

## More information... (continued)

- [Canadian Ground Water Association](http://www.cgwa.org/press/publications.htm)  
[www.cgwa.org/press/publications.htm](http://www.cgwa.org/press/publications.htm)
- [BC Provincial Health Officer's list of labs for microbiological analysis:](http://www.healthservices.gov.bc.ca/protect/approvedlabs.pdf)  
[www.healthservices.gov.bc.ca/protect/approvedlabs.pdf](http://www.healthservices.gov.bc.ca/protect/approvedlabs.pdf)
- [BC provincial registry of qualified well drillers and pump installers:](http://www.env.gov.bc.ca/wsd/plan_protect_sustain/groundwater/wells/applications/well_drillers_reg.pdf)  
[www.env.gov.bc.ca/wsd/plan\\_protect\\_sustain/groundwater/wells/applications/well\\_drillers\\_reg.pdf](http://www.env.gov.bc.ca/wsd/plan_protect_sustain/groundwater/wells/applications/well_drillers_reg.pdf)  
[www.env.gov.bc.ca/wsd/plan\\_protect\\_sustain/groundwater/wells/applications/pump\\_install\\_reg.pdf](http://www.env.gov.bc.ca/wsd/plan_protect_sustain/groundwater/wells/applications/pump_install_reg.pdf)
- [Type and frequency of chemical analysis:](http://www.des.state.nh.us/factsheets/ws/ws-2-1.htm)  
[www.des.state.nh.us/factsheets/ws/ws-2-1.htm](http://www.des.state.nh.us/factsheets/ws/ws-2-1.htm)  
[BC Ministry of Health Services, Health Files \(enter "water" in the search\)](http://www.bchealthguide.org/healthfiles/)  
[www.bchealthguide.org/healthfiles/](http://www.bchealthguide.org/healthfiles/)  
Note: If you do not have access to Health Files, they are available at local health units.
- [BC Ministry of Health Services, Safe Water Supply - Vital to your Health:](http://www.healthservices.gov.bc.ca/protect/pdf/PHI052.pdf)  
[www.healthservices.gov.bc.ca/protect/pdf/PHI052.pdf](http://www.healthservices.gov.bc.ca/protect/pdf/PHI052.pdf)
- [Health Canada, Guidelines for Canadian Drinking Water Quality Supporting Documents:](http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/doc_sup-appui/index_e.html)  
[www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/doc\\_sup-appui/index\\_e.html](http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/doc_sup-appui/index_e.html)
- [Environment Canada Groundwater website:](http://www.ec.gc.ca/water/en/nature/grdwtr/e_sixmil.htm)  
[www.ec.gc.ca/water/en/nature/grdwtr/e\\_sixmil.htm](http://www.ec.gc.ca/water/en/nature/grdwtr/e_sixmil.htm)
- [Considerations when purchasing water treatment equipment:](http://www.des.state.nh.us/factsheets/ws/ws-2-5.htm)  
[www.des.state.nh.us/factsheets/ws/ws-2-5.htm](http://www.des.state.nh.us/factsheets/ws/ws-2-5.htm)
- [Drinking Water from Household Wells \(US Environmental Protection Agency Manual\)](http://www.epa.gov/safewater/privatewells/booklet/)  
[www.epa.gov/safewater/privatewells/booklet/](http://www.epa.gov/safewater/privatewells/booklet/)
- [Wilkes University Ctr. for Environmental Quality, GeoEnvironmental Sciences & Engineering Dept.](http://www.water-research.net/helpguide.htm)  
[www.water-research.net/helpguide.htm](http://www.water-research.net/helpguide.htm)

## Health Protection

# Drinking Water Safety Tips for Private Well Owners



## Questions and Answers for

### 1) **I am a rural homeowner and have a water well as my source of drinking water supply. Isn't the Government or Health Department responsible for my water?**

As the well owner, you are responsible to ensure that the water you provide your household is safe to drink.

