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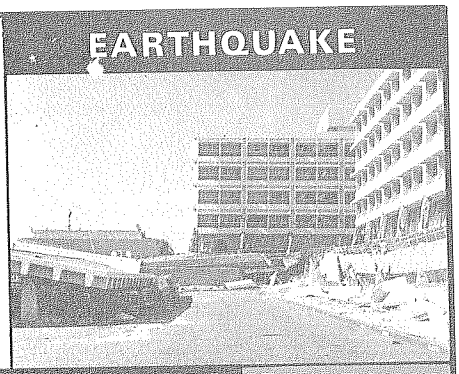
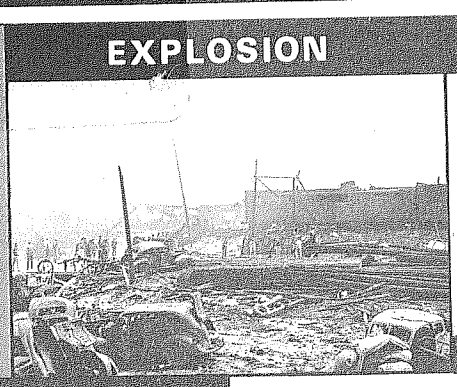
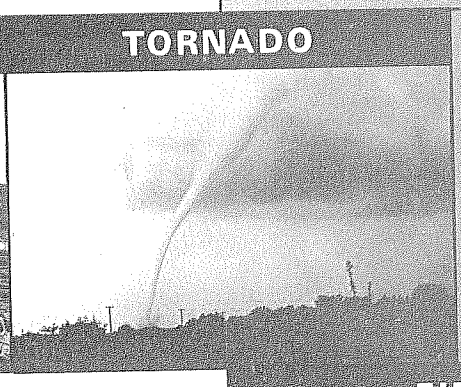
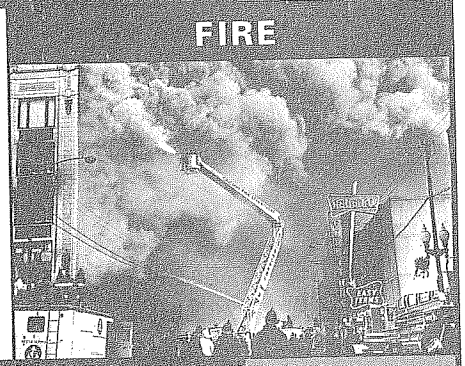
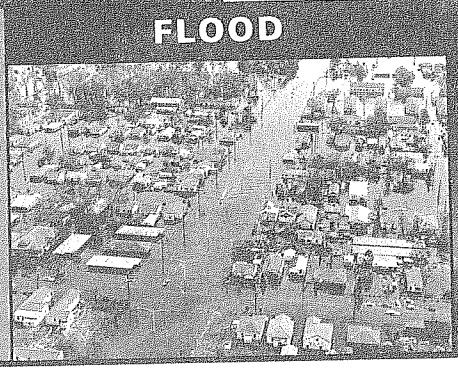


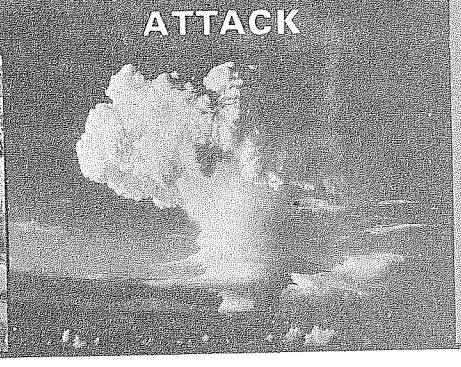




A HANDBOOK FOR LOCAL GOVERNMENTS







DEFENSE CIVIL PREPAREDNESS AGENCY

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DISASTER OPERATIONS

A Handbook for Local Government

ACKNOWLEDGMENTS

The Defense Civil Preparedness Agency gratefully acknowledges the assistance provided by representatives of the following agencies and organizations in the preparation of material for this handbook:

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Department of Transportation
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International Association of Fire Chiefs
International Association of Firefighters
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National Agricultural Chemicals Association
National Fire Protection Association
National Sheriffs' Association

A task force of State and local civil defense directors reviewed and revised the handbook, representing the National Association of State Civil Defense Directors and the United States Civil Defense Council.

For more explicit technical and program guidance the above agencies should be contacted directly. The Defense Civil Preparedness Agency, however, is solely responsible for the validity and accuracy of the information in this handbook.

DEFENSE CIVIL PREPAREDNESS AGENCY
July 1972

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Dear Local Executive:

It is a pleasure to make this handbook available to officials of local government.

When a major emergency threatens or strikes, you are the first line of defense for saving lives and protecting property in your community. Your citizens look to you for the leadership needed in time of emergency, as well as for the day-to-day functions of government. This handbook is designed to help you prepare yourself and your community for handling major emergencies.

The Director of the Office of Emergency Preparedness, who is responsible for coordinating all Federal disaster preparedness programs, has recommended the use of this handbook in his area of responsibility, as part of the continuing Federal effort in local preparedness assistance. We trust that this handbook will contribute directly to your local preparedness program.

Sincerely,

John E. Davis

John E. Davis

Director, Defense Civil Preparedness Agency

. . . ABOUT "CIVIL DEFENSE" . . .

News stories about a disaster may report that the fire department fought the blaze, the police force cordoned off the disaster area and helped remove the injured, the public works department cleared away the debris, and doctors treated casualties. Some people ask, "Yes, but where was Civil Defense?" The answer is that "civil defense" was there. It was the fire, police, public works, and other forces of government dealing with the emergency in an effective, coordinated manner.

"Civil defense operations" occur when a local government responds to any massive emergency—a tornado, flood, or other natural disaster; a major fire, explosion, or industrial accident; a civil disorder or disturbance; or a nuclear attack.

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INTRODUCTION

This handbook can serve as a planning and operations guide for officials of local government who may be confronted with various types of peacetime as well as attack-caused emergencies. The handbook may also serve as a guide for local leaders who are not members of local governments, such as labor leaders, industrial plant superintendents, and Red Cross Chapter officials.

This handbook is intended primarily for smaller municipalities and counties, and includes checklists pertaining to a number of specific types of emergencies and disasters that could confront such communities. It should be recognized, however, that the checklists are *not* aimed at professionals. For example, the forest-fire checklist is not for professional foresters or firefighters, but is rather intended for mayors and other officials of smaller communities that could be threatened by a forest fire.

While the primary audience for this handbook is the smaller city or county, the checklists contain material that can be useful to civil defense directors and other officials in larger communities in developing the more complex plans that are needed in the larger jurisdiction.

The guidance in this handbook is basic and brief. The purpose is to assist local officials in preparing their own flexible plan for actions to be taken by government and by citizens when disaster threatens or strikes. A community prepared to cope with peacetime disasters is *that much better prepared* to cope with the effects of enemy attack.

The information presented here is based on the work experiences of thousands of people in actual disasters. Keep in mind that the guidelines are general and should be *adapted* to local situations.

The handbook is divided into five chapters, covering: (1) planning for emergency operations; (2) how to develop a basic plan for major emergencies; (3) the supporting maps, charts, and supplementary information that are required for carrying out emergency operations; (4) the actions that the chief executive and his designated public information representative should take in any major emergency; and, (5) the actions that the Emergency Services should take in various specific types of emergencies, such as floods and hurricanes, plus suggested information that can be used as the basis of instructions to the public, either directly or through the mass media.

I. PLANNING FOR EMERGENCY OPERATIONS

The major emergency situations to which this handbook applies are those situations where a government must be able to coordinate and direct the operations of many—if not all—of the emergency services that are available in the community. It is this need for *COORDINATED emergency operations* that distinguishes disasters or major emergencies from the emergencies that local fire and police forces, or hospitals and doctors, deal with every day.

1. What Is Emergency Readiness?

"Emergency readiness" means that a community is prepared to react promptly to save life and protect property if it is threatened or hit by a disaster or major emergency of any type. This requires that planning and preparatory actions be taken *before* there is an emergency.

If a hurricane or flood threatens, hundreds or thousands of people may need to be evacuated from low-lying areas, and then fed and housed until the danger is over. A massive effort may be needed to strengthen dikes or levees, when a river is rising to flood stage. If a tornado or earthquake hits, the damaged area must be searched for injured people, and the injured given first aid and then professional medical attention as promptly as possible; the homeless must be fed and housed. If a plane crashes into a town or an explosion occurs or a large building collapses, there are usually massive problems of getting fire and medical units into the damaged area, and of keeping curious spectators out.

The same types of emergency operations, but on an even larger scale, would be required if the United States should ever suffer an enemy attack, and there would be the added need to see that the people were sheltered against radioactive fallout.

Police, fire, engineering, and public health departments, plus doctors and other medical professionals, are the front-line forces that take the lead in carrying out the lifesaving, and property-preserving, operations required by a major emergency or disaster. Oftentimes they will be reinforced and assisted by State police, or fire and other services from neighboring communities. And citizen-volunteers will often be used—for example, crews to fill sandbags and strengthen levees, or to help police and fire forces search an earthquake-damaged area to rescue injured survivors.

2. The Need for Coordination by Local Executives

At times there have been larger-scale disasters in which an individual department did its job well, but was unaware of all the problems to be faced—and the instructions issued—by other departments. For example, during a large-scale fire emergency the water department issued a call to the citizens to hold the use of water to an absolute minimum so that

water pressure could be kept up for the fire departments. At the same time, however, fire officials were on TV instructing citizens to wet down their roofs with garden hoses.

Coordination was lacking—the "left hand didn't know what the right hand was doing." Newspaper comments by local officials, after such a disaster, have included statements like this: "What happened is simple to describe. The various departments went their separate ways, with no one pulling them together. People have given little thought to the mechanics of disaster response." Or, "The city and county agencies were on different wave lengths. They were all doing their job, but they weren't talking together. There is no excuse for the absence of communications and coordination." And remember that poorly coordinated operations can lead to the loss of lives that might have been saved, or the destruction of property that might have been preserved.

The whole concept of emergency readiness can be summed up by saying that the forces of government—and all others with emergency missions—must be able to "do the right things at the right time," when the chips are down. This includes procedures for coordinating the operations of police forces, fire forces, ambulances, hospitals, medical personnel, and all other people and units with capabilities for helping citizens under disaster conditions.

3. Specific Requirements for Emergency Readiness

Specific requirements for emergency readiness include:

a. A control center—an Emergency Operating Center—where local executives can direct and control emergency operations. The mayor, chief of police, fire chief, civil defense director, and others at this EOC will have the same information on the emergency situation, and they will be able to coordinate decisions more rapidly by being face-to-face. The "left hand will *know* what the right hand is doing." The EOC should have means of communicating with field forces, such as police vehicles, hospitals, fire units, or groups working on dikes or levees.

b. Local government executives and community leaders should have done some planning on who would do what if the community is threatened or hit by various types of disaster. They should also test these plans in exercises that simulate different kinds of disaster in which these key leaders would be the community's top decision-makers.

c. The community's leadership should be ready to give emergency instructions and information to their citizens. People want to be told practical things that they should or shouldn't do when a disaster threatens or strikes. They need and seek instructions so that they may avoid injury to themselves and their families, and minimize damage to their houses and other property. Don't be misled by the widespread but erroneous idea that people are apt to "panic" in a threatening or dangerous situation. This hardly ever happens. People want to get solid, down-to-earth, and practical advice from their governments. Use the local warning capability to alert the public for radio and TV advisory bulletins *before* the disaster occurs, if it is at all possible to do so. Don't wait too long to broadcast reliable and official information.

The above three specific requirements for emergency readiness are the "mechanics of disaster response." By doing just these three things, many communities have reached a good level of emergency readiness, and proved it when a peacetime disaster struck. There have been several disasters when local officials were already in an EOC that was then used as the focal point of operations 24 hours a day during the period of lifesaving operations, and on into the initial part of the cleanup and longer-term recovery period. During the emergency operations period, the mayors, city managers, and other key officials broadcast information and instructions to the people continually over radio stations, in addition to coordinating the emergency operations of local forces.

The balance of this handbook contains additional suggestions on the preparations and planning that should be done in every community for effective response when the chips are down.

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II. HOW TO DEVELOP A BASIC PLAN OF OPERATIONS FOR MAJOR EMERGENCIES

A three-part approach is recommended for developing a local plan of operations for major emergencies: (1) Write out a basic plan that covers the authority, organization, staffing, essential facilities, and general operations common to all major emergencies; (2) support the basic plan with materials such as maps of the area, organizational charts, emergency call-up lists of people required to activate the emergency operating center and the field forces, sources of major local resources that can be used in the emergency, and any other information or data that would be useful during the emergency; and (3) develop specific checklists that cover the actions to be taken by the local chief executive, his public information representative, the local Emergency Services, and the voluntary services of the community. Details will vary from community to community.

The following eight items should be considered when developing a plan of operations for major emergencies.

1. Authority for Setting Up the Emergency Operations Plan and Organization

This should state the legal basis for the organization—the statute and any local ordinances or resolutions which authorize the establishment and organization of the emergency operating forces. Detailed legal documents should be kept separate from the basic plan and need not be located at the Emergency Operating Center.

If it has not already done so, the local governing body of a community should pass an ordinance or adopt a resolution giving its chief executive the authority and responsibility for forming an emergency operating organization. The chief executive can then issue the orders and regulations required to establish and regulate the organization, assign personnel to key positions, define responsibilities, provide for the control and management of local resources during emergencies, and define mutual-aid agreements with other communities. Many local governments already have existing ordinances relating to civil defense and disaster relief; if not, sample ordinances are available from State civil defense offices. It is best to follow the form used by other communities within your State.

Mutual-aid agreements exist among many communities. The governing bodies of two or more communities formally enact, by ordinance or resolution, permission for their local governments to assist one another in the event of any disaster within defined limits under a prearranged plan and disaster organization. The plan must be approved by the governing body of each community. Mutual-aid agreements must also be in conformity with, and authorized under, the statutes of the State involved. The provisions of these agreements should be known to the Emergency Operating Center staff. Examples are available through State civil defense offices. It is best to follow the form used by other communities within your State.

2. Types of Emergencies Covered by the Plan

This section of the basic plan should contain a Table of Contents listing the types of emergencies covered by the action checklists. The list for one community may not be the same as for another. It should include the types of emergencies which the community may encounter because of location, terrain, type of industry, or previous experience. It should not, however, be limited to types of emergencies experienced by the community. For example, the plan should provide for an airplane crash even if there has never been one in the community.

3. Plan Execution

The basic plan of a small community should be written so that it provides the steps and procedures for communitywide *coordination* of government and citizen actions *before and during* a disaster. The following is an example of the major points of decision-making that can occur when a basic plan is executed.

In an actual emergency, the executive head of local government takes charge of the situation. If the situation warrants, he activates the Emergency Operating Center (as described in section 5, below), gets a quick picture of the situation from the designated field operations chief, and starts emergency public information activities (described in section 7, below). If the situation requires it, he gives warning and instructions to the public as soon as possible. He directs operations at the Emergency Operating Center, using the "Action Checklists" and "Suggested Information for Instructions to Citizens" described in section 8, below.

As soon as the local Emergency Operating Center is activated, he notifies the State Civil Defense Emergency Operating Center. The State EOC notifies communities that may be affected. If the situation so requires, and legislation permits, he requests the local governing body to formally declare the emergency a disaster; and he then sends copies of the resolution to the State civil defense office.

When the situation warrants, he phases out Emergency Operating Center activities but continues emergency public information activities until emergency relief operations are finished.

As a last step in executing the basic plan, he should make up final reports to the local governing body, and send copies to other government agencies as required. These reports should be based on the Emergency Operating Center log entries, supplemented by other information relating to the emergency operations.

4. Emergency Services

Within any community there are generally four "Departments" that may have the capability to respond to emergencies 24 hours a day, and are referred to as "Emergency Services." These are the Police, Fire, Medical, and Public Works Departments. Of these, the Police and Fire Departments are on duty around-the-clock, while Public Works is mobilized full-time only for specific operations, such as in severe weather. The Medical Service is more of a variable, but all of the health and medical resources of the community should be included in planning for emergency operations. If there is a hospital in the community, it is

generally staffed full-time. However, whether there is a hospital or not, medical personnel respond when needed. There may also be volunteer rescue squads available, and an "emergency welfare service" can usually be quickly assembled to provide emergency food, lodging, clothing and other essentials as required. The Red Cross and local church groups are its core.

A community must depend entirely upon its own resources during the initial impact of any emergency or disaster. Assistance and additional resources should be obtained through channels only after local resources have been fully committed.

5. Emergency Operating Center

a. Selection of Emergency Operating Center Locations

It is best to have a good primary Emergency Operating Center located in a governmental or community building, and equipped as recommended in the Federal Civil Defense Guide, Chapter E–2. If such a "recommended" facility is not available, an Emergency Operating Center can be set up for emergencies *other than enemy attack* in a place that has a telephone switchboard with several outside lines, and enough space for additional communications equipment and operational personnel.

One or more alternate Emergency Operating Centers should be designated in case a disaster prevents use of the primary one. It is most important that there be a central point for the coordination of government services, voluntary agencies, and emergency public information. It is desirable to supplement such a center with on-site "command posts" in large-scale emergencies. Police, Fire, and Rescue vehicles are good mobile units for this purpose since they have communications.

b. Essential Staffing

The executive head of local government or his designee, representatives of the "Emergency Services," and the news media are the main work force of an Emergency Operating Center. They need to be together in a central location where they can coordinate disaster control activities effectively, and communicate with the public.

Not all of the above listed Emergency Operating Center staff personnel will be needed to handle every type of emergency. As noted in section 8, below, some disasters may not call for medical or public works involvement beyond that of normal day-to-day operations, but require only increased staffing for expanded police, fire, and emergency public information operations. These three functions have the central immediate role in local emergencies since they provide the 24-hour response capability needed to cope with most emergencies and to advise the citizens. It is most important that they understand their emergency assignments and that vacancies are filled as soon as they occur.

c. Voluntary Agencies and Labor Unions

In many communities, the American National Red Cross and other voluntary groups, many church-related, have capability to respond rapidly to major emergencies. Agreements with such groups and local affiliates of Labor Unions will make coordination automatic and prevent duplication of effort in such missions as providing manpower, food, clothing, shelter, and first aid. Inasmuch as the Red Cross has a Congressionally mandated responsibility, this organization cooperates at all levels of government and can be a valuable resource to local government in time of major emergency.

d. Use of Available Communications

No single communications system is ideal for coping with all disasters. The most practical approach is to make an inventory of all existing communications systems in the community, and develop a simple plan to coordinate operations at the Emergency Operating Center by using these existing facilities, being careful not to overload any of them. This inventory should include telephone switchboards, radio base stations, and mobile and portable radio units (one and two-way), whether owned by government, business, or private citizens.

Police, fire, and public works "emergency service" communications can be augmented by using commercial or amateur radio systems for supplementary or backup purposes. If available, put tape recorders on all communications equipment to maintain an *official* record of transmissions.

Local broadcast stations (radio and TV), particularly those with emergency power equipment, can provide extensive one-way emergency information to the public. Local newspapers can be used to convey more complex readiness information.

6. Assessment of the Emergency

In each emergency, the Emergency Operating Center staff should as rapidly as possible assess the scope and magnitude of the emergency to determine what information each emergency operating group needs, where this information is obtainable, which group should receive this information, how the information can be confirmed, and how it can best be communicated. The information can be placed on a community map with clear plastic overlays containing information that pertains to the emergency. This information should be used as the basis for directing and controlling the government's emergency efforts, and for issuing emergency news releases, reports and instructions. The Emergency Operating Center is the central direction, control, and coordination point for emergency operations. As such, it is the place to decide what specific information should go to persons carrying on "emergency service" operations. The police, fire, and public works two-way mobile communications systems are especially valuable for transmitting and receiving messages about developing situations, and for confirming and authenticating information reaching the Emergency Operating Center from other sources.

