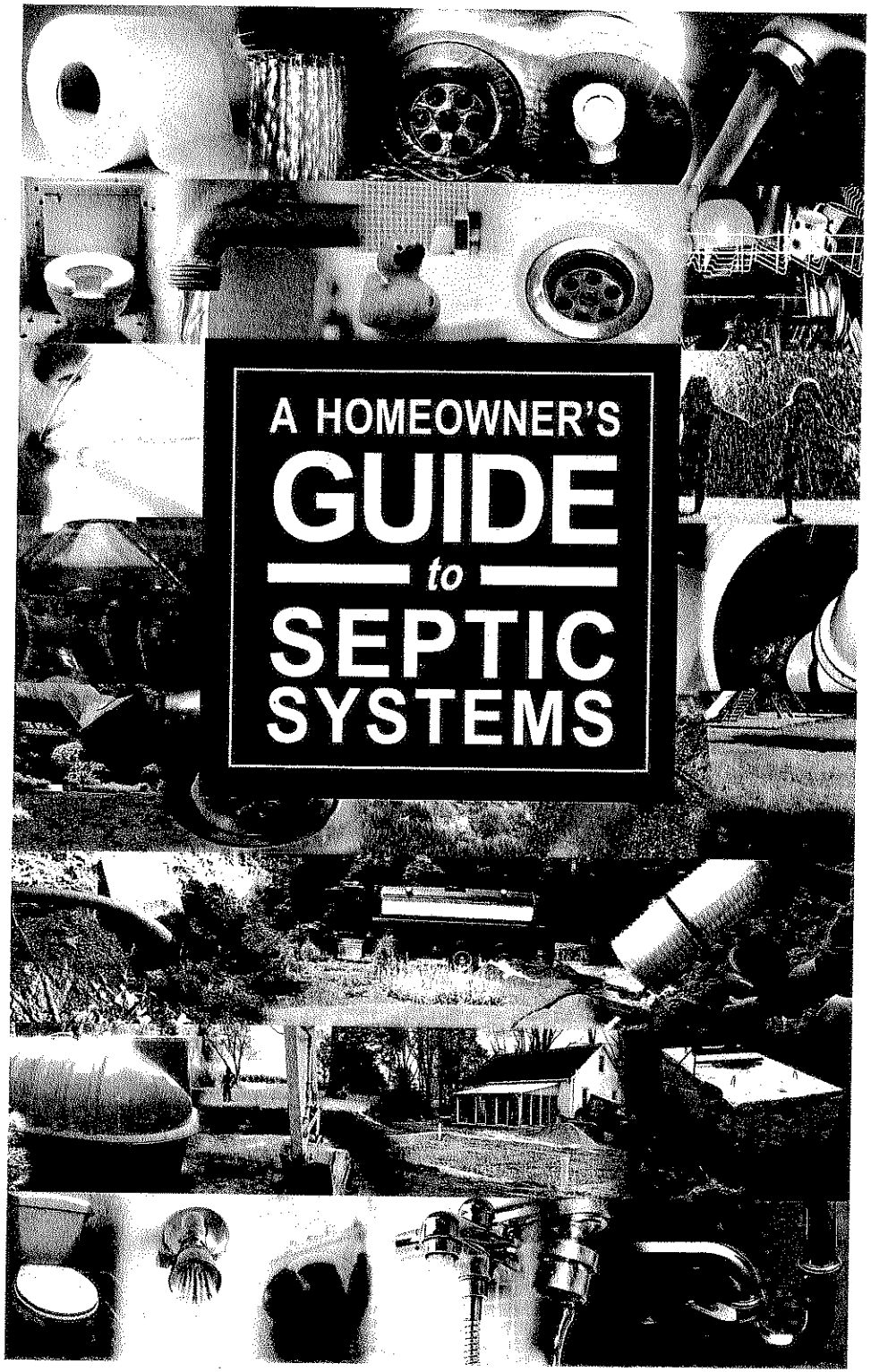

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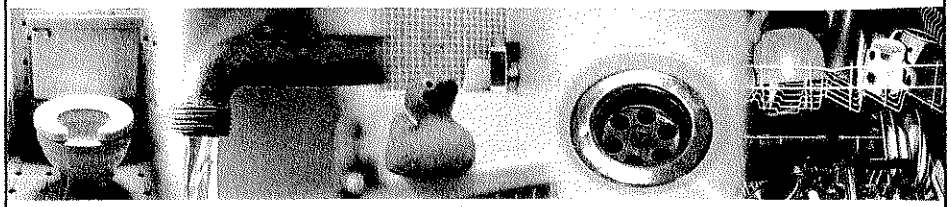

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This document is a modification of the US EPA's Homeowner's Guide to Septic Systems (EPA document # EPA-832-B-02-005 December 2002). Any mention of profit-making organizations, tradenames, or commercial products does not constitute endorsement or recommendation for use.

Comments or questions should be directed to the Bureau of Nonpoint Pollution Control at P.O. Box 029, Trenton, NJ 08625
www.nj.gov/dep/dwq/nonpoint.htm
(609) 633-7021

Your Septic System Is Your Responsibility

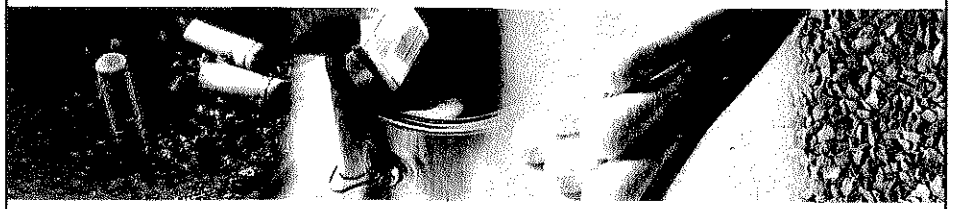
Did you know that as a homeowner you are responsible for maintaining your septic system? Maintaining your septic system protects your investment in your home. You should periodically inspect your system and pump out your septic tank.

Unlike those who live in areas served by regional sewerage systems, septic system owners are unique because they are solely responsible for the daily operation and maintenance of their wastewater treatment and disposal system. By adhering to simple and straightforward guidelines, septic system owners can ensure years of trouble-free operation with minimal maintenance.

