# GUIDANCE FOR NAVY AND MARINE CORPS PERSONNEL RECOVERING FROM A HURRICANE DISASTER

# INTRODUCTION

November 10, 2005

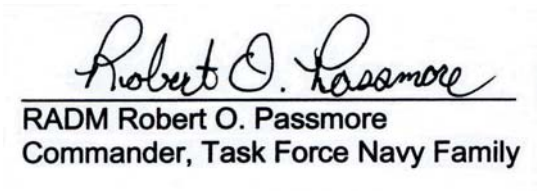
The U.S. Navy is concerned about the physical and mental well-being of its personnel in the aftermath of the devastation caused by hurricanes and natural disasters. The Naval Safety Center, Task Force Navy Family, the Bureau of Medicine and Surgery, the Navy Environmental Health Center, Commander, Naval Reserve Force, Commander, Navy Installations, and Navy personnel from the Gulf Region have assembled the resources in this document for use by personnel recovering from a hurricane/flood disaster. Please take the time to review and utilize this resource guide before, during and after the need may arise.

It is important to remember that for those impacted by a disaster, this is a traumatic time and the most important action you can take is to ensure the safety, health, and well being of yourself and your family members. You can do this by pacing yourself during your repair/recovery efforts, making sure you and your family get adequate rest, and if you have any doubts about your ability to make repairs, etc. to your home, to seek outside assistance.

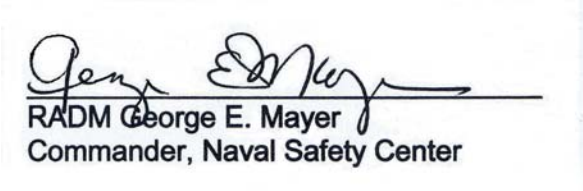
The potential chemical, physical, and biological hazards you could encounter when recovering from a disaster include a wide spectrum such as exposed or live electrical wires, leaking gas pipes, lead-based paint and asbestos in older buildings, mosquitoes that potentially carry West Nile Virus, mold, carbon monoxide produced by gasoline-powered generators, sharp objects, feral dogs and cats. Injuries can occur during clean-up activities from using unfamiliar hand and powered tools such as chain saws, climbing ladders, working on slippery surfaces, working in debris-strewn areas, lifting heavy objects, inhaling mold and other by-products of the disaster, etc.

It is equally important to become keenly aware of the emotional and stress-related conditions that are often experienced by those people impacted by a natural disaster. The shock associated with these events often lead to a variety of behavioral and coping challenges.

As you do in the workplace, we encourage you and your family to use the principles of operational risk management as you survey home and property damage and plan for clean-up. Using risk management will reduce the potential for injury to you and your family.



RADM Robert O. Passmore
Commander, Task Force Navy Family



RADM George E. Mayer
Commander, Naval Safety Center

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# COMMUNITY SUPPORT CENTERS

The Community Support Centers (CSC) were established to focus specifically on the hurricane-impacted personnel and families. The CSCs are one-stop centers that coordinate support services for those who have been displaced, dispersed and in any way affected by the hurricanes. The CSCs provide a centralized service delivery site that may include representatives from Housing, Pass and ID, Legal Services, Health Care, Financial Assistance, Personal Property, Human Resources Office, Chaplains, Child Care, Morale Welfare and Recreation as well as other Federal, state and non-profit agencies.

The mission of the CSCs is to return every person and family to a stable environment. To that end, the CSCs have case managers on staff to advocate and support personnel and families on the wide range of issues and challenges they face. They provide referrals, assist with forms, break down barriers, broker agreements with other organizations on behalf of families and provide follow up and support to the members and families until issues are resolved.

The CSCs will extend service hours in order to provide the optimum assistance to personnel and families. They serve and support all active duty, civilian, Reserve, retirees and their families affected by the hurricanes.

The CSCs, in concert with Task Force Navy Family, work together to assist the hurricane-affected families who have registered at www.bol.navy.mil. A List of the CSCs, along with contact phone numbers and directions may be found in this document and at the following website: http://www.navy.mil/tfnf.html.

In the aftermath of the hurricanes, the Chief of Naval Operations (CNO) directed Task Force Navy Family to reach out and support every member of the Navy family affected by the hurricane disasters. The CSCs and Case Managers carry out this important CNO mandate.

The Community Support Centers are part of the Fleet and Family Support Centers (FFSC), located in the regions affected by the hurricanes. Working through the FFSCs, the CSCs offer free workshops, classes, and services that can help enhance the quality of life for all military members and their families affected by the hurricanes.

# NAVY COMMUNITY SUPPORT CENTERS CONTACT LIST

| SITE | SITE MGR | CSC PHONE | EMAIL |
|---|---|---|---|
| NS Pascagoula | Carolyn McCorvey | 228-761-2096<br>DSN 358 | carolyn.mccorvey@navy.mil |
| CBC Gulfport & Stennis | Margaret Scurfield | 228-871-3000<br>DSN 868 | margaret.scurfield@navy.mil |
| NAS Meridian | Ed Welch | 601-679-2360<br>Ext. 0<br>DSN 637 | ed.welch@navy.mil |
| NAS Jacksonville | Myrna Wilson | 904-542-2766<br>Ext. 0 or 127 | myrna.wilson@navy.mil |
| NAS Key West | Bill Hard | 305-293-4411<br>293-4409<br>293-4410 | 804 Sigsbee Rd.<br>Key West, FL 33040 |
| NS Mayport | Hector L. Sepulveda | 1-800-626-5084<br>Ext. 110 | hector.sepulveda@navy.mil |
| NAS Pensacola | Bobbie Simpkins | 850-452-5990<br>Ext 0<br>DSN 922 | bobbie.simpkins@navy.mil |
| NSA Mid-South-Millington | Lakshmi Kumar | 901-874-5075<br>DSN 882 | lakshmi.kumar@navy.mil |
| JRB Ft Worth | Bill Baker | 877-471-6671<br>817-782-5287 | william.e.baker@navy.mil |
| Hampton Roads | Kathy Struble | 877-302-8525<br>800-372-5463 | i&rnorfolk@ffscnorva.navy.mil |
| NSA & JRB New Orleans | Elizabeth Shirer | 504-678-7569 | elizabeth.shirer@navy.mil |

# RECOVERING FROM A DISASTER – FEMA GUIDANCE

(This was taken from www.fema.gov.)

## HEALTH AND SAFETY GUIDELINES

Recovering from a disaster is usually a gradual process. Safety is a primary issue, as are mental and physical well-being. If assistance is available, knowing how to access it makes the process faster and less stressful. This section offers some general advice on steps to take after disaster strikes in order to begin getting your home, your community, and your life back to normal.

Your first concern after a disaster is your family's health and safety. You need to consider possible safety issues and monitor family health and well-being.

### Aiding the Injured

Check for injuries. Do not attempt to move seriously injured persons unless they are in immediate danger of death or further injury. If you must move an unconscious person, first stabilize the neck and back, then call for help immediately.

- If the victim is not breathing, carefully position the victim for artificial respiration, clear the airway, and commence mouth-to-mouth resuscitation.
- Maintain body temperature with blankets. Be sure the victim does not become overheated.
- Never try to feed liquids to an unconscious person.

### Health

- Be aware of exhaustion. Don't try to do too much at once. Set priorities and pace yourself. Get enough rest.
- Drink plenty of clean water. Eat well. Wear sturdy work boots and gloves.
- Wash your hands thoroughly with soap and clean water often when working in debris.

### Safety Issues

- Be aware of new safety issues created by the disaster. Watch for washed out roads, contaminated buildings, contaminated water, gas leaks, broken glass, damaged electrical wiring, and slippery floors.
- Inform local authorities about health and safety issues, including chemical spills, downed power lines, washed out roads, smoldering insulation, and dead animals.

**RETURNING HOME**

Returning home can be both physically and mentally challenging. Above all, use caution.

**General tips:**

- Keep a battery-powered radio with you so you can listen for emergency updates and news reports.
- Use a battery-powered flash light to inspect a damaged home.
  Note: The flashlight should be turned on outside before entering - the battery may produce a spark that could ignite leaking gas, if present.
- Watch out for animals, especially poisonous snakes. Use a stick to poke through debris.
- Use the phone only to report life-threatening emergencies.
- Stay off the streets. If you must go out, watch for fallen objects; downed electrical wires; and weakened walls, bridges, roads, and sidewalks.

**Before You Enter Your Home**
Walk carefully around the outside and check for loose power lines, gas leaks, and structural damage. If you have any doubts about safety, have your residence inspected by a qualified building inspector or structural engineer before entering.

**Do not enter if:**

- You smell gas.
- Floodwaters remain around the building.
- Your home was damaged by fire and the authorities have not declared it safe.

