

# SEPTIC TANK

# MANUAL

Homeowner's Guide to the Use and Care of a Private Sewerage System

A PUBLICATION OF

**Frederick County Health Department**



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In many areas of Maryland there are no public sewerage systems to carry away household wastes. In such areas, individual septic systems are installed on each homeowner's lot to dispose of the waterborne wastes from the house. Although a substitute for public sewerage, a well designed, correctly constructed and properly maintained septic tank system can give a period of satisfactory service within its limitations.

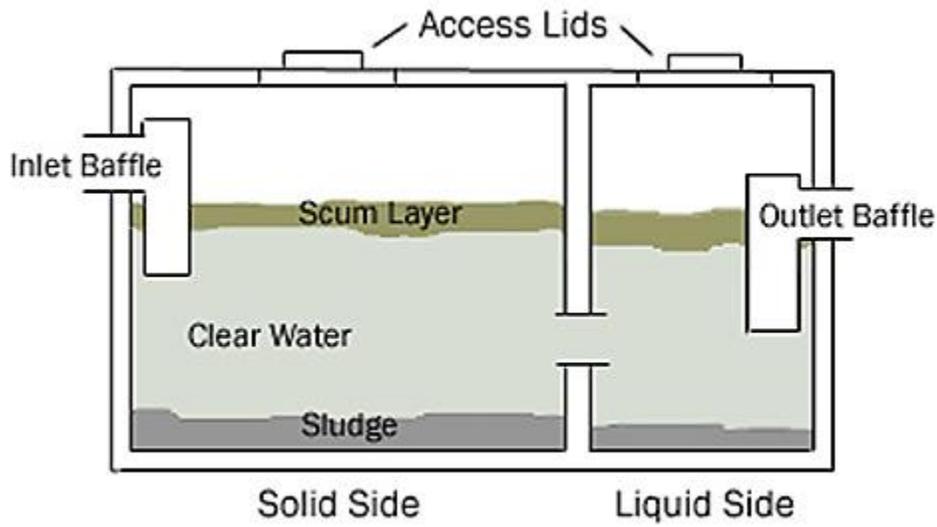
If you are planning a home where a septic tank system will be used, be sure to discuss the design of the system with the health department to make sure it will meet your needs. This booklet does not provide criteria for the construction or planning of a septic tank system. Each system should be properly designed to meet the needs of the specific family and home it is to serve. Septic systems are designed based on the number of bedrooms a home will have.

A septic tank system (individual underground sewage disposal system) may be built after a permit is issued by the health department. Prior to issuance of this permit, a soil percolation test must be made to determine the rate at which the soil can absorb the liquid that will be discharged from the septic tank.

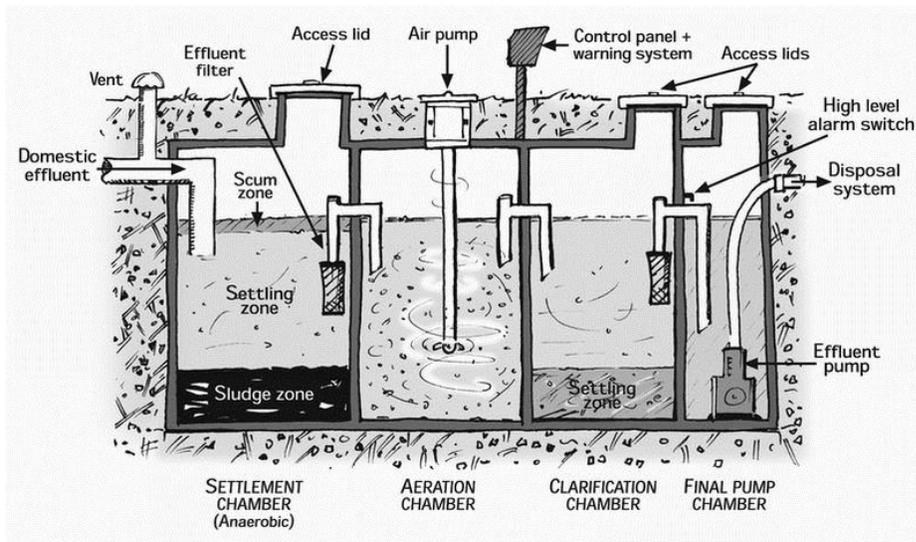
Yet, problems can occur and conditions may change. The number of persons served by the system, the quality of the wastewater, or the flow of sewage may vary to such a degree that the system will break down.