7. Emergency Public Information

This function is often overlooked in emergency planning. It should not be. It can be the most essential element in saving lives, alleviating suffering and hardship, protecting property, and aiding recovery. Keep in mind that, of all the "Emergency Services," the news media are not a part of government, but they are vitally needed as part of the team in an emergency. This means local officials should enlist the media in making preparations for handling disasters *before* the disaster strikes. There should be a single point of contact in local government for the news media—perhaps the chief executive—or the CD director or coordinator.

In any community, the people are normally kept informed by the news media—newspapers and radio and television stations. These media, especially radio and TV, should be

fully utilized to provide fast, accurate, *official information and instructions* to the public. In addition to helping the people directly, this can also greatly ease the disaster-control job of government. After the most appropriate actions are decided upon, the local news media can transmit instructions on such matters as disaster warnings, self-help information, and systems for locating missing members of families. The emergency information plan should also include procedures to be followed at the Emergency Operating Center so that local news representatives can work efficiently with and receive *official information* from the chief executive and designated representatives of the police, fire, medical, and other emergency services.

8. "Action Checklists" and Suggested Information for Instructions to Citizens

A local basic plan for major emergencies should be supplemented by two types of "Action Checklists," plus information than can be used to prepare instructions to citizens for specific emergencies. Examples are shown in Chapters IV and V of this handbook.

a. Executive Leadership Actions

The "Executive Leadership Actions" suggested in Chapter IV are intended to serve as guidance for the chief executive or his designated representative during all types of major emergencies. They are a series of sequential steps a local chief executive should take in coordinating emergency operations from a central point of direction—the Emergency Operating Center. Part A describes priority activities relating to the governmental response to the emergency. Part B relates to public information actions.

b. Emergency Services Actions

The "Emergency Services Actions" for various specified types of disasters are concerned with the emergency operations of the fire, police, medical, public works, and voluntary agencies usually directly involved in coping with emergencies. The guidance is not all-inclusive, but it covers the key points. It has been compiled from a study of checklists and disaster reports, and from discussions with officials of government and voluntary agencies who have operational experience in emergencies. To be fully effective in your community, the "Emergency Services Actions" guidance should be made compatible with existing police, fire, and other established operating procedures.

c. Suggested Citizen Instructions

Example instructions for various types of major emergencies have been developed separately to expedite emergency public information measures, especially when a disaster threatens or actually strikes a community.

These contain general emergency information and example *basic* instructions that should be adapted to the needs of your community. They are *not* intended to be issued to the public "as is." Rather, they are intended to assist in the development of lifesaving instructions for use by local newspapers, radio, and television stations—your main links to the people you serve in an emergency. Some of these instructions can also serve as public educational tools before a disaster; e.g., getting ready for emergencies such as winter storms, floods, and hurricanes. Many of the suggested instructions apply equally to several types of specific emergencies; for example, some flood instructions may also

apply to winter storms and hurricanes. It is recommended that local instructions be developed according to the needs of the locality and the situation. Consideration should be given to prepositioning selected instructions for such emergencies as tornadoes at local radio and TV stations, for immediate use if the need arises. None of the examples will replace the specialized "news-instructions" that your people will need during and after an emergency.

Some types of emergencies may not involve all the people of the community, or aren't the type for which basic citizen instructions can be prepared. For these emergencies—bomb threats, radiological accidents, search and rescue, transportation accidents, public demonstrations and civil disturbances—there are no "Suggested Citizen Instructions" in this handbook. Also, there are none for the threat of enemy attack because the Defense Civil Preparedness Agency already has issued these basic instructions under the title, IN TIME OF EMERGENCY, and in a variety of formats—a public handbook, a newspaper kit, two radio kits, a television kit, and a motion picture.

III. SUPPORTING MAPS, CHARTS, AND SUPPLEMENTARY INFORMATION

The basic plan should be supported by appropriate materials that may be needed at the Emergency Operating Center during a disaster. Six types of supporting material are recommended as a minimum:

1. Maps of Local Operations Area

County and town road maps (as well as other maps) may be tacked to sheets of wallboard. Grease pencils and colored pins may be used on clear plastic overlays to depict emergency situations, and to show the locations of available manpower and equipment. The use of overlays to visualize the situation has proven successful not only to illustrate what's happening, but also to help make decisions on emergency actions to be taken. Simple magnetic maps may be made by placing magnets on maps that have metal screening underneath. Regardless of the method used, the information should be kept simple, with color coding used as much as possible.

2. Organizational Charts and Procedures for Emergency Operating Center

Simple organizational charts can be useful before and during emergency operations. The most effective charts are those not cluttered with detail and notations. Usually the names, titles, addresses, and telephone numbers of key emergency personnel will be sufficient. Also, the chart should show which members of the Emergency Operating Center staff are responsible for certain actions, such as dealing with local industries or contractors who have emergency equipment or supplies on hand. Brief instructions on emergency purchasing and billing procedures should be included.

3. Call-up Lists of Key Personnel To Activate Basic Plan

Call-up lists of key personnel will be useful in activating the basic plan. They should include names, addresses, phone numbers, and organizational responsibilities for emergency operations. The lists should cover the key personnel of government, voluntary service organizations, news media, hospitals, local industries, large local contractors, and other nongovernmental organizations that can assist in coping with a disaster. It is suggested that the names of as many alternates as possible be listed in case primary personnel are not available. In addition, the mayor and other authorized officials should carry pocket cards containing the names, phone numbers, and locations of the key "emergency services" staff. Identification cards and permits should be issued to provide passage through police lines.

4. Listings of Major Local Resources for Emergency Operations

Every major source of local manpower, equipment and supplies should be considered in preparing a local "Resources Data Book." A telephone directory is a good starting point for

obtaining information on every source of manpower, equipment, and supplies available in the community. The "Resources Data Book" should not contain such details as specifications on the resource items themselves, since these will change frequently. The person responsible for custody of the items and the procedures for obtaining them should be listed. The information should be updated at least annually.

5. Need for a Glossary of Terms

To be effective, the basic plan, the checklists, and public information releases should use language that means the same thing to everyone concerned. Because of possible language problems, a glossary of terms should be included among the supporting documents of a basic plan. Terms with two or more meanings should be defined in the glossary by using synonyms or illustrations.

6. State and Federal Disaster Assistance

The action checklists should be supplemented with information on how to request State and Federal assistance for a major disaster. In a disaster situation the State civil defense office is the primary point of contact between the local government and the State. The local Chief Executive, or his designated representative, should be ready to communicate with the State office and, in the event the impending or actual disaster is severe and large enough, carry out the steps listed under the appropriate actions of the "Executive Leadership" checklist. Procedures are described in "Federal Assistance Handbook for Government Officials" and "Federal Disaster Assistance Program Manual for Applicants," publications of the Office of Emergency Preparedness. The local Chief Executive should obtain details and a copy of these publications through his State civil defense agency.

IV. EXECUTIVE LEADERSHIP ACTIONS FOR ALL MAJOR EMERGENCIES

The following "Executive Leadership Actions for All Major Emergencies" constitute a set of checklist items for use by local Chief Executives in case an emergency or disaster *of any type* threatens or hits their community. These actions are therefore *general* in nature, but essential.

The actions aim at the following:

1. The Chief Executive or his designated representative takes charge of the situation. This will usually require activating an Emergency Operating Center (EOC). The EOC is the place where key local executives gather to (a) size up the situation, based on reports from field units; (b) determine the strategy and tactics that will be used in dealing with the emergency; and (c) exercise direction and control over local forces. The EOC must have communications to local police, fire, ambulance, rescue, and other emergency forces, and it should also have communications to other local governments so that mutual-aid assistance can be requested, if necessary, as well as to State Area or central EOC's, so aid can be requested, if necessary, from State government.
2. Local government officials act to get emergency public information to the citizens, via the news media. This includes keeping the public informed on the situation, and giving citizens advice on what they should or should not do.

The specific actions to be taken in a particular type of emergency are covered in checklists that are provided following the "Executive Leadership Actions for All Major Emergencies." Thus the checklist applying to the *specific* emergency confronting the community should be used in conjunction with this "Executive Leadership" checklist, depending on whether the emergency is a hurricane, earthquake, chemical accident, bomb threat, or other type of emergency. Material to be used in preparing local instructions for citizens (emergency public information) is also provided for several of these specific types of emergencies.

A. Priority Operations Actions by Chief Executive or His Designated Representative

1. Takes charge of measures to cope with the emergency.
2. Activates the Emergency Operating Center; alerts key staff (Civil Defense Director, Police, Fire, Medical, Public Works, Emergency Welfare, Public Information); and sets shifts for 24-hour coverage, if required; tests communications with emergency services (listed as above), voluntary services (Red Cross, church groups, Salvation Army, etc.) and local affiliates of Labor Unions; starts activity logs. (The 24-hour coverage should be provided by using two or three shifts to prevent early exhaustion, to assure proper briefings and efficient continuity of operations, and to make certain the off-duty shifts can rest.)

Organization (Person)	*Location*	*Telephone* *Day*	*Night*

3. If the immediate situation indicates it is necessary, gives orders for warning the public, with instructions to stay tuned to local radio and TV stations (identify each station) for further information and advice.

4. Notifies next higher level of government (county, State area or State EOC and specific officials, per established channels in your State). Include the following information:

a. Type of disaster
b. Time disaster occurred or threatens to occur
c. Actions already taken
d. Areas and number of people involved
e. Estimate of loss of life and extent of damage
f. Type and amount of assistance required

(Be specific. A "send all possible aid" message complicates matters. Specify exact quantities of such items as first aid supplies, lanterns, portable generators, blankets, sandbags, etc.)

5. Mobilizes "Emergency Services" in accordance with checklists of "Emergency Services Actions" for the particular emergency.

6. Alerts voluntary agencies (Red Cross, Salvation Army, others) and local affiliates of Labor Unions as appropriate; initiates a system for assigning and using volunteers rather than having them looking for work to do.

Organization (Person)	*Location*	*Telephone* *Day*	*Night*

7. Briefs EOC staff on emergency situation based on reports; the staff reviews appropriate checklists of "Emergency Services Actions" for coping with the situation.

8. Seeks additional information on threatened or actual emergency situation; determines critical problem areas; watches for sudden or unusual side effects; e.g.,

a. Disruption of electric power (have emergency power ready)
b. Rupture of gas or petroleum lines (have fire and rescue alerted)
c. Rupture of water or sewer systems
d. Accidental release of toxic, caustic, or noxious chemicals or other hazardous materials
e. Rumors (nip them in the bud).

9. Designates Field Chief, to be in charge of all operations at disaster scene, if standing operating procedures do not already designate a Field Chief; decides on general strategy to be used, in accordance with appropriate checklists of "Emergency Services Actions" and "Suggested Citizen Instructions." (For example, Crowd Control; Traffic Control; Citizens' Self-Help Instructions; Shutdown of Utilities; etc.) The Field Chief should establish and maintain an inter-service coordination center at the disaster scene to prevent duplication of service activities.

10. Mobilizes additional local manpower and other resources to extent required to supplement Emergency Services; ascertains whether additional assistance is needed; as necessary, requests mutual aid, State assistance, Labor Union assistance, military support, etc., *according to established procedures;* makes *specific* requests, such as number of men for security, rescue, feeding teams, etc., or *specific* equipment, such as number of sandbags, pumpers, etc.; *requests military assistance only through State Emergency Operating Center and only if there are insufficient civilian resources.* (Local military commanders are authorized to act independently only if the threat to life and property is too urgent to wait for official authorization.)

11. If required, and legislation permits, requests governing body (council, freeholders, etc.) to issue declaration of emergency.

12. Obtains periodic emergency situation reports, as threat of actual situation develops; directs EOC staff to maintain accurate logs of the following: Service Activities, Estimates of Damage, Manpower and Equipment Utilized, Mutual Aid or Assistance Requested/Provided, Financial Expenditures, Reports Provided, and others, as required.

13. Provides continuing direction and coordination of emergency operations:

a. Maintains firm position of leadership.
b. Maintains close surveillance of emergency situation; establishes official liaison and reconnaissance positions to report on-site activities and requests to the Emergency Operating Center.
c. Relies on Emergency Service chiefs and key personnel to carry out service operations; provides enough manpower to change work parties as often as necessary to prevent physical exhaustion.
d. Maintains a central point of contact where individuals can get information regarding victims, dangerous locations, identification passes, traffic movement, and other essential assistance.
e. Continues liaison and coordination with other political jurisdictions involved in the emergency. (This will facilitate exchange of correct information when supporting manpower, equipment, and supplies are essential.)

14. When situation indicates there should be a return to normal routine:

a. Releases outside assistance, including volunteers
b. Phases down Emergency Service operations
c. Returns borrowed or rented equipment and supplies
d. Reduces or removes restrictions in disaster areas
e. Keeps public informed
f. Discontinues services that become marginal, such as special telephone lines, and public address systems.
g. If required, sends specified number of copies of resolution of declared emergency to the State Civil Defense Office

15. Prepares reports for official record.

B. Priority Public Information Actions by Chief Executive or His Designated Representative

1. Provides essential information to the public, emphasizing the immediate actions being taken by local government to save lives.

2. Authenticates all sources of information being received and verifies specific information with appropriate Emergency Service concerned; e.g., highway movement restrictions that police are enforcing.

3. Coordinates information with the chief executive before releasing it to the news media (list all local radio, TV and newspaper outlets, with addresses and telephone numbers).

Organization (Person)	*Location*	*Telephone*	
		Day	*Night*

4. Issues instructions and advice to the public on what they should do or not do (see checklists for appropriate emergency; e.g., "Hurricanes—Suggested Citizen Instructions.") Instructions and advice should be clear and simple, such as:

a. *Avoid use of telephone except for emergency requests and reports.*
b. *Monitor local radio or TV for continuing information and instructions.*
c. *Stay away from disaster areas*—Sightseers interfere with search and rescue operations. Sightseeing can be dangerous.
d. *Don't walk or drive unless necessary*—If it is necessary, follow designated routes and directions provided by this broadcast (give specific information at this point).
e. *Please do not pass on rumors or exaggerated reports of the situation.*

5. Based on official decisions, issues additional information and instructions to the public; e.g., evacuation of dangerous areas, restriction on highway use, location of refugee care centers, etc., in accordance with problems that arise and official decisions made.

6. Prepares information and materials needed to handle individual responses to public inquiries.

In addition to the above example checklists of "Executive Leadership Actions for All Major Emergencies," this handbook includes example checklists for 14 types of major emergencies requiring Emergency Service Actions, and 8 examples of "Suggested Citizen Instructions." All of these can be adapted to local requirements for use before and during a major emergency.

V. EMERGENCY ACTIONS

BOMB THREATS

Emergency Services Actions

A. General Information

Compared with other community emergencies, the covert and criminal nature of bombing incidents make detection and disarming of explosive devices a highly dangerous problem for police authorities of smaller communities with only limited resources. Consequently, planning for such emergencies should include contacts with a nearby military Explosive Ordnance Disposal Detachment, or a neighboring city police department which already has a bomb disposal unit, in order to arrange for obtaining the assistance of experienced personnel to help deal with an emergency.

Since there may be some question in regard to the participation of non-local manpower in handling dangerous explosive materials which are the responsibility of local authorities, consideration must be given in advance to being prepared to "go it alone," if necessary. Therefore, training programs for local policemen in handling improvised explosive devices should be utilized when they are available through Military Explosive Ordnance Disposal Control Centers, and Law Enforcement Assistance Administration programs.

Experience shows that over 95% of all written or phoned bomb threats are hoaxes. However, the chance remains that the threat may be authentic and appropriate action should be taken in each case to provide for the safety of people and property, and to locate an actual explosive or incendiary device so that it can be neutralized.

While the responsibility for action rests primarily with the police department, there may be a need for decisions by other persons also involved. For example, a plant manager or a school principal must make the decision whether or not to evacuate the building after a bomb threat has been received, and where to send the people who are evacuated. Also, people who work in the threatened building—and who know what does or doesn't belong in or near the building—should conduct the search for a suspected bomb.

Bomb-threat areas are almost invariably limited in size. Unless there is a multiple bomb threat, or searching covers a large geographical area, there is little need for activating an Emergency Operating Center, as is required for forest fires, floods, hurricanes, and tornadoes which usually involve hundreds or thousands of people in a community and call for emergency public information and the coordination of several Emergency Services. Bomb threats usually involve the management of a single structure and the local police department during the search and detection phases. For this reason, no companion checklist on "Suggested Instructions for Citizens" is provided for bomb threats.

If an object is located and thought to be a bomb, and the local police cannot handle the disposition of it, one of the aforementioned bomb disposal units should be called in to assist. In any event, the following checklist is a sequential approach that can be used to handle a bomb threat situation.

B. Upon receipt of a report of a bomb threat

1. The building management will decide whether to clear the building for the safety of the occupants; police will advise and assist the management, particularly if no evacuation plan or fire-alarm drill has been previously prepared and tested. Each type of building requires different kinds of actions (e.g., factory, school, courthouse, etc.). The building can be searched most effectively by persons familiar with the building. The search can be organized as follows:

a. Maintenance and janitorial personnel search such areas as hallways, rest rooms, stairwells, utility closets, and areas outside the building.

b. Office personnel search their immediate office area.

c. Cafeteria personnel search the kitchen and dining rooms.

d. If a school is involved, teachers search their own classrooms.

Personnel doing the searching *must not move* any unfamiliar or suspicious package, but report the object's description and location immediately to the official supervising the search procedure. It must be emphasized strongly to all persons searching that any movement of an explosive device by untrained persons may cause detonation.

2. If necessary, *notify* the chief executive and civil defense director of the bomb threat, and *alert* key members of the Emergency Operating Center, particularly the fire and medical services and others, as directed by the authorized official.

3. *If a strange object is found it should be assumed to be a bomb.*

a. The location and description of the object, as best it can be provided, should be reported to the search supervisor. This information should then be relayed immediately to a central point in the building. This point should be manned by the building management and police.

b. Unless required by duty to remain in the vicinity of the object, all personnel should be cleared from the area. Guides may be required to escort the bomb disposal team to the site.

c. The danger area should be marked and blocked off to at least 300 feet; the areas below and above the object should be included.

d. Search personnel may assist by checking to see that all doors and windows are open to minimize blast effects and damage if the bomb is detonated.

e. The use of two-way (walkie-talkie) radios within five feet of the suspected object is dangerous because radio frequency energy can cause detonation of electrically operated blasting caps.

4. The police should dispatch specialists with Bomb Disposal Training, either from the local police department, or if not available locally, specialists should be obtained from the following sources (list names of nearest police, military explosive ordnance disposal units,

and others having bomb disposal capability. Arrangements for such assistance should be made in advance, with agreements containing specific procedures. Also list emergency telephone numbers).

Organization (Person)	*Location*	*Telephone* *Day*	*Night*

5. *If the person in charge decides the situation requires that the suspected object be quickly removed as a menace to life or property,* the only recourse is for him to allow some courageous volunteer from one of the Emergency Services, who is capable of exercising judgment and taking all possible precautions, to attempt removal of the object to a place where if it is detonated, it will cause the least amount of damage or harm.

Basic safety measures to be observed must include:

Open doors and windows in order to allow escape of explosion pressures and reduce damage if there is a detonation; turn off gas and flammable fuel lines if present.

Do not congregate around the person who is working on the object. A crowd will distract him, and if there is an explosion, there will be more casualties.

Avoid handling the suspected object directly—Use either a long pole or a long rope with a loop attachment to drag the device away, keeping as much distance and as many protective barriers between the object and disposal team as can be managed.

Be prepared and expect the object to be "booby-trapped," which has lately become a diabolical innovation of bomb terrorists.

