

wellcare® information for Sanitarians Septic Systems

Nearly 25 percent of U.S. households rely on onsite wastewater systems to dispose of waste water on their property, while more than 42 million people depend on private well systems for drinking water and other uses. Homeowners with both wells and septic systems must take care to maintain these systems in order to insure the purity of their drinking water.

Usually, a state or local sanitarian is the source of information for homeowners and home buyers regarding wells and septic systems. Most health departments are responsible for:

- Permitting the siting and installation of new septic systems and the repair of existing systems.
- Providing soil evaluations and perc tests before septic systems are installed.
- Responding to requests for assistance and/or complaints about septic systems.
- Conducting real estate certifications for wells and septic systems for mortgage lenders prior to closing the sale of a property.

This wellcare® information sheet offers sanitarians basic guidance to give homeowners about managing their septic system and protecting their drinking water. Further information on wells, water testing and water treatment can be found in other WSC wellcare® publications.

How Septic Systems Work

A septic system is a highly efficient, self-contained, underground wastewater treatment system. The National Small Flows Clearing House (NSFC), part of the National Environmental Services Center at West Virginia University, offers the following description of how septic systems work:

A septic system consists of two main parts – a *septic tank* and a *drainfield*. The septic tank is a watertight box, usually made of concrete or fiberglass, with an inlet and outlet pipe. Wastewater flows from your home to the septic tank through the sewer pipe.

The septic tank treats the wastewater naturally by holding it in the tank long enough for solids and liquids to separate. The wastewater forms three layers inside the tank. Solids lighter than water (such as greases and oils) float to the top, forming a layer of scum. Solids heavier than water settle at the bottom of the tank, forming a layer of sludge. This leaves a middle layer of partially clarified wastewater.

The layers of sludge and scum remain in the septic tank where bacteria found naturally in the wastewater work to break down the solids. The sludge and scum that cannot be broken down are retained in the tank until the tank is pumped. The layer of clarified liquid flows from the septic tank to the drainfield or to a distribution device, which helps to uniformly distribute the wastewater in the drainfield.

A standard drainfield (also known as a leachfield, disposal field, or a soil absorption system) is a series of trenches or a bed lined with gravel or coarse sand and buried one to three feet below the ground surface. Perforated pipes or drain tiles run through the trenches to distribute the wastewater. The drainfield treats the wastewater by allowing it to slowly trickle from the pipes out into the gravel and down through the soil. The gravel and soil act as biological filters.

Installing a Septic System

A septic system must be installed a minimum safe distance away from drinking water wells, streams, lakes and houses, in order to protect water quality from wastewater working through the system. Distances are established both horizontally, which applies across the surrounding landscape and

protects surface water, and vertically, which applies to distances underground and protects ground water.

State and local health departments set the minimum distance standards. The U.S. Environmental Protection Agency recommends a minimum of 50 feet between your well and your septic tank or septic tank leach field. Check with your water well professional, septic tank service company or local health department for standards in your area.

Homeowners who buy a property on which the septic system does not meet minimum separation standards should test their drinking water for bacteria at least twice each year.

Managing the Septic System

A properly maintained septic system is no threat to the ground water that supplies a household well. However, wastewater from a failing septic system can carry contaminants such as nitrates, harmful bacteria and viruses into ground water and, potentially, the well.

A septic system, just like a drinking water well system, needs a regularly scheduled maintenance program. Homeowners should create a septic maintenance log and keep it with their well maintenance log.

The NSFC recommends having a septic system inspected every 1-2 years and having the septic tank pumped out when needed, generally every 3 to 5 years, depending on the demand placed on it. Demand is based upon the number of people in the household, the amount of wastewater generated (based on the number of people in the household and the amount of water used), the volume of solids in the wastewater (e.g., using a garbage disposal will increase the amount of solids), and septic tank size. The use of water conservation devices can also limit the amount of wastewater, and prolong the life of your septic system.

Most health departments say proper maintenance of a septic system makes system additives unnecessary. But, everyone in the household must be careful about what they flush into the septic system. Never dispose of items that can clog the system or chemicals that could contaminate ground and surface water. This includes grease, fat, oil, gauze bandages, feminine hygiene products, disposable diapers, paper towels, kitty litter, cigarette butts, coffee grounds, dental floss, hair, paint, pesticides, varnish, thinners, waste oil, and photographic solutions.

The septic system's drainfield must also be protected. The NSFC and sanitarians recommend the following strategies to protect the field and prolong its functional life:

- Do not drive over the drainfield with cars, trucks or heavy equipment.
- Do not plant trees or shrubbery in the drainfield area, because the roots can get into the lines and plug them.
- Do not cover the drainfield with hard surfaces, such as concrete or asphalt. Grass is the best cover, because it will help prevent erosion and help remove excess water.
- Divert surface runoff water from roofs, patios, driveways and other areas away from the drainfield.