Lack of maintenance alone can cause a well-designed system to break down. For these several reasons, neither the health department nor anyone else can assure the continued functioning of any septic tank system, for these systems are limited in capacity and useful life. However, proper maintenance can help the homeowner to prolong the useful life of a septic tank system and obtain the best possible service from it.

## 2 Compartment Septic Tank



## Example of a Best Available Technology (BAT) tank



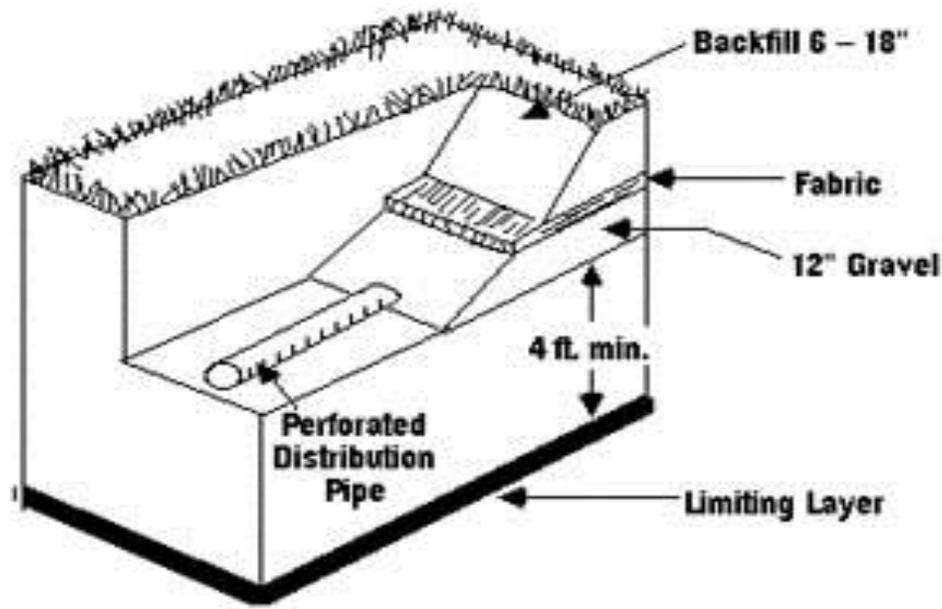
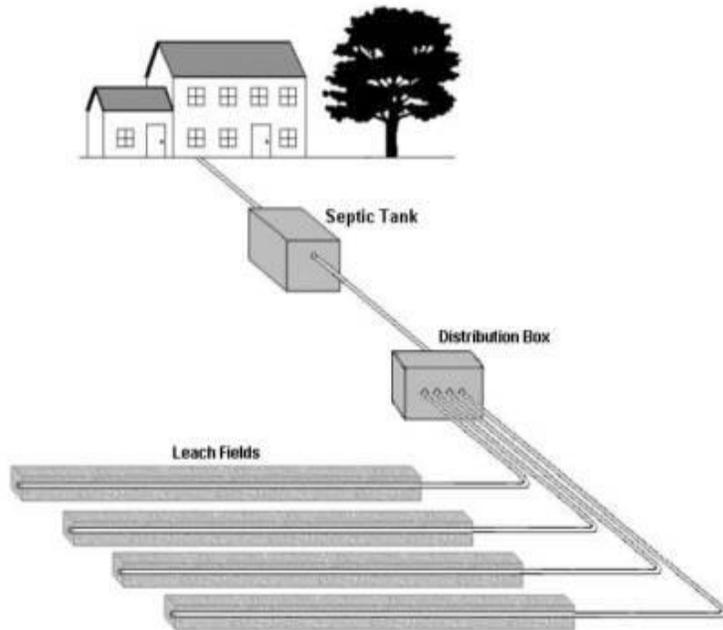
Since maintenance is so essential, the homeowner should have a diagram showing the location of the septic tank system. This should show the location of the house, septic tank, distribution box, drainage area and the water supply well, if there is one. Ask your contractor to furnish such a diagram or obtain it from the health department.

