

# HOW TO PROTECT YOUR WATER FROM PESTICIDE CONTAMINATION

**Fact Sheet 2**  
**WQFA-3**

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When handling and storing pesticides on your farmstead or acreage, you should always have a strategy to prevent contamination of water resources. Accidental pesticide spills around wells can, and do, lead to contamination of groundwater, which can affect your and your neighbor's wells. Contaminated surface runoff creates a threat to streams and lakes, and pesticide contamination can make the sale or transfer of land difficult.

Managing your pesticides to reduce risk of water contamination does not require a major investment of money or time. It does, however, require responsibility and the will to take action. Taking precautions with your pesticides is considered the best action to reduce risk of water contamination. Please use this fact sheet as a guide for prevention.

For additional information or reading materials, refer to the Contacts and References section at the end of this fact sheet.

## PESTICIDE STORAGE PRACTICES

Pesticides that are stored safely pose little danger to water quality. Pesticides should be stored in a separate facility and never stored with other products, inside a well house or a facility containing an abandoned well (see Fact Sheet 1 How to Protect Your Well Water in this series for information on sealing abandoned wells).

Store pesticides in an area with an impermeable (liquid-tight) floor to prevent seepage of chemicals into the ground. Treat concrete with an appropriate sealer to be assure that it is impermeable.

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Locate your storage area so that it is accessible enough to allow for rapid or safe removal of pesticides in an emergency.

The building should have a solid sealed floor for liquid pesticides and a curb to insure that all spilled pesticides stay inside the building. The secondary containment space created by the curb should be large enough to hold 125% of the contents of the largest full container.

At the time of purchase, always ask the chemical distributor about legal requirements associated with pesticides, or check the Environmental Protection Agency website on hazardous substances for a list of common and chemical names of hazardous materials. This site also includes the maximum volume of pesticides that can be stored or spilled without reporting requirements. See this site for other responsibilities associated with exceeding the thresholds.

## Storage Facilities

A facility constructed just for pesticide storage is usually safer than trying to modify areas meant for other purposes. When building a new facility or modifying an existing one, keep in mind a few principles of safe pesticide storage:

- Locate the building downslope and at least 100 feet away from any wells.
- The storage facility should be placed on a site that never floods and, if possible, has soils with low permeability.
- In the event of a fire, contaminated water should drain to a confined area.
- The mixing and loading area should be close to your storage facility, which minimizes the distance that chemicals are carried.
- Use a locked security system to store pesticides.
- Provide signs or labels identifying the cabinet or building as a pesticide storage area.
- Provide adequate access for deliveries and emergency equipment.
- Keep pesticides separate to prevent cross-contamination. Herbicides, insecticides and fungicides should be kept on separate shelves or in separate areas.

See Contacts and References section for more information on facilities designs.

### **TAKE ACTION!**

Always store pesticides according to the following guidelines:

- Store in the original, labeled containers and never in beverage, food, open or other containers that could be mistaken for something else. Store out of reach of children, pets, and livestock. A well ventilated, dry, locked and labeled cabinet or storage room is recommended.
- Take precautions to keep the original labeling intact and legible. The label is a legal document and if it becomes illegible you may compromise your legal use of the product.
- Keep stored pesticides separate from foods, feeds, drugs or other edible products.
- Store pesticides in separate area from protective clothing, respirators, gas masks, or goggles.
- Store pesticides away from sources of flame or ignition and sources of water. Always consider the potential for flooding, fire, or other disasters.
- Periodically check storage containers for leaks and to assure the lids are tight.

