

# Flood Recovery

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**Package Includes:**

- After the Flood – A Homeowner’s Checklist
- Drinking Water Affected by Flooding
- Private Septic Systems – What To Do
- Disinfection Instruction Sheet

## After the Flood - A Homeowner's Checklist

NOTE: This publication was last revised in 2008. For more current information, please refer to the Government of Canada's Get Prepared Web site: <http://www.getprepared.gc.ca/cnt/hzd/flds-ffr-eng.aspx>

After a flood, it's important to restore your home to good order as soon as possible to protect your health and prevent further damage to your house and belongings. Whether you do the work yourself or hire a contractor, this handy checklist will help you organize the clean up.

Immediate action is important. Your house and furnishings are less likely to grow mold if they are dried within 48 hours.

### BEFORE YOU BEGIN

- Put your own safety first. Avoid electrical shock. Wear rubber boots. Keep extension cords out of the water. Shut the power off to the flooded area at the breaker box. Ask your electrical utility for help if needed.
  - Record details of damage, with photos or video if possible. Contact your insurance agent immediately and register with your municipality—your municipality may have resources you need, such as future financial assistance.
  - Set up a step-by-step action plan to:
    - remove all water, mud and other debris
    - dispose of contaminated household goods
    - rinse away contamination inside the home
    - remove the rinse water
    - clean and dry out your house and salvageable possessions.
  - Be prepared to make difficult decisions about what to keep and what to throw out.
- Household items that have been contaminated by sewage, or that have been wet for a long time, will have to be bagged, tagged and discarded according to local regulations.
- Assemble equipment and supplies:
    - gloves, masks (N95 respirators) and other protective gear
    - pails, mops, squeegees and plastic garbage bags
    - unscented detergent
    - large containers for wet bedding and clothing, and lines to hang them to dry
    - you may also need to rent extension cords, submersible pumps, wet/dry shop vacuums and dehumidifiers or heaters.
  - Store valuable papers that have been damaged in a freezer until you have time to work on them.

### FIRST STEPS

- Remove standing water with pumps or pails, then with a wet/dry shop vacuum.
- Remove all soaked and dirty materials and debris, including wet insulation and drywall, residual mud and soil, furniture, appliances, clothing and bedding.
- Hose down any dirt sticking to walls and furnishings, then rinse several times, removing the remaining water with a wet/dry shop vacuum. Rinse, then clean all floors as quickly as possible. Flooring that has been deeply penetrated by flood water or sewage should be discarded.
- Work from the top down. Break out all ceilings and walls that have been soaked or that have absorbed water. Remove materials at least 500 mm (20 in.) above the high-water line. Removing only the lower part of the wall applies if action is taken immediately after the flood or wetting event. Gypsum board walls that have been exposed to high humidity or standing water for a prolonged period of time should be removed in their entirety and discarded. Ceiling tiles and panelling should be treated like drywall.
- Wash and wipe/scrub down all affected or flooded surfaces with unscented detergent and water. Rinse. Repeat the process as

needed. Concrete surfaces can be cleaned with a solution of TSP (tri-sodium phosphate) in water (one half cup TSP to one gallon of warm water). When using TSP, which is highly corrosive, wear gloves and eye protection.

- **Bleach is not recommended.** The presence of organic (humic) materials, the pH (acidity/alkalinity) of the water, the surface material and contact time affect the effectiveness of bleach for disinfection. Since these factors are not generally controlled, bleach cannot be relied upon for disinfection. The most compelling reason for advising against bleach is that fumes are harmful but in addition, overuse of bleach will result in increased releases of chlorinated effluents, which can be harmful to the environment.
- Surfaces that are dry and/or have not been directly affected by the flood water should be vacuumed with a HEPA vacuum cleaner. Further cleaning of concrete surfaces can be done with TSP. Washable surfaces can be washed with unscented detergent and water. Surface mold on wood can be removed with a vacuum-sander. Do not sand without simultaneous vacuuming. Wood that looks moldy after sanding may need to be replaced.

