

# Q&A

*Editor's Note: This column is based on calls received over the National Small Flows Clearinghouse (NSFC) technical assistance hotline. If you have further questions concerning septic tank inspections, call (800) 624-8301 or (304) 293-4191 and ask to speak with a technical assistant.*

# Septic Tank Inspection

NSFC ENGINEERING SCIENTIST

Andrew Lake

## What should I expect when I have my septic tank inspected?

**M**anagement is an important issue for the successful performance of any onsite system. Part of that management is having your septic tank inspected and pumped on a regular basis. Pumping frequency will depend on several different factors. The most important factors include, but are not limited to, the size of the septic tank, household practices, and water usage. Because these factors are variable and unique to each situation, periodic inspections should be conducted to determine the condition of the tank and its components and whether or not the tank should be pumped. Inspections are a necessary part of the operation and maintenance of a septic tank.

The inspection should be performed by a certified inspector, usually a qualified private contractor or member of the local health department. An inspection can be arranged by contacting your local health department. The health department will either be able to complete the inspection, or refer you to the appropriate wastewater professional to do the job. Some health departments may charge a fee to complete an inspection.

The first thing to be done in an inspection is to determine the location of the septic tank. Sometimes a sketch of the system is included with the original septic system permit and can be referred to in locating the septic tank. If no sketch is available, a probe is most often used to locate your septic tank. In some instances, when a probe cannot locate the tank, a radio transmitter may be used. The transmitter is about the size of a small bottle of aspirin, and is flushed down the toilet. A receiver is then used to follow the transmitter and locate the septic tank. The transmitter can be retrieved once the tank is located and opened.

Once the tank is located, it will need to be uncovered. In some cases, the homeowner is required to locate and uncover the septic tank prior to the inspector arriving. This can reduce costs of the inspection if a fee is being charged for system inspection. It also reduces the time needed for the inspection to take place. Once the tank is uncovered and opened, inspection of the inside of the tank and its components will begin.

The primary function of the septic tank is to settle out solids from the wastewater. Solids are allowed to settle out by holding the sewage in a quiet environment within the tank. Typically, 24 to 48 hours of settling is required. A four-bedroom home might have a daily flow of 480 gallons per day (assuming 120 gallons per bedroom per day). In a 1,000-gallon tank, this provides two days for solids to settle. But as the solids build up, there is less room in the tank for the liquid and thus less settling time. The accepted maximum level of solids in the tank is 1/3 of the liquid depth. Any more than this and the tank is overdue for pumping. Having these solids removed, is a critical component of how well the septic system, as a whole, will function.

When a septic tank is inspected for solids accumulation, a certified inspector will use an instrument called a



Figure 1 A Sludge Judge® in action.

“Sludge Judge®” or similar device to determine the amount of solids in the tank. There are other products available to perform this task, and one is not recommended above another. The Sludge Judge® is a long, hollow, usually clear plastic pole marked in 1-foot increments. The bottom end of the instrument has a stopper on it that allows the wastewater and solids to enter the pole, but not leave, allowing a visual reference to what is inside the tank. The inspector inserts the pole into the tank until it touches the bottom. The instrument is then removed, and solids and liquid levels can be determined. (See Figure 1.) This allows the inspector to determine if it is time for the tank to be pumped.

A certified inspector will also check the other components within the tank. Septic tanks can come in a variety of shapes, sizes, and material. Each of these different types of tanks has different components, which need to be inspected. The most important issue with any tank, whether it is concrete,



Figure 2 A plastic septic tank.

or fiberglass, is that it must be watertight. Watertightness is important for two reasons: wastewater must be kept in the tank so that it does not contaminate the groundwater, and groundwater must be kept out of the tank so that the tank isn't over filled. The only way to make sure a tank is watertight is to have it pumped and visually inspect the inside of the tank.

Septic tanks are constructed from different materials, as mentioned earlier, usually concrete, plastic, or fiberglass. In

each of these, a quiet environment is necessary for solids settling and is accomplished by using one of two methods: baffles or tees. Septic tanks can have either of these components and regardless of which one, they must be inspected. The purpose of baffles and tees is to slow the wastewater coming into the septic tank to ensure the proper environment for solids to settle. A certified inspector will check to make sure that tees or baffles are properly connected to both the inlet and outlet pipes of the tank. Baffles are made of the same material as the tank and are usually fitted during manufacturing of the tank. In a concrete tank, the concrete baffle must be checked for corrosion and cracks. If it is determined by the inspector that a concrete baffle is corroded or missing, instead of replacing the tank, a tee will be fitted to the tank. A tee is a pipe fitting that is typically made of plastic, like the inlet and outlet pipes.

Another part of the inspection process, after having the tank pumped, is to visually inspect the inlet and outlet pipes for the presence of water entering the tank. It is important that no water is running or plumbing fixtures are being used inside the house during the inspection. If water is running into the tank, it may indicate a leak within the plumbing of the home or infiltration in the inlet pipe. Water draining back into the septic tank from the outlet pipe may indicate a drainfield problem. If that is occurring, the drainfield may be clogged and require further inspection. This topic will be discussed as a Q&A in the next issue of the Small Flows Quarterly.

Another septic tank component that needs to be inspected, if in use, is the effluent filter. These filters are located on the outlet side of the tank, in the outlet tee. The filter needs to be maintained as well, so as not to allow solids to carry over into the drainfield. Maintenance of these filters consists of pulling the filter and hosing the contents back into the septic tank.

Another item to consider is the use of “man-hole” risers. These are plastic risers that fit over the “manhole(s)” of a septic tank and are usually installed to come right to ground level. The advantages to having risers is that for future inspections, less excavation will be needed, and it is much easier to locate and access the septic tank. The inspector will check the riser lids for cracks and ensure that the lids are secure so that unauthorized access cannot be gained.

It is important to remember that proper operation and maintenance of your septic system includes routine inspections of your system. Routine inspections are typically different from a property transfer inspection. Property transfer inspections may not be as detailed and may not look at the entire system. Routine inspections are necessary to the health of your onsite system.



Figure 3 Two-compartment septic tank with risers. Note: The hole is for viewing purposes.