Indiana Farmstead Assessment for Drinking Water Protection

Pesticide Handling & Storage

Pesticide Handling & Storage Survey

Introduction

When handling and storing pesticides on the farmstead, you should have a strategy to prevent contamination of water resources. Accidental pesticide spills around wells can, and do, lead to contamination of ground-water. This in turn can affect other wells in the neighborhood that draw from the same aquifer. Contaminated surface runoff is a threat to streams and lakes. A pesticide contamination incident can make the sale or transfer of land difficult. It is far better to prevent pesticide contamination from occur-ring by following the recommendations outlined in this fact sheet.

Managing your pesticides to reduce the risk of water contamination does not require major investments in time or money. The most critical area on the farmstead is the site where pesticides are loaded into application equipment and, specifically, the nearness of this site to the water source. Overfill of spray equipment, backflow into a well or water flowing over a pesticide contaminated soil can enter directly back into a well. The precautions you take to prevent these incidents from happening are the best actions to reduce risk of water contamination.

Mixing and loading practices

Water contamination can result even from small spills in the pesticide mixing and loading area. Small quantities spilled regularly in the same place can go unnoticed, but the chemicals can build up in the soil and eventually leach down through the soil to groundwater or be carried in surface runoff to streams through ditches and other drainages. By mixing and loading on a concrete pad with curbs you can contain and reuse most spilled pesticides. You can minimize contamination by following some basic guidelines listed in Table 1.

A mixing and loading pad

A mixing and loading pad allows for easy containment of leaks from bulk tanks, spills during sprayer filling and wash water from cleaning equipment. The pad should be made of concrete or some other impermeable(waterproof) surface and have a curb around the outside edge (Figure 1). Ideally, rinsate from the pad should be stored in separate tanks (e.g., corn pesticides in a tank labeled for corn, and soybean pesticides in a tank labeled for soybeans). The rinsate can be used as mixing water on subsequent loads that will go to a specific crop site

Keep the pad surface clean. Make sure that runoff water from the pad surface flows away from wells or surface waters. If pad runoff water could reach a nearby water source, construct a diversion so runoff is directed to another area.

The best source of information on mixing/loading pads is to consult with a local person who has already constructed

a pad.You can learn what worked and what didn't. Asking the right person can save you time, money and effort. The end result is a well designed pad that meets your specific need.

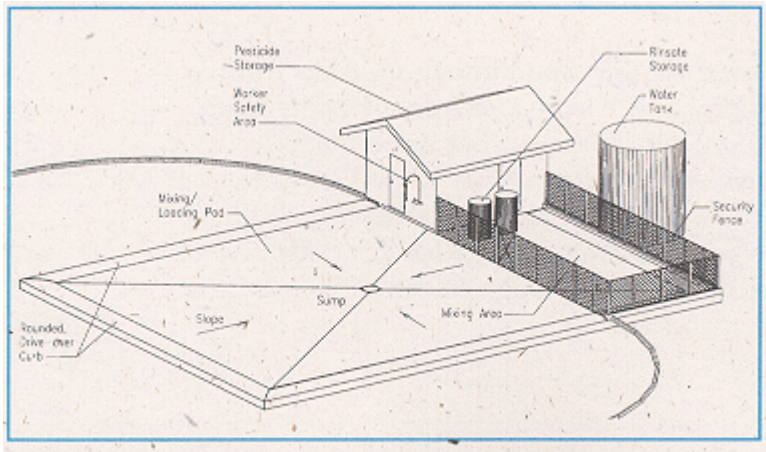

Figure 1. Example of a drive-across,mixing/loading pad in a pesticide handling facility.

Figure 1. Example of a drive-across mixing/loading pad in a pesticide handling facility.

Spill cleanup procedures

Contact the Office of Indiana State Chemist for suggestions and approval prior to making an application of pesticide recovered from a spill.

Dry spills are usually very easy to clean up. Promptly sweep up the pesticide and reuse as it was intended.

For liquid spills, recover as much of the spill as possible and reuse as it was intended. It may be necessary to remove and field apply the soil containing the spilled pesticide using a box or tank spreader. Be sure to apply the soil at the labeled rate for the pesticide it contains and on a labeled site.

The Indiana Department of Environmental Management (IDEM) requires that spills be reported. Call IDEM at 1-888-233-7745 to report a spill or to obtain a copy of the regulations. IDEM can interpret spill regulations, or provide information on spill cleanup procedures. If you have a copy of the material safety data sheet (MSDS)for the spilled product, you can also call the product manufacturer listed on the MSDS for information on cleanup procedures. Call the manufacturer in case of emergency. Copies of the MSDS are available from your chemical dealer.

