

# Protecting your *well water*

As a responsible well owner, you need to carry out a regular program of well maintenance. Taking care of your well is a three-step process:

1. protect your well water at the ground surface by avoiding, eliminating, or reducing contaminants
2. inspect your well regularly and keep your well in good running order
3. test your well water regularly and respond to contamination problems

The following sections of this booklet will show you how.

The protection of source waters is the first step in protecting your well water. Source protection is often the most cost-effective way to keep contaminants out of drinking water. And it is almost always less expensive to keep water clean than to try to deal with the consequences of contamination.

## Well water protection *starts at home*

The most immediate threats to the safety of your well water are usually nearby – in your own yard.

As part of your routine well maintenance schedule, walk the grounds surrounding your well. Look for potential threats. A complete search for potential contaminants is recommended, at the same time as you inspect your well (see pages 21-22). You should also look for changes that could affect your well as part of your daily and weekly routines.

Keep these contaminants away from your well:

- pet and livestock wastes
- gasoline, diesel, home-heating fuels
- pesticides and fertilizers (chemical or natural)
- other hazardous chemicals, including paint, solvents, barbecue starter fluid, etc.
- de-icers (used to melt ice on roads, driveways, sidewalks)
- and any other substance you don't want in your family's drinking water.



Never hose down spills.

## Chemicals *and* fuels

Any chemical or fuel spills that infiltrate the ground can contaminate your drinking water source. Check that gasoline, pesticides, and other chemicals are stored in proper containers designed to help prevent spills or leakage. Don't store these materials anywhere near your well.

- Refuel lawn mowers and other machinery a safe distance from the well. (One litre of gasoline can contaminate 1 million litres of groundwater.) Refuel over hard surfaces to help prevent infiltration of spills.
- Change the oil in your vehicle on a sealed surface such as pavement or concrete away from the well.
- Clean up spills with an absorbent material, such as clean sand or kitty litter. Keep a bucket nearby for quick access when spills occur. Material used to clean up spills should be disposed of properly. Contact your local municipality for Household Hazardous Waste Days in your area.



Fuel and chemical leaks and spills can pollute groundwater.

## Septic systems

Locate your septic system down grade and away from your well. Ensure that your system conforms with the Sanitation Regulations under the Health and Community Services Act. Keep chemicals other than human waste out of the system. Pump out your septic tank every two to three years, or ask your pumper to specify the appropriate pump-out frequency. Keep your system in good running order by conserving water (see pages 19-20).



## Gardens

Eliminate gardens adjacent to your well. Plant a permanent low-growing ground cover such as grass. Don't use fertilizers or pesticides.

## Underground *storage tanks*

Underground storage tanks and associated pipes and fittings, particularly valves, may leak, especially if they are over 15 years old or lack corrosion protection. Underground storage tanks are a special concern if the water table is shallow, or if the tank is close to your well (or surface water). If possible, replace underground tanks with above ground storage that has proper spill/leak containment.

Underground heating oil storage tanks with only one wall will not be permitted in Newfoundland and Labrador after March 31, 2007.



## Above-ground *storage tanks*

If storage tanks are required, keep them as far as possible from your well. Install sheltered tanks with spill containment, as required by regulation, capable of holding 125 per cent of the volume of the tank. Security and protection from damage are advisable.

In Newfoundland and Labrador, heating oil tank owners must register their tanks on or before March 31, 2007. For registration procedures, contact your heating oil supplier or heating service contractor.

## Abandoned *tanks*

Look for evidence of abandoned tanks that pre-date your ownership, including pipes sticking out of the ground. An abandoned tank may still contain harmful liquids that will leak as the tank corrodes.

## Animal *wastes*

Livestock and pet wastes are a serious potential threat to well water, as the Walkerton, Ontario tragedy showed. Keep livestock and pets away from your well at all times.



Newfoundland and Labrador has about 290 public groundwater sources providing water to an estimated 54,000 residents.

## Source protection – *the bigger picture*

Contaminant sources affecting your well are most often found in your own backyard. Address these first. However, you should also support actions to protect all sources of drinking water for your community.

Municipal land-use plans need to identify vulnerable ground and surface waters. Land-use plans should provide the necessary protection through controls on the location, amount, and type of development.

Major sources of contamination need to be curbed, like polluting industries and urban and agricultural run-off.

Programs need to be in place to reduce risks of groundwater contamination from unused wells, open excavations, quarries, and contaminated sites.

Get involved in protecting sources of drinking water for your community. Contact your municipality for information.