If properly designed, constructed and maintained, your septic system can provide long-term effective treatment of your household wastewater. If your septic system isn't properly maintained, you might need to replace it, costing you thousands of dollars. A malfunctioning system can contaminate groundwater which might be a source of drinking water. It also is important to keep your system properly maintained because it must be in good working order if you are planning to sell your home.

Top Four Things You Can Do To Protect Your Septic System

1. Inspect and pump your system every three years.
2. Use water efficiently.
3. Don't dispose of nonbiodegradable items or household hazardous wastes in sinks or toilets.
4. Care for your drainfield.



Septic System Dos and Don'ts

Do: Check with the local regulatory agency or inspector/pumper before installing a garbage disposal unit to make sure your septic system can handle additional waste.

Do: Check with your local health department before using additives. Additives do not eliminate the need for periodic pumping and can be harmful to the system.

Do: Use water efficiently to avoid overloading the septic system. Be sure to repair leaky faucets or toilets. Use high-efficiency fixtures.

Do: Plant only grass over and near your septic system. Roots from nearby trees or shrubs might clog and damage the drainfield.

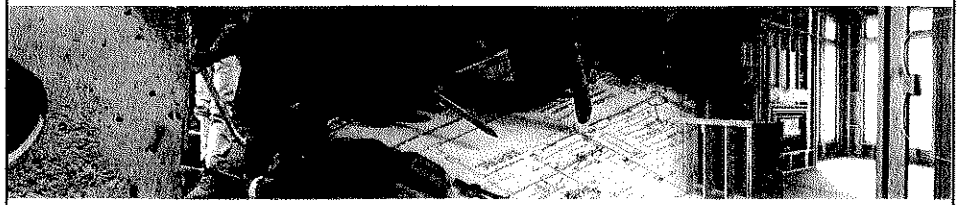
Do: Use commercial bathroom cleaner and laundry detergents in moderation. Many people prefer to clean their toilets, sinks, showers and tubs with a mild detergent or baking soda.