**Going Inside Your Home**
When you go inside your home, there are certain things you should and should not do. Enter the home carefully and check for damage. Be aware of loose boards and slippery floors. The following items are other things to check inside your home:

- Natural gas. If you smell gas or hear a hissing or blowing sound, open a window and leave immediately. Turn off the main gas valve from the outside, if you can. Call the gas company from a neighbor's residence. If you shut off the gas supply at the main valve, you will need a professional to turn it back on. Do not smoke or use oil, gas lanterns, candles, or torches for lighting inside a damaged home until you are sure there is no leaking gas or other flammable materials present.
- Sparks, broken or frayed wires. Check the electrical system unless you are wet, standing in water, or unsure of your safety. If possible, turn off the electricity at the main fuse box or circuit breaker. If the situation is unsafe, leave the building and call for help. Do not turn on the lights until you are sure they're safe to use. You may want to have an electrician inspect your wiring.
- Roof, foundation, and chimney cracks. If it looks like the building may collapse, leave immediately.
- Appliances. If appliances are wet, turn off the electricity at the main fuse box or circuit breaker. Then, unplug appliances and let them dry out. Have appliances checked by a professional before using them again. Also, have the electrical system checked by an electrician before turning the power back on.
- Water and sewage systems. If pipes are damaged, turn off the main water valve. Check with local authorities before using any water; the water could be contaminated. Pump out wells and

have the water tested by authorities before drinking. Do not flush toilets until you know that sewage lines are intact.
- Food and other supplies. Throw out all food and other supplies that you suspect may have become contaminated or come in to contact with floodwater.
- Your basement. If your basement has flooded, pump it out gradually (about one third of the water per day) to avoid damage. The walls may collapse and the floor may buckle if the basement is pumped out while the surrounding ground is still waterlogged.
- Open cabinets. Be alert for objects that may fall.
- Clean up household chemical spills. Disinfect items that may have been contaminated by raw sewage, bacteria, or chemicals. Also clean salvageable items.
- Call your insurance agent. Take pictures of damages. Keep good records of repair and cleaning costs.

**Being Wary of Wildlife and Other Animals**
Disaster and life threatening situations will exacerbate the unpredictable nature of wild animals. To protect yourself and your family, learn how to deal with wildlife.

**Guidelines**

- Do not approach or attempt to help an injured or stranded animal. Call your local animal control office or wildlife resource office.
- Do not corner wild animals or try to rescue them. Wild animals will likely feel threatened and may endanger themselves by dashing off into floodwaters, fire, and so forth.
- Do not approach wild animals that have taken refuge in your home. Wild animals such as snakes, opossums, and raccoons often seek refuge from floodwaters on upper levels of homes and have been known to remain after water recedes. If you encounter animals in this situation, open a window or provide another escape route and the animal will likely leave on its own. Do not attempt to capture or handle the animal. Should the animal stay, call your local animal control office or wildlife resource office.
- Do not attempt to move a dead animal. Animal carcasses can present serious health risks. Contact your local emergency management office or health department for help and instructions.
- If bitten by an animal, seek immediate medical attention.

## SEEKING DISASTER ASSISTANCE

Throughout the recovery period, it is important to monitor local radio or television reports and other media sources for information about where to get emergency housing, food, first aid, clothing, and financial assistance. The following section provides general information about the kinds of assistance that may be available.

**Direct Assistance**
Direct assistance to individuals and families may come from any number of organizations, including:

- American Red Cross.
- Salvation Army.
- Other volunteer organization

These organizations provide food, shelter, supplies and assist in clean-up efforts.

**The Federal Role**
In the most severe disasters, the federal government is also called in to help individuals and families with temporary housing, counseling (for post-disaster trauma), low-interest loans and grants, and other assistance. The federal government also has programs that help small businesses and farmers.

Most federal assistance becomes available when the President of the United States declares a "Major Disaster" for the affected area at the request of a state governor. FEMA will provide information through the media and community outreach about federal assistance and how to apply.

**COPING WITH DISASTER**

The emotional toll that disaster brings can sometimes be even more devastating than the financial strains of damage and loss of home, business, or personal property.

Understand Disaster Events

- Everyone who sees or experiences a disaster is affected by it in some way.
- It is normal to feel anxious about your own safety and that of your family and close friends.
- Profound sadness, grief, and anger are normal reactions to an abnormal event.
- Acknowledging your feelings helps you recover.
- Focusing on your strengths and abilities helps you heal.
- Accepting help from community programs and resources is healthy.
- Everyone has different needs and different ways of coping.
- It is common to want to strike back at people who have caused great pain.

Children and older adults are of special concern in the aftermath of disasters. Even individuals who experience a disaster "second hand" through exposure to extensive media coverage can be affected.

Contact local faith-based organizations, voluntary agencies, or professional counselors for counseling. Additionally, FEMA and state and local governments of the affected area may provide crisis counseling assistance.

Recognize Signs of Disaster Related Stress
When adults have the following signs, they might need crisis counseling or stress management assistance:

- Difficulty communicating thoughts.
- Difficulty sleeping.
- Difficulty maintaining balance in their lives.
- Low threshold of frustration.
- Increased use of drugs/alcohol.
- Limited attention span.
- Poor work performance.
- Headaches/stomach problems.
- Tunnel vision/muffled hearing.
- Colds or flu-like symptoms.
- Disorientation or confusion.
- Difficulty concentrating.
- Reluctance to leave home.
- Depression, sadness.

- Feelings of hopelessness.
- Mood-swings and easy bouts of crying.
- Overwhelming guilt and self-doubt.
- Fear of crowds, strangers, or being alone.

Easing Disaster-Related Stress
The following are ways to ease disaster-related stress:

- Talk with someone about your feelings - anger, sorrow, and other emotions - even though it may be difficult.
- Seek help from professional counselors who deal with post-disaster stress.
- Do not hold yourself responsible for the disastrous event or be frustrated because you feel you cannot help directly in the rescue work.
- Take steps to promote your own physical and emotional healing by healthy eating, rest, exercise, relaxation, and meditation.
- Maintain a normal family and daily routine, limiting demanding responsibilities on yourself and your family.
- Spend time with family and friends.
- Participate in memorials.
- Use existing support groups of family, friends, and religious institutions.
- Ensure you are ready for future events by restocking your disaster supplies kits and updating your family disaster plan. Doing these positive actions can be comforting.

**Helping Children Cope with Disaster**

Disasters can leave children feeling frightened, confused, and insecure. Whether a child has personally experienced trauma, has merely seen the event on television, or has heard it discussed by adults, it is important for parents and teachers to be informed and ready to help if reactions to stress begin to occur.

Children may respond to disaster by demonstrating fears, sadness, or behavioral problems. Younger children may return to earlier behavior patterns, such as bedwetting, sleep problems, and separation anxiety. Older children may also display anger, aggression, school problems, or withdrawal. Some children who have only indirect contact with the disaster but witness it on television may develop distress.

**Who is at Risk?**
For many children, reactions to disasters are brief and represent normal reactions to “abnormal events.” A smaller number of children can be at risk for more enduring psychological distress as a function of three major risk factors:

- Direct exposure to the disaster, such as being evacuated, observing injuries or death of others, or experiencing injury along with fearing one’s life is in danger.
- Loss/grief: This relates to the death or serious injury of family or friends.
- On-going stress from the secondary effects of disaster, such as temporarily living elsewhere, loss of friends and social networks, loss of personal property, parental unemployment, and costs incurred during recovery to return the family to pre-disaster life and living conditions.

**What Creates Vulnerabilities in Children?**
In most cases, depending on the risk factors above, distressing responses are temporary. In the absence of severe threat to life, injury, loss of loved ones, or secondary problems such as loss of home,

moves, etc., symptoms usually diminish over time. For those that were directly exposed to the disaster, reminders of the disaster such as high winds, smoke, cloudy skies, sirens, or other reminders of the disaster may cause upsetting feelings to return. Having a prior history of some type of traumatic event or severe stress may contribute to these feelings.

Children's coping with disaster or emergencies is often tied to the way parents cope. They can detect adults' fears and sadness. Parents and adults can make disasters less traumatic for children by taking steps to manage their own feelings and plans for coping. Parents are almost always the best source of support for children in disasters. One way to establish a sense of control and to build confidence in children before a disaster is to engage and involve them in preparing a family disaster plan. After a disaster, children can contribute to a family recovery plan.

**A Child's Reaction to Disaster by Age**
Below are common reactions in children after a disaster or traumatic event.

**Birth through 2 years**.
When children are pre-verbal and experience a trauma, they do not have the words to describe the event or their feelings. However, they can retain memories of particular sights, sounds, or smells. Infants may react to trauma by being irritable, crying more than usual, or wanting to be held and cuddled. The biggest influence on children of this age is how their parents cope. As children get older, their play may involve acting out elements of the traumatic event that occurred several years in the past and was seemingly forgotten.

**Preschool - 3 through 6 years.**
Preschool children often feel helpless and powerless in the face of an overwhelming event. Because of their age and small size, they lack the ability to protect themselves or others. As a result, they feel intense fear and insecurity about being separated from caregivers. Preschoolers cannot grasp the concept of permanent loss. They can see consequences as being reversible or permanent. In the weeks following a traumatic event, preschoolers' play activities may reenact the incident or the disaster over and over again.

**School age - 7 through 10 years.**
The school-age child has the ability to understand the permanence of loss. Some children become intensely preoccupied with the details of a traumatic event and want to talk about it continually. This preoccupation can interfere with the child's concentration at school and academic performance may decline. At school, children may hear inaccurate information from peers. They may display a wide range of reactions—sadness, generalized fear, or specific fears of the disaster happening again, guilt over action or inaction during the disaster, anger that the event was not prevented, or fantasies of playing rescuer.

**Pre-adolescence to adolescence - 11 through 18 years.**
As children grow older, they develop a more sophisticated understanding of the disaster event. Their responses are more similar to adults. Teenagers may become involved in dangerous, risk-taking behaviors, such as reckless driving, or alcohol or drug use. Others can become fearful of leaving home and avoid previous levels of activities. Much of adolescence is focused on moving out into the world. After a trauma, the view of the world can seem more dangerous and unsafe. A teenager may feel overwhelmed by intense emotions and yet feel unable to discuss them with others.

**Meeting the Child's Emotional Needs**
Children's reactions are influenced by the behavior, thoughts, and feelings of adults. Adults should

encourage children and adolescents to share their thoughts and feelings about the incident. Clarify misunderstandings about risk and danger by listening to children's concerns and answering questions. Maintain a sense of calm by validating children's concerns and perceptions and with discussion of concrete plans for safety.