To maintain a septic tank system, you should know (1) what it is, (2) where it is, (3) how it works and (4) when it should be serviced.

A septic tank is usually rectangular in shape and made of concrete, plastic, or fiberglass. Older tanks may be made out of concrete blocks or steel. It is buried underground on the property of the home it serves. The tank usually is designed to hold the amount of sewage that flows from the house in 24 hours. For this reason, some homes will require larger tanks than others. The size of the septic tank is determined by many factors. Generally, a larger tank allows more extensive decomposition and usually gives better service.

The top of the tank is fitted with one or two manholes so that the tank may be cleaned when necessary. Current designs are required to have access risers leading from the tank to the ground surface. Older designs have 6 inch observation ports – these are not intended for cleanout purposes. Older septic tank installations often were buried completely. There are many tanks of varying designs in use.

Recently Maryland has been installing nitrogen-reducing units called Best Available Technology (BAT). These units consist of advanced pretreatment and replace or work in conjunction with a septic tank. BAT units include electrical and mechanical components such as pumps, blowers, floats, alarms, diffusers and electronic control panels. Periodic maintenance and inspections by a qualified contractor are essential and required by regulation for all BAT units.



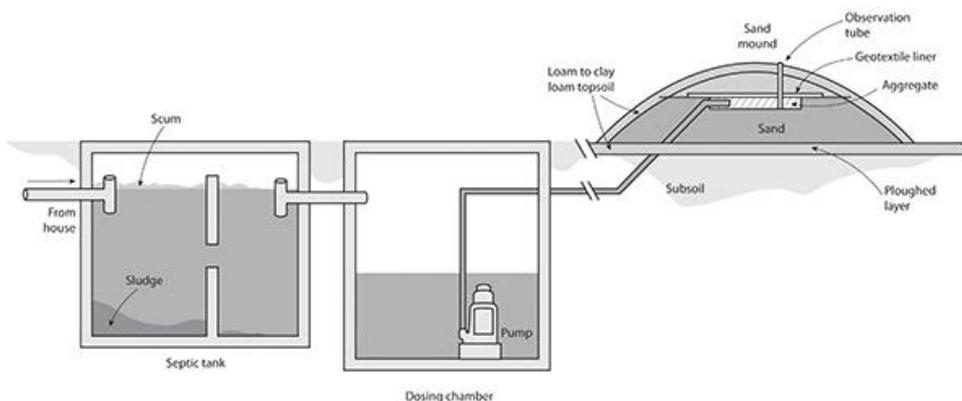
Sewage flows through the house sewer to the tank. The heavier solids settle to the bottom and decompose, forming a sludge. The lighter solids, grease and fats, rise to the surface of the liquid, forming a scum. The center layer of liquid is water containing dissolved and suspended material. It flows from the tank through an outlet pipe to the soil absorption component of the system. Baffles are installed at the inlet and outlet of the tank to slow the water movement and prevent the scum and solids from escaping. Effluent filters are required on the outlet baffle in newer installations. These filters require routine cleaning to prevent clogging.

The soil absorption component of the system consists of trenches or seepage pits or above-ground mounds. These structures allow the liquid which flows from the tank to seep into the soil over a large area so that this liquid may be absorbed by the ground.