Do: Keep records of repairs, pumpings, inspections, permits issued and other system maintenance activities, so there is a record to help troubleshooting problems as well as for having a record for a future home sale.

Do: Learn the location of your septic system. Keep a sketch of it with your maintenance record for service visits.

Do: Have your septic system inspected at least every three years and pumped periodically (generally every three to five years) by a licensed inspector/contractor.

Don't: Put dental floss, feminine hygiene products, condoms, diapers, cotton swabs, cigarette butts, coffee grounds, cat litter, paper towels, latex paint, pesticides or other hazardous chemicals into your system.



Don't: Use caustic drain openers for a clogged drain. Instead, use boiling water or a drain snake to open clogs.

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.

Rules and Regulations

The design, construction and operation of septic systems in New Jersey is governed by the Standards for Individual Subsurface Sewage Disposal Systems, N.J.A.C. 7:9A, also known as Chapter 199. Health departments are responsible for enforcement of Chapter 199 throughout the state. You should always first consult your health department when:

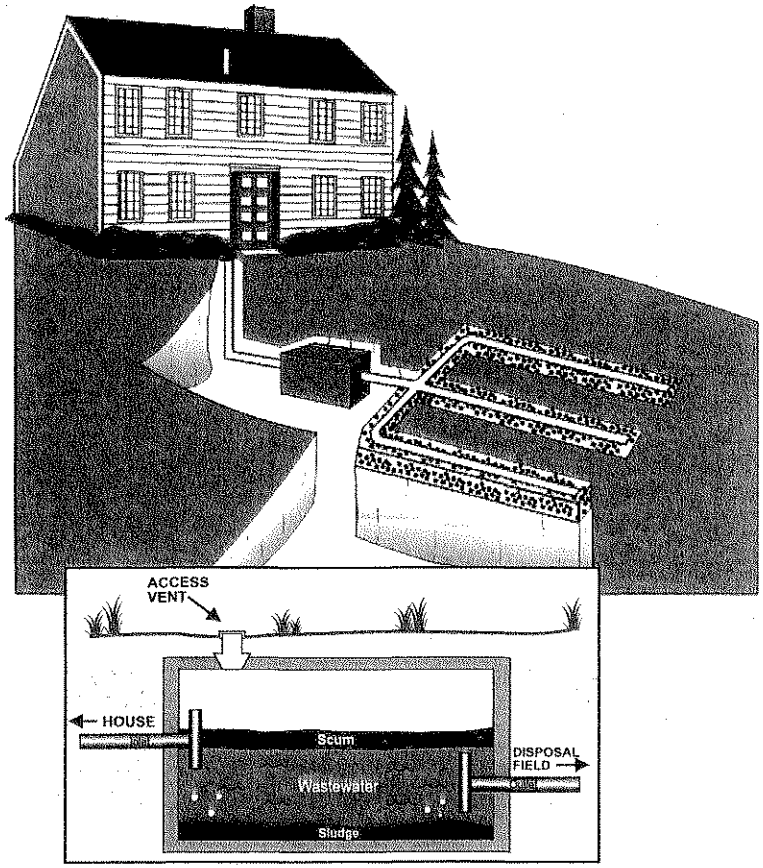
- You are experiencing any problems with your septic system.
- You are planning any work on your septic system such as a repair or expansion.
- You are planning any additions or expansions to your home or building.

How Does It Work?

This guide will help you understand how your septic system works and what steps you must take as a homeowner to ensure your system works properly. To learn more, consult the resources listed at the back of this booklet.

Components

A typical septic system has four main components: a pipe from the home, a septic tank, a drainfield and the soil.



Pipe From The Home

All of your household wastewater exits your home through a pipe, called a building sewer, which leads to the septic tank.

