

PART 1

AIR QUALITY REQUIREMENTS

WHY ARE AIR EMISSIONS FROM CRUSHING FACILITIES REGULATED?

Environmental regulations exist to protect our land, air, and water from absorbing an excessive amount of pollution. Air pollution that comes in the form of fine dust, smoke, or soot particles, also known as particulate matter (PM), is just one of six major pollutants regulated by the U.S. Environmental Protection Agency (USEPA) and the Air Quality Division (AQD) of the Michigan Department of Environmental Quality (DEQ). The other criteria air pollutants are ground-level ozone, nitrogen dioxide, sulfur dioxide, carbon monoxide, and lead.



The USEPA sets the National Ambient Air Quality Standards (NAAQS) for the six criteria air pollutants. The standards protect public health including the health of sensitive populations such as asthmatics, children, and the elderly and the public welfare including protection against decreased visibility and damage to crops, vegetation, and buildings. The units of measure for the PM standard are micrograms per cubic meter of air.

The USEPA classifies and regulates dust, smoke, and soot by the particle size which is measured in microns. Dust or PM less than or equal to 10 microns in diameter is commonly referred to as PM₁₀. Most dust associated with crushing facilities falls into this category. Finer sources of PM equal to or smaller than 2.5 microns (PM_{2.5}) are a result of photochemical reactions.

Research has shown that inhaling too much dust lowers the body's natural defenses because dust builds up in our respiratory system and irritates the sensitive tissue in our lungs. Therefore, breathing a lot of dust over a long period of time can cause chronic breathing and lung problems. Another consequence of dust generation is that it is a major cause of reduced visibility (also known as haze) for road traffic; and it can contribute to excessive soiling, discoloration, and damage to personal property. Fine particles can remain suspended in the air and travel long distances. For example, a puff of exhaust from a diesel truck in Los Angeles can end up over the Grand Canyon.

The crushing of nonmetallic minerals is just one of a number of dust-generating activities regulated by the USEPA and DEQ. Other industries where dust is controlled by similar federal and state regulations include asphalt and concrete batch plants.

AN OVERVIEW OF THE FEDERAL AND STATE AIR QUALITY REGULATIONS

Dust and fine particulate are measured by opacity. Opacity is a measurement of how dense the dust particles are in the air and takes into account how much light is obscured by the rising dust when looking at a solid colored background. Opacity is measured in percentages from 0 to 100 percent and measurement is actually performed by visible observation. When there is no visible smoke, the opacity is zero percent, meaning all of the light around a crushing facility is able to pass through. Therefore, when the statement is made that an activity is operating at a "25 percent opacity" level, it means the PM is blocking only 25 percent of the visual background light, leaving 75 percent of the background light clearly visible. An example of standard opacity levels is illustrated by Figure 1-1. The more dust or PM generated, the more difficult it is to see the landscape background.

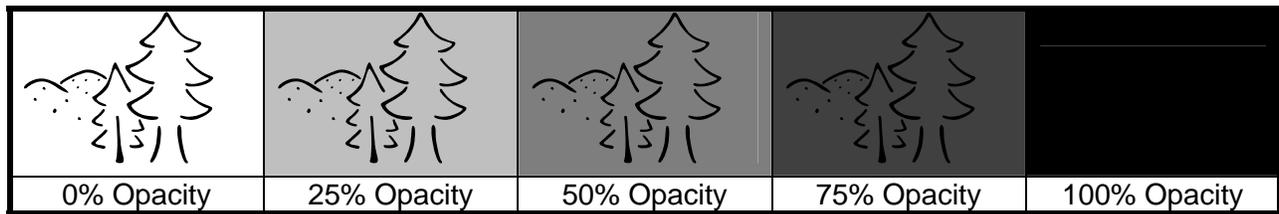


Figure 1-1: Opacity Levels

The USEPA regulates the emissions of particulate matter from nonmetallic mineral crushing facilities through the New Source Performance Standards (NSPS), Subpart OOO. The NSPS requires new, modified, or reconstructed crushers and related equipment be tested, monitored, and records maintained by their owners or operators. The DEQ enforces the *Michigan Air Pollution Control Rules* which restrict the level of dust or PM that can be emitted into the air. The *Michigan Air Pollution Control Rules* require owners/operators of crushing facilities to obtain a pre-construction air pollution control permit which is known as a Permit to Install. This permit contains a set of general and special conditions for the operation of your crushing facility and incorporates the testing, monitoring, and recordkeeping requirements from the NSPS. Together, both the state and federal regulations set the maximum levels of dust which can be emitted from your crushing facilities. If you want to operate a crusher in Michigan, you must first apply for and receive a Permit to Install. The permit must be issued prior to beginning activity at your first job site.

Who Can Use the General Permit to Install?

There are two types of Permits to Install that crushing facilities can apply for in Michigan. One is a Permit to Install and the other is a General Permit to Install. What is the difference between the two permits? Both the Permit to Install and General Permit to Install can be used by companies that crush and process nonmetallic minerals, but the General Permit to Install can only be used by companies that:

- Crush no more than 2 million tons per year at any one site.
- Locate and operate their crusher a minimum of 500 feet from any residential or commercial establishment or place of public assembly.
- Have established and implemented a fugitive dust control program.
- Do not have any unresolved air quality enforcement violations with the USEPA or the DEQ.
- Have an operation not currently covered under another company's Permit to Install.

The Benefits of Using the General Permit to Install

The General Permit to Install is intended for smaller crushing facilities – especially those that move from site to site during the year. The General Permit to Install is designed to be more flexible than a regular Permit to Install as well as easier to apply for and complete. Oftentimes, an administratively complete General Permit to Install application can be issued within 30 days or less. The biggest benefit of the General Permit to Install is that it is not linked to one specific job site because the permit is issued for the crusher and its associated equipment. Once you are issued a General Permit to Install, it is very easy for you to move your process and equipment from site to site. This allows you, the owner and/or operator, more flexibility in meeting the needs of your customers.

