



SHELTER MANAGEMENT HANDBOOK

The safety and well-being of the people in this shelter depend on capable leadership. If a civil defense shelter manager is not present, anyone seeing this handbook who has leadership experience can and should

TAKE CHARGE IMMEDIATELY,

This handbook provides step-by-step instructions for effective shelter operations.



**Federal Emergency
Management Agency**

THE IMPORTANCE OF SHELTER MANAGEMENT

- o Effective shelter management can add millions of survivors, nationwide, in a nuclear attack.
- In **YOUR** shelter, effective management can:
 - (1) Prevent deaths from fallout radiation, and prevent radiation sickness, anywhere in the **U.S.**
 - (2) Prevent deaths from blast effects, if your shelter is in a "risk area." (**A** risk area is a city of **50,000** or greater population—or a city near an important military base or industry.)
- o Shelter Management can save lives by assuring that the people in the shelter:
 - (1) Stay (if possible) in the basement of the shelter building—which provides the best protection against *fallout*.
 - (2) In risk areas:
 - Stay in the _____ of the basement that provide the best protection against *blast* (near the sides of the basement—not under unsupported parts of the basement's ceiling).
 - Take fire prevention actions (close curtains and window blinds throughout the building) *immediately* after entering the shelter.
 - If a nuclear explosion occurs, *immediately* check for burning materials throughout the building. Stamp out smoldering curtains. Throw smoldering furniture out the window. Then return to the shelter area in the building.
 - (3) *Stay in the shelter* for several days up to two weeks—when fallout levels have fallen enough that people can leave shelters.

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NOTE TO LOCAL CIVIL DEFENSE DIRECTORS
In time of emergency take this handbook to the
local newspaper(s) for printing, or duplicate in
large numbers and distribute.

IMMEDIATE ACTIONS FOR SURVIVAL

<u>Actions</u>	<u>See Page No,</u>
1. Place people in the basement and, if necessary, central core of the building (beginning with the first floor).	Floor Plan, page 9
2. Take immediate preattack actions—especially closing blinds throughout building to reduce fire vulnerability. Also, put shelterees in best protective posture against fallout and (in risk areas) blast.	1
3. Organize to operate shelter.	2
4. If a weapon detonates nearby: a. Extinguish fires b. Repair damage	2
5. Determine available resources, including food, water, utility services, communications equipment, and take steps to use them effectively.	2 & 4

INFORMATION CONCERNING THIS SHELTER
(Should be entered upon placing this handbook in the shelter)

Shelter Identification: _____

This shelter is in a (high) (low) risk area, (Delete one)

Shelter Capacity from:

Fallout _____ Direct Effects _____

Shelter Manager: _____

Office Phone: _____ Home Phone: _____

Civil Defense Director: _____

Office Phone: _____ Home Phone: _____

Local Government Headquarters to be reported to: . Phone: _____

Address: _____

Address(es) of nearest additional shelter(s) _____

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OPERATIONAL REQUIREMENTS

YOUR RESPONSIBILITY

As Shelter Manager, you are responsible to the local Civil Defense Director. You have complete authority for operating this shelter, including organizing the shelter layout and staff, and enforcing rules and procedures.

The first regular staff member to arrive shall be in charge, and shall be succeeded by any other member of higher listing. If none of the listed regular staff members arrive, any person in shelter who is capable of assuming leadership should do so at once.

AT TIME OF SHELTER ENTRY

Turn **off** heat. If blast is not immediately expected, turn on any existing ventilation.

Entry into shelter should be orderly and rapid, with shelterees placed in the safest areas. The basement area and center core of the building are the best shelter spaces. Fill parts of shelter farthest from entrance first.

People should be advised to bring into the shelter only those items which increase shelter habitability and create no extra management problem. Special health foods and medicines should be retained by the shelterees. The Shelter Manager may later want to place them under centralized control for safekeeping. If any shelterees are familiar with the building, ask them to bring in vital supplies (first-aid kits, fire extinguishers) that are in rooms or corridors near the shelter area.

PROCEDURES FOR SHELTER USE

GETTING ORGANIZED

You cannot do all the organizing and managing yourself. Appoint people or get volunteers to assist you. Appoint an Administrative Assistant, an Advisory Committee, and three Deputies for: (1) Operations, (2) Information, and (3) Supply and Maintenance. The Deputies for Information and Supply and Maintenance will be in charge of single functional teams; and the Deputy for Operations will be in charge of several functional teams. Your Administrative Assistant is to maintain daily logs, prepare reports, and supervise any clerical aides.

PROTECTIVE ACTIONS

A. Immediate Preattack-High-Risk Areas. In high-risk areas where blast and heat effects may occur:

1. Send parties to **close all window blinds and curtains IMMEDIATELY**, throughout the building, to reduce fire vulnerability to nuclear weapon heat flash.

2. Place people in the best protected places; that is, in below-ground space if possible. Crowd people in best-protected areas, if necessary, until after the attack has taken place, **or** local authorities advise that further attack on the U.S. is not expected.

a. In basement areas instruct the people to:

(1) Go to the corners and/or exterior walls of the basement that have the least exterior exposure, or around columns. Stay away from parts of the basement where the ceiling is unsupported.

(2) Stay away from windows and doorways that open to the outside of the building.

(3) Lie face down on the floor with arms in a protective position on the head; or sit about two feet from (not touching) the walls in rows back to back.

b. In aboveground areas instruct the people to:

(1) Go to the central area of the designated shelter floor.

