

Worksheet #5
*Assessing the Risk of Groundwater Contamination from
Hazardous Waste Management*





Worksheet #5

Assessing the Risk of Groundwater Contamination from Hazardous Waste Management

Why should I be concerned?

Consider the variety of products commonly used in households and on farms: paints, solvents, oils, cleaners, wood preservatives, batteries, adhesives and pesticides. In addition, some common disposal practices not only threaten groundwater but also may be illegal.

Small, unusable amounts often wind up spilled, buried, dumped or flushed onto farm property. Minimizing the amounts of these substances used on the farm, along with practicing proper disposal practices, can reduce both health risks and the potential for groundwater contamination. Farmers and their families are generally familiar with the hazards of pesticides commonly used in the farm operation, but they may be less aware of the hazards of other chemicals that make many tasks around the home and farm easier or more efficient.

Improper use of hazardous products may cause toxic health effects. Improper storage may allow chemicals to leak, causing potentially dangerous chemical reactions, toxic health effects or groundwater contamination. Improper disposal allows these dangerous chemicals to enter directly into drinking water through surface water or groundwater.

Your drinking water is least likely to be contaminated by your hazardous wastes if you follow appropriate management procedures or dispose of wastes in any location that is **off your farm site**. However, proper offsite disposal practices are essential to avoid risking contamination that could affect the water supplies and health of others.

The goal of Farm-A-Syst is to help you protect the groundwater that supplies your drinking water.

How will this worksheet help me protect my drinking water?

- It will take you step by step through your hazardous waste management practices.
- It will rank your activities according to how they might affect the groundwater that provides your drinking water supplies.
- It will provide you with easy-to-understand rankings that will help you analyze the “risk level” of your hazardous waste management practices.
- It will help you determine which of your practices are reasonably safe and effective, and which practices might require modification to better protect your drinking water.

How do I complete the worksheet?

Follow the directions at the top of the chart on the next page. It should take you about 15-30 minutes to complete this worksheet and figure out your ranking.

Information derived from Farm-A-Syst worksheets is intended only to provide general information and recommendations to farmers regarding their own farmstead practices. It is not the intent of this educational program to keep records of individual results.

Glossary

Hazardous Waste Management

These terms may help you make more accurate assessments when completing Worksheet #5. They may also help clarify some of the terms used in Fact Sheet #5.

Burn barrel: Any on-farm system of open burning, such as burning in a barrel. (See **incinerator**.)

Dump: A local landfill that is not designed to prevent leaching and offers little groundwater protection.

Farm business: A farm that generates at least \$1000 in net annual income from farming.

Hazardous waste contractor: A hazardous waste collection service offered by businesses with vehicles licensed to transport hazardous waste to licensed hazardous waste facilities.

Household hazardous waste collection program: A special program in which a community collects waste for disposal in a specially constructed hazardous waste landfill or incinerator.

Household quantities: Less than five gallons of a household product.

Incinerator (municipal): A community incinerator specifically engineered to burn municipal quantities of home waste.

Incinerator (on-farm): Any home-built incinerator or any incinerator purchased for home use.

Licensed landfill: A landfill specifically designed to protect groundwater 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 current state standards.

On-farm disposal: Any method of burning, dumping or land spreading of wastes on the farm. Also includes use of the septic system for disposal.

Recycling: Reusing waste materials to develop another product.

Solvent recycler collection service: A pick-up service provided by businesses that reprocess used solvents.

Hazardous Waste Management: Assessing Drinking Water Contamination Risk

1. Use a pencil. You may want to make changes.
2. For each category listed on the left that is appropriate to your farmstead, read across to the right and circle the statement that **best** describes conditions on your farmstead. (Skip and leave blank any categories that don't apply to your farmstead.)

3. Then look above the description you circled to find your “rank number” (4, 3, 2 or 1) and enter that number in the blank under “your rank.”
4. Directions on overall scoring appear at the end of the worksheet.
5. Allow about 15-30 minutes to complete the worksheet and figure out your risk ranking for hazardous waste disposal practices.

