

# ONSITE WASTEWATER SYSTEMS

## A Quick Guide for **HOMEOWNERS**

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### Who Needs to Read this Guide?

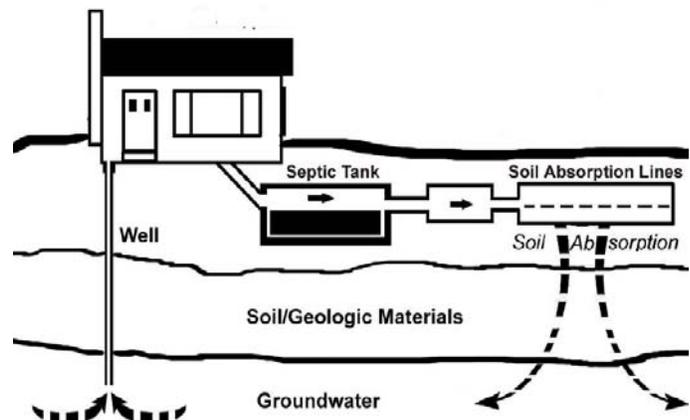
If you have a conventional septic system or an alternative onsite wastewater treatment system on your property, this guide is designed to help you to keep your system running trouble-free. In doing so, you will protect your family, your investment in your home, and your local streams and drinking water supplies.

### Avoid Trouble: Maintain Your System!

Onsite wastewater systems treat wastewater and disperse treated wastewater (effluent) in soil. Most systems do these things very well, as long as they are properly installed and maintained. Unfortunately, most homeowners tend to flush and forget -- a bad idea!

Onsite wastewater systems are truly a case where an ounce of prevention is worth a pound of cure, and a failed system can be very expensive to replace.

As the owner of an onsite wastewater system you need to make sure your system is operating properly. Without needed maintenance, you could have an unpleasant and expensive problem on your hands. Further, you may be in violation of the law! System failure from lack of maintenance increases the risks of disease, depresses property values, contaminates ground water and pollutes local streams.



*Conventional Septic System*

*Source: Virginia Cooperative Extension  
Publication 449-407*

Malfunctioning septic systems are one of the leading causes of groundwater pollution in Virginia. Nitrogen, disease-causing bacteria and viruses from wastewater can contaminate drinking water supplies. Nitrogen can cause birth defects, cancer, and a dangerous form of anemia in infants, "blue baby syndrome."

Septic system failure is also one of the leading sources of surface water pollution, contributing to reduced oxygen levels, i.e., to create dead zones, in local waterways and the Chesapeake Bay. Reduced levels of oxygen cause the suffocation of blue crabs, fish and other aquatic life.

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## Have Your Septic Tank Inspected Regularly and Pumped when Necessary

If your septic tank is not pumped out when needed, your system may pollute ground and surface water and eventually require replacement. To understand why, it helps to know how septic systems work.

Wastewater flows from the house to the septic tank, which is designed to be a watertight container buried in the ground. Treatment starts in the tank with the initial settling of solids (primary treatment) and partial digestion (decomposition) of retained organic matter. A diagram of a septic system is shown on page 1.

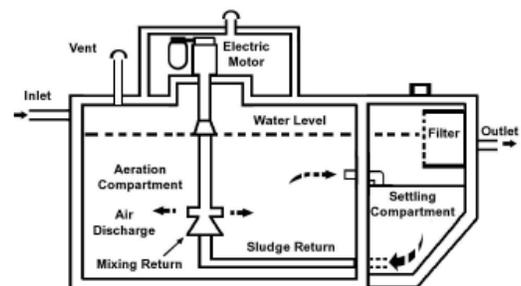
Wastewater minus the material that sinks or floats is called septic tank effluent. This effluent flows from the septic tank to the distribution box to the below-ground soil absorption field. Septic tank effluent is distributed to the soil, sand or other media absorption field for further treatment through biological processes, adsorption, filtration and infiltration into underlying soils. Disease-causing pathogens and other contaminants are removed by beneficial microorganisms in the soil or other media.

If a septic tank is not pumped regularly, the accumulation of solids will prevent proper treatment from taking place and cause solids to be passed into the dispersal system. Damage to the dispersal system will require replacement of the system, costing thousands of dollars. If you live in a coastal jurisdiction that falls under the Chesapeake Bay regulations, your local health department is required to notify you that your septic system must be pumped or inspected at least every five years.