Listen to what the child is saying. If a young child is asking questions about the event, answer them simply without the elaboration needed for an older child or adult. Some children are comforted by knowing more or less information than others; decide what level of information your particular child needs. If a child has difficulty expressing feelings, allow the child to draw a picture or tell a story of what happened.

Try to understand what is causing anxieties and fears. Be aware that following a disaster, children are most afraid that:

- The event will happen again.
- Someone close to them will be killed or injured.
- They will be left alone or separated from the family.

**Reassuring Children After a Disaster**
Suggestions to help reassure children include the following:

- Personal contact is reassuring. Hug and touch your children.
- Calmly provide factual information about the recent disaster and current plans for insuring their safety along with recovery plans.
- Encourage your children to talk about their feelings.
- Spend extra time with your children such as at bedtime.
- Re-establish your daily routine for work, school, play, meals, and rest.
- Involve your children by giving them specific chores to help them feel they are helping to restore family and community life.
- Praise and recognize responsible behavior.
- Understand that your children will have a range of reactions to disasters.
- Encourage your children to help update your a family disaster plan.

If you have tried to create a reassuring environment by following the steps above, but your child continues to exhibit stress, if the reactions worsen over time, or if they cause interference with daily behavior at school, at home, or with other relationships, it may be appropriate to talk to a professional. You can get professional help from the child's primary care physician, a mental health provider specializing in children's needs, or a member of the clergy.

**Monitor and Limit Your Family's Exposure to the Media**
News coverage related to a disaster may elicit fear and confusion and arouse anxiety in children. This is particularly true for large-scale disasters or a terrorist event where significant property damage and loss of life has occurred. Particularly for younger children, repeated images of an event may cause them to believe the event is recurring over and over.

If parents allow children to watch television or use the Internet where images or news about the disaster are shown, parents should be with them to encourage communication and provide explanations. This may also include parent's monitoring and appropriately limiting their own exposure to anxiety-provoking information.

**Use Support Networks**
Parents help their children when they take steps to understand and manage their own feelings and ways of coping. They can do this by building and using social support systems of family, friends, community organizations and agencies, faith-based institutions, or other resources that work for that family. Parents can build their own unique social support systems so that in an emergency situation or when a disaster strikes, they can be supported and helped to manage their reactions. As a result, parents will be more available to their children and better able to support them. Parents are almost always the best source of support for children in difficult times. But to support their children, parents need to attend to their own needs and have a plan for their own support.

Preparing for disaster helps everyone in the family accept the fact that disasters do happen, and provides an opportunity to identify and collect the resources needed to meet basic needs after disaster. Preparation helps; when people feel prepared, they cope better and so do children.

**HELPING OTHERS**

The compassion & generosity of the American people is never more evident than after a disaster. People want to help. Here are general guidelines on helping others after a disaster:

- Volunteer! Check with local organizations or listen to local news reports for information about where volunteers are needed. Note: Until volunteers are specifically requested, stay away from disaster areas.
- Bring your own food, water, and emergency supplies to a disaster area if you are needed there. This is especially important in cases where a large area has been affected and emergency items are in short supply.
- Give a check or money order to a recognized disaster relief organization. These groups are organized to process checks, purchase what is needed, and get it to the people who need it most.
- Do not drop off food, clothing, or any other item to a government agency or disaster relief organization unless a particular item has been requested. Normally, these organizations do not have the resources to sort through the donated items.
- Donate a quantity of a given item or class of items (such as nonperishable food) rather than a mix of different items. Determine where your donation is going, how it's going to get there, who is going to unload it, and how it is going to be distributed. Without sufficient planning, much needed supplies will be left unused.

# OSHA - Keeping Workers Safe During Clean Up and Recovery Operations Following Hurricanes

(The following has been taken from http://www.osha.gov/OshDoc/hurricaneRecovery.html)

**OSHA Resources on Disaster Recovery Hazards**

| | |
|---|---|
| **Aerial Lifts**<br>- QuickCard [PDF] - [En Español]<br>- Fact Sheet [PDF] NEW | **Grounding Portable Generators** NEW<br>- Fact Sheet [PDF] |
| **Atmospheric testing in Confined Spaces**<br>- QuickCard [PDF] NEW | **Hand Hygiene and Gloves**<br>- Fact Sheet [PDF] NEW<br>- QuickCard [PDF] [En Español] NEW |
| **Asbestos Hazards** NEW<br>- Fact Sheet [PDF]<br>- General Fact Sheet [PDF]<br>- More... | **Handling Human Remains**<br>- Fact Sheet [PDF] |
| **Black Widow Spider** NEW<br>- Fact Sheet [PDF] | **Heat and Sun - Protect Yourself**<br>Heat - QuickCard -[PDF] - [En Español]<br>Sun - QuickCard [PDF] - [En Español] |
| **Brown Recluse Spider** NEW<br>- Fact Sheet [PDF] | **Heat Stress**<br>- Fact Sheet [PDF]<br>- More... |
| **Carbon Monoxide**<br>- QuickCard [PDF] [En Español] | **Hydrogen Sulfide** NEW<br>- Fact Sheet [PDF]<br>- QuickCard [PDF] |
| **Chain Saws**<br>- QuickCard [PDF] NEW<br>- Fact Sheet [PDF] [En Español]<br>- More... | Portable **Ladder** Safety<br>- QuickCard [PDF] |
| | **Lead Hazards**<br>- Fact Sheet [PDF] |
| **Chippers**<br>- QuickCard [PDF] [En Español] | **Lead in Construction**<br>- QuickCard [PDF] |
| **Cleanup Hazard**<br>- Fact Sheet [PDF] [En Español] | **Molds and Fungi**<br>- Fungi Hazards Fact Sheet[PDF] [En Español]<br>- Mold Fact Sheet [PDF] NEW<br>- Mold QuickCard [PDF]<br>- More... |
| **Confined Space Permit**<br>- QuickCard [PDF] NEW | |
| **Construction PPE**<br>- QuickCard [PDF] [En Español] NEW | **Portable Generator Safety**<br>- QuickCard [PDF] NEW<br>- Fact Sheet [PDF] |
| **Cottonmouth Snakes** NEW<br>- Fact Sheet [PDF] | **Respirators** NEW<br>- QuickCard [PDF] |
| **Crane Safety**<br>- QuickCard [PDF] | **Rodents, Snakes and Insects**<br>- QuickCard [PDF] |
| General **Decontamination**<br>- QuickCard [PDF]<br>- Fact Sheet [PDF] | **Search and Rescue** NEW<br>- Fact Sheet [PDF] |

| | |
|---|---|
| ▪ **Demolition** NEW<br>- QuickCard [PDF]<br>- Fact Sheet [PDF] | ▪ **Silicosis**<br>- QuickCard [PDF] [En Español] |
| ▪ **Downed Electrical Wires**<br>- Fact Sheet [PDF]<br>- More... | ▪ **Struck-By Hazards**<br>- QuickCard [PDF] NEW |
| ▪ **Electrical Safety**<br>- QuickCard [PDF] | ▪ **Supported Scaffold**<br>- QuickCard [PDF] [En Español] |
| ▪ Working Safely with **Electricity**<br>- Fact Sheet [PDF] [En Español] | ▪ **Tree Trimming Tips**<br>- Fact Sheet [PDF] [En Español]<br>- QuickCard [PDF] NEW |
| ▪ Preventing **Falls**<br>- Fact Sheet [PDF] [En Español] | ▪ **West Nile Virus** NEW<br>- Fact Sheet [PDF]<br>- QuickCard [PDF] |
| ▪ **Fire Ants**<br>- Fact Sheet [PDF] NEW | ▪ **Working Outdoors**<br>- Fact Sheet [PDF] |
| ▪ **Flood Cleanup**<br>- Fact Sheet [PDF] | ▪ **Work Zone Traffic Safety**<br>- Fact Sheet [PDF]<br>- QuickCard [PDF] |

Several additional portions from the OSHA web page are included below:

**Safety and Health Information Bulletins**

- Respiratory Protection NEW
- From NIEHS: Safety Awareness for Responders to Hurricane Katrina NEW
- Workplace Precautions Against West Nile Virus

**Frequently Asked Questions**

- Extended Unusual Work Shifts
- Worker Safety and Health During Hurricanes and Tornados

**Training Programs**

- OSHA Disaster Site Worker Outreach Training Program

## LOUISIANA OFFICE OF HOMELAND SECURITY AND EMERGENCY PREPAREDNESS

http://www.ohsep.louisiana.gov/

### RECLAIM HEIRLOOMS & OTHER ITEMS FROM FLOOD WATERS

Flood waters leave significant structural devastation in their wake, but sometimes the most wrenching losses are the smallest - personal items such as heirlooms, photographs, textiles and books. With proper handling, however, some of these items may be reclaimed from the flood waters.

The Federal Emergency Management Agency offers these tips based on recommendations of the American Institute for Conservation of Historic and Artistic Works and the Heritage Preservation.