Septic Tank

The septic tank is a buried, watertight container typically made of concrete, fiberglass or polyethylene. It holds the wastewater long enough to allow solids to settle out, forming sludge, and oil and grease to float to the surface as scum. It also allows partial decomposition of the solid materials. Compartments and a T-shaped outlet in the septic tank prevent sludge and scum from leaving the tank and traveling into the drainfield area. Effluent filters are also recommended to keep solids from entering the drainfield.

Newer septic tanks have access ports connecting into the tank, called risers, that are covered by lids at the ground surface. These risers allow easy location, inspection and pumping of the tank. To facilitate the maintenance and inspection of a septic tank, the DEP recommends retrofitting existing septic tanks with risers.

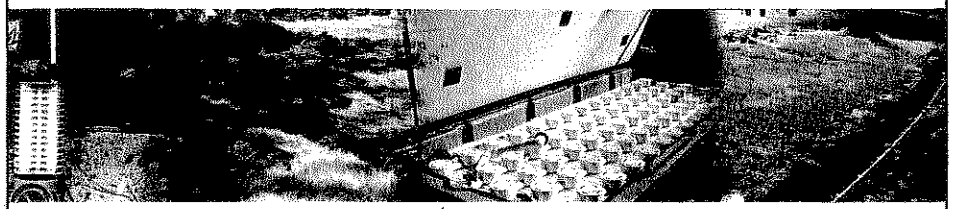
Drainfield

The wastewater exits the septic tank and is discharged into the drainfield for further treatment by the soil. The partially treated wastewater is pushed into the drainfield for further treatment every time new wastewater enters the tank.

If the drainfield is overloaded with too much liquid it will flood, causing sewage to flow to the ground surface creating backups in plumbing fixtures and preventing treatment of all wastewater. A reserve drainfield is an area on your property suitable for a new drainfield system if your current drainfield fails. Treat this area with the same care as your septic system.

Soil

Septic tank wastewater flows to the drainfield, where it percolates into the soil. Microbes in the soil provide final treatment by digesting or removing harmful bacteria, viruses and nutrients before they reach the groundwater. Suitable soil is necessary for successful wastewater treatment.



Alternative Systems

Because many areas don't have soils suitable for typical septic systems, you might have or need an alternative system. You might also have or need an alternative system if there are too many typical septic systems in one area or the systems are too close to groundwater or surface waters. Alternative septic systems use new technology to improve treatment processes and might need special care and maintenance.

Alternative systems use sand, peat or plastic media instead of soil to promote wastewater treatment. Other systems might use wetlands, lagoons, aerators or disinfection devices. Float switches, pumps and other electrical or mechanical components often are used in alternative systems. Alternative systems should be inspected annually. Check with your local health department or installer for more information on operation and maintenance needs if you have or need an alternative system.

Finding Your System

Your septic tank, drainfield and reserve drainfield should be clearly designated on the "as-built" drawing for your home. (An "as-built" drawing is a line drawing that accurately portrays the buildings on your property and usually is filed at your local health department.) You might also see lids or manhole covers for your septic tank. Older tanks are often hard to find because there are no visible parts. An inspector/pumper can help you locate your septic system if your septic tank has no risers.

Why Should I Maintain My Septic System?

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

Saving Money

A key reason to maintain your septic system is to save money. Failing septic systems are expensive to repair or replace, and poor maintenance is often the culprit. Your septic system will need pumping every three to five years, depending on how many people live in the house and the size of the system. An unusable septic system of one in disrepair will lower your property value and could pose a legal liability. If your septic system does fail, a reputable professional should be contracted to perform the repair. After all, it is more cost-effective to have your failing septic system repaired correctly than to have it become a recurring problem.

Protecting Human Health and the Environment

Safe treatment of sewage is important because it prevents the spread of infection and disease, protecting water resources. Typical pollutants in household wastewater are nitrogen, phosphorus and disease-causing bacteria and viruses. If a septic system is working properly, it will effectively remove most of these pollutants.