(2) Stay away from windows. Close all window blinds and curtains, if not already done. (Open all windows to minimize hazard of flying glass.)

(3) Lie face down on the floor out of line of flying glass, with arms in a protective position on the head.

(4) Remain in protective position after the flash (the blast wave may arrive a number of seconds after the flash).

(5) Resist looking outside (the flash of a nuclear burst can cause blindness at distances of several miles).

(6) Cover as much of the body as possible, to prevent burns, with clothing or other materials (light colored materials, if available, are best).

3. Organize teams to check pre-attack fire prevention measures, such as closing blinds and curtains, and be prepared to carry out rapid inspection of the entire shelter building if detonations occur nearby. Firefighting equipment should be collected from **all** parts of the building. Locate and put out fires (or throw smouldering furniture out the windows) before uncontrollable fires can start. After a fire watch is organized, the emergency exits should be noted, and shelterees drilled in evacuation procedures as soon as possible, in case fire forces evacuation of the shelter.

4. Organize a ventilation team to monitor the shelter environmental conditions and existing ventilation systems. Set up manual ventilation devices¹ if needed.

¹Ventilation equipment such as manually operated blowers and fans may be stored in the shelter area. The equipment should be unpacked and set up according to instructions on the containers.

5. Organize a shelter radiological monitoring capability so that monitoring of fallout can be started as soon as possible after the detonation of a nuclear weapon. Inventory any radiological equipment available. Radiological monitoring instruments should be checked for operability, and monitors should be appointed and acquainted with their duties. (If trained monitors are present in shelter, they should take planned actions.)

6. Turn off, unplug, and disconnect electrical equipment to protect against the electromagnetic pulse effects of a nuclear detonation.

7. If a weapon detonates nearby, turn off controls for gas (to prevent possible fires) and water (to prevent possible loss of trapped water in building).

8. Disseminate information on the emergency situation.

9. When the capacity of the shelter is reached, attempt to send additional people to other nearby shelters.

B. Immediate Preattack-Low-Risk Areas. In low-risk areas, where fallout radiation will be the principal danger:

1. Place shelterees in safest designated areas within the shelter.

a. In basement areas, instruct the people to:

(1) Go to the corners and/or exterior walls of the basement that have the least exterior exposure. (The most important factors in fallout protection are distance from the source of fallout radiation, and the amount of dense, heavy materials between the shelteree and the source of radiation.)

(2) Stay away from windows and doorways that open to the outside of the building.

b. In aboveground areas, instruct the people to:

(1) Go to the central area of the designated shelter floor.

(2) Stay away from windows.

2. Ready safety supplies and ventilation equipment for possible use, including radiological monitoring instruments (see item A5 above).

3. Reduce potential fire hazards by controlling smoking, keeping area free of trash, etc.

4. If a weapon detonates nearby, turn off controls for gas (to prevent possible fires) and water (to prevent possible loss of trapped water in building).

5. Disseminate pertinent information relative to the crisis situation.

6. When the capacity of the shelter is reached, attempt to send additional people to other nearby shelters.

C. Preattack-If Time Permits

If attack is not imminent, provide expedient blast and/or fallout protection improvement (e.g., shoring up joists and ceilings, piling dirt or sandbags around exterior walls—except for ventilation outlets). Protect and secure equipment and movable items from effects of shock and displacement.

In risk area shelters which are above ground, in building cores, or in large basements, it may be difficult to close off the shelter area. Because the force of the blast can turn hastily constructed barriers and barricades within the shelter area into dangerous missiles, it is recommended that makeshift or free standing blast protection not be improvised.

SHELTER OPERATIONS

A. Initial Actions

1. Organize the shelter and establish a complete schedule for shelter activities.

2. Maintain a 24-hour watch and communications log.

3. Use available furniture, equipment, etc., as necessary to improvise a more desirable environment.

4. Control **smoking**. Prohibit it if necessary.

5. Control the distribution of food and water supplies.

6. Monitor radiological conditions and ventilation on a 24-hour basis.

7. Enforce health, sanitation and safety rules.

8. Keep shelterees occupied to the extent possible through work details and recreational activities, while considering shelter temperature and ventilation.

9. Radiological monitoring personnel should study or review the shelter radiological monitoring handbook. Additional personnel should be recruited as monitors for around-the-clock monitoring. Dosimeters, if available, should be distributed to unit leaders and procedures established for maintaining a radiation exposure record for each shelteree.

B. Immediately After the Attack

1. Assess damage from blast, which can vary from light (for example, glass breakage, broken light fixtures, false ceilings falling to the floor, etc.) to more severe structural damage. Fires may have started and should be quickly suppressed. **Throw smoldering materials outside.** Help the injured.

2. Repair damage which severely affects the habitability of the shelter area, and clear blocked exits. For exterior repairs in particular, speed will be of the utmost urgency; fallout from a nearby detonation may begin to fall within **15-30** minutes.

3. Commence radiological monitoring to determine if and when fallout arrives and to keep the exposure of the shelterees as low as possible. (See radiation handbook.)

4. If instruments are not available, shelterees should still try to locate in the best protected areas possible. The best protected areas are generally below ground areas first, and the central core areas of larger buildings, second (except for the top couple of floors and the 1st or 2nd floors up from ground level).

5. Do not abandon the shelter unless an inspection indicates that evacuation is called for, e.g., an uncontrollable fire situation or rising flood waters.