- After cleaning the surfaces, ventilate or dehumidify the house until it is completely dry. Rapid drying is important to prevent mold growth. When the outside weather permits (low humidity and moderate temperature), open doors and windows and hasten the drying process with fans. If the outside weather is not suitable and you notice that drying is not happening fast, use dehumidifying equipment, renting extra units as necessary.

To determine if the outdoor air can help dry the air inside, place a hygrometer in the area to be dried. Let it stabilize then open a window and monitor the Relative Humidity (RH). If it goes down then it means the air is dry enough to assist the drying process. If the RH increases, close the window.

- Carpets must be dried within two days. Sewage-soaked carpets must be discarded. Homeowners can't effectively dry large areas of soaked carpets themselves. Qualified professionals are required.
- Ensure that all interior cavities and structural members are completely dry (which could take weeks) before closing cavities.

## WHAT TO KEEP OR DISCARD

- Discard and replace all insulation materials, and all less-expensive articles that have been soaked, including particleboard furniture, mattresses, box springs, stuffed toys, pillows, paper and books.
- Separate valuable papers. Ask a lawyer whether you should save the papers themselves or just the information on them.
- The frames of good quality wood furniture can sometimes be salvaged, but must be cleaned and dried by ventilation away from direct sunlight or heat. Consult a furniture restoration specialist. Coverings, paddings and cushions must be discarded and replaced.
- Scrape heavy dirt from washable clothes, rinse and wash several times with detergent and dry quickly.

## BEFORE MOVING BACK IN

- Do not use flooded appliances, electrical outlets, switch boxes or fuse/breaker panels until they have been checked by your local utility.
- If they have been soaked, consult an HVAC (Heating, Ventilation and Air Conditioning) contractor to replace the furnace blower motor, switches and controls, insulation and filters. Inspect all flooded forced air heating ducts and return-duct pans and have them cleaned out or replaced. Seek advice from your local utility about a water heater that has been wet. Refrigerators and freezers may need to be replaced.
- Flush floor drains and sump pits with detergent and water and scrub them to remove greasy dirt and grime. Clean footing drains outside the foundation if necessary.

## Private Septic Systems Flooding - What to Do

If required, contact your Municipal Office as they may have information on your septic system design and location.

### Your Health

When flooding or saturated soil conditions persist, a private septic system cannot function properly.

Flooding of a private septic system may be a hazardous situation for homeowners. It may result in sewage backing up in your home, contaminating drinking water and the lack of sanitation until the problem is resolved.

### Prior to Possible Flooding

- Ensure that your septic tank is full of liquid.
- Shut off power to the sewage lift pump if you have one in the house or in a pump chamber.
- Prepare for possible basement flooding.
- Have available at least 72 hours of a safe water supply located in a safe location.

### Do I pump my septic tank before or during flooded/saturated septic field conditions?

No! At best, pumping the tank is only a temporary solution. Under worst conditions, pumping it out could cause the tank to float out of the ground and may damage the inlet and outlet pipes. The best solution is to plug all drains in the basement and drastically reduce water use in the house.

### What do I do with my septic system after the flood?

Once floodwaters have receded, there are several things homeowners should remember:

- Do not drink your well water until it is tested and proven safe. Contact the Health Unit at 613-966-5500 for assistance.
- Do not use the sewage system until water in the septic field is lower than the water level around the house. Use a portable toilet if possible.
- Have your septic tank professionally inspected and serviced if you suspect damage. Signs of damage include settling or an inability to accept water. Most septic tanks are not damaged by flooding since they are below ground and completely covered. However, septic tanks and pump chambers can fill with silt and debris, and must be professionally cleaned. If the septic field is clogged with silt, a new system may have to be installed.
- Only trained specialists should clean or repair septic tanks because tanks may contain dangerous gases. Contact your municipal office for direction.

