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Maintaining Your Septic System

Ag Facts

Michigan State University Extension Service

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Resource Development

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Revised February 1993

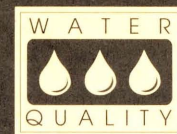
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Managing Your Septic System

WQ-39 (formerly E-1521)
Revised February 1993



MICHIGAN STATE
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Households that are not served by public sewers usually depend on septic systems to treat and dispose of wastewater.

When a Septic System Is:

- correctly located
- adequately designed
- carefully installed
- properly managed

You will have a waste disposal system that is:

- simple
- economical
- effective
- safe
- long-lasting

However, a failing system may result in:

- property damage
- surface, and possibly groundwater, pollution
- disease potential
- costly repairs or replacement

Management is the key to a lasting wastewater disposal system.

This file contains information that will help you manage your septic system. It also provides a place for you to record and store vital information about your system. It should be filed with other documents about your home and property.

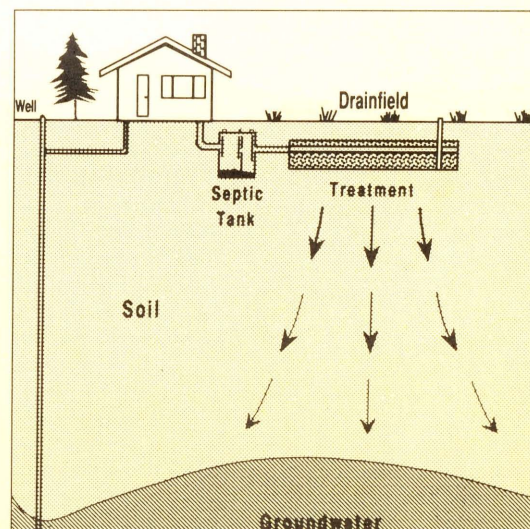
Prepared by: Eckhart Dersch, Department of Resource Development; and Dean R. Rhoads, retired.

Some material in this bulletin was adapted from Bulletin EB 1671, prepared by Cooperative Extension, Washington State University.

How Your System Works

A septic system has two basic parts: a septic tank and a soil absorption field or drainfield.

Wastes flow from the house into the septic tank.



Here, most solids are separated to the bottom and are partially decomposed by bacteria to form sludge. Some solids float and form a scum mat on top of the water.

The liquid effluent from the septic tank, carrying disease-causing organisms and liquid waste products, is discharged into the soil absorption field.

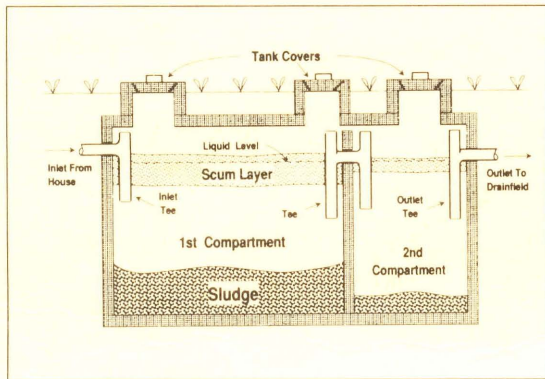
Here the water is further purified by filtration and decomposition by microorganisms in the soil. The semi-purified wastewater then percolates to the groundwater system.

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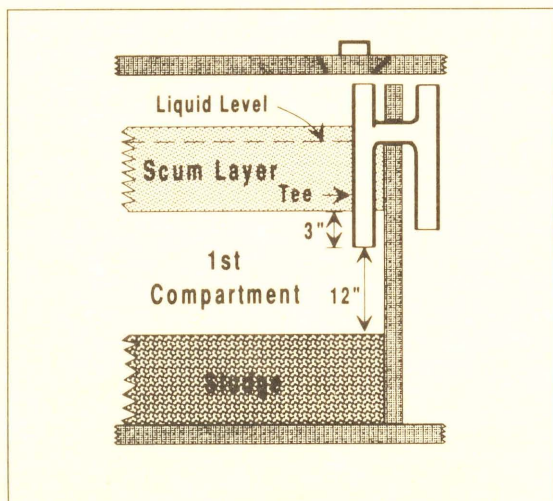
Septic System Management

How the Septic Tank Functions

The typical septic tank is a large, buried, rectangular, or cylindrical container made of concrete, fiberglass, or polyethylene. Wastewater from your toilet, bath, kitchen, laundry, etc., flows into the tank. Heavy solids settle to the bottom where bacterial action partially decomposes them to digested sludge and gases. Most of the lighter solids, such as fats and grease, rise to the top and form a scum layer.



