Signs of Trouble

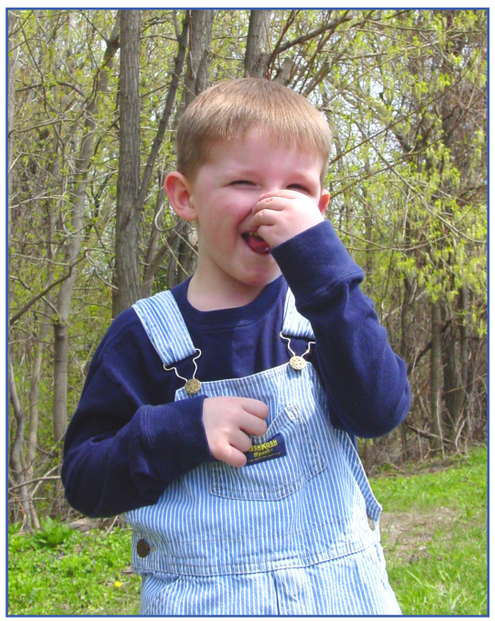
- Foul odors in your home or yard.
- Slow or backed up drains caused by a clog in the house pipes, septic tank, drainfield or roof vent of your septic system.
- Wet, spongy ground or lush plant growth may appear near a leaky septic tank or failing drainfield.
- Repeated intestinal illness in your household.

Who's responsible?

You are! You, the homeowner, are in charge of maintaining the septic system and protecting your drinking water well, your family's health and the environment.

Michigan Groundwater Stewardship Program

Do you know where your septic system is?



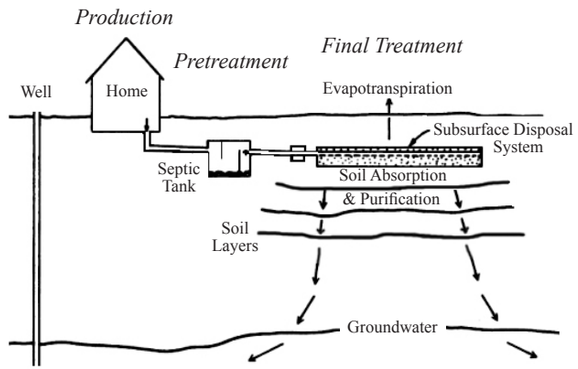
Don't wait to find it with your nose-

That's COSTLY!

What is a septic system?

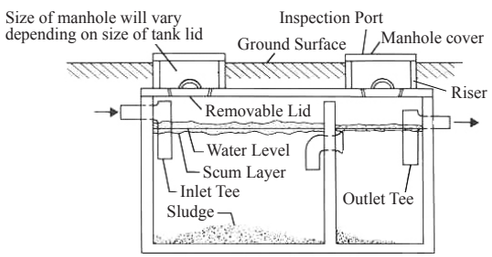
A **septic system** is a treatment system for wastewater. It consists of the following:

- Pipe leaving the house carrying wastewater
- Septic tank(s)
- Drainfield (leach field, absorption field)
- Soil



What does a septic tank do?

- Collects the raw sewage and holds it long enough for separation and some treatment.
- Allows the sewage to separate: light materials (hair, oil, soap, grease) float to the top (scum layer) and heavy materials sink to the bottom (solids). This leaves a relatively clear liquid in between (clarified liquid), which passes on to the second tank for further settlement, or out to the drainfield.
- The solids become partially treated by microbial action.



What is a septic tank?

- Buried watertight container to collect and hold the wastewater for a settlement period.
- Made up of one or two compartments. Older tanks are generally one compartment. Second compartment keeps sludge from entering drainfield.
- Constructed of pre-cast concrete, fiberglass reinforced plastic or polyethylene.
- Newer tanks have risers and inspection ports.
- Usually 1,000 gallons to 2,000 gallons for newer homes (for example in Grand Traverse Co., 1,200 gallons required for new three-bedroom homes and 1,600 gallons required if that home has a garbage disposal).

What does a drainfield do?

The **drainfield** (leach field, absorption field) receives the clarified liquid and provides the final treatment. It consists of:

- Outlet from the tank.
- Distribution box (not all systems have this).
- Perforated pipe laid in gravel-filled trenches.
- Clarified liquid flows into the pipes by gravity or by a pump distributing the liquid to the drainfield.
- Microbes in the soil remove harmful bacteria, viruses and nutrients.
- The drainfield is covered with soil and a lawn or shallow rooted plants which will not interfere with the liquid moving in the perforated pipe.

What can I do to protect my septic system?

