

How a Septic System Functions

There are two types of anaerobic (without oxygen) on-lot systems -- gravity distribution systems and pressure distribution systems. In both types, there are three major components:

- 1) the septic tank
- 2) the distribution box (gravity system) or dosing tank (pressure system)
- 3) the absorption area

Sewage flows to the septic tank, where the primary treatment process takes place. In the tank, the heaviest matter settles to the bottom (forming sludge) and the lighter matter (scum) floats on top of the clear liquid. The sludge and scum must be pumped out regularly.

The clear liquid flows out of the tank to a distribution box or dosing tank, which is then directed to the absorption area. This effluent exits through pipes into a layer of gravel and then percolates through the soil for additional treatment. The bacteria in the soil neutralizes many of the contaminants in the wastewater.

Signs of an on-lot system in trouble include:

- Toilet runs sluggish
- Sewer odors in the house and/or drinking water
- Sponginess around septic tank, distribution box, or dosing tank and absorption area
- Surfacing raw sewage
- Dosing pump runs constantly or not at all
- Dosing tank alarm light is on
- Backup of sewage into laundry tubs or other fixtures

Available Information From DEP

- The Sewage Facilities Act (Act 537)
- Regulations
 - Chapter 71, Administration of Sewage Facilities Planning Program
 - Chapter 72, Administration of Sewage Facilities Permitting Program
 - Chapter 73, Standards for Sewage Disposal Facilities
- Consumers Guide to On-Lot Sewage System Permits
- Consumers Guide to On-Lot System Operation and Maintenance
- A Guide for Preparing Act 537 Update Revisions
- Guidelines for Design, Installation, and Operation for Small Flow Sewage Treatment Facilities
- List of Alternate Systems
- Other DEP Brochures
 - Sewage Facilities Program
 - Home Buyer's Guide to the On-Lot Sewage Program
- DEP Fact Sheets

To order publications, contact the Bureau of Water Quality Protection, Division of Wastewater Management, 11th Floor, Rachel Carson State Office Building, P.O. Box 8774, Harrisburg PA 17105-8774, 717-787-8184, or contact your local DEP regional office

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Department of Environmental Protection
Bureau of Water Quality Protection
Division of Wastewater Management
P.O. Box 8774
Harrisburg, PA 17105-8774

Homeowner's Guide ON-LOT SYSTEM OPERATION AND MAINTENANCE



COMMONWEALTH OF PENNSYLVANIA
Tom Ridge, Governor
DEPARTMENT OF ENVIRONMENTAL PROTECTION
James M. Seif, Secretary

The best designed and properly installed on-lot sewage disposal system still can malfunction if the homeowner does not properly operate and maintain the system. In addition to requiring costly repairs, malfunctioning systems can contaminate surface and ground waters, cause various health problems, and create unsightly messes and foul odors when raw sewage surfaces or backs up into the home.

Homeowners can help prevent malfunctions and ensure the long-term use of their on-lot system by:

- Conserving water and reducing wasteflow into the septic tank
- Having the septic tank pumped at least every three to five years, depending upon tank size and household size
- Avoiding placement of chemicals in the septic system
- Not using the toilet to dispose of bulky, slowly decomposing wastes
- Inspecting the septic tank, pipes and drainage field annually
- Maintaining accurate records of the septic system (design, installation, location, inspections, pumpings, malfunctions, repairs.)
- Preventing run-off from downspouts, sump pumps, and paved surfaces from getting into the septic system
- Keeping heavy vehicles, equipment and livestock away from the septic system.
- Not planting trees and shrubs over or close to the septic system

Conserving Water and Reducing Wasteflow

On-lot systems not only treat and dispose of domestic sewage from toilets, they also receive wastewater from various other household fixtures, including baths, showers, kitchen sinks, garbage disposals, automatic dishwashers and laundries.

Conserving water and reducing the amount of wasteflow from these household activities is an important step to ensuring long-term use. The more water-using devices in a household, the greater the burden is on the on-lot system.

Following are some helpful water conservation tips and a comparison of water usage between conventional fixtures versus water-saving fixtures (indicated by →).

1. Use the dishwasher and laundry washer only when they are loaded to capacity.

→ Top Loading Laundry Washer	35-50 gal./load
→ Front Loading Laundry Washer	22-25 gal./load
2. Fix leaky faucets and plumbing fixtures quickly. Install flow control (regulator) devices on faucets.

→ Regular Faucet Aerator	2.5-6 gal./min.
→ Flow Regulating Aerator	.5-2.5 gal./min.
3. Take short showers instead of baths. Install flow control or water saving devices on showerheads and other plumbing fixtures.

→ Conventional Showerhead	3-15 gal./min.
→ Water Saving Showerhead	2-3 gal./min.

4. Reduce water use each time you flush the toilet. Put a heavy device such as a brick in a plastic bag or a water-filled plastic bottle in the reservoir or install a low flow toilet.

→ Conventional Toilet	4-6 gal./flush
→ Water Saving Toilet	3-1.6 gal./flush

5. Use the garbage disposal sparingly. These wastes place a greater burden on the septic system. If you have garden space, compost the material instead.

Pumping Your Septic Tank

A septic tank accumulates solids (sludge) and scum which should be pumped out at least every three to five years. The frequency of pumpings depends upon tank size and household size. Larger households generally require more frequent pumpings (every one or two years). Water conservation measures can extend the period between pumpings.

In Pennsylvania, specific tank sizes are required based on the number of bedrooms in the home. For example, a home with three bedrooms must have a 900 gallon or larger septic tank. The more bedrooms, the larger the septic tank.

For more information on the recommended frequency of pumpings, contact your local agency Sewage Enforcement Officer or the Department of Environmental Protection.

Your Toilet Is Not A Trash Can

Trillions of living, beneficial bacteria constantly decompose and treat raw sewage in a septic system. The effectiveness of these bacteria can be impaired if harmful substances and chemicals are put into the septic system. Harmful substances/chemicals include:

- oils and greases
- gasoline
- antifreeze
- varnishes and paints and solvents
- harsh drain and toilet bowel cleaners
- laundry detergents with high sudsing elements
- bleach
- pesticides

Remember, what goes into your toilet and drains may eventually end up back in your drinking water. So instead of using caustic toilet bowel cleaners or bleach, try mild detergent or baking soda or one half cup of borax per gallon of water.

Also NEVER flush bulky, hard to decompose items such as sanitary napkins, diapers, paper towels, cigarette filters, plastics, eggshells, bones or coffee grounds down the toilet because they can clog the system.