

Top reasons for septic system failure and how to prevent them

By Mila Ready

Whether you have lived in the country for some time or are planning a rural home purchase, take some time to consider these basic questions:

- (a) Where is the septic tank and leach field?
- (b) Is there a permit for the septic system?
- (c) When was the tank last pumped?

Knowing where the tank and leach field are located is a critical step in the maintenance process. Look for line cleanouts (see photo below) or tank risers (see photo page 14) to access the septic system without digging. If unable to locate these components, consider having a licensed contractor inspect the system with a sewer camera.

If there is a permit for the septic system, rest easy knowing the system was likely installed according to health codes and likely adheres to “best-build” standards. Some counties are the local permitting authority through a delegation agreement with the Wyoming Department of Environmental Quality (WDEQ). In counties with no delegation agreement, WDEQ administers permits for septic systems. To determine who the permitting authority is in your area, contact the WDEQ at <http://deq.state.wy.us/wqd/www/Permitting/Pages/SMWW/Delegated.asp> or (307) 777-7088.



A correctly installed cleanout.



Risers on a concrete tank.



Riser on a polyethylene plastic tank.

The permitting authority archives the initial permit, but long-term maintenance records are the homeowner's responsibility.

Regardless of whether there is a permit for the system, there are several leading causes of septic system failure. If these are addressed, the life of the septic system can be extended.

Driving and Parking Over a Septic System

Plan parking areas and driving routes so they will not interfere with a septic system. The weight from vehicles can collapse pipes, septic tanks, and leaching chambers requiring costly excavation and repair. Driving and parking on a leach field also compacts soil, reducing its ability to effectively treat effluent. During winter, be mindful that driving over sewer pipes can increase frost penetration, resulting in the inconvenience and expense of repairing frozen plumbing.

Tree Roots

Many commercial products claim to prevent roots from clogging pipes, but nothing takes the place of careful landscaping practices. To prevent septic system damage, do not place a leach field near trees and shrubs and plant only grass or shallow-rooted perennials and annuals around a septic system.

Flushing Foreign Objects Down the Drain

We have probably all had that sinking feeling when an object accidentally drops into the toilet. Once flushed, removing that toy truck can be costly and time consuming. For households with small children, prevent unwanted objects from going down the drain by installing toilet seat locks. Other notorious septic system cloggers include diapers, baby wipes, paper products other than toilet paper, cat litter, cigarettes, coffee grounds, feminine products, etc. Purchase toilet paper labeled "Septic Safe."

Excess kitchen grease will congeal in the sewer line, causing blockages and backups. Kitchen grease does not break down in the tank – it accumulates, filling the tank quicker, and ultimately shortening the time until it will need to be pumped. Dispose of kitchen grease in the trash rather than down the drain.

The goal is to reduce the amount of solids entering the tank. Whatever is put in, it will have to be pumped out!

Failure to Install According to Local Codes

Local codes and regulations ensure proper installation practices and protect public health. A poorly installed system will not work effectively and will fail early. A properly installed septic system will be designed according to your specific site conditions (soil types, bedrock, groundwater, slope). Finally, local regulations protect surface and ground water quality. A septic system that does not conform to regulations can potentially affect the health and safety of you and your neighbors. Test your household well regularly! For information, contact local hospitals, commercial water testing laboratories, or the Wyoming Department of Agriculture Analytical Services at (307) 742-2984. The Web page for Analytical Services is at <http://wyagric.state.wy.us/divisions/aslab.htm>. Your local hospital may test for the presence of pathogenic bacteria in well water samples.

Poor Maintenance Practices

Regular maintenance is necessary to keep a septic system up and running. An annual inspection by a licensed contractor can tell you when to pump. A contractor will measure scum, liquid effluent, and sludge layers in the septic tank. The sludge depth will

determine pumping frequency, generally every three to five years; however, if you have a large household, increase your pumping frequency (see table at right). The U.S. Environmental Protection Agency has an excellent maintenance schedule available on its Web site www.epa.gov/owm/septic/pubs/septic_sticker.pdf

Salts/Chemicals: Water Softeners, Washing Machines, Cleaning Products

Excessive use of household chemicals or salts from a malfunctioning water softener disrupts the natural bacterial action necessary for wastewater treatment.

Moderate amounts of household cleansers and detergents should not pose a problem; however, dispose of solvents, pesticides, herbicides, motor oil, antifreeze, and paint through a household hazardous waste collection facility rather than down the drain.

Poor Drainage and Poor Siting

Nothing replaces careful planning. Regulations stipulate minimum separation distances between a septic system and any surface water, ground water, and foundation drains to prevent flooding the leach field. Sites with impermeable soils, high clay content, or shallow bedrock will not absorb and treat septic effluent readily. Sites with steep slope (greater than 15 percent) may also pose challenges. These limiting site conditions may require special design and construction practices to avoid failure. County and state personnel are available prior to construction for site evaluations and can discuss options with you and your contractor.

Organic Overloading

Garbage disposals contribute excessive amounts of solids, which do not break down in the septic tank, requiring it to be pumped more frequently. Try creating a compost pile, or dispose of kitchen waste in the trash can.

The goal with a septic system is to prevent accelerated leach field failure from solids moving into the leach field.



An effluent filter reduces the possibility of solids moving out of a tank and clogging a leach field.

Suggested Pumping Interval (years)

Tank Size in Gallons	Number of Persons Living in Home					
	1	2	3	4	5	6
1,000	12	6	4	3	2	2
1,250	16	8	5	3	3	2
1,500	19	9	6	4	3	3

Consider installing sink strainers, hair traps in drains, lint traps on washing machines, and an effluent filter (see photo lower left) at the outlet of the septic tank. These devices reduce the possibility of solids moving out of the tank and clogging the leach field prematurely.

Hydraulic Overloading

Hydraulic overloading occurs when too much water enters the septic system at one time, resulting in wastewater backing into drains or effluent surfacing in your yard. Being conservative with water use can prevent hydraulic overloading.

- Ensure all plumbing fixtures are in good working order. No drips or leaks!
- Replace aging fixtures with new water-saving toilets, shower heads, and faucets.
- Adequately space showers, laundry, dishwashing, and other high-volume water uses so they do not coincide with one another, which may flood the septic tank and push solids into the leach field.
- If possible, avoid using a water softener since backwash will enter the septic tank and cause hydraulic overloading. Oversize your septic tank and leach field if a water softener is in use.

Conclusion and Contacts

There are many steps to ensure a properly sited, correctly installed, regularly maintained septic system. Done properly, your system should last 20 or more years. Please contact your local county planning department for more information.

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