Response Manual

RECOVERY AFTER THE FLOOD

OHIO DEPARTMENT OF HEALTH
BUREAU OF ENVIRONMENTAL HEALTH

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ACKNOWLEDGMENT

The Bureau of Environmental Health and Toxicology wishes to acknowledge the Illinois Department of Public Health, for their support and assistance in preparing the ***Recovery After the Flood*** manual. Furthermore, Ohio Department of Health wishes to acknowledge the assistance received from all Bureaus within Ohio Department of Health, all other agencies and organizations.

**** Throughout this manual, the use of product brand names does not constitute products endorsement.***

RECOVERY AFTER THE FLOOD

The magnitude of the flooding in 1997 tested the physical, emotional and financial capacities of every federal, state, local and charitable agencies involved in the relief efforts. In the flood's aftermath, it became clear that everyone could have even more prepared to deal with such a disaster. This manual is an attempt to bring together information about public health and safety issues that may arise after a major flood. This manual is also providing additional resources and programs that may help flood victims start the process of recovery. There are six volumes in this manual containing information about Safety/Injury Control, Food/ water/Hygiene, Disease Control, Rebuilding / Flood Proofing and List of Resources (local, State, Federal and Non Governmental organizations) respectively. The information contained in each volume seeks to provide citizens in affected areas with up-to-date information on how to deal with the many problems that follow a disaster.

Experience with the 1997 flood taught many of the responding agencies that what people do before a flood (or other natural disaster) can be as important as what they do after the floodwaters subside. Acknowledging this, the manual includes a section on how people who live in flood-prone areas can better prepare themselves and their homes for times of rising water.

OHIO DEPARTMENT OF HEALTH

RECOVERY AFTER THE FLOOD
SAFETY INJURY / CONTROL
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SAFETY/INJURY CONTROL

DROWNING Drowning is the No.1 cause of flood deaths. Follow these precautions:

- Do not enter swiftly flowing water, regardless of your ability to swim. You risk drowning even in swiftly moving shallow water – 6 inches of moving water can knock you off your feet.

- Do not rely on cars or other vehicles to protect you from floodwaters; people are more likely to drown inside a vehicle. Do not drive around road barriers; the road or bridge may be washed out. Do not drive into water flowing across a roadway; it may be deeper than it appears.

- Even shallow standing water holds hazards, particularly for small children. Use a pole or stick to make sure that the ground is still there before walking through an area where the water is not flowing. Generally, you should avoid wading in standing water, however, because it may hide snags or other physical hazards (e.g., glass or metal fragments).

HOUSEHOLD HAZARDS

UTILITIES

Repairs and cleanup go much more quickly when your home's utilities are in working order. But you need to take certain precautions.

Natural Gas

When returning to your home, check immediately for leaking gas pipes. Do this by smell only. If you must have light, use battery-powered flashlights or lanterns. ***DO NOT turn lights on or off and DO NOT use candles, oil or gas lanterns or torches***; if gas lines are broken, an explosion could occur.

If you smell gas or suspect a leak, turn off the main gas valve at the meter, open all windows and leave the house. Notify the gas company or the police or fire department. Do not re-enter the house until you are told it is safe to do so.

The U.S. Consumer Product Safety Commission recommends that all gas control valves on furnaces, water heaters and other gas appliances be replaced if they have been under water. Silt and corrosion from flood water can damage internal components of control valves and prevent proper operation. Gas can leak and result in an explosion or fire.

Fuel Oil or Propane

Fuel oil or propane tanks may have floated during a flood and connecting pipes may be broken. (Even underground tanks can float.) Turn off the fuel valve at the tank and check for leaky pipes. If you find a leak or are not sure the system is safe, call a professional.

Electricity

If floodwater has entered your home, the electrical system will need to be thoroughly checked and repaired. Remember, when working around electricity, it is important to wear rubber gloves and rubber-soled boots. Rubber is an insulator and will help protect you from shocks. Ideally, this work should be done by an electrician. (**CAUTION**: Consult your utility company before using power generators. Be aware that it is against the law and a violation of electrical codes to connect generators to your home's electrical circuits without approved, automatic interrupt devices. If a generator is on-line when electrical service is restored, it can be a major fire hazard. In addition, improperly connecting a generator to your home's electrical circuits may endanger line workers helping to restore power.)

CARBON MONOXIDE

Portable generators and other gasoline-powered equipment should be used only in well-ventilated spaces. Ideally, they should only be used outdoors. The same is true for camp stoves and charcoal grills; fumes from charcoal are especially dangerous.

All combustion engines – even small ones – produce carbon monoxide, which is odorless and colorless. Carbon monoxide can rapidly build up in an indoor area before individuals are aware they are being exposed. Most deaths from Carbon monoxide poisoning occur at night while the victims are sleeping. Even if awake, confusion, headaches, dizziness, fatigue and weakness may set in too quickly for victims to save themselves.

Once inhaled, carbon monoxide decreases the blood's ability to carry oxygen to the brain and other vital organs. Carbon monoxide poisoning can cause permanent brain damage, including changes in personality and memory. As CO levels in the blood increase, chest pains and heart attacks can occur in people with pre-existing coronary artery disease.

If you suspect carbon monoxide exposure or poisoning, leave the area immediately and call emergency personnel. Be sure the gas company or the local health department is notified. Affected individuals should be led to fresh air and provided with oxygen, if necessary. Follow standard first-aid practices: Keep victims warm and quiet until help arrives.

LEAD AND ASBESTOS

The extensive renovation that occurs following a flood can expose the homeowner to dangerous levels of asbestos and lead from lead-based paints. One way to avoid this kind of hazardous exposure is to contact qualified contractors to remove the asbestos and lead from the home. If homeowners plan to clean up their residences themselves, they should follow certain safety guidelines.

- Protect all foods, appliances, personal items, cooking utensils and clothing from dust. Remove them from the work area or place them securely in plastic bags.

- If possible, remove and replace lead-painted trim. If this is not possible, use a non-flammable chemical paint stripper (make sure it does not contain methylene chloride) to remove the paint. Follow product instructions.

- Work in only one room at a time and be sure to seal it off from the rest of the house.

- Wear protective clothing, hair covering, shoes, goggles, gloves and an air-purifying respirator (a paper mask is not sufficient) when removing lead-based paint. Do not wear these clothes into clean areas of the house. At the end of the day, remove clothing in a designated change area and place in a closed container.

- Cover carpets with heavy plastic and seal the edges with tape.

- Place a damp floor mat outside the door to a work area to collect lead dust from the bottom of shoes.

- Use an exhaust window fan with an improvised filter (e.g., a 3-inch piece of foam rubber or a furnace filter to prevent dust from spreading outdoors.

- When removing exterior paint, seal windows and vents so that dust does not filter inside. Use a drop cloth or plastic sheeting sealed to the foundation with duct tape to prevent contamination of the soil around the house.

- At the end of each work day, collect all debris and large paint chips and thoroughly clean the work area.

  If available, use a HEPA (high-efficiency particulate air) vacuum cleaner (ordinary vacuums release dust into the air) and then wet wash surfaces with a solution containing trisodium phosphate or a phosphate-free lead dissolving detergent. Collect wash water with a wet vacuum.

- Wash all surfaces again 24 hours after de-leading is complete. Lead dust will continue to settle over a period of hours and days.

- The removal of lead-based paint using heat guns or torches, sand or water blasting, and dry sanding are prohibited.

- Do not eat, drink or smoke in an area where lead-based paint is being removed; these activities can transfer dust from hands and clothing to the mouth.

Household Hazardous Waste

Virtually all household products contain hazardous chemicals. Do not wade in water in which chemical containers are floating if the

water has an oily sheen or a strong odor is present. When cleaning up after a flood, be sure to wear rubber gloves, goggles and other protective clothing. Avoid breathing any fumes or dust. Do not work around these products in confined or poorly ventilated areas. If any symptoms (e.g., burning eyes, skin or throat; nausea; dizziness, etc.) are noticed, cease work, leave the area and seek medical attention.

Separate these materials from other wastes before disposing of them. Ask your disposal service, local landfill operator or the **Ohio Environmental Protection Agency (OEPA) 614-644-3020) or the U.S. Environmental Protection Agency (U.S.E.P.A.) 1-800-438-4318** for the best way to dispose of household hazardous waste.

DO NOT ***burn these materials; they may produce hazardous smoke.***

HAZARDOUS SUBSTANCES

When returning to your home and neighborhood, be aware of potential chemical hazards you may encounter during flood recovery. These hazards may range from leaking tanks containing ammonia, propane, gasoline or industrial solvents to damaged containers of farm pesticides and household products containing potentially dangerous chemicals. Mixing of spilled or leaking chemicals may create additional hazards. Be particularly careful of any product labeled **POISON, DANGER, WARNING** or **CAUTION**. Treat any container that has lost its label as potentially hazardous.

Industrial Hazards

When returning to your home, be aware of other potential chemical hazards you may encounter during flood recovery. Floodwater may have buried or moved chemical containers that could hold solvents or other industrial chemicals. Propane tanks or drums, including those from gas grills, may be floating in the floodwaters. If you observe any chemical containers or propane or fuel oil gas tanks/drums and broken gas pipelines contact your police or fire department for assistance. There is a potential for explosion hazard, with gas tanks and drums.

Car batteries, when submerged in water, may still contain an electrical charge. They should be moved with extreme caution using insulated gloves.

Farm Chemicals

On the farm, flooding can cause serious problems with pesticides, fertilizers and other farm chemicals. Some of these chemicals can survive flooding without harm and be used later. Others cannot be salvaged and must be disposed of properly to prevent further contamination.

Salvageable chemicals most likely will be those that are in unbroken, waterproof containers (e.g., glass, metal or plastic). Liquid concentrates are probably unharmed if they appear clear. A milky appearance means that water has probably leaked into the container. Also salvageable are pesticides in pressurized cans as well as baits, powders or granules in waterproof containers.

Labels on chemical containers that have been submerged in floodwater will probably be loose or missing. If the label is loose, reattach it firmly to the container. If the label is missing, the container should be set aside for safe disposal. Without directions for safe handling and use, pesticides and other farm chemicals can pose a serious danger to both the person handling them and the environment.

When disposing of chemicals, take proper precautions. Use particular care when handling chemical dusts and powders packaged in paper or cardboard containers. These containers can break open, exposing an individual to the chemical. If a container shows visible signs of water damage (e.g., discoloration, swelling, tears, etc.), do not attempt to move it. With help, place it in another container (a single plastic bag is not sufficient) and set it aside for appropriate disposal.

If stored on pallets, a forklift may be used with caution and proper procedures. Contact the chemical company for suggestions on handling, disposal and decontamination.

Small quantities of pesticides can be thrown away in regular trash receptacles. Disposing of large quantities of chemicals, however, requires special procedures. Open dumping, large-scale open burning

or disposal in bodies of water is prohibited. The best course to follow is to contact a commercial firm that disposes of chemicals in an industrial high-temperature incinerator. A commercial hazardous waste disposal service also can be contacted for removing chemicals to a landfill approved for this use, although liquid pesticides cannot be land filled.

If you need help in deciding how to dispose of chemicals, contact your local health department or the Ohio Environmental Protection Agency (614-644-3020) or the regional office of the U.S. Environmental Protection Agency (1-800-438-4318).

Symptoms of pesticide poisoning frequently include headache, nausea, diarrhea, visual disturbances, excessive salivation or sweating, difficulty in breathing, weakness, tremor or convulsions. They usually appear within 24 hours. Consult the chemical label or material safety data sheet for information if you suspect poisoning. See a doctor immediately or contact a local poison resource center if symptoms appear. Be sure to provide a copy of the label or the material safety data sheet to the doctor.

DEBRIS REMOVAL

Receding floodwaters leave tons of debris behind. Furniture, appliances, animal carcasses, clothing, building materials, vehicles, and chemical and other containers are just some of the items that litter the landscape. Getting rid of these materials requires time, patience and caution.

Burning

During flood emergency situations, it may be permissible to burn debris and other waste caused by the flood. Check with local officials to see if there are any restrictions.

If you do burn debris, use common sense. Burn in a centralized location that is away from residential areas. Be sure that the fire is continuously monitored.

There are some materials that should not be burned, including chemicals, batteries, painted or treated wood, plastics, tires, asphalt and asbestos. All chemicals should be handled and disposed of

according to requirements established by the U.S. Environmental Protection Agency and the Ohio Environmental Protection agencies. Tires should be reused or recycled; if disposed of in a landfill, tires must be shredded. Asbestos can be land filled.

Farm Debris

In the aftermath of a flood, there will be much debris and waste on farms. Much of this can be disposed of on the farm. Building materials, trees, brush, ashes and carcasses may be buried or burned on the farm.

Silage or stored grain that has become wet can present dangers due to the generation of fermentation gases, molds, bacteria, organic dusts, or spontaneous combustion. It is important to monitor storage areas for heat (indicating fermentation or potential combustion), ventilate them well, wear appropriate protective gear (including respirators) and never work alone. If unsalvageable, wet grain or silage should be removed and land filled or burned.

Grain that has become wet may also become contaminated with aflatoxin from the molds growing on it. Immersed grain, if salvageable at all, can only be used for industrial purposes. It must not be used for animal or human food. Stored grain that escaped immersion should still be tested for the presence of aflatoxin before it is sold or used, since high humidity may affect the growth of aflatoxin-producing molds.

Animal Carcasses

Prompt and sanitary disposal of animal carcasses is necessary to protect living animals in the area from disease. Search all pastures for dead animals as soon as possible. Carcasses may have some commercial value, so check with a rendering plant and see if it can quickly pick up dead animals. If not, bury the carcasses at least 3 to 4 feet deep (This will keep predatory animals from digging them up).

Choose a site where subsurface drainage will not reach water supplies. If possible, cover carcasses with quicklime before back filling to hasten decomposition.

RECOVERY AFTER THE FLOOD

FOOD WATER HYGIENE

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FOOD SAFETY

FOOD/WATER/HYGIENE

As a rule of thumb, do not eat any food that has come in contact with floodwater.

IF THE SAFETY OF ANY FOOD OR BEVERAGE IS QUESTIONABLE FOLLOW THE SIMPLE RULE - **"WHEN IN DOUBT THROW IT OUT".**

If you are unsure of a food product's safety, call your local health department or the U.S. Department of Agriculture, food safety hotline 1-800-535-4555 between 10 a.m. and 4 p.m. (Eastern time, Monday through Friday)
or
the Ohio Department of Agriculture (614-466-2732 or 1-800-282-7606).

CANNED FOOD

Carefully examine all canned and bottled goods that have been submerged or come in contact with floodwater. Some cans or bottles may be safe to use after a good cleaning. Follow these guidelines:

- After being under water, containers with cork-lined lids or caps, screw tops or pop tops are nearly impossible to clean thoroughly around the opening. Any major temperature changes can actually cause contaminants to be sucked into such containers. They should be discarded.

- If they appear undamaged, tin cans are usually safe. Wash in bleach water (liquid -unscented laundry bleach with sodium hypochlorite of 5.25%- 1 tablespoon per 1 gallon of cold water) for one minute, then dry to prevent rusting.

- If cans have pitted rust spots that cannot be buffed off with a soft cloth, contamination may have entered through corroded holes in the walls of the can. Discard these cans.

- A can with ends that bulge or spring in and out when pressed should be discarded immediately. This usually means bacteria are growing inside and producing gas that expands the can.

Do not taste the contents of such cans.

! If a can is crushed, dented or creased, the contents may not be safe to consume. ***Do not taste.***

! Generally, home canned foods should not be used. While exposure to floodwater is not, by itself, a safety problem, floodwater can contain bacteria. Since there is no way to tell whether seals have remained intact, it is not possible to tell if food in jars covered by floodwater is contaminated. The contents of such jars should be considered unsafe and discarded. If jar tops were not exposed to floodwater, the jar can be sanitized with a strong household bleach solution (1 tablespoon per quart of hot water).

! Destroy any foods in paper or cardboard containers that have come in contact with floodwater.

FRESH FOOD

! Root and garden vegetables that have come in contact with floodwater should be discarded.

! Citrus fruits should be washed well, sanitized in a chlorine solution and peeled before eating. Apples and other fruits should be sanitized, peeled and cooked before eating. Do not eat these fruits raw, even if they have been sanitized.

PREPARING FOOD DURING A POWER FAILURE

In all likelihoods, a flood will mean a disruption in electrical and gas service and in the availability of potable water. This, in turn, will affect the way you prepare food. These guidelines can help you cope:

! If heat for cooking is limited, choose casseroles and other one-dish meals that cook quickly or use no-cook foods. Avoid frozen foods since they require longer cooking times. To avoid storing leftovers, open only what will be eaten at one meal at a time.

! Do not serve food that spoils easily. Ground meats, creamed foods, hash, custards, meat pies and any food containing mayonnaise are all potential sources of botulism poisoning.

! Try an alternative cooking method. If dry wood is handy, you may want to cook in your fireplace. Many foods can easily be skewered,

grilled or cooked in foil over a fire. If your home still has electricity, electric skillets, hot plates, etc., can provide an alternative cooking method.

REMEMBER, DO NOT USE FUEL-BURNING CAMP STOVES OR CHARCOAL BURNERS INSIDE YOUR HOME. THE FUMES CAN BE DEADLY.

! If potable water is in short supply, save liquids from canned vegetables and fruits and use them in cooking.

WHAT TO DO WHEN YOUR REFRIGERATOR FAILS ?

When power goes off in the refrigerator, you can normally expect food inside to stay safely cold for four to six hours, depending on how warm your kitchen is.

! Add block ice to the refrigerator if the electricity is off longer than four to six hours. As this ice melts, the water may saturate food packages. Be sure to keep packages out of the water as it drains.

! High-protein foods (dairy products, meat, fish, poultry) should be consumed as soon as possible if power is not restored immediately. They cannot be stored safely at room temperature.

! Fruits and vegetables can be kept safely at room temperature until there are obvious signs of spoilage (slime, mold, wilt). In fact, with good ventilation, vegetables will last longer at room temperature. Remove them from the refrigerator if electrical service many not resume soon.

WHAT TO DO WHEN YOUR FREEZER FAILS ?