Since one-fourth of U.S. homes have septic systems, more than 4 billion gallons of wastewater per day is dispersed below the ground's surface. Inadequately treated wastewater from septic systems can be a cause of groundwater contamination, which poses a significant threat to drinking water and human health. It can contaminate drinking water wells and cause diseases and infections in people and

animals. Improperly treated wastewater that contaminates nearby surface waters also increases the chance of swimmers contracting a variety of infectious diseases. These range from eye and ear infections to acute gastrointestinal illness and diseases such as hepatitis.

How Do I Maintain My Septic System?

Inspect and Pump Frequently

The DEP recommends the average septic system be inspected and pumped every three to five years by an industry professional. The exact frequency of pumping and inspection is influenced by four factors: the number of people in your household, the amount of wastewater generated (based on the number of people in the household and the amount of water used), the volume of solids in the wastewater (whether there are water-saving fixtures or a garbage disposal in the home), and the septic tank size.

Inspections can be conducted for a variety of reasons. They may be required as part of a real estate transaction, septic management programs or the standard operating procedures of your local health department. Systems with switches, pumps or mechanical components need to be inspected more often. The typical tank will be pumped during the inspection to look for leaks and check the tank bottom. Your service provider should measure the scum and sludge layers in your septic tank prior to pumping. If the bottom of the scum layer is within 6 inches of the bottom of the outlet tee or the top of the sludge layer is within 12 inches of the outlet tee, your tank is at its maximum safety capacity. Remember to note the sludge and scum levels determined by your service provider in your operation and maintenance records. This information will help you decide how often pumping is necessary.

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 or she can't perform, hire someone to make the repairs as soon as possible. You should contact your local health department before hiring a professional because they have specific permitting processes for the work to be conducted and might have a program that requires you to use a septic professional that has been licensed by them.

Maintain Effluent Filter Regularly

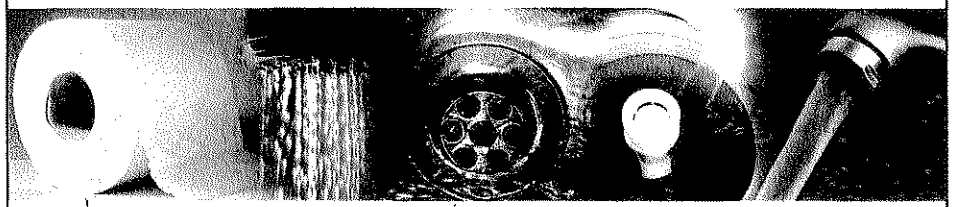
The use of an effluent filter is one of the cheapest, easiest ways to prevent your drainfield from clogging. The DEP strongly recommends the use of an effluent filter to prevent sludge and scum from leaving your septic tank and flowing into your drainfield. As your effluent filter begins to clog, slower draining and flushing of home fixtures may alert you to the need for maintenance before a complete blockage occurs. The DEP recommends that your effluent filter be rinsed or replaced annually by you or a septic system professional.

Use Water Efficiently

Average indoor water use in the typical single-family home is almost 70 gallons per person per day. Leaky toilets can waste as much as 200 gallons each day. The more water a household conserves, the less water enters the septic system. Efficient water use can improve the operation of the septic system and reduce the risk of failure.

High-Efficiency Toilets

Toilet use accounts for 25 to 30 percent of household water use. Do you know how many gallons of water your toilet uses to empty the bowl? Most older homes have toilets with 3.5- to 5-gallon reservoirs, while newer, high-efficiency toilets use 1.6 gallons of water or less per flush. If you have problems with your septic system being flooded with household water, consider reducing the volume of water in the toilet tank if you don't have a high-efficiency model. Plastic containers such as half gallon plastic milk jugs can be filled with small rocks and placed in the toilet tank to reduce the amount of water used per flush. (Be sure the plastic containers do not interfere with the flushing mechanisms or the flow of water.) You'll save about half



a gallon of water per flush! You might also consider replacing your existing toilet with a high-efficiency model to achieve even more water savings.