- Handle wet photos carefully; the surfaces may be fragile. Wet photos may be rinsed in clean water and sealed in a plastic garbage bag with a tie or a Zip-Lock type plastic bag. If possible, put wax paper between each photo. If a freezer is available, freeze the photos immediately. Later, photos may be defrosted, separated and air-dried.
- If no freezer or refrigerator is available, rinse wet photos in clean water and dry them, face up, in a single layer on a clean surface (a table, window screen or clean plastic laid out on the ground). Don't dry photos in direct sunlight. Don't worry if the photos curl as they dry. A photo expert can be contacted later about flattening them.
- Valuable textiles, such as quilts, laces, needlework or tapestries, will be weaker and heavier when wet and will require extra care. Wear plastic disposable gloves, protective clothing, goggles, and if possible, use a respirator while working on flood-damaged textiles
- Do not attempt to unfold extremely delicate fabrics if the fragile layers are stuck together. Wait until they are dry and consult a conservator.
- To remove mud and debris, re-wet the textiles with gently flowing clean water or with a fine hose spray. Gently press water out with the palm of your hand. Don't wring or twist dry. Remove excess water with dry towels, blotting paper or blank newsprint, especially if the dyes are bleeding. Avoid stacking textiles while drying. Reshape the textile while it is damp to approximate its original contours.
- Don't place textiles in sealed plastic bags. Air dry indoors with the lights on to inhibit mold and circulate the air with air conditioning, fans and open windows. Use a dehumidifier in the room with the wet textiles and drain the collecting container often.
- If heirloom items are broken or begin to fall apart, place broken pieces, bits of veneer and detached parts in labeled open containers. Don't attempt to repair objects until completely dry or, in the case of important materials, until you consult with a professional conservator.
- Documents, books and works of art on paper may be extremely fragile when wet. Free the edges of prints and paper objects in mats and frames, if possible. These should be allowed to air dry. Sodden papers should also be air dried or may be kept in a refrigerator or freezer until they can be treated by a professional conservator.
- Remove wet paintings from the frame but not from the stretcher. Air dry, face up, away from direct sunlight.
- If the books are underwater or soaking wet, pick up each one with both hands and place it in a non-paper container (milk crate, wire basket, etc.) so it can be transported safely to an area where it can dry. Keep the book closed while you move it; wet books are very fragile. Remember: the wetter the book, the heavier it is and the more likely to be damaged by rough handling.
- The best way to dry books is with cool, dry, circulating air. Never dry them by using an oven, microwave, hair dryer or iron. If the volume is very wet, place it flat on a clean table or bench that is covered with absorbent material. Carefully place sheets of absorbent material (paper towels, blotters or uninked newsprint) between sections of pages. Don't distort the binding,

though. Change the sheets as they become wet. To speed drying, change the location of the blotters each time they are replaced. With books that have coated pages, use waxed paper instead of absorbent sheets between pages.

- If the volume is damp or only partially wet, stand it upright on its driest edge with its pages fanned open. If you are using fans to keep the air circulating, make sure the spines or covers are facing the breeze. If needed, insert blotting materials between pages.
- Once the book is dry but feels cool to the touch, close it and place it on its side with a slight weight on it. Check regularly for mold growth. You can also freeze the books to be defrosted and dried later, when conditions improve.

**More tips.**

Professional conservators may be contacted through the free Conservation Services Referral System of the American Institute for Conservation of Historic and Artistic Works, 1717 K Street, NW, Ste. 301, Washington, DC 20006; (202) 452-9545.

## Salvaging Some Common Materials

* See Salvage Glossary after the table for definition of different methods.

| Material | Priority | Handling Precautions | Packing Method | Drying Method |
|---|---|---|---|---|
| **Books** | | | | |
| **Books & pamphlets** | Freeze or dry within 48 hours. | Do not open or close, do not separate covers. | Separate with freezer paper, pack spine down in milk crate or cardboard box 1 layer deep. | Air, vacuum, or freeze dry. |
| **Leather & vellum bindings** | Immediately dry; or freeze if many books. | Do not open or close, do not separate covers. | Separate with freezer paper, pack spine down in milk crate or cardboard box 1 layer deep. | Air dry. |
| **Books & periodicals with coated papers** | Immediately freeze or dry. | Do not open or close, do not separate covers. | Keep wet; pack spine down in containers lined with garbage bags. | Freeze drying preferred. Air dry by fanning pages and interleaving. |
| **Black & White Prints** | | | | |
| **Albumen prints** | Freeze or dry within 48 hours. | Do not touch binder with bare hands. | Interleave between groups of photographs. | Air dry; thaw & air dry. |
| **Matte & glossy collodion prints** | Freeze or dry within 48 hours. | Avoid abrasion. Do not touch binder with bare hands. | | Air dry; thaw & air dry; or freeze dry. |
| **Silver gelatin printing out & developing out papers** | Freeze or dry within 48 hours. | Do not touch emulsion with bare hands. | Keep wet. Pack in plastic bags inside boxes. | Order of preference:<br>1) Air dry, 2) thaw and air dry, 3) freeze dry.<br>Do not vacuum dry. |
| **Carbon prints & Woodburytypes** | Immediately freeze or dry. | Handle carefully - swelling of binder. | Horizontally. | Air dry or thaw & air dry. |
| **Photomechanical prints** (i.e., collotypes, photogravures) **Cyanotypes** | Freeze or dry within 48 hours. | Do not separate single sheets. | Interleave every 2" and pack in boxes or crates. | Air dry or freeze dry. |

## Salvaging Some Common Materials

* See Salvage Glossary after the table for definition of different methods.

| Material | Priority | Handling Precautions | Packing Method | Drying Method |
|---|---|---|---|---|
| **Color Photographs** | | | | |
| **Dye transfer prints** | Package to prevent damage - recovery rate is poor. Immediately dry. | Do not touch emulsion. | Transport horizontally. | Air dry face up. |
| **Chromogenic prints & negatives** | Freeze or dry within 48 hours. | Do not touch binder with bare hands. | Keep wet. Pack in plastic bags inside boxes. | Order of preference: 1) Air dry, 2) thaw & air dry, 3) freeze dry. Do not vacuum dry. |
| **Color Transparencies** | | | | |
| **Additive color transparencies** (most are glass) Autochromes, Agfacolor, Dufaycolor | Package to prevent damage - recovery rate is very poor. Immediately dry. | Handle with care - loose binding tapes & glass. | Horizontally in a padded container. | Air dry. Never Freeze |
| **Chromogenic color transparencies Mounted color slides & sheet films** | Freeze or dry within 48 hours. | Handle by mounts or edges. | Keep wet. Pack in plastic bags inside box. | Order of preference: 1) Air dry in mounts if possible, 2) thaw & air dry, 3) freeze dry. Do not vacuum dry. |
| **Cased Photographs** | | | | |
| **Ambrotypes Pannotypes** | Recovery rate is low. Immediately dry. | Handle with care - glass supports & extremely fragile binder. | Horizontally in a padded container. | Air dry face up. Never freeze. |
| **Daguerreotypes** | Immediately dry. | Handle with care - fragile | Horizontally in a padded | Air dry face up. |

## Salvaging Some Common Materials

* See Salvage Glossary after the table for definition of different methods.

| Material | Priority | Handling Precautions | Packing Method | Drying Method |
|---|---|---|---|---|
| | | surface, cover glass. | container. | Never freeze. |
| **Tintypes** | Immediately dry. | Handle with care - fragile binder. | Horizontally. | Air dry. Never freeze. |
| **Computer Media** | | | | |
| **Tapes** | Immediately rinse off tapes soaked by dirty water. Dry within 48 hours if paper boxes & labels; otherwise, tapes can stay wet for several days.<br>Do not freeze. | Do not touch magnetic media with bare hands.<br>Handle open reel tapes by hubs or reel. | Keep tapes wet in plastic bags.<br>Pack vertically in plastic crate or tub. | Air dry or test vacuum drying without heat. |
| **Floppy Disks** | Immediately pack.<br>Do not freeze. | Do not touch disk surface with bare hands. | Keep wet. Pack vertically in plastic bags or tubs of cold water. | Air dry. |
| **Compact Discs & CD ROMs** | | | | |
| | Immediately dry discs. Dry paper enclosures within 48 hours. | Do not scratch the surface. | Pack vertically in crates or cardboard cartons. | Air dry. |
| **Maps & Plans** | | | | |
| **Stable media** | Freeze or dry within 48 hours. | Use extra caution if folded or rolled. | Pack in map drawers, bread trays, flat boxes, on heavy cardboard or poly covered plywood. | Air or freeze dry. |
| **Soluble media** | Immediately freeze or | Do not blot. | Interleave between folders | Air or freeze dry. |

## Salvaging Some Common Materials

* See Salvage Glossary after the table for definition of different methods.

| Material | Priority | Handling Precautions | Packing Method | Drying Method |
|---|---|---|---|---|
| Maps & plans by photoreproductive processes<br>Hand colored maps | dry. | | and pack as above. | |
| **Drafting linens** | Immediately freeze or dry. | Avoid pressure - inks can smear away. | Pack like maps in containers lined with plastic. | Air or freeze dry. Air dry by separating sheets and interleaving. |
| **Maps on coated papers** | Immediately freeze or dry. | | Pack like maps in containers lined with plastic. | Freeze drying preferred. |
| **Microforms** | | | | |
| **Microfilm rolls** | Rewash & dry within 48 hours. | Do not remove from boxes; hold carton together with rubber bands. | Keep wet. Pack (in blocks of 5) in a cardboard box lined with garbage bags. | Arrange with a microfilm processor to rewash and dry. |
| **Aperture cards** | Freeze or dry within 48 hours. | | Keep wet. Pack in plastic bags inside boxes. | Air dry, or thaw & air dry. |
| **Jacketed microfilm** | Freeze or dry within 48 hours. | | Keep wet. Pack in plastic bags inside pail or box. | Air dry, or freeze, thaw and air dry. |
| **Diazo & vesicular microfiche** | Freeze or dry within 48 hours. | | Interleave between envelopes & pack in milk crates or cartons. | Air dry, or freeze, thaw & air dry. |
| **Motion Pictures** | | | | |
| | Rewash & dry within 48 hours. | | Keep wet. Pack in plastic pails or cardboard cartons lined with garbage bags. | Arrange with a film processor to rewash & dry. |

## Salvaging Some Common Materials

* See Salvage Glossary after the table for definition of different methods.