- If sewage has backed up into your basement, refer to the Health Unit Fact Sheet: *Cleaning Up After Sewage Backup*.
- Pump the septic system as soon as possible after the flood. Be sure to pump both the tank and lift station (if applicable). This will remove silt and debris that may have washed into the system from entering septic field. Do not pump out the tank during flooded or saturated septic field conditions.
- Do not compact the soil over the septic field by driving or operating equipment in the area. Saturated soil is especially susceptible to compaction, which can reduce septic field efficiency.
- Have all electrical connections inspected for damage before restoring electricity.
- Be sure the septic tank's manhole cover is secure and that inspection ports have not been blocked or damaged.
- Check the vegetation over your septic tank and septic field. Repair erosion damage and sod or reseed areas as necessary to provide turf grass cover.
- Flooding of a septic tank will have lifted the floating crust of fats and grease in the septic tank. Some of this scum may have floated and/or partially plugged the outlet tee. If the septic system backs up into the house check the tank first for outlet blockage. Clean up any floodwater in the house without dumping it into the sink or toilet and allow enough time for the water to recede. Floodwaters from the house that are passed through or pumped through the septic tank will cause higher flows through the system. This may cause solids to transfer from the septic tank to the septic field causing clogging.
- Aerobic plants, upflow filters, trickling filters, and other media filters have a tendency to clog due to mud and sediment. These systems will need to be washed and raked.

### **Outhouses**

Ensure that the outhouse is still positioned over the pit. If the outhouse has shifted, cover the open pit with sturdy boards and mark the perimeter with stakes and rope/marker tape to prevent accidental falls. Reposition the outhouse over the hole or have it properly filled in.

If water is in the pit, add 2 litres of unscented liquid bleach every three to four days until the water disappears.

### Development Documents:

1. United States Environmental Protection Agency, Septic Systems What to Do after the Flood. September 2005.

[http://www.epa.gov/safewater/faq/pdfs/fs\\_whattodoafteraflood\\_septic\\_eng.pdf](http://www.epa.gov/safewater/faq/pdfs/fs_whattodoafteraflood_septic_eng.pdf)

2. British Columbia, Sewage Systems and Flooding: Safety, Sanitation and Clean-up

<http://www.health.gov.bc.ca/emergency/flooding.html>

<http://www.health.gov.bc.ca/emergency/pdf/preparing-for-a-flood.pdf>

# Emergency Preparedness

## ***Drinking Water Affected by Flooding***

After a flood, groundwater sources of drinking water can become contaminated and your drinking water may not be safe to drink or use for cooking and cleaning.

### **If you have a municipal drinking water supply:**

- Listen to and follow public announcements. Local authorities will tell you if your municipal tap water is safe to use and what steps to take if not.

### **If you have a well or cistern water supply:**

- If your well or cistern has been flooded it may be contaminated. Until this water is tested to confirm it is safe to drink you should use boiled water (at least 1 minute rolling boil) or an alternate safe drinking water supply such as bottled water for cooking or preparing food, making baby formula, washing dishes, cleaning, brushing your teeth, washing your hands, making ice, and bathing.
- Boiling water will not remove chemical contaminants. If you suspect or are informed that your water is contaminated with chemicals, use another known safe source of water, such as bottled water and consult with a water treatment specialist.
- Once the flood water has receded, your well and/or cistern will need to be disinfected. Refer to Health Canada's fact sheet on well maintenance and disinfection procedures.
- For further information contact your local health unit. For contact info:  
[http://www.health.gov.on.ca/english/public/contact/phu/phuloc\\_mn.html](http://www.health.gov.on.ca/english/public/contact/phu/phuloc_mn.html)

