



Pesticide and Fertilizer Storage Module

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Introduction

The use of pesticides and fertilizers in golf turf maintenance is one of the most environmentally sensitive activities of the business. The application of pesticides and fertilizers and the potential for environmental impact after application is often the object of public debate. Yet it is the storage of these products on your property and the serious potential for environmental impact that is often overlooked. These products are packaged in concentrated form and thoughtful consideration is required to ensure protection of natural resources, particularly groundwater, to catastrophic events like a fire or a large spill.

As you evaluate your present storage practices or consider a new design, it is important to understand the framework of current and proposed regulatory guidelines in Michigan. We currently have pesticide and fertilizer regulations written for commercial operations that store “bulk quantities.” While these rules are primarily focused on bulk storage situations and will not affect most golf course operations, they do provide clear direction for safe storage of these products regardless of the container size. In addition to regulation, there are solid recommendations for safe storage of these products that have been developed from MSU, the Natural Resource Conservation Service and the Midwest Plan Service that are included within the worksheet section of this module.

It is important to note the manner in which businesses are defined within the existing and proposed pesticide and fertilizer storage rules. Agricultural operations are regarded as those who produce an agricultural commodity and commercial operations are generally defined as those who redistribute the products (fertilizers or pesticides) or offer application services. In some cases, golf courses do not fall within either category and therefore are not regulated. In these cases it is prudent to comply with the intent and spirit of the regulation because you will provide significant protection toward natural resources.

The information in this module will:

- provide an understanding of the regulation,
- determine if you store “bulk” quantities,
- assess your level of environmental protection,
- lead you through some recommended storage practices

Pesticide Storage Rules

We currently have pesticide storage regulation dedicated toward the storage of bulk quantities of pesticides at commercial operations (Regulation 640, Act 451 Part 83), which was enacted in 1992 under the definition of Regulation 640. This regulation is strictly intended for commercial operations that store bulk quantities. Golf courses are exempt from these rules because they are not considered a commercial operation. A commercial operation is one that redistributes the pesticide off property or sells a service of application. Pesticides bulk storage is considered to be quantities of liquids over 55 gallons or dry material over 100 pounds in one container.

Currently there are not regulations, which specifically address storage of pesticides in “small” containers. However, there are laws that directed toward the storage, handling, or use of “hazardous” materials. While most pesticide products are not classified as “hazardous” materials, the recommendations in this module assist you in providing safe and proper storage of these products.

Fertilizer Storage Rules

There are two new regulations that are being administered by the Michigan Department of Agriculture dedicated toward bulk quantity fertilizer storage. They are called Regulation 641 – Commercial Fertilizer Bulk Storage and Regulation 642 On-Farm Fertilizer Bulk Storage. At this time, golf course operations are exempted from these rules because they are not defined as a farm and are not considered a commercial operation since they do not redistribute the product off property. Bulk fertilizer quantities are considered liquid quantities of over 2,500 gallons liquid in one container or a combined total of over 7,500 gallons, or over 2,000 pounds of dry fertilizer product in one container. Generally, the only golf course situations that would be considered bulk storage are those operations that have a fertigation system and have a holding tank over 2,500 gallons or those that receive dry fertilizer in bags containing more than 2,000 pounds per bag.

Applying the Regulations to Your Site

Even though golf courses are exempt from the pesticide and fertilizer storage rules, it's valuable to examine the requirements outlined in the regulations. This will assist you in gauging your level of protection and provide a framework of recommended practices.

Important Requirements From Regulation 641 –

- Site map identifying wells, ditches, surface water and storage area
- Maintain a discharge response plan
 - Discharge is considered an uncontained release of over 55 gallons liquid or 650 pounds dry fertilizer
- Prepare a containment design
- Siting requirements for new facilities
 - 200 feet from surface water
 - Out of 100 year flood plain
 - 2,000 feet from Type I and IIA wells
 - 75 ft or more from Type IIB and III wells
(deviation from 800 ft in Rule)
 - 75 ft or more from all other drinking wells
(deviation from 150 ft in Rule)
- Siting requirements for existing facilities
 - 200 feet from Type I and IIA wells
 - 75 feet from Type IIB and III wells
 - 50 feet from other drinking wells
- Backflow prevention
- All plumbing above ground - Underground piping is permitted provided the piping is made of stainless steel, enclosed in secondary containment (a pipe within a pipe), or is hydrostatically tested annually.
- Secure tank to prevent floating or tipping
- Mobile containers should be kept 100' from wells or surface water
- Should be able to inspect tank and dike walls
- Have level gauges and shutoff valves
- Tanks should be lockable during off-season
- All loading, mixing and handling conducted on a paved impermeable surface.

