

WEST VIRGINIA BUREAU FOR PUBLIC HEALTH
PUBLIC HEALTH SANITATION DIVISION

DISASTER GUIDELINES FOR SANITARIANS

In times of natural disasters, such as floods, hurricanes, tornados, fires, extended periods of cold and snow, the routine daily living is dramatically changed. People may be evacuated from their homes and taken to a temporary housing or shelter area; water and sewer systems may be disrupted or inoperable; gas, electric and phone service may be severely affected; food supplies may be cut off, and there may be widespread destruction of property.

During such catastrophic conditions the sanitarians will be called upon to provide public health sanitation advice, information and assistance to federal, state and local government agencies, as well as the general public.

In general, while the disaster is occurring there will be very few services the sanitarian can provide. The bulk of the sanitarian's workload will be after the disaster has lessened or ended. These guidelines are intended to assist you in your disaster sanitation duties and responsibilities.

The sanitarian must be attuned to the public health sanitation needs of his area and be constantly aware of any natural disaster that may manifest itself within the community. The sanitarian should be prepared to go "on duty" in these situations whether it be regular office hours, or nights or weekends as the circumstances dictate. The sanitarian should be in contact with 911 or the county Emergency Operations Center (EOC).

When you become aware of a disaster, the first order of business is to:

1. Properly identify the type disaster occurring:
 - a. Severity (numbers of people affected)
 - b. Location and area covered
2. After obtaining this information, immediately notify the Director of Public Health Sanitation, the Assistant Director or the District Sanitarian in your area. You should have the home phone numbers of these individuals so that you can contact them when the occasion demands. This notification shall be updated daily. If the Governor opens the Emergency Operations Center and the Health desk is activated, you will be requested to coordinate through the Division staff manning the desk.
3. After the initial assessment is made, a more detailed assessment will be needed. This will include, but not be limited to:
 - a. Damage to public water systems and sewage disposal systems.
 - b. Individual water supplies and sewage disposal systems affected.
 - c. Food outlets affected.
 - d. Damage to schools and other public buildings.

- e. Insect and rodent control problems.
- f. Solid waste problems involving cleanup of affected area.

(For the most part, items a. and d. will be supervised by the engineering staff of the State Department of Health. Item f. will usually be supervised by the Division of Environmental Protection.)

Once the disaster has reached the stage where the sanitarian can get into the area to begin work, a base of operation should be set up in the disaster area. (You may be assigned space in the operational headquarters set up by the state or county Office of Emergency Services. The services of the sanitarian must be coordinated with those in the Office of Emergency Services.) Either a local sanitarian or a State sanitarian will coordinate and supervise the public health sanitation activities in the disaster area.

If the disaster is of great magnitude, additional sanitarians from the State and other local health departments may be available to assist with the disaster work. The local sanitarian may request any additional assistance he/she needs. It is recommended that sanitarians working in the disaster area should be supplied with means of maintaining communication.

The sanitarian will provide the general public with public health sanitation information through the varied news media and informational handouts.

In times of disaster it may be necessary to provide temporary housing or shelter for persons who have been evacuated from their homes. In most cases the only involvement the sanitarians will have with the temporary housing or shelter should be the daily inspection of the facilities to see that they meet at least the minimum standards necessary to protect the public health.

Since the disaster will cause many people to be housed in one area, it is extremely important that every precaution be used to prevent a disease outbreak occurring within the temporary housing or shelter area. These guidelines are applicable for temporary housing or shelter facilities involving small numbers of people, one hundred or less, for a period of time not exceeding one week. If more people will be affected and for a greater length of time, contact the Director of the Public Health Sanitation Division for advice and assistance.

During the inspection of the temporary housing area and its facilities, the usual items of floors, walls and ceiling construction, repair and cleanliness must be taken into consideration. Along with these items, particular attention must be given to the following:

1. Lodging
 - a. Space allocation - 50 square feet per person or 500 cubic feet of air space per person. (Should allow 100 square feet of space for each occupant of the infirmary.)
 - b. Beds arranged so that sleepers' heads are six feet apart.
 - c. Ventilation - 5 cubic feet per minute per person of inlet and outlet air.
 - d. Tents - wooden platform (platform at least six inches off the ground).