OPERATIONAL PROCEDURES

A. Initial Procedures

1. Report to the local headquarters on number of shelterees and the condition of the shelter.

2. Organize the shelter into units based upon the layout, such as by floors or other specific sections of the facility, and possibly in units of **10** each. Each shelter area or unit should select its leader.

3. Assign sleeping areas, operating services areas, and other areas as needed.

4. Select shelter management staff from those best qualified.

5. Implement safety and fire regulations. (Page 13)

6. Implement law and order regulations. (Page 13)

7. Implement health and sanitation rules. (Page 13)

8. Have the shelterees select representatives to serve as a Shelter Manager's Advisory Committee.

B. Orientation of Shelterees

1. Identify and introduce (if not already done) the Shelter Management staff. Explain their responsibilities and functions.

2. Explain the organization and management structure.

3. Explain the policies concerning personal possessions.

4. Stress the need for shelterees to assist each other and the need for cooperation for their common health and welfare.

5. Issue instructions for the use of facilities.

6. Explain the procedures for operating the shelter.

7. Permit the shelterees to ask questions to clarify instructions.

C. Registration

1. Distribute registration forms (Page 14) to each family group and unaccompanied person. If forms are unavailable, improvise registration forms from any paper supply on hand and request the shelterees to provide the information listed on the example form.

2. The shelter management staff will use the registration to:

- a. Ascertain useful skills and interests.
- b. Make work assignments.
- c. Determine sleeping arrangements.
- d. Determine special requirements.
- e. Maintain and report number of shelterees to headquarters.
- f. Provide data for possible post shelter use.
- g. Identify persons needing special care.

D. Facility Administration

1. Test operation of:

- a. Commercial power, water and sanitation facilities.
- b. Heating and ventilating kits, if available.
- c. Communications equipment.
- d. Radiological monitoring instruments.
- e. Safety equipment.
- f. Emergency lighting, if available.

2. Inventory health and sanitation supplies.

3. Inventory supplies, including food and water, and develop procedures for distribution. Also check sanitation facilities and arrangements for use.

4. Inventory supplies brought into shelter by the public, and store for safekeeping bulk articles and items which can endanger safety, such as guns and knives.

CONTINUING ACTIONS

The Shelter Manager is responsible for providing information to the local government headquarters regarding the condition and needs of the shelter and the health and welfare of the shelterees. A detailed daily log of operations should be maintained. (Page 15)

1. The first report, to be made as soon as possible after shelter capacity has been reached or people stop arriving in the shelter, should cover the following:

- a. Time of shelter activation.
- b. Condition of the shelter.

- c. Number of shelterees.
- d. Estimates of the supply situation.

2. Subsequent reports should cover the following:

- a. Condition of the shelterees; health, morale, special requirements, etc.
- b. Radiological monitoring (when appropriate).
- c. Supply situation.
- d. Special problems or situations.

SHELTER MANAGEMENT TEAMS

Shelter management teams and their functions are as follows:

A. Feeding (*Food and Water*)

1. Advise the Shelter Manager daily of the quantity of food and water on hand. Next to good air, water is the most essential requirement of your facility's population.

- Healthy people can survive for quite some time without food, but most of your population will die after **4 to 5** days without water. Physical damage to the body caused by lack of water may become irreversible. It is essential, therefore, that you and your water supply team act quickly to determine how much water will be available to your facility.
- One 150-pound man needs about **2.2** quarts of water each day to maintain body functions. Pregnant women, persons doing physical work, diabetics, the very young and very old, and ill persons all require more water, and should be encouraged to drink it.
- Physical damage to the body becomes irreversible after a certain amount of time without water; increasing water intake after this will not help people recover.
- Symptoms of water deprivation range from the mild symptoms of impatience, emotional instability, fatigue, and apathy, through the more severe symptoms of headache, labored breathing and increasing weakness, to the extreme symptoms of mental confusion and hallucination. Death can follow.
- Water requirements are another reason to be concerned with air temperature in your facility. The warmer the temperature, the more people must perspire (and thus lose water) to reduce body heat. If your facility's temperature rises above **82 F.**, the water needed by each person increases rapidly above normal body requirements.
- Salty or other thirst-provoking foods raise water requirements. Foods high in protein and fat greatly increase the amount of drinking water required to eliminate waste from the body.
- Vigorous physical exercise increases water requirements.

- How you distribute water will depend upon how large your population is; what water supply and alternate sources are available to you. Your population needs to drink water at regular intervals throughout the day, at least five times. To control its use, you may have to turn off fountains and control access to rest rooms in your building.
- If a shelter is not stocked, supplies may be available elsewhere in the building or nearby. Shelter management should be prepared to obtain initial or supplementary supplies prior to attack if conditions permit.
- Drinkable water that has been stored in a closed system or closed container for any length of time may taste bad and appear undrinkable to many people. Exposing it to fresh air will improve its taste: carefully pour it from one container into another several times.
- 2. How to purify water that may be contaminated if it is not from the regular water supply system.
- The three most probable impurities are: bacteria; foreign bodies; such toxics as anti-rust chemicals.
- a. To purify against bacteria

Use water purification tablets; or several drops of chlorine household bleach or tincture of iodine added to each **quart** of water; or boil water for at least one minute.

b. To purify against foreign bodies

Filter water through filter paper, gauze, fiberglass or finely woven fabric; or allow water to stand until any sediment settles and then pour off "clean" water.