6. Fire department may dispatch firefighting equipment to the vicinity of the threatened building to stand by for possible explosion and fires during steps 4 and 5 above.

7. Emergency Medical Services, including hospital personnel, should make preparations to be ready to receive casualties if they occur; cooperative mutual-support plans with other communities should be reviewed.

8. *After the device has been removed* to an area where it can be disarmed, consider and apply methods to contain fragmentation while at the same time allowing provision for the explosive force to be vented in a harmless direction. Soaking a suspected bomb may result in electrical short circuiting or chemical reaction and detonation of the bomb. Rifle fire and deliberate ignition of the device are both foolhardy, and may only serve to place the device in a more dangerous condition or cause an undesired detonation, the loss of valuable physical evidence, damage to property, and possibly loss of life. Once the bomb has been removed to

a safe-handling area (e.g., a parking lot) and protective works have been erected, it should be left alone until the arrival of trained bomb disposal experts.

9. *Disposal or disarming of the device,* which ordinarily constitutes a serious problem for police officials, becomes a major undertaking for the police department of a small community when the services of highly trained bomb disposal experts cannot be obtained.

The U.S. Army *will* provide bomb disposal service to those communities which do not have a trained bomb disposal team. The bomb should remain untouched and protected in a safe holding area until their arrival even if an extended delay is anticipated. Attempted render-safe or disposal of bombs by untrained personnel tends to be suicidal.

C. If the situation is a multiple bomb threat or searching covers a large geographical area—the chief executive or civil defense director may activate the Emergency Operating Center in accordance with "Executive Leadership Actions for All Major Emergencies." The Search and Rescue "Emergency Services Actions" also should be used. If the situation threatens a large fire, the Major Structural Fires "Emergency Services Actions" also should be used.

Advice and instructions to be issued to the public to minimize public alarm or to assist in the conduct of emergency activities will be dictated by requirements of the developing situation. A separate "Suggested Instructions for Citizens," is not considered appropriate for bomb threats.

D. When the incident area is safe—resume normal routine, notify Emergency Operating Center, and make final reports, as required.

CHEMICAL ACCIDENTS

Emergency Services Actions

A. General Information

There are several thousand chemicals in daily use that can cause a local emergency affecting a substantial number of people. These effects include massive contamination of a community, explosions, and fires. Hazardous chemicals being transported interstate are required to be labeled with appropriate words of identification and caution. The U.S. Department of Transportation is responsible for regulating the movement of hazardous chemicals.

Local government should be on the lookout for hazardous chemicals in all occupancies, particularly in industries, hospitals, drug stores, hardware stores, film studios, dry cleaning plants, and garages. Care should be taken to note the location, the hazardous properties, and characteristics of individual chemicals, and potential hazardous reactions with each other.

A means of identification of the precise nature of chemicals at the scene of an accident is still a major problem. Despite the availability of means of obtaining information once the chemicals have been identified, it is in the early stages that action must be taken, and without a ready identification, there is a problem of how to deal with the chemicals. Early establishment of an adequate identification system for containers and vehicles transporting chemicals should be a matter of priority.

The following are sources of technical information on chemical hazards:

National Fire Protection Association,
60 Batterymarch St.,
Boston, Mass. 02110

Publication No. 49, *Hazardous Chemicals Data*
No. 325, *Properties of Flammable Liquids, Gases and Volatile Solids*
No. 491, *Manual of Hazardous Chemical Reactions*
No. 704M, *Fire Hazards of Materials*

Manufacturing Chemists Association,
1825 Connecticut Avenue, N.W.
Washington, D.C. 20009

Chemical Safety Data Sheets

Transportation Emergency Information "Chem-Cards"—These cover specific chemicals moved in tank motor vehicles which possess flammable, oxidizing, corrosive, poisonous and other hazardous properties.

Marine emergency "Cargo Information Cards"—These are carried in the pilot house of a vessel towing tank barges and on the barges. The information on these

cards includes the hazards of chemicals and recommendations on handling fires, chemical leaks, and human exposure threats.

National Agricultural Chemicals Association,
1155 15th Street, N.W.
Washington, D.C. 20005

—Members of this Association have a network of more than 40 safety teams nationwide prepared for prompt clean up and decontamination of *poison pesticides* involved in a major accident. Action checklist item number 2 below describes the procedure for obtaining their assistance in major emergencies.

Association of American Railroads, Bureau of Explosives,
1920 L Street, N.W.,
Washington, D.C. 20036

B.E. Pamphlet No. 7A, *Dangerous Articles Emergency Guide*

B.E. Pamphlet No. 22, *Handling Collisions and Derailments Involving Explosives, Gasoline, and Other Dangerous Articles*

B.E. Pamphlet No. 29, *Procedures for Handling Special Atomic Energy Commission Shipments*

B. In the Event of a Chemical Accident or Incident—take the following actions:

1. Notify the chief executive and civil defense director who, if the situation warrants, initiates activation of the Emergency Operating Center in accordance with "Executive Leadership Actions for All Major Emergencies."

2. *If at all possible, determine the names of the chemicals involved. If Poison Pesticide* is involved, phone 513–961–4300 for advice and assistance of a safety team from the National Agricultural Chemicals Association. If other chemicals, call the Chemical Transportation Emergency Center of the Manufacturing Chemists Association, phone 800–424–9300 (202–483–7616 in District of Columbia).

3. Restrict the area of the incident. A determination of the size of the risk area, potential for flash back, speed and direction of wind or spill on the ground should be left to the judgment of the authority in charge at the scene of the accident.

4. Rescue injured or trapped persons and remove them from the incident area if it is possible to do so.

5. Evacuate the area as deemed necessary, particularly downwind (downstream).

6. Allow no one in the immediate area of the incident except "Emergency Service" personnel.

7. If available, follow applicable guidance on Transportation Emergency Information "Chem-Cards" or Marine Emergency "Cargo Information Cards" to handle spills, leaks, fires, and human exposure to the chemical. Notify nearest U.S. Coast Guard unit of Chemical Accidents or Incidents (including pollution incidents) involving marine transportation or endangering Federal water resources.

Organization (Person)	*Location*	*Telephone* *Day*	*Night*

8. If the chemicals are not identified and the hazards unknown, fight fires as though chemicals are TOXIC and likely to have EXPLOSIVE REACTIONS.

9. Keep "Emergency Service" personnel upwind (or upstream) to avoid smoke, fumes, and dust.

10. If required, decontaminate the area by washdown or other prescribed method for the chemical (s) involved. Flammable or toxic materials should not be washed into the drains. Such materials should be handled with caution, using foam, burying, or disposing of it as prescribed by the manufacturer.

11. If hospitalization of personnel is required, inform ambulance and other transporting personnel of the chemical contamination of the injured. Also notify hospital officials.

12. Reroute traffic as required.

13. Make reports to Emergency Operating Center for use in news releases to the public when necessary to minimize public alarm, to keep the area clear, and to assist when required.

14. Do not immediately move vehicles, containers or wreckage, except to rescue people, unless a quick cleanup of the scene is required in the interest of public safety.

15. Restore the immediate area of the incident to a safe condition to lessen the probability of additional hazards and accidents.

16. Close out emergency operations and notify the Emergency Operating Center. Submit final reports, as required.

CHEMICAL ACCIDENTS

Suggested Citizen Instructions

A. General Information

The likelihood of a community suffering a major disaster caused by a chemical accident has greatly increased because of the increase in everyday use of chemicals by all segments of our population as well as the movement of chemicals by all types of transportation. This guidance is designed primarily for communities which do not contain chemical plants but might be affected by a transportation accident or by an accident in a chemical plant in a neighboring community.

B. Citizen Cooperation with Authorities

Prompt reporting of a chemical accident is every citizen's responsibility. Local authorities, and particularly the Emergency Services (police, fire, etc.) need factual information upon which to base decisions on how to respond to the accident. For example, they must be able to execute their plan of action for handling the emergency. (See "Chemical Accidents—Emergency Services Actions.") Authorities must also be able to correctly answer questions from the news media so that erroneous reports are prevented.

A citizen should not spread rumors. If he is a witness but not a casualty, he should tell the authorities exactly what he saw. If not a witness, the citizen should keep posted via radio or TV but *not* rush to the scene since this causes serious obstructions to the Emergency Services who are attempting to save lives and property. A citizen at the scene is needlessly exposing himself to injury, particularly if chemical reactions take place.

C. Emergency Treatment of Casualties

A citizen may find himself administering emergency first aid to a victim of a chemical accident or to himself. The treatment described in this section is limited to emergency procedures which anyone can administer. The first-aid measures suggested lean heavily on the use of running water because it is available most anywhere and will remove chemicals by solution, dilution, and mechanical action. These measures cover four of the principal types of chemical threats to people: (1) Inhalation; (2) Skin Exposure; (3) Swallowing; and (4) Eye Exposure.

Inhalation

1. Remove person(s) to an uncontaminated atmosphere. If the person(s) has been overcome, do not attempt a rescue without the protection of proper respiratory equipment, preferably some form of self-contained breathing apparatus. Remember, a gas mask does not protect against atmospheric oxygen deficiency, nor is it effective in high concentrations (2 percent by volume is the usual limit) of chemical vapors. Remember also that even though a self-contained air supply mask is worn, injury can occur through exposed skin surfaces if the air contaminant is an irritant or can be absorbed through the skin.

2. Have the person(s) lie down and keep him warm. If breathing is difficult, a sitting position may be more comfortable. If unconscious, see that his tongue does not fall back and obstruct his breathing. If vomiting starts, turn on side or face downward to prevent inhaling vomited material.

3. If breathing has stopped, shout for help and start any effective means of artificial respiration. Continue until breathing is restored or a physician arrives to take charge. An effective means of artificial respiration is one which the rescuer knows best how to perform. Mouth-to-mouth breathing is the most effective method now known. The back pressure-arm lift method is next most efficient. The Schafer prone-pressure method may also be used.

4. If breathing becomes difficult or color of the patient becomes blue-gray, check for an obstructed airway. If the airway is clear, oxygen may be given by face mask, but only by someone familiar with the use of the equipment and authorized to do so.

5. Call a physician as soon as possible or send someone to do this. Make sure the physician knows where he is needed and why he is needed.

6. Never leave an unconscious person unattended.

7. Never attempt to give an unconscious person anything by mouth.

Skin Exposure

1. Small exposures of the skin should be promptly flooded with water and followed by thorough, gentle scrubbing with soap and water.

2. Contaminated clothing should be removed and the underlying skin washed with running water followed by soap and water.

3. If large skin or clothing contact occurs, the person(s) should be hurried to the nearest shower and clothing removed while standing in the shower. The skin should be thoroughly washed with water in the shower followed by gentle scrubbing with soap and water.

4. Contaminated clothing should not be worn again until laundered.

5. A physician should see those cases which show skin effects from the exposure or in whom symptoms of systemic illness appear.

Swallowing

1. Cause the victim to vomit as quickly as possible. This may be done by having him drink a lot of water then sticking a finger down his throat. Another effective means of causing vomiting is to drink a glass of warm water in which a tablespoon of salt has been dissolved. CAUTION: If strong caustic chemicals have been swallowed, vomiting may rupture damaged tissue. Never give an unconscious person anything by mouth.

2. Call a physician at once.

3. Keep the victim lying down and keep him warm and comfortable.

Eye Exposure

1. Take the victim immediately to the nearest water fountain or other source of clean running water.

2. Spread the lids with the fingers and allow the water to flood the eye.

3. Roll the eye about so that the water may contact all eye surfaces.

4. Continue such emergency washing for 15 minutes.

5. Take the victim to a first-aid station or to a physician as soon as possible after the emergency washing period is completed.

EARTHQUAKES

Emergency Services Actions

A. General Information

The earthquake is a shaking or trembling of the crust of the earth, caused by underground volcanic forces or the breaking and shifting of rock beneath the surface.

Earthquakes are unpredictable and strike without warning. They may range in intensity from slight tremors to great shocks and may last from a few seconds to as much as five minutes. They could come in a series over a period of several days.

The actual movement of the ground in an earthquake is seldom the direct cause of injury or death. Most casualties result from falling objects and debris because the shocks can shake, damage or demolish buildings and other structures.

The disruption of communications along with light and power lines, and gas, sewer or water mains can be expected. Earthquakes may also trigger landslides and generate huge ocean waves, each of which can cause great damage.

B. Definitions

Earthquake Magnitude—The energy released by the earthquake, as expressed on a recording device, using the Richter scale.

Earthquake Intensity—The damage caused by the earthquake as expressed by the Mercalli scale.

Tsunami—A large wave created when the energy produced by an undersea earth movement or volcanic eruption impacts on a beach having characteristics suitable to produce such waves. Also commonly referred to as a tidal wave.

Epicenter—That point on the earth's surface directly above the center of the earthquake.

C. Upon receipt of a report that an earthquake is occurring or has occurred in the vicinity, take the following actions:

1. Notify the chief executive and civil defense director who, if the situation requires, will activate the Emergency Operating Center in accordance with "Executive Leadership Actions for All Major Emergencies."

2. Assess the situation. Initiate reporting to assist in damage assessment. This should include private industry, business, and utilities in the area. Utility damage and hazards are particularly important.

3. Evaluate the overall community situation. Compare reports from the incident areas by the police, fire, and public works officials in charge of operations with other reports to obtain a communitywide assessment of the situation. This evaluation should produce more effective decisions on what is needed, where, and when.

4. Keep in communication with the incident areas to determine priorities for handling

rescue, casualties, firefighting, spillages of chemicals, health hazards due to sewage line breakages, flooding, electric outages, shelter in extremely bad weather, and other immediate operational requirements.

5. Provide specific information for broadcasts over radio _____ and television _____ to keep public advised of threats such as aftershocks, and of what actions should be taken. (See accompanying "Suggested Citizen Instructions.")
(identify local stations) (identify channels)

6. Designate field operations chiefs as required and appropriate; e.g., public works engineers on floods, senior fire officers on fires, senior police officers on evacuation and traffic movement. Use appropriate Emergency Service Actions Checklist and accompanying "Suggested Citizen Instructions."

7. If necessary, get mutual aid in accordance with agreements.

8. If the disaster gets beyond local capability, it may be necessary to mesh local Emergency Operating Center functions with State and Federal emergency organizations and request Federal assistance. (See appropriate items of the "Executive Leadership Actions for All Major Emergencies.")

9. Allow no one in the disaster area unless authorized. Cordon the area of rescue, fire, and other hazardous operations. Reroute traffic as required, keeping the public informed through news broadcasts.

10. Maintain current situation reporting from the field to the Emergency Operating Center. Provide information for periodic and flash releases to the public when necessary to minimize public alarm, keep the operations area clear, and assist the Emergency Services forces.

11. Initiate inspection of public and private buildings and other structures for hazards and structural damage necessitating early condemnation, evacuation, demolition, or other safety measures. This should be under the direction of the senior public works engineer.

12. When conditions permit, close out emergency operations, notify the Emergency Operating Center, and submit final reports, as required.

NOTE

A large-scale disaster, such as a serious earthquake, can create the need for long periods of repair and restoration. This in turn may necessitate manpower, equipment, materials, and supplies at the scene of restoration, long after the closing of the Emergency Operating Center.

Tsunamis have been mentioned only briefly in this handbook. However, they do present a significant although relatively rare threat to communities on the Pacific Coast where special attention should be given to their possible occurrence.

EARTHQUAKES

Suggested Citizen Instructions

A. General Information

The earthquake is a shaking or trembling of the crust of the earth, caused by underground volcanic forces or by breaking and shifting of rock beneath the surface.

Most natural hazards can be detected before their threat matures, but not earthquakes. However, the National Oceanic and Atmospheric Administration of the Department of Commerce monitors global earthquake activity and crustal movements, detects and warns against Pacific tsunamis (tidal waves generated by some earthquakes), measures earthquake effects on buildings, and seeks to learn what, if any, advance signal an earthquake might give.

B. Safety Rules

The actual earth movement of an earthquake is seldom a direct cause of death or injury. However, this movement causes collapse of buildings and other structures. Most casualties result from falling objects and debris, such as:

1. Falling bricks and plaster.
2. Splintering glass.
3. Toppling furniture, collapsing walls, falling pictures and mirrors.
4. Rock slides on mountains and hillsides.
5. Fallen power lines.
6. Sea waves generated by earthquakes.
7. Fire resulting from broken gas lines and spillage of gasoline and other flammables—a danger which may be aggravated by lack of water due to broken mains.
8. Drastic human actions resulting from panic. (This rarely happens.)

The following is a list of items to consider before, during, and after an earthquake.

Before an Earthquake

1. Check for earthquake hazards. Bolt down or provide other strong support for water heaters and other gas appliances. Much fire damage has resulted from toppled appliances and broken gas lines caused by earthquakes. Place large and heavy objects on lower shelves of closets and storage areas. Brace or anchor high or top-heavy objects. Wire or anchor overhead lighting fixtures. Do not stack glassware or crystal; slight shaking will topple it.

2. In new construction, follow building codes or other sound practice to reduce earthquake hazards. Build on solid ground or dig down to bedrock when laying foundations. Avoid fill and sedimentary areas as much as possible and do not build below dams that might be destroyed, severely damaged, or breached.

During an Earthquake

1. Remain calm. Think through the consequences of any action you plan to take. Try to reassure others.

2. If indoors, watch for falling plaster, bricks, light fixtures, and other objects. Watch out for high bookcases, china cabinets, shelves, and other furniture which might slide or topple. Stay away from windows, mirrors and chimneys. If in danger, get under a table, desk, or bed; in a corner away from windows; or in a strong doorway. Encourage others to follow your example. Do not run outside. Don't use candles, matches or other open flames during the tremor. Douse all fires.

3. If outside, avoid high buildings, walls, power poles, and other objects that could fall. Do not run through streets. If surrounded by buildings, take shelter in the nearest strong one. If possible, move to an open area away from all hazards. If in an automobile, stop in the safest place available, preferably an open area. Stop as quickly as safety permits, but stay in the vehicle for the shelter it offers.

After an Earthquake

1. Check for injuries. Do not attempt to move seriously injured persons unless they are in immediate danger of further injury.

2. Check for fires.

3. Wear shoes in all areas near debris or broken glass.

4. Check utility lines and appliances for damage. If gas leaks exist, shut off the main gas valve. Shut off electrical power if there is damage to wiring. Do not use matches or lighters until it has been established that there are no gas leaks.

5. Do not turn light switches on and off. This creates sparks which can ignite gas from broken lines.

6. Clean up spilled medicines, drugs, and other potentially harmful materials immediately.

7. Draw a moderate quantity of water in case service should be disrupted. Do not draw a large quantity as this could interfere with firefighting. If water is off, emergency water may be obtained from hot water heaters, toilet tanks, melted ice cubes, and water packed in canned vegetables. If water pipes are damaged, shut off water supply at main valve.

8. Check to see that sewage lines are intact before permitting continued flushing of toilets.

9. Do not eat or drink anything from open containers near shattered glass, as glass contamination may exist. Only if their use is essential should liquids be strained through many folds of a clean handkerchief or cloth.

10. Check chimneys for cracks and damage. Unnoticed damage could lead to a fire. The initial check should be made from a distance. Approach chimneys with great caution.

11. Check closets and storage shelf areas. Open closet and cupboard doors carefully to guard against objects falling.

12. Check individual house or apartment building for structural damage and if deemed necessary evacuate your family until competent authority declares it safe to return. Stay out of severely damaged buildings; aftershocks can shake them down.

13. Do not heed or spread rumors. They often do great harm following disasters. Stay off the telephone, except to report an emergency. Turn on your radio and/or television to get the latest emergency bulletins.

14. Do not go sightseeing immediately, particularly in beach and waterfront areas where sea waves could strike, or in areas where buildings have collapsed or where electric wires may be down but still alive. Keep the streets clear for passage of emergency vehicles. Be prepared for additional earthquake shocks.

