

## **WHEN THERE'S A FLOOD** *What you NEED TO KNOW* *to protect your health and safety*

### **Before You Evacuate**

If there is time, move important papers, television sets, computers, stereo equipment and easily moveable appliances such as a microwave oven to the upper floors of your home.

If your basement floods before you have a chance to shut off electric and natural gas service, do not enter the basement. There is the possibility of electric shock if any electrical wires are touching the water. Contact your electric company as soon as possible.

If you have to leave your home, use the following checklists to help you do so safely and minimize the amount of damage to your home while you are away.

- **Turn off all electrical appliances.**
- **Turn off the electricity at the main fuse or circuit breaker**
- **Turn off water at the main valve.**
- **Turn off propane gas service.** Propane tanks often become dislodged in emergency situations.
- **Leave natural gas on.** Unless local officials advise otherwise, leave natural gas on because you will need it for heating and cooking when you return home. If you turn the gas off, a licensed professional is required to turn it back on and it may take weeks for a professional to respond.
- **Drain your plumbing if it is likely that the temperature in your house will go below freezing.** Shut off the water service valve. Then turn on the highest and lowest hot and cold water taps in the house (often a laundry sink in the basement is the lowest tap). This will drain most of the water out of your system. Also, flush toilets and remove water from lower bowl to prevent freezing damage. Leave all taps open until you return.

### **On the Road**

If you evacuate because of a flood, do not drive around barricades; they are there for your safety. If your car stalls in rapidly rising water, abandon it immediately and climb to higher ground.

## **Cleaning Up After a Flood**

### ***Garbage Storage, Collection and Disposal***

As you start cleaning, you will likely produce a great deal of garbage. Local authorities will tell you where and when collection will occur. Garbage invites insects and rodents. Rodents, in particular, may be looking for food because the flood may have destroyed their homes and normal food source. Store garbage in watertight, rodent/ insect-proof containers with tight-fitting covers. Use plastic liners if available. Pile garbage in a convenient location but not near your well. If a rodent problem develops, use traps purchased at your local hardware, lawn, garden and grocery stores. Standing water is a breeding ground for some insects. When possible, drain or fill areas of standing water.

### ***Flush Toilets***

If floodwaters are covering your septic tank and leach field, you should not use any flush toilets attached to the system. Septic systems rely on gravity to pull the wastewater down and away from the surface. When the system is flooded, wastewater can rise and mix with surface water, exposing people to human waste. If you are unable to use the toilets in your home, use portable toilets such as the type used for camping. Some communities may set up banks of commercial portable toilets for resident use.

### ***Food, Containers and Utensils***

Raw foods that were exposed to flood waters may be contaminated and should not be eaten.

Food and food containers that have been in or splashed with floodwaters need to be either thrown away or properly cleaned. Canned foods can be used unless the cans are swollen, rusted, seriously dented, or the contents cannot be identified. Wash off food cans that are still sealed and disinfect them for five minutes in a bleach solution of two teaspoons of bleach per gallon of water.

Discard food containers with lids that are screwed on or pressed on (such as soda and beer bottles). They cannot be cleaned adequately.

Clean and disinfect dishes, utensils and cookware in a solution of two teaspoons bleach per gallon of water. Do NOT use this method on sterling silver tableware. The bleach will cause these items to tarnish. Sanitize sterling silver by putting it in boiling water for at least two minutes.

### ***Household Cleanup***

During flood cleanup, the indoor air quality in your home or office may appear to be the least of your problems. However, flooding may cause indoor air quality problems that could last for a long time and cause you and your family to get sick. The next few pages provide information about how to reduce the likelihood that you will have indoor air quality problems. The information is intended to be used in conjunction with the FEMA/Red Cross booklet **Repairing Your Flooded Home**, which details general cleanup methods.

#### *Preparing for Cleanup*

Get the free booklet, **Repairing Your Flooded Home**, from your local health department, the Federal Emergency Management Agency (FEMA) or your local chapter of the American Red Cross (see listings the end of this section). Read that booklet carefully before cleanup because it discusses flood safety issues and can save your life. The booklet also contains detailed information about proper methods for cleaning your home.

#### *Remove Standing Water*

For health reasons and to lessen structural damage, all standing water should be removed as quickly as possible.

The water can "wick" into the walls causing a greater area to be affected. Standing water is a breeding ground for bacteria and mold, which can become airborne and be inhaled. Where floodwater contains sewage or decaying animal carcasses, infectious disease is a concern.

Even when flooding is due to rainwater, the growth of bacteria and mold can cause allergic reactions in sensitive individuals.