Table 1. Better Management of Existing Mixing/Loading Sites

- Avoid mixing/loading pesticides near your well. Use a nurse tank to transport water to the mixing/loading site. The mixing site should be moved each year within the field of application.
- Avoid mixing/loading on gravel driveways or other surfaces that allow spills to sink quickly through the soil.
- Install an anti-backflow device on the well or hydrants to prevent reverse flow of liquids into the water supply. Never put the hose in the sprayer tank. Provide an air gap of 6 inches between the hose and the top of the sprayer tank.
- Always supervise sprayer filling.
- Consider a closed handling system, which transfers the pesticide directly from storage container to applicator equipment.
- Use rinsate for mixing subsequent loads. Spray the last rinsate load on the labeled crop.
- Check your insurance policy to see what pollution exclusions are stated. Do not assume your insurance coverage will pay for cleaning up pesticide contaminated areas. Many policies have specific statements that limit the amount, if any, of coverage the insurance company agrees to extend for these types of claims.

Storage

If stored safely in a secure location, pesticides pose little danger to water quality. Common sense suggests keeping them dry and away from activities that might knock over a jug or tear a bag. Short term storage (during seasonal use) poses a lower risk than year-round storage; but any storage, regardless of length of time, poses some level of risk to ground water and nearby surface waters.

If a spill does occur, an impermeable(waterproof) floor, such as concrete, should virtually eliminate any seepage of chemicals into the ground. Putting a curb around the floor prevents chemicals from spreading to other areas and makes cleanup easier. Check the path of drainage from your storage area. Make sure that floor drains or surface runoff would not channel spilled pesticides to surface water if a spill would occur in the storage area.

Discuss with your local fire department how you want them to handle a fire in or very near your pesticide storage area. In some cases it maybe better to let a fire burn out because the insurance policy will pay to replace contents but will not cover off-site contamination caused by surface runoff carrying pesticides. Check your insurance policy. Also, label the pesticide storage area so that fire fighters will recognize the area and know to follow your instructions.

When building a new facility or modifying an existing building, keep in mind a few principles of safe pesticide storage:

- Locate the building downslope and away from your well as practical.
- Increase the separation distance if the site has sandy soils or fractured bedrock near the land surface.
- If a container is accidentally ripped open or knocked off a shelf, confine the spill to the immediate area and promptly clean it up.
- Locate the mixing/loading area close to your storage facility to minimize the distance that chemicals are carried.
- The building foundation or secondary containment floor should be well drained and high above the water table.The finished grade should be 3 inches below the floor and sloped to provide surface drainage away from the building. The subsoil should have a low permeability.
- Keep large drums or bags off the floor on pallets. Shelves should have a lip to keep the containers from sliding off. Steel shelves are easy to clean if a spill occurs. Store dry products above liquids to prevent wetting from spills.
- Keep pesticides tightly sealed with the original label intact. Sealed containers are your first defense against a spill or leak.
- Keep pesticides separate to prevent cross-contamination. Store herbicides, insecticides and fungicides on separate shelves or areas.
- A locked storage cabinet or building provides security. Preventing unauthorized use of pesticides reduces the chance of accidental spills or theft. Provide signs or labels identifying the cabinet or building as a pesticide storage area.
- Provide adequate road access for deliveries and emergency equipment.
- For information on other factors to consider in the design of a storage facility-such as ventilation, water access,temperature control and worker safety contact the office of the State Chemist or Purdue Cooperative Extension Pesticide Programs.
- The least expensive alternative you may have is to reduce the amounts and types of pesticides stored.
- Store chemicals in a separate facility to reduce the risk associated with fire or accidental spills. Never store pesticides inside a well house or a structure covering an abandoned well.
- Anticipate emergencies. Fires in a storage area present a special hazard to people and the environment. I f containers are damaged, the stored chemicals may be carried away by water and spread.
- Keep a separate list of the chemicals and amounts stored in the house or away from the storage area.

Bulk pesticide storage

If you store bulk pesticide, a secondary containment structure is required to catch leaks and spills. Within the containment structure, leaked or spilled pesticide can be recovered and used in the appropriate manner as the label

states. A secondary containment is an impermeable floor and walls around the storage area.

Bulk chemical storage is regulated (355 IAC5) by IDEM. See Table 2 for a list of major definitions and requirements. If you have questions about how to interpret the regulations, contact the Office of Indiana State Chemist.