When the electricity is off, a fully stocked freezer will keep food frozen two days if the door remains closed. A half-full freezer can keep foods frozen about one day. What can you do if electric service will not be reconnected within one or two days?

! Keep the freezer door closed.

! If your friends have electricity, divide your frozen foods among their freezers.

! Seek freezer space in a store, church, school, or commercial meat

locker or freezer that has electrical service.

! Know where you can buy dry and block ice. Dry ice freezes everything it touches; 25 pounds of it will keep a 10-cubic-foot freezer below freezing for three to four days. When using dry ice, though, be sure to take several precautions. ***Never touch dry ice with bare hands!*** Also, do not stick your head into a freezer that contains dry ice. It gives off carbon dioxide, which replaces oxygen, so leave the door open a short time before examining food.

MILK SAFETY

Be sure that the milk you drink is properly pasteurized. If pasteurized milk is not available, raw milk should be heated to the boiling point (but not boiled) before drinking. Canned or powdered milk may be substituted for fresh milk. Canned milk will keep safely for a few hours after the can is opened. If mixing powdered milk, be sure that you use boiled or disinfected water. Powdered milk should be used immediately.

FISH

The Ohio Department of Health, the Bureau of Environmental Health and Toxicology, Fish Contaminant Monitoring Program (614-466-5599) offers a set of general guidelines about eating fish caught from floodwaters. Because of untreated sewage and/or decaying carcasses, there are likely to be pathological microorganisms in floodwaters that can present a small, but real, potential for human infection through fish. Consuming uncooked or undercooked fish carries the possibility of diseases from salmonella, hepatitis, giardia and crypto sporidia.

! As a general rule, do not take fish from bodies of water in which raw sewage or animal carcasses are evident. However, any fish with an unusual odor or whose flesh is an unusual color, should not be eaten. Fish behaving in an unusual manner, in obvious distress, with cuts or sores, or which have not been caught live, should be avoided. If in doubt, it is best to release the fish, discard the carcass in a sanitary landfill or bury the carcass to prevent it from becoming a source of disease.

! Avoid handling fish if you have cuts or abrasions on your hands.

! If knives, cutting boards, tables, etc., are used to clean and prepare fish, thoroughly clean and sanitize this equipment with diluted bleach before using for other food preparation.

- Some species of fish in flooded rivers are already listed on consumption advisories due to chemical contamination unrelated to flooding. Flooding may stir up additional contaminants in river sediments or flooded land but, because of the large amount of water and the short time frame involved, this is not likely to immediately increase contamination levels in river fish.

POTABLE WATER

A person requires 2 gallon of water or other fluids each day. Meeting this requirement can be difficult during a flood, however, when many public and private water supplies may be contaminated. The safest course is to consider all water unsafe after a flood. Listen for public announcements on the safety of your area's water supply and follow the instructions of local authorities.

If you have a private water well you should open your cold water tap and run the water to waste for approximately thirty (30) minutes to allow the well to recharge naturally. Then have the well disinfected and tested before drinking or using for cooking. If you need assistance in having your well water analyzed, contact the local health department in your area for information or the Bureau of Local Services, Ohio Department of Health.

The safest approach is to drink and cook with bottled water or water previously stored in the refrigerator. If you have to use tap water, boil it vigorously for at least three minutes. If you cannot boil it, add five drops of household bleach to each gallon of water. Mix thoroughly and allow to stand for 30 minutes. This method should be used only with water that is clean in appearance and free of odor.

Caution should be used in the storage and handling of bottled water. It should not be stored where it will be exposed to sunlight, and it should not be placed in areas where the temperature is elevated (e.g., on asphalt that has been in the sun).

Two sources of water within the home that can be used for some purposes are the hot water heater and the top tank (not the bowl) of the toilet. Hot water heaters generally hold up to 30 gallons. If water from either of these sources is used for drinking or cooking, it should be boiled first.

Remember, do not use contaminated water to make ice, coffee, brush your teeth or wash dishes. If there is a shortage of safe drinking water, use clean disposable eating utensils, plates and napkins.

WELL DISINFECTION

DRILLED WELLS

- Using the following table, determine the amount of water in the well by multiplying the gallons per foot by the depth of the well in feet. For example, a well with a 6-inch diameter contains 1.5 gallons of water per foot. To determine the number of gallons in a well that is 120 feet deep, multiply by 120 (1.5 X 120 = 180).
- For each 100 gallons of water in the well, use the amount of chlorine (liquid or granules) indicated. For example, 180 gallons of water x 2 ounces of chlorine granules (per 100 gallons of water) = 3.6 ounces of granules (use 4 ounces). Mix the total amount of chlorine in about 10 gallons of water. Be sure dry granules or tablets are completely dissolved before adding them to the well.

- Pour the solution into the top of the well before the seal is installed.

- Connect a hose from a faucet on the discharge side of the pressure tank to the well casing top. Start the pump. Spray the water back into the well and wash the inside of the casing for at least 15 minutes.

- After you have let the water stand, operate the pump, discharging water from all outlets (turning on ALL faucets) until all odor of chlorine disappears. Adjust the flow of water from faucets.

Amount of disinfectant required for each 100 gallons of water

Laundry bleach (5.25% chlorine). . . . . 3 cups*
Hypochlorite granules (70% chlorine . . . . . 2 ounces**

1 cup = 8-ounce measuring cup
1 ounce = 2 heaping tablespoons of granules

DUG OR BORED WELLS

- The amount of water in the well determines how much disinfectant (bleach or granules) is required. Use the table below to make your calculations.

- To determine the exact amount of chlorine liquid or granules to use, multiply the amount of disinfectant indicated (according to the diameter of the well) by the depth of the well. If you plan to use liquid chlorine, for example, a well 5 feet in diameter would require 4 2 cups of bleach per foot of water. If the well is 30 feet deep, multiply 4 2 by 30 to determine the total cups of bleach required (4

1/2 X 30 = 135); 135 cups = 8.44 gallons (16 cups = 1 gallon). Use 8 2 gallons. Here is an example, using granules: A well 6 feet in diameter requires 4 ounces of chlorine granules or powder per foot of water. If the well is 40 feet deep, multiply 4 (ounces) by 40 (feet). This well would require 160 ounces of granules or powder, or 10 pounds.

- Add this total amount of liquid or dry bleach to about 10 gallons of water. Splash the mixture around the lining or wall of the well. Be certain the bleach solution contacts all parts of the well.

- Seal the well top.

- Open all faucets and pump water until a strong odor of chlorine is noticeable at each faucet. Then stop the pump and allow the solution to remain in the well overnight.

- After it stands overnight, operate the pump, discharging water from all outlets (turning on ALL faucets) until the chlorine odor disappears. Adjust the flow of water faucets or fixtures that discharge to septic tank systems to low flow to avoid overloading the disposal system.

How to Disinfect a Dug or Bored Well

Diameter of Well (in feet)	**Amount 5.25% Laundry Bleach Per Foot of Water**	**Amount 70% Chlorine Granules Per Foot of Water**
3	1 2 cups	1 ounce
4	3 cups	2 ounces
5	4 2 cups	3 ounces
6	6 cups	4 ounces
7	9 cups	6 ounces
8	12 cups	8 ounces
10	18 cups	12 ounces

DRIVEN WELLS

All that is necessary to restore a driven or sand-point well is to pump it out thoroughly. If the well has a pit, pump out any accumulated water.

SEPTIC SYSTEMS AND SOLID WASTE DISPOSAL

Septic tank systems that have been flooded should not be used until after

floodwaters recede. Once waters have gone down, the system should be checked for broken lines or sewage surfacing. Any problems should be corrected before the system is returned to service. Outdoor toilets that have been flooded should be scrubbed thoroughly with a solution of 2 cup of laundry bleach per gallon of water. In the aftermath of a flood, most communities will provide portable toilets, but these may be limited.

If no toilet facilities are available, deposit body waste in a water-tight receptacle used for that purpose only. Place a small amount of water in the receptacle before it is used to make emptying easier. Dig a trench or pit and empty the contents of the receptacle into this pit as soon as possible after each use. Cover the waste in the trench after each use with a thin layer of dirt, ashes or lime. Also, empty the water used to wash the receptacle into the pit or trench. When closing the trench, cover it with at least 12 inches of earth.

PERSONAL HYGIENE

Following a flood, it can be difficult to maintain good hygiene and cleanliness. Doing so is imperative, however, if the risk of disease is to be minimized.

One of the most important things you can do to prevent the spread of waterborne disease is to always wash your hands with plenty of soap and clean, warm running water. This is particularly important -

- before preparing or eating food, handling a baby, smoking or any other activity that involves touching something that may enter a person's mouth (adults should make sure that children do the same);
- after using the toilet; and
- after handling articles contaminated with floodwater or sewage.

When no regular safe water supply is available, use bottled, boiled or chemically disinfected water for washing hands (and brushing teeth).

Keep wash cloths and dish towels clean. Bacteria can remain on towels and cloths, so wash linen often with clean water and soap. Parents need to take special care that their children follow these precautions. Do not allow children to play in floodwater areas, wash their hands frequently (especially before meals), and do not allow them to play with floodwater-contaminated toys that have not been disinfected in a solution of 1 ounce of bleach (1/8 cup) in 2 gallons of water.

RETAIL FOOD ESTABLISHMENTS

During periods of flooding, retail food establishments may be directly or indirectly affected. In those instances where floodwater has entered the premises of a restaurant or a retail food store, there are guidelines that govern the whether food products can be salvaged. Establishments that have been flooded must be inspected by the local health department (if applicable) or by staff from one of the Department's regional offices before reopening.

If power is interrupted, the resultant loss of mechanical refrigeration can adversely affect the quality and wholesomeness of food. The Ohio Department of Health has several guidelines:

- Frozen foods that are still frozen (solid) may be sold.
- Food intended to be sold in a frozen state, but at internal temperatures of less than 45 degrees F and not frozen, may be immediately sold as thawed, salvaged food items. Ice cream, frozen novelties and other frozen items that lose product characteristics once thawed should be destroyed.
- Potentially hazardous food items (those with manufacturer directions to keep at refrigerated temperatures) with internal temperatures above 50 degrees F fore more than one hour should be destroyed. If it is not possible to determine how long a product has been at an internal temperature of greater than 45 degrees F, the product should be destroyed.

If floodwater has entered the premises, the following products must be destroyed:

- All fresh produce, wrapped or unwrapped
- All food items in paper bags that do not have a protective sealed interior plastic or laminated liner
- All alcoholic beverages that have cork closures or are enclosed in a porous container (e.g., wood barrel)
- All dairy products, both frozen and refrigerated (not canned)

- Nuts (both those in their shells and shelled) in burlap or paper bags, self-service bulk containers, barrels or open to the air in some other manner

- Eggs, fresh or frozen

- Meat and poultry may be salvageable under Ohio Department of Agriculture salvage regulations, (call 614-728-6260).

- All containers with a screw-type, crimped, press-on or pull-tab closure including food and beverage items such as mayonnaise, soft drinks, wine and similar articles (does not include cans with key-type openings such as canned ham, sardines etc.)

- All infant formulas and rubber or plastic items that are food contact surfaces (e.g., nipples, plastic bottles, plates, flatware, cups, etc.)

- All food items contained in a laminated or flexible plastic, cellophane or similar container

If you have a question about whether to keep or discard food, call your local health department or the U.S. Department of Agriculture's food safety hotline, 1-800-535-4555, between 10 a.m. and 4 p.m. (Eastern time), Monday through Friday.

If flooding causes an interruption of water service or the issuance of a boil order, a retail food service establishment should follow certain rules. To continue operating under "boil water" orders or when water service from municipal water supplies is interrupted, all retail food service establishments must secure and use potable water from an approved source (e.g., tank trucks or bottled potable water) for all water usage, including C

- coffee, tea and other beverages made in the food establishment;

- direct-feed coffee urns plumbed directly into the water system;

- post-mix soda or beverage machines;
- ice machines that manufacture ice on site;
- washing produce or thawing frozen foods;
- employee hand washing;
- washing all dishes and cooking utensils;
- all water used in three-compartment sinks;
- all water for sanitizing solutions; and
- water for mechanical dishwashers.

Retail food establishments may want to consider alternative procedures to minimize water usage:

- Substitute commercially packaged ice for that made on site.
- Substitute single-service items or disposable utensils for reusable dishes and utensils.
- Use pre-prepared foods from approved sources in place of complex preparations on site.
- Restrict menu choices or hours of operation.
- Make portable toilets available for sanitary purposes.

After the boil water order is lifted or water service is restored, these precautionary measures must be followed:

- Flush the building's water lines and clean faucet screens, water line strainers on mechanical dishwashing machines and similar equipment.

- Purge all water-using fixtures and appliances of standing water (e.g., ice machines, beverage makers, hot water heaters, etc.).

- Clean and sanitize all fixtures, sinks and equipment connected to waterlines.

RECOVERY AFTER THE FLOOD

DISEASE / INJURY

VOLUME 3

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Disease outbreaks are rare after flooding. Outbreaks of enteric disease caused by traditional bacterial pathogens such as **Shigella** or **E. Coli** have indeed been known to occur in association with heavily contaminated recreational surface water. However, a common characteristic of these outbreaks is an extremely heavy bacterial load concentrated within a specific area--such as the cove of a lake--and a high rate of human exposure. These conditions are essentially the opposite of those experienced in a typical flood. Elevated incidence of disease was not experienced in association with floods based on informal surveillance in the past and also formal surveillance in the recent past.

From the systematic surveillance conducted by the State of Iowa and the State of Missouri following the 1993 Mississippi River flooding, enteric disease was not identified as a problem. The principal problem in the Ohio=s post flood surveillance identified during 1997 was physical injuries (clearly #1 problem) but also reported were hypothermia and carbon monoxide poisoning (Carbon monoxide poisoning is most likely associated with portable pumps and or generators). Again enteric disease was not identified as a problem.

However, floodwater may contain various bacteria, viruses, and other infectious organisms that may cause disease. Floodwater may contain fecal material from overflowing sewage systems and agricultural and industrial byproducts. While skin contact with floodwater does not, by itself, pose a serious health risk, ingesting food or drink contaminated with floodwater may cause disease. It may be necessary to establish a formal surveillance system to insure the situation is under control. Increased reports of Gastro-Intestinal Illnesses, Norwalk Virus, Typhoid Fever, Hepatitis A, Respiratory/Allergic Reactions, Infestations, Leptospirosis, Tularemia, Mold, Physical Stress, Heat Stress, Hypothermia, and Mental Health issues, may indicate the need for more surveillance, education or intervention.

Additional information on disease and injury known or rumored to be associated with flooding is described in this section of the manual, so that the health departments can address concerns in high impact flood situations.

WOUNDS If you have any kind of cut, burn, or infection on your hands, be sure to use plastic or rubber gloves if you must be in contact with floodwater. If open sores become exposed to contaminated water, disinfect the area(s) with soap and clean water to control infection. If a wound develops redness, swelling or drainage, immediately seek medical attention. Serious injuries, require immediate medical attention.

TETANUS The tetanus bacteria typically enters the body through places where the skin is broken, so it is very important to protect these areas. Administration of antibiotics against tetanus is neither practical nor useful in managing wounds. Wound cleaning, debridement when necessary, and proper immunization are important. Anyone sustaining a puncture wound or who has a wound that becomes contaminated with feces, soil or saliva should have a doctor determine whether a tetanus booster is necessary. Specific recommendations for vaccinations should be made on a case-by-case basis.

GASTROINTESTINAL ILLNESSES

Flood waters may carry a number of infectious organisms that can threaten the public's health. Generally, these organisms live in the intestines of animals and sometimes humans. The diseases transmitted by water generally produce diarrhea, with or without nausea and vomiting. Under certain circumstances, hepatitis A virus also can be transmitted by ingesting sewage-contaminated water.

While there are no immunizations against these diseases, good personal hygiene and avoiding contaminated foods and beverages are critical preventive measures. Individuals also should avoid swimming, body surfing, scuba diving, wading or playing in flood waters.

E. COLI E. coli O157:H7, one of hundreds of strains of the bacterium Escherichia coli, is an emerging cause of food borne illness. While most strains are harmless and live in the intestines of healthy humans and animals, this particular strain produces a powerful toxin that can cause severe illness. Many persons infected with the bacterium develop severe diarrhea and painful abdominal cramps, although some people show few or no symptoms. The diarrhea can be very bloody. Because there is usually little or no fever, a person may think some other condition is causing the bowel to bleed and this infection may go unrecognized. The illness usually resolves itself in five to 10 days. In some persons, particularly children younger than 5 years of age and the elderly, the infection can lead to destruction of red blood cells (hemolytic anemia) and acute kidney failure (also known as uremia). This complication, hemolytic uremic syndrome (HUS), can lead to stroke, seizures and death. Most children with HUS are treated in an intensive care unit and often require blood transfusions and kidney dialysis.

There are many causes of bloody diarrhea and abdominal cramps. Specific laboratory tests can identify E. coli O157:H7 in the stool of an infected person. However, these tests often are not performed unless the laboratory is instructed to do them.

Most persons recover without antibiotics or other specific treatment in five to 10 days, although it may be several months before bowel habits are entirely normal. Antidiarrheal agents, such as loperamide (Imodium J), should be avoided.

Most cases of E. coli O157:H7 infection come from undercooked ground beef. Beef that is still pink, or has blood-tinged juices, has not been cooked enough to kill E. coli O157:H7. Contaminated meat looks and smells normal. The infection may also can follow drinking raw unpasteurized milk

or drinking or swimming in sewage-contaminated water. While the number of organisms required to cause disease is not known, it is suspected to be very small.

The organism can be found on small number of cattle farms, where it can live in the intestines of healthy cattle. When the animal is slaughtered, the meat may be contaminated by intestinal contents. When this meat is ground, fecal organisms that were on the outside of the meat are then thoroughly mixed throughout the ground beef. These bacteria can survive unless the meat is cooked until brown or gray on the inside, with clear juices (if any).

Bacteria present on a cow's udder or on equipment may get into and contaminate raw milk. Consume only pasteurized milk and pasteurized milk products.