- e. Heating - facilities for maintaining temperature at 65°F (thirty inches off floor) when outside temperature is 0°F.
 - 1) Fossil fuel type heating devices must be properly vented.
 - 2) Open faced heaters are prohibited.
 - f. Lighting - minimum of ten foot candles at thirty inches above floor surfaces
2. Water Supply (should provide a minimum of two gallons of water per person per day):
- a. Water from approved public supply, if available (if not, refer to items b. through e.)
 - b. Mobile filtration and chlorination units:
 - 1) Chlorine residual must be at least 1.0 mg/l.
 - 2) Must be operated by qualified personnel.
 - 3) Hourly check on chlorine residual.
 - 4) Daily samples for bacteriological analysis.
 - c. Packaged water must be obtained from health department approved sources and must be stored and dispensed under supervision of authorized personnel.
 - d. Portable water storage units can be used:
 - 1) Must be supervised by health department approved personnel.
 - 2) Storage unit must show a minimum of 1.0 mg/l of chlorine at all times. Twice daily chlorine residual checks. (If chlorine residual is less than 1.0 mg/l then the water is not to be used until it meets the 1.0 mg/l residual.)
 - 3) Unit designed so water can only be withdrawn from taps or faucets.
 - 4) Manhole covers of units to be kept locked.
 - 5) A sample for bacteriological analysis to be collected after each filling of potable storage unit. Sanitarian must assure that chlorine tests are being done.
 - e. Water Tank Truck:
 - 1) Only those vehicles approved by the health department shall be permitted to transport water to the disaster area.
 - 2) Filler hoses:
 - a) Must be of approved material and in good repair.
 - b) Sanitary caps or covers over ends of hoses when hoses are not in use.
 - c) Hoses disinfected with chlorine solution before use.
 - 3) Tank truck water obtained only from health department approved sources.
 - 4) Continuous chlorine residual of at least 1.0 mg/l in the tank truck water is required. Sanitarian must assure that chlorine tests are being done.
3. Sewage and Excreta Disposal
- If approved flush toilets and sanitary sewage disposal facilities are inoperable, unavailable or of insufficient quantity at the temporary housing or shelter area, it becomes necessary to provide other methods of approved excreta and sewage disposal. The shelter manager is to be held responsible for seeing that the prescribed toilet fixtures and facilities are provided and maintained in a sanitary condition.

- a. Portable toilets are to be furnished at the ratio of one toilet per seventy-five shelter occupants.
- b. Portable toilets are to be serviced daily.
- c. Hand washing facilities are to be provided in close proximity to the toilets. If running water is not available, individual packets of hand cleanser must be provided by the shelter manager.
- d. In the event that an approved sanitary sewer system is not available, waste water from hand washing, bathing and the food service operations may be disposed of in properly constructed soakage pits or soakage trenches. These are to be used only in cases of emergency and only for a maximum of one week (See Appendix A).

4. Bathing and Laundry Facilities

If bathing facilities or laundry facilities are unavailable at the shelter and the length of stay will involve more than three or four days, it may be necessary to provide these services:

- a. Laundry facilities may be of the primitive type - using metal garbage cans or similar containers set over a heating device. (Heating large quantities of water entails using care to prevent injury to the users or bystanders.)
- b. Bathing in emergency situations should be restricted to sponge baths unless a sufficient and safe water supply and sanitary sewage disposal systems are available.
- c. Soakage pits or soakage trenches can be utilized for disposal of laundry and sponge bath water (See Appendix A).

5. Food Service

The feeding of large groups of people under emergency conditions may pose many serious problems. Sanitary food service techniques and practices rather than facilities must be stressed. The important fundamentals to be emphasized are sanitation, refrigeration, personal hygiene, processing and cooking, and insect and rodent control.

- a. In the event that the shelter is not equipped with complete and approved food service facilities, the food service facilities and operation must meet the Bureau for Public Health Rules for Temporary Food Service Facilities.
- b. Food service facilities are to be inspected at least one time per day, with immediate correction of the violations required.

