



Before, During and After a Flood

Flood response information to help you reduce risk to your family and property



King County

Department of
Natural Resources and Parks
Water and Land Resources Division
**River and Floodplain Management
Section**

Department of Executive Services
**King County Office of
Emergency Management**

Public Health
Seattle & King County



**Local Hazardous Waste
Management Program**
in King County, Washington

Flood preparation and response resources

- **National Flood Insurance Program**
888-379-9531
www.floodsmart.gov
- **King County Flood Warning Information Line**
Recorded flood phase information, year-round, for area rivers and emergency sandbag information during flood events only.
206-296-8200 or 800-945-9263
- **King County Flood Warning Center**
Staffed 24 hours during a flood event to answer questions and provide information.
206-296-4535 or 800-768-7932
- **King County Flood Warning System**
Access to flood warnings and watches, important phone numbers, and preparation tips.
www.kingcounty.gov/flood
- **King County Flood Preparation**
Regional flood planning resources and current information about the Howard Hanson Dam and Green River Valley flood planning efforts.
www.kingcounty.gov/floodplans
- **King County Flood Alerts**
Sign up to be notified by phone, text or e-mail when a King County river reaches a flood phase.
206-263-3400 or
www.kingcounty.gov/flood
- **Regional Public Information Network (RPIN)**
Breaking news and public alert system.
www.rpin.org
- **3Days3Ways**
Emergency and disaster preparedness tips and resources.
www.3days3ways.org
- **Take Winter By Storm**
Information about how to prepare for bad weather.
www.takewinterbystorm.org
- **Public Health – Seattle & King County**
Disaster preparedness and response information.
www.kingcounty.gov/healthservices/health/preparedness/disaster.aspx
206-296-4600 (voice); TTY Relay: 711; or toll-free, 800-325-6165
- **Household Hazard Waste**
Household hazardous waste disposal services for King County residents.
www.govlink.org/hazwaste
206-296-4692, 1-888-TOXICED (869-4233)
- **American Red Cross**
206-323-2345 or 360-377-3761
www.seattleredcross.org
- **Local Utility Agencies**
Puget Sound Energy: 1-888-225-5773
Seattle City Light: 206-684-7400
(206-684-3000 during a flood event)

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Key Flood Terms

Advisory: A report or warning information, for example, as issued by the National Weather Service.

Breach: A failure – such as a gap or tear – in a flood water retaining structure like a sand bag wall or a levee.

CFS: Cubic feet per second; the discharge rate measured 1 foot wide and 1 foot deep, of water moving an average velocity of 1 foot per second, equaling 448.8 gallons per minute.

Directive: An order or instruction issued by a central authority, for example, by mayor, county executive, governor, or military officer.

Evacuation: Withdrawal of people, animals, equipment for things from an endangered area as ordered by civil authorities.

Flood or Flooding: A general and temporary condition of partial or complete inundation of normally dry land areas from the overflow of inland or tidal waters or the unusual and rapid accumulation of runoff of surface waters from any source.

Flood Hazard Areas: A flood hazard area is any area subject to inundation by the base flood or risk from channel migration including, but not limited to, an aquatic area, wetland or closed depression.

Floodplain: The floodplain is the total area subject to inundation by the base flood.

Levee: A man-made structure, usually an earthen embankment, designed and constructed to contain, control, or divert the flow of water to provide protection from temporary flooding.

Overtop: The flow of water over a dam, embankment or levee.

National Flood Insurance Program: The federal program under which flood-prone areas are identified and flood insurance is made available to the owners of the property in participating communities.

Warning: A preliminary notice of an order or action which is to follow.



Flooding in KING COUNTY

Many parts of King County flood every year, including areas that have no history of floods. Flooding most commonly occurs from November through February during periods of heavy rainfall and rapid snowmelt. Since 1990, river flooding has led to 11 presidentially declared disasters in King County.

Many flood insurance plans take 30 days or longer to take effect.

You need to know

- Homeowner's insurance policies do not cover flooding. Flood insurance is a rider on a homeowner's policy.
- The leading cause of flood-related deaths is from motorists driving through standing water or around barricades or road-closure signs.
- Floodwaters may be contaminated with raw human sewage, animal waste, chemicals and other contaminants that can make people sick.
- Other flood-related hazards include mudslides, debris accumulation, chemical spills and mold and mildew problems.

The leading cause of flood-related deaths is from motorists driving through standing or moving water.

Planning **ahead** and **knowing where to get help** during and after a flood will help you and your family manage a flood emergency. Go to the King County Web page on flood preparedness to learn more about what you can do.

www.kingcounty.gov/flood

The importance of having flood insurance

Flood-related damages to your home, business or property can cost hundreds of thousands of dollars to repair.

Everyone should have flood insurance, especially if you live in a flood-prone area. Anyone can get flood insurance; even if you have been flooded before or are located in an area not mapped as a floodplain.

Many insurance plans take 30 days or longer to take effect. Purchase a flood insurance policy long before a threat of flooding exists. Also consider getting coverage for sewage line backups into your home, as many policies may not cover that type of damage.

Know the flood profile of where you live or work

- Look up a parcel or area, using iMap to determine if it is in a floodway or floodplain.
www.kingcounty.gov/iMap
- Identify the flood risk where you live or work.
www.floodsmart.gov

Additional resources online:

- **Federal Emergency Management Agency: National Flood Insurance Program**
www.floodsmart.gov
- **King County: Flood Preparedness**
www.kingcounty.gov/floodplans



What to do BEFORE A FLOOD

Planning ahead

1. Buy flood insurance to protect your property

- A standard homeowner insurance policy will not cover flood damage. Contact your insurance representative or visit www.floodsmart.gov.

NOTE: All properties in King County are eligible for a discount on flood insurance.

- If you have flood insurance, review your policy for structure and content coverage. Understand what your policy covers and does not cover.
- Inventory your belongings and take pictures or video of specific items of value.
- Consult with your insurance agent to ensure you are covered for potential damage caused by sewer backups from flooded public sewer lines, if applicable.

2. Establish an emergency plan for your family, pets and livestock and update it annually

- Identify an out-of-state contact to call during a major disaster or emergency; it will be easier to call out of the area if local lines are tied up.

