



# Drinking Water Safety - WELLS

## Why should you sample your well?

Drinking water that has harmful germs in it can make you sick. These germs can give you stomach cramps and/or diarrhea as well as other problems. The only way to make sure that your water supply is safe to drink from is to test it regularly. Testing for bacteria is free, and sample bottles are available at the Health Unit. (It is also recommended that you have your well water tested for nitrates. A list of private laboratories is available at the Health Unit, or you can consult the Yellow Pages.)

## How to sample your well for bacteria

1. Obtain a water sample bottle from the Health Unit.
2. Remove the screen and other attachments from your tap.
3. Let the water run for two to three minutes before sampling.

### Do not touch the bottle lip, and do not rinse out the bottle.

4. Fill to the line marked on the bottle directly from the tap without changing the flow of water.
5. Replace cap tightly. Complete the form that came with the bottle.
6. Return the water sample and form to the Health Unit on the same day you take it.

## Water quality tests

**Total coliforms** are bacteria that are always present in animal waste and sewage but are also found in soil and on vegetation. The presence of these bacteria may indicate surface water entering your well.

**Escherichia coli (E. coli)** are bacteria found only in the digestive systems of people and animals. The presence of E. coli in your well is usually the result of sewage contamination from a nearby source.

## How to disinfect your well

If your well is contaminated, sometimes a one-time (shock) chlorination of your well will make it safe again. This procedure is not recommended if the well is dug (because dug wells are open to contamination) or if there is a known source of contamination. In these cases, you need a more permanent solution such as a new well or treatment device such as a chlorinator or an ultraviolet light. Consult a licensed well driller or plumber for help. Similarly, if shock chlorination does not work, consider adding a treatment device or constructing a new well.

**Dug wells, 1 m (3 ft.) in diameter:** Add 1 l (1 qt.) of household bleach for every 1.5 m (5 ft.) of water depth.

**Drilled wells, 15cm (6 in.) in diameter:** Add 85 ml (3 oz.) of household bleach for every 7.5 m (25 ft.) of water depth.

**Well points, 5cm (2 in.) in diameter:** Add 85 ml (3 oz.) of household bleach for every 3 m (10 ft.) of depth.

### Do not drink the water until you receive satisfactory sample results.

1. Add regular chlorinated household bleach (not lemon-scented) to the well. If you do not know how deep the water is in the well, use the well depth to estimate how much bleach to add.
2. Disconnect filters, run water through all taps and let sit for 12 hours.
3. Run the treated water through an outside hose away from the septic system until you no longer smell chlorine.
4. Resample in 48 hours. Three satisfactory samples collected one to three weeks apart indicate a bacteriologically safe supply.

**NOTE :** Most water treatment equipment, such as water heaters, softeners and pressure tanks, should remain connected to the system during disinfection. Some water filters, such as carbon filters, should be temporarily disconnected or bypassed during shock chlorination. Check owner manuals or manufacturer's information before shock chlorinating to avoid damage to equipment.



## Emergency treatment

Remember, you are disinfecting your well because the water is unsafe. You can make it safe by:

1. Bringing water to a rapid rolling boil for one minute.
2. Adding 1.25 ml (8 drops or 1/4 tsp.) of chlorinated household bleach per 4.5 l (1 gal.) of water. Mix well and allow to stand for 15 minutes. (This treatment will not kill parasites.)
3. Refrigerate boiled or treated water until used.

## How to interpret laboratory results

Do not attempt to apply these interpretations to surface water used for swimming.

Total coliforms	E. coli	What it means
0	0	SAFE for drinking. Maintain regular testing.
1-5	0	Three samples with these results, collected one to three weeks apart, indicate a bacteriologically safe supply, if the supply is protected and located at least 15 m (50 ft.) for a drilled well or 30 m (100 ft.) for other types of wells from any source of human or animal waste. Repeat samples may not show exactly the same results because bacteria are not distributed uniformly in water. Contamination tends to enter intermittently
6 to >80	0	UNSAFE for drinking unless boiled or treated. Common with new wells before disinfection and shallow dug wells that are not properly sealed.
1 to >80	1 to >80	UNSAFE for drinking unless boiled or treated. The water is contaminated and should not be used for drinking under any circumstance. The contamination is likely due to waste of human or animal origin
Est.	--	UNSAFE for drinking unless boiled or treated. Number has been estimated due to some interference with the test. Exact number is not critical for judging safety, especially if in excess of limits shown above.
O/G	--	UNSAFE for drinking unless boiled or treated. Test was overgrown with non-coliform bacteria, making the coliform results unclear. Collect another sample. If condition persists, consult a Public Health Inspector. This condition frequently occurs with new wells, dug wells receiving soil drainage or wells that have been idle for some time.

## Possible sources of contamination

### Well Construction

If there is a problem or suspected problem with your well construction, contact a [licensed](#) well driller for advice.

1. Top not sealed properly and surface water can enter the well. Most prevalent in dug or bored wells but can also occur in drilled wells.
2. Joints of bored or dug wells not sealed to a depth of 2.5 m (10 ft.) below surface. This is the major source of contamination in old brick or stone wells.
3. Improper seal on steel casing and top of casing is below ground level and surface water drains into the well.
4. Earth should be mounded around well and graded away from well to prevent surface water accumulation around the well.

### Well Location

1. Well located too close to a septic tank, weeping tile bed, stable, manure pile or other source of contamination.
2. Dug or bored wells located too close to a ditch, stream, pond or lake.

### Cisterns

1. Cisterns attached to eaves troughs are not considered safe for drinking. This water is easily contaminated by bird and animal droppings, leaves, and roofing chemicals. Only sealed and maintained cisterns supplied with water from an approved source are considered safe.
2. The Health Unit recommends adding 250 ml (1 cup) of household bleach to every truck-load of water entering your cistern. Ideally, the cistern should be physically cleaned and disinfected on an annual basis.

## Recommendations for daily activities if your water is unsafe

**Hand washing:** Use bottled, boiled or treated water or use the usual supply for hand washing, followed by an alcohol-based hand sanitizer.

**Food preparation:** Use bottled, boiled or treated water to make juice or formula or to wash ready-to-eat foods such as fruit and vegetables. If the food will be boiled at a rolling boil for one minute during the cooking process, it is not necessary to use treated water. Do not use ice cubes made with the unsafe water.

**Bathing/showering:** Adults may continue to use the usual supply, as long as no water is swallowed. After you bathe or shower, follow the above procedure for hand washing. Give sponge baths to children using treated water.

**Brushing teeth:** Use bottled, boiled or treated water.

**Laundry:** Use your usual source of water.

**Dish washing:** Use bottled, boiled or treated water.

**Pets:** Use bottled, boiled or treated water.

**Livestock:** Consult a veterinarian regarding water for livestock.

## How to care for your private well

### To ensure your well is safe, make sure:

- The sanitary seal or well cap is securely in place and water-tight.
- Joints, cracks and connections in the well casing are sealed.
- Surface draining near the well is directed away from the well casing.
- Well pump and distribution systems are checked regularly.
- Changes in the quantity and quality of water are investigated immediately.

Abandoned wells should be sealed to prevent pollution of ground water and any safety hazards. It is recommended that a qualified professional be hired.

*Adapted from the Canadian Institute of Public Health Inspectors.*

*For more information about safe water, call the Environmental Health Team at 519-426-6170 or 905-318-6623.*

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