K-STATE Kansas State University

FARM•A•SYST
Farmstead Assessment System

Fact Sheet 5

Reducing the Risk of Groundwater Contamination by
Improving Farm & Home Waste Management

Waste is inevitable. Things which have been outgrown, broken, replaced, or are just no longer needed all add to the waste produced at homes and around farmsteads.

Waste doesn't just go away. It enters the environment, with some wastes eventually entering groundwater. Good management of the wastes around your farm and home can help protect the quality of your family's drinking water supplies.

Most of the waste accumulated around the farm and home is **solid waste**. Solid waste includes all discarded solid materials—newspapers, empty paint cans, pickle jars, orange peelings, leftover food, worn out shoes, junk mail. The list is endless. Some of this waste contains potentially hazardous materials.

Hazardous waste is waste which includes toxic chemicals, corrosives, explosives, flammable substances and other potentially harmful materials. Some hazardous materials, such as lubricating oils or solvents for cleaning metal parts, are an unavoidable part of farm life. Careful purchase of only essential products, recycling whenever possible, and utilizing safe disposal practices will minimize the impact of these wastes on groundwater and surface water sources.

1. Waste around the farm and home

In rural locations, most wastes are disposed of on site. Common disposal methods include burning or simply piling or burying trash in a ditch on the "back 40." Waste disposed of in an open dump, or even underground, can take many years to degrade or breakdown. Hazardous wastes in a dump can move down through the soil and contaminate groundwater or be washed into surface water bodies.

To minimize the pollution potential from farm, household and shop wastes, it is essential to minimize the amount of wastes produced, especially hazardous wastes. Examine your activities that involve use of hazardous materials to make sure that you really need all the products you are using. Carefully consider how to use the products safely, recycle or reuse them when possible, and dispose of used or remaining products in a way that will not pose a risk to surface water or groundwater. A few simple management principles apply in every situation:

- Use hazardous products away from your well (at least 200 feet), even when all your spills and drips will be contained.
- Return excess product, spills or drips to the original activity. For example, contain oil or grease drips and use for future lubrication needs, and apply pesticide container rinse water according to label directions for the pesticide.
- Contain any unusable wastes, spills and drips for appropriate disposal.
- Take uncontaminated recyclables to a recycling facility if one is available.
- Never dispose of wastes in or around abandoned wells.

For glossary, see page 2 of Worksheet 5.

As long as solid waste generated from household and farm uses is disposed of in a pollution- and problem-free manner, there is no reason for worry that you will fall under state regulations with on-farm disposal of solid wastes. Pay attention to all local regulations when disposing of wastes on your site.

All household and some farm hazardous waste is excluded from waste management regulations. A state permit for disposal of hazardous wastes is not required for individuals who own or operate land used for farming.

Open burning of dry combustibles in small amounts is appropriate where permitted by local ordinance. Dry combustibles include untreated and unpainted wood, paper and cardboard. Minimize adverse health effects from smoke by burning outdoors in well-ventilated areas. **Materials or products containing toxic or harmful substances—including empty pesticide bags—should not be burned**. While burning may destroy some toxic substances, others will become concentrated in the smoke, ash and sludge which results from burning. Repeated burning in the same location may cause the toxic substances to accumulate around the burn area.

Special management is needed for many of the hazardous wastes generated from your farm, household and shop, due to the potential threat to your drinking water supplies. Most of these hazardous wastes can be broken down into three broad categories:

- Automotive and equipment maintenance products
- Paints, solvents and other cleaning products
- Farm and household pesticides

2. Automotive and equipment maintenance products

Included in this category of potentially hazardous substances are batteries, motor oil, grease and other lubricants, antifreeze, and gasoline and related petroleum products.

The design and location of the vehicle and equipment maintenance area is important. Even small drips and spills can add up to a problem for groundwater. Try to avoid maintenance activities close to your well and use a location where spills and drips can be contained. A common practice is to soak up small drips and spills with sawdust or kitty litter. They can then be disposed of in a safe area away from any surface water supply or well, preferably in a sanitary landfill.

Containers from oil and other vehicle maintenance products should be recycled after the product is used, if possible. Take the container to a recycling center or reuse it for product storage. If the container cannot be recycled, dispose of it at an approved sanitary landfill or on the farmstead away from your well.

Batteries

Batteries contain lead and sulfuric acid. The lead can contaminate water, and the acid can burn skin. A battery contains approximately 18 pounds of toxic metals, and a gallon of corrosive acids.

Old batteries should not be disposed of in an on-farm dump or sanitary landfill. The only satisfactory way to dispose of them is by recycling. The lead in the battery can be recycled for use in new batteries and other products. The plastic battery casing is also recyclable. Batteries should be stored in a safe, dry place out of direct sunlight, out of reach of children and pets, and away from your well.

Most places that sell batteries will take back used batteries. Some service stations and scrap metal dealers will take used batteries, as well. Many communities have

recycling centers which handle old automotive batteries. Contact you county Extension office for information on where to recycle batteries in your area.