Who Must Comply With The Permit To Install Requirements?

Both the owner and operator leasing the crusher and related equipment who process nonmetallic rocks, stone, sand, gravel, concrete or recycled asphalt can be held liable for violations of state and federal air quality rules..

Leased Equipment

A Permit to Install is required for all crushing facilities, whether it is leased from a second party on a temporary basis or owned outright. Companies that lease their equipment should first check with the leasing company to see if:

- A Permit to Install has been applied for by the leasing company (i.e., the owner of the equipment). As an operator of the crushing equipment, it is important to verify that a valid Permit to Install exists for the equipment you wish to lease. If not, you will need to apply for an air quality permit in order to use the equipment. If there is a permit already assigned to this equipment, the leasing company may allow you to operate under their Permit to Install for that equipment. In this case, ask for a copy of the Permit to Install for your records because you are required to post a copy of the Permit to Install at your job site and understand and comply with all of the permit conditions. The DEQ will issue a Permit to Install to either the owner of the equipment or the operator of the equipment. The General Permit for Nonmetallic Mineral Crushing Facilities currently lists both the owner and operator as viable entities.
- The necessary initial performance test has been completed for the equipment you wish to lease. Ask the leasing company for a copy of the test documentation to demonstrate that the equipment has passed the necessary initial performance test. Keep a copy of this test documentation for your records. The DEQ will hold the permittee responsible for complying with all of the Permit to Install's requirements. If no permit has been obtained, the DEQ may take action against the lessee and/or lessor for failing to obtain the Permit to Install and failure to conduct performance testing. According to the Permit to Install, both the owner and operator are liable for violations. It is important to remember that violations can be enforced by either the DEQ or the USEPA, depending on what air quality requirements were violated.

Once you have checked on the status of these items and a permit has been issued for the equipment, all you need to do as an operator is file a Relocation Notice form (EQP 5757) along with a copy of the original General Permit to Install and any new Process Information forms (EQP 5756) for changes made to your plant to the AQD district office. The Relocation Notice notifies the AQD district office staff that the equipment is being transferred to a new work site from a previous work site. No matter who applied for and holds the permit, as an owner and/or operator of the crushing equipment you are still responsible for knowing the contents of the permit. This is important because the general and special conditions of the permit outline your responsibilities to operate the crusher and related equipment in compliance with the federal and state air quality regulations.

Grandfathered Sources of Air Pollution

There are some types of crushing equipment which do not require a Permit to Install. The reason an air quality permit is not required for these types of pollution sources is because they are grandfathered-in which means they were installed before the *Michigan Air Pollution Control Rules* went into effect in 1967. If you own equipment that was installed **but never modified, reconstructed, or relocated** since August 15, 1967 (i.e., the date the *Michigan Air Pollution Control Rules* became effective), your equipment would be considered to be grandfathered-in and would not require a Permit to Install.

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It is important to note there are very few sources of air pollution still in operation that would meet these criteria. Most pre-1967 constructed crushing equipment has been modified or reconstructed over the years and is now required to have an air quality permit. To learn more about what it means to modify or reconstruct your equipment, please see pages 1-13 through 1-18.

Activities that are Exempt from Air Pollution Requirements

Most nonmetallic mineral crushing facilities are subject to the Permit to Install requirement, but there are some related activities that are exempt from the Permit to Install requirements. For example, equipment for the mining and screening of uncrushed native sand and gravel is exempt. Although this equipment is exempt from the permitting requirement, opacity monitoring is still required to keep the dust levels at or below 20% opacity. If you would like to discuss your specific circumstance, or if you have questions regarding the exemption status of other potential sources of air pollution, contact the DEQ's Environmental Assistance Program (EAP) at 800-662-9278.

There are some nonmetallic mineral crushing activities that require an air quality permit, but are not required to comply with performance testing, recordkeeping, and reporting requirements found in the NSPS Subpart OOO. These operations include:

- Fixed sand and gravel plants, and crushed stone plants with capacities of 25 tons per hour or less.
- Portable sand and gravel plants, and crushed stone plants with a capacity of 150 tons per hour or less.
- Common clay and pumice plants with capacities of 10 tons per hour or less.
- Underground mines.
- Stand-alone screening operations NOT attached to a crusher.

However, these activities must still be monitored by the plant owner/operator to maintain a less than 20% opacity level during their operation.

AN OVERVIEW OF THE GENERAL PERMIT TO INSTALLATION FORMS

Since most crushing facilities can meet the applicability requirements for a General Permit to Install, the discussion on air permitting will focus on this permit and not the Permit to Install. See “Available Resources” on page 1-21 if you need assistance on completing a Permit to Install application or have questions on which Permit to Install application to use.

Where to Get a General Permit to Install Application

You can obtain a hard copy of the *General Permit to Install Application for Nonmetallic Mineral Crushing Facilities* by visiting the DEQ web site at www.michigan.gov/deqair. Once on the air quality portion of the DEQ web site, select “Permits” from the left-hand menu, then “Permits to Install/New Source Review” from the middle of the page. On the “Air Permits System” web page, in the left-hand column under “Permits to Install/New Source Review,” look for and select the topic “General Permits – Applications Forms and Instructions.” Select the “*General Permit to Install Application for Nonmetallic Mineral Crushing Facilities*.”

The Permit Application Forms

The General Permit to Install application consists of three primary forms: the **General Information**, the **Process Information**, and the **Additional Information** forms. You will use these three forms to apply for a new or modify an existing nonmetallic crushing facility. A step-by-step guide on how to properly fill out the permit application forms is available in Appendix A of this document.

