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6-1-1979

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Dickey, Elbert C.; Hosek, Gary; and Harlan, Phillip W., "Maintaining a Septic Tank System" (1979). *Biological Systems Engineering: Papers and Publications.* Paper 261.
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INSTITUTE OF AGRICULTURE AND NATURAL RESOURCES,
UNIVERSITY OF NEBRASKA - LINCOLN

TEACHING RESEARCH EXTENSION

G 79-446

# Maintaining a Septic Tank System

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Once a septic tank and absorption field are installed, you can do several things to prolong their life, thus protecting an investment which may cost $2500 or more. Here are several tips you can follow.

Often overlooked or neglected is the fact that septic tanks should be inspected at least once annually. In every properly functioning septic tank, sludge accumulates in the bottom. This sludge is composed of solid materials and must be removed periodically. If the sludge is not removed, the accumulated solids will build up in the septic tank and will begin to wash out into the absorption field. Allowing solids from the septic tank to wash out into the absorption field will eventually clog it to the point where a new field will be needed.

Most authorities agree that for a typical three-bedroom home, a 1,000-gallon (3,800 l) septic tank will need to have the solids removed every three to five years. Smaller tanks must be pumped more often. Septic tank additives that "clean" the tank are available, but these are generally not recommended. Some additives may cause the solids to be flushed from the septic tank into the absorption field, causing clogging problems. Other compounds may produce a septic tank effluent which will destroy soil structure and cause premature failure of the soil absorption system.

To determine if your septic tank needs pumping, the thickness of the sludge can be measured as illustrated in *Figure 1.* To measure the depth of the sludge, wrap a long stick with a piece of rough, white toweling and tie it securely. Lower the stick through the inlet tee (to avoid the scum) to the bottom of the tank. Wait about 30 seconds and remove the stick slowly and carefully. Black particles will cling to the towel indicating the depth of the sludge. The sludge should be removed if its depth is equal to one third or more of the liquid depth.

Occasionally, a floating scum layer may develop in septic tanks. This scum layer can also cause clogging and should be checked annually. The scum layer thickness can be measured with a stick and hinged flap device *(Figure 1)*. Push the stick through the scum until the hinged flap falls into the horizontal position. Raise the stick until you feel the bottom of the layer. Mark the stick to indicate the depth of the scum layer. Now use the same procedure to locate the lower end of the submerged inlet pipe. If the bottom side of the scum layer is within three inches (7.6 cm) of the lower end of the submerged inlet, the septic tank should be pumped.

Most communities have contractors who pump septic tanks. It may cost $50 or more, but it is necessary for maintaining the life of the absorption field. The contractors pump the contents into a tank truck and dispose of it at an approved treatment site or by proper land application. Be sure the workman who cleans your tank mixes the liquid, sludge and scum before pumping so that all of the material can be removed, not just the liquid. It is not recommended to wash, scrub or disinfect the septic tank when pumping. Similarly, it is not necessary to leave solids in the septic to "start" it again. Normally, as the septic tank fills, the natural processes begin. Products to "seed" the system with desirable bacteria are available, but they are also not necessary.

Disagreements can be avoided if you have an understanding with the contractor before he

starts the work. He should know what you expect him to do and you should understand what his charges are.

After pumping the septic tank and while the manhole is open, check the condition, length and submergence of the inlet and outlet baffles. They should be replaced if they are badly deteriorated or broken.

When a septic tank is being cleaned or inspected, care should be taken not to enter the tank until it has been thoroughly ventilated and gases have been dissipated to prevent explosion hazards or asphyxiation of the workers. Anyone entering the tank should have one end of a stout rope tied around his waist, with the other end held above ground by another person strong enough to pull him out if he should be overcome by any gas remaining in the tank.

An absorption field generally does not require any maintenance. However, to protect and prolong the life of the absorption field, follow these suggestions:

1. To prevent breakage or blockage of the line, do not drive over the absorption field with cars, trucks or heavy equipment.
2. Do not plant trees or shrubbery in the absorption field area. A mass of tiny hair roots may develop inside the line, plugging it and causing that part of the system to fail.
3. Do not pour concrete over absorption lines, or otherwise hard surface or fill the absorption field area.
4. Maintain surface drainage so that all surface water will drain away from the disposal field area. If surface water is allowed to stand in the area, it will slow down the rate of absorption of the field lines.

Tree or shrub roots that create a problem can be mechanically removed. Most communities have this service available commercially. Copper sulfate crystals flushed down the toilet bowl will also destroy the roots that the solution comes in contact with. Some time must elapse before the roots are killed and broken off. Recommended dosage rates are two pounds per 300 gallon (.9 kg/1,140 l) tank capacity. No more than two applications per year are recommended. The application of the chemical should be done at a time, such as late evening, when the maximum contact time can be obtained before further dilution occurs. Copper sulfate will corrode chrome, iron and brass, hence it should not be allowed to come in contact with these metals. Used in the recommended dosage, copper sulfate will not interfere with septic tank operation. It should be remembered that neither mechanical removal nor copper sulfate treatment will prevent further root growth problems unless the trees or shrubs are removed.