Faucet Aerators and High-Efficiency Showerheads

Faucet aerators help reduce water use and the volume of water entering your septic system. High-efficiency showerheads or shower flow restrictors also reduce water use.

Water Fixtures

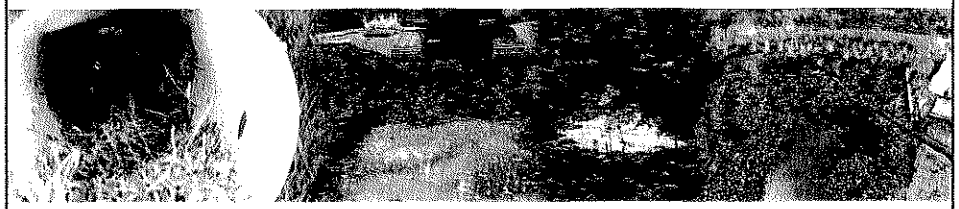
To make sure your toilet's reservoir isn't leaking into the bowl, add five drops of liquid food coloring to the reservoir before bed. If the dye is in the bowl the next morning, the reservoir is leaking and repairs are needed. A small drip from a faucet adds many gallons of water to your system every day. To see how much a leak adds to your water usage, place a cup under the drip for 10 minutes. Multiply the amount of water in the cup by 144 (the number of minutes in 24 hours, divided by 10). This is the total amount of clean water traveling to your septic system each day from that little leak.

Washing Machines

By selecting the proper load size, you'll reduce water waste. Washing small loads of laundry on the large-load cycle wastes precious water and energy. If you can't select load size, run only full loads of laundry. Doing all the household laundry in one day might seem like a time-saver, but it could be harmful to your septic system. Doing load after load does not allow your septic tank time to adequately treat wastes. Also, you could be flooding your drainfield without allowing sufficient recovery time. Avoid showering and bathing at times when dishwashers and laundry are in use. Try to spread water usage throughout the week. Consider purchasing new Energy Star clothes washers, which use 35 percent less energy and 50 percent less water than standard models.

Watch Your Drains

What goes down the drain can have a major impact on how well your septic system works. Don't flush dental floss, feminine hygiene products, condoms, diapers, cotton swabs, cigarette butts, coffee grounds, cat litter, paper towels or



other kitchen and bathroom items that can clog and damage septic system components. Flushing household chemicals, gasoline, oil, pesticides, antifreeze and paint can stress or destroy the biological treatment taking place in the system and might contaminate surface water and groundwater.

Care For Your Drainfield

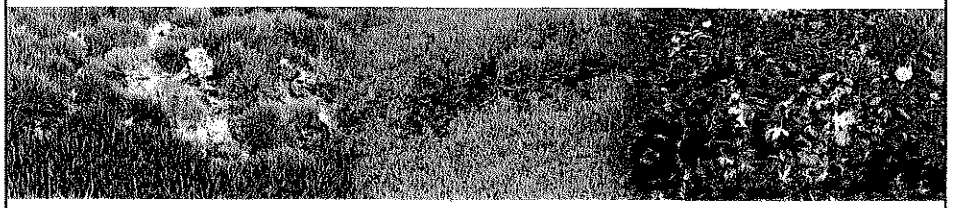
Your drainfield is an important part of your septic system. Here are a few things you should do to maintain it:

> Plant only grass over and near your septic system. Roots from nearby trees or shrubs might clog or damage the drainfield.
>
> 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.
>
> 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.

Be Aware of Contents In Cleaners

Avoid using septic system cleaners that contain banned substances. Under the New Jersey Water Pollution Control Act, the sale or use of septic system cleaners containing restricted chemical materials is illegal. A restricted chemical material is any chemical containing more than 1 percent by weight of any of the following:

> HALOGENATED HYDROCARBONS (ALIPHATIC OR AROMATIC) including by not limited to trichloroethane, trichloroethylene, tetrachloroethylene, methylene chloride, halogenated benzenes and carbon tetrachloride.
>
> ANY AROMATIC HYDROCARBON including but not limited to benzene, toluene and napthalene.