The General Information Form (EQP 5727)

 <p>Michigan Department of Environmental Quality - Air Quality Division</p> <p>GENERAL PERMIT TO INSTALL APPLICATION GENERAL INFORMATION</p>	FOR DEQ USE ONLY
	PERMIT NUMBER

The General Information form is used to gather contact and physical company location information from the permit applicant. It is also used to track any additional forms or documentation the permit applicant submits as part of the overall permit application. This is a standard form that is used in each of the other seven types of General Permit to Install applications the AQD offers.

The Process Information Form (EQP 5756)

 <p>Michigan Department of Environmental Quality - Air Quality Division</p> <p>GENERAL PERMIT TO INSTALL APPLICATION PROCESS INFORMATION - NONMETALLIC MINERAL CRUSHING (Page 1 of 2)</p>	FOR DEQ USE ONLY
	PERMIT NUMBER

The Process Information form collects specific information about each component of your crushing facility.

The Additional Information Form (EQP 5759)

 Michigan Department of Environmental Quality - Air Quality Division GENERAL PERMIT TO INSTALL APPLICATION ADDITIONAL INFORMATION	FOR DEQ USE ONLY
	PERMIT NUMBER

The Additional Information form is used to indicate you are attaching supplemental information along with your permit application. The types of supplemental information you can attach include plant set up diagrams, local area maps, drawings, charts, equipment documentation, or other information you believe is important to the processing of your permit application request.

NEW INSTALLATION OF A CRUSHING FACILITY

According to Rule 201 of the *Michigan Air Pollution Control Rules*, you must not start construction of a source of air pollution without first obtaining an approved Permit to Install. Submitting a General Permit to Install application for a new installation involves filling out each of the following permit forms and providing additional documentation to the AQD so they can begin processing your application. If you installed your crushing facility without a Permit to Install, you will need to address this deficiency by submitting a Permit to Install application. You will not be able to use the *General Permit to Install Application for Nonmetallic Mineral Crushing Facilities*. Requesting a General Permit to Install involves completing:

- One General Information form (EQP 5727)
- One or more Process Information forms (EQP 5756)
- One or more Additional Information forms (EQP 5759)

Submitting Your Permit Application Package

Once the General Information form, pages 1 and 2 of the Process Information form, and one or more Additional Information forms are completed, you are ready to submit your application package to the AQD. Please make two copies of the entire General Permit to Install application, including any attachments or other documentation that will be included with the application, and mail the **original copy** of the entire application package directly to:

Michigan Department of Environmental Quality
Air Quality Division
Permit Section
P.O. Box 30260
Lansing, MI 48909

What Happens After I Submit My Permit Application?

The Permit Section of the AQD receives all General Permit to Install applications. Each application is date stamped and then screened to ensure the application form and its attachments have been filled out correctly, and that it contains all of the information that the AQD requires. This process ensures that a permit is administratively complete. If any information is missing or unclear, the application will be sent back with a letter explaining what information is needed for the application to be administratively complete.

The AQD assigns a unique permit number. The permit number consists of two number fields separated by a dash (NNN-XX). The first number represents the chronological number of receipt. The second number represents the year of receipt. A permit identified as 100-07 was the 100th permit application received during 2007. If the permit application is for a modification, the AQD uses the original permit number and adds a letter suffix. For example, the first modification of Permit to Install 100-07 would be 100-07A.

The AQD also determines if the company has a state registration number (SRN). If not, one is assigned to the company. The permit review process concludes with approval and issuance of the company's permit.

How Long Will It Take to Process the Permit Application?

General Permit to Install applications can be processed in 30 days or less, depending on the work load of the AQD. You will know your permit is approved once the AQD mails a copy to your company with a letter acknowledging the AQD is aware your company intends to install and operate a crushing facility in accordance with the terms and conditions of the General Permit to Install. It is important to remember that the AQD is obligated to maintain and make available to the public, upon request, a copy of your General Permit to Install.

Once you have received your permit, you must then proceed to the next compliance requirement which is testing your equipment. Equipment performance testing is required by your permit to demonstrate that your equipment meets the opacity levels specified in the special conditions of the permit. See page 1-13 for more information on the Initial Performance Test requirements for your equipment.

Complying with the Conditions of the General Permit to Install

The compliance requirements of the General Permit to Install are a combination of federal and state regulations. It is important that, upon receiving your permit, you become very familiar with all of the general and special conditions of the permit because it is your responsibility to operate the equipment according to the conditions or face possible fines and penalties. The following is a short description of each requirement and tips on how to comply. For a listing of all the general and special conditions, follow the instructions under "Available Resources" on page 1-21.

Controls

- Install water sprays on each crusher and screen and make sure they are fully operational.
- Review, maintain, and implement a fugitive dust plan as specified in Appendix A of the General Permit to Install.
- If using a baghouse collector to control particulate emissions, remove collected air contaminants and dispose of them to minimize the amount of dust released to the air.

Labeling

- Label all crushing equipment within 45 days of the crushing facility's start up. Equipment labels should be placed in an easy-to-see location on the equipment and should be the same as the Device IDs as indicated on the permit application's Process Information form (EQP 5756).

Local Permitting Requirements

- The General Permit to Install does not absolve you from having to obtain other permits and approvals from other governmental agencies. For example, a Soil Erosion and Sedimentation Control Permit may be required before you begin preparing your site. See page 2-6 for more information.

AIR QUALITY REQUIREMENTS

Maintenance

- Ensure the proper operating efficiency of all water sprays for all crushers and screens associated with the process, as well as any baghouse dust collector or wet scrubber controlling emissions from crushers and/or screens.

Material Specifications

- Verify the material you are to crush is not contaminated with asbestos tailings or other asbestos waste material.
- Any material processing change at your plant (e.g., a move from crushing concrete to crushing asphalt) requires that you complete and submit a new Process Information Form (EQP 5756) to the AQD.

Monitoring

- If you are using a wet scrubber to control dust, it must be equipped with a continuous monitoring device that measures the pressure drop across the scrubber and measures the liquid flow rate. These devices must be calibrated annually. If the change in pressure and liquid flow rate readings varies +/- 30 percent from the values recorded during the most recent initial performance test, you are required to submit a semiannual report to the AQD within 30 days of the second and fourth calendar quarters.