15. Respond to requests for assistance from police, firefighting, and relief organizations, but do not go into damaged areas unless your assistance has been requested. Cooperate fully with local authorities.

ENEMY ATTACK

Emergency Services Actions

A. General Information

The threat of an enemy attack upon the United States would call for a number of preparedness actions in addition to those measures recommended for handling major peacetime emergencies and disasters. These actions would primarily aim at protecting citizens against the fallout radiation hazard that nuclear attack would create.

Every community would find itself involved in preparedness actions. Small communities in particular would need to accelerate preparedness since they often do not have ongoing civil defense programs of the type and scope required.

Defense Civil Preparedness Agency publications "In Time of Emergency" (H–14) and the "Federal Civil Defense Guide" contain the type of information that would be needed in making preparations to meet an attack-caused emergency, and these publications are available from State civil defense agencies. The actions outlined below include only the most essential measures, described in general terms.

B. If a period of severe international tension occurs–State authorities may recommend that local governments take actions to increase their civil defense readiness. The State would probably specify the actions to be taken at various times during the crisis, including the following Increased-Readiness actions to be taken by the Chief Executive or his civil defense director.

1. Assemble heads of Emergency Services, local industry and labor leaders, and voluntary agency representatives for a briefing on the situation. If not already done, develop a local civil defense plan, using Chapter II of this handbook, on "How to Develop A Basic Plan Of Operations For Major Emergencies." If the plan exists, review and update it.

2. Check availability of "In Time of Emergency" materials (see list following section F) and Federal Civil Defense Guide, particularly Chapter G–5, "Actions for Increasing Local Government Civil Defense Readiness."

3. Advise citizens on the following topics as a minimum (making use of "In Time of Emergency" materials described at the end of this checklist) :

a. The hazard that would be created by radioactive fallout should the United States suffer attack; how radioactive fallout particles give off most of their radiation quickly; and how heavy materials (bricks, earth, etc.) provide protection (shielding) against fallout radiation.

b. The local system for getting attack warning to the people, and how to get further information from radio broadcasts.

c. The local emergency action plan, including advice for citizens on *where to go and*

what to do in case of attack. If a Community Shelter Plan (CSP) has been prepared for your community, prepare to publish (or re-publish) it, and to distribute it to the citizens. If a CSP has not been prepared, develop the best information you can for the citizens. (Include the location of any public fallout shelters in the community; also include advice for people in areas without public shelters, on how to improvise additional fallout protection in homes with or without basements.) Distribute the foregoing information on "where to go and what to do" when State authorities recommend doing so.

d. Emergency supplies to be taken to public fallout shelters, if available, or to shelter areas in the home—especially water, foods requiring no cooking, and special medicines.

e. Care and use of water and food supplies, and maintaining sanitation in public or home shelter areas.

f. Reducing fire hazards (especially *closing window blinds, draperies, etc., or covering windows*), and *rapidly extinguishing ignitions* caused by nuclear bursts before they grow into fires that citizens cannot extinguish.

g. Emergency care of the sick and injured.

h. The need to follow *official* instructions.

4. Start civil defense training, particularly of radiological monitors and shelter managers, as well as citizen training on fire protection and medical self help. (Contact State civil defense for assistance in locating qualified instructors.) If such training is already being given, accelerate it.

5. Develop or improve Emergency Operating Center facility so that it meets at least minimum requirements for a civil defense emergency; note need for *fallout protection* and other features (emergency power, etc.) described in Federal Civil Defense Guide Appendix E–2–2.

6. Exercise alerting, staffing, and operating the Emergency Operating Center; maintain a 24-hour communications watch, ready to give public warning if required. *Don't* sound sirens or other warning devices, but test individual components of warning system to make sure the system will work if required.

7. Check, and improve as required, plans and readiness of personnel and equipment in each of the following areas that applies to your jurisdiction: communications, warning, radiological defense, public shelter, public works engineering, rescue, fire prevention and control, law and order, emergency welfare, health-medical, school system, industry, and local resource plans. For details, see Federal Civil Defense Guide Chapter G–5, "Actions for Increasing Local Government Civil Defense Readiness."

THE FOLLOWING SECTIONS—C, D, E, AND F—LIST THE ACTIONS THAT THE CHIEF EXECUTIVE, PREFERABLY THROUGH HIS LOCAL CIVIL DEFENSE DIRECTOR, DIRECTS BE TAKEN, IF NOT ALREADY DONE.

C. Upon receipt of Attack Warning or notice of a nuclear detonation:

1. Sound public warning devices, followed by broadcasts of instructions for citizens.

2. Direct key local officials to report to Emergency Operating Center; activate EOC and establish communications with next higher EOC (such as County or State); check all

communications systems including radio backup; check food, water, fuel, and other EOC supplies.

3. Activate shelter management staffs if the community has public fallout shelters.

4. Assist public to reach shelter, if community has public shelters, using police and other Emergency Services.

5. If community has access to local or nearby radio or TV stations, advise public on last-minute actions to *improvise additional fallout protection* in homes with or without basements, using dense materials for shielding; also advise people using home shelter areas to check and supplement subsistence supplies, particularly water, foods requiring no cooking, and special medicines; give last-minute advice on fire prevention and extinguishment per B 3 f above.

6. Activate radiological monitoring stations, if available, and direct radiological monitors to check equipment.

7. Monitor warning system and Emergency Broadcast System for information or instructions.

D. Upon notice of a nuclear detonation—either from monitoring the warning system and Emergency Broadcast System, from the next higher EOC, or from visual sighting, the following actions are taken:

1. Maintain information log on nuclear detonations, including time and direction. Report to next higher level EOC if damage resulted locally.

2. Instruct monitoring stations (if available) to determine time of initial arrival of fallout (0.5 R/hr); when fallout intensity increases to over 50 R/hr; and time of peak (highest) fallout intensity, if any of these events occur. Report foregoing information to next higher level EOC if requested. If community does *not* have radiological monitors and instruments, request next higher level EOC to provide forecasts and warnings of estimated time of fallout arrival, as soon as information is available.

3. Continuously assess local situation, particularly fallout and fire hazards.

4. Make initial computation of estimated time when citizens can be released from shelters. (If community does not have a Radiological Defense Officer who can make this computation, request assistance from next higher level EOC.)

5. Keep people in public shelters advised on fallout and fire hazards, and other aspects of the situation as it develops (e.g., by telephone contact with shelter managers). If community has access to Emergency Broadcast System, advise people in home shelters on situation.

6. Establish maximum limit for radiation exposure of Emergency Service personnel who may be called upon to perform emergency missions outdoors. (Ordinarily this should not exceed 150 R total exposure in one week, and should if possible be set lower.) Check whether dosimeters are available for personnel who may be called on for outdoor work, and ensure that radiation exposure records will be kept for such personnel. If dosimeters are not available, calculate time limits for outdoor work so that total exposure limit will not be exceeded; if community does not have a Radiological Defense Officer who can make this calculation, request assistance from next higher level EOC. Rules of Thumb for outdoor operations by crew members with little or no previous exposure to radiation are:

a. If radiation intensity is *over 50 R/hr,* conduct only the most critical, life-or-death operations. (Example: evacuating people from buildings threatened by uncontrollable fire.)

b. If radiation intensity is *between 0.5 and 50 R/hr,* essential outdoor operations can be conducted, but Emergency Service personnel should not receive more than the total radiation exposure previously set, and *the life-saving payoff of the operations should be great enough to justify the radiation exposure* that the Emergency Service personnel will receive. (Example: A decision could be made to send a crew of 5 members to bring water to a public shelter containing 83 people, without any water to drink, even though the crew members would be exposed to an estimated 110 R total radiation dose.)

7. Answer calls for help, where radiation exposure to personnel performing outdoor missions is justified by lifesaving potential of operations. If critical problems arise that cannot be met with forces or resources available within the community, request help from next higher-level EOC.

E. Prior to estimated time when citizens can be released from shelters:

1. If advised by next higher level EOC that further attack is unlikely, establish approximate time for releasing citizens from shelter, based on calculations on fallout and other hazards affecting the area. (If community has no Radiological Defense Officer able to make these computations, request assistance from next higher level EOC.)

2. Assess amount and condition of essential resources available in or near the jurisdiction, particularly drinking water, food, gasoline and other petroleum products, and medical supplies.

3. Assess status of utilities in or near the jurisdiction (electric power generating plant, telephone exchange, water purification plant, sewage treatment plant, etc.)

4. Establish interim standards for local consumer rationing, based on availability of and expected demand for essential resources.

5. Issue State Resources Management Directives, if available (in writing, or received from next higher EOC). If community has access to local or nearby radio or TV stations, follow up with broadcast on consumer rationing arrangements and how resources will be managed locally. If community does not have access to radio or TV, transmit information to any people in public shelters, and prepare for printing notices for remainder of citizens, for distribution after release from home shelters.

6. Alert ration registration teams and check on availability of required forms and materials.

7. Alert Emergency Personal Service (or "Welfare") teams.

8. Arrange for utility personnel to start repair and restoration of public utilities, if needed, before release of the people from shelter.

9. Establish security measures for essential resources (food, gasoline and petroleum products, medical supplies, etc.) ***before*** release of the people from shelter.

F. At the appointed time for releasing population from shelter:

1. Inform (or reinform) citizens on consumer rationing arrangements and how resources will be managed locally, and on where citizens will be housed after release from shelter (e.g., at home if community is undamaged).

2. Continue security measures for essential resources (food, gasoline and petroleum products, medical supplies, etc.).

3. Start registration for consumer rationing (register people in public shelters before they leave shelter, if possible).

4. When the foregoing preparations have been made, issue instructions for release of people from public shelters. Using local or nearby radio or TV stations, police personnel, or other means, advise people who took shelter at home that they may leave shelter areas.

5. Enforce State Resources Management Directives.

6. Provide assistance for more seriously affected communities as requested by next higher level EOC; e.g., mobilize and send medical assistance teams, receive and care for injured or uninjured survivors from damaged areas, etc.

NOTE re CITIZENS' INSTRUCTIONS TO BE ISSUED DURING PERIODS OF INTERNATIONAL CRISIS

This section does not have a companion section on "Suggested Citizen Instructions" because the Defense Civil Preparedness Agency has made these basic "rules" available to State and local directors in a variety of formats. All carry the title, IN TIME OF EMERGENCY, and consist of the following:

1. *Public Handbook,* H–14, English and Spanish editions. (Spanish edition is coded H–14–A.)

2. *Newspaper Kit,* K–43. Ten articles in matrix and reproduction proof form.

3. *Two Radio Kits.* Both kits consist of a record and live copy. Kit No. 1 has 10 one-minute spot announcements. Kit No. 2 has six feature announcements ranging in time from two to seven minutes each.

4. *Television Kit.* Ten one-minute spot announcements with slide visuals for each spot.

5. *Motion Picture.* A 25½-minute color film.

All of these IN TIME OF EMERGENCY materials are for use by local communities today. However, local directors would find them especially useful in getting lifesaving instructions to their people *in a crisis period.*

In addition, hundreds of local communities have distributed Community Shelter Planning instructions to their people, and are prepared to reissue these localized emergency instructions in a crisis period as local "news" rather than an information project funded by the Federal Government. In a crisis, there would not be *time* for such Federal funding arrangements.

Local fire departments should take the lead in instructing citizens on:

1. Fire-prevention actions to be taken during crisis periods (most important action is to keep window blinds or draperies closed, or cover windows with whitewash, mud, etc.).

2. The need to extinguish rapidly (within 5 to 7 minutes) any ignitions caused by nuclear bursts, before ignitions grow into fires that citizens cannot put out. (Example actions: stamp out ignitions in draperies; push smouldering items of furniture out of window or door.)

FLOODS

Emergency Services Actions

A. General Information

Normally, flooding will be a relatively slow process with adequate warning. The buildup to flood conditions will normally (except in case of a flash flood) take several days and in the meantime, progressive situation reports will be available from the Weather Service. Flash flood warnings are the most urgent type of flood warnings issued, and are also transmitted to the public over radio and television; this should be supplemented by a local warning system. A local government prearranged warning system (horns, sirens or other signals) should be established if it is required to meet local needs.

In communities where there is a history of recurring floods, the minimum requirement is to establish a continuing communication with the National Weather Service. For example, flood forecasts and warnings should be telephoned to the local police headquarters at agreed upon times. During the flood control planning phase, communities should coordinate closely with the nearest office of the U.S. Army Corps of Engineers *in accordance with established State procedures.* Also, the Corps of Engineers stands ready to offer preventive assistance for flood control when authorized under Public Law 99.

The following actions are recommended for (1) establishing flood watches, (2) making preparations to carry out flood warnings, (3) handling flood operations, such as search and rescue, and (4) restoring the flood area to normal. In cases of flash floods, the warnings will have to be greatly accelerated and there will be minimal time available for preparations to handle the flood or for conducting search and rescue during the early flood period.

B. When a flood threatens—take the following actions:

1. Notify the chief executive and civil defense director who will activate the Emergency Operating Center in accordance with the "Executive Leadership Actions for All Major Emergencies." (The emergency telephone numbers of the forecast and warning offices for the area should be inserted at this point.) _____ If a *Flood Watch* is called for, the EOC will maintain a 24-hour communications watch, place the Emergency Services on a standby watch alert, and notify all hospitals, schools, and voluntary groups listed on the *Flood Watch* alert list.

2. Survey all cooperative weather observers and stream gage reporting offices in the area to insure they are operating and reporting. If necessary, establish emergency communications procedures to assure such reports reach the proper National Weather Service office; use dike patrols and low flying aircraft if available.

3. Provide public information representative with information for broadcasts over radio and TV to remind the public to (1) stay tuned in for instructions and advice from local

governments; (2) remain calm; (3) begin precautionary measures. (See accompanying "Suggested Citizen Instructions.") A sample messsage is as follows:

"Radio stations _____ and television channels _____ will broadcast
(identify) (identify)
the latest flood information and warnings. Your local government's advice and instructions to the public during the emergency will also be issued over these stations by _____."
(Mayor/CD Director, etc.)

4. Assess the situation, including a determination of the potential risk area and an estimate of rise of water, based upon flood watch notification; initiate reports to and from private agencies and utilities in the risk area. (List telephone numbers, locations, persons to receive reports.)

Organization (Person)	*Location*	*Telephone*	
		Day	*Night*

C. If a flood warning is received or the Flood Watch so indicates, the Emergency Operating Center will be activated to full staff in accordance with "Executive Leadership Actions for All Major Emergencies."

Take the following additional actions:

1. Place into effect appropriate emergency plans and procedures. (List important details of local plans and procedures.)

2. Advise the public of what steps and actions are to be taken to safeguard their lives and property. (See accompanying "Suggested Citizen Instructions.")

3. Maintain morale by informing the public of the current situation and actions being taken by local government to handle the emergency.

4. Mobilize *all* Emergency Services (police, public works, fire, health, welfare, etc.).

a. Notify all personnel of the general situation and to report to emergency assignments.

b. Remind appropriate Emergency Service personnel to position equipment, fuel, and other essential supplies outside the anticipated flood area for use after the storm.

c. Check auxiliary generators and other power and lighting equipment. Place reserve EOC supplies and equipment, such as antennas, where they can be obtained following the flood.

5. Notify all agencies, facilities, and volunteer groups on the *flood warning* lists.

6. Advise the Superintendent of Schools to consider cancelling classes for the duration of the flood emergency.

7. Put the appropriate emergency plan(s) in operation, depending on what area may be flooded if the water continues to rise. Alternate plans, developed by local government, should include such information as the following: height of water at normal stage; at what height flooding will occur; areas that may be (or will be) affected by the rising flood waters; areas to be ordered evacuated; shelter locations for evacuees, feeding, and other requirements for taking care of evacuees.

8. Place into effect a highway traffic control plan to expedite movement from areas ordered evacuated. The plan should include designation of entrance routes for Emergency Services, mutual aid, etc., and exit routes for evacuation of citizens.

9. Set up patrols in evacuated areas for protection of property and prevention of fires, utilizing mutual aid, military assistance, etc., as available.

10. Conduct rescue of persons as required. (A major problem is the rescue of stranded inhabitants of the flooded areas, as well as of trapped motorists. The most practical solution is to use boats, helicopters, and specially equipped vehicles.)

11. Make electrical, gas, and water inspections as necessary to prevent accidents. (LP and bulk fuel tanks should be anchored or kept full to prevent floating and becoming a hazard.)

12. Maintain current situation reports from the field to the Emergency Operating Center. These are the basis for releases to the public when necessary to minimize public alarm, to keep the area clear, and to assist as required.

13. Restore the flood area to a safe condition, including inspection of flooded area and structures to lessen the probability of additional hazards, accidents, and fires. This period of operations is critical since the Emergency Services are usually deeply committed and fatigued from long time involvement in such activities as sandbagging, pumping, and shoring unsafe structures. Priority operations include:

a. Clear main streets of mud and debris first and the other streets as rapidly as possible.

b. When structures permit, pump water out of basements and lower floors.

c. Limit accumulation of food-type garbage as first priority, followed by general trash collection.

d. Initiate health and sanitation inspections of the area.

14. Close out emergency operations as soon as the flood area is considered safe, notify Emergency Operating Center and submit reports, as required.

REMEMBER THAT a large-scale flood can create the need for long periods of repair and restoration. This may necessitate manpower, equipment, materials, and supplies at the scene of restoration long after closing the Emergency Operating Center. The following safety, health and welfare measures for the general public should be covered by the local officials via radio, television, and newspapers. (Also see accompanying "Suggested Citizen Instructions.")

1. Safety measures to be taken after the flood.

2. Where to go to obtain necessary first aid and medical care in the area.

3. Where to go for necessary assistance, such as emergency housing, clothing, food.

4. Specific local measures to help themselves and their community recover from the emergency.

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FLOODS

Suggested Citizen Instructions

A. General Information and Definitions

The National Oceanic and Atmospheric Administration, NOAA, through its Weather Service's River Forecast Centers and River District offices, issues *flood forecasts and warnings* when rainfall is enough to cause rivers to overflow their banks and when melting snow may combine with rainfall to produce similar effects.

Flood warnings are forecasts of impending floods, and are distributed to the public by radio and television and through local government emergency forces. The warning message tells the expected severity of flooding (minor, moderate, or major), the affected river, and when and where flooding will begin. Careful preparations and prompt response will reduce property loss and ensure personal safety.

Flash flood warnings are the most urgent type of flood warning issued, and are also transmitted to the public over radio, television, and by other signals (e.g., sirens) established by local government to meet local needs.

B. Local Government Instructions

Area radio and television stations usually broadcast the latest flood information and warnings. However, local government should give more specific advice and instructions over *local* stations, preferably by the chief executive or his emergency public information representative. (Describe here any additional prearranged local warning system, if established for your local area.)

C. Suggested Flood Safety Instructions for Citizens

1. *Before the flood:*

a. Find out how many feet your property is above or below possible flood levels so when predicted flood levels are broadcast, you can determine if you may be flooded. (Specify whether this information may be obtained from the local government engineering department and/or civil defense office.) Also ask for the location of the nearest safe area.

b. Keep a stock of food which requires little cooking and no refrigeration; electric power may be interrupted.

c. Keep a portable radio, emergency cooking equipment, lights and flashlights in working order.

d. Keep first aid and critical medical supplies (prescriptions, insulin, etc.) at hand.

e. Keep your automobile fueled; if electric power is cut off, filling stations may not be able to operate pumps for several days.

f. Keep materials like sandbags, plywood, plastic sheeting, and lumber handy for emergency waterproofing.

2. *When you receive a flood warning:*

a. Store drinking water in closed, clean containers. Water service may be interrupted.

b. If flooding is likely, and time permits, move essential items and furniture to upper floors of your house.

c. If forced or advised to leave your home, move to a safe area *before* access is cut off by flood water.

d. Cut off all electric circuits at the fuse panel or disconnect switch. If this is not possible, turn off or disconnect all electrical appliances. Shut off the water service and gas valves in your home. (*Local Officials Note:* Before making announcements on shutting off gas valves, check local gas company policy.)