Oil and lubricants

Disposing of used oil around your farmstead, such as on driveways or around buildings and fences, can lead to contamination of your family's drinking water supply. Used motor oil contains organic chemicals and metals. A small amount of oil can contaminate large quantities of groundwater.

Always store and work with oil, grease and other lubricants, away from your well. Use up grease and other lubricating products, or share them with someone who needs them. Store waste oil in closed, labeled containers (plastic milk jugs work well) until you can take the oil to be recycled. Service stations often accept limited amounts of used oil, or can inform you of places which do accept it. Waste oil can also be burned in an onsite space heater designed for burning oil as a fuel. Do not mix solvents or fuel with oil as it creates a more hazardous product, unsuitable to recycle or reuse.

Antifreeze

Pouring antifreeze on the ground or into a ditch can lead to possible ingestion by pets, seepage into the water supply, or contamination of surface water sources. Store in a safe place, secured from children and pets. Antifreeze contains chemicals which are poisonous to animals and humans. Pets will lap up an antifreeze puddle because it tastes sweet. This is often fatal.

Antifreeze may be safely diluted and disposed of in a municipal sewer system. It should not be placed into an onsite septic system, as it may kill organisms the system depends on to break down wastes and can cause the system to fail. If a municipal sewer system is not available, solidify the antifreeze using an absorbent material such as sawdust or kitty litter. The solidified antifreeze can then be taken to a licensed sanitary landfill or disposed of in a field at least 400 feet from any well or surface water body.

Gasoline and other fuels

Petroleum products are among the most hazardous substances found around the farm and home. Store these products downslope and at least 400 feet from your well, if at all possible. Use up old fuels by diluting one part old fuel with five parts new fuel to protect your engine. If disposal of old fuel is necessary, small amounts may be taken to a service station or hazardous waste collection event. Contact your local health department for the proper procedures with large quantities of fuel.

(For more detailed information about petroleum product storage and the risks it presents, see worksheet and fact sheet 4, *Fuel Storage*.)

3. Paints, solvents and other cleaning products

The best method for managing paints, solvents and cleaning products is to see that they are used up. To avoid wasting any of these products, buy only what you need. Store them in well ventilated areas, out of reach of children and pets.

Paints and stains

Try to use up old paint in other painting projects, or give it to someone who can use it. Store paint in a dry place where it won't freeze. Paint usually remains usable if it mixes well when stirred and hasn't been frozen and thawed repeatedly.

Throwing out liquid paint can contaminate your water supply. Any paint which needs to be disposed of should first be dried out in a well-ventilated area away from children, pets, flames and anything that might spark. For small quantities of paint, remove the lid and let it dry in the can. Larger quantities should be poured in layers or mixed with sawdust in a larger container, such as a box lined with plastic. After paint has been dried, seal it in a plastic bag and dispose of it with the rest of your garbage.

Solvents

Disposing of solvents by dumping them on the ground or in a septic system can allow the solvents to leach to groundwater. Avoid on-farm disposal of solvents whenever possible. Always use solvents away from your well and in a ventilated area. Store them in original containers and out of the reach of children.

Some solvents, such as paint thinner, can be cleaned and reused. Clean dirty solvents by placing in a closed transparent container and storing until the paint or other material settles to the bottom. After the sludge has settled out, pour the clean, reusable solvent off the top. Let the sludge dry and discard it.

Up to a quart of most solvents can also be disposed of by evaporation in a well-ventilated area. Pour the solvent over an absorbent material, such as kitty litter, in a plastic lined box. After the solvent has evaporated, place the box and absorbent material with the rest of your garbage. Large quantities of solvents can be picked up by a solvent recycler or taken to a household hazardous waste collection event.

Household cleaners

Drain cleaner, oven cleaner, furniture polish, spot removers and disinfectants are just a few household products which can contribute to hazardous waste. Limit the amount of hazardous cleaners and home maintenance products disposed of by using them according to label whenever possible. Give household chemicals to someone who can use them, or dispose of them at a household hazardous waste collection event.

Containers from hazardous household cleaners should be taken to a recycling facility or reused for a similar product. Empty containers can also be taken to a licensed landfill. Don’t bury leftover household chemicals or their containers in your yard, garden or farm dump.

4. Farm and household pesticides

This category of potentially hazardous substances includes all types of pesticides and pesticide containers, including those used for indoor plants, home maintenance and yard care. Handle all categories of pesticides as directed on the label to prevent health and environmental problems. Pay particular attention to pesticides classified as “restricted use.”

The best management practice for pesticides is to use them up according to current label directions. If you can’t use the pesticide, see if a neighbor or local business may have a need for it or contact your county weed department. In some instances, mini-bulk tanks and returnable containers allow the return of excess chemicals to the place of purchase.

For leftover pesticides that cannot be used or disposed of in any of these ways, store them safely until they can be taken to a community hazardous waste collection. In Kansas, household hazardous waste collection programs will not take business or farm quantities of most pesticides (usually no more than a few quarts). Contact your local health department for assistance in this situation. For information about local collection events contact your local health department or county Extension office.