In BC, the ground water resources belong to the province but are not licensed or regulated for extraction purposes. This means that anyone who wants to extract and use ground water for drinking or other purposes does not require a permit to do so. Even though the government cannot guarantee the individual homeowner's quantity or quality of ground water for drinking water supply, it has recently established ground water protection regulation to improve the safety and quality of BC's ground water resources.

Under the BC Drinking Water Protection Act (2003), a domestic water system using a private well that serves only one single-family residence is not regulated, whereas public drinking water systems are. However, Section 23 of the Act (*Prohibition against contaminating drinking water*) does apply to all domestic water systems, even to a single-family residence. Fraser Health will provide monitoring services where there is a public health emergency (such as spills), suspected health hazard or as part of an investigation of a disease or outbreak of a disease or other health related matters. Furthermore, Fraser Health staff is available to offer advice, information and recommendations about domestic water systems.

### 2) **I am renting and get my water from the owners' well. Who is responsible for the safety of the water?**

According to Section 37 of the Provincial Health Act, Sanitary Regulations, the landlord is responsible for ensuring the tenants are supplied with safe, potable water.

### 3) **I can't find my well, what does it look like?**

Well types vary. Your well may be drilled, in which case you would typically see a 10 to 15 cm (4 to 6 inch) diameter metal casing sticking out of the ground by at least one foot. Sometimes these are buried in a vault, making it harder to locate. Dug wells are typically made of concrete rings 0.91 to 1.22 metres (3 to 4 ft) in diameter and typically less than 15 metres (50 ft) in depth. Driven wells or sandpoints are small diameter pipes (2.5 to 5 cm or 1 to 2 in) pounded into the ground typically to depths of less than 15 metres, the top of which may or may not stick up out of the ground. Dug wells and driven wells are more likely to have microbial contamination issues because they are generally constructed in unconfined sand and gravel sediments that have no protective clay type layers to act as natural barriers against potential surface sources of pathogens.

### 4) **Our well water looks clear, tastes okay, and smells fine. Does that mean it is safe to drink?**

Water that looks clear and tastes okay is not necessarily safe. Water that is colourless, tasteless and odorless may harbor harmful bacteria and chemicals. Laboratory testing is the only reliable way to assess the safety of your drinking water.

### **5) What could be in my well water that I should be concerned about?**

Bacteria such as E.coli; viruses such as Hepatitis A or Norovirus; and protozoa such as Giardia and Cryptosporidium can cause human illness. Shallow wells (those with water close to ground level) are at greatest risk. Naturally occurring or man-made sources of pollution can also come from chemicals such as arsenic and nitrates. Both pathogens and chemicals may cause unpleasant physical symptoms such as upset stomach, diarrhea or more serious illnesses. Some chemicals such as arsenic may increase the risk of cancer.

### **6) How do bacteria and chemicals get into my well water?**

Most outbreaks of waterborne disease are caused by the contamination of drinking water systems with wastes from infected animals or humans; many result from agricultural runoff, livestock manure, or individual septic systems that are not working properly. Chemicals such as arsenic, lead and cadmium can be found naturally in the rocks and soils within which ground water flows. In rural areas, chemicals such as nitrates can be introduced into wells from septic systems, animal manures or chemical fertilizers. Other chemicals such as hydrocarbons may be introduced into wells from leaking, unlined fuel storage tanks. Improperly applied or stored pesticides may also be a potential source of contamination. Proper wellhead construction by way of surface seal and well cap can help prevent contaminants from entering the well.

### **7) How do I go about getting my well water tested and how often, to determine if it is safe to drink?**

Call an analytical laboratory listed in your telephone directory's Yellow Pages, under "Laboratories-Analytical". The laboratory should be CAEAL-approved (Canadian Association for Environmental Analytical Laboratories) for chemical testing. They will outline available homeowners' test packages for bacteria and common chemicals and provide test kits for sampling. Bacterial testing should be done at least twice per year (preferably spring and fall) for indicator organisms such as Total Coliform and E.coli bacteria, and at least once every three years for a range of health-related chemicals including nitrates and arsenic.