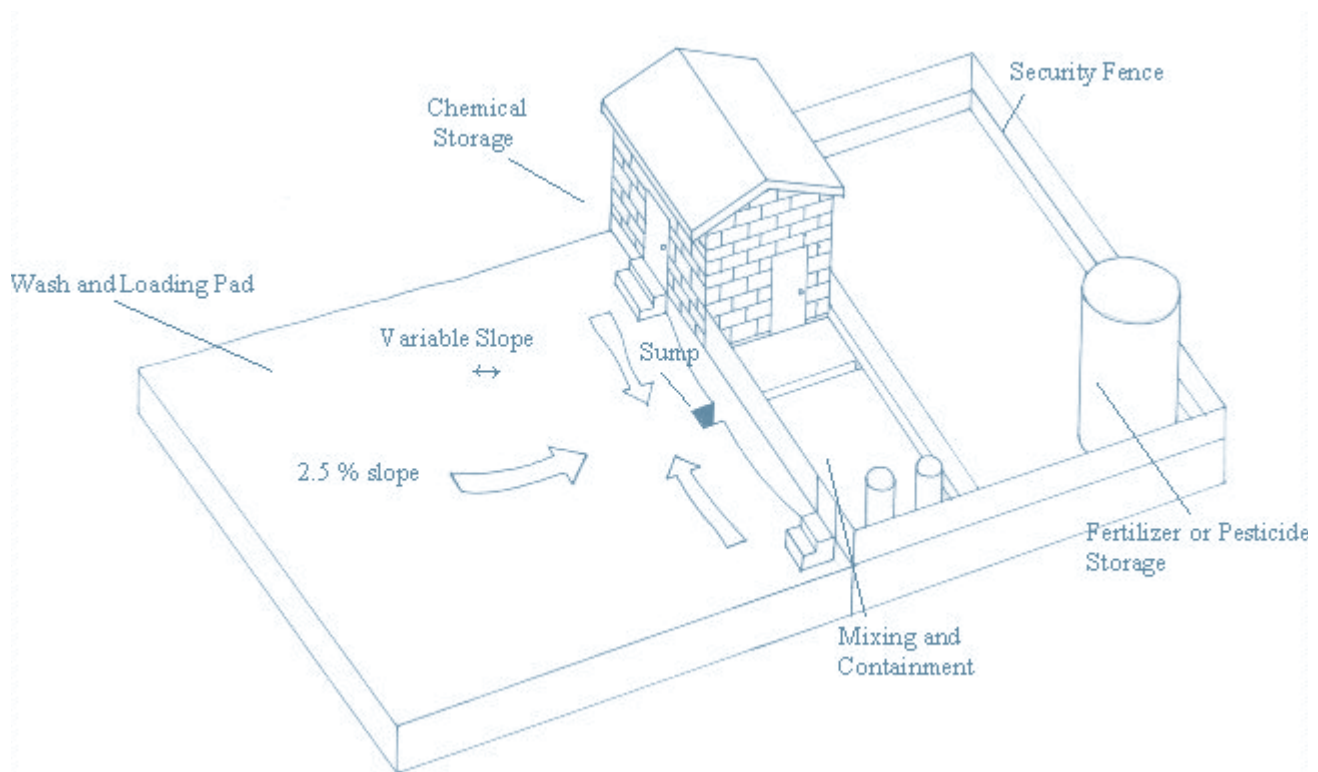
## MIXING AND LOADING PRACTICES

Groundwater contamination can result from small spills in the mixing and loading area. Although small quantities spilled regularly in the same place may not be noticed at the soil surface, chemicals can accumulate in the soil and reach groundwater or be carried in surface runoff to streams. You can contain most spilled pesticides by mixing and loading on an impermeable surface such as sealed concrete.

## A Mixing and Loading Pad

Containing pesticide spills and leaks requires an impermeable surface for mixing and loading. The pad should be large enough to contain leaks from bulk tanks, wash water from cleaning equipment, and spills from transferring chemicals to the sprayer or spreader (see figure below). The size of the pad also depends on the equipment you use. It should provide space around the parked equipment for washing and rinsing.

If you are considering constructing a mixing and loading pad, contact your Utah State University county Extension agent for more detailed information or see Contacts and References section in this fact sheet.



### TAKE ACTION!

Place mixing and loading areas next to the storage area.

Treat concrete in storage areas with an appropriate sealer to make sure it is impermeable.

Build a curb around the loading/mixing pad to prevent spilled chemicals from escaping and to allow for easier cleanup.

Avoid cross contamination or mixing of pesticides by using separate storage tanks for rinse water.

