

# Floods

## What to do After a Flood



### How to Avoid Illness



Always wash hands with soap and water that has been boiled or disinfected before preparing or eating food, after toilet use, after participating in flood cleanup activities, and after handling articles contaminated with flood water or sewage. If a person has a puncture wound or a wound contaminated with feces, soil, or saliva, contact family physician, health department or nearest walk-in clinic to determine if a tetanus booster is necessary.

### Make Sure the Food is Safe

Do not eat any food that may have come into contact with flood water. For infants, use only pre-prepared canned baby formula that requires no added water rather than powdered formulas prepared with treated water. Thawed food can usually be eaten or refrozen if it is still “refrigerator cold,” or if it still contains ice crystals. To be safe, remember, **“When in doubt, throw it out.”** Discard any refrigerated or frozen food that has been at room temperature for four hours or more and any food that has an unusual odor, color, or texture.

### Make Sure the Water is Safe

Listen for public service announcements on the safety of the municipal water supplies on local radio stations. Flooded, private water wells will need to be tested and disinfected after flood waters recede. *Questions about testing should be directed to the health department’s Division of Environmental Health. 810-987-5306*

Safe water for drinking, cooking, and personal hygiene includes bottled, boiled, or treated water. The health department can make specific recommendations for boiling or treating water in the area. Here are some general rules concerning water for drinking, cooking, and personal hygiene:

- Do not use contaminated water to wash dishes, brush teeth, wash and prepare food, wash hands, make ice, or make baby formula. Use an alcohol-based hand sanitizer to sanitize hands.
- If using bottled water, be sure it came from a safe source! If it is unknown if the water came from a safe source, boil or treat it before using. Use only bottled, boiled, or treated water until supply is tested and found safe.
- Boiling water is the preferred way to kill harmful bacteria and parasites. **Bringing water to a rolling boil for one minute will kill most organisms.**
- When boiling water is not practical, treat water with chlorine tablets, iodine tablets, or unscented household chlorine bleach (5.25% sodium hypochlorite)
  - If using chlorine tablets or iodine tablets, follow the directions that come with the tablets.
  - If using household chlorine bleach, add 1/8 teaspoon (~0.75 mL) of bleach per gallon of water if the water is clear. For cloudy water, add ¼ teaspoon (~1.50mL) of bleach per gallon. Mix the solution thoroughly and let it stand for about 30 minutes before using it.

*Note: Treating water with chlorine tablets, iodine tablets, or liquid bleach will not kill parasitic organisms.*

## How to Handle Mosquitoes

The large amount of pooled water remaining after the flood will lead to an increase in mosquito populations. To protect from mosquitos use screens on dwellings and wear long-sleeved and long-legged clothing. Insect repellents containing DEET are very effective. To control populations, drain all standing water left in containers around the home as well as the property itself.

## Watch for Chemical Hazards



Be aware of potential chemical hazards you may encounter during flood recovery. Flood waters may have buried or moved hazardous chemical containers of solvents or other industrial chemicals from their normal storage places. If any propane tanks (*whether 20-lb. tanks from a gas grill or household propane tanks*) are discovered, do not attempt to move them. These represent a very real danger of fire or explosion, and if any are found, contact authorities immediately. Car batteries, even those in flood water, may still contain an electrical charge and should be removed with extreme caution by using insulated gloves. Avoid coming in contact with any acid that may have spilled from a damaged car battery.

## How to Deal with Electric and Gas Utilities

Electrical power and natural gas or propane tanks should be shut off to avoid fire, electrocution, or explosions until it is safe to use them. Use battery-powered flashlights and lanterns, rather than candles, gas lanterns, or torches. If gas is smelled or a leak is suspected, turn off the main gas valve, open all windows, and leave the house immediately. Notify the gas company or the police or fire departments and do not turn on the lights or do anything that could cause a spark. Avoid any downed power lines, particularly those in water. All electrical equipment and appliances must be completely dry before returning them to service. It is advisable to have a certified electrician check these items if there is any question. Also, remember not to operate any gas-powered equipment indoors!