Another way to prolong the life of your septic tank treatment system is to be conservative with your use of water. Using more water means you will have more water to dispose of in the absorption field. You can prolong the life of your septic system and make large water savings by reducing the amount of water used in laundering, bathing and toilet flushing.

a. *Laundering:* Clothes are often washed on only one day of the week. While this may be convenient, it is not good for the absorption system. Up to 55 gallons (209 l) per cycle can be discharged by an automatic washer. If several loads are done in one day, it can put considerable stress on the waste treatment system. A better practice is to spread it out through the week, washing no more than one or two loads a day. Unless your automatic washer can reduce the amount of water used for smaller loads, try to wash only full loads.
b. *Bathing:* Each bath or shower uses up to 30 gallons (114 l) of water. By not filling the tub quite as full, or not turning the shower on all the way, 5 to 10 gallons (19 to 38 l) of water can be saved for each bath. Installation of shower heads which limit the flow of water will also save water. These water savings reduce the load on the sewage treatment system.
c. *Toilet Flushing:* Unless newer water saving toilets have been installed, approximately six gallons (22.8 l) of water are used for each toilet flushing. It may not be necessary to flush the toilet quite so often. Nearly everyone uses the toilet after getting up and prior to going to bed. Flushing the toilet after everyone else has used it will save 30 to 40 gallons (114 to 152

l) a day for a family of four. A sticking float valve will also waste water and can cause an early failure of the sewage treatment system.

It should be remembered that a home sewage system is not a dispose-all. Many time-saving items, such as disposable diapers and other paper products, are commonly disposed of down the sewer. Municipal sewage treatment plants are capable of handling these loads, but a single household treatment system is usually adversely affected. More frequent sludge pumping and increased risk of failure results.

Items flushed down the toilet, such as paper towels, disposable diapers, sanitary napkins, and other slowly degradable products, accumulate in the septic tank and eventually must be removed. Instead, remove them with the trash.

Although the newer septic tanks are sized to handle garbage disposals, installing a garbage disposal on an older septic tank system will require pumping your tank more often. Avoid dumping grease down the drain. It can build up in the tank and clog the inlet pipe. Keep a separate jar for grease near the stove and throw it out with the trash when it is filled.

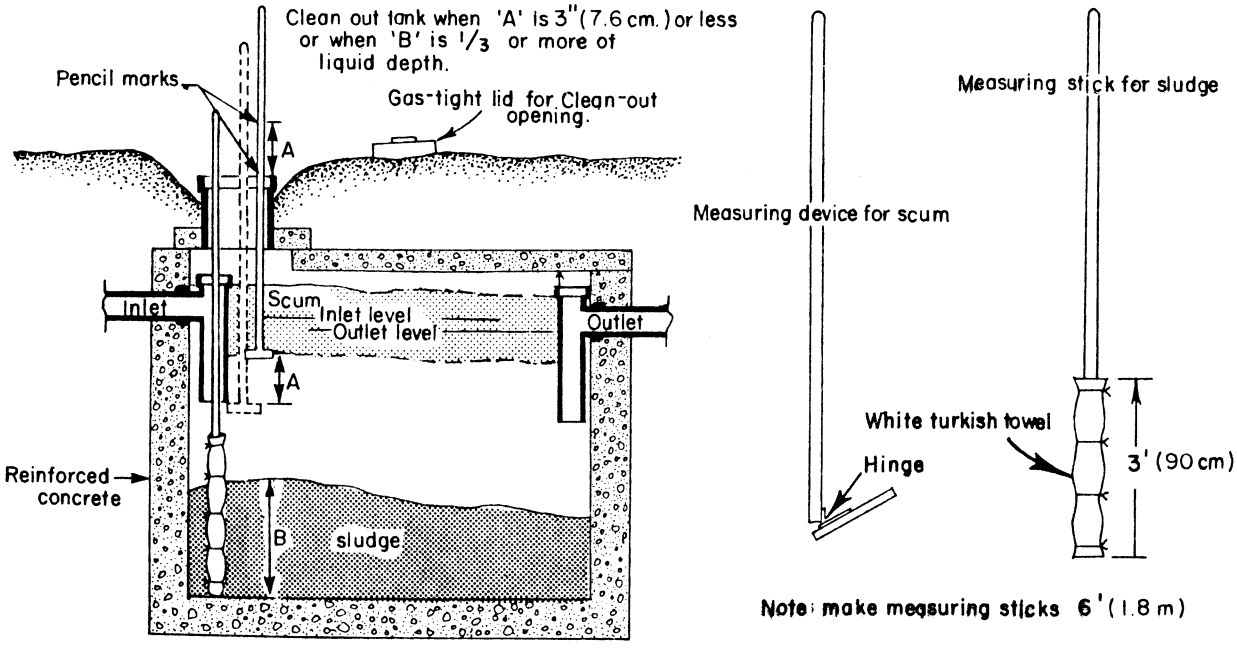
Waste brines from household water softener units have no adverse effect on the action of the septic tank; however, the brines may cause a slight shortening of the life of an absorption field installed in a structured clay soil.

If it is necessary to install drains around your house to keep your basement dry, do not discharge this water into the septic system. This will put an unnecessary load on the absorption field. Water collected by the drains is relatively pure and can be discharged to a drainage or road ditch.

Even a properly constructed system will fail once in a while despite precautions taken to prevent it. You then have little choice but to replace the soil absorption field. Don't completely abandon your old one, however. If possible, make provisions to enable you to switch back to the old field. Given enough time to drain and dry out, the old absorption field will be renewed and you can begin to alternate between the new and old field yearly. In many cases, resting and drying out an absorption field will return it to about 90 percent of its original absorption capacity.

If you follow these tips you should have a nearly trouble free system. Remember that it is very important to remove the solids from your septic tank regularly. Do not put this job off until the septic tank and sewer fill up and the toilet overflows onto the bathroom floor. If this happens, a new absorption field may have to be installed.

**Figure 1. A technique to check the thickness of the scum layer and depth of sludge in a typical septic tank to determine when to clean the tank.**



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**File Under: WASTE MANAGEMENT**
**D-1, Home Waste Systems**
Issued June 1979, 15,000