MDEQ), Environmental Science and Services Division, Clean Air Assistance Program, and is not required to be returned or submitted to the MDEQ.

Applicable Rule: Rule 290 of the Michigan Air Pollution Control Rules

NOTE:

- Rule 290 of the Michigan Air Pollution Control Rules exempts an emission unit with limited emissions from having to apply for Permit to Install. Rule 201 requires sources to obtain a Permit to Install prior to the installation, construction, reconstruction, relocation, or modification of an emission unit. Sources using this exemption must not meet any of the criteria in Rule 278 and must be able to demonstrate compliance with the various emission limits contained in Rule 290.

- Utilization of this form is not the sole method of demonstrating compliance with the requirements of Rule 290, unless required by a permit such as a Renewable Operating Permit (ROP). For example, an alternative method of demonstrating compliance could be determining the emissions of air contaminants from a single unit of production and recording the number of production units generated per month.

- ROP subject sources – This document must be used to track emissions unless an alternate format has been approved by the District Supervisor or alternate format is cited in the ROP.

- An emission unit that emits an air contaminant, excluding noncarcinogenic Volatile Organic Compounds (VOCs) and noncarcinogenic, non-ozone forming materials listed in Rule 122(f), which has an Initial Threshold Screening Level (ITSL) or Initial Risk Screening Level (IRSL) less than 0.04 micrograms per cubic meter (ug/m3) cannot use Rule 290.

- For all emission units exempt pursuant to Rule 290 that emit particulate emissions which have an ITSL equal to or less than 2.0 ug/m3 and greater than or equal 0.04 ug/m3, the particulate emissions must be included in Section 2.

- For all emission units exempt pursuant to Rule 290 that emit particulate emissions which have an IRSL equal to or greater than 0.04 ug/m3, the particulate emissions must be included in Section 3.

- Perchloroethylene is the only non-ozone forming material listed in Rule 122(f) that is a carcinogen. Two of the stabilizers in Rule 122(f) Table 11, tertiary butyl alcohol and 1,2-butylene oxide, are carcinogenic and are ozone forming materials.

- If an emission unit is equipped with a control device (i.e., equipment that captures and/or destroys air contaminants) and the control device is not vital to production of the normal product of the process or to its normal operation, then there are two options of recording emissions in Sections 2, 3, and 4:
    1. record all uncontrolled emissions of air contaminants (i.e., all air contaminants entering the control device); or
    2. record all controlled emissions of air contaminants (all air contaminants leaving the control device).

  Whatever option is chosen, make sure that option is used consistently throughout Sections 2, 3, 4, and 5.

- If the emission unit is not equipped with a control device or the control device is vital to production of the normal product of the process or to its normal operation, then the quantity of each emission of air contaminant identified in Sections 2, 3, 4, and 5 should be recorded as uncontrolled emissions.

- Monthly emission records are required to be maintained on file for the most recent two-year period and made available to the MDEQ, Air Quality Division upon request. (ROP subject sources must keep records for the most recent five year period.)

Please print or type all information.

1. COMPLETE FOR EACH EMISSION UNIT USING THE EXEMPTION IN RULE 290.

SOURCE NAME:

MONTH/YEAR:

DESCRIPTION OF EMISSION UNIT (including control devices):

2. RECORD EMISSIONS OF NONCARCINOGENIC AIR CONTAMINANTS (EXCLUDING NONCARCINOGENIC VOCS AND NONCARCINOGENIC, NON-OZONE FORMING MATERIALS LISTED IN RULE 122(f)) (see Appendix A)

ITSL ≥2.0 ug/m3

(The emissions of noncarcinogenic particulate air contaminants with an ITSL >2.0 ug/m3 do not have to be recorded in this table as long as the emission unit is in compliance with the requirements in Section 6.)

CAS #	Chemical Name	Uncontrolled Emissions (lbs/month)	Controlled Emissions (lbs/month)
Monthly Total		①	②

2.0 ug/m3 >ITSL ≥0.04 ug/m3

CAS #	Chemical Name	Uncontrolled Emissions (lbs/month)	Controlled Emissions (lbs/month)
Monthly Total		③	④

Compliance Criteria:

- The total in Box ① must be ≤1,000 pounds or the total in Box ② must be ≤500 pounds. If the total in Box ① or in Box ② is greater than the respective emission limitations, contact your local district office.
- The total in Box ③ must be ≤20 pounds or the total in Box ④ must be ≤10 pounds. If the total in Box ③ or in Box ④ is greater than the respective emission limitations, contact your local district office.

RULE 290 PERMIT TO INSTALL EXEMPTION: SOURCES WITH LIMITED EMISSIONS RECORD (continued)

3. RECORD EMISSIONS OF CARCINOGENIC AIR CONTAMINANTS

IRSL ≥0.04 ug/m3

(The emissions of carcinogenic particulate air contaminants with an IRSL ≥0.04 ug/m3 must be recorded in this table even though it is also exempt under Section 6.)