When someone develops E. coli O157:H7 infection, careful hand washing with soap and warm water reduces the risk of spreading it. Frequent supervised hand washing with soap and warm water is particularly important if the patient is a young child. If feasible, young children with E. coli O157:H7 infection who are still in diapers should not be in contact with uninfected children.

SALMONELLA

Salmonella bacteria cause much of the food poisoning in the world, including four million cases of salmonellosis in the United States each year. Salmonella is a general name for a group of about 2,000 closely related bacteria that cause illness by reproducing in the digestive tract. Each salmonella subgroup, or serotype, shares common antigens and has its own name. Salmonella bacteria is found wherever animals live. They can withstand hot and cold weather, rain and drought. Animals consume salmonella from the soil or contaminated processed feed. The bacteria are then shed alive in the infected animal's feces. The animal may or may not be sick, depending on the bacteria's serotype. During slaughtering and processing, salmonella may contaminate animal carcasses. Usually the illness comes from food contaminated with animal feces found on or in raw meats, eggs, fish and shellfish and, most commonly, in poultry. Salmonella also may be found in raw milk or in milk that is contaminated after pasteurization.

Often it is mistaken for the "stomach flu." Symptoms, which last from 24 hours to 12 days, include headache, muscle aches, diarrhea, vomiting, rumblings in the bowels, chills, fever, nausea and dehydration. They usually appear six to 72 hours after ingestion, but carriers have no symptoms. Children younger than 1 year old, people who have had ulcer surgery or take antacids and those whose immune systems have been weakened by other

ailments are most susceptible.

Salmonellosis is seldom fatal. Fluids are recommended to prevent dehydration because the diarrhea that flushes bacteria out of the body drains a great deal of liquid. Pain relievers and fever reducers may make the person more comfortable.

Most cases of salmonellosis are not treated with antibiotics.

People are far more likely to contract salmonellosis at home than in a restaurant, so be sure to handle food safely. Salmonella are killed when food is thoroughly cooked. This means cooking ground beef to at least 155 degrees and making sure all food is cooked properly. Once cooked, any food held in a buffet should be kept hotter than 140 degrees. Defrost frozen food in the refrigerator or microwave. Refrigerator temperatures should be kept colder than 40 degrees. Rinse poultry in cold water before cooking. Avoid raw milk, raw hamburger meat and raw eggs (many recipes, such as those for homemade ice cream, call for eggs with no subsequent cooking; substitute pasteurized eggs in these recipes).

Food contaminated with salmonella may look, smell and taste normal. Because fruits and vegetables have now been identified as a source of salmonella, it is important that these food items by thoroughly washed in running water before they are eaten.

Wash utensils and wooden cutting boards thoroughly with hot, soapy water. Salmonella may lie dormant for a year or more and then "wake up" when food is present. They also may live in the cut marks on a wooden cutting board. Use an acrylic board that can go in the dishwasher. Rub down or spray wooden boards with a solution of 1 ounce bleach to 1 gallon water and allow to air dry.

Cutting boards for raw meat and poultry should not be used for cheese, raw vegetables and other foods that will not be cooked before being served.

To prevent the spread of salmonella, wash hands thoroughly after using the bathroom and before handling food. Do not allow an infected person to handle food or work in the kitchen.

SHIGELLOSIS

Shigellosis is a form of dysentery caused by any of more than 40 serotypes of Shigella bacteria. It is an infection of the intestinal tract, contracted when a person ingests live bacteria.

The source of the disease is the feces of infected humans.

Shigellosis is only rarely a food borne disease, although it is often mistaken to be by the media and the public. Causes may include poor hygiene and sanitation standards, crowded living conditions and travel to countries with low standards of sanitation.

Bacteria are spread by people and, less commonly, by food or water contaminated with fecal matter from an infected person. Flies also may carry the bacteria onto food. Bacteria may be spread through inanimate items touched by an infected person. Those infected can continue to shed bacteria from their intestines from several weeks to a year after symptoms have disappeared. The average period of communicability is 13 days. Symptoms last fewer than four days and include diarrhea, nausea, fever, cramps and dehydration. Dehydration may be the most serious side effect, especially in young children. Deaths are rare. The severity of the disease depends on the age, size and health of the individual. Young children, infants and the elderly are likely to be more seriously affected than healthy young adults. The infection is most common in children 1 to 4 years of age. People of all ages who are suffering malnutrition also are susceptible. Individuals who have contracted shigellosis do not develop an immunity to the bacteria and may contract it again.

Those who are infected should replace lost fluids to prevent dehydration. Unlike *E Coli 0157:H7 and Salmonella, Shigellosis* does respond to antibiotic treatment, and in the majority cases is treated. Pain relievers and fever reducers may alleviate its symptoms.

The best means of control is good hygiene, especially after using the bathroom and before handling food or utensils. Infected people should not handle food or work in the kitchen. Items being used by a sick person should be sanitized before others use them. Wash clothing or bedding contaminated by fecal matter in hot, soapy water. Sanitize bathrooms and toilet seats with chlorine bleach. Protect food from contamination from flies.

TYPHOID FEVER

Typhoid fever is a theoretical possibility but the risk is extremely low. Cases reported in the United States almost always have originated in foreign countries. Typhoid vaccination of persons exposed to floodwaters is not recommended. Immunity to typhoid takes at least three weeks to develop following the inoculation, and the vaccine may have undesirable side effects. In addition, the vaccine is only moderately effective.

HEPATITIS-A

A vaccine to prevent hepatitis A was licensed in 1995. It is not routinely recommended for persons affected by floods. Immunity to hepatitis A occurs approximately two weeks after administration of the vaccine. Immune globulin is not recommended because hepatitis A outbreaks have not been associated with floods in the United States.

RESPIRATORY/ ALLERGIC REACTIONS

Excess moisture in buildings after a flood can create the potential for respiratory problems caused by bioaerosols, or airborne particles, released by bacteria, fungi, molds and related organisms or by the chemicals used to disinfect flooded living areas. While many of these bioaerosols occur naturally in the outdoor air and are responsible for hay fever and other allergies, they can cause similar problems indoors if allowed to proliferate.

Most bacteria and fungi can live and grow in or on both living and nonliving organic material. After a flood, damp carpeting, walls, insulation, upholstery, ceiling tiles, etc., can provide a suitable medium for these organisms to grow. When the organism is disturbed C for example, by walking across contaminated carpeting C it releases particles into the air where they can be inhaled by individuals living or working in the area.

High relative humidity (greater than 70%) in a structure leads to problems. Many materials exposed to floodwater will hold moisture for an extended period of time and present favorable growing conditions for these organisms. Even if materials do not feel wet, they may be holding a significant amount of moisture. Carpeting is a good example. The surface of the carpeting may feel dry, but the padding and the back side of the carpeting may be wet and harboring organisms. Dirty filters in heating, ventilation and air conditioning systems also are good reservoirs for organisms.

While respiratory ailments and allergies are the most common result of inhaling these organisms, they can have much more serious effects. In rare instances, exposure to bioaerosols can cause rampant infection characterized by fever, malaise, respiratory distress, shock and even death.

Since indoor sources of all these organisms always are associated with water, keeping the indoor environment free from water

intrusion and at a relative humidity less than 50 percent and removing any pooled water as quickly as possible will retard indoor growth of bacteria and fungi. Hard surfaces supporting the growth of these organisms can be cleaned using dilute bleach, after which the surface should be rinsed with clean water and dried. Seriously contaminated soft materials (carpeting, draperies, furniture, fabric, wallboard, paper, insulation materials, etc.) may not be cleanable and should be discarded (see section on cleaning).

Respiratory protection is usually advisable for those doing cleanup. Masks will significantly reduce exposure to most spores but may not protect against gases or fumes. Check with the seller to ensure that the mask is appropriate for the job. The chemicals used in disinfection also may cause respiratory damage if misused or used in an unventilated area. Caution should always be sued in mixing and using chemicals and while cleaning and disinfecting. Consult your local health department if you have questions about cleaning materials.

INFESTATIONS (SCABIES, HEAD LICE)

Many times during periods of flooding, individuals must live in shelters. Crowded conditions in these shelters can result in infestations of scabies or head lice. Both are fairly common conditions and are easily treated. **Scabies** is a skin disease caused by an almost invisible organism (Sarcoptes scabies) commonly called the "itch mite." It has plagued man for thousands of years, appearing and declining in unexplainable cycles. One of the least discriminating conditions known to man, scabies can afflict anyone at anytime.

Scabies is contagious through direct contact with an infected person. Hand holding games among children or shaking hands can result in scabies being transmitted from one individual to another. Sleeping in the same bed as a person with scabies can easily result in transmission of the scabies mite. The mite, however, cannot jump from one person to another. Once the mite is transmitted to a person, the male and female mate on the skin surface. Then, the female uses her tiny jaws and two pairs of forelegs to burrow into the outermost layer of skin where she lays one to three eggs daily. In a few days the eggs hatch and the six-legged larvae travel to the surface of the skin where they turn into immature mites. When the female mite reaches maturity, she mates and starts the cycle again.

The male mite dies after mating; the female dies after her egg-laying is completed, usually five weeks after reaching adulthood.

Just 1/60 of an inch long, the female mite is extremely difficult to see without a magnifying glass (the male is slightly smaller). An infestation is most often found in the spaces between the fingers, the backs of the hands, elbows, armpits, breasts, groin, penis, along the belt line, and on the back or buttocks. Scabies causes intense itching, especially at night.

Since the red, itchy rash typical of scabies is very common in other skin disorders, the only way to find out whether you have the disease is to see your doctor, who can tell precisely what is causing the rash. Your doctor can confirm the diagnosis by examining under a microscope scrapings taken from the skin.

There are a number of agents your doctor can prescribe to treat scabies. A second treatment is given seven days following the first to get rid of any eggs that may have survived the first treatment. Itching may last as long as two or three weeks, however, and does not mean that treatment has failed to get rid of the mite. After the scabies treatment is applied, the person must change to clean clothing. The clothing and bedding used in the 48 hours before treatment should be machine washed (in hot water), machine dried or dry cleaned at the same time the person is treated. Items that cannot be machine washed, machine dried or dry cleaned can be sealed in a plastic bag for a minimum of one week.

Persons who have been infected with scabies can get the disease again. During second infestations, however, symptoms show up much faster. Itching can begin within one to four days after contracting the mites.

Wash your hands often, wear clean clothes daily and do not exchange clothes with others. If any member of your family has scabies, all others should be checked immediately. No one should use the same bedding or clothing as the afflicted person. Above all, be sure to call your physician if you have a skin condition that itches mostly at night.

Head lice (or pediculosis) can be transmitted by direct and indirect contact. The earliest and most common symptom of an infestation is itching, particularly in the area behind the ears and at the nape of the neck. Intense scratching may lead to secondary bacterial infection.

There are many misconceptions about head lice. Animals are not a source of human lice. Head lice do not transmit communicable diseases. They do not jump or fly; they can only crawl. Head lice depend completely on their host for nourishment; their only source of food is human blood. Head lice infest persons from all socioeconomic levels, without regard for age, race, sex or standards of personal hygiene. The prevalence of head lice infestation is no different in individuals with long hair than in those with short hair. Head lice seldom occur on eyebrows or eyelashes.

Once present in a home, school or institutional environment, head lice usually spread rapidly. They can be passed from person to person through direct contact. But they also can be transferred indirectly among clothing items when coats, hats and scarves hang or are stored touching one another (in cloak rooms or when these items are placed against one another on coat hooks or racks). Head lice can be spread when infested hair brushes or combs are shared or when infested bedding, towels or shower caps are shared.

Head lice can be transmitted as long as lice or live nits (eggs) are present on the head. The life span of an adult louse on a host ranges up to 30 days. During this time, the female head louse can deposit about 90 eggs. After incubating for seven to 10 days, the nits hatch and, after another 10 days, mature into adult head lice and the cycle begins again. Off the host, adult head lice can live about two to four days at 74 degrees F and one to two days at 86 degrees F. Nits will remain alive off the host for up to 10 days; they will not hatch at or below room temperature.

Both prescription and over-the-counter remedies are effective in treating head lice. (Pregnant women and children should be treated by a physician because of concerns about potentially adverse effects.) Be careful, however, not to use topical preparations more frequently and over longer periods of time than directed. Overuse of these preparations may cause dermatitis or result in absorption of potentially toxic quantities of the drug. Since pediculicides (agents that kill lice) usually do not kill nits completely -- even when used according to directions -- the Centers for Disease Control and Prevention (CDC) recommends that infested patients be treated twice. The interval between treatments should approximate the incubation period for nits (seven to 10 days) so the second application will kill any newly hatched parasites. Waiting longer than 10 days to apply a second treatment may allow some parasites to mature and lay more eggs.

All persons who have head lice in a household should be treated.

To treat an infested person C

- Remove all clothing;
- Apply a pediculicide according to label directions (Do not bathe before treatment), using a towel to protect the eyes;
- Have the person bathe and put on clean clothing after treatment; and
- Repeat treatment in seven to 10 days. Special fine-tooth combs (nit combs) are readily available and can be used to crape nits and lice off the hair shaft. Combing out nits and lice after a proper pediculicide treatment is not necessary to eliminate infestation, but it may be used for cosmetic reasons or may be required by school "nit-free" policies or required by health authorities. Parents and guardians should check treated persons for lice and nits daily for two or three weeks after treatment. Objects that are able to harbor head lice and may serve as vehicles of transmission should be treated.
- Exposing lice and nits to temperatures above 125 degrees F for 10 minutes is lethal. Most personal articles of clothing and bedding can be disinfested by machine washing in hot water or machine drying for at least 20 minutes using the hot cycle. Be sure to allow time between loads for water to reheat to the disinfesting temperature.
- Place non-washable personal articles of clothing or bedding in the dryer on high heat for at least 20 minutes, dry clean or seal non-washable fabrics in a plastic bag for a minimum of 10 days.
- Place combs and brushes in a pan of water and heat on a stove to about 150 degrees F for 10 minutes. If heating may damage combs or brushes, soak them for one hour in a 2% Lysol7 solution. To prevent the spread of lice, do not share combs, brushes, hats, coats, towels or article that come in contact with the head, neck or shoulders.
- Thoroughly vacuum or clean car seats, bus seats, and individual infant and car seats according to manufacturer's directions.
- Fumigation of rooms and use of insecticidal sprays on furniture and carpets are not recommended to kill head lice;

thorough vacuuming of houses and rooms inhabited by infested persons is sufficient.

Procedures for Controlling Head Lice in a School or Child Care Facility

All schools and child care facilities should have written policies and procedures for the control of head lice. Staff should be educated to notify the designated school or facility official if a child is suspected to have head lice. Official should designate one or more individuals to confirm suspected cases of head lice. When an individual is suspected of having head lice, the following procedure should be performed to confirm a suspected infestation. (*NOTE: It is important to demonstrate sensitivity to the fear and anxiety an individual may experience when an infestation is suspected. Reassuring the individual, before and during the examination, is an integral part of this procedure.)*

- Use a high intensity light or full sunlight to examine the scalp and hair.

- Place a wooden applicator stick, smooth forceps, or fine-toothed comb at the hair roots and move the instrument away from the scalp along the hair strands. Be sure to use a clean instrument for each examination to prevent the spread of lice or other problems, such as ringworm.

- Look for live lice moving on the scalp or in the hair and hatched or unhatched nits affixed to the hair shafts. Nits may resemble dandruff but are attached with a cement-like substance and are not easily moved.

- Observe the placement of nits on the hair shafts to determine if this is a current or past infestation. Nits 3 -inch or less from the scalp indicate a current infestation (human hair grows about 3 -inch a week, which is the incubation period of the nit). Nits more than 3 -inch from the scalp indicate a past infestation. (If lice are not found and nits are more than 3 -inch from the scalp, this individual has probably been treated recently. However, this should be verified.)

- Try to dislodge suspected nits from the scalp with your inspection instrument or gloved finger. If they stick to the hair shaft, they are probably nits and not hair casts or globules of hair spray. You are more likely to find nits than lice because nits are more numerous and are stationary while lice

move rapidly through the hair to escape detection.

- To confirm the identity of suspected nits, inspect them using a strong hand lens, a desk-top lens or a dissecting microscope.

- Examine all areas of the scalp covered by hair. Do not overlook the nape of the neck and the areas behind the ears. A thorough examination takes about three minutes.

  If head lice are found in large numbers in one classroom or if lice are found in more than one classroom within a school or facility, all students need to be examined. Siblings and close friends of a child with head lice also should be examined even if they are not classmates of that child. There are routine measures you can take to prevent and control head lice in a group setting.

- Store all hats, scarves and coats separately on assigned, individual coat hooks spaced far enough apart to prevent garments from touching, in individual lockers or on the back of each child's chair.

- Vacuum all carpeted areas daily.

- Discourage sharing of personal items, including combs, hats or head coverings used as costumes, towels, athletic helmets.

- Store mats, pillows or similar items used for rest periods separately or in plastic bags assigned to each child. During infestations, other measures need to be added.

- Suspend, temporarily, games and activities during recess or in classrooms or gym classes that include contact with the head. For example, wrestling could result in overheating that may cause the head louse to leave one host in search of a cooler host.

- Temporarily suspend groups activities that involve close contact around classroom tables. This will reduce the likelihood of direct contact that commonly occurs among children.

- During infestations, emphasize school bus rules pertaining to the maximum number of children per seat and the need for children to keep an assigned seat for one to two weeks until the outbreak is controlled. When space permits, limit the

number of students per seat to two.

LEPTOSPIROSIS

Leptospirosis, or mud fever, is a group of bacterial diseases with various manifestations. Common features are the sudden onset of fever, headache, chills, severe muscle aches (particularly in the calves and thighs) and watery eyes. Other symptoms may include rash, anemia, jaundice, mental confusion and depression. Symptoms usually appear in 10 days; the range is four to 19 days. The disease is treated with a number of antibiotics, including penicillin and erythromycin. If treated, it usually lasts from a few days to three weeks or longer. If the infected individual is left untreated, however, recovery can take several months. Direct transmission from person to person is rare, although bacteria can be excreted in the urine for a month. In some cases, the bacteria can be shed in the urine for as long as 11 months.

