

Flooding and Water-Well Safety

Water Resources Management Division
Department of Municipal Affairs and Environment

After flooding, private well owners should take actions to ensure their well water is safe for consumption. When a water supply well has been affected by flood waters, the water within the well may be contaminated with bacteria or other microorganisms that can cause serious illness in humans and pets. If you believe that your well has been contaminated, discontinue using your well water for drinking and cooking purposes, and use only disinfected or boiled water.

This fact sheet provides guidance on what to do if your water well has been affected by flood waters.

1. Assess the condition of your well:

A flood will leave warning signs that your water well may be unsafe. Below are things that a well owner can look for, any one of which could indicate that a well is contaminated. Most private wells have the pump located inside the well casing and submerged, so well owners will probably not be able to inspect the pump. Well owners should contact a qualified professional, licenced well driller or pump contractor, to evaluate and service well pumps.

- Is the well located in or near the area that was flooded? If you did not see the area during the flood, debris and mud in the area and water or mud stains on the well can indicate that the well was flooded.
- Is the ground surface around the well intact and stable? During flooding the ground around the well may erode, possibly creating unsafe conditions or a pathway for surface water and contaminants to enter the well.
- Are there any electrical components or wires visible? Visible electrical wires may be dangerous and should be avoided due to electrical shock. If electrical connections or controls located outside the well casing remain submerged, turning on the pump may cause electrical shock or damage to the system. A qualified electrician should be contacted.
- Is any damage to the well casing visible? A bent or cracked well casing may allow surface water, sediment and debris to enter the well and will increase the risk of contamination.
- Is the well cap and seal securely fastened to the well casing? A loose well cap can allow sediment and debris to enter the well and contaminate it.

2. Repair the damage:

To avoid damage to the well, mud, silt and other debris should be removed from the well casing, cap, and all accessible components. **Be sure electricity is off before you clean any electrical components.**

Floodwater carries large debris that can dislodge parts of the well and distort or crack the well casing. Floodwater may also deposit a large amount of sediment in the well. If an excessive quantity of mud, silt or debris has entered the well, the pump may need to be removed to be cleaned.

If any of these conditions are observed, you should have professionals repair your system.

Re-grade the ground around the well to direct all surface water away from the well casing. Surface water contains contaminants that can readily flow into the well if surface water is allowed to flow down along the well casing.

After the well has been inspected and cleaned, the well should be pumped until the water runs clear to rid the well of floodwater. Use an outside spigot and a hose to direct the water to a nearby drainage-way rather than into your septic system or public sewer (after flooding, both septic systems and public sewers may be overwhelmed and do not need more water).

Depending on the size and depth of the well and extent of contamination, pumping times will vary. It may take as little as thirty minutes, or it could be several hours or days.

3. Disinfect your well:

“Shock chlorination” is a process designed to inactivate harmful bacteria within the well and distribution system. For wells contaminated by bacteria as the result of flooding, shock chlorination should effectively reduce the bacteria levels. Shock chlorination is **NOT** intended to provide disinfection of the aquifer beyond the immediate location of a well.

Unless you are familiar with water wells, and are comfortable working with chemicals, the disinfection process should be done by a licensed water well driller or licensed plumber.

If you have point-of-use or point-of-entry home water treatment devices, consult with your water treatment company before starting with chlorination.

If you wish to disinfect your well yourself, complete instructions for disinfecting both dug and drilled wells are available on the Water Resources Management Division Web page at <http://www.mae.gov.nl.ca/waterres/cycle/groundwater/well/disinfecting.html>

4. Basic water testing:

After a contaminated well has been properly disinfected and the chlorine has been flushed out of the water system, the water should be tested to confirm that bacterial contamination has been removed. If chlorine odours persist, you may have to do additional flushing, or wait several days before testing to be sure that all the chlorine has been flushed from the water system.

Until testing shows that the water is free of bacterial contamination, you should continue to use disinfected or boiled water.

Information on how to get your well water sampled for bacteria can be found on the Department of Health and Community Services Web site at:

<http://www.health.gov.nl.ca/health/publichealth/envhealth/drinkingwater.html>

Bacteriological testing samples can be dropped off at Government Service Centres or the local GS Environmental Health Office.

Keep in mind flood waters could also contaminate your drinking-water well with oil, gasoline, pesticides, fertilizers or other chemicals. Your drinking-water well may need additional **chemical** testing if any of the following have occurred:

- If there have been any spills nearby as a result of the flood, for example due to damaged fuel oil tanks;
- If you notice any changes to your water quality, such as cloudy water or unusual odours; or
- If your well-water quality has never been tested.

A list of laboratories accredited by the Canadian Association for Environmental Analytical Laboratories (CAEAL) in the region that can carry out routine physical and chemical analysis on drinking water can be found at: <http://www.mae.gov.nl.ca/waterres/quality/labs.html>

For further information, or if you have additional questions, contact the Water Resources Management Division, Department of Municipal Affairs and Environment at 709.729.2563 or 709.729.2539 or e-mail groundwatersection@gov.nl.ca