

# Private Sewage Systems

Proper use and maintenance of your private sewage system will protect your water well from contamination.

As a rural landowner, you are responsible for properly using and maintaining your private sewage system. Improper use and lack of regular maintenance may contaminate your water well and local groundwater supplies, putting the health of your family and neighbours at risk.

## How does a private sewage system work?

A private sewage system is designed to treat, store and dispose of household wastewater. Wastewater contains everything that goes down the drains in your home, including human waste, toilet paper, food, dirt, grease, soap, detergents and cleaning products.

Most systems consist of a septic tank for initial breakdown of sewage, and a soil-based filtration component for wastewater disposal. In the septic tank, heavy particles (i.e. grit, hair, dirt, facial tissue, feminine hygiene products, coffee grounds, food scrapings) settle to the bottom as sludge and get slowly digested by anaerobic bacteria in the tank. Lighter particles (i.e. soap, grease, oils) that do not break down easily float at the top forming a scum layer. This clarifies the wastewater to effluent which gets pushed out to the soil-based component of the system (i.e. a sub-surface disposal field, a drain field or an above-ground mound). Here the effluent gets further filtered by subsurface bacteria as it slowly moves down through the soil before eventually reaching the local groundwater.

The solids and scum that accumulate in the tank is called septage. Septage contains high levels of nutrients (i.e. phosphorus and nitrogen), pathogenic organisms, and organic and inorganic solids; all of which can harm groundwater quality. Septage should be properly managed to ensure it does not create a health risk or cause contamination.

## What kind of system will I need?

If you are installing a new sewage system, it should meet both current and future needs. Take into consideration the size of your family, the number of water-dependent features in your home (toilets, showers, sinks, dishwasher, washing machine, hot tub) and your daily water use.

A certified contractor should visit you on site to discuss your needs, conduct soil tests to determine the suitability of the soil on your property for the various private sewage system options available, and then create a site plan. Only after this is done can they recommend an appropriate system for your home, submit an application with supporting documentation for the design and installation of your system, and obtain a permit. The permit is required before any work can begin on your property. After the system is installed it must be inspected by a Safety Codes Officer.

All systems must meet or exceed the requirements of the *Alberta Private Sewage Systems Standard of Practice 2009*. This document sets out performance objectives, design and installation standards, and material requirements for private sewage systems handling less than 25 cubic metres (5,500 Imperial gallons) sewage volume per day. It also outlines setback requirements from property lines, water sources (including water wells) and buildings.

## Who can install these systems?

In Alberta, only contractors who are certified by the Alberta Onsite Wastewater Management Association, and who hold a valid, annual Private Sewage Disposal System (PSDS) Ticket from the Province of Alberta, are eligible to obtain permits for and install private sewage treatment systems.

## What is involved in proper use of my system?

Proper use of your system begins with conserving water and monitoring your waste disposal habits.

Your system is designed to accommodate a specific volume of water. If your water use increases over time, you will increase the risk of overloading your system. Existing systems should be assessed from time to time to determine if they are capable of treating the amount of wastewater your family generates. Your needs may be greater now than the system was originally designed to handle.

Reducing the volume of solids and fats that enter your system can significantly reduce your maintenance costs and extend the life of the system. Monitor what and how much goes down the drain to reduce the accumulation rate of septage and the frequency of having it pumped and hauled away.

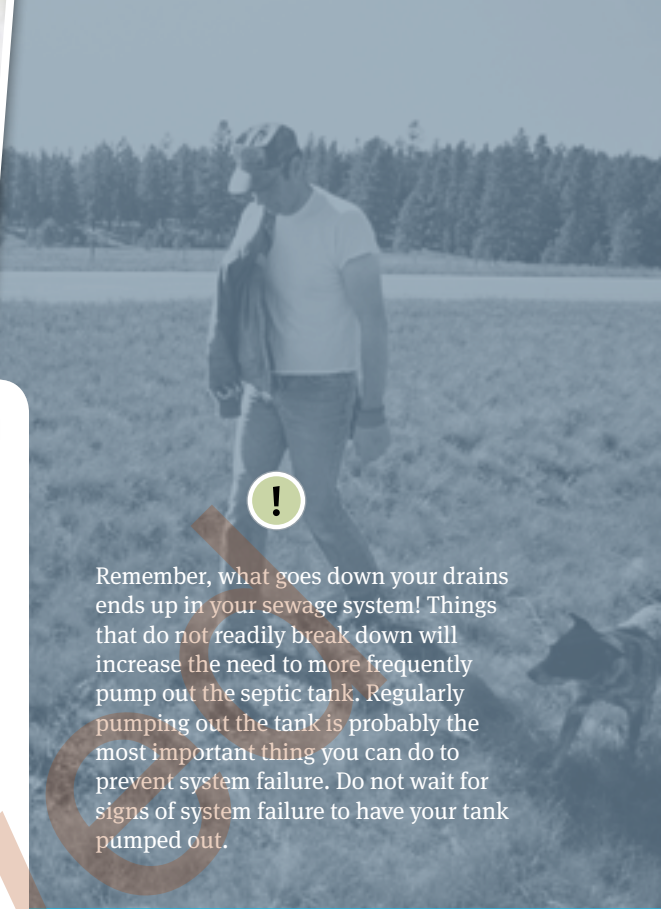
## How do I maintain my system?

