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Texas Agricultural Extension Service

Why Do Septic 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, or stream, or connected to farm drain tile?*

If you answered yes to any of these questions, your septic system is failing. 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 removed by pumping. The effluent from the tank is still sewage; it has a strong odor and is high in 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 result in pollution of wells, lakes and streams. Some of the more common reasons for septic system failure are discussed here. 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 problem is often the result of a change in water use habits, such as an increase in the size of the family or the addition of a water-using appliance.

Precipitation 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 water, even seasonally, it cannot accept any more water. The untreated wastewater will either surface or back-up.

Physical Damage

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

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

Improper Design and Construction

Improperly designed and 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 Texas, 4 feet of unsaturated soil must be present beneath the soil absorption system to a limiting layer. The temporary and permanent water table, 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 soil 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

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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, fence off the area designated for the soil absorption system as well as the required replacement area and the area directly downhill. Heavy vehicles must be kept out. 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 usually be pumped 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 "T" Fittings or 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. It is a good idea to check the condition of the baffles when the tank is being pumped and replace those in poor condition.

Corrective Action

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

Water conservation

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

Add field lines

Install additional lines of the soil absorption fields to increase the size and capacity of the soil absorption system to accept wastewater.

Install an alternate soil absorption field

This involves constructing a second soil absorption system and diverting all wastewater to it for at least 1 year to rest the original field. The fields can then be alternated. Resting allows drying and digestion of the scum layer which clogs the soil pores.

Repair physical damage

Leveling the distribution box or repairing crushed or broken pipe may be necessary to restore the system. Tree roots may be interfering with the operation of the soil absorption field and must be removed.

Improve surface and subsurface drainage

Divert all surface and groundwater away from the soil absorption field. The soil must absorb all the wastewater from the house; surface and groundwater will only add to the load.

When a system fails

Do not place more soil over a surfacing soil absorption field; this does not fix the system and it will soon surface again. Do not just pipe the sewage to a road ditch, storm sewer, stream, or a farm drain tile; this 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 your county Extension agent or local health department.

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