Common worldwide, except for the polar regions, leptospirosis occurs when a person is exposed to fresh river, canal or lake water contaminated by the urine of domestic and wild animals or the urine and tissues of infected animals. An occupational hazard for rice and sugarcane field workers, farmers, sewer workers, veterinarians, military troops and others who work near water that could be contaminated by the bacteria, leptospirosis is also a recreational hazard to bathers, campers and sportsmen in infected areas.

Notable animal hosts include rats, swine, cattle, dogs and raccoons. But the bacteria can be present in deer, squirrels, foxes, skunks, opossums and marine mammals. In carrier animals, an asymptomatic infection occurs in the renal tubes, where it persists for long periods of time.

A number of preventive measures can be taken to reduce the risk of exposure to these bacteria:

- Avoid swimming or wading in potentially contaminated waters.
- If working in environments where exposure is possible, individuals should wear protective gear, including boots and gloves.

- Recognize potentially contaminated soil and waters and drain such waters when possible.

- Control rodents in human habitations, especially in rural areas and around recreational areas.

- Segregate infected domestic animals to prevent them from contaminating living, working and recreational areas with urine.

- Immunize farm animals and pets to prevent disease (may not prevent infection and renal shedding, however); be sure to use vaccine that contains the dominant local strains of the bacteria.

NORWALK VIRUS

Norwalk virus also is known as "winter vomiting disease," or acute infectious nonbacterial gastroenteritis. First identified as the cause of a food poisoning outbreak at a Norwalk, Ohio, grammar school in 1968, the virus is fecal-borne. It is found in the small intestines of infected persons.

Norwalk virus also is a common water-borne agent and may be carried on foods whose preparation requires extensive hand contact. The illness may be caused by eating uncooked clams and oysters that sometimes are contaminated in harvest beds.

The virus is brought into the food chain by people who do not wash their hands properly after using the bathroom. Secondary person-to-person spread also is common. Infected persons are believed to be infectious for 24 to 48 hours after symptoms subside.

Norwalk virus causes no long-term health effects. Symptoms usually last from one to two days or more, with an incubation period of about the same duration. The symptoms are similar to salmonellosis: diarrhea, dehydration, cramps, vomiting, fever, muscle aches, headache, chills and weakness.

Most people are susceptible; however, temporary immunity is believed to exist for three to four months following infection.

Victims may require hospitalization to replace lost fluids, but in most people the illness goes away by itself without treatment. Antibiotics are not used to treat Norwalk virus.

Prevention requires proper hand washing after using the bathroom, especially for those who handle food. Until effective control measures are developed, consumption of raw clams and oysters is risky. Sanitary disposal of feces and protection of water supplies from contamination by sewage are essential preventive measures.

TULAREMIA

Tularemia is a bacterial disease often referred to as rabbit fever. Most commonly transmitted by the blood or tissue of an infected animal, tularemia also can be spread by the bite of ticks and deer flies and by drinking contaminated water. While the disease occurs throughout the United States in all months of the year, the incidence is higher for adults in early winter during rabbit hunting season and for children during the summer when ticks and deer flies are abundant.

Symptoms vary, depending on the route of introduction. In those cases where a person becomes infected from handling an animal carcass, symptoms can include an slow-growing ulcer (usually on the hand) and swollen lymph nodes. If the bacteria is inhaled, a pneumonia-like illness can follow. Those who ingest the bacteria may report a sore throat, abdominal pain, diarrhea and vomiting. Symptoms emerge two to 10 days after exposure to the bacteria. The drug of choice for treating tularemia is streptomycin, although other antibiotics also are effective. Since the illness is not transmitted person to person, there is no cause to quarantine those who are ill.

There are several measures that can help prevent tularemia:

- Avoid bites of flies, mosquitoes and ticks.
- Avoid drinking, bathing, swimming or working in untreated water where infection is common among wild animals.
- Use impervious gloves when skinning or handling animals, especially rabbits. Cook the meat of wild rabbits and rodents thoroughly.

MOLD:

Mold is likely to be a problem in homes that have been flooded. Mold has the potential of affecting the health of family members of all ages.

Recent reports have alerted the public to the danger of **the mold Stachybotrys**. Pulmonary hemorrhage in infants (less than one year age) may be one of the health risk associated with Stachybotrys. Stachybotrys is a black or black-green and has a slimy appearance. This mold grows primarily on materials such as wood and wood based products or other cellulose products which have become and remain wet.

Pulmonary hemorrhage is bleeding in the lungs. The symptoms include coughing up blood and nosebleed. **If you notice these symptoms in your infant, get medical attention immediately. It can be fatal in infants under 1 year age.**

Clean-up precautions: The wood inside the walls must be completely dried and paneling, dry wall and insulation should be discarded to prevent the establishment and growth of mold. The wicking takes place so that moisture will move higher into absorbent materials than the water level reached.

Fix all leaks and eliminate water sources associated with mold growth. Clean hard surfaces with a solution of bleach and water (**one and a half cups of bleach per gallon of water**); make sure to ventilate the area when using chlorine bleach (**do not add detergents which contain ammonia to the solution of bleach and water - toxic fumes could result**).

Wear filter masks and gloves to avoid contact with the mold. Let the bleach and water sit for 15 minutes and then dry the area thoroughly. Porous materials that are wet and can not be cleaned and dried should be discarded, as they can remain a source of mold growth.

For further information **Contact Centers for Disease Control (C.D.C.) at 770-488-7320**

PHYSICAL STRESS

Responding to a flood or other natural disaster can be a long and strenuous process. For many people, such extended periods of physical exertion can lead to a number of problems, including muscle strain, heat exhaustion, sunburn, sprains, etc. While good physical conditioning cannot happen overnight, several common sense guidelines can help you avoid some of these problems.

! Much of the recovery work during and following a flood or other natural disaster requires that people work in a stooped position. This puts a great deal of stress on the discs and ligaments in a person's lower back. In order to minimize the

chance of injury in these circumstances, a person should stand upright at regular intervals and bend backwards five or six times to relieve tension in the lower back.

! When moving heavy objects (like sandbags) repeatedly and frequently, be sure to lift with your legs, not your back. Follow these simple steps:

Stand close to the object to be lifted. Be sure your feet are planted securely.
Bend your knees and keep your back straight.
Securely grip the object to be lifted and hold it as close to your body as possible.
Lean back to maintain balance and lift by straightening your knees. Lift steadily and avoid jerking motions.
When upright, shift your feet to turn instead of twisting your lower back.

And be sure to stand upright at regular intervals and bend backwards to relieve tension in the lower back. Persons with recurrent lower back problems should avoid lifting, twisting or bending.

HEAT STRESS

In the aftermath of a flood, residents in affected areas as well as those who come to assist are exposed to extreme conditions for extended periods of time. If a flood occurs during the late spring or summer months, heat and humidity will be important factors. Particularly at risk are older people (especially those with medical conditions), small children, people with weight or alcohol problems or chronic diseases, people on medication (tranquilizers, diuretics, drugs for Parkinson's disease and antihistamines) and those who are dependent on others for control of their environment (residents of nursing homes, for example).

Heat stress is dependent on several elements: air temperature, humidity, air motion and radiant heat energy. Air temperature is the most important factor, however. If temperatures remain low, body heat easily escapes into the air by convection. As air temperature increases, the air is less able to absorb heat radiating from the human body. When outside temperatures climb above body temperature, no body heat is lost. In fact, the body may gain heat from the air. High humidity slows the evaporation of perspiration, thereby dampening perspiration's cooling effects. Air that is not moving also will dampen

perspiration's ability to cool the body. Radiant heat energy is what a person feels when he or she is standing in direct sunlight or next to a stove or boiler or some other device that puts off heat.

Prolonged periods of high temperatures and humidity can result in heatstroke, heat exhaustion, heat syncope and heat cramps.

- **Heatstroke** occurs when perspiration and the body's other defenses against heat buildup cannot prevent a substantial rise in core body temperature (rectal temperature ≥ 105 F). This is usually seen in the elderly during a heat wave. A medical emergency, heatstroke affects the victim's mental status, leaving the person delirious, stuporous or comatose. Rapid cooling (ice massage, ice-water bath, etc.) is essential if permanent neurological damage or death is to be averted. Heatstroke can be fatal in about 15 percent of cases.

- **Heat exhaustion**, a much less serious condition, is the most common heat syndrome. Victims may be dizzy, weak or fatigued. Body temperature is normal or slightly elevated. Associated with elevated air temperature, heat exhaustion is thought to be caused by a fluid and electrolyte imbalance brought on by increased perspiration. It is very common in elderly persons who are taking diuretics. Normalizing the fluid and electrolyte imbalance with water and/or sodium treats heat exhaustion.

- **Heat syncope**, also called exertion heat stroke, is a sudden loss of consciousness, usually associated with exercise. Persons who are not acclimatized to hot weather and elevated humidity are its usual victims. Consciousness generally returns when the victim lies down. Exertion heat stroke should be considered a medical emergency, however, since other secondary chemistry imbalances may occur.

- **Heat cramps** strike persons who are unaccustomed to exercising in the heat (direct sunlight is not required to bring on heat cramps). Due to mild fluid and electrolyte imbalances, heat cramps generally disappear after the person becomes acclimatized.

HYPOTHERMIA

Standing or working in water that is cooler than 75 degrees F drains body heat more rapidly than it can be replaced, resulting in hypothermia. To reduce the risk of hypothermia,

wear high rubber boots, ensure clothing and boots have adequate insulation, avoid working alone, take frequent breaks **out of the water** and change into dry clothing.

Signs of hypothermia include forgetfulness, drowsiness, slurred speech, change in appearance (e.g., puffy face), weak pulse, slow heartbeat, and very slow and shallow breathing. If you notice these symptoms in a person, take his or her temperature. If it is 95 degrees or below, call a doctor or ambulance or take the victim directly to the hospital. To prevent further heat loss, wrap the patient in a warm blanket. If the victim is alert, give small quantities of warm food or drink, but ***do not give alcoholic beverages.***

MENTAL HEALTH

A major disaster can elicit many types of responses from its victims. From mildly stressful reactions to those that indicate serious psychological problems, reactions to a natural disaster can be as varied as the people who fall victim to them. When these responses indicate that the victim is no longer able to function appropriately in the situation, he or she should be referred for professional assistance. These types of behavior may include psychosomatic symptoms brought on by emotional stress, grief due to loss, various forms of interpersonal and socially negative behavior (these often appear after the immediate response to the disaster), alcohol and/or drug dependency, and psychological problems such as depression, disorientation, hysteria and psychosis.

The following pages, provided by the University of Illinois' Cooperative Extension Service, give some guidelines for dealing with the emotional stress that accompanies a natural disaster.

PESTS

MOSQUITOES FLIES, Etc.

The large amount of pooled water and the filth and debris that remain after a flood may provide an ideal breeding ground for mosquitoes, flies and other insects. While the majority of these will be merely pests, some can carry communicable diseases such as typhoid, dysentery and encephalitis. The first and best defense against these pests and the illnesses they may carry is to eliminate the places where they breed.

The following recommendations will help you protect yourself from mosquitoes and other insects:

! Avoid places and times when mosquitoes bite. Generally, the peak biting periods occur just before and after sunset and

again just before dawn. Each species, however, has its own peak period of biting. Tree-hole and Asian tiger mosquitoes, for example, feed during daylight hours in or near shaded or wooded areas.

- Be sure door and window screens are tight-fitting and in good repair.

- Wear appropriate clothing. Long-sleeved tops and long pants keep mosquitoes away from the skin. Clothing should be light-colored.

- Check to see that your mosquito repellent contains DEET, a chemical commonly found in these products. When outdoors, apply repellent sparingly to exposed skin or clothing, as indicated on the product's label.

- Empty water in old tires, tin cans, bird baths, yard ornaments or other places where mosquitoes might breed. Be sure to check clogged gutters and flat roofs that may have poor drainage. Make sure cisterns, cesspools, septic tanks, fire barrels and rain barrels are covered tightly.

- Empty your pet's water bowl daily.

- Grade the ground around your home so water can run off and not collect in low spots. Fill in holes or hollows near your home that accumulate water.

- If you have an ornamental water garden or livestock water troughs, stock them with mosquito-eating fish (e.g., minnows, Gambusia, goldfish, guppies, etc.). They eat mosquito larvae.

- Keep weeds and tall grass cut short; adult mosquitoes look for these shady places to rest during the hot daylight hours and after a blood meal.

- Use a flyswatter or a household spray to kill mosquitoes, flies, or other insects that get into buildings. Spray shrubbery and shaded areas of buildings to kill adult insects. (Do not apply oil-based sprays to flowers or ornamental plants unless the label directions allow it.) Read and follow all label directions when applying any insecticide.

RODENTS

Rodents C particularly mice and rats C displaced by floodwaters will seek food and shelter. Structures damaged by floodwaters

provide easy access to these pests. Rodents can do further structural damage to your home and other buildings and may pose potential health problems.

If there is a possibility that rats are in a building, use caution when entering and be sure to carry a solid club of some sort and a flashlight. Inspect those places where rodents are likely to hide: closets, upholstered furniture, mattresses, appliances, stacks of clothes or paper, dark corners, attics and basements. If you find a rat, be very careful. Cornering a starving rat can be dangerous. If you are bitten by a rat, check with your physician since rat bites can result in medical problems. To keep rodents out of a building, you must create an environment that does not attract them. To accomplish this, deny them food, water, nesting sites and entry to the building.

- Reduce the availability of food and water. Store human and pet food in tightly closed containers. Bulk animal food should be stored at least 100 feet from the home in containers with tight-fitting lids. Do not allow pet or animal food to sit out. Keep food scraps and garbage in rodent-proof metal or thick plastic containers with tight-fitting lids. Repair leaky faucets that may provide water to rodents. Drain or fill standing pools of water near your home and outbuildings.

- Eliminate nesting sites near your home and any outbuildings. Haul away trash, abandoned vehicles, discarded tires and other items that could serve as rodent nesting sites. Keep your lawn and nearby vegetation mowed. Tall grass and weeds make excellent hiding places for rodents.

- Seal the building. Identify all possible sites of rodent entry. A mouse can fit through a hole slightly larger than 3 inch. Use steel screen, sheet metal, galvanized hardware cloth, caulk or weather stripping to seal openings along the edges of windows and entry doors and garage doors. Make sure openings to attics and eaves of homes and other buildings are covered. Check places where pipes and electrical wiring enter the house and seal openings with steel wool.

- If rodents are present in the home or building, set out snap-traps in rodent runways (perpendicular to the wall) and be sure to follow the manufacturer's recommendations. Effective baits include peanut butter, bacon, hot dog slices and nuts. Check traps daily and continue trapping for at least two days after the last rodent is trapped.

- Rodenticides should be used only to supplement trapping. If you choose a commercially available rodenticide, make sure it is registered with the U.S. Environmental Protection Agency and always follow instructions for product use. (If rodenticide is to be used indoors, be sure it is labeled specifically for interior use.) All rodenticides carry warnings that they be placed in tamper-resistant bait boxes or in locations not accessible to children, pets and other domestic animals and wildlife.

- Wear intact rubber or plastic gloves when removing dead rodents and when cleaning or disinfecting items or areas contaminated by rodents. Soak or spray dead rodents with a disinfecting solution (3 tablespoons household bleach per gallon of water) until thoroughly wet and place in a plastic bag. The bag should then be placed in a second bag and tightly sealed. Dispose of rodents in trash containers with tight-fitting lids or by incineration. After handling rodents, resetting traps and cleaning contaminated objects or areas, thoroughly wash gloved hands in a general household disinfectant or in soap and hot water. Then remove gloves and thoroughly wash your hands with soap and warm water.

- Caution always should be used when entering any closed, dusty area, such as farm outbuildings, where rodents may have become established. Such areas present a threat of exposure to hantavirus, which can cause a potentially fatal illness. Humans contract hantavirus infection by breathing dust contaminated by the urine, saliva or feces of an infected rodent. Infection also may occur if contaminated material or dust gets into broken skin or a mucous membrane, such as the eye. Ingesting food or water tainted by an infected rodent may cause illness too.

SNAKES

Flooding or other severe storms can force snakes into places where they are not usually found. If there are poisonous snakes in the area in which you live, you need to take certain precautions:

- Learn to identify poisonous snakes common to your area. They can be distinguished by their prominent triangular heads, deep pits between the eyes and nostrils, and vertically oval pupils.

- Be particularly watchful for snakes around areas that offer any type of protective cover: levees, dikes, dams, driftwood,

homes, barns, outbuildings, stalled automobiles, or piles of trash, building materials or rubble.

- Keep a heavy stick or some other weapon handy and always carry a strong light if it is dark.

- Thoroughly search an area before beginning any cleanup or rescue operation.

- Wear heavy leather or rubber high-topped boots and heavy gloves. Be careful around piles of debris. Use a long-handled tool (e.g., rake, hoe, pry bar, etc.) to move debris. Never expose any part of your body in an area where snakes may be hiding.

- If you kill a poisonous snake, use a long-handled tool or stick to carry the snake away for disposal. Snakes may bite even though they may appear dead.

- If you find yourself near a snake, remain still. A sudden movement could cause the snake to strike. If the snake does not move away from you in a few minutes, slowly back away from it.

- If you are bitten by a snake, seek medical attention immediately.

- To keep snakes away from your home and outbuildings, eliminate their food supply (mice and rats) and their hiding places (lumber piles, trash piles, high weeds and grasses, debris). Holes, crevices and other openings where snakes could enter your home (particularly those near or below ground level) should be plugged. Doors, windows and screens should fit tightly. Rat traps or glue boards can be placed in pairs along walls and floor junctions to kill smaller snakes (a trap trigger can be enlarged by tying a piece of cardboard to it).