CAS #	Chemical Name	Uncontrolled Emissions (lbs/month)	Controlled Emissions (lbs/month)
Monthly Total		⑤	⑥

Compliance Criteria:

- The total in Box ⑤ must be ≤20 pounds or the total in Box ⑥ must be ≤10 pounds. If the total in Box ⑤ or in Box ⑥ is greater than the respective emission limitations, contact your local district office.

4. RECORD EMISSIONS OF ALL NONCARCINOGENIC VOCS AND NONCARCINOGENIC, NON-OZONE FORMING MATERIALS LISTED IN RULE 122(f) (see Appendix A)

CAS #	Chemical Name	Uncontrolled Emissions (lbs/month)	Controlled Emissions (lbs/month)
Monthly Total		⑦	⑧

Compliance Criteria:

- The total in Box ⑦ must be ≤1,000 pounds or the total in Box ⑧ must be ≤500 pounds. If the total in Box ⑦ or in Box ⑧ is greater than the respective emission limitations, contact your local district office.

5. RECORD TOTAL MONTHLY EMISSIONS

	lbs/month
Total uncontrolled emissions (Box ① + Box ③ + Box ⑤ + Box ⑦)	
Total controlled emissions (Box ② + Box ④ + Box ⑥ + Box ⑧)	

Compliance Criteria:

- The total uncontrolled emissions (Box ① + Box ③ + Box ⑤ + Box ⑦) must be ≤1,000 pounds. If the total uncontrolled emissions are greater than 1,000 pounds, contact your local district office; or
- The total controlled emissions (Box ② + Box ④ + Box ⑥ + Box ⑧) must be ≤500 pounds. If the total controlled emissions are greater than 500 pounds, contact your local district office.

6. NONCARCINOGENIC PARTICULATE AIR CONTAMINANTS

The emission unit may emit noncarcinogenic particulate air contaminants provided that the emission unit is in compliance with the following:

Y	N	
☐	☐	Are the particulate emissions controlled by an appropriately designed and operated fabric filter collector or an equivalent control system which is designed to control particulate matter to a concentration of less than or equal to 0.01 pounds of particulate per 1,000 pounds of exhaust gases and which do not have an exhaust gas flow rate of more than 30,000 actual cubic feet per minute?
☐	☐	Are the visible emissions from the emission unit not more than 5% opacity in accordance with the methods contained in Rule 303?
☐	☐	Is the Initial Threshold Screening Level (ITSL) for each particulate air contaminant, excluding nuisance particulate >2.0 ug/m3?

Notes:

- Quantities of particulates being emitted from an emission unit complying with the requirements in this Section should not be included in Section 2.
- Quantities of noncarcinogenic particulates with an ITSL ≤2.0 ug/m3 and ≥0.04 ug/m3 must be included in Section 2.
- Quantities of carcinogenic particulates ≥0.04 ug/m3 must be included in Section 3.

Compliance Criteria:

- If any of the preceding questions concerning noncarcinogenic particulate air contaminants are answered “No”, contact your local district office.

7. OTHER REQUIREMENTS

- Attach emission calculations to demonstrate compliance with the emission limits identified in Sections 2, 3, 4, and 5.
- Keep this record on file for a minimum of 2 years, if not required for a longer period from other requirements, i.e. ROP.

APPENDIX A

R 336.1122 Definitions; V.

Rule 122. As used in these rules:

(f) "**Volatile organic compound**" means any compound of carbon or mixture of compounds of carbon that participates in photochemical reactions, excluding the following materials, all of which have been determined by the United States environmental protection agency to have negligible photochemical reactivity:

(i) Carbon monoxide.

(ii) Carbon dioxide.

(iii) Carbonic acid.

(iv) Metallic carbides or carbonates.

(v) Boron carbide.

(vi) Silicon carbide.

(vii) Ammonium carbonate.

(viii) Ammonium bicarbonate.

(ix) Methane.

(x) Ethane.

(xi) The methyl chloroform portion of commercial grades of methyl chloroform, if all of the following provisions are complied with:

(A) The commercial grade of methyl chloroform is used only in a surface coating or coating line that is subject to the requirements of part 6 or 7 of these rules.

(B) The commercial grade of methyl chloroform contains no stabilizers other than those listed in table 11.

(C) Compliance with the applicable limits specified in part 6 or 7 of these rules is otherwise not technically or economically reasonable.

(D) All measures to reduce the levels of all organic solvents, including the commercial grade of methyl chloroform, from the surface coating or coating line to the lowest reasonable level will be implemented.

(E) The emissions of the commercial grade of methyl chloroform do not result in a maximum ambient air concentration exceeding any of the allowable ambient air concentrations listed in table 11.

(F) The use of the commercial grade of methyl chloroform is specifically identified and allowed by a permit to install, permit to operate, or order of the department.