3. *During the flood:*

a. Avoid areas subject to sudden flooding.

b. Do not attempt to cross a flowing stream where water is above your knees.

c. Do not attempt to drive over a flooded road. You can be stranded and trapped.

d. If your vehicle stalls, abandon it immediately and seek higher ground. Many people drown while trying to rescue their car.

4. *After the flood:*

a. Do not use fresh food that has come in contact with flood waters.

b. Test drinking water for potability; wells should be pumped out and the water tested before drinking.

c. Do not visit disaster area; your presence will probably hamper rescue and other emergency operations.

d. Do not handle live electrical equipment in wet areas; electrical equipment should be checked and dried before returning to service.

e. Use flashlights, not lanterns or torches, to examine buildings; flammables may be inside.

f. Report broken utility lines to police, fire, or other appropriate authorities. (List telephone numbers and locations.)

Organization (Person)	*Location*	*Telephone*	
		Day	*Night*

g. Keep tuned to your radio or TV stations for advice and instructions of your local government on:

(1) Where to go to obtain necessary medical care in your area.
(2) Where to go for emergency assistance such as housing, clothing, food, etc.
(3) Ways to help yourself and your community recover from the emergency.

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FOREST AND WILDLAND FIRES

Emergency Services Actions

A. General Information

Any small fire in a wooded area, if not quickly detected and suppressed, can get out of control. An uncontrolled fire is one of the most destructive forces caused by nature or by man. It is a multiple killer of people, livestock, fish and wildlife. It destroys personal and real property, valuable timber, forage, watersheds, and inestimable scenic and recreational values. Severe soil erosion, silting of stream beds and reservoirs, and flooding often are serious aftermaths of fires.

Responsibility for fire protection on Federal lands is centered primarily in the Department of Agriculture, Department of Interior, and to a lesser degree in such agencies as the Department of Defense and the Tennessee Valley Authority. The States have recognized their responsibilities on State and private forest lands through the passage of numerous State laws, and have set up State forest agencies to protect these resources. In many instances, private interests have established their own fire control organizations. As the protection of natural resources often transcends property and State lines, a strong link of coordination and cooperation has developed between private, local, State, and Federal agencies. It is important that local officials have pre-fire knowledge of specific responsibilities for fire prvention and suppression in their own and adjacent jurisdictions. This can be accomplished through local participation in applicable State and Federal rural fire defense plans.

In addition to training and equipping their own fire department personnel for brush and forest firefighting, small communities near forest areas should consider such activities as radio and TV fire prevention programs, fire weather forecasting available from the National Weather Service, and mutual-aid compacts with adjacent communities and private agencies. *Any competent volunteer fireman can be trained and equipped to fight forest and wildland fires without much cost in time and money.* Any community fire department can provide the nucleus of a force that can prevent, detect, and suppress forest fires before they reach the disaster stage.

B. Upon receipt of a report that a forest fire threatens or is occurring in the vicinity—take the following actions:

1. Notify the chief executive and civil defense director who, if the situation warrants, will activate the Emergency Operating Center in accordance with "Executive Leadership Actions for All Major Emergencies."

2. Assess the fire situation, including a determination of the firespread potential risk area, and make an estimate of the speed and direction of wind at the scene. Initiate a system of reporting from private agencies and utilities that have facilities in the risk area.

3. Establish contact with the nearest office of the National Weather Service to insure

adequate forecasting support. If no National Weather Service Office is nearby, get information via State civil defense. Make sure the senior firefighting officer receives all weather information on a timely basis.

4. Keep in communication with the senior firefighting officer at the scene to obtain his strategy and the tactics he intends to use, plus his requirements for additional manpower, equipment, and supplies.

5. Evaluate the overall community situation. Compare reports from the scene by the senior firefighting officer to other reports to obtain a communitywide assessment of the situation. This evaluation provides a basis for effective decisions on how best to meet requirements. In addition to mutual aid, obtain specific information on sources of additional manpower, equipment, food, and other supplies. (List potential local sources, with telephone numbers and addresses.)

Organization (Person)	*Location*	*Telephone*	
		Day	*Night*

6. Provide public information officer with appropriate information for releases. (See accompanying "Suggested Citizen Instructions.")

7. Coordinate with responsible fire and other Emergency Services on plans for evacuation of area if required, designating exit routes for threatened citizens and entrance routes for Emergency Services; enlarge area of evacuation if situation requires; carry out plans as required.

8. If necessary, get additional aid from other communities in accordance with mutual-aid agreements.

9. If the fire situation gets beyond local capability, it may be necessary to mesh local Emergency Operating Center functions with State and Federal "campaign" fire organizations. This means higher levels of coordination and forest fire suppression techniques, including direct and indirect attack, control lines, backfiring, and use of air support coordinated by area "Fire Bosses."

10. It is essential for each local, area, and State Emergency Operating Center to know what the fire is doing at all times; maintain communications upward and down to the scene of operations. Make certain that exit routes for citizens and entrance routes for the Emergency Services are predetermined, ready for emergency use, and known to those who may have to use them.

11. Provide for cordoning the area of operations. Allow no one in the fire area except Emergency Services and their augmentation forces.

12. Keep Emergency Service personnel advised of area wind speeds and directions so they can minimize operational obstacles, such as smoke, fumes, and dust. Information can be obtained from the nearest National Weather Service office, or from State civil defense.

13. Reroute traffic as required on an area basis.

14. Maintain reports to the Emergency Operating Center for developing releases to the public, when necessary, to minimize public alarm, keep the area clear, and assist the Emergency Service forces. (See accompanying "Suggested Citizen Instructions.")

15. When fire is suppressed, restore the incident area to a safe condition to lessen the probability of further fires or accidents.

16. When firefighting operations are completed, the senior firefighting officer notifies the Emergency Operating Center.

17. Prepare and submit final reports, as required.

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FOREST AND WILDLAND FIRES

Suggested Citizen Instructions

A. General Information

Forest fires can occur at any time of the year but mostly occur during long dry hot spells.

B. Warnings

Though forest fires can start without warning, the Federal and State governments maintain a system of watch towers or surveillance aircraft manned by U.S. Forest Service and the State Forest Services to ensure that the location of fires can be determined, warnings issued, and necessary emergency actions taken. (Describe here any local prearranged warning system.)

C. Causes of Forest Fires

Most forest fires are caused by human carelessness, negligence, or ignorance. Forest fire prevention, therefore, is mainly a problem of creating a better understanding of the importance of forests, an awareness of the danger of fire in the woods, and a sense of personal responsibility to safeguard the forests from damage.

D. In Case A Forest Fire Threatens

1. Keep posted on progress of fire by listening to radio broadcast _____ (local station identifications) and television _____ (local channel identifications); e.g., "Local government advice and instruction will be issued over these stations by _____ (Mayor/Civil Defense Director/Other authorized official)."

2. To know what to do when a forest fire threatens may mean the difference between life or death. If you see such a threat, report it immediately by phone to the local police department, fire department, or fire warden. Do *not* use the phone to get information and advice—depend on radio or TV as indicated above. (List all local Emergency Service telephone numbers.)

3. If you are burning debris for cleanup, such as "woods-burning" in the South, immediately stop.

4. Put out all fires in homes and other structures.

5. If in woods, put out camp fires.

6. Make certain your own property is clear of combustibles, particularly brush that is hazardous to your home or other structures.

7. Hook up garden hoses and check out your water supply for possible "wetting down" of roofs if sparks from the forest fire threaten.

8. If time permits and it is required, remove and clear away flammable vegetation up to 30 feet on each side of your home or other structure (this is an extension of Step 6).

9. Close all windows (cover if possible), remove combustibles near windows and other openings, protect and secure stock and pet animals.

10. After your own home is prepared, be ready to assist in constructing community firebreaks *if* asked to do so.

11. If area evacuation is called for, get full information on exit routes and relocation areas.

E. If Your Community Is Involved In A Forest Fire

1. Cooperate with authorities. Keep posted on progress of fire by listening to radio broadcasts _____ and television _____; e.g., "Local
(local station identification) (local channel identification)
government advice and instructions will be issued over these stations by _____."
(name of official)

2. Follow evacuation directions. Safe exit routes are as follows (describe the area to be evacuated and relocation areas, specified by street, route number, etc.).

3. *Do not use firefighting entrance routes.* These are reserved for Emergency Services only.

4. Assist in community firefighting operations if you are between ages __ and __ and able bodied. Report to _____. All others keep clear of fire area.
(specify checkpoint area)

5. Make certain you are under the supervision of a designated firefighter. Follow his instructions since he knows how the fire is being fought and where you will be of most value to the operation.

6. Follow safety precautions to prevent getting trapped. Ground winds and fuels are tricky. Follow instructions. (List any special instructions to cope with local hazards.) Keep informed. Know where the fire is in relation to you. Know your escape route. Keep calm. Maintain communication with your supervisor. (*Don't go it alone!*) Make sure you understand instructions.

HURRICANES

Emergency Services Actions

A. General Information

The National Weather Service is responsible for issuing warnings when hurricanes are approaching the United States mainland.

As soon as there are definite indications that a hurricane is forming, even though it is a thousand miles or more from the mainland, the storm is given a name and the Weather Service begins issuing *"Advisories"* and *"Bulletins."* These are issued frequently throughout the day and night and tell where the storm is located, intensity of its winds, and the speed and direction of movement.

If the hurricane moves toward the mainland, *"Hurricane Watch"* notices are included. The *Hurricane Watch does not* constitute a warning that hurricane conditions are imminent. Rather, it indicates that the hurricane is close enough so that everyone in the area covered by the "WATCH" should listen for further advisories and be ready to take precautionary action in case *"WARNINGS"* are issued.

As soon as the forecaster determines that a particular section of the coast will feel the full effects of a hurricane, he issues a *"HURRICANE WARNING."* Hurricane Warnings specify coastal areas where winds of 74 miles-per-hour or higher or dangerously high water are expected to occur. When the warnings are issued, all precautions should be taken immediately against the full force of the storm.

B. Upon receipt of an advisory from the Weather Service that a "Hurricane Watch" is in effect—take the following actions:

1. Notify the chief executive and civil defense director who will activate the Emergency Operating Center in accordance with "Executive Leadership Actions for All Major Emergencies."

2. Ensure that appropriate information and instructions based on the latest hurricane advisories are broadcast by radio and TV. For example:

"Radio Station _____ and Television Channel _____ will broadcast
(identify) (identify)
latest hurricane advisories. Your local government advice and instructions will also be issued over these stations by _____."
(Mayor/CD Director/Other Authorized Official)

3. Add information from the State civil defense agency on tracking the storm to Step 2, if available.

4. Assess the situation and review preparedness procedures for evacuation and other possible local alternate plans.

5. If possible, determine probable risk area. Initiate reporting of situation to industries,

utilities, schools, and other facilities in the probable risk area. Dispatch Emergency Service field personnel (particularly police) to alert exposed settlements and trailer camps to maintain a constant radio watch for further instructions.

6. Provide continuing instructions to the public, such as:

a. Advise people on where to go *if* they are warned to evacuate. (Attach local listing of hurricane shelters and locations.)

b. Routes to use when area is ordered evacuated. (Provide map of proposed evacuation routes to assist the announcer.)

7. Maintain contact with State civil defense agency for advice and guidance on the developing situation.

8. Have highway and public works departments make preparations for placing emergency directional and detour signs as called for under evacuation and traffic control plans.

C. Upon receipt of a Hurricane Warning—take the following actions:

1. Place the Emergency Operating Center in full scale operation, including emergency communications systems, plans, and procedures.

2. Step up broadcasts over radio _____ and TV _____ to remind public to:
(identify station) (identify channel)

a. Remain calm

b. Remain at home

c. Make preparations for evacuation if ordered to do so

d. Stay tuned in continuously

e. Begin precautionary measures (See accompanying "Suggested Citizen Instructions.")

3. Notify all agencies and individuals on the *Hurricane Warning* lists.

4. Advise the Superintendent of Schools to consider cancelling classes for the duration of the emergency.

5. Put the appropriate hurricane emergency plan in operation, depending on the maximum tide height expected which will indicate areas to be evacuated. Alternate plans, developed by local government, should include: Areas to be evacuated; shelter locations for evacuees; feeding and other requirements for taking care of evacuees.

6. Remind appropriate Emergency Service personnel to position equipment, fuel, and other essential supplies outside the anticipated storm area for use after the storm.

7. Check auxiliary generators and other power and lighting equipment. Place reserve EOC supplies and equipment, such as antennas, where they can be obtained following the storm.

8. Place into effect a highway traffic control plan to expedite movement from areas ordered evacuated to hurricane shelters. The plan should include designation of exit routes by evacuees, and provision for broadcasting information to the public.

9. Set up patrols to cordon evacuated areas to prevent fires, looting, and property damage.

10. If the hurricane strikes, commence Search and Rescue and other emergency operations as soon as possible and as required, in accordance with appropriate Action Checklists.

11. After passage of the hurricane, broadcast advice and instruction to the public:

a. That they should remain in shelters until informed by those in charge that they may return to their homes.

b. Where assistance may be obtained.

12. As soon as situation permits, resume normal routine, notify Emergency Operating Center, and submit final reports, as required.

NOTE: When a hurricane strikes a community, it may necessitate manpower, equipment, materials, and supplies at the scene of restoration, long after closing of the Emergency Operating Center.

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HURRICANES

Suggested Citizen Instructions

A. General Information—WARNINGS:

1. The National Weather Service issues warnings when hurricanes are approaching the United States mainland.

2. *A HURRICANE WATCH* means a hurricane *may* threaten an area within 24 hours. A Hurricane Watch is *not* a hurricane warning, but a first alert for emergency forces and the general public in prospectively threatened areas. When your area is under a Hurricane Watch, you should continue normal activities, but stay tuned to radio or television for all Weather Service advisories.

3. *A HURRICANE WARNING* becomes part of advisories when a hurricane is expected to strike an area within 24 hours. Advisories containing hurricane warnings include an assessment of flood danger in coastal and inland areas, small craft warnings, gale warnings for the storm's periphery, estimated storm effects, and recommended emergency procedures. (See list of recommended precautionary measures in Sections B, C, and D, below.)

4. Radio _____ and television _____ will
(local station identifications) (local channel identifications)
broadcast latest hurricane advisories; e.g., "Local government advice and instructions will be issued over these stations by _____."
(Mayor/Civil Defense Director/Other authorized official)

B. Precautionary Measures—AFTER WARNING AND PRIOR TO HURRICANE

1. Keep your radio or television on and listen for the latest Weather Service warnings and advisories. When a hurricane approaches, *also* listen for *tornado* watches and warnings. (See "Suggested Citizen Instructions for Tornadoes.") If power fails, use portable battery radio or your car radio. Check your battery-powered equipment. Your radio may be your only link with the world outside the hurricane, and emergency cooking facilities and flashlights will be essential if utility services are interrupted.

2. Plan your time before the storm arrives. Waiting until the "last minute" might mean you'll be marooned.

3. Leave beaches or other low-lying areas that may be swept by high tides. Leave early; don't run the risk of being marooned.

4. Moor your boat securely before the storm arrives, or move it to a designated safe area. When your boat is moored, leave it, and don't return once the wind and waves are up.

5. Board up windows or protect them with storm shutters or tape. Danger to small windows is mainly from wind-driven debris. Larger windows may be broken by wind pressure.

6. Secure outdoor objects that might be blown away or uprooted. Garbage cans, garden tools, toys, signs, porch furniture, and a number of other harmless items become missiles of destruction in hurricane winds. Anchor them or store them inside before the storm strikes.

7. Store drinking water in clean, closed containers, such as jugs, bottles, and cooking utensils. Your town's water supply may be contaminated by flooding or damaged by the hurricane.

8. Keep your car fueled. Service stations may be inoperable for several days after the storm strikes, due to flooding or interrupted electrical power.

9. Unless advised to evacuate, stay at home if your house is sturdy and on high ground. If it is not or you live in a mobile home, move to a designated shelter and stay there until the storm is over.

10. Remain indoors during the hurricane. Travel is extremely dangerous when winds and tides are whipping through your area.

11. Beware the "eye" of the hurricane. If the calm storm center passes directly overhead, there will be a lull in the wind lasting from a few minutes to half-an-hour or more. Stay in a safe place unless emergency repairs are absolutely necessary. But remember, at the other side of the "eye" the winds rise very rapidly to hurricane force, and come from the opposite direction.

C. Evacuation

If you are warned to evacuate your home and move to another location (including predesignated hurricane shelters) temporarily, there are certain things to remember and do. Here are the most important ones:

- FOLLOW THE INSTRUCTIONS AND ADVICE OF LOCAL AUTHORITIES. If you are told to evacuate, do so promptly. If you are instructed to move to a certain location, go there—don't go anywhere else. If certain travel routes are specified or recommended, use those routes rather than trying to find short cuts of your own. If you are told to shut off your water, gas or electric service before leaving home, do so. Also find out from the radio or TV where emergency housing and mass feeding stations are located, in case you need to use them.
- SECURE YOUR HOME BEFORE LEAVING. If you have time, and if you have not received other instructions from the local authorities, you should lock your house doors and windows. Park your car in the garage, carport, or driveway, close windows, and lock the car (unless you are driving to your new temporary location).
- TRAVEL WITH CARE. If the local authorities are arranging transportation for you, precautions will be taken for your safety. But if you are walking or driving your own car to another location, keep in mind these things:
  - —Leave early enough so as not to be marooned by flooded roads, fallen trees, and wires.
  - —Make sure you have enough gasoline in your car.
  - —Follow recommended routes.
  - —As you travel, keep listening to the radio for additional information and instructions from your local government.

D. Safety Measures—After Passage of Hurricane

1. Remain in shelters until informed by those in charge that you may return to your home.

2. Keep tuned to your radio or TV stations for advice and instructions of your local government on:

a. Where to go to obtain necessary medical care in your area.

b. Where to go for necessary emergency assistance for housing, clothing, food, etc.

c. Ways to help yourself and your community recover from the emergency.

3. Use extreme caution in entering or working in buildings that may have been damaged or weakened by the disaster; they may collapse without warning. Also, there may be gas leaks or electrical short circuits.

4. Don't take lanterns, torches, or lighted cigarettes into buildings that have been damaged by a hurricane; there may be leaking gas lines or flammable material present. Use battery-powered flashlights, spots, etc., if available.

5. Stay away from fallen or damaged electric wires, which may still be dangerous. Notify the power company, or the police or the fire department. (List telephone numbers for these agencies.)

Organization (Person)	*Location*	*Telephone* *Day*	*Night*

6. Check for leaking gas pipes in your home. Do this by smell—don't use matches or candles. If you smell gas, do this: (1) open all windows and doors; (2) turn off the main gas valve at the meter; (3) leave the house immediately; (4) notify the gas company (Telephone No. _____) or the police (Telephone No. _____); (5) don't re-enter the house until you are told it is safe to do so.

7. If any of your electrical appliances are wet, first turn off the main power switch in your house, then unplug the wet appliance, dry it out, reconnect it, and finally, turn on the main power switch. (Caution: Don't do any of these things while you are wet or standing in water.) If fuses blow when the electric power is restored, turn off the main power switch again and then inspect for short circuits in your home wiring, appliances, and equipment.

8. Check your food and water supplies before using them. Foods that require refrigeration may be spoiled if electric power has been off for some time. Also, do not use fresh food that has come in contact with flood waters.

9. Stay away from disaster areas. Sightseeing could interfere with first-aid or rescue work, and may be dangerous as well.

10. Don't drive unless necessary, but if you must, drive with caution. Watch for hazards to yourself and others, and report them to local police or fire departments.

