
Wells, Pumps And Septic Systems

STUDY SESSION 1

1. This Study Session deals with the source of the water delivered to the house.
2. At the end of this Study Session you should be able to —
 - list five different sources of water for a house
 - describe, in one sentence each, two types of tests that can be done on a private system to give some indication of available water quantity
 - list and describe, in one sentence each, the components in a private water delivery system
 - list eleven common pump problems
 - describe, in a few words the difference between a jet pump and a submersible pump
 - describe, in no more than three sentences, the operation of the pressure tank, and name two common types of pressure tanks
 - list four problems found with pressure tanks
3. The Quick Quiz is included at the end of this Session.



Problems

The serious problems with wells are —

- contaminated water
- not enough water

Inadequate water supply is a tremendous inconvenience but not a health hazard. This may be the result of a water table drop. This can occur naturally as rain and snow levels are light in any given year. It could also happen if water is drawn to other new wells, for example.

Poor Surface Grading

Contaminated water is a health hazard that home inspectors can't usually identify. There are several causes for this problem. Wells are subject to contamination if the grading around the well slopes down toward them. This is particularly serious in agricultural areas where there may be fertilizers, pesticides and other chemicals at the surface level.

Well Casing Too Short Or Not Sealed

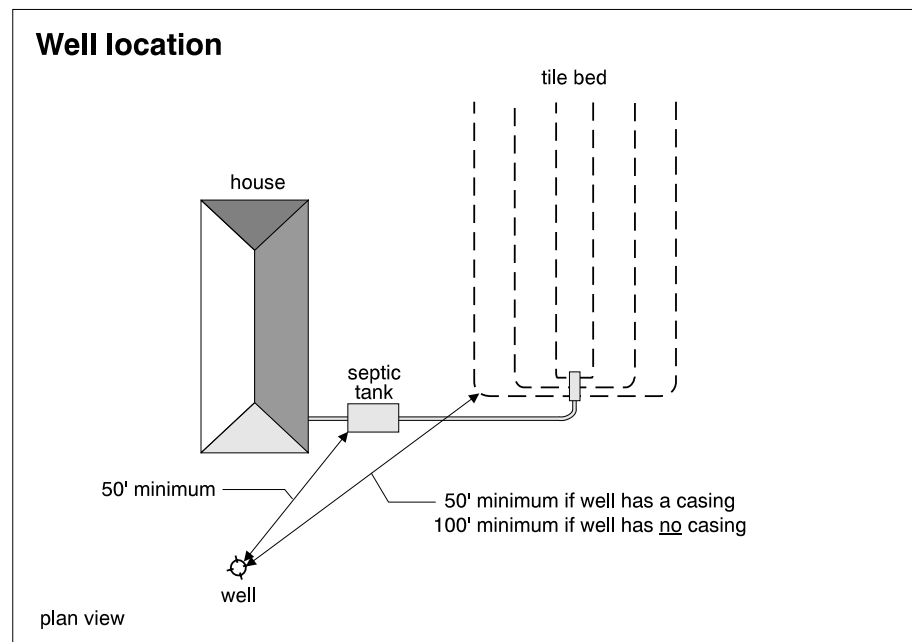
A related problem is a well casing that is not tall enough to keep surface water out. Similarly, if the top sections of a well casing are not watertight, the well is subject to contamination. The casing may have no cap or the cap may be loose or defective.

Groundwater Contamination

Groundwater may be contaminated by abandoned wells or activities some distance from the property.

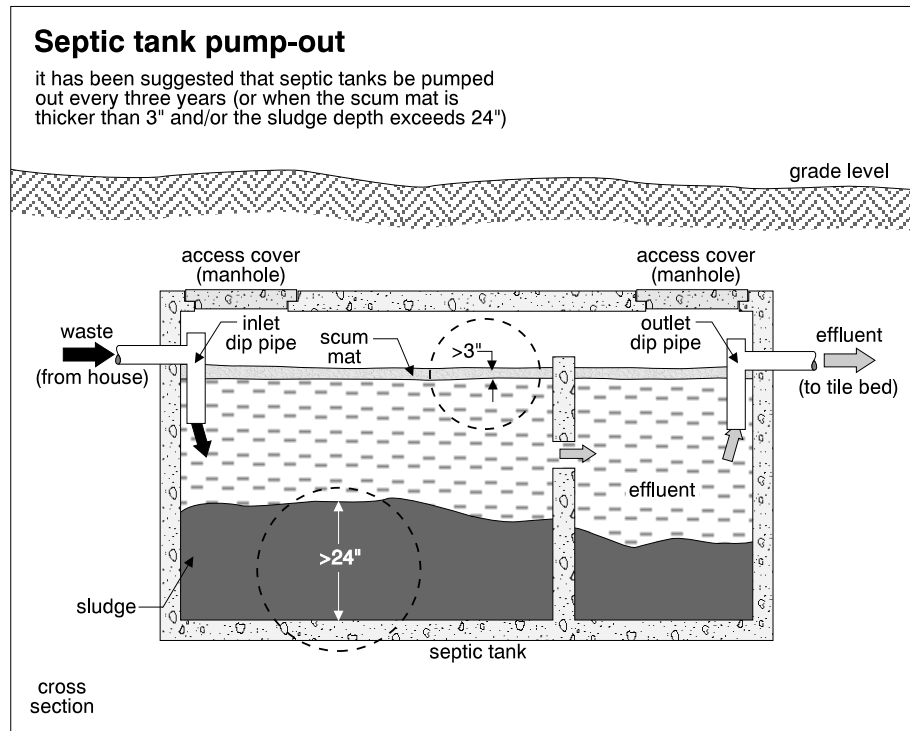
Too Close To A Septic Or Tile Bed

Wells should be far enough away from septic systems that contamination cannot occur. We talked about 50 feet from septic tanks and 50 to 100 feet from tile beds, depending on the jurisdiction.



Septic Tank Pump-Outs

Whenever a septic tank lid is opened, it probably makes sense to pump it out and inspect the inside of the tank. Some people base the need for a pump-out on a **sludge** depth of 2 feet or a **scum mat** thickness greater than 3 inches. It's difficult for the average person to accurately measure these. A common recommendation is to pump out the tank every three years. Tanks should be pumped out in warm weather where possible to avoid freezing the first new effluent that enters the empty tank. We don't recommend that you open lids, which are often under several inches of soil and difficult to find.



Septic Tank Problems

Tank problems include —

1. Broken, leaking or clogged inlet or outlet pipes
2. Rusted baffles
3. Rusted or leaking tanks
4. Collapsed tanks (in use or abandoned)
5. Tank lids that are not watertight or are not structurally sound
6. Excessive sludge depth or scum mat thickness
7. Flooded tanks

Breakage Of Sewer Line

Where building or backfill settlement or heaving occurs, the line passing through the house wall to the septic tank can be cracked or broken.

Where the pipe is not broken or cracked, a reverse slope may develop, preventing waste from flowing to the tank. Waste accumulating in the pipe may clog the pipe.



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QUICK QUIZ 2

INSTRUCTIONS

- You should finish Study Session 2 before doing this Quiz.
- Write your answers in the spaces provided.
- If you have trouble with the Quiz, reread the Study Session and try the Quiz again.

1. Define gray water and black water.

2. Where should a septic tank be located relative to a building?

3. List the following soil types in order of suitability for a septic system tile bed, with the best soil type first and the worst type last.

- a. Clay
- b. Sandy
- c. Silty