- Make sure family members know your emergency phone numbers, and when to call them. List emergency plan contacts on the inside back cover of this booklet.
- Make sure everyone knows when and how to call 9-1-1.
- Establish meeting places outside the hazard area in case family members are separated by rising floodwaters.
- Identify reliable transportation to ensure you can safely evacuate if told to do so.
- Know multiple routes from your home or business to high ground.
- Locate, and learn how and when to turn off, gas, electricity and water valves. Contact your local utility.
- Make sure you understand the emergency plans and expectations of schools and your job.
- Plan to help family, friends or neighbors who are elderly or have special needs.
- Make arrangements for temporarily housing your family, pets and livestock in the event you need to evacuate.

Have an emergency plan



Make a plan

Build a kit



Get involved

For a complete checklist of emergency supplies visit www.3days3ways.org

3. Keep emergency supplies on hand

- Emergency kits should include flashlights, fresh batteries, non-perishable food and drinking water for people and pets, essential medicines and a first-aid kit.
- Purchase a hand-crank or battery-operated radio and extra batteries.
- Keep your emergency supply kits up to date, for example medicine and contact information.
- Make sure you have kits for your family's home and individuals' vehicles, jobs and schools.



Be prepared to evacuate or shelter in place.

4. Keep at least a half-tank of gas in your vehicle at all times. Power outages often accompany disasters and gas stations rely on electricity to power their pumps.

5. Identify items needed for evacuation.

Store important personal items in a convenient, secure place you can get to quickly. Personal items needed may include: mobile phone and charger; medications; eyeglasses; dentures; hearing aid and batteries; contact lenses and cleaning solution; respiratory aids such as oxygen; and mobility aids such as cane, crutches, walker or wheelchair.

6. Subscribe to one or more automated alert systems,

to receive emergency alerts and other breaking news.

Go to www.RPIN.org or www.kingcounty.gov/flood to sign up.



7. Minimize potential flood damage

- Store valuables on the second story of your home or in your attic, or higher up on the ground floor.
- Ensure that underground fuel storage tanks are fully sealed and secure. www.ecy.wa.gov/biblio/0909190.html
- Move vehicles and equipment to higher ground.
- Consider purchasing one or more submersible pumps in advance to remove water in and around your home during heavy rains or flooding.

8. Learn how to shut off water, gas and electricity. Be prepared to turn off electrical power when there is standing water, broken power lines or before you evacuate. Turn off gas and water supply shut off valves before you evacuate.

9. Long-term measures to consider

- Elevate furnace, water heater and electrical panels above flood height.
- Install sewer backflow valves—flooding can cause sewer lines to back up into buildings through sewer drainpipes. Backflow valves are designed to block drainpipes temporarily to prevent sewage backing up into the building. Check this Web site for more information: www.scemd.org/Library/DisasterMitigation/Flood/ProtectPropFloodBackflowValves.pdf

NOTE: This work should be done by a qualified contractor.

10. Keep street drains, storm grates and flap gates free of leaves and other debris. Call the King County Road Services Division at 206-296-8100 if you need assistance.

11. Buy sand and sandbags ahead of time and learn how to use them.

Properly filled and placed, sandbags can act as a barrier to divert moving water and prevent or reduce floodwater from entering your property. Sandbags and supplies can be purchased through private vendors year-round. Check the Internet or your local phone directory for hardware stores and sandbag suppliers. For more information go to www.kingcounty.gov/flood.

12. Managing hazardous household chemicals. Automotive products, cleaners, solvents, fuels and pesticides released into floodwater are harmful to humans, animals, sources of drinking water and the environment. They also make clean up more complicated.

Minimize this risk:

- Check product labels. If they say **caution, warning, danger** or **poison** they contain hazardous chemicals. Some of these materials can burn, kill, poison or react violently with water or air and must be stored and disposed of properly.

Check product labels



Common household chemicals can create a safety risk to you and your family in a flood.

Safest Safest products DO NOT have the words CAUTION, WARNING, DANGER or POISON .
Moderate hazard Safer products are labeled CAUTION or WARNING .
Highest hazard Avoid using products labeled DANGER or POISON .

- **If you don't need it – get rid of it.** Recycle or dispose of hazardous household materials at the Wastemobile or disposal sites. For hazardous waste disposal locations and the Wastemobile schedule, call 206-296-4692; toll free at 1-888-TOXICED or visit www.govlink.org/hazwaste/house/disposal/.
- Store needed household chemicals and other hazardous materials above possible flood levels in original, sealed and labeled containers.

Prepare your septic system

A flooded septic system increases the possibility of contaminating aquifers or nearby drinking water sources with sewage. Take these steps to prepare your septic system before a flood:

1. **Seal all possible points of surface water into the system.** If possible, seal the manhole and inspection ports on the septic tank and pump (if present) tank to minimize surface water leaking in.
2. **An empty septic tank may float if flooded,** so it is a good idea to delay routine pumping of the tank during flood season unless absolutely necessary.
3. **If your septic system is dependent on electricity, know how to:**
 - Turn off the pump at the circuit box before the area floods.
 - Waterproof all electrical connections to avoid electrical shock or damage to wiring, pumps and the electrical system.

Swimming pools and hot tubs

1. **Secure play equipment,** flotation mats/boards, tables, chairs and other equipment that can float.
2. **Reduce supplies of disinfection chemicals** to minimal levels or move to storage areas above flood level or off site.
3. **NOTE:** Disinfection chemicals, gas chlorine tanks, acids, reagents and supplies used in pools and hot tubs should be kept dry and not mixed together due to risk of explosion.

