SEPTIC SYSTEM MAINTENANCE

A properly designed and installed septic system, sized for the use it will get (number of people, whether there is a garbage disposal, etc.) will function well throughout its 20-30 year life span if it is maintained and treated well. Maintenance is inexpensive; replacement can be very costly.

When the use of a house increases, the septic system must be enlarged to function properly. If you add bedrooms, pack the house with guests on the weekends, or change from seasonal to year-round use, you may be out of balance with your septic system design. You may need to replace your system because of failure sooner than its original design lifetime.

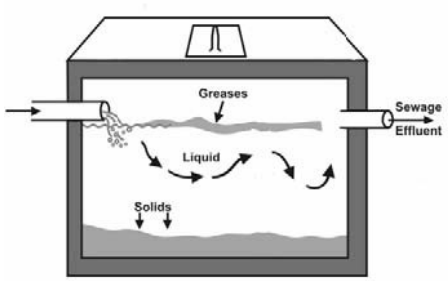
Pump Out Regularly

The most important thing is to have your septic tank pumped regularly, to remove accumulated sludge and scum before it begins to clog your leach field. The usual recommended interval is every two to three years. The company that pumps your tank can keep you posted on the condition of the tank and whether you are pumping frequently enough.

If you use a garbage disposal you must pump much more frequently.

Other Things To Do To Extend the Life of Your System

- Conserve water – so the soil around the leach field does not become too saturated. Use low flow fixtures, and fix leaks. Spread out heavy water loads through the day and week (don't do all laundry in the same day, or when people are showering).
- Do not flush bulky items like disposable diapers, sanitary pads or paper towels.
- Do not pour fats or greases down the drain – they can clog the leach field.
- Do not put chemicals down the drain or toilet – they can kill the bacteria needed to break down solid waste. They can also pass through and into the soil, then the ground water, with the water leaving the leach field – and end up in well or lake waters. Chemicals include



A septic tank, with its three layers: sludge at the bottom, liquid waste in the middle, and scum and grease at the top.

pesticides, solvents, oils, medicines, caustic household cleaners, etc.

- Do not use a garbage disposal, particularly if it was not included in the original design of your system. (They require significantly larger tanks and leach fields.)
- Do not use additives sold to "extend septic system life." They are not necessary and may be harmful.

For Your Leach Field

- Do not drive or take heavy machinery across it. The weight can compact the soil, inhibiting filtration, as well as break the pipes.
- Keep trees from growing on or near it. Their roots can clog or break up the pipes.
- Direct runoff away from the leach field area so it doesn't over-saturate the soil.

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Septic Systems

How do they work?

How do you maintain them?

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SEPTIC SYSTEMS AND LAKES

Failed or improperly functioning private residential septic systems threaten nearby water bodies.

When a septic system is not working properly, untreated wastewater can enter the lake, directly or almost directly. Though a septic system is designed to eventually return "clean" wastewater to the ground water, the waste must first go through the whole process of bacterial action and passage through appropriate materials that filter it.

Untreated Waste Can Be Harmful to Health

Waste from a home that has not passed through a functioning septic system can carry bacteria into the water body. The presence of E. coli bacteria demonstrates the presence of fecal material in the water. E. coli are seen as a marker; when they are in the water, other health hazards (bacteria or viruses) associated with human or animal waste may be present. (While not prevalent in the US, diseases such as cholera and typhus are water-borne.)