(G) Table 11 reads as follows:

TABLE 11
Commercial grade of methyl chloroform --
allowable ambient air concentrations

Compound	ppm[1]	Time[2]
Methyl chloroform	3.5	1 hour
Tertiary butyl alcohol[3]	1.0	1 hour
Secondary butyl alcohol[3]	1.0	1 hour
Methylal[3]	10.0	1 hour
1,2-butylene oxide[3]	0.028 and 0.00041	1 hour annual

1. Parts per million, by volume
2. Averaging time period
3. This compound is a stabilizer

(xii) The methyl chloroform portion of commercial grades of methyl chloroform that contain any other stabilizer not listed in table 11 of this rule, if all of the following provisions are complied with:

(A) The commercial grade of methyl chloroform is used only in a surface coating or coating line that is subject to the requirements of part 6 or 7 of these rules.

(B) Compliance with the applicable limits specified in part 6 or 7 of these rules is otherwise not technically or economically reasonable.

(C) All measures to reduce the levels of all organic solvents, including the commercial grade of methyl chloroform, from the surface coating or coating line to the lowest reasonable level will be implemented.

(D) The emissions of any compound in the commercial grade of methyl chloroform that is listed in table 11 of this rule do not result in a maximum ambient air concentration exceeding any of the allowable ambient air concentrations listed in table 11.

(E) The emission of all compounds in the commercial grade of methyl chloroform that are not listed in table 11 is demonstrated to comply with R 336.1901.

(F) The use of the commercial grade of methyl chloroform is specifically identified and allowed by a permit to install, permit to operate, or order of the department.

(xiii) Acetone.

(xiv) Cyclic, branched, or linear completely methylated siloxanes.

(xv) Parachlorobenzotrifluoride.

(xvi) Perchloroethylene.

(xvii) Trichlorofluoromethane (CFC-11).

(xviii) Dichlorodifluoromethane (CFC-12).

(xix) 1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113).

(xx) 1,2-dichloro 1,1,2,2-tetrafluoroethane (CFC-114).

(xxi) Chloropentafluoroethane (CFC-115).

(xxii) 1,1-dichloro 1-fluoroethane (HCFC-141b).

(xxiii) 1,chloro 1,1-difluoroethane (HCFC-142b).

(xxiv) Chlorodifluoromethane (HCFC-22).

(xxv) 1,1,1-trifluoro 2,2-dichloroethane (HCFC-123).

(xxvi) 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124).

(xxvii) Trifluoromethane (HFC-23).

(xxviii) Pentafluoroethane (HFC-125).

(xxix) 1,1,2,2-tetrafluoroethane (HFC-134).

(xxx) 1,1,1,2-tetrafluoroethane (HFC-134a).

(xxxi) 1,1,1-trifluoroethane (HFC-143a).

(xxxii) 1,1-difluoroethane (HFC-152a).

(xxxiii) 3,3-dichloro-1, 1,1,2,2-pentafluoropropane (HCFC-225ca).

(xxxiv) 1,3-dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb).

(xxxv) 1,1,1,2,3,4,4,5,5,5-decafluoropentane (HFC 43-10mee).

(xxxvi) Difluoromethane (HFC-32).

(xxxvii) Ethyl fluoride (HFC-161).

(xxxviii) 1,1,1,3,3,3-hexafluoropropane (HFC-236fa).

(xxxix) 1,1,2,2,3-pentafluoropropane (HFC-245ca).

(xl) 1,1,2,3,3- pentafluoropropane (HFC-245ea).

(xli) 1,1,1,2,3- pentafluoropropane (HFC-245eb).

(xlii) 1,1,1,3,3- pentafluoropropane (HFC-245fa).

(xliii) 1,1,1,2,3,3-hexafluoropropane (HFC-236ea).

(xliv) 1,1,1,3,3-pentafluorobutane (HFC365mfc).

(xlv) Chlorofluoromethane (HCFC-31).

(xlvi) 1,2-dichloro-1,1,2-trifluoroethane (HCFC-123a).

(xlvii) 1-chlor-1-fluoroethane (HCFC-151a).

(xlviii) 1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxybutane.

(xlix) 2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane.

(l) 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane.

(li) 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane.

(lii) Methyl acetate.

(liii) Perfluorocarbon compounds that fall into the following classes:

(A) Cyclic, branched, or linear, completely fluorinated alkanes.
(B) Cyclic, branched, or linear, completely fluorinated ethers with no unsaturations.
(C) Cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations.
(D) Sulfur-containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.

(liv) Methylene chloride.

