Partnership for the Environment

Utah Department of Environmental Quality

Septic Tank/Drainfield System Fact Sheet

What Are The Potential Hazards?

Septic systems can contaminate ground water if they are misused, improperly maintained, or improperly constructed. The major contaminant discharged from septic systems is disease-causing germs. These germs (bacteria and viruses) - can cause many human diseases. Another contaminant discharged from septic systems is nitrogen in the form of nitrate. If the nitrate level of drinking water is too high, infants, up to the age of six months old, can develop a fatal disease called blue baby syndrome (methemoglobenemia). Additionally, if toxic chemicals are disposed in a septic system, they can percolate through the drainfield and into the ground water.

How Does A Septic Tank/Drainfield System Work?

The basic septic system is composed of a septic tank followed by a drainfield. Wastewater flows out of the house and into the septic tank through the building sewer pipe. Once in the septic tank, most solids in the wastewater settle to the bottom of the tank to form a sludge layer. Other solids float and form a scum layer on top of the wastewater. Some decomposition of solid material takes place here, but the primary function of a septic tank is to trap solids and prevent them from entering the drainfield.

Wastewater treatment is restricted to a rather thin zone of unsaturated soil underlying the drainfield. Many of the harmful bacteria and microbes are filtered out as the wastewater passes through this soil. Some of the smaller microbes (viruses) and nutrients such as phosphorus and some forms of nitrogen are trapped and held (adsorbed) by soil particles. Once the effluent reaches the groundwater table, little treatment occurs. Soils can differ markedly in their pollutant removal efficiency. The ability to which soil can remove pollutants in the wastewater determines how many impurities will eventually reach the groundwater beneath the drainfield.

Site Evaluation And Construction

Current rules require a comprehensive evaluation of the soil and ground water before a septic system can be permitted for construction in a given location. This evaluation must be reviewed and approved by the local health department. The rules require that the bottom of the drainfield trenches be placed at least 12 inches (preferably 24 inches) above the water table. Additionally, there must be adequate amounts of unsaturated soil beneath the trenches to allow sufficient treatment of the wastewater.

Site Considerations

- Trees and deep-rooted shrubs should be as far away from the system as possible.
- Keep the water that runs off of foundation drains, gutters, driveways, and other paved areas away from the drainfield of your septic system.

- Keep the soil over the drainfield covered with grass to prevent soil erosion.
- Don't drive vehicles over the system.
- Don't cover the tank or drainfield with concrete or asphalt and don't build over these areas.

Proper Disposal Practices

- Use only a moderate amount of cleaning products and do not pour solvents or other household hazardous waste down the drains.
- Garbage disposals should not be used because they tend to overload the system with solids. If you have one, you should severely limit its use.
- Do not pour grease or cooking oil down the sink.
- Do not put items down the drain that may clog the septic tank or other parts of the system. These items include cigarette butts, sanitary napkins, tampons, condoms, disposable diapers, paper towels, egg shells, and coffee grounds.

Water Conservation

There are limits to the amount of wastewater a septic system can treat. If you overload the system, wastewater may backup into your home or surface over your drainfield. Problems caused by using too much water can occur periodically throughout the year or be seasonal. For example, the soil beneath your drainfield is wetter in the spring than it is in the summer and its capacity to percolate wastewater is somewhat diminished. If you wash all your laundry in one day, you may have a temporary problem caused by overloading the soil's capacity to percolate wastewater for that day. To reduce the risk of using too much water, try the following:

- Use 1.6 gallons (or less) per flush toilets.
- Fix leaking toilets and faucets immediately.
- Use faucet aerators at sinks and flow reducing nozzles at showers.
- Limit the length of your shower to 10 minutes or less.
- Do not fill the bathtub with more than 6 inches of water.
- Do not wash more than one or two loads of laundry per day.
- Do not use the dishwasher until it is full.

Septic Tank Cleaning

It is recommended that the solids that collect in your septic tank be pumped out and disposed at an approved location every three to five years. If not removed, these solids will eventually be discharged from the septic tank into the drainfield and will clog the soil in the absorption trenches. If the absorption trenches are clogged, sewage will either back up into the house or surface over the drainfield. If this happens, pump the tank will not solve the problem and a new drainfield will probably need to be constructed on a different part of the lot.

For More Information, Contact:

Division of Drinking Water, Source Protection Program - (801) 536-4200
Division of Water Quality - (801) 538-6146
Sonja Wallace, Pollution Prevention Coordinator - (801) 536-4477
Environmental Hotline - 1-800-458-0145