3. Should inspection of food and water supplies obtained from outside the shelter reveal the presence of radioactive particles, simple remedial procedures should be followed. In general, fallout on food should be treated much as any grit or sand that one might encounter on one's food, at the beach for instance. The normal tendency would be to remove as many of the grit or sand particles as possible before consuming the food item. The same procedure should be adopted in dealing with fallout.

If food is contaminated, remove **as** much of the fallout as is feasible from it. If noncontaminated food is available, consume it first. If all the available food is contaminated, and shelterees are hungry, serve this food after decontaminating it thoroughly as is feasible.

Procedures for dealing with contaminated water are identical to that for fallout on food: (1) Serve uncontaminated water first, if available. (2) Apply simple decontamination procedures to water which contains fallout particles. Allow water to stand until fallout settles to the bottom and then siphon off the uncontaminated upper layer. Filtering water through paper towels or layers of fine cloth is another approach. Boiling or chlorination will not remove

contamination. (3) Serve water, if it is potable from a medical standpoint, even though it may contain some radioactive material, if necessary. Because water is vital for survival, it is important that the manager not deny water to the shelter population unnecessarily, in the name of radiological protection.

4. Special health foods should be kept by individuals unless it is desirable to turn them over to Supply for storage and safekeeping.

5. Strict controls should be maintained to minimize waste and to assure equitable distribution of available supplies. A daily status report should be made to the Shelter Manager to determine the need for any changes in distribution or procedures. This report should include the amount of each item used and on hand and the length of time the supply should last at the current usage rate.

If there is no food or water in the shelter or supplies run out, request for supplies should be made to the local government headquarters; or, as conditions permit (absence or diminishing of fallout or fire hazards), personnel may be assigned to go outside to obtain initial supplies or replenish stocks. (Radiation exposures must be considered.)

6. Check water containers for leakage or contamination. Take measures to prevent damage to containers or contamination of water.

B. Sleeping

1. Assign available sleeping equipment and bedding as necessary.

2. Establish sleeping schedules that provide the best possible quiet periods for the shelterees.

C. Safety

1. Establish fire and evacuation procedures and conduct daily drills.

2. Enforce safety and fire regulations.

3. Enforce law and order regulations. Police officers, if present, will enforce regulations; otherwise, the shelter management staff is responsible.

D. Health and Sanitation

1. Determine whether any of the shelterees are experienced in medical and health matters and establish a Health and Sanitation Team.

2. Enforce health and sanitation rules.

3. Maintain a clean and sanitary environment.

4. Maintain checks on water and food for contamination or spoilage.

5. Control medical supplies and equipment. Medical supplies should be issued to the shelter unit leaders, not directly to individuals. A daily status report should be made to the Shelter Manager.

6. Conduct and schedule daily sick call to check and treat shelterees for illnesses or injuries. Isolate the seriously ill.

E. Radiological

1. Minimize the exposure of shelterees to fallout radiation by:

a. Assuring their stay in safest areas of the shelter. If lack of space prohibits locating the entire shelter population into areas offering the highest protection, management should consider using the best protected area for pregnant women, infants, children and those who will be performing emergency missions. Radiation exposure of all shelterees should be kept as low as practicable. The table below provides general guidance on the expected effects if accumulated radiation exposures are kept below certain doses during certain periods of time. If the radiation levels throughout the shelter vary significantly, some rotation of the shelterees may be required to minimize the overall exposure to everyone.

RADIATION EXPOSURE TABLE

Medical Care Will Be Needed By			
	a	b	c
	One Week	One Month	Four Months
A NONE.. .. .	150	200	300
B SOME (5percent may die)	250	350	500
C MOST (50 percent may die)	450	600	—

An average adult will not need medical care when the whole body is exposed to the quantities of radiation listed in Row A when the exposure is spread out over the listed periods of time. Rows B and C are intended to be used for

making decisions on performing urgent missions which may require extra radiation exposure. For most shelter occupants, the exposures in row A should not be exceeded.

b. Periodic monitoring to detect radiation, and radiation levels, within the shelter, if instruments are available.

c. Taking measures to prevent entry of fallout into the shelter.

2. Check shelterees to see if fallout particles have lodged on them (particularly in the hair) or on their clothing.

a. Decontaminate, if necessary.

b. Refer to the Health and Sanitation Team for treatment if symptom of radiation exposure develop. (See Radiation Effects Table on Page 7.)

3. Follow instructions in radiological monitor handbook, if available.

F. *Communications*

1. Messages to and from shelter must be restricted to essential information and filed or kept in as short form as possible.

2. Maintain a log of all messages sent or received by time and date.

3. Assign person or persons to telephone(s) and monitor radio receiver (if available) continuously. Log significant information for referral to the Shelter Manager. Information of concern to all those in shelter should be posted by the Manager, or at his direction, on a bulletin board (if available).

4. As directed by the Shelter Manager, transmit messages by telephone, radio, or any available means to headquarters.

5. Use only one radio at a time to conserve battery power.

6. Locate the broadcast radio in an area where it can be heard by the largest number of shelterees.

G. *Information, Recreation, and Religious Affairs*

1. Keep shelterees informed of the attack and post-attack situations as directed by the Shelter Manager. This will help prevent rumors, which could adversely affect morale and shelter management control.

2. To keep up morale and maintain good physical condition among shelterees, conduct educational and recreational activities as temperature and space allows. Encourage religious activities.

