



"Protecting water quality through community planning"



Nonpoint Education for Municipal Officials

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POW: Protecting Our Water ACTION GUIDE SERIES
ACTION GUIDE #8

What to Do About Septic Systems

By Susan Donaldson, Water Quality Education Specialist, and Melody Hefner, NEMO Nevada Program Assistant, University of Nevada Cooperative Extension

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mproperly installed or maintained septic systems can contaminate groundwater and surface water with nutrients and pathogens. By following the recommendations below, you can help ensure that your system continues to function properly.

Recommendations for septic systems:

- Know where your septic tank and drain field or leach field are located. Do not park on, drive over, or build on top of your septic tank or leach field. Impermeable surfaces placed over the drain field will interfere with evaporation and air flow necessary for effluent treatment.
- Avoid using household drains to dump chemicals. These substances can destroy the bacteria in your septic tank.
- Do not use septic system additives. There is no scientific evidence that biological or chemical additives aid or speed up decomposition in septic tanks. Some additives may even harm the septic system or contaminate groundwater.
- Don't use toilets as trash cans! Excess solids may clog your drain field and necessitate more frequent pumping.
- Inspect your septic system annually and pump it out regularly.
- Avoid or reduce the use of your garbage disposal. Garbage disposals contribute unnecessary solids to your septic system. This will require you to pump your septic tank more frequently.
- Plant any new trees at least 25 feet away from your septic tank and leach field. Tree roots can crack pipes or obstruct the flow of wastewater through drain lines.
- Avoid or reduce the use of phosphate-containing detergents, which contribute to phosphorus pollution.
- Conserve water and stagger water use to moderate the water inflow to the septic system. This will reduce the chance of hydraulic overloading and septic system failure.

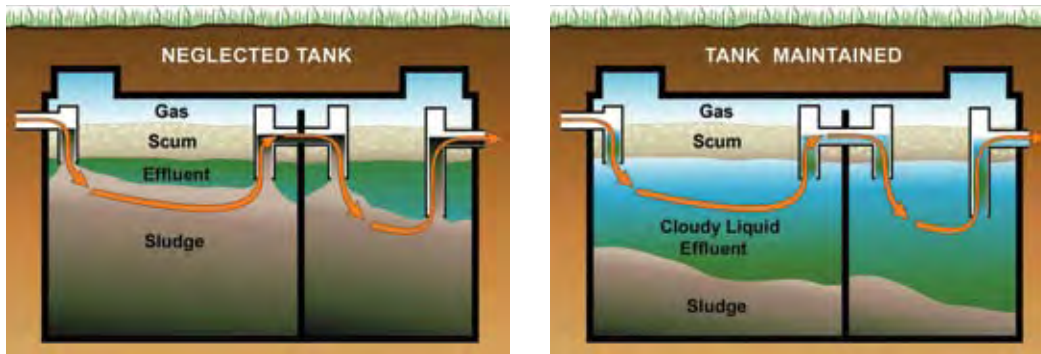
"Improperly installed or maintained septic systems can contaminate groundwater and surface water with nutrients and pathogens."

Septic systems require two things: proper bacterial action and periodic pumping.

Bacteria must be present in the septic tank to digest the organic solids. Normal household waste provides enough bacteria to digest the solids **UNLESS** the bacteria are killed. Bacteria are very sensitive to environmental changes and may be destroyed by common home-care products such as detergents, sink and tub cleaners, cleaning compounds, bleach, disinfectants, caustic drain openers, toilet cleaners, polishes, and acids. **Check the labels on these and other products used in the home. Look for products labeled "safe for use in septic systems."**



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How a septic system works

All septic systems function in the same general manner, piping household wastewater to a holding tank where solids are removed. Through bacterial action, some of the solids are digested and converted to liquid for discharge into a soil absorption area or leach field. The remaining solids are stored for future disposal. The modern septic tank is a watertight box usually made of precast concrete, concrete blocks, or reinforced fiberglass. When household waste material enters the box, several things occur:

- ❶ Organic solid material floats to the surface and forms a layer called scum. Bacteria present in the septic tank begin to biologically convert some or all of this material into liquid.
- ❷ Inorganic or inert solid materials that cannot be biologically converted, and the byproducts of bacterial digestion, sink to the bottom of the tank and form a layer called sludge.
- ❸ A cloudy liquid, called effluent, lies between the sludge and scum. This is the only thing in the septic tank that should move out of the tank and into the leach field.

When bacteria are not present to digest and liquefy the scum at the top of the septic tank, the scum will accumulate until it overflows, clogging the soil absorption area.

The sludge at the bottom of the septic tank is inorganic and inert material that is not biodegradable and will not decompose. If not removed on a periodic basis, it will accumulate and overflow, clogging the absorption area. Since there is no tank additive that will dissolve or eliminate the accumulation of sludge, **IT MUST BE PUMPED OUT.**

The frequency of pumping for a given septic tank will depend on the size of the tank, the number of people occupying the home, the frequency of garbage disposal use, and the condition of the system. Generally, a properly-designed tank of 1,000 gallons capacity that is used by a family of four people

should be pumped about every three years. The table below provides recommendations for pumping intervals based on tank size and household size. Pumping of septic tanks should be performed by professionals who have the necessary equipment to do the job properly. They can be found in the Yellow Pages of your telephone directory under "Septic."

Failure to periodically pump can cause solids to overflow into the absorption area or leach field. This can clog the system and may force replacement of the absorption area at considerable expense and inconvenience. Typical leach field replacement costs are likely to exceed \$5,000 and may be as much as \$15,000 to \$20,000 for engineered systems. Typical pumping costs are \$200 to \$400. Obviously, it is more cost effective to pump!

Tank Size (gallons)	Household Size (number of people)					
	1	2	3	4	5	6
	Years Between Pumping					
1000	12.4	5.9	3.7	2.6	2.0	1.5
1250	15.6	7.5	4.8	3.4	2.6	2.0
1500	18.9	9.1	5.9	4.2	3.3	2.6

For more information:

Contact the NEMO Project,
c/o Susan Donaldson, Ph.D.
University of Nevada
Cooperative Extension
5305 Mill St.
Reno, NV 89502

Tel: (775) 784-4848
Fax: (775) 784-4881

Internet:

www.unce.unr.edu/NEMO

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