

# Pesticide Storage and Handling Guidelines for Greenhouses

**MICHIGAN STATE**  
UNIVERSITY | **Extension**



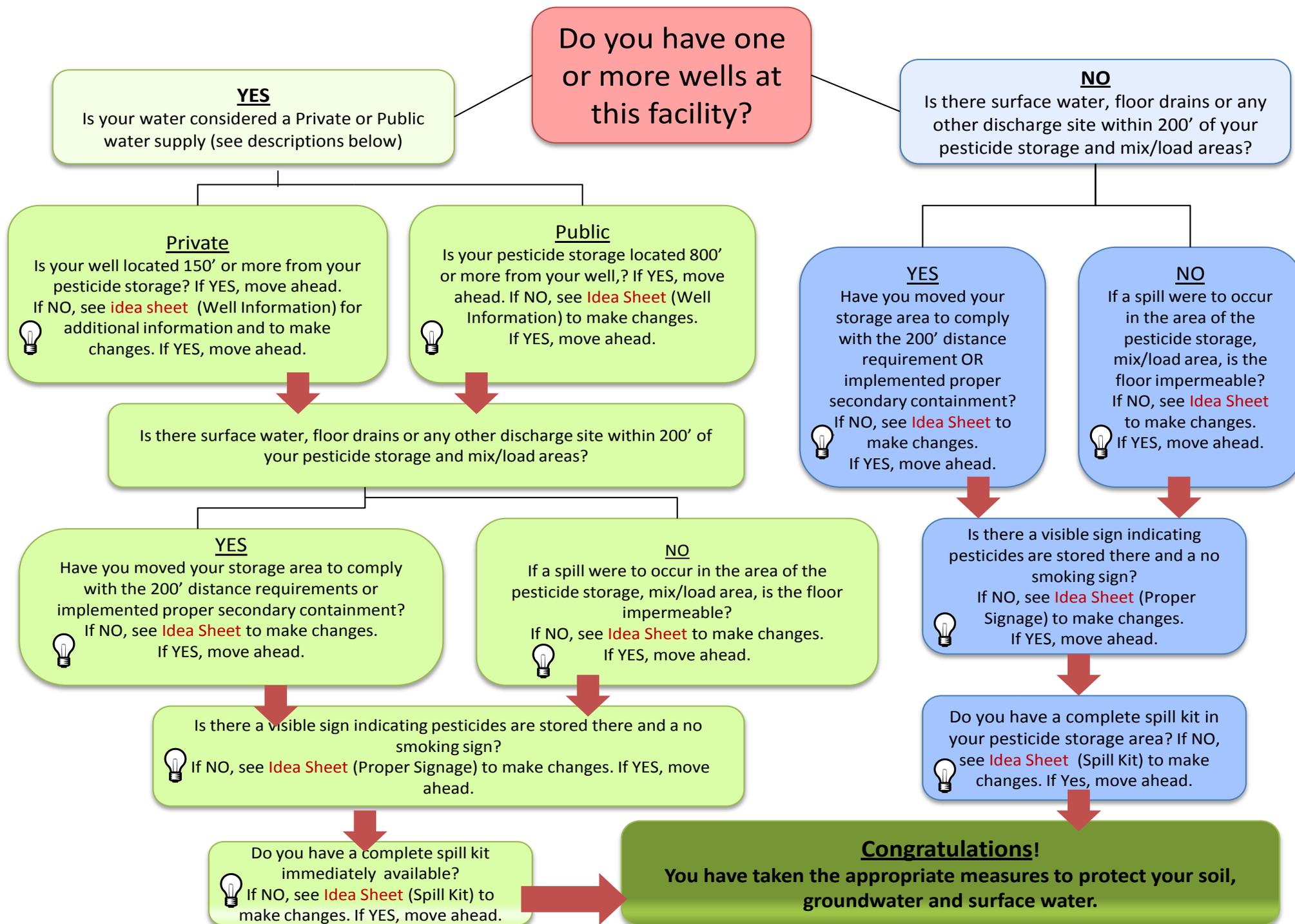
**Michigan Water**  
Stewardship Program

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Private: Greenhouse irrigation and family members use only. (No employees or public access)

Public: Greenhouse purposes to persons other than owners and family (greenhouse with employees or that is open to the public).

## Idea Sheet

This document is intended to help you with some of the basic methods to prevent contamination of the soil, groundwater and surface water as a result of storage and handling of pesticides at your greenhouse. Follow through the flow sheet and reference this idea sheet, as needed.

### **Well Information:**

A properly designed pesticide storage facility with appropriate secondary containment can be within 75 feet from a public water supply well.

Please note, when siting a pesticide storage facility from a well, one should not only consider isolation distance but also groundwater flow direction, geologic confining materials, casing depth, well pumping capacity, and any secondary containment design. Technical assistance should be considered.

### **Secondary Containment:**

There are many different methods for secondary containment. Some are very inexpensive where others are more costly but usually have a higher potential for longevity. An inexpensive portable pad can be used for mixing and loading pesticides in different locations in the greenhouse.

