

Do's & Don'ts of Having a Septic System

- **DO** inspect your tank every year. Measure the level of sludge build-up and inspect the baffles for scum. Have your septic system pumped out on a regular basis.
- **DO** keep a record of pumping, inspections and other maintenance.
- **DO** practice water conservation. Repair dripping faucets and leaking toilets, run washing machines and dishwashers only when full, avoid long showers and use water-saving devices in faucets, showers and toilets. Limit the number of loads of laundry to 3 on a daily basis.
- **DON'T** discard grease in the drain. Grease can clog the septic tank or the soils surrounding the drain field.
- **DON'T** pour strong cleaning agents, chemicals or old medicine down the drain. These can kill beneficial bacteria that break down wastewater in your septic system.
- **DON'T** connect a garbage disposal to the system. Garbage disposal adds additional amounts of solids to your septic tank.
- **DON'T** use commercial "septic tank treatment" additives. No additive can alleviate the need to regularly pump your septic tank; some, potentially, may actually promote clogging of your absorption field or contaminate groundwater.
- **DON'T** use your toilet as a trash can by dumping non-degradables down your toilets or drains. Read product labels! Use low phosphorus detergents and cleaning products whenever possible. Phosphorus is the nutrient most likely to cause damage to Twin/Walker Lakes after leaving your septic system.

Table 1. Estimated septic tank pumping frequency. Based on single family dwelling occupancy (# of people). Example: for a tank size of 1000 gallons and a household size of five, the septic tank should be pumped every two years. (PSU Cooperative Extension F-161 Fact Sheet—Septic Tank Pumping)

Tank size (gal)	Household Size (number of persons living in the household)									
	1	2	3	4	5	6	7	8	9	10
500*	5.8	2.6	1.5	1.00	0.7	0.4	0.3	0.2	0.1	—
750*	9.1	4.2	2.6	1.8	1.3	1.0	0.7	0.6	0.4	0.3
900	11.0	5.2	3.3	2.3	1.7	1.3	1.0	0.8	0.7	0.5
Example 1000	12.4	5.9	3.7	2.6	2.0	1.5	1.2	1.0	0.8	0.7
1250	15.6	7.5	4.8	3.4	2.6	2.0	1.7	1.4	1.2	1.0
1500	18.9	9.1	5.9	4.2	3.3	2.6	2.1	1.8	1.5	1.3
1750	22.1	10.7	6.9	5.0	3.9	3.1	2.6	2.2	1.9	1.6
2000	25.4	12.4	8.0	5.9	4.5	3.7	3.1	2.6	2.2	2.0
2250	28.6	14.0	9.1	6.7	5.2	4.2	3.5	3.0	2.6	2.3
2500	31.9	15.6	10.2	7.5	5.9	4.8	4.0	3.5	3.0	2.6

Signs of a problem

- Ponded water or wet areas over the absorption field in your lawn
- Slow draining toilets, showers or sinks
- Bright green grass over the absorption field may indicate that effluent is coming to the surface
- A dense stand of aquatic plants or algae growing along your shoreline
- Sewage odors
- Bacteria or nitrates show up in tests of a nearby drinking well
- Biodegradable dye flushed through your system is detected in your lake

Septic System Maintenance

Even though most septic systems have no moving parts, neglecting to maintain your on-lot sewage system can lead to malfunctions.

The most important maintenance issue is having your septic system pumped periodically. If you don't pump out your septic system periodically, sludge will accumulate in the tank, whereby the tank capacity will be reduced so that solids aren't able to settle out before the wastewater effluent leaves the tank. If too much sludge accumulates, the wastewater's solids will flow to the soil absorption field causing system failure.

The frequency of septic tank pumping depends on the size of the septic tank, volume of wastewater from the house and amount of solids in the wastewater. Table 1 lists pumping frequencies according to septic tank size and the number of persons living in the household.

Homeowners should get in the habit of having their septic tank pumped. If you can have your septic tank pumped out on a regular basis, it will enhance the effectiveness of your on-lot wastewater disposal system. Research at Penn State has shown that your soil absorption area will benefit from periodic resting. To get the greatest benefit from pumping your septic tank, it is recommended that you have your septic tank pumped every 2-3 years on the day before you, and your family, leave for your summer vacation. This means the whole system, especially the soil absorption area, will have the opportunity to dry out and any partially decomposed organic waste that may have moved into the soil absorption area will quickly decompose in the absence of water.

Septic System

Management and Maintenance

A Reference Guide for Homeowners

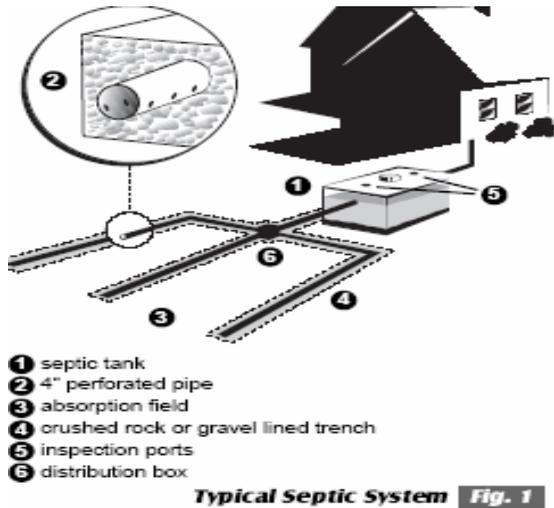


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How A Septic System Works

Many communities in Pike County and the Twin/Walker Creeks Watershed are not served by a public sewer system. In order to dispose of the wastewater (sewage) generated by homes and commercial facilities in our area, "on-lot" sewage disposal systems are usually installed to serve individual properties.