You may also want to consider additional testing if there are any physical changes to the water quality such as taste, odor or colour. Depending on the land use activities around the well (within a 30 m or 100 ft radius), you may also want to have the water tested for other chemicals that may be in the area, such as hydrocarbons from leaking fuel tanks, or specific pesticides or herbicides applied to the ground or crops.

### **8) Who will interpret the laboratory testing results for me?**

Often, the laboratory will provide comments on your test results. You can access Health Canada's March 2006 Guidelines for Canadian Drinking Water Quality web site (see link on reverse), or you can contact a Fraser Health Drinking Water Public Health Inspector at 604-870-7900.

### **9) What do I do if the lab results show the presence of bacteria?**

You can disinfect your well. A handy reference is found in BCHealthFile #49b, Feb 2000. You can remove any potential sources of bacteria, if possible. You can consider installing an NSF or ANSI-certified water treatment system. A list of water treatment specialists can be found in the Yellow Pages of your telephone book.

If the well is not properly constructed or sealed, you may want to contact a qualified water well driller to improve the construction of your well or possibly have a new well drilled according to proper standards. A list of water well drillers can be found in the Yellow Pages of your telephone directory.

You may want to consider an alternative source of drinking water, such as connection to a nearby municipal drinking water source if possible, or a neighboring well. However, connecting to an existing well will constitute this arrangement as a water system and will be subject to the provisions of the Drinking Water Protection Act and Regulation.

### **10) What do I do if the lab test results show the presence of elevated health-related chemicals?**

Wherever possible, safely remove the pollutant source(s). You can also consider installing an NSF/ANSI-certified water treatment system, or consider an alternative source of drinking water.

### **11) Where do I get information about water treatment options?**

Look in the Yellow Pages of your telephone book under Water Treatment Suppliers/ Supplies. The treatment device should meet the following standards: NSF/ANSI Standard 62 on drinking water distillation systems, Standard 58 on reverse osmosis drinking water treatment systems, or Standard 53 on drinking water treatment units — with specific designation for the water quality parameters you are trying to remove (e.g. bacteria or cyst removal).

Certification assures that a device works as the manufacturer claims it does. Devices can be certified for treating a range of water quality concerns, so make sure that the device you purchase is explicitly certified for the removal of the contaminant of concern. Find an up-to-date list of accredited organizations at [www.scc.ca](http://www.scc.ca).

### **12) Where do I get more information about ground water and other things I should know about protecting my well from potential contamination?**

- [BC Ministry of Environment Well Head Protection](http://www.env.gov.bc.ca/wsd/plan_protect_sustain/groundwater)  
[www.env.gov.bc.ca/wsd/plan\\_protect\\_sustain/groundwater](http://www.env.gov.bc.ca/wsd/plan_protect_sustain/groundwater)
- [British Columbia Water Stewardship Division](http://www.env.gov.bc.ca/wsd/)  
[www.env.gov.bc.ca/wsd/](http://www.env.gov.bc.ca/wsd/)
- [Private Well Atlas](http://www.shim.bc.ca/atlas/pwn/instructions.cfm)  
[www.shim.bc.ca/atlas/pwn/instructions.cfm](http://www.shim.bc.ca/atlas/pwn/instructions.cfm)
- [BC Ministry of Environment Ground Water Quality Fact Sheets:](http://www.env.gov.bc.ca/wsd/plan_protect_sustain/groundwater/library/ground_fact_sheets/)  
[www.env.gov.bc.ca/wsd/plan\\_protect\\_sustain/groundwater/library/ground\\_fact\\_sheets/](http://www.env.gov.bc.ca/wsd/plan_protect_sustain/groundwater/library/ground_fact_sheets/)