



## Household Septic Systems\*

\*from "A Homeowner's Guide to Septic Systems", produced by the US EPA

### Your septic system is YOUR responsibility

Did you know that, as a homeowner, you are responsible for maintaining your septic system? Did you know that maintaining your septic system protects your investment in your home? Did you know that you should periodically inspect your system?

If properly designed, constructed, and maintained, your septic system can provide long-term, effective treatment of household wastewater. If your septic system isn't maintained, you might need to replace it, costing you thousands of dollars. A malfunctioning septic system can contaminate groundwater, and your drinking water supply. Also, if you sell your home, your septic system must be in good working order.

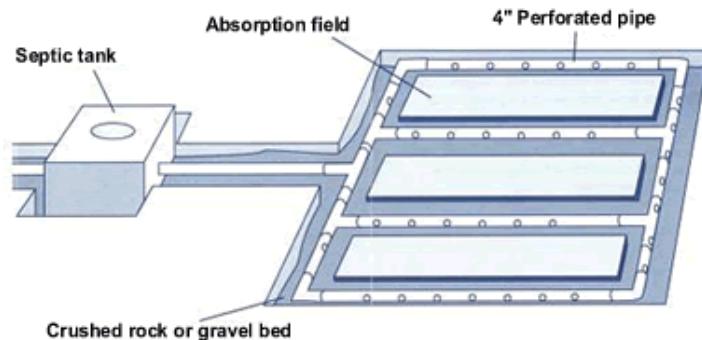
The information in this pamphlet will help you care for your septic system. It will help you understand how your system works and what steps you can take as a homeowner to ensure your system will work properly. To help you learn more, consult the resources listed at the end of this pamphlet. A helpful checklist for general information about your septic system is included at the end of the pamphlet to help you.

### Top Four Things You Can do to Protect Your Septic System

1. Inspect your system every 3 years and pump your septic tank as necessary, generally every 3 to 5 years for a normal lateral system.
2. Use water efficiently.
3. DON'T dispose of household hazardous wastes in sinks and toilets.
4. If you have a lateral system, care for your drainfield.

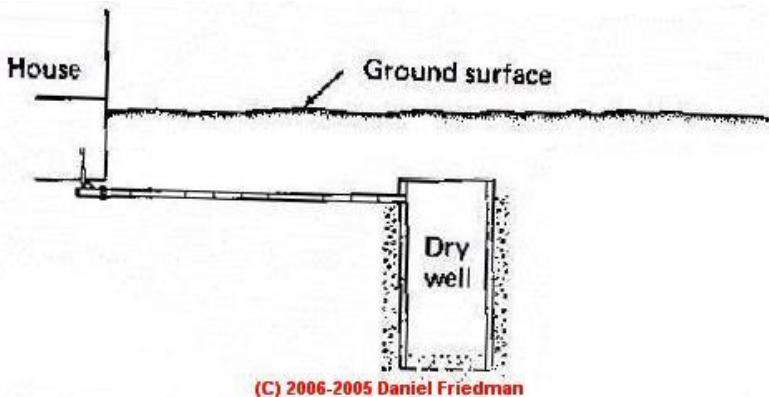
### How Does a Septic System Work?

A typical lateral septic system has four main components: a pipe from the home, a septic tank, a drainfield, and the soil. Microbes in the soil digest or remove most contaminants from wastewater before it eventually reaches the groundwater. These septic systems are generally approved for use by the Metro Health Department, and, as long as the system is designed to meet specific criteria set by the Metro Health Department, is a preferred method of household wastewater disposal.



Layout of a Typical Septic System using Lateral

However, in many parts of Jefferson County, including large areas within the Wellhead Protection Area, the types of soils contain a higher percentage of clay, which impedes the flow of liquids from the lateral field into the soils where they may be purified by more natural methods. In these areas, and in neighborhoods of older homes, the septic systems consist of a pipe from the home, a large diameter pit, or "dry well", and either the soil, bedrock, or the actual aquifer that partially supplies the Metro Area with drinking water. If your septic system has never failed in twenty or more years, and has never been pumped out, it is usually because the home uses a "dry well" or "pit" system that extends from the ground surface down into the underlying sands and gravels that are a part of the aquifer.



Layout of a Typical "Dry Well" or "Pit" Septic System

A common form of a "dry well" or "pit" septic system consists of a well or pit that is either drilled or dug into the ground to a depth where the bottom of the "dry well" reaches the top of the sand and gravel that makes up the aquifer. The sidewalls are often constructed of concrete piping, or, if more shallow and hand dug, are lined with bricks or rocks without mortar. Solids collect in the bottom of the pit, and liquids flow through the sides, or out of bottom of the pit into the soils or sands.

Any contaminants introduced into the septic system naturally flow with the water contained within the pit into the soils or sands. The pits often become a direct conduit of contaminant flow into an aquifer. While microbial activity can break down the solids, as in a lateral system, the flow of water into and out of the "dry well" or "pit" system lessens the amount of time available for microbial action to even partially treat the wastewater. Also, in many cases, the untreated water is "injected" directly into the aquifer that acts as a partial source of supply for the Metro Area's drinking water.