Make sure that any water from the loading/mixing pad does not drain toward a well. Construct a runoff diversion if necessary.

Make sure floor drains or surface runoff won't channel spilled pesticides to surface water.

## Better Management On Your Existing Mixing and Loading Site

If you don't have an impermeable mixing and loading pad, you can minimize contamination from spills or leaks by following some basic guidelines:

- Avoid mixing and loading pesticides near a well. One way to do this is to use a nurse tank to transport water to the mixing and loading site. Ideally, the mixing site should be rotated with each application, or at least moved each year within the field of application.
- Avoid mixing and loading on gravel driveways or other surfaces that allow spills to soak into the soil. A clay surface is better than sand.

- Consider a closed handling system, which transfers the pesticide directly from a storage container to applicator equipment (through a hose, for example, rather than being poured out of a container by hand). This system avoids inadvertently exposing humans or the environment to pesticides.
- Install an anti-backflow device in a pipe or hydrant to prevent reverse flow of liquids into a water supply. Keep an air gap of 6 inches between the hose and liquid in the tank.
- Always supervise sprayer filling. For restricted-use pesticides, a trained and certified applicator must supervise operations.
- Store rinse water from different chemicals in separate tanks and use this water for mixing subsequent loads.
- Spray the last rinsate load on a site for which it is approved.





## SPILL CLEANUP PROCEDURES

Sound containers are your first defense against a spill or leak. If a container is accidentally ripped open or knocked off a shelf, the spill should be confined to the immediate area and cleaned up promptly.

For dry spills, promptly sweep up and reuse the pesticide as it was intended.

For liquid spills, it may be possible to recover some material. Absorbent material such as sawdust can also be used to recover spilled chemicals. This material, as well as any contaminated soils, must be disposed of in a manner approved by the Utah Department of Environmental Quality (see Contacts and References section in this fact sheet).

The following spills **MUST** be reported:

Spill Type	Notify
Spills of any amount into streams or lakes.	National Response Center (800) 424-8802. Utah Department of Environmental Quality (801) 536-4123.
Spills of hazardous pesticides that could result in exposure to off-site personnel.	The emergency response coordinator for the nearest community. Utah Department of Environmental Quality (801) 536-4123.
Any use of pesticides or spills that affect the property of another person.	Utah Department of Agriculture and Food (801) 538-7185.
Spills creating greater than 220 pounds of a hazardous waste (including the weight of the contaminated soil).	Utah Department of Environmental Quality (801) 536-4123.

## EXCESS PESTICIDE AND CONTAINER DISPOSAL PRACTICES

Improper disposal of excess pesticides and empty containers is a common cause of ground and surface water contamination.

### Excess Pesticide and Disposal Methods

Dispose of pesticides in a manner that always considers safety to people, animals and the environment. Only use pesticides for their labeled purpose. Never pour pesticides down a drain, directly on the ground or into any surface water. Do not discard pesticides in a desolate or “waste” area, as this can inadvertently contaminate the environment. Other guidelines include:

- Always dispose of pesticides according to manufacturer instructions. Some manufacturers may accept excess pesticides for reformulation or disposal.
- Incineration can only be done if the appropriate paper work has been completed. In all other cases, incineration is not allowed.
- Pesticides can be disposed of in EPA approved facilities. Some landfills have permanent pesticide disposal facilities.
- Most cities and communities have collection days when they will accept hazardous materials from households.

See Contacts and References section in this fact sheet or inquire with your local health department for more details.

## Pesticide Container Disposal Methods

Containers holding pesticides are considered to be hazardous waste and are regulated as hazardous waste even when they are empty unless they have been properly cleaned. Check the label's "Storage and Disposal" section for specific requirements on properly cleaning empty containers. Always triple rinse pesticide containers before disposing of them at landfills, recyclers, or reconditioners.

### THE TRIPLE RINSE METHOD:

1. Empty pesticide container into spray tank and allow container to drain for 30 seconds.
2. Add rinse water to container so it is one-fourth full.
3. Rinse container thoroughly, pour rinsate into spray tank and drain for 30 seconds. Repeat 2 more times.
4. Recycle or dispose of the triple-rinsed container along with other waste.
5. For large volume users, use a 60 second jet spray which is equivalent to a triple rinse.

