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Pipeline

Small Community Wastewater Issues Explained to the Public

Buying or Selling a Home with an Onsite Wastewater System

The simple words "with septic" can spell trouble for someone trying to sell their home and be intimidating for a prospective buyer. If you are selling a house that uses a septic system for its wastewater treatment, or you are thinking of buying a house that uses such a system, there are things both parties need to know to make the transaction go smoothly. The septic system, if properly designed and installed, and adequately maintained, can be extremely efficient and the presence of a septic system on the property should not dissuade you from purchasing the home. On the other hand, if you have always been on a municipal sewer service, there are things you need to know about this type of wastewater treatment system.

Conventional septic systems are a simple and effective way to treat household wastewater. They contain no moving parts and are easy to operate and maintain. A properly functioning septic system performs the important function of getting rid of waste while preserving your family's health and safety. And preventing groundwater pollution from failing septic systems should be a priority for every community and homeowner.

However, unlike a municipal wastewater system, the entire septic system is located on the home site. This means the homeowner is totally responsible for the operation and upkeep of the system. If the system fails, the owner pays for the repair or replacement, which can be expensive. Because of the potential expense of replacement, the prospective buyer will want to have the condition of the septic system thoroughly evaluated and factor those results into what he or she offers for the property. From the seller's perspective, providing accurate information through an inspection can help protect the seller from liability.

Asking the Right Questions, Giving the Right Answers

"In addition to an inspection, you need to ask lots of questions before committing to buying a house with a septic system," advises Zane Satterfield, engineering scientist with the National Environmental Services Center. "Get as much information about the system up front as you can. Has there been a history of trouble? How often has it been pumped? When was the last time it was pumped? How old is the system and when was it permitted? These are the basic questions buyers should ask."

Prospective buyers can also be on the lookout for potential problems with the system as they tour the inside of the house. Slow draining sinks, toilets that gurgle when

flushed, and off odors are all possible signs of problems with the septic system.

As the seller, the homeowner should make available all pertinent information about the existing system. "Sellers should always disclose what they know about their system to buyers through a property condition disclosure form," says Paul Ragland, a real estate agent in Morgantown, West Virginia. "While most states have a standard disclosure form, handwritten forms are fine and diagrams are encouraged. Buyers and sellers should sign and date this form before closing." He explains that if this disclosure brings up any unanswered questions, it is good for both parties to deal with them before the closing.

All states have laws regarding disclosure. They vary from state to state, but, in general, any fact or defect that could affect the buyer's decision to purchase or influence what price they would offer for the property must be disclosed. A seller can be held liable, in some cases for double or triple damages, if it is determined that he or she neglected to disclose a known defect to a buyer. Sellers should put themselves in the position of the buyer and ask themselves what they would want to know about the system if they were buying it. When in doubt, it's best to disclose.

The age of the system, the pumping record, inspection history, a sketch of the tank and drainfield location on the property, and any operational problems encountered during its lifetime are some of the specific elements that should be included. A disclosure form, however, does not eliminate the need for an inspection.

Inspections Reveal the Truth

Whether you are buying or selling, an inspection of the home's septic system is highly recommended. Some states require a septic system inspection at the time of property transfer. However, most states do not. Also, most states focus their inspection efforts during the initial installation and do not require regular inspections for conventional systems. As a result, it is possible that a system may not have been inspected since it was first installed. In some cases, even though the state, town, or county may not require an inspection, the bank providing the homeowner loan may require one.

Your real estate agent should be familiar with local codes and bank requirements and be able to locate a qualified septic system inspector. State and local codes may vary with regard to who is authorized to conduct inspections—sanitarians, engineers, or private inspectors. The local health department should be able to provide this information if no agent is involved in the sale. The system inspection should be conducted as soon as the property is placed on the market so repairs can be made if necessary.

An official system evaluation or inspection helps to protect the value of the buyer's investment by ensuring that the system can safely accommodate their wastewater.