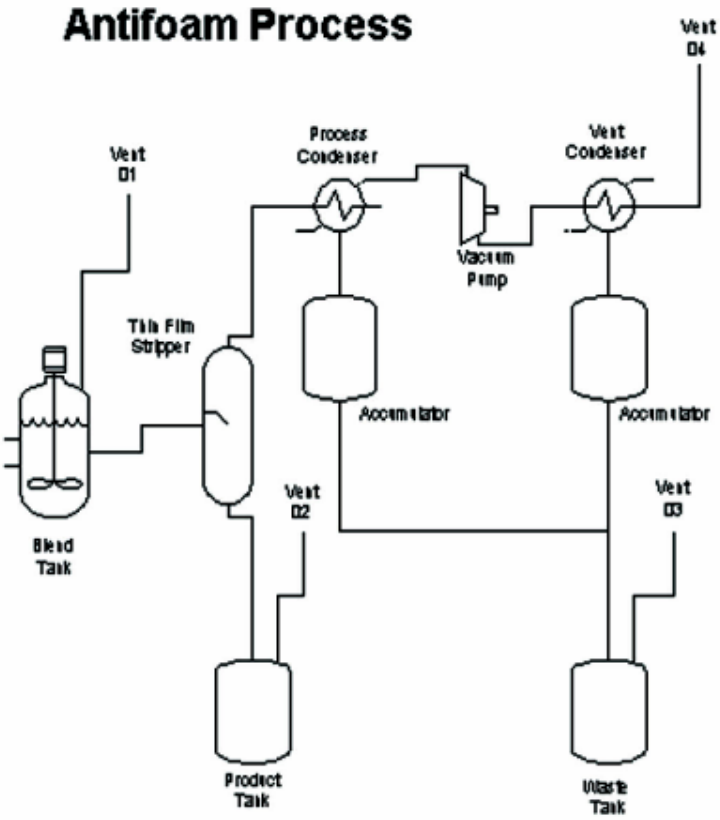
The methods described in R 336.2004 and R 336.2040 shall be used for measuring volatile organic compounds for purposes of determining compliance with emission limits. Where such a method also measures compounds with negligible photochemical reactivity, these negligibly-photochemical reactive compounds may be excluded as volatile organic compounds if the amount of such compounds is accurately quantified and such exclusion is approved by the department.

History: 1979 ACS 1, Eff. Jan. 19, 1980; 1985 MR 2, Eff. Feb. 22, 1985; 1988 MR 5, Eff. May 20, 1988; 1989 MR 4, Eff. Apr. 19, 1989; 1993 MR 4, Eff. Apr. 28, 1993; 1997 MR 5, Eff. June 15, 1997; 2000 MR 18, Eff. November 30, 2000; 2003 MR 5, Eff. March 13, 2003.

APPENDIX E - THE RULE 290 EXAMPLE

Background:

Suds R Us Company is a manufacturer of laundry detergents. The company needs to install a process that produces a fluid used as antifoam for laundry detergents. The antifoam process is controlled by a vent condenser which is located downstream from the vacuum pump (see drawing below). The control efficiency of the vent condenser is 90 percent.



Emissions:

The uncontrolled (upstream of the vent condenser) emissions and controlled (downstream of vent condenser) emissions of air contaminants per month are summarized in the following table.

RULE 290 PERMIT TO INSTALL EXEMPTION: SOURCES WITH LIMITED EMISSIONS RECORD

This record is provided as a courtesy for businesses by the Michigan Department of Environmental Quality (MDEQ), Environmental Science and Services Division, Clean Air Assistance Program, and is not required to be returned or submitted to the MDEQ.

Applicable Rule: Rule 290 of the Michigan Air Pollution Control Rules

NOTE:

- Rule 290 of the Michigan Air Pollution Control Rules exempts an emission unit with limited emissions from having to apply for Permit to Install. Rule 201 requires sources to obtain a Permit to Install prior to the installation, construction, reconstruction, relocation, or modification of an emission unit. Sources using this exemption must not meet any of the criteria in Rule 278 and must be able to demonstrate compliance with the various emission limits contained in Rule 290.

- Utilization of this form is not the sole method of demonstrating compliance with the requirements of Rule 290, unless required by a permit such as a Renewable Operating Permit (ROP). For example, an alternative method of demonstrating compliance could be determining the emissions of air contaminants from a single unit of production and recording the number of production units generated per month.

- ROP subject sources – This document must be used to track emissions unless an alternate format has been approved by the District Supervisor or alternate format is cited in the ROP.

- An emission unit that emits an air contaminant, excluding noncarcinogenic Volatile Organic Compounds (VOCs) and noncarcinogenic, non-ozone forming materials listed in Rule 122(f), which has an Initial Threshold Screening Level (ITSL) or Initial Risk Screening Level (IRSL) less than 0.04 micrograms per cubic meter (ug/m3) cannot use Rule 290.

- For all emission units exempt pursuant to Rule 290 that emit particulate emissions which have an ITSL equal to or less than 2.0 ug/m3 and greater than or equal 0.04 ug/m3, the particulate emissions must be included in Section 2.

- For all emission units exempt pursuant to Rule 290 that emit particulate emissions which have an IRSL equal to or greater than 0.04 ug/m3, the particulate emissions must be included in Section 3.