Notifications to the DEQ

- Notify the AQD of the start-up date of your crushing facility within 15 days after the start up begins.
- If moving from a wet operation (i.e., saturated materials from a wet screening or wet mining operation) to a dry operation (and vice-versa), you must notify the AQD within 30 days following this change in material handling and adhere to the respective opacity limits as stated in Table 1-1.
- Notifications pertaining to performance testing:
 - Fourteen days prior to the performance test, have the AQD district supervisor approve your test procedures.
 - Seven days prior to the performance test, notify the AQD district supervisor of the performance test date.
 - If the performance test is delayed, notify the AQD of the new test date at least three days before the test is scheduled to be performed.
- If there is a problem with any component of your crushing facility where excessive amounts of dust are generated for more than two hours, you are required to notify the AQD of this abnormal condition or equipment malfunction within two business days of discovery of the occurrence. Notification is made to the appropriate AQD district office (see Appendix E). If the AQD requires a written report, that report must be submitted within 10 days after the abnormal condition or equipment malfunction has been corrected or within 30 days of discovery, whichever is first.
- Notify the AQD of the start-up date of any replacement or additional equipment.

Opacity or Visible Emissions Standards

- The opacity of PM leaving the various pieces of equipment from your crushing facility shall not exceed the limits contained in Table 1-1.
- Maintain an opacity level of under 20 percent for all diesel-fueled stationary and portable on-site generators.

Equipment	Opacity Limit (%)
• Any equipment enclosed within a building	No visible emissions
• All crushers	15
• Screens	10
• Rock drills	5
• Conveyors/Transfer points	10
• Wash screens and all subsequent equipment downstream up to the next crusher or storage bin	No visible emissions
• All equipment controlled by a baghouse dust collector	7
• Wheel loaders and truck traffic	5
• Material storage piles	5
• Any other process equipment which is part of the nonmetallic mineral crushing facility or related processes	10

Table 1-1: Monitoring Equipment Opacity Limits During Operation

Performance Testing

- Within 60 days of achieving the maximum production rate but no later than 180 days after you initially start up the crusher and its associated equipment, conduct the required visible emission performance test (see Figure 1-2).
 - The performance test must be conducted by a person certified to evaluate visible emissions in accordance with USEPA Reference Method 9. See page 1-13 for more information about this USEPA test method.
 - Complete the performance test demonstrating that the crushing facility meets the opacity limits stated in Table 1-1, Figure 1-3, and in the Special Conditions portion of the General Permit to Install, Section 1.2.
 - Submit a copy of the completed opacity observations report to the AQD district office within 30 days of the test date (see Appendix E).
 - If a baghouse collector or wet scrubber is installed in lieu of a water spray, conduct a performance test to verify compliance with the PM emission rate of 0.05 grams per dry standard cubic meter of exhaust gas.

For more information regarding performance testing, see page 1-13

Posting

- Post a copy of the General Permit to Install in the operator’s office or workstation.

Processing Limitation

- The General Permit to Install will not allow you to process more than 2 million tons of crushed material per year at one location.

Recordkeeping

- Monitor and keep daily and annual records of the amount of material processed for each job site. Records must be kept for at least five years and made available to the AQD upon request. The General Permit to Install will not allow you to process more than 2 million tons of crushed material per year at one location.
- Keep accurate and complete records of all replacements, reconstructions, and modifications made to equipment at your crushing facility. This includes documentation such as:
 - Purchase orders.
 - Manufacturers’ equipment manuals (equipment descriptions) and specifications.

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- The rated capacities of existing and replacement crushers, bucket elevators, bagging operations, or enclosed trucks.
 - The total surface areas of the top screen of existing and replacement screening operations.
 - The width of the existing and replacement conveyor belt. The rated capacities (in tons) of existing and replacement storage bins.
 - The date the equipment was installed, developed, and made operational.

Siting

- Your crushing facility must be at least 500 feet from any residential or commercial establishment, or place of public assembly.