H. *Supply and Maintenance*

1. Receive and inventory supplies and equipment brought into the shelter. Maintain the inventory as items are used. (Page 16)

2. Maintain shelter facility and mechanical equipment.

3. Assist the Health and Sanitation team in:

a. Disposing of the dead.

b. Disposing of refuse.

c. Maintaining sanitary standards.

SHELTER EMERGENCY

A. *Temporary Emergence.*

When authorized by the Civil Defense Director or other competent authority, the Shelter Manager, where necessary, may direct or permit temporary emergence; for example, to obtain needed food, water, medical, or other supplies. In the absence of communications with headquarters, the Shelter Manager must obtain advice from the Radiological Team to determine whether it is safe to permit temporary emergence.

If fallout is visible, then radiation readings from radiological instruments are necessary to avoid serious radiation overexposure. The estimate of time to be spent outside the shelter must be based upon instrument readings of the outside exposure rates. The estimate of the time should contain a safety factor to allow for significant variations in fallout accumulation, inaccuracy in measurements, or unexpected problems that would delay their return to shelter. In addition, since radiation exposure will continue to be accumulated even after the shelter occupancy period, every effort should be made to keep the total exposure as low as reasonably practical and certainly below those amounts that would be expected to result in medical care being needed (see table).

Temporary emergence may also be necessary for:

1. Radiological monitoring.

2. Movement of the seriously ill.

3. Avoidance of fire, smoke, or other life-threatening hazards within the shelter.

4. Morale purposes.

NOTE: If temporary emergence from shelters is necessary, it is important to remember that even radiation exposures that are so low as to cause no physical effects may nevertheless pose a long-term health risk, such as increased susceptibility to leukemia and other cancers 10 to 30 years in the future and genetic disorders in future offspring.

B. *Permanent Emergence.*

When authorized by the Civil Defense Director or other responsible authority, the Shelter Manager will allow people to leave the shelter when:

1. Danger has lessened to an acceptable level or no longer exists.

2. Temporary lodging is available or people can return to their homes.

3. People may move safely from shelter to another place (if emergency controls allow such movement).

4. Hospitalization is available for those requiring medical care.

In the absence of communications with headquarters and shelter radiological monitoring sets, it will probably be advisable to prepare for a shelter stay of two weeks, provided that fallout has been visually observed (as sand-like or gritty particles on window sills or outside the shelter).

Before people leave the shelter, they should be informed of conditions existing in the community and of provisions made for their safety and well-being.

They should be advised of the importance of continuing actions to minimize radiation exposure (e.g., sleep in protected areas, undertake decontamination measures).

In areas that have experienced heavy fallout, it will often be necessary to move shelterees as a group to less contaminated areas, perhaps 20 or 40 miles away. The need for such movement should be ascertained from the local government headquarters before considering release of shelterees.

If movement to a relatively distant area is required, the local headquarters will issue the necessary instructions to the shelter manager—who will be responsible for organizing the movement of his or her shelterees as a group. The Shelter Manager will return personal possessions to the shelterees.

CLOSING THE SHELTER

When the shelter is closed (deactivated), the Shelter Manager should contact the local Civil Defense Director for instructions concerning disposition of supplies and equipment, reporting requirements, and other activities desired by the local government.

EFFECTS OF BRIEF (2-WEEK) RADIATION EXPOSURE

- 50-200 R • Less than half experience nausea and vomiting.
• Possible increased fatigue.
• Decrease in white blood cell count.
• Possible complications due to infection, blast and thermal injuries.

- 200-450 R • More than half experience nausea and vomiting.
• Acute illness for a few days.
• Symptoms disappear for 1-3 weeks; changes in blood cell counts.
• Illness then returns.
• Possible hair loss.
• Moderately severe illness; infection, sore throat.
• Most require medical care.
• More than half will survive without therapy.
• Survival rate improves with medical care.

- 450-600 R • Initial acute gastric distress more severe and prolonged.
• Latent period shortened to 1-2 weeks.
• Main illness characterized by oral, pharyngeal, dermal hemorrhages.
• Infections commonplace; sore throat, pneumonia, intestinal inflammation.
• Intensive medical care and hospitalization required for survival.
• Fewer than half survive even with best care.

- 600-1000 R • Accelerated illness.
• Vomiting begins soon after exposure.
• Gastric distress can continue for several days or until death.
• Damage to the gastrointestinal tract causes severe cramps and bloody diarrhea.
• Death can occur anytime during the second week without appearance of hemorrhage or loss of hair.
• Unlikely that many can survive even with extensive medical care.

NOTE: In an attack environment, medical facilities and the availability of extensive medical care would be severely limited.

USING THE SHELTER

The Floor Plan Layout on page 9 shows the best areas for sheltering people in this shelter. Brief instructions to be given by shelter managers when shelterees enter the shelter are on pages 2 and 3. A map of the surrounding area is on page 10.

BEST SHELTER AREAS

The best shelter areas are (1) belowground, (2) on the ground floor, and (3) on the second and third floors. No one should be sheltered above the third floor in a high-risk area.

Since belowground areas are by far the safest, temporary overcrowding, with people lying face down or sitting near the exterior walls of the shelter area (but not touching the walls), is recommended. People can adapt to crowding for several hours. Six hours is likely to be the period of maximum threat from detonations in the vicinity, although this cannot be guaranteed.