**An exception to the water removal rule is if there is fuel oil floating on top of the water in a flooded basement.** This usually happens when a basement floods and the oil tank was not properly fastened to the floor. The oil should be cleaned up before the water is pumped out. If the oil is not removed first, then the walls and floor will be coated with oil as the water is removed. Oil should not be discharged to the ground outside because oil can contaminate drinking water wells and storm water runoff. Environmental contractors have special apparatus to contain the spilled oil. Contact the Department of Environmental Conservation Region 3 office at (845) 256-3121 for more information.

### *Use Cleaners and Disinfectants Wisely*

Be careful about mixing household cleaners and disinfectants together. Check labels for warnings. Mixing certain types of products can produce toxic fumes and result in injury and even death.

The cleanup process involves thorough washing and disinfecting of the walls, floors, closets, shelves and contents of the house. In most cases, common household cleaning products and disinfectants can be used for this task. The Federal Emergency Management Agency also suggests using disinfectants and sanitizers when cleaning the heating and air conditioning ductwork if it has been flooded.

Disinfectants and sanitizers contain substances that can cause other problems. The health effects from chemicals in household cleaning products vary greatly, from "no known health effects" to "serious health effects." Read and follow label instructions carefully and provide fresh air by opening windows and doors. If it is safe for you to use electricity and if the house is dry, use fans both during and after the use of disinfecting, cleaning and sanitizing products.

## ***Drinking Water***

Assume *all* water sources are unsafe until approved by your local health department. Until water sources are approved, use health department- approved bottled water (look for the New York State certificate number on the label), or water distributed by a health department approved tank truck until your well is usable or public water has been restored.

- If your well has been covered over with floodwaters, it should be disinfected.
- Follow local officials' water usage restrictions to conserve water.
- If you must use water of unknown quality, it should be disinfected.

## ***Excess Moisture and Indoor Air Quality***

Bacteria and mold brought into the home during flooding may present a health hazard. These organisms can penetrate deep into soaked, porous materials and later be released into the air or water. Coming into contact with air or water that contains these organisms can make you sick. High humidity and moist materials provide ideal environments for the excessive growth of bacteria and mold that are always present in the home. This may result in additional health concerns such as allergic reactions.

Also, increases in home humidity over the long term can foster the growth of dust mites that are a major contributor of allergic reactions and problems with asthma.

Be patient. The drying out process could take several weeks and the growth of bacteria and mold will continue as long as humidity is high. If the house is not dried out properly, a musty odor, which signifies the growth of bacteria and mold, can remain long after the flood.

Remove wet materials: Discarding items, particularly those with sentimental value, can be difficult for some people. However, keeping certain items soaked by water may be unhealthy. Some materials tend to absorb and keep water more than others. As a general rule, materials that are wet and cannot be thoroughly cleaned and dried may have to be discarded because they can remain a source of bacteria growth.

Look in the FEMA/ Red Cross booklet, **Repairing Your Flooded Home**, "Step 4," for an explanation of how to dry out the different types of construction material that are used in your house (for example, plaster, wallboard, insulation).

The booklet suggests that you may be able to dry out and save these building materials. You may, however, want to consider removing and replacing them to avoid indoor air quality problems. Because they take a long time to dry, these materials may be a source of bacteria growth.

In addition, fiberboard, fibrous insulation and disposable filters should be replaced if they are in your heating and air conditioning system and came in contact with water. If a filter was designed to be cleaned with water and was in contact with clean rain water only, thoroughly clean it before reinstalling.

Dry out your home as quickly as possible. Dehumidifiers, fans and open windows all help. Avoid using too much heat because it will encourage bacteria and mold growth more quickly.

### ***Well Contamination***

If the area around your well gets flooded or if you suspect that your well is contaminated, you need to disinfect the water in the well before using it for washing and at the tap before using it for drinking water or for cooking. You should continue disinfection at the tap until the water is tested and found suitable for drinking. Contact your local health department for information about testing your well. Changes in the water's appearance, taste or odor may indicate possible contamination.

After disinfecting the well, the water should be tested to determine whether all bacterial contamination has been removed. You should wait several days to test the water to be sure that all the chlorine has been flushed from the water system. Contact your local health department for more information about testing your well. Until testing shows that the water is free of contamination, you should continue to use bottled or disinfected water for drinking and food preparation as described in Disinfecting Water.

You may wish to consider retesting the well water again after several weeks. If flooding and groundwater contamination is extensive, your well may not be a suitable source of drinking water for some time.