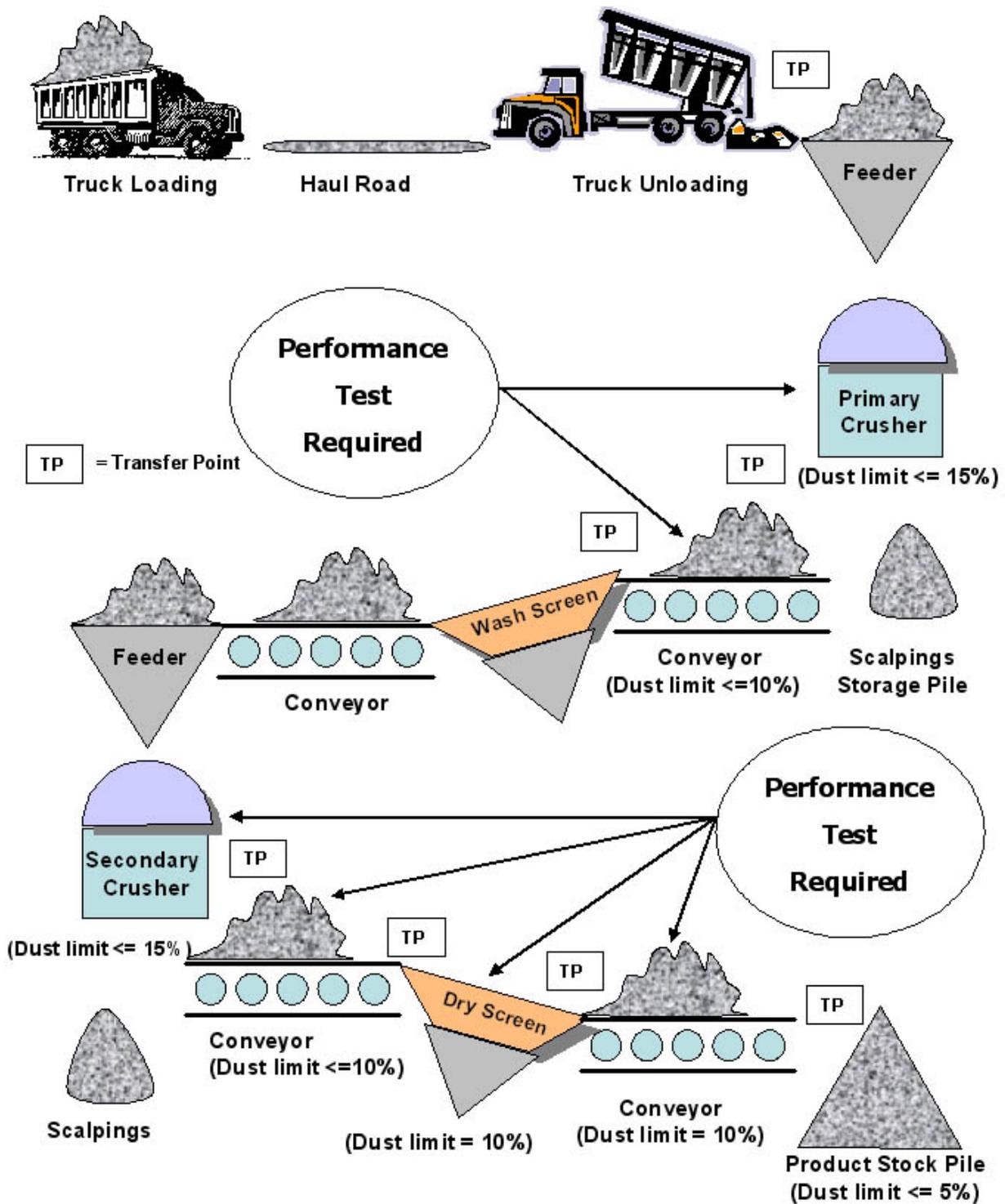


Figure 1-2: Determining What Equipment in a Fixed or Portable Crushing Facility Requires a Performance Test

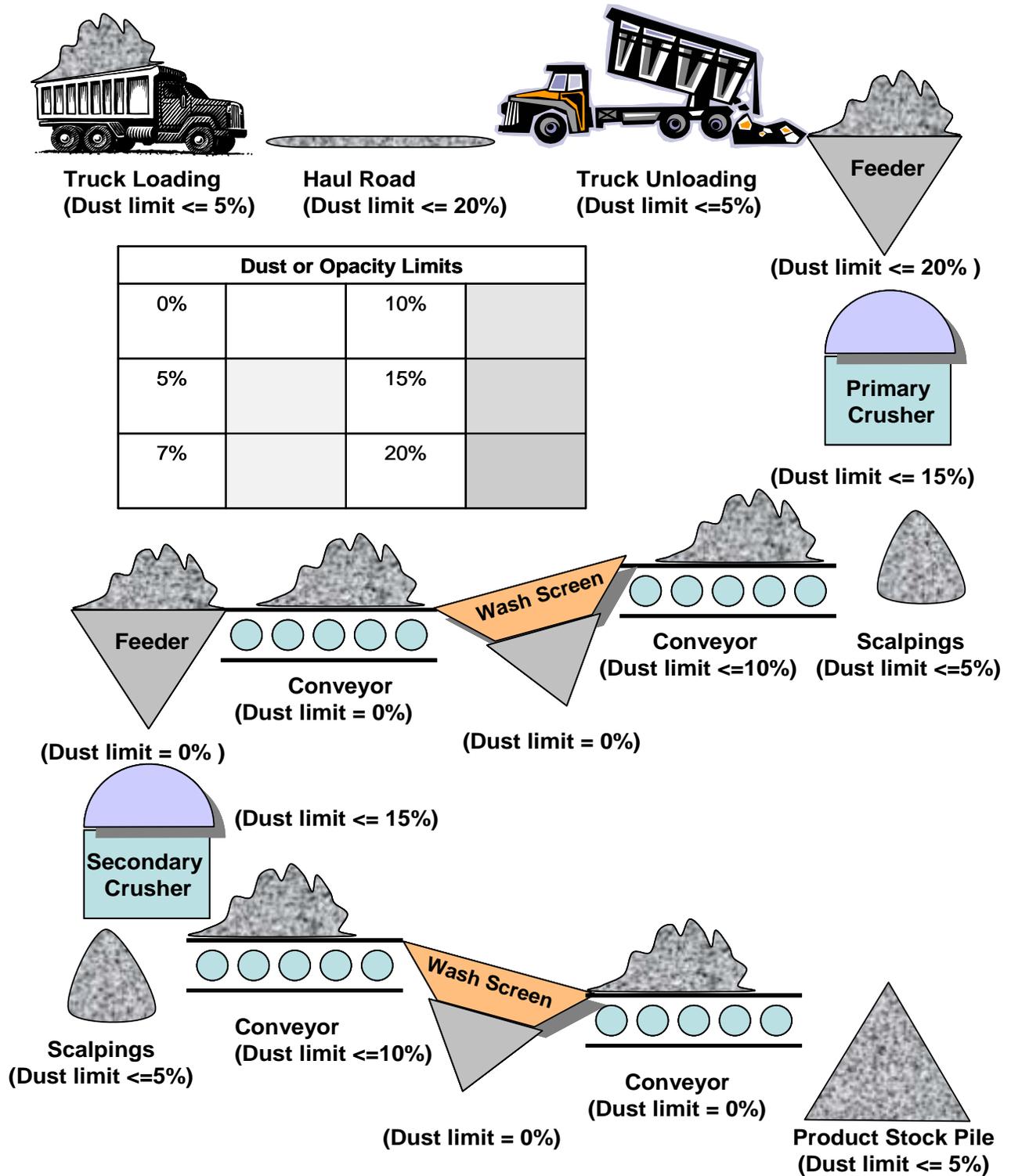


Figure 1-3: Complying with the Dust or Opacity Limits in the Nonmetallic Mineral Crushing General Air Permit

The Initial Performance Test Requirements of Your General Permit to Install

An initial performance test is required in order to determine if the opacity of the dust or particulate matter emitted from the components of a crushing facility stay at or below the established limits. The following components of a crushing facility must undergo an initial performance test.

