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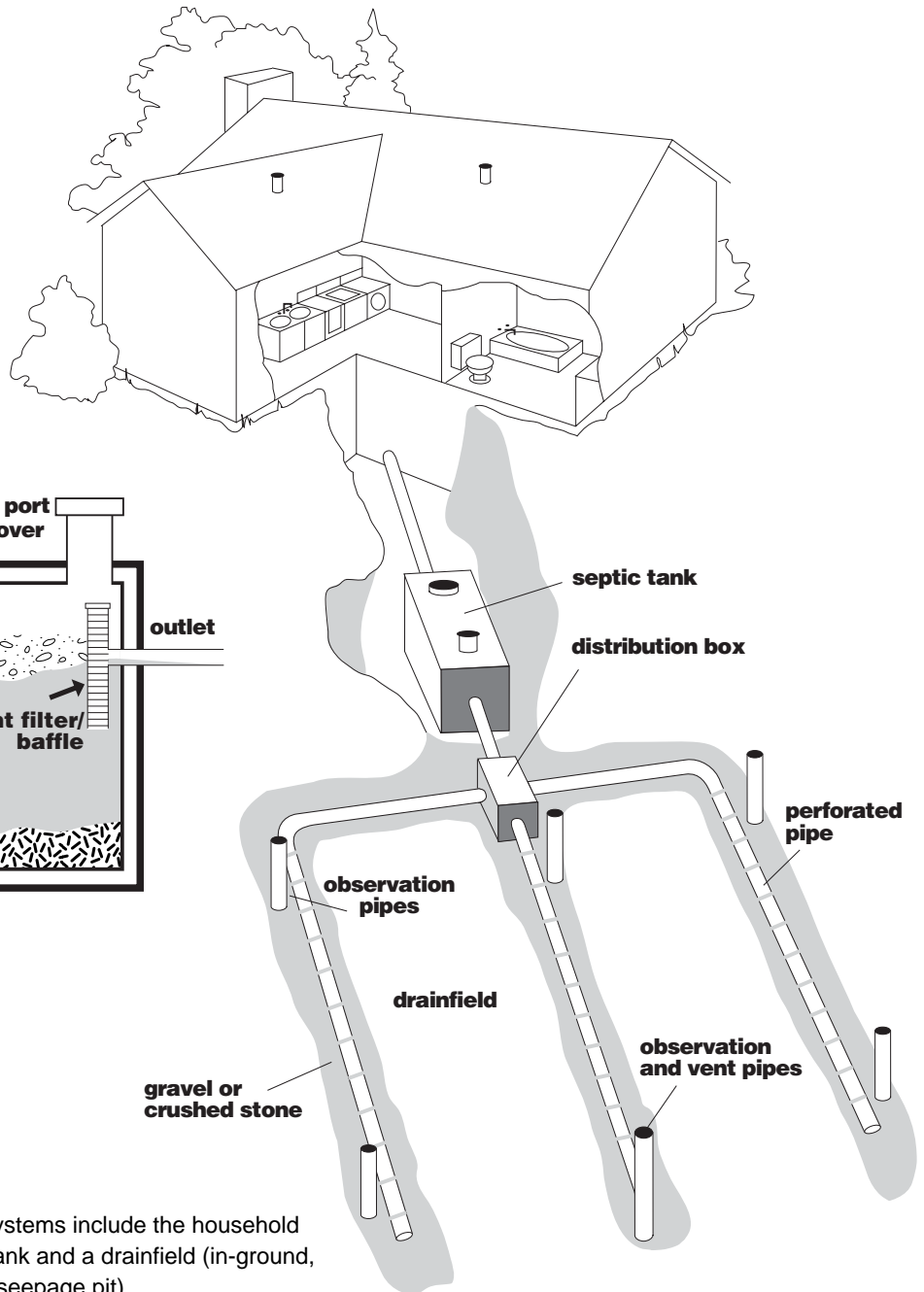
# Care and maintenance of residential septic systems

**B**acked up sewage or flooded drainfields are not only smelly, messy nuisances, but can spread diseases and contaminate drinking water sources. Attention to the care and maintenance of your septic system can prevent problems and save the cost of repair and early replacement.