With continued use of the septic tank, both the scum layer above the liquid and the sludge below it increase in depth. If the tank is neglected, either of these substances eventually can reach the outlet pipe which will allow them to enter the soil absorption area and clog the system. Complications also can arise if there is more liquid flowing through the system than the surrounding earth can absorb. Correction is expensive and often not possible.

## FOR BEST SERVICE THESE PRECAUTIONS ARE SUGGESTED

- 1.)** Become familiar with the location of the components of your septic tank system
- 2.)** Do not allow motor vehicles to drive over any part of your underground system. The underground pipes could be crushed or broken which could stop the operation of the system and the soil could become compacted.
- 3.)** Do not plant trees or shrubs on or near the system. Their roots may enter the trenches and clog them completely.
- 4.)** 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.
- 5.)** Do not overload your septic system. The septic tank should receive all the waste water from your house, including that from dishwashers, washing machines and garbage grinders. (Remember, the system should be larger of you have these extra water-use appliances.) However, rainwater from downspouts, water from foundation drains, and sump pumps should not be piped into your septic tank system. This could flood the tank, stir up the contents, and carry some of the solids to the trenches or seepage pits or above-ground mound.



For best service, cooking grease and fats should be poured into an expendable container which can be disposed of with the trash and garbage. If these substances are poured into a kitchen sink, they tend to cause problems, since they harden in the sewer pipes and increase the scum layer in the septic tank.

**6.)** Ask your local health department about a list of licensed liquid waste haulers. They are often listed in the yellow pages of the telephone book as "Septic Tank Cleaners". They are equipped to clean the solids and scum out of your septic tank. Failure to clean the tank when it is needed will allow solids and scum to pass into the trenches or seepage pits. Solids or scum can clog the seepage area and force sewage to the surface of the ground. This creates a hazard to the health of your family and neighbors. Also, when your septic tank system fails, sinks and toilets will not drain. Correction of this problem is expensive and sometimes impossible.

**Liquid waste haulers should not clean out the septic tank using only the 6-inch inspection port that is above ground level.** The tank needs to be pumped from the large manhole (center port) in the tank, this may require digging. Retrofitting existing tanks with manhole cleanout risers to facilitate proper cleaning is strongly suggested.

**7.)** Studies have shown that septic tank additives including yeast and commercially marketed chemicals are ineffective in reducing solids in the tank. Their use is not a substitute for regular septic tank pumping and cleaning. The natural bacteria in the tank provide the most efficient treatment method.

On the other hand, the amounts of bleaches, cleaners and drain cleaning chemicals that generally are used for household cleaning normally do not interfere with the operation of the septic tank system.

**8.)** If you have any questions or problems, CALL YOUR COUNTY HEALTH DEPARTMENT. Your health department personnel will advise or help you in any way that they can. Call 301-600-1719.

**9.) PLEASE REMEMBER TWO IMPORTANT THINGS:**

The care and maintenance of your private sewage disposal system is a responsibility you must assume yourself. Septic tank overflow is human waste which can cause offensive odors, attract flies and carry disease to people. It is your responsibility to prevent or correct breakdowns to protect your family and neighbors. When an overflowing private sewerage system creates a hazard to the community's health, the health department must take action – often action against you.

Second, remember that neglected systems can be very expensive to repair. The money saved by lack of maintenance is lost very quickly when you must buy a complete new system. If your system has not been checked within the past two years, you should see to it at once.

The Health Department recommends having your septic tank pumped out every 3 to 5 years, depending on the demand placed on the system. Demand is based upon the number of people in the household, the amount of water used and the volume of solids in the wastewater (garbage disposals will increase the amount of solids).

Make sure that everyone in the household is careful about what they flush into the septic system. Never dispose of green leafy vegetables or hazardous materials in your sinks or toilets, as these can clog the system or pass through it and contaminate ground water. Don't flush chemicals, grease, disposable diapers, cigarette butts, feminine sanitary products, paper towels, kitty litter, coffee grounds, dental floss, hair, paint, pesticides, varnish, thinners or waste oil.