DESCRIPTION OF SAFEST AREAS

In belowground areas, which should be *first choice*, the best shelter spaces are located near the walls and corners away from windows. When an exterior basement wall is partially or completely exposed, the better shelter areas are located farthest from the exposed wall. On aboveground floors, the best shelter is in the central area of the building or wing, away from outside walls and windows.

Once the fallout has arrived, the Shelter Manager should use radiological instruments, if available, to make the final determinations of where to locate the people to be sheltered within a particular facility (i.e., which areas have the lowest measured radiation exposure rates).

VENTILATION

Adequate Ventilation is critical to the well being of the shelterees. Aboveground, the provision of ventilation may simply be a matter of opening (or breaking) available windows and doors. However, in belowground areas additional measures are necessary for maximum shelter utilization. If mechanical ventilation is operable it should be used along with any portable fans. Also, any manually operated blowers or fans, which might be stored in the shelter, should be unpacked and set up according to the instructions on the equipment package. Lacking mechanical

ventilation, the maximum advantage should be made of natural ventilation by creating a "chimney effect" and/or making use of outside winds. To optimize the "chimney effect," windows or areaway openings into the lowest floor and windows on the upper floors should be opened. This procedure allows the hot air, created by the shelterees, to rise and be replaced by fresh air. If a wind is blowing, the air flow can be maximized by opening the windward side windows on the lower floor and the leeward side windows on the upper floor. Experiment will quickly show the best combination.

If, despite efforts to improve ventilation, high effective temperatures are approached, then other remedial action is necessary. Effective temperature is a composite measure of temperature, humidity, and air movement. At a given effective temperature with sufficient air movement, the environment might be quite comfortable. However, with no perceptible air movement and high humidity, the same effective temperature would be considerably uncomfortable. If body temperatures rise about 2° F. above normal, action should be taken to relieve the situation through air exchange or by moving all or part of the sheltered group to another part of the building for a short period. Similar action should be taken whenever it appears that there is a buildup of excess amounts of carbon dioxide. This can be assumed if a number of persons complain of shortness of breath, dizziness or nausea which cannot readily be attributed to other aspects of the shelter environment.

