

Septic Systems and Water Quality

The Importance of Septic System Maintenance

Septic systems, like most other components of a home, need periodic maintenance. Proper maintenance can prevent many contamination problems from occurring and will help ensure that the system operates effectively throughout its expected lifetime of 20 to 30 years.

Replacing a septic system can cost \$2,000 to \$4,000, so proper maintenance makes good economic sense. There are several important things that you can do to ensure that your septic system is properly maintained.

Septic Tank Maintenance...

- Inspect the sludge level of the tank every 2 years.
- Contract a licensed septic tank cleaning service to pump the tank when the sludge level exceeds 1/3 of the tank's volume. Heavy or year-round use will necessitate more frequent pumping than light or seasonal use. Individual pumping costs about \$85, but reduced rates may be available by coordinating group pumping among neighbors.
- Do not use commercial products that claim to be a substitute for maintenance pumping. Many of these products liquefy the sludge and cause it to enter the drainfield. This can increase the potential for contamination of ground water and nearby surface water, as well as destroy the drainfield.
- Avoid using chemicals such as drain cleaner and large amounts of bleach because they kill the bacteria that break down solid wastes in the septic tank.
- Do not put the following or similar items down the drain: grease, hair, cigarette butts, facial tissues, feminine hygiene supplies, band aids, paint, solvents, motor oil, or any household wastes containing hazardous, toxic, or non-biodegradable materials.

Drainfield Maintenance...

- Direct rainwater from gutters and other surface runoff away from the drainfield. Excessive moisture can saturate the soil and reduce the drainfield's filtering capacity.
- Never build or pave over a drainfield. Keep vehicles away from the drainfield and septic tank.
- Do not apply fertilizer around a drainfield because the nutrients saturate the soil and cause it to stop removing nutrients from the wastewater.
- In shoreline areas, plant or retain a natural strip of vegetation along the water's edge to intercept and utilize septic system nutrients found in the ground water moving toward the lake.

Other Things You Can Do...

You can increase the life of your septic system by conserving water. Excessive water can cause solids to flow into the drainfield and clog the system. In addition, the less water you use, the better your septic system will treat wastes and remove pollutants. There are a variety of ways to reduce water consumption (For more information request a copy of the Watershed Council's Water Conservation brochure).

A permit from the local Health Department is required for repair, replacement, or new construction of septic systems. Always be sure to follow the requirements of your local sanitary code and hire only reputable septic system installation firms.

How Septic Systems Work...

In Northern Michigan, many of us rely on a septic system for wastewater treatment. Septic systems provide safe, economical, and effective treatment for household wastewater when they are suitably located, adequately designed, and properly maintained.

Wastewater treatment in septic systems occurs in two stages. First, wastewater from the home enters the septic tank where solid waste (sludge) settles out. Bacteria consume most of these solids. The liquid waste then flows into a distribution system (usually a drainfield) where it is dispersed into the soil. Here the wastes are further treated by micro-organisms and chemical reactions in the soil.

Septic Systems and the Quality of Our Waters

Septic systems can threaten both surface and ground waters. Studies have shown that some pollutants often reach surface waters from septic systems located within 300 feet of the shoreline. They are carried to the lake by the ground water beneath the septic system.

Of particular concern to lakes and streams are the nutrients nitrogen and phosphorous that are found in septic system effluent. Nutrients can encourage aquatic plant growth. Excessive amounts of aquatic plant growth can make swimming and boating undesirable. Septic system effluent can also contain disease-causing bacteria that can move to surface waters from septic systems, making it unsafe for swimming or other body contact.

Contamination of ground water from septic system effluent is a particular concern where the ground water is used for drinking water. Nitrate contamination of ground water can result from septic systems that are improperly functioning or located too close together. Nitrates can pose a serious health threat to infants and some adults.

Effluent from septic tanks can also carry bacteria, viruses, and protozoans that pose health risks. In addition, toxic or hazardous materials poured down the drain can move through the septic system and contaminate ground water.

Even if the septic system is functioning properly, it can still cause contamination of a well that is located too close to the septic system. Proper siting is critical to ground water protection.

Some septic systems contribute much higher levels of pollutants than others. The location, design, and age of a system are the most important criteria. For example, systems closer than 100 feet to the shoreline, systems that have drywells or block trenches rather than a modern drainfield design, and systems older than 20 years are most likely to cause pollution problems. Other conditions that influence the pollution potential of a septic system include soil type; depth to ground water; use of the system; and frequency of maintenance pumping.

Watch for signs of septic system problems!

Even septic systems that are properly designed, sited, installed, and maintained can develop problems. If you observe any of the following symptoms, or have other reasons to suspect that your septic system is threatening water quality, it is definitely time to have your septic system inspected...

- If toilets or sinks back up, it may indicate that drainfield soils are becoming saturated.
- Wet areas, lush grass, or foul odors around the drainfield may indicate that effluent is surfacing and that the septic system is not functioning properly.
- In shoreline areas, a distinctly colored patch of bottom sediment or noticeable weed or algae growth developing in the general vicinity of the drainfield can indicate excessive nutrient enrichment from a malfunctioning septic system.