DISPLACED ANIMALS

Even docile domestic animals can be dangerous if they are hurt hungry and lost. The threat is even greater with wild animals that have been forced into unfamiliar territory by floodwaters; these animals could carry rabies. Unless an animal is yours, it is best to avoid it. Even if the animal belongs to you, be careful when approaching it. If you are bitten by an animal, see your physician for appropriate treatment

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RECOVERY AFTER THE FLOOD

REBUILDING AND FLOOD PROOFING
VOLUME 4

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REBUILDING AND FLOODPROOFING

Once floodwaters recede, those whose homes were damaged or destroyed must decide whether to remain in the flood-prone area and rebuild. For those who decide to stay, the American Red Cross and the Federal Emergency Management Agency advise that they flood proof their houses. The following suggestions have been adapted from the *pamphlet ARepairing Your Flooded Home@ published by the Federal Emergency Management Agency* (Copies are available, free from Federal Emergency Management Agency Publications, P.O. Box 70274, Washington, D.C. 20024, or from the Ohio Department of Health, P.O. Box 218, Columbus, Ohio 43266-0118, or from your local chapter of the American Red Cross).

CHECKING FOR STRUCTURAL DAMAGE

Before beginning the actual cleanup of your home, there are several steps that should be taken first.

- Contact your insurance agent. If you are not living in your home, be sure the agent knows how to get in touch with you.
- If the agent is overwhelmed with damage reports and cannot inspect your property immediately, take photographs of the damage before beginning cleanup.
- Keep accurate records of cleanup and repair bills, flood-related living expenses and actual losses (furniture, clothing, appliances, clothing, etc.).

- If you have difficulty with the insurance carrier, contact the Ohio Department of Insurance at **614-644-2658.**
- Be sure, too, to contact your municipal and county governments to make sure that plans for repairs or rebuilding conform to local building codes.

Precautions Before Entering a Damaged Building

- Use extreme caution in and around any building that may have suffered structural damage.
- Determine if gas lines are broken. If so, turn off the gas at the meter or tank.
- If you enter the building at night, be sure to use a battery-powered flashlight or lantern. Do not use candles, oil or gas lanterns, or torches, and do not smoke; if gas lines are broken, an explosion could occur.
- Watch for loose plaster and ceilings that could fall.
- Open as many doors and windows as possible to remove moisture, odors, and flammable or toxic gases. If windows

are stuck, take off window strips and remove the entire sash. If doors are stuck, drive out door hinge pins with a screwdriver and hammer and remove doors.

Foundations

Flood waters can undermine a structure's foundation and other supports. In order to assure that the structure is safe to enter, it is best to have a contractor or the community's building inspector check the foundation to see if it is unstable. In fact, some communities may require official inspections for all buildings after a flood. If the building has sustained extensive structural damage, a reputable local contractor should be contacted for repairs. However, if you choose to do the work yourself, here are some general guidelines.

- First, check the foundation and supports for any visible signs of settling or cracking. If you find such damage, uncover footings and raise, reinforce or brace any settled sections. Be alert for washouts when uncovering footings.
- If washouts have occurred, fill spaces to within 12 inches of the footing with gravel or crushed rock and finish with concrete reinforced with steel rods.
- Check piers for settling or shifting.
- If the building has shifted or settled badly, install temporary bracing until repair work can be done.
- Pump water out of basements. Avoid using a pump powered by your home's electrical system since it is probably wet. Instead, use a gas-powered pump or one connected to an outside line.

  The American Red Cross (American Red Cross Disaster Services (**614-253-7981**) cautions that if a basement is flooded, the homeowner should not be in too big a hurry to pump it out. Here is why.

  Water in the ground outside the house is pushing hard against the outside of the basement walls. But the water inside the basement is pushing right back. If the basement is drained too quickly, the pressure outside the walls will be greater than the pressure inside the walls -- and that may make the walls and floor crack and collapse, causing serious damage. To avoid this situation, follow these steps when pumping water out of the basement:

- P Never go into a basement that has water standing in it unless you are sure the electricity is off.

- P When the Flood waters are no longer covering the ground, start pumping the water out of the basement. (Do not use gasoline-powered pumps or generators indoors because gasoline engines create deadly carbon monoxide exhaust fumes.)

- P Pump the water level down 2 feet to 3 feet. Mark the level and wait overnight.

- P Check the water level the next day. If the water went back up (it covered your mark), it is still too early to drain the basement. Wait 24 hours. Then pump the water down 2 feet to 3 feet again. Check the level the next day.

- P When the water stops going back up, pump down another 2 feet to 3 feet and wait overnight. Repeat these last two steps until all water is pumped out of the basement.

- ! Drain crawl spaces and remove all mud and debris to keep joists and foundation wood from rotting. This may mean jacking up the house.

Roofs

Holes in roofs must be covered in order to keep rain from doing more damage to the interior of the home. Cover holes with boards, tarps, plastic sheeting or roll roofing. If the holes are large, you may need to support the temporary covering in the center to keep it from tearing from the weight of the rain. If roof sections are sagging, use 4" x 4"s or other heavy lumber to brace weak areas. If you are uncertain how to shore up floor or ceiling joists, call a contractor.

Turn Power Off

- ! Disconnect the main electrical switch and any other switches controlling electricity in outbuildings. If the main switch is in the basement, be sure that the area around the switch box is dry before working on the electrical system.

- Remove all fuses or put circuit breakers in "off" position.
- Disconnect all plug-in equipment and appliances and turn off the switch at each piece of permanently connected equipment. Unscrew all light bulbs.

Clean and Dry the System

If electrical outlets and switches are wet, they should be dried before service is restored. The U.S. Consumer Product Safety Commission recommends that electric circuit breakers, ground fault circuit interrupters and fuses that have been under water be replaced to avoid explosions and fires.

- Remove switch covers, outlets and other electrical connections.
- Pull receptacles, switches and wires about 2 inches out from the boxes, but ***DO NOT disconnect the wiring.***

- After removing mud and dirt with clean water, allow connections and wiring to dry completely. This could take days.
- Use extreme caution in cleaning mud and dirt from the main power box. Your home's main power line enters here, so this can be an extremely hazardous part of the system to work on. It is best to assume the power line is hot even if a test light shows that power is off. ***NEVER hose out a hot switch box.***

  Wear rubber gloves and rubber-soled shoes and be sure to not touch anything wet or stand in water while working on the box. In an emergency, the electrical meter can be pulled from its base to disconnect the power. Notify the electric company that you broke the seal.

Check System for Shorts

- While standing on a dry board or ladder and wearing rubber gloves and rubber-soled shoes, check the main switch box to be sure all fuses are removed.
- Close the main switch and look for sparks or smoking wires, both of which indicated shorted switch connections. If you see such shorts, carefully try to correct the problem. A new switch may be needed.
- If the switch is in working order, open the switch and insert a

fuse in **one** branch circuit.

- Close the switch to check for shorts in that branch circuit.
- If the fuse does not blow immediately, wait at least 15 minutes to check for slower electrical leaks. Carefully inspect all parts of the branch circuit you are checking; smoking wires or sparks indicate a problem. If there are any signs of smoking or heating, if the fuse blows or circuit breaker trips, remove all fuses and open the main switch. You may need to do additional cleaning or drying, or you may need to replace circuit parts.
- Repeat the above steps for each of the other circuits, **one at a time**.
- If, after checking all the circuits, they appear to be in good condition, once again remove all fuses and open the main switch. Replace wires for electrical receptacles, switches and light outlets in junction boxes. Replace covers. Then check each branch circuit again, **one at a time**, by replacing one fuse at a time and closing the main switch.
- If everything is okay, close the main switch.
- For 24 hours, be careful when using receptacles and switches. There may be slow leaks that could cause shocks.

DO NOT plug in electrical appliances that have been flooded until they have been reconditioned.

- If some circuits are faulty, use only the undamaged circuits. Do not overload undamaged circuits with too many lights or appliances until normal capacity is restored. Some newer homes may have a ground fault interruption system with the circuit breaker. This will probably need to be replaced.

  Outdoors, use extreme caution if you find yourself around power lines. ***DO NOT touch downed power lines***, particularly those in water, or objects that are in contact with downed power lines.

WORKING ON INTERIOR OF HOME

The following tips for dealing with the interior of a home and its contents after a flood have been derived from recommendations by the Federal Emergency Management Agency.

<u>Lower the Humidity</u>

Everything will dry more quickly and clean more easily if you can

reduce the humidity in the house. There are many ways to lower the humidity and stop the rot and mildew, but you will have to delay using some of the methods if you have no electricity. Be patient -- drying your house could take several weeks. Until your house is reasonably dry, damage caused by mildew and decay will continue. The musty odor will stay forever if the house is not dried out well.

! ***Open up the house***

If the humidity outside is lower than it is indoors, and if the weather permits, open all the doors and windows to exchange the moist indoor air for drier outdoor air. If the sun is out, it should be drier outside. If you have a thermometer with a humidity gauge, you can monitor the indoor and outdoor humidity. On the other hand, when temperatures drop at night, an open house is warmer and will draw moisture indoors. At night and at other times when the humidity is higher outdoors, close up the house.

! ***Open closet and cabinet doors***

Remove drawers to let air circulate. Drawers may stick because of swelling. Do not try to force them. Help them dry by opening up the cabinet so air can get into it. You will probably be able to remove the drawers as the cabinet dries out.

! ***Use fans***

Fans help move the air and dry out your home. Do not use central air conditioning or the furnace blower if the ducts were under water. They will blow out dirty air that might contain contaminants from sediment left in the duct work. Clean or hose out the ducts first.

! ***Run dehumidifiers***

Dehumidifiers and window air conditioners will reduce the moisture, especially in closed-up areas

! ***Use desiccants***

Desiccants (materials that absorb moisture) are very useful in

drying closets or other closed areas where air cannot move through. Desiccants like the following are usually available at hardware, grocery or drug stores: chemical dehumidifier packs used for drying boats and damp closets; cat litter made of clay; and calcium chloride pellets (these are the pellets that melt ice in the winter). Put them in a pillow case, nylon stocking or other porous bag and hang above a bucket to catch dripping water. Close off the area being dried. ***BE CAREFUL.*** Calcium chloride can burn your skin. It also makes the air salty so do not use near computers or other delicate equipment.

! ***Call a contractor***

There are contractors who specialize in drying out flooded buildings. They have large fans and dehumidifiers that can dry out a house in a few days. Look in the yellow pages under "Fire and Water Damage Restoration" or "Dehumidifying." Be careful with contractors who inflate prices after a disaster and with out-of-town contractors who request payment in advance.

Sort Contents and Discard Debris

You have three types of contents. They should go to three different places: items you want to save, items to be thrown out and garbage.

! ***Things you want to save*** should be moved to a safe, dry place, such as the second story of the house or outside. The longer they sit in water, the more damaged they will become. Do not leave wood furniture in the sun because it will warp as it dries. To save an area rug, lay a sheet or some other material on top of it before you roll it up so the colors will not bleed. Clean it promptly.

! ***Things you do not want to save*** should be put outside to dry until your insurance adjuster comes to confirm your losses. Take pictures or videotapes and list each item for the record. If you are not sure whether to throw something out, decide whether it is worth salvaging.

! ***Garbage*** (i.e., food and anything else that could spoil or go

bad) should be disposed of immediately. Do not let garbage build up. Garbage piles will cause yet another health hazard by attracting animals and insects. If your insurance adjuster has not come, tell your agent or adjuster that you need to get rid of potential health hazards. That person will tell you how to make sure that your losses are covered. Then throw the stuff out, preferably in sealed plastic garbage bags.

HOW FLOOD WATER AFFECTS YOUR HOME

Once contents and debris have been cleared, the next step is to get the water out of the ceilings and walls. How you drain and dry your ceilings and walls depends on how they are constructed.

- ***Wallboard.*** Most ceilings and walls are covered with wallboard, especially in newer homes. Wallboard acts like a sponge, drawing water up above the flood level. It becomes very fragile if it stays wet for long and will fall apart when bumped. When the wallboard finally dries, there will still be mud and contaminants dried inside. Since wallboard that has been soaked by floodwater can be a permanent health hazard, you should discard it.

- ***Plaster.*** Plaster will survive a flood better than wallboard. You should not need to replace it, but it will take a **very** long time to dry. Sometimes the plaster will separate from its wood laths as it dries. Then the wall will have to be removed and replaced.

- ***Insulation.*** There are three main types of insulation, and each reacts differently to Flood waters. Styrofoam J survives best; it may only need to be hosed off. Fiberglass batts should be thrown out if they are muddy. If soaked by clean rainwater, remove them so the rest of the wall can dry. They can be put back in the wall, but it will take a very long time for them to dry. Cellulose (loose or blown-in treated paper) insulation holds water for a long time. It can also lose its antifungal and fire retardant abilities and, therefore, should be replaced.

- ***Wood.*** If it is allowed to dry naturally, wood will usually regain its original shape. Different layers of laminated wood, such as plywood, may dry at different rates, and that may cause the layers to separate. Some contaminants will stay in

the wood after it dries, but not as much as stays in flooded wallboard. Wood studs and sills will be covered by new wallboard and painted, so they are well removed from human contact. Therefore, wet wood studs and sills do not need to be replaced if they are allowed to dry properly.

Drain the Ceilings and Walls

! ***Ceilings.***

Check for sagging ceilings. Wet plaster or wallboard is very heavy and dangerous if it falls. Drain ceilings carefully. Attach a nail or other pointed object to the end of a long stick (e.g., hammer a finishing nail into the end of a broomstick). Stand away from, not under, the sag (a doorway is safest). Poke a hole in the ceiling at the **edge** of the sag so any trapped water can begin to drain. Do not get close to lights and other electrical fixtures with the stick. Do not start at the center of the sag or the ceiling may collapse suddenly. After the water drains, poke another hole, lower down the sag. Keep poking holes as you move to the lowest point.

If the Flood waters went above your ceiling, you should replace it if it is made of wallboard. A plaster ceiling will dry eventually, but if it has too many cracks or sags, you will have to tear it down and replace it. Remove any wet insulation in the ceiling to allow the joists to dry.

! ***Walls.***

Remove water trapped within your walls. To check for water, take off the baseboard. Stick an awl or knife into the wall about 2 inches above the floor(just above the 2" x 4" wood sill plate). If water drips out, cut or drill a hole large enough to allow water to drain freely. Use a hand or cordless drill or saw to avoid shock and avoid drilling in areas that may contain wiring. If you are going to replace the wallboard anyway, you do not have to be neat: Use a hammer to knock out a hole.

If your walls are plaster, a knife will not penetrate them. Drill a hole above the sill plate to drain the water. Do not use a hammer or chisel on plaster because the plaster could

shatter. In a newer home, you may have metal sill plates. A metal sill acts as a gutter at the bottom of the wall cavity. Drill a hole at floor level to drain the water, using a hand or cordless drill.

Repeat the process to drain all the wall cavities. Depending on the spacing between studs in your walls, make a hole every 16 inches or every 24 inches. Watch out for wiring, which is usually at the same height as your electrical outlets. If there is wet insulation, you will have to remove the wallboard in order to take out the insulation.

Dry the Ceilings and Walls

Flood-soaked wallboard should be removed and thrown away. Plaster and paneling can often be saved, but you still need to get air circulating in the wall cavities to dry the studs and sills. Different approaches are used for different materials.

! ***Wallboard***

If dirty Flood waters soaked the wallboard at least 4 feet above the floor, take down all the wallboard and replace it. If the water was less than 4 feet deep, remove the lower 4 feet of wallboard. You can fill the gap with new 4' x 8' wallboard sheets installed sideways.
If you have Styrofoam J insulation -- or no insulation -- and the wallboard was soaked with clean rainwater, you can dry the walls without removing the wallboard by using the technique explained below for plaster walls. But you will need to remove wet insulation if it is not Styrofoam J.

! ***Plaster walls***

If the plaster or wallboard is clean and in good shape, you can drill or cut ventilating holes in each wall cavity. Place holes low enough so they will be covered by the baseboard after the wall dries out. Open up the walls on both sides of interior walls. For exterior walls, drill or cut holes only on the inside of the house. However, if there is wet insulation, you will have to remove the plaster or wallboard in order to take out all the insulation.

! ***Concrete block***

The cavities in a concrete block wall will drain on their own. The water will not damage the concrete like it will wood or wallboard.

! ***Wall covering***

Vinyl wall covering seals the wall and keeps it from drying out. Wallpaper paste will promote the growth of mold and mildew. For these reasons, you should remove and discard all wall covering that got wet. (If vinyl wall covering is loose on the bottom, you may be able to save it by pulling it off the wall up to the flood level. Clean and reapply it after everything dries.)

! ***Paneling***

Carefully pry the bottom of each panel away from the wall. Use something to hold the bottom away from the sill so the cavities can drain and dry out. You can nail them back into shape after they and the studs dry out. However, if there is wet insulation, you will have to remove the paneling in order to take out all the insulation.

Dry the Floor

Air needs to move around flooded floors so they can dry out. This usually means that you must remove the floor covering. Because Flood waters contain mud and dirt, most soaked floor coverings should be thrown away. Keep a piece of all discarded floor covering so the adjuster can tell its value.

Air needs to circulate below the floor to dry it out. If the crawl space of your house is flooded, pump it out. Remove any plastic sheets, vapor barriers or insulation from beneath the floor. (Be sure to replace them when the floor and foundation are completely dry.)

If a house with a basement was flooded over the first floor, remove finished basement ceilings or cut or drill holes between all joists to allow air circulation. Do not cut or drill near electric lines or pipes.

Clean-up

The walls, floors, closets, shelves, contents -- every flooded part of your house -- should be completely washed and disinfected. Some projects, such as washing clothes, may have to wait until all the utilities are restored. Others may be best done by professionals.

Clean-up Supplies

The American Red Cross and other organizations often distribute cleanup kits after a disaster. These contain many useful items such as a broom, mop, bucket and other cleaning supplies.

In most cases, household cleaning products will do the job if you use them correctly. Check the label on the products to see how much to use. Some products should not be used on certain materials; the label will tell you that. Apply the cleaner and give it time to work before you mop or sponge it up. Follow directions and all safety precautions on the container. Be careful not to mix chlorine disinfectants and cleaning compounds containing ammonia -- the combination can cause dangerous chlorine gas to be produced. After cleaning a room or item, go over it again with a disinfectant to kill the germs and smell left by the Flood waters. You also may need to get rid of mildew, an unwelcome companion to moisture that shows as fuzzy splotches.