Other suggestions for avoiding contamination from used containers include:

- Never discard pesticide containers in unapproved locations or use containers for other purposes.
- Do not allow non-triple rinsed pesticide containers to accumulate on your property.

- Paper bags should be thoroughly emptied and disposed of at a sanitary landfill.
- Avoid purchasing pesticides in glass containers. Glass containers are more susceptible to damage in handling and can create an extra hazard when dropped or broken.

## GOOD MANAGEMENT PRACTICES

Reducing pesticide waste makes financial and environmental sense. In addition to reducing spills, never buy more than you need to apply, keep records of what you have, and use older products first.

Under the provisions of the Food, Agriculture, Conservation, and Trade Act of 1990, (FACT), private applicators are required by the USDA to keep records of applications of restricted use pesticides. These records must include specific criteria and be completed within 14 days of the application. (See the example form included with this fact sheet.)

# CONTACTS AND REFERENCES

## GENERAL PESTICIDE INFORMATION:

National Pesticide Information Center:  
(800) 858-PEST (7378) or <http://npic.orst.edu>.

Utah Department of Agriculture and Food:  
(801) 538-7185 or [www.ag.utah.gov](http://www.ag.utah.gov).

Contact your Utah State University county Extension agent through your local phone book or (435) 797-2200 online at <http://extension.usu.edu/cooperative/index.cfm> (under county offices).

Utah Division of Environmental Response and Remediation: (801) 536-4100 or [www.eq.state.ut.us](http://www.eq.state.ut.us).

## STORAGE OF EXTREMELY HAZARDOUS SUBSTANCES

Environmental Protection Agency, list of chemicals subject to EPCRA at <http://www.epa.gov/swercepp/pubs/title3.pdf>

## HEALTH EFFECTS OF PESTICIDES IN WATER SUPPLIES

Local Health Department: Check local phonebook for contact information.

Contact your Utah State University Extension county agent through your local phone book or (435) 797-2200 or on the web:  
<http://extension.usu.edu/cooperative/index.cfm> (county offices).

EPA Safe Drinking Water Hotline: (800) 426-4791 or <http://epa.gov/safewater>.

Utah Poison Control Center: (800) 222-1222.

## HEALTH AND SAFETY INFORMATION ON CHEMICALS

Specific Chemical Manufacturer: Material Safety Data Sheets are available from chemical manufacturers.

Manufacturer contacts can be found on product labels or on the National Pesticide Information Center website <http://npic.orst.edu>.

## PLANS AND RECOMMENDATIONS FOR PESTICIDE MIXING AND LOADING PADS

Midwest Plan Service, Iowa State University, 122 Davidson Hall, Ames Iowa 50011-3080: (800) 562-3618 or on the web at [www.mwpsqh.org](http://www.mwpsqh.org).

## PESTICIDE SPILLS

Local Disaster and Emergency Services Office: check local phonebook.

Utah Disaster and Emergency Services, 24-hour phone number: (801) 536-4123.

National Response Center: (800) 424-8802.

Department of Environmental Quality: (801) 536-4400.

## PROPER DISPOSAL OF SOIL CONTAMINATED BY A PESTICIDE SPILL

Utah Department of Agriculture and Food:  
(801) 538-7185 or on the web at [www.ag.utah.gov](http://www.ag.utah.gov).

Contact your Utah State University Extension county agent through your local phone book or (435) 797-2200 or on the web: <http://extension.usu.edu/cooperative/index.cfm> (county offices).

## EXCESS PESTICIDE AND CONTAINER DISPOSAL PRACTICES

Utah Department of Agriculture and Food:  
(801) 538-7185 or on the web at [www.ag.utah.gov](http://www.ag.utah.gov).

## SOME EPA APPROVED HAZARDOUS WASTE DISPOSAL SITES

Ashland Distribution, Freeport Center Building #12 Clearfield, UT 84016: (800) 293-1295.