| Material | Priority | Handling Precautions | Packing Method | Drying Method |
|---|---|---|---|---|
| **Negatives** | | | | |
| **Wet collodion glass plates** | Recovery rate is low. Immediately dry. | Handle with care - glass supports and fragile binder. | Horizontally in a padded container. | Air dry face up. Never freeze. |
| **Gelatin dry plate glass negatives** | Freeze or dry within 48 hours. | Handle with care - glass. | Keep wet. Pack in plastic bags, vertically in a padded container. | Air drying preferred; or thaw & air dry; freeze dry. |
| **Deteriorated nitrates with soluble binders** | Immediately freeze or dry. Recovery rate may be low. | Do not blot. | Horizontally. | Air dry; thaw & air dry; test freeze drying. |
| **Deteriorated acetates** | Immediately freeze or dry. Recovery rate is low. | Handle carefully - swelling of emulsion. | Horizontally. | Air dry; thaw & air dry; test freeze drying. |
| **Polyester based film, nitrates & acetates in good condition** | Freeze or dry within 48 hours. | Do not touch emulsion with bare hands. | Keep wet. Pack in small plastic bags inside boxes. | Order of preference: 1) Air dry, 2) thaw & air dry, 3) freeze dry. Do not vacuum dry. |
| **Paper Documents & Manuscripts** | | | | |
| **Stable media** | Freeze or dry within 48 hours. | Don't separate single sheets. | Interleave between folders & pack in milk crates or cartons. | Air, vacuum, or freeze dry. |
| **Soluble inks** (felt pens, colored pens, ball point pens) | Immediately freeze or dry. | Do not blot. | Interleave between folders & pack in milk crates or cartons. | Air or freeze dry. |
| **Parchment & Vellum Manuscripts** | | | | |

## Salvaging Some Common Materials

* See Salvage Glossary after the table for definition of different methods.

| Material | Priority | Handling Precautions | Packing Method | Drying Method |
|---|---|---|---|---|
| | Immediately freeze or dry. | | Interleave between folders.<br>Pack oversize materials flat. | Air or freeze dry. Do not freeze dry gilded or illuminated manuscripts. |
| **Paintings** | | | | |
| | Immediately dry. | Drain and carry horizontally. | Face up without touching paint layer | Air dry. See Instructions. |
| **Sound and Video Recordings** | | | | |
| **Sound & Videotapes** | Immediately rinse off tapes soaked by dirty water.<br>Dry within 48 hours if paper boxes and labels; otherwise, tapes can stay wet for several days.<br>Do not freeze. | Do not touch magnetic media with bare hands. | Keep tapes wet in plastic bags.<br>Pack vertically in plastic crate or tub. | Air dry or test vacuum drying without heat. |
| **Shellac & Acetate Discs** | Immediately dry.<br>Dry enclosures within 48 hours. | Discs are very fragile.<br>Hold discs by their edges.<br>Avoid shocks. | Pack vertically in ethafoam-padded crates. | Air dry, preferably with a record cleaning machine. |
| **Vinyl Discs** | Dry within 48 hours.<br>Freezing is untested; if it is necessary, freeze at above -18° C (0° F).<br>Freeze or dry enclosures within 48 hours. | Hold discs by their edges.<br>Avoid shocks. | Pack vertically in ethafoam-padded crates. | Air dry, preferably with a record cleaning machine. |

## Salvaging Some Common Materials

* See Salvage Glossary after the table for definition of different methods.

| Material | Priority | Handling Precautions | Packing Method | Drying Method |
|---|---|---|---|---|
| **Transparencies** | | | | |
| **Lantern slides, silver gelatin** | Freeze or dry within 48 hours. | Handle with care - loose binding tapes & glass. | Vertically in a padded container. | Air drying preferred; thaw, & air dry. |
| **Works of Art on Paper** | | | | |
| **Prints & drawings with stable media** | Freeze or dry within 48 hours. | Don't separate single sheets. | Interleave between folders & pack in milk crates or cartons. | Air, vacuum, or freeze dry. |
| **Oversize prints & drawings** | Freeze or dry within 48 hours. | Use extra caution if folded or rolled. | Pack in map drawers, bread trays, flat boxes, on heavy cardboard or poly covered plywood. | Damp - air or freeze dry. Wet - freeze drying preferred. |
| **Framed prints & drawings** | Freeze or dry within 48 hours. | Handle with care - glass. | Unframe if possible, then pack as above. | Once unframed & unmatted, air or freeze dry. |
| **Soluble Media** Watercolors, soluble inks, & hand colored prints | Immediately freeze or dry. | Do not blot. | Interleave between folders & pack in milk crates or cartons. | Air or freeze dry. |
| **Coated papers** (i.e., posters) | Immediately freeze or dry. | | Keep wet in containers lined with garbage bags. | Freeze drying preferred. Air dry by separating pages & interleaving. |

**SALVAGE GLOSSARY**

**Air-Drying**. Use a cool, low-humidity area with good air circulation. Place absorbent material (see interleaving) under objects; replace it when wet. If possible, air dry material on plastic racks (commercial bread trays or rust-proof screens) to increase evaporation. Exposure to light may reduce threat of mold, but prolonged sunlight can cause fading.

**Interleaving**. Use blotter paper, uninked newsprint, paper towels, or waxed or freezer paper to keep items from sticking together and prevent dye transfer or running.

**Freezing**. If objects cannot be dried within 48 hours, freeze them until action can be taken. Freezing stabilizes collections for months; it stops mold growth, ink running, dye transfer and swelling. A sub-zero commercial freezer is best, but a home freezer works. A refrigerated truck keeps materials cool enough to slow mold growth.

**On-Site Dehumidification**. Super-dry air is pumped into the building and moist air drawn out. A useful method for damp library and archival collections in place; may be used in modern buildings to dry carpeting, wallboard and furnishings. Do not use for historic structures of wood or plaster or most museum collections.

**Rinsing**. Rinse dirty or muddy items under a gentle stream of clean running water or gently agitate in containers filled with water. Do not scrub; it drives dirt in deeper. Use a sponge/soft cloth to blot off mud and debris.

**Vacuum Drying**. Also called "thermal drying." Items are dried in a vacuum chamber, often at temperatures above 100° F. Caution: this method accelerates aging and causes damage to many materials: animal skins (leather, vellum), film media. Widely available; slower than vacuum freeze-drying, but less expensive.

**Vacuum Freeze-Drying**. Items are dried in a vacuum chamber at below-freezing temperatures to minimize swelling and distortion. Generally provides the most satisfactory results; recommended for historic collecting materials and glossy papers. A commercial service available throughout the U.S.

# MOLD: REENTERING YOUR FLOODED HOME

**http://www.bt.cdc.gov/disasters/mold/reenter.asp**

When returning to a home that's been flooded after natural disasters such as hurricanes, tornadoes, and floods, be aware that your house may be contaminated with mold or sewage, which can cause health risks for your family.

## When You First Reenter Your Home

- If you have standing water in your home and can turn off the main power from a dry location, then go ahead and turn off the power, even if it delays cleaning. If you must enter standing water to access the main power switch, then call an electrician to turn it off. **NEVER turn power on or off yourself 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 awhile (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. (See Protect Yourself from Mold.)
- If your home has been flooded, it also may be contaminated with sewage. (See After a Hurricane or Flood: Cleanup of Flood Water.)

## Dry Out Your House

If flood or storm water has entered your home, dry it out as soon as possible. Follow these steps:

- If you have electricity 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), an electric-powered water transfer pump, or 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 electricity, or it is not safe to turn it on, you can use a portable generator to power equipment to remove standing water. **Note: If you must use a gasoline-powered pump, generator, pressure washer, or any other gasoline-powered tools to clean your 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. Such improper use can create dangerously high levels of carbon monoxide and cause carbon monoxide poisoning.**
- 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.
- Have your home heating, ventilating, and air-conditioning (HVAC) system checked and cleaned by a maintenance or service professional who is experienced in mold clean-up **before you turn it 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 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.
- Prevent water outdoors from reentering your home. For example, rain water 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.

Page last modified October 27, 2004

# PROTECT YOURSELF FROM MOLD

**http://www.bt.cdc.gov/disasters/mold/protect.asp**

After natural disasters such as hurricanes, tornadoes, and floods, excess moisture and standing water contribute to the growth of mold in homes and other buildings. When returning to a home that has been flooded, be aware that mold may be present and may be 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 immune suppression (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 in breathing and shortness of breath. People with weakened immune systems and 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 your doctor or other health care provider.

## RECOGNIZING 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

Clean up and dry out the building quickly (within 24 to 48 hours). Open doors and windows. Use fans to dry out the building. (See the fact sheet for drying out your house, Reentering Your Flooded Home). (The Word version is included at the end of this CDC segment.)

- **When in doubt, take it out!** Remove all porous items that have been wet for more than 48 hours and that cannot be thoroughly cleaned and dried. These items can remain a source of mold growth and should be removed from the home. Porous, noncleanable items include carpeting and carpet padding, upholstery, wallpaper, drywall, floor and ceiling tiles, insulation material, some clothing, leather, paper, wood, and food. Removal and cleaning are important because even dead mold may cause allergic reactions in some people.
- To *prevent* mold growth, clean wet items and surfaces with detergent and water.
- Homeowners may want to temporarily store items outside of the home until insurance claims can be filed. See recommendations by the Federal Emergency Management Agency (FEMA) .
- If you wish to disinfect, refer to the U.S. Environmental Protection Agency (EPA) document, A Brief Guide to Mold and Moisture in Your Home at http://www.epa.gov/iaq/molds/moldguide.html.

**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.

To *remove* mold growth from hard surfaces use commercial products, soap and water, or a bleach solution of 1 cup of bleach in 1 gallon of water. Use a stiff brush on rough surface materials such as concrete.

