

Why Do Onsite Systems Fail?

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Does sewage back up into your house?

Is there a wet, smelly spot in your yard that is difficult to mow?

Is your septic tank piped to a road ditch, storm sewer, stream, or connected to farm drain tile?

If you answered yes to any of the questions above, your septic system is improperly designed or failing. That means it is not treating and disposing of sewage in a safe, sanitary manner.

In a properly operating septic system, the solid material in the sewage is settled out in a septic tank and stored until removal by pumping. The effluent from the tank is still sewage. It has a strong odor and contains large quantities of disease-causing organisms. This effluent is treated and absorbed in a soil absorption (or leach) field.

No matter what the cause, septic system failure is a nuisance and a health hazard that should be corrected promptly. Failures can pollute wells, lakes, and streams. Some of the more common reasons for septic system failure are discussed below. These failures can be attributed to several causes. A trained sanitarian should diagnose the problem and make recommendations for corrective action.

Using Too Much Water

Using more water than the soil can absorb is the most common reason for failure. The sewage is forced to the surface or backs up into the house. This kind of septic system failure is often the result of one of two problems. Either the system is improperly designed or the residents of the house have changed their water use habits (for example, an increase in the size of the family or the addition of a water-using appliance).

Surface water draining from roofs, driveways, and roads onto the soil absorption field area can also put an extra load on the system. If the soil is saturated with clean water, even seasonally, it cannot accept any more wastewater. The untreated wastewater will then either rise to the surface or back up into the house.

Physical Damage

Driving, paving, or building on top of a soil absorption unit can damage the field. Pipes can shift or be crushed and the soil compacted. Damage of this sort can make it difficult to locate the septic tank and prevents access for regular pumping.

Tree roots can also clog the soil absorption field. Plant the area in grass, not trees or shrubs.

Improper Design and Construction

Improperly designed and/or constructed septic systems are doomed from the start. These systems usually fail in a few months because they are inadequately sized, installed in impermeable soils, or not properly constructed. In Oregon, several inches of unsaturated soil must be present between the soil absorption system and a limiting layer. Temporary or permanent water tables, bedrock, or impervious soil are all considered limiting layers.

The soil is the most important part of the septic system and must be properly evaluated and protected. If the solid layer is too thin, the wastewater will not be treated before it enters the groundwater.

If the soil is too "tight", it will not absorb all the wastewater, forcing it to the surface. The soil profile should be evaluated by a local health department sanitarian or a registered soil scientist to ensure that it is appropriate for wastewater treatment and disposal.

When constructing a septic system, it is essential that all components of the soil absorption field be level. If a line lies at too steep a grade or if the distribution system is not level, the wastewater will not be evenly distributed to all portions of the soil absorption field. This may overload one part of the field.

The heavy equipment used in home construction can compact the soil. During construction of the house, the area designated for the soil absorption system as well as the required replacement area and the area directly downhill should be fenced off to keep out heavy vehicles. Also, constructing and excavating a system during periods of high soil moisture can result in excessive soil smearing and compaction.

Lack of Maintenance

The septic tank should be pumped about every 3 years to remove the sludge and scum retained in the tank and prevent clogging of the soil absorption field. More frequent pumping is needed if a garbage disposal is used in the home. Biological and chemical septic tank additives are not necessary and do not eliminate the need for pumping.

A septic tank is equipped with baffles at both the inlet and outlet. The inlet baffle prevents short-circuiting of the sewage and the outlet baffle prevents the floatable scum from moving out into the soil absorption field. In time, these baffles can deteriorate and drop off into the tank. The condition of the baffles should be checked when the tank is being pumped. Replace those in poor condition with sanitary tees.

Corrective Action

Any repair or new installation of a septic system must be approved by the local sanitarian and a permit issued by the local health department.

Water conservation reduces the amount of water the absorption field must accept. It also reduces the flow through the septic tank allowing more time for solids to settle out. Water conservation can prolong the life of any soil absorption system.

Installing an alternate soil absorption field involves constructing a second soil absorption system and diverting all of the wastewater to it for at least one year to rest the original field. The fields can then be alternated.

Repair physical damage such as leveling the distribution box or repairing crushed or broken pipe to restore the system. Tree roots interfering with the operation of the soil absorption field must be removed.

Improve surface and subsurface drainage by diverting all surface and groundwater away from the soil absorption field. The soil must absorb all the wastewater from the house. Surface and groundwater only adds to the load.

When a System Fails

Do not place more soil over a soil absorption field when sewage comes to the surface; this does not fix the system and the sewage will soon surface again.

Do not just pipe the sewage to the road ditch, storm sewer, stream, or a farm drain tile. So doing pollutes the water and creates a health hazard.

Do not run the sewage into a sink hole or drainage well. This pollutes the groundwater.

Do not wait for the system to fail before pumping the septic tank. Once a system fails, it is usually too late to pump the tank. In some cases corrective measures are not enough -- a new system must be constructed.

A properly designed, constructed, and maintained septic system can effectively treat wastewater for many years. For more information on septic systems contact the Deschutes County Environmental Health Division at (541)388-6575, 117 NW Lafayette Ave., Bend OR 97701 or return to our On-Site Disposal Systems page.

Additional tips from Deschutes County

Don't flush harsh chemicals down sinks, toilets, or showers. These chemicals (bleaches, lyes, drain cleaners) will kill off the bacteria that digest the sludge in the septic tank. Using these chemicals may save you time, but will shorten the life span of the drainfield and lead to costly repairs.

Some powdered laundry detergents have been found to cause a very hard scale in the septic tank. This will reduce the efficiency of the system. Try using liquid detergents whenever possible. They are more soluble and break down faster in your septic tank.

Cooking oils are not digested in the septic tank. Light oils may pass through the tank and go directly into the drainfield which then clogs the pores in the drainfield and reduce its life span. Try to collect all oils and dispose of them with your household waste.