Cleaning Tips

Tackle one room at a time. A two-bucket approach is most efficient: Use one bucket for the cleaning solution and the other for the rinse water. Rinse out your sponge, mop or cleaning cloth in the rinse bucket. Wring it as dry as possible and keep it rolled up tight as you put it in the other bucket. Let it unroll to absorb the cleaning solution. Using two buckets keeps most of the dirty rinse water out of your cleaning solution. Replace the rinse water frequently.

- ***Walls***
  Start cleaning a wall right above the floodwater level. If you did not have to remove the wallboard or plaster, you may find the wallboard or plaster will not come clean and you will want to replace it rather than clean it. If you have removed

the wallboard / plaster, wash the studs and sills and disinfect.

! ***Windows***

If you taped your windows before the storm, clean the tape off as soon as possible. The sun will bake the adhesive into the glass. If glass cleaners do not remove the adhesive, try tar remover, acetone, nail polish remover, or a razor blade. And next time, do not bother taping the windows. You do not get much protection for all that effort.

! ***Furniture***

Do not try to force open swollen wooden doors and drawers. Take off the back of the piece of furniture to let the air circulate. You will probably be able to open the drawers after they dry. Solid wood furniture can usually be repaired and cleaned, but wood veneer often separates and warps. Wood alcohol or turpentine applied with a cotton ball may remove white mildew spots on wood. Cream wood restorers with lanolin will help restore good wooden furniture parts.

Upholstered furniture soaks up contaminants from Flood waters and should be cleaned only by a professional. This is also true of carpets and bedding. Unless the piece is an antique or very valuable, upholstered furniture soaked by Flood waters should probably be discarded. Get a cost estimate from a professional to see if furniture is worth saving.

! ***Appliances***

There is an unexpected danger of shock with some electrical appliances such as TV sets and radios. Certain internal parts store electricity even when the appliance is unplugged. Check the back for a warning label. Appliances with such labels will need professional cleaning. Be sure to get a cost estimate to see if they are worth saving.

You will need appliances such as the washing machine, dryer, dishwasher and vacuum cleaner to help clean your house and its contents. The motors or heating elements can usually be cleaned. If you cannot wait for a professional cleaning job, unplug, disassemble and hose off the appliances thoroughly (with hot water, if possible). Then clean and disinfect them, but do not use detergents. Clean and disinfect dishwashers,

washing machines and dryers only with water that has been declared safe for drinking. Make sure the sewer line is working before you start a dishwasher or washing machine.

You can speed up the drying process for motors and parts by using a blow dryer or a moisture displacement spray. Moisture displacement sprays, such as electronics parts cleaners or WD-40 J lubricating and penetrating oil, are available at hardware or automotive parts stores. The sprays can also stop rust and corrosion until the appliance can be disassembled and cleaned. One word of caution: The spray is flammable. Read and follow label instructions and precautions.

Moving parts such as motors and pulleys will need oil or grease. Contacts and electrical switches can be cleaned with a moisture displacement spray or an aerosol contact cleaner available at electronics or auto parts stores. Allow a motor to run for 30 minutes with no load before you use it. For example, run the vacuum cleaner without connecting the belt.

Watch for stripped or damaged insulation around wires. Be sure all appliances are properly grounded. Appliances that must be grounded have a round third prong or a grounding wire on their plugs.

Refrigerators, freezers and ovens are more complicated. They may have foam insulation and sealed components that suffered little water damage. But these appliances hold food, so they should be cleaned, disinfected and checked by a professional or replaced. Check the insulation; if it is wet, the appliance will probably have to be discarded. If the insulation is not wet and the motor and freezing unit are in safe working order, clean and sanitize your refrigerator or freezer by following these steps:

- Dispose of any spoiled or questionable food.
- Remove shelves, crisper drawers and ice trays and wash with hot water and detergent. Follow with a disinfectant rinse (2 ounces of bleach per gallon of water).
- Wash the interior of the refrigerator or freezer, including the door and the gasket, with warm water

and baking soda (1 teaspoon baking soda per quart of water) or vinegar or ammonia (1 cup of either per gallon of water). Rinse with disinfectant solution.

P Leave the door open and allow fresh air to circulate for about 15 minutes.

P If odors remain, use a commercial refrigerator deodorizer or activated charcoal. If using activated charcoal (which is available at drugstores), spread about 3 ounces on a sheet of aluminum foil or in a shallow pan and place on refrigerator or freezer shelf. Foods can remain in the refrigerator with the charcoal. After six to eight hours, reactivate the charcoal by placing it in a moderate oven (350°F) for several minutes. Put the charcoal back in the refrigerator or freezer; repeat this process until the odors disappear.

If you have doubts about whether your appliances should be replaced, have them checked by a repair person. If the repair person advises you to replace an expensive appliance, get the opinion in writing and discuss it with your insurance adjuster before you spend money for another one.

! ***Clothing and linens***

Even if your washing machine did not get wet, do not use it until you know that the water is safe enough to drink and that your sewer line works. (Perhaps a friend or relative has a washing machine you can use until yours is clean and working.) Before you wash clothes in the washing machine, run the machine through one full cycle. Be sure to use hot water and a disinfectant or sanitizer.

Take clothes and linens outdoors and shake out dried mud or dirt before you wash them. Hose off muddy items to remove all dirt before you put them in the washer. That way your drain will not clog. Check the labels on clothes and linens and wash them in detergent and warm water if possible. Adding chlorine bleach to the wash cycle will remove most mildew and will sanitize the clothing, but bleach fades some fabrics and damages other fabrics. You can buy other

sanitizers, such as pine oil cleaners, at the grocery store to sanitize fabrics that cannot be bleached. If the label says "Dry Clean Only," shake out loose dirt and take the item to a professional cleaner. Furs and leather items are usually worth the cost of professional cleaning. If you want to clean leather yourself, wash the mud off and dry the leather slowly away from heat or sunlight.

! ***Kitchen items***

Throw out soft plastic and porous items that probably absorbed whatever the Floodwaters carried. Floodwaters are contaminated, so you may want to wash dishes by hand in a disinfectant. Air-dry the disinfected dishes; do not use a dishtowel. Like the washing machine, the dishwasher should be used only after you know your water is safe to drink and your sewer line works. Clean and disinfect it first. Then use a hot water setting to wash your pots, pans, dishes and utensils. (If you have an energy saving setting, do not use it.)

! ***Paper, books and Computers.*** Valuable papers such as books, photographs and stamp collections can be restored with a great deal of effort. They can be rinsed and frozen (in a frost-free freezer or commercial meat locker) until you have time to work on them. A slightly less effective alternative to freezing is to place paper in a sealed container, such as a plastic bag, with moth crystals. Dry papers quickly when you thaw or unseal them. (A blow dryer will do.) Do not try to force paper products apart -- just keep drying them. Photocopy valuable papers and records soon because substances in the floodwater may make them deteriorate.

If a ***computer*** disk or tape has valuable information, rinse it in clear water and put it in a plastic bag in the refrigerator. Later, you can take it to a professional drying center and have the data transferred to a good disk or tape. Many companies that specialize in restoring computers and computer records after a disaster are members of the **Disaster Recovery Journal**. **To find a member company near you, call 314-894-0276**.

! **The yard**

As you get rid of things from your house, do not turn your yard into a dump. Health hazards such as food and garbage must be hauled away as soon as your insurance agent or adjuster has told you how to make sure their loss is covered. Other things you throw away should be removed as soon as your insurance adjuster says it is okay.

Lawns usually survive being under water for up to four days. Mud can be hosed off shrubs. You may have to replace the lawn if there was mud much thicker than an inch deep or if erosion has occurred. Check with your local nursery, garden store, or Cooperative Extension Service.

BLEACH

Liquid chlorine bleach, such as Clorox J or Purex J, can do a variety of flood cleanup jobs. Make sure that 5.25 percent sodium hypochlorite is the only active ingredient. Bleach that has a scent added to improve its smell is available. Scented bleach is fine for cleanup jobs, but do not use it to purify drinking water. Do not use dry bleach or any bleach that does not contain chlorine. Be careful of fumes and wear rubber gloves. Read the safety instructions on the label. Do not mix bleach with other household chemical products, especially ammonia or toilet bowl cleaner; the chemical reaction can create a poisonous gas. Do not use bleach on aluminum or linoleum.

TABLE

WHAT TO USE	FIRST CHOICE	SECOND CHOICE	THIRD CHOICE
CLEANING	Nonsudsing household cleaners	Laundry soap or detergent	
DISINFECTING	3 cup (2 ounces) of liquid chlorine bleach mixed in 1 gallon of water	Household disinfectants or sanitizers, such as the quaternary, phenolic or pine-oil disinfectants (check labels for contents)	
REMOVING	Household mildew	washing soda or trisodium	1/4 cup (2 ounces)

MILDEW	removers or mildewcides	phosphate (available at grocery or paint stores); use 5 tablespoons for each gallon of water	of laundry bleach mixed in 1 gallon of water

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FLOOD -PROOFING

To floodproof means to remodel or rebuild using materials and methods that will prevent or minimize damage from future floods. There are many benefits to floodproofing your house:

- FLOOD PROOFING will save you money and aggravation during the next flood.
- Many floodproofing measures are inexpensive.
- Protecting your house from future flood damage will increase your property's resale value.
- Many floodproofing measures can be easily worked in during repair and rebuilding, reducing your costs.
- Some financial assistance programs can help pay for floodproofing.
- By preparing for the next flood, you regain control over your future C a guaranteed way to reduce your level of anxiety and stress. You do not need to wait for the government to act; you can take care of protecting your home yourself.
- FLOOD PROOFING will not make it possible for you to stay at home in a flood. But it is likely to make it much quicker and easier for you to clean up next time.

Before you repair or rebuild, the first thing you should do is talk to your town's or city's building department. You will need to ask the following questions:

- What are the procedures for applying for a building permit? What inspections will need to be done?
- Is your home substantially damaged? ("Substantially damaged" means that the cost to restore your house to its "before damaged" condition would equal or exceed 50 percent of the value of your house before the damage occurred.) This is important because you may be required to elevate or relocate your house to meet local building codes.
- Are there additional building code requirements or other

restrictions on what you can do to your house and your property?

! What flood protection level should you use to protect your home? The flood protection level is the level of flooding that you want your house to be able to withstand without damage to your house or your belongings.

Start by asking your building department what flood protection level it requires for your area. If there has been a flood higher than the level they give you, you should use that flood's level plus 1 or 2 feet for safety. The next flood may be worse.

The next step is to decide if you will be better off living in a different location, away from areas that flood. Ask your building official about government agencies that sometimes purchase property for open space or flood protection in areas that flood C you may qualify. If you are sure that you will repair or rebuild your house in the flood-prone area, choose the FLOOD PROOFING type that is best for your home or property. There are five basic types of FLOOD PROOFING described here, as well as rebuilding tips to help you safely repair and rebuild.

FIVE TYPES OF FLOOD PROOFING

Elevation

Most houses can be raised so that the lowest floor is above the flood protection level. If you had foundation damage -from the flood, you may need to raise the house to repair it. It will be easier and cheaper to elevate the house at that time.

There should be many contractors qualified to undertake elevating your house above flood level. Elevation or relocation are the only reasonable ways to protect your home if it is subject to deep flooding (flooding more than 6 feet deep). Elevation and relocation are also the most dependable measures for floodproofing your home.

An elevated building will need a new foundation. The contractor will jack up the house and set it on a temporary framework called cribbing

while the new foundation is built underneath. The foundation of an elevated building may be columns, piers, pilings or raised foundation walls.

The elevated building will usually look better and have added protection if fill dirt is placed around the new foundation. But check with your building department before adding fill dirt. It may not be allowed in all areas of your community.

Relocation

Moving a building out of the flood-prone area is the surest way to protect it from flood damage. Most houses and smaller commercial buildings in good condition can be moved, and it is usually no problem to find contractors experienced in moving buildings. You will have to purchase a new lot unless your present lot is large and has a good spot on higher ground for your house.

Flood walls

Flood walls, berms and levees all work to keep floodwaters from reaching your house. They are built to at least the height of the flood protection level in your area. Floodwalls are usually made of concrete. Berms are simply small levees, usually built from fill dirt.

Flood walls, berms and levees can either surround the building (ring levee) or connect to high ground. They also can be built up against a building's foundation walls. A sump and pump will be needed to pump out water that seeps under the wall. Floodwalls, levees or berms may not be allowed in your area if they could create a drainage problem on your neighbor's property. Check with your building department before you build.

Flood walls of all types work best in places where flooding is less than 3 feet deep. If floodwaters near your house develop swift currents, earthen levees and berms cannot be used C they may wash away. Floodwalls and berms may not be appropriate for homes with basements.

If there is not enough room for a berm or levee, you may be able to build a flood wall of concrete, which takes up less room. The wall should contain internal reinforcing bars to add strength to the wall

and to help it resist cracking and damage from settling over time. The wall must be properly anchored to withstand the same water pressure that can destroy basement walls.

Dry Floodproofing

Dry floodproofing means sealing a building to keep Flood waters out. All areas below the flood protection level are made watertight. Walls are coated with plastic or rubberized sheeting or special waterproofing compounds. Openings such as doors, windows, sewer lines and vents are closed permanently or they are temporarily sealed with removable shields or sandbags.

Dry floodproofing can only be done if the walls of your house are strong enough to hold back the floodwaters without collapsing. For this reason, dry flood proofing is not recommended if your flood protection level is more than 2 feet or 3 feet above ground level. Dry floodproofing is generally not appropriate for houses with basements or crawl spaces.

Wet Floodproofing

Wet floodproofing means modifying a building so that Flood waters will cause only minimal damage to the building and its contents. Building materials below the flood protection level are replaced with materials that are resistant to water. Floodwaters are allowed into the building to counteract the pressure of the water on the outside of the walls.

You should furnish areas that have been wet floodproofed with light, portable furniture that can easily and quickly be moved before a flood. Objects that are more difficult to move quickly, such as furnaces, water heaters, appliances and bookcases, are either put permanently on platforms or reinstalled upstairs.

Wet floodproofing has one advantage over the other FOUR FLOOD PROOFING types: Even the smallest efforts will significantly reduce flood damage the next time. Thousands of dollars can be saved simply by moving furniture and electrical appliances out of areas that will flood. If you decide not to use one of the other FOUR FLOOD PROOFING types, you should use the wet floodproofing measures as

you repair and rebuild.

BUILDING PERMIT

Once you have determined the repairs and flood proofing measures you are going to take, local codes generally require that you get building permit. **<u>For manufactured homes building permit from the Ohio Department of Health is required.</u>**
Before you make repairs or alterations to your home or property, make sure your plans are reviewed and okayed by your building department. You may also need to get the okay of your homeowners= association or mortgage holder before you make repairs or alterations to your home or property. If you are just replacing items such as carpeting or wallboard, you will probably not need a permit C but you should check with your local building department before you proceed. You will usually have to get a permit for electrical work and repairs of structural damage, such as broken walls. Most local and state building codes require that a building that is substantially damaged be treated as a new building. A new residential building must be built so that its lowest floor is at or above the flood protection level . In other words, if your house is substantially damaged, you will have no choice but to elevate or relocate your house in order to meet local building codes.

Failure to follow the local building code can result in an order to stop reconstruction, a fine, higher flood insurance rates, denial of flood insurance, or all of the above.

Rebuilding Tips

Give your house plenty of time to dry. Many problems result from rebuilding after a flood before everything dries. If it takes a week for the moisture you can see to disappear, allow at least another week for the parts you cannot see to dry. Do not try to force a swollen door to close. Do not force wooden parts to fit. When completely dry, the wood may regain its original shape.

There are small, inexpensive measures you can take to make your recovery easier after the next flood.

Utilities

Move the main breaker or fuse box and the utility meters above the flood protection level for your house. Make sure each circuit is

labeled so you know which circuit controls which outlet and switch. If the electrical code allows, raise the electrical outlets and switches above your flood protection level.

If you are going to replace a flooded furnace, water heater or air conditioner, install the new one on a higher floor. If your new air conditioner or heat pump will be outside, install it on a platform above your flood protection level. A water heater can be put anywhere near a hot water pipe. An updraft furnace located in a basement can be replaced with a down draft furnace on a floor above the flood protection level.

Where the flood protection level is not too high, a furnace, water heater or other heavy appliance can be raised on a platform inside the house. Put the appliance on concrete blocks or a wooden platform supported by concrete blocks. Make certain that appliances such as washers and dryers are secure and will not vibrate off the blocks or platform during use.

You can protect the furnace, water heater, washer and dryer from shallow flooding with a low floodwall built around the appliance. A concrete or wooden wall 1 foot to 2 feet high can stop low-level flooding. The wall should be waterproofed with plastic sheeting or waterproofing compounds that can be purchased at hardware stores.

Walls

Wash and disinfect the studs and sills if the wallboard and insulation had to be removed. If you are going to rebuild the walls, remember that metal studs and sills are not damaged by water as much as wooden ones.

Pressure-treated wood will resist mildew and wood-eating insects outdoors, but it may swell as much as untreated wood when it is soaked. Some kinds of pressure-treated wood should not be used inside the house, where they will come into contact with food or skin. (It depends on which chemicals were used to treat them.) Ask your lumber company to help you choose the right products for the jobs you will do. They should also have consumer information sheets that give specific precautions for some products. Ask for them.

Wallboard

Think horizontal rather than vertical. Install the wallboard panels sideways so they are only 4 feet high. If the next flood is less than 4 feet deep, you will only have to replace half the wall. Another approach is to leave the wall open 1 inch above the sill. The baseboard will hide this gap. When you remove the baseboard after the next flood, the wall cavity will drain freely and air will circulate better. Check your local codes, however. If a fire wall is required, the building code may not allow the gap.

"Green board" or other moisture-resistant wallboard is made for bathrooms and other damp areas, such as basements. It may be more sturdy when wet than regular wallboard. But if it is soaked with Flood waters, it presents the same health hazard as regular wallboard and should be replaced. Most building departments must inspect electrical and plumbing lines before the walls are covered with wallboard or paneling.