Additional resources online:

Centers for Disease Control and Prevention: Key Facts about Flood Readiness

www.emergency.cdc.gov/disasters/floods/readiness.asp



What to do DURING AND AFTER A FLOOD

Stay safe and informed

- 1. If advised to evacuate by authorities or public officials, do so immediately.**
- 2. Avoid floodwater and moving water – turn around, don't drown.**
 - Wading through deep standing water or driving around barricades and road closure signs is very dangerous and the leading cause of flood-related deaths.
 - Water may be contaminated by oil, gasoline, hazardous materials, animal waste, or sewage. It may also be electrically charged from underground or downed power lines.
- 3. Be aware of areas where floodwater have receded.** Roads may be weakened and could collapse under the weight of a car.
- 4. Stay away from downed power lines** to avoid electrocution. Call 9-1-1 immediately to report a downed power line. Then call your local utility company. Puget Sound Energy 1-888-225-5773. Seattle City Light, 206-684-7400 (or 206-684-3000 during a flood incident).
- 5. Listen for news reports** to learn whether your community's water supply is safe to drink.
- 6. Return home only when authorities state it is safe.** Use extreme caution when entering buildings; there may be hidden damage, particularly in foundations.
- 7. Stay out of any building if it is surrounded by floodwater.**
- 8. Use extreme caution around loose hazardous materials or their containers.** Smoke, heat, staining, or chemical smells may indicate a dangerous reaction. If a container is unlabeled, assume hazards are present. Stay away.
- 9. If an injury occurs:**
 - To avoid infection, clean minor puncture wounds or cuts with soap and water. You may need to see your health care provider for a tetanus shot or antibiotics.
 - For serious injuries, go to an emergency room or call 9-1-1.



**Turn around,
don't drown!**

Prevent carbon monoxide poisoning



Never burn charcoal inside your home, tent, camper, van, truck, garage, or mobile home. **Do not** burn charcoal in your fireplace or use it to cook inside your home.

Never sleep in a room while using an unvented gas or kerosene heater.



Never use gasoline powered equipment **indoors**. Never use a gas oven to heat your home, even for a short time.

If using your fireplace to heat your home, make sure that chimneys and flues are open, in good condition and are not blocked.



Never idle a car in a garage, even when the garage door is open.

Never use a generator indoors, in garages or carports. Only use a generator outdoors and far from open windows and vents.



NOTE: Carbon monoxide warning devices may provide additional protection, but should not replace other prevention steps.

Sandbag distribution

Sandbags can be an effective flood fighting tool. Properly filled and placed, sandbags can act as a barrier to divert moving water and prevent or reduce floodwater. During a flood, free emergency sandbag supplies will be available to the public on a limited basis.

- For sandbag distribution locations during a flood, call the King County Flood Warning Information Line at 206-296-8200 or 800-945-9263 or go to www.kingcounty.gov/flood.
- After a flood, property owners are responsible for removing sandbag installations in compliance with their local jurisdiction's regulations.
- Call your local emergency management agency or listen to news reports for instructions on how to dispose of sand and sandbag materials following a flood event.

Create a diluted bleach sanitizing solution by mixing together:

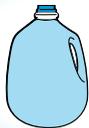
Plain, unscented household bleach



1 tsp.

+

Water



1 gallon

or



1 cup

+



5 gallons

CAUTION: Never mix bleach and ammonia because the fumes can be fatal.

General health and safety precautions

Clean and disinfect everything that got wet

1. Child safety:

- Do not allow children to wade or play in contaminated water or sand from sandbags.
- Do not leave buckets with even small amounts of liquids unattended. If toddlers topple into a bucket they could drown.

2. Protect yourself when cleaning or retrieving materials.

Use chemical-resistant leak-proof gloves, eye protection, and boots, and plastic buckets, bags or trays to collect materials. Mud left from floodwater can contain sewage and chemicals.

3. Keep hazardous materials away from other debris.

These need to be disposed of separately from household or other garbage.

4. Clean non-porous surfaces that may be contaminated by floodwater.

First clean surfaces with soap and clean water, then use a diluted bleach solution to disinfect (see box). Allow to air dry.

5. Safely manage garbage.

Store garbage away from food and water in rodent-resistant garbage cans. Have a spare container with a tight fitting lid for storing garbage in case regular pick-up is not available.

- 6. Service damaged septic tanks, cesspools, pits, and leaching systems as soon as possible.** Damaged sewage systems are serious health hazards.

Sanitation and hygiene

During and after a flood emergency, practicing good basic personal hygiene and sanitation is critical to helping prevent the spread of illness and disease. Keeping hands clean during an emergency helps prevent the spread of germs.

- 1. Wash hands with soap and clean, running water** (if available):

- before and after preparing food;
- before and after eating food;
- after using the toilet;
- after changing diapers and cleaning children;
- if you are sick;
- after handling an animal or animal waste; and
- after handling garbage.



- 2. If running water is not available, create a temporary handwashing station** by using a large water spigot jug that contains clean water. If being used indoors, use a catch basin to catch the water. Also have soap, paper towels, and a trash can available.
- 3. If soap and/or clean, running water is not available, then use an alcohol-based gel** (more than 60% alcohol) to clean hands. **NOTE:** alcohol-based hand sanitizers are not as effective as proper hand washing.

Toilets and plumbing

Temporary floodwaters can impact local sewer lines, potentially forcing wastewater to back up into homes and businesses. Toilets and drains may not work and home plumbing may be unusable for several days.

If you can not access a functioning toilet, temporarily use a camping toilet or a lidded bucket lined with a trash bag for sanitation needs.

Tetanus and floods

There is often concern about tetanus and contact with floodwater. Cleaning your home, assisting with sandbagging or other flood-related activities does not necessarily mean you need a tetanus vaccine, as long as

you have been vaccinated within the past 10 years. However, a tetanus vaccine is strongly advised if it has been 10 years or more since your last booster.

If you get a puncture wound or a wound becomes infected, contact your healthcare provider to ask about a tetanus vaccination as soon as possible.

Additional resources online:

- **Clean Hands Save Lives:
Emergency Situations**
<http://emergency.cdc.gov/disasters/handhygienefacts.asp>
- **Centers for Disease Control and Prevention:**
 - » **Sanitation and Hygiene
After a Flood**
<http://emergency.cdc.gov/disasters/floods/sanitation.asp>
 - » **Water-related Emergencies and Outbreaks**
www.cdc.gov/healthywater/emergency/hygiene/index.html#
- **King County: Sewage Spill Response**
<http://www.kingcounty.gov/environment/wtd/response/sewagespill.aspx>
- **Public Health - Seattle & King County:
Tetanus**
www.kingcounty.gov/healthservices/health/communicable/diseases/tetanus.aspx
- **Washington State Department
of Labor & Industries: Mobile/
Manufactured Homes**
www.lni.wa.gov/tradeslicensing/fas/mobile/default.asp

Reentering your flooded home

When returning to a home that's been flooded, you may encounter mold or sewage contamination, which can cause health risks for your family.