6. Solid Waste Handling

If the shelter area cannot be serviced daily by an approved solid waste collection firm or agency, then it will be necessary to provide emergency measures to prevent nuisances and insect and rodent control problems. In shelters having fewer than 100 people for three days or less, solid wastes may be placed in plastic garbage bags or metal or plastic garbage cans with tight covers, and stored in such manner as to prevent flies, rodents, or wild or domestic animals from having access to the solid waste containers. (A metal building, a room in the shelter area, or a wire screen enclosure may serve this purpose.)

7. Insect and Rodent Control

Unless proper precautions are taken, insects and rodents may infest the temporary housing or shelter areas. Rats and mice, flies, roaches, bedbugs and mosquitoes are all capable of transmitting diseases to humans, and therefore must be eliminated.

- a. Physical barriers, such as tight-fitting doors, door and window screens in good repair, and keeping the area free of litter and debris will assist in eliminating or controlling these vectors.
- b. Pesticides may be used in conjunction with the sanitation program to eliminate or control insects and rodents. Only the anti-coagulant type rodenticides can be used for rodent control and 0.9% pyrethrin or 2% Malithion dust or spray can be used for insect control. Other types of pesticides require the approval of the Director of the Public Health Sanitation Division.
- c. Only qualified personnel are to conduct the insect and rodent control program.
- d. Only those persons applying the insecticide are to be in the building during the space spraying of the insecticide.
- e. Anti-coagulant type rodenticides are to be placed and located in such a manner that they are not accessible to shelter occupants.
- f. All necessary precautions must be taken to prevent contamination of water, food or food contact surfaces with the insecticides or rodenticides.
- g. When not in actual use, pesticides are to be kept in a locked cabinet that is under the direct control of the shelter manager.

After the disaster has reached its peak and conditions have become more stable, people will be anxious to return to their homes to begin the task of cleaning up their property; food outlets will want to get back into operation, and schools and other public buildings will need to be cleaned and readied for business. The cleanup operations will create large amounts of debris and other solid waste that must be disposed of in a sanitary manner. Individual water supplies and sewage disposal systems will need to be placed back into operation and insect and rodent problems will be intensified.

These additional Guidelines will afford the sanitarian background information to assist with this portion of his/her public health sanitation program in times of natural disasters.

1. Individual Water Supplies

- a. Refer to Public Health Sanitation Division bulletins SG-80 and SG-81.
- b. If water samples are collected from an unapproved or improperly constructed supply, the Owner/Occupant should be advised that the test result is only valid at the time of collection and could change due to the source being inadequately protected.
- c. Individual water supplies, as in the case of flooding, may need extensive work before they can be used. It may be necessary to provide emergency water rations for the people even after they have returned to their homes. If so, the guidelines listed under item 2. of the Temporary Housing or Shelter section would be applicable.

2. Public Water Supplies

- a. The Environmental Engineering Division will be responsible for this part of the disaster sanitation program.
- b. Sanitarians' services will only be rendered when requested by the Director of the Public Health Sanitation Division.

3. Individual Sewage and Excreta Disposal Systems

- a. Privies and septic tank disposal systems may be severely damaged and require the installation of completely new systems. If so, the Sewer Systems, Sewage Treatment Systems, and Sewage Tank Cleaners Rules will be applicable.
- b. Privies and septic tank disposal systems not severely damaged, as in the case of a flood, may only need to have the privy pits or vaults or the septic tank cleaned and pumped out. If so, the cleaning and pumping of the facilities must be in compliance with the Sewage Rules. (As in the case of flooding, the ground may be saturated with water for some time, and septic tank disposal systems may not be operable. This may necessitate or require that portable toilets be moved into the area to serve the needs of the people. The same guidelines would apply here as listed in item 3. of the Sewage and Excreta Disposal Section dealing with temporary housing of shelters.

4. Public Sewage Disposal Systems

- a. The Environmental Engineering Division will be responsible for this portion of the disaster sanitation program.
- b. Sanitarians' services will only be rendered when requested by the Director of the Public Health Sanitation Division.