Floors

Some floors are made with particle board or plywood, materials that fall apart when wet for long. Floor joists and some wood floors will regain their shape if allowed to dry naturally. After re-nailing, a wooden floor may need a little sanding to be smooth, or you can place a new underlayment for a new floor over it. Use screws or screw nails on floors and stairs to minimize warping. Do not lay new flooring or carpet until the subflooring is completely dry.

Painting

Do not paint until the surface is completely dry. If the surface still contains moisture, the paint will peel. Things look dry on the surface long before they are dry on the inside, and this can lead to costly mistakes. It may take several weeks for the surface to dry out enough to paint To get an idea if a wall or floor is dry enough to paint, dry an area approximately 18 inches square with a blow dryer. (When checking a wall, select an area on the lower part of the wall near the floor, where it will be most damp.) Cover the area with a piece of clear plastic sheeting. Carefully seal all the edges with tape. Check the plastic 24 hours later. If there are beads of condensation on the side of the plastic that faced the wall or floor, it is still too damp to paint. You can cover concrete surfaces with a clear coating of penetrating sealer to make cleanup easier next time. Do not paint over water stains C they will bleed through several coats of paint.

Coat the stained area with shellac or a commercial stain killer before painting.

If you are going to dry flood proof your walls, do not rely on waterproofing paints; they cannot keep floodwaters out. Such paints may protect a deck from rain, but they cannot protect walls and floors against the pressure of standing water. Thick plastic or rubberized sheeting provides the most secure waterproofing seal.

Products that Resist Water Damage

These products resist water damage and are safe to use in flood-prone areas.

- Concrete, concrete block or glazed brick
- Clay, concrete or ceramic tile
- Indoor-outdoor carpeting with synthetic backing (Do not fasten down.)
- Vinyl, terrazzo, rubber or vinyl floor covering with waterproof adhesives
- Metal doors and window frames
- Polyester-epoxy paint (Do not use mildew-resistant paint indoors, especially on cribs, playpens or toys, because it contains an ingredient that is toxic.)
- Stone, slate or cast stone (with waterproof mortar)
- Mastic, silicone or polyurethane formed-in-place flooring
- Styrofoam J insulation
- Water-resistant glue

Products to Avoid

Avoid using or storing these products in areas likely to flood.

- Fiberglass or cellulose insulation
- Cork, corkboard
- Gasoline, motor oil, weed killer, pesticide, lye, drain cleaner, swimming pool and other chemicals
- Linoleum
- Particle board, plywood, chipboard, fiberboard, paperboard, strawboard, Masonite J paneling
- Wallboard, Sheetrock J , drywall, gypsum
- Wallpaper

CONTRACTORS

You may need a contractor to help you rebuild, especially to handle the difficult jobs such as foundation repair and electrical work. If you have been satisfied with work done by licensed local contractors, try them first. If they cannot help you, ask them for recommendations.

If you must hire a contractor you do not know, talk to several contractors before you sign anything. A good contractor would agree that you should take the following steps:

- **Check on the firm's reputation.** The local Better Business Bureau, home builders association or building trades council are excellent sources. Ask if the firm has had unanswered complaints filed against it.

- **Ask for proof of insurance.** Be sure that the contractor has disability and workers' compensation insurance. If the contractor is not insured, you may be liable for accidents on your property.

- **Ask for references.** Contractors should be willing to provide names of previous customers. Call some of the customers and ask if they would hire the contractor again.

- **Ask for a written estimate.** Check it to make sure it includes everything you expect the contractor to do. Some contractors charge a fee for an estimate, which is understandable because they have plenty of work to do after a flood.

- **Ask for a contract.** The contract should be complete and clearly state all the work, the costs and the payment schedule. Never sign a blank contract or one with blank spaces. If a lot of money is involved, it may be worth your while to have a lawyer look at the contract before you sign.

- **Ask for any guarantees in writing.** If the contractor provides guarantees, they should be written into the contract, clearly stating what is guaranteed, who is responsible for the guarantee (the dealer, the contractor or the manufacturer) and how long the guarantee is valid.

- **Get a copy of the final signed contract.** Once signed, it is binding on both you and the contractor.

- **Do not sign off before the job is finished.** Do not sign completion papers or make the final payment until the work is completed to your satisfaction. A reputable contractor will not threaten you or pressure you to sign if the job is not finished properly.

Areas recovering from floods are often prime targets for less-than-honest business activities. In Ohio, if you are the victim of fraud or have problems with a less-than-reputable contractor, contact the consumer protection division of the Office of the Attorney General, **at 614-766-3820** Some building departments and trade associations keep lists of contractors who work in the community.

Here are some points to remember:

- Be cautious when contractors you do not know offer "special deals" after a disaster or want to use your house as a "model home."
- Ask for complete financial details in writing and for an explanation of any difference between what you are paying and regular prices. Sales are worthwhile and they do exist, but be sure you are getting the services and products you are paying for.
- Do not sign a contract if a salesperson has pressured you. Federal law requires a three-day cooling-off period for unsolicited door-to-door sales of more than $25. If you want to cancel such a contract within three business days of signing it, send your cancellation by registered mail. Other types of sales may have contracts with different cancellation clauses. Read your contract carefully.
- Beware if you are asked to pay cash on the spot instead of a check made out to the contracting company. A reasonable down payment is up to 30 percent of the total cost of the project.
- Make sure your contractor calls you or a qualified observer to inspect work before it is covered over. Shoddy work on sewers or basement walls will be hidden from view, and you will not know if there is a problem until the next flood.

Even if you have flood proofed your house, you still need insurance

INSURANCE

to protect you from unexpected events, such as a flood that rises higher than your flood protection level. If you have insurance, find out whether you have the right kinds of coverage and whether you have adequate coverage. **Homeowners' policies do not cover damage caused by floods**, so you will need to purchase a separate policy under the National Flood Insurance Program (NFIP).

NATIONAL FLOOD INSURANCE PROGRAM (NFIP)

A NFIP policy covers the following:

- Damage to your building or contents caused by a general condition of surface water flooding (up to the amount of your coverage);
- Costs for moving and storing the contents of your home for up to 45 days (up to the amount of the minimum deductible); and
- Expenses for removing debris left by the flood.

A NFIP policy does not cover the following:

- Damage caused by high groundwater, sewer backup, subsurface flows, wind-driven rain or local drainage problems that are not considered a "general condition of flooding".
- Property located outside an insurable building, including fences, outdoor swimming pools, driveways, docks, Flood walls, crops in the field and landscaping.
- Vehicles, trailers on wheels and boats.
- Paneling, carpeting, furniture and contents in the finished portion of a basement or underneath an elevated building.
- Animals.
- Money, valuable papers and land values and
- Living expenses and lost income.

The NFIP provides federally backed insurance coverage for any building in a community that is participating in the program. Almost every type of walled and roofed building can be insured.

It does not matter whether the building is in or out of the floodplain.

Mobile Home

A mobile (manufactured) home affixed to a permanent site and properly anchored can also be insured. You can get coverage on the building as well as for contents.

Building Coverage

Insurance can be purchased for the building, including walls, floors, insulation, wall-to-wall carpeting, furnace and other items permanently attached to the structure. (Permanent items include anything that would not fall out if you were to turn the building upside down.) Up to 10 percent of the policy value for building coverage may apply to a detached garage or carport on the same lot.

If you buy insurance for 80 percent or more of the replacement value of your house, you will be reimbursed for the replacement value of damage to your house C no depreciation will apply. If your coverage is for less than 80 percent, you will be reimbursed for the actual cash value of the damage C replacement value minus depreciation.

Contents Coverage

Contents coverage insures your personal property. Renters as well as owners may purchase contents coverage. Although you can get contents coverage without having a building coverage policy, those contents must be located in a building that can be insured under the NFIP. Contents coverage will pay some of the costs of moving and storing contents in a safe place when a flood threatens.

Basements

Building coverage is recommended to cover the walls, floor, furnace and other structural components of a basement. However, the NFIP does not cover finished portions of a basement (carpets, wallboard) or its contents. Damage to the basement foundation is a major problem during floods, so this coverage can be very important even though it does not cover the finished portions of basements. Some private companies sell coverage for water damage caused by sewer backup or sump pump failure C items that are not covered by NFIP.

NFIP flood insurance is sold through private insurance agents and companies. All policies offer identical coverage and rates. Newer or substantially improved houses are charged flood insurance rates according to their elevation in relation to the expected flood level.

Older houses, which are "grand fathered" in, qualify for a flat subsidized rate. Houses outside flood plains that are identified on flood insurance rate maps often pay lower rates. You can check your property's location on these maps at your city's or county's building department or ask an insurance agent.

A few private insurance companies sell their own flood insurance policies, although the coverage and rates are different from NFIP's. Some mobile home insurance covers flood losses. Unlike the NFIP, private insurance varies from company to company, so check around to compare coverage and rates.

If you are located in a floodplain shown on a flood insurance rate map, you must buy flood insurance coverage as a condition of having a mortgage or home improvement loan from a federally regulated lender or as a condition for getting federal disaster assistance. In some cases, private insurance will satisfy this requirement, but generally the lender or disaster assistance agency will ask you to get an NFIP policy.

COMMUNITY ACTIVITIES

Your neighborhood or community can take steps to reduce flood losses in the future. Recent flooding may prompt local governments to start a flood planning effort that encourages citizens to participate. If no effort is underway, encourage your community leaders to get a flood protection program started.

There are many ways to reduce flood damage. A community flood protection program should consider a variety of activities. The obvious solution often seems to be "fixing" the shoreline or river through flood control projects such as dredging or sea walls. Unfortunately, these activities may not be effective, feasible or affordable without state or federal aid. Because flood control projects require so much planning, time and money, communities should also consider and implement other approaches. Keeping ditches and drainage ways open is one very important step most communities can take. Trash, construction materials, shopping carts and even grass clippings dumped into a ditch can clog bridges and culverts and add to water pollution.

Neighborhood efforts to keep ditches clean and to report dumpers can make a big difference in the amount of flooding, especially during smaller storms. Report illegal floodplain construction activities (i.e., those without a permit posted) to the building department.

You can work with your neighbors to monitor stream levels or rain gauges to give your community or neighborhood advance warning of a flood. It may also be possible to monitor common debris catching sites, such as bridges, and keep the openings clear.

Sandbagging

Sandbagging can be very expensive. If your community wants to establish a plan for sandbagging, you will have to buy sandbags before a flood to be sure you have them on hand. Get burlap or plastic sandbags. Other kinds of bags simply will not hold up. Burlap or plastic bags cost 25 cents to 50 cents each. Sand and plastic sheeting must also be stockpiled.

Sandbagging can also be very time consuming. It takes two people about an hour to fill and place 100 sandbags, giving you a wall only foot high and 20 feet long. If you skimp on the bags, you risk putting up a wall that will be knocked over. When a flood is coming, everyone wants to sandbag, usually because they do not know what else to do. While it does have a therapeutic effect, sandbagging should be considered only as part of an overall flood response plan, or as a last resort for individuals.

A good plan will help use your limited time and resources most efficiently. For example, a flood response plan might call for sandbags to fill in gaps in a flood wall. Sandbagging is supposed to keep water away from vulnerable flood- prone property. Taking Flood proofing measures and moving contents out of the way are much more secure methods to accomplish the same thing. Therefore, before you consider sandbagging for your personal property, consider the flood protection alternatives discussed above. They are more effective and more dependable ways to protect a house from flooding.

FAMILY PROTECTION PROGRAM

What people do before a flood (or other natural disaster) can be as important as what they do after the Flood waters subside. The Federal Emergency Management Agency acknowledged this fact when it created the Family Protection Program. The program encourages individuals and families to take action to increase their ability to cope with, or even survive, a disaster before it occurs. The program focuses on motivating people to develop a family disaster plan.

There are four basic steps in formulating a family disaster plan:

- Acquire local hazards information from your local emergency management office, American Red Cross chapter and the National Weather Service.

- Hold a family meeting to discuss the need to prepare for disasters, the potential hazards that might occur and how to prepare. Teamwork is important; be sure to share responsibilities. Your plan should designate two meeting places. In case of an emergency there should be one outside the home in case of a sudden emergency. There should also be one outside the neighborhood in case the family cannot return home. In addition, plan for a place to go if the family should need to evacuate the home, and an out-of-area "check-in contact" (either a friend or family member; be sure all members of your family memorize this phone number or carry it with them).

- Put your plan into action. Make sure family members learn basic safety measures, such as cardiopulmonary resuscitation and first aid, and how and when to turn off utilities. Keep

enough supplies in your home to meet your needs for at least three days. Assemble a disaster supplies kit with items you may need in case of an evacuation. Keep a smaller disaster supplies kit in the trunk of your car. Keep important family documents in a waterproof container. Post emergency telephone numbers by phones. Teach children how and when to call 911 or the local emergency medical services number. Inspect your home for potential hazards and correct them.

- Maintain and practice your family's disaster plan. Regularly exchange items in the disaster supplies kits that require rotation (batteries, food, water, etc.). Refresh you first-aid skills. Conduct drills. Quiz family members on the designated out-of-area check-in contact and on appropriate actions for each potential hazard.

The Ohio Department of Health, Bureau of Environmental Health offers a number of publications that can assist people in developing a family disaster plan. For more information, contact the **Ohio Department of Health Bureau of Environmental Health at 614-466-5599.**

The Federal Emergency Management Agency (FEMA) monitors developing or actual disasters. Before, during and after a disaster, FEMA's regional director in the affected area maintains close contact with the state's governor and those agencies responsible for disaster assistance activities as well as with federal agencies involved with disaster assistance.

After the president declares an event or occurrence a federal disaster, FEMA appoints a federal coordinating officer and sets up a disaster field office. The activities of federal, state and voluntary agencies are coordinated through FEMA.

Assistance for Senior Citizens

Older persons are particularly vulnerable during and after a disaster for a number of reasons. Physical or mental impairments can make responding to emergency situations or seeking assistance difficult. Many see assistance programs as "welfare" and are reluctant to take advantage of the help. And, often those who do seek help are overwhelmed by the bureaucratic systems they encounter and are unable to complete the necessary processes and procedures.

Federal organizations, state agencies and area agencies on aging have a variety of programs that can help older persons cope with a disaster and its aftermath. While these programs and services are accessible through the disaster service centers set up by the Federal Emergency Management Agency in the wake of a presidentially declared disaster, area agencies on aging often try to set up special outreach centers at senior centers and nutrition sites that are more convenient for older persons.

If you are interested in available services for the elderly, **the Ohio Department of Aging at 614-466-6191.** You also may want to contact the nearest area agency on aging:

RESOURCE LIST
VOLUME 5

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Resource Listing

FEDERAL AGENCIES

Agriculture

U.S. Department of Agriculture
14th and Independence Avenues
Washington, DC 20250
202-720-2791 (general information)

Economic Services

U.S.Small Business Administration
409 Third St., S.W.
Washington, DC 20416
202-205-6740 (general information)

Education

U.S. Department of Education
Impact Aid Program
400 Maryland Ave., S.W.
Washington, DC 20202-6244
202-260-3907
202-205-0088 (fax)

Regional Office
SBA -- Region V
300 S. Riverside Plaza;
Suite 1975
Chicago, IL 60606
312-353-5000
312-353-3426 (fax)

Emergency Management

Federal Crop Insurance Corporation

U.S. Department of Agriculture
Washington, DC 20037
202-254-8399
Fax 202-254-8372

Federal Emergency Management Agency
FEMA National, SI-DA
500 C St., S.W.; Room 705
Washington, DC 20472
800-462-9029 (teleregister)
800-462-7585 (TDD teleregister)

Regional Office
FCIC; Region IV
2305 W. Monroe St.

Regional Office
FCIC; Region IV
2305 W. Monroe St.
Suite 3
Springfield, IL 62704
217-492-4186
Fax 217-492-4075

Regional Public Assistance Office
FEMA--Region V
175 W. Jackson Blvd.; Fourth Floor
Chicago, IL 60604-2698
312-408-5500 312-408-5521 (fax)

Soil Conservation Service
U.S. Department of Agriculture

Meat and Poultry Hotline

P.O. Box 2890, Washington, DC 20013
202-720-3210
Fax 202-690-1221

800-535-4555 (Information on food usage in the event of a power failure or practical advice for safely storing and using meat and poultry.)