- If the house has been closed up for several days, enter briefly to open doors and windows to let the house air out for at least 30 minutes before you stay for any length of time.
 - If your home has been flooded and has been closed up for several days, presume your home has been contaminated with mold.
 - If your home has been flooded, it also may be contaminated with sewage.
- Leave the building immediately if you smell natural gas or suspect a leak. Call 9-1-1 and also report it to Puget Sound Energy (PSE) 1-888-225-5773.
 - **Do not turn gas back on** if your natural gas service has been shut off at the meter. Call PSE to schedule a technician to inspect the natural gas piping and check and relight appliances.
 - If water levels cover your natural gas meter, call PSE to schedule an inspection of the meter and regulator before using natural gas appliances. Floodwaters could cause stress to gas piping.
 - Report power outages to your utility company. PSE or Seattle City Light (206-684-7400 or 206-684-3000 during a flood event).
 - If part or all of the electrical system, from outlets to wiring, was submerged in water or damaged, schedule a free electrical inspection through your utility company. All necessary repairs must be made before electricity can be restored.

Use extreme caution with gas and electricity

- **Never turn power on or off yourself or use an electric tool or appliance while standing in water.**
- If you have standing water in your home and can turn off the main power from a dry location, turn off the power, even if it delays cleaning. If you must enter standing water to access the main power switch, call an electrician to turn it off.

CAUTION

If you must use a gasoline-powered pump, generator, pressure washer, or any other gasoline-powered tools to clean your home, DO NOT 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. Doing so can create dangerously high levels of poisonous carbon monoxide.

Dry out your home

If flood or storm water has entered your home, dry it out as soon as possible to minimize structural damage and mold growth. Follow these steps:

- If you have power and an electrician has determined that it's safe to turn it on, use a "wet-dry" shop vacuum (or the vacuum function of a carpet steam cleaner), a submersible type pump, or a sump pump to remove standing water. If you are operating equipment in wet areas, be sure to wear rubber boots.
 - If you do not have power, or it is not safe to turn it on, you can use a portable generator to power equipment to remove standing water.
 - If weather permits, open windows and doors 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 air out rather than in, to avoid spreading mold.
 - Before you turn on your home's heating, ventilating, and air-conditioning (HVAC) systems, have them checked and cleaned by a maintenance or service professional who is experienced in mold clean-up. 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 a professional determines that your system is clean and if it is safe to do so, you can turn it on and use it to help remove excess moisture from your home.
- You may also consider using a professional cleaning company to dry out and clean your flooded home. Be sure to hire contractors that are licensed and bonded.
 - Prevent water outdoors from reentering your home. For example, rainwater from gutters or the roof should drain away from the house; 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.

Additional resources online:

Centers for Disease Control:

- **Reentering Your Flooded Home**
www.bt.cdc.gov/disasters/mold/reenter.asp
- **Protect Yourself from Mold**
www.bt.cdc.gov/disasters/mold/protect.asp
- **After a Hurricane or Flood: Cleanup of Flood Water**
www.bt.cdc.gov/disasters/floods/cleanupwater.asp

Safe drinking water

If bottled or clean tap water is not available during or after a flood you may be able to find alternate supplies in your house. Your hot-water tank, pipes and faucets, and ice cubes in your freezer are all potential sources of water.

Getting drinking water from your hot-water tank:

1. Ensure the electricity or gas is turned off.
2. Attach a garden variety hose to the drain valve at the bottom of the tank and prepare to fill buckets, tubs, etc.
3. Open the drain at the bottom of the tank.
4. Start the water flowing by turning off the water intake valve at the tank and turning on the hot water faucet located on the tank.
5. Refill the tank before the electricity or gas gets turned back on. Only a professional can turn the gas back on.

CAUTION

- Never drink floodwater.
- Never drink water that has an off-color or odor.
- Never drink water with material floating in it.
- Before evacuating, shut off the water intake valve to stop potentially contaminated water from getting into the water pipes of your house or business.

Getting drinking water from your pipes:

1. Use the faucet highest in your house (such as on the second floor).
2. Turn it on to let air into the pipes.
3. You can then collect water from the lowest faucet (such as in the basement).

Septic systems and floods:

- Do not use your septic system if the drainfield is covered in water.
- Turn off any electrical components (pumps) at the circuit box.
- Avoid contact with floodwater because it may contain sewage.
- If the drainfield is not covered in water but there is flooding in the area, do the following:
 - » Keep excess water from going down the drain by eliminating all non-essential water use.
 - » Turn off water while brushing teeth or washing dishes.
 - » Flush toilets as little as possible.

What to do if a boil order is issued

What is a boil order?

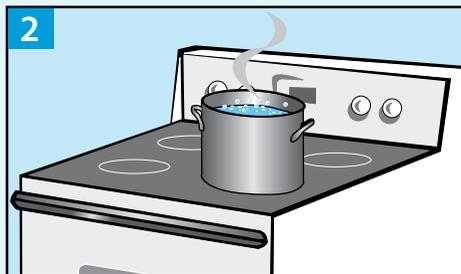
A boil order is given by water system operators or regulators advising people that water is contaminated with bacteria from sewage or other sources. This order advises people to boil the contaminated water before using it in order to make it safe for drinking, using for food preparation or brushing teeth.

Boiling water kills bacteria, viruses, and parasites that can cause illness. Boiling is a more effective way to purify water than chlorine treatment.

How to purify water



Strain tap water through either a cheesecloth, coffee filter, or other clean, porous material to remove as many solid particles and dirt as possible.



Bring the water to a rolling boil for one minute. Let the water cool.



Pour water into a disinfected container. To disinfect a non-plastic container, boil it in water. For plastic containers, disinfect with chlorine bleach. Water containers should be disinfected each time they are used.



Store purified water in the refrigerator, if possible.

0911_BOILstrain.ai |pre

Treating water with chlorine bleach

If using chlorine bleach is the only option, it can kill most disease-causing bacteria and viruses. However, boiling water is the more effective way to purify water:

CAUTION: For drinking water, do not use more chlorine bleach than recommended or exceed ¼ teaspoon of bleach per gallon of water. Too much bleach can be poisonous!