- Perchloroethylene is the only non-ozone forming material listed in Rule 122(f) that is a carcinogen. Two of the stabilizers in Rule 122(f) Table 11, tertiary butyl alcohol and 1,2-butylene oxide, are carcinogenic and are ozone forming materials.

- If an emission unit is equipped with a control device (i.e., equipment that captures and/or destroys air contaminants) and the control device is not vital to production of the normal product of the process or to its normal operation, then there are two options of recording emissions in Sections 2, 3, and 4:
    1. record all uncontrolled emissions of air contaminants (i.e., all air contaminants entering the control device); or
    2. record all controlled emissions of air contaminants (all air contaminants leaving the control device).

  Whatever option is chosen, make sure that option is used consistently throughout Sections 2, 3, 4, and 5.

- If the emission unit is not equipped with a control device or the control device is vital to production of the normal product of the process or to its normal operation, then the quantity of each emission of air contaminant identified in Sections 2, 3, 4, and 5 should be recorded as uncontrolled emissions.

- Monthly emission records are required to be maintained on file for the most recent two-year period and made available to the MDEQ, Air Quality Division upon request. (ROP subject sources must keep records for the most recent five year period.)

RULE 290 PERMIT TO INSTALL EXEMPTION: SOURCES WITH LIMITED EMISSIONS RECORD (continued)

Please print or type all information.

1. COMPLETE FOR EACH EMISSION UNIT USING THE EXEMPTION IN RULE 290.

SOURCE NAME: Suds R Us Company

MONTH/YEAR: January 1998

DESCRIPTION OF EMISSION UNIT (including control devices): Suds R Us Company manufactures a fluid used as an antifoam for laundry detergents. The process consists of a blend tank, thin film evaporator, vacuum pump, vent condenser, product tank, and waste toluene tank. The detergent antifoam is manufactured by blending a resin in solvents with a nonvolatile polymer. The blend is then fed continuously to a thin film evaporator. The evaporator operates at high temperature and under vacuum. The solvents from the resin are stripped from the product leaving a nonvolatile product. The solvents from the evaporator are condensed and pumpted to a waste tank. The control efficiency of the vent condenser is 90 percent.

2. RECORD EMISSIONS OF NONCARCINOGENIC AIR CONTAMINANTS (EXCLUDING NONCARCINOGENIC VOCS AND NONCARCINOGENIC, NON-OZONE FORMING MATERIALS LISTED IN RULE 122(f)) (see Appendix A)

ITSL ≥2.0 ug/m3

(The emissions of noncarcinogenic particulate air contaminants with an ITSL >2.0 ug/m3 do not have to be recorded in this table as long as the emission unit is in compliance with the requirements in Section 6.)

CAS #	Chemical Name	Uncontrolled Emissions (lbs/month)	Controlled Emissions (lbs/month)
7647010	Hydrogen Chloride	50	5
Monthly Total		50 ①	5 ②

2.0 ug/m3 >ITSL ≥0.04 ug/m3

CAS #	Chemical Name	Uncontrolled Emissions (lbs/month)	Controlled Emissions (lbs/month)
Monthly Total		③	④

Compliance Criteria:

- The total in Box ① must be ≤1,000 pounds or the total in Box ② must be ≤500 pounds. If the total in Box ① or in Box ② is greater than the respective emission limitations, contact your local district office.
- The total in Box ③ must be ≤20 pounds or the total in Box ④ must be ≤10 pounds. If the total in Box ③ or in Box ④ is greater than the respective emission limitations, contact your local district office.

3. RECORD EMISSIONS OF CARCINOGENIC AIR CONTAMINANTS

IRSL ≥0.04 ug/m3

(The emissions of carcinogenic particulate air contaminants with an IRSL ≥0.04 ug/m3 must be recorded in this table even though it is also exempt under Section 6.)

CAS #	Chemical Name	Uncontrolled Emissions (lbs/month)	Controlled Emissions (lbs/month)
71432	Benzene	35	3.5
Monthly Total		35 ⑤	3.5 ⑥

Compliance Criteria:

- The total in Box ⑤ must be ≤20 pounds or the total in Box ⑥ must be ≤10 pounds. If the total in Box ⑤ or in Box ⑥ is greater than the respective emission limitations, contact your local district office.

4. RECORD EMISSIONS OF ALL NONCARCINOGENIC VOCS AND NONCARCINOGENIC, NON-OZONE FORMING MATERIALS LISTED IN RULE 122(f) (see Appendix A)

CAS #	Chemical Name	Uncontrolled Emissions (lbs/month)	Controlled Emissions (lbs/month)
67641	Acetone	1,376	137
108883	Toluene	172	17.2
76730	Isopropanol	98	9.8
96140	Methylpentane	372	37
Monthly Total		2,018 ⑦	201 ⑧

Compliance Criteria:

- The total in Box ⑦ must be ≤1,000 pounds or the total in Box ⑧ must be ≤500 pounds. If the total in Box ⑦ or in Box ⑧ is greater than the respective emission limitations, contact your local district office.