Severe flooding that damages the well casing, deposits debris around the well or submerges electrical controls will require a qualified professional for evaluation, servicing and disinfection.

#### *Procedure for Disinfecting a Well*

- Run water until clear, using an outdoor faucet closest to the well or pressure tank.
- Mix two quarts household bleach containing about 5% chlorine in 10 gallons of water in a large bucket or pail in the area of the well casing.
- Turn electrical power off to the well pump. Carefully remove the well cap and well seal if necessary. Set aside.
- Place hose connected to outdoor faucet inside well casing. Turn electrical power back on to the well pump and turn water on to run the pump.
- Carefully pour the water and bleach mixture from the bucket or pail down the open well casing. At the same time, continue to run the water from the hose placed inside the well casing.
- At each indoor and outdoor faucet, run the water until a chlorine odor is present, then shut each faucet off.

- Continue running water through the hose inside the well casing to recirculate the chlorine treated water. Use the hose to also wash down the inside of the well casing.
- After one hour of recirculating the water, shut all faucets off to stop the pump.
- Disconnect power supply to pump. Remove recirculator hose from well. Mix two more quarts of bleach in 10 gallons of water and pour mixture down the well casing. Disinfect the well cap and seal by rinsing with a chlorine solution. Replace well seal and cap. Allow the well to stand idle for at least eight hours and preferably 12 to 24 hours. Avoid using the water during this time.
- After the well has idled for the recommended period of time, turn the pump on and run the water using an outdoor faucet and garden hose in an area away from grass and shrubbery until the odor of chlorine disappears. Run all indoor and outdoor faucets until the odor and taste of chlorine disappears.

### ***Avoid Airborne Asbestos and Lead Dust***

If you have to remove all or part of walls or floors, lead or asbestos-containing materials (for example, paint, plaster, pipe wrap) could be disturbed, causing lead dust or asbestos fibers to be spread around your home. Lead is a highly toxic metal that produces a range of health effects, particularly in young children. Long term exposure to airborne asbestos can cause lung cancer and mesothelioma, a cancer of the chest and abdominal lining. If you know or suspect that your home contains lead-based paint or asbestos, contact the New York State Department of Health at 800-458-1158 for information about steps you should take to avoid contaminating your home.

## TO LEARN MORE:

### ***New York State Department of Health***

[www.nyhealth.gov](http://www.nyhealth.gov)

New York State Department of Health  
Center for Environmental Health  
(800) 458-1158

### **Other Information Resources**

#### ***Federal Emergency Management Office (FEMA)***

FEMA

P.O. Box 2012

Jessup, MD 20794-2012

[www.fema.gov](http://www.fema.gov)

FEMA provides information and services for the public concerning natural and man-made disasters. Copies of the booklet **Repairing Your Flooded Home** are available from FEMA or the American Red Cross (The booklet's publication number is ARC 4477. See American Red Cross contact information below).

#### ***Emergency Management Offices***

[www.nysemo.state.ny.us](http://www.nysemo.state.ny.us)

Every county has an emergency management office. Requests for individual assistance should be made through your county emergency management office, which can be found in your local telephone book. Some county emergency management offices are part of a county government web site.

The New York State Emergency Management Office (SEMO) can assist county emergency management agencies as needed.

#### ***American Red Cross***

[www.redcross.org](http://www.redcross.org)

Contact your local Red Cross listed in the telephone book. If you cannot find a local contact, call the Red Cross at (800) 787-9282.

**Salvation Army**

[www.salvationarmyusa.org](http://www.salvationarmyusa.org)

Your local Salvation Army Office is listed in the telephone book. The Salvation Army has local, regional and national disaster service programs. Salvation Army staff and volunteers assist in both local incidents and major disasters. Salvation Army disaster response teams are coordinated and directed by commissioned officers and trained personnel and supported by volunteers.

***In addition, the Environmental Protection Agency (EPA) and the Centers for Disease Control and Prevention (CDC) have helpful information on their web sites devoted to flood response.***

[www.epa.gov/iaq/pubs/flood.html](http://www.epa.gov/iaq/pubs/flood.html)

[www.epa.gov/iaq/pubs/images/floods.pdf](http://www.epa.gov/iaq/pubs/images/floods.pdf)

<http://www.bt.cdc.gov/disasters/floods/>

**Flooding Impact on Schools**

*For information about clean-up in schools (including mold prevention tips), check the following web sites:*

[www.oce.nysed.gov/disaster](http://www.oce.nysed.gov/disaster)

[www.epa.gov/mold/table1.html](http://www.epa.gov/mold/table1.html)