## Safely Re-Enter the Flooded Home

When returning to a home that has been flooded after natural disasters, it is important to be aware that the home may be contaminated with mold or sewage, which can cause health risks.

- If there is standing water in the home and it is safe to turn off the main power from a dry location, turn off the power even if it delays cleaning. If an individual must enter standing water to access the main power switch, then call an electrician to turn it off.
- **NEVER turn power on or off or use an electric tool or appliance while standing in water!**



- Have an electrician check the house's electrical system before turning the power on again.
- If the house has been closed up for several days, enter briefly to open doors and windows to let the house air out for a while (*at least 30 minutes*) before staying for any length of time.
- If the home has been flooded and has been closed up for several days, presume the home has been contaminated with mold and sewage.

## Proper Clean Up

Walls, hard-surfaced floors, and many other household surfaces should be cleaned with soap and water and disinfected with a solution of one cup of bleach to five gallons of water. Wash all linens and clothing in hot water or dry clean them.

For items that cannot be washed or dry cleaned, such as mattresses and upholstered furniture, air dry them in the sun and then spray them thoroughly with a disinfectant and steam clean all carpeting. If there has been a backflow of sewage into the house, wear rubber boots and waterproof gloves during cleanup.

Remove and discard contaminated household materials that cannot be disinfected, such as wall coverings, cloth, rugs, and drywall.

Mark these items as “contaminated” when putting them out to be disposed of. This is to dissuade others from taking these items and unnecessarily putting themselves at risk for disease exposure.

Contaminated items  
do not handle.

## Drying out a home

- If weather permits, open windows and doors of the house to aid in the drying-out process. Use fans and dehumidifiers to remove excess moisture. Fans should be placed at a window or door to blow the air outwards rather than inwards, so not to spread the mold.
- If electricity is available and an electrician has determined that it is safe to turn it on, use a “wet-dry” shop vacuum (or the vacuum function of a carpet steam cleaner), an electric-powered water transfer pump, or sump pump to remove standing water. If operating equipment in wet areas, wear rubber boots.
- If electricity is not available or it is not safe to turn it on, use a portable generator to power equipment to remove standing water. *Note: If using a gasoline-powered pump, generator, pressure washer, or any other gasoline-powered tools to clean the home, NEVER operate the gasoline engine inside a home, basement, garage, carport, porch, or other enclosed or partially enclosed structures, even if the windows and doors are open. Improper use can create dangerously high levels of carbon monoxide and cause carbon monoxide poisoning!*
- Have the home Heating, Ventilating, and Air-conditioning (HVAC) system checked and cleaned by a service professional who is experienced in mold clean-up **before** turning the unit on. If the HVAC system was flooded with water, turning on the mold-contaminated HVAC will spread mold throughout the house. Professional cleaning will kill the mold and prevent later mold growth. When the service determines that your HVAC system is clean and if it is safe to do so, turn it on and use it to help remove excess moisture from the home.

## Prevention

- Prevent water outdoors from reentering home. For example, rain water from gutters or the roof should drain away from the house and the ground around the house should slope away from the house to keep basements and crawl spaces dry.
- Ensure that crawl spaces in basements have proper drainage to limit water seepage. Ventilate to allow the area to dry out.
- Inspect drains on and near property for blockage.



***For more sources of information on this topic visit:***

ST. CLAIR COUNTY HEALTH DEPARTMENT [www.scchealth.co](http://www.scchealth.co)

MICHIGAN DEPARTMENT OF HEALTH AND HUMAN SERVICES [www.michigan.gov/mdhhs](http://www.michigan.gov/mdhhs)

CENTERS FOR DISEASE CONTROL AND PREVENTION [www.cdc.gov](http://www.cdc.gov)

FEDERAL EMERGENCY MANAGEMENT AGENCY [www.ready.gov](http://www.ready.gov)