Follow these steps:

1. Strain the water through a coffee filter or cheesecloth to remove dirt and other particles.
2. Pour 1/8 teaspoon **or** 16 drops of pure, unscented, household chlorine bleach into a gallon of water in a purified drinking water container. Let this stand at least 30 minutes without drinking the water.
3. If the water is still cloudy after 30 minutes, you may add an additional 1/8 teaspoon or 16 drops of chlorine bleach to the gallon size container. Let the water stand another 30 minutes.
4. If the water is still cloudy after the second treatment **do not drink the water.**

NOTE: Home water filters are not designed to treat turbid, contaminated drinking water. The filter will not provide adequate protection against bacteria and viruses in the water.

Additional resources online:

- **Public Health - Seattle and King County:**
 - » **How to Prepare Safe Water After a Disaster**
www.kingcounty.gov/healthservices/health/preparedness/disaster/safewater.aspx
 - » **Find Hidden Water Supplies in an Emergency**
www.kingcounty.gov/healthservices/health/preparedness/disaster/boilorder.aspx
- **Centers for Disease Control and Prevention: Water-Related Emergencies and Outbreaks**
www.cdc.gov/healthywater/emergency/

Food and medicine safety

Contaminated floodwater and power outages can make some food and medicines unsafe.

Floodwater can carry raw sewage, oil, or chemical waste. Discard food, medicine and cosmetics that have been exposed to floodwater.

1. Perishable and non-perishable food

- Fruits, vegetables and other perishable food must be discarded if they've been in contact with floodwater.
- Discard food in containers that are not leak proof including: screw caps, crimped caps, cellophane, paper, cloth, plastic or cardboard.
- Undamaged canned goods can be saved even if completely submerged. Carefully clean areas around the lids and seams. Soak the cans in a solution of one cup of unscented household bleach to five gallons of water. Soak for 15 minutes and then allow to air dry before opening. Discard cans that have leaks, dents or bulges.

2. Cleaning and disinfecting the refrigerator and the freezer

- Thoroughly clean the interior and exterior of refrigerators and freezers with soap and clean water. Disinfect inside surfaces with a bleach solution of one cup unscented household bleach to five gallons of water.
- If odor persists after cleaning, place three ounces of "activated" charcoal (available at hardware or aquarium stores) in an open container in the refrigerator or freezer. Food may remain in the refrigerator.

- The charcoal will become saturated after 3 to 6 hours. To "reactivate" it, put the charcoal in a 300 degree oven for one hour and then return to the refrigerator. Repeat for about 10 days.

3. Medicines and cosmetics

Discard any medicines or cosmetics exposed to floodwater that were not in watertight containers. Do not put medicines exposed to floodwater in the trash. Take them to a participating medicine return program pharmacy or law enforcement office. (Locations are listed on the Web site below.)

Additional resources online:

- **Unwanted Medicine Return Program: Return Household Medicine in Washington State**
www.medicinereturn.com
- **Public Health – Seattle & King County: Safe food and medicine after a flood**
www.kingcounty.gov/healthservices/health/preparedness/disaster/flood-foods.aspx

Keeping food cold if the power goes out

Even if food is not contaminated by floodwater, if the power goes out food may warm up to an unsafe temperature.

NOTE: After the power goes back on, allow time for a refrigerator to reach the proper temperature of less than 41 degrees Fahrenheit before restocking.

- **Keep refrigerator and freezer doors closed as much as possible.** A full freezer can keep food frozen for about two days; a half-full freezer about one day. If a power outage exceeds these times, discard all food.
- **If you think the power will be out for several days,** try to find some dry ice to pack inside your refrigerator. To avoid contamination, keep raw food separate.
- If the power is out only a few hours, refrigerated foods including meat, poultry, and eggs should be safe.

Knowing if food is safe to eat

You cannot rely on appearance or odor. Never taste food to determine its safety. Some foods may look and smell fine; however, if they have been warm too long, they may contain food poisoning bacteria in quantities that could make you sick.

- **NOTE: If possible, use a thermometer** to check the temperature of the foods. If potentially hazardous foods are found to be less than 41 degrees Fahrenheit, then they should be considered safe.
- **Potentially hazardous food** are of the greatest concern. They include meat, fish, poultry, dairy products, eggs and egg products, soft cheeses, cooked beans,

cooked rice, cooked potatoes, cooked pasta, potato/pasta/macaroni salads, custard and pudding.

- **Non-hazardous foods** are those that may have quality – not safety – affected by changes in temperature. These foods include salad dressings, mayonnaise, butter, margarine, produce and hard cheeses.
- **Safe foods** include carbonated beverages, unopened bottled juices, and foods like ketchup, mustard, relishes, jams, peanut butter and barbecue sauce.
- **Frozen foods** that remain frozen are not a risk. If potentially hazardous foods are thawed, but are still cold or have ice crystals on them, you should use them as soon as possible. If potentially hazardous foods are thawed and are warmer than 41 degrees Fahrenheit, discard them.

Additional resources online:

- **Public Health - Seattle & King County: What to Do During Power Outages**
www.kingcounty.gov/healthservices/health/preparedness/disaster/power-outage-english.aspx
- **Centers for Disease Control and Prevention: Emergency Preparedness and Response**
<http://emergency.cdc.gov/disasters/foodwater/>



RECOVERING FROM A FLOOD

Cleaning up

Careful cleaning of your house and basement can prevent further damage, such as mold and wood rot, reduce the chance of injury, and prevent illness. Consider hiring a professional water damage contractor.

Use caution

- Fumes from all solvents are toxic and could be flammable. Use only with adequate ventilation.
- Read and heed the precautions on the label.
- DO NOT mix cleaning products such as bleach and ammonia. Keep similar types of materials together. Some hazardous materials can negatively react with each other.
- Be careful storing leaking containers near other items.
- If the container label says CAUTION, WARNING, DANGER or POISON, it is a hazardous product.
- If you can't read the label, treat the container as hazardous and handle carefully.
- Seek immediate medical attention if you become injured or ill.

DISASTER DEBRIS:

For disaster debris disposal after a flood event, check the

King County Solid Waste Division Web site:

www.kingcounty.gov/solidwaste

or call 206-296-4466;

toll free 1-800-325-6165,

ext. 6-4466.

Report hazardous materials spills

If there is danger of fire or injury call 9-1-1. For all other spills call the following three Washington State Department of Ecology phone numbers to make a report.

