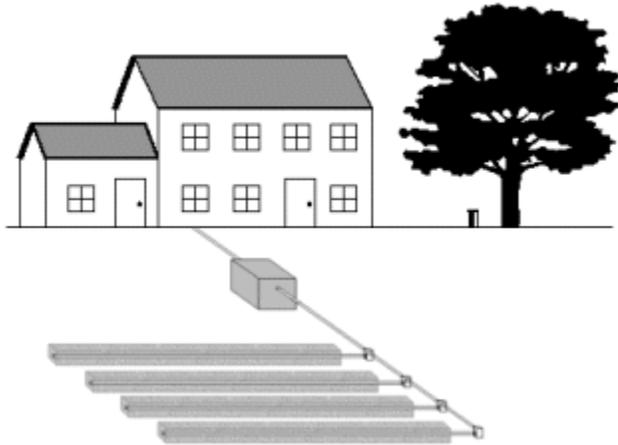


# Homeowner's Guide for The Proper Care and Maintenance of Private Water Supply and Private Sewage Disposal Systems

## A Homeowner's Guide to Well and Septic Systems

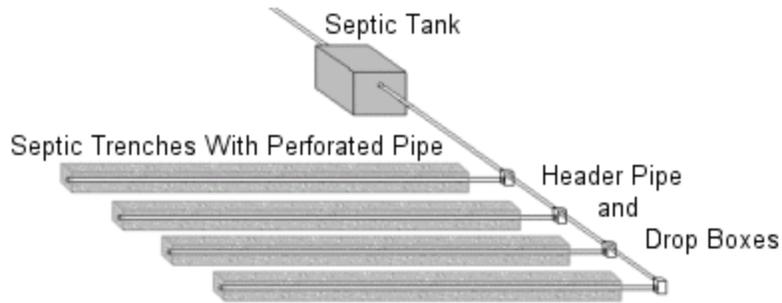


Many families in DuPage County live in homes serviced by private sewage disposal systems, more commonly referred to as septic systems, and by private water wells. This pamphlet seeks to educate property owners about these systems.

### The Septic System

Whenever you turn on a faucet or flush a toilet, you are putting water and other material down a drain. In cities and towns these drains are connected to public sewerage systems that transport the waste to a centralized wastewater treatment facility. In rural and many suburban areas, public sewers are not available, and homes built in those areas typically are served by septic systems.

A typical septic system consists of a large concrete tank followed by a series of gravel trenches. Inside these trenches perforated pipe is used to distribute household wastewater into the ground. There are a number of variations of the septic system design, but all work basically the same way. The figure below illustrates these basic components and configuration of a septic system.



## Septic Tanks

The septic tank is typically a large (500 - 1500 gallon) concrete underground tank located between the house and the septic field. The purpose of the tank is to separate the waste into its solid and liquid components. The bacteria living inside the tank eat the solids and reduce their volumes. Solids are prevented from exiting the tank by devices called baffles, which are located near both the inlet and outlet of the septic tank.

## Septic Fields

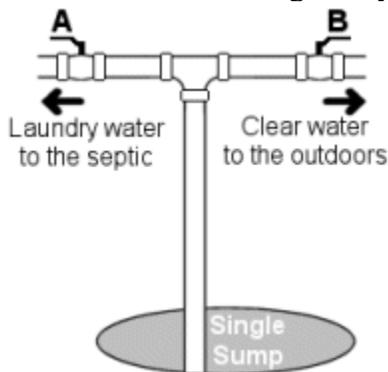
Wastewater from the septic tank flows into a buried system of trenches called the septic field. Septic trenches are typically two to three feet deep and contain a foot of gravel with a perforated pipe running through the middle. Wastewater from the septic tank is distributed to the septic trench through these pipes. Once in the septic trenches, the wastewater is absorbed by the surrounding soil.