If you choose to use bleach to remove mold:

- Never mix bleach with ammonia. Mixing bleach and ammonia can produce dangerous, toxic fumes.
- Open windows and doors to provide fresh air.
- Wear non-porous gloves and protective eye wear.
- If the area to be cleaned is more than 10 square feet, consult the U.S. Environmental Protection Agency (EPA) guide titled *Mold Remediation in Schools and Commercial Buildings* . Although focused on schools and commercial buildings, this document also applies to other building types. You can get it free by calling the EPA Indoor Air Quality Information Clearinghouse at (800) 438-4318, or by going to the EPA web site at http://www.epa.gov/mold/mold_remediation.html .
- Always follow the manufacturer's instructions when using bleach or any other cleaning product.
- More information on personal safety while cleaning up after a natural disaster is available at www.bt.cdc.gov/disasters/workers.asp .

## OTHER MOLD RESOURCES

- Clean Up Safely After a Natural Disaster
- Reentering Your Flooded Home
- Mold - General Resources
- NIOSH Interim Recommendations for the Cleaning and Remediation of Flood-Contaminated HVAC Systems: A Guide for Building Owners and Managers

CDC mold webpages last modified September 14, 2005

# NIOSH Interim Recommendations for the Cleaning and Remediation of Flood-Contaminated HVAC Systems: A Guide for Building Owners and Managers

(This was taken from http://www.cdc.gov/niosh/topics/flood/Cleaning-Flood-HVAC.html.)

(This is designed for commercial buildings and HVAC systems, however, it contains good information for homeowners.)

**Introduction**

During flooding, systems for heating, ventilating, and air conditioning (HVAC) can become submerged in flood waters. As a result, these systems may contain substantial amounts of dirt and debris and may also become contaminated with various types of microorganisms such as bacteria and fungi. The following recommendations will help ensure that HVAC systems contaminated with flood water are properly cleaned and remediated to provide healthy indoor environments.

Microorganisms may grow on all surfaces of HVAC system components that were submerged in flood waters. In addition, moisture can collect in HVAC system components that were not submerged (such as air supply ducts above the water line) and can promote the growth of microorganisms. Therefore, all components of the HVAC system that were contaminated with flood water or moisture should be thoroughly inspected, cleaned of dirt and debris, and disinfected by a qualified professional. The following recommendations will help ensure that HVAC systems contaminated with flood water are properly cleaned and remediated to provide healthy indoor environments.

These interim recommendations are based on current knowledge as of September 21, 2005; the recommendations will be updated and revised as appropriate, as additional information becomes available.

**Steps Before Cleaning and Remediation**

- If the building is to remain partly occupied (for example, on upper floors not affected by flood waters), isolate the construction areas where HVAC systems will be cleaned and remediated by using temporary walls, plastic sheeting, or other vapor-retarding barriers. Maintain the construction areas under negative pressure (relative to adjacent non-construction areas) by using blowers equipped with HEPA filters (high-efficiency particulate air filters) to exhaust the area. To ensure complete isolation from the construction areas, it may be necessary to pressurize the adjacent non-construction areas and temporarily relocate the outdoor-air intake for the HVAC system serving the occupied areas.

- Take precautions to protect the health of workers who are cleaning and remediating the HVAC system. Make sure that workers wear at least an N-95 NIOSH-approved respirator to protect against airborne microorganisms. Increased levels of respiratory protection (for example, powered, air-purifying respirators equipped with HEPA filters) may be

appropriate depending on the level of visible contamination. In addition, when using chlorine bleach or other disinfectants in poorly ventilated environments, it may be necessary to use appropriate chemical cartridges in addition to the particulate filters to protect workers from breathing the chemical vapors.

Employers must implement a complete respiratory protection program that meets the requirements of the OSHA respiratory protection standard (29 Code of Federal Regulations 1910.134). The minimum requirements for a respiratory protection program include a written standard operating procedure for the following: selecting and using respirators; the medical evaluation of workers to determine whether they are physically able to wear the respirator selected for use; training and instructions on respirator use; the cleaning, repair, and storage of respirators; the continued surveillance of work area conditions for worker exposure and stress; and a respirator fit-testing program. For tight-fitting respirators, fit-testing is necessary to help ensure that the respirator fits tightly, reducing the potential for leakage of outside air from around the edge of the mask. In addition, employers must provide workers with appropriate skin, eye, and hearing protection for the safe performance of their jobs.

**HVAC Cleaning and Remediation**

- Remove all flood-contaminated insulation surrounding and within HVAC system components. Discard these contaminated materials appropriately following applicable Federal, State, and local regulations.

- Remove contaminated HVAC filter media and discard appropriately following applicable Federal, State, and local regulations.

- After removing any insulation and filters, clean all flood-contaminated HVAC system component surfaces with a HEPA-filtered vacuum cleaner to remove dirt, debris, and microorganisms. Pay special attention to filter racks, drain pans, bends and horizontal sections of air ducts where debris can collect.

- After removing any insulation or debris, disinfect all HVAC system component surfaces while the HVAC system is not operating. Use a solution of 1 cup of household chlorine bleach in a gallon of water. Do not mix bleach with other cleaning products that contain ammonia.

- Follow the disinfection procedure with a clean water rinse. Depending on the amount of debris present, it may be necessary to mechanically clean the HVAC system component surfaces with a steam or a high-pressure washer before using the disinfectant.

  **Note: Remove and discard HVAC system components that are contaminated with flood water and cannot be effectively cleaned and disinfected. Replace them with new components.**

- After cleaning and disinfecting or replacing the HVAC system components, replace the insulation – preferably with an external (i.e. not in the air stream) smooth-surfaced insulation to help prevent debris and microorganisms from collecting in the future.

- Make sure that the HVAC system fan has been removed and serviced (cleaned, disinfected, dried thoroughly, and tested) by a qualified professional before it is placed back into the air-handling unit.

- During the cleaning and remediation process, consider upgrading the HVAC system filtration to the highest efficiency filters practical given the static pressure constraints of the HVAC system fan. This step has been shown to be one of the most cost-effective ways to improve the long-term quality of the indoor environment, since it reduces the amount of airborne dusts and microorganisms.

**Resuming HVAC Operations**

- After cleaning and disinfecting or replacing HVAC system, have a qualified professional thoroughly evaluate its performance and correct it as necessary before the building is occupied again. The HVAC system performance should conform to the recommendations contained in ASHRAE Standard 62-2004, Ventilation for Acceptable Indoor Air Quality.

- Before the building is occupied again, operate the HVAC system continuously in a normal manner at a comfortable temperature for 48 to 72 hours. During this period, it may be beneficial to open the HVAC outdoor air dampers to the maximum setting that still allows you to provide the desired indoor air temperatures. If objectionable flood-related odors persist after this “flush out” period, reassess by looking for flood-contaminated areas that were not identified earlier and continue the flush- out process until odors are no longer apparent. Replace the HVAC filters used during the flush-out prior to building occupancy.

- After a building is occupied again, make frequent (for example, weekly) checks of the HVAC system to ensure that it is operating properly. During these checks, inspect the HVAC system filters and replace them when necessary. Gradually reduce the frequency of the HVAC system checks to monthly or quarterly inspections, depending on the routine operation and maintenance specifications for the HVAC system.

- If no routine operation and maintenance program is in place for the HVAC system, develop and institute such a program. At a minimum, include the following routine procedures: inspection and maintenance of HVAC components, calibration of HVAC system controls, and testing and balancing of the HVAC system.

- After the building is occupied again, maintain the interior temperature and relative humidity to conform to the ranges recommended in ASHRAE Standard 55- 2004, Thermal Environmental Conditions for Human Occupancy.

## Additional Information on Cleaning and Repairing Your Home Safely

**American Red Cross**

Repairing Your Flooded Home & What To Do After a Flood or Flash Flood - http://www.redcross.org/services/disaster/0,1082,0_570_,00.html

**Centers for Disease Control**

Clean Up Safely After a Natural Disaster **-** http://www.bt.cdc.gov/disasters/cleanup.asp

Facts About Mold and Dampness - http://www.cdc.gov/mold/dampness_facts.htm

**Environmental Protection Agency**

Flood Cleanup - Avoiding Indoor Air Quality Problems - http://www.epa.gov/iaq/pubs/flood.html

A Brief Guide to Mold and Moisture in Your Home - http://www.epa.gov/iaq/molds/moldguide.html

**Federal Emergency Management Agency**

After a Flood: The First Steps - http://www.fema.gov/pdf/hazards/fststpbr.pdf

Dealing With Mold and Mildew in Your Flood Damaged Home – http://www.fema.gov/pdf/rrr/fema_mold_brochure_english.pdf

**Occupational Safety and Health Administration**

Mold Fact Sheet - http://www.osha.gov/OshDoc/data_Hurricane_Facts/mold_fact.pdf

Flood Cleanup Fact Sheet - http://www.osha.gov/OshDoc/data_Hurricane_Facts/floodcleanup.pdf

Fungi Hazards and Flood Cleanup - http://www.osha.gov/OshDoc/data_Hurricane_Facts/Bulletin3.pdf

# ENVIRONMENTAL PROTECTION AGENCY (EPA)

(The following was taken from: http://www.epa.gov/iaq/pubs/flood.html.)
Office of Radiation and Indoor Air (6609J)
EPA Publication No. 402-F-93-005
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**Contents**



This fact sheet is also available as an Adobe Acrobat PDF file (PDF, 2 pgs., 97KB About PDF). **Please Note:** The PDF file does not contain all of the updated links and information that are available in this HTML version.