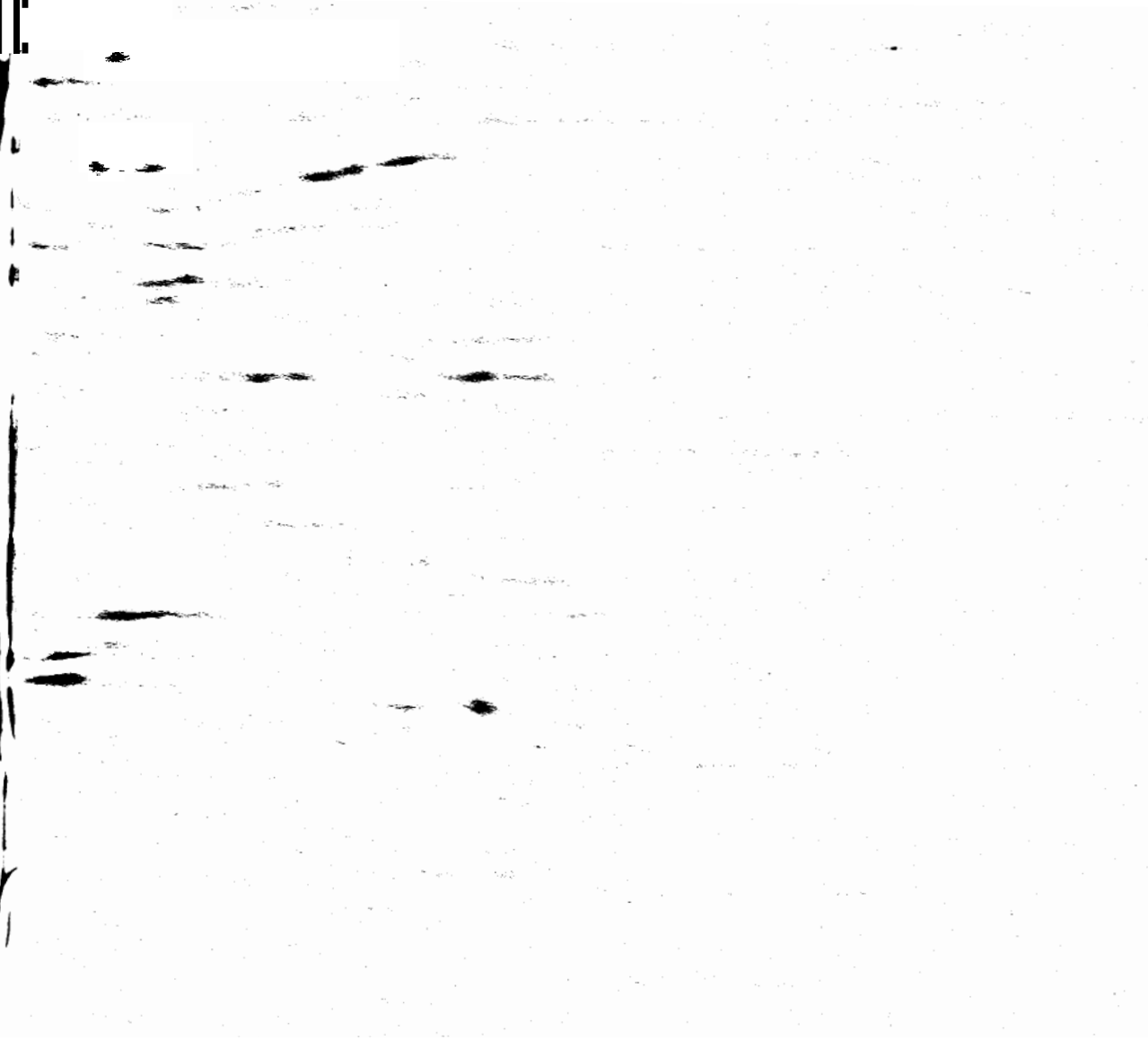
TRAPPED WATER

Most buildings have a sizable quantity of potable water trapped within the plumbing system. This includes water in water heaters, boilers, fire standpipes, distribution pipes, etc. To use this water, it is only necessary to follow a few simple steps. First, if water service to the building is no longer functioning, the main valve should be located and turned off to prevent water already in the building from being drained away by a possible outside break in the line. Next, in order to relieve any vacuum created within the lines, open one or more faucets on the top floor of the building. Water can then be drawn off the system at any of the lower floors with the last bit in the system being available at the lowest floor. Storage tanks such as water heaters will usually have a drain valve near the bottom. Although water from such tanks may initially be muddy, the water is still drinkable after allowing the particles to settle.

FLOOR PLAN LAYOUT

Shelter No. _____

(Diagram showing best shelter areas)



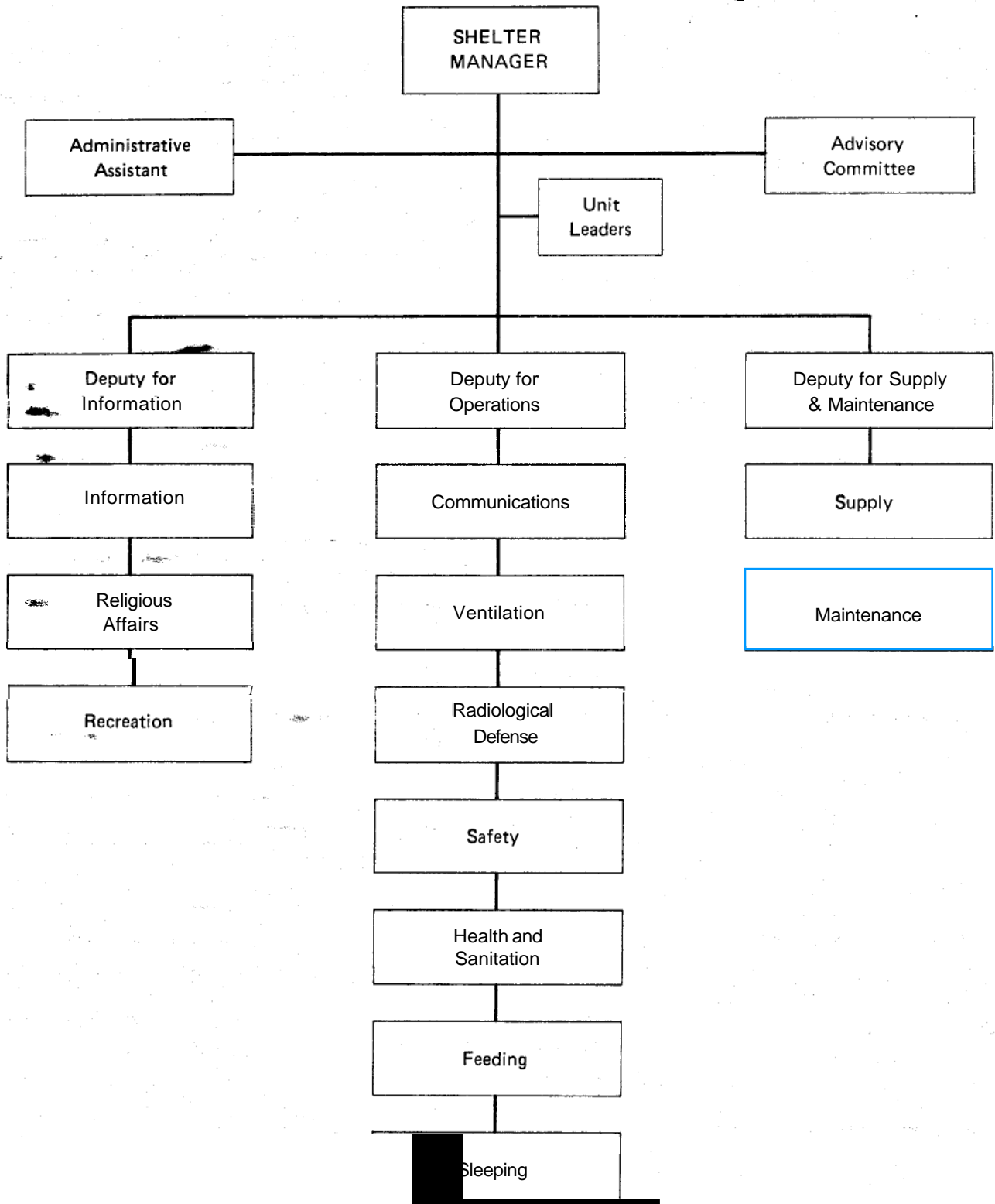
MAP OF AREA SURROUNDING SHELTER



LEGEND

- A. This Shelter
- B. Other Shelters
- C. Drug Store
- D. Grocery Store
- E. Hardware Store