11. Report broken sewer or water mains to the water department. (Telephone No. _____)

REMEMBER: Hurricanes moving inland can cause severe flooding. Stay away from river banks and streams until all potential flooding is past.

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MAJOR STRUCTURAL FIRES

Emergency Services Actions

A. General Information

The most important aspect of planning for coping with a major structural fire is the development of mutual-aid pacts with nearby local governments and State or Federal installations. Fire control methods and techniques vary widely in different parts of the country as well as between the various fire protection agencies. It is difficult to prescribe a standard procedure for small communities because generally fire organizations have been developed over the years to meet the specific needs of different areas.

Smaller communities cannot afford to maintain the standing forces required to meet a major fire situation and so they rely on mutual aid. To be effective in cases of large fires, industrial explosions, and forest fires, mutual aid requires good communication, accessibility to the fire scene, prearrangement for use of apparatus and manpower, and centralized command. The biggest single need is *not* usually manpower and equipment. Most often it is the ability to respond quickly and to confine the fire to manageable limits before it reaches the disaster stage. This calls for a pre-fire plan of action for mutual-aid response by existing local fire organizations. Experience shows that where such plans of action existed at the time of a large fire, the emergency usually has been manageable, with life and property loss held to a minimum.

B. Upon receipt of a report that a major structural fire threatens or is occurring in the vicinity—take the following actions:

1. Notify the chief executive and civil defense director who, if the situation warrants, will activate the Emergency Operating Center in accordance with "Executive Leadership Actions for All Major Emergencies."

2. Assess the fire situation, including a determination of the area to which the fire might spread and an estimate of speed and direction of wind at the scene. Initiate a system of reporting from industries and utilities that have facilities in the risk area.

3. Keep in communication with the senior fire officer at the scene to obtain his strategy and the tactics he intends to use, plus requirements for additional manpower, equipment, and supplies.

4. Evaluate the overall community situation. Compare reports from the scene by the senior fire officer with those of other services to obtain a communitywide assessment of the threat. This evaluation provides a basis for effective decisions on how best to meet requirements. *In addition to mutual aid,* consider other sources of additional manpower, equipment, and supplies. (List potential local sources, with telephone numbers and addresses.)

Organization (Person)	*Location*	*Telephone* *Day*	*Night*

5. Provide public information officer with appropriate information for releases. (See accompanying "Suggested Citizen Instructions.")

6. Carry out plans for evacuation of risk areas as required, designating exit routes for threatened citizens and entrance routes for Emergency Services; enlarge area of evacuation if situation requires.

7. If necessary, get additional mutual aid in accordance with agreements; any additional assistance requested, over that provided by established mutual-aid agreements, should be specific with respect to apparatus and manpower required; e.g., 10 pumpers; 5 tankers; 500 gallons foam concentrate, etc. General requests usually evoke uncoordinated response of unsuitable apparatus; the additional reinforcements should be instructed to report *not* directly to the fire area but to a predetermined assembly and dispersal area, such as a school or municipal park, where incoming apparatus can be redirected. Communication should be established between the assembly area and the fire scene and the Emergency Operating Center. Deployment should be to points directed by the senior fire officer. The Emergency Operating Center should ensure that local men are available, to serve as guides, one to each piece of apparatus.

8. If the fire situation gets beyond local and mutual-aid capability, it may be necessary to continue operations in accordance with "Forest and Wildland Fires—Emergency Services Actions."

9. If the fire situation stabilizes and appears to be manageable with existing forces, keep public information officer informed on fire situation, rerouting of traffic and other activities.

10. When firefighting operations are completed, senior fire officer at the scene notifies the Emergency Operating Center.

11. Prepare and submit final reports, as required by the chief executive, or his designated representative.

MAJOR STRUCTURAL FIRES

Suggested Citizen Instructions

A. General Information

Fire, always a danger, could be even more of a disaster during a natural disaster or nuclear emergency when the fire department might not be available to help you. Also, the risk of fire would be greater at that time.

Normal *fire-prevention rules* are of special importance in preventing an emergency. They include familiar commonsense precautions such as not allowing trash to accumulate, especially near heat sources; exercising extreme caution in the use of flammable fluids such as gasoline, naphtha, etc.; storage of such fluids outdoors when possible; care in the use of electricity; repairing of faulty wiring and avoiding overloaded circuits; and repair of faulty heating systems.

B. Be Prepared

Take a few minutes to discuss with your family what each member is to do in case of a fire. Tell them how to call the fire department and post the emergency telephone number on the wall near the phone.

If there is a public fire alarm box in your area, show the members of your family where it is and how to use it.

C. Fire Extinguishers

There are many types of fire extinguishers. Read the label carefully and follow instructions. Not all types of extinguishers can be used on every kind of fire.

Pressurized water extinguishers (CLASS *A*) are good for trash, paper, cloth, and wood fires, but are normally not used for flammable liquid (CLASS *B*) or electrical (CLASS *C*) fires. To extinguish a flammable liquid fire, smother it. Use an extinguisher marked for CLASS *B* fires. The extinguishing agent covers the whole flaming liquid surface.

Extra caution must be used when extinguishing an electrical fire. Use a CLASS *C* extinguisher. This contains a nonconducting extinguishing agent that will prevent the user from getting a shock.

A CLASS *ABC* extinguisher can be used on all three types of fires.

D. Care of Firefighting Equipment

Keep tools that can be used to fight fire where they can be easily reached. Don't store the hose, rake, and shovel away just because it isn't the gardening season. Check the hose for leaks and damaged connections. Make sure that faucet adapters are where they can be found quickly. Hang the ladder in a convenient location even though it isn't needed for painting or putting up screens. Inspect the rungs to make sure they are solid and clean. Store buckets where they can be found when needed, and keep them free of trash.

E. Know How to Fight a Fire

When a fire is noticed, get the building occupants out first; notify the Fire Department; then fight the fire. Assume that help can't come and go to work with whatever equipment is at hand. Don't stop fighting the fire until it is out or until it becomes too big for you.

All fires destroy by heating and burning, but all fires are not put out by using the same method. The method for extinguishing a fire depends on what is burning and what caused it to burn. It is important to know the difference because the wrong method of fighting a fire can increase the danger.

F. Fire Streams

The type of water stream that is used on a fire is important, especially when the amount of water available is limited.

Fires should be fought as close in as possible. If the fire is small and a person can get close enough to use a spray on it, this is the best method. A spray cools the fuel more quickly.

A fire that is too hot for close approach may have to be fought with a solid stream of water. If this is the case, be sure to keep the stream moving over the base of the fire.

G. Ordinary Combustible Fires

Ordinary combustibles are the materials that are usually found in and around the home such as paper, wood, and cloth. Fires that are burning ordinary combustibles can be put out by cooling or smothering. A stream of water from a garden hose or a fire extinguisher, or splashes from a pail of water will cool the burning object so that it will stop burning. This is what happens to the burning match when it is placed in water.

When using a hose or fire extinguisher, aim the stream at the base of the fire, not at the smoke or flame. Make sure it is completely out and that there are no smouldering embers left to rekindle the fire.

If a person's clothing catches on fire, don't let the victim run, but force him to the ground. Smother the flames with a coat or blanket, or roll him up in a rug. Just rolling the victim will help. Prevent him from inhaling the flame.

To protect a building from catching fire from flying sparks or heat radiation from another fire, remove all rubbish from near the building, close the windows, and wet down the building and yard with a hose.

H. Flammable Liquids and Gas Fires

Flammable liquids are those liquids which give off flammable vapors. Flammable liquids include gasoline, oil, kerosene, and paint. Be very careful when fighting this kind of fire because it is not like an ordinary combustible fire. A flammable liquid fire must be smothered. Use a foam, dry chemical, or carbon dioxide (CO_2) extinguisher. These fire extinguishers are marked for CLASS B fires. Avoid close blasting; it could splatter and spread the fire. If the burning liquid is spread out and not deep, the fire can be put out by throwing sand or dirt on it.

Never use a solid stream of water on this type of fire. The flammable liquid will splatter and float on top of the water; the fire will not be smothered and the fire can spread as the water and flammable liquid flow away. A water *spray* can be used to cool the fuel and extinguish the fire.

If the fire is in a confined area, such as an oil drum, paint bucket, or kitchen skillet, it can be put out by covering the container with a metal lid. Small cooking fires can be extinguished by turning off the gas, covering a pot, or closing the oven door. The fire will be smothered.

If burning gas is the cause of the fire, turn off the gas supply valve. Don't try to extinguish burning gas without turning off the supply valve; the result may be an explosion. If the flow of gas cannot be stopped, allow the gas to continue burning and protect the surroundings.

I. Electrical Fires

Electrical fires are caused by the shorting of electric wires or the overheating of electrical equipment. There is always the danger of electrical shock while fighting this type of fire. First, try to unplug the appliance or shut off the main electric switch at the fuse box. Then fight the fire with dry chemical, carbon dioxide, or any other CLASS C fire extinguisher. The fire extinguishing agent in these extinguishers will not conduct electricity, and the user will not get an electrical shock. Never use water on an electrical fire unless you are absolutely sure that the electricity has been shut off; otherwise, you can get a shock that could kill you. Don't turn the electricity back on or reconnect the appliance until the cause of the fire has been found and corrected.

J. Firefighting Precautions

When fighting a fire, there are some safety measures that should be taken that will reduce the danger.

Use Right Firefighting Method—Find out where the fire comes from. If electricity started it, don't use water until the electricity is off. If a flammable liquid is burning, be careful not to splatter it.

Stay Low—Heat and smoke rise. Hot air can scorch the lungs. Smoke may contain poisonous fumes that could cause death. Stay close to the floor. Take short breaths and breathe through the nose. Cover face with a damp cloth to filter out smoke.

Leave an Escape Path—Stay near the door and out of confined places. Don't let the fire get between you and the way out.

Check Doors Before Opening—Sometimes a fire may smoulder for a long time in a closed room because the oxygen supply is limited. When a door is opened, the oxygen needed to make it flame is supplied by the inward rush of air. The fire may flare up with the force of an explosion. Check for smoke seepage around door cracks. Feel the door. If it is hot, don't open it. If the door seems cool, open it carefully, but keep your head to one side and out of the path of any blast of hot air.

Watch for Falling Materials—A burning structure becomes weakened and may fall apart. Before going into a burning area, look around for anything that looks like it is going to fall on you or crumble underneath you. Avoid these areas. Be careful of fallen overhead electrical wires.

K. Danger in Fire Fighting

Air in a burning building may be dangerous. Many of the gases given off by burning

materials are poisonous. Fire sometimes can heat the air in a burning building hot enough to scorch the lining of your lungs and kill you. Fire takes oxygen out of the air. If you were caught in a closed burning room for any length of time, you might smother.

Sometimes a fire may smoulder for a long time in a closed building or room. When a door or window in the building is opened, the oxygen needed to make it flame is supplied by the inward rush of air. The hot gases may flare up with the force of an explosion. This back draft can burn or injure you badly if you are in its path.

Like all dangers, those in firefighting take courage to face, but all of them can be met if you use care and common sense. The greatest danger of all comes from losing your head. The danger can be avoided by training and practice. If you are trained in the right things to do, you will do them if the need arises.

L. Major Fires

Do the following things if a major fire (that is, one of such size that it endangers your home) develops near your home:

1. Close doors, windows, blinds, and drapes.
2. Unless otherwise directed, fill containers with water for firefighting.
3. Turn off any running water so as not to reduce supply and pressure in water lines used for fighting fire.
4. Watch your house inside and out for fire that may start.
5. If you have a swimming pool or water reservoir, be sure it is accessible for firemen to use in fighting fire.
6. Hook up and test portable pumps and hoses, if available.

If the building you are in should catch fire, notify the Fire Department, and then fight the fire yourself until help arrives.

PUBLIC DEMONSTRATIONS AND CIVIL DISTURBANCES

Emergency Services Actions

A. General Information

Recent years have seen a variety of public gatherings for different purposes running the gamut of activities from the Woodstock Music Festival in rural New York and various orderly peace demonstrations held in the Nation's capital, to the riots on college campuses and in the business districts of some of our principal cities. Some situations develop slowly, allowing the authorities to assess the problem and conduct negotiations with the demonstration organizers and arrange for control measures. On other occasions, however, violence may flare up seemingly at the slightest provocation. But even these incidents usually are preceded by earlier indications of a buildup of tensions and pressures.

In a situation which is developing slowly and deliberately along the lines of some of the Rock Festivals or the past peace demonstrations, the chief executive, or designated officials with delegated authority, may operate during the preliminary or negotiating phase out of their regular offices on a scheduled appointment basis, calling in key officials as required, and circulating information to departments concerned, using routine dissemination methods.

In another type situation, there may be a sudden eruption of widespread violence and disorder accompanied by arson, looting and assaults. Police personnel will usually be involved initially and will serve as the source for information regarding the characteristics and extent of the disturbance. The intelligence-gathering capability of the police agencies will generally provide the chief executive with information needed to enable him to make appropriate decisions.

Prudent chief executives and Emergency Service officials will keep in mind the fact that when the disturbance is over and all the outside assistance (e.g., the National Guard and the State Police) has left the community, they are left behind with the burden of giving an explanation to their fellow citizens, if one is necessary.

B. Upon receipt of a report that a public demonstration is about to be held or is occurring, take the following actions:

1. Notify the chief executive and civil defense director who, if the situation warrants, will activate the Emergency Operating Center in accordance with "Executive Leadership Actions for All Major Emergencies."

2. Assess the situation; obtain information as to current and impending situations. Make certain there are adequate forces on hand or requested to deal with situations as they arise. Avoid over-reaction, recognizing that each situation is unique.

3. Keep track of the situation as it is reported in intelligence from law enforcement sources and meetings with citizens and business organizations, and by monitoring news media reports.

4. Determine the jurisdictional status of property which may be the scene of a demonstration; consult with legal advisors.

5. Meet with the organizers of the proposed event to review the program and their plans for controlling the participants, and also the arrangements for housing, feeding, medical care, and sanitary facilities. It may even be necessary to require the sponsors to post a cash bond (if legally provided for) to assure that their financial obligations for services and maintenance will be discharged. During this phase, government authorities should explore the consequences of all possible eventualities and see that ample provisions are made to deal with them effectively if they should occur. All individuals concerned should be made aware of their responsibilities.

6. Apply the least amount of force necessary to control and protect persons and property. Ascertain under what conditions State authorities will take action to assist in the situation, such as providing State Police and National Guard assistance.

C. Upon receipt of a report that a civil disturbance is about to occur or is occurring—take the following actions:

1. Notify the chief executive and civil defense director who will activate the Emergency Operating Center in accordance with the "Executive Leadership Actions for All Major Emergencies."

2. Assess the situation. If it is warranted, the official-in-charge issues a proclamation to the public regarding the situation. This is a legally provided statement describing the disorder in specific terms in reference to existing laws, statutes, ordinances, or common practice. It should call upon all citizens to cease and desist from such activities, and to disperse and return to their homes and make clear that those continuing such activities, or remaining at the scene of the disorder, will be considered as being in violation of lawful orders and subject to arrest and confinement.

3. As a related legally provided action, the official-in-charge may also impose a curfew. The curfew can be modified as the situation is brought under control. This method has been found very effective as a control measure because it restricts activities during hours of darkness on the part of persons seeking to continue disorderly actions.

4. Alert and obtain commitments from neighboring police departments, county sheriff, and State police to assure that they will respond with sufficient force to requests for assistance to deal with the situation.

5. Alert and advise of existing situation—the State Civil Defense Office and the National Guard as well as nearest military installations, in accordance with previous arrangements and established channels.

6. Provide for the following additional activities:

Activity	*Functional Agency*
Detention of Prisoners (Preparation of charges, fingerprinting, photographs, overloaded jail facilities, etc.)	Police Department supplemented by Special Deputies or outside forces.
Judicial Hearings and Trials	Local Magistrates supplemented by County or State Judiciary

Activity	*Functional Agency*
Maintenance of Public Utilities (Water, Gas, Electric Power)	City Engineer or Public Works Director and the representatives of utilities
Security measures for key retail establishments such as drug stores, liquor stores, gas stations, and food stores.	Chamber of Commerce, and other local merchants' association officials who will maintain contact with city government.
Emergency Medical Services (on-site first aid, transportation to hospital, and hospital emergency services)	Health Department, working with medical and hospital personnel.
Emergency Shelter for homeless persons	City Welfare (or County, State Welfare) working with Voluntary agencies and School and Church officials
Public Information—Community Relations (Issuance of instructions; dispelling of rumors)	Press, radio, TV
Liaison contacts with neighborhood civic leaders and religious leaders to request aid and cooperation	Chief Executive or official-in-charge

7. Strategies should include: use only that force necessary to attain the objective; protect both private and public property; make every effort to induce the leaders and the crowd to disperse before using force; provide avenues of escape when dispersing crowds; make selective, essential arrests only; stay within local capability to expedite arrests, detentions and judicial hearings and trials.

8. If the situation gets beyond the local capability, it may be necessary to mesh local Emergency Operating Center functions with those of State and Federal organizations.

9. Maintain a flow of information on the situation to the Emergency Operating Center for the preparation of news releases to the public when necessary to reduce public alarm. (Advice and instructions to be issued to the general public will be dictated by requirements of the developing situation. For this reason, a companion section on "Suggested Citizen Instructions" is not provided with these "Emergency Services Actions.")

10. Keep the demonstration area clear of sightseers.

11. Maintain coordination of all Emergency Service actions in the area of the demonstration.

12. When order is restored, resume normal routine, notify the Emergency Operating Center, and submit final reports as required.

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RADIOLOGICAL ACCIDENTS

Emergency Services Actions

A. General Information

The widespread and rapidly increasing industrial and commercial use and transportation of radioactive materials has increased the possibility of radiological hazards in addition to such other hazards as might result from accidents involving these materials. Accidents may occur in facilities where radioactive materials are used or processed, or during transportation.

In the event that local Emergency Services are not adequate to cope with the situation, Federal assistance can be requested by calling an Atomic Energy Commission office or Military Service installation. In accordance with an Interagency Radiological Assistance Plan, the radiological emergency response capabilities of Federal agencies can be used to protect the public health and safety or to assist organizations or individuals who need immediate radiological emergency assistance. Coordinated by the AEC, there are men and equipment available 24 hours a day on request to assist at the scene of all kinds of radiological incidents believed to require capabilities beyond those available locally. These emergency personnel are prepared to deal with any aspects of a radiological incident.

Special emergency response capabilities have been established by the AEC and Department of Defense for coping with accidents involving nuclear weapons and so-called peaceful nuclear explosives. (See Federal Civil Defense Guide Appendix E–5–10, June 1966, on "Peacetime Radiological Incidents" for additional details on such incidents.) The locations and telephone numbers of AEC Regional Coordinating Offices for radiological assistance follow section G.

If a radiological incident occurs in a public place, some degree of immediate response by State and local public safety personnel usually will be required. Initial action may be by local fire or police personnel first at the scene of the incident. This section suggests the general actions and responsibilities of local governments for dealing with peacetime radiological incidents.

B. In the event of a radiological accident or incident—take the following actions:

1. Notify the chief executive and civil defense director who, if the situation warrants, will initiate activation of the local Emergency Operating Center (EOC), coordinate multiple services operations, request outside assistance as necessary, and implement emergency public information broadcasts to inform the public on actions to be taken in accordance with the "Executive Leadership Actions for All Major Emergencies."

2. Notify the local government department or agency that is assigned emergency radiological monitoring responsibility: (list the responsible agency and telephone numbers, day and night.)

Organization (Person)	*Location*	*Telephone* *Day*	*Night*

3. Advise the State Civil Defense Office. Request State emergency radiological assistance. If such assistance is not available locally through normal channels, the State will notify the nearest U.S. Atomic Energy Commission Office and military installation. (See accompanying AEC chart of offices of responsibility. If normal, established local-to-State channels are inoperative, make direct contact, per chart.)

