

On-lot System Operation and Maintenance (Homeowner's Guide)

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

How an On-lot (aka "Septic") System Functions

There are two basic types of anaerobic (without Oxygen) on-lot systems; those with gravity distribution systems and those with 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 a somewhat clear liquid called effluent. While the sludge and scum must be pumped out regularly, the clear liquid flows out of the tank to a distribution box or dosing tank, and is then directed to the absorption area by gravity flow or through pressurized pipes. Within 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.
- Illness, often to household visitors.
- 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.

Many of these signs indicate an on-lot system malfunction.

Preventing Malfunctions

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

- Conserving water and reducing wasteflow into the septic tank.
- Having the septic tank pumped at least every 3-5 years, depending upon tank size and household size.
- Avoiding putting 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 dishwaters and laundries.

Conserving water and reducing the amount of wasteflow from 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.

1. Use the dishwasher and laundry washer only when they are loaded to capacity.
 - o Top Loading Laundry Washer 35-50 gal./load
 - o **Front Loading Laundry Washer 22-25 gal./load**
2. Fix leaky faucets and plumbing fixtures quickly. Install flow control (regulator) devices on faucets.
 - o Regular Faucet Aerator 2.5-6 gal./min.
 - o **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.
 - o Conventional Showerhead 3-15 gal./min.
 - o **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.
 - o Conventional Toilet 4-6 gal./flush
 - o **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 pumping depends upon tank size and household size. Larger households generally require more frequent pumpings (every one or two years).

In Pennsylvania, specific tank sizes are generally based on the number of bedrooms in the home because the number of bedrooms is an indicator of household size. 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 (normally your local township) Sewage Enforcement Officer or the Department of Environmental Protection.

Your Toilet Is Not A Trash Can

Trillions of living, beneficial bacteria constantly treat and decompose 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 grease
- gasoline
- antifreeze
- varnishes and paints and solvents
- harsh drain and toilet bowl cleaners
- laundry detergents with high sudsing elements
- bleach
- pesticides

Remember, what goes into your toilet and drains many eventually end up back in your drinking water. So instead of using caustic toilet bowl 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.