Buyers planning any construction projects such as a room addition or extensive landscaping should be aware that heavy machinery and certain construction materials such as paint and solvents can inadvertently damage a septic system or alter its performance. They should also be aware that if an addition is to be made to the house, an addition will likely also have to be made to the size of the drainfield. This is because health departments size the drainfield based partly on the house occupancy and the number of bedrooms is commonly used as an estimator of occupancy. Prospective buyers should also be aware that most regulations require that a reserve area be set aside in case a drainfield needs to be replaced. This reserve area cannot be built on.

The buyer can conduct his or

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her own informal inspection by carefully walking around the yard near or above the drainfield area. Satterfield explains that any smelly, soggy places likely indicate a failing or poorly functioning drainfield. However, he warns that even though the yard may be nice and dry, you can't assume that things are fine. If the house has been unoccupied for an extended period of time, the system was not being used and any mushy places will have d ried up.

Ragland states that one thing all sellers with septic systems need to understand is that they should not vacate their home before having the system inspected. The inspection will not be valid if the house has not been occupied and local health agencies may not allow an inspection to be conducted unless the home has been occupied for 30 consecutive days. If sellers leave the home before having this done, it may result in having a substantial amount of the sellers' funds being escrowed from the closing proceeds when the property sells. (When the sale is closed, the new buyer has a responsibility to notify the county health department after 30 days of occupancy, so that the test can be performed, and all escrowed money can be disbursed.) Some local codes may require specific inspection procedures for homes that have been vacant for some time.

What is a septic system?

There are two main parts to a conventional septic system: the septic tank and the drainfield.

Household wastewater first flows into the underground, watertight septic tank where it is retained for at least a day. In the tank heavier solids in the wastewater settle to the bottom forming a layer of sludge, and grease and lighter solids and oils float to the top forming a layer of scum. The sludge and scum remain in the tank where naturally occurring bacteria work to break them down. Typically, the sludge accumulates faster than it is broken down, however, and this is why septic tanks must be routinely pumped out.

The separated wastewater in the middle layer of the tank flows by gravity into the drainfield for further treatment as more wastewater enters the septic tank from the house. If too much water is flushed into the septic tank in a short period of time, the wastewater flows out of the tank before it has had time to separate. This can happen on days when water use is unusually high (laundry day, for example), or more often if the septic tank is too small for the needs of the household.

When wastewater leaves a septic tank too soon, solids can be carried with it to the drainfield. Drainfields provide additional treatment for the wastewater by allowing it to trickle from a series of perforated pipes, through a layer of gravel, and down through the soil. The soil and the biomat that form act as a natural filter, supporting the growth of organisms that help treat the waste. Solids damage the drainfield by clogging the small pores between the soil particles. Excessive water usage can result in more water going to the drainfield than the soil can absorb causing wastewater to either come to the surface or to back up into the house.

Annual inspections of your septic system are recommended to ensure that it is working properly and to determine when the septic tank should be pumped. Systems that have moving parts may require more frequent inspections. (These types of system will be discussed more below.) By having your system inspected and pumped regularly, you can prevent the high cost of septic system failure.

What to Expect with the Inspection

A septic system inspection often includes these steps:

1. locating the system,

2. uncovering the manhole and inspection ports,
3. flushing the toilets,
4. measuring the scum and sludge layers, and
5. checking the tank and drainfield.

Locating the system—Even a professional may have trouble locating your system if the access to your tank is buried. Metal tanks and concrete tanks, because the latter contain rebar, can be located with a metal detector. Electronic devices that emit a signal can also be used. They are flushed down a toilet and retained in and retrieved from the tank. Another way to start looking is to go into the basement and determine the direction the sewer pipe exits the house. Back outside, the inspector will probe the soil to locate the buried piping and tank. Once the system is found, be sure to keep a map of it on hand to save time on future service visits.

Uncovering the manhole and inspection ports—This may entail some digging in your yard. If they are buried, it will make future inspections easier if elevated access covers or risers are installed to access the ports.

Flushing the toilets—This determines if the plumbing going to the system is working correctly. Sometimes a dye test will be performed where dye is flushed to see if it shows up in places where it shouldn't.

Measuring the Scum and Sludge Layers—The contractor measures the scum and sludge layers using a long stick or monitoring device. If the scum layer is within three inches of the inlet baffle or if the solids are more than halfway up from the bottom, the tank should be pumped.