## What About the New Alternatives to Conventional Septic Systems?

Conventional septic systems work well as long as they are installed on lots with large areas of deep, permeable soils. However, many areas of Virginia have soils lacking one or more of these characteristics.

Alternative onsite wastewater treatment systems (AOWTS) are designed to overcome problematic site conditions such as soils shallow to rock or water tables, lots with limited areas of suitable soils or lots in close proximity to waterways. AOWTS may be used where conventional septic systems are not capable of meeting requirements to protect public health and water resources.



*Aerobic Treatment Unit*

*Source: Virginia Cooperative Extension  
Publication 449-407*

Components of AOWTS are different from those used in a traditional septic tank drainfield system. Examples of treatment technologies that might be used in AOWTS include aerobic treatment units, media filters (sand, peat, or textile), wetlands, and disinfection devices for surface discharge. Dispersal of the wastewater for final treatment in the soil may be accomplished by mound, gravel-less trench, low pressure pipe, spray irrigation, chambers, pressure-dosing or drip distribution systems or a combination of technologies.

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## What You Should Do

**Maintain your system.** Follow your system manufacturer's instructions and local health department guidelines for operation and maintenance.

- If you own an alternative system, be sure to maintain a service contract with a qualified service provider for the life of the dwelling that is served by the system.
- Read your owner's manual. If you don't have an owner's manual, contact the manufacturer for information. A list of manufacturers' contact information is included with this guide.
- If you have a conventional septic tank drainfield system, make sure your septic tank is pumped or inspected on a regular basis. Frequency of pumping is based on your system's capacity and the amount of wastewater generated by your household. Heavy water usage and/or garbage grinder usage places greater demands on a septic system. As a general rule, have your septic tank pumped at least once every three to five years to prevent your drainfield from clogging. If your system has a flow diversion valve, turn it once a year to extend the life of your system.
- Use only licensed contractors to maintain your onsite wastewater system. Make sure contractors have all required health department permits.
- Keep records of all maintenance.

**Identify medications that can harm your system.** Certain medications can kill the bacteria that are needed to make an onsite wastewater treatment system work. If any household members are receiving chemotherapy treatment or other high levels of medications, notify your wastewater treatment professional to determine a solution for your particular needs.

**Reduce water use.** Extend the life of your system and lower maintenance costs by using low-flow faucets, shower heads and toilets. Repair leaks. Use a front load washer. Conserve water at every opportunity.

**Know where your system is located.** Keep a diagram showing the location of the components of your onsite wastewater treatment system on your lot.

**Keep water off your drainfield or absorption area.** Check drainage patterns. Make sure that roof gutters direct water away from your drainfield, subsurface absorption or mound area. Make sure that sump pumps, air conditioning condensation drains and water treatment systems are not connected to your sewage system.

**Protect your system.** Keep your drainfield or other subsurface absorption area clear of heavy equipment, vehicles, and shrubs or trees with extensive root systems that may clog drainage pipes.

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## What Not to Do

**Do not pour or flush oil, grease, paint, antifreeze, solvents or toxic chemicals down the drain.** Chemicals can prevent treatment from taking place and contaminate ground and surface water.

**Do not put any plastic, cloth or paper products other than toilet paper into the sewage system.** Put feminine products, condoms, diapers, cigarette butts, paper towels, dental floss, cat litter and other items in the trash, not the toilet. These items will clog and damage the components of your system.

**Avoid using your kitchen garbage disposal.** Solids accumulate in the septic tank. Grease and oil can damage your system by clogging pipes as well as the soil in the drainfield absorption area.

If you must use your kitchen garbage disposal, be sure that your onsite system is designed to handle waste load from your kitchen garbage disposal. Be sure to scrape plates off in the trash can. Use the disposal only to get rid of the residue.

**Don't waste money on additives to help maintain your septic system.** Additives can cause increased discharge of organic matter into your drain field and are not the most effective way to maintain your septic system.

## Signs of Trouble

Sewage in the basement is an obvious sign of a problem. And, while some alternative systems have alarms and controls, not all problems have initially-visible symptoms. Immediately call for service if you see any of the following:

- Standing water or wet area above or around the absorption field
- Toilets that flush slowly, gurgle or back up
- Sewage odors inside or outside of the house (may be a warning sign that the system may not be operating properly).

## Questions?

For further information, please contact your local health department.  
<http://www.vdh.state.va.us/onsite/DistrictOffices.asp>

Virginia Cooperative Extension, "Onsite Sewage Treatment Alternatives"  
<http://www.ext.vt.edu/pubs/waterquality/448-407/448-407.html>



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