1. National Response Center:
1-800-424-8802
2. Washington Emergency Management Division: 1-800-258-5990
3. Northwest Regional Office:
425-649-7000

Washington State Department of Ecology: How to Report a Spill

www.ecy.wa.gov/programs/spills/other/reportaspill.htm

Online instructions for cleaning specific surfaces in your home

Visit the Public Health - Seattle and King County Web site for information on how to clean and remove mold and mildew from exterior siding, windows, doors, wallpaper, walls and ceilings, drywall, wood paneling and woodwork, wood floors, tile and linoleum floors, and insulation.

Public Health - Seattle and King County: How to Clean a House After a Flood

www.kingcounty.gov/healthservices/health/preparedness/disaster/flood-house.aspx

Cleaning your home

When returning to your home to clean up after a flood, be aware that floodwater and residue may contain sewage. Protect yourself and your family:

1. Keep children and pets out of the affected area until cleanup has been completed.
2. Wear waterproof boots, goggles and gloves while cleaning up.
3. Open all doors and windows and use fans to air out the building.
4. Remove and discard items that cannot be cleaned, such as mattresses, carpeting, carpet padding, rugs, upholstered furniture, cosmetics, stuffed animals, baby toys, pillows, foam rubber items, books, wall coverings, and most paper products.
5. Remove and discard drywall and insulation that has been contaminated with sewage or floodwater.
6. Thoroughly clean all hard surfaces, such as flooring, concrete, molding, wood and metal furniture, countertops, appliances, sinks, and other plumbing fixtures with hot water and laundry or dish detergent.
7. Help the drying process by using fans, air conditioning units, and dehumidifiers.
8. After completing the cleanup, wash your hands with soap and clean water (see Page 14).
9. Wash all clothes worn during the cleanup in hot water and detergent. Wash these clothes separately from uncontaminated clothes and linens.
10. If your septic system has been flooded, use a Laundromat until your system has been inspected and serviced.

Protecting yourself from mold

After flooding, excess moisture and standing water contribute to the growth of mold in homes and other buildings, which can pose a health risk for your family.

People at greatest risk from mold

People with asthma, allergies, or other breathing conditions may be more sensitive to mold. People with suppressed immune systems, such as people with HIV infection, cancer patients taking chemotherapy, and people who have received an organ transplant, are more susceptible to mold infections.

Possible health effects of mold exposure

People who are sensitive to mold may experience stuffy nose, irritated eyes, wheezing, or skin irritation. People allergic to mold may have difficulty breathing and shortness of breath. People with weakened immune systems or with chronic lung diseases, such as obstructive lung disease, may develop mold infections in their lungs. If you or your family members have health problems after exposure to mold, contact a health care provider.

Signs of mold

You may recognize mold by:

- **Sight:** Are the walls and ceiling discolored, or do they show signs of mold growth or water damage?
- **Smell:** Do you smell a bad odor, such as a musty, earthy smell or a foul stench?

Safely preventing mold growth

Removal and cleaning are important because even dead mold can cause allergic reactions in some people.

If there is mold growth in your home, you should clean up the mold and fix any water problem, such as leaks in roofs, walls, or plumbing. Controlling moisture in your home is the most critical factor for preventing mold growth.

- Clean up and dry out the building within 24 to 48 hours after water has receded, where possible.
- Open doors and windows. Use fans and dehumidifiers to dry out the building.
- Remove all porous items that have been wet for more than 48 hours and that cannot be thoroughly cleaned and dried (see Page 23).
- To remove mold growth from hard surfaces use commercial products, soap and water, or a bleach solution of no more than 1 cup of bleach in 1 gallon of water. Use a stiff brush on rough surface materials such as concrete.

Using bleach safely

- Never mix bleach with ammonia or other household cleaners. Mixing bleach with ammonia or other cleaning products will produce dangerous, toxic fumes.
- Open windows and doors to provide fresh air.
- Wear waterproof gloves and protective eye wear.

Cleaning large areas

If cleaning an area larger than 10 square feet, consult the U.S. Environmental Protection Agency guide, "Mold Remediation in Schools and Commercial Buildings." Although focused on schools and commercial buildings, this document also applies to other building types. Information is online at www.epa.gov/mold/mold_remediation.html or request a pamphlet by calling 1-800-438-4318.

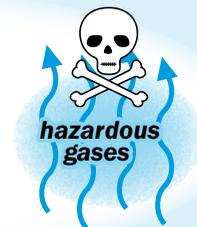
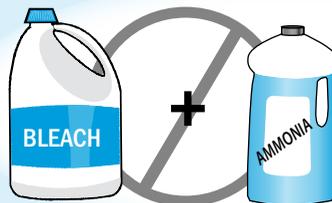
- Follow manufacturer instructions when using bleach or any other cleaning product.
- If you plan to be inside the building for a while or you plan to clean up mold, wear an **N95** mask, which can be purchased at most home supply stores. Follow instructions to fit the mask tightly to your face.

Additional resources online:

- **Environmental Protection Agency: A Brief Guide to Mold, Moisture, and Your Home**
www.epa.gov/iaq/molds/images/moldguide.pdf
- **Centers for Disease Control:**
 - » **Clean Up Safely After a Disaster**
www.bt.cdc.gov/disasters/cleanup.asp
 - » **Reentering your Flooded Home**
www.bt.cdc.gov/disasters/mold/reenter.asp
 - » **Protect Yourself from Mold**
<http://emergency.cdc.gov/disasters/mold/protect.asp>
 - » **Cleaning and Sanitizing with Bleach After an Emergency**
<http://emergency.cdc.gov/disasters/bleach.asp>

Avoid chlorinated or ammonia cleaners

Chlorinated or ammonia cleaners can release dangerous gases if mixed with other cleaners!



Cleaning a basement or garage

Prevent further structural damage by drying out your basement or garage as soon as possible.

1. Pumping out water

- Do not drain or pump water until the water level on the outside of the walls has gone down. Do not pump out water below the level of the water outside. Walls could collapse from the pressure of the water outside.
- If you have a large amount of water in your basement or if there is no basement drain, you may need to buy or rent a sump pump to get rid of the water.
- If your electrical panel is located in an area of your home that has been flooded, you will only be able to use a pump with a 12-volt auto battery. A gasoline engine pump may be used if exhaust can be vented to the outside.