	RANK 4	RANK 3	RANK 2	RANK 1	YOUR RANK
ASH DISPOSAL					
From farm burn-barrel or incinerator	Ash collected and disposed of at licensed landfill or municipal incinerator.	Disposal of ash <i>from dry combustibles only</i> , on farm or at dump, or spread on fields.	Disposal of ash <i>from mixed trash</i> at dump or on farm away from well.	Disposal of ash from <i>mixed trash</i> on farm in consistent location near well.	
BUILDING/WOOD MAINTENANCE PRODUCTS					
Adhesives, such as caulk and solvent-based glues	Used up or shared with someone else. Hazardous waste contractor collection service used for leftover adhesives.	Liquid evaporated in open air. Sludge or leftover product taken to licensed landfill or municipal incinerator.	Disposal at dump.	Disposal on farm.	
Brush or spray gun cleaners (solvent based)	Cleaned in contained, ventilated area. Solvent recycler collection service used for leftover cleaners.	Cleaned in contained, ventilated area. Filtered cleaning solvents reused or evaporated in open air. Sludge taken to licensed landfill or municipal incinerator.	Cleaned in uncontained, ventilated area and disposed of at dump.	Disposal of leftover cleaning solvents on farm.	
Lead-based paint	Hazardous waste contractor collection service used.	Liquid evaporated in open air. Paint or sludge taken to licensed landfill or municipal incinerator.	Disposal of sludge or paint at dump.	Disposal on farm.	

Boldface type: These actions are **not legal** for wastes generated from the farm business. (Household wastes are exempt from regulation.) If you are unsure of how to dispose of specific wastes, contact your hazardous waste regulator.

	RANK 4	RANK 3	RANK 2	RANK 1	YOUR RANK
BUILDING/WOOD MAINTENANCE PRODUCTS (continued)					
Paint or stain (no lead)	Used up or shared with someone else. Hazardous waste contractor used for leftover paint or stain.	Liquid evaporated in open air. Paint or sludge taken to licensed landfill or municipal incinerator.	<i>Disposal of oil-based paints or stains at dump. Latex paint disposal on farm away from well.</i>	<i>Disposal of oil-based paints or stains at dump. paints or stains on farm.</i>	
Striper or thinner for paint/finish	Spills contained. Unused products used up. Hazardous waste contractor collection service used for leftover stripper or finish.	Liquid evaporated in open air. Stripper or stripper sludge taken to licensed landfill or municipal incinerator.	<i>Disposal of sludge, stripper or thinner at dump.</i>	<i>Disposal on farm.</i>	
CONTAINER DISPOSAL					
Paper/cardboard pesticide container	Returned to supplier or hazardous waste collection service used.	Empty container taken to licensed landfill, municipal incinerator or dump.	<i>Disposal of sludge or cleaners at dump.</i>	<i>Disposal on farm.</i>	
Plastic pesticide container	Triple-rinsed container returned to retail store for reuse, or taken to licensed landfill or municipal incinerator. Rinsate applied to appropriate crop.	Unrinsed container disposed of at licensed landfill, municipal incinerator or dump.	<i>Disposal of empty but unrinsed container on farm.</i>	<i>Disposal of partially filled container on farm.</i>	
<i>Boldface type: These actions are not legal for wastes generated from the farm business. (Household wastes are exempt from regulation.) If you are unsure of how to dispose of specific wastes, contact your hazardous waste regulator.</i>					

		RANK 4	RANK 3	RANK 2	RANK 1	YOUR RANK
CONTAINER DISPOSAL (continued)						
Plastic container for oil or other vehicle product	Product used up and container recycled.	Any remaining ingredients evaporated in safe conditions. Empty container taken to licensed landfill or municipal incinerator.		<i>Disposal of empty container at dump or on farm.</i>	<i>Disposal of partially filled container on farm.</i>	
Hazardous household product containers	Taken to recycling facility or reused for similar product.	Empty container taken to licensed landfill, municipal incinerator or dump.		Disposal of empty container on farm.	Disposal of partially filled container on farm.	
PESTICIDES						
Unwanted or banned pesticides	Participation in EPA banned pesticide buy-back program if available. Unused pesticides returned to place of purchase. Hazardous waste contractor collection service used.	Pesticides sold for restricted or general purposes used up or taken to licensed landfill or municipal incinerator.		<i>Disposal of unused pesticides at dump.</i>	<i>Disposal of unused pesticides on farm.</i>	
VEHICLE/METAL EQUIPMENT MAINTENANCE PRODUCTS						
Used antifreeze	Saved and taken to antifreeze recycling facility, or filtered and reused as water in other radiators.	Collected and disposed of at municipal sewage treatment drain with permission of municipality. Taken to licensed landfill, municipal incinerator or dump.		Disposal on farm away from well (including in septic system).	Dumped near well.	