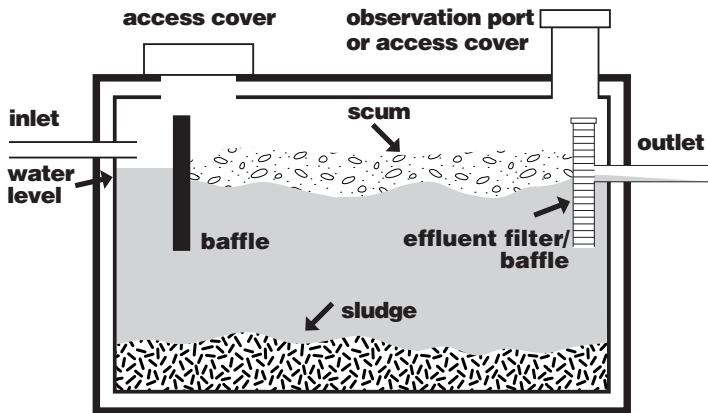
This fact sheet explains how a septic system works and provides a few simple steps to help prolong the useful life of your septic system.

## How septic systems work

The diagram below illustrates how a residential septic system works.



## Septic tank



Residential septic systems include the household plumbing, a septic tank and a drainfield (in-ground, at-grade, mound or seepage pit).



As the waste water from your home flows into the septic tank, most of the dense, heavy solids settle to the bottom. Bacterial action then partially decomposes these solids into digested sludge and gases. Materials lighter than water, such as fats and grease, rise to the top and form a scum layer. The outlet baffle or filter holds the scum layer, and prevents it from leaving the tank and clogging the drainfield system which may consist of trenches or a bed (in-ground, at-grade or a mound), or a seepage pit. Gas baffles and effluent filters (plate or screen) further reduce the carryover of suspended solids to the drainfield. The waste water then goes out through the drainfield, seeps through the soil filtering out bacteria, and returns to the groundwater.

Bacterial action needs time to break down sewage. As sludge builds up in your tank and the scum layer thickens, waste water is forced into the drainfield faster. Since waste water remains in the tank less time, bacterial treatment and settling is less effective. Unless removed, the sludge and scum layers will eventually clog the outlet pipes or the drainfield, and cause your system to fail.

### **Schedule regular maintenance and pumping**

**R**egular maintenance and pumping are good ways to prolong a septic system's proper functioning. Like changing the oil in your car, consider regular maintenance "insurance" since the cost is likely to be a fraction of the cost of replacing a neglected system.

A rule of thumb is to have your entire septic system inspected every other year. Many counties require an inspection every 3 years. A liquid waste pumper/hauler will check sludge and scum accumulations and remove them if necessary. Baffles, filters, covers and the soil absorption field should also be checked.

**Never** go into the septic tank yourself. Sewer gases are extremely hazardous and can quickly kill.

### **Reduce sludge and scum build-up**

**M**inimizing the amount of solids entering your septic system will reduce sludge and scum build-up. This will extend the time between necessary pumpings and avoid the crisis of dealing with a failed system.

**Do not put fats and oils down the drain.** Fats and oils can collect inside plumbing pipes and cause hair or other debris to accumulate, decreasing water flow. Fats, oils and grease are lighter than water and will rapidly increase the scum layer in the septic tank, requiring more frequent pumping.

**Keep food waste out of your system.** Compost kitchen waste or put it in the trash rather than using a garbage disposal. Fruit and vegetable peelings ground up in a disposal tend to remain suspended rather than becoming part of the sludge or scum layers. As a result, they move out through the system and clog drainfields more easily.

If you use a garbage disposal, your septic tank should be twice as large as otherwise recommended. Some septic tank installers recommend two tanks working in series rather than one larger tank. The extra time the material is in the septic tanks allows more solid material to settle out.

### **Keep non-degradable materials out**

**Never flush into a septic tank materials that do not break down easily.** Such materials include coffee grounds, bones, disposable diapers, sanitary napkins, tampons, condoms, paper napkins, paper towels and cigarette butts. Pharmaceutical packaging such as adhesive bandage wrappers, dental floss, pill capsules, tampon applicators and other packaging material can quickly

accumulate and clog a septic tank and drainfield as well. Put a waste basket in the bathroom and use it.

### **Avoid disposing of hazardous household chemicals down the drain.**

Some components such as organic solvents, acids and degreasers may be left untreated by the bacteria. They can pollute drinking water if they seep from the drainfield area, through the soil, and into the groundwater.

To determine whether you might be contaminating drinking water, ask your Wisconsin county UW-Extension office for Farm-A-Syst Worksheet #6 *Assessing the Risk of Groundwater Contamination from Household Wastewater Treatment* (G3536-6W).

### **Reduce waste water volume**

**B**y reducing the volume of water entering the system, you can avoid overloading the septic tank and drainfield.

**Use less water.** A household with four members will typically use more than 225 gallons of water a day. A washing machine can use as much as 60 gallons of water on each cycle. Flushing a toilet can use 2 to 7 gallons of water. Showers use 2 to 5 gallons per minute! Consider water-saving appliances and fixtures when you must replace them.