Pump-out Point for Septic system

Nearly all newer septic systems (for the past 25 years or so) have a pump-out point. This point is located above either the septic tank or the "pit", and allows a contractor to remove solids from the tank to increase the flow from the tank through the lateral system and into the soils.

Where "pit" or "dry well" systems are used, the pump out points may be used to remove solids, and open up the bottom of the pit to increase the flow of liquids into the sandy soils or into the aquifer. Since these systems are deeper than the lateral systems, they contain a great deal more storage space for solids, extending the life of the system. Many of these systems have never been pumped out.

### Why should I maintain my septic system?

When septic systems are properly designed, constructed, and maintained, they effectively reduce or can even eliminate most human health or environmental threats posed by pollutants in household water. However, they require regular maintenance or they can fail. Septic systems need to be properly cared for and monitored to ensure they work properly throughout their service lives.

**A key reason to maintain your septic system is to save money!** Failing septic systems are expensive to repair and replace, and poor maintenance is often the culprit. Having your septic system inspected regularly (at least every three years) is a bargain when you consider the cost of replacing the entire system—especially to current standards. Your system will need pumping (especially if it is a lateral system), generally every three to five years, depending on how many people live in the house, the use of garbage disposals or other appliances, and the size of the system. An unusable septic system, or one in disrepair, will lower your property value and could pose a legal liability.

### Finding Your System

Your septic tank, drainfield, and reserve drainfield should be clearly designated on the "as-built" drawing for your home, which was submitted to the Metro Health Department for approval of the septic system. (An "as-built" drawing is a line drawing that shows the buildings on your property and is also filed with your local land records.) These are available for your review.

You might also see lids or manhole covers for your septic tank. An inspector/plumber can help you locate your septic system if your septic tank is not easily found



A Decorative Septic System Cover

Some makers of septic tank additives claim that their products break down the sludge in septic tanks so the tanks never need to be pumped. Not everyone agrees on the effectiveness of additives. In fact septic tanks already contain the microbes they need for effective treatment. Periodic pumping is a good way to ensure that septic systems work properly and provide many years of service. Regardless, every septic system requires periodic pumping. In the service report, the pumper should note any repairs completed and whether the tank is in good condition. If the pumper recommends additional repairs he can't perform, hire a Certified Installer to make the repairs as soon as possible.

### Watch Your Drains!

What goes down the drain can have a major impact on how well your septic system works. What shouldn't you flush down your toilet? Dental Floss, feminine hygiene products, condoms, diapers, cotton swabs, cigarette butts, coffee grounds, cat litter, paper towels, and other kitchen and bathroom items that can clog or potentially physically damage the septic system if they become trapped. (Clumping cat litter should NEVER be flushed down the drain, even if your home is on a sewer system.)

You should also never flush household chemicals, gasoline, oil, pesticides, antifreeze, paint, or paint thinners, which can stress or destroy the biological treatment taking place in the system. Also, to reduce scum layers, reduce the amounts of fats, oils, and grease you put into the tank.

Doing all of your laundry in one day may seem like a time-saver, but it can be harmful to your septic system. Doing load after load does not allow your septic tank time to adequately treat wastes. You could be flooding

your drainfield without allowing sufficient time for the system to recover. Try to spread water usage evenly throughout the week.

## Care for Your Drainfield

Your drainfield is an important part of your septic system. You can maintain it by:

- Plant only grass over and near your septic system. Roots from nearby trees or shrubs might clog and damage the drainfield;
- Do not spray pesticides, fertilizers, or other materials over your drainfield, as the microbes in the drain system may be stressed or killed, reducing the effectiveness of the treatment process;
- Don't drive or park vehicles on any part of your septic system. Doing so can compact the soil in your drainfield or damage the pipes, tank, or other septic system components; and
- Keep roof drains, basement sump pump drains, and other rainwater or surface water drainage systems away from the drainfield. Flooding the drainfield with excessive water slows down or stops treatment processes and can cause plumbing fixtures to back up.

## What Causes a Septic System to Fail?

**Household Toxics** - Does someone in your household use the utility sink to clean out paint rollers or flush toxic cleaners? Oil-based paints, solvents, and large volumes of toxic cleaners should not enter your septic system. Even latex paint cleanup water should be minimized. Squeeze all excess paint and stain from brushes and rollers on several layers of newspapers before rinsing. Leftover paints and stains should be taken to your local household hazardous waste collection center. Remember that your septic system contains a collection of organisms that digest and treat waste.



**Household Cleaners** - Your septic system's bacteria should recover quickly from small amounts of household cleaning products added to the septic system. Of course, some cleaning products are less toxic than others. The word "Danger" or "Poison" on a label tells you that the product is highly hazardous and should not enter the septic system. "Warning" tells you the product is moderately hazardous and should not enter the septic system. "Caution" means that the product is slightly hazardous and may be introduced to the septic system in small amounts. "Non Toxic" and "Septic Safe" are terms created by advertisers to sell products. Regardless of the type of product, use it only in the amounts shown on the label and minimize the amount discharged into your septic system.

