

Solving Septic Tank and System Problems

Adapted from: *"Operating and Maintaining the Home Septic System"* by Don D. Jones, Extension Agricultural Engineer, & Joseph E. Yahner, Extension Agronomist, Purdue University

Solving septic tanks and system problems requires a scientific approach. Armed with enough information about how your system is acting up you can easily identify the probable cause of the problem. First a little background on septic systems is necessary:

Septic Systems come in two basic designs: Conventional Soil Absorption Systems and Aerobic Systems. Both systems have certain similarities: waste and waste water is carried from the home via drain pipes to the septic tank. From there the discharge from the tanks is carried to a leach field where it is dispersed. In a conventional system, all this movement is a result of gravity flow. In an aerobic system, the tank contents are aerated, then the water that is to be discharged is chemically treated. Some aerobic systems passively discharge the treated water into a leach field. In other applications the treated water is forceably discharged via above ground sprinklers. Since an aerobic system contains an electric pump, vanes, other moving parts, and requires electricity there could be more opportunities for problems to develop.

All septic systems require routine maintenance. On average, conventional systems must be pumped free of scum and solids once every four to five years. Aerobic systems may require more frequent pumping as they are more sensitive to solid buildup. Leach fields will need to be replaced every 20-25 years or sooner if tanks are not pumped as needed. In most instances conventional septic tanks, including their access ports, are completely buried, whereas the access ports on aerobic systems are usually above ground. When dealing with conventional systems and the problem appears to be in or near the tanks, it's probably wise to call in a qualified septic tank service to determine cause. Here are some typical problems related to conventional systems:

House drains don't work or sewage backs up

The key here is to locate the source of the blockage: in the house, between the house and the tank, or between the tank and the absorption field.

Blockage in the house plumbing

To check this possibility you will need to locate the plumbing cleanouts between the house and the septic tank. Usually these cleanouts look like two protruding 4" round pipes, sealed with round screw-in caps. (If your system does not have these cleanouts installed, you should consider having them installed as they will reduce the cost of maintenance over time.) Remove one or both caps and you will have a view of the bottom of the drain pipe. If the bottom has no standing waste water, your problem may be with the plumbing in the house. Call a plumber or run a snake a short ways toward the house to see if you can clear a jam. You may find it more effective to run the snake down the stacks on the roof as these almost always direct the snake toward the tanks. Soil stacks are plastic pipes that protrude above the roof about 8-10 inches. There is one stack for each bathroom or sink. If you are running the snake from the outside cleanout, you may notice a sudden flow of wastewater. That would mean that at least one problem was within the house. Now run water from the room that was backing up and see if it flows cleanly. If not, check the bottom of the pipes from the cleanouts to see if water is now standing in the pipes. If so, then the blockage is further along toward the tanks.

Clogged stacks can cause drains to operate slowly. If you notice a gurgling sound well after a flush, the cause may be a clogged soil stack. In Northern climes this can be caused by snow and ice. In

southern climates, leaves or wasps are common causes. Run a snake down the stack to clear these problems.

Blockage between the house and the tank

A blockage between the house and the tanks can be caused by a broken pipe or pipe joint that has been penetrated by tree roots. This problem is best checked by a professional. Though you may be tempted to run a snake toward the tank, the end of the snake can break the tank inlet baffle causing additional problems and needed repairs. If roots are the problem the pipe will need to be uncovered to identify the place the roots are penetrating and appropriate repairs need to be made to prevent the problem's reoccurrence. It's also possible that the scum layer has clogged the inlet pipe at the tank. This can be only determined by removing the tank covers, pumping the tank and checking the inlet port.

Blockage between the tank and the leach field

Three things can cause this type of blockage: either the tank outlet port is plugged, the line between the tank and the leach field has been damaged, or the leach field itself has become clogged. In septic tanks that have seen many years use, it's fairly common for the outlet port baffle to deteriorate and come apart. When the baffle fails, sludge and other solids overflow and plug the outlet line to the absorption field. The line between the tank and the drainfield can become clogged by solids overflowing from the tank, tree roots getting into a joint, or by collapse of the drain pipe itself. If the liquid level in the tank is above normal level, one of the above three factors is probably the cause of the problem

Swampy conditions in the leach or absorption field.

This problem occurs most often in older homes. Especially when rooms and baths have been added but the size of the drain fields and tanks were not increased. Your county health department can help you determine whether your field size is adequate for the number of bedrooms in your house and your particular soil's texture. If your field is determined to be undersized you can either add to it or replace it with an adequate sized field. Water conservation techniques (low lpg flush toilets, low-flow shower heads, etc.) may help if your absorption field is not severely undersized.

Another potential cause of swampy conditions is a clogged absorption field. All absorption fields clog-up somewhat over time since some of the effluent carried away from the septic tank contains dissolved materials. However, if the field is undersized or poorly constructed, a "clotting mat" can develop that reduces the soil's ability to absorb liquid to the point that the field becomes swampy or seeps.

If the field becomes clogged, it can be rested for a year or so. Naturally this will require the construction of a second field. Then the fields can be used in alternating years.

Septic systems can become sluggish or even fail in the spring. With spring rains come higher water tables. If the water table rises above the drain field pipes there will be a halt in the absorption of waste water. The only effective solution is to lower the water table. This may require construction of deeper drainage ditches to the sides of the field or the construction of subsurface drainage tiles that discharge to a larger drainage system.