Always be sure stored pesticides are in original containers, properly labeled, and in a locked cabinet or building out of the reach of children. To offer the greatest protection to your drinking water, store pesticides at least 400 feet downslope from your well.

Pesticides come in mini-bulk tanks, plastic containers, or paper containers. Mini-bulk tanks are returned to the place of purchase when application has been completed. Some plastic containers can be returned to the place of purchase for disposal. Paper containers should be bundled and taken to a licensed sanitary landfill, if possible. Do not burn or reuse old pesticide containers. Check with your local dealer to learn what container disposal opportunities are available before purchasing the pesticide.

> Always triple rinse containers, return the rinse water to the spray tank and apply following labeled instructions. If you cannot return plastic containers to the place of purchase, take the triple-rinsed containers to a licensed landfill. **Triple-rinsed pesticide containers may still contain enough pesticide residue that they should not be used for any other purpose**.

(For more detailed information about the management and storage of pesticides on the farm, see Worksheet and Fact Sheet 2, *Pesticide Storage and Handling.*)

5. General philosophy for managing farm and home wastes

•**Buy with care**—Purchase only those items you need and try to use as few hazardous products as possible. Buy only the amounts of a product that you can use.

•**Try to use up products and use them safely**—This is the best way to minimize waste and protect your water supply.

•**Recycle or reuse**—Many of the items used around the farm and home can be recycled or reused by either yourself or someone you know. Take advantage of the recycling centers you have access to and don't be afraid to give some products away. Items which may be waste to you might be useful to someone else. Instead of throwing away usable or repairable items, give them to a friend, organization or business that can use them.

•**Know the sources of hazardous waste**—By knowing which products around your farm and home are potential contaminants of the environment and groundwater supplies, you can better manage their use and disposal. This will allow you to better protect your family's drinking water supplies.

•**Follow safe disposal practices**—Since waste is inevitable, disposal of waste is inevitable, as well. Following the recommendations for solid and hazardous waste disposal as described in this fact sheet can help to minimize the risk these wastes present to your family's drinking water supplies.

CONTACTS AND REFERENCES

Who to call about...

Health concerns

Your local health department or the Kansas Department of Health and Environment, Bureau of Environmental Health Services, Mills Building, Suite 604, 109 SW 9th, Topeka, Kansas 66612, (913) 296-5600.

A specific product

Contact the company that makes the product. The company's phone number is frequently on the label. Or, call the Chemical Referral Center, at 1(800) 262-8200. Sponsored by the Chemical Manufacturers' Association, this number will refer you to a product's manufacturer for answers about product questions.

Identification and disposal of hazardous wastes

Kansas Department of Health and Environment (KDHE), Hazardous Waste Section, (913) 296-1600, or the KDHE district office for your area:

Southwest District (Dodge City): (316) 225-0596
South Central District (Wichita): (316) 838-1071
Southeast District (Chanute): (316) 431-2390
Northeast District (Lawrence): (913) 842-4600
North Central District (Salina): (913) 827-9639
Northwest District (Hays): (913) 625-5664

Household hazardous waste collection events

Contact your local health department or county Extension office about locations and dates of collection events in your area.

Pesticides and other agricultural chemicals

Kansas State Board of Agriculture, Pesticide Use Section, (913) 296-2142.

What to read about...

Publications are available from sources listed at the end of the reference section. (Refer to number in parentheses after each publication.)

Groundwater contamination, protection and testing

Pesticides in Drinking Water. MF-961. (1)
Groundwater and Well Contamination. MF-932. (1)
Managing the Farmstead to Minimize Groundwater and Well Contamination. MF-948. (1)
Nitrates and Groundwater. MF-857. (1)
Safe Domestic Wells. MF-970. (1)
Ensuring Safe Drinking Water. MF-952. (1)
Suggested Water Tests for Private Systems. MF-871. (1)
Taking a Water Sample. MF-963. (1)
Testing to Help Ensure Safety of Drinking Water. MF-951. (1)
Commercial Laboratories Certified for Water Quality Tests. MF-872. (1)
Understanding Your Water Test Report. MF-912. (1)

Hazardous waste management and disposal

Household Product Disposal Guide. MF-965. (1, 2)
Automotive Products. L-825. (1, 2)
Paints and Solvents. L-826. (1, 2)
Using Household Products Wisely. L-827. (1, 2)
Using Pesticides Safely. L-828. (1, 2)

Recycling

Resources for Recycling. C-724. (1)

Publications available from...

1. Your county Extension office or directly from Extension Distribution Center, Umberger Hall, Kansas State University, Manhattan, Kansas 66506, (913) 532-5830. There may be charges for publications, postage and sales tax.

2 Kansas Department of Health and Environment, Hazardous Waste Section, Forbes Field, Building 740, Topeka, Kansas 66620, (913) 296-1600, or the KDHE district office for your area.

FARM•A•SYST
Farmstead Assessment System

The Farmstead Assessment System is a cooperative project of the Cooperative Extension Service, Kansas State University, and the Kansas Department of Health and Environment.

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Publications from Kansas State University are available on the World Wide Web at: http://www.oznet.ksu.edu

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