Nutrients Harmful to Lakes

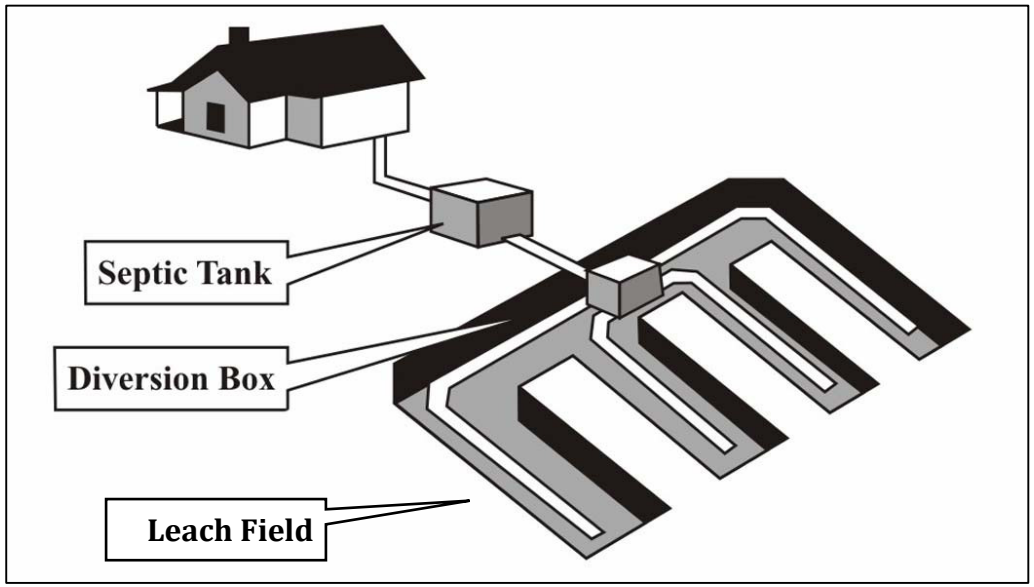
Untreated residential wastewater is also heavy with nutrients that feed unwanted plant and algae growth in lakes and ponds. Algae blooms and thriving invasive plants can be supported by nutrients from septic systems that are not working well.

Untreated septic waste can also contain chemicals that are harmful to plants, aquatic life and humans, such as chlorines and various chemicals and hormones used in pharmaceutical and personal care products. Some of these are altered or removed as the waste passes through the microbial and filtration action of a septic system, but reach the lake water when the system is not working properly.

Dirty water leaving your house – from laundry, kitchen, or bathroom – ends up somewhere. But where? And how does it get treated before it ends up back in the water cycle?

If you are connected to a sewer, municipal sewage treatment plants process the waste and the treated liquid is usually released back into rivers or larger streams.

But if you have your own residential septic system, how does it work?



A typical septic system

Septic Tank

All wastewater leaving your house goes out an underground pipe and dumps into your septic tank, a large cement or plastic chamber. Here, the solids settle to the bottom, and a layer of scum made up of soaps, grease and other lighter-than-water elements floats on the top.

All effluent contains bacteria, and there are anaerobic bacteria (that do not need oxygen to work) in the sludge layer in the tank. These bacteria go to work decomposing the solid materials and reducing them to sludge which remains in the septic tank.

The layer above the sludge and beneath the scum is a liquid layer with dissolved or suspended waste.

Diversion Box

When wastewater enters the tank, a compensatory volume of the liquid layer in the septic tank passes on to the other end, past a baffle which holds back solids, into a pipe that empties in a distribution or diversion box (D box).

The D box has multiple exits, and from it the water passes into a number of perforated pipes. From these pipes, it disperses into the material of the leach field or bed. Wastewater can flow by gravity or be pumped between the different parts of the system.

Leach Field

A typical leach field is made up of layers of sand and/or gravel that allow the wastewater to pass through at an appropriate rate into the soil below.

Septic system design relies on permeable soils which will filter the wastewater or effluent as it passes through, so when a leach field is constructed, stone, permeable gravel and other suitable materials are brought in to construct the bed, and regulations require adequate depth of good permeable soil where the leach field is made.

Back into the Groundwater

The process of filtering or percolating through the soil cleanses the wastewater. Dissolved waste and bacteria cling to soil particles or are eaten by microorganisms that require oxygen for the process. Eventually the resulting "clean" water becomes part of the underground water systems, or ground water.