Protect the Wellhead

Finally, it is important to protect the wellhead, the structure built over a well, even if it is located a good distance from the septic drainfield. The wellhead should be inspected regularly to ensure it provides a tight-fitting seal against contaminants. This is particularly important if the wellhead may be affected by flooding.

Take care when working or mowing around the wellhead, because it is easy to damage it with heavy equipment. Don't pile snow, leaves or other materials around the well, as these may carry pollutants into the system.

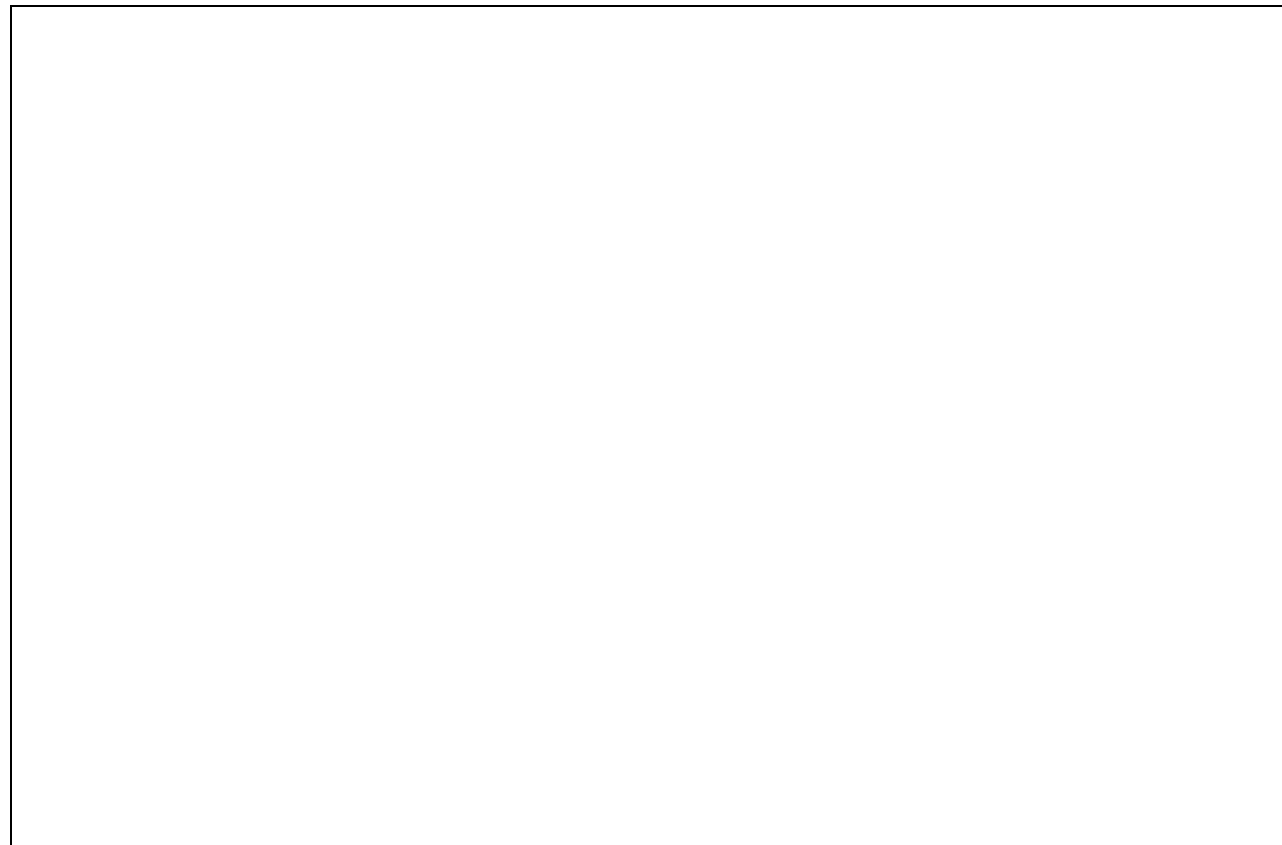
For more information on Septic Systems

The National Onsite Wastewater Recycling Association, Inc. (NOWRA) has national as well as state-affiliated associations, and is a great resource for on-site waste systems. Visit their website at www.nowra.org.

The National Small Flows Clearing House of the National Environmental Services Center at West Virginia University offers a wealth of information on septic system operation and maintenance. Call 800-624-8301, e-mail info@mail.nesc.wvu.edu or go to www.nesc.wvu.edu/subpages/septic.cfm

For more information about wells and other wellcare® publications

wellcare® is a program of the **Water Systems Council (WSC)**. WSC is a national nonprofit organization dedicated to promoting the wider use of wells as modern and affordable safe drinking water systems and to protecting ground water resources nationwide. This publication is one in a series of **wellcare®** information sheets. They can be downloaded FREE from the WSC website at www.watersystemscouncil.org. Well owners and others with questions about wells or ground water can also contact the **wellcare®** hotline at **1-888-395-1033** or visit www.wellcarehotline.org.



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