- Crushers
- Grinding mills
- Screens
- Bucket elevators
- Belt conveyors/transfer points
- Baghouse dust collectors
- Storage bins/piles
- Wheel loaders and truck loading stations

The following components of the crushing facility do not have to undergo an initial performance test:

- Wet screens and associated bucket elevators and belt conveyors that lead up to the next crusher, grinding mill, or storage bin.
- Screens and associated bucket elevators and belt conveyors that are downstream of a wet mining operation and lead up to the first crusher, grinding mill, or storage bin.

EQUIPMENT RENTALS

If you are renting any type of crusher and associated equipment, you must verify that an initial performance test has been performed on that equipment. If not, as the operator of the equipment, you will be responsible for conducting an initial performance test to verify opacity compliance.

The initial performance test requires the use of an established USEPA protocol or method in order to accurately complete the test and comply with the General Permit to Install requirements. The most common protocol or method used today for performance testing is USEPA Test Method 9, also known as the “Visible Determination of Opacity of Emissions from Stationary Sources.” The initial performance test must be completed by a visible emissions reader who is certified in the USEPA Test Method 9 performance test method. During a performance test, the certified visible emissions reader records the level of dust that comes off various parts of the crushing facility. The levels of dust are measured as percentages of opacity. The initial performance test is completed over a specified period of time, and the visible emissions reader determines whether the crusher’s components emit dust within the acceptable opacity limits (as specified in Table 1-1 on page 1-9).

Where Do I Find a Certified USEPA Test Method 9 Visible Emissions Reader?

As the owner/operator of a crushing facility, you have two options when it comes to conducting the initial performance test:

1. Hire an environmental consultant who is certified to conduct the USEPA Test Method 9 visible emissions test.
2. Have someone from your company become certified.

Most environmental consultants have at least one person on staff who is certified to evaluate visible emissions in accordance with USEPA Test Method 9. These consultants are often found in your local telephone directory under “environmental” or “air quality” consultant. The DEQ’s Environmental Assistance Program also publishes a list of statewide air quality consultants in *The Michigan Clean Air Consultant Directory*. This directory is available on the DEQ web site at www.michigan.gov/deqair. Select “Clean Air Assistance Program” from the left menu bar. In the middle of the page under “Information,” select “Environmental Consultant Assistance.”

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If you chose to have an employee from your company certified in the USEPA Test Method 9 protocol, you may send that employee to Michigan's smoke school. Twice a year, the AQD partners with a private training company to certify opacity readers in the state. The smoke school is generally offered spring (April) and fall (October) of each year in both the Detroit and Grand Rapids metro areas. Information about registering for the bi-annual smoke school can be found on the AQD Web site at www.michigan.gov/deqair.

What are the Benefits of Having a Certified USEPA Test Method 9 Visible Emissions Reader on Staff?

The benefits are two-fold:

1. The employee who is certified in a test protocol can accurately document the opacity levels of your crushing equipment as it operates at each job site. This provides the AQD with strong documentation of your operating opacity levels and demonstrates your commitment to be a good environmental steward.
2. The up-front costs associated with training an employee may be the most economical option for your company if your company has an ongoing replacement schedule for its equipment as new, modified, or reconstructed equipment may need to have additional performance tests conducted.

Maintaining Certification

Those who are certified in USEPA Test Method 9 protocol must renew and maintain their certification every six months.

Conducting Visible Emission Observations

When using USEPA Test Method 9 to conduct an initial performance test for each component of a crushing facility, the observer must:

- Be a minimum of 15 feet away from the dust source.
- Select an observation position that minimizes the interference from other dust sources at the job site (i.e., road dust).
- Where a water spray mist is used, take readings at the point in a crushing process where the mist is no longer visible in the observation.

USEPA Test Method 9 requires that readings be taken every 15 seconds, averaging 24 consecutive readings over a 6-minute averaging period. During the observation for dust generation of the various components of a crushing facility, a certified USEPA Test Method 9 reader can reduce the observation time from 3 hours to 1 hour (ten, 6-minute averages) in the following situations:

- Where baghouses are attached to an individually enclosed storage bin.
- If no individual opacity readings are greater than 10 percent for any crusher component, and there are no more than three recorded opacity readings of 10 percent in a one-hour period.
- If no individual opacity readings are greater than 15 percent for a crusher without a capture system, and there are no more than three recorded opacity readings of 15 percent in a one-hour period.

USEPA Test Method 22 is used to determine the level of dust that might escape a building from equipment that is housed within. The performance test protocol for this method requires that the test last 75 minutes and that each side of the building and roof is observed for escaping dust over a period of 15 minutes.

RELOCATING YOUR CRUSHING FACILITY

Once you have been issued a General Permit to Install for your first location of operation there may be need to move to a new location to continue operations at a new job site. A relocation is simply picking up the crushing facility and moving it to a new job site. In order to continue to operate the crusher, a Relocation Notice form must be filled out and filed with the AQD.

To relocate your equipment, your company must first be in compliance with all of the applicable requirements of the General Permit to Install (i.e., no outstanding or unresolved violations). Additionally, the General Permit to Install requires you to keep records of how much material is crushed at any one site in order not to exceed the 2 million tons per-year per-site condition in the General Permit.

