



Improving Storage and Handling of Hazardous Waste for Coastal Communities

Are the groundwater and surface water around your house protected from hazardous waste?

Virtually every household produces hazardous waste and many people do not even realize it. Many of the products we use around our house contain chemicals that can cause harm to our health and our environment if not used and disposed of properly. Vapors from paint thinners can cause fumes that are toxic to breath. Products such as pesticides and motor oil – if disposed of on the ground – can contribute to the pollution of groundwater and ultimately the creeks and sounds around. Everyday products, such as nail polish, mothballs, shoe polish, and even some medicines can produce hazardous wastes if improperly discarded. Household wastes are not regulated by law like many farm and industrial wastes. Thus the responsibility is on the homeowner to handle these products with care. Waste disposed of incorrectly can move down through the soil and contaminate the groundwater and/or be washed into surface water bodies such as creeks, sounds, or bays.

To minimize the pollution potential from household wastes, it is important to minimize the amount of wastes produced, especially hazardous wastes. Examine your activities that involve the use of hazardous materials and 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. Dispose of used or remaining products in a way that will not pose a risk to tidal water or groundwater. A few simple management principles apply in every situation.

- Follow the label.
- Use hazardous products away from your well (at least 100 feet) or surface water source, such as creeks, rivers, estuaries, lakes, or even the ocean, even when all your spills and drips will be contained.
- Return usable excess product, spills, or drips to the original activity. For example, contain oil or grease drips and use for future lubrication needs.

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- Contain any unusable wastes, spills, and drips for appropriate disposal.
- Take uncontaminated recyclables to a recycling facility if one is available.
- Never throw away or bury wastes in or around abandoned wells.
- Do not pour wastes down the drain.

How safe is the water around your home?

If you drink water, it comes from a well or spring (groundwater sources) or a creek, river, or lake (surface water sources). The estuaries along our coast help filter pollutants that come downstream and also act as a nursery for shrimp, fish, crabs, and other aquatic organisms that live along our coast. Estuaries are often referred to as “the canary in the coalmine” in determining the health of the waters because these ecosystems often show environmental stress before it shows up in other areas.

Drinking water and water sources in North Carolina are generally safe, but can become polluted if we are not careful. Many of the things we do at home can pollute our water and the environment. Poorly maintained or designed septic waste systems can pollute surface and groundwater. Pesticides, fertilizers, fuels, and cleaning products can contaminate our water when they are not stored and handled properly.

It is nearly impossible to get pollutants out of water once they get there. Expensive treatments or new wells would be required to get safe drinking water again and the clean up the polluted waterways. Clearly, it is much more effective to keep pollutants out of water than to try to clean it up afterward.

People who have their own wells or springs for drinking water need to be especially aware of pollution sources because their water is not tested for contaminants as is city water. This is called wellhead protection and involves careful attention to the activities near your well to be sure the water remains safe. However, all people are responsible for protecting all water sources, whether it is their own or their neighbors’.

*What is the North Carolina Coast*A*Syst Program?*

The North Carolina Coast*A*Syst program has a series of publications that can help you to be a good coastal environmental steward and also protect the health and well-being of your family. This publication leads you through an evaluation of your home and property to determine the pollution and health risks of your hazardous waste storage and handling practices. If there is a problem or a potential problem, the Coast*A*Syst publications have information about how to solve the problems. The publications also list the North Carolina state agencies responsible for helping you solve your particular problem.

The goal of the North Carolina Coast*A*Syst program is to help protect the health of you and your family and the environment of North Carolina.

North Carolina Coast*A*Syst Publications

- *Protecting Coastal Water Supply, #1*
- *Improving Storage and Handling of Hazardous Waste for Coastal Communities, #2*
- *Improving Septic Systems in Coastal Communities, #3*
- *Improving Lawn Care and Gardening and Bulkheads in Coastal North Carolina, #4*
- *Stormwater Management for Coastal Homeowners, #5*
- *Piers, Docks, and Bulkheads, #7*

How can we help?

We have prepared this publication to help you focus on potential problems with your drinking water and the surrounding water in the coastal areas that may be caused by improperly used or discarded hazardous waste. Read the publication and answer the questions in the publication.