## Septic System Maintenance

Septic systems require maintenance. This maintenance is very important and if neglected could cost thousands of dollars in repairs. These are some of the things you should do:

1. **Have your septic tank pumped.** We recommend pumping the tank every two or three years. If the solids in your septic tank build up, they will eventually find their way into your septic field, clogging it with sludge.
2. **Be careful about what you put down your drains.** Harsh chemicals can kill the bacteria you need inside your septic tank. Don't use these chemicals in excess. Non-biodegradable materials (i.e., sanitary napkins, facial tissues, disposable diapers, cigarette butts, etc.) will not break down in the septic tank. Do not put them down the drain.
3. **Be careful about how much water you put down your drains.** Your septic system is designed for a certain number of gallons per day based on the absorptive capacity of the soil in your septic field and the number of bedrooms in the house. If your water use exceeds what your septic system is designed for, the septic system will fail. The best way to prevent this is to limit your water use. Below are some tips to help you do this:
  1. Check every faucet and toilet for leaks and repair if found. Install low flush toilets and water conservation aerators for faucets and showers.

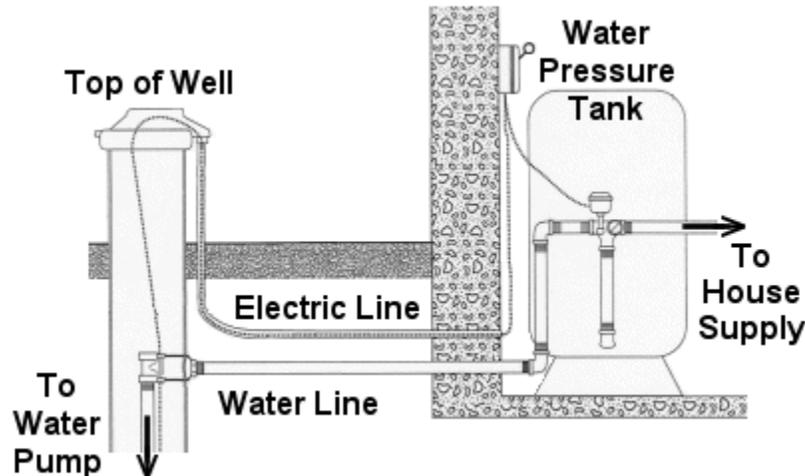
2. Do not leave water running when not necessary. Shorten the time for taking showers.
3. Use dish and clothes washing machines with full loads only. If you need to do several loads of laundry per week, do one or two loads per day, not ten loads on any given day.
4. Reduce the use of the garbage disposal. In general, garbage disposals are a bad idea when you have a septic system as they can cause you to quickly fill your septic tank. Scrape your dinner plates off into the garbage.
5. Remove clear water sources from draining into your septic system. Water softeners, dehumidifiers, central air conditioners all have discharge lines that are often connected to the septic system. The water coming from these sources is classified as clear water and can be discharged to the surface of the ground or to a road ditch along with your footing sump water.



4. **Diversion valves.** If present, these valves allow the use of a single sump to handle both footing water and laundry wastewater. Because laundry water is household wastewater, the proper use of these valves is necessary to assure it goes into the septic system. The best solution is to hire a licensed plumber to permanently connect the laundry water to the pipes that go into the septic, while still allowing the footing water to drain to the outdoors. Until that can be accomplished, use the following procedure to direct wastewater correctly:
  1. When not doing laundry, keep valve "A" in a closed position and valve "B" in an open position. This will direct the footing drain water to its proper point of disposal and will keep your septic system from receiving excess water.
  2. When doing laundry, close valve "B" and open valve "A". This will direct laundry water to the septic system.
  3. When finished doing laundry, open valve "B" and close valve "A".
5. **Leave your septic system alone.** Septic fields work best when they are in well-drained, open, grassy areas that are relatively undisturbed. Disturbing the septic field area can lead to problems. Here is some good advice:
  1. Do not drive over your septic field.
  2. Do not put additional dirt on your septic field area.
  3. Do not plant trees in or near your septic field.
  4. Do not build over your septic field. This includes decks, patios, swimming pools and buried sprinkler systems.
  5. Do not allow run-off water to drain over your septic field area.