CAUTION: Adequate ventilation is critical when using a gas powered pump.

2. Cleaning after the water is out

- Shovel mud from the basement as soon as all water is gone to allow floors and walls to dry.
- Remove silt and dirt stains by rinsing concrete walls and masonry foundation walls with a high pressure hose.
- If stains remain on the walls, scrub them with a stiff bristle brush and household detergent. Begin at the top and work down. Rinse often with clean water.
- Start drying the basement as quickly as possible in order to minimize wood decay or growth of mold.
- Open all doors and windows to allow the moisture to dry.
- Buy or rent a fan or dehumidifier to speed up the drying process.
- If you are sensitive to mold or mildew, wear a **N95** mask (see Page 26) or respirator with an appropriate filter.

When to pump water out of your house

Wait until the floodwater level outside your home is lower than the water level inside your home before pumping the water out.

WAIT TO PUMP



PUMP NOW



3. Getting rid of persistent odors

- Continue to ventilate.
- Mop concrete floor and walls with a bleach solution of one cup of basic bleach to one gallon of water.
- Rinse and dry after five minutes.
- Open windows when applying the bleach solution.
- Place a lump of “activated” charcoal (see Page 21) in an open tin or metal container to absorb odors.

Rodent control after a disaster

During and following a flood, rats and other rodents will move to new areas and into buildings and structures in search of food, water and shelter. Prevent and control rats, mice and other pests.

- Remove food, water and items that provide shelter to prevent contact with rodents.
- Properly dispose of garbage on a frequent and regular basis. Keep all garbage tightly sealed.
- Thoroughly clean and disinfect areas with signs of rodent activity to reduce likelihood of exposure to germs and diseases.

Additional resources online:

- **King County: Cleaning a Basement After a Flood**
www.kingcounty.gov/healthservices/health/preparedness/disaster/flood-english.aspx
- **Centers for Disease Control and Prevention: Rodent Control After a Disaster**
www.emergency.cdc.gov/disasters/rodents.asp
- **Public Health – Seattle & King County: How to Get Rid of Rats**
www.kingcounty.gov/healthservices/health/ehs/rats.aspx

Managing septic systems after a flood

1. Septic systems that have been flooded should not be used.
2. After floodwaters have receded, check the system for broken lines or surfacing sewage.
3. The following signs may indicate a malfunctioning septic system:
 - Drains in the home flow slowly.
 - Toilets drain slowly or sound strange when flushed.
 - Water backs up into floor drains in the basement.
4. Avoid contact with any electrical devices that are part of the system until they are dry and clean.
5. Inspect and service any problems before using the system.
6. Have the septic system professionally inspected and serviced if damage is suspected and especially if the system uses electricity and/or has mechanized components such as pumps or aerators.
7. Do not have the septic tank pumped. Doing so may cause the tank to float out of the ground, damaging the inlet and outlet pipes.
8. Avoid using the septic system, allowing time for the water to recede and the soil around the drainfield to dry out. Steps to follow:
 - Re-route water from roof gutters away from the drainfield area.
 - Do not use the dishwasher or garbage disposal.
 - Do not use the washing machine.
 - Reduce the number of showers taken.

Additional resources online:

- **National Environmental Services Center: First Aid for a Flooded Septic System**
www.nesc.wvu.edu/pdf/WW/publications/pipline/PL_SU06.pdf
- **Environmental Protection Agency: Septic Systems - What to Do After the Flood**
www.epa.gov/safewater/faq/emergency_septic.html
- **National Ag Safety Database: Flooded Private Sewage Systems: Safety, Sanitation and Clean-Up Concerns**
www.nasdonline.org/docs/d001501-d001600/d001564/d001564.html
- **King County: Septic Tank Systems During Power Outages or Floods**
www.kingcounty.gov/healthservices/health/preparedness/disaster/septic-tanks.aspx

Disinfecting private wells

- If your well has been inundated with floodwater, do not drink the water until you know it is safe. Floodwater contains illness-causing germs that can make you sick. Chemicals can also be present in floodwater.
- Laboratory tests can identify specific chemicals and coliform bacteria which indicates possible fecal contamination and is a potential health hazard.
- Public Health will test water for the presence of coliform. Public Health does not offer testing for chemicals. Testing supplies can be purchased from:

Black River Environmental Health
900 Oakesdale Ave. SW, Suite 100
Renton, WA 98057
Phone: 206-296-4932

- Private laboratories test water for coliform and chemical contamination. Laboratories can be found on the Web or your local phone directory under “laboratories - analytical.”
- After a flood that impacts a lot of homes, there may be a backlog of people wanting test kits or to hire laboratory services. Be prepared in case it takes time before you can use your well water again.
- If coliform bacteria are found in the water, the well can be disinfected.

Additional resources online:

- **Public Health – Seattle & King County:**
 - » **Public Health Centers**
Call 206-296-4600 or go online.
www.kingcounty.gov/healthservices/health/locations.aspx
 - » **Disinfecting Private Wells**
www.kingcounty.gov/healthservices/health/preparedness/disaster/wells-english.aspx
- **Centers for Disease Control: Water-Related Emergencies and Outbreaks**
www.cdc.gov/healthywater/emergency/

Swimming pools and hot tubs

- Enter a pump room with caution.
- Follow flood clean-up guidelines for any other building.
- Do not use any flood-damaged equipment until it can be checked out by a qualified service technician.
- Hot tubs should be drained, cleaned and disinfected. Filter media should be replaced, then refill and balance pool water chemistry.
- Pools need large debris removed and should be thoroughly vacuumed. Disinfect the pool as per the fecal accident clean-up procedure. Backwash filters and replace filter media, then rebalance the pool water chemistry.

Additional resources online

Public Health – Seattle & King County:

Pool Contamination Guidelines

<http://www.kingcounty.gov/healthservices/health/ehs/pools/contamination.aspx>



LONG-TERM RECOVERY

Recovery from a flood can be overwhelming. The effects of a flood can last long after the water recedes. You may not know where to begin in putting your life and property back in order. Property loss and damage can be costly, stressful and take a toll emotionally and physically. Following are some important tips and valuable resources available to you as you recover in the days, weeks and months following a flood.

Assessing damages and cleaning up

If your home or business is damaged during a flood, follow these four important steps for assessing damage.