	RANK 4	RANK 3	RANK 2	RANK 1	YOUR RANK
VEHICLE/METAL EQUIPMENT MAINTENANCE PRODUCTS (continued)					
Waste oil and grease	Taken to used oil collection tank for recycling.	Reused for lubrication. Burned for heat in an approved residential incinerator, collected and disposed of at licensed landfill or municipal incinerator.	Disposal at dump.	Disposal on farm.	
Waste oil sludge (left over after burning)	Hazardous waste contractor services used.	Collected and disposed of at licensed landfill or municipal incinerator.	Disposal at dump.	Disposal on farm.	
Spent organic solvent/parts cleaner	Solvent recycler collection service used for leftover cleaners.	Filtered in ventilated area and reused or evaporated in open air. Sludge taken to licensed landfill or municipal incinerator.	Disposal of solvents or sludge at dump.	Disposal of solvents or sludge on farm.	
Rust-removal products	Used up or shared with someone else. Hazardous waste contractor services used.	Taken to licensed landfill, municipal incinerator or dump.	Disposal of leftover product on farm.	Disposal of used product on farm.	
Lead acid battery	Taken to battery recycler or battery store.	Used batteries taken to licensed landfill or municipal incinerator; well, or stored away from well.	Used batteries taken to dump or stored near well.	Disposal on farm near well.	

Boldface type: These actions are **not legal** for wastes generated from the farm business. (Household wastes are exempt from regulation.) If you are unsure of how to dispose of specific wastes, contact your hazardous waste regulator.

YOUR
RANK

RANK 1

RANK 2

RANK 3

RANK 4

VEHICLE/METAL EQUIPMENT MAINTENANCE PRODUCTS (continued)

Vehicle maintenance drips and spills	Contained on paved area with sawdust. Contaminated sawdust disposed of at licensed landfill or municipal incinerator.	Contained on paved area with sawdust. Contaminated sawdust disposed of at dump.	Occasional flushing onto farm property near well.	Frequent flushing onto farm property near well.

WOOD PRESERVING

Application drips and spills	Drips and spills contained. Applicator and drop cloths disposed of at dump.	Drips and spills contained. Applicator and drop cloths disposed of at dump.	Application without containment more than 100 feet from well.	Application without containment within 100 feet of well.

Disposal of unused preservatives	Used up or shared with someone else. Hazardous waste contractor collection service used for leftover preservatives.	Used up or shared with someone else. Hazardous waste contractor collection service used for leftover preservatives.	Disposal at licensed landfill or municipal incinerator.	Disposal at dump.

Boldface type: These actions are **not legal** for wastes generated from the farm business. (Household wastes are exempt from regulation.) If you are unsure of how to dispose of specific wastes, contact your hazardous waste regulator.

TOTAL

Use this total to calculate risk ranking on back page of worksheet.

What do I do with these rankings?

Step 1: Begin by determining your overall hazardous waste risk ranking. Total the rankings for the categories you completed and divide by the number of categories you ranked:

$\frac{\text{_____ divided by } \text{_____ equals}}{\text{total of rankings} \quad \# \text{ of categories ranked}}$	<input type="text"/> * risk ranking	*Carry your answer out to one decimal place.
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3.6–4=low risk 2.6–3.5=low to moderate risk 1.6–2.5=moderate to high risk 1–1.5=high risk

This ranking gives you an idea of how your hazardous waste practices **as a whole** might be affecting your drinking water. This ranking should serve only as a **very general guide, not a precise diagnosis**. Because it represents an **averaging** of many individual rankings, it can mask any **individual** rankings (such as 1's or 2's) that should be of concern. (See Step 2.)

Enter your boxed hazardous waste risk ranking on page W12.1. Later you will compare this risk ranking with other farmstead management rankings. Worksheet #11 will help you identify your farmstead's site conditions (soil type, soil depth and bedrock characteristics), and Worksheet #12 will show you how these site conditions affect your risk rankings.

Step 2: Look over your rankings for individual activities:

- Low-risk** practices (4's): ideal; should be your goal despite cost and effort
- Low-to-moderate-risk** practices (3's): provide reasonable groundwater protection
- Moderate-to-high-risk** practices (2's): inadequate protection in many circumstances
- High-risk** practices (1's): inadequate; pose a high risk of polluting groundwater

Regardless of your overall risk ranking, any individual rankings of "1" require immediate attention. Some concerns you can take care of right away; others could be major—or costly—projects, requiring planning and prioritizing before you take action.

Find any activities that you identified as 1's and list them under "High-Risk Activities" on pages W12.6-W12.7 of Worksheet #12.

Step 3: Read Fact Sheet #5, *Improving Hazardous Waste Management*, and consider how you might modify your farmstead practices to better protect your drinking water.