Prevent costly repairs or replacement of your system with a proactive preventative maintenance strategy which includes a yearly inspection by a certified contractor.

A certified contractor can determine how effectively your system is working, measure the depth of sludge and scum in the tank and recommend how often it should be

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pumped out. If the accumulation exceeds 35 percent of the total water depth in the tank it should be pumped out. Typically, tanks are pumped out every one to three years, but the rate of sludge accumulation is directly related to your family's wastewater habits, the number of people using the system and the capacity of the septic tank.

The tank should be pumped out in spring or summer because the biological action in the tank will re-establish quicker during warm months. Warmer weather also makes it easier for a reputable septage hauler to remove the sludge from your tank and transport it to an approved treatment facility where it will be properly disposed of without causing harm to the environment. You should ask questions about where and how your hauler will dispose of your septage to be sure you are not contributing to any environmental contamination.

#### Why does a system fail?

As solids accumulate in the septic tank, they reduce the storage capacity of the tank which, in turn, reduces the amount of time sewage remains in the tank. When this happens solids do not settle and can get pushed out with the effluent, overloading the soil-based component of your treatment system and causing premature failure. The distribution pipes and the soil may get clogged.

#### How will I know if my system is failing?

Signs that a system is failing include:

- Sewage odours in the house or yard;
- Slow draining fixtures;
- Gurgling sounds in the plumbing system;
- Black liquid surfacing in your yard;
- Soggy or spongy ground around your septic tank or over the leaching beds;
- A change in plant growth;
- Your toilets, showers and sinks may

take longer than usual to drain;

- Sewage may back up into your home or ooze out at ground level in your yard;
- The presence of coliform bacteria, E. coli or nitrates in your well water tests.

#### How do I keep my system functioning properly?

**Be aware of the exact location of your system.** If you recently had a new system installed your certified contractor will have provided a detailed map, design drawings and an owner's manual which should be kept in your files. If you have an existing system, a contractor can help you to conduct an assessment of the system and sketch out location of the tank and distribution pipes.

**Keep accurate records** of any system maintenance or repairs, sludge and scum levels, pumping, condition of the soil-based component of the system, household backups, etc.

**Protect your treatment system from damage** by keeping vehicles and livestock off your drain field. Excess weight can compact the soil or cause damage to the distribution pipes.

**Restrict vegetation growth** on or around the system to grass only and keep it mowed regularly.

**Do not dispose of hazardous wastes in your sinks and toilets.** They do not break down in a private sewage system, will pass through with the effluent and pollute the local groundwater. If this occurs and if your well is tapped into a shallow aquifer, your water could become contaminated.

**There is no need to use septic tank additives.** They do not enhance performance or reduce the need to have the tank pumped out. In fact, some additives can impair the performance of your system.

Remember, what goes down your drains ends up in your sewage system! Things that do not readily break down will increase the need to more frequently pump out the septic tank. Regularly pumping out the tank is probably the most important thing you can do to prevent system failure. Do not wait for signs of system failure to have your tank pumped out.

#### FOR MORE INFORMATION:

##### Alberta Municipal Affairs

Advice for homeowners about private sewage systems, codes and standards, private sewage systems design tools and forms and a list of certified contractors [http://www.municipalaffairs.alberta.ca/cp\\_private\\_sewage.cfm](http://www.municipalaffairs.alberta.ca/cp_private_sewage.cfm)

##### Alberta Onsite Wastewater Management Association

Information on training and certification for contractors and wastewater treatment systems [www.aowma.com](http://www.aowma.com)

##### Alberta Private Sewage System Standard of Practice 2009

[http://www.municipalaffairs.alberta.ca/cp\\_private\\_sewage\\_codes\\_standards.cfm](http://www.municipalaffairs.alberta.ca/cp_private_sewage_codes_standards.cfm)

#### CONTACT US:

##### General Questions?

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##### Technical Questions?

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