Table 2. Bulk Pesticide Storage

- A bulk pesticide tank has a capacity greater than 55 gallons. Two exceptions: 1) minibulks on the ground that have been at the farm for less than 15 days; and 2) minibulks on a road worthy conveyance (no time limit but intent is to transfer from a storage tank to field application, not storage).
- Facilities with bulk storage must register with the Office of Indiana State Chemist.
- Every farmer who has bulk pesticide storage must have a load/unload pad.
- A load/unload pad must be 10 by 20 feet minimum and contain at least 750 gallons.
- A Discharge Response Plan is required for facilities with bulk storage.
- Records required for bulk storage facilities include: container inspection and maintenance; secondary containment system inspection and maintenance; mixing and loading area inspection and maintenance; inventory reconciliation.
- For bulk containers stored under a roof, the containment area must be large enough to confine 100 percent of the contents of the largest bulk container plus the displaced volume of any other storage tanks in the area. Consider adding an additional 10 percent of containment volume.
- For bulk containers stored outside, the containment area must have 6 inches off reeboard in addition to the volume confinement requirements for bulk storage under a roof. Consider adding 10 percent of containment volume.

Cleanup and container disposal

Unwashed and improperly stored containers can lead to groundwater and surface water contamination by allowing chemical residues to leak. Some basic guidelines can help avoid problems:

- As often as possible, use returnable containers and minibulks and take them back to the dealer.
- Pressure-rinse or triple-rinse plastic containers immediately after use. Residue can be difficult to remove after it dries. Pour the rinse water that accumulates directly back into the spray tank.Puncture containers and store them in a covered barrel until you can take them to a landfill. Containers that have been rinsed are not considered hazardous waste and can be taken to a landfill that accepts regular trash. Unrinsed containers or containers with residual pesticide must be taken to a landfill that accepts hazardous waste.
- Recycle plastic and metal containers whenever possible at special collection days. Contact your local Cooperative Extension office for dates and locations.
- Split bags and shake them out, bind or wrap to minimize dust, and take them to a landfill.
- Do not bury or burn pesticide containers or bags on the farm. This practice is not allowed in Indiana.

Other management practices

Buy only what you need; this will reduce storage, avoid cold weather problems and reduce the severity of a fire.

Keep records of what you've used and what you have on hand. Record keeping for restricted use products is required by the Office of Indiana State Chemist.

Contact your chemical dealer or Cooperative Extension office about possible restrictions before using or disposing of canceled products or products in inventory that are no longer needed.

Authors

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Contacts and References

General Information

Purdue University Cooperative
Extension Service
888/EXT-INFO or your local office

Purdue Pesticide Programs
1155 Lilly Hall
West Lafayette, IN 47907-1155
765/494-4566

Office of Indiana State Chemist
1154 Biochemistry Bldg.
West Lafayette, IN 47907-1154
765/494-1492

Indiana Department of
Environmental Management (IDEM)
1-800-451-6027

Regulatory Information

Indiana Department of
Environmental Management (IDEM)
1-800-451-6027

Office of Indiana State Chemist
1154 Biochemistry Bldg.
West Lafayette, IN 47907-1154
765/494-1492

Emergency Information

Chemical manufacturer (24 hour response)
see phone number on MSDS for the pesticide

Indiana Poison Center
800/382-9097

Office of Indiana State Chemist
1154 Biochemistry Bldg.
West Lafayette, IN 47907-1154
765/494-1492

Indiana Department of
Environmental Management (IDEM)
Emergency Response
1-888-233-7745

What to read about...

Pesticides and water quality

- WQ-17 Agriculture's Effect on Environmental Quality
- WQ-19 Pesticides and the Environment
- PPP-35 Pesticides and Water Quality
- Nitrate and Pesticides in Private Wells of Indiana

Pesticide handling and management

- PPP-21 Pesticides and Container Management
- PPP-26 Pesticides and Their Proper Storage
- PPP-27 Pesticides and Spill Management
- PPP-29 Pesticides and the Home, Lawn and Garden
- PPP-32 Pesticides and Community Right-to-Know
- PPP-36 Pesticides and the Law
- On-Farm Pesticide Storage (CD ROM)

Sources:

1. Purdue University Cooperative
   Extension offices or
   Media Distribution Center
   301 South 2nd Street
   Lafayette, IN 47901-1232
   765/494-6794 or 1-888/EXT-INFO

2. Purdue Pesticide Programs
   1155 Lilly Hall
   West Lafayette, IN 47907
  765/494-1284

3. Indiana Farm Bureau, Inc. P.O. Box 1290
   Indianapolis, IN 46206
   317/692-7851

4. Center for Technology Transfer and
   Pollution Prevention
   1146 Agricultural and Biological Engineering Building
   West Lafayette, IN 47907-1146
   765/494-117

Click below for survey 2

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