

Septic Systems and Your Well

How septic systems can contaminate wells

What is the connection between septic systems and drinking water? Septic systems have the potential to contaminate your well - or your neighbour's.

Poorly maintained or damaged septic systems can contaminate ground water with E.coli bacteria or nitrate. E.coli is a family of bacteria that, depending upon the concentration and strain present in drinking water, can cause vomiting, diarrhea and even death.

Nitrate is a phosphate substitute used in cleaning products and laundry soaps, and is also in fertilizers, animal excrement and human sewage. Nitrate is a fast-moving nutrient with no taste, odour or colour. Nitrate can depress infant respiration, can destroy the sewage-digesting bacteria in septic systems and is suspected of causing cancer.

How septic systems work

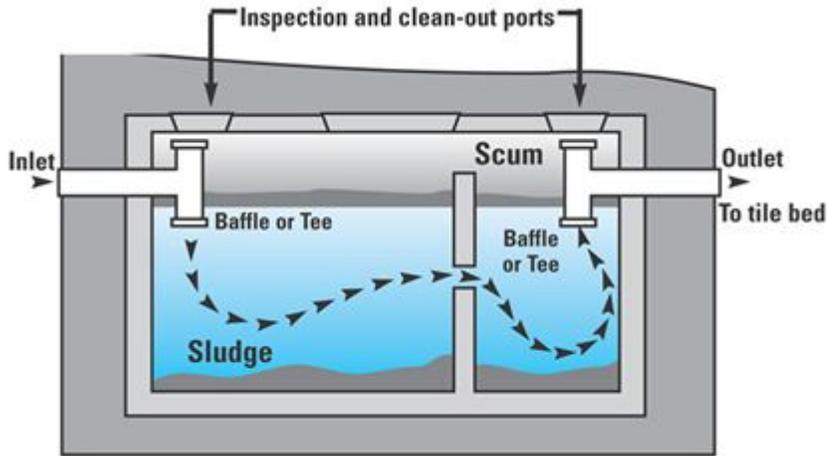
Your septic system is a private sewage treatment plant that must process all the wastewater from your house. Wastewater is piped from the house to the first stage of the system: usually a double-chambered concrete tank, which has baffles to prevent raw waste from flowing into the second stage: a system of water-permeable pipes called the tile bed. Aeration may also be added between the first and second stages.

Bacteria in the system break down sewage and wastewater. Undigested solids settle in the bottom of the tank as sludge. Lighter solids float to the top as scum. Liquid containing dissolved materials is taken from between these two layers and flows continuously and evenly into the tile bed. A final biological treatment process occurs as the wastewater works its way from the tiles through the bed itself, prior to being discharged into the water table. At every stage, aerobic (oxygen using) or anaerobic (oxygen independent) bacteria are at work, digesting the material. However, end products of the system still do contain nutrients, bacteria and chemicals.

More information on regulations governing design of septic systems as well as their upkeep is available from the Rideau Valley Conservation Authority (RVCA) at 692-0160. Ask for Septic Smart or the Ministry of Environment's Care and Feeding of Your Septic Tank.

Septic System Problems

How septic systems work



When septic systems don't work

If the tank is not pumped out regularly, the sludge and/or scum layers will be drawn into the wastewater distributed to the tile bed, eventually overloading the system. After sufficient overload time, the tile bed will no longer be capable of distributing the wastewater into the ground, causing "breakouts".

These are direct discharges of partially treated wastewater onto the ground surface. Sewage and its associated wastes will filter into the soil, contaminating everything it reaches - your well, your neighbour's well, the underground water supply, and local streams and rivers.

If too much water is dumped in the tank, the tile bed will be overloaded with the same result, as well as the possibility of it backing up into your house.

If excess household chemicals, soaps and detergents are washed into the septic tank, the bacterial action may be slowed or killed.

Managing Your Septic System

Signs of trouble

- Grass over the tile bed is unusually green or spongy to walk on.
- Plumbing takes longer to drain.
- You can smell sewage.
- Grey or black liquids surface in yards.
- A test of your or a neighbour's well water shows contamination.

Septic system care - DO THIS!

DO know where the tank is located and keep a maintenance record.

DO make sure you hire a licensed septic tank servicing company for regular inspections

and that they take care not to damage inlet or outlet baffles or tees during pumping.

- DO** get the tank pumped to remove the accumulated scum and sludge. Pumping intervals should be based on regular inspections (including measurement of scum and sludge levels in your tank).
- DO** plant grass over the leaching field; it will help prevent erosion and absorb excess water.
- DO** divert surface runoff water from roofs, patios, driveways, and other areas away from the leaching field.
- DO** conserve water to avoid overloading the system.

Septic system care - DON'T!

- DON'T** use your toilet as a trash can.
- DON'T** use more soap or detergents than you need to.
- DON'T** install a garbage disposal without checking whether your septic tank can handle the added volume.
- DON'T** poison your septic system and the groundwater by pouring harmful chemicals and cleaners such as chlorine bleach, toilet bowl cleaners, borax and drain openers down the drain.
- DON'T** drive over or park cars, trucks or heavy equipment on the tile bed.
- DON'T** plant trees or shrubbery in or near the tile bed, because the roots will grow into the lines and plug them.
- DON'T** pave the tile bed with concrete or asphalt.
- DON'T** drain your water softener backwashes into the septic tank. Use a class-2 leaching pit (dry well) or the sump hole in your basement.
- DON'T** add "starters" or "conditioners"; some will interfere with normal operations; others (particularly degreasers) contain cancer-causing substances that could contaminate the groundwater.

Septic system care - NEVER!

NEVER flush these items into the tank (they cannot be broken down by bacteria or will destroy the bacterial action):

- loose hair
- cigarette butts
- coffee grounds
- fat, grease, or oil
- dental floss
- paper towels
- disposable diapers
- sanitary napkins, tampons or condoms
- kitty litter
- gauze bandages
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NEVER flush chemicals into the tank (they could contaminate surface and groundwater):

- paints
- varnishes
- thinners
- waste oils

- photographic solutions
- pesticides or herbicides