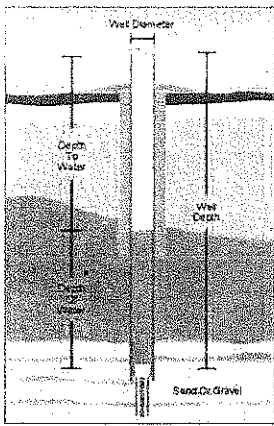
### Sources

1. Centers for Disease Control and Prevention - *Fact Sheet: Keep Food and Water Safe After a Disaster or Power Outage* <http://www.bt.cdc.gov/disasters/foodwater/facts.asp>
2. Health Canada - *What's in Your Well? - A Guide to Well Water Treatment and Maintenance* <http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/well-puits-eng.php>
3. Disinfection Instruction Sheet - <http://www.healthunit.biz/docs/environment/Disinfection%20Instruction%20Sheet.pdf>

Environmental Health  
613-966-5513 ext. 677  
Toll Free 1-800-267-2803  
TTY 613-966-3036  
[www.yourhealthunit.ca](http://www.yourhealthunit.ca)

Health Unit  
  
Hastings &  
Prince Edward Counties

# Disinfection Instruction Sheet



If your drinking water continues to test positive on repeated submissions, consult your local health unit, which can help you interpret the results of your tests and provide you with advice on what measures you can take to safeguard your drinking water.

The first step in identifying the reason for repeated adverse water quality is to conduct a visual inspection of your well. Start with a close look at your well. The area around it should be

clear of any potential contaminant sources, such as pets, lawn care products, and gardens. Once you're satisfied that the area around your well is okay, take a good, close look at the well itself. If you have an older well, make sure that the cap and the sealant around the well casing isn't cracked or damaged. If it is, you need to fix or replace it right away. If the source of the problem can't be detected, consult a licensed well contractor right away to identify the source of the problem and eliminate it. You can save yourself a lot of money by doing this instead of rushing out to buy a home treatment device that may be expensive to install, operate, and maintain. And it may not eliminate the source of your trouble.

(If you have a cistern, please talk to your public health unit about disinfection requirements.)

1. Measure the diameter of the well.
2. Measure the well depth and the static or resting water level, then calculate the depth of water in the well.
3. Using the table on this sheet, measure out the amount of bleach needed. (The table gives the volume of bleach needed for different well sizes.) Then, pour the mixture into your well.
4. If possible, mix the water in the well. This can be accomplished by attaching a hose to a tap, running water from the well, through the hose and back into the well.
5. After adding chlorine to the well, remove or bypass any carbon filters that are in the system for water treatment. If you don't, these filters will remove the chlorine from the water, and any pipes beyond the filter will not get disinfected. Replace with new filters after chlorination to avoid reintroducing bacteria into the system.
6. Run water at every faucet in the house (and barn, if you have one) until a strong chlorine odour is detected. Be aware that your nose may lose its ability to detect chlorine.
7. If there is no chlorine smell or it is very weak, add more bleach to the well and repeat Step 6 above.
8. Drain the water heater and fill with chlorinated water.
9. Backflush the water softener and all water filters (except carbon filters).

10. Let the chlorinated water stand in the system for at least 12 hours.

11. Clear chlorine from the well by running an outside hose to the ground surface. Then, run clear water through the faucets until the water no longer smells of chlorine.

12. Avoid putting too much chlorine into the septic system because the bacteria needed for septic decomposition may be killed.

13. Do not drink the water without boiling it until test results show the water is safe to drink.

**Volume of Bleach to Add for Every 3 Metres (10 Feet) of Water in the Well\***

Casing Diameter		Volume of Unscented Bleach (5.25% solution)
Millimetres	Inches	
50	2	6
100	4	30
150	6	60
200	8	100
250	10	200
300	12	250
400	16	400
500	20	650
600	24	900
900	36	2000 (2 litres)
1200	48	3600 (3.6 litres)

**For example:** If you have 6 metres (20 feet) of water in your well and it has a casing diameter of 100 mm or 4 inches, you would add 60 mm or 2 fluid ounces of bleach.

\* For questions or more information on how to disinfect your well, contact your local health unit.