# Inspecting *your well*

**It is the well owner's responsibility to maintain their well - to keep out surface run-off and foreign materials.**

**It is recommended that you conduct an inspection of your well at least once a year, as outlined below, at the same time as you check for potential contaminants (see page 13).**

**If you've got problems with your well water, or concerns about your well, have your well inspected by a DOEC licensed well driller.**

## Access

As part of your maintenance routine, keep your well clear of brush, debris, snow and other obstructions.

## Well cap

Check the well cap for signs of cracking or damage, and get it fixed or replaced immediately if there is a problem. The well cap should be firmly attached to the casing. The vent should face the ground and be properly screened to keep out insects. Only air should enter. The well cap should be above ground and exposed at all times; cleared from snow, leaves and other obstacles.

## Annular seal

Look for problems with the sealant used to fill the annular space between the drilled hole and the well casing. A depression in the ground around the edge of the casing can indicate that the sealant has shrunk, collapsed, or cracked. If you can move the casing around by pushing it, that's a bad sign. Cracking and gaps allow run-off and surface water to move down the outside of the well casing and contaminate your drinking water. A faulty annular seal needs to be repaired. Call a DOEC licensed driller.



## Well *casing*

Look for any external signs of damage, cracking, or dislocation of your well casing, e.g., due to vehicle damage. If you've got a small diameter well (drilled), removing the cap is not recommended. Visibility is limited and you could cause contamination or damage, especially if you have a submersible pump. Some licensed well drillers can inspect your casing with a down-hole camera. If you've got a larger diameter dug well, you can remove the lid with care. Inspect the inside casing using a strong flashlight. Look for holes or cracks, including evidence of animal infestations, or stains coming from the casing joints.



## Backflow *prevention*

Under certain circumstances, contaminated water can flow backwards through your plumbing into your well. Backflow prevention devices are available from your licensed well driller or pump installer.



# Well water *conservation*

## Why Conserve?

Water heating accounts for 11.1% of your personal greenhouse gas emissions (GHG).

### Avoid Water Shortages!

Many well owners have experienced their well going dry at one time or another. Help prevent water shortages by using water wisely.

### Help Your Septic System!

Too much water flowing through the septic system can cause problems and lower the life expectancy of your system. One study conducted found that overuse of water caused 75% of septic bed failures.

### Conserve Energy and Save \$\$\$!

Using less water means less energy is required for pumping, heating and treating your water. Making small changes can make a big difference in your energy bill. Replace your regular showerhead with a low flow version and save 25% of shower water annually, that's cash in your pocket!



### Be Kind to Mother Nature

By conserving water, you will be aiding Canada in its effort to protect our precious groundwater resource as well as reduce greenhouse gas emissions. About 29% of this Province's population relies on groundwater. It is essential that we help protect this valuable water supply by properly maintaining and protecting our wells.

The average Canadian produces five tonnes of GHG a year. Check out the One Tonne Challenge at [www.climatechange.gc.ca](http://www.climatechange.gc.ca) for information on how you can help reduce your GHGs.



## Tips to help you *conserve*:

### Use Water-Saving Devices

- Use up to 50% less water in your toilet by using an ultra low-flush 6-litre version. Dual-flush toilets can save 68% of water used by supplying separate flushing mechanisms for liquid and solid waste.
- When replacing your clothes washer, consider a front loading washer - they use 40% less water than top loading washers.
- Attach aerators to all your taps to reduce water consumption by 25%.

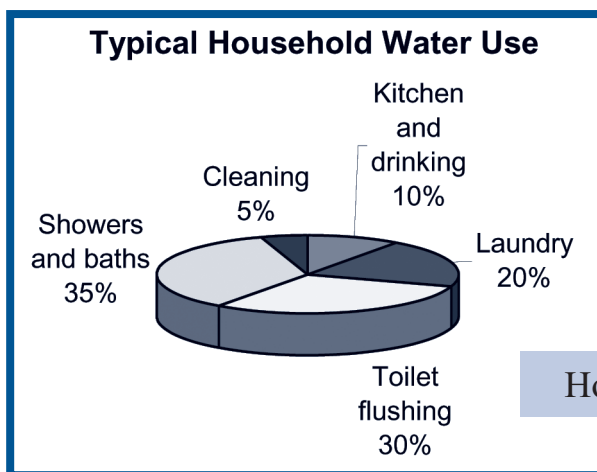
### Repair Leaks Quickly

- Leaks can waste thousands of litres of water if they are not repaired right away. Leaking water costs money to treat and heat and places wear and tear on your water system. That's money down the drain.

A leak of one drop per second will waste 10,220 litres per year!

### Use Water Wisely

- Never let water run continuously while washing dishes or brushing teeth.
- Collect rainwater and use it to water your garden. If you must use a water hose, use a shut-off nozzle to prevent wasting water.



How can *you* reduce?