Pesticide and Fertilizer Storage Checklist

Please review the following areas and **circle** the category that most closely describes your operation.

1. There is no regulation at this time that prohibits the storage of pesticides and fertilizers in buildings designed for other uses. The main issues are ventilation and fire protection. Please circle the most appropriate description of your operation
 1. Products stored in a building with multiple uses and storage area with no level of fire protection.
 2. Products stored in a building with multiple uses, but storage area has some level of fire protection.
 - Fire wall present
 - Separated from high traffic areas
 - Fire protection equipment available
 3. Products stored in a separate building

 2. What is the proximity of your storage area to other important features? Place the appropriate number next to the area or device listed.

1 = Less than 100 feet, with no additional protection (soil berms, secondary containment, fire protection...).
 - 2 = Less than 100 feet, with additional protection.
 - 3 = More than 100 feet away, with no additional protective devices.
 - 4 = More than 100 feet away and includes additional protective devices.

 - ___ Storm Drain
 - ___ Surface Water
 - ___ Wellheads
 - ___ Fuel Storage
 - ___ Utility Supplies (Electrical Poles, Natural Gas Lines, Water Lines)
 - ___ Other Buildings
-
3. What are the flash points of the products you store? Most turf maintenance products are above 100° flash point. Products with a flash point below 100° may require explosion proof electrical devices in the storage area. This is determined by your local building codes.
 1. Products stored have flash points below 100° and there are no explosion proof electrical devices in the facility.
 2. Products stored have flash points below 100° and there are explosion proof electrical devices in the facility.
 3. Products stored have points greater than 100°.

4. Are there impervious floors within the storage facility?
 1. Pervious floors.
 2. Impervious floor without secondary containment.
 3. Impervious floor with secondary containment.
5. Do you have impervious shelving within the storage facility?
 1. Pervious shelves.
 2. Impervious shelves without secondary containment.
 3. Impervious shelves with secondary containment.
6. Is the storage area secured from entry from the public or employees without proper training?
 1. Storage area not secured.
 2. Storage area is secured from the public during non-business hours, but accessible to non- pesticide trained employees.
 3. Storage area is secured from all people.
7. Do you have a list of emergency numbers clearly posted that contains local emergency response teams and the Agriculture Pollution Response Hotline (800-405-0101)?
 1. Emergency numbers not posted or easily accessible.
 2. Emergency numbers posted, but not complete.
 3. Emergency numbers posted in accessible spot with all appropriate numbers.
8. Is your storage area properly vented? Most references suggest a fan or passive venting capable of 3-6 air changes per hour. Generally a fan that is capable of providing 100 cubic feet per minute for each 1,000 cubic feet of storage volume would provide 3-6 air changes per hour. In some situations, venting may be enhanced if the system is ducted to draw air from the floor since many vapor are heavier than air and tend to align themselves along the floor area.
 1. Storage area not vented.
 2. Storage area vented, but inadequate.
 3. Storage area properly vented.
9. Is there a spill kit available in the storage area? This is required by MDA regulations.
 1. Spill kit not available.
 2. Spill kit available, but not adequate or not dedicated to the storage area.
 3. Spill kit dedicated to the storage area.

10. Are there emergency showers or eyewash stations available near the storage area?
 1. No eyewash or emergency shower available.
 2. One of the two is available... preferably the eyewash station.
 3. Emergency showers and eyewash facilities are available.

11. Are the pesticides and fertilizers separated from each other? There is no regulation that prohibits the storage of these products in the same facility. It is preferred to separate these materials within the same building because contamination can occur through spills or vapor movement.
 1. Materials not separated and subject to cross contamination.
 2. Pesticides and fertilizers distinctly separate and not subject to vapor or spill cross contamination.

Pesticide and Fertilizer Storage – Areas for Improvements

Identify the items in this module that were ranked as a “1” or “2” and additional areas you would like to improve and list below.

1. _____

2. _____

3. _____