An on-lot sewage system is a two-stage treatment system consisting of a treatment tank (most commonly a septic tank) and a



soil absorption area, see Figure 1. The treatment tank removes the solids from the wastewater and the soil absorption system places the liquid or effluent where it can be absorbed into the soil and renovated before it enters the groundwater. Pennsylvania law requires you to obtain a permit from your township Sewage Enforcement Officer (SEO) before you repair or construct an on-lot sewage systems.

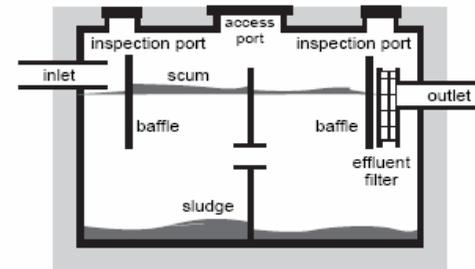
Once the system has been constructed and approved, the operation and maintenance of this sewage treatment system is in your

hands. By understanding on-lot septic systems, you can properly maintain your system and reduce the likelihood of failures.

A properly designed, installed and maintained on-lot sewage disposal system can provide years of trouble-free service. Properly operated on-lot septic systems also allow recycling of treated water into the ground, an environmental benefit.

The Septic Tank

All on-lot sewage systems must have a treatment tank to receive the wastewater leaving your home. The most common type of treatment tank is a septic tank. Septic tanks are watertight compartments constructed of concrete, fiberglass or other material that is resistant to decay. Current regulations require a two septic tanks connected in a series or a two-



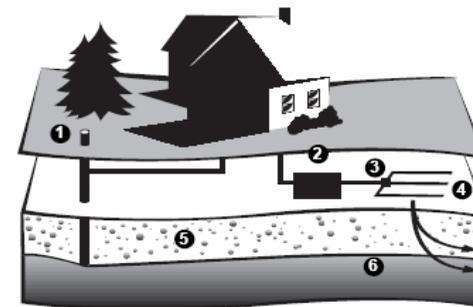
compartment septic tank, see Figure 2. However, many existing septic tanks consist of only one tank or compartment.

Sewage flow coming from the house is separated into three factions after it enters the tank. Grease, oils and other light materials accumulate at the top of the tank in a layer of scum. The heavier solids settle into a sludge layer at the bottom of the tank.

Wastewater, also called effluent, leaves the septic tank through the baffled outlet and makes its way to the absorption area. The tank must have a baffle at both the inlet and outlet to allow the wastewater to settle in the tank and to keep the scum layer and suspended particles from flowing into the absorption area. As Figure 2 indicates, septic tanks must also have inspection ports above both the inlet and outlet for checking the condition of the baffles and an access port to each compartment for pumping and cleaning the tank.

The Soil Absorption Area

When the wastewater leaves the septic tank, it flows to the absorption field, where the soil absorbs and treats the wastewater. The absorption field consists of a network of perforated pipes (often plastic) laid out in a bed of trenches lined with gravel, see Figure 3.



The pipes are connected to the septic tank through a small chamber known as a distribution box. The distribution box is designed to distribute liquids equally among the absorption field pipes. Wastewater then flows through the gravel and into surrounding soils.

The function of the soil absorption area is to uniformly distribute the effluent on to the soil

located below the gravel. The two most important characteristics of the soil under the absorption area is the ability to 1) absorb and 2) renovate the effluent by removing nutrients and pathogens.

The size and placement of the absorption area is determined by the type and depth of soils on the site. Pennsylvania on-lot sewage regulations requires a Perc Rate Test and Soil Probe be conducted in the area that the absorption area will be located. The Perc Rate Test is a measure of the soil's ability to absorb water. The Soil Probe determines the limiting zone of the soil.

According to the Pennsylvania on-lot sewage regulations, a limiting zone is bedrock, a seasonal high water table or a layer with insufficient fines to properly treat the effluent through microorganisms decomposing nutrients and pathogens. A soil absorption area requires at least 48 inches of good soil. In soils with limiting zones within the top 60 inches, it is not possible to provide 48 inches of suitable soil between the bottom of an in-ground absorption area and the top of a limiting zone.

To provide for on-lot treatment of sewage in soils with between 20 and 60 inches of suitable soil available above the limiting zone. Pennsylvania has approved the use of elevated sand mounds. The elevated sand mound, a constructed mound of sandy fill material placed on top of the 20 to 60 inches of natural or prevailing soil, has been shown to provide excellent treatment of effluent.

Elevated sand mounds are limited to sites having a maximum of 12 percent slopes. In addition, the Perc Rate must be between 5 and 180 minutes per inch. Proper siting, design, construction and maintenance are key to the functioning of the elevated sand mounds.