C. In Incidents Involving Radioactive Materials Spillage or Leakage, local police and fire department personnel (as assigned) will take the following emergency actions at scene of incident pending the arrival of radiological emergency experts:

1. Rescue injured or trapped persons and remove them from the area.
2. Limit first aid to those actions necessary to save life or minimize immediate injury.
3. Try to hold all people who have been involved in the incident area until the radiation monitoring team arrives. They must be checked with a radiation survey instrument for radioactive contamination before being allowed to leave scene.
4. When it is necessary to send an individual to a hospital or other medical facility BEFORE a radiological emergency team or physician knowledgeable in radiological health arrives, inform ambulance and other transporting vehicle personnel who will be in contact with the individual, of the possibility of radioactive contamination. Also, inform the hospital or medical facility that the individual may be contaminated with radioactive material.
5. Be sure no one except Emergency Service personnel is admitted into the area, and advise all persons not to handle or remove any part of the debris from the incident.
6. Fight fire, and to the extent possible, keep upwind and avoid smoke, fumes, and dust.
7. DO NOT eat, drink, or smoke in the incident area, or use food or drinking water that may have been in contact with radioactive material.
8. DO NOT handle, use, or remove from the incident area any material, equipment, or other items suspected of being radioactively contaminated unless released by radiation monitoring personnel.

D. When the emergency monitoring team arrives on the scene—it will advise and act as requested by and under the general direction of the official in charge to assume control of the technical operations, and as necessary, perform the following operations:

1. Survey and determine facilities, equipment, area or environmental radioactive contamination.
2. Initiate steps to minimize personnel exposure and the spread of contamination.
3. Conduct instrument check for contamination of exposed emergency workers and other persons involved in the incident area.
4. Segregate and, if necessary, have contaminated persons decontaminated.

5. Initiate or recommend other decontamination action as required.

6. Provide information to the Emergency Operating Center for release to the public, when necessary, to minimize public alarm or to assist in the conduct of emergency activities. (Advice and instructions to be issued to the public would be dictated by requirements of the developing situation. Because of this, a companion section, "Suggested Citizen Instructions," is not provided.)

E. When decontamination is required—take the following actions:

1. Have the local public works department assist in decontamination and disposal of contaminated material if the use of heavy equipment is required.

2. Have the Fire Department provide personnel and equipment (for wash down, etc.) to assist in decontamination.

3. Have police obtain names and addresses of all persons involved; restrict access to the incident area and prevent unnecessary handling of incident debris; and if necessary, initiate evacuation of areas subject to contamination.

4. When a transportation incident involves radioactive material, DO NOT move vehicles, shipping containers, or wreckage, except to rescue people. Detour pedestrian and vehicular traffic. If a right-of-way must be cleared before radiological emergency assistance arrives, move vehicles and debris the shortest distance required to open a pathway. Before permitting the passage of traffic, spillage on the cleared pathway should be washed, or wetted and swept, to the edge of the pathway with a minimum dispersal of wash water and spilled material.

F. If no explosion has occurred and it is believed that a nuclear weapon is involved—take the following actions:

1. Restrict area of incident and keep public as far from scene as practicable. Restrict the area 2,000 feet or more in all directions.

2. Rescue injured or trapped persons as quickly as possible—remove them and rescue team from the incident area.

3. Evacuate all unnecessary personnel within the area as quickly as possible, except those involved in emergency operations.

4. Do not allow public entrance to the area.

5. Fight fire as though toxic chemicals are involved; keep upwind and avoid smoke, fumes, and dust.

G. If an explosion has occurred and a nuclear weapon is believed to be involved, take the following actions:

1. Restrict the area for 2,000 feet or more in all directions.

2. Rescue injured or trapped persons.

3. Evacuate all persons from the area and prevent access until advice can be obtained from appropriate radiological and ordnance experts.

4. Fight fires and handle other emergency situations that may occur as an aftermath, in accordance with appropriate Emergency Services checklists.

5. When the radiological monitoring (and ordnance, if applicable) experts indicate the incident area is safe, resume normal routine, notify the Emergency Operating Center, and submit final reports as required.

U.S. ATOMIC ENERGY COMMISSION

REGIONAL COORDINATING OFFICES FOR RADIOLOGICAL ASSISTANCE AND GEOGRAPHICAL AREAS OF RESPONSIBILITY

REGIONAL COORDINATING OFFICE	POST OFFICE ADDRESS	TELEPHONE for ASSISTANCE	D D D AREA CODE
1 BROOKHAVEN AREA OFFICE	UPTON, L. I. NEW YORK 11973	345-2200	516
2 OAK RIDGE OPERATIONS OFFICE	P. O. BOX E OAK RIDGE, TENNESSEE 37830	483-8611, Ext. 3-4510	615
3 SAVANNAH RIVER OPERATIONS OFFICE	P. O. BOX A AIKEN, S. C. 29801	N. AUGUSTA, S.C. 824-6331, Ext. 3333	803
4 ALBUQUERQUE OPERATIONS OFFICE	P. O. BOX 5400 ALBUQUERQUE, NEW MEXICO 87115	264-4667	505
5 CHICAGO OPERATIONS OFFICE	9800 S. CASS AVE. ARGONNE, ILLINOIS 60439	739-7711 Ext. 2111 duty hrs. Ext. 4451 off hrs.	312
6 IDAHO OPERATIONS OFFICE	P. O. BOX 2108 IDAHO FALLS, IDAHO 83401	526-0111 Ext. 1515	208
7 SAN FRANCISCO OPERATIONS OFFICE	1333 BROADWAY OAKLAND CALIFORNIA 94612	273-4237	415
8 RICHLAND OPERATIONS OFFICE	P. O. BOX 550 RICHLAND, WASHINGTON 99352	942-7381	509

Revised: July 1973

ALASKA — IN REGION 8

HAWAII — IN REGION 7

CANAL ZONE — IN REGION 3

PUERTO RICO — IN REGION 2

VIRGIN IS. — IN REGION 2

Revised: July 1973
WASHINGTON 99352
IN REGION 2
IN REGION 2
IN REGION 3
IN REGION 7
IN REGION 8

SEARCH AND RESCUE

Emergency Services Actions

A. General Information

Every community at some time experiences the need for search and rescue. In mountainous areas, under certain conditions, the search and rescue operation can involve several of the military support units of the Air Force (The National SAR Plan), Army, Navy, and Coast Guard, and Federal agencies such as the Forest Service and the Park Service. These sometimes are supplemented by volunteer resources such as the Civil Air Patrol, the Explorer Scouts, the Red Cross, Mountain Rescue, and motorized units. Usually, though, the smaller community is on its own in situations involving burning and demolished buildings, gas ridden areas, major electrical hazards, mine disasters, earth cave-ins, water accidents, storms, floods and other local accidental occurrences.

The general conditions in which victims may be expected include trapping, pinning, burning, shock, exposure, minor or major injury, unconsciousness, intoxication, and panic. Regardless of the incident, the call for rescue is answered, the victim is usually located, his person is protected, first aid is rendered, and he is transported to safety and recovery. Rescue practices range from assisting a victim to walk to carrying him on a stretcher under hazardous conditions, such as lowering or raising him after he has been extricated. The rescuer should be trained and equipped to do the job despite hazards to himself.

Because rescue may be required in practically every type of emergency covered in this handbook, it is recommended that every community develop a capability for search and rescue. When this capability is developed, the following actions can be very effective.

B. Upon receipt of a report that a search and rescue operation is required—take the following actions:

1. Notify the chief executive and civil defense director who, *if the situation warrants,* will activate the Emergency Operating Center in accordance with "Executive Leadership Actions for All Major Emergencies."

2. Assess the requirement for search; determine where search efforts should be directed; determine what land, water, and air manpower, equipment, and supplies are needed; decide how the search can best be handled and by whom. The State Civil Defense Emergency Operating Center should be contacted for assistance. Additional sources of searchers include: (list here names and telephone numbers of such sources as: sheriff or police department, fire department, rescue squad, Air Force (Airlift), Civil Air Patrol, Coast Guard, Army Base, Navy Base or Fleet Unit, State Aeronautic Unit, U.S. Forest Service, U.S. Park Service, and Cave Explorers.)

Organization (Person)	*Location*	*Telephone* *Day*	*Night*

Make any arrangements needed for support of search units or personnel (e.g., feeding arrangements with Red Cross, church groups, etc.; lodging arrangements if required; etc.).

3. While the search is underway, review local rescue plans and initiate preparedness actions for rescue operations, based upon whether access to the victim(s) will require air, water, or land rescue forces, or a combination. Determine any special type of training, equipment, and supplies required (e.g., water rescue operations are considerably different from those required in mountainous areas or in building collapses).

4. When the search produces the location of victim(s), dispatch correct type(s) of rescue unit if available locally *or* obtain rescue assistance from one or more of the above sources.

5. Obtain details from the senior rescue officer at the scene of operations as to what general strategy and tactics he intends to use and whether there is need for more aid and what kind is needed.

6. At this point be prepared to provide specific information for broadcasts by radio _____ and television _____.
(station) (channel)

7. If the rescue problem calls for *special skills* and equipment, such as a cave rescue, call for specialists to augment the rescue unit at the scene. These may be located through State or area civil defense offices.

8. Heavy rescue generally calls for (1) gaining access to the victim(s), which is usually hazardous and time consuming, (2) giving emergency first aid to the victim(s), and (3) carefully extricating the victim(s) who is injured and in shock; this may call for considerable communications among several Emergency Services, cordoning the area, providing medical assistance and feeding, and relieving members of the rescue crew. The Emergency Operating Center is the central point for coordinating these interrelated actions.

9. If the rescue problem is beyond local capability, such as *heavy structural rescue operations,* initiate mutual aid in accordance with agreements. A massive heavy rescue problem can follow such catastrophes as flash floods and earthquakes. If this happens, use

appropriate Emergency Services Action Checklists; coordinate all actions at the Emergency Operating Center; keep the public informed.

10. Maintain rescue operations until all known victims are found. Notify relatives by messenger, phone, or telegram. Close out rescue operations and put the scene of operations in a safe condition to prevent accidents and further victims.

11. When rescue operations are completed, notify the Emergency Operating Center and prepare final reports, as required.

NOTE: A "Suggested Citizen Instructions" section is not considered necessary for search and rescue, and is not included in this handbook.

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TORNADOES

Emergency Services Actions

A. General Information

This checklist covers actions for tornadoes. Use separate checklists for hurricanes and winter storms.

Tornadoes are usually highly localized, normally 200 yards to one mile wide, and usually travel a path five to fifty miles in length at 25 to 40 miles-an-hour. They sometimes double back or move in circles and some have remained motionless for periods of time before moving on. They can strike any place, although the principal areas are in the Gulf and Midwestern States. More details are contained in the accompanying "Suggested Citizen Instructions."

Because tornadoes are highly localized and recurring in some areas, it is recommended that communities in areas prone to tornadoes establish a *Tornado Watch System* built around a local Emergency Service, usually the local police department.

B. Definitions

The National Weather Service is responsible for issuing weather warnings to the public. When weather conditions develop which may produce severe local storms, a weather watch is issued. The objective of the Watch is to alert the people that meteorological conditions are developing over the specified area, usually 140 miles wide and 200 miles long, which may result in severe local storms during the specified time interval, usually of six hour duration.

Two types of Watches are issued: Severe Thunderstorm Watch and Tornado Watch. The SEVERE THUNDERSTORM *WATCH* is an alert for a thunderstorm with damaging winds of either sustained speed or gusts of 50 knots (58 mph) or greater and/or hail of 3/4 inch (about the size of a dime) or more in diameter. The TORNADO *WATCH* is an alert that tornadoes are expected and implies that thunderstorm activity, usually severe, is expected also.

Until a Severe Thunderstorm or a Tornado Warning is issued, persons in watch areas should not interrupt their normal routines except to watch for threatening weather. When a severe thunderstorm is sighted or is indicated by radar, a SEVERE THUNDERSTORM *WARNING* is issued. When a tornado has been sighted or is indicated by radar, a TORNADO *WARNING* is issued. When a tornado warning is issued, persons in the path of the storm should take immediate safety precautions.

C. In the event the National Weather Service issues an advisory bulletin of a severe thunderstorm watch or a tornado watch for the area, take the following actions:

1. Inform chief executive and civil defense director who will activate the Emergency Operating Center to the extent required. (See "Executive Leadership Actions for All Major Emergencies.")

2. Insure that appropriate information and instructions based on the latest weather service warnings are broadcast by radio and TV stations (identify each). For example, "Radio Station _____ and Television Channel _____ will broadcast tornado in-
(identify) (identify)
formation. Your local government's advice and instructions will also be issued over these stations by _____."
(Mayor/CD Director/Other Authorized Official)

3. Alert spotters and implement tornado watch system for the area. The tornado watch system consists of local storm spotters, previously trained—if possible by Weather Service personnel—on how to recognize and report severe weather conditions and tornadoes from preassigned locations within the area. (List the names of spotters and telephone numbers here, including any alternates available.)

Organization (Person)	*Location*	*Telephone* *Day*	*Night*

4. Instruct local spotters to report:
   a. Type of condition:
      (1) Tornado
      (2) Severe thunderstorm—lightning
      (3) Funnel cloud
      (4) Damaging wind
      (5) Damaging hail
      (6) Extremely heavy rain
      (7) Flooding
   b. Place or area affected by the severe weather condition
   c. Time observed
   d. Direction of movement (west to east, etc.)

5. Relay the report to one of the following offices, depending on the statewide system established by the State civil defense office. This would be done by local EOC if in operation at the time. (List nearest National Weather Service Office and nearest National Attack Warning System location and telephone numbers.)

Organization (Person)	*Location*	*Telephone* *Day*	*Night*

NOTE: A tornado *WATCH* usually covers a very large area, including many cities and counties. Therefore, the local government should relay reports into the above State-wide system to assist other communities who may also be in the path of the impending danger.

D. After receiving report of impending danger—especially a Tornado Warning—take the following actions:

1. Direct sounding of local public warning system, if authorized, and follow up immediately with radio and TV broadcasts. (See "Suggested Citizen Instructions.")

2. Keep public advised of governmental actions being taken by local Emergency Operating Center.

3. After passage of tornado, initiate search for victims. They can be found in all sorts of unusual places—blown into fields, under debris, and on top of roofs. Search should be thorough, including a margin of at least 100 yards either side of the tornado path.

4. Conduct rescue operations with skilled rescue squads to prevent debris collapse and to assure proper first aid. Victims can be plastered with mud requiring careful handling and washing before moving to hospitals.

5. Provide continuing advice to storm victims on where to go to obtain assistance—housing, food, medical services, etc.

6. Close out emergency operations and notify Emergency Operating Center. Submit reports, as required.

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TORNADOES

Suggested Citizen Instructions

A. General Information

The tornado is a violent local storm with whirling winds of tremendous speed. It appears as a rotating, funnel-shaped cloud which extends toward the ground from the base of a thundercloud. It varies from gray to black in color. The tornado spins like a top and may sound like the roaring of an airplane or locomotive. These small short-lived storms are the most violent of all atmospheric phenomena, and over a small area, the most destructive.

Tornado *WATCH*—means tornadoes are expected to develop
Tornado *WARNING*—means a tornado has actually been sighted or indicated on radar

B. Warnings

The National Weather Service issues severe weather warnings to the public over radio and TV stations. (Describe here any additional prearranged local warning system, e.g., radio, television, sirens, fire alarm, etc., as established for your local area.)

C. The Following Are Example General Announcements

1. Radio _____ and television stations _____
(local station identification) (local channel identification)
will broadcast the latest severe weather warnings and tornado watch information. Local government advice and instructions will also be issued over these stations by _____.
(Mayor/CD Director)

2. Knowing what to do when a tornado is approaching may mean the difference between life or death. If you see any revolving, funnel-shaped clouds on a cloudy day, report them by telephone immediately to the local police department, sheriff's office, or National Weather Service office. But do not use the phone to get information and advice—depend on radio or TV as indicated above. (List here local police, sheriff, Weather Service, and other emergency telephone numbers.)

Organization (Person)	*Location*	*Telephone*	
		Day	*Night*

D. The Following Are Example Tornado Safety Rules

1. When a *TORNADO WATCH* is announced:

a. Keep your radio or television on and listen for the latest Weather Service warnings and advisories. If power fails, use portable battery radio or your car radio.

b. Keep watching the sky, especially to the south and southwest. (When a tornado watch is announced during the approach of a *hurricane,* however, keep in mind the tornado may move from an easterly direction.)

2. When a *TORNADO WARNING* is announced:

a. Your best protection is an underground shelter or cave, or a substantial steel-framed or reinforced concrete building. (If none is available, take refuge in other places as indicated below.)

b. If your home has no basement, take cover under heavy furniture on the ground floor in the center part of the house, or in a small room on the ground floor that is away from outside walls and windows. (As a last resort, go outside to a nearby ditch, excavation, culvert or ravine).

c. Doors and windows on the sides of your house away from the tornado may be left open to help reduce damage to the building, but stay away from them to avoid flying debris.

d. Do not remain in a trailer or mobile home if a tornado is approaching. Take cover elsewhere.

e. If advised that you are likely to be in the path of a tornado, and if time permits, electricity and fuel lines should be cut off. (Local Officials Note: Before making announcements on shutting gas valves, check local gas company policy.)

f. If you are outside in open country, drive away from the tornado's path, at a right angle to it. If there isn't time to do this—or if you are walking—take cover and lie flat in the nearest depression, such as a ditch, culvert, excavation, or ravine.

g. SCHOOLS—If the school building is of good steel reinforced construction, stay inside away from the windows and remain near an inside wall on the lower floors if possible.

h. AVOID AUDITORIUMS AND GYMNASIUMS with large, poorly-supported roofs.

i. In rural schools that do not have reinforced construction, move school children and teachers to a ravine or ditch if storm shelters are not available.

j. FACTORIES AND INDUSTRIAL PLANTS—When possible, shut off electrical circuits and fuel lines if tornado approaches plant. Workers should be moved to sections offering the best possible protection, in accordance with advance plans.

k. SHOPPING CENTERS—Go to a designated shelter area (NOT to your parked car).

l. OFFICE BUILDINGS—Go to an interior hallway on the lowest floor, or to a designated shelter area. Stay away from windows.

E. The Following Are Examples of Announcements Concerning safety measures after the passage of the tornado.

1. Use extreme caution in entering or working in buildings that may have been damaged or weakened by the disaster, as they may collapse without warning. Also, there may be gas leaks or electrical short circuits.

2. Don't take lanterns, torches or lighted cigarettes into buildings that have been damaged by a natural disaster, since there may be leaking gas lines or flammable material present.

3. Stay away from fallen or damaged electric wires—they may still be dangerous.

4. Check for leaking gas pipes in your home. Do this by smell—*Don't use matches or candles.* If you smell gas, do this: (1) Open all windows and doors; (2) Turn off the main gas valve at the meter; (3) Leave the house immediately; (4) Notify the gas company (Telephone No. _____) or the police (Telephone No. _____) or fire department (Telephone No. _____); (5) Don't re-enter the house until you are told it is safe to do so.

5. If any of your electrical appliances are wet, first turn off the main power switch in your house, then unplug the wet appliance, dry it out, reconnect it, and finally, turn on the main power switch. (Caution: Don't do any of these things while you are wet or standing in water.) If fuses blow when the electric power is restored, turn off the main power switch immediately and inspect for short circuits in your home wiring, appliances and equipment.

6. Check your food and water supplies before using them. Foods that require refrigeration may be spoiled if electric power has been off for some time.

7. Stay away from disaster areas. Sightseeing could interfere with first aid or rescue work, and may be dangerous as well.

8. Don't drive unless necessary, and if you must, drive with caution. Watch for hazards to yourself and others, and report them to local police or fire departments.