5. RECORD TOTAL MONTHLY EMISSIONS

	lbs/month
Total uncontrolled emissions (Box ① + Box ③ + Box ⑤ + Box ⑦)	**2,103.0**
Total controlled emissions (Box ② + Box ④ + Box ⑥ + Box ⑧)	**209.5**

Compliance Criteria:

- The total uncontrolled emissions (Box ① + Box ③ + Box ⑤ + Box ⑦) must be ≤1,000 pounds. If the total uncontrolled emissions are greater than 1,000 pounds, contact your local district office; or
- The total controlled emissions (Box ② + Box ④ + Box ⑥ + Box ⑧) must be ≤500 pounds. If the total controlled emissions are greater than 500 pounds, contact your local district office.

6. NONCARCINOGENIC PARTICULATE AIR CONTAMINANTS

The emission unit may emit noncarcinogenic particulate air contaminants provided that the emission unit is in compliance with the following:

Y	N	
☐	☐	Are the particulate emissions controlled by an appropriately designed and operated fabric filter collector or an equivalent control system which is designed to control particulate matter to a concentration of less than or equal to 0.01 pounds of particulate per 1,000 pounds of exhaust gases and which do not have an exhaust gas flow rate of more than 30,000 actual cubic feet per minute?
☐	☐	Are the visible emissions from the emission unit not more than 5% opacity in accordance with the methods contained in Rule 303?
☐	☐	Is the Initial Threshold Screening Level (ITSL) for each particulate air contaminant, excluding nuisance particulate > 2.0 ug/m3?

Notes:

- Quantities of particulates being emitted from an emission unit complying with the requirements in this Section should not be included in Section 2.
- Quantities of noncarcinogenic particulates with an ITSL ≤ 2.0 ug/m3 and ≥ 0.04 ug/m3 must be included in Section 2.
- Quantities of carcinogenic particulates > 0.04 ug/m3 must be included in Section 3.

Compliance Criteria:

- If any of the preceding questions concerning noncarcinogenic particulate air contaminants are answered “No”, contact your local district office.

7. OTHER REQUIREMENTS

- Attach emission calculations to demonstrate compliance with the emission limits identified in Sections 2, 3, 4, and 5.
- Keep this record on file for a minimum of 2 years, if not required for a longer period from other requirements, i.e. ROP.

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APPENDIX F - LIST OF ACRONYMS

AQD	Air Quality Division
AWMA	Air and Waste Management Association
BTU	British Thermal Unit
CAAP	Clean Air Assistance Program
CAS	Chemical Abstract Service
CFC	Chlorofluorocarbon
CFR	Code of Federal Regulations
CO	Carbon Monoxide
ESSD	Environmental Science and Services Division
GAL	Gallon
HAP	Hazardous Air Pollutant
HCL	Hydrogen Chloride
H_2S	Hydrogen Sulfide
HP	Hazard Potential
HR	Hour
IRSL	Initial Risk Screening Levels
ITSL	Initial Threshold Screening Levels
LBS	Pounds
LOV	Letter of Violation
MDEQ	Michigan Department of Environmental Quality
MEK	Methyl Ethyl Ketone
MI	Michigan
MSDS	Material Safety Data Sheet
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	Nitrogen Dioxide
NO_X	Nitrogen Oxides
NSPS	New Source Performance Standards

PM	Particulate Matter
PM-10	Particulate Matter less than 10 microns
PPM	Parts per Million
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
PTI	Permit to Install
ROP	Renewable Operating Permit
SO_2	Sulfur Dioxide
SRN	State Registration Number
TAC	Toxic Air Contaminants
T-BACT	Best Available Control Technology for Toxics
TCA	1,1,1 Trichloroethane
UG/M3	Micrograms per cubic meter
US	United States
VOC	Volatile Organic Compound
WT	Weight
YR	Year

APPENDIX G - AWMA PAPER - "DESCRIPTION OF THE NEW AIR TOXIC PERMIT EXEMPTIONS RELATING TO POLLUTION PREVENTION"

A DESCRIPTION OF THE NEW AIR TOXIC
PERMIT EXEMPTIONS RELATING TO POLLUTION PREVENTION

Gerald L. Avery, P.E.
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Air Quality Division
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Lansing, Michigan

Presented at the 17th Annual Meeting and Spring Conference, Michigan Chapter, East Central Section, Air and Waste Management Association, Detroit, Michigan; May 11, 1993.

POLLUTION PREVENTION – EPA'S DEFINITION

In 1990 the United States Congress passed the Pollution Prevention Act which established a national pollution prevention policy that stated the following:

* Pollution should be prevented or reduced at the source whenever feasible;
* Pollution that cannot be prevented should be recycled in an environmentally safe manner whenever feasible;
* Pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and
* Disposal or other release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner.

Pollution prevention means any practice which:

* Reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) prior to recycling, treatment, or disposal; and
* Reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants.