ANY PHENOL DERIVATIVE (IN WHICH A HYDROXYL GROUP AND TWO OR MORE HALOGEN ATOMS ARE BONDED DIRECTLY TO A 6 CARBON AROMATIC RING) including but not limited to trichlorophenol or pentrachlorophenol.

ANY SUBSTANCE CONTAINING ACROLEIN, ACRYLONITRILE OR BENZEDINE.

What Can Make My Septic System Fail?

If the amount of wastewater entering the system is more than the system can handle, called hydraulic overload, the wastewater backs up into the house or yard and creates a health hazard. Many things can cause system failure, such as clogging, physical stress or chemical stress.

You can suspect a system failure not only when a foul odor is emitted, but also when partially treated wastewater flows up to the ground surface. By the time you can smell or see a problem, however, the damage might already be done.

By limiting your water use, you can reduce the amount of wastewater your system must treat. When you have your system inspected and pumped as needed, you reduce the chance of system failure.

Failure Symptoms

The most obvious septic system failure symptoms such as pooling water or muddy soil around your system or in your basement are easy to spot. Take care to notice if your toilet or sink backs up when you flush or do laundry of if there are strips of bright green grass over the drainfield. Septic systems also fail when partially treated wastewater comes into contact with groundwater. This type of

failure is not easy to detect, and it can result in the pollution of wells and nearby streams or other bodies of water. Check with a septic system professional and the local health department if you suspect such a failure.

Failure Causes

Household Toxics

Does someone in your home use the sink to clean 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 should be minimized. Squeeze all excess paint and stain from brushes and rollers on several layers of newspaper before rinsing.

Leftover paints and wood stains should be taken to your local household hazardous waste collection center. Remember that your septic system contains a living collection of organisms that digest and treat waste. Household toxics can kill these organisms.

Household Cleaners

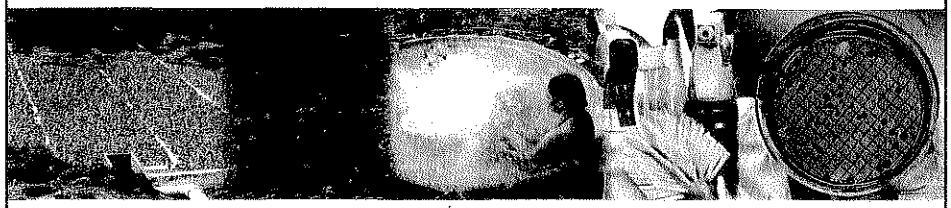
Your septic system's bacteria should recover quickly after small amounts of household cleaning products have entered the system. However, some cleaning products are less toxic to your system than others. Labels can help you identify the potential toxicity of various products. Use products only in the amounts shown on the label instructions and minimize the amount of discharge to your septic system.

Garbage Disposals

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. Eliminating the use of a garbage disposal can reduce the amount of grease and solids entering the septic tank and possible clogging the drainfield.

Improper Design or Installation

The design of the drainfield of a septic system is based on the results of soil analysis, because some soils provide better wastewater treatment than others.



Many failures can be attributed to having poor soil, in addition to an undersized drainfield or high seasonal groundwater table. Undersized septic tanks allow solids to clog the drainfield.

If a septic tank isn't watertight, water can leak into the system causing hydraulic overloading, which taxes the system leading to inadequate treatment and sewage to sometimes flow up to the ground surface.

Even when systems are properly designed, failures due to poor installation practices can occur. If the drainfield is not properly leveled, wastewater can overload the system. Heavy equipment can damage the drainfield during installation, which can compact the soil and reduce the wastewater infiltration rate.