9. Report broken sewer or water mains to the Water Department. (Telephone No. _____.)

10. Keep tuned to your radio or TV stations for advice and instructions of your local government on:

   a. Where to go to obtain necessary medical care in your area.

   b. Where to go for necessary emergency assistance for housing, clothing, food, etc.

   c. Ways to help yourself and your community recover from the emergency.

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TRANSPORTATION ACCIDENTS

Emergency Services Actions

A. General

Almost every community is exposed daily to the possibility of major air and highway accidents. Many are exposed to the possibility of railroad and water accidents in or near their boundaries. Local officials should be prepared to handle the type of problems they will have to face if their community has a major transportation accident.

Since not all communities have the same exposure nor the same resources to handle such emergencies, it is recommended that each community develop its own plan of action, including agreements on giving and receiving mutual aid. Local plans should include listings of the type of equipment or services needed, the source and location of the equipment or services, the person or point of contact to give or obtain immediate response to an emergency request, and the means and method of compensating (if appropriate) for the use of the equipment or services in an emergency.

Major transportation accidents often produce chemical spills, fires, and other aftermaths calling for special operations, such as rescue and evacuation. Usually, transportation accidents are limited in size of incident area and involve only a limited number of victims.

An airplane crash may create the need for firefighting and other operations in the area of impact.

A highway crash involving buses or carriers of hazardous cargoes can involve substantial rescue, firefighting, and evacuation operations.

A railroad accident usually is limited in fatalities but can produce hazardous situations when it occurs in or near business or residential areas, particularly if the cargo is flammable or explosive. Usually a railroad accident in or near a built-up community can be handled locally. If a railroad wreck occurs in a remote area, it may be necessary to use special vehicles or a relief train to get help to the victims.

A water accident involving chemical-carrying barges may require communitywide evacuation. If a substantial number of lives are in danger, as in ferry accidents, boat rescue, feeding, and clothing of survivors can tax a community's resources.

Regardless of the type of major transportation accident, the first consideration should be to save lives through quick response and coordination of the police, fire, and medical services.

When a transportation accident involves chemicals or other hazardous materials, the appropriate Emergency Services Actions checklist should also be used (e.g., "Chemical Accidents," "Radiological Accidents").

B. Upon receipt of a report that a major transportation accident has occurred in the vicinity, take the following actions:

1. Notify the chief executive and the civil defense director who, if the situation warrants,

will activate the Emergency Operating Center in accordance with "Executive Leadership Actions for All Major Emergencies."

2. Assess the situation. Determine the potential risk area; if required, restrict and control the area of the accident; initiate reporting from the Emergency Services and from private agencies and utilities that have facilities in the risk area.

3. Assure proper handling of disaster medical care problems associated with sudden, major transportation accidents. These include:

a. Treating the injured at the scene and sorting them (triage) for proper later handling.

b. Notifying hospitals on when to expect the arrival of patients and the approximate number of patients.

c. Coordination with ambulances and hospitals to assure that no one hospital is overloaded with patients.

d. Establishing an information center at each hospital to answer press queries and questions from relatives of the accident victims.

4. Notify the following, as appropriate (list of names, locations and phone numbers—day and night).

a. *Airplane crashes*—Notify: (1) Airport, (2) Airline office, (3) State aeronautics agency, if any, (4) Nearest office of Federal Aviation Administration; (5) If catastrophic, Regional office of National Transportation Safety Board, and (6) Military installations.

Organization (Person)	*Location*	*Telephone* *Day*	*Night*

NOTE: Obtain special instructions, including cordoning area, and security procedures as required. (See other appropriate Emergency Services Actions checklists; e.g., "Radiological Accidents.")

b. *Highway crashes,* involving buses, trucks carrying hazardous cargoes or multiple passenger vehicles—Notify: (1) Company owner or agent; (list bus and trucking firm

numbers); (2) School principals, etc., if crash involves school bus; (3) Owners of tow-trucks and heavy equipment if cleanup of accident scene is required in the interest of public safety. (See "Chemical Accidents—Emergency Services Actions" or other appropriate checklists.)

Organization (Person)	*Location*	*Telephone*	
		Day	*Night*

c. *Railroad accidents*—Notify: (1) Railroad official or office; (2) Ambulance Dispatch Center, if there are injuries; (3) The Red Cross or Emergency Welfare representative if there is need for emergency food or shelter; and (4) Rescue Squads and Mobile Medical Teams if snowbound passengers are involved.

Organization (Person)	*Location*	*Telephone*	
		Day	*Night*

NOTE: The Association of American Railroads provides assistance 24-hours-a-day through telephone 202–293–4048.

d. *Water Accidents* involving passenger vessels or barges carrying dangerous cargoes—Notify: (1) Port or harbor authority, (2) Community Harbor Patrol, (3) Involved vehicle owner's office, (4) U.S. Coast Guard, and (5) Others (yacht clubs, marinas, power squadrons). (List day and night names, locations and emergency telephone numbers.)

Organization (Person)	*Location*	*Telephone*	
		Day	*Night*

5. Restrict the area of the accident. Provide information for public broadcasts over radio _____ and television _____ to inform public of the accident
(identify local stations) (identify channels)
and what actions should be taken. A separate "Suggested Citizen Instructions" section covering transportation accidents is not included in this handbook because of the diversity of instructions that pertain to these types of emergencies.

6. If required, establish a temporary communications post at the scene of the accident. Determine need for additional manpower and other resources and coordinate with senior Emergency Service official at the scene.

7. Evaluate overall community situation. If required, Emergency Operating Center will call for mutual aid assistance per existing agreements with neighboring communities; specify quantities and kinds of assistance needed.

8. If required, as in case of some chemical accidents, evacuate the area, designating exit routes for threatened citizens and entrance routes for emergency services. Keep the public informed.

9. Do not immediately move vehicles, containers or wreckage, except to rescue people, unless required in the interest of public safety.

10. Keep Emergency Service forces advised of conditions that may affect their operations. (See appropriate Emergency Services Action checklists.)

11. Reroute traffic on a communitywide basis, if required, and keep public informed.

12. When the incident area is safe, resume normal routine, notify the Emergency Operating Center, and submit final reports, as required.

WINTER STORMS

Emergency Services Actions

A. General

Winter storms vary in size and intensity. A storm may affect only a part of a State or many States, and may take the form of a minor ice storm or a full-blown blizzard. Because of this variance of conditions and size of area covered, State and local governments should give particular attention to those types of storms they are most likely to encounter.

B. Pre-Storm Season Preparations

1. Organize snowmobile and ski emergency rescue and medical teams if these would be useful in your area.

2. Contact the National Weather Service and establish those *rules on definitions,* especially "Heavy Snow Warnings" and "Cold Wave Warning" that pertain to your area. (See "Suggested Citizen Instructions.")

3. Provide the local news media with Winter Storm Safety Rules, winter automobile travel considerations, advice on actions if trapped in a vehicle by a blizzard, and other appropriate information pertaining to the area.

4. Contact other government agencies, military units and installations, Civil Air Patrol units (CAP), individual amateur radio operators and organizations (e.g., RACES), and private organizations and associations to determine their willingness to assist under varying winter storm situations and to what extent. (List names, locations, and telephone numbers, day and night.)

Organization (Person)	*Location*	*Telephone*	
		Day	*Night*

5. Determine the location and amounts of snow fencing, sand and salt drums, or other materials needed, and install and fill these as required.

6. Designate and place signs on snow emergency routes if permitted by ordinance to do so.

7. Establish a system, procedures, and contacts for "school closing" or "employee stay home" announcements.

8. Develop newspaper articles and radio and television announcements for release when appropriate; e.g., requesting home owners to remove snow from fire hydrants or other places that might impede emergency actions.

C. Upon Receipt of a Report That a Severe Winter Storm Threatens or is Occurring in the Vicinity, take the following actions:

1. Notify the chief executive and the civil defense director who, if the situation warrants, will activate the Emergency Operating Center in accordance with "Executive Leadership Actions for All Major Emergencies."

2. Assess the storm situation, including a determination of the potential storm risk area, and obtain information such as speed and direction of the wind, precipitation, barometric readings, fall of snow, sleet, etc. Initiate reporting from private agencies and utilities that have facilities in the risk area. (List names, locations, and telephone numbers, day and night.)

Organization (Person)	*Location*	*Telephone*	
		Day	*Night*

3. Keep in communication with highway, police, fire, rescue, and others with Emergency Services responsibilities. (List names, locations, telephone numbers, day and night.) Obtain official information on what and how highways and streets are to be kept open, particularly those required by Emergency Service personnel in case of serious fires, accidents, and other emergencies. Obtain preliminary estimates of requirements for additional manpower, equipment, and supplies.

Organization (Person)	*Location*	*Telephone*	
		Day	*Night*

4. Evaluate the overall community situation. Augment Emergency Service reports with other reports to maintain a continuing assessment of the situation. An evaluation of all reports should be the basis for decisions on whether the local forces can meet requirements, whether mutual aid is feasible, and whether the following sources of additional emergency manpower, equipment, and supplies should be tapped. (List names, locations, and telephone numbers, day and night.)

Organization (Person)	*Location*	*Telephone*	
		Day	*Night*

5. If conditions warrant, initiate or increase efforts to obtain specific information for broadcasts over radio _____ (identify local stations) and television _____ (identify channels) to inform the public of the storm situation and what actions should be taken. (See accompanying "Suggested Citizen Instructions.")

6. Review plans for combatting severe operating conditions in case fire or rescue operations are needed. Review Emergency Services Actions for Fires, Search and Rescue, Floods, Transportation Accidents, and other potential disasters that could occur during or following the storm.

7. Remind appropriate Emergency Service personnel to position equipment, fuel, and other essential supplies for use after the storm.

8. Check auxiliary generators and other power and lighting equipment. Place reserve EOC supplies and equipment, such as antennas, where they can be obtained following the storm.

9. Review preparations for mass feeding and emergency shelter if the situation appears worsening; consider what specific operations may have to be performed and under what conditions.

10. If storm conditions hamper or overload the response capability of Emergency Services, determine priorities on the basis of number of lives that may be saved, accessibility to the scene, and amount of time required to accomplish the mission.

11. So far as it is possible to do so, put manpower and equipment on standby (ready to roll, and properly equipped) and keep in communication with operating and standby crews, such as snowmobile rescue units as well as heavy plowing and sanding crews.

12. Keep information on condition of routes up-to-date. Utilize appropriate emergency entrance and exit routes (Emergency Snow Routes) as conditions change. Keep public informed of changes in use of such routes.

13. Limit travel into the storm area as required. Cordon hazardous areas, as required. Reroute traffic on an area basis as required.

14. Initiate and maintain emergency operations when storm conditions permit. (List special instructions on procedures, etc.)

15. When storm subsides and conditions permit, resume normal routine and submit final reports in accordance with "Executive Leadership Actions for All Major Emergencies."

WINTER STORMS

Suggested Citizen Instructions

A. Warning Responsibility

The National Weather Service is responsible for the timely issuance of weather warnings to the public, including the approach of winter storms.

B. Definitions

Ice Storm—Freezing rain or drizzle is called an Ice Storm. Moisture falls in liquid form but freezes upon impact. The term "heavy" is used to indicate an ice coating sufficiently heavy to cause significant damage to trees, overhead wires, and similar objects.

Ice Storms are sometimes incorrectly referred to as "sleet storms." Sleet is easily identified as frozen rain drops (ice pellets) which bounce when hitting the ground or other objects. Sleet does not stick to trees and wires but sleet in sufficient depth does cause hazardous driving conditions.

Snow—"Snow" in a forecast, without a qualifying word such as "occasional" or "intermittent," means that the fall of snow is of a steady nature and will probably continue for several hours without letup.

"Heavy snow warnings" are issued to the public when a fall of four inches or more is expected in a 12-hour period, or a fall of six inches or more is expected in a 24-hour period. Some variations on these rules may be used in different parts of the country. Where four-inch snowfalls are common, the emphasis on heavy snow is generally associated with six or more inches of snow. In other parts of the country where heavy snow is infrequent, or in metropolitan areas with heavy traffic, a snowfall of two or three inches will justify a heavy snow warning.

"Snow flurries" are defined as snow falling for short durations at intermittent periods; however, snowfall during the flurries may reduce visibilities to an eighth of a mile or less. Accumulations from snow flurries are generally small.

"Snow squalls" are brief, intense falls of snow and are comparable to summer rain showers. They are accompanied by gusty surface winds.

"Blowing and drifting snow" generally occur together and result from strong winds and falling snow or loose snow on the ground. "Blowing snow" is defined as snow lifted from the surface by the wind and blown about to a degree that horizontal visibility is greatly restricted.

"Drifting snow" is used in forecasts to indicate that strong winds will blow falling snow or loose snow on the ground into significant drifts. In the northern plains, the combination of blowing and drifting snow, after a substantial snowfall has ended, is often referred to as "ground blizzard."

"Blizzards" are the most dramatic and perilous of all winter storms, characterized by low temperatures and by strong winds bearing large amounts of snow. Most of the snow accom-

panying a blizzard is in the form of fine, powdery particles of snow which are whipped in such great quantities that at times visibility is only a few yards.

"Blizzard warnings" are issued when winds with speeds of at least 35 mph are accompanied by considerable falling or blowing snow and temperatures of 20 degree F or lower are expected to prevail for an extended period of time.

"Severe blizzard warnings" are issued when blizzards of extreme proportions are expected and indicate wind with speeds of at least 45 mph plus a great density of falling or blowing snow and a temperature of 10 degree F or lower.

A "cold wave warning" indicates an expected rapid fall in temperature within a 24-hour period which will require substantially increased protection to agricultural, industrial, commercial, and social activities. The temperature falls and minimum temperatures required to justify cold wave warnings vary with the changing of the season and with geographic location. Regardless of the month or the section of the country, a cold wave warning is a red flag alert to the public that during a forthcoming forecast period a change to very cold weather will require greater than normal protective measures.

"Hazardous Driving (Travelers') Warnings" are issued to indicate that falling, blowing or drifting snow, freezing rain or drizzle, sleet or strong winds will make driving difficult.

"Stockmen's Warnings" alert ranchers and farmers that livestock will require protection from a large accumulation of snow or ice, a rapid drop in temperature, or strong wind.

Wind Chill Factor—Strong winds combined with low temperatures cause a very rapid cooling of exposed surfaces. Unprotected portions of the body, such as the face or hands, can chill rapidly and should be protected as much as possible from the cold wind. A very strong wind combined with a temperature slightly below freezing can have the same chilling effect as a temperature nearly 50 degree F lower in a calm atmosphere. Arctic explorers and military experts have developed a term called the "wind chill factor," which states the cooling effect of various wind and temperature combinations. In certain areas, the Weather Service issues this information as the "wind chill index." The following descriptive scale compares a 20 degree (F) temperature with different wind speeds.

Wind With Temperature 20 degree F	Wind-Chill Index (Equivalent Temperature)	Forecast Descriptive Term
10 mph	2 degree F	Very Cold
20 mph	—9 degree F	Bitter Cold
35 mph	—20 degree F	Extreme Cold

Winter Storm Safety Rules—Keep ahead of a winter storm by listening to the latest National Weather Service warnings and bulletins on radio and television.

—*Check battery powered equipment* before the storm arrives. A portable radio or television set may be your only contact with the world outside the winter storm. Also check emergency cooking facilities and flashlights.

—*Check your supply of heating fuel.* Fuel carriers may not be able to move if a winter storm buries your area in snow.

—*Check your food and stock an extra supply.* Your supplies should include food that requires no cooking or refrigeration in case of power failure.

Prevent fire hazards due to overheated coal- or oil-burning stoves, fireplaces, heaters, or furnaces.

Stay indoors during storms and cold snaps unless in peak physical condition. If you must go out, avoid overexertion.

Don't kill yourself shoveling snow. It is extremely hard work for anyone in less than prime physical condition, and can bring on a heart attack, a major cause of death during and after winter storms.

Rural residents: Make necessary trips for supplies before the storm develops or not at all. Arrange for emergency heat supply in case of power failure. Be sure camp stoves and lanterns are filled.

Dress to fit the season. If you spend much time outdoors, wear loose-fitting, lightweight, warm clothing in several layers; layers can be removed to prevent perspiring and subsequent chill. Outer garments should be lightly woven, water repellent, and hooded. The hood should protect much of your face and cover your mouth to ensure warm breathing and protect your lungs from the extremely cold air. Remember that entrapped, insulating air, warmed by body heat, is the best protection against cold. Layers of protective clothing are more effective and efficient than single layers of thick clothing; and mittens, snug at the wrists, are better protection than fingered gloves.

Your automobile can be your best friend—or worst enemy—during winter storms, depending on your preparations. Get your car "winterized" before the storm season begins. Everything on the checklist shown below should be taken care of before winter storms strike your area:

- —ignition system
- —battery
- —lights
- —cooling system
- —fuel system
- —lubrication
- —tight exhaust system
- —heater
- —brakes
- —wiper blades
- —defroster
- —snow tires installed
- —chains
- —antifreeze
- —winter-grade oil

Winter Storm Car Kit.—Be equipped for the worst. Carry a winter storm car kit, especially if cross country travel is anticipated or if you live in the northern States.

The kit should contain blankets or sleeping bags, matches and candles, empty 3-pound coffee can with plastic cover, extra clothing, high-calorie, nonperishable food, compass and road maps, knife, first aid kit, shovel, sack of sand, flashlight or signal light, windshield scraper, booster cables, two tow chains, fire extinguisher, axe, etc.

Winter travel by automobile is serious business. Keep these points in mind, especially for severe storms:

1. If the storm exceeds or even tests your limitations, seek available refuge immediately.
2. Plan your travel and select primary and alternate routes.
3. Check latest weather information on your radio.
4. Try not to travel alone; two or three persons are preferable.
5. Travel in convoy with another vehicle, if possible.
6. Always fill gasoline tank before entering open country, even for a short distance.
7. Drive carefully, defensively.

Trapped by a Blizzard in a Vehicle.—

Avoid overexertion and exposure. Exertion from attempting to push your car, shoveling heavy drifts, and performing other difficult chores during the strong winds, blinding snow, and bitter cold of a blizzard may cause a heart attack—even for persons in apparently good physical condition.

Stay in your vehicle. Do not attempt to walk out of a blizzard. Disorientation comes quickly in blowing and drifting snow. Being lost in open country during a blizzard is almost certain death. You are more likely to be found, and more likely to be sheltered, in your car.

Don't panic.

Keep fresh air in your car. Freezing wet snow and wind-driven snow can completely seal the passenger compartment.

Beware the gentle killers: carbon monoxide and oxygen starvation. Run the motor and heater sparingly, and only with the downwind window open for ventilation.

Exercise by clapping hands and moving arms and legs vigorously from time to time, and do not stay in one position for long.

Turn on dome light at night, to make the vehicle visible to work crews.

Keep watch. Do not permit all occupants of car to sleep at once.

Livestock.—Blizzards take a terrible toll in livestock. For both humane and economic reasons, stockmen should take necessary precautions in advance of severe winter storms.

Move livestock, especially young livestock, into sheltered areas (frequently called "shelter belts") properly oriented and laid out. These provide better protection for range cattle than shed-type shelters, which may cause cattle to overcrowd, with consequent overheating and respiratory disorders.

Haul extra feed to feeding areas before the storm arrives. Storm duration is the largest determinant of livestock losses; if the storm lasts more than 48 hours, emergency feed methods are required. Range cattle are hardy and can survive extreme winter weather providing they have some nonconfining type of shelter from the wind and are able to feed at frequent intervals.

Autopsies of cattle killed by winter storms have shown the cause of death to be dehydration, not cold or suffocation. Because cattle cannot lick enough snow to satisfy their thirst, stockmen are advised to use heaters in water tanks to provide livestock with water and feed after prolonged exposure to winter storm conditions.

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