Checking the Tank and the Drainfield—The contractor will check the condition of the baffles or tees,

Additional Questions to Ask the Seller

If you are thinking about buying a home with an onsite wastewater system, here are some questions you should ask:

- How many people have been living in the house? If the seller's household is bigger than what the system was designed for it could lead to an overloaded system. On the other hand, an undersized system may function perfectly well if the house was occupied by a single person, but have problems if the buyer has a larger family. A comparison of the actual water usage records of the buyer's and seller's households can be useful if both are on metered water systems. In cases where there is extensive outdoor water usage, winter water bills are more indicative of the volume of water that goes through the septic system.
- Is the system a conventional system or an alternative system? If it is an alternative system, what are the components? How is it designed to work?
- If the home has its own well, have there been any problems with the quality of the well water? The presence of bacteria or high level of nitrates in well water could signal a failed septic system.
- Have any bedrooms been added to the house? Was the drainfield enlarged at that time?
- Are there any other water disposal systems on the property? Separate disposal of water from a clothes washer to a ditch or stream is illegal. Is the system large enough to accommodate the additional water if the wash water is rerouted to the septic system? Water from roof drains and basement sump pumps, however, should not be routed through the septic system and should be disposed of appropriately away from the

the walls of the tank for cracks, and the drainfield for any signs of failure. If your system includes a distribution box, drop box, or pump, the contractor will check these too.

Once the drainfield is located, a soil probe is usually used to determine the length and the width of the drainfield trenches. This can reveal whether the size of the drainfield is adequate. A soil auger is used to access the trench bottom so the inspector can determine the amount of biomat growth. Periodic inspections will help the homeowner keep track of how well the drainfield is operating.

Alternative Septic Systems

On some home sites, a conventional, gravity-flow septic system cannot be used. This may be due to poor soil conditions, shallow groundwater depth, or a small lot size. In these cases, other types of systems—often referred to as alternative septic systems—are required.

Alternative systems are intended to overcome site limitations by providing additional treatment of the wastewater prior to dispersal or by optimizing the final dispersal, and, in some cases, both. Examples of enhanced treatment components include aerobic treatment units (ATUs), sand filters, and peat filters. Examples of enhanced dispersal systems include sand mounds, low-pressure pipe systems, and drip dispersal lines.

Some alternative system components (e.g., ATUs) have mechanical components such as motors to aerate the wastewater. Also, most alternative systems use pumps to move the liquid through the system,

help pressurize the dispersal system to ensure equal distribution, or to provide intermittent dosing of the drainfield. Because alternative systems are more complicated, regular monitoring and maintenance is even more important than for conventional systems and many states require the homeowner to have a maintenance contract in place.

The pumps associated with many alternative systems may work on a timer or turn on when the water level reaches a certain height in a pump chamber. Because there is limited space for storage of wastewater in the pump chamber, it is important to be able to react quickly if the pump fails to function. Most systems with pumps have a high-water alarm to notify the occupant of problems and the homeowner should have an arrangement in place with a contractor to promptly respond to such situations.

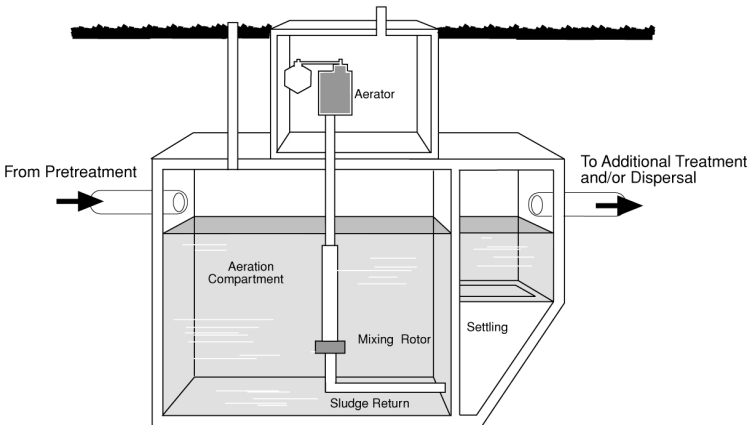
Alternative systems are proven, reliable treatment options. However, a prospective buyer of a home with an alternative septic system needs to be aware that they have higher operating and maintenance costs than conventional systems and the replacement costs, should one fail, are much more than those for conventional systems. This makes it very important for both the buyer and the seller to determine the current condition of the system through both maintenance records and thorough inspection.