1. Assess and document the damage.

- Identify and make a list of all the damages.
- Take pictures of the damages.
- Estimate how much you think it will cost for repairs or to replace your belongings.

2. Call your insurance company.

- Find your insurance policy documents and call your insurance company.
- Report damages. Your insurance carrier will advise you on coverage and next steps. Problems or disagreements with your insurance provider may

be reported to the state Insurance Commissioner:

Washington State Office of the Insurance Commissioner

<http://www.insurance.wa.gov/>
1-800-562-6900

3. Call the King County damage reporting hotline, or file your report online.

- Call the King County Damage Assessment Hotline at 1-800-523-5044. Or complete an online damage report form: www.kingcounty.gov/safety/prepare/damage.aspx.
- **NOTE:** You will be asked to provide the estimated damage to your home and belongings, and information about your insurance coverage. Please have this information ready when you file your report. This information will be used to establish a county-wide damage assessment which will help officials obtain a federal disaster declaration. Even if you have suffered only minor damage and do not expect to need assistance, submit a report anyway.

4. Register for government assistance.

- Watch and listen to the local news for information on the status of King County's federal disaster declaration.
- While you are waiting to hear whether King County has received a federal disaster declaration, contact the Federal Emergency Management Agency to register for federal aid. Call 800-621-3362 or TTY 800-462-7585, or visit: www.fema.gov/assistance/index.shtm.
- **NOTE: Most federal assistance comes in the form of a loan that must be repaid.**
- **Private contractors:** If you hire cleanup or repair contractors, be sure they are qualified to do the job. Be wary of people who drive through neighborhoods offering help in cleaning or repairing your home. Check references. Choose licensed and bonded contractors.
- **Debris disposal:** For clean up and disaster debris disposal, check the King County Solid Waste Division Web site: www.kingcounty.gov/solid_waste or call 206-296-4466; toll free 1-800-325-6165, Ext. 6-4466.

For life-threatening emergencies call 9-1-1.

Basic needs

If you need shelter, food assistance, or non-emergency medical care there are organizations in the community to help.

- **Shelter locations**, if needed, will be broadcast over television and radio stations during and following a disaster.
- **American Red Cross serving Kitsap and King counties** assists families with emergency needs that may include vouchers for new clothing, groceries, essential medications, bedding, cleaning supplies, and other items to meet emergency needs. Listen to the news to find out where to go for assistance. Call 206-323-2345 or visit www.seattlredcross.org

En Español: *La Cruz Roja Americana de Seattle* www.seattlredcross.org/show.aspx?mi=4300

- **Salvation Army Northwest Division** provides emergency clothing, food, and shelter, as well as medical assistance and clean-up help after a disaster. Call 800-736-7291.
- **Washington State Department of Social and Health Services** administers emergency and disaster assistance programs to help pay for rent and buy food for you and your family. Apply for benefits at a Community Service Office near you. For locations, call 800-737-0617 or go to <https://fortress.wa.gov/dshs/f2ws03esaapps/onlinecso/findservice.asp>.
- **Public Health – Seattle & King County** can provide, or link you with, medical care 206-296-4600; 800-325-6165 or TTY Relay: 711.

Coping

For assistance and tips for coping with the impact of disaster, please contact one of the following organizations.

- **Crisis Clinic** provides immediate, confidential assistance to King County residents in emotional distress and in need of help. Call 866-427-4747 or go to www.crisisclinic.org.
- **Washington State Department of Social and Health Services** offers emotional support to disaster victims. Also provides resources for children, young adults, adults, seniors and Spanish-speakers to aid in coping with the trauma associated with a disaster. Call Disaster Outreach Services at 800-850-8775 or go to www.dshs.wa.gov/DisasterOutreachServices/index.shtml.
- **Centers for Disease Control and Prevention: Coping with a disaster or traumatic event**
www.bt.cdc.gov/mentalhealth/

Insurance

- Contact your insurance agent to discuss claims. Be sure to document damages and keep repair receipts for potential reimbursement.
- **Increased Cost of Compliance (ICC)**. If you have flood insurance, ask your insurance agent about “Increased Cost of Compliance” flood insurance coverage. This coverage, which is available under the National Flood Insurance Program, allows payment of up to an additional \$30,000 to help finance an elevation, relocation or demolition of a structure following flood damages. Only properties that have been determined to be substantially damaged by a community’s local building official are eligible for ICC insurance claims.

Government assistance

Listen to your radio for information on assistance that may be provided by the state or federal government or other organizations. You may also contact your local Office of Emergency Management for assistance.

- **Disaster declarations & FEMA** In the event of a presidentially-declared disaster, FEMA has a Disaster Assistance Program that provides for, but is not limited to, temporary housing, repair and replacement funding for structures not covered by insurance, disaster-related medical and dental costs, clothing clean-up items and crisis counseling. Following a severe flood, check your local media for news of a disaster declaration. For more information, call 800-621-3362 or visit www.fema.gov/assistance/index.shtm.

En Español: Agencia Federal para el Manejo de Emergencias (FEMA) – Preparados. Receptivos. Comprometidos. www.fema.gov/esp/

- **Small Business Association Loans (SBA)** are available to qualified property owners. If you are approved for an SBA loan, you may be eligible for up to an additional 20 percent of your loan amount for use in hazard mitigation projects, such as home elevations. For more information, visit the U.S. Small Business Administration at www.sba.gov.
- **King County Housing Repair Program** funds housing repair services to low-income homeowners and renters in most parts of King County. For eligibility information, call 206-263-9095 or visit www.kingcounty.gov/socialservices/Housing/ServicesAndPrograms/Services/HousingRepair.aspx

EMERGENCY PLAN CONTACTS

(For more information about emergency plans and contacts, see Page 7.)

Out of state contact: _____

Home phone: _____

Work phone: _____

Mobile phone: _____



**Department of
Natural Resources and Parks**
201 South Jackson Street, Suite 700
Seattle, WA 98104

PRESORTED
STANDARD
US POSTAGE
PAID
SEATTLE WA
PERMIT NO 6013

Alternate Formats Available

206-296-8001 TTY Relay: 711

*Flood response information
to help you reduce risk to your
family and property*



2010 Edition



File: 1001_FloodrespBOOKLET/ lpre

Produced by: King County DNRP
GIS, Visual Communications and Web Unit Archives