#### **Existing storage cabinet:**

- Line shelves with catch trays for the appropriate volume of containment. A basic easy solution is a standard size (13.25 x 9.63 x 2.75 inches) foil lasagna pan. A pan of this size could hold 1.5 gallons of liquid which would be sufficient for a one gallon container. Tray should hold 110% of the volume of the container.
- Provide secondary containment around cabinet itself such as a permanent curb or spill deck.



#### **New cabinet or room:**

- Pesticide cabinet with self containment, sump compartment.
- Room with curbs or storage racks with containment shelving. This works if you can't fit all your pesticides in a storage cabinet.

#### **Winter storage in unheated greenhouse:**

- If there are limited quantities stored during the winter, pesticides can be stored in a freezer chest. All you need to do is drill a hole through the top and installed a light bulb to keep the temperature above freezing.



**Mixing/Loading:** Utilize a portable, flexible containment pad. Can be folded and used anywhere in the greenhouse.

### **Surface water, floor drains or any other discharge site:**

You must inspect locations that have the potential of moving spilled pesticides into the soil, surface water or groundwater.

- Floor drains, that are less than 200' away from pesticide storage, can be temporarily or permanently plugged or hooked to a containment "sump" that can be pumped out. It must meet compliance standards. If the floor drain can not be plugged (either permanently or temporarily), then the pesticide storage area must have secondary containment.
- If there are NO floor drains, surface water, or other discharge sites within 200', pesticides need to be stored on an impermeable pad (i.e. concrete).

### **Proper signage:**

A highly visible sign is required where pesticides are stored indicating "PESTICIDES" and "No Smoking".



### **Spill kit Contents (Spill kit must be located in pesticide storage area)**

Suggested spill kit contents include chemical safe gloves, full coverage goggles, tyvek suit, paper towels or absorbent pads/pillows, broom and dust pan, heavy duty plastic bag, absorbent clay (i.e. kitty litter), small shovel, heavy duty detergent, first aid kit, eye wash, and a fire extinguisher. Spill kit container can double as secondary containment for a leaking container. The spill kit should be clearly marked "Spill Kit" and have visible emergency phone numbers.



## Additional Information:

### **What is Secondary Containment?**

It is a second barrier or an outer wall of a double enclosure which will contain any leak or spill from a storage container. Secondary containment helps protect the surface water, groundwater, and soils and reduces worker exposure to regulated substances. This enclosure is usually needed wherever regulated substances are being handled and stored in tanks, totes, drums, small pails, or other containers. Secondary containment systems can be very simple or complex. The containment area may be in a detached shed or building, an open area outdoors, an underground vault, in a separate room, or in a dedicated portion of a larger space. It may include liquid-tight storage cabinets, berms, curbs, sills, sunken floors, special liners, drip pans or buckets, double-walled tanks, or other structures. Containment systems can be purchased as readymade units or custom built on site.

### **Supply Resources (pesticide containment, portable mix/loads pads, drain plugs, soft curbs, absorbent pads, first aid kits, etc.):**

- New Pig Safety Supply Company: [www.newpig.com](http://www.newpig.com)
- Safety Services Inc.: [www.safetyservicesinc.com](http://www.safetyservicesinc.com)

### **Conversion Calculator:**

- [www.itml.com/conversions.php](http://www.itml.com/conversions.php)

### **Greenhouse\*A\*Syst Document:**

- [www.maeap.org/maeap/greenhouse/greenhouseasyst](http://www.maeap.org/maeap/greenhouse/greenhouseasyst)



### **Financial Incentives:**

- Contact: Natural Recourse Conservation Service: <http://www.mi.nrcs.usda.gov/>

### **Pesticide Labels or MSDS:**

- Pesticide containers must be labeled. Contact your distributor, or manufacturer for a replacement label or new empty container.
- Labels and MSDS can also be obtained at this website: <http://www.cdms.net/>
- Any unwanted, unlabeled, old, or unknown pesticides should be discarded at your local Clean Sweep facility. Clean Sweep collection sites and additional information can be found at: <http://www.michigan.gov/mda>—search words “Clean Sweep”

### **Pesticide Container Recycling:**

- Triple rinsed pesticide containers should be recycled separately from household recyclables. Additional information regarding pesticide container recycling can be found at : <http://www.michigan.gov/mda>—search words “pesticide container recycling”

### **Water Well Information:**

- If you need additional information regarding placement of a potential contaminant source in the vicinity of a water well, contact you local County Health Department.

### **Contacts for additional information and Technical Assistance:**

- MSU Extension Greenhouse Environmental Educator Contact: Jeanne Himmelein: [himmele1@anr.msu.edu](mailto:himmele1@anr.msu.edu)
- Water Stewardship Program Contact: Linda Zabik: [Linda.Zabik@mi.nacdnet.net](mailto:Linda.Zabik@mi.nacdnet.net)