## Water Wells

If you live outside a municipality or in an area not served by public water, your water supply is almost certainly provided by a private well. Water wells tap underground sources of drinkable water called aquifers. In DuPage County these are typically water-bearing limestone formations 100 to 200 feet below the surface.



## Water Well Problems

The safety of any water supply is largely dependent on the construction and maintenance of the water system. Below is a list of common well system problems that can spell trouble if their symptoms are ignored:

1. **Well pump turns on and off continuously when used.** A waterlogged pressure tank causes this condition. Draining and re-pressurizing the pressure tank may correct the problem. If you do not know how to do this, you may need to contact a well contractor.
2. **Poor water pressure.** There are a number of potential causes for this problem. One of the most common is improper pump setting on the pressure switch. Most pressure switches are set to turn the well pump on at 30 psi. (pounds per square inch) and off at 50 psi. Contact a well contractor to adjust the pressure switch accordingly.
3. **The well pump turns on when water is in use.** This problem almost always means that there is a leak somewhere in the water system. Check the inside plumbing for leaks. If none are found, check outside for wet spots in the yard between the well and the house. Consult with a well contractor if you cannot determine the source of the leak.
4. **Physical defects.** Homeowners should periodically inspect their water systems for defects that could affect the safety of their water. If the well casing extends above the ground, make sure the cap fits tightly onto the casing and is in good condition. If the cap is loose, tighten it. If it is damaged, replace it. Check the electrical wiring to the well. Ideally, the wires should be enclosed in metal conduit between the well and ground, and between the basement wall and the pressure switch. If the electrical system appears to be damaged, call a well contractor to repair it immediately.

5. **Poor water quality.** Water from private systems may contain bacteria, minerals or other impurities that affect its quality. Any private water well may be tested, in our laboratory, for a fee. Samples are routinely tested for coliform bacteria and nitrate levels. Contact the Health Department for information about having your water tested. Installing a water-conditioning unit can reduce water hardness and iron content. Other water quality problems may sometimes be solved through disinfection of the well water distribution system.

## Procedure for Disinfection of Well Water Distribution Systems

Disinfection may be accomplished by the use of ordinary household bleach containing chlorine. For the average home well, one to two gallons of bleach will be adequate. Be sure to use regular bleach, not "lemon scented" or other modified bleach products. It is important to remember that even after the well has been disinfected, the water supply is not considered safe until a satisfactory laboratory report has been received.

Disinfection procedure:

1. Check the well seal, to be certain of a tight-fitting construction. Replace any worn or damaged parts. A well must be in good condition to prevent contamination.
2. Mix the gallon or two of bleach in a bucket with three or four gallons of water. Water drawn from the contaminated well is satisfactory. Pour the solution directly into the well. Run a garden hose into the well and recirculate the water until you smell the bleach in the water coming out of the hose. Check again to see that the well seal is in good order before closing the well.
3. Turn on each water faucet successively throughout the entire distribution system and let it run until you smell bleach at each tap.
4. Turn off the taps and allow the solution to remain in the water lines for at least two hours. Then run each tap for ten seconds and close again and allow to stand overnight. The water should not be used except for flushing toilets.
5. On the following morning:
  1. Connect a garden hose to an outside water faucet and run the water into a road ditch until the disinfectant odor disappears. Then run each tap inside the house to rid the system of any lingering disinfectant.
  2. Run each tap until the disinfectant odor disappears.
6. After two days and if the odor of bleach is not detected, re-test your water. It is also recommended that you have the water tested again about two weeks after chlorinating the system to assure that the contamination problem is eliminated. Boil all drinking water for 5 minutes or use bottled water until a satisfactory lab report has been received. Water may also be made safe for drinking by putting 5 drops of unscented bleach into each gallon of water. Let the water stand for 30 minutes before drinking. This method should be used only with water that is clean in appearance and free of odor.

Disinfecting your well in the manner described above should be performed anytime your well is serviced.

## **Where to Get Help**

The Environmental Health Services at the DuPage County Health Department employs Environmental Health Specialists that are trained to assist the public with questions and problems about water wells and private sewage disposal systems. Contact your area EH Specialist for further information.