Univar, 650 W. 800 S. Salt Lake City, UT 84104: (800) 669-8978 or (801) 328-1112.

Clean Harbors Environmental Service, 8960 North Highway 40, Lakepoint, UT 84074: (801) 252-2000.

US Ecology, P.O. Box 95488, South Jordan, UT 84095: (800) 695-1195 or (801) 253-3450.

## OTHER RESOURCES

U.S. Environmental Protection Agency (EPA),  
Information Resources & Services Division:  
(703) 305-5440 or [www.epa.gov/pesticides/](http://www.epa.gov/pesticides/).

Pesticide Storage Facility Design and Management Plan,  
MWPS-37 {\$15 plus \$4.50 shipping}  
Midwest Plan Service, Iowa State University,  
207 Davidson Hall, Ames Iowa 50011-3080:  
(800) 562-3618 or [www.mwpsHQ.org](http://www.mwpsHQ.org).

*Health Advisory Summaries*. 1989. U.S. Environmental  
Protection Agency, Washington, D.C.  
Specifies maximum acceptable levels of pesticide  
concentrations in drinking water and describes health  
effects that might be caused by particular pesticides in  
drinking water.

## OTHER QUESTIONS?

Contact Utah State University Extension's Water Quality  
Program: (435) 797-2580  
or on the web at <http://extension.usu.edu/waterquality/>.

## MORE READING:

*Utah State University Extension Pesticides Fact Sheets:*  
Utah State University Extension Publications:  
(435) 797-2251 or  
[http://extension.usu.edu/cooperative/publications  
/index.cfm?groupid=29](http://extension.usu.edu/cooperative/publications/index.cfm?groupid=29).

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# GLOSSARY

These definitions may help clarify some terms used in this Fact Sheet and may also help you make more accurate assessments when completing the Utah Farmstead Assessment for Ground Water and Surface Water Protection Survey 2 (Landowner's Survey: What's the risk to your water from pesticides?)

**AIR GAP:** An air space (open space) between the hose or faucet and water level, representing one way to prevent backflow of liquids into a well or water supply.

**ANTI-BACKFLOW (ANTI-BACKSIPHONING) DEVICE:** A check valve or similar mechanical device used to prevent the unwanted reverse flow (backsiphonage) of liquids back down a water supply pipe into a well. Backsiphonage is caused by formation of a vacuum in a water pipe.

**BACKFLOW:** The unwanted reverse flow of liquids in a piping system.

**CLOSED HANDLING SYSTEM:** A system for transferring pesticides or fertilizers directly from a storage container to applicator equipment (through a hose, for example), so that humans and the environment are never inadvertently exposed to the chemicals.

**CROSS-CONNECTION:** A link or channel between pipes, wells, fixtures, or tanks carrying contaminated water and those carrying potable (safe for drinking) water. Contaminated water, if at higher pressure, may enter the potable water system.

**IMPERMEABLE:** Preventing especially liquids to pass or diffuse through.

**MIXING AND LOADING PAD:** An impervious surface which is designed to capture spilled pesticide and fertilizer and water from washing and rinsing. This type of pad allows for the collection of rinsate and spilled chemicals for proper disposal rather than allowing it to permeate into the soil.

**PERMEABILITY (IN SOILS):** The quality that enables soil to transmit water or air. Slowly permeable soils have fine-textured materials like clays that result in slow water movement. Highly permeable soils have coarse-textured materials such as sands that permit rapid water movement.

**RINSATE:** Rinse water from pesticide or fertilizer tank cleaning.

**SANITARY LANDFILL:** A landfill specifically designed to protect ground water through the use of a high quality clay or clay/impermeable film liner, accompanied by a system of buried pipes to collect any liquids generated. Meets state standards. Also called licensed landfill.

**SECONDARY CONTAINMENT:** Impermeable floor and curbs around a chemical storage area that minimize the amount of chemical seeping into the ground from a spill or leak.

**TRAINED AND CERTIFIED APPLICATOR:** A pesticide applicator who has been trained and certified by the state of Utah to apply restricted use pesticides. These pesticides can only be applied by a certified applicator.

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