## Introduction

During a flood cleanup, the indoor air quality in your home or office may appear to be the least of your problems. However, failure to remove contaminated materials and to reduce moisture and humidity can present serious long-term health risks. Standing water and wet materials are a breeding ground for microorganisms, such as viruses, bacteria, and mold. They can cause disease, trigger allergic reactions, and continue to damage materials long after the flood.

This fact sheet discusses problems caused by microbial growth, as well as other potential effects of flooding, on long-term indoor air quality and the steps you can take to lessen these effects. Although the information contained here emphasizes residential flood cleanup, it is also applicable to other types of buildings.

## Prepare for Cleanup

Read ***Repairing Your Flooded Home***
www.redcross.org/services/disaster/0,1082,0_570_,00.html EXIT disclaimer prepared by the Federal Emergency Management Agency and the American Red Cross. The booklet discusses flood safety issues and can save your life. The booklet also contains detailed information on proper methods for cleaning up your home. You should also consult the wealth of information on the FEMA, CDC, and The American Lung Association sites on the subject, which are listed below:

- FEMA web site on floods/flooding - www.fema.gov/hazards/floods/ EXIT disclaimer

- U.S. Department of Health and Human Services (HHS), Centers for Disease Control and Prevention's (CDC) Emergency Preparedness and Response page on **Protect Yourself from Mold** - www.bt.cdc.gov/disasters/mold/protect.asp EXIT disclaimer and **Key Facts About Hurricane Recovery** - www.bt.cdc.gov/hurricanes/index.asp EXIT disclaimer

- American Lung Association's Fact Sheet on Flood Clean-up - www.lungusa.org/air/flood_factsheet99.html EXIT disclaimer

- Consumer Product Safety Commission's **Safety Tips for Flood Victims** - www.cpsc.gov/cpscpub/pubs/fema/flood.html EXIT disclaimer Illustrates dangerous practices flood victims may engage in during efforts to rebuild or while staying in temporary housing or partially damaged homes. Provides safety recommendations. CPSC document #5035

This EPA fact sheet provides additional information not covered in the original FEMA/American Red Cross booklet on indoor air quality concerns related to flooding (however, because this fact sheet was prepared in 1993, it is more than likely that FEMA and the Red Cross and the American Lung Association do have more up-to-date information and resources available which you should consult). Many of the methods used for general cleanup, as detailed in the booklet, are the same as those used to avoid problems with indoor air quality. For brevity, we have not provided detail on the general methods used for cleanup here. This fact sheet is intended to be used in conjunction with the FEMA/American Red Cross booklet and resources.

Children are different from adults. They may be more vulnerable to chemicals and organisms they are exposed to in the environment. Read more...

**Avoid Problems from Microbial Growth**

***Remove Standing Water***

Standing water is a breeding ground for microorganisms, which can become airborne and be inhaled. Where floodwater contains sewage or decaying animal carcasses, infectious disease is of concern. Even when flooding is due to rain water, the growth of microorganisms can cause allergic reactions in sensitive individuals. For these health reasons, and to lessen structural damage, all standing water should be removed as quickly as possible.

***Dry Out Your Home***

Excess moisture in the home is an indoor air quality concern for three reasons:

- Microorganisms 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 air or water. Coming in 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 microorganisms that are always present in the home. This may result in additional health concerns such as allergic reactions.
- Long term increases in humidity in the home can also foster the growth of dust mites. Dust mites are a major cause of allergic reactions and asthma.

See Step 4, Dry Out Your Home, of the American Red Cross/FEMA booklet, Repairing Your Flooded Home EXIT disclaimer, on steps that should be taken to open up and dry out ceilings, walls, and floors in the home.

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

***Remove Wet Materials***

It can be difficult to throw away items in a home, particularly those with sentimental value. However, keeping certain items that were soaked by water may be unhealthy. Some materials tend to absorb and keep water more than others. In general, materials that are wet and cannot be thoroughly cleaned and dried within 24-48 hours should be discarded, as they can remain a source of microbial growth.

Information on the types of water-damaged materials that should be discarded are provided in Step 4, Dry Out Your Home, of the American Red Cross/FEMA booklet, Repairing Your Flooded Home (This booklet is in Word at the end of this segment.) EXIT disclaimer

The booklet suggests that you may be able to dry out and save certain building materials (for example, wallboard, fiberglass insulation, and wall-to-wall carpeting that were soaked only with clean rain water). You may, however, want to consider removing and replacing them to avoid indoor air quality problems. Because they take a long time to dry, they may be a source of microbial growth. For information on mold prevention and cleanup, visit www.epa.gov/mold or call **IAQINFO at 800-438-4318**.

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

**Avoid Problems from the Use of Cleaners and Disinfectants**

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 are used for this task. FEMA also suggests the use of disinfectants and sanitizers on the duct work for the heating and air conditioning system, if it has been flooded.

Disinfectants and sanitizers contain toxic substances. The ability of chemicals in other household products used for cleaning to cause health effects varies greatly, from those with no known health effect to those that are highly toxic. 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 the home is dry, use fans both during and after the use of disinfecting, cleaning, and sanitizing products.

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

**Avoid Carbon Monoxide Poisoning**

Carbon monoxide (CO) is a colorless, odorless gas that can be lethal at high levels. Carbon monoxide levels can build up rapidly if certain types of combustion devices (for example, gasoline-powered generators, camp stoves and lanterns, or charcoal-burning devices) are used indoors. Do not use combustion devices designed for outdoor use indoors.

**Avoid Problems from Airborne Asbestos and Lead Dust**

Elevated concentrations of airborne asbestos can occur if asbestos-containing materials present in the home are disturbed. Airborne asbestos can cause lung cancer and mesothelioma, a cancer of the chest and abdominal linings. If you know or suspect that your home contains asbestos, contact the EPA TSCA Assistance Information Service at (202) 554-1404 for information on steps you should take to avoid exposure.

Lead is a highly toxic metal which produces a range of adverse health effects, particularly in young children. Disturbance or removal of materials containing lead-based paint may result in elevated concentration of lead dust in the air. If you know or suspect that your home contains lead-based paint, contact the National Lead Information Center to receive a general information packet, to order other documents, or for detailed information or questions. Call and speak with a specialist Monday through Friday, 8:00 am to 6:00 pm eastern time (except Federal holidays) at **1(800) 424-LEAD [5323]**.

**Links to Additional Information**

- The Federal Emergency Management Agency's Flood website - www.fema.gov/hazards/floods/ EXIT disclaimer Publications are available from:

FEMA EXIT disclaimer
Publication Storage and Distribution
P.O. Box 2012
8241 Sandy Court, Suite A
Jessup, MD 20794-2012
Phone: 800-480-2520
Fax: 301-362-5335

- EPA's resource page on Mold at www.epa.gov/mold/moldresources.html
- American Lung Association's Fact Sheet on Flood Clean-up - www.lungusa.org/air/flood_factsheet99.html EXIT disclaimer
- U.S. Department of Health and Human Services (HHS), Centers for Disease Control and Prevention's (CDC) Emergency Preparedness and Response page on "Protect

Yourself from Mold" - www.bt.cdc.gov/disasters/mold/protect.asp EXIT disclaimer and **Key Facts About Hurricane Recovery** - www.bt.cdc.gov/hurricanes/index.asp EXIT disclaimer

***Surviving the Aftermath of Hurricane Katrina* CPSC Warns of Deadly Post-Storm Dangers with Portable Generators, Candles and Wet Appliances**, U.S. Consumer Product Safety Commission, Office of Information and Public Affairs, Washington, DC, August 31, 2005, Release #05-251 www.cpsc.gov/CPSCPUB/PREREL/prhtml05/05251.html EXIT disclaimer

**Indoor Environments Quick Links:**

- Flood Cleanup Fact Sheet
- Mold Information
- Carbon Monoxide Information

General info about preparing for hurricanes **[En Español]**

**Katrina** - epa.gov/katrina Our national and regional Emergency Operations Centers are activated 24 hours a day. Frequent Questions

Get current emergency notifications from the Federal Emergency Management Agency - www.fema.gov EXIT disclaimer

Read the Centers for Disease Control and Prevention's (CDC) Emergency Preparedness and Response page Key Facts About Hurricane Recovery EXIT disclaimer

# RED CROSS

**Repairing Your Flooded Home**

(The following information can be accessed either through this web link ***http://www.redcross.org/services/disaster/0,1082,0_570_,00.html*** or by clicking on the following link What to Do After a Flood or Flash Flood)

Your home and its contents may look beyond hope, but many of your belongings can be restored. If you do things right, your flooded home can be cleaned up, dried out, rebuilt, and reoccupied sooner than you think.

**Play it safe.** The dangers are not over when the water goes down. Your home's foundation may have been weakened, the electrical system may have shorted out, and floodwaters may have left behind things that could make you sick. When in doubt, throw it out. Don't risk injury or infection.

**Ask for help.** Many people can do a lot of the clean up and repairs discussed in this book. But if you have technical questions or do not feel comfortable doing something, get professional help. If there is a federal disaster declaration, a telephone "hotline" will often be publicized to provide information about public, private, and voluntary agency programs to help you recover from the flood.

**Floodproof.** It is very likely that your home will be flooded again someday. You can save a lot of money by floodproofing as you repair and rebuild. See Step 8. You should also prepare for the next flood by buying flood insurance and writing a flood response plan.

***Step 1. Take Care of Yourself First***
Protect yourself and your family from stress, fatigue, and health hazards that follow a flood.

***Step 2. Give Your Home First Aid***
Once it is safe to go back in, protect your home and contents from further damage.

***Step 3. Get Organized***
Some things are not worth repairing and some things may be too complicated or expensive for you to do by yourself. A recovery plan can take these things into account and help you make the most of your time and money.