EXAMPLE SHELTER ORGANIZATION CHART



KEY SHELTER MANAGEMENT STAFF

A shelter organization chart is shown on the preceding page. The Shelter Management Staff (in order of succession) and their functions and responsibilities are:

<i>Position and Name</i>	<i>Principal Duties</i>
Shelter Manager <hr style="border: 0.5px solid black;"/> <div style="text-align: center;">(Name)</div> <div style="text-align: center;">*</div>	Responsible to the local Civil Defense Director. Exercises complete authority for administration of the shelter and its operations. Develops in-shelter rules, organization, operating procedures, and schedule of operations. <div style="text-align: center;">*</div>
Deputy for Operations <hr style="border: 0.5px solid black;"/> <div style="text-align: center;">(Name)</div> <div style="text-align: center;">*</div>	Responsible to the Shelter Manager for planning, direction and conduct of the following shelter functions: feeding; insuring potability of water; sleeping; health and sanitation; communications; radiological defense; safety (fire, police, rescue). Provides technical aid to the Deputy for Information. <div style="text-align: center;">*</div>
Deputy for Information <hr style="border: 0.5px solid black;"/> <div style="text-align: center;">(Name)</div> <div style="text-align: center;">*</div>	Responsible to the Shelter Manager for planning and conducting group activities. Responsible for directing a flow of appropriate information to the shelterees. <div style="text-align: center;">*</div>
Deputy for Supply and Maintenance <hr style="border: 0.5px solid black;"/> <div style="text-align: center;">(Name)</div> <div style="text-align: center;">*</div>	Responsible to the Shelter Manager for planning and directing supply, utilities, and maintenance activities. <div style="text-align: center;">*</div>
Administrative Assistant <hr style="border: 0.5px solid black;"/> <div style="text-align: center;">(Name)</div>	Responsible to the Shelter Manager Obtains and supervises clerical aides. Maintains daily logs, prepares reports, etc. <div style="text-align: center;">*</div>

The first shelter management staff member arriving at the shelter takes charge until succeeded by a superior member. In the event designated staff members should fail to appear, emergent leadership shall take charge. The first person in charge shall designate individuals to assist management as required. The procedures outlined on the preceding pages shall be followed.

SHELTER OPERATIONS RULES AND REGULATIONS

SAFETY AND FIRE

All occupants shall turn in knives, flammable liquids (such as canned heat, ether or alcohol), and other potential safety hazards to central supply for safekeeping.

Smoking shall be controlled as required by the safety and well-being of the shelterees. The minimum of control is:

1. Smoking will not be permitted in sleeping areas.
2. Other non-smoking areas may be designated.
3. Matches and cigarettes shall be carefully put out in a suitable receptacle.

Shelterees shall watch for and report any potential fire hazard such as careless use of combustible materials, electrical equipment, faulty wiring, outlets and switches.

The following basic rules apply to putting out fires:

1. Wood, paper, cloth or rubbish fires can best be extinguished by water.
2. Gas, oil, or grease fires can best be extinguished by sand or dirt.
3. Electrical fires can best be extinguished by turning off electrical power and then using sand or dirt.

LAW AND ORDER

Generally, all existing laws of _____
(State, county, and/or city)

_____ shall be enforced in this shelter.

Shelterees shall use the shelter areas assigned by shelter officials.

Personal conflicts shall be resolved by Shelter Unit Leaders, if possible.

Serious violations, such as assault and revolt against authority, shall be dealt with quickly and forcefully by shelter authority.

Minor violations, such as violation of quiet hours, shall be handled by Unit Leaders.

Any necessary restraint and serious disciplinary action will be ordered only by the Shelter Manager in consultation with the Advisory Committee.

HEALTH AND SANITATION

The following rules will be observed:

1. Persons with contagious diseases shall be isolated immediately.
2. The daily sick call schedule shall be observed.
3. Shelter floors shall be kept clean of waste materials.
4. Rest room areas shall be kept clean at all times.
5. Waste containers shall be disposed of as soon as filled.
6. Drinking cups shall be marked and retained for re-use by individual shelterees.
7. Towels shall be retained by individuals for reuse as long as possible.
8. Deceased persons shall be immediately removed from the shelter.

EXAMPLE

SHELTER REGISTRATION FORM

Last Name _____ Home Address _____ ZIP _____ Phone _____

Family Members Living at Address (First Name)	Relation	Age		Sex	Illness or Disability	Skills Occupation	Work Assigned in Shelter	Soc. Sec. No. (if known)
1.								
2.								
3.								
4.								
5.								

Immediate Family Members Not in This Shelter	Presumed Whereabouts	Relation
6.		
7.		
8.		

Other Nearby Relatives (Name)	(Address)
9.	
10.	

Items Brought Into Shelter (e.g., food, medicines, blankets, flashlights, etc.):

Remarks: (Use back, if necessary):

DAILY LOG

Shelter No. _____

Date _____

Page _____

Time	Remarks

SHELTER INVENTORY

<i>Item (List)</i>	<i>Quantity</i>	<i>Issued</i>	<i>On-Hand</i>
<i>Food</i>			
<i>Water</i>			
<i>Medical Supplies</i>			
<i>Radiological Monitoring Sets</i>			
<i>Other Items</i>			

FEMA Form 85-35, FEB 81

Federal Emergency Management Agency
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