Filling out and submitting a Relocation Notice form is important because no two job sites are the same. There may be a different products crushed, the crusher may be located in a different jurisdiction, and the crushing facility may impact the surrounding people or the environment differently. It is also important to remember that the General Permit to Install's conditions for operation continue to be applicable at your new job site. If you are changing the type of equipment to be used in your next crushing facility, you will need to modify your General Permit to Install by submitting a new Process Information form to identify existing and new equipment. This is especially important when utilizing rented or leased equipment. By filling out and filing the Relocation Notice form and the Process Information form, you are letting the AQD know your crushing facility will be moving to a different location and whether there will be any significant change in your crusher process since your last job.

The Relocation Notice Form (EQP 5757)

	Michigan Department of Environmental Quality - Air Quality Division	FOR DEQ USE ONLY
	GENERAL PERMIT TO INSTALL APPLICATION RELOCATION NOTICE	PERMIT NUMBER

Submitting the Relocation Notice Form

Whether you rent or own the crushing equipment, a Relocation Notice form must be filed at least 10 days prior to the scheduled relocation to your next job site. Figure 1-4 provides a list of information which should be included in the notification sent to the AQD district office for the new job site location. For help in filling out the Relocation Notice form, see Appendix B of this guide.



RELOCATION NOTICE SUBMITTAL CHECKLIST

Include:

- A completed, original copy of the **Relocation Notice** form (EQP 5757).
- A copy of the original General Permit. Include copies of the General Information form (EQP5727), a copy of the original Process Information form (EQP 5756), and a copy of the original Additional Information form(s) (EQP 5759). If the plant has been modified since the original submittal, attach copies of all Process Information forms (EQP 5756) submitted for each modification.
- A site plan for the proposed new location, clearly identifying all residential or commercial establishments and places of public assembly within 1,000 feet of the proposed plant site.

Attach a copy of any new information for:

- Plant/building layouts or changes to process flow (i.e. plat maps, diagrams, etc.)
- Documentation from the equipment operator's manual or specification that states maximum rated capacity.
- Design parameters or descriptions of equipment.
- Mail original copies of the paperwork with the AQD district office that covers the area of your next job site **and** the AQD Permit Section in Lansing, Michigan.

Figure 1-4: Relocation Checklist

MAKING CHANGES TO YOUR CRUSHING FACILITY

Changes to your facility set up may require some additional actions on your part to stay in compliance with the General Permit to Install. In order to understand what steps need to be taken by your company, it is important that you become familiar with certain key terms and definitions.

Definitions

- **Equipment:** Any crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck, or railcar loading station.
 - **Existing Equipment:** Any equipment that was manufactured prior to August 31, 1983, and was never modified or reconstructed on or after that date.
 - **New Equipment:** Any equipment that was manufactured, modified, or reconstructed on or after August 31, 1983.
- **Modification:** Any physical change or change in the method of operation of equipment which increases the amount of particulate matter emitted into the atmosphere or which results in the emission of any other air pollutant not previously emitted. The relocation of equipment or change in ownership is not considered a modification.
- **Production Line:** All equipment which is directly connected or connected together by a conveying system.
- **Reconstruction** means the replacement of components of a piece of equipment to such an extent that the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost required to construct a comparable, entirely new piece of equipment. The cost of replacement of surfaces which come in direct contact with the nonmetallic mineral (i.e., crushing surfaces, screen meshes, bars and plates, conveyor belts, and elevator buckets) should not be considered in calculating either the fixed capital cost of the new components or the fixed capital cost required to construct a comparable new piece of equipment. The AQD considers reconstructed equipment to be new equipment.
- **Size** means:
 - Rated capacity in tons per hour for a crusher, grinding mill, bucket elevator, bagging operation, enclosed truck, or railcar loading station.
 - Total surface area of the top screen for a screening operation.
 - Width for a conveyor belt.
 - Rated capacity in tons for a storage bin.

Common Changes to Crushing Operations

For all equipment changes, the following actions are required before operation begins:

- Ten days before the equipment is installed, submit a new Process Information Form (EQP 5756) for all equipment to be added to production.
- Send copies to both the AQD district office and the AQD Permit Section.
- Notify the AQD district Office within 15 days of the equipment's actual date of startup.

AIR QUALITY REQUIREMENTS

Actions to be taken during operations after equipment changes are summarized in Table 1-2.

Equipment Change	Required Actions During Operations		
	Testing	Monitoring	Recordkeeping
Replacement of equipment with new equipment that is LARGER in size .	<p>Conduct a performance test within 60-180 days after equipment startup.</p> <p>14 days prior to test, have AQD District Supervisor approve test procedures.</p> <p>7 days prior to test, notify AQD District Supervisor of test date.</p> <p>If delayed, notify AQD District Supervisor of the delay at least 3 days before test is scheduled.</p> <p>Submit a copy of completed opacity observations report to the AQD within 30 days of the test date. Submit reports to your AQD district office (see <i>Appendix E.</i>)</p>	<p>Monitor the opacity of all equipment to ensure it is within the acceptable levels specified in Table 1-1 of this document.</p>	<p>Keep accurate records of the amount of material processed and the date of manufacture, installation date, and description of each piece of equipment.</p>
Addition of new equipment.			
Equipment modification			
Equipment reconstruction			
Replace equipment on the production line (on a one-for-one basis) with new equipment that is EQUAL or SMALLER in size .			
Replace equipment on production line (on a one-for-one basis) with existing equipment.	<p>The equipment is not subject to the NSPS Subpart OOO standards.</p>		
Add existing equipment.			

Table 1-2 Required Actions During Operations as a Result of Changes to a Crushing Facility

Non-equipment Changes

If you are not making equipment changes but are increasing your production rates or hours of operation, please be aware of the following:

- If you increase your production to a level greater than 2 million tons per year at a single site, you are no longer eligible for the General Permit to Install.
- You can increase the hours of operation as long as the total amount processed on site does not exceed the 2 million tons per year limit as allowed under your General Permit to Install.