**Fix plumbing leaks.** Repair leaky faucets and plumbing fixtures to avoid inadvertently overloading the septic system. A single faucet that leaks one drop per second wastes more than 3 gallons a day, or 1,000 gallons a year.

### **Keep water softeners adjusted.**

For households with water softeners, recharging that system uses a significant amount of water. Some water softeners recharge on a timed cycle. However, a system that recycles only after a specified volume of water has been used will save water. A properly adjusted water softener can prevent wasting water.



During water softener regeneration, a salt solution is added to displace calcium and magnesium ions that make water “hard.” The water softener is flushed out, and waste water is often disposed of through a floor drain. Research findings indicate that salts from softener regeneration waters should not harm the septic system. However, it is permissible to divert the waste water to surface drainage rather than allowing it to go into the septic tank.

**Keep storm water out of the septic system.** Make certain that roof drains, basement sump pumps or foundation curtain drains do not empty into the septic system.

**Keep bacteria working**  
Your septic tank and drainfield are full of living organisms that make the system work. Some common household products can kill bacteria in the system. Excessive amounts of chlorine bleach, disinfectants, strong acids, lye, medicines, pesticides, oil-based paint or petroleum-based paint thinners can all harm your septic system and pollute the environment. Read labels on household cleaning products carefully.

### **Avoid unnecessary additives**

**R**esearch indicates no apparent value in adding enzymes or other “miracle” products to residential septic systems. While additives that claim to clean your tank, improve its efficiency or “restart” the system will probably not harm your system, with regular maintenance they are an unnecessary bother and expense.

### **Protect the septic system drainfield**

**T**he septic system drainfield consists of a network of perforated pipes laid in gravel-filled trenches or beds or gravel-less chambers. Waste water trickles out of the pipes into the soil.

The drainfield is a delicate structure.

- Take care not to plant deep-rooted trees or bushes near the system.
- Do not drive over the system. The vehicle’s weight can compact the soil, crush pipes and even break the septic tank, resulting in system breakdown and requiring costly repairs or replacement.
- Divert surface water runoff away from the septic system drainfield.
- Install an effluent filter.

### **Heed early warning signs**

**S**eptic systems beginning to fail typically have early warning signs that signal you to take action.

Warning signs of septic system problems:

- When you take a shower, do you end up with water up to your ankles? Water draining too slowly indicates septic system problems or a blocked drain.
- Drain pipes gurgle or make noise when air bubbles are forced back through the system — another early warning sign.
- Smelling sewage signals a serious problem.
- If water backs up in your sink or basement, it may be too late — your system may already be failing.
- Watch for an increasing level of water standing in the drainfield vent or observation pipe.
- Check for soggy soil above the drainfield.
- Settling of the soil over the septic tank indicates a break in the tank.

**Remember** — Nothing can take the place of careful use, regular inspection and maintenance.

**To test your toilet valve for leaks, add several drops of food coloring to the toilet tank. Leave for a few hours or overnight, and then check the water in the toilet bowl. If the water is colored, your toilet is leaking and wasting water.**

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## Resources available from UW-Extension

Farm-A-Syst Farmstead Assessment System Series:

- *Assessing the Risk of Groundwater Contamination from Household Wastewater Treatment Worksheet #6* (G3536-6W)
- *Reducing the Risk of Groundwater Contamination by Improving Household Wastewater Treatment Fact Sheet #6* (G3536-6F)

Home Water Safety Series:

- *Keeping Your Home Water Supply Safe* (G3558-1)
- *Evaluating the Condition of Your Public Water Supply* (G3558-2)
- *Evaluating the Condition of Your Private Water Supply* (G3558-3)
- *Interpreting Drinking Water Test Results* (G3558-4)
- *Choosing a Water Treatment Device* (G3558-5)

*HomeWise: Help for New Homeowners* B3618

*HomeWorks News* B3731 — Seasonal educational newsletters for new homeowners

### Web sites:

About the House: Solutions for Home Care Problems:  
[www.uwex.edu/ces/flp/house](http://www.uwex.edu/ces/flp/house)

Environmental Resources Center:  
[www.uwex.edu/erc](http://www.uwex.edu/erc)

Farm\*A\*Syst Program:  
[www.uwex.edu/farmasyst](http://www.uwex.edu/farmasyst)

Home\*A\*Syst Program:  
[www.uwex.edu/homeasyst](http://www.uwex.edu/homeasyst)

You can also obtain more information from the Small Scale Waste Management Project located on the University of Wisconsin-Madison campus (608-265-6595). Visit their Web site at: [www.wisc.edu/sswmp/](http://www.wisc.edu/sswmp/) or consult your county Sanitary Code Administrator in the planning or zoning department (under county government listings in your phone book).



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