Each of the following sections deals with different topics. Next to each topic is a question for you to answer. Your answers will help you to see where you have potential problems.

- If you answer a question either **a** or **b**, you have few problems with the use or disposal of hazardous waste. If you answer a question either **c** or **d**, there may be potential problems with your use or disposal of hazardous waste.
- If you answer a question either **c** or **d**, you will want to consider making changes in the way you use or dispose of hazardous waste in order to protect your drinking water.

If you would like further help in assessing the condition of your hazardous waste problem, please contact your nearest Cooperative Extension Service center and talk with your Extension agent.

What is hazardous waste?

Many of the products we use for housework, gardening, home improvements, or equipment maintenance contain hazardous materials that endanger our health as well as pollute the environment. These materials can contaminate water if they are not stored carefully and disposed of properly. In addition to polluting our water, careless use and disposal of hazardous household products can cause injuries, poisoning, and air pollution.

Hazardous materials have the following features:

- Ignitable — capable of burning or causing a fire
- Corrosive — capable of eating away materials and destroying living tissue when contact occurs
- Explosive — can cause an explosion or release poisonous fumes when exposed to air, water, or other chemicals
- Toxic — poisonous, either immediately (acutely toxic) or over a long period of time (chronically toxic)
- Radioactive — can damage and destroy cells

How do you know if a product is hazardous?

Read the label. If a product contains a hazardous substance, the front label must include a warning and a description of the hazard. The hazard may be a health hazard or it may be an environmental hazard. The label will also include instructions for safe handling and use, the common or chemical name, and first aid instructions.

Levels of hazard are identified on each household product by one of the three following words:

DANGER—substances that are extremely flammable, corrosive, or highly toxic.

POISON—substances that are highly toxic.

WARNING or CAUTION—substances that are moderately or slightly toxic.



Hazardous products can enter your body in three ways:

- Ingestion
- Inhalation
- Absorption

What are the different types of hazardous household products?

Most hazardous household products can be grouped into four major categories:

- Automotive products that are hazardous include motor oil, brake and transmission fluid, antifreeze, car batteries, gasoline, kerosene, diesel fuel, and car wax with solvent.
- Household cleaners include drain cleaners, oven cleaners, toilet cleaners, spot removers, silver polishes, furniture polishes, liquid cleanser, powdered and window cleaners, bleach, and dyes.
- Paint and solvents that are hazardous include latex, oil-based, auto and model paint, paint stripper, primer, rust remover, turpentine, varnish, wood preservative, mineral spirits, and glues.
- Pesticides, which include herbicides, insecticides, and fungicides.

General Rules for Managing Hazardous Products

Tips for Buying Hazardous Products

- Read labels. Make sure the product will do what you want and that you feel safe using it.
- Select the least hazardous product.
- Buy only what you need and the amount you need.
- Use products with pumps, not aerosols.
- Select water-based products rather than solvent-based products.
- Use products in containers made from recycled materials and/or that can be recycled.

Rules for Using Hazardous Products

- Read and follow the directions.
- Wear protective clothing, if necessary.
- Make sure your work area is well ventilated.
- Seal products tightly.
- Do not smoke, eat, or drink when using these products.
- Use products carefully.

Rules for Storing Hazardous Products

- Follow the directions for storage on the label.
- Protect the original label.
- Store hazardous household chemicals in the original container.
- Keep containers dry to prevent corrosion.
- Store similar products together to reduce any danger from reactions if containers should leak or contents should spill.



NO SMOKING

- Store products in a well-ventilated area.
- Store products away from children and pets. Generally high, locked shelves work best.
- Store products away from any flammable materials or sources.

Rules for Disposing of Hazardous Waste Products

- Do not mix products unless you know what you are doing.
- Do not flush wastes down your sink or toilet.
- Never burn, dump, or bury hazardous waste.
- Do not pour hazardous household waste into ditches, storm drains, or gutters.
- DO RECYCLE products and containers whenever possible.

Solid Waste Disposal

Solid waste makes up a bulk of the waste in our landfills and sometimes ends up dumped in abandoned lots or fields. These materials can be drink cans, soup cans, paper, cardboard, etc. which can be recycled.