THE MICHIGAN AIR EMISSION REPORTING SYSTEM (MAERS)

The federal Clean Air Act requires each state to maintain an inventory of air pollution emissions for certain companies and update this inventory every year. The AQD gathers this information and compiles it in the Michigan Air Emissions Reporting System (MAERS). MAERS contains emission data for commercial, industrial, and governmental sources of air pollution in Michigan. This information is submitted to the USEPA and added to the national data bank to:

- Track air pollution trends.
- Determine the effectiveness of current air pollution control programs in each state.
- Serve as a basis for future year projections of air quality.
- Track a company's compliance and provide information for permit review.
- Calculate the emissions portion of the air quality fee.

Companies are sent a MAERS reporting package in mid-January. The completed MAERS forms must be submitted to the AQD by March 15 of each year. You can access the MAERS web site at www.michigan.gov/deqair and click on "Emissions" and then "Emissions Reporting" from the left-hand menu. The AQD also offers both a workbook and a series of annual workshops for first-time submitters of the MAERS report. For help in completing the MAERS forms or for more information on this reporting program, call the Environmental Assistance Program at 800-662-9278. See Appendix F for guidance on how to calculate emissions from your crushing facility.

Air Quality Fees

Approximately 2,000 Michigan companies are required to pay air quality fees to the AQD each year. The following formula is used to calculate the fee for each fee-subject company:

$$\text{Annual Fee} = \text{Facility Charge} + \text{Emissions Charge}$$

The facility charge used in the fee formula is based on the classification or category of a company. There are three different category schedules for fees: Category I, II, and III. Facilities that are major under Title I of the Clean Air Act (have the potential to emit 100 tons or more per year of any pollutant) are classified as Category I facilities. Companies that are major under Title III of the Clean Air Act (have the potential to emit 10 tons of any one hazardous air pollutant or 25 tons of any combination of hazardous air pollutants) are classified as Category II facilities. Category II also includes any company with operations subject to a federal NSPS regulation such as nonmetallic mineral processing facilities. The current facility charge for Category II facilities is \$1,795.

In addition to the category fee, there is also an emissions charge. The emissions charge is currently \$45.25 per ton of billable emissions. Billable emissions are actual emissions of fee-subject air contaminants (e.g., particulate matter). Any air contaminant regulated under federal NSPS or Title III (Hazardous Air Pollutants) of the Clean Air Act is subject to the emissions charge.

AIR QUALITY REQUIREMENTS

Example of a Fee Calculation for a Typical Crushing Operation

ABC Aggregates of southeast Michigan is a Category II facility that has a crusher capacity of 150 tons per hour and processed 600 tons of material in 2007.

$$PM_{10}/Year = (Tons\ processed/Year) \times (Emission\ factor)^* \times (1\ Ton/2000\ Pounds) \times (80\%\ Control\ Efficiency)**$$

$$PM_{10}/Year = [600,000\ Tons\ of\ Product/Year] \times [0.05\ Pound\ PM_{10}/Ton\ Product] \times [0.0005\ Ton/Pound] \times [(100 - 80) / 100]$$

$$PM_{10}/Year = 3\ tons$$

* This emission factor comes from the USEPA's AP-42 for plant-wide processes. The source classification code is 3-05-025-01 for a typical plant-wide sand and gravel operation.

**Assume an 80% control efficiency for properly installed and operating water sprays.

Billable Emissions under MAERS are rounded to the nearest whole number.

Emission Charge: 3 x \$45.25/ton	\$135.75
Facility Charge:	+ \$1,795.00
TOTAL ANNUAL AIR QUALITY FEE	= \$1,930.75

Who is Responsible for MAERS Reporting and Fees?

The entity issued a Permit to Install for the equipment is responsible for reporting emissions generated by this equipment and any fees associated with those emissions.

WHY SHOULD I COMPLY?

When air pollution interferes with the comfortable enjoyment of the community's life and property, it is usually reported directly to the AQD district offices. When a complaint is lodged to the AQD, an air quality inspector is sent out to the site where the complaint is believed to originate. If an inspector is sent to your job site, he/she may talk with you about the problem in order to substantiate the merits of the complaint. The most common violations cited in regard to crushing facilities are:

- Not having an air quality permit.
- Not completing the initial performance test on the equipment.
- Making a change to the equipment and not updating the AQD on the change.
- Excessive dust generation with no ongoing monitoring and implementation of a fugitive dust plan.

These violations often occur because an owner/operator of a crushing facility is not aware of the compliance requirements (i.e., monitoring opacity levels, implementing a fugitive dust plan, etc.).

The DEQ can issue a Letter of Violation (LOV) if you are violating any of the air pollution control requirements. If the violation is not corrected, the inspector can escalate it for further enforcement action. The following are some typical actions companies take in order to achieve compliance after an LOV has been issued:

- Establish a tree berm.
- Install a truck wheel wash system.
- Keep records of water usage.
- Pave access roads to a job site.
- Submittal of records to demonstrate dust minimization efforts.
- Develop a site or company-specific fugitive dust plan.
- Install additional water sprays at transfer points along the process.

The ultimate goal of AQD inspectors is to help you achieve and maintain compliance with the air quality regulations. This involves working with you and your company to address the reasons behind any issued "LOV."

AVAILABLE RESOURCES

There are many resources available to help you stay in compliance with the air regulations mentioned in this chapter.

The AQD has a web page containing the General Permit to Install application forms, instructions, and listing of general and special conditions. Go to **www.deq.state.mi.us/aps** and click on "General Permit Application Forms and Instructions."

Call the DEQ's Environmental Assistance Program at 800-662-9278 for assistance on any environmental-related question, including those related to air quality.

The AQD district office staff are available for consultation and advice. Staff from these offices conduct the inspections of your facilities. See Appendix E for a listing of the district offices.

The Environmental Assistance Program maintains a directory of environmental consultants. Go to **www.michigan.gov/deqair**, click on "Clean Air Assistance" and "Environmental Consultant Assistance."