The term includes: equipment or technology modifications, process or procedure modification, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training, or inventory control.

Pollution prevention approaches can be applied to all pollution-generating activities, including those found in the energy, agriculture, government, consumer, as well as industrial sectors. The impairment of wetlands, ground water sources, and other critical resources constitutes pollution, and prevention practices may be essential for preserving these resources. These practices may include conservation techniques and changes in management practices to prevent harm to sensitive ecosystems. Pollution prevention does not include practices that create new risks of concern.

The remainder of this presentation will describe how pollution prevention relates to Michigan's air pollution control program.

Michigan's Approach

The Michigan Air Quality Division has always been a very strong advocate of improving air quality through pollution prevention programs. In 1972, I took an air pollution course at Michigan State University which was taught by Lee Jager and Del Rector of the Air Quality Division. In this course, we were taught that the best and preferred way to control air pollution was to design the process in a manner which either eliminates or reduces the potential to generate and emit an air contaminant directly at a source.

Shortly after taking this course, I joined the Air Quality Division where I was once again trained that the best way to control air pollution was to design the process in a manner which prevented air pollution from being generated in the first place. As you know now, everyone calls this pollution prevention.

Pollution prevention has always been a very important part of our strategies for meeting our air quality goals and standards. For example, we attained compliance with the sulfur dioxide standards primarily by converting to fuels which contained low sulfur content. These cleaner fuels also helped us to meet the particulate standards. Other pollution prevention measures which reduced particulate emissions included better combustion controls, using electrical induction metal melting furnaces, and developing waste disposal systems which did not rely on open burning practices. Finally many companies have relied on more efficient paint applicators and lower volatile organic compound (VOC) coatings to comply with our VOC regulations.

Air Toxics and VOCs

In the remainder of this presentation I will describe some of the pollution prevention opportunities that exist for reducing the emission of VOCs and air toxics and show how our new air permit exemptions were designed to encourage pollution prevention initiatives. These new permit exemptions were included in the air toxic permitting rules which became effective on April 17, 1992.

The first permit exemption which I would like to described is Rule 283. This rule exempts from the permitting system pilot processes utilizing Best Available Control Technology for Toxics (T-BACT). T-BACT is defined as the maximum degree of emission reduction which is reasonably achievable taking into account energy, environmental, and economic impacts and other costs. This exemption allows you the opportunity to develop and pilot a pollution prevention project without having to obtain an air use permit. You are encouraged to review the specifics of the rule since is contains some fairly detailed definitions and restrictions.

Rule 285(b) is another new air toxic permit exemption which allows you to implement many pollution prevention initiatives in your production operations without having to obtain a new air use permit from our agency. Rule 285(b) states that the permit system does not apply to:

> Process changes that do not involve any meaningful change in the quality and nature or any meaningful increase in the quantity of the emission of an air contaminant therefrom. Examples of such process changes include the following:

i. Change in the supplier or formulation of similar raw materials, fuels, or paints and other coatings.
ii. Change in the sequence of the process.
iii. Change in the method of raw material addition.
iv. Change in the method of product packaging.
v. Change in the process operating parameters.

This rule also exempts process changes involving equipment changes which do snot involve installing, constructing, or reconstructing an emission unit or the primary air cleaning device of an air pollution control system provided they meet the other restrictions contained in Rule 285(b). Examples of emission units include a boiler, a topcoat paint line, and a process unit at a chemical plant.

The following are some additional examples of process equipment changes which may be exempt from the permitting system.

i. Replacement of an identical or more efficient cyclone precleaner which is used as a precleaner in a fabric filer control system.
ii. Installation of a floating roof on an open top petroleum storage tank.
iii. Replacement of a fuel burner in a boiler with a more thermally efficient burner.
iv. Replacement of a paint applicator with a more efficient applicator.
v. Lengthening a paint drying oven to provide additional curing time.
vi. The conversion of a painting system from a high solvent coating to a waterbased coating and the installation of a new infrared drying oven which is now required since the waterbased coating cannot be air dried.

Determining what is meaningful change in the quality and nature or a meaningful increase in the quantity of the emission of an air contaminant has been the most difficult and confusing part of implementing these new exemptions for the owners and operators of air pollution sources and for our own field staff who are responsible for enforcing these new rules.

The term meaningful in this exemption was intended to refer to any process change that has the potential to have a significant air quality impact of a magnitude that warrants an independent review by our agency’s permit engineers, toxicologists, or dispersion modelers. It was not intended to apply only to changes which would be considered to be unacceptable or unapprovable. When determining whether a change is meaningful, all relevant scientific information such as acute and chronic toxicity, exposure from routes of exposure other than direct inhalation, odoriferousness, and effects on the environment should be considered.