1. How do you dispose of your solid waste?

As long as solid waste generated from household uses is disposed of in a pollution- and problem-free manner, there is no reason to worry that you will fall under state regulations covering disposal of solid wastes. Pay attention to all local regulations when disposing of wastes on your site. Several communities offer recycling programs for certain materials. Check with your local waste disposal company to see if this service is offered.

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 concentrate in the smoke, ash, and sludge which results from the burning. Repeated burning in the same location may cause the toxic substances to accumulate around the burn area.



1. **Circle the answer that best describes how you dispose of your solid waste.**
 - a. Amount of solid waste minimized through careful purchase, recycling or reusing, and sharing with others whenever possible. All hazardous products separated out. Disposal or burning more than 400 feet downslope from well or off property.
 - b. Some products recycled or reused, but little done to reduce amount of waste. Most hazardous products separated out. Disposal or burning more than 400 feet downslope from well or off property.
 - c. Little or no recycling or reusing of products. Few hazardous products separated out. Disposal or burning on homestead 100-400 feet downslope from well.
 - d. Little or no recycling or reusing of products. No hazardous products separated out. Disposal or burning within 100 feet or upslope from well. Disposal in abandoned well or similar hole; OR do not know.

Boat/Automotive/Equipment Maintenance Products

Potentially hazardous substances that are categorized as automotive/equipment maintenance products are batteries, motor oil, grease and other lubricants, antifreeze, and gasoline and related petroleum products. These pollutants can gravely affect water quality and cause die off of marine plants and animals.

2. How do you manage your boat, vehicle, and equipment maintenance area?

The design and location of the boat, vehicle, and equipment maintenance area is important. Even small drips and spills of vehicle or boat fluids can add up to a problem for groundwater and can leach to the coastal estuaries, creeks, and marshes. Try to avoid maintenance activities close to your well or surface water. Use a location where spills and drips from your vehicles, boats, and equipment can be contained. If possible, use drip pans to collect oil. Soak up small drips and spills with sawdust or kitty litter and then dispose of this material in a safe area away from any surface water supply or well, preferably in a sanitary landfill.

Recycle containers that held oil or vehicle maintenance products. Take the containers to a recycling center. If the containers cannot be recycled, dispose of them at an approved sanitary landfill or store them on the home away from your well.

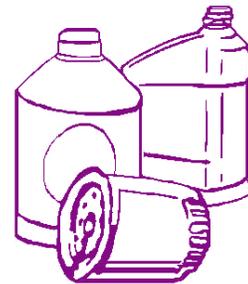
3. How do you use and dispose of oil and lubricants around your home?

Always store and work with oil, grease, and other lubricants away from a water source. 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 that do accept it. Your county Cooperative Extension Service Center may sponsor a used oil collection day. Call them to find out when the next one will be or locations where used oil can be recycled.

Disposing of used oil around your home, such as on driveways or around buildings and fences, can lead to contamination of your family's or a neighbor's drinking water supply as well as the surrounding coastal waters. Used motor oil contains organic chemicals and metals. A small amount of oil can contaminate large quantities of groundwater and surface waters. It is illegal to use oil for road oiling and dust control.

2. Circle the answer that best describes how you contain drips and spills from your vehicle and equipment maintenance area.

- a. Contained on paved area with sawdust or other absorbent material. Sawdust disposed at approved landfill.
- b. Contained on paved area with sawdust or other absorbent materials and disposed on property at least 200 feet from well or water source.
- c. Drips and spills uncontained. Maintenance area 100-200 feet from well or water source.
- d. Drips and spills uncontained. Maintenance area less than 100 feet from well or water source; OR do not know.



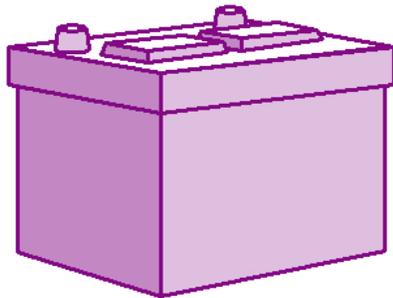
3. Circle the answer that best describes how you use and dispose of oil and lubricants around your home.