Hot Tubs and Jacuzzis

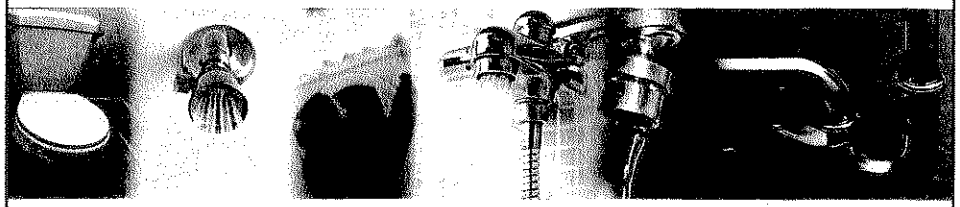
Septic systems are not designed to handle large quantities of water or bath oils from hot tubs or jacuzzis. Emptying hot tub or jacuzzi water into your septic system stirs the solids in the tank and pushes them and bath oils into the drainfield, causing it to clog and fail. Draining your hot tub or jacuzzi into a septic system or over the drainfield can overload the system. Instead, drain 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.

Water Purification System

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, causing agitation of solids and excess flow to the drainfield. Check with your licensed plumbing professional and local health department about alternative routing for such freshwater treatment systems.

Additives

There are many commercial products marketed that claim to increase the capacity and performance of septic tanks and disposal fields. These products are usually either unnecessary or potentially detrimental to the performance of your system.



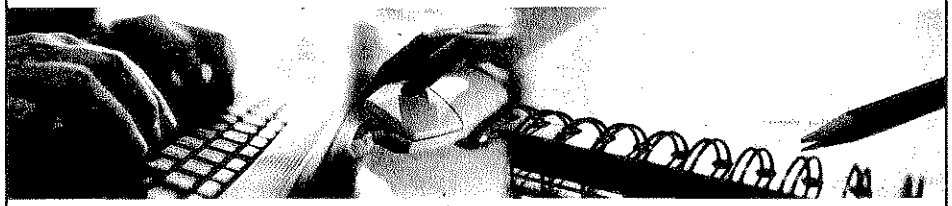
Avoid adding commercial septic tank additives. Human wastes or wastes of household origin which flow into a septic tank contain an adequate variety and quantity of microorganisms, such as bacteria, to maintain proper operating conditions within a septic tank.

Do not add products containing sodium hydroxide, potassium hydroxide, or hydrogen peroxide into the septic tank or directly into the disposal field. These chemicals will not enhance the long-term performance.

Remember: Use Water Efficiently!

- Install high-efficiency showerheads
- Fill the bathtub with only as much water as you need
- Turn off faucets while shaving or brushing your teeth
- Run the dishwasher and clothes washer only when full
- Use toilets to flush sanitary waste only
- Make sure all faucets are completely turned off when not in use
- Maintain your plumbing to eliminate leaks
- Install aerators in the faucets in your kitchen and bathroom
- Replace old dishwashers, toilets and clothes dryers with Energy Star appliances

For more information on water conservation please visit www.nj.gov/dep/watersupply/conserve.htm



For More Information

Local Health Department
www.nj.gov/health/lh/directory/lhdselectcounty.htm

New Jersey Department of Environmental Protection
Onsite Wastewater Management Program
www.nj.gov/dep/dwq/sep_site.htm

EPA Onsite/Decentralized Management Homepage
www.epa.gov/owm/onsite

National Small Flows Clearinghouse
www.nesc.wvu.edu

Rural Community Assistance Program
www.rcap.org

National Onsite Wastewater Recycling Association, Inc.
www.nowra.org

Septic Yellow Pages
www.septicyellowpages.com

National Association of Wastewater Transporters
www.nawt.org

Clean Water New Jersey
www.cleanwaternj.org

Homeowner Septic System Checklist

Septic System Description

Contact your local authority if you don't have this information.

Date system installed:

Installer:

Phone:

Tank size:

Capacity:

Type:

Things To Keep In Mind:

- Inspect your system (every 1 to 3 years) and pump your tank (as necessary, generally every 3 to 5 years).
- Use water efficiently.
- Don't drive or park vehicles on any part of your septic system.
- Plant only grass over and near your system. Roots from nearby trees or shrubs may clog your system.

Septic System Maintenance Record

Date	Company	Work Done	Comments