Septic tanks may have one or two compartments. Two compartment tanks do a better job of settling solids and may be required for new systems. Tees or baffles are provided at the tank's inlet and outlet pipes. The inlet tee slows the incoming wastes and reduces disturbance of the settled sludge. The outlet tee keeps the solids or scum in the tank. All tanks should have accessible covers for checking the condition of the baffles and for pumping both compartments. If risers extend from the tank to or above the ground surface, they should be secure to prevent accidental entry into the tank.



Solids that are not decomposed remain in the septic tank. If not removed by periodic pumping, solids will accumulate until they eventually overflow into the drainfield, leading to costly repairs or replacement. Remember that retention time, or the time available for solids to settle out of wastewater, decreases as the sludge layer increases in your septic tank.

Maintenance

Most septic tanks must be pumped once every three to five years, depending on tank size, number of persons in the household, and whether or not occupants are minimizing release of unnecessary solids into the wastewater.

How do I determine when to pump?

Many homeowners prefer to give this responsibility to a reputable septic tank pumping firm. They will periodically check your system to determine the rate of solids accumulation and proceed with a pumping schedule designed for your specific situation. Some homeowners may wish to measure sludge depth and scum thickness themselves, using a homemade probe. Guidelines for performing this messy operation may be obtained from your local sanitarian in the county health office. The tank requires pumping if: a) the top of the sludge deposit is within 12 inches of the outlet baffle; b) the bottom of the floating scum mat is within three inches of the bottom of the outlet baffle; c) the top of the floating scum mat is within one inch of the top of the outlet baffle or; d) the floating scum mat is more than 10-12 inches thick.

Should I use any special products to enhance the operation of my septic tank?

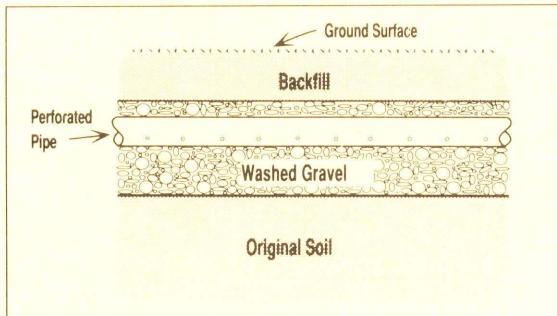
Many products which claim to improve septic tank performance or reduce the need for routine pumping are available. These solvents, yeasts, bacteria, and enzymes have not been found to make a significant difference. Some can even cause solids to be carried into the drainfield, causing early clogging and repair. Some products contain organic solvents which contribute to groundwater pollution.

Where is my tank located?

If you do not know where your septic tank is located, you can find it by gently tapping a steel rod into the ground starting about 10 feet from the point where the sanitary drain leaves the house. Another method is to wait for a light snowfall. The snow is likely to melt first directly over the septic tank.

The Drainfield

The drainfield receives septic tank effluent. It has a network of perforated pipes laid in gravel-filled trenches (two-three feet wide), or beds (over three feet wide) in the soil. Waste-water trickles out of the pipes, through the gravel layer, and into the soil. The size and type of drainfield depends upon estimated daily wastewater flow and soil conditions.



The soil below the drainfield provides the final treatment and disposal of the septic tank effluent. After the effluent has passed into the soil, most of it percolates downward and outward, eventually entering the groundwater. A small percentage is taken up by plants through their roots, or evaporates from the soil.

The soil filters effluent as it passes through the pore spaces. Physical and biological processes treat the effluent before it reaches groundwater, or a restrictive layer, such as hardpan, bedrock, or clay soils. These processes work best where the soil is somewhat dry, permeable, and contains plenty of oxygen for several feet below the drainfield.

Warning Signs of a Failure

- Odors, surfacing sewage, wet spots or lush vegetation in the drainfield area
- Plumbing or septic tank backups
- Slow-draining fixture, not due to local clogging
- Gurgling sounds in the plumbing system

If you notice any of these signs or if you suspect problems with your septic tank system, contact your local health agency for assistance.

Recommendations

- To prolong the life of your septic system
- To minimize maintenance costs

Do

1. Inspect for scum and sludge depth once each year and never allow sludge or scum to escape from the septic tank into the drainfield.
2. Pump tank at proper intervals (usually every three to five years).