- a. Used oil taken to be recycled by an approved recycler.
- b. Used oil is reused for lubrication or stored more than 200 feet away from well or water source.
- c. Used oil is disposed on the property away from well or water source.
- d. Used oil is disposed or stored on the property within 100 feet of well or water source; OR do not know.

4. Do you recycle your vehicle batteries?

Vehicle and boat 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. Batteries should be stored in a safe dry place out of direct sunlight, out of reach of children and pets, away from your well, and away from any water sources.

Vehicle and boat batteries **cannot** be disposed of in landfills. The only satisfactory way to dispose of old batteries is to recycle them. All stores that sell batteries will take back used batteries. Some marinas, service stations, and scrap metal dealers will also take used batteries. Many communities have recycling centers that handle old automotive batteries. Contact your county Cooperative Extension Service Center or your regional Division of Solid Waste Management for more information on where to recycle batteries in your community.



5. How do you dispose of your antifreeze?

Pouring antifreeze on the ground or into a ditch can lead to ingestion by pets, seepage into the groundwater supply, or contamination of surface waters such as creeks, bays, sounds, or the ocean. 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. Therefore, it is very important to store your antifreeze in a safe place, secured from children and pets.

Do not pour your antifreeze into your septic system. The antifreeze will kill the beneficial organisms in your septic system that make it work. Used or excess antifreeze should be recycled. Antifreeze **cannot** be disposed of in a sanitary landfill. Contact your county Cooperative Extension Service Center for more information on where to recycle antifreeze in your community.

4. **Circle the answer that best describes how you store and dispose of your vehicle batteries.**
- a. Used vehicle batteries are recycled at battery store or recycling center.
 - b. Used vehicle batteries are stored out of reach of children and pets and away from well and water sources.
 - c. Used vehicle batteries are stored on farmstead away from well and water sources but in reach of children.
 - d. Used batteries are disposed of in home dump or stored near well or water source; OR do not know.

5. **Circle the answer that best describes how you store and dispose of antifreeze.**
- a. Used or excess antifreeze is recycled at recycling center.
 - b. Used or excess antifreeze is stored on the property away from well or water source.
 - c. Used or excess antifreeze is disposed on property away from well or water source after placing in absorbent material.
 - d. Used or excess antifreeze is dumped near well or water source or in on-site sewage treatment system; OR do not know.

6. How do you store and use gasoline and other fuels?

Petroleum products are among the most hazardous substances found around the home or around docks. Store these products downslope and at least 100 feet from your well or surrounding coastal waters, 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 marina, service station, or hazardous waste collection event. Contact your local health department for the proper procedures for disposing of large quantities of fuel.

(For more information, see Home*A*Syst publication #2, *Improving Fuel Storage*.)

6. **Circle the answer that best describes how you store and dispose of your gasoline and other types of fuel.**
- a. Leftover fuels used or taken to service station or hazardous waste collection. No fuels disposed of on your property.
 - b. Not applicable.
 - c. Leftover fuels stored on property away from well or water source.
 - d. Waste fuels spilled, dumped or poured on ground around property; OR do not know.

Paints and Solvents

The best method for managing paint, solvents, and cleaning products is to use them up. To avoid wasting any of these products, buy only the quantity that you need. Store them in well-ventilated areas, away from children and pets.

7. How do you store and dispose of your paints and stains?

The best way to use up old paint is to find a painting project or give it to someone who will use it. Store paint in a dry place where it won't freeze. Paint usually is usable if it mixes well when stirred and hasn't been frozen and thawed repeatedly.

Oil-based paints have a solvent base which can be harmful to septic systems if the paint is poured down the drain. Any paint that needs to be disposed of should first be dried out in a well-ventilated area away from children, pets, flames, or anything that might spark. For small quantities of paint, remove the lid and let it dry in the can. For larger quantities, find other uses for the paint by contacting service agencies, such as Habitat for Humanity, or your original paint dealer. After the paint has dried, seal it in a plastic bag and take it to the landfill or to a collection center. Paint can be recycled if there is a household hazardous waste collection site or a collection day event in your county.