Proper Care is the Key

Whether it is a conventional or an alternative system, proper operation and maintenance of your septic system can have a significant impact on how well it works and how long it lasts. Septic system maintenance can be compared to automobile maintenance because only a little effort on a regular basis can save money and significantly prolong the life of the system.

1. Maintain a routine pumping schedule. How often your tank needs to be pumped depends on the tank size, the number of people living in your home, and the habits of your particular household. The use of garbage disposals will increase the pumping frequency.

AEROBIC TREATMENT UNIT



Questions the Prospective Buyers Should Ask Themselves

If you are planning to purchase a home with an onsite wastewater system, here are some questions you should ask yourself:

- Am I willing to provide the on-going maintenance necessary to keep a septic system functioning properly? Am I likely to remember to have the tank pumped as needed? Am I willing to pay for a service provider to provide regular monitoring and maintenance for an alternative system?
- Does my family have reasonable water usage habits that will work with a septic system? Will my teenagers be willing to no longer shower by the hour?
- Will I need to upgrade the system to match my family's expected water usage?

2. Flush only toilet tissue and wastewater. No paper towels, sanitary supplies, cigarette butts, kitty litter, or dental floss.

3. Protect the drainfield. Keep a short grass cover over the area and do not drive over it. Divert roof drains away from it. Do not plant trees over or near the drainfield.

4. Use water wisely. Avoid doing laundry all on one day, for instance, and immediately repair leaking faucets and toilets. Replace any older toilets that use more water.

5. Keep detailed records of repairs, pumping inspections, and other maintenance activities.

Armed with some basic knowledge about these systems, septic systems do not have to be a source of fear for a new homeowner or a roadblock to a quick sale for the current resident.

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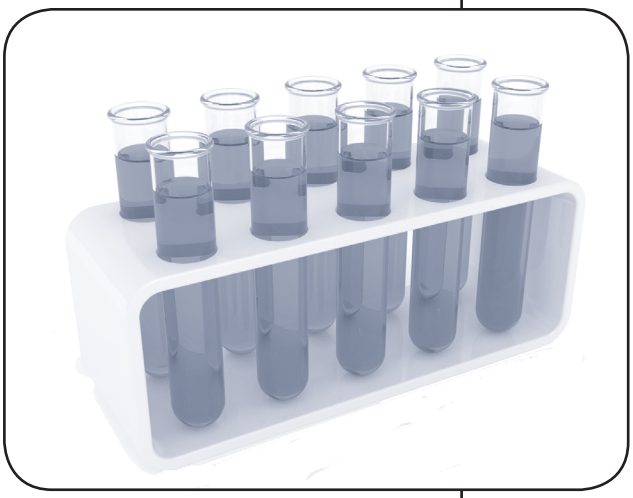
Private Wells Should Be Tested, Too



Many homes that have onsite wastewater systems get their drinking water from a private well. Well owners are responsible for maintaining their wells and should have them tested regularly.

"Being a good water well steward means having regular—at least yearly—tests for coliform bacteria," says Cliff Treyens, director of public awareness for the National Ground Water Association. "Annual testing can be valuable because it establishes a record of water quality. This record can be helpful in solving any future problems and in obtaining compensation if someone damages your water supply."

Having a record of well tests can also be helpful when it comes time to sell your home.

Before buying a home with a well, contact the local health department. They will either do a free or inexpensive test for the presence of bacteria, or refer you to a qualified laboratory. To test for other substances, such as metals or other chemicals, a more extensive and costly sampling and testing program would have to be conducted, typically by an independent laboratory.

Learn more about wells by visiting the National Environmental Services Center (NESC) webpage devoted to wells at www.nesc.wvu.edu/subpages/wells.cfm.