**Hot Tubs** - While a great way to relax, septic systems are not designed to handle large quantities of the highly chlorinated water from your hot tub. Emptying hot tub water into your septic system stirs the solids in the tank and pushes them out into the drainfield, causing it to clog and fail. Drain the cooled hot tub water onto turf or landscaped areas well away from the septic tank and drainfield, and in accordance with local regulations. Use the same caution when draining your swimming pool. Test chlorine levels before draining onto your turf, to make sure the levels are very low. High levels of chlorine entering the soil can kill the beneficial microbes in the soil, as well.

**Water Purification Systems** - Some freshwater purification systems, including water softeners, unnecessarily pump water into the septic system. This can contribute hundreds of gallons of water to the septic tank. Check with your licensed plumber about alternative routing for such freshwater treatment systems.

**Garbage Disposals** - A garbage disposal grinds up kitchen scraps, suspends them in water, and sends the mixture to the septic tank. Once in the septic tank, some of the materials are broken down by microbial action, but most settle as sludge and must be pumped from the tank. Using a garbage disposal frequently can

significantly increase the accumulation of sludge and scum in your septic tank, resulting in the need for more frequent pumping.

**Leaky faucets and toilets** - A small drip into your sink can really add up to a lot of water entering your septic system. To check if your toilet is leaking, add about twenty drops of cake coloring to the back of the tank. If, after about two hours, the water in the tank shows the color of the food coloring, you have a leaky toilet that should be fixed!

**Improper Design or Installation** - Some soils provide excellent wastewater treatment, while others just don't. For this reason, the design of a septic system installed within Jefferson County must meet criteria set by the Louisville Metro Department of Health and Wellness. The Louisville Metro Department of Health and Wellness bases their approval of the final design of a septic system on the results of a soil analysis, and the number of bedrooms for residential use. Use a Certified Septic Installer to install the system, and make sure that all permits are acquired from the Health Department prior to acceptance of the system.

### Symptoms of Septic System Failure

Most catastrophic septic system failures are presaged by signs that the septic system is beginning to have difficulties processing the amount of wastewater entering the system. You don't always have to smell the problem to know that a problem is beginning to develop with the system. Some early signs of septic system failure include:



- ◆ Pooling water or muddy soil around your septic system, basement, or driveway;
- ◆ Sudden "springs" on your property you have never noticed before;
- ◆ Your sink or toilet backs up when you flush or do laundry;
- ◆ Strips of bright green grass over the drainfield; or
- ◆ Leakage of water around the edge of the drainfield or at the edge of your property into streams, roadways, or other areas of low elevation.

Another type of failure occurs when the partially treated wastewater comes into contact with groundwater, or the capillary zone above the water table. This type of failure is not always easy to detect, but it can result in the pollution of wells, nearby streams, or other bodies of water. Check with a certified septic system installer and the local health department if suspect a failure. Remember to have your septic system inspected by a professional at least every 3 years!

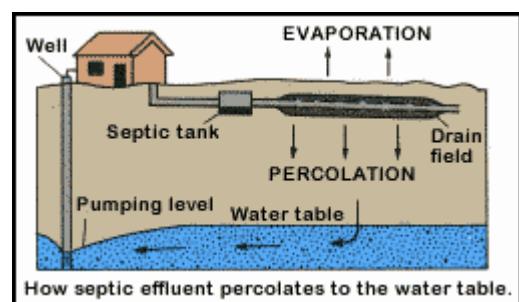
### For More Information:

#### Louisville Metro Department of Health and Wellness

400 East Gray Street, 2<sup>nd</sup> Floor  
Louisville, KY 40202  
502-574-6520

#### Kentucky Environmental and Public Protection Cabinet\*

KPDES Branch  
Frankfort, Kentucky  
502-564-3410



\*the KPDES Branch will answer general questions about septic systems, but most questions should be directed toward the Louisville Metro Department of Health and Wellness

For a very complete directory and information about the different types of septic systems, wastewater terminology, and guidelines for home inspections visit the Septic System Information Website—Inspecting, Testing, Designing, and Maintaining Residential Septic Systems at

[http://inspectapedia.com/septic/Septic\\_Systems.php](http://inspectapedia.com/septic/Septic_Systems.php)

## Homeowner Septic System Information

**Septic System Description** - Contact the Louisville Metro Department for Health and Wellness if you don't have this information:

Location of draining field or septic system:

Date system installed: \_\_\_\_\_

Installer: \_\_\_\_\_ Phone: \_\_\_\_\_

Tank Size: \_\_\_\_\_ gallons

Capacity: \_\_\_\_\_ bedrooms

Type: \_\_\_\_\_

See WHPP 914A for a Handy Septic System checklist!



Louisville Water Company  
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