- Have your tank inspected and pumped periodically (generally every 3-5 years), The pumping frequency depends on tank size, number of people in the household, and if you have a garbage disposal.
- Be aware of what you put down the toilet or drains—no cooking oil, grease, diapers, sanitary supplies, condoms, paint, cat litter, coffee grounds, paper towels, facial tissues, or harsh chemicals.
- Use garbage disposals as little as possible –they increase the need for pumping.
- Conserve water—less water means less chance for solids to get flushed through to the drainfield before settling out.
- Install an effluent filter on the septic tank outlet to prevent carryover of solids in to the drainfield.
- Avoid draining a hot tub or swimming pool into the septic system or over the drainfield
- Divert water softener discharge, roof runoff, footer drains, sump pumps and other surface runoff away from the drainfield. Don't pile snow on drainfield. Saturated soil is less effective at treating wastewater.
- Do not pave, build, pile logs or set a swimming pool over the drainfield. Soil microbes need oxygen to treat waste.
- Avoid trees and shrubs whose roots may invade drainfield pipes. Grass is the best cover.

What are the environmental consequences?

Poorly managed septic systems along lakes and streams can:

- Create potential health hazards for swimmers and other water users.
- Increase algae and other aquatic plant growth which then sets up a cycle of overgrowth of plants, die-off, decay (using up oxygen), followed by fish and other organisms being stressed or death.

Failing septic systems away from surface water:

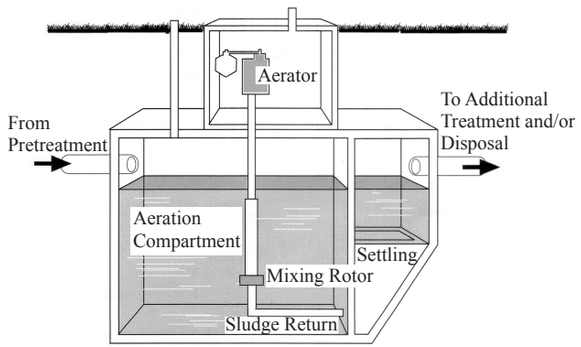
- In sandy soils untreated wastewater can contaminate groundwater.
- In heavy soils or sites where clay layers prevent downward movement of the untreated wastewater, the wastewater often backs up to the surface exposing children and pets to pathogens.

Failure to protect the drainfield can be expensive—installation of a new drainfield can cost $3,000–$6,000!

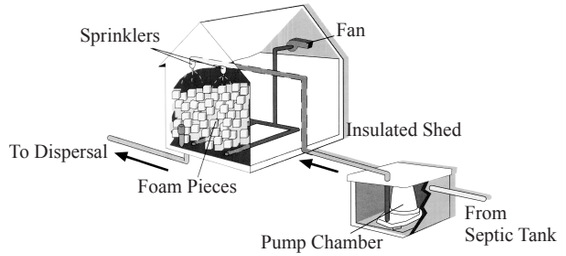
Never park or drive over your drainfield!

What are some alternatives to the standard septic system?

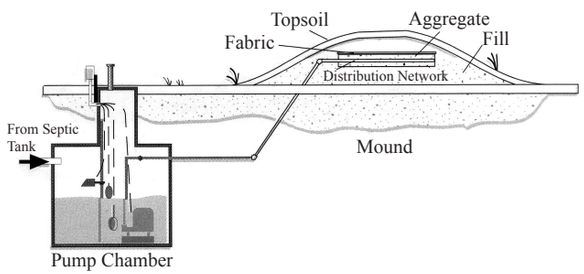
If soil or site conditions are unsuitable for a conventional drainfield, an alternative system may be permitted by the Health Department. Alternative systems must be National Sanitation Foundation (NSF) certified. The following are some examples of alternative systems.



An **aerobic treatment unit** generally is preceded by a septic tank to collect and pretreat the solids with anaerobic (without oxygen) digestion. This reduces the amount of solids passing into the aerobic treatment where bacteria that need oxygen (aerobic) digest the waste. Some aerobic systems have solids settle in a separate compartment which requires periodic pumping. Further treatment and/or disinfection is needed before final release into the environment.



Synthetic media such as foam or textile filters are used as surfaces for sprayed pretreated (solids are settled out) wastewater where bacteria use the nutrients in wastewater as a food source. The foam or textile filter may be followed by a polishing sand filter and shallow infiltration trenches to provide the final treatment and dispersal.



A **pressure mound system** provides a soil absorption site that is raised above the natural soil surface. It overcomes the problems of slowly permeable soils, shallow permeable soils over clay or permeable soils with high water tables. Wastewater from the septic tank is pumped to the mound and dosed on suitable fill material.