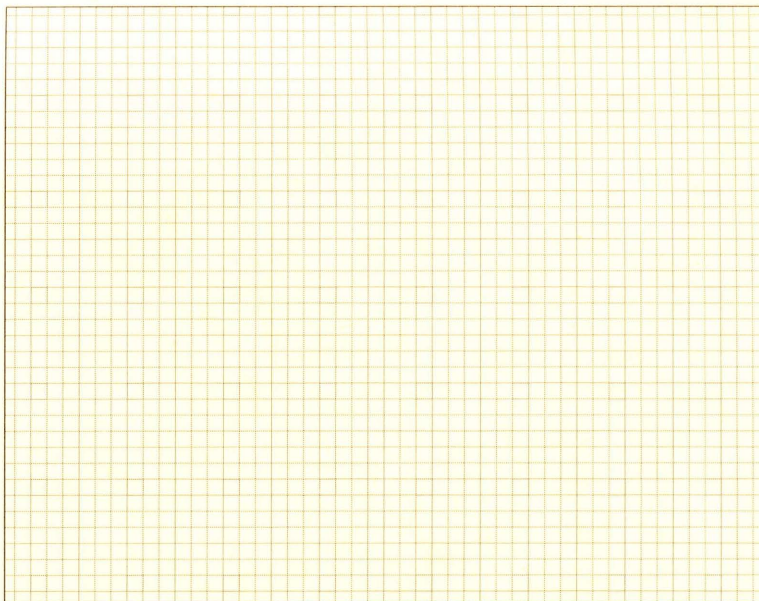
3. Limit water entering your tank:
 - use water-saving fixtures (faucets, showers, toilets)
 - prevent basement sump pump connection to tank
 - drain appliances one at a time
 - spread clothes-washing over the entire week and avoid half-loads
 - prevent roof, foundation, driveway and basement drainage from entering tank or drainfield area
 - minimize amount of water used for bathing and dishwashing
 - fix all faucet and toilet float valve leaks.
4. Keep soil over your system slightly mounded to help surface water run off.
5. Landscape your system properly. Dense grass cover and other shallow-rooted plants are beneficial over a drainfield.
6. Keep automobiles, all heavy vehicles and livestock off the drainfield.
7. Mark the boundaries of your drainfield as a reminder.
8. If your system is equipped with a diverter valve between the septic tank and soil absorption field, allow one side of your system to "rest" at one-year intervals.
9. If your system is equipped with a dosing chamber, be sure the submersible pump is operating and properly maintained for uniform discharge of effluent into the absorption field, followed by drainage between doses.

Don't

1. Use chemicals to clean or "sweeten" your system except on the advice of your local health department.
2. Overuse a kitchen garbage disposal unit. Heavy use adds large quantities of solids and shortens the time between pumpings.
3. Put harmful materials in the tank. Avoid fats, solvents, oils, disinfectants, paints, chemicals, pesticides, poisons, coffee grounds, paper towels, disposable diapers, sanitary napkins and tampons.
4. Place impermeable materials over your drainfield. Materials such as concrete or plastic reduce evaporation and the supply of oxygen to the soil for proper effluent treatment. They can also hinder access to the system for pumping, inspection, or repair.
5. Fertilize the soil above a drainfield.
6. Stockpile snow or soil on your drain field.
7. Allow downspouts to drain onto or into your drainfield.
8. Enter a dosing chamber or septic tank. Poisonous gases or the lack of oxygen can be fatal. Any work on the tank must be done from the outside.

Septic System Layout

If you do not have a sketch showing where your septic system is located on your property, use the grid provided to show the location of your septic system components in relation to your house.



Preventive Maintenance Record

Keeping a record of your septic system maintenance experience will help you anticipate when the next cleaning may be needed.

date	work done	firm	cost

Helpful Sources of Additional Information

Home Sewage Disposal, Michigan Environmental Health Association, 1979. Request from your county or district health department.

MWPS-24, *On-site Domestic Sewage Disposal Handbook*, Midwest Plan Services. Request from the Department of Agricultural Engineering, Michigan State University, \$6.00.

WQ-13, *Maintaining Your Septic System: Special Considerations for Shoreline Property Owners*.

WQ-14, *What To Do if Your Septic System Fails*.

WQ-15, *Buying or Selling a Home? What To Find Out About Your Water and Septic Systems*.

WQ-16, *How To Conserve Water in Your Home and Yard*.

WQ Bulletins are available from Michigan State University Extension-at your local county extension office or from the MSU Bulletin Office, 10-B Agriculture Hall, MSU, East Lansing, MI 48824-1039.

Septic System Installer

Name _____

Address _____

Date Installed _____

Phone _____

Septic System Pumper

Name _____

Address _____

Phone _____