7. **Circle the answer that best describes how you store and dispose of your paints and stains.**
- a. You always use all your paints, share them with someone else, or recycle them at a hazardous waste collection.
 - b. Your paint or stain is evaporated in open air or it is taken to a landfill.
 - c. You dispose of your paints or stains on your property away from your well or water source.
 - d. You dispose of your paints or stains on your property near your well or water source; OR do not know.



8. How do you store and dispose of your solvents?

Disposing of solvents by dumping them on the ground or in a septic system can allow the solvents to move into the groundwater. Avoid on-site disposal of solvents whenever possible. Always use solvents away from your well and water source and in a ventilated area. Store them in the 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 them 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 take it to a permitted landfill or household hazardous waste collection site. If you have any questions about sludge disposal, contact your regional Division of Solid Waste Management.

Household Pesticides

See Coast*A*Syst publication #4, *Improving Lawn Care and Gardening For Coastal Communities*, for information on storage, handling, and disposal of pesticides.

For More Information:

For more information about hazardous wastes, contact your county Cooperative Extension Service Center or your regional Division of Solid Waste Management (see map on page 10 for your nearest office).

8. Circle the answer that best describes how you store and dispose of your solvents.
- a. You clean and reuse your solvents whenever possible. Sludge from your cleaned solvents are taken to a landfill. Solvents that cannot be cleaned are taken to a hazardous waste collection facility.
 - b. Liquid evaporated in open air or well-ventilated area. Paint or sludge taken to a landfill.
 - c. Solvents evaporated in open area and sludge disposed of away from well or water source.
 - d. You dispose of your solvents or sludge on your property near to or upslope of your well or water source; OR do not know.

To find your regional Division of Solid Waste Management



¹Asheville Regional Office

Interchange Building
59 Woodfin Place
Asheville, NC 28801-2482
(Courier 12-59-01)
828/251-6208
FAX 828/251-6452

²Winston-Salem Regional Office

585 Waughtown Street
Winston-Salem, NC 27107
(Courier 13-15-01)
336/771-4600
Main FAX 336/771-4631
Water Quality
Main FAX 336/771-4630

³Raleigh Regional Office

1628 Mail Service Center
Raleigh, NC 27699-1628
3800 Barrett Drive
Post Office Box 27687
Raleigh, NC 27611
(Courier 52-01-00)
919/571-4700
FAX 919/571-4718

⁴Washington Regional Office

943 Washington Square Mall
Washington, NC 27889
(Courier 16-04-01)
252/946-6481
FAX 252/975-3716

⁵Mooresville Regional Office

919 North Main Street
Mooresville, NC 28115
(Courier 09-08-06)
704/663-1699
FAX 704/663-6040

⁶Fayetteville Regional Office

System Building,
225 Green St., Suite 714
Fayetteville, NC 28301-5094
(Courier 14-56-25)
910/486-1541
FAX 910/486-0707

⁷Wilmington Regional Office

127 Cardinal Drive Extension
Wilmington, NC 28405
(Courier 04-16-33)
910/395-3900
FAX 910/350-2004

Or find them on line:

- <http://wastenot.ehnr.state.nc.us/SWHOME/p98.htm>
- <http://www.p2pays.org/>
- <http://www.enr.state.nc.us/html/regionaloffices.html>

Related publications available from Cooperative Extension:

- Reducing Hazardous Products in the Home, *HE-368-2*
- Disposal of Hazardous Household Wastes, *HE-368-3*
- Home*A*Syst Fact Sheets, AG 567

These publications are available at your county Cooperative Extension Service Center. If you order more than one copy of the publication, there will be a small charge. Otherwise, the publications are free. You may also order these publications from Agricultural Publications, Campus Box 7603, North Carolina State University, Raleigh, NC 27695-7603.



In Case of Emergency

Regardless of whether you are using a cleaning product or a pesticide, don't rely *only* on the label for information on health emergencies or environmental impact. The information may be incomplete or incorrect. North Carolina's Poison Control Center (for health emergencies: 1-800-672-1697) can provide emergency advice about a product.

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