5. Food Sanitation

- a. Refer to Public Health Sanitation bulletin SG-82 for private food supplies affected by disasters.
- b. Refer to Public Health Sanitation bulletin SG-83 for commercial food service processors, distributors and retail outlets.
- c. In addition to the information contained in SG-83, the sanitarians are to inspect all food service establishments, food processing establishments, distribution facilities, and retail outlets and grant written approval prior to any food or food products being offered to the public by such firms.
- d. Condemned and contaminated food and food products are not to be sold, offered for sale, or given away, but must be properly disposed of under supervision of the sanitarian.
- e. It may be necessary to obtain the services of law enforcement personnel to prevent condemned or contaminated food from being diverted back into the community (i.e., collection points, disposal sites, etc.).

6. Home Cleanup

- a. Refer to the Public Health Sanitation Division bulletin SG-84 for information on home cleanup.
- b. Discarded furniture, appliances, clothing and similar household goods are to be placed where the transport agency can effectively transport the material.

7. Solid Waste Handling

- a. Except in those instances where the disaster is classified as minor with only a few people involved, the Office of Waste Management, Department of Environmental Protection (D.E.P.), will be responsible for this part of the disaster sanitation program.
- b. Sanitarians' services will only be rendered when requested by the Director of the Public Health Sanitation Division. (Except as listed under item a.)
- c. Solid waste, including debris, is to be disposed of only in a manner and location approved by the Office of Waste Management, D.E.P.
- d. In minor disasters, where the sanitarian will be supervising the solid waste collection and disposal activities, the only accepted method of solid waste disposal is by sanitary landfill.

8. Insect and Rodent Control

- a. Sanitarians will be responsible for seeing that the insect and rodent control activities are implemented as needed.
- b. Prompt cleanup of debris and solid waste will aid in the control of insects and rodents.
- c. Chemicals used to control insects and rodents are to be restricted to those that are EPA registered as anticoagulants for rodents. Any use of rodenticides or insecticides other than those mentioned must first be cleared by the Commissioner, Department of Agriculture.

9. Public Buildings

- a. Sanitarians are not responsible for inspection of public buildings affected by a disaster to determine their structural soundness and safety.
- b. Depending on the type of public building involved the sanitarians may be required to conduct a sanitation inspection of such buildings prior to their opening for business.
- c. Before entering any building that has been subjected to damage or possible damage, check with the property owner or his agent to see that the building is structurally safe to enter.
- d. Inspection of the building is to consist of the same items of sanitation that would apply to such building and its facilities if it had not been affected by a disaster. (i.e., floors, walls, ceiling construction, repair and cleanliness, toilet fixtures, insect and rodent barriers, lighting, ventilation, heating facilities, and similarly related sanitation items.)

DISASTER GUIDELINES FOR SANITARIANS APPENDIX A

SOAKAGE PITS OR SOAKAGE TRENCHES

In the event that an approved sanitary sewer system is not available, waste water from hand washing, bathing and food service operations may be disposed of in properly constructed soakage pits or soakage trenches. These are to be used only in cases of emergency and only for a maximum of one week.

1. The soakage pit or trenches must be located at least one hundred feet (100') from any water supply. Soakage pits are not to be used when the high water table is within two feet of the pit bottom.
2. The size of the soakage pit is contingent upon the number of occupants of the shelter. Generally a 4' x 4' x 4' soakage pit will service one hundred (100) people per day for a five day period when the only waste water discharged to the pit is kitchen waste water and hand washing water.
3. The soakage pit is to be filled with rock or gravel ranging in size from one inch to three inches, with the larger size at the bottom portion of the pit.
4. When the pit use is discontinued, it must be overfilled at least six inches with compacted earth.
5. In areas of high ground water, soakage trenches may be used (only if there is a minimum of at least two feet of soil between the bottom of the trenches and the water table). It may be necessary to line the trenches with plastic, clay or other suitable lining material.
 - a. The soakage trench consists of a central pit approximately two feet square and one foot deep with a trench one foot wide and six feet long running from each corner of the pit. The trenches are one foot deep at the pit and slope to a depth of eighteen inches at the extreme end. The trenches are filled to ground level with stone or gravel one to three inches in diameter. Evapotranspiration plays a large part in waste water disposal utilizing soakage trenches.
 - b. When the soakage trenches are no longer needed, they are overfilled at least six inches with compacted earth. It is recommended that a diversion ditch at least six inches deep be excavated around the soakage pit or soakage trench area.