U.S. Department of Labor
200 Constitution Ave., N.W.
Washington, DC 20210
202-219-7316 (general information)

Employment Services

Employment and Training Administration
200 Constitution Ave., N.W.; Room N5626
Washington, DC 20210
202-273-0662
202-273-0760 (fax)
Regional Office
U.S. Department of Labor--Region V
230 Dearborn St.; Room 628
Chicago, IL 60604
312-353-0313
312-353-1509

Environment/Natural Resources
U.S. Environmental Protection Agency (USEPA)
401 M St., S.W.
Washington, DC 20460

Emergency Response/Superfund Hotline	800-424-9346
Oil and Hazardous Substances Hotline	800-424-8802
Public Information Center	202-260-2080
Public Liaison Office	202-260-4454
Public Response/Pesticide Safety	703-305-5805

Regional Office
USEPA--Region V
77 W. Jackson Blvd.
Chicago, IL 60604-3507
312-886-3000 Fax 312-353-1120

State Emergency Response Hotline (24 hours)
800-572-2515

General Information

Federal Information Center 800-735-8004
800-326-2996 (TDD)

Health/Mental Health

U.S. Department of Health and Human Services (USDHHS)
200 Independence Ave., S.W.
Washington, DC 20201
202-619-0257 (general information)

Regional Office
USDHHS--Region V
105 W. Adams
Chicago, IL 60603
312-353-5160
312-353-4144 (fax)
Centers for Disease Control and Prevention (CDC)

Office of the Director
CDC OD
MS: D14
1600 Clifton Road, N.E.
Atlanta, GA 30333
404-639-3291
404-639-0069 (fax)

Office of Health and Safety
CDC OHS
Mailstop: F05
1600 Clifton Road, N.E.
Atlanta, GA 30333
404-639-2453
404-639-2294

Agency for Toxic Substances and Disease Registry (ATSDR)
Office of the Assistant Administrator
ATSDR OAA
Mailstop: E28

Executive Office Park
Executive Park Drive
Atlanta, GA 30329
404-639-0700
404-639-0659 (fax)

Office of Information Resources Management
ATSDR OIRM
Mailstop: E28
Executive Office Park
Executive Park Drive
Atlanta, GA 30329
404-369-0720
404-369-0659

National Center for Environmental Health and Injury Control
Office of the Director
Chamblee Facility
4770 Buford Highway
Chamblee, GA 30341
404-488-4111
404-488-4581 (fax)

Emergency Response Coordination Group
NCEHIC ERCG
MS: E32
Executive Office Park
Executive Park Drive
Atlanta, GA 30329
404-639-0615
404-639-0655

National Institute for Occupational Safety and Health (NIOSH)
4676 Columbia Parkway
Cincinnati, OH 45226-1998
513-533-8287
513-533-8573 (fax)

Office of the Director
NIOSH OD
MS: D36
1600 Clifton Road, N.E.
Atlanta, GA 30333
404-639-3771
404-639-2196 (fax)

Workplace Hazards Information Hotline
800-35-NIOSH (800-356-4674)

National Institutes of Health (NIH)
National Institute of Mental Health
Emergency Services and Disaster Relief Branch
5600 Fishers Lane; Room 18105
Rockville, MD 20857
301-443-4735
301-443-6000 (fax)

Public Health Service
Federal Office of Rural Health Policy
Parklawn Building; Room 9-05
5600 Fishers Lane
Rockville, MD 20857
301-443-0835
301-443-2803 (fax)

Rural Information Center Health Services
(RICHS) Hotline, . 800-633-7701

Office of Emergency Preparedness
Parklawn Building; Room 4-81
5600 Fishers Lane

Rockville, MD 20857
301-443-1167
301-443-5146 (fax)

Regional Office
Public Health Service
105 W. Adams St.; 17th Floor
Chicago, IL 60603
312-353-1385, Fax 312-353-0718

U.S. Department of Labor
200 Constitution Ave., NW
Washington, DC 20210
202-219-7316 (general information)

OSHA - Office of Information and Consumer Affairs
200 Constitution Ave., NW; Room N3647
Washington, DC 20010
202-219-8151, Fax 202-219-5986

Transportation

U.S. Department of Transportation (USDOT)
400 Seventh St., S.W.
Washington, DC 20590
202-366-4000 (general information)

Research and Special Programs
Office of Emergency Transportation
400 Seventh St., S.W.
Washington, DC 20590
202-366-5270
202-366-3768 (fax)

Office of the President of the United States

President of the United States
The White House
Washington, DC 20500
202-456-1414
202-456-2461 (fax)

Waterways Management
U.S. Army Corps of Engineers
20 Massachusetts Ave.; Room 4115
Washington, DC 20314-1000
202-272-0011
202-272-1803 (fax)

Regional Office - North Central Division
111 N. Canal St.; Room 600
Chicago, IL 60606-7206
312-353-6412 Fax 312-886-9454

STATE AGENCIES

Adjutant General
2825 West Granville Road
Columbus, Ohio 43235-2712
General Information 614- 889-7200
Fax 614-766-3820

Department of Administrative services
40th Floor 30 East Broad Street
Columbus, Ohio 43266-0401
General Information 614-466-6512
Fax 614-644-8151

Ohio Department of Aging
8th Floor 50 West Broad Street
Columbus, Ohio 43215-5928
General Information 614-466-5500
T.D.D - Voice 614-466-6191
Fax 614-466-5741

Ohio Department of Agriculture
6th Floor 65 South Front Street
Columbus Ohio 43215
General Information 614-466-2732
Fax 614-466-6124

Ohio Proud Hotline 1-800-282-7605
Public Information 614-752-4505

Agriculture Consumer Number 1-800-282-1955
Foods, Dairies, and Drugs 614-728-6342
Grade A Milk Program 614-466-5550
Meat Inspection 614-728-6357
Pesticide Regulation 614-728-6383

Attorney General
17th Floor 30 East Broad Street
Columbus Ohio 43266-0721
General Information 614-466-4320

Environment Enforcement 614-466-2766
Health and Human Services 614-466-8600
Labor Relations 614-644-8462
Public utilities 614-466-4395

Ohio Department of Commerce
77 S. High Street
Columbus, Ohio 43266-0544
General Information 614-466-3636

State Fire Marshal 614-752-8200

Ohio Consumer Counsel Office,
15th Floor 77 South High street
Columbus Ohio 43266-0550
Utility Consumer Complaints
614-466-96056
1-800-282-9448
TTY- T.D. 1-800-282-9448

Ohio Department of Development
24th- 29th Floors
77 South High Street
Columbus Ohio 43266-0413

Governor=s Office of Appalachia 614-644-9228
Economic Development Business 614-466-4551
Industrial 614-466-4155
Financial Incentives 614-466-5420

Minority Development 614-644-7708
Small Business 614-466-2771
Office of Community Services 614-466-6014
Home Energy Assistance Program 614-466-6797
Office of Housing and Community Partnership 614-466-2285
Ohio Housing Finance Agency 614-466-3757

Ohio Department Education
65 South Front Street
Columbus Ohio 43215-4183
General Information 614-466-3641
Fax 614-752-3952

Ohio Bureau of Employment Services
145 South Front Street
Columbus, Ohio 43215
General Information 614-466-4636
Fax 614-466-5025

Ohio Environmental Protection Agency
1800 Watermark Drive
P.O.Box 1049
Columbus, Ohio 43216-1049
General Information 614-644-3020
Fax 614-644-2329

Safety and Health 614-644-2782
Agriculture Specialist 614-644-2782
Air Pollution Control 614-644-2270
Fax 614-644-3681
Drinking and Ground Water
General Information 614-644-2752
Fax 614-644-2909
Ground Water 614-6442752
Drinking Water 614-644-2752
Division of Surface Water
Water Quality 614-644-2856
Surface Water Pollution 614-644-2001
Solid Infectious and Waste Water 614-6442752
Hazardous Waste 614-644-2752
Emergency and Remedial Response 614-644-3042

Emergency Spill Number
1-800-282-9378
614-224-0946
Right to Know 614-644-2260

Governor=s Office
30th Floor
77 South High Street
Columbus, Ohio 43215

Governor 614-466-3555
Governor=s HOTLINE for Citizen Concerns 614-644-HELP
Lieutenant Governor 614-466-3396

Ohio Department of Health
246 North High Street
Columbus, Ohio 43266-0588
General Information 614-466-3543

Bureau of Environmental Health
and Toxicology 614-466-5599
Fax 614-644-7740

Ohio Department of Industrial Relations
2323 West Fifth Avenue
P.O.Box 825
Columbus, Ohio 43216
General Information 614-644-2223
Fax 614 644-2618

Occupational Health And Safety
614-644-2631
1-800-282-1425

Ohio Department of Insurance
2100 Stella Court
Columbus, Ohio 43215-1067
General Information 614-644-2658
Fax 614-644-3743

Office of Consumer Services 614-644-3378
Office of Life and health services 614-644-2644
Office of Property and casualty Services 614-644-3884

Ohio Department of Mental Health
11th Floor, 30 East Broad Street
Columbus, Ohio 43266-0414
General Information 614-466-2596

Community Information Systems 614-466-1556
Consumer Services 614-466-0236

Ohio Department of Natural Resources
Fountain Square, Morse Road
Columbus, Ohio 43224-1387
General Information 614-265-6605
T.D. (for hearing Impaired) 614-265-6994
Design and Construction Engineering 614-265-6948
Costal Engineering 614-265-6957
Division of Forestry 614-265-6694
Geological Survey 614-265-6606
Oil and Gas Division 614-265-6922
Public Information 614-265-6787
Division of Soil and Water Conservation 614-265-6610
Division of Water 614-265-6717
Division of Watercraft 614-265-6480
Division of Wildlife 614-265-6300

Ohio Department of Public Safety
240 Parsons Avenue
P.O.Box 7167
Columbus, Ohio 43205-0167
General Information 614-466-2550

Division of Emergency Medical Services
614-466-9447
1-800-223-0785
Division of Emergency Management Agency
24 Hour Emergency Number
614-889-7150

Fax 614-889-7183
Disaster Recovery Branch 614-889-7176
State Highway Patrol 614-466-2660

Public Utilities Commission of Ohio
1-800-686-PUCO
TTY-T.D.D 1-800-686-1570
General Information 614-466-3016

Ohio Department of Transportation
25 South Front Street
Columbus, Ohio 43215
General Information 614-4667170

Ohio Water Development Authority
General Information 614-466-5822

Nongovernmental Organizations

Agriculture

Farm Resource Center

Center for Agricultural Health
Department of Preventive Medicine and Environmental Health
The OSU

National Farm Medicine Center
Marshfield Medical Research Foundation

1000 N. Oak St.
Marshfield, WI 54449-5790
715-387-9298 Fax 715-389-4950

Disaster and Recovery Services
American Jewish Joint Distribution Committee
Open Mailbox, 711 Third Ave.; 10th Floor
New York, NY 10017
212-687-6200 Fax 212-370-5467

American Red Cross
Disaster Services
National Headquarters
615 N. St. Asaph St.
Alexandria, VA 22314
703-838-7600 Fax 703-838-8322

Midwestern Headquarters St. Louis Bi-state Chapter
4050 Lindell Blvd.
St. Louis, MO 63108-3202
314-872-0204 Fax 314-997-8915 (fax)

AmeriCares
161 Cherry St.
New Canaan, CT 06840
800-486-HELP
203-972-0116 (fax)

Catholic Relief Services
P.O. Box 17090
Baltimore, MD 21298-9664
800-736-4673

Catholic Charities USA
1731 King St.; Suite 200
Alexandria, VA 22314
703-549-1390 Fax 703-549-1656

State Contacts Associate Division Manager
Catholic Charities
126 N. Des Plaines St.
Chicago, IL 60606

312-236-5172 Fax 312-236-4290

Director
Catholic Charities
800 S. Fifth St.
Springfield, IL 62703
217-523-9201 Fax 217-523-9160

Diocesan Director
921 W. State St.
Rockford, IL 61102
815-965-0895 Fax 815-965-6141

Macomb Catholic Social Services
218 S. Mechanic
Macomb, IL 61455
309-833-1791 Fax 309-836-1462
Coordinator
Catholic Urban Programs
771 Vogel Place
East St. Louis, IL 62205
618-398-5616 Fax 618-874-0221

Executive Director
Catholic Charities
411 Scott St.
Joliet, IL 60432 815-723-3405 Fax 815-723-3452

Church of the Brethren
Disaster Response Program
P.O. Box 188
New Windsor, MD 21776
410-635-8731 Fax 410-635-8739

Church World Service
475 Riverside Drive; Room 626
New York, NY 10115-0050
212-870-3151 Fax 212-870-2055
National Hotline 800-456-1310

Disaster Relief Fund of B'nai B'rith
1640 Rhode Island Ave., NW

Washington, DC 20036
202-857-6582 Fax 202-857-1099

Episcopal Church
815 Second Ave.
New York, NY 10017
212-867-8400 Fax 212-983-6377

Friends Disaster Service
241 Keenan Road
Peninsula, OH 44264
216-650-4975

Gifts-in-Kind America
700 N. Fairfax St.; Suite 300
Alexandria, VA 22314
703-836-2121 Fax 703-549-1481

Inter-Lutheran Disaster Response
4865 Hamilton Blvd.
Wescosville, PA 18106
215-395-6891 Fax 215-398-7083

Interfaith Disaster Response Network
3009 David Drive
P.O. Box 733
Columbia, MO 65205 314-474-7155 Fax 314-474-6898
Mennonite Disaster Service
Mennonite Central Committee
21 S. 12th St.
P.O. Box 500
Akron, PA 17501
717-859-3889 Fax 717-859-3875

Presbyterian Church USA
100 Witherspoon St.
Louisville, KY 40202
502-569-5806 Fax 502-569-5018

Salvation Army
Disaster Services
National Headquarters
615 Slaters Lane

Alexandria, VA 22313
703-684-5526 Fax 703-684-5536

Seventh Day Adventists
General Conference Headquarters
Disaster Services
12501 Old Columbia Pike
Silver Spring, MD 20904
301-680-6380 Fax 301-680-6370

Southern Baptist Disaster Relief
1548 Popular Ave.
Memphis, TN 38104
901-272-2461 Fax 901-726-5540

United Methodist Committee on Relief
475 Riverside Drive; Room 1374
New York, NY 10115
212-870-3809 Fax 212-870-3624
National Hotline 800-841-1235

Health/Mental Health

National Farm Medicine Center
Marshfield Medical Research Foundation
100 N. Oak
Marshfield, WI 54449-5790
715-387-9298 Fax 715-389-4950

National Rural Health Association
1 W. Armour Blvd.; Suite 301
Kansas City, MO 64111
816-756-3140 Fax 816-756-3144

YOUR SERVICE RESOURCES AT OHIO DEPARTMENT OF HEALTH

PROGRAM	SERVICES	TELEPHONE
Ohio Department of Health	GENERAL INFORMATION	614-466-3543
Office of Public Affairs	Information	614-644-8562
Bureau of Health Surveillance and Health Information	Monitors Health and Evaluate trends of infectious, chronic and environmental disease and injuries through Surveillance and analyses	614-644-1842
Bureau of Infectious Disease	Prevention of infectious disease	614-466-4643

Control	by early detection and immunization	
Bureau of Environmental Health	Protect health by health risk assessment from chemicals and Environmental exposures; provides disaster planning and emergency response; develops methods to prevent and reduce health risks	614-466-5599
	Ground water	614-466-5599
	Fish	614-466-5599
	Toxic substances	614-466-5599
	Haxzardous materials	614-466-5599

PROGRAM	**SERVICES**	**TELEPHONE**
Bureau of Laboratories Laboratories	Provides laboratory analyses to identify disease, environmental hazards and other risks	614-466-2278
Bureau of Radiation Protection	Provides protection to public and environment by reducing radiation exposure. Radioactive materials, Radioactive waste, Radon and Nuclear power plants	614-644-2727
DIVISION OF QUALITY ASSURANCE		614-466-7857
Bureau of Quality Assessment and Improvement	Health care, Health services, Beds and Equipment	614-466-3325
	Asbestos, Lead and Radon	614-466-3325
Bureau of Local Services	Establishes standards for performing Quality assurance	614-466-0666

	evaluation, Provides technical assistance, consultation and training	
	Food and Drinking water	614-466-1390
	Waste disposal	614-466-1390
	Sanitation	614-466-1390
	Mobile Homes	614-466-1390
	Environmental Engineering	614-466-1390
Bureau of Health Care Standards		614-466-2070
Bureau of Regulatory Compliance		614-644-6220
	Health problems among at-risk women and infants and children	
Bureau of Child and Family Health Care Services	Improve health through promotion of accessible health care services	614-466-5332

***WHOM TO CALL IF I HAVE ANY QUESTIONS OR CONCERNS A ?**

CALL YOUR LOCAL HEALTH DEPARTMENT AND IF YOU NEED MORE INFORMATION CALL

1. **DRINKING WATER**

OHIO ENVIRONMENTAL PROTECTION AGENCY
614-644-2752
OHIO DEPARTMENT OF HEALTH
BUREAU OF LOCAL SERVICES
614-466-1390

2. **GROUND WATER**

OHIO ENVIRONMENTAL PROTECTION AGENCY
614-644-2752

OHIO DEPARTMENT OF HEALTH
BUREAU OF LOCAL SERVICES
614-466-1390
BUREAU OF ENVIRONMENTAL HEALTH

		AND TOXICOLOGY **614-466-5599**
3.	**WATER CONTAMINATION** (MUNICIPAL)	OHIO ENVIRONMENTAL PROTECTION AGENCY **614-644-2752**
4.	**FOOD**	
	A. FOOD SERVICE OPERATIONS	OHIO DEPARTMENT OF HEALTH BUREAU OF LOCAL SERVICES **614-466-1390**
	B. **FRESH PRODUCE**	OHIO DEPARTMENT OF AGRICULTURE **614-728-6200 OR 1-800-282-1955**
	C. **CANNED FOOD**	OHIO DEPARTMENT OF AGRICULTURE **614-728-6200 OR 1-800-282-1955** OHIO DEPARTMENT OF HEALTH BUREAU OF LOCAL SERVICES **614-466-1390**
	D. **FROZEN FOOD**	OHIO DEPARTMENT OF AGRICULTURE **614-728-6200 OR 1-800-282-1955** OHIO DEPARTMENT OF HEALTH BUREAU OF LOCAL SERVICES **614-466-1390**
	E. **MEAT and POULTRY**	OHIO DEPARTMENT OF AGRICULTURE **614-728-6200 OR 1-800-282-1955**
	F. **MILK**	OHIO DEPARTMENT OF AGRICULTURE **614-728-6200 OR 1-800-282-1955**
	G. **FISH**	OHIO DEPARTMENT OF HEALTH BUREAU OF ENVIRONMENTAL HEALTH AND TOXICOLOGY **614-466-5599**

		OHIO DEPARTMENT OFAGRICULTURE **614-728-6200 OR 1-800-282-1955**
	H. **RETAIL FOOD ESTABLISHMENTS**	OHIO DEPARTMENT OF AGRICULTURE **614-728-6200 OR 1-800-282-1955**
5.	**(A) DISEASE / INJURY**	OHIO DEPARTMENT OF HEALTH **614-466-5599**
	(B) IMMUNIZATION	**1-800-411-4142** **614-466-0265**
	(C) VECTOR CONTROL	OHIO DEPARTMENT OF HEALTH **614-466-0000**
7.	**CLEAN-UP PROCEDURES**	OHIO DEPARTMENT OF HEALTH **614-466-5599** **614-644-8659**
8.	**DISPOSAL OF WASTE**	OHIO ENVRONMENTAL PROTECTION AGENCY **614-644-2924** OHIO DEPARTMENT OF HEALTH **614-466-5599**
9.	**DEAD ANIMALS**	OHIO DEPARTMENT OF HEALTH **614-466-5599** HUMANE SOCIETY 614-000-0000
10.	**HOME INSURANCE RECOVERY OF PROPERTY**	OHIO DEPARTMENT OF INSURANCE **614-644-2658** OHIO DEPARTMENT OF HEALTH **614-466-5599**