Any emission increase which would exceed an allowable or permitted level or which would be a Federal New Source Performance Standard modification would obviously be considered a meaningful change. Other increases which are less than 10% based on the potential to emit on an hourly basis and are less than 10% of the Federal significant emission rates based on the potential to emit on an annual basis may not be considered meaningful as long as the predicted ambient levels would not exceed the Initial Threshold Screening Levels and Initial Risk Screen Levels contained in the air toxic permitting rules. Appendix A contains a list of the Federal significant levels. Similarly, changes which would increase the hazard potential of the emission by less than 10% may not be considered to represent meaningful changes. Past permitting experience have indicated that these 10% cutoff levels will be protective of the environment and will significantly reduce the number of permits that are submitted that do not warrant a detailed permit review.

Appendix B contains a description of the steps and calculations that may be followed to determine if a process change is exempt by Rule 285(b) along with four specific examples.

These examples should demonstrate that most pollution prevention initiatives will not represent a meaningful process change which needs to obtain a new air use permit since pollution prevention means reducing the amount of any pollutant which is released into the environment and which reduces the hazards of the emission.

In closing, I would like to paraphrase Benjamin Franklin and leave you with the idea that “an ounce of prevention is worth a pound of control.”

Appendix A: Federal Significant Emission Rates

Pollutant and Emission Rate

Carbon monoxide: 100 tons per year (tpy)
Nitrogen oxides: 40 tpy
Sulfur dioxide: 40 tpy
Particulate matter: 25 tpy
PM10: 15 tpy
Ozone: 40 tpy of volatile organic compounds
Lead: 0.6 tpy
Asbestos: 0.007 tpy
Beryllium: 0.0004 tpy
Mercury: 0.1 tpy
Vinyl chloride: 1 tpy
Fluorides: 3 tpy
Sulfuric acid mist: 7 tpy
Hydrogen sulfide (H_2S): 10 tpy
Total reduce sulfur (including H_2S): 10 tpy
Reduced sulfur compounds (including H_2S): 10 tpy
Municipal Waste Combustor Organics: 3.5×10^{-6} tpy
Municipal Waste Combustor Metals: 15 tpy
Municipal Waste Combustor Acid Gases, measured as SO_2 and HCL: 40 tpy

Appendix B

Rule 285(b) Exemption Calculations and Examples

Assumed Baseline Condition on April 17, 1992 for Examples 1-4

Toxic Air Contaminant	Hourly Potential to Emit (pph)	Screening Level ($\mu g/m^3$)	Adjusted Annual Screening Level ($\mu g/m^3$)	Calculated Hazard Potential
Acetone	5	5900 (8 Hr.)	327	.015
Formaldehyde	.09	.08 (annual)	.08	1.13
(MEK) Methyl Ethyl Ketone	10	1000 (24 Hr.)	100	.1
Toluene	50	400 (24 Hr.)	40	1.25

Step 1. Look up screening levels in AQD list.

Step 2. Convert all screening levels to an Adjusted Annual Screening Level.

Divide 1 hour level by 75.
Divide 8 hour level by 18.
Divide 24 hour level by 10.

Step 3. Calculate Hazard Potential (HP) for each contaminant.

HP = Hourly Potential to Emit/Adjusted Annual Screening Level.

Step 4: Determine which contaminant has the highest hazard potential. This represents the worst baseline condition. In this example this is Toluene with a HP = 1.25.

Example 1:

Does substituting 40 pph of xylene for 50 pph of toluene represent a meaningful change in the nature of emissions?

Answer: No

Step 1. Convert xylene screening level of 300 $\mu g/m^3$ (24 hour) to an annual value 300/10 = 30 $\mu g/m^3$.

Step 2. Calculate HP = 40/30 = 1.33.

Step 3. Compare to worst case to see if HP increases by less than 10% of worst baseline case. (1.33 - 1.25) ÷1.25 x 100% = 6.4%.

This is not meaningful change in the nature of emission and is exempt pursuant to Rule 285(b).

Example 2:

Does substituting 40 pph of xylene for 10 pph of MEK represent a meaningful increase in the quantity of emission?

Answer: Yes

Increasing emissions from 65.09 to 95.09 pph represents a 46% increase and 131 tpy increase. Increases in hourly emissions of more than 10% and/or increases in annual emissions of 10% of the significant levels (as defined in federal regulations) are considered to represent meaningful increases.

Example 3:

Does substituting 5 pph of acetone with 5 pph of methyl n-amyl ketone (MAK) represent a meaningful change in the nature of emissions?

Answer: Yes

The odor threshold of acetone is 47 $\mu g/m^3$ and the odor threshold of MAK is 0.09 $\mu g/m^3$. MAK has caused odor problems at other similar coating facilities. This large increase in odor potential represents a meaningful change which merits a permit review.

Example 4:

Does increasing the toluene to 65 pph and eliminating all of the acetone, formaldehyde and MEK represent a meaningful change in the nature of emissions?

Answer: Yes

This would increase the HP of the worst case by 30%.

1. HP at 65 pph = 65 ÷40.
2. HP Increase = (1.625 - 1.25) ÷1.25 x 100% = 30%