***Step 4. Dry Out Your Home***
Floodwaters damage materials, leave mud, silt and unknown contaminants, and promote the growth of mildew. You need to dry your home to reduce these hazards and the damage they cause.

***Step 5. Restore the Utilities***
The rest of your work will be much easier if you have heat, electricity, clean water, and sewage disposal.

***Step 6. Clean Up***
The walls, floors, closets, shelves, contents and any other flooded parts of your home should be thoroughly washed and disinfected.

***Step 7. Check on Financial Assistance***
Voluntary agencies, businesses, insurance, and government disaster programs can help you through recovery.

***Step 8. Rebuild and Floodproof***
Take your time to rebuild correctly and make improvements that will protect your building from damage by the next flood.

***Step 9. Prepare for the Next Flood***
Protect yourself from the next flood with flood insurance, a flood response plan, and community flood protection programs. This step also includes sources to go to for additional assistance.

This information is published by the Federal Emergency Management Agency (FEMA) and the American Red Cross to help flooded property owners. It is designed to be easily copied. Permission to reproduce all or any section of this material is hereby granted and encouraged. Hard copies of this information in book form are available from your local Red Cross chapter or by writing: FEMA, P. O. Box 2012, Jessup, MD 20794-2012.

**Production** This book was prepared for the Federal Emergency Management Agency under Contract Number EMW-89-C-3024 and EMW-91-K-3738. The information provided is based on careful research and input from experienced professionals. The reader must assume responsibility for adapting this information to local conditions. This book is not intended to replace the advice and guidance of an experienced professional who is able to view a home and assess the needs of the particular situation. In several instances, the reader is advised to contact a professional if he or she is not experienced with technical matters such as building construction and electrical components. In some cases, brand names are used as examples. Their usage does not imply an endorsement or recommendation for any particular commercial product.

**WHAT TO DO AFTER A FLOOD OR FLASH FLOOD**

- **Seek necessary medical care at the nearest hospital or clinic.** Contaminated flood waters lead to a greater possibility of infection. Severe injuries will require medical attention.

- **Help a neighbor who may require special assistance--infants, elderly people, and people with disabilities.** Elderly people and people with disabilities may require additional assistance. People who care for them or who have large families may need additional assistance in emergency situations.

- **Avoid disaster areas.** Your presence might hamper rescue and other emergency operations, and put you at further risk from the residual effects of floods, such as contaminated waters, crumbled roads, landslides, mudflows, and other hazards.

- **Continue to listen to a NOAA Weather Radio or local radio or television stations and return home only when authorities indicate it is safe to do so.** Flood dangers do not end when the water begins to recede; there may be flood-related hazards within your community, which you could hear about from local broadcasts.

- **Stay out of any building if flood waters remain around the building.** Flood waters often undermine foundations, causing sinking, floors can crack or break and buildings can collapse.

- **Avoid entering ANY building (home, business, or other) before local officials have said it is safe to do so.** Buildings may have hidden damage that makes them unsafe. Gas leaks or electric or waterline damage can create additional problems.

- **Report broken utility lines to the appropriate authorities.** Reporting potential hazards will get the utilities turned off as quickly as possible, preventing further hazard and injury. Check with your utility company now about where broken lines should be reported.

- **Avoid smoking inside buildings.** Smoking in confined areas can cause fires.

- **When entering buildings, use extreme caution.** Building damage may have occurred where you least expect it. Watch carefully every step you take.
    - **Wear sturdy shoes.** The most common injury following a disaster is cut feet.
    - **Use battery-powered lanterns or flashlights when examining buildings.** Battery-powered lighting is the safest and easiest, preventing fire hazard for the user, occupants, and building.
    - **Examine walls, floors, doors, staircases, and windows to make sure that the building is not in danger of collapsing.**
    - **Inspect foundations for cracks or other damage.** Cracks and damage to a foundation can render a building uninhabitable.
    - **Look for fire hazards.** There may be broken or leaking gas lines, flooded electrical circuits, or submerged furnaces or electrical appliances. Flammable or explosive materials may travel from upstream. Fire is the most frequent hazard following floods.
    - **Check for gas leaks.** If you smell gas or hear a blowing or hissing noise, open a window and quickly leave the building. Turn off the gas at the outside main valve if you can and call the gas company from a neighbor's home. If you turn off the gas for any reason, it must be turned back on by a professional.
    - **Look for electrical system damage.** If you see sparks or broken or frayed wires, or if you smell burning insulation, turn off the electricity at the main fuse box or circuit breaker. If you have to step in water to get to the fuse box or circuit breaker, call an electrician first for advice. Electrical equipment should be checked and dried before being returned to service.
    - **Check for sewage and waterline damage.** If you suspect sewage lines are damaged, avoid using the toilets and call a plumber. If water pipes are damaged, contact the water company and avoid using water from the tap. You can obtain safe water from undamaged water heaters or by melting ice cubes.
    - **Watch out for animals, especially poisonous snakes, that may have come into buildings with the flood waters. Use a stick to poke through debris.** Flood waters flush snakes and many animals out of their homes.
    - **Watch for loose plaster, drywall, and ceilings that could fall.**

    - **Take pictures of the damage, both of the building and its contents, for insurance claims.**

- After returning home:
    - **Throw away food that has come in contact with flood waters.** Some canned foods may be salvageable. If the cans are dented or damaged, throw them away. Food contaminated by flood waters can cause severe infections.
    - **If water is of questionable purity, boil or add bleach, and distill drinking water before using.** (See information on water treatment under the "Disaster Supplies Kit" section.) Wells inundated by flood waters should be pumped out and the water tested for purity before drinking. If in doubt, call your local public health authority. Ill health effects often occur when people drink water contaminated with bacteria and germs.
    - **Pump out flooded basements gradually (about one-third of the water per day) to avoid structural damage.** If the water is pumped completely in a short period of time, pressure from water-saturated soil on the outside could cause basement walls to collapse.
    - **Service damaged septic tanks, cesspools, pits, & leaching systems as soon as possible.** Damaged sewage systems are health hazards.

## RESOURCES THAT HAVE BEEN BENEFICIAL FOR RECOVERY FROM HURRICANE KATRINA

| Name of Resource | Web Address | Telephone | Other |
|---|---|---|---|
| | | | |
| **Federal Government Websites** | | | |
| Federal Emergency Management Agency (FEMA) on Floods and other Hazards | www.fema.gov/hazards/floods | | FEMA "Hazards" web site |
| Occupational Safety and Health Administration (OSHA) Hurricane Disaster | http://www.osha.gov/OshDoc/hurricaneRecovery.html | | OSHA's main web page for *Keeping Workers Safe During Clean Up & Recovery Operations Following Hurricanes*, and links to safety hazards and personal precautions. |
| Centers for Disease Control and Prevention (CDC) | http://www.cdc.gov/ | | Centers for Disease Control site with info on hurricane related subjects and more. |
| Environmental Protection Agency (EPA) on Flood Clean-Up | www.epa.gov/iaq/pubs/flood.html | | EPA *Fact Sheet*: 'Flood Clean-up – Avoiding Indoor Air Quality Problems' |
| EPA on mold | http://www.epa.gov/mold/ | 800-438-4318 | Information on mold cleanup |
| EPA Ground and Drinking Water | http://www.epa.gov/safewater/ | 800 426-4791 | Protecting drinking water |
| National Oceanic and Atmospheric Administration (NOAA) Images | http://www.noaanews.noaa.gov/stories2005/s2495.htm | | Check images for water damage in your neighborhood |
| U.S. Army Corps of Engineers, Hurricane Response Home Page | http://www.mvd.usace.army.mil/hurricane/chr.php | | News Releases, Operation Blue Roof |

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|---|---|---|---|
| Navy Seabees | http://www.seabee.navy.mil | | Contains information on support Seabees have provided to Katrina Response |
| Task Force Navy Family | http://usnavykatrinahelp.spawar.navy.mil/NavyFamilies/ | 877-414-5358 | Community Services for Navy Families |
| Naval Safety Center | http://www.safetycenter.navy.mil/seasonal/recovery.htm | | Disaster Recovery Safety Resources |
| U.S. Dept of Education | http://www.hurricanehelpforschools.gov | 800-872-5327 | Federal Information for School Needs |
| Government Index Site | http://www.firstgov.gov | | Provides excellent search capability to government websites |
| | **Other General Information** | | |
| Military One Source | http://www.militaryonesource.com | 800-342-9647 | Contains Emergency Preparedness, Mental Health and other information |
| Hurricane Recovery Guide | http://www.stayhealthyla.org/ | | Precautions to take during mold clean-up, asbestos and lead |
| Louisiana Public Health Institute Mold Cleanup | http://www.stayhealthyla.org/mold.php | | Precautions during mold cleanup |
| Louisiana Public Health Institute, Post Hurricane Food Safety & Household Sanitation | http://www.stayhealthyla.org/foodsafety.php | | Food safety and household sanitation |
| Louisiana Public Health Institute, Post Hurricane Water Safety & Preparation | http://www.stayhealthyla.org/watersafety.php | | Water safety& preparation after storms |
| Petfinder.com Animal Emergency Response Network | http://disaster.petfinder.com/emergency/ | 800-486-2631 | Information for people needing help with pets or displaced animals |

# TASK FORCE

Commander, Navy Reserve
- LT Thomas Shu, NC, USN Task Force Navy Family
- CDR Mary Jacobsen, NC, USN Force Health Policy and Planning
- Ruth Miller, Safety
- Danny Cunningham, Safety

Naval Safety Center
- Nancy McWilliams, CSP, ARM

OPNAV Safety Liaison Office
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- CAPT Eugene Godwin, CIH, MSC, USN
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- Haroon Mazhar, Safety
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- Annie Fowler, Navy Housing Programs and Policy

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